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EPA Region 5 Records Ctr.

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SIGNATURE PAGE
FOR
SCREENING SITE INSPECTION REPORT
FOR
HADER DUMP
HADER, MINNESOTA
U.S. EPA ID: MND981961865

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Minnesota Pollution Control Agency

December 29, 1988

Ms. Jeanne Griffin
U.S. Environmental Protection Agency
Waste Management Division
Program Support Section (5HR-11)
Remedial Response Branch
230 South Dearborn Street
Chicago, Illinois 60604

Dear Ms. Griffin:

Re: Minnesota Pollution Control Agency (MPCA) Submittal of Screening Site Inspection Reports
Preliminary Assessment/Site Inspection (PA/SI) Cooperative Agreement with the U.S. Environmental Protection Agency

Pursuant to the PA/SI Cooperative Agreement, MPCA staff hereby submit for your review and approval Screening Site Inspection Reports for the following four (4) potential hazardous waste sites:

Site Name	EPA Identification Number
1. FOLEY RR IMPROVEMENT PROJECT	MND981961659
2. HADER DUMP	MND981961865
3. HADER GROUND WATER CONTAMINATION	MND981961873
4. HOBART CORPORATION	MND068152768

If you have any comments or questions regarding these Screening Site Inspection Reports please contact me at 612/297-1793.

Sincerely,

Ronald R. Swenson

Ronald R. Swenson
Supervisor, Site Assessment Unit
Program Development Section
Ground Water and Solid Waste Division

RRS:

Enclosure

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ck'd.

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TEXT

EXECUTIVE SUMMARY

Hader Dump

MND981961865

On June 6, 1988, the Minnesota Pollution Control Agency (MPCA) staff conducted a Screening Site Inspection (SSI) at the Hader Dump Site (Site), near Hader, Goodhue County, Minnesota. The purpose of the SSI was to determine if potentially hazardous materials allegedly disposed of at the Site present a threat to the public health and to the environment, and to acquire adequate data input parameters to calculate on Hazardous Ranking System score reflecting site conditions.

The alleged unpermitted disposal took place from 1960 to 1972, but further dumping has continued to the present. Low levels of arsenic, lead, and zinc were detected in surface water samples taken from the Site by MPCA staff in 1982. As a result, the MPCA staff believed that further sampling of the Site was needed.

The SSI conducted at the Site consisted of sampling: 1) water from nearby residential wells; 2) water from within the quarry and at the quarry effluent stream; and 3) quarry sediments. All samples were analyzed for U.S. Environmental Protection Agency (EPA), Target Compounds List (TCL), compounds and Target Analyte List (TAL) analytes.

Analytical results of the residential wells show no release to the ground water

in the immediate vicinity of the Site. Surface water samples taken from the quarry pond and effluent stream indicate no significant contamination from organic or inorganic compounds was detected during this sampling event.

1.0 INTRODUCTION

The MPCA, under a Cooperative Agreement with the U.S. Environmental Protection Agency (EPA), conducted a Screening Site Inspection (SSI) at the Hader Dump (Site) in the vicinity of Hader, Goodhue County, Minnesota on June 6-8, 1988. The SSI was conducted for purposes of determining if the Site presented a threat to the public health and environment after sampling results from 1982 showed the water within the quarry was contaminated with heavy metals (Appendix D).

The Site was placed on the U.S. EPA's Comprehensive Environmental Response, Compensation, and Liability Information Systems (CERCLIS) on August 20, 1987. A Preliminary Assessment (PA) was conducted by the MPCA staff and was approved by the U.S. EPA on October 1, 1987. The PA recommended further surface water and ground water sampling be performed to assess the possible impact of poor waste management practices upon the environment. An SSI work plan was submitted to the U.S. EPA Region 5 for approval on December 29, 1987. Approval for the work plan was received on January 29, 1988.

The SSI included interviews with the current owner of the Site and area residents, reconnaissance inspection of the Site, and collection of one quarry pond sediment sample, one quarry pond surface water sample, one quarry pond effluent stream sample, and five residential wells.

The objectives of an SSI have been stated by U.S. EPA in a directive outlining Pre-Remedial Strategies. The directive states:

> All sites will receive an SSI to; 1) collect additional data beyond the scope of the PA to enable a more refined preliminary Hazardous Ranking System (HRS) score, 2) establish priorities among sites most likely to

qualify for the National Priorities List (NPL), and 3) identify the most critical data requirements for a Listing Site Inspection (LSI) step.

An SSI will not have rigorous data quality objectives (DOQs). Based on the refined preliminary HRS score and other technical judgement factors, the site will then either be designated as NFRAP [no further remedial action planned], or carried forward as an NPL listing candidate. A listing SI will not automatically be done on these sites, however. First, they will go through a management evaluation to determine whether they can be addressed by another authority such as, RCRA [Resource Conservation and Recovery Act] . . . Sites that are designated NFRAP or deferred to other statutes are not candidates for a listing SI.

The listing SI will address all the data requirements of the revised HRS using field screening and NPL level DOQs. It may also provide needed data in a format to support remedial investigation work plan development. Only sites that appear to score high enough for listing and that have not been deferred to another authority will receive a listing SI (6).

U.S. EPA Region V has also instructed the MPCA to identify sites during the SSI that may require prompt removal action to remediate an immediate human health and/or environmental threat.

2.0 BACKGROUND

2.1 Site Description

The Site is located northeast of the intersection of State Highway 52 and County Road 8 (W½, SE¼, Section 36, Township 111N, Range 17W) in Leon Township, Goodhue County (Appendix A). The nearest town is Hader, located immediately south of the Site (Figure I).

The Site is an abandoned limestone quarry 1.5 acres in size. The bedrock of the quarry is in contact with the water table, resulting in a pond depth of approximately four feet. Water seeps through solution runnels in the bedrock at the north end of the quarry, forming an effluent stream that flows into Belle Creek. A smaller, secondary quarry is located to the southwest of the larger, primary quarry but was inaccessible due to an unstable bank (Appendix A).

HADER DUMP
HADER, MN

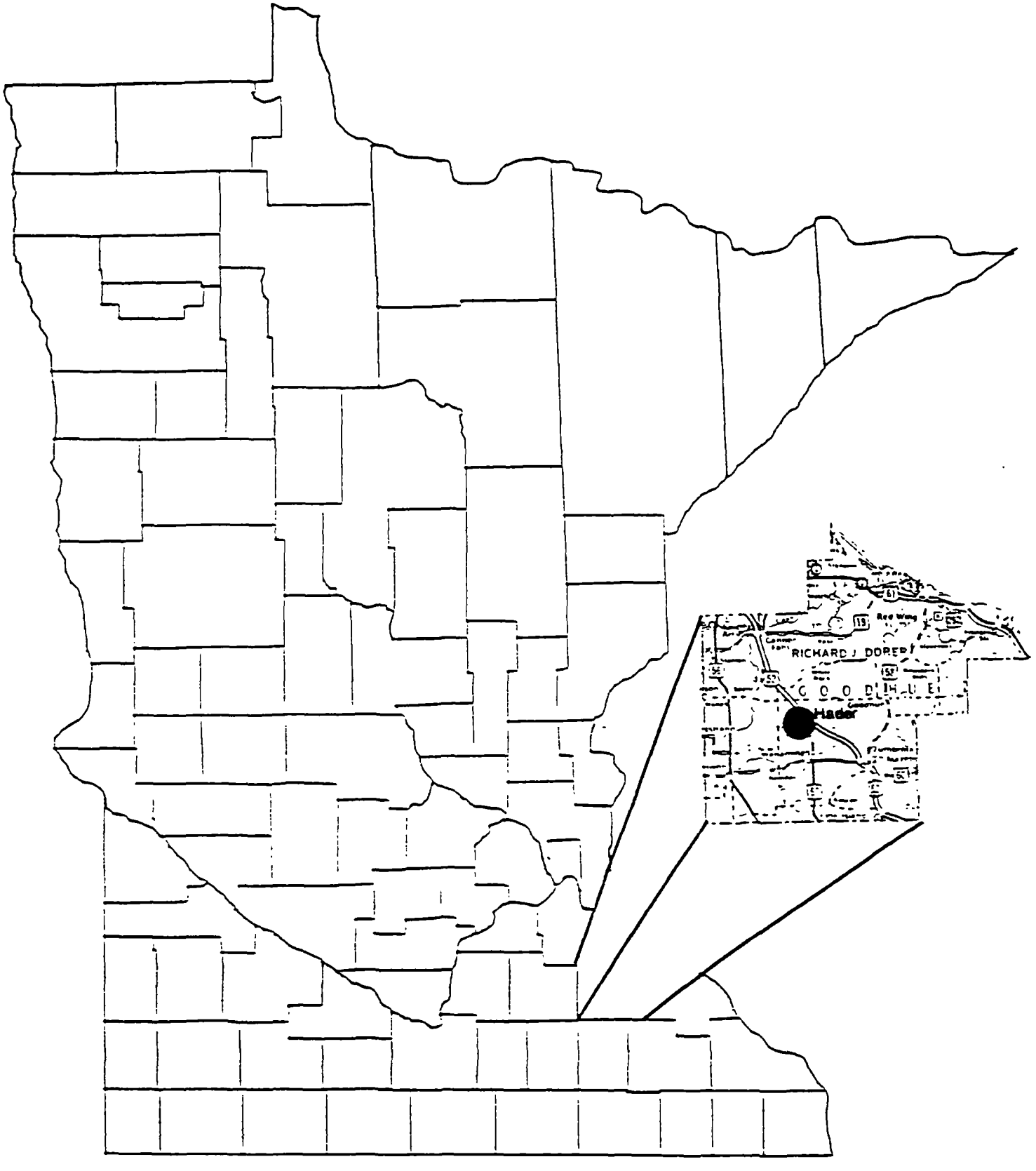


Figure 1
SITE LOCATION MAP

2.2 Site History

Although intermittent dumping had occurred at the Site since the early 1960's, extensive dumping in the quarry began in 1971 when the owner of the property allowed open, unpermitted dumping in and around the quarry for a small fee. Household refuse, including paint and solvents, arsenic in the form of grasshopper bait and weed killer, several large underground storage tanks, and tires were the predominant wastes disposed of at the Site (2).

The owner of an adjacent property, north of the Site, repeatedly filed complaints in May, July, and November 1972, alleging pollutants from the Site were migrating onto his property, which contained an active quarry operation. The complaintant also reported frequent open burning of materials dumped on site which the complaintant believed was causing quarry employees health problems (2). Photographs of Site conditions in 1972 are presented in Appendix B.

In July of 1972, the MPCA ordered the owner of the Site, Oscar Haugen, that all burning must be terminated and all waste be covered with impermeable soil on a daily basis, if operation of the dump was to continue. The Goodhue County Board of Commissioners submitted a request to the MPCA in July 1972 requesting the MPCA allow the dump to remain open, due to limited disposal areas in the county. The MPCA staff agreed the dump could remain open until January 1, 1973 (2).

A Hotline Complaint was filed with the MPCA on August 10, 1982, indicating a fire had taken place at the dump the evening before. The complaintant reported drums had exploded with clouds of black smoke emanating from the dump. Upon investigation of the exploding barrels it was discovered that although the dump was officially ordered closed, dumping of a variety of waste

had resumed. The MPCA staff informed the owner of the Site that all dumping must cease immediately. In addition to an explosion hazard, the water table had risen, filling the bottom of the quarry with water. The elevated water table created the potential for ground water contamination from hazardous materials in the dump (2). Photographs taken at the dump in 1982 are presented in Appendix B.

Samples taken of quarry pond water by MPCA staff in September 1982 detected arsenic, lead, and zinc above background levels, but no action was taken. (Appendix D). In July 1987, a complaint was registered with the MPCA expressing concerns that the dump was contaminating local ground water supplies (2). The Site was entered into CERCLIS August 20, 1987. A PA was completed and approved by U.S. EPA on October 1, 1987. A preliminary HRS score indicated that further investigation was warranted. An SSI work plan was developed and submitted to U.S. EPA Region V on December 29, 1987. MPCA staff received approval of the work plan January 29, 1988.

3.0 OBJECTIVES

The primary objective of the SSI was to determine if contaminants have entered the ground or surface water system in the vicinity of Hader Dump. The secondary objectives include; verification that a release to the ground water system had resulted in contamination of residential wells in the Site area, to determine if an immediate removal action is warranted, and to collect sufficient information to calculate a more refined HRS score.

Should an observed release to the ground water system be documented at levels above Minnesota Department of Health Recommended Allowable Limits (RALs) for drinking water, measures would be taken to assure an alternative drinking

water supply. An observed release would also indicate a more comprehensive investigation would be warranted. Further more, HRS scoring would allow the Site to be prioritized as high, or medium for future remediation, or No Further Remedial Action Planned (NFRAP).

The Site would be prioritized based upon the following scoring limits:

High priority will be assigned to sites that have preliminary and projected HRS scores over the established cut-off.

Medium priority will be assigned to sites with a projected score above the cut-off and a preliminary score below the cut-off.

No further remedial action planned (NFRAP) will be assigned to sites that; 1) never received CERCLA hazardous materials, 2) are clearly not releasing CERCLA hazardous substances, have no potential to release into the environment, and no removal action is required, 3) U.S. EPA is not legally authorized to respond to the release and, 4) would never exceed an HRS score of 28.5 or above. A site with preliminary and projected scores below the cut-off will be prioritized an NFRAP (6).

4.0 GEOLOGY

4.1 Physical and Hydrogeologic Properties

The Site is underlain by Cambrian, Ordovician, Cretaceous bedrock, and Quaternary glacial and surficial deposits. The regional bedrock slopes toward the southeast. The Site is located in the Cannon River Watershed District with the regional ground water flow to the north, toward the Cannon River (7).

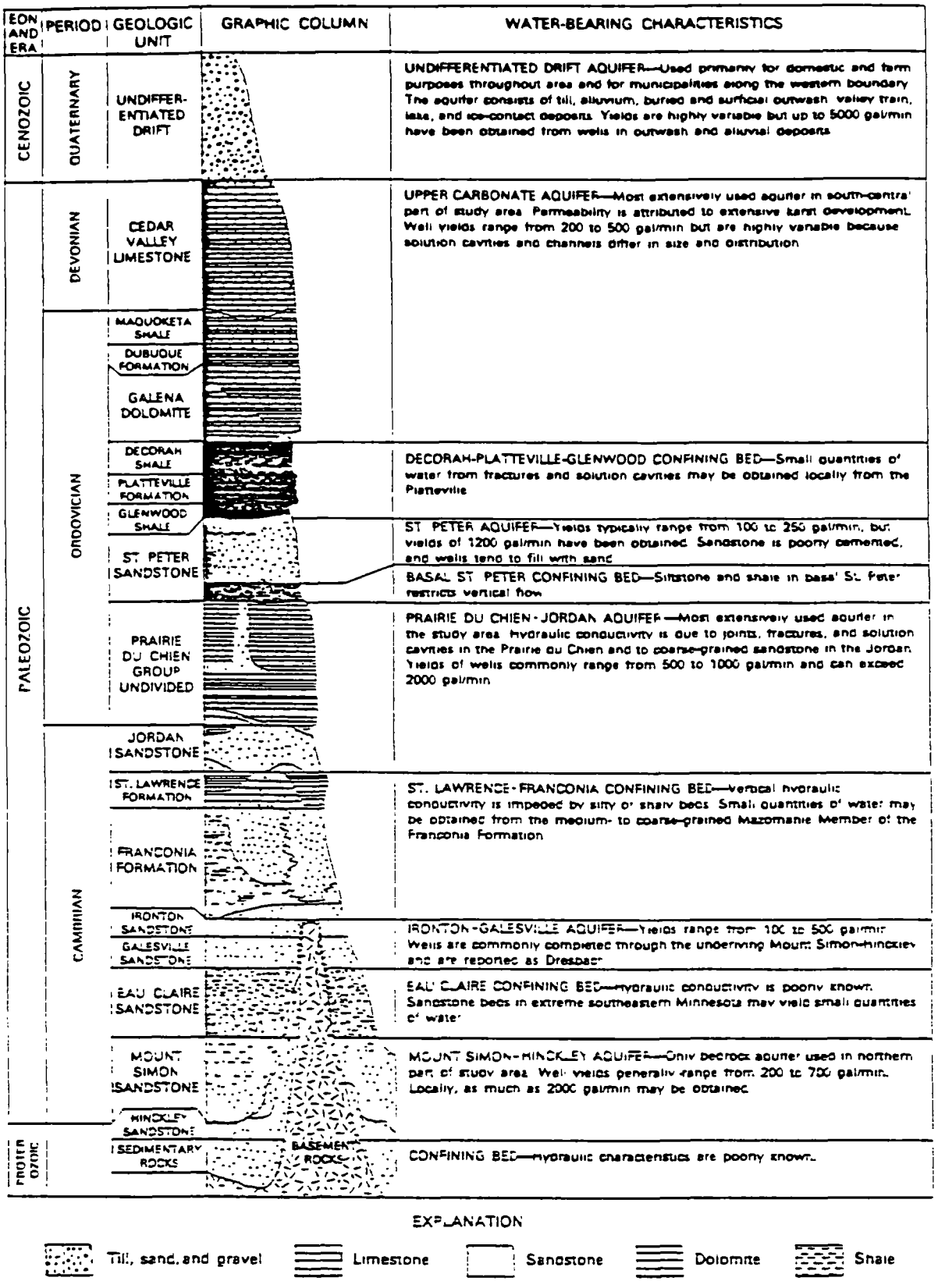


Figure 11

AQUIFER UNITS AND PRODUCTIVITY

The oldest geologic formation underlying the Site is the Pre - Cambrian bedrock system of igneous and sedimentary rocks. The oldest sedimentary bedrock is the Pre-Cambrian Fond du Lac formation composed of well cemented, fine-grained arkosic sand to siltstone with interbedded shales. Tertiary igneous intrusions extend vertically through Pre-Cambrian basement rocks into the Ironton formation. The Pre-Cambrian formations and Tertiary igneous intrusions are considered to be confining layers on a regional scale therefore, are not utilized as a major ground water source (4).

The deepest primary water bearing units are the Hinkley and Mt. Simon formations. The Hinkley formation is a medium to coarse grained arkosic sandstone which grades into the overlying Mt. Simon formation. The Mt. Simon formation is a fine to coarse grained quartzose with thin shale beds in the upper portion. Due to the absence of a confining layer between the Mt. Simon and Hinkley formations, they are considered to be one hydrologic unit. Water yields are moderate to high depending upon placement of a well. Hydraulic conductivity varies from 7 x 103 to 8 x 10 2 cm/sec (3).
The overlying Eau Claire formation acts as a confining layer between the Mt. Simon-Hinkley aquifer and the Galesville-Ironton formations. As with the Mt. Simon-Hinkley formations, a confining layer is absent between the Galesville-Ironton formations. The lack of a confining layer allows the two sandstones to act as one hydraulic unit (4). Average yields range from 1.4 x 10-2 to 1.2 x 10-1 (3).

The Franconia formation is a fine-grained sandstone with shale layers interspersed in some areas (Figure II). Due to the interfingering of the shale layers, the hydraulic potential of the Franconia sandstone is limited to the upper Reno unit (4).

The St. Lawrence formation is a dolomitic shale with areas of sandstone and greensand (Figure II). The St. Lawrence is approximately five feet thick, and predominantly acts as a confining layer with the Franconia formation, between the underlying Franconia and the overlying Jordan sandstone (3).

The Jordan sandstone is massive with numerous areas of cross bedding. With an average thickness of 100 feet, the Jordan acts as a primary aquifer in southeastern Minnesota with the interconnected Prairie du Chien formation in the upland regions, providing large yields of acceptable quality drinking water (3).

The Prairie du Chien formation of Ordovician age is comprised of two units, the Oneata and Shakopee dolomites. The Oneata unit averages 150 feet in thickness where it outcrops along the Cannon River, north of the Site (7). The Oneata dolomite has limited hydraulic potential yields along joints and bedding planes, whereas the overlying Shakopee dolomite has a higher potential yield due to interspersed sandy layers (3).

As previously stated, there is no confining unit between the Prairie du Chien aquifer and the Jordan aquifer, therefore ground water mixing between the two formations is possible. Of the two units (Prairie du Chien and Jordan), the Jordan sandstone has greater porosity but the Prairie du Chien Group has a higher fracture permeability and therefore, greater yields. The average hydraulic conductivity for the Prairie du Chien - Jordan aquifer is 1.8×10^{-2} to 2.3×10^{-1} cm/sec (3).

St. Peter formation of Ordovician age thins in the western margin of Goodhue County, relative to the eastern margin. The average thickness of the St.

Peter underlying the Site is 75 feet (Appendix E). The St. Peter formation is a well sorted, clean sandstone with interspersed pyrite stringers. Water resources are adequate for domestic use, with average hydraulic conductivity of 1.1 x 10-2 to 1.2 x 10-1 cm/sec, but yields are restricted in areas where the formation has been eroded to as little as 10 feet (3).

The Glenwood formation is thin (3 feet) to non-existent in the vicinity of the Site. The formation is a fissile shale and when present acts as a confining layer between the underlying St. Peter sandstone and the overlying Platteville limestone (4).

Unlike the Glenwood formation, the Platteville formation is laterally extensive across the Site with an average thickness of 25 feet. Solution cavities, fractures and joints in the dolomitic limestone provide adequate porosity and permeability for limited domestic and livestock yields (3).

Overlying the Platteville formation is the Decorah shale (Figure II). The Decorah is thin (less than 5 feet) to non-existent at the Site. When present, the shale is greenish-gray in color and ranges from fissile to blocky and acts as a confining layer between the underlying Platteville limestone and any overlying glacial deposits at the Site. Due to the interfingering of shales within the Platteville formation, the Decorah - Platteville - Glenwood formations are viewed collectively as a confining layer on a regional scale (4).

The Galena formation overlies the Decorah Shale in southeastern Minnesota and has been exposed at the Site through extensive quarrying. The Galena is a dolomite which exhibits karst characteristics throughout southeastern Minnesota. Solution tunnels, caves, sink holes and hummocky topography are

primary indicators for the presense of the Galena dolomite. The Galena has been quarried throughout Goodhue County and other areas of southeastern Minnesota, as well as surrounding counties, for use in concrete and other construction purposes. The Galena is used locally for a domestic water source, but is somewhat unreliable due to the solution features associated with the formation and its susceptibility to ground water contamination through contact with surface water (3 and 7).

Glacial deposits have been eroded at the quarry, allowing the Galena dolomite to be exposed prior to quarry excavation. Glacial deposits occur in the surrounding area in thicknesses ranging from 5 to 85 feet (7). There is no confining layer between the glacial deposits and the Galena formation therefore hydraulic connection is possible (3). For purposes of HRS scoring, the Galena formation and the glacial deposits should be viewed as one aquifer (3).

4.2 Residential Wells

Residential wells at the Site range in depth from 40 feet to more than 400 feet (Appendix H and I). The Galena formation is utilized for domestic use at wells RW-1, RW-2 and RW-4. Therefore, the ground water at these residences could be in hydraulic connection with the quarry pond water. RW-3 is the deepest well at a depth of more than 400 feet, placing it in the Prairie du Chein aquifer. RW-5 is terminated either in the Platteville limestone or St. Peter sandstone. Depths to wells and aquifers were determined through extrapolation based on area well logs (Appendix H).

All residential wells in the vicinity of the Site were constructed without the installation of a screen and often without grouting (this is a common practice

for older water supply wells). Therefore, the water drawn from a well may be derived from a combination of aquifer sources, not solely from the aquifer in which the casing is terminated. This creates difficulty in determining the unit(s) from which a ground water sample was taken.

4.3 Water Quality

The ground water in the vicinity of the Site is classified as a "calcium-magnesium bicarbonate type" (7). As a result, the most common non-contaminant related complaint concerns the hardness of the water. Some residents at the Site have corrected hardness problems with the installation of water softening devices.

A second common problem associated with ground water at the Site has been relatively high amounts of dissolved iron, as well as iron bacteria. The Galena dolomite has a regional average of 300 ug/l dissolved iron (1). The maximum recorded ambient iron level for the Jordan unit of the Prairie du Chien aquifer in Goodhue County is 620 ug/l (1). Although these iron levels exceed U.S. EPA Secondary Drinking Water Standards they present no health risk as they are established on the basis of aesthetic qualities (taste, odor, hardness, and color).

5.0 SURFACE WATER

The Galena dolomite has been excavated as a quarry to a depth of approximately 50 feet. The depth of the excavation is below the water table, thus allowing a pond of approximately 4 feet in depth to form in the quarry. Due to fracturing, solutioning and jointing in the bedrock, the pond water exits the quarry at the north end, forming an effluent stream. The effluent flow is

somewhat variable depending upon seasonal precipitation. The discharge in turn, flows into Belle Creek. Belle Creek flows north and empties into the Cannon River (Appendix A).

6.0 FIELD PROCEDURE

6.1 Reconnaissance Survey

The Site was periodically examined by the MPCA from 1972 through the present. The initial site reconnaissance survey in May 24, 1988, involved examination of the Site's current condition, evaluation of access for MPCA staff during the SSI, and selection of sampling points.

The Site is readily accessible from County Road 8 via an unpaved road. It appears that persons drive to the edge of the quarry and dump refuse in a vacant area or merely pile more waste atop existing piles. The most recent dumping had occurred around the perimeter of the quarry, unlike previous dumping which resulted in waste being disposed of directly in the quarry pond. The majority of the dumped materials was household waste, paint cans, and tires. There was no indication that larger waste, such as underground storage tanks or barrels are currently being dumped.

The quarry pond was somewhat stagnant, as indicated by the thick algal growth and heavy growth of Lemna. Fish could be seen from the surface and insects were numerous. When the sediments were disturbed at the edge of the pond an oil residue would float on the water surface.

Due to drought conditions in Minnesota from May 1988 through August 1988, the recharge to the pond and the surficial aquifer was minimal. The effect of the drought upon the water table was shown by the algal stains remaining on the

quarry walls as the water table rescinded. Based upon the staining, the water table had been lowered by approximately two feet.

Access to the Site for sampling was somewhat limited by heavy underbrush and the depth of the quarry. A decision was made to utilize a small john boat to obtain surface water and sediment samples from the center area of the quarry (Figure III). At the time of the reconnaissance, the quarry effluent stream was approximately one foot in depth therefore, sufficient flow was present to obtain the required volume for analysis TAL and TCL analytes and compounds. When the sampling was conducted in June 1988, the drought had reduced the effluent stream flow to a depth of less than 2 inches. The lowered effluent stream level allowed only enough sample volume for VOA analysis to be collected.

Residential wells were selected for sampling based upon their proximity to the dump and the depth of wells (Figure III). Wells RW-1, RW-2 and RW-4 where chosen due to termination of the casings in the Galena dolomite. Well RW-3 was selected to determine if contamination had reached the deeper Prairie du Chien-Jordan aquifer. Well RW-5 is completed either in the St. Peter aquifer or the Platteville aquifer. An effort was made to obtain well logs for the selected wells, but due to the age of the wells, the majority of the wells and logs were not filed with the Minnesota Department of Health. Several residential well logs from non-sampled wells have also been included in Appendix H to provide an example of the hydrogeology in the area of the Site.

6.2 On-Site Interviews

On-Site interviews were conducted with the present property owner, Roy Schoenfelder, and residents whose wells were chosen for sampling (Table I).

The former owner and operator of the dump, Oscar Haugan, is deceased. Mr. Schoenfelder purchased the property in 1984 from the Haugan estate and has made no alterations to the Site to date. Mr. Schoenfelder is aware that intermittent dumping continues on the property, but has indicated he is "unconcerned."

Residents in the area were able to confirm the history of the dump as an unpermitted facility in operation from the early 1960's. Several residents admitted to using the dump themselves and provided information concerning the waste they had dumped. The majority of the waste dumped recently by area residents was of a household nature, but also included paint cans, waste oil, tires and junk auto parts. Several storage tanks of unknown origin were also dumped.

6.3 Sampling Procedure

Five residential wells, two quarry surface water sampling points, and a quarry sediment sampling points were selected based on information collected during the field reconnainssance and records search (Table I).

The residential wells were sampled for U.S. EPA TCL compounds and TAL analytes utilizing Special Analytical Services to obtain lower Contract Laboratory Program (CLP) quantitation/detection limits, as the ground water is utilized for human consumption. The quarry pond water, stream effluent, and quarry pond sediments were analyzed for TCL compounds and TAL analytes using Regular Analytical Services of the Contract Laboratory Program, as they were surface water and sediment samples (Appendix C). Due to a low water level in the effluent stream a 40 ml vial was the only sample container that could be filled. Therefore, only VOAs were analyzed for sample S07.

non responsive

TABLE I

HADER DUMP SAMPLING LOCATIONS

SAMPLE NUMBER	SAMPLE LOCATION	NAME, ADDRESS, AND/OR DESCRIPTION
S01	RW-1	non responsive [redacted]
S02	RW-2	
S03	RW-3	
S04, D04	RW-4	
S05	RW-5	
S06, D06	QP-1	Quarry pond surface water
S07	QE-1	Quarry effluent stream surface water
S08	QS-1	Quarry pond sediment

Residential well samples were taken from kitchen taps and outdoor faucets. Care was exercised to avoid taking a residential water sample that had passed through a water softening device. All measures were taken during sample collection to maintain the integrity of the sample in accordance with the Quality Assurance Program Plan (QAPP), developed by the MPCA (5).

A small john boat was used to gain access to the center of the quarry pond in order to obtain a representative surface water and sediment sample. The surface water sample was taken by submerging the respective container below the water surface and allowing it to fill. An Eckman dredge was used to collect a sediment sample from the bottom of the pond. Duplicate samples were collected for residential wells, surface water, and sediments in accordance with the QAPP.

6.4 Work Plan Deviations

The original workplan called for installation of 2 monitoring wells. After further on-site reconnaissance surveys and acquisition of more detailed well logs, it was determined that installation of monitoring wells would not adequately access the ground water contamination primarily due to the kastified Galena formation. Numerous wells would have had to have been installed or a more in-depth tracer test executed thus, extending the Pre-remedial site investigation beyond its scope and objectives.

7.0 ANALYTICAL RESULTS

Sample holding times were exceeded for one water sample and one soil sample. Water sample EY618 exceed the 14 day holding time for VOAs. A holding time of

Table II

Summary of Chemical Analysis for Organic Compounds

Sample Collection Information and Detected Parameters	Sample Number S01	S02	D04	S06	D06	S07	S08	
Date:	6/6/88	6/6/88	6/7/88	6/8/88	6/8/88	6/8/88	6/8/88	
Time:	1107	1305	1139	1024	1046	1429	1055	
Organic Traffic Report Number	EY611	EY612	EY615	EY617	EY618	EY619	EY620	
Compound Detected (ug/L)								
Acetone			24.0	6.0J	12.0		270.0	
Acetophenone							0.6J	
Benzaldehyde							1.0J	
Benzene		0.2J						
Carbon Disulfide		0.6J		0.5J	0.8J		1.0J	
Chloroform	10.0							
2-Hexane								
Methylene Chloride			5.0					
Methyl Heptane							7.0JB	
5-Methyl-2-Hexanone				9.0JB			4.0JB	
3-Methyl Octane							3.0JB	

Table II (continued)

Summary of Chemical Analysis for Organic Analysis

Sample Collection Information and Detected Parameters	Sample Number S01	S02	D04	S06	D06	S07	S08	
Organic Traffic Report Number								
Compound Detected (ug/L)								
4-Methyl Octane							3.0JB	
Phenol		2.4						
Tetrachlorene		0.4J						
Toluene		0.6J	10.0JB		10.0JB		7.0JB	
Trichloroethene		0.3J				1.0J		
Tricosane							0.6J	
M-Xylene		0.2J						

Table II (continued)

Summary of Chemical Analysis for Organic Compounds

Sample Collection Information and Detected Parameters	Sample Number							
	R01	Blank	Blank	Bank	Blank	Blank	Blank	
Date:	6/6/88	6/21/88	6/15/88	6/16/88	6/16/88	6/24/88	6/13/88	
Time:		N/A	N/A	N/A	N/A	N/A	N/A	
Organic Traffic Report Number	EY621	VBLK40621	VBLK10615	VBL20616	VBL10616	VBLK10624	SBLK10613	
Compound Detected (ug/L)								
Acetone			24.0	11.0J	11.0J	14.0J		
Acetophenone								
Benzaldehyde								
Benzene								
Carbon Disulfide	0.6J	0.6J		0.2J				
Chloroform								
2-Hexane					0.5J			
Methylene Chloride	2.0J	2.0J	12.0	3.0	0.4J	0.9J		
Methyl Heptane								
5-Methyl-2-Hexanone							2.0J	
3-Methyl Octane							2.0J	

Table II

Summary of Chemical Analysis for Organic Analysis

Sample Collection Information and Detected Parameters	Sample Number							
	R01	Blank	Blank	Blank	Blank	Blank	Blank	
Organic Traffic Report Number	EY621	VBLK40621	VBLK10615	VBL20616	VBL10616	VBLK10624	SBLK10613	
Compound Detected (ug/L)								
4-Methyl Octane							2.0J	
Phenol								
Tetrachlorene								
Toluene	0.7J					0.2J	0.4J	
Trichloroethene								
Tricosane								
M-Xylene	4.0J							

Table II (continued)

Summary of Chemical Analysis for Organic Compounds

Sample Collection Information and Detected Parameters	Sample Number							
	Blank							
Date:	6/10/88							
Time:	N/A							
Organic Traffic Report Number	SBLK10610							
Compound Detected (ug/L)								
Acetone								
Acetophenone								
Benzaldehyde								
Benzene								
Carbon Disulfide								
Chloroform								
2-Hexane								
Methylene Chloride	2.0J							
Methyl Heptane								
5-Methyl-2-Hexanone	9.0J							
3-Methyl Octane								

Table II (continued)

Summary of Chemical Analysis for Organic Compounds

Sample Collection Information and Detected Parameters	Sample Number							
	Blank							
Organic Traffic Report Number	SBLK10610							
Compound Detected (ug/L)								
4-Methyl Octane								
Phenol								
Tetrachlorene								
Toluene	10.0J							
Trichloroethene								
Tricosane								
M-Xylene								

Table III

Summary of Chemical Analysis for Inorganic Analysis

Sample Collection Information	Sample Number S01	S02	S03	S04	D04	S05	S06	
Date:	6/6/88	6/6/88	6/6/88	6/7/88	6/7/88	6/7/88	6/8/88	
Time:	1117	1312	1414	1045	1117	1346	1047	
Inorganic Traffic Report Number	MEAA401	MEAA402	MEAA403	MEAA404	MEAA405	MEAA406	MEAA407	
Compound Detected (ug/L)								
Aluminum	411		1710	142				
Antimony							70	
Barium	471	81	100	119	120	184	[52]	
Cadmium		1.6						
Calcium	92200J	83400J	66300J	102000J	105000J	104000J	39800	
Chromium	[4.6]			[7.2]	[4.7]	[5.1]		
Copper	58	34	38	102	48	59		
Iron	1320		1900	267	316	220	419	
Lead	15J	5.7J	5.4J	5.6J	15J	6.4J		
Magnesium	31200	31000	26500	32100	32900	31800	24300	
Manganese	130		68				351	
Mercury	0.3							
Nickel				[17]				

Table III (continued)

Compound(s) Detected (ug/L)	Sample Number							
	S01	S02	S03	S04	D04	S05	S06	
Potassium			[600]J	[900]J	[700]J	[500]J	5480	
Selenium		3.0						
Sodium	5250	3610	4530	31000	32000	19900	7720	
Zinc	85	178	227	317	286	64	[14]	

Table III (continued)
Summary of Chemical Analysis for Inorganic Analysis

Sample Collection Information	Sample Number							
	D06	S08						
Date:	6/8/88	6/8/88						
Time:	1042	1103						
Organic/Inorganic Traffic Report Number	MEAA408	MEAA410						
Compound Detected (ug/L)								
Aluminum		11900						
Arsenic		4.2						
Barium	[56]							
Beryllium		[0.38]						
Calcium	41100	9430						
Chromium		17						
Cobalt		[8.3]						
Copper		11						
Iron	469	17900						
Lead		12						
Magnesium	25300	3450						
Manganese	420	577						
Nickel		[14]						
Potassium	5650	2220						
Sodium	7660							

Table III (continued)

Compound(s) Detected (ug/L)	Sample Number							
	D06	S08						
Vanadium		29						
Zinc	[13]	145						

7 days was exceeded for soil sample EY620 and the accompanying matrix spike and matrix duplicate. Exceedance of holding times established under 40 CFR 136 allows only estimates to be made for analytes or compounds present.

Laboratory contamination was present in the majority of analyzed samples. Laboratory water blanks, VLBK10610 and VBLK40621, showed contamination by methylene chloride. Carbon disulfide was also detected in VBLK40621. Methylene chloride was detected in all field collected samples and trip blanks with the exception of EY618, which was clean. Soil blanks VBLK10615 and VBLK20615 showed laboratory contamination from methylene chloride and acetone. In addition, soil blank VBLK10615 contained 2-butanone, toluene, and xylene (BTX). These laboratory contaminants (BTX) were found in soil samples EY620, and EY620 matrix spike and matrix spike duplicate. Given the considerations of the laboratory contamination the data was deemed acceptable by the respective Contract Laboratory Program data review contractors. Additional comments concerning data quality are in Appendix C.

After reviewing the accepted data and comparing it to the existing MDH RALs and ambient standards established for the area by the MPCA and the United States Geological Survey, the data was examined for elevated levels of TAL and TCL analytes and compounds (1 and 3). Organic and inorganic chemical analyses are summarized in Tables II and III, respectively. Specific attention was given to low levels of arsenic, lead, and zinc, as these metals were previously detected in non-HRS quality sampling in 1982 (Appendix D). All inorganic analytes were below the MDH RALs and consistent with the ambient levels for the Site area (1). Organic compounds were either undetected or within MDH RALs for drinking water. Three semi-volatile compounds were detected in the quarry sediment sample, EY620, but were at estimated quantities below detection limits.

Although the inorganic results obtained during the SSI are inconsistent with previously analyzed quarry water samples, several explanations are possible. If the heavy metals were at one time present they may have migrated from the Site and are therefore no longer present. This is unlikely, as metals tend to be absorbed on to soil particles and are fairly immobile, therefore they would have been detected in the soil long after deposition. A more likely explanation concerns laboratory analysis (Appendix D). The initial laboratory testing performed at the MDH laboratory may have been inaccurate, producing false positive results. There are no indications that QAPP procedures were violated during the SSI which would have resulted in questionable integrity of the CLP data. Therefore, heavy metals do not appear to be present in amounts above ambient standards.

8.0 CONCLUSIONS

Although initial non-HRS quality laboratory analysis indicated an observed release had occurred at the Hader Dump, HRS quality data collected during the SSI indicates an observed release of CERCLA hazardous substances to the ground or surface water has not occurred. Three semi-volatile compounds and several heavy metal analytes were detected in quarry sediment, but these compounds and analytes were not detected at levels above background in residential wells, further enforcing the conclusion that an observed release did not occur. The MPCA has evaluated the available analytical and field data and feels the HRS quality data accurately reflects the present quality of the soil, ground water, and surface water in the immediate vicinity of Hader Dump.

The information collected during the SSI indicates, at present, there is no

imminent threat to the environment or the target population at the Site. This does not discount the possibility there has been or may be a contaminant release at the Site, but simply states that through the Pre-remedial assessment process no substantial data collected indicates a problem exists at this time.

REFERENCES

1. An Appraisal of Minnesota's Ground Water Quality, Minnesota Pollution Control Agency, Division of Ground Water and Solid Waste, June 1987.

2. Hader Dump File, Minnesota Pollution Control Agency, Ground Water and Solid Waste, Program Development.

3. Hydrogeologic Setting and the Potentiometric Surfaces of Regional Aquifers in the Hollandale Embayment, Southeastern Minnesota, 1970-1980, USGS Water Supply Paper 2219, Delin, G.N., and Woodward, D.G., 1984.

4. Paleozoic Lithostratigraphic Nomenclature for Minnesota, Mosslem, John H., University of Minnesota Report of Investigations 36, St. Paul, Minnesota, 1987.

5. Quality Assurance Program Plan, Minnesota Pollution Control Agency, May 22, 1987.

6. U.S. EPA, Office of Solid Waste and Emergency Response, February 12, 1988, Pre-Remedial Strategy for Implementing SARA, Directive Number 9345.2-01, Washington, D.C.

7. Water Resources of the Cannon River Watershed, Southeastern Minnesota, Anderson, H.W. etal, USGS.

A

B

SAMPLE LOCATION :
SAMPLER :
DATE
TIME

HADER DUMP

MND981961865

6-7-88

1046 AM

SW, clear

S. Ruotsinoja

88YR09S04

Well head sample

SO4

SITE NAME : [illegible]

SAMPLE LOCATION : [illegible]

CRL : [illegible]

SAMPLER : [illegible]

DATE : [illegible] TIME [redacted] 1045

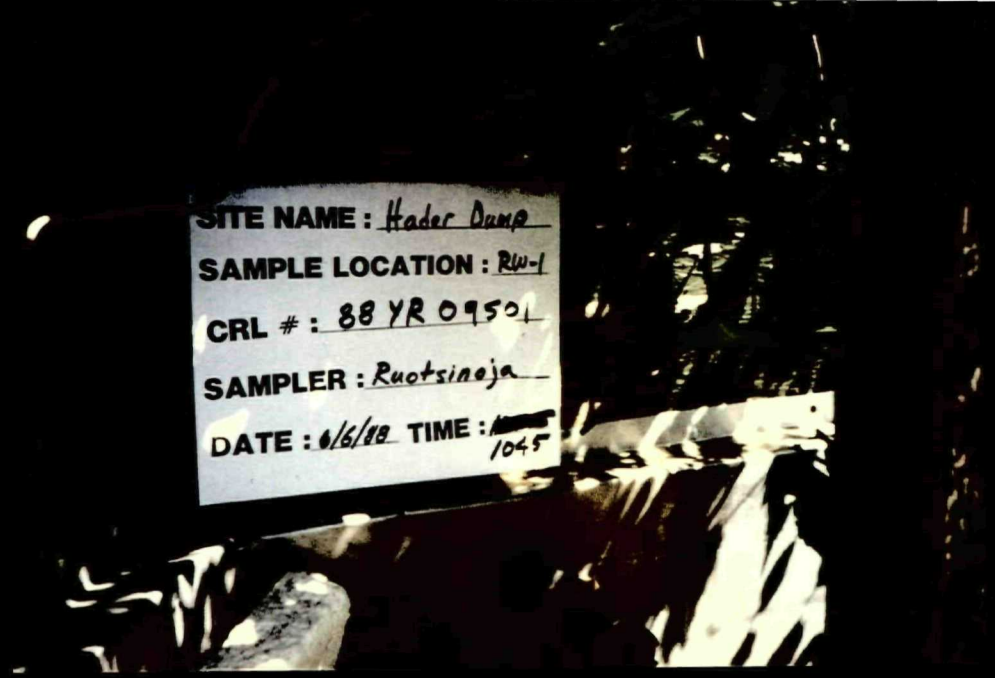
te: 6/6/88

Sample EW-1

e: 10:45 Am

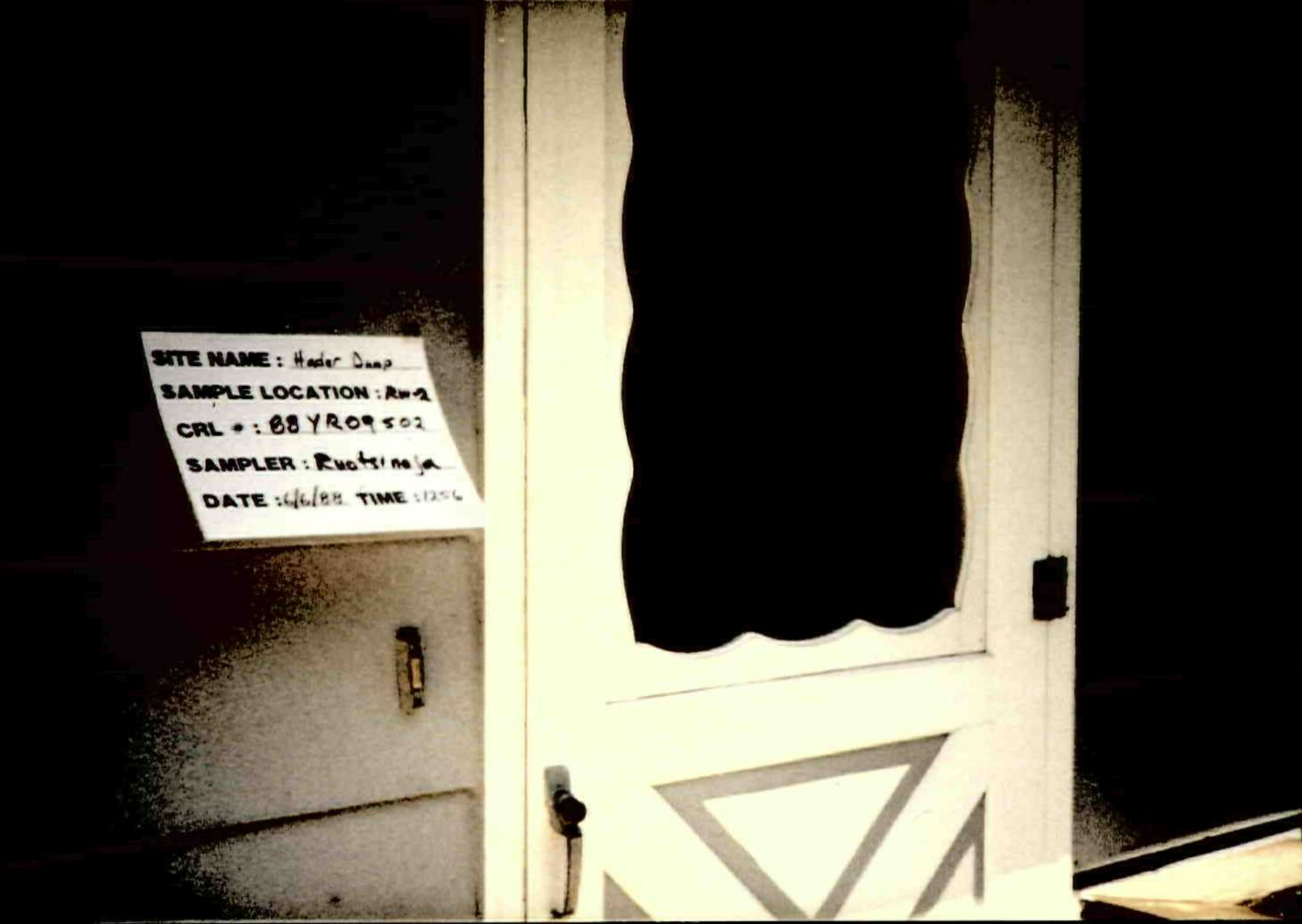
oby: S. Price

88YR09501


SITE NAME : Hader Dump
SAMPLE LOCATION : RW-1
CRL # : 88 YR 09501
SAMPLER : Ruotsinoja
DATE : 6/6/88 TIME : 1045

Site: Hader Dump
EPA# MND 981961865
Date: 6/6/88
Time: 10:45 Am
Photo By: S. Price
ID# 88YR09S01

Description:
outdoor faucet
sample RW-1


SITE NAME : Header Dump
SAMPLE LOCATION : RW-2
CRL # : 88YR09502
SAMPLER : Ruotsinoja
DATE : 6/6/88 TIME : 1256

Site: Hader Dump
EPA # MND 981961865

Date: 6/6/88

Time: 12:56 pm

Photo by: S. Routsinoja

ID# 88YR09502

Description:

Distance
photo sample
RW-2

SITE NAME : Hader Dump
SAMPLE LOCATION : RW-2
CRL # : 88YR09502
SAMPLER : Ruotsinoja
DATE : 6/6/88 TIME : 1256

Site: Hader Pump

EPA# MND 981961865

Date: 6/6/88

Time: 12:56 pm

Photo by: S. Routsinoja

ID# 88YR09502

Description:

Kitchen faucet

sample RW-2

Site: Hader Dump
EPA# MND 981961865
Date: 6/6/88
Time: 1347 pm
Photo by: S. Rautsinoja
ID# 88PR09S03

Description:
Distance
photo of
sample RW-3

SITE NAME : Hader Dump

SAMPLE LOCATION : RW-3

CRL # : 88YR09503

SAMPLER : Ruotsinoja

DATE : 6/6/88 TIME : 1347

Date: 4/6/88
Time: 13:47pm
Photo by: S. Rout
ID# 88YR09503

SITE NAME : Radar Dump
SAMPLE LOCATION : RN-4
CAMPLER : Rustrinoja
DATE : 6/7/88 TIME : 1028

p
a1865

Description:
well head duplicate
of sample 504

inoja

te: Hader Dump

PA# MND 981961865

te: 6/7/88

me: 1328 pm

hoto by: S. Price

D# 88YR09505

Description:

Outdoor faucet

sample RW-5

Site: Hader Dump
EPA# MND 981961865
Date: 6/7/88
Time: 1328 pm
Photo by: S. Rice
ID# 88YR09 S05

Description:
distance photo
sample RW-5

SITE NAME :
SAMPLE LOCATION
CRL # :
SAMPLER
DATE :
TIME

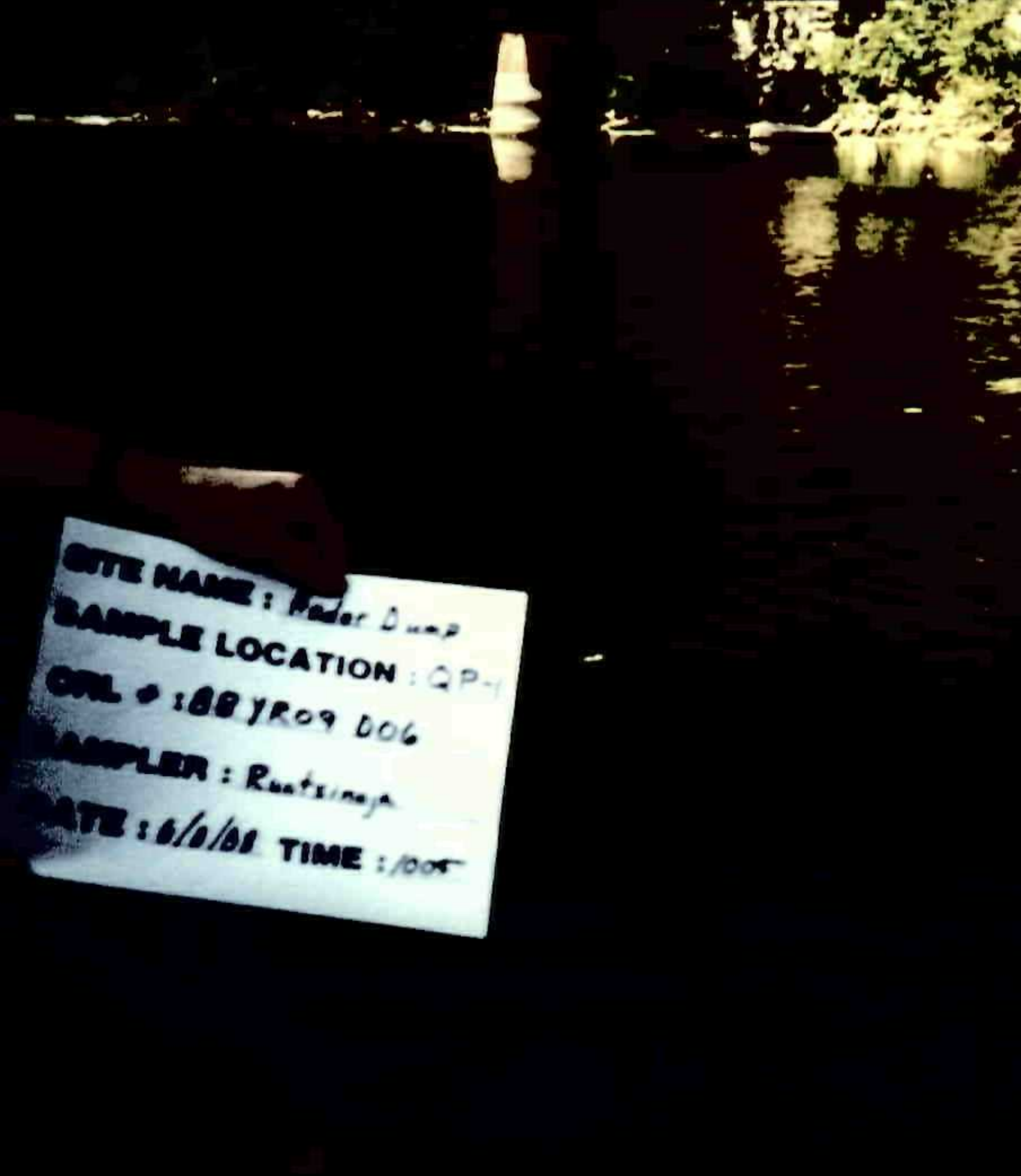
Site: Hader Dump
EPA# MND 981961865
Date: 6/7/88
Time: 1005 AM
Photo by: S. Routsinoja
ID# 88YR09506

Description:
Close-up of surface water. Sample 506 from quarry pond.

SAMPLER : Ruotsinoja
DATE : 6/8/06
TIME : 1005

Site: Hader Dump
EPA # MND981961865
Date: 6/7/88
Time: 1005 AM
Photo by: S. Routsinoja
ID# 88YR09S06

Description:
Distance photo of sample S06


SITE NAME : Poder Dump
SAMPLE LOCATION : QP-1
ORL # : 88 YR09 D06
SAMPLER : Ruatsinaja
DATE : 6/8/88 TIME : 1005

Dump

981961865

:

Am

. Routsinoja

209006

Description:

Close ups duplicate sample of S06 quarry pond.

SITE NAME :
SAMPLE LOCATION
CRL # : 88YR09
SAMPLER : Ruotsinoja
DATE
TIME : 1005

Site: Hader Dump
EPA ID MNID 981961865
Date: 6/7/88
Time: 1005 Am
Photo by: S. Routsinoja
ID # 88YR09D06

Description:
distance photo
of sample D06

ITE NAME : Hader Dump
SAMPLE LOCATION
CRL # :
SAMPLER :
DATE : 6/8/86 TIME

ump
91961865

n

outsinaja

07

Description:
Close-up of quarry
effluent stream
S07, only VOA's
sampled

SITE NAME : Hader Dump

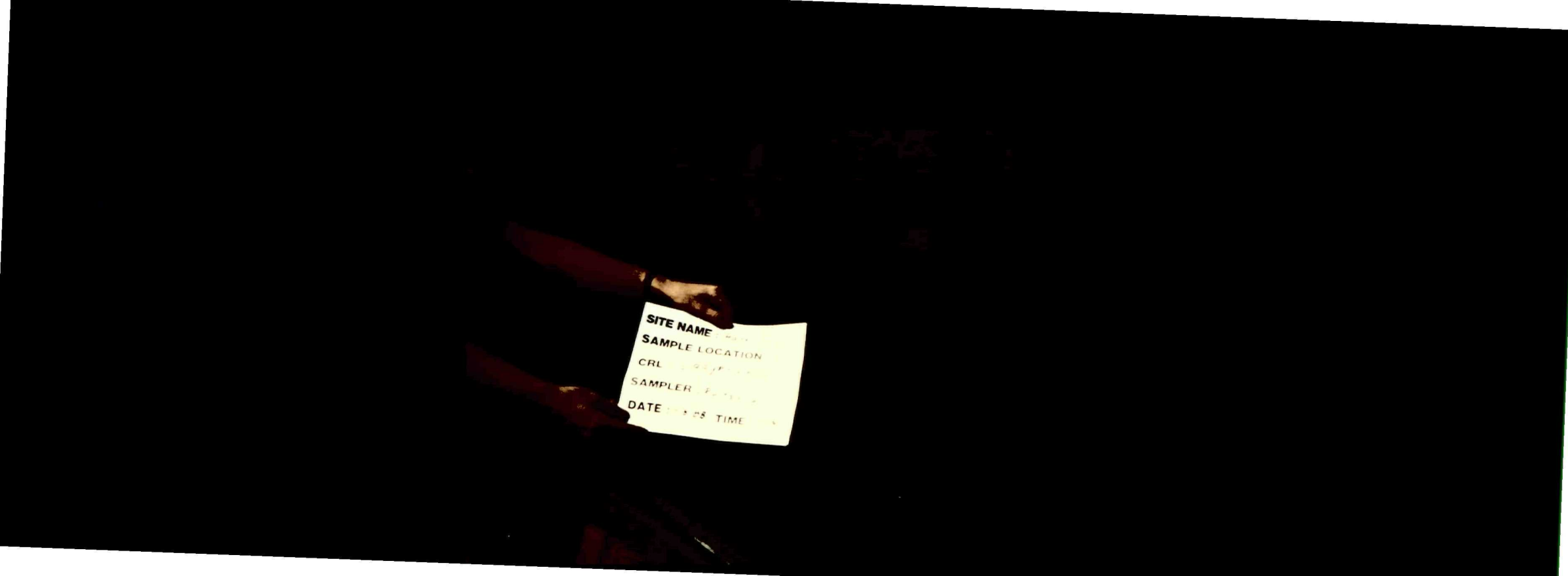
SAMPLE LOCATION : QS

CRL # : 88 YR 09 507

SAMPLER : Ruotsinoja

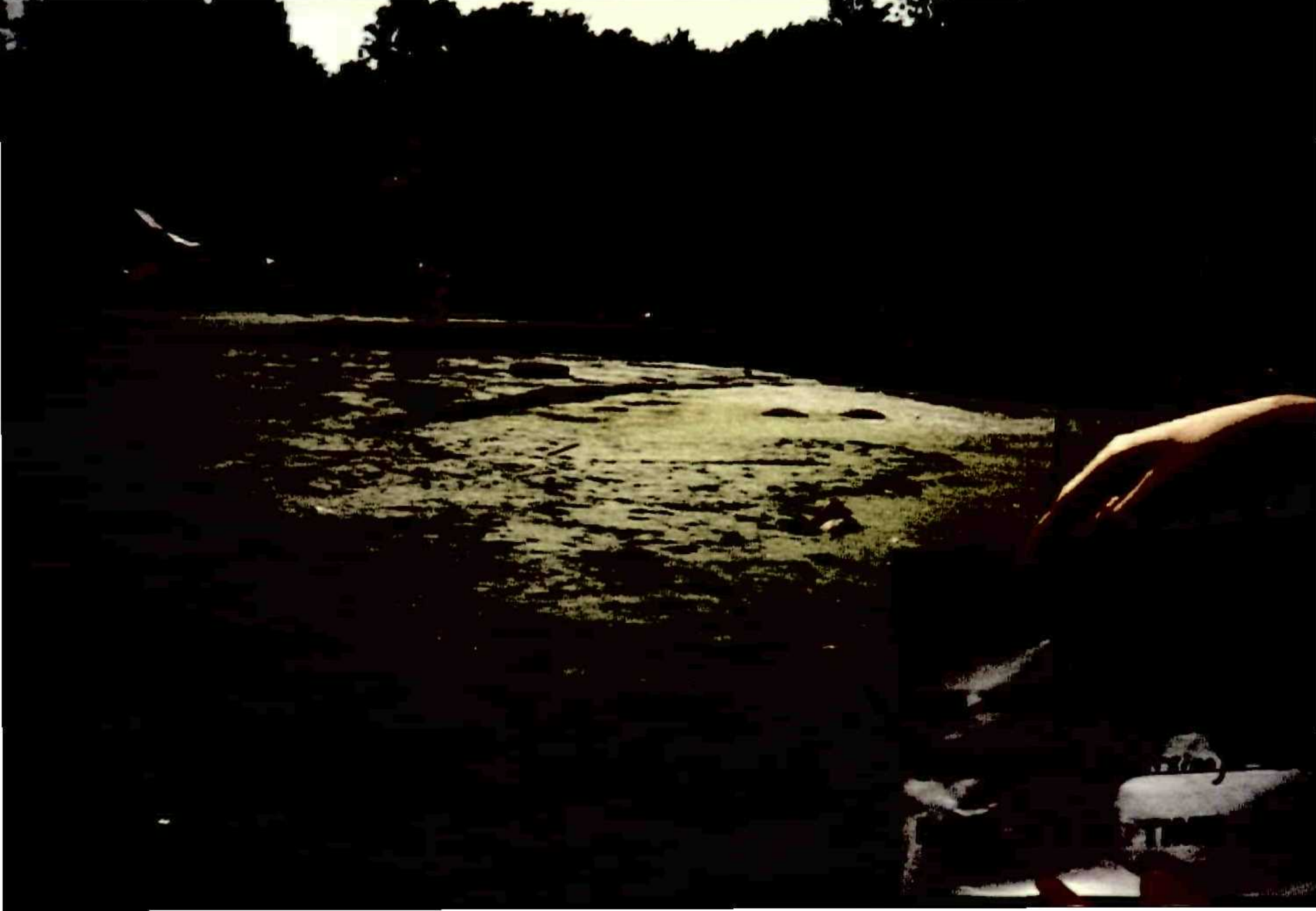
DATE : 6/8/88 TIME :

Site: Hader Dump
EPA # MNID 981961
Date: 6/8/88
Time: 1406 Am
Photo by: S. Routs
ID # 88YR0950


SITE NAME
SAMPLE LOCATION
CRL
SAMPLER
DATE
TIME

Site: Hader Dump
EPA# MND981961865
Date: 8/8/88
Time: 1005 Am
Photo by: S. Routsinaja
ID# 88YR09S08

Description:
Closeup of sediment sample S08 in quarry pond.



Site: Hader Dump
EPA# MND 981961865
Date: 8/8/88
Time: 1005 Am
Photo by: S. Rautsinoja
ID # 88YR 09S08

Description:
distance photo
sample S08

8/12/82 4

HADER Dump lo

along crest

8/12/82 4:00

Haber Dump Oscar Hangen Prop-
sign @ entrance to dump
Name @ bottom is "Oscar Hangen"
impCA

8/12/82 4:00 PM

Hadley Dump looking north

MPCA

8/12/82 4:00 PM

Hader Dump looking NE from southend

MPCA

5/12/82 4:00PM

Hadin Dump looking north from Southend limestone wall on East side of quarry.

MPCA

6/1/81

HADER DUMP 3:00

NW¼ S.1 Wanamingo Twp.

Goodhue Co.

MPCA

HADER DUMP 6/1/81 3:00PM

NW $\frac{1}{4}$ 5.1 Wanamingo Twp.

Goodhue Co.

MPCA

7/12/82 4:00 PM

Hade Dump - Oscar Haugen

property looking NW on

crest of quarry

MPCA

4-9-72

HADER Dump - Goodhue Co.

MPCA

HADER DUMP - GOODHUE CO.
4-5-72

MPCA

WILL HAVE TO CLOSE
NOV. 18. 72.
NO DUMPING
WITH OUT PERMIT

4-9-72

HADER DUMP - GOODHUE CO.

MPCA

Site Hader Dump

EPA # MND981961865

Date 6-6-88

Time 1045 a.m. p.m.

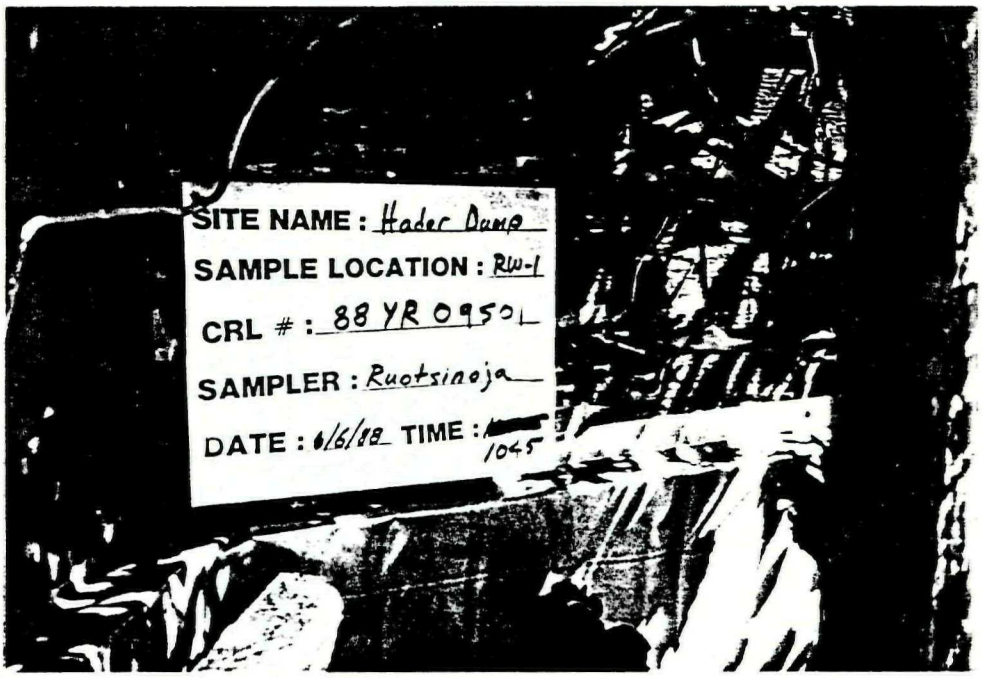
Direction SW

Weather Clear

Photographed by: S. Price

Sample ID # 88YR09S01

Description Outdoor faucet sample RW-1



Site Hader Dump

EPA # MND981961865

Date 6-6-88

Time 1045 a.m. p.m.

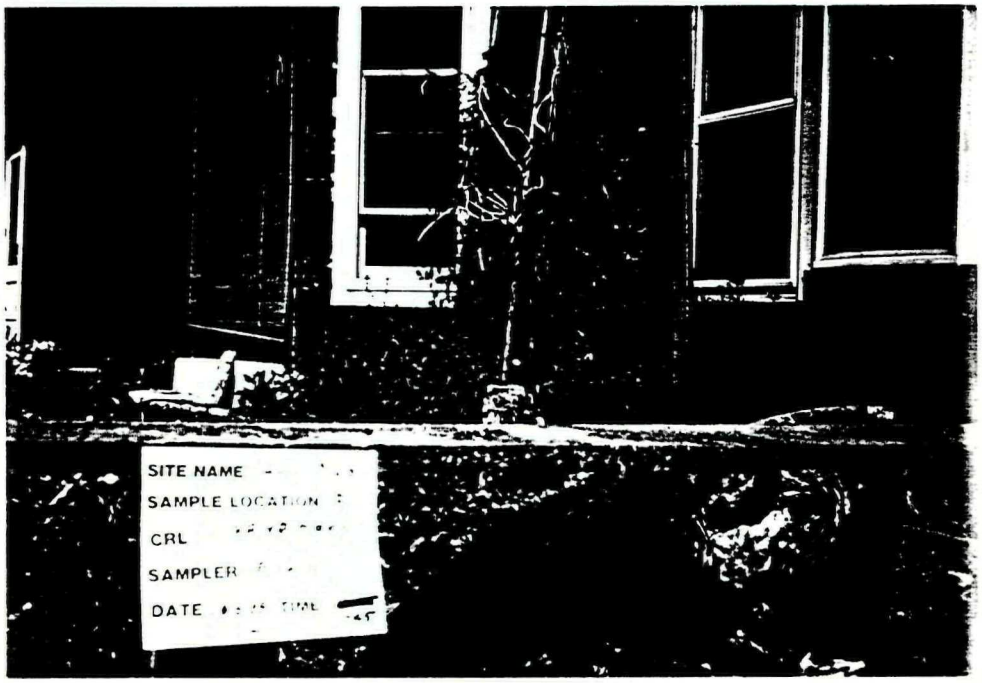
Direction SW

Weather Clear

Photographed by: S. Price

Sample ID# 88YR09S01

Description Distance photo sample RW-1



Site Hader Dump

EPA # MND981961865

Date 6-6-88

Time 1256 a.m. p.m.

Direction SW

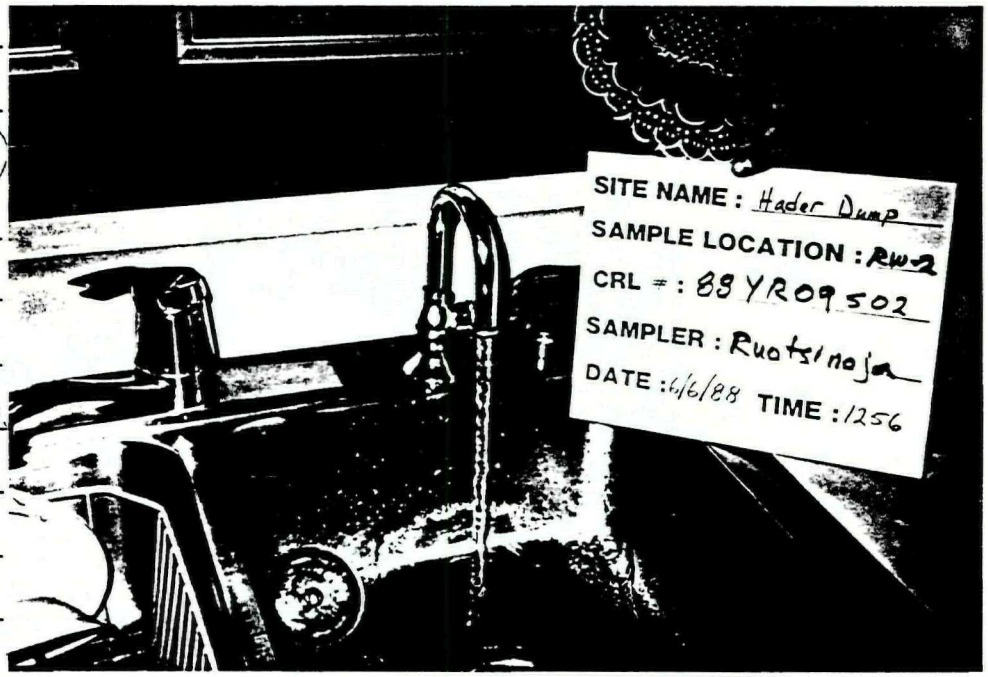
Weather Clear

Photographed by: S. Ruotsino

Sample ID # 88YR09S02

Description Kitchen faucet

sample RW-2



Site Hader Dump

EPA # MND981961865

Date 6-6-88

Time 1256 a.m. p.m.

Direction SW

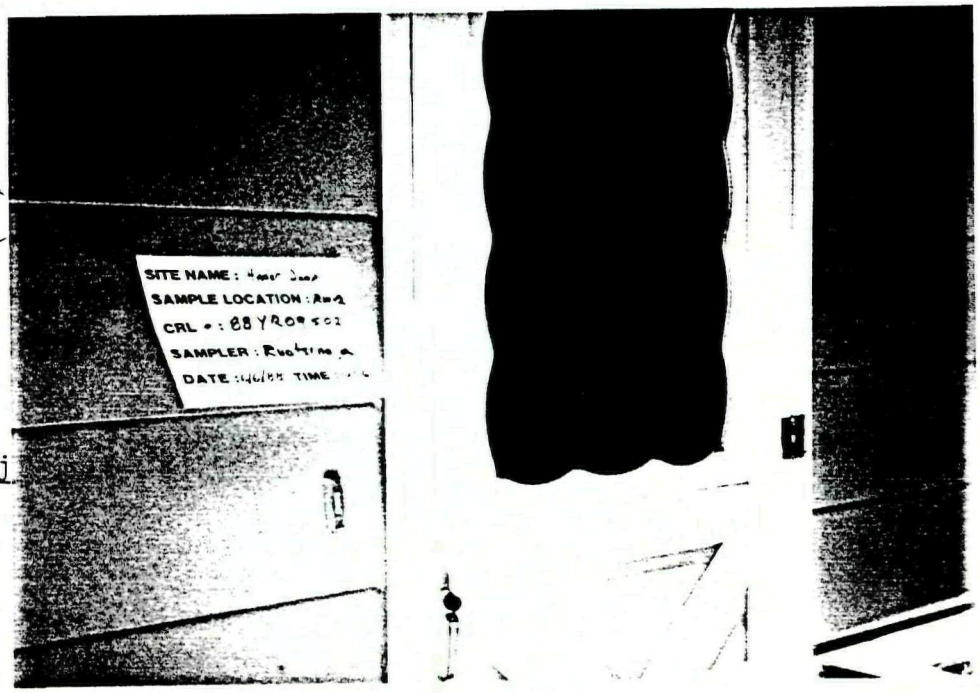
Weather Clear

Photographed by: S. Ruotsinoj

Sample ID# 88YR09S02

Description Distance photo

sample RW-2



Site Hader Dump

EPA # MND981961865

Date 6-6-88

Time 1347 a.m. p.m.

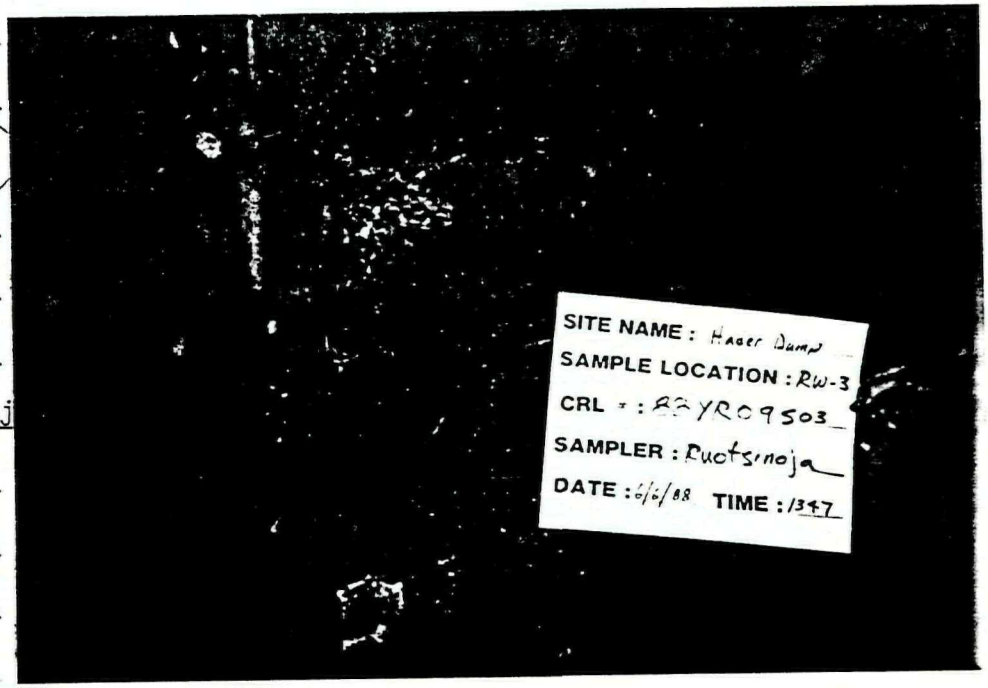
Direction SW

Weather Clear

Photographed by: S. Ruotsinoj

Sample ID # 88YR09S03

Description Faucet in autobody shop sample RW-3.



Site Hader Dump

EPA # MND981961865

Date 6-6-88

Time 1347 a.m. p.m.

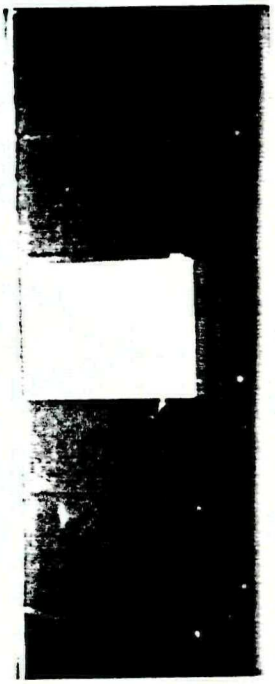
Direction SW

Weather Clear

Photographed by: S. Ruotsinoj

Sample ID# 88YR09S03

Description Distance photo of sample RW-3.



Site Hader Dump

EPA # MND981961865

Date 6-7-88

Time 1028 a.m. p.m.

Direction SW

Weather Clear

Photographed by: S. Ruotsinoj

Sample ID # 88YR09D04

Description Well head duplicate of sample S04.

Site Hader Dump

EPA # MND981961865

Date 9-7-88

Time 1028 a.m. p.m.

Direction SW

Weather Clear

Photographed by: S. Ruotsinoja

Sample ID# 88YR09D04

Description Distance photo of D04.

NO PHOTO DUE TO EQUIPMENT MALFUNCTION

Site Hader Dump

EPA # MND981961865

Date 6-7-88

Time 1046 a.m. p.m.

Direction SW

Weather Clear

Photographed by: S. Ruotsinoja

Sample ID # 88yR09S04

Description Well head sample S04.

Site Hader Dump

EPA # MND981961865

Date 6-7-88

Time 1046 a.m. p.m.

Direction SW

Weather Clear

Photographed by: S. Ruotsinoja

Sample ID# 88YR09S04

Description Distance photo of sample S04.

NO PHOTO DUE TO EQUIPMENT MALFUNCTION

Site Hader Dump

EPA # MND981961865

Date 6-7-88

Time 1328 a.m. p.m.

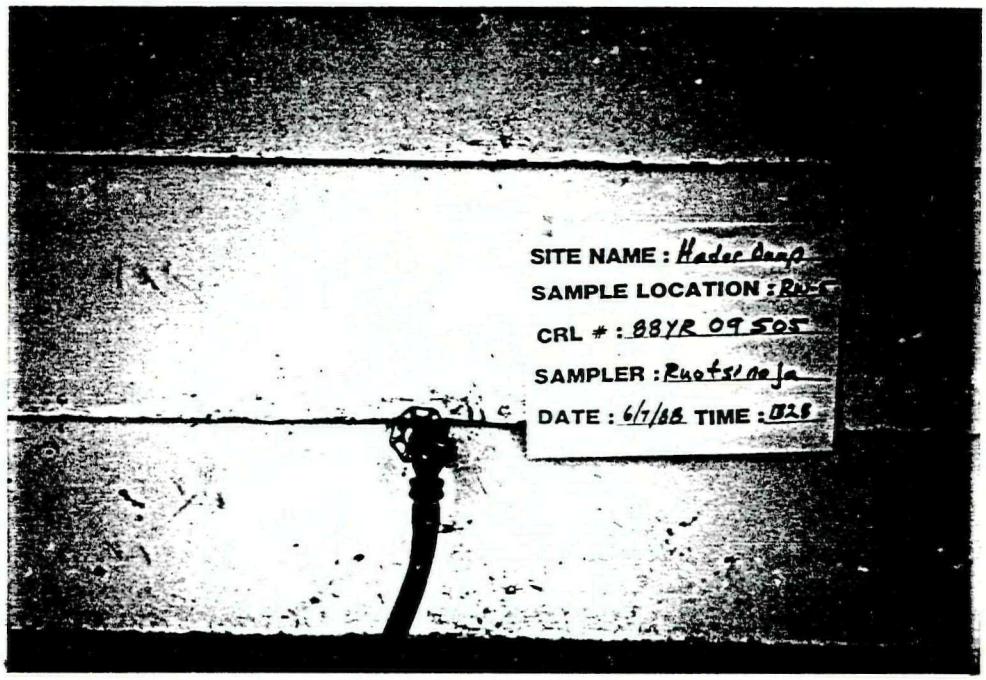
Direction SW

Weather Clear

Photographed by: S. Price

Sample ID # 88YR09S05

Description Outdoor faucet sample RW-5.



Site Hader Dump

EPA # MND981961865

Date 6-7-88

Time 1328 a.m. p.m.

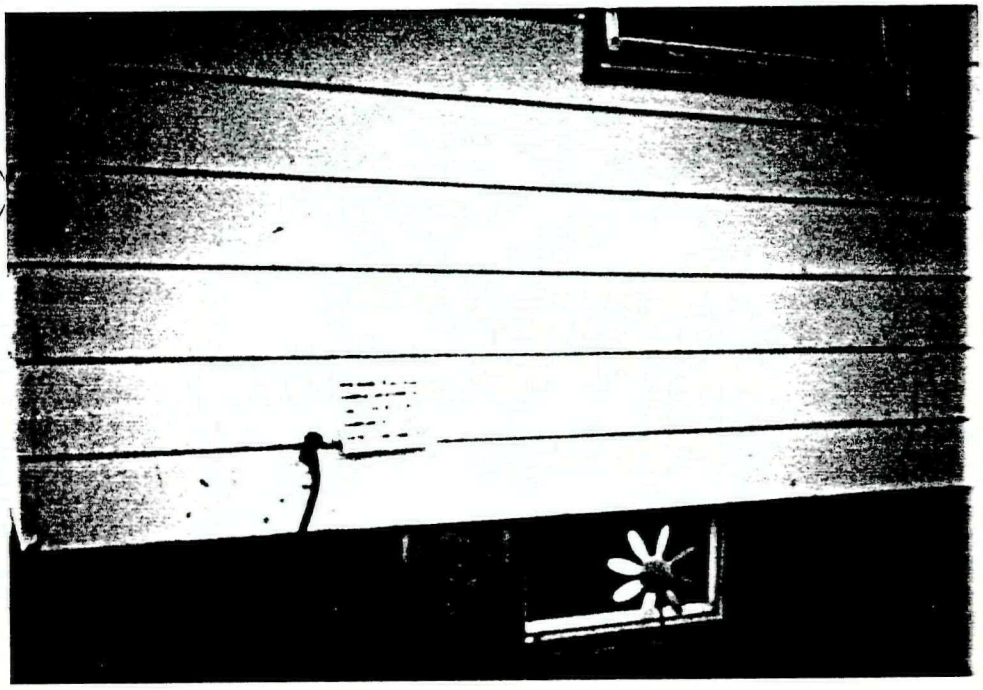
Direction SW

Weather Clear

Photographed by: S. Price

Sample ID# 88YR09S05

Description Distance photo sample RW-5



Site Hader Dump

EPA # MND981961865

Date 6-7-88

Time 1005 a.m. p.m.

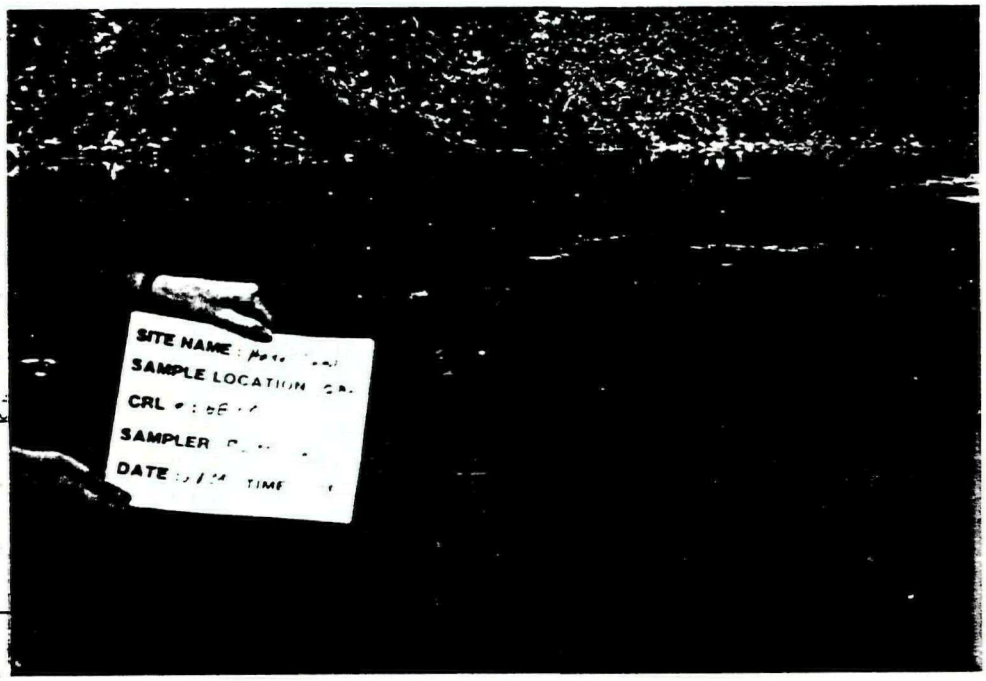
Direction SW

Weather Clear

Photographed by: S. Ruotsino

Sample ID # 88YR09S06

Description Close-up of surface water sample S06 from quarry pond.



Site Hader Dump

EPA # MND981961865

Date 6-7-88

Time 1005 a.m. p.m.

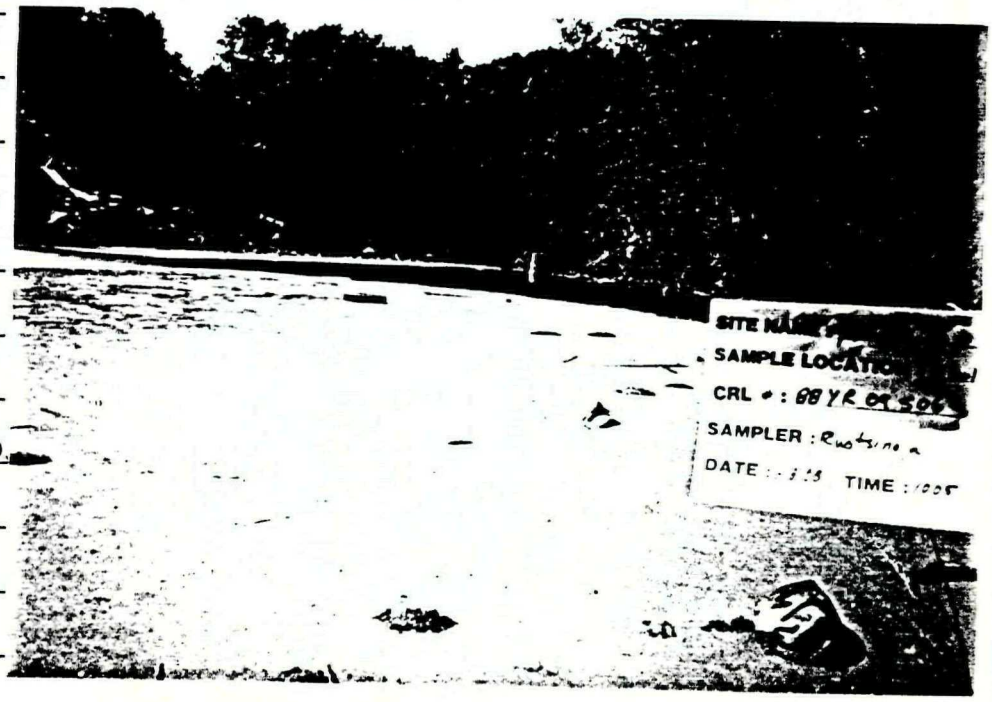
Direction SW

Weather Clear

Photographed by: S. Ruotsino

Sample ID# 88YR09S06

Description Distance photo of sample S06.



Site Hader Dump

EPA # MND981961865

Date 6-7-88

Time 1005 a.m. p.m.

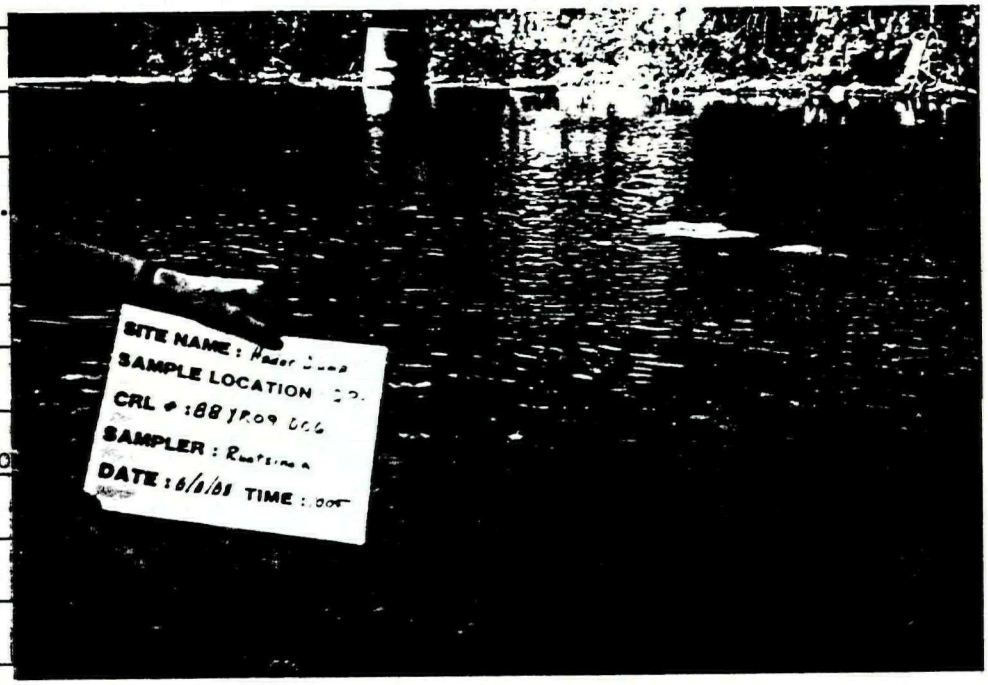
Direction SW

Weather Clear

Photographed by: S. Ruotsinoj

Sample ID # 88YR09D06

Description Close-up duplicate sample of S06 quarry pond.



Site Hader Dump

EPA # 981961865

Date 6-7-88

Time 1005 a.m. p.m.

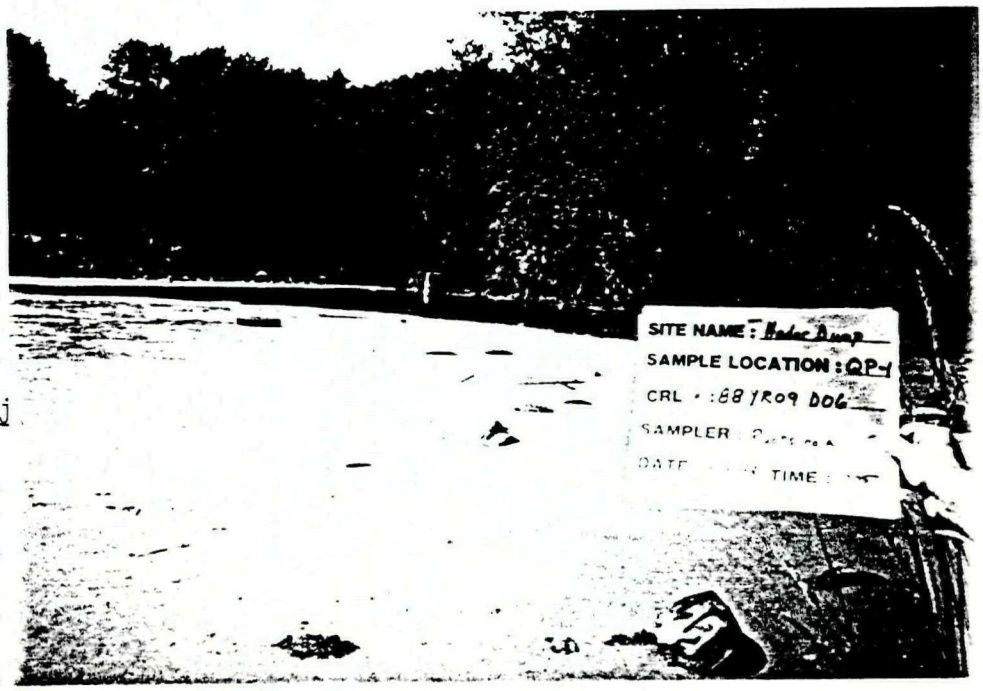
Direction SW

Weather Clear

Photographed by: S. Ruotsinoj

Sample ID# 88YR09D06

Description Distance photo of sample D06.



Site Hader Dump

EPA # MND981961865

Date 6-8-88

Time 1406 a.m. p.m.

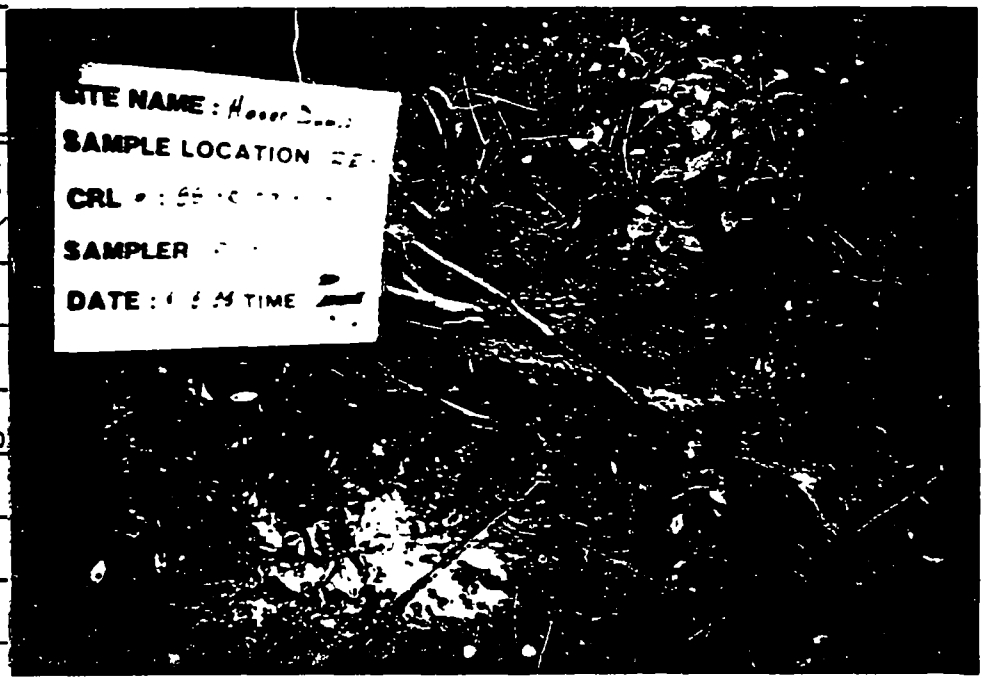
Direction SW

Weather Clear

Photographed by: S. Ruotsino

Sample ID # 88YR09S07

Description Close-up of quarry effluent stream S07, only VOAs sampled.



Site Hader Dump

EPA # MND981961865

Date 6-8-88

Time 1406 a.m. p.m.

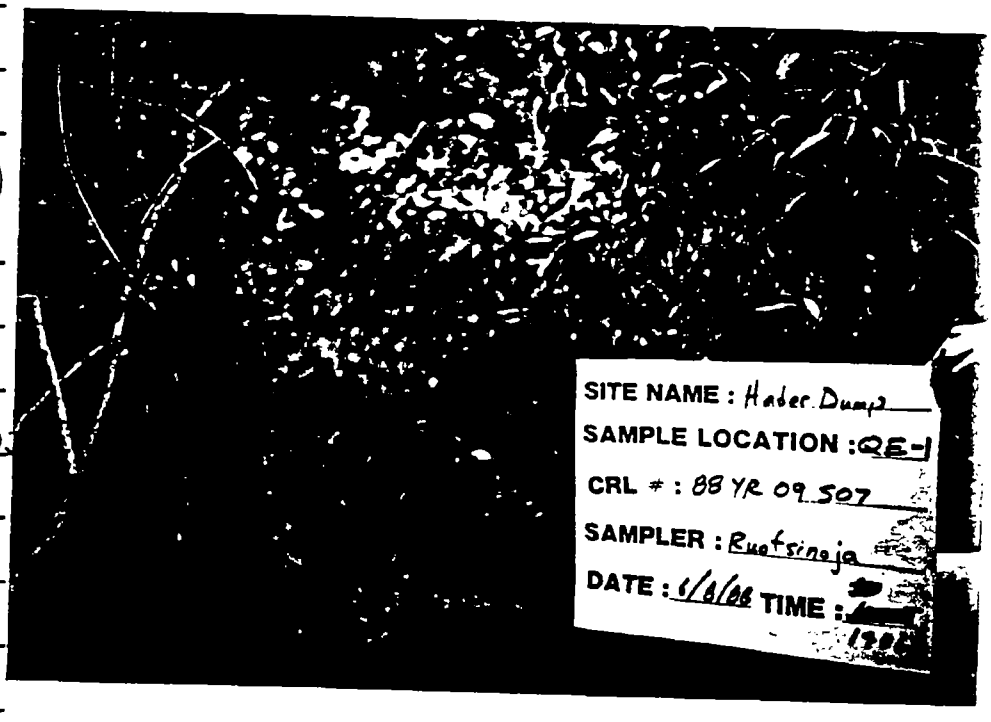
Direction SW

Weather Clear

Photographed by: S. Ruotsino

Sample ID# 88YR09S07

Description Distance photo of S07.



Site Hader Dump

EPA # MND981961865

Date 8-8-88

Time 1005 a.m. p.m.

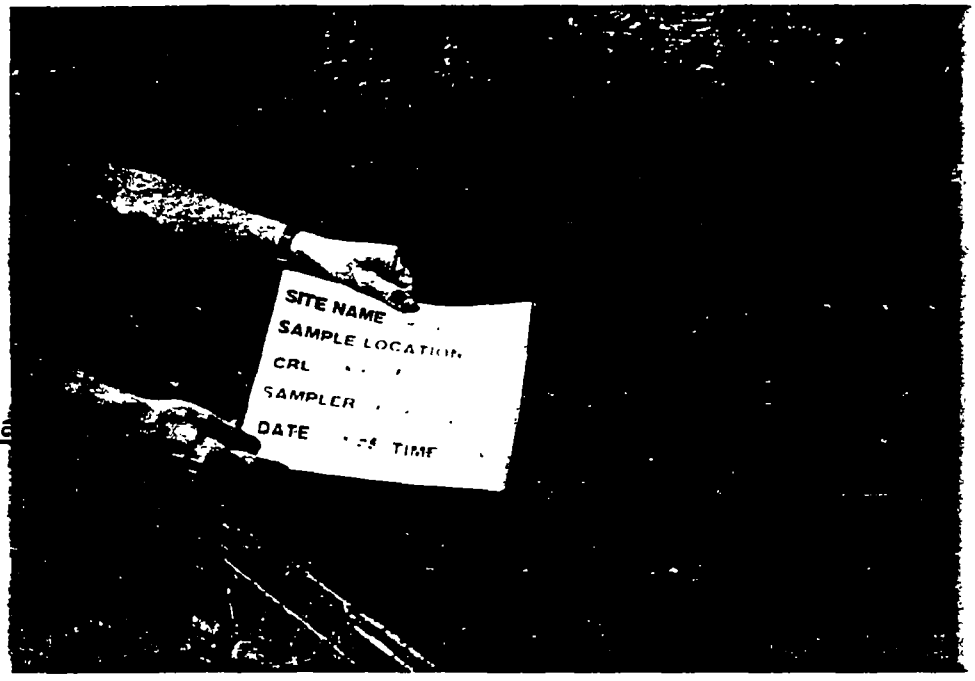
Direction SW

Weather Clear

Photographed by: S. Ruotsinoja

Sample ID # 88YR09S08

Description Close-up of sediment sample S08 in quarry pond.



Site Hader Dump

EPA # MND981961865

Date 8-8-88

Time 1005 a.m. p.m.

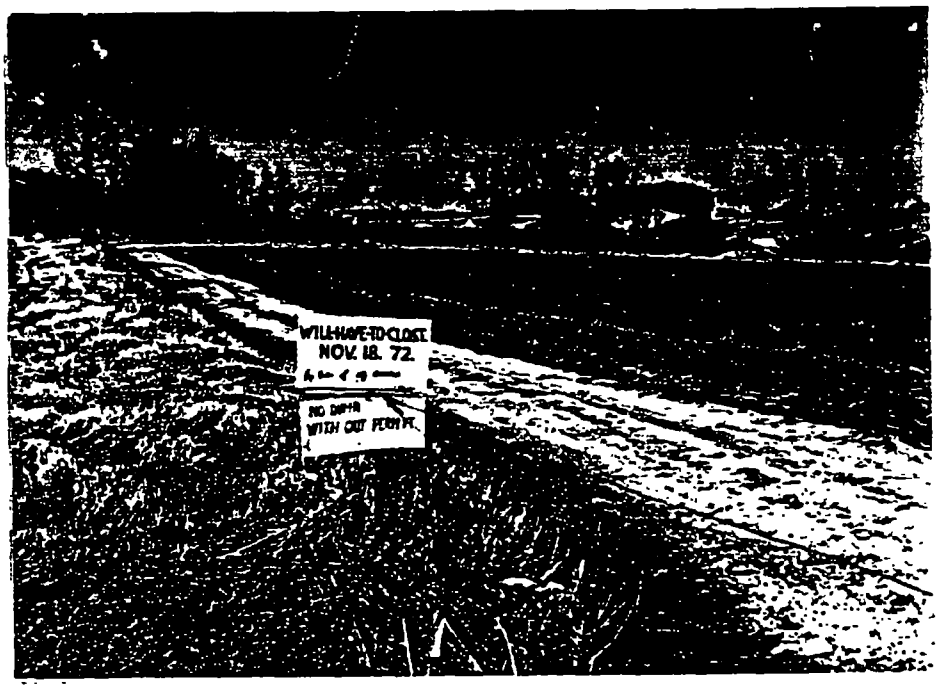
Direction SW

Weather Clear

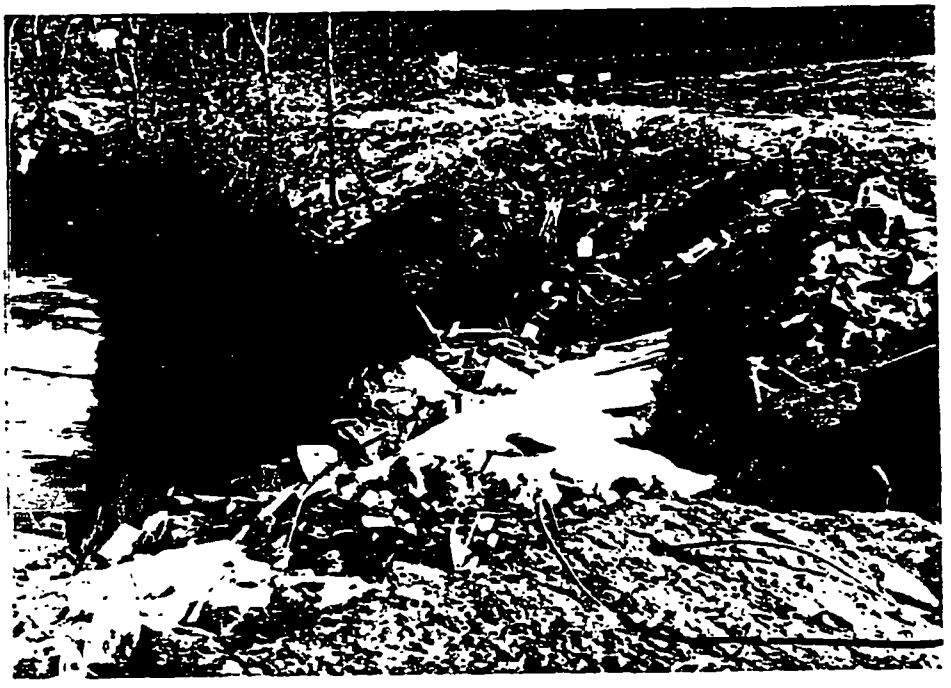
Photographed by: S. Ruotsinoj

Sample ID# 88YR09S08

Description Distance photo sample S08.



4-9-72



4-9-72

4-9-72

6-1-81

6-1-81

8-12-82

8-12-82

8-12-82

8-12-82

8-12-82

8-12-82

DATE: July 27, 1988

TO: Minnesota Pollution Control Agency
Site Assessment Unit
Program Development Section
Groundwater and Solid Waste Division
520 Lafayette Road
St. Paul, MN 55155

RECEIVED
AUG 03 88
MPCA, Ground Water
& Solid Waste Div.

ATTN: Doug Day, Supervisor

Case No.	Site	Contract Lab	SF No.	No. Samples
9762SAS3554E	HADER DUMP	CLAYTON	5270	7

Enclosed is one REVIEWED case. Please DO NOT return it.

FROM: U.S. EPA
Region V
Central Regional Laboratory
536 S. Clark, 10th Floor
Chicago, IL 60605

SENT BY: Erlinda Luz M. Arreola
WESTON - ESAT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 7/25/88

SUBJECT: Review of Region V CLP Data
Received for Review on 7-5-88

FROM: Curtis Ross, Director (5SCRL)
Central Regional Laboratory
Patrick J. Chunilla for

TO: Data User: MPCA

We have reviewed the data for the following case(s).

SITE NAME: Hader Dump SMD Case No. 9762SAS3554E

EPA Data Set No. SF-5270 No. of Samples: 7 D.U./Activity Numbers Y905/C72222

CRL No. 88YR09S01-S05, D04, R01

SMD Traffic No. EY611-616, 621

CLP Laboratory: Clayton Hrs. Required for Review: 11

Following are our findings:

This review covers six water samples (EY611 through EY616) for complete low level organic analysis according to the 9762SAS3554E requirements and one water sample (EY621) for volatile analysis only according to the same requirements.

Al Venuto (Weston/ESAT)
20 July 1988

( ) Data are acceptable for use.
(✓) Data are acceptable for use with qualifications referenced above. See Data Qualifier sheets and Calibration Outlier forms for flags and additional comments.
( ) Data are preliminary - pending verification by Contractor Laboratory. See Case Summary above.
( ) Data are unacceptable.

cc: Carla Dempsey, CLP Quality Assurance Officer, Analytical Operations Branch
James Petty, Chief Quality Assurance Research, EMSL, Las Vegas

DATA QUALIFIERS

Contractor: CLAYTON

Case 9762SAS3554E

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

① Holding Times:

The seven day holding time from date of sampling to date of analysis was exceeded for all samples of the volatile fraction. All samples except EX614 were, however, analyzed within fourteen days. The aromatic compounds in these samples should therefore be flagged J, estimated, for positive results and UJ, estimated quantitation limits, for negative results. For sample EX614, all compounds should be flagged similarly.

The seven day holding time from date of sampling to date of extraction was met for all samples in the semi-volatile and pesticide/PCB fractions.

② GC/MS Tuning and GC Instrument Performance:

The GC tuning and mass calibration were all within the required Q.C. limits. The pesticide degradation in the column for PCB/pesticides was well under the maximum 20%.

③ Calibration:

The sole volatile calibration outlier, 2-butanone, is listed on the outliers forms.

There were no semi-volatile outliers, but the forms are included for reference.

④ Method Blanks:

Volatile blank VBL10616 was found to contain the common contaminants methylene chloride and

Reviewed by: Al Venuto (Weston/ESAT)

Phone: (312) 353-2959

Date: 20 April 1988

DATA QUALIFIERS

Contractor: CLAYTON

Case 9762 SAS 3554E

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

acetone plus the HSL compound 2-hexanone; of the two associated samples, EX612 contained methylene chloride and acetone only, and EX613 contained acetone only. Both VBLK10624 and VBLK20616 contained the common contaminants methylene chloride, acetone and toluene in addition to the HSL compound carbon disulfide. EY614, the only sample associated with VBLK10624 had none of these compounds. Of the samples associated with VBLK20616, EY611 contained all four of the compounds, EY615 contained all but carbon disulfide, EY616 contained acetone only, and EY621 contained methylene chloride and acetone. The aforementioned compounds were appropriately reflagged on the Sample Form Ia and the quantitation limits were adjusted where necessary.

No HSL compounds were found in either the semi-volatile or pesticide Blanks.

(5) Surrogate Recoveries:

All surrogate recoveries for all fractions were within the Q.C. limits except for the DBC recoveries in the pesticide fraction for samples EY612 and EY614. These values could not be calculated due to a co-eluting interference peak.

(6) Matrix Spikes and Matrix Spike Duplicates:

In the volatile fraction, the recovery of 1,1-dichloroethene was above the limit for the matrix spike; the RPD for this compound was also above the Q.C.

Reviewed by: Al Venuto (Weston/ESAT)

Phone: (312) 353-2959

Date: 20 Mar. 1988

DATA QUALIFIERS

Contractor: CLAYTON

Case 9762 SAS3554E

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

limit. The quantitation limit for this compound in sample EY614 should be considered UJ, estimated.

In the semi-volatile fraction, the recovery of 4-chloro-3-methylphenol was slightly above the Q.C. limit in the matrix spike duplicate and 1,2,4-trichlorobenzene had an RPD very slightly above the Q.C. limit; no action is recommended.

In the pesticide fraction, the recovery of lindane was below the Q.C. limit in both the MS and MSD, and the RPD was above the limit. For sample EY614, the quantitation limit for lindane should therefore be considered UJ, estimated.

(7) Field Duplicates:

No samples were identified as field duplicates.

(8) Internal Standards Performance:

The internal standard areas were not summarized on Forms VIII A+B. They were, however, all within the Q.C. limits for both volatile and semi-volatile fractions.

(9) Compound Identification:

The compounds as listed appear to be confirmed by the spectra.

(10) Compound Quantitation + Reported Detection Limits:

A list of instrument detection limits is included in this case. It appears to be satisfactory and correlates favorably with the sample results.

In my opinion, the data quality is gener-

Reviewed by: Al Venuto (Weston/ESAT)

Phone: (312) 353-2959

Date: 20 July 1988

DATA QUALIFIERS

Contractor: CLAYTON

Case 9762 SAS 3554E

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

ally very good and the few problems noted should have no significant effect. With the qualifications listed above, I feel that these data are acceptable for use.

Reviewed by: Al Venuto (Weston/ESAT)

Phone: (312) 353-2959

Date: 20 1 1994

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
VOLATILE HSL COMPOUNDS

CASE/SAS # 9762/3554E CONTRACTOR CLAYTON

Instrument # 2B	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME: 6-15-88 19:40	6-15-88 19:40														
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Chloromethane															
Bromomethane															
Vinyl Chloride															
Chloroethane															
Methylene Chloride															
Acetone															
Carbon Disulfide															
1,1-Dichloroethane															
1,1-Dichloroethene															
Trans-1,2-Dichloroethene															
Chloroform															
2-Butanone	.035		4/R												
1,2-Dichloroethane															
1,1,1-Trichloroethane															
Carbon Tetrachloride															
Vinyl Acetate															
Bromodichloromethane															
1,2-Dichloropropane															
Trans-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
cis-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
m-Xylene															
o/p-Xylene															

AFFECTED SAMPLES:

VBLK10616
EY612
EY613
EY614MS

Reviewer's Initials/Date: AV 7-19-88

* These flags should be applied to the analytes on the sample data sheets.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
VOLATILE HSL COMPOUNDS

CASE/SAS # 9762/3554E CONTRACTOR CLAYTON

Instrument # 2B	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME: 6-16-88 9:38	6-16-88 9:38														
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Chloromethane															
Bromomethane															
Vinyl Chloride															
Chloroethane															
Methylene Chloride															
Acetone															
Carbon Disulfide															
1,1-Dichloroethane															
1,1-Dichloroethene															
Trans-1,2-Dichloroethene															
Chloroform															
2-Butanone	.025		J/R												
1,2-Dichloroethane															
1,1,1-Trichloroethane															
Carbon Tetrachloride															
Vinyl Acetate															
Bromodichloromethane															
1,2-Dichloropropane															
Trans-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
cis-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
m-Xylene															
o/p-Xylene															

AFFECTED SAMPLES:

VBLK 20616
EY611
EY614MSD
EY615
EY616
EY621

Reviewer's Initials/Date: AV 7-19-88

* These flags should be applied to the analytes on the sample data sheets.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
VOLATILE HSL COMPOUNDS

CASE/SAS # 9762/3554E CONTRACTOR CLAYTON

Instrument # 2B	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME: 6-24-88 12:52	6-24-88 12:52														
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Chloromethane															
Bromomethane															
Vinyl Chloride															
Chloroethane															
Methylene Chloride															
Acetone															
Carbon Disulfide															
1,1-Dichloroethane															
1,1-Dichloroethene															
Trans-1,2-Dichloroethene															
Chloroform															
2-Butanone	.018		½R												
1,2-Dichloroethane															
1,1,1-Trichloroethane															
Carbon Tetrachloride															
Vinyl Acetate															
Bromodichloromethane															
1,2-Dichloropropane															
Trans-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
cis-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
m-Xylene															
o/p-Xylene															

AFFECTED SAMPLES:

VBLK10624
EY614

Reviewer's Initials/Date: AV 7-19-88

* These flags should be applied to the analytes on the sample data sheets.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
(Page 1)

CASE/SAS # 9762/3554E CONTRACTOR CLAYTON

Instrument # 1A	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME: 6-27-88	6-27-88 10:57														
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Phenol															
bis(-2-Chloroethyl)Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
bis(2-chloroisopropyl)Ether															
4-Methylphenol															
N-Nitroso-Di-n-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy)Methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-Methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethyl Phthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dinitrophenol															
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES:

S BLK
EY611

Reviewer Initials/Date: AV 7-19-88

* These flags should be applied to the analytes on the sample data sheets.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
Page 2

CASE/SAS # 9762/3554E CONTRACTOR CLAYTON

Instrument # 1A	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME: 6-27-88 10:57	6-27-88 10:57														
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
2,4-Dinitrotoluene															
2,6-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
Benzo(a)Anthracene															
bis(2-Ethylhexyl)Phthalate															
Chrysene															
Di-n-Octyl Phthalate															
Benzo(b)Fluoranthene															
Benzo(k)Fluoranthene															
Benzo(a)Pyrene															
Indeno(1,2,3-cd)Pyrene															
Dibenz(a,h)Anthracene															
Benzo(g,h,i) Perylene															

SEE PAGE 1 FOR AFFECTED SAMPLES.

* These flags should be applied to the analytes on the sample data sheets.

Reviewer's Initials/Date: AV 7-19-88

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
(Page 1)

CASE/SAS # 9762/3554E CONTRACTOR CLAYTON

Instrument # 1A	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME: 6-28-88 00:37	6-28-88 00:37														
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Phenol															
Bis(-2-Chloroethyl)Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
Bis(2-Chloroisopropyl) Ether															
4-Methylphenol															
N-Nitroso-Di-n-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
Bis(2-Chloroethoxy)Methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-Methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethyl Phthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dinitrophenol															
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES:

EY612
EY613
EY614
EY614MS
EY614MSD
EY615
EY616

Reviewer Initials/Date: AV 7-19-88

* These flags should be applied to the analytes on the sample data sheets.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
Page 2

CASE/SAS # 9762/3554E CONTRACTOR CLAYTON

Instrument # 1A	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME: 6-28-88 00:37	6-28-88 00:37														
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
2,4-Dinitrotoluene															
2,6-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
Benzo(a)Anthracene															
bis(2-Ethylhexyl)Phthalate															
Chrysene															
Di-n-Octyl Phthalate															
Benzo(b)Fluoranthene															
Benzo(k)Fluoranthene															
Benzo(a)Pyrene															
Indeno(1,2,3-cd)Pyrene															
Dibenz(a,h)Anthracene															
Benzo(g,h,i) Perylene															

SEE PAGE 1 FOR AFFECTED SAMPLES.

* These flags should be applied to the analytes on the sample data sheets.

Reviewer's Initials/Date: AV 7-19-88

Case: 9762 SAS 3554 E

Contractor: CLAYTON ENVIRONMENTAL

TENTATIVELY IDENTIFIED COMPOUNDS
MATCH ASSESSMENT

NOTE: Reviewer should note directly on Organic Analysis Data Sheet (OADS) those matches that in his opinion (based on contract criteria) are unreasonable.

CRITERIA

(1) Relative intensities of major ions (>10%) reference spectrum should be present in the sample spectrum.

(2) Relative intensities of major ions in sample spectrum should agree to within ± 20% of reference spectrum intensities.

(3) Molecular ions present in reference spectrum should be present in sample spectrum.

(4) Ions present in sample spectrum, but not in reference spectrum should be reviewed for possible background contamination or presence of coeluting interferences.

(5) Ions present in reference spectrum, but not in the sample spectrum should be reviewed for possible subtraction from the sample spectrum because of background contamination or coeluting interferences.

(6) If, in the reviewer's opinion, no valid identification can be made the compound should be labelled as "unknown" and the initials and date of the reviewer placed on the OADS.

Al Venuto (Weston/ESAT)

Clayton Environmental Consultants, Inc.

22345 Roethel Drive • Novi, Michigan 48050 • (313) 344-1770

CASE NARRATIVE

Case No.: 9762/SAS 3554E
SMO Nos.: EY 611-616, and 621
Contract No.: 68-01-7260/SAS

Case Summary

Case 9762/SAS 3554E was received on June 10, 1988, and consisted of seven (7) low-level water samples for volatile organic analysis (VOA), and six (6) low-level water samples for semi-volatile (BNA) and pesticide analyses, with specified low quantitation limits. Included with this case were samples for routine analytical services (RAS) Case 9762. The data deliverables for these samples will be reported under the 40-day contract.

Dibutylchlorendate (DBC) could not be calculated in the pesticide fraction of Samples EY 612 and EY 614, due to an interference peak.

The VOA fraction of Sample EY 614 was inadvertently analyzed outside the holding time.

The Hewlett Packard GC/MS data systems used by Clayton has a combined NBS/WILEY library. The data system prints the mass spectra for all tentatively identified compounds (TIC's) and the top three library matches. When no library matches are found, the data system prints "NO DATA BASE ENTRIES RETRIEVED".

The number labeled "dilution factor" on the quantitation reports for the VOA and BNA analysis is a calculation factor which takes into account, based on the sample matrix: percent moisture, sample size, unit conversions, and dilutions, to derive the final concentration.

Standards

The instrument was tuned to meet the abundance criteria for BFB and DFTPP before any standards, blanks, or samples were analyzed. Initial and continuing calibration data of the CCC and SPCC compounds for VOA's and BNA's are within the contract required QC limits.

Other Locations: Pleasanton, CA • Commerce, CA • Edison, NJ • Atlanta, GA • Windsor, Ontario • Toronto, Ontario • London, U.K.
A March & McLennan Company

Percent-difference and retention time shifts for all pesticide compounds were within contract-required criteria for the primary run which was used for quantitation.

Pesticide Linearity and Degradation

Linearity and degradation criteria are within the contract-required QC limits for the packed column which was used for quantitation.

Surrogate Recoveries

Surrogate recovery results were within QC limits for all blanks and samples and can be found in the QC Summary Data Package.

Matrix Spike/Matrix Spike Duplicate

Matrix spike and matrix spike duplicate recovery data are within QC limits for all compounds, except for the following:

	Compound	% REC	QC Range
VOA (L/W)			
EY 614MS	1,1-dichloroethene	130	80-120
BNA (L/W)			
EY 614MSD	4-chloro 3-methylphenol	102	23-97
PEST (L/W)			
EY 614MS	lindane	36	56-123
EY 614MSD	lindane	45	56-123

	Compound	RPD	QC Limit
VOA (L/W)			
EY 614	1,1-dichloroethene	26	14
BNA (L/W)			
EY 614	1,2,4-trichlorobenzene	30	28
PEST (L/W)			
EY 614	lindane	22	15

Case No.: 9762/SAS 3554E

Blanks

Blank results are recorded on the Method Blank Summary form for all compounds, and can be found in the QC Summary data package.

Additional Flags

The following are laboratory flags which are used in addition to those identified by the EPA:

M= Matrix spike compound.
A= Indicates a pesticide value less than the dilution-corrected limit of detection but greater than the CRDL.

for

Daryl Strandbergh
Project Manager, CLP

6/30/88
Date

SUPERFUND 5270

CENTRAL REGIONAL LABORATORY SAMPLE DATA REPORT
ORGANICS/INORGANICS
THIS FORM IS TO BE USED FOR SAMPLES SENT TO CONTRACT ONLY

CASE NUMBER/SAS No. 9762/3554E SITE NAME HADER DUMP LABORATORY CLAYTON DATE SHIPPED [illegible]

SUPERFUND DU NUMBER Y905 EPA RPM or OSC (S M S)/(CES) _____ CERCLIS NUMBER _____ PAGE 1 OF 3

ACTIVITY NUMBER C72200

CRL LOG NUMBER	ORGANIC TRAFFIC REPORT NUMBER or SAS Packing List No.	INORGANIC TRAFFIC REPORT NUMBER	WATER OR LIQUIDS: ACID BASE NEUTRAL CPDS ORGANIC SCAN UG L TOX17574	VOLATILE ORGANIC ANALYSIS ORGANIC SCAN UG L TOX17564	WATER POLYCHLORINATED BIPHENYLS UG L PES 17144	WATER CHLORINATED PESTICIDES UG L PES17134	TOTAL METALS IN WATER UG L MET111	WATER CYANIDE UG/L MIN74919	NITRATE/NITRITE MG/L MIN7284	AMMONIA MG/L MIN7294	RESIDUE, FILTERABLE TDS MG L MIN7362	RESIDUE NON-FILT TSS MG L MIN7372			SEDIMENTS or SOILS: ACID-BASE NEUTRAL CPDS ORGANIC SCAN MG/KG TOX215722	VOLATILE ORGANIC ANALYSIS ORGANIC SCAN MG/KG TOX215622	SEDIMENTS POLYCHLORINATED BIPHENYLS MG/KG PES211422	SEDIMENT CHLORINATED PESTICIDES MG KG 211322	TOTAL METALS MG/KG MET413	CYANIDE MG/KG MIN44930	EP TOXICITY METALS MG/KG	AMMONIA MG/KG MIN42925				
SSYR09S01	EY611	✓ ✓	X	X	X	X																				
SSYR09S02	EY612	✓ ✓	X	X	X	X																				
SSYR09S03	EY613	✓ ✓	X	X	X	X																				
SSYR09S04	EY614	✓ ✓	X	X	X	X																				
SSYR09D04	EY615	✓ ✓	X	X	X	X																				
SSYR09S05	EY616	✓ ✓	X	X	X	X																				
SSYR09S06	EY617	✓ ✓	X	X	X	X																				
SSYR09D06	EY618	✓ ✓	X	X	X	X																				
SSYR09S07	EY619	✓ ✓		X																						
SSYR09R01	EY621	✓ ✓		X																						
SSYR09R02	EY622	✓ ✓		X																						
SSYR09S08	EY620	✓ ✓													X	X	X	X								
		COC TR																								

Batch 1

Batch 2

WATER SURROGATE PERCENT RECOVERY SUMMARY

Case No. 9762/SAS 35546 Contract Laboratory Clayton Environmental Contract No. 68-01-7260/SAS

	VOLATILE			SEMI-VOLATILE								PESTICIDE
CLP TRAFFIC NO. DATE 01/24/91	TOLUENE-D8 (88-120) (400-1100)	BFB (86-120) (400-1100)	1,2 DICHLORO-ETHANE-D4 (80-120) (70-121)	NITRO-BENZENE-D5 (35-114)	2-FLUORO-BIPHENYL (43-116)	TERPHENYL-D14 (33-141)			PHENOL-D6 (10-94)	2-FLUORO-PHENOL (21-100)	2,4,6 TRIBROMO-PHENOL (10-123)	DIBUTYL-CHLORENDATE ** (24-154)
EY-611	97	99	95	69	78	88			24	34	53	75
EY-612	95	103	99	94	102	130			33	50	63	+
EY-613	98	101	103	63	68	91			28	39	56	74
EY-614	97	101	98	73	73	101			54	67	58	+
EY-615	96	98	95	75	79	88			36	51	60	109
EY-616	99	101	99	62	77	81			29	47	54	66
EY-621	100	104	93	NR	NR	NR			NR	NR	NR	NR
VBLK10616	98	103	102	↓	↓	↓			↓	↓	↓	↓
VBLK20616	98	100	95									
VBLK10624	98	101	88									
SBLK20611	NR	NR	NR	65	66	79			35	52	52	NR
PBLK10611	↓	↓	↓	NR	NR	NR			NR	NR	NR	69
EY-614MS	97	102	101	59	67	77			49	55	52	48 ++
EY-614MSD	98	97	93	71	77	105			56	65	69	45 ++

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

** ADVISORY LIMITS ONLY

Volatiles: 0 out of 36 ; outside of QC limits

Semi-Volatiles: 0 out of 54 ; outside of QC limits

Pesticides: 0 out of 7 ; outside of QC limits

Comments: DOC recoveries were calculated using EPAL Mix C, Run #1

+ UNABLE to calculate due to a co-eluting interference peak

++ DOC RECOVERIES were calculated using peak height measurement of EPAL MIX B, Run #3

FORM II 7/85

076

9762.S-0201

WATER MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Case No. 9763/FA3355IF **Contractor** Chayfan Environmental **Contract No.** 68-01-7360/SAS

FRACTION	COMPOUND	CONC. SPIKE ADDED (ug/L)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY
VOA SMO SAMPLE NO. EY-614	1,1-Dichloroethene	10	0	13	130k	10	100	26*	14	61-145
	Trichloroethene	10	0	9.4	94	9.8	98	4.2	14	71-120
	Chlorobenzene	10	0	9.6	96	9.6	96	0	13	75-130
	Toluene	10	0	9.5	95	9.6	96	1.0	13	76-125
	Benzene	10	0	9.6	96	10	100	4.1	11	76-127
B/N SMO SAMPLE NO. EY-614	1,2,4-Trichlorobenzene	40	0	26	65	35	88	30*	28	39-98
	Acenaphthene	40	0	32	80	39	98	20	31	46-118
	2,4 Dinitrotoluene	40	0	28	70	31	78	10	28	24-96
	Pyrene	40	0	36	90	45	112	22	31	26-127
	N-Nitroso-Di-n-Propylamine	40	0	34	85	41	102	19	38	41-116
	1,4-Dichlorobenzene	40	0	32	80	36	90	12	28	36-97
ACID SMO SAMPLE NO. EY-614	Pentachlorophenol	80	0	37	46	53	66	36	50	9-103
	Phenol	80	0	49	61	56	70	13	42	12-89
	2-Chlorophenol	80	0	69	86	86	108	22	40	27-123
	4-Chloro-3-Methylphenol	80	0	70	88	82	103*	16	42	23-97
	4-Nitrophenol	80	0	27	34	29	36	7.1	50	10-80
PEST SMO SAMPLE NO. EY-614	Lindane	0.080	0.00	0.039+	49*	0.036+	45*	22*	15	56-123
	Heptachlor	0.080	0.00	0.039	49	0.035	44	11	20	40-131
	Aldrin	0.080	0.00	0.035	44	0.043	54	21	22	40-120
	Dieldrin	0.20	0.00	0.15	75	0.17	85	12	18	52-126
	Endrin	0.20	0.00	0.12	60	0.14	70	15	21	56-121
	4,4'-DDT	0.20	0.00	0.12	60	0.10++	50	18	27	38-127

80-120 QJ 4/25/88

*ASTERISKED VALUES ARE OUTSIDE QC LIMITS.

RPD: VOAs 1 out of 5 : outside QC limits
B/N 1 out of 6 : outside QC limits
ACID 0 out of 5 : outside QC limits
PEST 1 out of 6 : outside QC limits

RECOVERY: VOAs 1 out of 10 : outside QC limits
B/N 0 out of 6 : outside QC limits
ACID 1 out of 10 : outside QC limits
PEST 2 out of 12 : outside QC limits

Comments: + calculated using Ar/HT Ratio
++ calculated using manual peak HT measurements

RO 6-25-88

7/85

077

8702.5-023-01

METHOD BLANK SUMMARY

Case No. 9762/SAS 3554E Region V Contractor Clayton Environmental Contract No. 68-01-7260/SAS

FILE ID	DATE OF ANALYSIS	FRACTION	MATRIX	CONC. LEVEL	INST. ID	CAS NUMBER	COMPOUND (HSL, TIC OR UNKNOWN)	CONC.	UNITS	CRDL
B4137VBLK10616	6/16/88	VOA	WATER	LOW	2B	75092	Methylene CHLORIDE	0.4J	ug/L	1.0
B4137	6/16/88	VOA	WATER	LOW	2B	67641	ACETONE	11J	ug/L	75
B4137	6/16/88	VOA	WATER	LOW	2B	591786	2-HEXANONE	0.5J	ug/L	50
B4149VBLK20616	6/16/88	VOA	WATER	LOW	2B	75092	methylene CHLORIDE	3.0J	ug/L	1.0
B4149	6/16/88	VOA	WATER	LOW	2B	67641	ACETONE	11J	ug/L	75
B4149	6/16/88	VOA	Water	LOW	2B	75150	CARBON DISULFIDE	0.2J	ug/L	3.0
B4149	6/16/88	VOA	Water	LOW	2B	108883	TOLUENE	0.2J	ug/L	1.5
B4149	6/16/88	VOA	Water	LOW	2B	—	BACKGROUND ARGON + CO_2 (SYSTEM RETRIEVAL)	30J	ug/L	—
B4149	6/16/88	VOA	Water	LOW	2B	—	UNKNOWN	1J	ug/L	—
B4297VBLK10624	6/24/88	VOA	Water	LOW	2B	75092	METHYLENE CHLORIDE	0.9J	ug/L	1.0
B4297	6/24/88	VOA	Water	LOW	2B	67641	ACETONE	14J	ug/L	75
B4297	6/24/88	VOA	Water	LOW	2B	75150	CARBON DISULFIDE	0.2J	ug/L	3.0
B4297	6/24/88	VOA	Water	LOW	2B	108883	TOLUENE	0.4J	ug/L	1.5
A3002SBLK20611	6/27/88	BNA	WATER	LOW	1A	—	UNKNOWN	10J	ug/L	—
A3002	6/27/88	BNA	WATER	LOW	1A	110430	2-HEPTANONE	10J	ug/L	—
PBLK 10611 (RUN #46)	6/14/88	PEST	WATER	LOW	HP-5890A-1	—	NO PEST/PCB DETECTED AT OR ABOVE THE CRDL	—	—	—

Comments:

078

9762 • 5-04-01

FORM IV

7/85

9762 • 5 • 028-01

ORGANIC ANALYSIS DATA SHEET
(Page 1)

Sample Number
EY-611

Lab Name: Clayton Environmental Consultants, Inc.
Lab Sample ID No: 84155 (642258)
Sample Matrix: Water
Data Release Authorized By:

Case No : 9762/SDS 3554E
QC Report No: NR
Contract No: 68-01-7260
Date Sample Received: 6/10/88 6/27/88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/16/88
Date Analyzed: 6/16/88
Conc/Dil Factor: 1.00 ph 7.0
Percent Moisture (Decanted): N R

C.A.S. Number		ug/L or ug/Kg (Circle One)	C.A.S. Number		ug/L or ug/Kg (Circle One)
74-87-3	Chloromethane	10 U	78-87-5	1,2-Dichloropropane	1.5 U
74-83-9	Bromomethane	10 U	10061-02-6	Trans-1,3-Dichloropropene	1.0 U
75-01-4	Vinyl Chloride	10 U	79-01-6	Trichloroethene	1.5 U
75-00-3	Chloroethane	1.5 U	124-48-1	Dibromochloromethane	1.5 U
75-09-2	Methylene Chloride	1.0 ~~0.3 J B~~ U	79-00-5	1,1,2-Trichloroethane	1.5 U
67-64-1	Acetone	75 ~~15 J B~~ U	71-43-2	Benzene	1.5 U
75-15-0	Carbon Disulfide	3.0 ~~0.3 J B~~ U	10061-01-5	cis-1,3-Dichloropropene	2.0 U
75-35-4	1,1-Dichloroethene	1.5 U	110-75-8	2-Chloroethylvinylether	1.5 U
75-34-3	1,1-Dichloroethane	1.5 U	75-25-2	Bromoform	1.5 U
156-60-5	Trans-1,2-Dichloroethene	1.5 U	108-10-1	4-Methyl-2-Pentanone	3.0 U
67-66-3	Chloroform	10	591-78-6	2-Hexanone	50 U
107-06-2	1,2-Dichloroethane	1.5 U	127-18-4	Tetrachloroethene	1.5 U
78-93-3	2-Butanone	50 U	79-34-5	1,1,2,2-Tetrachloroethane	1.5 U
71-55-6	1,1,1-Trichloroethane	1.5 U	108-88-3	Toluene	1.5 ~~0.2 J B~~ U
56-23-5	Carbon Tetrachloride	1.5 U	108-90-7	Chlorobenzene	1.5 U
108-05-4	Vinyl Acetate	15 U	100-41-4	Ethylbenzene	1.5 U
75-27-4	Bromodichloromethane	1.5 U	100-42-5	Styrene	1.0 U
107-13-1	Acrylonitrile	50 U	108-38-3	m-Xylene	2.0 U
	o,p-Xylene (Total)	2.5 U	107-02-8	Acrolein	100 U

Data Reporting Qualifiers

For reporting results to the EPA, the following results qualifiers are used. Additional flags of footnotes are encouraged. However, the definition of each flag must be explicit.

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. Report the minimum detection limit for the sample with the U(e.g. 10U) based on nessessary concentration/dilution action. (This is not nessessarily the instrument detection limit) The footnote should read U- Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, report as 3J.

K Value below the technical chlordane CRQL.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the summary report.

M Matrix spike compound

R Indicates a value less than the dilution corrected limit of detection but greater than the CRQL.

AV 7-19-88

Form 1

9762·5-088-02

Lab Name: Clayton Environmental Consultants, Inc.
Case No : 9762/SRS 3554E

Sample Number
BCY-611

ORGANIC ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted: 6/11/88
Date Analyzed: 6/27/88 (A3003)
Conc/Dil Factor: 1.01
Percent Moisture (Decanted): N R

GPC Cleanup _Yes ✓No
Separatory Funnel Extraction ✓Yes
Continuous Liquid-Liquid Extraction _Yes

C.A.S. Number		(ug/L) or ug/Kg (Circle One)
108-95-2	Phenol	2.0 U
111-44-4	bis(2-Chloroethyl)Ether	1.5 U
95-57-8	2-Chlorophenol	2.0 U
541-73-1	1,3-Dichlorobenzene	2.0 U
106-46-7	1,4-Dichlorobenzene	2.0 U
100-51-6	Benzyl Alcohol	2.0 U
95-50-1	1,2-Dichlorobenzene	2.5 U
95-48-7	2-Methylphenol	1.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5 U
106-44-5	4-Methylphenol	1.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5 U
67-72-1	Hexachloroethane	2.0 U
98-95-3	Nitrobenzene	2.5 U
78-59-1	Isophorone	2.5 U
88-75-5	2-Nitrophenol	2.0 U
105-67-9	2,4-Dimethylphenol	2.0 U
65-85-0	Benzoic Acid	30 U
111-91-1	bis(2-Chloroethoxy)Methane	2.5 U
120-83-2	2,4-Dichlorophenol	2.0 U
120-82-1	1,2,4-Trichlorobenzene	2.0 U
91-20-3	Naphthalene	2.0 U
106-47-8	4-Chloroaniline	2.0 U
87-68-3	Hexachlorobutadiene	2.5 U
59-50-7	4-Chloro-3-Methylphenol	1.5 U
91-57-6	2-Methylnaphthalene	2.0 U
77-47-4	Hexachlorocyclopentadiene	2.0 U
88-06-2	2,4,6-Trichlorophenol	1.5 U
95-95-4	2,4,5-Trichlorophenol	1.5 U
91-58-7	2-Chloronaphthalene	1.5 U
88-74-4	2-Nitroaniline	1.0 U
131-11-3	Dimethyl Phthalate	1.5 U
208-96-8	Acenaphthylene	1.5 U
99-09-2	3-Nitroaniline	2.5 U

C.A.S. Number		(ug/L) or ug/Kg (Circle One)
83-32-9	Acenaphthene	1.5 U
51-28-5	2,4-Dinitrophenol	15 U
100-02-7	4-Nitrophenol	1.5 U
132-64-9	Dibenzofuran	1.0 U
121-14-2	2,4-Dinitrotoluene	1.0 U
606-20-2	2,6-Dinitrotoluene	1.0 U
84-66-2	Diethylphthalate	1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0 U
86-73-7	Fluorene	1.0 U
100-01-6	4-Nitroaniline	3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	15 U
86-30-6	N-Nitrosodiphenylamine *	
122-39-4	Diphenylamine *	1.5 U
101-55-3	4-Bromophenyl-phenylether	1.5 U
118-74-1	Hexachlorobenzene	1.5 U
87-86-5	Pentachlorophenol	2.0 U
85-01-8	Phenanthrene	1.0 U
120-12-7	Anthracene	2.5 U
84-74-2	Di-n-Butylphthalate	2.0 U
206-44-0	Fluoranthene	1.5 U
129-00-0	Pyrene	1.5 U
85-68-7	Butylbenzylphthalate	3.5 U
56-55-3	Benzo(a)Anthracene **	
117-81-7	bis(2-Ethylhexyl)Phthalate	1.0 U
218-01-9	Chrysene **	1.5 U
117-84-0	Di-n-Octyl Phthalate	1.5 U
205-99-2	Benzo(b)Fluoranthene ***	
207-08-9	Benzo(k)Fluoranthene ***	1.5 U
50-32-8	Benzo(a)Pyrene	2.0 U
193-39-5	Indeno(1,2,3-cd)Pyrene	3.5 U
53-70-3	Dibenz(a,h)Anthracene	2.5 U
191-24-2	Benzo(g,h,i)Perylene	4.0 U

* These two parameters reported as a total
** These two parameters reported as a total
*** These two parameters reported as a total

088

9762 • 5-028-03

Laboratory Name Clayton

Case No 97621 SAS 3554E

Sample Number
EY-611

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration Low Medium (Circle One)

Date Extracted/Prepared 11 June 1988

Date Analyzed 14 June 1988, Run# 47

Conc./Dil Factor 1

Percent Moisture (decanted) -NA-

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.010 u
319-85-7	Beta-BHC	0.005 u
319-86-8	Delta-BHC	0.005 u
58-89-9	Gamma-BHC (Lindane)	0.005 u
76-44-8	Heptachlor	0.031 u
309-00-2	Aldrin	0.005 u
1024-57-3	Heptachlor Epoxide	0.005 u
959-98-8	Endosulfan I	0.010 u
60-57-1	Dieldrin	0.010 u
72-55-9	4 4 -DDE	0.005 u
72-20-8	Endrin	0.010 u
33213-65-9	Endosulfan II	0.010 u
72-54-8	4 4 -DDD	0.021 u
1031-07-8	Endosulfan Sulfate	0.10 u
50-29-3	4 4 -DDT	0.021 u
72-43-5	Methoxychlor	0.021 u
53494-70-5	Endrin Ketone	0.031 u
57-74-9	Chlordane	0.021 u
8001-35-2	Toxaphene	0.26 u
12674-11-2	Aroclor-1016	-NA-
11104-28-2	Aroclor-1221	-NA-
11141-16-5	Aroclor-1232	-NA-
53469-21-9	Aroclor-1242	0.10 u
12672-29-6	Aroclor-1248	0.10 u
11097-69-1	Aroclor-1254	0.10 u
11096-82-5	Aroclor-1260	0.10 u

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 970ml or W_s _____ V_t 1000 ul V_i 1ul

aK 6-14-88

Z. [illegible] 6-27-88

089

9762-5-029-01

Laboratory Name Clayton Environmental

Case No 9762/SAS 3554E

Sample Number EY-611

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	BACKGROUND ARGON HCO_2 (SYSTEM ARTIFACT)	VOA	7.88	20 JB
2. —	Unknown	BNA	5.98	9 JB
3. 110430	2-Heptanone	BNA	6.05	10 JB
4. —	Unknown	BNA	7.38	6 J
5.				
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30.				

9762 • 5 • 028-04

ORGANIC ANALYSIS DATA SHEET
(Page 1)

Sample Number
EY-612

Lab Name: Clayton Environmental Consultants, Inc.
Lab Sample ID No: B4139 (642260)
Sample Matrix: Water
Data Release Authorized By:

Case No : 9762/SDS 3554E
QC Report No: NR
Contract No: 68-01-7260/SAS
Date Sample Received: 6/10/88

UST gas tank 25 yds from well head.

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/16/88
Date Analyzed: 6/16/88
Conc/Dil Factor: 1.00
ph 7.1
Percent Moisture (Decanted): N R

C.A.S. Number		ug/l or ug/Kg (Circle One)	C.A.S. Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10 U	78-87-5	1,2-Dichloropropane	1.5 U
74-83-9	Bromomethane	10 U	10061-02-6	Trans-1,3-Dichloropropene	1.0 U
75-01-4	Vinyl Chloride	10 U	79-01-6	Trichloroethene	0.3 J
75-00-3	Chloroethane	1.5 U	124-48-1	Dibromochloromethane	1.5 U
75-09-2	Methylene Chloride	2.2 ~~B~~ U	79-00-5	1,1,2-Trichloroethane	~~1.5 U~~
67-64-1	Acetone	75 ~~52 B~~ U	71-43-2	Benzene	0.2 J
75-15-0	Carbon Disulfide	0.6 J	10061-01-5	cis-1,3-Dichloropropene	2.0 U
75-35-4	1,1-Dichloroethene	1.5 U	110-75-8	2-Chloroethylvinylether	1.5 U
75-34-3	1,1-Dichloroethane	1.5 U	75-25-2	Bromoform	1.5 U
156-60-5	Trans-1,2-Dichloroethene	1.5 U	108-10-1	4-Methyl-2-Pentanone	3.0 U
67-66-3	Chloroform	1.5 U	591-78-6	2-Hexanone	~~50 U~~
107-06-2	1,2-Dichloroethane	1.5 U	127-18-4	Tetrachloroethene	0.4 J
78-93-3	2-Butanone	50 U	79-34-5	1,1,2,2-Tetrachloroethane	~~1.5 U~~
71-55-6	1,1,1-Trichloroethane	1.5 U	108-88-3	Toluene	0.6 J
56-23-5	Carbon Tetrachloride	1.5 U	108-90-7	Chlorobenzene	1.5 U
108-05-4	Vinyl Acetate	15 U	100-41-4	Ethylbenzene	1.5 U
75-27-4	Bromodichloromethane	1.5 U	100-42-5	Styrene	~~1.0 U~~
107-13-1	Acrylonitrile	50 U	108-38-3	m-Xylene	0.2 J
	o,p-Xylene (Total)	2.5 U	107-02-8	Acrolein	100 U

AV 7-19-88

Data Reporting Qualifiers

For reporting results to the EPA, the following results qualifiers are used. Additional flags of footnotes are encouraged. However, the definition of each flag must be explicit.

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. Report the minimum detection limit for the sample with the U(e.g. 10U) based on nessessary concentration/dilution action. (This is not nessessarily the instrument detection limit) The footnote should read U- Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, report as 3J.

K Value below the technical chlordane CRQL.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropiate action.

other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the summary report.

M Matrix spike compound

A Indicates a value less than the dilution corrected limit of detection but greater than the CRQL.

Form 1

9762 • 5-028-05
DH. 6/27/88

Lab Name: Clayton Environmental Consultants, Inc.
Case No : 9762/SBS 3554E

Sample Number
SEY-612

ORGANIC ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/11/88
Date Analyzed: 6/28/88 (A3011)
Cond/Dil Factor: 1.00
Percent Moisture (Decanted): N R

GPC Cleanup _Yes_No
Separatory Funnel Extraction_Yes
Continuous Liquid-Liquid Extraction_Yes

C.A.S. Number		ug/L or ug/Kg (Circle One)
108-95-2	Phenol	2.4
111-44-4	bis(2-Chloroethyl)Ether	1.5 U
95-57-8	2-Chlorophenol	2.0 U
541-73-1	1,3-Dichlorobenzene	2.0 U
106-46-7	1,4-Dichlorobenzene	2.0 U
100-51-6	Benzyl Alcohol	2.0 U
95-50-1	1,2-Dichlorobenzene	2.5 U
95-48-7	2-Methylphenol	1.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5 U
106-44-5	4-Methylphenol	1.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5 U
67-72-1	Hexachloroethane	2.0 U
98-95-3	Nitrobenzene	2.5 U
78-59-1	Isophorone	2.5 U
88-75-5	2-Nitrophenol	2.0 U
105-67-9	2,4-Dimethylphenol	2.0 U
65-85-0	Benzoic Acid	30 U
111-91-1	bis(2-Chloroethoxy)Methane	2.5 U
120-83-2	2,4-Dichlorophenol	2.0 U
120-82-1	1,2,4-Trichlorobenzene	2.0 U
91-20-3	Naphthalene	2.0 U
106-47-8	4-Chloroaniline	2.0 U
87-68-3	Hexachlorobutadiene	2.5 U
59-50-7	4-Chloro-3-Methylphenol	1.5 U
91-57-6	2-Methylnaphthalene	2.0 U
77-47-4	Hexachlorocyclopentadiene	2.0 U
88-06-2	2,4,6-Trichlorophenol	1.5 U
95-95-4	2,4,5-Trichlorophenol	1.5 U
91-58-7	2-Chloronaphthalene	1.5 U
88-74-4	2-Nitroaniline	1.0 U
131-11-3	Dimethyl Phthalate	1.5 U
208-96-8	Acenaphthylene	1.5 U
99-09-2	3-Nitroaniline	2.5 U

C.A.S. Number		ug/L or ug/Kg (Circle One)
83-32-9	Acenaphthene	1.5 U
51-28-5	2,4-Dinitrophenol	15 U
100-02-7	4-Nitrophenol	1.5 U
132-64-9	Dibenzofuran	1.0 U
121-14-2	2,4-Dinitrotoluene	1.0 U
606-20-2	2,6-Dinitrotoluene	1.0 U
84-66-2	Diethylphthalate	1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0 U
86-73-7	Fluorene	1.0 U
100-01-6	4-Nitroaniline	3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	15 U
86-30-6	N-Nitrosodiphenylamine *	
122-39-4	Diphenylamine *	1.5 U
101-55-3	4-Bromophenyl-phenylether	1.5 U
118-74-1	Hexachlorobenzene	1.5 U
87-86-5	Pentachlorophenol	2.0 U
85-01-8	Phenanthrene	1.0 U
120-12-7	Anthracene	2.5 U
84-74-2	Di-n-Butylphthalate	2.0 U
206-44-0	Fluoranthene	1.5 U
129-00-0	Pyrene	1.5 U
85-68-7	Butylbenzylphthalate	3.5 U
56-55-3	Benzo(a)Anthracene **	
117-81-7	bis(2-Ethylhexyl)Phthalate	1.0 U
218-01-9	Chrysene **	1.5 U
117-84-0	Di-n-Octyl Phthalate	1.5 U
205-99-2	Benzo(b)Fluoranthene ***	
207-08-9	Benzo(k)Fluoranthene ***	1.5 U
50-32-8	Benzo(a)Pyrene	2.0 U
193-39-5	Indeno(1,2,3-cd)Pyrene	3.5 U
53-70-3	Dibenz(a,h)Anthracene	2.5 U
191-24-2	Benzo(g,h,i)Perylene	4.0 U

* These two parameters reported as a total
** These two parameters reported as a total
*** These two parameters reported as a total

9762-5-028-06

Laboratory Name Clayton

Case No 9762 / SAS 3554E

Sample Number EY-612

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration Low Medium (Circle One)

Date Extracted/Prepared 11 June 1988

Date Analyzed 15 June 1988, Run # 48

Conc/Dil Factor 1

Percent Moisture (decanted) -NA-

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.010 u
319-85-7	Beta-BHC	0.005 u
319-86-8	Delta-BHC	0.005 u
58-89-9	Gamma-BHC (Lindane)	0.005 u
76-44-8	Heptachlor	0.031 u
309-00-2	Aldrin	0.005 u
1024-57-3	Heptachlor Epoxide	0.005 u
959-98-8	Endosulfan I	0.010 u
60-57-1	Dieldrin	0.010 u
72-55-9	4 4-DDE	0.005 u
72-20-8	Endrin	0.010 u
33213-65-9	Endosulfan II	0.010 u
72-54-8	4 4-DDD	0.020 u
1031-07-8	Endosulfan Sulfate	0.10 u
50-29-3	4 4-DDT	0.020 u
72-43-5	Methoxychlor	0.030 u
53494-70-5	Endrin Ketone	0.031 u
57-74-9	Chlordane	0.020 u
8001-35-2	Toxaphene	0.26 u
12674-11-2	Aroclor-1016	-NA-
11104-28-2	Aroclor-1221	-NA-
11141-16-5	Aroclor-1232	-NA-
53469-21-9	Aroclor-1242	0.10 u
12672-29-6	Aroclor-1248	0.10 u
11097-69-1	Aroclor-1254	0.10 u
11096-82-5	Aroclor-1260	0.10 u

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 980 ml or W_s _____ V_t 1000 ul V_i 1.0 ul

aKohut 6-15-88

R. Tilali 6-25-88

Form 1

7 85

8762 • 5 • 029-02

Laboratory Name Clayton Environmental

Case No 9762/SAS 3554E

Sample Number EY-612

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	NO VOLATILE COMPOUND DETECTED	VOA	—	—
2. —	unknown	BNA	6.03	7 JB
3. 110430	2-Heptanone	BNA	6.10	10 JB
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9762·5·028-07

ORGANIC ANALYSIS DATA SHEET
(Page 1)

Sample Number
EY-613

Lab Name: Clayton Environmental Consultants, Inc.
Lab Sample ID No: 84148 (642262)
Sample Matrix: Water
Data Release Authorized By: Daryl Thornton

Case No : 9762/SMS 3554E
QC Report No: NR
Contract No: 68-01-7260/545
Date Sample Received: 6/10/88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/16/88
Date Analyzed: 6/16/88
Conc/Dil Factor: 1.00 ph 7.1
Percent Moisture (Decanted): N R

C.A.S. Number		ug/L or ug/Kg (Circle One)	C.A.S. Number		ug/L or ug/Kg (Circle One)
74-87-3	Chloromethane	10 U	78-87-5	1,2-Dichloropropane	1.5 U
74-83-9	Bromomethane	10 U	10061-02-6	Trans-1,3-Dichloropropene	1.0 U
75-01-4	Vinyl Chloride	10 U	79-01-6	Trichloroethene	1.5 U
75-00-3	Chloroethane	1.5 U	124-48-1	Dibromochloromethane	1.5 U
75-09-2	Methylene Chloride	1.0 U	79-00-5	1,1,2-Trichloroethane	1.5 U
67-64-1	Acetone	~~75 15 1.8~~ V	71-43-2	Benzene	1.5 U
75-15-0	Carbon Disulfide	3.0 U	10061-01-5	cis-1,3-Dichloropropene	2.0 U
75-35-4	1,1-Dichloroethene	1.5 U	110-75-8	2-Chloroethylvinylether	1.5 U
75-34-3	1,1-Dichloroethane	1.5 U	75-25-2	Bromoform	1.5 U
156-60-5	Trans-1,2-Dichloroethene	1.5 U	108-10-1	4-Methyl-2-Pentanone	3.0 U
67-66-3	Chloroform	1.5 U	591-78-6	2-Hexanone	50 U
107-06-2	1,2-Dichloroethane	1.5 U	127-18-4	Tetrachloroethene	1.5 U
78-93-3	2-Butanone	50 U	79-34-5	1,1,2,2-Tetrachloroethane	1.5 U
71-55-6	1,1,1-Trichloroethane	1.5 U	108-88-3	Toluene	1.5 U
56-23-5	Carbon Tetrachloride	1.5 U	108-90-7	Chlorobenzene	1.5 U
108-05-4	Vinyl Acetate	15 U	100-41-4	Ethylbenzene	1.5 U
75-27-4	Bromodichloromethane	1.5 U	100-42-5	Styrene	1.0 U
107-13-1	Acrylonitrile	50 U	108-38-3	m-Xylene	2.0 U
	o,p-Xylene (Total)	2.5 U	107-02-8	Acrolein	100 U

AV
7-19-88

Data Reporting Qualifiers

For reporting results to the EPA, the following results qualifiers are used. Additional flags of footnotes are encouraged. However, the definition of each flag must be explicit.

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. Report the minimum detection limit for the sample with the U(e.g. 10U) based on nessessary concentration/dilution action. (This is not nessessarily the instrument detection limit) The footnote should read U- Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, report as 3J.

K Value below the technical chlordane CRQL.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the summary report.

M Matrix spike compound

A Indicates a value less than the dilution corrected limit of detection but greater than the CRQL.

Form 1

9762 · 5-028-08

Lab Name: Clayton Environmental Consultants, Inc.
Case No : 9762/SAS 3554E

Sample Number
EY-613

ORGANIC ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/11/88
Date Analyzed: 6/28/88 (A3012)
Conc/Dil Factor: 1.00
Percent Moisture (Decanted): N R

GPC Cleanup _Yes ✓No
Separatory Funnel Extraction ✓Yes
Continuous Liquid-Liquid Extraction _Yes

C.A.S. Number		ug/L or ug/Kg (Circle One)	C.A.S. Number		ug/L or ug/Kg (Circle One)
108-95-2	Phenol	2.0 U	83-32-9	Acenaphthene	1.5 U
111-44-4	bis(2-Chloroethyl)Ether	1.5 U	51-28-5	2,4-Dinitrophenol	15 U
95-57-8	2-Chlorophenol	2.0 U	100-02-7	4-Nitrophenol	1.5 U
541-73-1	1,3-Dichlorobenzene	2.0 U	132-64-9	Dibenzofuran	1.0 U
106-46-7	1,4-Dichlorobenzene	2.0 U	121-14-2	2,4-Dinitrotoluene	1.0 U
100-51-6	Benzyl Alcohol	2.0 U	606-20-2	2,6-Dinitrotoluene	1.0 U
95-50-1	1,2-Dichlorobenzene	2.5 U	84-66-2	Diethylphthalate	1.0 U
95-48-7	2-Methylphenol	1.0 U	7005-72-3	4-Chlorophenyl-phenylether	1.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5 U	86-73-7	Fluorene	1.0 U
106-44-5	4-Methylphenol	1.0 U	100-01-6	4-Nitroaniline	3.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5 U	534-52-1	4,6-Dinitro-2-Methylphenol	15 U
67-72-1	Hexachloroethane	2.0 U	86-30-6	N-Nitrosodiphenylamine *	
98-95-3	Nitrobenzene	2.5 U	122-39-4	Diphenylamine *	1.5 U
78-59-1	Isophorone	2.5 U	101-55-3	4-Bromophenyl-phenylether	1.5 U
88-75-5	2-Nitrophenol	2.0 U	118-74-1	Hexachlorobenzene	1.5 U
105-67-9	2,4-Dimethylphenol	2.0 U	87-86-5	Pentachlorophenol	2.0 U
65-85-0	Benzoic Acid	30 U	85-01-8	Phenanthrene	1.0 U
111-91-1	bis(2-Chloroethoxy)Methane	2.5 U	120-12-7	Anthracene	2.5 U
120-83-2	2,4-Dichlorophenol	2.0 U	84-74-2	Di-n-Butylphthalate	2.0 U
120-82-1	1,2,4-Trichlorobenzene	2.0 U	206-44-0	Fluoranthene	1.5 U
91-20-3	Naphthalene	2.0 U	129-00-0	Pyrene	1.5 U
106-47-8	4-Chloroaniline	2.0 U	85-68-7	Butylbenzylphthalate	3.5 U
87-68-3	Hexachlorobutadiene	2.5 U	56-55-3	Benzo(a)Anthracene **	
59-50-7	4-Chloro-3-Methylphenol	1.5 U	117-81-7	bis(2-Ethylhexyl)Phthalate	1.0 U
91-57-6	2-Methylnaphthalene	2.0 U	218-01-9	Chrysene **	1.5 U
77-47-4	Hexachlorocyclopentadiene	2.0 U	117-84-0	Di-n-Octyl Phthalate	1.5 U
88-06-2	2,4,6-Trichlorophenol	1.5 U	205-99-2	Benzo(b)Fluoranthene ***	
95-95-4	2,4,5-Trichlorophenol	1.5 U	207-08-9	Benzo(k)Fluoranthene ***	1.5 U
91-58-7	2-Chloronaphthalene	1.5 U	50-32-8	Benzo(a)Pyrene	2.0 U
88-74-4	2-Nitroaniline	1.0 U	193-39-5	Indeno(1,2,3-cd)Pyrene	3.5 U
131-11-3	Dimethyl Phthalate	1.5 U	53-70-3	Dibenz(a,h)Anthracene	2.5 U
208-96-8	Acenaphthylene	1.5 U	191-24-2	Benzo(g,h,i)Perylene	4.0 U
99-09-2	3-Nitroaniline	2.5 U			

* These two parameters reported as a total
** These two parameters reported as a total
*** These two parameters reported as a total

9762 • 5-028.09

Laboratory Name Clayton

Case No 9762 | SAS 3554E

Sample Number
2Y-613

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration Low Medium (Circle One)

Date Extracted/Prepared 11 June 1988

Date Analyzed 15 June 1988, Run # 49

Conc./Dil Factor: 1

Percent Moisture (decanted) -NA-

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.010 u
319-85-7	Beta-BHC	0.005 u
319-86-8	Delta-BHC	0.005 u
58-89-9	Gamma-BHC (Lindane)	0.005 u
76-44-8	Heptachlor	0.031 u
309-00-2	Aldrin	0.005 u
1024-57-3	Heptachlor Epoxide	0.005 u
959-98-8	Endosulfan I	*
60-57-1	Dieldrin	0.010 u
72-55-9	4 4 -DDE	0.005 u
72-20-8	Endrin	0.010 u
33213-65-9	Endosulfan II	0.010 u
72-54-8	4 4 -DDD	0.021 u
1031-07-8	Endosulfan Sulfate	0.10 u
50-29-3	4 4 -DDT	0.021 u
72-43-5	Methoxychlor	0.021 u
53494-70-5	Endrin Ketone	0.031 u
57-74-9	Chlordane	0.021 u
8001-35-2	Toxaphene	0.26 u
12674-11-2	Aroclor-1016	-NA-
11104-28-2	Aroclor-1221	-NA-
11141-16-5	Aroclor-1232	-NA-
53469-21-9	Aroclor-1242	0.10 u
12672-29-6	Aroclor-1248	0.10 u
11097-69-1	Aroclor-1254	0.10 u
11096-82-5	Aroclor-1260	0.10 u

V_i = Volume of extract injected (ul) * Reported from 10 dilution

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 970 ml or W_s _____ V_t 1000 ul V_i 1 ul

GKohat 6-15-88
Z Tleak 6-27-88

Form 1

7 85

9762 · 5-028-10

Laboratory Name Clayton

Case No 97621 SAS 3554E

Sample Number
EY-613

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration Low Medium (Circle One)

Date ~~Extracted~~ Prepared 11 June 1988

Date Analyzed 16 June 1988, Run# 93

Conc. ~~Dil Factor~~ 10

Percent Moisture (decanted) -NA-

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		~~ug/l~~ or ug/Kg (Circle One)
319-84-6	Alpha-BHC	
319-85-7	Beta-BHC	
319-86-8	Delta-BHC	
58-89-9	Gamma-BHC (Lindane)	
76-44-8	Heptachlor	
309-00-2	Aldrin	
1024-57-3	Heptachlor Epoxide	
959-98-8	Endosulfan I	0.10 u
60-57-1	Dieldrin	
72-55-9	4 4 -DDE	
72-20-8	Endrin	
33213-65-9	Endosulfan II	
72-54-8	4 4 -DDD	
1031-07-8	Endosulfan Sulfate	
50-29-3	4 4 -DDT	
72-43-5	Methoxychlor	
53494-70-5	Endrin Ketone	
57-74-9	Chlordane	
8001-35-2	Toxaphene	
12674-11-2	Aroclor-1016	
11104-28-2	Aroclor-1221	
11141-16-5	Aroclor-1232	
53469-21-9	Aroclor-1242	
12672-29-6	Aroclor-1248	
11097-69-1	Aroclor-1254	
11096-82-5	Aroclor-1260	

* (Rows 1–8)

* (Rows 9–20)

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

* repeated from Str dil

V_s 970 ml or W_s _____ V_t 10000 ul due to 10 dil factor V_i 1 ul

AKohut 6-16-88

R. Thaler 6-27-88

131

Form 1

7 85

9762 • 5 • 029-03

Laboratory Name Clayton Environmental

Case No 9762/SAS 3554E

Sample Number EY-613

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	BACKGROUND ARGON + CO_2 (SYSTEM ARTIFACT)	VOA	7.60	10 J
2. —	UNKNOWN	VOA	8.65	2 J
3. —	Unknown	BNA	6.03	9 JB
4. 110430	2-Heptanone	BNA	6.10	10 JB
5. —	Unknown	BNA	7.74	4 J
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9762 • 5 • 028-11

ORGANIC ANALYSIS DATA SHEET
(Page 1)

!Sample Number !
!EY-614 !

Lab Name: Clayton Environmental Consultants, Inc.
Lab Sample ID No: 84298 (642265)
Sample Matrix: Water
Data Release Authorized By:

Case No : 9762/SAS 3554E
QC Report No: N/A
Contract No: 68-01-7260/SAS
Date Sample Received: 6/10/88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/24/88
Date Analyzed: 6/24/88
Conc/Dil Factor: 1.00 ph 7.1
Percent Moisture (Decanted): N R

C.A.S. Number		ug/L or ug/Kg (Circle One)	C.A.S. Number		ug/L or ug/Kg (Circle One)
74-87-3	Chloromethane	10 U	78-87-5	1,2-Dichloropropane	1.5 U
74-83-9	Bromomethane	10 U	10061-02-6	Trans-1,3-Dichloropropene	1.0 U
75-01-4	Vinyl Chloride	10 U	79-01-6	Trichloroethene	1.5 U
75-00-3	Chloroethane	1.5 U	124-48-1	Dibromochloromethane	1.5 U
75-09-2	Methylene Chloride	1.0 U	79-00-5	1,1,2-Trichloroethane	1.5 U
67-64-1	Acetone	75 U	71-43-2	Benzene	1.5 U
75-15-0	Carbon Disulfide	3.0 U	10061-01-5	cis-1,3-Dichloropropene	2.0 U
75-35-4	1,1-Dichloroethene	1.5 U	110-75-8	2-Chloroethylvinylether	1.5 U
75-34-3	1,1-Dichloroethane	1.5 U	75-25-2	Bromoform	1.5 U
156-60-5	Trans-1,2-Dichloroethene	1.5 U	108-10-1	4-Methyl-2-Pentanone	3.0 U
67-66-3	Chloroform	1.5 U	591-78-6	2-Hexanone	50 U
107-06-2	1,2-Dichloroethane	1.5 U	127-18-4	Tetrachloroethene	1.5 U
78-93-3	2-Butanone	50 U	79-34-5	1,1,2,2-Tetrachloroethane	1.5 U
71-55-6	1,1,1-Trichloroethane	1.5 U	108-88-3	Toluene	1.5 U
56-23-5	Carbon Tetrachloride	1.5 U	108-90-7	Chlorobenzene	1.5 U
108-05-4	Vinyl Acetate	15 U	100-41-4	Ethylbenzene	1.5 U
75-27-4	Bromodichloromethane	1.5 U	100-42-5	Styrene	1.0 U
107-13-1	Acrylonitrile	50 U	108-38-3	m-Xylene	2.0 U
	o,p-Xylene (Total)	2.5 U	107-02-8	Acrolein	100 U

Data Reporting Qualifiers

For reporting results to the EPA, the following results qualifiers are used. Additional flags of footnotes are encouraged. However, the definition of each flag must be explicit.

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. Report the minimum detection limit for the sample with the U(e.g. 10U) based on nessessary concentration/dilution action. (This is not nessessarily the instrument detection limit) The footnote should read U- Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, report as 3J.

K Value below the technical chlordane CRQL.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the summary report.

M Matrix spike compound

A Indicates a value less than the dilution corrected limit of detection but greater than the CRQL.

9762·5-028-12

Lab Name: Clayton Environmental Consultants, Inc.
Case No : 9762/SAS 3554E

Sample Number
KEY-614

ORGANIC ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/11/88
Date Analyzed: 6/28/88 (A3013)
Conc/Dil Factor: 2.00
Percent Moisture (Decanted): N R

GPC Cleanup _Yes ✓No
Separatory Funnel Extraction ✓Yes
Continuous Liquid-Liquid Extraction _Yes

C.A.S. Number		ug/L or ug/Kg (Circle One)
108-95-2	Phenol	4.0 U
111-44-4	bis(2-Chloroethyl)Ether	3.0 U
95-57-8	2-Chlorophenol	4.0 U
541-73-1	1,3-Dichlorobenzene	4.0 U
106-46-7	1,4-Dichlorobenzene	4.0 U
100-51-6	Benzyl Alcohol	4.0 U
95-50-1	1,2-Dichlorobenzene	5.0 U
95-48-7	2-Methylphenol	2.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	5.0 U
106-44-5	4-Methylphenol	2.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	3.0 U
67-72-1	Hexachloroethane	4.0 U
98-95-3	Nitrobenzene	5.0 U
78-59-1	Isophorone	5.0 U
88-75-5	2-Nitrophenol	4.0 U
105-67-9	2,4-Dimethylphenol	4.0 U
65-85-0	Benzoic Acid	60 U
111-91-1	bis(2-Chloroethoxy)Methane	5.0 U
120-83-2	2,4-Dichlorophenol	4.0 U
120-82-1	1,2,4-Trichlorobenzene	4.0 U
91-20-3	Naphthalene	4.0 U
106-47-8	4-Chloroaniline	4.0 U
87-68-3	Hexachlorobutadiene	5.0 U
59-50-7	4-Chloro-3-Methylphenol	3.0 U
91-57-6	2-Methylnaphthalene	4.0 U
77-47-4	Hexachlorocyclopentadiene	4.0 U
88-06-2	2,4,6-Trichlorophenol	3.0 U
95-95-4	2,4,5-Trichlorophenol	3.0 U
91-58-7	2-Chloronaphthalene	3.0 U
88-74-4	2-Nitroaniline	2.0 U
131-11-3	Dimethyl Phthalate	3.0 U
208-96-8	Acenaphthylene	3.0 U
99-09-2	3-Nitroaniline	5.0 U

C.A.S. Number		ug/L or ug/Kg (Circle One)
83-32-9	Acenaphthene	3 U
51-28-5	2,4-Dinitrophenol	30 U
100-02-7	4-Nitrophenol	3.0 U
132-64-9	Dibenzofuran	2.0 U
121-14-2	2,4-Dinitrotoluene	2.0 U
606-20-2	2,6-Dinitrotoluene	2.0 U
84-66-2	Diethylphthalate	2.0 U
7005-72-3	4-Chlorophenyl-phenylether	2.0 U
86-73-7	Fluorene	2.0 U
100-01-6	4-Nitroaniline	6.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	30 U
86-30-6	N-Nitrosodiphenylamine *	
122-39-4	Diphenylamine *	3 U
101-55-3	4-Bromophenyl-phenylether	3 U
118-74-1	Hexachlorobenzene	3 U
87-86-5	Pentachlorophenol	4.0 U
85-01-8	Phenanthrene	2.0 U
120-12-7	Anthracene	5.0 U
84-74-2	Di-n-Butylphthalate	4.0 U
206-44-0	Fluoranthene	3.0 U
129-00-0	Pyrene	3.0 U
85-68-7	Butylbenzylphthalate	7.0 U
56-55-3	Benzo(a)Anthracene **	
117-81-7	bis(2-Ethylhexyl)Phthalate	2.0 U
218-01-9	Chrysene **	3.0 U
117-84-0	Di-n-Octyl Phthalate	3.0 U
205-99-2	Benzo(b)Fluoranthene ***	
207-08-9	Benzo(k)Fluoranthene ***	3.0 U
50-32-8	Benzo(a)Pyrene	4.0 U
193-39-5	Indeno(1,2,3-cd)Pyrene	7.0 U
53-70-3	Dibenz(a,h)Anthracene	5.8 U
191-24-2	Benzo(g,h,i)Perylene	8.0 U

* These two parameters reported as a total
** These two parameters reported as a total
*** These two parameters reported as a total

9762 • 5-028-13

Laboratory Name Clayton

Case No 97621 SAS 3554E

Sample Number EY-614

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration ~~Low~~ Medium (Circle One)

Date ~~Extracted~~ Prepared 11 June 1988

Date Analyzed 15 June 1988, Run #50

Conc/~~Dil Factor~~: 1

Percent Moisture (decanted) -NA-

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		~~ug/l~~ or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.020u	
319-85-7	Beta-BHC	0.010u	
319-86-8	Delta-BHC	0.010u	
58-89-9	Gamma-BHC (Lindane)	0.010u	
76-44-8	Heptachlor	0.010u	
309-00-2	Aldrin	0.010u	
1024-57-3	Heptachlor Epoxide	0.010u	
959-98-8	Endosulfan I	0.020u	
60-57-1	Dieldrin	0.020u	
72-55-9	4 4-DDE	0.010u	
72-20-8	Endrin	0.020u	
33213-65-9	Endosulfan II	0.020u	
72-54-8	4 4-DDD	0.040u	
1031-07-8	Endosulfan Sulfate	0.20u	
50-29-3	4 4-DDT	0.040u	
72-43-5	Methoxychlor		*
53494-70-5	Endrin Ketone		*
57-74-9	Chlordane	0.040u	
8001-35-2	Toxaphene	0.50u	
12674-11-2	Aroclor-1016	-NA-	
11104-28-2	Aroclor-1221	-NA-	
11141-16-5	Aroclor-1232	-NA-	
53469-21-9	Aroclor-1242	0.20u	
12672-29-6	Aroclor-1248	0.20u	
11097-69-1	Aroclor-1254	0.20u	
11096-82-5	Aroclor-1260	0.20u	

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

* reported from 5 di

V_s 500ml or W_s _____ V_t 1000 ml V_i 1ul

akshut 6-15-88

R. Tabb 6-27-88

Form 1

7 8

9782 • 5-028-14

Laboratory Name Clayton

Case No 9762 | SAS 3554E

Sample Number
EY-614

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration Low Medium (Circle One)

Date Extracted/Prepared 11 June 1988

Date Analyzed 15 June 1988, Run# 60

Conc/Dil Factor 5

Percent Moisture (decanted) - NA-

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/L or ug/Kg (Circle One)	
319-84-6	Alpha-BHC		
319-85-7	Beta-BHC		
319-86-8	Delta-BHC		
58-89-9	Gamma-BHC (Lindane)		
76-44-8	Heptachlor		
309-00-2	Aldrin		
1024-57-3	Heptachlor Epoxide		
959-98-8	Endosulfan I		
60-57-1	Dieldrin		*
72-55-9	4 4 -DDE		
72-20-8	Endrin		
33213-65-9	Endosulfan II		
72-54-8	4 4 -DDD		
1031-07-8	Endosulfan Sulfate		
50-29-3	4 4 -DDT		
72-43-5	Methoxychlor	0.20u	
53494-70-5	Endrin Ketone	0.30u	
57-74-9	Chlordane		
8001-35-2	Toxaphene		
12674-11-2	Aroclor-1016		
11104-28-2	Aroclor-1221		
11141-16-5	Aroclor-1232		
53469-21-9	Aroclor-1242		*
12672-29-6	Aroclor-1248		
11097-69-1	Aroclor-1254		
11096-82-5	Aroclor-1260		

V_i = Volume of extract injected (ul) = reported from str dil

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 500 ml or W_s _____ V_t 5000 ml due to 5 dil factor V_i 1 ml

AK chat 6-15-88
R Tabb 6-27-88

Form 1

7 8:

9762 • 5 • 029-04

Laboratory Name Clayton Environmental

Case No 9762/SAS 35546

Sample Number E4-614

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	BACKGROUND ARGON & CO_2 (SYSTEM ARTIFACT)	VOA	7.25	30 J
2. —	Unknown	BNA	6.03	20 JB
3. 110430	2-Heptanone	BNA	6.09	20 JB
4.				
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9762 · 5 · 028-15

ORGANIC ANALYSIS DATA SHEET
(Page 1)

Sample Number
EY-615

Lab Name: Clayton Environmental Consultants, Inc.
Lab Sample ID No: 84151 (642270)
Sample Matrix: Water
Data Release Authorized By:

Case No : 9762/SMS 3554E
QC Report No: NR
Contract No: 68-01-7260 /SAS
Date Sample Received: 6/10/88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/16/88
Date Analyzed: 6/16/88
Conc/Dil Factor: 1.00 ph 7.2
Percent Moisture (Decanted): N R

C.A.S. Number		ug/L or ug/Kg (Circle One)	C.A.S. Number		ug/L or ug/Kg (Circle One)
74-87-3	Chloromethane	10 U	78-87-5	1,2-Dichloropropane	1.5 U
74-83-9	Bromomethane	10 U	10061-02-6	Trans-1,3-Dichloropropene	1.0 U
75-01-4	Vinyl Chloride	10 U	79-01-6	Trichloroethene	1.5 U
75-00-3	Chloroethane	1.5 U	124-48-1	Dibromochloromethane	1.5 U
75-09-2	Methylene Chloride	1.0 ~~0.2 J B~~ U	79-00-5	1,1,2-Trichloroethane	1.5 U
67-64-1	Acetone	75 ~~16 J B~~ U	71-43-2	Benzene	1.5 U
75-15-0	Carbon Disulfide	3.0 U	10061-01-5	cis-1,3-Dichloropropene	2.0 U
75-35-4	1,1-Dichloroethene	1.5 U	110-75-8	2-Chloroethylvinylether	1.5 U
75-34-3	1,1-Dichloroethane	1.5 U	75-25-2	Bromoform	1.5 U
156-60-5	Trans-1,2-Dichloroethene	1.5 U	108-10-1	4-Methyl-2-Pentanone	3.0 U
67-66-3	Chloroform	1.5 U	591-78-6	2-Hexanone	50 U
107-06-2	1,2-Dichloroethane	1.5 U	127-18-4	Tetrachloroethene	1.5 U
78-93-3	2-Butanone	50 U	79-34-5	1,1,2,2-Tetrachloroethane	1.5 U
71-55-6	1,1,1-Trichloroethane	1.5 U	108-88-3	Toluene	1.5 ~~0.2 J B~~ U
56-23-5	Carbon Tetrachloride	1.5 U	108-90-7	Chlorobenzene	1.5 U
108-05-4	Vinyl Acetate	15 U	100-41-4	Ethylbenzene	1.5 U
75-27-4	Bromodichloromethane	1.5 U	100-42-5	Styrene	1.0 U
107-13-1	Acrylonitrile	50 U	108-38-3	m-Xylene	2.0 U
	o,p-Xylene (Total)	2.5 U	107-02-8	Acrolein	100 U

Data Reporting Qualifiers

For reporting results to the EPA, the following results qualifiers are used. Additional flags of footnotes are encouraged. However, the definition of each flag must be explicit.

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. Report the minimum detection limit for the sample with the U(e.g. 10U) based on nessessary concentration/dilution action. (This is not nessessarily the instrument detection limit) The footnote should read U- Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, report as 3J.

K Value below the technical chlordane CRQL.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides)= 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropiate action.

other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the summary report.

M Matrix spike compound

A Indicates a value less than the dilution corrected limit of detection but greater than the CRQL.

Form 1

9762 • 5 • 028-16

Lab Name: Clayton Environmental Consultants, Inc.
Case No : 9762/SAS 3554E

Sample Number
EY-615

ORGANIC ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/11/88
Date Analyzed: 6/28/88 (R3016)
Conc/Dil Factor: 1.02
Percent Moisture (Decanted): N R

GPC Cleanup _Yes ✓No
Seperatory Funnel Extraction ✓Yes
Continuous Liquid-Liquid Extraction _Yes

C.A.S. Number		ug/l or ug/Kg (Circle One)	C.A.S. Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	2.0 U	83-32-9	Acenaphthene	1.5 U
111-44-4	bis(2-Chloroethyl)Ether	1.5 U	51-28-5	2,4-Dinitrophenol	15 U
95-57-8	2-Chlorophenol	2.0 U	100-02-7	4-Nitrophenol	1.5 U
541-73-1	1,3-Dichlorobenzene	2.0 U	132-64-9	Dibenzofuran	1.0 U
106-46-7	1,4-Dichlorobenzene	2.0 U	121-14-2	2,4-Dinitrotoluene	1.0 U
100-51-6	Benzyl Alcohol	2.0 U	606-20-2	2,6-Dinitrotoluene	1.0 U
95-50-1	1,2-Dichlorobenzene	2.6 U	84-66-2	Diethylphthalate	1.0 U
95-48-7	2-Methylphenol	1.0 U	7005-72-3	4-Chlorophenyl-phenylether	1.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	2.6 U	86-73-7	Fluorene	1.0 U
106-44-5	4-Methylphenol	1.0 U	100-01-6	4-Nitroaniline	3.1 U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5 U	534-52-1	4,6-Dinitro-2-Methylphenol	15 U
67-72-1	Hexachloroethane	2.0 U	86-30-6	N-Nitrosodiphenylamine *	
98-95-3	Nitrobenzene	2.6 U	122-39-4	Diphenylamine *	1.5 U
78-59-1	Isophorone	2.6 U	101-55-3	4-Bromophenyl-phenylether	1.5 U
88-75-5	2-Nitrophenol	2.0 U	118-74-1	Hexachlorobenzene	1.5 U
105-67-9	2,4-Dimethylphenol	2.0 U	87-86-5	Pentachlorophenol	2.0 U
65-85-0	Benzoic Acid	31 U	85-01-8	Phenanthrene	1.0 U
111-91-1	bis(2-Chloroethoxy)Methane	2.6 U	120-12-7	Anthracene	2.6 U
120-83-2	2,4-Dichlorophenol	2.0 U	84-74-2	Di-n-Butylphthalate	2.0 U
120-82-1	1,2,4-Trichlorobenzene	2.0 U	206-44-0	Fluoranthene	1.5 U
91-20-3	Naphthalene	2.0 U	129-00-0	Pyrene	1.5 U
106-47-8	4-Chloroaniline	2.0 U	85-68-7	Butylbenzylphthalate	3.6 U
87-68-3	Hexachlorobutadiene	2.6 U	56-55-3	Benzo(a)Anthracene **	
59-50-7	4-Chloro-3-Methylphenol	1.5 U	117-81-7	bis(2-Ethylhexyl)Phthalate	1.0 U
91-57-6	2-Methylnaphthalene	2.0 U	218-01-9	Chrysene **	1.5 U
77-47-4	Hexachlorocyclopentadiene	2.0 U	117-84-0	Di-n-Octyl Phthalate	1.5 U
88-06-2	2,4,6-Trichlorophenol	1.5 U	205-99-2	Benzo(b)Fluoranthene ***	
95-95-4	2,4,5-Trichlorophenol	1.5 U	207-08-9	Benzo(k)Fluoranthene ***	1.5 U
91-58-7	2-Chloronaphthalene	1.5 U	50-32-8	Benzo(a)Pyrene	2.0 U
88-74-4	2-Nitroaniline	1.0 U	193-39-5	Indeno(1,2,3-cd)Pyrene	3.6 U
131-11-3	Dimethyl Phthalate	1.5 U	53-70-3	Dibenz(a,h)Anthracene	2.6 U
208-96-8	Acenaphthylene	1.5 U	191-24-2	Benzo(g,h,i)Perylene	4.1 U
99-09-2	3-Nitroaniline	2.6 U			

* These two parameters reported as a total
** These two parameters reported as a total
*** These two parameters reported as a total

9762 • 5-028-17

Laboratory Name Clayton

Case No 9762 | SAS 3554E

Sample Number
EY-615

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration Low Medium (Circle One)

Date Extracted/Prepared 11 June 1988

Date Analyzed 15 June 1988, Run#54

Conc/Dil Factor 1

Percent Moisture (decanted) -NA-

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.010 u
319-85-7	Beta-BHC	0.005 u
319-86-8	Delta-BHC	0.005 u
58-89-9	Gamma-BHC (Lindane)	0.005 u
76-44-8	Heptachlor	0.031 u
309-00-2	Aldrin	0.005 u
1024-57-3	Heptachlor Epoxide	0.005 u
959-98-8	Endosulfan I	0.010 u
60-57-1	Dieldrin	0.010 u
72-55-9	4 4 -DDE	0.005 u
72-20-8	Endrin	0.010 u
33213-65-9	Endosulfan II	0.010 u
72-54-8	4 4 -DDD	0.031 u
1031-07-8	Endosulfan Sulfate	0.10 u
50-29-3	4 4 -DDT	0.031 u
72-43-5	Methoxychlor	0.031 u
53494-70-5	Endrin Ketone	0.031 u
57-74-9	Chlordane	0.031 u
8001-35-2	Toxaphene	0.36 u
12674-11-2	Aroclor-1016	-NA-
11104-28-2	Aroclor-1221	-NA-
11141-16-5	Aroclor-1232	-NA-
53469-21-9	Aroclor-1242	0.10 u
12672-29-6	Aroclor-1248	0.10 u
11097-69-1	Aroclor-1254	0.10 u
11096-82-5	Aroclor-1260	0.10 u

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 970ml or W_s _____ V_t 1000 ul V_i 1 ul

checked at C-15-88
E. Tolson 6-07-88

Form 1

7 85

9762-5-029-05

Laboratory Name Clayton Environmental

Case No 9762/SAS 3554E

Sample Number EY-615

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	BACKGROUND ARGON + CO_2 (SYSTEM ARTIFACT)	VOA	7.55	20 JB
2. —	Unknown	BNA	6.01	7 JB
3. 110430	2-Heptanone	BNA	6.07	9 JB
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9762 • 5 • 028-18

ORGANIC ANALYSIS DATA SHEET
(Page 1)

Sample Number
EY-616

Lab Name: Clayton Environmental Consultants, Inc.
Lab Sample ID No: 84152 (642272)
Sample Matrix: Water
Data Release Authorized By: Daryl Throneberry

Case No : 9762/SAS 3554E
QC Report No: NR
Contract No: 68-01-7266/SAS
Date Sample Received: 6/10/88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/16/88
Date Analyzed: 6/16/88
Conc/Dil Factor: 1.00 ph 7.2
Percent Moisture (Decanted): N R

C.A.S. Number		ug/L or ug/Kg (Circle One)	C.A.S. Number		ug/L or ug/Kg (Circle One)
74-87-3	Chloromethane	10 U	78-87-5	1,2-Dichloropropane	1.5 U
74-83-9	Bromomethane	10 U	10061-02-6	Trans-1,3-Dichloropropene	1.0 U
75-01-4	Vinyl Chloride	10 U	79-01-6	Trichloroethene	1.5 U
75-00-3	Chloroethane	1.5 U	124-48-1	Dibromochloromethane	1.5 U
75-09-2	Methylene Chloride	1.0 U	79-00-5	1,1,2-Trichloroethane	1.5 U
67-64-1	Acetone	75 ~~33 J B~~ V	71-43-2	Benzene	1.5 U
75-15-0	Carbon Disulfide	3.0 U	10061-01-5	cis-1,3-Dichloropropene	2.0 U
75-35-4	1,1-Dichloroethene	1.5 U	110-75-8	2-Chloroethylvinylether	1.5 U
75-34-3	1,1-Dichloroethane	1.5 U	75-25-2	Bromoform	1.5 U
156-60-5	Trans-1,2-Dichloroethene	1.5 U	108-10-1	4-Methyl-2-Pentanone	3.0 U
67-66-3	Chloroform	1.5 U	591-78-6	2-Hexanone	50 U
107-06-2	1,2-Dichloroethane	1.5 U	127-18-4	Tetrachloroethene	1.5 U
78-93-3	2-Butanone	50 U	79-34-5	1,1,2,2-Tetrachloroethane	1.5 U
71-55-6	1,1,1-Trichloroethane	1.5 U	108-88-3	Toluene	1.5 U
56-23-5	Carbon Tetrachloride	1.5 U	108-90-7	Chlorobenzene	1.5 U
108-05-4	Vinyl Acetate	15 U	100-41-4	Ethylbenzene	1.5 U
75-27-4	Bromodichloromethane	1.5 U	100-42-5	Styrene	1.0 U
107-13-1	Acrylonitrile	50 U	108-38-3	m-Xylene	2.0 U
	o,p-Xylene (Total)	2.5 U	107-02-8	Acrolein	100 U

Data Reporting Qualifiers

For reporting results to the EPA, the following results qualifiers are used. Additional flags of footnotes are encouraged. However, the definition of each flag must be explicit.

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. Report the minimum detection limit for the sample with the U(e.g. 10U) based on nessessary concentration/dilution action. (This is not nessessarily the instrument detection limit) The footnote should read U- Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, report as 3J.

K Value below the technical chlordane CRDL.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the summary report.

M Matrix spike compound

R Indicates a value less than the dilution corrected limit of detection but greater than the CRDL.

Form 1

9762·5-028-19

Lab Name: Clayton Environmental Consultants, Inc.
Case No : 9762/SRS 3554E

Sample Number
EY-616

ORGANIC ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/11/88
Date Analyzed: 6/28/88 (A3017)
Conc/Dil Factor: 1.00
Percent Moisture (Decanted): N R

GPC Cleanup _Yes ✓No
Separatory Funnel Extraction ✓Yes
Continuous Liquid-Liquid Extraction _Yes

C.A.S. Number		ug/L or ug/Kg (Circle One)
108-95-2	Phenol	2.0 U
111-44-4	bis(2-Chloroethyl)Ether	1.5 U
95-57-8	2-Chlorophenol	2.0 U
541-73-1	1,3-Dichlorobenzene	2.0 U
106-46-7	1,4-Dichlorobenzene	2.0 U
100-51-6	Benzyl Alcohol	2.0 U
95-50-1	1,2-Dichlorobenzene	2.5 U
95-48-7	2-Methylphenol	1.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5 U
106-44-5	4-Methylphenol	1.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5 U
67-72-1	Hexachloroethane	2.0 U
98-95-3	Nitrobenzene	2.5 U
78-59-1	Isophorone	2.5 U
88-75-5	2-Nitrophenol	2.0 U
105-67-9	2,4-Dimethylphenol	2.0 U
65-85-0	Benzoic Acid	30 U
111-91-1	bis(2-Chloroethoxy)Methane	2.5 U
120-83-2	2,4-Dichlorophenol	2.0 U
120-82-1	1,2,4-Trichlorobenzene	2.0 U
91-20-3	Naphthalene	2.0 U
106-47-8	4-Chloroaniline	2.0 U
87-68-3	Hexachlorobutadiene	2.5 U
59-50-7	4-Chloro-3-Methylphenol	1.5 U
91-57-6	2-Methylnaphthalene	2.0 U
77-47-4	Hexachlorocyclopentadiene	2.0 U
88-06-2	2,4,6-Trichlorophenol	1.5 U
95-95-4	2,4,5-Trichlorophenol	1.5 U
91-58-7	2-Chloronaphthalene	1.5 U
88-74-4	2-Nitroaniline	1.0 U
131-11-3	Dimethyl Phthalate	1.5 U
208-96-8	Acenaphthylene	1.5 U
99-09-2	3-Nitroaniline	2.5 U

C.A.S. Number		ug/L or ug/Kg (Circle One)
83-32-9	Acenaphthene	1.5 U
51-28-5	2,4-Dinitrophenol	15 U
100-02-7	4-Nitrophenol	1.5 U
132-64-9	Dibenzofuran	1.0 U
121-14-2	2,4-Dinitrotoluene	1.0 U
606-20-2	2,6-Dinitrotoluene	1.0 U
84-66-2	Diethylphthalate	1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0 U
86-73-7	Fluorene	1.0 U
100-01-6	4-Nitroaniline	3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	15 U
86-30-6	N-Nitrosodiphenylamine *	
122-39-4	Diphenylamine *	1.5 U
101-55-3	4-Bromophenyl-phenylether	1.5 U
118-74-1	Hexachlorobenzene	1.5 U
87-86-5	Pentachlorophenol	2.0 U
85-01-8	Phenanthrene	1.0 U
120-12-7	Anthracene	2.5 U
84-74-2	Di-n-Butylphthalate	2.0 U
206-44-0	Fluoranthene	1.5 U
129-00-0	Pyrene	1.5 U
85-68-7	Butylbenzylphthalate	3.5 U
56-55-3	Benzo(a)Anthracene **	
117-81-7	bis(2-Ethylhexyl)Phthalate	1.0 U
218-01-9	Chrysene **	1.5 U
117-84-0	Di-n-Octyl Phthalate	1.5 U
205-99-2	Benzo(b)Fluoranthene ***	
207-08-9	Benzo(k)Fluoranthene ***	1.5 U
50-32-8	Benzo(a)Pyrene	2.0 U
193-39-5	Indeno(1,2,3-cd)Pyrene	3.5 U
53-70-3	Dibenz(a,h)Anthracene	2.5 U
191-24-2	Benzo(g,h,i)Perylene	4.0 U

* These two parameters reported as a total
** These two parameters reported as a total
*** These two parameters reported as a total

9762-5-028-20

Laboratory Name Clayton

Case No 9762 ISAS 3554E

Sample Number EY-616

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration ~~Low~~ Medium (Circle One)

Date ~~Extracted~~ Prepared 11 June 1988

Date Analyzed 15 June 1988, Run# 56

Conc/~~Dil Factor~~ 1

Percent Moisture (decanted) -NA-

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		~~ug/l~~ or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.010 u
319-85-7	Beta-BHC	0.005 u
319-86-8	Delta-BHC	0.005 u
58-89-9	Gamma-BHC (Lindane)	0.005 u
76-44-8	Heptachlor	0.031 u
309-00-2	Aldrin	0.005 u
1024-57-3	Heptachlor Epoxide	0.005 u
959-98-8	Endosulfan I	0.010 u
60-57-1	Dieldrin	0.010 u
72-55-9	4 4-DDE	0.005 u
72-20-8	Endrin	0.010 u
33213-65-9	Endosulfan II	0.010 u
72-54-8	4 4-DDD	0.020 u
1031-07-8	Endosulfan Sulfate	0.10 u
50-29-3	4 4-DDT	0.020 u
72-43-5	Methoxychlor	0.020 u
53494-70-5	Endrin Ketone	0.031 u
57-74-9	Chlordane	0.020 u
8001-35-2	Toxaphene	0.26 u
12674-11-2	Aroclor-1016	-NA-
11104-28-2	Aroclor-1221	-NA-
11141-16-5	Aroclor-1232	-NA-
53469-21-9	Aroclor-1242	0.10 u
12672-29-6	Aroclor-1248	0.10 u
11097-69-1	Aroclor-1254	0.10 u
11096-82-5	Aroclor-1260	0.10 u

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 980 ml or W_s _____ V_t 1000 ul V_i 1 ul

aK dut 6-15-88

Z. Flash 6-27-88

Form 1

7 85

9762 • 5 • 029-06

Laboratory Name Clayton Environmental

Case No 9762 /SAS 3554E

Sample Number EY-616

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	BACKGROUND ARGON + CO_2 (SYSTEM ARTIFACT)	VOA	7.60	10 JB
2. —	Unknown	BNA	5.99	8 JB
3. 110430	2-Heptanone	BNA	6.06	10 JB
4.				
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9762 • 5 • 028-21

ORGANIC ANALYSIS DATA SHEET
(Page 1)

Sample Number
EY-621

Lab Name: Clayton Environmental Consultants, Inc.
Lab Sample ID No: 84156 (642274)
Sample Matrix: Water
Data Release Authorized By:

Case No : 9762/SRS 3554E
QC Report No: NR
Contract No: 68-01-7260/SMB
Date Sample Received: 6/10/88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/16/88
Date Analyzed: 6/16/88
Conc/Dil Factor: 1.00 ph NR
Percent Moisture (Decanted): N R

C.A.S. Number		ug/L or ug/Kg (Circle One)	C.A.S. Number		ug/L or ug/Kg (Circle One)
74-87-3	Chloromethane	10 U	78-87-5	1,2-Dichloropropane	1.5 U
74-83-9	Bromomethane	10 U	10061-02-6	Trans-1,3-Dichloropropene	1.0 U
75-01-4	Vinyl Chloride	10 U	79-01-6	Trichloroethene	1.5 U
75-00-3	Chloroethane	1.5 U	124-48-1	Dibromochloromethane	1.5 U
75-09-2	Methylene Chloride	1.0 ~~0.3 J B~~ U	79-00-5	1,1,2-Trichloroethane	1.5 U
67-64-1	Acetone	75 ~~7.1 J B~~ U	71-43-2	Benzene	1.5 U
75-15-0	Carbon Disulfide	3.0 U	10061-01-5	cis-1,3-Dichloropropene	2.0 U
75-35-4	1,1-Dichloroethene	1.5 U	110-75-8	2-Chloroethylvinylether	1.5 U
75-34-3	1,1-Dichloroethane	1.5 U	75-25-2	Bromoform	1.5 U
156-60-5	Trans-1,2-Dichloroethene	1.5 U	108-10-1	4-Methyl-2-Pentanone	3.0 U
67-66-3	Chloroform	1.5 U	591-78-6	2-Hexanone	50 U
107-06-2	1,2-Dichloroethane	1.5 U	127-18-4	Tetrachloroethene	1.5 U
78-93-3	2-Butanone	50 U	79-34-5	1,1,2,2-Tetrachloroethane	1.5 U
71-55-6	1,1,1-Trichloroethane	1.5 U	108-88-3	Toluene	1.5 U
56-23-5	Carbon Tetrachloride	1.5 U	108-90-7	Chlorobenzene	1.5 U
108-05-4	Vinyl Acetate	15 U	100-41-4	Ethylbenzene	1.5 U
75-27-4	Bromodichloromethane	1.5 U	100-42-5	Styrene	1.0 U
107-13-1	Acrylonitrile	50 U	108-38-3	m-Xylene	2.0 U
	o,p-Xylene (Total)	2.5 U	107-02-8	Acrolein	100 U

Data Reporting Qualifiers

For reporting results to the EPA, the following results qualifiers are used. Additional flags of footnotes are encouraged. However, the definition of each flag must be explicit.

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. Report the minimum detection limit for the sample with the U(e.g. 10U) based on nessessary concentration/dilution action. (This is not nessessarily the instrument detection limit) The footnote should read U- Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, report as 3J.

K Value below the technical chlordane CRQL.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the summary report.

M Matrix spike compound

A Indicates a value less than the dilution corrected limit of detection but greater than the CRQL.

Form 1

9762 • 5 • 029-07

Laboratory Name Clayton Environmental

Case No 9762/SAS 3554E

Sample Number EY-621

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	BACKGROUND ARGON + CO2 (SYSTEM ARTIFACT)	VOA	7.70	3 JB
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9782 • 5 • 057-01

Sample Number
UBL20615 1
106116
DB 6/29/88

ORGANIC ANALYSIS DATA SHEET Blanks.
(Page 1)

Lab Name: Clayton Environmental Consultants, Inc.
Lab Sample ID No: B4137
Sample Matrix: Water
Data Release Authorized By:

Case No : 9762/SMS 3554E
QC Report No: NR
Contract No: 68-01-7260/SAS
Date Sample Received: 6/10/88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/16/88
Date Analyzed: 6/16/88
Conc/Dil Factor: 1.00 ph NR
Percent Moisture (Decanted): N R

C.A.S. Number		ug/L or ug/Kg (Circle One)	C.A.S. Number		ug/L or ug/Kg (Circle One)
74-87-3	Chloromethane	10 U	78-87-5	1,2-Dichloropropane	1.5 U
74-83-9	Bromomethane	10 U	10061-02-6	Trans-1,3-Dichloropropene	1.0 U
75-01-4	Vinyl Chloride	10 U	79-01-6	Trichloroethene	1.5 U
75-00-3	Chloroethane	1.5 U	124-48-1	Dibromochloromethane	1.5 U
75-09-2	Methylene Chloride	0.4 J	79-00-5	1,1,2-Trichloroethane	1.5 U
67-64-1	Acetone	11 J	71-43-2	Benzene	1.5 U
75-15-0	Carbon Disulfide	3.0 U	10061-01-5	cis-1,3-Dichloropropene	2.0 U
75-35-4	1,1-Dichloroethene	1.5 U	110-75-8	2-Chloroethylvinylether	1.5 U
75-34-3	1,1-Dichloroethane	1.5 U	75-25-2	Bromoform	1.5 U
156-60-5	Trans-1,2-Dichloroethene	1.5 U	108-10-1	4-Methyl-2-Pentanone	3.0 U
67-66-3	Chloroform	1.5 U	591-78-6	2-Hexanone	0.5 J
107-06-2	1,2-Dichloroethane	1.5 U	127-18-4	Tetrachloroethene	1.5 U
78-93-3	2-Butanone	50 U	79-34-5	1,1,2,2-Tetrachloroethane	1.5 U
71-55-6	1,1,1-Trichloroethane	1.5 U	108-88-3	Toluene	1.5 U
56-23-5	Carbon Tetrachloride	1.5 U	108-90-7	Chlorobenzene	1.5 U
108-05-4	Vinyl Acetate	15 U	100-41-4	Ethylbenzene	1.5 U
75-27-4	Bromodichloromethane	1.5 U	100-42-5	Styrene	1.0 U
107-13-1	Acrylonitrile	50 U	108-38-3	m-Xylene	2.0 U
	o,p-Xylene (Total)	2.5 U	107-02-8	Acrolein	100 U

Data Reporting Qualifiers

For reporting results to the EPA, the following results qualifiers are used. Additional flags of footnotes are encouraged. However, the definition of each flag must be explicit.

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. Report the minimum detection limit for the sample with the U(e.g. 10U) based on nessessary concentration/dilution action. (This is not nessessarily the instrument detection limit) The footnote should read U- Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, report as 3J.

K Value below the technical chlordane CRQL.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropiate action.

other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the summary report.

M Matrix spike compound

R Indicates a value less than the dilution corrected limit of detection but greater than the CRQL.

Form 1

9762 • 5 • 058-02

Laboratory Name Clayton Environmental

Case No 9762/SAS 3554E

Sample Number
VBLK ~~20645~~ 10616
DB 6/29/88

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	NO VOLATILE COMPOUNDS DETECTED	VOA	—	—
2.				
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9762·5·057-02

ORGANIC ANALYSIS DATA SHEET
(Page 1)

Sample Number
UBLK48616

DG 6/29/88

Lab Name: Clayton Environmental Consultants, Inc.
Lab Sample ID No: B4149
Sample Matrix: Water
Data Release Authorized By:

Case No : 9762/SRS 3554E
QC Report No: NR
Contract No: 68-01-7260/573
Date Sample Received: 6/10/88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/16/88
Date Analyzed: 6/16/88
Conc/Dil Factor: 1.00 ph NR
Percent Moisture (Decanted): N R

C.A.S. Number		ug/L or ug/Kg (Circle One)	C.A.S. Number		ug/L or ug/Kg (Circle One)
74-87-3	Chloromethane	10 U	78-87-5	1,2-Dichloropropane	1.5 U
74-83-9	Bromomethane	10 U	10061-02-6	Trans-1,3-Dichloropropene	1.0 U
75-01-4	Vinyl Chloride	10 U	79-01-6	Trichloroethene	1.5 U
75-00-3	Chloroethane	1.5 U	124-48-1	Dibromochloromethane	1.5 U
75-09-2	Methylene Chloride	3.0	79-00-5	1,1,2-Trichloroethane	1.5 U
67-64-1	Acetone	11 J	71-43-2	Benzene	1.5 U
75-15-0	Carbon Disulfide	0.2 J	10061-01-5	cis-1,3-Dichloropropene	2.0 U
75-35-4	1,1-Dichloroethene	1.5 U	110-75-8	2-Chloroethylvinylether	1.5 U
75-34-3	1,1-Dichloroethane	1.5 U	75-25-2	Bromoform	1.5 U
156-60-5	Trans-1,2-Dichloroethene	1.5 U	108-10-1	4-Methyl-2-Pentanone	3.0 U
67-66-3	Chloroform	1.5 U	591-78-6	2-Hexanone	50 U
107-06-2	1,2-Dichloroethane	1.5 U	127-18-4	Tetrachloroethene	1.5 U
78-93-3	2-Butanone	50 U	79-34-5	1,1,2,2-Tetrachloroethane	1.5 U
71-55-6	1,1,1-Trichloroethane	1.5 U	108-88-3	Toluene	0.2 J
56-23-5	Carbon Tetrachloride	1.5 U	108-90-7	Chlorobenzene	1.5 U
108-05-4	Vinyl Acetate	15 U	100-41-4	Ethylbenzene	1.5 U
75-27-4	Bromodichloromethane	1.5 U	100-42-5	Styrene	1.0 U
107-13-1	Acrylonitrile	50 U	108-38-3	m-Xylene	2.0 U
	o,p-Xylene (Total)	2.5 U	107-02-8	Acrolein	100 U

Data Reporting Qualifiers

For reporting results to the EPA, the following results qualifiers are used. Additional flags of footnotes are encouraged. However, the definition of each flag must be explicit.

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. Report the minimum detection limit for the sample with the U(e.g. 10U) based on nessessary concentration/dilution action. (This is not nessessarily the instrument detection limit) The footnote should read U- Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, report as 3J.

K Value below the technical chlordane CRQL.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the summary report.

M Matrix spike compound

A Indicates a value less than the dilution corrected limit of detection but greater than the CRQL.

Form 1

9762 • 5 • 058-02

Laboratory Name Clayton Environmental

Case No 9762/SAS 3554E

Sample Number VBLK20616

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	BACKGROUND ARGON CO2 (SYSTEM ART. FACT)	VOA	7.51	30 J
2. —	UNKNOWN	VOA	25.22	1 J
3.				
4.				
5.				
6.				
7.				
8.				
9.				
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30.				

ORGANIC ANALYSIS DATA SHEET
(Page 1)

Sample Number
UBLK10624

Lab Name: Clayton Environmental Consultants, Inc.
Lab Sample ID No: B4297
Sample Matrix: Water
Data Release Authorized By:

Case No : 9762/SAS 3554E
QC Report No: NR
Contract No: 68-01-7260 / SAS
Date Sample Received: 6/10/88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/24/88
Date Analyzed: 6/24/88
Conc/Dil Factor: 1.00 ph NR
Percent Moisture (Decanted): N R

C.A.S. Number		ug/L or ug/Kg (Circle One)	C.A.S. Number		ug/L or ug/Kg (Circle One)
74-87-3	Chloromethane	10 U	78-87-5	1,2-Dichloropropane	1.5 U
74-83-9	Bromomethane	10 U	10061-02-6	Trans-1,3-Dichloropropene	1.0 U
75-01-4	Vinyl Chloride	10 U	79-01-6	Trichloroethene	1.5 U
75-00-3	Chloroethane	1.5 U	124-48-1	Dibromochloromethane	1.5 U
75-09-2	Methylene Chloride	0.9 J	79-00-5	1,1,2-Trichloroethane	1.5 U
67-64-1	Acetone	14 J	71-43-2	Benzene	1.5 U
75-15-0	Carbon Disulfide	0.2 J	10061-01-5	cis-1,3-Dichloropropene	2.0 U
75-35-4	1,1-Dichloroethene	1.5 U	110-75-8	2-Chloroethylvinylether	1.5 U
75-34-3	1,1-Dichloroethane	1.5 U	75-25-2	Bromoform	1.5 U
156-60-5	Trans-1,2-Dichloroethene	1.5 U	108-10-1	4-Methyl-2-Pentanone	3.0 U
67-66-3	Chloroform	1.5 U	591-78-6	2-Hexanone	50 U
107-06-2	1,2-Dichloroethane	1.5 U	127-18-4	Tetrachloroethene	1.5 U
78-93-3	2-Butanone	50 U	79-34-5	1,1,2,2-Tetrachloroethane	1.5 U
71-55-6	1,1,1-Trichloroethane	1.5 U	108-88-3	Toluene	0.4 J
56-23-5	Carbon Tetrachloride	1.5 U	108-90-7	Chlorobenzene	1.5 U
108-05-4	Vinyl Acetate	15 U	100-41-4	Ethylbenzene	1.5 U
75-27-4	Bromodichloromethane	1.5 U	100-42-5	Styrene	1.0 U
107-13-1	Acrylonitrile	50 U	108-38-3	m-Xylene	2.0 U
	o,p-Xylene (Total)	2.5 U	107-02-8	Acrolein	100 U

Data Reporting Qualifiers

For reporting results to the EPA, the following results qualifiers are used. Additional flags of footnotes are encouraged. However, the definition of each flag must be explicit.

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. Report the minimum detection limit for the sample with the U(e.g. 10U) based on nessessary concentration/dilution action. (This is not nessessarily the instrument detection limit) The footnote should read U- Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, report as 3J.

K Value below the technical chlordane CRQL.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropiate action.

other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the summary report.

M Matrix spike compound

R Indicates a value less than the dilution corrected limit of detection but greater than the CRQL.

9762 • 5 • 058 -03

Laboratory Name Clayton Environmental

Case No 9762/SAS 3554E

Sample Number
VBLK1062Y

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	NO VOLATILE COMPOUNDS DETECTED	VOA	—	—
2.				
3.				
4.				
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9762·5-05

Lab Name: Clayton Environmental Consultants, Inc.
Case No : 9762/SAS 3554E

Sample Number
SSBLK20611

ORGANIC ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 6/11/88
Date Analyzed: 6/27/88 (A3002)
Conc/Dil Factor: 1.00
Percent Moisture (Decanted): N R

GPC Cleanup _Yes ✓No
Separatory Funnel Extraction ✓Yes
Continuous Liquid-Liquid Extraction _Yes

C.A.S. Number		ug/l or ug/Kg (Circle One)	C.A.S. Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	2.0 U	83-32-9	Acenaphthene	1.5 U
111-44-4	bis(2-Chloroethyl)Ether	1.5 U	51-28-5	2,4-Dinitrophenol	15 U
95-57-8	2-Chlorophenol	2.0 U	100-02-7	4-Nitrophenol	1.5 U
541-73-1	1,3-Dichlorobenzene	2.0 U	132-64-9	Dibenzofuran	1.0 U
106-46-7	1,4-Dichlorobenzene	2.0 U	121-14-2	2,4-Dinitrotoluene	1.0 U
100-51-6	Benzyl Alcohol	2.0 U	606-20-2	2,6-Dinitrotoluene	1.0 U
95-50-1	1,2-Dichlorobenzene	2.5 U	84-66-2	Diethylphthalate	1.0 U
95-48-7	2-Methylphenol	1.0 U	7005-72-3	4-Chlorophenyl-phenylether	1.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5 U	86-73-7	Fluorene	1.0 U
106-44-5	4-Methylphenol	1.0 U	100-01-6	4-Nitroaniline	3.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5 U	534-52-1	4,6-Dinitro-2-Methylphenol	15 U
67-72-1	Hexachloroethane	2.0 U	86-30-6	N-Nitrosodiphenylamine *	
98-95-3	Nitrobenzene	2.5 U	122-39-4	Diphenylamine *	1.5 U
78-59-1	Isophorone	2.5 U	101-55-3	4-Bromophenyl-phenylether	1.5 U
88-75-5	2-Nitrophenol	2.0 U	118-74-1	Hexachlorobenzene	1.5 U
105-67-9	2,4-Dimethylphenol	2.0 U	87-86-5	Pentachlorophenol	2.0 U
65-85-0	Benzoic Acid	30 U	85-01-8	Phenanthrene	1.0 U
111-91-1	bis(2-Chloroethoxy)Methane	2.5 U	120-12-7	Anthracene	2.5 U
120-83-2	2,4-Dichlorophenol	2.0 U	84-74-2	Di-n-Butylphthalate	2.0 U
120-82-1	1,2,4-Trichlorobenzene	2.0 U	206-44-0	Fluoranthene	1.5 U
91-20-3	Naphthalene	2.0 U	129-00-0	Pyrene	1.5 U
106-47-8	4-Chloroaniline	2.0 U	85-68-7	Butylbenzylphthalate	3.5 U
87-68-3	Hexachlorobutadiene	2.5 U	56-55-3	Benzo(a)Anthracene **	
59-50-7	4-Chloro-3-Methylphenol	1.5 U	117-81-7	bis(2-Ethylhexyl)Phthalate	1.0 U
91-57-6	2-Methylnaphthalene	2.0 U	218-01-9	Chrysene **	1.5 U
77-47-4	Hexachlorocyclopentadiene	2.0 U	117-84-0	Di-n-Octyl Phthalate	1.5 U
88-06-2	2,4,6-Trichlorophenol	1.5 U	205-99-2	Benzo(b)Fluoranthene ***	
95-95-4	2,4,5-Trichlorophenol	1.5 U	207-08-9	Benzo(k)Fluoranthene ***	1.5 U
91-58-7	2-Chloronaphthalene	1.5 U	50-32-8	Benzo(a)Pyrene	2.0 U
88-74-4	2-Nitroaniline	1.0 U	193-39-5	Indeno(1,2,3-cd)Pyrene	3.5 U
131-11-3	Dimethyl Phthalate	1.5 U	53-70-3	Dibenz(a,h)Anthracene	2.5 U
208-96-8	Acenaphthylene	1.5 U	191-24-2	Benzo(g,h,i)Perylene	4.0 U
99-09-2	3-Nitroaniline	2.5 U			

* These two parameters reported as a total
** These two parameters reported as a total
*** These two parameters reported as a total

9762 • 5-058-04

Laboratory Name CLAYTON

Case No 9762/SAS 3554E

Sample Number
SBLK20611

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. —	Unknown	BNA	5.98	10 J
2. 110430	2-Heptanone	BNA	6.04	10 J
3.				
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9762 · 5-~~028~~ 057-07

Laboratory Name Clayton

Case No 9762 | SAS 3554E

Sample Number
PBLK10611

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

~~Date Extracted~~/Prepared 11 June 1988

Date Analyzed 14 June 1988, Run #46

Conc./~~Dil Factor~~: 1

Percent Moisture (decanted) -NA-

GPC Cleanup ☐Yes ☒~~No~~

Separatory Funnel Extraction ☒~~Yes~~

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.010 u
319-85-7	Beta-BHC	0.005 u
319-86-8	Delta-BHC	0.005 u
58-89-9	Gamma-BHC (Lindane)	0.005 u
76-44-8	Heptachlor	0.030 u
309-00-2	Aldrin	0.005 u
1024-57-3	Heptachlor Epoxide	0.005 u
959-98-8	Endosulfan I	0.010 u
60-57-1	Dieldrin	0.010 u
72-55-9	4 4 -DDE	0.005 u
72-20-8	Endrin	0.010 u
33213-65-9	Endosulfan II	0.010 u
72-54-8	4 4 -DDD	0.020 u
1031-07-8	Endosulfan Sulfate	0.10 u
50-29-3	4 4 -DDT	0.020 u
72-43-5	Methoxychlor	0.020 u
53494-70-5	Endrin Ketone	0.030 u
57-74-9	Chlordane	0.020 u
8001-35-2	Toxaphene	0.25 u
12674-11-2	Aroclor-1016	-NA-
11104-28-2	Aroclor-1221	-NA-
11141-16-5	Aroclor-1232	-NA-
53469-21-9	Aroclor-1242	0.10 u
12672-29-6	Aroclor-1248	0.10 u
11097-69-1	Aroclor-1254	0.10 u
11096-82-5	Aroclor-1260	0.10 u

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 ml or W_s _____ V_t 1000 ul V_i 1 ul

aKoshut 6-14-88

[illegible] 6-27-88

460

Form 1

7 8

RECEIVED

MAY 12 88

MPCA, Ground Water
& Solid Waste Div.

DATE: May 9, 1988

TO: Minnesota Pollution Control Agency
Site Assessment Unit
Program Development Section
Groundwater and Solid Waste Division
520 Lafayette Road
St. Paul, MN 55155

ATTN: Doug Day, Supervisor

Case No.	Site	Contract Lab	SF No.	No. Samples
9288SAS3554E	HADER GROUND WATER CONT.	S-CUBED	SF5011	10

Enclosed is one REVIEWED case. Please DO NOT return it.

FROM: U.S. EPA
Region V
Central Regional Laboratory
536 S. Clark, 10th Floor
Chicago, IL 60605

SENT BY: Erlinda Luz M. Arreola
WESTON - ESAT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 5-6-88

SUBJECT: Review of Region V CLP Data Received for Review on 4-25-88

FROM: Curtis Ross, Director (5SCRL) Central Regional Laboratory Patrick J. Churella for

TO: Data User: MPCA
DAVE KOUBSKY, MPCA

We have reviewed the data for the following case(s).

SITE NAME: HADER GROUND WATER (MN) SMO case No. 9288SAS3554E

EPA Data Set No. SF5011 No. of Samples: 10 D.U./Activity Numbers Y905/C72277

CRL No. 88YL06S01-S08, D05, R01

SMO Traffic No. ET831-840

CLP Laboratory: S-CUBED Hrs. Required for Review: 7

Following are our findings:

This review covers the analyses of 10 low concentration water samples. Nine were analyzed for semi-volatiles, volatiles and pesticide/PCBs. One sample (ET840) was analyzed for volatiles only.

Several problems which should be noted by the data user for these samples are outlined on the following pages.

John R. Grzeszka
ESAT - WESTON
5-2-88

( ) Data are acceptable for use.
(X) Data are acceptable for use with qualifications noted above.
( ) Data are preliminary - pending verification by Contractor Laboratory.
( ) Data are unacceptable.

cc: Duane Geuder, Quality Assurance Officer, EPA Support Services
James Petty, Chief Quality Assurance Research, EMSL, Las Vegas

DATA QUALIFIERS

Contractor: S-CUBED

Case 9288 SAS 3554E

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

1) Holding Time

The extractions for both the semi-volatile and pesticide/PCB fractions for samples ET831 thru ET839 exceeded the 7 days from sampling date holding time. All results from these fractions should be considered estimated. (Positive (J); Negative (UJ)).

2) Tuning

The GC/MS tuning criteria were met for both the volatile and semi-volatile fractions. Overall instrument performance was acceptable. All instrument performance criteria were met for the pesticide/PCB fraction.

3) Calibration

Calibration outliers for the volatile and semi-volatile fractions are noted on the calibration outlier sheets. Calibration criteria for the pesticide/PCB fraction were acceptable.

4) Blanks

Common contaminants were found in the volatile and semi-volatile blanks. Non-HSL contaminants were found in the semi-volatile blank. No contaminants were found in the pesticide/PCB blank. All contaminants were at acceptable level.

5) Surrogate Recoveries

Recoveries for Phenol-D5 and 2-Fluorophenol in the semi-volatile fractions of samples ET834, ET835 and ET836 were less than 10% and under the QC limits. The fractions were re-injected with similar results. There was insufficient sample to re-extract.

Reviewed by: John R. Hrzenko

Phone: 312-353-2917

Date: 5-2-88

DATA QUALIFIERS

Contractor: S-CUBED

Case 9288 SAS 3554E

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

For these fractions of the three mentioned samples, positive results should be flagged estimated (J) and negative results flagged unusable (R).

6) Matrix Spike / MSD

The % recoveries for Endrin are above the QC limit for both the matrix spike / MSD. Therefore for sample ET831 the results for Endrin should be flagged estimated ("positive (J), negative (UJ)).

7) Field Duplicates

Samples ET835 and ET836 were duplicates. There was relative agreement between these samples.

8) Compound Identification

All compound identifications were acceptable.

The problems identified in this review will not directly affect the quality and soundness of the data as a whole. Therefore, I find the data contained within acceptable for use.

Reviewed by: John R. Grzeczka

Phone: 312-353-2917

Date: [illegible]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
VOLATILE HSL COMPOUNDS

CASE/SAS # 9288 SAS3554E CONTRACTOR S CUBED

Instrument # VG2	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	3-28-88			4-4 0913			4-4 2016								
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Chloromethane															
Bromomethane															
Vinyl Chloride															
Chloroethane															
Methylene Chloride															
Acetone															
Carbon Disulfide															
1,1-Dichloroethane															
1,1-Dichloroethene															
Trans-1,2-Dichloroethene															
Chloroform															
2-Butanone	0.012	18.7	J/R	0.011	8.0	J/R	0.01	17.0	J/R						
1,2-Dichloroethane															
1,1,1-Trichloroethane															
Carbon Tetrachloride															
Vinyl Acetate															
Bromodichloromethane															
1,2-Dichloropropane															
Trans-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
cis-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
m-Xylene															
o/p-Xylene															
ACROLEIN	0.038	3.33	J/R	0.029	17.0	J/R	0.027	23.0	J/R						

AFFECTED SAMPLES:

LBLK 44V2021	LBLK 44V2021	
ET831	ET837	
ET833	ET831MS	
ET832	ET831MSD	
ET834	MATRIX BLANK	
ET835		
ET836		
ET838		
ET839		
ET840		

Reviewer's Initials/Date: JS 5-2-88

* These flags should be applied to the analytes on the sample data sheets.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
(Page 1)

CASE/SAS # 9288 SAS3554E CONTRACTOR S-CUBED

Instrument # HP#1	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	4-10-88														
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Phenol															
bis(-2-Chloroethyl)Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
bis(2-chloroisopropyl)Ether															
4-Methylphenol															
N-Nitroso-Di-n-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy)Methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-Methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethyl Phthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dinitrophenol															
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES:

LAB BLANK 47
ET933
ET934

Reviewer Initials/Date: JY 5-2-88

* These flags should be applied to the analytes on the sample data sheets.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
Page 2

CASE/SAS # 9288 SAS3554E CONTRACTOR S-CUBED

Instrument # HP#1	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	4-10-88														
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
2,4-Dinitrotoluene															
2,6-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
Benzo(a)Anthracene															
bis(2-Ethylhexyl)Phthalate															
Chrysene															
Di-n-Octyl Phthalate															
Benzo(b)Fluoranthene															
Benzo(k)Fluoranthene															
Benzo(a)Pyrene															
Indeno(1,2,3-cd)Pyrene															
Dibenz(a,h)Anthracene															
Benzo(g,h,i) Perylene															

SEE PAGE 1 FOR AFFECTED SAMPLES.

* These flags should be applied to the analytes on the sample data sheets.

Reviewer's Initials/Date: JB 5-2-88

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
(Page 1)

CASE/SAS # 9288SAS3554E CONTRACTOR S-CUBED

Instrument # HP #1	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	4-13-88														
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Phenol															
bis(-2-Chloroethyl)Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
bis(2-chloroisopropyl)Ether															
4-Methylphenol															
N-Nitroso-Di-n-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy)Methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-Methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethyl Phthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dinitrophenol															
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES:

RRBAL
ET 837
ET 838

Reviewer Initials/Date: AJ 5-2-88

* These flags should be applied to the analytes on the sample data sheets.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
Page 2

CASE/SAS # 9288 SAS3554E CONTRACTOR S-CUBED

Instrument # HP #1	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	4-13-88														
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
2,4-Dinitrotoluene															
2,6-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
Benzo(a)Anthracene															
bis(2-Ethylhexyl)Phthalate															
Chrysene															
Di-n-Octyl Phthalate															
Benzo(b)Fluoranthene															
Benzo(k)Fluoranthene															
Benzo(a)Pyrene															
Indeno(1,2,3-cd)Pyrene															
Dibenz(a,h)Anthracene															
Benzo(g,h,i) Perylene															

SEE PAGE 1 FOR AFFECTED SAMPLES.

* These flags should be applied to the analytes on the sample data sheets.

Reviewer's Initials/Date: JY 5-2-88

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
(Page 1)

CASE/SAS # 9288SA5355YE CONTRACTOR S-CUBED

Instrument # HP#1	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	4-14-88														
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Phenol															
bis(-2-Chloroethyl)Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
bis(2-chloroisopropyl)Ether															
4-Methylphenol															
N-Nitroso-Di-n-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy)Methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-Methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethyl Phthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dinitrophenol															
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES:

LAB BLK 4-14
ET831
ET831MS
ET831MSD
ET832

Reviewer Initials/Date: 5-2-88

* These flags should be applied to the analytes on the sample data sheets.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
Page 2

CASE/SAS # 9288SAS3554E CONTRACTOR S-CUBED

Instrument # HP#1	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	4-14-88														
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
2,4-Dinitrotoluene															
2,6-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
Benzo(a)Anthracene															
bis(2-Ethylhexyl)Phthalate															
Chrysene															
Di-n-Octyl Phthalate															
Benzo(b)Fluoranthene															
Benzo(k)Fluoranthene															
Benzo(a)Pyrene															
Indeno(1,2,3-cd)Pyrene															
Dibenz(a,h)Anthracene															
Benzo(g,h,i) Perylene															

SEE PAGE 1 FOR AFFECTED SAMPLES.

* These flags should be applied to the analytes on the sample data sheets.

Reviewer's Initials/Date: [illegible] 5-2-88

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
(Page 1)

CASE/SAS # 9288SAS3554E CONTRACTOR S-CUBED

Instrument # HP#1	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	4-19-88														
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Phenol															
bis(-2-Chloroethyl)Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
bis(2-chloroisopropyl)Ether															
4-Methylphenol															
N-Nitroso-Di-n-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy)Methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-Methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethyl Phthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dinitrophenol															
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES:

ETP35
ETP36
ETP39

Reviewer Initials/Date: JY 5-2-88

* These flags should be applied to the analytes on the sample data sheets.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
Page 2

CASE/SAS # 9288SAS3554E CONTRACTOR S-CUBED

Instrument #	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:															
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
2,4-Dinitrotoluene															
2,6-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
Benzo(a)Anthracene															
bis(2-Ethylhexyl)Phthalate															
Chrysene															
Di-n-Octyl Phthalate															
Benzo(b)Fluoranthene															
Benzo(k)Fluoranthene															
Benzo(a)Pyrene															
Indeno(1,2,3-cd)Pyrene															
Dibenz(a,h)Anthracene															
Benzo(g,h,i) Perylene															

SEE PAGE 1 FOR AFFECTED SAMPLES.

* These flags should be applied to the analytes on the sample data sheets.

Reviewer's Initials/Date: 5-2-88

Case: 9288-SAS3554E

Contractor: S-CUBED

TENTATIVELY IDENTIFIED COMPOUNDS MATCH ASSESSMENT

NOTE: Reviewer should note directly on Organic Analysis Data Sheet (OADS) those matches that in his opinion (based on contract criteria) are unreasonable.

CRITERIA

(1) Relative intensities of major ions (>10%) reference spectrum should be present in the sample spectrum.

(2) Relative intensities of major ions in sample spectrum should agree to within ± 20% of reference spectrum intensities.

(3) Molecular ions present in reference spectrum should be present in sample spectrum.

(4) Ions present in sample spectrum, but not in reference spectrum should be reviewed for possible background contamination or presence of coeluting interferences.

(5) Ions present in reference spectrum, but not in the sample spectrum should be reviewed for possible subtraction from the sample spectrum because of background contamination or coeluting interferences.

(6) If, in the reviewer's opinion, no valid identification can be made the compound should be labelled as "unknown" and the initials and date of the reviewer placed on the OADS.

S-CUBED
A Division of Maxwell Laboratories, Inc.

April 22, 1988 *Volume 1 of 1*

NARRATIVE CASE 9288/SAS 3554E
S-CUBED CONTRACT NO. 68-01-7261

This case consists of nine waters for full analysis and one VOA only water sample. These were analyzed under the requirements of SAS 3554E which differ considerably in terms of detection limits, compound to be analyzed for as well as continuing and initial calibration requirements.

The major problem encountered was low to non-existent phenols-d_5 and fluorophenol surrogate recoveries in ET834, ET835, and ET836. These extracts were reinjected with similar results but reextraction could not be carried out because of the minimal sample available.

Pesticide holding times for sample extraction were missed because of a known laboratory phthalate contamination. The samples were held until laboratory corrective action showed that the extracts would not be affected by this glassware contamination.

RECEIVED
APR 25 1988
U.S. EPA CENTRAL
REGIONAL LAB

JoAnn Wilkinson
JoAnn Wilkinson
Project Manager

P.O. Box 1620, La Jolla, California 92038-1620 3398 Carmel Mountain Road, San Diego, California 92121-1095
Tel: (619) 453-0060 TWX: 910-337-1253 Telecopier: (619) 755-0474

APR 18 198[redacted]

SUPERFUND 5011

CENTRAL REGIONAL LABORATORY SAMPLE DATA REPORT

ORGANICS/INORGANICS

LOG IN DATE: 4/19/88
DUE DATE: [redacted]

THIS FORM IS TO BE USED FOR SAMPLES SENT TO CONTRACT ONLY.

CASE NUMBER/SAS No. 9288/3554E/3727E SITE NAME HADER GROUND WATER CONTAMINATION (SI06) LABORATORY S-Cubed (S3) - Organic ENSECO/Rocky Mtn. Analytical - Inorganic Post Buckley Schuh & Jernigan (PBSJ) - NITRATES SULFATES DATE SHIPPED 4-1-88

SUPERFUND DU NUMBER Y905 EPA RPM or OSC (S.M.S.)/(CES) DAVE KOWBSKY, MPCA PAGE 1 OF 1

ACTIVITY NUMBER C72200

CRL LOG NUMBER	ORGANIC TRAFFIC REPORT NUMBER or SAS Packing List No.	INORGANIC TRAFFIC REPORT NUMBER	WATER OR LIQUIDS: ACID BASE NEUTRAL CPDS ORGANIC SCAN UG L TOX17574	VOLATILE ORGANIC ANALYSIS ORGANIC SCAN UG L TOX17564	WATER POLYCHLORINATED BIPHENYLS UG L PES17144	WATER CHLORINATED PESTICIDES UG L PES17134	TOTAL METALS IN WATER UG L MET111	WATER CYANIDE UG L MIN74919	NITRATE NITRITE MG L MIN7284	AMMONIA MG L MIN7294	RESIDUE FILTERABLE TDS MG L MIN7362	RESIDUE NON-FILT TSS MG L MIN7372	SULFATE, CHLORIDE, PH	ALKALINITY, ACIDITY	SEDIMENTS or SOILS: ACID-BASE NEUTRAL CPDS ORGANIC SCAN MG KG TOX215722	VOLATILE ORGANIC ANALYSIS ORGANIC SCAN MG KG TOX215622	SEDIMENTS POLYCHLORINATED BIPHENYLS MG KG PES211422	SEDIMENT CHLORINATED PESTICIDES MG KG 211322	TOTAL METALS MG KG MET413	CYANIDE MG KG MIN44930	EP TOXICITY METALS MG KG	AMMONIA MG KG MIN42925				
88YL06S01	ET 831	MEW 615	X	X	X	X	X	X																		
88YL06S02	ET 832	MEW 616	X	X	X	X	X	X																		
88YL06S03	ET 833	MEW 617	X	X	X	X	X	X																		
88YL06S04	ET 834	MEW 618	X	X	X	X	X	X																		
88YL06S05	ET 835	MEW 619	X	X	X	X	X	X																		
88YL06D05	ET 836	MEW 620	X	X	X	X	X	X																		
88YL06S06	ET 837	MEW 621	X	X	X	X	X	X																		
88YL06S07	ET 838	MEW 622	X	X	X	X	X	X																		
88YL06S08	ET 839	MEW 623	X	X	X	X	X	X																		
88YL06R01	ET 840	—		X																						
88YL06S01	3727-E 01								X				X	X												
88YL06S02	3727-E 02								X				X	X												
88YL06S03	3727-E 03								X				X	X												
88YL06S04	3727-E 04								X				X	X												
88YL06S05	3727-E 05								X				X	X												
88YL06D05	3727-E 09								X				X	X												
88YL06S06	3727-E 06								X				X	X												
88YL06S07	3727-E 07								X				X	X												
88YL06S08	3727-E 08								X				X	X												

WATER SURROGATE PERCENT RECOVERY SUMMARY

Case No. 9288(SA33554E) Contract Laboratory S-CUBED Contract No. 68-01-7261

	VOLATILE			SEMI-VOLATILE								PESTICIDE
SMO TRAFFIC NO.	TOLUENE-D8 (88-110)	BFB (86-115)	1,2 DICHLORO-ETHANE-D4 (76-114)	NITRO-BENZENE-D5 (35-114)	2-FLUORO-BIPHENYL (43-116)	TERPHENYL-D14 (33-141)			PHENOL-D5 (10-94)	2-FLUORO-PHENOL (21-100)	2,4,6 TRIBROMO-PHENOL (10-123)	DIBUTYL-CHLORENDATE ** (24-154)
ET831	90	89	101	74	79	85			34	46	71	123
ET831MS	100	89	93	74	75	80			27	39	76	117
ET831MSD	99	92	88	70	75	85			38	50	83	131
ET832	89	91	101	77	78	81			30	44	71	118
ET833	107	93	99	101	99	110			36	47	102	120
ET834(3)	102	90	104	94	93	102			0 *	1 *	31	120
ET835(3)	98	89	108	68	63	77			0 *	0 *	15	103
ET836(3)	96	87	99	53	52	69			1 *	1 *	39	91
ET837	102	94	110	70	73	81			53	57	81	109
ET838	108	97	111	75	80	83			40	48	84	126
ET839	106	94	109	51	56	66			19	23	56	126
ET840	106	93	107	NA	NA	NA			NA	NA	NA	NA
(1) LAB BLANK	94	90	105	108	107	118			66	84	94	96
(2) LAB BLANK	99	92	91	72	73	88			51	67	79	NA

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

**ADVISORY LIMITS ONLY

Volatiles: 0 out of 42 ; outside of QC limits
Semi-Volatiles: 6 out of 78 ; outside of QC limits
Pesticides: 0 out of 12 ; outside of QC limits

Comments: (1) 4AV2021 (VOA), LAB BLANK 4-11 (PEST); LBA07 (BNA)
(2) 4AV2021 (VOA), RBBA6 (BNA)
(3) Reextraction not possible due to minimal sample volume.

WATER MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Case No. 9288 (SAS 3554E) Contractor S-CUBED Contract No. 68-01-~~6868~~ 7261

FRACTION	COMPOUND	CONC. SPIKE ADDED (ug/L)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY
VOA SMO SAMPLE NO. ET831	1,1-Dichloroethene	12	0	12	100	11	92	9	14	61-145
	Trichloroethene	11	0	10	91	11	100	10	14	71-120
	Chlorobenzene	11	0	11	100	11	100	0	13	75-130
	Toluene	12	0	12	100	12	100	0	13	76-125
	Benzene	12	0	12	100	12	100	0	11	76-127
B/N SMO SAMPLE NO. ET 831	1,2,4-Trichlorobenzene	20	0	14	70	14	70	0	28	39-98
	Acenaphthene	20	0	15	75	15	75	0	31	46-118
	2,4 Dinitrotoluene	20	0	15	75	15	75	0	38	24-96
	Pyrene	20	0	16	80	17	85	6	31	26-127
	N-Nitroso-Di-n-Propylamine	20	0	15	75	14	70	7	38	41-116
	1,4-Dichlorobenzene	20	0	14	70	14	70	0	28	36-97
ACID SMO SAMPLE NO. ET 831	Pentachlorophenol	40	0	27	68	30	75	11	50	9-103
	Phenol	40	0	11	28	15	38	31	42	12-89
	2-Chlorophenol	40	0	23	58	26	65	12	40	27-123
	4-Chloro-3-Methylphenol	40	0	25	63	29	73	15	42	23-97
	4-Nitrophenol	40	0	12	30	15	38	22	50	10-80
PEST SMO SAMPLE NO. ET831	Lindane	0.02	0	.021	105	.024	120	13.	18	56-123
	Heptachlor	0.02	0	.022	110	.024	120	8.7	20	40-131
	Aldrin	0.02	0	.022	110	.023	115	4.4	22	40-120
	Dieldrin	0.05	0	.056	112	.060	120	7.0	18	52-126
	Endrin	0.05	0	.065	130*	.073	146*	12.	21	56-121
	4,4'-DDT	0.05	0	.055	110	.061	122	10.	27	38-127

*ASTERISKED VALUES ARE OUTSIDE QC LIMITS.

RPD: VOAs 0 out of 5 ; outside QC limits
B/N 0 out of 6 ; outside QC limits
ACID 0 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 0 out of 12 ; outside QC limits
ACID 0 out of 10 ; outside QC limits
PEST 2 out of 12 ; outside QC limits

Comments:

METHOD BLANK SUMMARY

(SAS3554E)

Case No. 9288 Region 5 Contractor S-CUBED Contract No. 68-01-7261

FILE ID	DATE OF ANALYSIS	FRACTION	MATRIX	CONC. LEVEL	INST. ID	CAS NUMBER	COMPOUND (HSL, TIC OR UNKNOWN)	CONC.	UNITS	CRDL
LAB BLANK 4-11	04-12-88	PEST	H_2O	LOW	HP5880III	319-85-7	~~B-BHC~~ NOTHING FOUND	~~0.0044~~	~~µg/L~~	~~0.005~~
4AV2021	4-4-88	VOA			VG2	75-09-2	methylene chloride	1.3		1.0
(A) 4AV2021	4-4-88	VOA			VG2	75-09-2	methylene chloride	2.2		1.0
RRBA6 ①	4-13-88	ABN			HP1		NOTHING FOUND			
LBA07 ②	4-10-88					84-66-2	diethyl phthalate	2.1		1.0
						21964498	1,13 tetradecadiene (S1294)	22		NR
LBA07	4-10-86	ABN	H_2O	LOW	HP1	19812647	1,14 tetradecanediol (S1298)	6	ug/L	NR

Comments: ① ext 4/6/88
② ext 4/7/88
(A) also case holding blank

ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number:
ETB31

Laboratory Name: S-CUBED
Lab Sample ID No: 44V2031 (VOA)
Sample Matrix: WATER
Data Release Authorized By: _____

Case No: 9288 (SAS3554E)
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 04-02-88

VOLATILE COMPOUNDS

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 04-04-88
Date Analyzed: 04-04-88
Conc/Dil Factor: 1.0 pH: N.R
Percent Moisture (Not Decanted): N.R

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	1.5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	1.5 U
75-00-3	CHLOROETHANE	1.5 U	124-48-1	DIBROMOCHLOROMETHANE	1.5 U
75-09-2	METHYLENE CHLORIDE	1.3 B U	79-00-5	1,1,2-TRICHLOROETHANE	1.5 U
67-64-1	ACETONE	75 U	71-43-2	BENZENE	1.5 U
75-15-0	CARBON DISULFIDE	3 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	2 U
75-35-4	1,1-DICHLOROETHENE	1.5 U	110-75-8	2-CHLOROETHYLVINYLETHER	1.5 U
75-34-3	1,1-DICHLOROETHANE	1.5 U	75-25-2	BROMOFORM	1.5 U
	TOTAL-1,2-DICHLOROETHENE'S	1.5 U	591-78-6	2-HEXANONE	50 U
67-66-3	CHLOROFORM	1.5 U	108-10-1	4-METHYL-2-PENTANONE	3 U
107-06-2	1,2-DICHLOROETHANE	1.5 U	127-18-4	TETRACHLOROETHENE	1.5 U
78-93-3	2-BUTANONE	50 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5 U
71-55-6	1,1,1-TRICHLOROETHANE	1.5 U	108-88-3	TOLUENE	1.5 U
56-23-5	CARBON TETRACHLORIDE	1.5 U	108-90-7	CHLOROBENZENE	1.5 U
108-05-4	VINYL ACETATE	15 U	100-41-4	ETHYLBENZENE	1.5 U
75-27-4	BROMODICHLOROMETHANE	1.5 U	100-42-5	STYRENE	1 U
107-02-8	ACROLEIN	100 U		M-XYLENE	2 U
107-13-1	ACRYLONITRILE	50 U		O/P-XYLENE	2.5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

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.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

Laboratory Name S-CUBED

Case No 9288/ 3554F

Sample Number
ET 831

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 6Apr 88

Date Analyzed 15APR88

Conc./Dil Factor 1.0

Percent Moisture (Decanted) NA

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	2.0 U
111-44-4	bis(-2-Chloroethyl)Ether	1.5 U
95-57-8	2-Chlorophenol	2.0 U
541-73-1	1 3-Dichlorobenzene	2.0 U
106-46-7	1, 4-Dichlorobenzene	2.0 U
100-51-6	Benzyl Alcohol	2.0 U
95-50-1	1, 2-Dichlorobenzene	2.5 U
95-48-7	2-Methylphenol	1.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5 U
106-44-5	4-Methylphenc	1.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5 U
67-72-1	Hexachloroethane	2.0 U
98-95-3	Nitrobenzene	2.5 U
78-59-1	Isophorone	2.5 U
88-75-5	2-Nitrophenol	2.0 U
105-67-9	2, 4-Dimethylphenol	2.0 U
65-85-0	Benzoic Acid	30 U
111-91-1	bis(2-Chloroethoxyl)Methane	2.5 U
120-83-2	2, 4-Dichlorophenol	2.0 U
120-82-1	1, 2 4-Trichlorobenzene	2.0 U
91-20-3	Naphthalene	2.0 U
106-47-8	4-Chloroaniline	2.0 U
87-68-3	Hexachlorobutadiene	2.5 U
59-50-7	4-Chloro-3-Methylphenol	1.5 U
91-57-6	2-Methylnaphthalene	2.0 U
77-47-4	Hexachlorocyclopentadiene	2.0 U
88-06-2	2, 4, 6-Trichlorophenol	1.5 U
95-95-4	2 4, 5-Trichlorophenol	1.5 U
91-58-7	2-Chloronaphthalene	1.5 U
88-74-4	2-Nitroaniline	1.0 U
131-11-3	Dimethyl Phthalate	1.5 U
208-96-8	Acenaphthylene	1.5 U
99-09-2	3-Nitroaniline	2.5 U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	1.5 U
51-28-5	2, 4-Dinitrophenol	15 U
100-02-7	4-Nitrophenol	1.5 U
132-64-9	Dibenzofuran	1.0 U
121-14-2	2, 4-Dinitrotoluene	1.0 U
606-20-2	2, 6-Dinitrotoluene	1.0 U
84-66-2	Diethylphthalate	1.5
7005-72-3	4-Chlorophenyl-phenylether	1.0 U
86-73-7	Fluorene	1.0 U
100-01-6	4-Nitroaniline	3.0 U
534-52-1	4, 6-Dinitro-2-Methylphenol	15 U
86-30-6	N-Nitrosodiphenylamine (1)	1.5 U
101-55-3	4-Bromophenyl-phenylether	1.5 U
118-74-1	Hexachlorobenzene	1.5 U
87-86-5	Pentachlorophenol	2.0 U
85-01-8	Phenanthrene	1.0 U
120-12-7	Anthracene	2.5 U
84-74-2	Di-n-Butylphthalate	2.0 U
206-44-0	Fluoranthene	1.5 U
129-00-0	Pyrene	1.5 U
85-68-7	Butylbenzylphthalate	3.5 U
91-94-1	3, 3'-Dichlorobenzidine	NR
56-55-3	Benzo(a)Anthracene *	1.5 U
117-81-7	bis(2-Ethylhexyl)Phthalate	1.9
218-01-9	Chrysene *	—
117-84-0	Di-n-Octyl Phthalate	1.5 U
205-99-2	Benzo(b)Fluoranthene * *	1.5 U
207-08-9	Benzo(k)Fluoranthene * *	—
50-32-8	Benzo(a)Pyrene	2.0 U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	3.5 U
53-70-3	Dibenz(a h)Anthracene	2.5 U
191-24-2	Benzo(g, h, i)Perylene	4.0 U

(1)-Cannot be separated from diphenylamine

* THESE TWO PARAMETERS ARE REPORTED AS A TO

* * THESE TWO PARAMETERS ARE REPORTED AS A TOTAL

Laboratory Name S-CUBED

Case No 9288 (3554E)

Sample Number ET 831

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 4-11-88

Date Analyzed 4-12-88

Conc/Dil Factor 1.0

Percent Moisture (decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	0.010 µ
319-85-7	Beta-BHC	0.005 µ
319-86-8	Delta-BHC	0.005 µ
58-89-9	Gamma-BHC (Lindane)	0.005 µ
76-44-8	Heptachlor	0.030 µ
309-00-2	Aldrin	0.005 µ
1024-57-3	Heptachlor Epoxide	0.005 µ
959 98-8	Endosulfan I	0.010 µ
60-57-1	Dieldrin	0.010 µ
72-55-9	4,4'-DDE	0.005 µ
72-20-8	Endrin	0.010 µ
33213-65-9	Endosulfan II	0.010 µ
72-54-8	4,4'-DDD	0.020 µ
1031-07-8	Endosulfan Sulfate	0.100 µ
50-29-3	4,4'-DDT	0.020 µ
72-43-5	Methoxychlor	0.020 µ
53494-70-5	Endrin Ketone	0.030 µ
57-74-9	Chlordane	0.020 µ
8001-35-2	Toxaphene	0.25 µ
12674-11-2	Aroclor-1016	0.10 µ
11104-28-2	Aroclor-1221	NA
11141-16-5	Aroclor-1232	NA
53469-21-9	Aroclor-1242	0.10 µ
12672-29-6	Aroclor-1248	0.10 µ
11097-69-1	Aroclor-1254	0.10 µ
11096-82-5	Aroclor-1260	0.10 µ
7421-93-4	ENDRIN ALDEHYDE	0.030 µ

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 ml or W_s NA V_t 1.00 ml V_i 1.0 µl

Laboratory Name S-CUBED

Case No 9288 (SAS3554E)

Sample Number ET831

44V2031 (VOA)
ET831 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. NA	UNKNOWN	VOA	277	1.7 J
2.				
3. 21964498	1,13 tetradecadiene	BNA	1280	3 J
4.				
5.				
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ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number: ET832

Laboratory Name: S-CUBED
Lab Sample ID No: 44V2051 (VOA)
Sample Matrix: WATER
Data Release Authorized By:

Case No: 9288 (SAS3554E)
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 04-02-88

VOLATILE COMPOUNDS
Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 04-04-88
Date Analyzed: 04-04-88
Conc/Dil Factor: 1.0 pH: N.R
Percent Moisture (Not Decanted): N.R

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	1.5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	1.5 U
75-00-3	CHLOROETHANE	1.5 U	124-48-1	DIBROMOCHLOROMETHANE	1.5 U
75-09-2	METHYLENE CHLORIDE	~~0.87 J B~~ U	79-00-5	1,1,2-TRICHLOROETHANE	1.5 U
67-64-1	ACETONE	75 U	71-43-2	BENZENE	1.5 U
75-15-0	CARBON DISULFIDE	3 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	2 U
75-35-4	1,1-DICHLOROETHENE	1.5 U	110-75-8	2-CHLOROETHYLVINYLETHER	1.5 U
75-34-3	1,1-DICHLOROETHANE	1.5 U	75-25-2	BROMOFORM	1.5 U
	TOTAL-1,2-DICHLOROETHENE'S	1.5 U	591-78-6	2-HEXANONE	50 U
67-66-3	CHLOROFORM	1.5 U	108-10-1	4-METHYL-2-PENTANONE	3 U
107-06-2	1,2-DICHLOROETHANE	1.5 U	127-18-4	TETRACHLOROETHENE	1.5 U
78-93-3	2-BUTANONE	50 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5 U
71-55-6	1,1,1-TRICHLOROETHANE	1.5 U	108-88-3	TOLUENE	1.5 U
56-23-5	CARBON TETRACHLORIDE	1.5 U	108-90-7	CHLOROBENZENE	1.5 U
108-05-4	VINYL ACETATE	15 U	100-41-4	ETHYLBENZENE	1.5 U
75-27-4	BROMODICHLOROMETHANE	1.5 U	100-42-5	STYRENE	1 U
107-02-8	ACROLEIN	100 U		M-XYLENE	2 U
107-13-1	ACRYLONITRILE	50 U		O/P-XYLENE	2.5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

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.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

Laboratory Name S-CUBED

Case No 9288/3554E

Sample Number ET 832

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 4-6-88

Date Analyzed 4-15-88

Conc./Dil Factor 1.0

Percent Moisture (Decanted) NA

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	2.0	U
111-44-4	bis(-2-Chloroethyl)Ether	1.5	U
95-57-8	2-Chlorophenol	2.0	U
541-73-1	1 3-Dichlorobenzene	2.0	U
106-46-7	1. 4-Dichlorobenzene	2.0	U
100-51-6	Benzyl Alcohol	2.0	U
95-50-1	1. 2-Dichlorobenzene	2.5	U
95-48-7	2-Methylphenol	1.0	U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5	U
106-44-5	4-Methylphenol	1.0	U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5	U
67-72-1	Hexachloroethane	2.0	U
98-95-3	Nitrobenzene	2.5	U
78-59-1	Isophorone	2.5	U
88-75-5	2-Nitrophenol	2.0	U
105-67-9	2. 4-Dimethylphenol	2.0	U
65-85-0	Benzoic Acid	30	U
111-91-1	bis(2-Chloroethoxy)Methane	2.5	U
120-83-2	2. 4-Dichlorophenol	2.0	U
120-82-1	1 2 4-Trichlorobenzene	2.0	U
91-20-3	Naphthalene	2.0	U
106-47-8	4-Chloroaniline	2.0	U
87-68-3	Hexachlorobutadiene	2.5	U
59-50-7	4-Chloro-3-Methylphenol	1.5	U
91-57-6	2-Methylnaphthalene	2.0	U
77-47-4	Hexachlorocyclopentadiene	2.0	U
88-06-2	2. 4. 6-Trichlorophenol	1.5	U
95-95-4	2. 4. 5-Trichlorophenol	1.5	U
91-58-7	2-Chloronaphthalene	1.5	U
88-74-4	2-Nitroaniline	1.0	U
131-11-3	Dimethyl Phthalate	1.5	U
208-96-8	Acenaphthylene	1.5	U
99-09-2	3-Nitroaniline	2.5	U

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	1.5	U
51-28-5	2. 4-Dinitrophenol	15	U
100-02-7	4-Nitrophenol	1.5	U
132-64-9	Dibenzofuran	1.0	U
121-14-2	2. 4-Dinitrotoluene	1.0	U
606-20-2	2. 6-Dinitrotoluene	1.0	U
84-66-2	Diethylphthalate	1.0	U
7005-72-3	4-Chlorophenyl-phenylether	1.0	U
86-73-7	Fluorene	1.0	U
100-01-6	4-Nitroaniline	3.0	U
534-52-1	4. 6-Dinitro-2-Methylphenol	15	U
86-30-6	N-Nitrosodiphenylamine (1)	1.5	U
101-55-3	4-Bromophenyl-phenylether	1.5	U
118-74-1	Hexachlorobenzene	1.5	U
87-86-5	Pentachlorophenol	2.0	U
85-01-8	Phenanthrene	1.0	U
120-12-7	Anthracene	2.5	U
84-74-2	Di-n-Butylphthalate	2.0	U
206-44-0	Fluoranthene	1.5	U
129-00-0	Pyrene	1.5	U
85-68-7	Butylbenzylphthalate	3.5	U
91-94-1	3. 3'-Dichlorobenzidine	NR	
56-55-3	Benzo(a)Anthracene *	1.5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	1.0	U
218-01-9	Chrysene *	—	
117-84-0	Di-n-Octyl Phthalate	1.5	U
205-99-2	Benzo(b)Fluoranthene **	1.5	U
207-08-9	Benzo(k)Fluoranthene **	—	
50-32-8	Benzo(a)Pyrene	2.0	U
193-39-5	Indeno(1. 2. 3-cd)Pyrene	3.5	U
53-70-3	Dibenzia h)Anthracene	2.5	U
191-24-2	Benzo(g h. i)Perylene	4.0	U

(1)-Cannot be separated from diphenylamine

* THESE TWO PARAMETERS ARE REPORTED AS A TOT

** THESE TWO PARAMETERS ARE REPORTED AS A TOTAL

Laboratory Name S-CUBED

Case No 9288 (3554E)

Sample Number ET 832

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 04-11-88

Date Analyzed 04-13-88

Conc/Dil Factor 1.0

Percent Moisture (decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.010 µ
319-85-7	Beta-BHC	0.005 µ
319-86-8	Delta-BHC	0.005 µ
58-89-9	Gamma-BHC (Lindane)	0.005 µ
76-44-8	Heptachlor	0.030 µ
309-00-2	Aldrin	0.005 µ
1024-57-3	Heptachlor Epoxide	0.005 µ
959 98-8	Endosulfan I	0.010 µ
60-57-1	Dieldrin	0.010 µ
72-55-9	4,4'-DDE	0.005 µ
72-20-8	Endrin	0.010 µ
33213-65-9	Endosulfan II	0.010 µ
72-54-8	4,4'-DDD	0.020 µ
1031-07-8	Endosulfan Sulfate	0.100 µ
50-29-3	4,4'-DDT	0.020 µ
72-43-5	Methoxychlor	0.020 µ
53494-70-5	Endrin Ketone	0.030 µ
57-74-9	Chlordane	0.020 µ
8001-35-2	Toxaphene	0.25 µ
12674-11-2	Aroclor-1016	0.10 µ
11104-28-2	Aroclor-1221	NA
11141-16-5	Aroclor-1232	NA
53469-21-9	Aroclor-1242	0.10 µ
12672-29-6	Aroclor-1248	0.10 µ
11097-69-1	Aroclor-1254	0.10 µ
11096-82-5	Aroclor-1260	0.10 µ
7421-93-4	ENDRIN ALDEHYDE	0.030 µ

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 ml or W_s NA V_t 1.00 ml V_i 1.0 µl

Laboratory Name S-CUBED

Case No 9288 (SAS3554E)

Sample Number ET832

-44V2051 (VOA)
ET832 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	No TIC FOUND.	VOA		
2.				
3.	No TIC Found	BNA		
4.				
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ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number: ET833

Laboratory Name: S-CUBED
Lab Sample ID No: 44V2041 (VOA)
Sample Matrix: WATER
Data Release Authorized By: _____

Case No: 9288 (SAS3554E)
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 04-02-88

VOLATILE COMPOUNDS

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 04-04-88
Date Analyzed: 04-04-88
Conc/Dil Factor: 1.0 pH: N.R
Percent Moisture (Not Decanted): N.R

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	1.5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	1.5 U
75-00-3	CHLOROETHANE	1.5 U	124-48-1	DIBROMOCHLOROMETHANE	1.5 U
75-09-2	METHYLENE CHLORIDE	1.0 ~~0.84 J B~~ U	79-00-5	1,1,2-TRICHLOROETHANE	1.5 U
67-64-1	ACETONE	75 U	71-43-2	BENZENE	1.5 U
75-15-0	CARBON DISULFIDE	3 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	2 U
75-35-4	1,1-DICHLOROETHENE	1.5 U	110-75-8	2-CHLOROETHYLVINYLETHER	1.5 U
75-34-3	1,1-DICHLOROETHANE	1.5 U	75-25-2	BROMOFORM	1.5 U
	TOTAL-1,2-DICHLOROETHENE'S	1.5 U	591-78-6	2-HEXANONE	50 U
67-66-3	CHLOROFORM	1.5 U	108-10-1	4-METHYL-2-PENTANONE	3 U
107-06-2	1,2-DICHLOROETHANE	1.5 U	127-18-4	TETRACHLOROETHENE	1.5 U
78-93-3	2-BUTANONE	50 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5 U
71-55-6	1,1,1-TRICHLOROETHANE	1.5 U	108-88-3	TOLUENE	1.5 U
56-23-5	CARBON TETRACHLORIDE	1.5 U	108-90-7	CHLOROBENZENE	1.5 U
108-05-4	VINYL ACETATE	15 U	100-41-4	ETHYLBENZENE	1.5 U
75-27-4	BROMODICHLOROMETHANE	1.5 U	100-42-5	STYRENE	1 U
107-02-8	ACROLEIN	100 U		M-XYLENE	2 U
107-13-1	ACRYLONITRILE	50 U		O/P-XYLENE	2.5 U

JY 5-2-88

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

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.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

Laboratory Name S-CUBED

Case No 9288/3554E

Sample Number ET833

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 4-7-88

Date Analyzed 4-10-88

Conc/Dil Factor 1.0

Percent Moisture (Decanted) NA

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	2.0	U
111-44-4	bis(-2-Chloroethyl)Ether	1.5	U
95-57-8	2-Chlorophenol	2.0	U
541-73-1	1 3-Dichlorobenzene	2.0	U
106-46-7	1, 4-Dichlorobenzene	2.0	U
100-51-6	Benzyl Alcohol	2.0	U
95-50-1	1, 2-Dichlorobenzene	2.5	U
95-48-7	2-Methylphenol	1.0	U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5	U
106-44-5	4-Methylphenc	1.0	U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5	U
67-72-1	Hexachloroethane	2.0	U
98-95-3	Nitrobenzene	2.5	U
78-59-1	Isophorone	2.5	U
88 75-5	2-Nitrophenol	2.0	U
105-67-9	2, 4-Dimethylphenol	2.0	U
65-85-0	Benzoic Acid	30	U
111-91-1	bis(-2-ChloroethoxylMethane	2.5	U
120-83-2	2, 4-Dichlorophenol	2.0	U
120-82-1	1 2 4-Trichlorobenzene	2.0	U
91-20-3	Naphthalene	2.0	U
106-47-8	4-Chloroaniline	2.0	U
87-68-3	Hexachlorobutadiene	2.5	U
59-50-7	4-Chloro-3-Methylphenol	1.5	U
91-57-6	2-Methylnaphthalene	2.0	U
77-47-4	Hexachlorocyclopentadiene	2.0	U
88-06-2	2, 4, 6-Trichlorophenol	1.5	U
95-95-4	2, 4, 5-Trichlorophenol	1.5	U
91-58-7	2-Chloronaphthalene	1.5	U
88-74-4	2-Nitroaniline	1.0	U
131-11-3	Dimethyl Phthalate	1.5	U
208-96-8	Acenaphthylene	1.5	U
99-09-2	3-Nitroaniline	2.5	U

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	1.5	U
51-28-5	2, 4-Dinitrophenol	15	U
100-02-7	4-Nitrophenol	1.5	U
132-64-9	Dibenzofuran	1.0	U
121-14-2	2, 4-Dinitrotoluene	1.0	U
606-20-2	2, 6-Dinitrotoluene	1.0	U
84-66-2	Diethylphthalate	1.0	U
7005-72-3	4-Chlorophenyl-phenylether	1.0	U
86-73-7	Fluorene	1.0	U
100-01-6	4-Nitroaniline	3.0	U
534-52-1	4, 6-Dinitro-2-Methylphenol	15	U
86-30-6	N-Nitrosodiphenylamine (1)	1.5	U
101-55-3	4-Bromophenyl-phenylether	1.5	U
118-74-1	Hexachlorobenzene	1.5	U
87-86-5	Pentachlorophenol	2.0	U
85-01-8	Phenanthrene	1.0	U
120-12-7	Anthracene	2.5	U
84-74-2	Di-n-Butylphthalate	2.0	U
206-44-0	Fluoranthene	1.5	U
129-00-0	Pyrene	1.5	U
85-68-7	Butylbenzylphthalate	3.5	U
91-94-1	3, 3'-Dichlorobenzidine	NR	
56-55-3	Benzo(a)Anthracene *	1.5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	1.0	U
218-01-9	Chrysene *	—	
117-84-0	Di-n-Octyl Phthalate	1.5	U
205-99-2	Benzo(b)Fluoranthene * *	1.5	U
207-08-9	Benzo(k)Fluoranthene * *	—	
50-32-8	Benzo(a)Pyrene	2.0	U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	3.5	U
53-70-3	Dibenz(a h)Anthracene	2.5	U
191-24-2	Benzo(g, h, i)Perylene	4.0	U

(1)-Cannot be separated from diphenylamine

* THESE TWO PARAMETERS ARE REPORTED AS A TOT

* * THESE TWO PARAMETERS ARE REPORTED AS A TOTAL

Laboratory Name S-CUBED

Case No 9288 3554E

Sample Number ET 833

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 04-11-88

Date Analyzed 04-13-88

Conc/Dil Factor 1.0

Percent Moisture (decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.010 µ
319-85-7	Beta-BHC	0.005 µ
319-86-8	Delta-BHC	0.005 µ
58-89-9	Gamma-BHC (Lindane)	0.005 µ
76-44-8	Heptachlor	0.030 µ
309-00-2	Aldrin	0.005 µ
1024-57-3	Heptachlor Epoxide	0.005 µ
959 98-8	Endosulfan I	0.010 µ
60-57-1	Dieldrin	0.010 µ
72-55-9	4,4'-DDE	0.005 µ
72-20-8	Endrin	0.010 µ
33213-65-9	Endosulfan II	0.010 µ
72-54-8	4,4'-DDD	0.020 µ
1031-07-8	Endosulfan Sulfate	0.100 µ
50-29-3	4,4'-DDT	0.020 µ
72-43-5	Methoxychlor	0.020 µ
53494-70-5	Endrin Ketone	0.030 µ
57-74-9	Chlordane	0.020 µ
8001-35-2	Toxaphene	0.25 µ
12674-11-2	Aroclor-1016	0.10 µ
11104-28-2	Aroclor-1221	NA
11141-16-5	Aroclor-1232	NA
53469-21-9	Aroclor-1242	0.10 µ
12672-29-6	Aroclor-1248	0.10 µ
11097-69-1	Aroclor-1254	0.10 µ
11096-82-5	Aroclor-1260	0.10 µ
7421-93-4	ENDRIN ALDEHYDE	0.030 µ

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 ml or W_s NA V_t 1.00 ml V_i 1.0 µl

Laboratory Name S-CUBED

Case No 9288 (SAS3554E)

Sample Number ET833

44V2041 (VOA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TIC FOUND.	VOA		
2.				
3. 21964498	1,13 tetradecadiene	BNA	1291	12 JB
4. NA	UNKNOWN	↓	1396	6 J
5.				
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ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number: ET834

Laboratory Name: S-CUBED
Lab Sample ID No: 44V2061 (VOA)
Sample Matrix: WATER
Data Release Authorized By:

Case No: 92BB (SAS3554E)
GC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 04-02-88

VOLATILE COMPOUNDS

Concentration: Low, Medium (Circle One)
Date Extracted/Prepared: 04-04-88
Date Analyzed: 04-04-88
Conc/Dil Factor: 1.0 pH: N.R
Percent Moisture (Not Decanted): N.R

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	1.5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	1.5 U
75-00-3	CHLOROETHANE	1.5 U	124-48-1	DIBROMOCHLOROMETHANE	1.5 U
75-09-2	METHYLENE CHLORIDE	1.0 ~~0.74 J B~~ U	79-00-5	1,1,2-TRICHLOROETHANE	1.5 U
67-64-1	ACETONE	75 U	71-43-2	BENZENE	1.5 U
75-15-0	CARBON DISULFIDE	3 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	2 U
75-35-4	1,1-DICHLOROETHENE	1.5 U	110-75-8	2-CHLOROETHYLVINYLETHER	1.5 U
75-34-3	1,1-DICHLOROETHANE	1.5 U	75-25-2	BROMOFORM	1.5 U
	TOTAL-1,2-DICHLOROETHENE'S	1.5 U	591-78-6	2-HEXANONE	50 U
67-66-3	CHLOROFORM	1.5 U	108-10-1	4-METHYL-2-PENTANONE	3 U
107-06-2	1,2-DICHLOROETHANE	1.5 U	127-18-4	TETRACHLOROETHENE	1.5 U
78-93-3	2-BUTANONE	50 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5 U
71-55-6	1,1,1-TRICHLOROETHANE	1.5 U	108-88-3	TOLUENE	1.5 U
56-23-5	CARBON TETRACHLORIDE	1.5 U	108-90-7	CHLOROBENZENE	1.5 U
108-05-4	VINYL ACETATE	15 U	100-41-4	ETHYLBENZENE	1.5 U
75-27-4	BROMODICHLOROMETHANE	1.5 U	100-42-5	STYRENE	1 U
107-02-8	ACROLEIN	100 U		M-XYLENE	2 U
107-13-1	ACRYLONITRILE	50 U		O/P-XYLENE	2.5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

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.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

Laboratory Name S-CUBED

Case No 9288/3554E

Sample Number ET 834

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 4-7-88

Date Analyzed 4-10-88

Conc/Dil Factor 1.0

Percent Moisture (Decanted) NA

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	2.0	U
111-44-4	bis(-2-Chloroethyl)Ether	1.5	U
95-57-8	2-Chlorophenol	2.0	U
541-73-1	1 3-Dichlorobenzene	2.0	U
106-46-7	1. 4-Dichlorobenzene	2.0	U
100-51-6	Benzyl Alcohol	2.9	
95-50-1	1. 2-Dichlorobenzene	2.5	U
95-48-7	2-Methylphenol	1.0	U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5	U
106-44-5	4-Methylphenol	1.0	U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5	U
67-72-1	Hexachloroethane	2.0	U
98-95-3	Nitrobenzene	2.5	U
78-59-1	Isophorone	2.5	U
88-75-5	2-Nitrophenol	2.0	U
105-67-9	2 4-Dimethylphenol	2.0	U
65-85-0	Benzoic Acid	30	U
111-91-1	bis(-2-Chloroethoxyl)Methane	2.5	U
120-83-2	2 4-Dichlorophenol	2.0	U
120-82-1	1 2 4-Trichlorobenzene	2.0	U
91-20-3	Naphthalene	2.0	U
106-47-8	4-Chloroaniline	2.0	U
87-68-3	Hexachlorobutadiene	2.5	U
59-50-7	4-Chloro-3-Methylphenol	1.5	U
91-57-6	2-Methylnaphthalene	2.0	U
77-47-4	Hexachlorocyclopentadiene	2.0	U
88-06-2	2. 4. 6-Trichlorophenol	1.5	U
95-95-4	2 4. 5-Trichlorophenol	1.5	U
91-58-7	2-Chloronaphthalene	1.5	U
88-74-4	2-Nitroaniline	1.0	U
131-11-3	Dimethyl Phthalate	1.5	U
208-96-8	Acenaphthylene	1.5	U
99-09-2	3-Nitroaniline	2.5	U

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	1.5	U
51-28-5	2. 4-Dinitrophenol	15	U
100-02-7	4-Nitrophenol	1.5	U
132-64-9	Dibenzofuran	1.0	U
121-14-2	2. 4-Dinitrotoluene	1.0	U
606-20-2	2. 6-Dinitrotoluene	1.0	U
84-66-2	Diethylphthalate	2.9	BU
7005-72-3	4-Chlorophenyl-phenylether	1.0	U
86-73-7	Fluorene	1.0	U
100-01-6	4-Nitroaniline	3.0	U
534-52-1	4. 6-Dinitro-2-Methylphenol	15	U
86-30-6	N-Nitrosodiphenylamine (1)	1.5	U
101-55-3	4-Bromophenyl-phenylether	1.5	U
118-74-1	Hexachlorobenzene	1.5	U
87-86-5	Pentachlorophenol	2.0	U
85-01-8	Phenanthrene	1.0	U
120-12-7	Anthracene	2.5	U
84-74-2	Di-n-Butylphthalate	2.0	U
206-44-0	Fluoranthene	1.5	U
129-00-0	Pyrene	1.5	U
85-68-7	Butylbenzylphthalate	3.5	U
91-94-1	3 3'-Dichlorobenzidine	NR	
56-55-3	Benzo(a)Anthracene *	1.5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	1.0	U
218-01-9	Chrysene *	—	
117-84-0	Di-n-Octyl Phthalate	1.5	U
205-99-2	Benzo(b)Fluoranthene * *	1.5	U
207-08-9	Benzo(k)Fluoranthene * *	—	
50-32-8	Benzo(a)Pyrene	2.0	U
193-39-5	Indeno(1. 2. 3-cd)Pyrene	3.5	U
53-70-3	Dibenz(a h)Anthracene	2.5	U
191-24-2	Benzo(g. h. i)Perylene	4.0	U

(1)-Cannot be separated from diphenylamine

* THESE TWO PARAMETERS ARE REPORTED AS A TOT

* * THESE TWO PARAMETERS ARE REPORTED AS A TOTAL

Laboratory Name S-CUBED

Case No 9288 (3554 E)

Sample Number ET 834

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 04-11-88

Date Analyzed 04-13-88

Conc/Dil Factor 1.0

Percent Moisture (decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	0.010 µ
319-85-7	Beta-BHC	0.005 µ
319-86-8	Delta-BHC	0.005 µ
58-89-9	Gamma-BHC (Lindane)	0.005 µ
76-44-8	Heptachlor	0.030 µ
309-00-2	Aldrin	0.005 µ
1024-57-3	Heptachlor Epoxide	0.005 µ
959 98-8	Endosulfan I	0.010 µ
60-57-1	Dieldrin	0.010 µ
72-55-9	4,4'-DDE	0.005 µ
72-20-8	Endrin	0.010 µ
33213-65-9	Endosulfan II	0.010 µ
72-54-8	4,4'-DDD	0.020 µ
1031-07-8	Endosulfan Sulfate	0.100 µ
50-29-3	4,4'-DDT	0.020 µ
72-43-5	Methoxychlor	0.020 µ
53494-70-5	Endrin Ketone	0.030 µ
57-74-9	Chlordane	0.020 µ
8001-35-2	Toxaphene	0.25 µ
12674-11-2	Aroclor-1016	0.10 µ
11104-28-2	Aroclor-1221	NA
11141-16-5	Aroclor-1232	NA
53469-21-9	Aroclor-1242	0.10 µ
12672-29-6	Aroclor-1248	0.10 µ
11097-69-1	Aroclor-1254	0.10 µ
11096-82-5	Aroclor-1260	0.10 µ
7421-93-4	ENDRIN ALDEHYDE	0.030 µ

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 ml or W_s NA V_t 1.00 ml V_i 1.0 µl

Laboratory Name S-CUBED

Case No 9288 (SAS3554E)

Sample Number ET834

44V2061 (VOA)
ET834 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	No TIC FOUND.	VOA		
2.				
3. NA	UNKNOWN	BNA	243	4 J
4. NA	UNKNOWN		1226	4 J
5. 21964498	1,13 tetradecadiene		1293	11 JB
6. NA	UNKNOWN		1345	9 J
7. ↓	UNKNOWN		1358	4 J
8. NA	UNKNOWN		1462	3 J
9.				
10.				
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ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number: ET835

Laboratory Name: S-CUBED
Lab Sample ID No: 44V2071 (VOA), RR885(RBN)
Sample Matrix: WATER
Data Release Authorized By: pw

Case No: 9288 (SAS3554E)
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 04-02-88

VOLATILE COMPOUNDS
Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 04-04-88
Date Analyzed: 04-04-88
Conc/Dil Factor: 1.0 pH: N.R
Percent Moisture (Not Decanted): N.R

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	1.5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	1.5 U
75-00-3	CHLOROETHANE	1.5 U	124-48-1	DIBROMOCHLOROMETHANE	1.5 U
75-09-2	METHYLENE CHLORIDE	1.0 ~~0.59 J B~~ U	79-00-5	1,1,2-TRICHLOROETHANE	1.5 U
67-64-1	ACETONE	75 U	71-43-2	BENZENE	1.5 U
75-15-0	CARBON DISULFIDE	3 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	2 U
75-35-4	1,1-DICHLOROETHENE	1.5 U	110-75-8	2-CHLOROETHYLVINYLETHER	1.5 U
75-34-3	1,1-DICHLOROETHANE	1.5 U	75-25-2	BROMOFORM	1.5 U
	TOTAL-1,2-DICHLOROETHENE'S	1.5 U	591-78-6	2-HEXANONE	50 U
67-66-3	CHLOROFORM	1.5 U	108-10-1	4-METHYL-2-PENTANONE	3 U
107-06-2	1,2-DICHLOROETHANE	1.5 U	127-18-4	TETRACHLOROETHENE	1.5 U
78-93-3	2-BUTANONE	50 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5 U
71-55-6	1,1,1-TRICHLOROETHANE	1.5 U	108-88-3	TOLUENE	1.5 U
56-23-5	CARBON TETRACHLORIDE	1.5 U	108-90-7	CHLOROBENZENE	1.5 U
108-05-4	VINYL ACETATE	15 U	100-41-4	ETHYLBENZENE	1.5 U
75-27-4	BROMODICHLOROMETHANE	1.5 U	100-42-5	STYRENE	1 U
107-02-8	ACROLEIN	100 U		M-XYLENE	2 U
107-13-1	ACRYLONITRILE	50 U		O/P-XYLENE	2.5 U

JG 5-2-88

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

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.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

Laboratory Name S-CUBED

Case No 9288/3554E

Sample Number ET835

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 4-7-88

Date Analyzed 4-19-88

Conc/Dil Factor 1.0

Percent Moisture (Decanted) NA

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	2.0	U
111-44-4	bis(-2-Chloroethyl)Ether	1.5	U
95-57-8	2-Chlorophenol	2.0	U
541-73-1	1 3-Dichlorobenzene	2.0	U
106-46-7	1, 4-Dichlorobenzene	2.0	U
100-51-6	Benzyl Alcohol	2.0	U
95-50-1	1, 2-Dichlorobenzene	2.5	U
95-48-7	2-Methylphenol	1.0	U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5	U
106-44-5	4-Methylphenol	1.0	U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5	U
67-72-1	Hexachloroethane	2.0	U
98-95-3	Nitrobenzene	2.5	U
78-59-1	Isophorone	2.5	U
88-75-5	2-Nitrophenol	2.0	U
105-67-9	2, 4-Dimethylphenol	2.0	U
65-85-0	Benzoic Acid	30	U
111-91-1	bis(-2-Chloroethoxyl)Methane	2.5	U
120-83-2	2, 4-Dichlorophenol	2.0	U
120-82-1	1, 2 4-Trichlorobenzene	2.0	U
91-20-3	Naphthalene	2.0	U
106-47-8	4-Chloroaniline	2.0	U
87-68-3	Hexachlorobutadiene	2.5	U
59-50-7	4-Chloro-3-Methylphenol	1.5	U
91-57-6	2-Methylnaphthalene	2.0	U
77-47-4	Hexachlorocyclopentadiene	2.0	U
88-06-2	2, 4, 6-Trichlorophenol	1.5	U
95-95-4	2, 4, 5-Trichlorophenol	1.5	U
91-58-7	2-Chloronaphthalene	1.5	U
88-74-4	2-Nitroaniline	1.0	U
131-11-3	Dimethyl Phthalate	1.5	U
208-96-8	Acenaphthylene	1.5	U
99-09-2	3-Nitroaniline	2.5	U

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	1.5	U
51-28-5	2, 4-Dinitrophenol	15	U
100-02-7	4-Nitrophenol	1.5	U
132-64-9	Dibenzofuran	1.0	U
121-14-2	2, 4-Dinitrotoluene	1.0	U
606-20-2	2, 6-Dinitrotoluene	1.0	U
84-66-2	Diethylphthalate	1.0	U
7005-72-3	4-Chlorophenyl-phenylether	1.0	U
86-73-7	Fluorene	1.0	U
100-01-6	4-Nitroaniline	3.0	U
534-52-1	4, 6-Dinitro-2-Methylphenol	15	U
86-30-6	N-Nitrosodiphenylamine (1)	1.5	U
101-55-3	4-Bromophenyl-phenylether	1.5	U
118-74-1	Hexachlorobenzene	1.5	U
87-86-5	Pentachlorophenol	2.0	U
85-01-8	Phenanthrene	1.0	U
120-12-7	Anthracene	2.5	U
84-74-2	Di-n-Butylphthalate	2.0	U
206-44-0	Fluoranthene	1.5	U
129-00-0	Pyrene	1.5	U
85-68-7	Butylbenzylphthalate	3.5	U
91-94-1	3 3'-Dichlorobenzidine	NR	
56-55-3	Benzo(a)Anthracene *	1.5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	1.0	U
218-01-9	Chrysene *	—	
117-84-0	Di-n-Octyl Phthalate	1.5	U
205-99-2	Benzo(b)Fluoranthene * *	1.5	U
207-08-9	Benzo(k)Fluoranthene * *	—	
50-32-8	Benzo(a)Pyrene	2.0	U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	3.5	U
53-70-3	Dibenzia h)Anthracene	2.5	U
191-24-2	Benzo(g, h, i)Perylene	4.0	U

(1)-Cannot be separated from diphenylamine

* THESE TWO PARAMETERS ARE REPORTED AS A TC

* * THESE TWO PARAMETERS ARE REPORTED AS A TOTAL

Laboratory Name S-CUBED

Case No 9288 (3554E)

Sample Number ET 835

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 04-11-88

Date Analyzed 04-13-88

Conc/Dil Factor 1.0

Percent Moisture (decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.010 µ
319-85-7	Beta-BHC	0.005 µ
319-86-8	Delta-BHC	0.005 µ
58-89-9	Gamma-BHC (Lindane)	0.005 µ
76-44-8	Heptachlor	0.030 µ
309-00-2	Aldrin	0.005 µ
1024-57-3	Heptachlor Epoxide	0.005 µ
959 98-8	Endosulfan I	0.010 µ
60-57-1	Dieldrin	0.010 µ
72-55-9	4,4'-DDE	0.005 µ
72-20-8	Endrin	0.010 µ
33213-65-9	Endosulfan II	0.010 µ
72-54-8	4,4'-DDD	0.020 µ
1031-07-8	Endosulfan Sulfate	0.100 µ
50-29-3	4,4'-DDT	0.020 µ
72-43-5	Methoxychlor	0.020 µ
53494-70-5	Endrin Ketone	0.030 µ
57-74-9	Chlordane	0.020 µ
8001-35-2	Toxaphene	0.25 µ
12674-11-2	Aroclor-1016	0.10 µ
11104-28-2	Aroclor-1221	NA
11141-16-5	Aroclor-1232	NA
53469-21-9	Aroclor-1242	0.10 µ
12672-29-6	Aroclor-1248	0.10 µ
11097-69-1	Aroclor-1254	0.10 µ
11096-82-5	Aroclor-1260	0.10 µ
7421-93-4	ENDRIN ALDEHYDE	0.030 µ

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 ml or W_s NA V_t 1.00 ml V_i 1.0 µl

Laboratory Name S-CUBED

Case No 9288 (SAS3554E)

Sample Number ET835

44V2071 (VOA)
RR835 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TIC FOUND.	VOA		
2.				
3. NA	UNKNOWN	BNA	228	8 J
4.				
5.				
6.				
7.				
8.				
9.				
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ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number: ETB36

Laboratory Name: S-CUBED
Lab Sample ID No: 44V2081 (VOA), RR836(ABN)
Sample Matrix: WATER
Data Release Authorized By: _____

Case No: 9288 (SAS3554E)
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 04-02-88

VOLATILE COMPOUNDS

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 04-04-88
Date Analyzed: 04-04-88
Conc/Dil Factor: 1.0 pH: N.R
Percent Moisture (Not Decanted): N.R

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	1.5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	1.5 U
75-00-3	CHLOROETHANE	1.5 U	124-48-1	DIBROMOCHLOROMETHANE	1.5 U
75-09-2	METHYLENE CHLORIDE	1.0 ~~0.64 J B~~ U	79-00-5	1,1,2-TRICHLOROETHANE	1.5 U
67-64-1	ACETONE	75 U	71-43-2	BENZENE	1.5 U
75-15-0	CARBON DISULFIDE	3 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	2 U
75-35-4	1,1-DICHLOROETHENE	1.5 U	110-75-8	2-CHLOROETHYLVINYLETHER	1.5 U
75-34-3	1,1-DICHLOROETHANE	1.5 U	75-25-2	BROMOFORM	1.5 U
	TOTAL-1,2-DICHLOROETHENE'S	1.5 U	591-78-6	2-HEXANONE	50 U
67-66-3	CHLOROFORM	1.5 U	108-10-1	4-METHYL-2-PENTANONE	3 U
107-06-2	1,2-DICHLOROETHANE	1.5 U	127-18-4	TETRACHLOROETHENE	1.5 U
78-93-3	2-BUTANONE	50 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5 U
71-55-6	1,1,1-TRICHLOROETHANE	1.5 U	108-88-3	TOLUENE	1.5 U
56-23-5	CARBON TETRACHLORIDE	1.5 U	108-90-7	CHLOROBENZENE	1.5 U
108-05-4	VINYL ACETATE	15 U	100-41-4	ETHYLBENZENE	1.5 U
75-27-4	BROMODICHLOROMETHANE	1.5 U	100-42-5	STYRENE	1 U
107-02-8	ACROLEIN	100 U		M-XYLENE	2 U
107-13-1	ACRYLONITRILE	50 U		O/P-XYLENE	2.5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

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.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

Laboratory Name S-CUBED

Case No 9288 / 3554E

Sample Number ET 836

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 4-7-88

Date Analyzed 4-19-88

Conc./Dil Factor 1.0

Percent Moisture (Decanted) NA

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	2.0	U
111-44-4	bis(-2-Chloroethyl)Ether	1.5	U
95-57-8	2-Chlorophenol	2.0	U
541-73-1	1 3-Dichlorobenzene	2.0	U
106-46-7	1, 4-Dichlorobenzene	2.0	U
100-51-6	Benzyl Alcohol	2.0	U
95-50-1	1, 2-Dichlorobenzene	2.5	U
95-48-7	2-Methylphenol	1.0	U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5	U
106-44-5	4-Methylphenc	1.0	U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5	U
67-72-1	Hexachloroethane	2.0	U
98-95-3	Nitrobenzene	2.5	U
78-59-1	Isophorone	2.5	U
88-75-5	2-Nitrophenol	2.0	U
105-67-9	2, 4-Dimethylphenol	2.0	U
65-85-0	Benzoic Acid	30	U
111-91-1	bis(2-Chloroethoxy)Methane	2.5	U
120-83-2	2, 4-Dichlorophenol	2.0	U
120-82-1	1 2 4-Trichlorobenzene	2.0	U
91-20-3	Naphthalene	2.0	U
106-47-8	4-Chloroaniline	2.0	U
87-68-3	Hexachlorobutadiene	2.5	U
59-50-7	4-Chloro-3-Methylphenol	1.5	U
91-57-6	2-Methylnaphthalene	2.0	U
77-47-4	Hexachlorocyclopentadiene	2.0	U
88-06-2	2, 4, 6-Trichlorophenol	1.5	U
95-95-4	2, 4, 5-Trichlorophenol	1.5	U
91-58-7	2-Chloronaphthalene	1.5	U
88-74-4	2-Nitroaniline	1.0	U
131-11-3	Dimethyl Phthalate	1.5	U
208-96-8	Acenaphthylene	1.5	U
99-09-2	3-Nitroaniline	2.5	U

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	1.5	U
51-28-5	2, 4-Dinitrophenol	15	U
100-02-7	4-Nitrophenol	1.5	U
132-64-9	Dibenzofuran	1.0	U
121-14-2	2, 4-Dinitrotoluene	1.0	U
606-20-2	2, 6-Dinitrotoluene	1.0	U
84-66-2	Diethylphthalate	1.0	U
7005-72-3	4-Chlorophenyl-phenylether	1.0	U
86-73-7	Fluorene	1.0	U
100-01-6	4-Nitroaniline	3.0	U
534-52-1	4, 6-Dinitro-2-Methylphenol	15	U
86-30-6	N-Nitrosodiphenylamine (1)	1.5	U
101-55-3	4-Bromophenyl-phenylether	1.5	U
118-74-1	Hexachlorobenzene	1.5	U
87-86-5	Pentachlorophenol	2.0	U
85-01-8	Phenanthrene	1.0	U
120-12-7	Anthracene	2.5	U
84-74-2	Di-n-Butylphthalate	2.0	U
206-44-0	Fluoranthene	1.5	U
129-00-0	Pyrene	1.5	U
85-68-7	Butylbenzylphthalate	3.5	U
91-94-1	3, 3'-Dichlorobenzidine	NR	
56-55-3	Benzo(a)Anthracene *	1.5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	1.0	U
218-01-9	Chrysene *	—	
117-84-0	Di-n-Octyl Phthalate	1.5	U
205-99-2	Benzo(b)Fluoranthene * *	1.5	U
207-08-9	Benzo(k)Fluoranthene * *	—	
50-32-8	Benzo(a)Pyrene	2.0	U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	3.5	U
53-70-3	Dibenz(a h)Anthracene	2.5	U
191-24-2	Benzo(g h, i)Perylene	4.0	U

(1)-Cannot be separated from diphenylamine

* THESE TWO PARAMETERS ARE REPORTED AS A TOT

* * THESE TWO PARAMETERS ARE REPORTED AS A TOTAL

Laboratory Name S-CUBED

Case No 9288 (3554E)

Sample Number ET 836

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 04-11-88

Date Analyzed 04-13-88

Conc/Dil Factor 1.0

Percent Moisture (decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.010 µ
319-85-7	Beta-BHC	0.005 µ
319-86-8	Delta-BHC	0.005 µ
58-89-9	Gamma-BHC (Lindane)	0.005 µ
76-44-8	Heptachlor	0.030 µ
309-00-2	Aldrin	0.005 µ
1024-57-3	Heptachlor Epoxide	0.005 µ
959 98-8	Endosulfan I	0.010 µ
60-57-1	Dieldrin	0.010 µ
72-55-9	4,4'-DDE	0.005 µ
72-20-8	Endrin	0.010 µ
33213-65-9	Endosulfan II	0.010 µ
72-54-8	4,4'-DDD	0.020 µ
1031-07-8	Endosulfan Sulfate	0.100 µ
50-29-3	4,4'-DDT	0.020 µ
72-43-5	Methoxychlor	0.020 µ
53494-70-5	Endrin Ketone	0.030 µ
57-74-9	Chlordane	0.020 µ
8001-35-2	Toxaphene	0.25 µ
12674-11-2	Aroclor-1016	0.10 µ
11104-28-2	Aroclor-1221	NA
11141-16-5	Aroclor-1232	NA
53469-21-9	Aroclor-1242	0.10 µ
12672-29-6	Aroclor-1248	0.10 µ
11097-69-1	Aroclor-1254	0.10 µ
11096-82-5	Aroclor-1260	0.10 µ
7421-93-4	ENDRIN ALDEHYDE	0.030 µ

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 ml or W_s NA V_t 1.00 ml V_i 1.0 µl

Laboratory Name S-CUBED

Case No 9288 (SAS3554E)

Sample Number ET836

44V2081 (VOA)
RR836 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TIC FOUND.	VOA		
2.				
3. NA	UNKNOWN	BNA	227	4 J
4. 21964498	1,13 tetradecadiene.	BNA	1274	20 JB
5.				
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ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number: ET837

Laboratory Name: S-CUBED
Lab Sample ID No: 4AV2031 (VOA)
Sample Matrix: WATER
Data Release Authorized By: m

Case No: 9288 (SAS3554E)
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 04-02-88

VOLATILE COMPOUNDS
Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 04-04-88
Date Analyzed: 04-04-88
Conc/Dil Factor: 1.0 pH: N.R
Percent Moisture (Not Decanted): N.R

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	1.5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	1.5 U
75-00-3	CHLOROETHANE	1.5 U	124-48-1	DIBROMOCHLOROMETHANE	1.5 U
75-09-2	METHYLENE CHLORIDE	1 U	79-00-5	1,1,2-TRICHLOROETHANE	1.5 U
67-64-1	ACETONE	75 U	71-43-2	BENZENE	1.5 U
75-15-0	CARBON DISULFIDE	3 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	2 U
75-35-4	1,1-DICHLOROETHENE	1.5 U	110-75-8	2-CHLOROETHYLVINYLETHER	1.5 U
75-34-3	1,1-DICHLOROETHANE	1.5 U	75-25-2	BROMOFORM	1.5 U
	TOTAL-1,2-DICHLOROETHENE'S	1.5 U	591-78-6	2-HEXANONE	50 U
67-66-3	CHLOROFORM	1.5 U	108-10-1	4-METHYL-2-PENTANONE	3 U
107-06-2	1,2-DICHLOROETHANE	1.5 U	127-18-4	TETRACHLOROETHENE	1.5 U
78-93-3	2-BUTANONE	50 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5 U
71-55-6	1,1,1-TRICHLOROETHANE	1.5 U	108-88-3	TOLUENE	1.5 U
56-23-5	CARBON TETRACHLORIDE	1.5 U	108-90-7	CHLOROBENZENE	1.5 U
108-05-4	VINYL ACETATE	15 U	100-41-4	ETHYLBENZENE	1.5 U
75-27-4	BROMODICHLOROMETHANE	1.5 U	100-42-5	STYRENE	1 U
107-02-8	ACROLEIN	100 U		M-XYLENE	2 U
107-13-1	ACRYLONITRILE	50 U		O/P-XYLENE	2.5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

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.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

Laboratory Name S-CUBED

Case No 9288/3554E

Sample Number ET 837

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 4-7-88

Date Analyzed 4-14-88

Conc./Dil Factor 1.0

Percent Moisture (Decanted) NA

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	2.6
111-44-4	bis(-2-Chloroethyl)Ether	1.5 U
95-57-8	2-Chlorophenol	2.0 U
541-73-1	1 3-Dichlorobenzene	2.0 U
106-46-7	1 4-Dichlorobenzene	2.0 U
100-51-6	Benzyl Alcohol	2.0 U
95-50-1	1, 2-Dichlorobenzene	2.5 U
95-48-7	2-Methylphenol	1.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5 U
106-44-5	4-Methylphenol	1.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5 U
67-72-1	Hexachloroethane	2.0 U
98-95-3	Nitrobenzene	2.5 U
78-59-1	Isophorone	2.5 U
88-75-5	2-Nitrophenol	2.0 U
105-67-9	2 4-Dimethylphenol	2.0 U
65-85-0	Benzoic Acid	30 U
111-91-1	bis(-2-Chloroethoxy)Methane	2.5 U
120-83-2	2, 4-Dichlorophenol	2.0 U
120-82-1	1 2 4-Trichlorobenzene	2.0 U
91-20-3	Naphthalene	2.0 U
106-47-8	4-Chloroaniline	2.0 U
87-68-3	Hexachlorobutadiene	2.5 U
59-50-7	4-Chloro-3-Methylphenol	1.5 U
91-57-6	2-Methylnaphthalene	2.0 U
77-47-4	Hexachlorocyclopentadiene	2.0 U
88-06-2	2, 4, 6-Trichlorophenol	1.5 U
95-95-4	2, 4, 5-Trichlorophenol	1.5 U
91-58-7	2-Chloronaphthalene	1.5 U
88-74-4	2-Nitroaniline	1.0 U
131-11-3	Dimethyl Phthalate	1.5 U
208-96-8	Acenaphthylene	1.5 U
99-09-2	3-Nitroaniline	2.5 U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	1.5 U
51-28-5	2, 4-Dinitrophenol	15 U
100-02-7	4-Nitrophenol	1.5 U
132-64-9	Dibenzofuran	1.0 U
121-14-2	2, 4-Dinitrotoluene	1.0 U
606-20-2	2, 6-Dinitrotoluene	1.0 U
84-66-2	Diethylphthalate	1.9 BU
7005-72-3	4-Chlorophenyl-phenylether	1.0 U
86-73-7	Fluorene	1.0 U
100-01-6	4-Nitroaniline	3.0 U
534-52-1	4, 6-Dinitro-2-Methylphenol	15 U
86-30-6	N-Nitrosodiphenylamine (1)	1.5 U
101-55-3	4-Bromophenyl-phenylether	1.5 U
118-74-1	Hexachlorobenzene	1.5 U
87-86-5	Pentachlorophenol	2.0 U
85-01-8	Phenanthrene	1.0 U
120-12-7	Anthracene	2.5 U
84-74-2	Di-n-Butylphthalate	2.0 U
206-44-0	Fluoranthene	1.5 U
129-00-0	Pyrene	1.5 U
85-68-7	Butylbenzylphthalate	6.6
91-94-1	3, 3'-Dichlorobenzidine	NR
56-55-3	Benzo(a)Anthracene *	1.5 U
117-81-7	bis(2-Ethylhexyl)Phthalate	1.0 U
218-01-9	Chrysene *	—
117-84-0	Di-n-Octyl Phthalate	1.5 U
205-99-2	Benzo(b)Fluoranthene * *	1.5 U
207-08-9	Benzo(k)Fluoranthene * *	—
50-32-8	Benzo(a)Pyrene	2.0 U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	3.5 U
53-70-3	Dibenz(a, h)Anthracene	2.5 U
191-24-2	Benzo(g, h, i)Perylene	4.0 U

(1)-Cannot be separated from diphenylamine

* THESE TWO PARAMETERS ARE REPORTED AS A TO

* * THESE TWO PARAMETERS ARE REPORTED AS A TOTAL

Laboratory Name S-CUBED

Case No 9288 (3554E)

Sample Number ET 837

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 04-11-88

Date Analyzed 04-13-88

Conc/Dil Factor 1.0

Percent Moisture (decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.010 µ
319-85-7	Beta-BHC	0.005 µ
319-86-8	Delta-BHC	0.005 µ
58-89-9	Gamma-BHC (Lindane)	0.005 µ
76-44-8	Heptachlor	0.030 µ
309-00-2	Aldrin	0.005 µ
1024-57-3	Heptachlor Epoxide	0.005 µ
959 98-8	Endosulfan I	0.010 µ
60-57-1	Dieldrin	0.010 µ
72-55-9	4,4'-DDE	0.005 µ
72-20-8	Endrin	0.010 µ
33213-65-9	Endosulfan II	0.010 µ
72-54-8	4,4'-DDD	0.020 µ
1031-07-8	Endosulfan Sulfate	0.100 µ
50-29-3	4,4'-DDT	0.020 µ
72-43-5	Methoxychlor	0.020 µ
53494-70-5	Endrin Ketone	0.030 µ
57-74-9	Chlordane	0.020 µ
8001-35-2	Toxaphene	0.25 µ
12674-11-2	Aroclor-1016	0.10 µ
11104-28-2	Aroclor-1221	NA
11141-16-5	Aroclor-1232	NA
53469-21-9	Aroclor-1242	0.10 µ
12672-29-6	Aroclor-1248	0.10 µ
11097-69-1	Aroclor-1254	0.10 µ
11096-82-5	Aroclor-1260	0.10 µ
7421-93-4	ENDRIN ALDEHYDE	0.030 µ

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 ml or W_s NA V_t 1.00 ml V_i 1.0 µl

Laboratory Name S-CUBED

Case No 9288 (SAS3554E)

Sample Number ET837

4AV2031 (VOA)
ET 837 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TIC FOUND.	VOA		
2.				
3. 21964498	1,13 tetradecadiene	BNA	1284	7 JB
4.				
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ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number: ETB3B

Laboratory Name: S-CUBED
Lab Sample ID No: V244011 (VOA)
Sample Matrix: WATER
Data Release Authorized By: [signature]

Case No: 928B (SAS3554E)
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 04-02-88

VOLATILE COMPOUNDS
Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 04-04-88
Date Analyzed: 04-04-88
Conc/Dil Factor: 1.0 pH: N.R
Percent Moisture (Not Decanted): N.R

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	1.5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	1.5 U
75-00-3	CHLOROETHANE	1.5 U	124-48-1	DIBROMOCHLOROMETHANE	1.5 U
75-09-2	METHYLENE CHLORIDE	1 BU	79-00-5	1,1,2-TRICHLOROETHANE	1.5 U
67-64-1	ACETONE	75 U	71-43-2	BENZENE	1.5 U
75-15-0	CARBON DISULFIDE	3 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	2 U
75-35-4	1,1-DICHLOROETHENE	1.5 U	110-75-8	2-CHLOROETHYLVINYLETHER	1.5 U
75-34-3	1,1-DICHLOROETHANE	1.5 U	75-25-2	BROMOFORM	1.5 U
	TOTAL-1,2-DICHLOROETHENE'S	1.5 U	591-78-6	2-HEXANONE	50 U
67-66-3	CHLOROFORM	1.5 U ~~0.38 J~~	108-10-1	4-METHYL-2-PENTANONE	3 U
107-06-2	1,2-DICHLOROETHANE	1.5 U	127-18-4	TETRACHLOROETHENE	1.5 U
78-93-3	2-BUTANONE	50 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5 U
71-55-6	1,1,1-TRICHLOROETHANE	1.5 U	108-88-3	TOLUENE	1.5 U
56-23-5	CARBON TETRACHLORIDE	1.5 U	108-90-7	CHLOROBENZENE	1.5 U
108-05-4	VINYL ACETATE	15 U	100-41-4	ETHYLBENZENE	1.5 U
75-27-4	BROMODICHLOROMETHANE	1.5 U	100-42-5	STYRENE	1 U
107-02-8	ACROLEIN	100 U		M-XYLENE	2 U
107-13-1	ACRYLONITRILE	50 U		O/P-XYLENE	2.5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

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.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

Laboratory Name S-CUBED

Case No 9288/3554E

Sample Number
ET838

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 4-7-88

Date Analyzed 4-14-88

Conc/Dil Factor 1.0

Percent Moisture (Decanted) NA

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
108-95-2	Phenol	2.0 U
111-44-4	bis(-2-Chloroethyl)Ether	1.5 U
95-57-8	2-Chlorophenol	2.0 U
541-73-1	1 3-Dichlorobenzene	2.0 U
106-46-7	1, 4-Dichlorobenzene	2.0 U
100-51-6	Benzyl Alcohol	2.0 U
95-50-1	1, 2-Dichlorobenzene	2.5 U
95-48-7	2-Methylphenol	1.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5 U
106-44-5	4-Methylphenc	1.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5 U
67-72-1	Hexachloroethane	2.0 U
98-95-3	Nitrobenzene	2.5 U
78-59-1	Isophorone	2.5 U
88-75-5	2-Nitrophenol	2.0 U
105-67-9	2 4-Dimethylphenol	2.0 U
65-85-0	Benzoic Acid	30 U
111-91-1	bis(-2-Chloroethoxyl)Methane	2.5 U
120-83-2	2 4-Dichlorophenol	2.0 U
120-82-1	1 2 4-Trichlorobenzene	2.0 U
91-20-3	Naphthalene	2.0 U
106-47-8	4-Chloroaniline	2.0 U
87-68-3	Hexachlorobutadiene	2.5 U
59-50-7	4-Chloro-3-Methylphenol	1.5 U
91-57-6	2-Methylnaphthalene	2.0 U
77-47-4	Hexachlorocyclopentadiene	2.0 U
88-06-2	2, 4, 6-Trichlorophenol	1.5 U
95-95-4	2, 4, 5-Trichlorophenol	1.5 U
91-58-7	2-Chloronaphthalene	1.5 U
88-74-4	2-Nitroaniline	1.0 U
131-11-3	Dimethyl Phthalate	1.5 U
208-96-8	Acenaphthylene	1.5 U
99-09-2	3-Nitroaniline	2.5 U

CAS Number		(ug/l or ug/Kg) (Circle One)
83-32-9	Acenaphthene	1.5 U
51-28-5	2, 4-Dinitrophenol	15 U
100-02-7	4-Nitrophenol	1.5 U
132-64-9	Dibenzofuran	1.0 U
121-14-2	2, 4-Dinitrotoluene	1.0 U
606-20-2	2, 6-Dinitrotoluene	1.0 U
84-66-2	Diethylphthalate	1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0 U
86-73-7	Fluorene	1.0 U
100-01-6	4-Nitroaniline	3.0 U
534-52-1	4, 6-Dinitro-2-Methylphenol	15 U
86-30-6	N-Nitrosodiphenylamine (1)	1.5 U
101-55-3	4-Bromophenyl-phenylether	1.5 U
118-74-1	Hexachlorobenzene	1.5 U
87-86-5	Pentachlorophenol	2.0 U
85-01-8	Phenanthrene	1.0 U
120-12-7	Anthracene	2.5 U
84-74-2	Di-n-Butylphthalate	2.0 U
206-44-0	Fluoranthene	1.5 U
129-00-0	Pyrene	1.5 U
85-68-7	Butylbenzylphthalate	3.5 U
91-94-1	3 3'-Dichlorobenzidine	NR
56-55-3	Benzo(a)Anthracene *	1.5 U
117-81-7	bis(2-Ethylhexyl)Phthalate	1.0 U
218-01-9	Chrysene *	—
117-84-0	Di-n-Octyl Phthalate	1.5 U
205-99-2	Benzo(b)Fluoranthene * *	1.5 U
207-08-9	Benzo(k)Fluoranthene * *	—
50-32-8	Benzo(a)Pyrene	2.0 U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	3.5 U
53-70-3	Dibenz(a h)Anthracene	2.5 U
191-24-2	Benzo(g, h, i)Perylene	4.0 U

(1)-Cannot be separated from diphenylamine

* THESE TWO PARAMETERS ARE REPORTED AS A TOT

* * THESE TWO PARAMETERS ARE REPORTED AS A TOTAL

Laboratory Name S-CUBED

Case No 9288 (3554E)

Sample Number ET 838

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 04-11-88

Date Analyzed 04-13-88

Conc/Dil Factor 1.0

Percent Moisture (decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.010 µ
319-85-7	Beta-BHC	0.005 µ
319-86-8	Delta-BHC	0.005 µ
58-89-9	Gamma-BHC (Lindane)	0.005 µ
76-44-8	Heptachlor	0.030 µ
309-00-2	Aldrin	0.005 µ
1024-57-3	Heptachlor Epoxide	0.005 µ
959 98-8	Endosulfan I	0.010 µ
60-57-1	Dieldrin	0.010 µ
72-55-9	4,4'-DDE	0.005 µ
72-20-8	Endrin	0.010 µ
33213-65-9	Endosulfan II	0.010 µ
72-54-8	4,4'-DDD	0.020 µ
1031-07-8	Endosulfan Sulfate	0.100 µ
50-29-3	4,4'-DDT	0.020 µ
72-43-5	Methoxychlor	0.020 µ
53494-70-5	Endrin Ketone	0.030 µ
57-74-9	Chlordane	0.020 µ
8001-35-2	Toxaphene	0.25 µ
12674-11-2	Aroclor-1016	0.10 µ
11104-28-2	Aroclor-1221	NA
11141-16-5	Aroclor-1232	NA
53469-21-9	Aroclor-1242	0.10 µ
12672-29-6	Aroclor-1248	0.10 µ
11097-69-1	Aroclor-1254	0.10 µ
11096-82-5	Aroclor-1260	0.10 µ
7421-93-4	ENDRIN ALDEHYDE	0.030 µ

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 ml or W_s NA V_t 1.00 ml V_i 1.0 µl

Laboratory Name S-CUBED

Case No 9288 (SAS3554E)

Sample Number ET838

V244011 (VOA)
ET838 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/Kg or ug/kg)
1.	NO TIC FOUND.	VOA		
2.				
3. 21964498	1,13 tetradecadiene	BNA	1287	12 JB
4. 19812647	1,14 tetradecanediol		1290	3 JB
5.				
6.				
7.				
8.				
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ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number: ET839

Laboratory Name: S-CUBED
Lab Sample ID No: V244021 (VOA), R2839 (ABN)
Sample Matrix: WATER
Data Release Authorized By: [signature]

Case No: 9288 (SAS3554E)
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 04-02-88

VOLATILE COMPOUNDS

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 04-04-88
Date Analyzed: 04-04-88
Conc/Dil Factor: 1.0 pH: N.R
Percent Moisture (Not Decanted): N.R

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	1.5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	1.5 U
75-00-3	CHLOROETHANE	1.5 U	124-48-1	DIBROMOCHLOROMETHANE	1.5 U
75-09-2	METHYLENE CHLORIDE	1.4 BU	79-00-5	1,1,2-TRICHLOROETHANE	1.5 U
67-64-1	ACETONE	75 U	71-43-2	BENZENE	1.5 U
75-15-0	CARBON DISULFIDE	3 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	2 U
75-35-4	1,1-DICHLOROETHENE	1.5 U	110-75-8	2-CHLOROETHYLVINYLETHER	1.5 U
75-34-3	1,1-DICHLOROETHANE	1.5 U	75-25-2	BROMOFORM	1.5 U
	TOTAL-1,2-DICHLOROETHENE'S	1.5 U	591-78-6	2-HEXANONE	50 U
67-66-3	CHLOROFORM	1.5u ~~0.23 J~~	108-10-1	4-METHYL-2-PENTANONE	3 U
107-06-2	1,2-DICHLOROETHANE	1.5 U	127-18-4	TETRACHLOROETHENE	1.5 U
78-93-3	2-BUTANONE	50 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5 U
71-55-6	1,1,1-TRICHLOROETHANE	1.5 U	108-88-3	TOLUENE	1.5 U
56-23-5	CARBON TETRACHLORIDE	1.5 U	108-90-7	CHLOROBENZENE	1.5 U
108-05-4	VINYL ACETATE	15 U	100-41-4	ETHYLBENZENE	1.5 U
75-27-4	BROMODICHLOROMETHANE	1.5 U	100-42-5	STYRENE	1 U
107-02-8	ACROLEIN	100 U		M-XYLENE	2 U
107-13-1	ACRYLONITRILE	50 U		O/P-XYLENE	2.5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

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.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

Laboratory Name S-CUBED

Case No 9288/3554E

Sample Number ET 839

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 4-7-88

Date Analyzed 4-19-88

Conc./Dil Factor 1.0

Percent Moisture (Decanted) NA

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	2.0	U
111-44-4	bis(-2-Chloroethyl)Ether	1.5	U
95-57-8	2-Chlorophenol	2.0	U
541-73-1	1 3-Dichlorobenzene	2.0	U
106-46-7	1, 4-Dichlorobenzene	2.0	U
100-51-6	Benzyl Alcohol	2.0	U
95-50-1	1, 2-Dichlorobenzene	2.5	U
95-48-7	2-Methylphenol	1.0	U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5	U
106-44-5	4-Methylphenol	1.0	U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5	U
67-72-1	Hexachloroethane	2.0	U
98-95-3	Nitrobenzene	2.5	U
78-59-1	Isophorone	2.5	U
88-75-5	2-Nitrophenol	2.0	U
105-67-9	2 4-Dimethylphenol	2.0	U
65-85-0	Benzoic Acid	30	U
111-91-1	bis(-2-Chloroethoxy)Methane	2.5	U
120-83-2	2, 4-Dichlorophenol	2.0	U
120-82-1	1, 2 4-Trichlorobenzene	2.0	U
91-20-3	Naphthalene	2.0	U
106-47-8	4-Chloroaniline	2.0	U
87-68-3	Hexachlorobutadiene	2.5	U
59-50-7	4-Chloro-3-Methylphenol	1.5	U
91-57-6	2-Methylnaphthalene	2.0	U
77-47-4	Hexachlorocyclopentadiene	2.0	U
88-06-2	2, 4, 6-Trichlorophenol	1.5	U
95-95-4	2, 4, 5-Trichlorophenol	1.5	U
91-58-7	2-Chloronaphthalene	1.5	U
88-74-4	2-Nitroaniline	1.0	U
131-11-3	Dimethyl Phthalate	1.5	U
208-96-8	Acenaphthylene	1.5	U
99-09-2	3-Nitroaniline	2.5	U

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	1.5	U
51-28-5	2, 4-Dinitrophenol	15	U
100-02-7	4-Nitrophenol	1.5	U
132-64-9	Dibenzofuran	1.0	U
121-14-2	2, 4-Dinitrotoluene	1.0	U
606-20-2	2, 6-Dinitrotoluene	1.0	U
84-66-2	Diethylphthalate	1.2	U B
7005-72-3	4-Chlorophenyl-phenylether	1.0	U
86-73-7	Fluorene	1.0	U
100-01-6	4-Nitroaniline	3.0	U
534-52-1	4, 6-Dinitro-2-Methylphenol	15	U
86-30-6	N-Nitrosodiphenylamine (1)	1.5	U
101-55-3	4-Bromophenyl-phenylether	1.5	U
118-74-1	Hexachlorobenzene	1.5	U
87-86-5	Pentachlorophenol	2.0	U
85-01-8	Phenanthrene	1.0	U
120-12-7	Anthracene	2.5	U
84-74-2	Di-n-Butylphthalate	2.0	U
206-44-0	Fluoranthene	1.5	U
129-00-0	Pyrene	1.5	U
85-68-7	Butylbenzylphthalate	7.1	
91-94-1	3, 3'-Dichlorobenzidine	NR	
56-55-3	Benzo(a)Anthracene *	1.5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	1.0	U
218-01-9	Chrysene *	—	
117-84-0	Di-n-Octyl Phthalate	1.5	U
205-99-2	Benzo(b)Fluoranthene * *	1.5	U
207-08-9	Benzo(k)Fluoranthene * *	—	
50-32-8	Benzo(a)Pyrene	2.0	U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	3.5	U
53-70-3	Dibenz(a h)Anthracene	2.5	U
191-24-2	Benzo(g, h, i)Perylene	4.0	U

(1)-Cannot be separated from diphenylamine

* THESE TWO PARAMETERS ARE REPORTED AS A TO

* * THESE TWO PARAMETERS ARE REPORTED AS A TOTAL

Laboratory Name S-CUBED

Case No 9288 (3554E)

Sample Number ET 839

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 04-11-88

Date Analyzed 04-13-88

Conc/Dil Factor 1.0

Percent Moisture (decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/L or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.010 µ
319-85-7	Beta-BHC	0.005 µ
319-86-8	Delta-BHC	0.005 µ
58-89-9	Gamma-BHC (Lindane)	0.005 µ
76-44-8	Heptachlor	0.030 µ
309-00-2	Aldrin	0.005 µ
1024-57-3	Heptachlor Epoxide	0.005 µ
959 98-8	Endosulfan I	0.010 µ
60-57-1	Dieldrin	0.010 µ
72-55-9	4,4'-DDE	0.005 µ
72-20-8	Endrin	0.010 µ
33213-65-9	Endosulfan II	0.010 µ
72-54-8	4,4'-DDD	0.020 µ
1031-07-8	Endosulfan Sulfate	0.100 µ
50-29-3	4,4'-DDT	0.020 µ
72-43-5	Methoxychlor	0.020 µ
53494-70-5	Endrin Ketone	0.030 µ
57-74-9	Chlordane	0.020 µ
8001-35-2	Toxaphene	0.25 µ
12674-11-2	Aroclor-1016	0.10 µ
11104-28-2	Aroclor-1221	NA
11141-16-5	Aroclor-1232	NA
53469-21-9	Aroclor-1242	0.10 µ
12672-29-6	Aroclor-1248	0.10 µ
11097-69-1	Aroclor-1254	0.10 µ
11096-82-5	Aroclor-1260	0.10 µ
7421-93-4	ENDRIN ALDEHYDE	0.030 µ

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 ml or W_s NA V_t 1.00 ml V_i 1.0 µl

Laboratory Name S-CUBED

Case No 9288 (SAS3554E)

Sample Number ET839

V244021 (VOA)
RR 839 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	No TIC FOUND.	VOA		
2.				
3. 8196498	1,13 tetradecadiene	BNA	1274	4 JB
4. NA	UNKNOWN	↓	1379	8 J
5.				
6.				
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29.				
30.				

ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number: ETB40

Laboratory Name: S-CUBED
Lab Sample ID No: V244031 (VOA)
Sample Matrix: WATER
Data Release Authorized By: [signature]

Case No: 9288 (SAS3554E)
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 04-02-88

VOLATILE COMPOUNDS

Concentration: Low, Medium (Circle One)
Date Extracted/Prepared: 04-04-88
Date Analyzed: 04-04-88
Conc/Dil Factor: 1.0 pH: N.R
Percent Moisture (Not Decanted): N.R

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	1.5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	1.5 U
75-00-3	CHLOROETHANE	1.5 U	124-48-1	DIBROMOCHLOROMETHANE	1.5 U
75-09-2	METHYLENE CHLORIDE	1.3	79-00-5	1,1,2-TRICHLOROETHANE	1.5 U
67-64-1	ACETONE	75 U	71-43-2	BENZENE	1.5 U
75-15-0	CARBON DISULFIDE	3 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	2 U
75-35-4	1,1-DICHLOROETHENE	1.5 U	110-75-8	2-CHLOROETHYLVINYLETHER	1.5 U
75-34-3	1,1-DICHLOROETHANE	1.5 U	75-25-2	BROMOFORM	1.5 U
	TOTAL-1,2-DICHLOROETHENE'S	1.5 U	591-78-6	2-HEXANONE	50 U
67-66-3	CHLOROFORM	1.5 U	108-10-1	4-METHYL-2-PENTANONE	3 U
107-06-2	1,2-DICHLOROETHANE	1.5 U	127-18-4	TETRACHLOROETHENE	1.5 U
78-93-3	2-BUTANONE	50 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5 U
71-55-6	1,1,1-TRICHLOROETHANE	1.5 U	108-88-3	TOLUENE	1.5 U
56-23-5	CARBON TETRACHLORIDE	1.5 U	108-90-7	CHLOROBENZENE	1.5 U
108-05-4	VINYL ACETATE	15 U	100-41-4	ETHYLBENZENE	1.5 U
75-27-4	BROMODICHLOROMETHANE	1.5 U	100-42-5	STYRENE	1 U
107-02-8	ACROLEIN	100 U		M-XYLENE	2 U
107-13-1	ACRYLONITRILE	50 U		O/P-XYLENE	2.5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

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.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

Laboratory Name S-CUBED

Case No 9288 (SAS3554E)

Sample Number ET840

V244031 (VOA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TIC FOUND.	VOA		
2.				
3.	NO ABN ANALYSIS			
4.				
5.				
6.				
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

ESD/Central Regional Laboratory
DATA TRACKING FORM FOR CONTRACT SAMPLES

CRL Data Set No. SF 5011 CERCLIS No. —

SMO Case No. 9288 SAS 3554E Site Name and Location: HADER GROUND WATER

Name of Contractor or EPA Laboratory: S-CUBED Data User: MPCA

No. of Samples: 10 Date Samples or Data Received: 4-25-88

1. Have chain-of-custody records been received? YES ✓ NO
2. Have Traffic Reports or packing lists been received? YES ✓ NO
3. If no, are Traffic Report or packing list numbers written on the chain-of-custody record? YES ___ NO ___
4. If no, which Traffic report or packing list numbers are missing?

Are basic data forms in? YES ✓ NO ___

Number of samples claimed: 10 Number of samples received: 10

Checked by: Erlinda Luz M. Arreola Date: 4-25-88

Received by Contract Project Management Section: P. Chunlla Date: 4-25-88

Review Started: 5-2-88 Reviewer Signature: John R. Mizerzka

Total time spent on review: 7hr Date review completed: 5-2-88

Copied (xeroxed) by: ___ Date: ___

Mailed to Data User by: Wanda Freeman Date: 5-6-88

DATA USERS:

Please fill in the blanks below and return this form to: Sylvia Griffin, Data Management Coordinator, Region V, ESCRL

Data received by: ___ Date: ___

Q.A. review received by: ___ Date: ___

Inorganic Date Complete [ ], Suitable for Intended Purposes [ ] ✓ [ ] if acceptable.
Organic Data Complete [ ], Suitable for Intended Purposes [ ] List problems below.
Dioxin Data Complete [ ], Suitable for Intended Purposes [ ]
SAS Data Complete [ ], Suitable for Intended Purposes [ ]

See Attached "Missing Data Request Form" [ ]
PROBLEMS: Please indicate reasons (if any) why data are not suitable for your uses. Other problems.

Received by Data Management Coordinator, CRL for File: Date: ___

Signature:

ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number:
LAB BLANK

Laboratory Name: S-CUBED
Lab Sample ID No: 44V2021 (VOA), RRBAG (ABN) Labblank 4-11 (pest)
Sample Matrix: WATER
Data Release Authorized By: [illegible]

Case No: 9288 (SAS3554E)
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: N.R

VOLATILE COMPOUNDS

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 04-04-88
Date Analyzed: 04-04-88
Conc/Dil Factor: 1.0 pH: N.R
Percent Moisture (Not Decanted): N.R

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	1.5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	1.5 U
75-00-3	CHLOROETHANE	1.5 U	124-48-1	DIBROMOCHLOROMETHANE	1.5 U
75-09-2	METHYLENE CHLORIDE	1.3	79-00-5	1,1,2-TRICHLOROETHANE	1.5 U
67-64-1	ACETONE	75 U	71-43-2	BENZENE	1.5 U
75-15-0	CARBON DISULFIDE	3 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	2 U
75-35-4	1,1-DICHLOROETHENE	1.5 U	110-75-8	2-CHLOROETHYLVINYLETHER	1.5 U
75-34-3	1,1-DICHLOROETHANE	1.5 U	75-25-2	BROMOFORM	1.5 U
	TOTAL-1,2-DICHLOROETHENE'S	1.5 U	591-78-6	2-HEXANONE	50 U
67-66-3	CHLOROFORM	1.5 U	108-10-1	4-METHYL-2-PENTANONE	3 U
107-06-2	1,2-DICHLOROETHANE	1.5 U	127-18-4	TETRACHLOROETHENE	1.5 U
78-93-3	2-BUTANONE	50 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5 U
71-55-6	1,1,1-TRICHLOROETHANE	1.5 U	108-88-3	TOLUENE	1.5 U
56-23-5	CARBON TETRACHLORIDE	1.5 U	108-90-7	CHLOROBENZENE	1.5 U
108-05-4	VINYL ACETATE	15 U	100-41-4	ETHYLBENZENE	1.5 U
75-27-4	BROMODICHLOROMETHANE	1.5 U	100-42-5	STYRENE	1 U
107-02-8	ACROLEIN	100 U		M-IYLENE	2 U
107-13-1	ACRYLONITRILE	50 U		O/P-XYLENE	2.5 U

Data Reporting Qualifiers

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J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

Laboratory Name S-CUBED

Case No 9289/3554E

Sample Number
Lab Blank 4-6

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 4-6-88

Date Analyzed 4-13-88

Conc./Dil Factor 1.0

Percent Moisture (Decanted) NA

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	2.0	U
111-44-4	bis(-2-Chloroethyl)Ether	1.5	U
95-57-8	2-Chlorophenol	2.0	U
541-73-1	1 3-Dichlorobenzene	2.0	U
106-46-7	1 4-Dichlorobenzene	2.0	U
100-51-6	Benzyl Alcohol	2.0	U
95-50-1	1, 2-Dichlorobenzene	2.5	U
95-48-7	2-Methylphenol	1.0	U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5	U
106-44-5	4-Methylphenol	1.0	U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5	U
67-72-1	Hexachloroethane	2.0	U
98-95-3	Nitrobenzene	2.5	U
78-59-1	Isophorone	2.5	U
88 75-5	2-Nitrophenol	2.0	U
105-67-9	2, 4-Dimethylphenol	2.0	U
65-85-0	Benzoic Acid	30	U
111-91-1	bis(2-ChloroethoxylMethane	2.5	U
120-83-2	2 4-Dichlorophenol	2.0	U
120-82-1	1 2 4-Trichlorobenzene	2.0	U
91-20-3	Naphthalene	2.0	U
106-47-8	4-Chloroaniline	2.0	U
87-68-3	Hexachlorobutadiene	2.5	U
59-50-7	4-Chloro-3-Methylphenol	1.5	U
91-57-6	2-Methylnaphthalene	2.0	U
77-47-4	Hexachlorocyclopentadiene	2.0	U
88-06-2	2, 4, 6-Trichlorophenol	1.5	U
95-95-4	2, 4, 5-Trichlorophenol	1.5	U
91-58-7	2-Chloronaphthalene	1.5	U
88-74-4	2-Nitroaniline	1.0	U
131-11-3	Dimethyl Phthalate	1.5	U
208-96-8	Acenaphthylene	1.5	U
99-09-2	3-Nitroaniline	2.5	U

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	1.5	U
51-28-5	2, 4-Dinitrophenol	15	U
100-02-7	4-Nitrophenol	1.5	U
132-64-9	Dibenzofuran	1.0	U
121-14-2	2, 4-Dinitrotoluene	1.0	U
606-20-2	2, 6-Dinitrotoluene	1.0	U
84-66-2	Diethylphthalate	1.0	U
7005-72-3	4-Chlorophenyl-phenylether	1.0	U
86-73-7	Fluorene	1.0	U
100-01-6	4-Nitroaniline	3.0	U
534-52-1	4, 6-Dinitro-2-Methylphenol	15	U
86-30-6	N-Nitrosodiphenylamine (1)	1.5	U
101-55-3	4-Bromophenyl-phenylether	1.5	U
118-74-1	Hexachlorobenzene	1.5	U
87-86-5	Pentachlorophenol	2.0	U
85-01-8	Phenanthrene	1.0	U
120-12-7	Anthracene	2.5	U
84-74-2	Di-n-Butylphthalate	2.0	U
206-44-0	Fluoranthene	1.5	U
129-00-0	Pyrene	1.5	U
85-68-7	Butylbenzylphthalate	3.5	U
91-94-1	3 3'-Dichlorobenzidine	NR	
56-55-3	Benzo(a)Anthracene *	1.5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	1.0	U
218-01-9	Chrysene *	—	
117-84-0	Di-n-Octyl Phthalate	1.5	U
205-99-2	Benzo(b)Fluoranthene * *	1.5	U
207-08-9	Benzo(k)Fluoranthene * *	—	
50-32-8	Benzo(a)Pyrene	2.0	U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	3.5	U
53-70-3	Dibenz(a h)Anthracene	2.5	U
191-24-2	Benzo(g h, i)Perylene	4.0	U

(1)-Cannot be separated from diphenylamine

* THESE TWO PARAMETERS ARE REPORTED AS A TOT

* * THESE TWO PARAMETERS ARE REPORTED AS A TOTAL

Laboratory Name S-CUBED

Case No 9288 (3554E)

Sample Number
LAB BLANK 4-11

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 4-11-88

Date Analyzed 4-12-88

Conc/Dil Factor 1.0

Percent Moisture (decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.010 µ
319-85-7	Beta-BHC	0.005 µ
319-86-8	Delta-BHC	0.005 µ
58-89-9	Gamma-BHC (Lindane)	0.005 µ
76-44-8	Heptachlor	0.030 µ
309-00-2	Aldrin	0.005 µ
1024-57-3	Heptachlor Epoxide	0.005 µ
959 98-8	Endosulfan I	0.010 µ
60-57-1	Dieldrin	0.010 µ
72-55-9	4,4'-DDE	0.005 µ
72-20-8	Endrin	0.010 µ
33213-65-9	Endosulfan II	0.010 µ
72-54-8	4,4'-DDD	0.020 µ
1031-07-8	Endosulfan Sulfate	0.100 µ
50-29-3	4,4'-DDT	0.020 µ
72-43-5	Methoxychlor	0.020 µ
53494-70-5	Endrin Ketone	0.030 µ
57-74-9	Chlordane	0.020 µ
8001-35-2	Toxaphene	0.25 µ
12674-11-2	Aroclor-1016	0.10 µ
11104-28-2	Aroclor-1221	NA
11141-16-5	Aroclor-1232	NA
53469-21-9	Aroclor-1242	0.10 µ
12672-29-6	Aroclor-1248	0.10 µ
11097-69-1	Aroclor-1254	0.10 µ
11096-82-5	Aroclor-1260	0.10 µ
7421-93-4	ENDRIN ALDEHYDE	0.030 µ

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 ml or W_s NA V_t 1.00 ml V_i 1.0 µl

Laboratory Name S-CUBED

Case No 9288 (SAS3554E)

Sample Number
LAB BLANK

44V2021 (VOA)
RRBAG (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TIC FOUND.	VOA		
2.				
3.	No TIC Found	BNA		
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number:
LAB BLANK

Laboratory Name: S-CUBED
Lab Sample ID No: 4AV2021 (VOA), LBA071 (ABN)
Sample Matrix: WATER
Data Release Authorized By: [illegible]

Case No: 9288 (SAS3554E)
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: N.R

VOLATILE COMPOUNDS

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 04-04-88
Date Analyzed: 04-04-88
Conc/Dil Factor: 1.0 pH: N.R
Percent Moisture (Not Decanted): N.R

CAS Number		ug/L or ug/kg (Circle One)	CAS Number		ug/L or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	1.5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	1.5 U
75-00-3	CHLOROETHANE	1.5 U	124-48-1	DIBROMOCHLOROMETHANE	1.5 U
75-09-2	METHYLENE CHLORIDE	2.2	79-00-5	1,1,2-TRICHLOROETHANE	1.5 U
67-64-1	ACETONE	75 U	71-43-2	BENZENE	1.5 U
75-15-0	CARBON DISULFIDE	3 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	2 U
75-35-4	1,1-DICHLOROETHENE	1.5 U	110-75-8	2-CHLOROETHYLVINYLETHER	1.5 U
75-34-3	1,1-DICHLOROETHANE	1.5 U	75-25-2	BROMOFORM	1.5 U
	TOTAL-1,2-DICHLOROETHENE'S	1.5 U	591-78-6	2-HEXANONE	50 U
67-66-3	CHLOROFORM	1.5 U	108-10-1	4-METHYL-2-PENTANONE	3 U
107-06-2	1,2-DICHLOROETHANE	1.5 U	127-18-4	TETRACHLOROETHENE	1.5 U
78-93-3	2-BUTANONE	50 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5 U
71-55-6	1,1,1-TRICHLOROETHANE	1.5 U	108-88-3	TOLUENE	1.5 U
56-23-5	CARBON TETRACHLORIDE	1.5 U	108-90-7	CHLOROBENZENE	1.5 U
108-05-4	VINYL ACETATE	15 U	100-41-4	ETHYLBENZENE	1.5 U
75-27-4	BROMODICHLOROMETHANE	1.5 U	100-42-5	STYRENE	1 U
107-02-8	ACROLEIN	100 U		M-XYLENE	2 U
107-13-1	ACRYLONITRILE	50 U		O/P-XYLENE	2.5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

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.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

Laboratory Name S-CUBED

Case No 9288/3554E

Sample Number
Lab Blank 4-7

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 4-7-88

Date Analyzed 4-10-88

Conc/Dil Factor 1.0

Percent Moisture (Decanted) N.A

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	2.0	U
111-44-4	bis(-2-Chloroethyl)Ether	1.5	U
95-57-8	2-Chlorophenol	2.0	U
541-73-1	1 3-Dichlorobenzene	2.0	U
106-46-7	1, 4-Dichlorobenzene	2.0	U
100-51-6	Benzyl Alcohol	2.0	U
95-50-1	1, 2-Dichlorobenzene	2.5	U
95-48-7	2-Methylphenol	1.0	U
39638-32-9	bis(2-chloroisopropyl)Ether	2.5	U
106-44-5	4-Methylphenc	1.0	U
621-64-7	N-Nitroso-Di-n-Propylamine	1.5	U
67-72-1	Hexachloroethane	2.0	U
98-95-3	Nitrobenzene	2.5	U
78-59-1	Isophorone	2.5	U
88-75-5	2-Nitrophenol	2.0	U
105-67-9	2 4-Dimethylphenol	2.0	U
65-85-0	Benzoic Acid	30	U
111-91-1	bis(-2-ChloroethoxylMethane	2.5	U
120-83-2	2, 4-Dichlorophenol	2.0	U
120-82-1	1, 2 4-Trichlorobenzene	2.0	U
91-20-3	Naphthalene	2.0	U
106-47-8	4-Chloroaniline	2.0	U
87-68-3	Hexachlorobutadiene	2.5	U
59-50-7	4-Chloro-3-Methylphenol	1.5	U
91-57-6	2-Methylnaphthalene	2.0	U
77-47-4	Hexachlorocyclopentadiene	2.0	U
88-06-2	2, 4, 6-Trichlorophenol	1.5	U
95-95-4	2, 4, 5-Trichlorophenol	1.5	U
91-58-7	2-Chloronaphthalene	1.5	U
88-74-4	2-Nitroaniline	1.0	U
131-11-3	Dimethyl Phthalate	1.5	U
208-96-8	Acenaphthylene	1.5	U
99-09-2	3-Nitroaniline	2.5	U

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	1.5	U
51-28-5	2, 4-Dinitrophenol	15	U
100-02-7	4-Nitrophenol	1.5	U
132-64-9	Dibenzofuran	1.0	U
121-14-2	2, 4-Dinitrotoluene	1.0	U
606-20-2	2, 6-Dinitrotoluene	1.0	U
84-66-2	Diethylphthalate	2.1	
7005-72-3	4-Chlorophenyl-phenylether	1.0	U
86-73-7	Fluorene	1.0	U
100-01-6	4-Nitroaniline	3.0	U
534-52-1	4, 6-Dinitro-2-Methylphenol	15	U
86-30-6	N-Nitrosodiphenylamine (1)	1.5	U
101-55-3	4-Bromophenyl-phenylether	1.5	U
118-74-1	Hexachlorobenzene	1.5	U
87-86-5	Pentachlorophenol	2.0	U
85-01-8	Phenanthrene	1.0	U
120-12-7	Anthracene	2.5	U
84-74-2	Di-n-Butylphthalate	2.0	U
206-44-0	Fluoranthene	1.5	U
129-00-0	Pyrene	1.5	U
85-68-7	Butylbenzylphthalate	3.5	U
91-94-1	3, 3'-Dichlorobenzidine	NR	
56-55-3	Benzo(a)Anthracene *	1.5	U
117-81-7	bis(2-Ethylhexyl)Phthalate	1.0	U
218-01-9	Chrysene *	—	
117-84-0	Di-n-Octyl Phthalate	1.5	U
205-99-2	Benzo(b)Fluoranthene * *	1.5	U
207-08-9	Benzo(k)Fluoranthene * *	—	
50-32-8	Benzo(a)Pyrene	2.0	U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	3.5	U
53-70-3	Dibenz(a h)Anthracene	2.5	U
191-24-2	Benzo(g, h, i)Perylene	4.0	U

(1)-Cannot be separated from diphenylamine

* THESE TWO PARAMETERS ARE REPORTED AS A TOT

* * THESE TWO PARAMETERS ARE REPORTED AS A TOTAL

Laboratory Name S-CUBED

Case No 9288 (SAS3554E)

Sample Number

LAB BLANK

4AV2021 (VOA)
LBA07 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	No TIC FOUND.	VOA		
2.				
3. 21964498	1,13 tetradecadiene	BNA	1294	22 J
4. 19812647	1,14 tetradecanediol	BNA	1298	6 J
5.				
6.				
7.				
8.				
9.				
10.				
11.				
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REGIONAL LAB

U.S.A EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

Date 4/26/88

COVER PAGE
INORGANIC ANALYSES DATA PACKAGE

Lab Name Post, Buckley, Schuh & Jernigan Case No. SAS 3727E

SOW No. 7/85 Q.C. Report No. 1

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab Id No.
3727E-01	8804014-01	3727E-09	8804014-09
3727E-02	8804014-02		
3727E-03	8804014-03		
3727E-04	8804014-04		
3727E-05	8804014-05		
3727E-06	8804014-06		
3727E-07	8804014-07		
3727E-08	8804014-08		

Comments:

ICP interelement and background corrections applied? Yes X No ____.
If yes, corrections applied before X or after ____ generation of raw data.

Footnotes:

NR - Not required by contract at this time

Form I:

Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract-required detection limit, report the value in brackets (i.e.,[10]). Indicate the analytical method used with P (for ICP), A (for Flame AA) or F (for Furnace AA).

U - Indicates element was analyzed for but not detected. Report with the instrument detection limit value (e.g., 10U).

E - Indicates a value estimated or not reported due to the presence of interference . Explanatory note included on cover page.

s - Indicates value determined by Method of Standard Addition.

N - Indicates spike sample recovery is not within control limits.

* - Indicates duplicate analysis is not within control limits.

\+ - Indicates the correlation coefficient for method of standard addition is less than 0.995.

M - Indicates duplicate injection results exceeded control limits.

P for ICP, A for Flame AA and F for Furnace.

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria. VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-01

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post. Buckley. Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO. 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID. NO. 8804014-01

Q.C. REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/L ~~ug/l~~ or mg/kg dry weight (Circle One)

1.	Sulfate	605	P	10.	
2.	Nitrate & Nitrite	0.1U	P	11.	
3.	Chloride	0.5U	F	12.	
4.	Alkalinity	122	P	13.	
5.	Acidity		P	14.	
6.	PH	6.4	P	15.	
7.			P	16.	
8.			P	17.	
9.				Percent Solids (%)	

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Colorless, clear (NO_3+NO_2)
Orange, cloudy (Alkalinity, Acidity, PH, Sulfate, Chloride)

Lab Manager K A Kemmlies

IFB Amend. One

501

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-02

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO. 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID. NO. 8804014-02

Q.C. REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/l ~~ug/l~~ or mg/kg dry weight (Circle One)

1.	Sulfate	310	P	10.	
2.	Nitrate & Nitrite	0.10	P	11.	
3.	Chloride	0.50	F	12	
4.	Alkalinity	231	P	13.	
5.	Acidity		P	14	
6.	PH	6.8	P	15.	
7.			P	16.	
8.			P	17.	
9.				Percent Solids (%)	

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however

Comments: Colorless, clear [illegible]
Yellow, clear, Alkalinity, Acidity, pH, Sulfate, Chloride

Lab Manager [illegible]

IFB Amend One

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-03

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO. 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID. NO. 8804014-03

Q.C. REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/l ~~ug/l~~ or mg/kg dry weight (Circle One)

1.	Sulfate	313 19	P	10.	
2.	Nitrate & Nitrite	0.10	P	11.	
3.	Chloride	0.50	P	12.	
4.	Alkalinity	277	P	13.	
5.	Acidity		P	14.	
6.	PH	7.2	P	15.	
7.			P	16.	
8.			P	17.	
9.				Percent Solids (%)	

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Colorless, clear ($NO_3 - NO_2$)
White, clear (Alkalinity, Acidity, PH, Sulfate, Chloride)

Lab Manager [illegible]

IFB Amend. One

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-04

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO. 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID. NO. 8804014-04

Q.C. REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/L ~~ug/L~~ or mg/kg dry weight (Circle One)

1.	Sulfate	315	P	10.	
2.	Nitrate & Nitrite	0.1U	P	11.	
3.	Chloride	0.5U	P	12.	
4.	Alkalinity	127	P	13.	
5.	Acidity		P	14.	
6.	PH	6.3	P	15.	
7.			P	16.	
8.			P	17.	
9.				Percent Solids (%)	

Footnotes. For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments. Colorless clear ($NO_3 + NO_2$)
Orange, cloudy (Alkalinity, Acidity, PH, Sulfate, Chloride)

Lab Manager [illegible]

IFB Amend. One

Form 1

U.S. EPA Contract Laboratory Program
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703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-05

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post. Buckley. Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO. 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID. NO. 8804014-05

Q.C. REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/l ~~ug/l~~ or mg/kg dry weight (Circle One)

1.	Sulfate	136	P	10.	
2.	Nitrate & Nitrite	0.1u	P	11.	
3.	Chloride	0.5u	F	12.	
4.	Alkalinity	324	P	13.	
5.	Acidity		P	14.	
6.	PH	7.3	P	15.	
7.			P	16.	
8.			P	17.	
9.				Percent Solids (%)	

Footnotes: For reporting results to EPA. standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Colorless, clear ($NO_3 - NO_2$)
Orange, clear (Alkalinity, Acidity, PH, Sulfate, Chloride)

Lab Manager [signature]

IFB Amend. One

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria. VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No.
3727E-06

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post. Buckley. Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO. 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID. NO. 8804014-06

Q.C REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/l ~~ug/l~~ or mg/kg dry weight (Circle One)

1.	Sulfate	890	P	10.	
2.	Nitrate & Nitrite	0.1U	P	11.	
3.	Chloride	0.5U	P	12.	
4.	Alkalinity	2.0U	P	13.	
5.	Acidity	576	P	14.	
6.	PH	4.6	P	15.	
7.			P	16.	
8.			P	17.	
9.				Percent Solids (%)	

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Colorless, clear (NO_3 + NO_2)
White, cloudy (Alkalinity, Acidity, PH, Sulfate, Chloride

Lab Manager [signature]

IFB Amend. One

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-07

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO. 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID. NO. 8804014-07

Q.C. REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/L ~~ug/l~~ or mg/kg dry weight (Circle One)

1.	Sulfate	24	P	10.	
2.	Nitrate & Nitrite	0.10	P	11.	
3.	Chloride	~~3.5~~ 3.4	F	12.	
4.	Alkalinity	340	P	13.	
5.	Acidity		P	14.	
6.	PH	7.0	P	15.	
7.			P	16.	
8.			P	17.	
9.				Percent Solids (%)	

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments [illegible] (NO2 + NO3)
[illegible] (Alkalinity, Acidity, PH, Sulfate, Chloride)

Lab Manager [signature]

IFB Amend. One

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria. VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No.
3727E-08

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post. Buckley. Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO. 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID. NO. 8804014-08

Q.C REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/l ug/l or mg/kg dry weight (Circle One)

1.	Sulfate	314	P	10.	
2.	Nitrate & Nitrite	0.10	P	11.	
3.	Chloride	1.2	P	12.	
4.	Alkalinity	134	P	13.	
5.	Acidity		P	14	
6.	PH	6.5	P	15.	
7.			P	16.	
8.			P	17.	
9.				Percent Solids (%)	

Footnotes: For reporting results to EPA. standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Colorless, clear (NO_3+NO_2)
Orange color (Alkalinity, Acidity, PH, Sulfate, Chloride)

Lab Manager [signature]

IFB Amend One

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria. VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-09

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post. Buckley. Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO. 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID. NO. 8824014-09

Q.C. REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/L ~~ug/l~~ or mg/kg dry weight (Circle One)

1.	Sulfate	139	P	10.	
2.	Nitrate & Nitrite	0.1U	P	11.	
3.	Chloride	0.5U	F	12.	
4.	Alkalinity	329	P	13.	
5.	Acidity		P	14.	
6.	PH	7.3	P	15.	
7.			P	16.	
8.			P	17.	
9.				Percent Solids (%)	

Footnotes. For reporting results to EPA. standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments Colodion, Lic-(Na2-Na2)
Orange, Lic- (Alkalinity, Acidity, PH, Sulfate, Chloride)

Lab Manager [signature]

IFB Amend. One

Form III

Q.C. Report No. 1

BLANKS

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO. SAS 3727E

DATE 4/26/88

UNITS ~~ug/L~~ mg/L

Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Prep. Blank Matrix 1	Matrix 2
1. Sulfate	5.0U	5.0U					
2. NO3 - NO2	0.1U	0.1U				0.1U	0.1U
3. Chloride	0.5U	0.5U					
4. Alkalinity	1.0U	1.0U					
5. Acidity							
6. PH							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							
16.							
17.							
18.							
19.							
20.							
21.							
22.							
23.							
Other: Cyanide							

[1] Reporting Units: aqueous, ug/L. solid, mg/kg

Form V

Q.C. Report No. 1

SPIKE SAMPLE RECOVERY

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO. SAS 3727E

EPA Sample No. 3727E-01

DATE 4/26/88

Lab Sample ID No. 8804014-01

Units: ~~mg/kg~~ mg/L

Matrix LA

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result(SR)	Spiked Added (SA)	%R
1. Sulfate	85-115	1450	605	800	106
2. NO3 - NO2	"	0.8	0.1U	0.8	100
3. Chloride	"	4.5	0.5U	4.0	112
4. Alkalinity	"	NR			
5. Acidity	"				
6. PH	"				
7.	"				
8.	"				
9.	"				
10.	"				
11.	"				
12.	"				
13.	"				
14.	"				
15	"				
16.	"				
17.	"				
18.	"				
19	"				
20.	"				
21.	"				
22	"				
23					
Other					
Cyanide					

[1] %R = [(SSR - SR) / SA] x 100

" N " - out of control

' NR "-Not required

Comments:

Form VI b

Q.C. Report No. 1

DUPLICATES

LAB NAME Post, Buckley, Schun & Jernigan
DATE 4/26/88

CASE NO. SAS 3727E
EPA Sample No. 3727E-06
Lab Sample ID No. 8804014-06
Units: mg/L

Matrix LA

Compound	Control Limit1	Sample (S)	Duplicate (D)	RPD2
1. Sulfate				
2. NO3 - NO2				
3. Chloride				
4. Alkalinity				
5. Acidity		576	578	0.3
6. PH		4.6	4.6	0.0
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
Other				
Cyanide				

* Out of Control

[1] To be added at a later date.

[2] RPD = [S - D /((S + D)/2)] x 100

NC - Non calculable RPD due to value(s) less than CRDL

Form VI C

Q.C Report No. 1

DUPLICATES

LAB NAME Post, Buckley, Schuh & Jernigan
DATE 4/26/88

CASE NO. SAS 3727E
EPA Sample No. 3727E-09
Lab Sample ID No. 8804014-09
Units: mg/L

Matrix LA

Compound	Control Limit1	Sample (S)	Duplicate (D)	RPD2
1. Sulfate				
2. NO3 - NO2				
3. Chloride				
4. Alkalinity	±10%	329	328	0.3
5. Acidity				
6. PH				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
Other:				
Cyanide				

* Out of Control

[1] To be added at a later date.

[2] RPD = [S - D /((S + D)/2)] x 100

NC - Non calculable RPD due to value(s) less than CRDL

Form VI a

Q.C. Report No. 1

DUPLICATES

LAB NAME Post, Buckley, Schuh & Jernigan
DATE 4/26/88

CASE NO. SAS 3727E
EPA Sample No. 3727E-01
Lab Sample ID No. 8804014-01
Units: mg/L

Matrix LA

Compound	Control Limit1	Sample (S)	Duplicate (D)	RPD2
1. Sulfate	±10%	588	594	1.0
2. NO3 - NO2		0.1u	0.1u	NC
3. Chloride		0.5u	0.5u	NC
4. Alkalinity				
5. Acidity				
6. PH				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
Other:				
Cyanide				

* Out of Control

[1] To be added at a later date.

[2] RPD = [S - D /((S - D)/2)] x 100

NC - Non calculable RPD due to value(s) less than CRDL

Form VII

Q.C. Report No. 1

INSTRUMENT DETECTION LIMITS AND

LABORATORY CONTROL SAMPLE

LAB NAME Post, Buckley, Schuh & Jernigan CASE NO SAS3727E DATE 4/26/88

LCS NO. SAS 3727E

Metals: Compound	Required Detection Limits (CRDL)-~~ug/l~~ mg/L	Instrument Detection Limits (IDL)-~~ug/l~~ mg/L ICP/AA ID=	Furnace ID=	Lab Control Sample ug/l mg/kg (circle one) True	Found	%R
Metals:						
1. Sulfate	5.0	5.0		20	20	100
2. NO3 - NO2	0.1	0.10		2.0	2.0	100
3. Chloride	0.5	0.5		52	52	100
4. Alkalinity	10	10		25	25	100
5. Acidity	≠ 10.	≠ 10		6.0	6.0	100
6. PH	0.1	0.1		6.0	6.0	100
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
21.						
22.						
23.						
Other						
Cyanide	10	NR	NR			

NR - Not required

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

RECEIVED
MAY 19, 88
MPCA, Ground Water & Solid Waste Div.

DATE: Jay Thakkar 5/13/88

SUBJECT: Review of Region V CLP Data
Received for Review on 5-2-88

FROM: Curtis Ross ,Director (5SCRL)
Central Regional Laboratory Jay Thakkar

TO: Data User : MPCA

DAVE KOVBSKY

We have reviewed the data for the following case(s).

SITE NAME: HADER GROUND WATER CONT. SMO case No. SAS3727

EPA Data Set No. SF5011 No.of Samples: 9 D.U/Activity Numbers Y905/C722ZZ

CRL No. 88YL06S01-S08,D05

SMO Traffic No. E01-E09

CLP Laboratory: PBS&J Hrs.required for Review 3

Following are our findings:

This review covers nine low water samples analyzed for sulfate, chloride, nitrate/nitrite, alkalinity, acidity and pH.

All QC data are acceptable.

Bob Lerin
5.12.88

(X) Data are acceptable for use.
( ) Data are acceptable for use with qualifications noted above.
( ) Data are preliminary-pending verification by Contract Laboratory.
( ) Data are unacceptable.

cc: Carla Dempsey, Quality Assurance Officer, EPA Support Services
James Petty,Chief Quality Assurance Research,EMSL,Las Vegas

EPA FORM 1320-6 (Rev. 5/87)

RECEIVED
MAY 02 1988
U.S. EPA CENTRAL
REGIONAL LAB

U.S.A EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

Date 4/26/88

COVER PAGE
INORGANIC ANALYSES DATA PACKAGE

Lab Name Post, Buckley, Schuh & Jernigan

Case No. SAS 3727E

SOW No. 7/85

Q.C. Report No. 1

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab Id No.
3727E-01	8804014-01	3727E-09	8804014-09
3727E-02	8804014-02		
3727E-03	8804014-03		
3727E-04	8804014-04		
3727E-05	8804014-05		
3727E-06	8804014-06		
3727E-07	8804014-07		
3727E-08	8804014-08		

Comments:

ICP interelement and background corrections applied? Yes X No_____.
If yes, corrections applied before X or after _____generation of raw data.

Footnotes:

NR - Not required by contract at this time

Form I:

Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract-required detection limit, report the value in brackets (i.e.,[10]). Indicate the analytical method used with P (for ICP), A (for Flame AA) or F (for Furnace AA).

U - Indicates element was analyzed for but not detected. Report with the instrument detection limit value (e.g., 10U).

E - Indicates a value estimated or not reported due to the presence of interference . Explanatory note included on cover page.

S - Indicates value determined by Method of Standard Addition.

N - Indicates spike sample recovery is not within control limits.

* - Indicates duplicate analysis is not within control limits.

+ - Indicates the correlation coefficient for method of standard addition is less than 0.995.

M - Indicates duplicate injection results exceeded control limits.

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-01

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID NO. 8804014-01

Q.C. REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/L ~~ug/l~~ or mg/kg dry weight (Circle One)

1.	Sulfate	605	P	10.	
2.	Nitrate & Nitrite	0.10	P	11.	
3.	Chloride	0.50	P	12.	
4.	Alkalinity	122	P	13.	
5.	Acidity		P	14.	
6.	PH	6.4	P	15.	
7.			P	16.	
8.			P	17.	
9				Percent Solids (%)	

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Colorless, clear (NO_3+NO_2)
Orange, cloudy (Alkalinity, Acidity, PH, Sulfate, Chloride)

Lab Manager K A Kunkle

IFB Amend. One

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-02

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO SAS 3727E

SOW NO 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID. NO. 8804014-02

Q.C. REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/l ~~ug/l~~ 4/25/88 or mg/kg dry weight (Circle One)

1.	Sulfate	310	P	10.	
2.	Nitrate & Nitrite	0.10	P	11.	
3.	Chloride	0.50	P	12.	
4.	Alkalinity	231	P	13.	
5.	Acidity		P	14.	
6.	PH	6.8	P	15.	
7.			P	16.	
8.			P	17.	
9				Percent Solids (%)	

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however

Comments: Colorless, clear (NO_3 + NO_2)
Yellow, clear (Alkalinity, Acidity, PH, Sulfate, Chloride)

Lab Manager [signature]

IFB Amend. One

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-03

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO. 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID. NO 8804014-03

Q.C. REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/l ~~ug/l~~ or mg/kg dry weight (Circle One)

1.	Sulfate	19	P	10.	
2.	Nitrate & Nitrite	0.10	P	11	
3.	Chloride	0.50	F	12.	
4.	Alkalinity	277	P	13.	
5.	Acidity		P	14.	
6.	PH	7.2	P	15.	
7.			P	16.	
8.			P	17.	
9				Percent Solids (%)	

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Colorless, clear ($NO_3 + NO_2$)
White, clear (Alkalinity, Acidity PH, Sulfate, Chloride)

Lab Manager [signature]

IFB Amend. One

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria. VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-04

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post Buckley, Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO. 7 85

Lab Receipt Date 4/2/88

LAB SAMPLE ID NO 8804014-04

Q.C REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/L ~~ug/l~~ or mg/kg dry weight (Circle One)

1.	Sulfate	315	P	10.	
2.	Nitrate & Nitrite	0.1	P	11	
3.	Chloride	0.5	F	12.	
4.	Alkalinity	127	P	13.	
5.	Acidity		P	14.	
6.	PH	6.3	P	15.	
7.			P	16	
8.			P	17	
9.				Percent Solids (%)	

Footnotes: For reporting results to EPA. standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged Definition of such flags must be explicit and contained on Cover Page. however.

Comments: Colorless, clear ($NO_3 + NO_2$)
Orange, cloudy (Alkalinity, Acidity, pH, Sulfate, Chloride)

Lab Manager [signature]

IFB Amend One

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-05

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO. 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID. NO. 8804014-05

Q.C. REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/l ~~ug/l~~ or mg/kg dry weight (Circle One)

1.	Sulfate	136	P	10.	
2.	Nitrate & Nitrite	0.1u	P	11.	
3.	Chloride	0.5u	P	12.	
4.	Alkalinity	324	P	13.	
5.	Acidity		P	14	
6.	PH	7.3	P	15.	
7.			P	16	
8.			P	17.	
9.				Percent Solids (%)	

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however

Comments Colorless, clear ($NO_3 + NO_2$)
Orange, clear (Alkalinity, Acidity, pH, Sulfate, Chloride)

Lab Manager [signature]

IFB Amend. One

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-06

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post Buckley, Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO. 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID. NO. 8804014-06

Q.C REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/L ~~ug/l~~ or mg/kg dry weight (Circle One)

1.	Sulfate	890	P	10.	
2.	Nitrate & Nitrite	0.1	P	11.	
3.	Chloride	0.50	P	12.	
4.	Alkalinity	2.00	P	13.	
5.	Acidity	576	P	14.	
6.	PH	4.6	P	15.	
7.			P	16.	
8.			P	17.	
9.				Percent Solids (%)	

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however

Comments: Colorless, clear (NO_3 + NO_2)
White, cloudy (*Alkalinity, Acidity, PH, Sulfate, Chloride

Lab Manager [signature]

IFB Amend One

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-07

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO. SAS 3727E

SOW NO. 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID NO 8804014-07

Q.C. REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/L ~~ug/L~~ or mg/kg dry weight (Circle One)

1.	Sulfate	24	P	10	
2.	Nitrate & Nitrite	0.10	P	11.	
3.	Chloride	~~35~~ 3.4	F	12.	
4.	Alkalinity	340	P	13.	
5.	Acidity		P	14.	
6.	PH	7.0	P	15.	
7.			P	16	
8.			P	17.	
9.				Percent Solids (%)	

Footnotes For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Colorless, clear (NO_3 + NO_2)
Yellow, clear (Alkalinity, Acidity, PH, Sulfate, Chloride).

Lab Manager [signature]

IFB Amend. One

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No.
3727E-08

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO SAS 3727E

SOW NO. 7/85

Lab Receipt Date 4/2/88

LAB SAMPLE ID. NO. 8804014-08

Q C REPORT NO 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/L or mg/kg dry weight (Circle One)

1.	Sulfate	314	P	10.	
2.	Nitrate & Nitrite	0.10	P	11.	
3.	Chloride	1.2	P	12	
4.	Alkalinity	134	P	13.	
5.	Acidity		P	14	
6.	PH	6.5	P	15	
7.			P	16.	
8.			P	17.	
9.				Percent Solids (%)	

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments. Colorless, clear ($NO_3 + NO_2$)
Orange, clear (Alkalinity, Acidity, PH, Sulfate, Chloride)

Lab Manager [signature]

IFB Amend. One

Form 1

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-577-2490

EPA Sample No. 3727E-09

Date 4/26/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO SAS 3727E

SOW NO 7/85

Lab Receipt Date 4/21/88

LAB SAMPLE ID. NO. 8804014-09

Q.C. REPORT NO. 1

Elements Identified and Measured

Concentration. Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

mg/L ~~ug/l~~ or mg/kg dry weight (Circle One)

1.	Sulfate	139	P	10.	
2.	Nitrate & Nitrite	0.10	P	11.	
3.	Chloride	0.5U	P	12.	
4.	Alkalinity	329	P	13.	
5.	Acidity		P	14.	
6.	PH	7.3	P	15.	
7.			P	16.	
8.			P	17.	
9				Percent Solids (%)	

Footnotes For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments Colorless, clear (NO3 + NO2)
Orange, clear (Alkalinity, Acidity, pH, Sulfate, Chloride)

Lab Manager [signature]

IFB Amend. One

Form III

Q C Report No 1

BLANKS

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO SAS 3727E

DATE 4/26/88

UNITS ~~ug/L~~ mg/L

Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Prep. Blank Matrix 1	Prep. Blank Matrix 2
1. Sulfate	5.0U	5.0U					
2. NO3 - NO2	0.1U	0.1U				0.1U	0.1U
3. Chloride	0.5U	0.5U					
4. Alkalinity	10U	10U					
5. Acidity							
6. PH							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							
16.							
17.							
18.							
19.							
20.							
21.							
22.							
23.							
Other: Cyanide							

[1] Reporting Units aqueous, ug/L. solid, mg/kg

Form V

Q.C. Report No. 1

SPIKE SAMPLE RECOVERY

LAB NAME Post, Buckley, Schuh & Jernigan

CASE NO. SAS 3727E

EPA Sample No. 3727E-01

DATE 4/26/88

Lab Sample ID No. 8804014-01

Units: ~~mg/kg~~ mg/L

Matrix LA

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result(SR)	Spiked Added (SA)	%R
1. Sulfate	85-115	1450	605	800	106
2. NO3 - NO2	"	0.8	0.1U	0.8	100
3. Chloride	"	4.5	0.5U	4.0	112
4. Alkalinity	"	NR			
5. Acidity	"				
6. PH	"				
7.	"				
8.	"				
9.	"				
10.	"				
11.	"				
12.	"				
13.	"				
14.	"				
15.	"				
16.	"				
17.	"				
18.	"				
19.	"				
20.	"				
21.	"				
22.	"				
23.	"				
Other					
Cyanide					

[1] %R = [(SSR - SR) / SA] x 100

" N " - out of control

" NR "-Not required

Comments:

Form VI b

Q C. Report No. 1

DUPLICATES

LAB NAME Post. Buckley. Schuh & Jernigan
DATE 4/26/88

CASE NO. SAS 3727E
EPA Sample No. 3727E-06
Lab Sample ID No. 8804014-06
Units: mg/L

Matrix LA

Compound	Control Limit1	Sample (S)	Duplicate (D)	RPD2
1. Sulfate				
2. NO3 - NO2				
3. Chloride				
4. Alkalinity				
5. Acidity		576	578	0.3
6. PH		4.6	4.6	0.0
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
Other:				
Cyanide				

* Out of Control

[1] To be added at a later date.

[2] RPD = [S - D /((S + D)/2)] x 100

NC - Non calculable RPD due to value(s) less than CRDL

Form VI C

Q.C. Report No. 1

DUPLICATES

LAB NAME Post, Buckley, Schuh & Jernigan
DATE 4/26/88

CASE NO. SAS 3727E
EPA Sample No. 3727E-09
Lab Sample ID No. 8804014-09
Units: mg/L

Matrix LA

Compound	Control Limit1	Sample (S)	Duplicate (D)	RPD2
1. Sulfate				
2. NO3 - NO2				
3. Chloride				
4. Alkalinity	±10%	329	328	0.3
5. Acidity				
6. PH				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
Other:				
Cyanide				

* Out of Control

[1] To be added at a later date.

[2] RPD = [S - D /((S - D)/2)] x 100

NC - Non calculable RPD due to value(s) less than CRDL

Form VI a

Q.C. Report No. 1

DUPLICATES

LAB NAME Post, Buckley, Schuh & Jernigan
DATE 4/26/88

CASE NO. SAS 3727E
EPA Sample No. 3727E-01
Lab Sample ID No. 8804014-01
Units: mg/L

Matrix LA

Compound	Control Limit1	Sample (S)	Duplicate (D)	RPD2
1. Sulfate	±10%	588	594	1.0
2. NO3 - NO2		0.1u	0.1u	NC
3. Chloride		0.5u	0.5u	NC
4. Alkalinity				
5. Acidity				
6. PH				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
Other:				
Cyanide				

* Out of Control

[1] To be added at a later date.

[2] RPD = [S - D /((S + D)/2)] x 100

NC - Non calculable RPD due to value(s) less than CRDL

Form VII

Q C Report No. 1

INSTRUMENT DETECTION LIMITS AND

LABORATORY CONTROL SAMPLE

LAB NAME Post, Buckley, Schuh & Jernigan CASE NO. SAS3727E DATE 4/26/86

LCS NO. SAS 3727E

Metals: Compound	Required Detection Limits (CRDL)-~~ug/l~~ mg/L	Instrument Detection Limits (IDL)-~~ug/l~~ mg/L ICP/AA ID#	Furnace ID#	Lab Control Sample ug/l mg/kg (circle one) True	Found	%R
Metals:						
1. Sulfate	5.0	5.0		20	20	100
2. NO3 - NO2	0.1	0.10		2.0	2.0	100
3. Chloride	0.5	0.5		52	52	100
4. Alkalinity	10	10		25	25	100
5. Acidity	≠ 10.	≠ 10		6.0	6.0	100
6. PH	0.1	0.1		6.0	6.0	100
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
21.						
22.						
23.						
Other						
Cyanide	10	NR	NR			

NR - Not required

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

ESD/Central Regional Laboratory
DATA TRACKING FORM FOR CONTRACT SAMPLES

CRL Data Set No. SF 5011 CERCLIS No. —

SMO Case No. SAS 3727E Site Name and Location: Hader Ground Water Contamination

Name of Contractor or EPA Laboratory: PBS & J Data User: MPCA

No. of Samples: 9 Date Samples or Data Received: 5-2-88

1. Have chain-of-custody records been received? YES ✓ NO
2. Have Traffic Reports or packing lists been received? YES ✓ NO
3. If no, are Traffic Report or packing list numbers written on the chain-of-custody record? YES ___ NO ___
4. If no, which Traffic report or packing list numbers are missing?

Are basic data forms in? YES ✓ NO ___

Number of samples claimed: 9 Number of samples received: 9

Checked by: Erlinda Luz M. Arreola Date: 5-2-88

Received by Contract Project Management Section: [illegible] Date: 5.3.88

Review Started: 5.11.88 Reviewer Signature: [illegible]

Total time spent on review: 3 Date review completed: 5.12.88

Copied (xeroxed) by: [illegible] Date: 5.13.88

Mailed to Data User by: Rolenus Harris Date: 5-16-88

DATA USERS:

Please fill in the blanks below and return this form to: Sylvia Griffin, Data Management Coordinator, Region V, ESCRL

Data received by: _____ Date: _____

Q.A. review received by: _____ Date: _____

Inorganic Date Complete [ ], Suitable for Intended Purposes [ ] ✓ [ ] if acceptable.
Organic Data Complete [ ], Suitable for Intended Purposes [ ] List problems below.
Dioxin Data Complete [ ], Suitable for Intended Purposes [ ]
SAS Data Complete [ ], Suitable for Intended Purposes [ ]

See Attached "Missing Data Request Form" [ ]
PROBLEMS: Please indicate reasons (if any) why data are not suitable for your uses. Other problems.

Received by Data Management Coordinator, CRL for File: Date: _____

Signature:

Form II a

Q.C. Report No. 1

INITIAL AND CONTINUING CALIBRATION VERIFICATION3

LAB NAME Post, Buckley, Schuh & Jernigan
DATE 4/26/91

CASE NO SAS 3727E
SOW NO. 7/85
UNITS: ~~UG/L~~ mg/L

Compound	Initial Calibration1			Continuing Calibration2					
	True Value	Found	%R	True Value	Found	%R	Found	%R	Method4
1. Sulfate	8.0	8.6	108	8.0	8.5	106	8.6	108	375.2
2. NO3 - NO2	0.8	0.8	100	0.8	0.8	100	0.8	100	353.2
3. Chloride	4.0	4.0	100	4.0	4.1	102	4.2	105	325.2
4. Alkalinity	NR								
5. Acidity	1000	992	99	1000	992	99			305.1
6. PH									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									
Other:									
Cyanide									

1 Initial Calib. Source EMSL/LV; 2 Continuing Calib. Source Lab prepared

3 Control Limits: Mercury and Tin 80-120; Other Metals 90-110:
Cyanide 85-115

4 Indicate Analytical Method Used: P - ICP; A - Flame; F - Furnace AA

Form II b

Q C Report No 1

INITIAL AND CONTINUING CALIBRATION VERIFICATIONS

LAB NAME Post, Buckley, Schuh & Jernigan
DATE 4/26/88

CASE NO. SAS 3727E
SOW NO. 7/85
UNITS: ~~ug/L~~ mg/L

Compound	Initial Calibration1			Continuing Calibration2					
	True Value	Found	%R	True Value	Found	%R	Found	%R	Method4
1. Sulfate				8.0	8.8	110			375.2
2. NO3 - NO2									
3. Chloride									
4. Alkalinity									
5. Acidity									
6. PH									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									
Other:									
Cyanide									

1 Initial Calib. Source ~~EMSL/LV~~ NYS 2 Continuing Calib. Source Lab prepared

3 Control Limits: Mercury and Tin 80-120; Other Metals 90-110: Cyanide 85-115

4 Indicate Analytical Method Used: P - ICP; A - Flame; F - Furnace AA

Page 1

POST, BUCKLEY, SCHUH & JERNIGAN, INC.

[illegible] NORTH ORANGE AVENUE
ORLANDO, FLORIDA [illegible]
[illegible]
TELEX [illegible]

SJ 4/14/88

EPA Method 150.1 Corning Model 135

~~TURBIDITY~~ AND pH DATA SHEET

PROJECT NAME: EPA SAS DATE: 4.2.88

PROJECT NO.: Backup Data ANALYST: CK

Sample No.	Temperature °C (Temperature probe attached)	pH	~~Turbidity (NTU)~~
4.0 Buffer		4.001	
7.0 Buffer		6.999	
10.0 Buffer		9.954	
WP947	T.V 6.0	5.975	99%
501 090122 1435 880401401	put 3727E01-~~09~~	6.375	
501 090119 1427 880401401	3727E01 CK 4.2.88	6.366	
501 090120 129 880401401	3727E01	6.381	Note: Analysis performed on all sample containers received. (Page 1) CK 4.2.88 Since some containers were duplicate samples one pH is reported on page 2.
6501 090120 dup 880401401	3727E01	6.383	
503 090141 1118 880401403	3727E03	7.211	
505 090157 23 880401405	3727E05	7.269	
6507 090181 432 880401407	3727E07	7.048	
005 090165 1142 880401409	3727E09	7.279	
504 090149 434 880401404	3727E04	6.342	
1541 090189 508 880401408	3727E08	6.514	
27 090133 6502 880401402	3727E02	6.832	
31 090121 6501 880401401	3727E01	6.403	
090121 dup 501 880401401	3727E01	6.391	
1534 090173 505 880401406	3727E06	4.566	
534 090173 1505 880401406	3727E06	4.570	

page 2

POST, BUCKLEY, SCHUH & JERNIGAN, INC.

[illegible] 4/14/88

EPA Method 150.1 Corning pH Meter Model 135

~~TURBIDITY~~ AND pH DATA SHEET
CK 4.2.88

PROJECT NAME: EPA SAS Case 3727E

DATE: 4.2.88

PROJECT NO.:

ANALYST: C Knepper

Sample No.	Temperature °C	pH	~~Turbidity (NTU)~~ CK 4.2.88
4.0 Buffer	Temperature probe attached	4.001	
7.0 Buffer		6.999	
10.0 Buffer		9.954	
WP997	T.V. 6.0	5.975	999
3727E01 890401401		6.383	6.38
3727E02 890401402		6.932	6.93
3727E03 890401403		7.211	7.21
3727E04 890401404		6.342	6.34
3727E05 890401405		7.269	7.27
3727E06 890401406	%RSD=0.06	4.566	4.57
3727E06 DUP 890401406	R= 0.004	4.570	
3727E07 890401407		7.048	7.05
3727E08 890401408		6.518	6.52
3727E09 890401409		7.279	7.28

PBSJ
POST, BUCKLEY, SCHUH & JERNIGAN, INC.
889 NORTH ORANGE AVENUE
ORLANDO, FLORIDA 32801
305/423-7275

SJ 4/22/88

Corning pH/ion Meter
~~COMPUTER AIDED TITRIMETER~~ Model 135
~~FISHER MODEL 450~~
Instrument Log

Case # SAS 3727E

Date	EPA Sample Numbers	Sample Nos.	Element	Analyst	Buffer Concentration and Lot Nos.	0.02N H_2SO_4	Electrode Type.	Temperature Compensation Yes/No	0.02N NaOH
4/6/88	3727E-06	880401406	Acidity	F. Boone	pH 7.0 928706 6.29.89 pH 10.0 1827 12 1.14.89	0.0206	Corning #476192	No	0.0190
4/2/88	3727E01-09	880401401-09	pH	C. Knepper	pH 4.0 31603x (6.29.89) pH 7.0 928706		Corning #476192	yes	

A3:ap

P B S J Post, Buckley, Schuh & Jernigan, Inc.
CONSULTING ENGINEERS and PLANNERS
889 NORTH ORANGE AVENUE, ORLANDO, FLORIDA 32801-1088 • 305/423-7276 • TELEX 808435

SJB 4/22/88

EPA 305.1

ACIDITY DATA SHEET

PROJECT NAME: SAS 3727E DATE: 4/6/88

PROJECT NO.: ANALYST: L.I. Jackson
F. Boone

Sample	Initial pH	Sample Volume	mlof H_2SO_4 to pH 4 or less	ml of titrant to pH 8.2	Acidity mg/l $CaCO_3$
DI BLANK	5.15	50	0.15	0.40	4.51
LAB BLANK 0.02N H_2SO_4	0.02	5	0.00	5.22	992
3727E-06 8804 01406	4.46	25	0.35	15.55	576
Dup 3727E-06 8804 01406	4.43	25	0.36	15.60	578
LAB BLANK 0.02N H_2SO_4	0.02	5	0.00	5.22	992
pH 4.0 Buffer	3.93				
pH 7.0 Buffer	7.01				
pH 10.0 Buffer	9.91				
WP 987	5.96	TRUE VALUE 6.0 95% C.I. 5.91-6.11			

Normality of Titrant: 0.0206N H CL or H_2SO_4 4/4/88 FB

CALCULATION: Acidity as mg/l $CaCO_3$ = $\frac{(A \times B) - (C \times D) \times 5 \times 10^4}{\text{ml sample}}$

A = Volume of std. NaOH used intitration
B = Normality of std. NaOH = 0.0190N 4/6/88 FB
C = Volume of std H_2SO_4 used to reduce pH to 4 or less
D = Normality of std. H_2SO_4
D = _____

Normality NaOH = $\frac{A \times B}{204.2 \times C}$

A = g KHP/l = 10.0 g/l
B = mls KHP titrated = 10.0 mls
C = mls NaOH used = 25.9 mls

Normality H_2SO_4 = $\frac{A \times B}{53.0 \times C}$

A = g Na_2CO_3/l = 2.5 g/l
B = mls Na_2CO_3 titrated = 2.0 mls
C = mls H_2SO_4 used = 4.57 mls

RECEIVED

MAY 04 88

MPCA, Ground Water
& Solid Waste Div.

DATE: May 2, 1988

TO: Minnesota Pollution Control Agency
Site Assessment Unit
Program Development Section
Groundwater and Solid Waste Division
520 Layfayette Road
St. Paul, MN 55155

ATTN: Doug Day, Supervisor

Case No.	Site	Contract Lab	SF No.	No. Samples
9288SAS3554E	Hader Ground Water Contamination	RMAL	SF5011	9

Enclosed is one reviewed case.

FROM: U.S. EPA
Region V
Central Regional Laboratory
536 S. Clark, 10th Floor
Chicago, IL 60605

SENT BY: Erlinda Luz M. Arreola
WESTON/ESAT

COVER SHEET

SF 5011 MPCA

(MI)

LABORATORY RESPONSE TO RESULTS OF

CONTRACT COMPLIANCE SCREENING (CCS)

Hader Gut

Response To: (check one) ☐ Organics CCS

☑ Inorganics CCS

Response materials sent to Organics CCS should be sent to the attention of Doris Ling, SMO.

Response materials sent to Inorganics CCS should be sent to the attention of Sa'ad Masri, SMO.

Laboratory Name: Rocky Mountain Analytical

Response Date 5-18-88

EPA Contract No: 68-01-7476

SDG No: MEW615

Date Screening Results Received at Laboratory 5-10-88

Case No: 9288

Sample Nos.* SAS 3554E

* Only list sample numbers that require reconciliation.

This form is used to identify materials sent in response to results of Contract Compliance Screening (CCS). A separate form must accompany the response for each Case.

Please indicate (on the attached continuation form) which fractions and/or which criteria correspond with your resubmission. Respond materials sent to CCS should also be copied to the Region and to EMSL/LV, each with this blue Cover Sheet.

INORGANICS
LABORATORY RESPONSE TO RESULTS OF CCS

Criterion	Comments
B-H	Data packages are to be screened for RAS requirements only.
T	Submitted traffic report for this case.
FB2	Resubmitted Form IVB with "NR" for Sb, Cd, and Zn.
J	Refer to item #6 in attached addendum. Also note that Form IX is for ICP serial dilutions.
J2	Serial dilution results were done at a 5x dilution; resubmitted raw data with "5x" entered.
R	Refer to item #15 in attached addendum.
I	Data packages are to be screened for RAS requirements only.
R2	See above.

ADDENDUM TO
LABORATORY RESPONSE TO RESULTS OF CCS

1. The contract states that values greater than 10 are to be reported to 3 significant figures. Raw data often have more significant figures. (See the January 25, 1988 letter from Tony Maiorana to the USEPA's Project Officer, p.2, item 3.)

2. This is not required or even mentioned in the contract. In fact, this is impossible when lead is analyzed by both ICP and AA on different samples in the same case. (See p.1, item 2 in the above mentioned letter.)

3. We submit CCVs only for that case reported. Earlier CCVs are not required in the data package. (See p.3, item 17 in the above mentioned letter.)

4. There are no Calcium correction factors on this ICP. (See p.2, item 12 in the above mentioned letter.)

5. Cyanide is being prepared using a micro-distillation process, according to the historical analysis instituted in 1981. Both the Project Officer and the Contract Officer are studying this point and will make a determination at some future time.

6. A blank field under the M column is considered an entry and indicates that the serial dilution was not required because the analyte was not analyzed by ICP. (SOW787, B-29)

7. Beginning 3-10-88 ICV/ICB and CCV/CCB times for Mercury are reported.

8. The % solids of the sample is used to calculate the duplicate value. (See p.D-84 of SOW787, paragraph 5, last sentence.)

9. Enseco has recognized a problem with the furnace analysis of the solid LCS sample. The contract does not allow an MSA determination for the solid or aqueous LCS result (p. E-14). This causes problems for the correct quantitation of the solid LCS because the true values and control limits were set using results determined under SOW784 and SOW785 which do allow MSA quantitation of the LSC result. Enseco has contacted our Project Officer, Bill Langley, concerning this issue. Until further notification, he has instructed us to perform MSA analyses on the furnace solid LCS following the sample analysis decision tree in SOW787.

10. As required by the contract, the reported concentrations in the ICP raw data are instrument output from the diluted sample.

5/11/88

ADDENDUM
Page Two

11. The dilution factor is reported for all samples and ICV's. Standard dilution factor for CCV's is referenced at the beginning of data package on standard sources page. Also, the dilution factor is being misread by CCS screeners as volume.

12. Some of the modifications requested in the 12/87 letter of contract revisions from the Contract Officer are being instituted while others are being reconsidered by the Contract Officer. At this time, there has not been a final determination by the Contract Officer to institute any of these changes.

13. There is no contract reference given. In order to respond, a specific contract reference must be provided.

14. As per the April 7, 1988 letter from Contract Officer Mary Stotler to Enseco, CCS was found to be in error and have been directed to remove this item from the screens.

15. The question of significant figures is currently being discussed by the Contract Officer and Project Officer; as of yet the issue has not been resolved.
Please also note that the values on Forms II and III are taken directly from instrument readout. There is a hidden digit which does not print out on furnace tapes, therefore it <u>appears</u> that the rounding is being done incorrectly.

U.S. EPA - CLP

00030

5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

mEW616A

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 35546 SDG No.: mEW615

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium		19.3		4.0	U	20.0	965		NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

ACT NAME : EPA1287 TIME : 15-APR-88 10:16 SAMPLE NAME: MEW623 00101

	I.S.	AL	SB	AS	BA	BE	B	CD	CA	CR
EXP# 1	1000.	.2102	.0299	.0063	.0910	-.0001	.0577	.0032	85.72	-.0015
EXP# 2	1000.	.2227	.0011	.0064	.0898	.0006	.0541	.0025	85.22	-.0021
AVERAGE	1000.	.2164	.0155	.0063	.0906	.0002	.0539	.0029	85.47	-.0018

	CO	CU	FE	PB	MG	MN	MO	NI	P	K
EXP# 1	.1202	.0038	76.95	-.0013	27.07	.5172	.0005	.0291	.0074	1.151
EXP# 2	[illegible]	.0045	76.60	.0021	26.90	.5166	.0052	.0446	-.1007	1.177
AVERAGE	[illegible]	.0041	76.78	.0002	26.99	.5171	.0028	.0418	-.0016	1.161

	SE	SIO2	AG	NA	SR	TI	SN	V	ZN
EXP# 1	2.242	17.25	.0006	2.652	.1472	-.0110	.0122	.0025	.4779
EXP# 2	2.112	17.22	-.0002	2.547	.1409	-.0011	.0077	.0012	.4755
AVERAGE	2.177	17.22	-.0001	2.600	.1442	-.0011	.0102	.0014	.4767

ACT NAME : EPA1287 TIME : 15-APR-88 10:22 SAMPLE NAME: MEW623L
SERIAL DILUTION (5x)

	I.S.	AL	SB	AS	BA	BE	B	CD	CA	CR
EXP# 1	1000.	.1252	-.1022	-.0217	.0815	.0000	.0499	.0042	84.67	-.0178
EXP# 2	1000.	.2477	-.1257	-.0702	.0914	.0000	.0406	.0085	86.85	-.0112
AVERAGE	1000.	.1865	-.1190	-.0460	.0866	.0000	.0452	.0064	85.76	-.0145

	CO	CU	FE	PB	MG	MN	MO	NI	P	K
EXP# 1	.1106	-.0057	76.84	-.0769	26.85	.4857	.0112	.0203	.0401	1.157
EXP# 2	.1161	-.0096	77.87	-.1084	27.07	.5177	.0160	.0341	-.0472	1.042
AVERAGE	.1134	-.0077	77.36	-.0926	26.96	.5009	.0136	.0272	-.0020	1.115

	SE	SIO2	AG	NA	SR	TI	SN	V	ZN
EXP# 1	-1.126	16.83	-.0140	-.0670	.1442	-.0120	-.0152	-.0027	.4856
EXP# 2	2.816	17.25	-.0140	5.522	.0597	-.0012	-.0496	-.0007	.4870
AVERAGE	.8448	17.09	-.0140	2.577	.1017	-.0066	-.0324	-.0017	.4863

ACT NAME : EPA1287 TIME : 15-APR-88 10:26 SAMPLE NAME: CCVC

	I.S.	AL	SB	AS	BA	BE	B	CD	CA	CR
EXP# 1	1000.	.9967	1.156	1.008	.9964	.9910	.1028	.9917	102.7	.9201
EXP# 2	1000.	1.000	1.156	1.007	1.006	1.001	.1025	.9937	104.8	.9306
AVERAGE	1000.	.9935	1.156	1.007	1.001	.9962	.1027	.9925	104.3	.9253

	CO	CU	FE	PB	MG	MN	MO	NI	P	K
EXP# 1	1.017	1.033	1.010	1.015	104.1	1.057	1.095	1.060	.2502	97.61
EXP# 2	1.031	1.038	1.031	1.013	104.8	1.068	1.125	1.062	-.0547	99.15
AVERAGE	1.024	1.036	1.022	1.015	104.5	1.067	1.110	1.064	.0978	98.33

	SE	SIO2	AG	NA	SR	TI	SN	V	ZN
EXP# 1	-.2257	.2527	.9404	101.2	.0200	.0012	.9996	1.002	1.024
EXP# 2	-.1126	.2513	.9448	103.4	.0020	.0012	.9957	1.017	1.044
AVERAGE	-.1690	.2520	.9426	102.3	.0115	.0012	.9926	1.010	1.039

Enseco

January 25, 1988

William Langley
USEPA
401 M Street, S.W.
Washington, D.C. 20460

Dear Bill:

Enseco has been getting 0% recommendations for payment recently on data packages submitted by Rocky Mountain Analytical Laboratory under SOW 787. In our recent telephone conversation concerning this issue you informed me that you have been led to believe that there are serious technical deficiencies with these data packages. I repeat what I told you then. The majority of the "real" problems associated with these data packages are minor and involve nothing more than report writing glitches in the software. Debugging of the software is an ongoing process that began with the generation of the first data package. This process will be completed in the near future.

The following addresses one of our recent screens on Case 8431 on a point by point basis. Most of our other screens have the same or similar comments. There are no major problems, certainly none requiring 0% payment. Many of the things screened are either not in the contract or are wrong and are indicated with an asterisk (18 out of 28 comments). The remainder would have been caught by the laboratory during debugging if a SOP had been received containing detailed acceptance criteria for the contract.

Case 8431.

1) CCS: "on Form I; Ca, Cu, on MDG799 don't need B under C column; and Ba on MDG 800."
   Response: Form I's resubmitted without "B" for Ca and Cu on MDG799 and for Ba on MDG 800.

*2) CCS: "CA1. No need to separate furnace from ICP values for ICV/CCV on Form IIA."
   Response: This is not required or even mentioned in the contract. In fact, this is impossible when lead is analyzed by both ICP and AA on different samples in the same case.

*3) CCS: "CA2. The ICV and CCV values for ICP don't agree with the raw data for the significance figures."
Response: The contract states report to 3 significant figures for numbers greater than 10. Raw data often have more significant figures.

*4) CCS: "C31: missing CRDL value and %R for As and Tl on form IIB."
Response: The CRDL standards were not required since one of the standards used in the calibration was at the CRDL.

*5) CCS: "C32: the initial CRDL value for Sb should be 151.9 not 152 for proper significant figures."
Response: Same as 3).

*6) CCS: "D1. no need to separate the furnace and ICP values for ICB/CCB."
Response: Same as 2)

*7) CCS: "E1. on form IV; the initial ICS and final ICS values for sol(AB) don't agree with the raw data (Report to one decimal place)."
Response: Same as 3).

8) CCS: "FA1. use an "s" for EPA sample #; (MDG 530S)."
Response: We are now adding "S" to the spike sample number.

9) CCS: "I2. Missing "+" flag for Pb on MDG530D on form VIII."
Response: Resubmitted Form VIII with "+" flag for Pb on sample MDG530D.

10) CCS: "I3. please change the EPA sample no MDQ 530 to MDG530 and MDQ 530D to MDG530D."
Response: Resubmitted Form VIII with corrected sample numbers.

11) CCS: "J1. Use an "L" for EPA Sample #."
Response: We are now adding a "L" for the serial dilution QC sample.

*12) CCS: "M1. missing correction values factors for Ca.
Response: There are no Ca correction factors required on this ICP.

13) CCS: "R1. the numbering of a case package must be sequential."
Response: We have always sequentially numbered the data package and then the raw data again starting from 001. We are now numbering the entire package sequentially.

*14) CCS: "R2. All furnace LCS; your raw data shows your values under ppb (ug/L) not mg/kg; final concentration shows it's mg/kg but same value under ppb is reported under final conc if these values are ug/L as in raw data your LCS is going to be out of control and samples are non-compliant; please explain and resubmit correct values with correct units in raw data and in Form VII."
Response: The values are reported in mg/kg in the furnace raw data unless specifically stated otherwise. The values are correct as is.

*15) CCS: "R3. for all furnaces; under D/F (dilution factor) report one if no dilution is needed; and don't put the volumes under the D/F."
Response: The dilution factor is reported for all samples and ICV's. Standard dilution factor for CCV's is referenced at the beginning of data package on standard sources page. Also, the dilution factor is being misread by CCS screeners as volume.

*16) CCS: "T1. missing SDG cover page for traffic report."
Response: The SDG cover sheets are sent to SMO with the traffic reports. There is no contract requirement to also include them in the data package.

*17) CCS: "CA3. need to run a CCB/CCV at end of CRI and ICSA, ICSAB at final."
Response: We submit CCV's only for that case reported. Earlier CCV's for other cases are not required in the data package.

18) CCS: "R4. in ICP raw data page 16 is out of order correct paginating your page; this page must be at the end of ICP raw data. No Action".
Response: We are now putting this page at the end of ICP raw data.

19) CCS: "E2. Remove the True value for Tl Sol(AB)."
Response: Resubmitted Form IV without the true value for Tl.

*20) CCS: "CA4. The time between ICV (8.06) and CCV (11.20) exceeds the 2 hr. limit, therefore the ICS is non-compliant."
Response: Same as 17). CCV's are run constantly for other cases but only CCV's surrounding that case is submitted in the data.

*21) CCS: "FA2. on form VA (SSR) for ICP don't agree with the raw data for the proper significance level."
Response: Same as 3).

*22) CCS: "G1. State control limits for values < 5X CRDL. on Form VI."
Response: No control limits are required if both values are below CRDL.

23) CCS: "G2. Correct control limits for % solid on Form VI."
Response: We resubmitted Form VI with correct control limits for % solids. This was a report writer glitch which we have now fixed.

*24) CCS: "G3. the duplicate values on Form VI; for ICP don't agree with the raw data."
Response: Same as 3).

25) CCS: "G3. need "D" for EPA sample number (MDG530D) on Form VI."
Response: We are now adding "D" to sample number for duplicates.

*26) CCS: "H1. No need to separate the furnace and ICP values for LCS."
Response: Same as 2).

*27) CCS: "H2. the LCS values for ICP don't agree with the raw data."
Response: Same as 3).

*28) CCS: "I1. You should have value for As on MDG5630D and Pb on MDG530D (no 0.00)."
Response: We were not reporting values if they were not used for the concentration determination. We are now reporting values for the final concentration on Form VIII even when the value is not used.

As you can see, most of the "problems" are very minor. All of the things that were wrong (small details with no effect on the data) we have corrected. Some of the things (ie., separating ICP and furnace data) were discussed and approved with Saad Masri in Las Vegas in order to set up the Enseco report writer.

This entire situation has been exacerbated by the fact that Enseco under direct pressure from you accepted our contract minimums immediately upon aware of the untested SOW 787 contract. Enseco also accepted samples beyond our minimums after persuasion and pressure was exerted by SMO.

Obviously, CCS has changed from the process set-up originally by the EPA. At least two Regions have called us and stated that CCS seems to be getting carried away with Enseco's data packages because the data packages look good to them. They did not expect perfect data packages initially under SOW 787, but are confident the deficiencies will be worked out in short order, just as in the past. To consider a data package grossly non-compliant because of minute details hurts the CLP because the compliant data percentage goes down affecting the CLP reputation, it hurts the Regional cases because it makes the data appear bad, and it hurts us because we pride ourselves on providing quality data.

Enseco is willing to send people to meet with you to address the technical problems with our data package but at this point we do not believe there are any significant major problems.

Enseco cannot indefinitely continue to analyze samples while 0% payment is being recommended. I believe you will agree that after reviewing this screen, Enseco's data packages are providing quality data that are substantially compliant with the contract and we hope you will make a fair determination of our services. At a minimum, I recommend 100% provisional payment until CLS has worked out the problems in their operation and the payment recommendations truly reflect the value of the data package to the government.

Sincerely,

Tony

Anthony P. Maiorana
Enseco, ESM

cc: Mike Carter, USEPA
Mary Stotler, USEPA
Peter Isaacson, SMO
Dick Thacker, SMO
Don Trees, SMO
Mark Carter, Enseco
Denis Lin, Enseco
Paul Taylor, Enseco
Gary Ward, Enseco

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 4.29.88

SUBJECT: Review of Region V CLP Data Received for Review on 4-25-88

FROM: Curtis Ross, Director (5SCRL) Central Regional Laboratory Ada Leary

TO: Data User: MPCA
Dave Koubsky

We have reviewed the data for the following case(s).

SITE NAME: Hader Ground Water Contamination SMO Case No. 9288SAS3554E

EPA Data Set No. SF 5011 No. of Samples: 9 D.U./Activity Numbers Y905/C72222

CRL No. 88YL06501-S08, DOS

SMO Traffic No. MEW615-623

CLP Laboratory: RMAL Hrs. Required for Review: 5.5 +1 hr

Following are our findings:
The laboratory's portion of case 9288/SAS3554E consisted of 9 drinking water samples analyzed for total metals and cyanide.

ICP Analysis: Cr matrix spike %R is (84%). Cr data is estimated (UJ) for all samples except sample MEW621, which is estimated (J). Duplicate RPD for Cu (17.4 ug/L) indicates poor precision. Cu is estimated (J).

GFAA Analysis: Matrix spike %R for Cd (80%), Se(205%) and Tl (122.5%) are beyond the +/-15% limit. Se and Tl data are acceptable. Cd data are estimated (UJ) for samples MEW617, 620 and estimated (J) for all the rest.
Hg and cyanide data are within control limits.

Margaret Miller
4/28/88
Weston/ESA

( ) Data are acceptable for use.
(X) Data are acceptable for use with qualifications referenced above. See Data Qualifier sheets and Calibration Outlier forms for flags and additional comments.
( ) Data are preliminary - pending verification by Contractor Laboratory. See Case Summary above.
( ) Data are unacceptable.

cc: Carla Dempsey, CLP Quality Assurance Officer, Analytical Operations Branch
James Petty, Chief Quality Assurance Research, EMSL, Las Vegas

EPA FORM 1320-6 (REV 3-76)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

ESD/Central Regional Laboratory
DATA TRACKING FORM FOR CONTRACT SAMPLES

CRL Data Set No. SF5011 CERCLIS No. —

SMO Case No. 9288SAS355YE Site Name and Location: Hader Ground Water

Name of Contractor or EPA Laboratory: RMAL Data User: MPCA

No. of Samples: 9 Date Samples or Data Received: 4-25-88

1. Have chain-of-custody records been received? YES ✓ NO
2. Have Traffic Reports or packing lists been received? YES ✓ NO
3. If no, are Traffic Report or packing list numbers written on the chain-of-custody record? YES ___ NO ___
4. If no, which Traffic report or packing list numbers are missing?

Are basic data forms in? YES ✓ NO ___

Number of samples claimed: 9 Number of samples received: 9

Checked by: Wanda Yvette Freeman Date: 4-25-88

Received by Contract Project Management Section: IL Date: 4-25-88

Review Started: 4/27/88 Reviewer Signature: Margaret [illegible]

Total time spent on review: 5.5 Date review completed: 4/28/88

Copied (xeroxed) by: Lettie +1 hr verified by D Kuse Date: ___

Mailed to Data User by: Erlinda Luz M. Arriola Date: 5/2/88 5/2/88

DATA USERS:

Please fill in the blanks below and return this form to: Sylvia Griffin, Data Management Coordinator, Region V, 5SCRL

Data received by: ___ Date: ___

Q.A. review received by: ___ Date: ___

Inorganic Date Complete [ ], Suitable for Intended Purposes [ ] ✓ [ ] if acceptable.
Organic Data Complete [ ], Suitable for Intended Purposes [ ] List problems below.
Dioxin Data Complete [ ], Suitable for Intended Purposes [ ]
SAS Data Complete [ ], Suitable for Intended Purposes [ ]

See Attached "Missing Data Request Form" [ ]
PROBLEMS: Please indicate reasons (if any) why data are not suitable for your uses. Other problems.

Received by Data Management Coordinator, CRL for File: Date: ___

Signature:

U.S. EPA - CLP

00001

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

SOW No.: 7/87

EPA Sample No.	Lab Sample ID
MEW615	
MEW615D	
MEW616	
~~MEW616A~~	
MEW616S	
MEW617	
MEW618	
MEW619	
MEW620	
MEW621	
MEW622	
MEW623	

RECEIVED
APR 25 1988
U.S. EPA CENTRAL REGIONAL LAB

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

9 LOW WATERS FOR TOTAL METALS AND CYANIDE ANALYSIS
ALL FURNACE VALUES ARE DETERMINED BY MSA
RMA QC# 87746 21 DAY TURNAROUND

Release of the data contained in this hardcopy data package and in the computer readable data submitted on floppy diskette have been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Lab Manager: [signature]

Date: 04/22/88

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEW615

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID: _____

Level (low/med): LOW Date Recieved: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	633			P
7440-36-0	Antimony				
7440-38-2	Arsenic	1.7	B	S	F
7440-39-3	Barium	34.4	B		P
7440-41-7	Beryllium	2.0	U		P
7440-43-9	Cadmium				
7440-70-2	Calcium	167000			P
7440-47-3	Chromium	4.0	U	N	P
7440-48-4	Cobalt	16.8			P
7440-50-8	Copper	27.4		*	P
7439-89-6	Iron	78800			P
7439-92-1	Lead	5.5		S	F
7439-95-4	Magnesium	47400			P
7439-96-5	Manganese	570			P
7439-97-6	Mercury	0.2	U		CV
7440-02-0	Nickel	86.2			P
7440-09-7	Potassium	1320	B		P
7482-49-2	Selenium	1.0	U	SN	F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	3570			P
7440-28-0	Thallium	2.0	U	SN	F
7440-62-2	Vanadium	4.0	U		P
7440-66-6	Zinc	1340			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

U.S. EPA - CLP
1

EPA SAMPLE NO

MEW615
00003

INORGANIC ANALYSIS DATA SHEET

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID:

Level (low/med): LOW Date Received: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight) : UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	2.0	U	S	F
7440-43-9	Cadmium	0.3	B	SN	F

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

COMMENTS:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

00004

EPA SAMPLE NO.

MEW616

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID: _____

Level (low/med): LOW Date Recieved: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	25.0	U		P
7440-36-0	Antimony				
7440-38-2	Arsenic	1.0	U	S	F
7440-39-3	Barium	88.2			P
7440-41-7	Beryllium	2.0	U		P
7440-43-9	Cadmium				
7440-70-2	Calcium	150000			P
7440-47-3	Chromium	4.0	U	N	P
7440-48-4	Cobalt	9.0	B		P
7440-50-8	Copper	10.0	U	*	P
7439-89-6	Iron	5790			P
7439-92-1	Lead	3.4		S	F
7439-95-4	Magnesium	40200			P
7439-96-5	Manganese	181			P
7439-97-6	Mercury	0.2	U		CV
7440-02-0	Nickel	42.5			P
7440-09-7	Potassium	1300	B		P
7482-49-2	Selenium	1.0	U	SN	F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	2290			P
7440-28-0	Thallium	2.0	U	SN	F
7440-62-2	Vanadium	4.0	U		P
7440-66-6	Zinc	908			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

U.S. EPA - CLP
1

EPA SAMPLE NO

MEW616
00005

INORGANIC ANALYSIS DATA SHEET

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID:

Level (low/med): LOW Date Received: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight) : UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	2.0	U	S	F
7440-43-9	Cadmium	0.2	B	SN	F

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

COMMENTS:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE No. 00006

MEW617

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID: _____

Level (low/med): LOW Date Recieved: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	25.9	B		P
7440-36-0	Antimony				
7440-38-2	Arsenic	1.0	U	S	F
7440-39-3	Barium	72.6			P
7440-41-7	Beryllium	2.0	U		P
7440-43-9	Cadmium				
7440-70-2	Calcium	74300			P
7440-47-3	Chromium	4.0	U	N	P
7440-48-4	Cobalt	4.0	U		P
7440-50-8	Copper	10.0	U	*	P
7439-89-6	Iron	1560			P
7439-92-1	Lead	3.8		S	F
7439-95-4	Magnesium	23200			P
7439-96-5	Manganese	68.8			P
7439-97-6	Mercury	0.2	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	1030	B		P
7482-49-2	Selenium	1.0	U	SN	F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	3420			P
7440-28-0	Thallium	2.0	U	SN	F
7440-62-2	Vanadium	4.0	U		P
7440-66-6	Zinc	39.1			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

U.S. EPA - CLP
1

EPA SAMPLE NO

MEW617

00007

INORGANIC ANALYSIS DATA SHEET

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID:

Level (low/med): LOW Date Received: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight) : UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	2.0	U	S	F
7440-43-9	Cadmium	0.1	U	SN	F

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

COMMENTS:

U.S. EPA - CLP

00008

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEW618

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID: _____

Level (low/med): LOW Date Recieved: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1660			P
7440-36-0	Antimony				
7440-38-2	Arsenic	3.6	B	S	F
7440-39-3	Barium	91.5			P
7440-41-7	Beryllium	2.0	U		P
7440-43-9	Cadmium				
7440-70-2	Calcium	80000			P
7440-47-3	Chromium	4.0	U	N	P
7440-48-4	Cobalt	47.6			P
7440-50-8	Copper	10.0	U	*	P
7439-89-6	Iron	83200			P
7439-92-1	Lead	9.5		S	F
7439-95-4	Magnesium	20700			P
7439-96-5	Manganese	655			P
7439-97-6	Mercury	0.2	U		CV
7440-02-0	Nickel	197			P
7440-09-7	Potassium	833	B		P
7482-49-2	Selenium	1.0	U	SN	F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	1800			P
7440-28-0	Thallium	2.0	U	SN	F
7440-62-2	Vanadium	4.0	U		P
7440-66-6	Zinc	1470			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

U.S. EPA - CLP
1

EPA SAMPLE NO

MEW618

00009

INORGANIC ANALYSIS DATA SHEET

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID:

Level (low/med): LOW Date Received: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight) : UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	2.0	U	S	F
7440-43-9	Cadmium	0.5	B	SN	F

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

COMMENTS:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

00010

EPA SAMPLE NO.

MEW619

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID: _____

Level (low/med): LOW Date Recieved: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.0	B		P
7440-36-0	Antimony				
7440-38-2	Arsenic	1.0	U	S	F
7440-39-3	Barium	28.6	B		P
7440-41-7	Beryllium	2.0	U		P
7440-43-9	Cadmium				
7440-70-2	Calcium	111000			P
7440-47-3	Chromium	4.0	U	N	P
7440-48-4	Cobalt	4.0	U		P
7440-50-8	Copper	10.0	U	*	P
7439-89-6	Iron	9780			P
7439-92-1	Lead	2.0	U	S	F
7439-95-4	Magnesium	40600			P
7439-96-5	Manganese	621			P
7439-97-6	Mercury	0.2	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	1780	B		P
7482-49-2	Selenium	1.0	U	SN	F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	3230			P
7440-28-0	Thallium	2.0	U	SN	F
7440-62-2	Vanadium	4.0	U		P
7440-66-6	Zinc	32.3			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

U.S. EPA - CLP
1

EPA SAMPLE NO

MEW619

00011

INORGANIC ANALYSIS DATA SHEET

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID:

Level (low/med): LOW Date Received: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight) : UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	2.0	U	S	F
7440-43-9	Cadmium	0.1	B	SN	F

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

COMMENTS:

U.S. EPA - CLP

00012

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEW620

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID: _____

Level (low/med): LOW Date Recieved: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.3	B		P
7440-36-0	Antimony				
7440-38-2	Arsenic	1.0	U	S	F
7440-39-3	Barium	28.8	B		P
7440-41-7	Beryllium	2.0	U		P
7440-43-9	Cadmium				
7440-70-2	Calcium	113000			P
7440-47-3	Chromium	4.0	U	N	P
7440-48-4	Cobalt	4.0	U		P
7440-50-8	Copper	10.0	U	*	P
7439-89-6	Iron	9700			P
7439-92-1	Lead	3.4		S	F
7439-95-4	Magnesium	41000			P
7439-96-5	Manganese	574			P
7439-97-6	Mercury	0.2	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	1780	B		P
7482-49-2	Selenium	1.0	U	SN	F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	2890			P
7440-28-0	Thallium	2.0	U	SN	F
7440-62-2	Vanadium	4.0	U		P
7440-66-6	Zinc	28.5			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

U.S. EPA - CLP
1

EPA SAMPLE NO

MEW620
00013

INORGANIC ANALYSIS DATA SHEET

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID:

Level (low/med): LOW Date Received: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight) : UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	3.5	B	S	F
7440-43-9	Cadmium	0.1	U	SN	F

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

COMMENTS:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

00014

EPA SAMPLE NO.

MEW621

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID: _____

Level (low/med): LOW Date Recieved: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	32100			P
7440-36-0	Antimony				
7440-38-2	Arsenic	8.4		S	F
7440-39-3	Barium	55.1			P
7440-41-7	Beryllium	4.5	B		P
7440-43-9	Cadmium				
7440-70-2	Calcium	92200			P
7440-47-3	Chromium	11.0		N	P
7440-48-4	Cobalt	113			P
7440-50-8	Copper	22.0		*	P
7439-89-6	Iron	236000			P
7439-92-1	Lead	19.9		S	F
7439-95-4	Magnesium	24400			P
7439-96-5	Manganese	1670			P
7439-97-6	Mercury	0.2	U		CV
7440-02-0	Nickel	434			P
7440-09-7	Potassium	2170			P
7482-49-2	Selenium	1.0	U	SN	F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	2810			P
7440-28-0	Thallium	2.0	U	SN	F
7440-62-2	Vanadium	25.8			P
7440-66-6	Zinc	4120			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

U.S. EPA - CLP
1

EPA SAMPLE NO

MEW621

INORGANIC ANALYSIS DATA SHEET

00015

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID:

Level (low/med): LOW Date Received: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight) : UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	2.0	U	S	F
7440-43-9	Cadmium	10.0		SN	F

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

COMMENTS:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEW622

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID: _____

Level (low/med): LOW Date Recieved: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	25.0	U		P
7440-36-0	Antimony				
7440-38-2	Arsenic	3.6	B	S	F
7440-39-3	Barium	85.1			P
7440-41-7	Beryllium	2.0	U		P
7440-43-9	Cadmium				
7440-70-2	Calcium	84000			P
7440-47-3	Chromium	4.0	U	N	P
7440-48-4	Cobalt	4.0	U		P
7440-50-8	Copper	10.0	U	*	P
7439-89-6	Iron	3560			P
7439-92-1	Lead	2.0	U	S	F
7439-95-4	Magnesium	28500			P
7439-96-5	Manganese	69.8			P
7439-97-6	Mercury	0.2	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	5660			P
7482-49-2	Selenium	1.0	U	SN	F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	6680			P
7440-28-0	Thallium	2.0	U	SN	F
7440-62-2	Vanadium	4.0	U		P
7440-66-6	Zinc	2720			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

U.S. EPA - CLP
1

EPA SAMPLE NO

MEW622

INORGANIC ANALYSIS DATA SHEET

00017

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID:

Level (low/med): LOW Date Received: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight) : UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	2.0	U	S	F
7440-43-9	Cadmium	0.1	B	SN	F

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

COMMENTS:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

00018

EPA SAMPLE NO.

MEW623

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID: _____

Level (low/med): LOW Date Recieved: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	216			P
7440-36-0	Antimony				
7440-38-2	Arsenic	5.0		S	F
7440-39-3	Barium	90.6			P
7440-41-7	Beryllium	2.0	U		P
7440-43-9	Cadmium				
7440-70-2	Calcium	85500			P
7440-47-3	Chromium	4.0	U	N	P
7440-48-4	Cobalt	120			P
7440-50-8	Copper	10.0	U	*	P
7439-89-6	Iron	76800			P
7439-92-1	Lead	2.0	U	S	F
7439-95-4	Magnesium	27000			P
7439-96-5	Manganese	517			P
7439-97-6	Mercury	0.2	U		CV
7440-02-0	Nickel	342			P
7440-09-7	Potassium	1160	B		P
7482-49-2	Selenium	1.0	U	SN	F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	3600			P
7440-28-0	Thallium	2.0	U	SN	F
7440-62-2	Vanadium	4.0	U		P
7440-66-6	Zinc	477			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

U.S. EPA - CLP
1

EPA SAMPLE NO

MEW623
00019

INORGANIC ANALYSIS DATA SHEET

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Lab Sample ID:

Level (low/med): LOW Date Received: 04/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight) : UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	2.0	U	S	F
7440-43-9	Cadmium	0.3	B	SN	F

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

COMMENTS:

QC EXCEPTION SUMMARY REPORT

CASE # 9288A/SAS3554 SITE Hader GW Cont.
DATA SET # SF5011 LAB RMAL
LAB Q.C.# 57746 REVIEWED BY MMT
DATE: 4/28/88

MATRIX: Water WATER SAMPLE SPK. ____
CONC. : low WATER SAMPLE DUP. ____
MATRIX: ____ SOIL SAMPLE SPK. ____
CONC. ____ SOIL SAMPLE DUP. ____

	OVERALL CASE QC									MATRIX SPECIFIC QC						SAMPLE SPECIFIC QC		FIELD QC			REGIONAL QC			OTHER/ COMMENTS
	Holding Time	Cal Blanks	Init Calver	Contin Calver	Prep Blk AQ	Prep Blk SOL	ICS %R	LCS % AQ	LCS % SOL	Sol Dup RPD	Sol Spk %R	AQ Dup RPD	AQ Spk %R	Ser Dilu AQ	Ser Dilu SOL	GFAA Dup	GFAA Spike	Blank	Dup RPD	Spike %R	Blind Blank	Blind Spike %R	Split Sample RPD	
Aluminum																								
Antimony																								
Arsenic																								
Barium																								
Beryllium																								
Cadmium													60											
Calcium																								
Chromium													84											
Cobalt																								
Copper												17.4	>±10 (IDL)											
Iron																								
Lead																								
Magnesium																								
Manganese																								
Mercury																								
Nickel																								
Potassium																								
Selenium													205											
Silver																								
Sodium												19.0 (Not flagged on Form I)												
Thallium													122.5											
Tin																								
Vanadium																								
Zinc																								
Cyanide																								

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

00020

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Initial Calibration Source: EPA-LV

Continuing Calibration Source: FISHER

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	1980.0	2060	104.0	1000.0	977	97.7	998	99.8	P
Antimony									
Arsenic									
Barium	1980.0	2020	102.0	1000.0	985	98.5	1010	101.0	P
Beryllium	481.0	493	102.5	1000.0	988	98.8	1000	100.0	P
Cadmium									
Calcium	49800.0	53900	108.2	100000.	103000	103.0	105000	105.0	P
Chromium	506.0	462	91.3	1000.0	913	91.3	936	93.6	P
Cobalt	474.0	516	108.9	1000.0	1000	100.0	1020	102.0	P
Copper	542.0	570	105.2	1000.0	1030	103.0	1050	105.0	P
Iron	1990.0	2060	103.5	1000.0	1010	101.0	1030	103.0	P
Lead									
Magnesium	25000.0	25900	103.6	100000.	102000	102.0	106000	106.0	P
Manganese	513.0	540	105.3	1000.0	1040	104.0	1070	107.0	P
Mercury									
Nickel	496.0	503	101.4	1000.0	1040	104.0	1080	108.0	P
Potassium	50200.0	51300	102.2	100000.	97500	97.5	99800	99.8	P
Selenium									
Silver	509.0	480	94.3	1000.0	924	92.4	952	95.2	P
Sodium	50700.0	52700	103.9	100000.	100000	100.0	104000	104.0	P
Thallium									
Vanadium	511.0	513	100.4	1000.0	995	99.5	1020	102.0	P
Zinc	3100.0	3180	102.6	1000.0	1020	102.0	1050	105.0	P
Cyanide									

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

00021

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Initial Calibration Source: EPA-LV

Continuing Calibration Source: FISHER

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				1000.0	994	99.4			P
Antimony									
Arsenic									
Barium				1000.0	1000	100.0			P
Beryllium				1000.0	996	99.6			P
Cadmium									
Calcium				100000.	104000	104.0			P
Chromium				1000.0	925	92.5			P
Cobalt				1000.0	1020	102.0			P
Copper				1000.0	1040	104.0			P
Iron				1000.0	1020	102.0			P
Lead									
Magnesium				100000.	104000	104.0			P
Manganese				1000.0	1060	106.0			P
Mercury									
Nickel				1000.0	1060	106.0			P
Potassium				100000.	98400	98.4			P
Selenium									
Silver				1000.0	943	94.3			P
Sodium				100000.	102000	102.0			P
Thallium									
Vanadium				1000.0	1010	101.0			P
Zinc				1000.0	1040	104.0			P
Cyanide									

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Initial Calibration Source: EPA-LV

Continuing Calibration Source: FISHER

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									
Antimony									
Arsenic	47.0	45.1	96.0	20.0	19.1	95.5	20.0	100.0	F
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	97.9	105	107.3	20.0	20.4	102.0	20.2	101.0	F
Magnesium									
Manganese									
Mercury	5.2	5.6	107.7	1.0	1.0	100.0	1.0	100.0	CV
Nickel									
Potassium									
Selenium	104.0	104	100.0	20.0	22.0	110.0	19.6	98.0	F
Silver									
Sodium									
Thallium	97.3	106	108.9	20.0	18.9	94.5	20.8	104.0	F
Vanadium									
Zinc									
Cyanide	105.0	101	96.2	200.0	204	102.0	208	104.0	AS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Initial Calibration Source: EPA-LV

Continuing Calibration Source: FISHER

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									
Antimony									
Arsenic				20.0	20.3	101.5	20.4	102.0	F
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead				20.0	19.8	99.0	19.6	98.0	F
Magnesium									
Manganese									
Mercury				1.0	1.0	100.0			CV
Nickel									
Potassium									
Selenium				20.0	20.8	104.0	21.0	105.0	F
Silver									
Sodium									
Thallium				20.0	19.3	96.5	19.8	99.0	F
Vanadium									
Zinc									
Cyanide				200.0	208	104.0			AS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Initial Calibration Source: EPA-LV

Continuing Calibration Source: FISHER

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									
Antimony									
Arsenic				20.0	21.9	109.5			F
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium				20.0	21.0	105.0			F
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Initial Calibration Source: EPA-LV

Continuing Calibration Source: FISHER

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	97.9	105	107.3	20.0	20.0	100.0	19.7	98.5	F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium	104.0	107	102.9	20.0	20.9	104.5	21.0	105.0	F
Silver									
Sodium									
Thallium	97.3	87.4	89.8	20.0	20.3	101.5	18.0	90.0	F
Vanadium									
Zinc									
Cyanide									

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP
2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

00026

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Initial Calibration Source: EPA-LV

Continuing Calibration Source: FISHER

Concentration Units:ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)		M
Antimony	1010.0	940	93.1	20.0	20.6	103.0	20.0	100.0		F
Cadmium	96.1	90.0	93.6	2.0	2.0	100.0	2.1	105.0		F

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)		Continuing Calibration Blank 1	C	2	C	3	C	Prepa-ration Blank	C		M
Antimony	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U		F
Cadmium	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U		F

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP
2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

00027

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Initial Calibration Source: EPA-LV

Continuing Calibration Source: FISHER

Concentration Units:ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)		M
Antimony				20.0	17.9	89.5	18.5	92.5		F
Cadmium				2.0	2.2	110.0	1.8	90.0		F

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)		Continuing Calibration Blank 1	C	2	C	3	C		Prepa-ration Blank	C		M
Antimony			2.0	U									F
Cadmium			0.1	U									F

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP
2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

00028

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Initial Calibration Source: EPA-LV

Continuing Calibration Source: FISHER

Concentration Units:ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)		M
Antimony										
Cadmium	96.1	95.0	98.9	2.0	1.9	95.0	1.8	90.0		F

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)		Continuing Calibration Blank 1	C	2	C	3	C		Prepa-ration Blank	C		M
Antimony													
Cadmium	-0.1	B	0.1	U	0.1	U							F

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

00029

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

AA CRDL Standard Source: BAKER

ICP CRDL Standard Source: BAKER

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony								
Arsenic	5.0	4.7	94.0					
Barium								
Beryllium				10.0	11.3	113.0	11.6	116.0
Cadmium								
Calcium								
Chromium				20.0	25.1	125.5	26.1	130.5
Cobalt				20.0	29.1	145.5	28.0	140.0
Copper				20.0	26.6	133.0	30.3	151.5
Iron								
Lead	2.0	2.1	105.0					
Magnesium								
Manganese				20.0	26.2	131.0	29.2	146.0
Mercury								
Nickel				40.0	45.8	114.5	49.2	123.0
Potassium								
Selenium	2.0	1u	0.0					
Silver				10.0	2.0	20.0	2.1	21.0
Sodium								
Thallium	2.0	2u	0.0					
Vanadium				20.0	27.7	138.5	27.9	139.5
Zinc				40.0	51.2	128.0	55.5	138.8

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

AA CRDL Standard Source: BAKER

ICP CRDL Standard Source: BAKER

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead	2.0	2.4	120.0					
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium	2.0	1.4	70.0					
Silver								
Sodium								
Thallium	2.0	2u	0.0					
Vanadium								
Zinc								

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

AA CRDL Standard Source: BAKER

ICP CRDL Standard Source: BAKER

Concentration Units: ug/L

Analyte	CRDL Standard for AA True	Found	%R	CRDL Standard for ICP True	Found	%R	Found	%R
Antimony	5.0	4.2	84.0					

U.S. EPA - CLP

3
BLANKS

00032

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	25.0	U	25.0	U	25.0	U	25.0	U	25.0	U	P
Antimony											
Arsenic											
Barium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	P
Beryllium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	P
Cadmium											
Calcium	81.0	U	81.0	U	81.0	U	81.0	U	81.0	U	P
Chromium	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Cobalt	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Copper	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	P
Iron	14.0	U	14.0	U	-15.0	B	-15.0	B	14.0	U	P
Lead											
Magnesium	81.0	U	81.0	U	81.0	U	81.0	U	81.0	U	P
Manganese	6.0	U	6.0	U	6.0	U	6.0	U	6.0	U	P
Mercury											
Nickel	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	P
Potassium	95.0	U	95.0	U	95.0	U	95.0	U	95.0	U	P
Selenium											
Silver	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Sodium	1360	U	1360	U	1360	U	1360	U	1360	U	P
Thallium											
Vanadium	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Zinc	3.0	U	3.0	U	3.0	U	3.0	U	3.9	B	P
Cyanide											

U.S. EPA - CLP

3
BLANKS

00033

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	F
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Magnesium											
Manganese											
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	CV
Nickel											
Potassium											
Selenium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	F
Silver											
Sodium											
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Vanadium											
Zinc											
Cyanide	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	AS

U.S. EPA - CLP

3
BLANKS

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic			1.5	B	2.2	B					F
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead			2.0	U							F
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium			1.0	U	1.0	U					F
Silver											
Sodium											
Thallium			2.0	U							F
Vanadium											
Zinc											
Cyanide											

U.S. EPA - CLP

3
BLANKS

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead	2.0	U	2.0	U	2.0	U					F
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium	1.0	U	1.0	U	1.0	U					F
Silver											
Sodium											
Thallium	2.0	U	2.0	U	2.0	U					F
Vanadium											
Zinc											
Cyanide											

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4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: mEW615

ICP ID Number: JA9000 ICS Source: EPA-LV-0387

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	502000	508000	509000	515000	101.4	531000	514000	101.2
Antimony								
Arsenic								
Barium		483	7	473	97.9	8	485	100.4
Beryllium		474	-0	488	103.0	-0	484	102.1
Cadmium								
Calcium	506000	516000	523000	527000	102.1	537000	526000	101.9
Chromium		513	43	469	91.4	40	469	91.4
Cobalt		478	27	497	104.0	7	516	107.9
Copper		534	18	574	107.5	6	572	107.1
Iron	196000	203000	190000	194000	95.6	216000	194000	95.6
Lead								
Magnesium	498000	509000	517000	524000	102.9	564000	536000	105.3
Manganese		531	93	576	108.5	65	597	112.4
Mercury								
Nickel		916	44	954	104.1	17	975	106.4
Potassium			84	54.5		29	-119	
Selenium								
Silver		993	-0	930	93.7	-726	910	91.6
Sodium			-753	-1160			-625	
Thallium								
Vanadium		475	6	485	102.1	7	487	102.5
Zinc		973	5	984	101.1	-0	1020	104.8

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MEW616S

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	1870		25.0	U	2000	93.5		P
Antimony									
Arsenic	75-125	19.8		1.0	U	20.0	99.0		F
Barium	75-125	1930		88.2		2000	92.1		P
Beryllium	75-125	46.5		2.0	U	50.0	93.0		P
Cadmium									
Calcium	75-125	198000		150000		50000	96.0		P
Chromium	75-125	168		4.0	U	200	84.0	N	P
Cobalt	75-125	492		9.0	B	500	96.6		P
Copper	75-125	253		10.0	U	250	101.2		P
Iron		6320		5790		1000	53.0		P
Lead	75-125	20.4		3.4		20.0	85.0		F
Magnesium	75-125	64800		40200		25000	98.4		P
Manganese	75-125	369		181		200	94.0		P
Mercury	75-125	1.0		0.2	U	1.0	100.0		CV
Nickel	75-125	426		42.5		400	95.9		P
Potassium	75-125	20200		1300	B	20000	94.5		P
Selenium	75-125	20.5		1.0	U	10.0	205.0	N	F
Silver	75-125	42.8		4.0	U	50.0	85.6		P
Sodium	75-125	56200		2290		50000	107.8		P
Thallium	75-125	24.5		2.0	U	20.0	122.5	N	F
Vanadium	75-125	453		4.0	U	500	90.6		P
Zinc		1050		908		200	71.0		P
Cyanide	75-125	96.7		10.0	U	100	96.7		AS

Comments:
CONTROL LIMIT IS 85 TO 115% FOR ALL METALS EXCEPT MERCURY AND CYANIDE.
MERCURY AND CYANIDE CONTROL LIMIT IS 80 TO 120% RECOVERY.

U.S. EPA - CLP
5A
SPIKE SAMPLE RECOVERY

00038

EPA SAMPLE NO.

MEW616S

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Level (low/medium): LOW

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spike Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	85-115	18.9		2.0	U	20.0	94.5		F
Cadmium	85-115	1.6		0.2	U	2.0	80.0	N	F

EPA SAMPLE NO.

DUPLICATES

MEW615D

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Antimony		2.0	U	2.0	U			F
Cadmium	5.0	0.3	B	0.4	B	28.6		F

Comments:

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00039

5B

POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

mEW616A

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 35545 SDG No.: mEW615

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									
Calcium									NR
Chromium		19.3		4.0	u	20.0	965		NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									P
Cyanide									NR

Comments:

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6
DUPLICATES

EPA SAMPLE NO.

MEW615D

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		633		631		0.3		P
Antimony								
Arsenic		1.7	B	1.1	B	42.9		F
Barium		34.4	B	33.5	B	2.7		P
Beryllium		2.0	U	2.0	U			P
Cadmium								
Calcium		167000		168000		0.6		P
Chromium		4.0	U	4.0	U			P
Cobalt	10.0	16.8		15.1		10.7		P
Copper	10.0	27.4		10.0	U	200	*	P
Iron		78800		78800		0.0		P
Lead	2.0	5.5		3.7		39.1		F
Magnesium		47400		47500		0.2		P
Manganese		570		571		0.2		P
Mercury		0.2	U	0.2	U			CV
Nickel	20.0	86.2		86.9		0.8		P
Potassium		1320	B	1330	B	0.8		P
Selenium		1.0	U	1.0	U			F
Silver		4.0	U	4.0	U			P
Sodium		3570		2950		19.0		P
Thallium		2.0	U	2.0	U			F
Vanadium		4.0	U	4.0	U			P
Zinc		1340		1340		0.0		P
Cyanide		10.0	U	10.0	U			AS

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7

LABORATORY CONTROL SAMPLE

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Solid LCS Source: EMSL - LV

Aqueous LCS Source: EMSL - LV

Analyte	Aqueous (ug/L) True	Found	%R(1)	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	1980	1970	99.5						
Antimony									
Arsenic									
Barium	1980	1960	99.0						
Beryllium	481	506	105						
Cadmium									
Calcium	49800	51400	103						
Chromium	506	442	87.4						
Cobalt	474	504	106						
Copper	542	557	103						
Iron	1990	1970	99.0						
Lead									
Magnesium	25000	25100	100						
Manganese	513	534	104						
Mercury									
Nickel	496	490	98.8						
Potassium	50200	47100	93.8						
Selenium									
Silver	509	453	89.0						
Sodium	50700	49600	97.8						
Thallium									
Vanadium	511	489	95.7						
Zinc	3100	3060	98.7						
Cyanide									

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00042

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LABORATORY CONTROL SAMPLE

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Solid LCS Source: EMSL - LV

Aqueous LCS Source: EMSL - LV

Analyte	Aqueous (ug/L) True	Found	%R(1)	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic	47.0	42.9	91.3						
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	97.9	86.8	88.7						
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium	104	104	100						
Silver									
Sodium									
Thallium	97.3	84.6	86.9						
Vanadium									
Zinc									
Cyanide									

7
LABORATORY CONTROL SAMPLE

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract : 68-01-7476

Lab Code: ENSECO Case No.:9288 SAS No.:3554E SDG No.: MEW615

Solid LCS Source: EMSL-LV

Aqueous LCS Source: EMSL-LV

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Antimony	1010.0	885	87.6						
Cadmium	96.1	90.0	93.6						

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8

STANDARD ADDITION RESULTS

00044

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Concentration Units: ug/L

EPA Sample No.	An	Dil	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q
PB	AS	1	0.000	10	10.000	20	21.700	30	31.800	1u 0.0	0.9995	-
LCS	AS	1	45.800	10	57.000	20	67.600	30	78.000	42.9	0.9999	-
CCB1	AS	1	0.000	10	10.100	20	19.600	30	31.100	1u 0.0	0.9992	-
CCB2	AS	1	0.000	10	10.500	20	20.000	30	31.800	1u 0.0	0.9991	-
CCB3	AS	1	0.000	10	10.300	20	20.100	30	34.800	1u 0.0	0.9952	-
CCB4	AS	1	2.200	10	12.200	20	22.700	30	35.400	1.5	0.9984	-
CCV4	AS	1	23.000	10	34.600	20	43.900	30	57.200	20.4	0.9978	-
MEW621	AS	1	9.200	10	19.200	20	30.500	30	41.000	8.4	0.9998	-
MEW616S	AS	1	21.900	10	42.800	20	57.100	30	67.500	16.3	0.9880	+
MEW616S	AS	1	22.400	10	36.700	20	46.300	30	58.400	19.8	0.9973	-
CCV1	AS	1	19.900	10	28.400	20	40.100	30	49.800	19.1	0.9983	-
ICV	AS	1	46.600	10	56.900	20	67.200	30	77.600	45.1	1.0000	-
CCV3	SB	1	19.500	10	28.900	20	42.500	30	50.800	17.9	0.9959	-
MEW620	AS	1	0.000	10	11.700	20	24.600	30	37.800	1u 0.0	0.9996	-
CCV3	AS	1	20.000	10	29.900	20	42.000	30	49.300	20.3	0.9959	-
CCB3	SB	1	0.000	10	9.800	20	19.300	30	30.100	2u 0.0	0.9996	-
MEW617	AS	1	0.000	10	11.900	20	23.800	30	35.300	1u 0.0	1.0000	-
CCV2	AS	1	20.200	10	30.200	20	41.500	30	50.300	20.0	0.9990	-
MEW616	AS	1	1.300	10	12.700	20	25.800	30	38.800	1u 0.0	0.9995	-
CRA	AS	1	4.800	10	15.000	20	25.900	30	35.400	4.7	0.9997	-
CCV5	AS	1	22.100	10	30.800	20	42.200	30	51.400	21.9	0.9987	-
CCB5	AS	1	2.100	10	12.400	20	23.000	30	32.300	2.2	0.9996	-
ICB	SB	1	0.000	10	7.800	20	16.000	30	25.900	2u 0.0	0.9984	-
LCS	SB	50	19.800	10	30.400	20	42.800	30	52.800	885.0	0.9992	-

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STANDARD ADDITION RESULTS

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Concentration Units: ug/L

EPA Sample No.	An	Dil	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q
CCB4	SB	1	0.000	10	10.200	20	20.300	30	30.900	2u 0.0	0.9999	
ICB	AS	1	0.000	10	9.300	20	20.200	30	31.200	1u 0.0	0.9992	
CCV4	SB	1	20.300	10	32.400	20	43.200	30	53.900	18.5	0.9995	
CCB2	SB	1	0.000	10	8.700	20	17.600	30	28.200	2u 0.0	0.9988	
CCV1	SB	1	19.700	10	29.600	20	39.200	30	48.600	20.6	0.9999	
ICV	SB	50	18.300	10	28.400	20	38.100	30	47.700	940.0	0.9999	
PB	SB	1	1.800	10	10.200	20	19.100	30	29.800	2u 0.0	0.9984	
CCB1	SB	1	0.000	10	8.200	20	18.800	30	27.700	2u 0.0	0.9989	
CCV2	SB	1	20.400	10	30.900	20	39.700	30	51.400	20.0	0.9986	
CRA	SB	1	4.900	10	13.000	20	23.400	30	34.300	4.2	0.9978	
MEW622	AS	1	5.000	10	17.000	20	30.700	30	43.600	3.6	0.9997	
MEW623	SB	1	0.000	10	8.400	20	19.200	30	27.800	2u 0.0	0.9988	
MEW622	SB	1	0.000	10	10.800	20	24.700	30	39.700	2u 0.0	0.9974	
MEW619	SB	1	0.000	10	11.000	20	21.000	30	33.600	2u 0.0	0.9990	
MEW618	SB	1	0.000	10	7.500	20	17.000	30	25.500	2u 0.0	0.9991	
MEW623	AS	1	5.600	10	16.900	20	28.700	30	39.300	5.0	0.9998	
MEW619	AS	1	0.000	10	12.300	20	25.900	30	39.700	1u 0.0	0.9996	
MEW615	SB	1	0.000	10	4.800	20	11.000	30	16.500	2u 0.0	0.9989	
MEW615	AS	1	2.200	10	11.600	20	23.400	30	33.500	1.7	0.9991	
MEW621	SB	1	2.500	10	11.100	20	24.800	30	38.400	2u 0.0	0.9949	+
MEW616	SB	1	0.000	10	7.800	20	17.500	30	27.600	2u 0.0	0.9983	
MEW620	SB	1	3.700	10	15.100	20	24.900	30	36.400	3.5	0.9995	
MEW618	AS	1	4.600	10	15.100	20	26.200	30	38.700	3.6	0.9992	
MEW617	SB	1	0.000	10	10.500	20	24.700	30	37.800	2u 0.0	0.9983	

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8
STANDARD ADDITION RESULTS

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Concentration Units: ug/L

EPA Sample No.	An	Dil	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q
MEW615D	AS	1	1.400	10	12.200	20	23.100	30	34.500	1.1	0.9999	
MEW615D	SB	1	0.000	10	4.800	20	10.900	30	16.500	1u 0.0	0.9990	
MEW616S	SB	1	20.500	10	31.200	20	40.300	30	53.200	18.9	0.9977	

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8

STANDARD ADDITION RESULTS

00047

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Concentration Units: ug/L

EPA Sample No.	An	Dil	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q
PB	CD	1	0.000	1	0.400	1	1.000	2	1.500	0.1U 0.0	0.9973	
LCS	CD	50	1.900	1	2.500	1	3.000	2	3.500	90.0	0.9989	
CCV1	CD	1	1.800	1	2.300	1	2.800	2	3.200	1.9	0.9986	
CCV2	CD	1	1.800	1	2.300	1	2.800	2	3.300	1.8	1.0000	
ICV1	CD	50	1.900	1	2.300	1	2.800	2	3.400	90.0	0.9960	
MEW616S	CD	1	1.700	1	2.100	1	2.600	2	3.200	1.6	0.9960	
ICB	PB	1	0.000	10	10.200	20	18.700	30	29.400	2U 0.0	0.9991	
CCB2	PB	1	0.000	10	9.400	20	20.900	30	31.200	2U 0.0	0.9993	
CCV2	PB	1	19.900	10	28.700	20	38.800	30	49.400	19.7	0.9991	
ICV	CD	50	1.900	1	2.300	1	2.900	2	3.300	95.0	0.9965	
CCV1	PB	1	19.400	10	30.100	20	39.100	30	49.200	20.0	0.9995	
CCV3	PB	1	19.200	10	28.400	20	39.700	30	47.300	20.2	0.9975	
ICB	CD	1	-0.100	1	0.400	1	0.900	2	1.400	-0.1	1.0000	
CCV1	CD	1	2.000	1	2.600	1	3.100	2	3.500	2.0	0.9960	
CCB1	CD	1	0.000	1	0.500	1	1.000	2	1.500	0.1U 0.0	1.0000	
ICV	PB	1	47.300	10	55.100	20	63.700	30	74.100	52.5	0.9978	
CRA	PB	1	2.700	5	7.200	10	12.900	15	18.800	2.1	0.9982	
ICV1	PB	2	49.300	10	57.800	20	66.500	30	77.400	105.0	0.9981	
ICB1	CD	1	0.000	1	0.500	1	1.000	2	1.500	0.1U 0.0	1.0000	
CCV4	CD	1	1.900	1	2.500	1	3.100	2	3.500	1.8	0.9959	
CCB2	CD	1	-0.100	1	0.400	1	0.800	2	1.300	0.1U 0.0	0.9991	
CCB3	PB	1	0.000	10	9.300	20	20.300	30	28.200	2U 0.0	0.9982	
CCB1	CD	1	-0.100	1	0.400	1	0.900	2	1.300	0.1U 0.0	0.9986	
CCB3	CD	1	0.000	1	0.500	1	1.000	2	1.600	0.1U 0.0	0.9989	

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STANDARD ADDITION RESULTS

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Concentration Units: ug/L

EPA Sample No.	An	Dil	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q
CCV2	CD	1	2.100	1	2.600	1	3.100	2	3.600	2.1	1.0000	
CCB4	CD	1	0.000	1	0.500	1	1.100	2	1.600	0.1U 0.0	0.9993	
CCB5	PB	1	0.000	10	9.400	20	21.300	30	29.000	0.1U 0.0	0.9970	
CCB1	PB	1	0.000	10	10.200	20	20.400	30	30.700	2U 0.0	1.0000	
CCB1	PB	1	0.000	10	9.500	20	20.800	30	29.700	2U 0.0	0.9990	
CCV5	PB	1	19.900	10	29.600	20	40.600	30	49.900	19.6	0.9995	
PB	PB	1	1.200	10	11.200	20	21.300	30	31.500	1.1	1.0000	
CCV1	PB	1	20.500	10	30.500	20	40.300	30	50.600	20.4	1.0000	
CRA	SB	1	4.900	10	13.000	20	23.400	30	34.300	4.2	0.9978	
CCV4	PB	1	19.900	10	29.400	20	39.700	30	49.700	19.8	0.9999	
ICB1	PB	1	0.000	10	9.400	20	19.500	30	28.300	2U 0.0	0.9997	
CRA	PB	1	2.900	5	7.600	10	13.700	15	19.000	2.4	0.9989	
CCV3	CD	1	2.000	1	2.500	1	2.900	2	3.400	2.2	0.9991	
CCB4	PB	1	0.000	10	9.600	20	21.200	30	29.000	2U 0.0	0.9974	
CCB2	CD	1	0.000	1	0.500	1	1.000	2	1.600	0.1U 0.0	0.9989	
LCS1	PB	2	43.000	10	54.200	20	64.300	30	73.100	86.8	0.9986	
MEW620	CD	1	0.100	1	0.500	1	0.900	2	1.400	0.1U 0.0	0.9984	
MEW622	CD	1	0.100	1	0.500	1	1.000	2	1.300	0.1	0.9959	
MEW616	CD	1	0.200	1	0.700	1	1.100	2	1.600	0.2	0.9991	
MEW622	PB	1	0.000	10	9.500	20	18.400	30	26.200	2U 0.0	0.9990	
MEW621	PB	1	15.200	10	22.300	20	30.000	30	37.800	19.9	0.9998	
MEW616	PB	1	2.600	10	10.200	20	17.600	30	25.500	3.4	0.9999	
MEW615	PB	1	4.300	10	11.600	20	20.000	30	27.000	5.5	0.9994	
MEW617	CD	1	0.100	1	0.500	1	1.000	2	1.500	0.1U 0.0	0.9986	

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STANDARD ADDITION RESULTS

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Concentration Units: ug/L

EPA Sample No.	An	Dil	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q
MEW623	CD	1	0.300	1	0.800	1	1.300	2	1.800	0.3	1.0000	_
MEW617	PB	1	3.600	10	13.000	20	22.100	30	31.700	3.8	1.0000	_
MEW621	CD	4	2.400	1	3.000	1	3.400	2	3.900	10.0	0.9971	_
MEW619	CD	1	0.100	1	0.600	1	1.100	2	1.500	0.1	0.9986	_
MEW621	CD	1	7.700	1	7.500	1	7.500	2	7.900	63.0	0.4045	+
MEW620	PB	1	2.700	10	10.600	20	19.200	30	26.600	3.4	0.9996	_
MEW615	CD	1	0.300	1	0.700	1	1.200	2	1.700	0.3	0.9986	_
MEW618	PB	1	7.500	10	15.400	20	24.100	30	31.200	9.5	0.9993	_
MEW618	CD	1	0.500	1	1.000	1	1.500	2	2.000	0.5	1.0000	_
MEW619	PB	1	1.000	10	8.200	20	16.800	30	24.900	2u 0.0	0.9994	_
MEW623	PB	1	0.000	10	8.700	20	16.800	30	23.700	2u 0.0	0.9987	_
MEW616S	PB	1	14.200	10	22.300	20	27.500	30	36.000	20.4	0.9961	_
MEW615D	CD	1	0.400	1	1.000	1	1.500	2	2.000	0.4	0.9989	_
MEW615D	PB	1	2.500	10	10.200	20	17.300	30	24.300	3.7	0.9997	_

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STANDARD ADDITION RESULTS

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Concentration Units: ug/L

EPA Sample No.	An	Dil	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q
PB	SE	1	1.100	10	12.700	20	24.900	30	36.300	1u 0.0	0.9999	
CRA	SE	1	1.400	10	10.600	20	23.000	30	32.700	1u 0.0	0.9984	
CCB1	SE	1	0.000	10	10.100	20	19.600	30	31.200	1u 0.0	0.9991	
CCB5	SE	1	0.000	10	12.100	20	23.300	30	33.800	1u 0.0	0.9995	
CCV5	SE	1	21.500	10	31.800	20	42.700	30	52.100	21.0	0.9996	
ICV1	SE	2	50.600	10	59.100	20	68.000	30	78.800	107.2	0.9984	
MEW615	SE	1	0.000	10	7.300	20	13.000	30	18.400	1u 0.0	0.9973	
MEW616S	SE	1	13.900	10	18.700	20	25.500	30	33.000	20.5	0.9954	
CCV4	SE	1	21.100	10	32.000	20	41.100	30	51.900	21.0	0.9994	
CCV3	SE	1	20.600	10	30.500	20	39.400	30	50.500	20.8	0.9991	
LCS1	TL	2	47.400	10	59.600	20	68.700	30	81.800	84.6	0.9978	
CCB3	SE	1	0.000	10	10.600	20	21.700	30	30.900	1u 0.0	0.9993	
LCS	SE	2	50.000	10	61.000	20	71.600	30	79.100	103.6	0.9964	
MEW621	SE	1	0.000	10	2.300	20	5.400	30	6.500	1u 0.0	0.9856	+
ICV	SE	2	48.800	10	58.000	20	67.800	30	76.800	104.0	0.9999	
CRA	SE	1	1.700	5	6.300	10	11.700	15	17.000	1.4	0.9994	
CCB1	SE	1	0.000	10	11.600	20	22.100	30	31.900	1u 0.0	0.9993	
CCB2	SE	1	0.000	10	10.300	20	21.600	30	31.800	1u 0.0	0.9998	
CCV2	SE	1	20.500	10	29.800	20	40.100	30	49.400	21.0	0.9998	
ICB	SE	1	0.000	10	11.100	20	22.100	30	32.100	1u 0.0	0.9997	
CCB2	SE	1	0.000	10	10.000	20	20.200	30	30.400	1u 0.0	1.0000	
ICB	TL	1	0.000	10	9.300	20	20.000	30	28.400	2u 0.0	0.9990	
CCV1	SE	1	20.500	10	30.200	20	40.600	30	49.800	20.9	0.9997	
ICB1	SE	1	0.000	10	9.900	20	19.900	30	30.700	1u 0.0	0.9998	

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STANDARD ADDITION RESULTS

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Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Concentration Units: ug/L

EPA Sample No.	An	Dil	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q
CCV1	TL	1	19.200	10	29.300	20	39.200	30	47.900	20.3	0.9994	
CCV2	TL	1	19.400	10	30.000	20	39.300	30	48.100	20.8	0.9991	
CCB1	TL	1	0.000	10	9.900	20	19.500	30	29.400	2u 0.0	1.0000	
CCV2	SE	1	20.200	10	29.800	20	39.400	30	50.700	19.6	0.9992	
CCB2	TL	1	-1.300	10	9.000	20	19.700	30	29.800	2u 0.0	0.9999	
CCB1	TL	1	-1.400	10	9.300	20	19.800	30	30.700	2u 0.0	1.0000	
CCV1	SE	1	21.000	10	31.600	20	41.000	30	50.300	22.0	0.9995	
CCB4	SE	1	0.000	10	12.100	20	22.500	30	33.200	1u 0.0	0.9994	
ICB1	TL	1	-1.200	10	9.700	20	20.300	30	30.900	2u 0.0	1.0000	
PB	TL	1	-1.200	10	9.700	20	20.800	30	32.100	2u 0.0	1.0000	
CCB4	TL	1	-1.300	10	9.400	20	19.600	30	29.600	2u 0.0	0.9999	
CCV2	TL	1	18.400	10	26.000	20	37.300	30	47.200	18.0	0.9973	
ICV	TL	2	47.000	10	56.300	20	67.900	30	78.600	87.4	0.9991	
CRA	TL	1	0.000	5	8.100	10	14.100	15	19.500	2u 0.0	0.9954	
CCV3	TL	1	19.300	10	30.400	20	38.200	30	50.300	19.3	0.9969	
CCB3	TL	1	-1.200	10	9.400	20	18.700	30	30.500	2u 0.0	0.9990	
ICV1	TL	2	48.700	10	59.600	20	69.800	30	76.600	105.6	0.9949	+
CCB2	TL	1	0.000	10	8.100	20	17.800	30	27.900	2u 0.0	0.9988	
CCV1	TL	1	19.500	10	30.800	20	39.300	30	51.300	18.9	0.9981	
CCV4	TL	1	19.000	10	30.900	20	40.500	30	49.200	19.8	0.9974	
CRA	TL	1	0.000	5	6.100	10	11.600	15	16.800	2u 0.0	0.9993	
MEW618	SE	1	0.000	10	8.400	20	16.300	30	23.200	1u 0.0	0.9990	
MEW619	SE	1	0.000	10	9.800	20	21.000	30	30.800	1u 0.0	0.9996	
MEW621	SE	10	1.500	10	9.800	20	18.900	30	29.700	1u 0.0	0.9982	

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STANDARD ADDITION RESULTS

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Concentration Units: ug/L

EPA Sample No.	An	Dil	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q
MEW623	SE	1	0.000	10	7.900	20	15.900	30	23.000	1u 0.0	0.9996	
MEW616	SE	1	0.000	10	9.200	20	18.100	30	27.300	1u 0.0	1.0000	
MEW617	TL	1	0.000	10	7.500	20	16.500	30	26.300	2u 0.0	0.9983	
MEW620	SE	1	0.000	10	9.900	20	21.100	30	30.300	1u 0.0	0.9994	
MEW615	SE	1	8.300	10	7.400	20	10.700	30	16.600	23.1	0.8791	+
MEW616	TL	1	0.000	10	8.300	20	17.400	30	27.000	2u 0.0	0.9995	
MEW622	SE	1	0.000	10	10.100	20	19.800	30	28.600	1u 0.0	0.9995	
MEW621	SE	1	0.000	10	1.600	20	4.800	30	7.400	1u 0.0	0.9925	+
MEW615	TL	1	0.000	10	8.900	20	19.700	30	28.800	2u 0.0	0.9993	
MEW623	TL	1	0.000	10	8.600	20	19.800	30	28.300	2u 0.0	0.9985	
MEW618	TL	1	0.000	10	10.700	20	21.100	30	32.800	2u 0.0	0.9997	
MEW621	TL	1	1.500	10	11.300	20	23.500	30	34.800	2u 0.0	0.9991	
MEW622	TL	1	0.000	10	5.200	20	12.100	30	19.100	2u 0.0	0.9977	
MEW619	TL	1	0.000	10	7.300	20	16.700	30	25.000	2u 0.0	0.9989	
MEW620	TL	1	0.000	10	6.700	20	15.600	30	24.600	2u 0.0	0.9978	
MEW617	SE	1	0.000	10	8.800	20	17.400	30	27.000	1u 0.0	0.9997	
MEW616S	TL	1	14.100	10	19.400	20	24.100	30	31.300	24.5	0.9957	
MEW615D	TL	1	0.000	10	9.300	20	18.900	30	28.100	2u 0.0	1.0000	
MEW615D	SE	1	0.000	10	4.900	20	10.200	30	16.500	1u 0.0	0.9983	

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ICP SERIAL DILUTIONS

EPA SAMPLE NO.

MEW623L

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	216		187	B	13.4		NR
Antimony							
Arsenic							
Barium	90.6		86.6	B	4.4		NR
Beryllium	2.0	U	10.0	U			NR
Cadmium							
Calcium	85470		85760		0.3		P
Chromium	4.0	U	20.0	U			NR
Cobalt	120		113		5.8		NR
Copper	10.0	U	50.0	U			NR
Iron	76780		77360		0.8		P
Lead							
Magnesium	26990		26860		0.5		P
Manganese	517		501		3.1		P
Mercury							
Nickel	342		327		4.4		NR
Potassium	1164	B	1115	B	4.2		NR
Selenium							
Silver	4.0	U	20.0	U			NR
Sodium	3600		6800	U	100		NR
Thallium							
Vanadium	4.0	U	20.0	U			NR
Zinc	477		486		1.9		P

U.S. EPA - CLP

10
HOLDING TIMES

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

EPA Sample No.	Matrix	Date Received	Mercury Prep Date	Mercury Holding Time	Cyanide Prep Date	Cyanide Holding Time
MEW615	Water	04/02/88	04/06/88	4	04/08/88	6
MEW615D	Water	04/02/88	04/06/88	4	04/08/88	6
MEW616	Water	04/02/88	04/06/88	4	04/08/88	6
MEW616A	Water	04/02/88	04/06/88	4	04/08/88	6
MEW616S	Water	04/02/88	04/06/88	4	04/08/88	6
MEW617	Water	04/02/88	04/06/88	4	04/08/88	6
MEW618	Water	04/02/88	04/06/88	4	04/08/88	6
MEW619	Water	04/02/88	04/06/88	4	04/08/88	6
MEW620	Water	04/02/88	04/06/88	4	04/08/88	6
MEW621	Water	04/02/88	04/06/88	4	04/08/88	6
MEW622	Water	04/02/88	04/06/88	4	04/08/88	6
MEW623	Water	04/02/88	04/06/88	4	04/08/88	6

U.S. EPA - CLP

11

INSTRUMENT DETECTION LIMITS (QUARTERLY)

00055

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

ICP ID Number: JA9000 Date: 01/26/88

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	237.31		100	25	P
Antimony			5		
Arsenic			5		
Barium	233.53		50	2.0	P
Beryllium	313.04		5	2.0	P
Cadmium			0.5		
Calcium	370.60		1000	81	P
Chromium	267.72		10	4.0	P
Cobalt	228.62		10	4.0	P
Copper	324.75		10	10	P
Iron	259.84		100	14	P
Lead	220.35		2	17	P
Magnesium	279.08		1000	81	P
Manganese	294.92		10	6.0	P
Mercury			0.2		
Nickel	231.60		20	10	P
Potassium	766.49		2000	95	P
Selenium			2		
Silver	328.07		5	4.0	P
Sodium	330.24		1000	1360	P
Thallium			2		
Vanadium	292.40		10	4.0	P
Zinc	213.80		20	3.0	P

Comments:
SPECTRO-PRODUCTS HG-3 SPECTROPHOTOMETER USED FOR MANUAL COLD VAPOR DETERMINATION

U.S. EPA - CLP

11

INSTRUMENT DETECTION LIMITS (QUARTERLY)

00056

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: mEW615

ICP ID Number: JA9000 Date: 01/26/88

Flame AA ID Number:

Furnace AA ID Number: PE2380

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			100		
Antimony			5		
Arsenic	193.70	BD	5	3.0	F
Barium			50		
Beryllium			5		
Cadmium	228.80	BD	0.5	0.1	F
Calcium			1000		
Chromium			10		
Cobalt			10		
Copper			10		
Iron			100		
Lead	283.30	BD	2	1.0	F
Magnesium			1000		
Manganese			10		
Mercury	253.70	BD	0.2	0.1	CV
Nickel			20		
Potassium			2000		
Selenium	196.03	BD	2	2.0	F
Silver			5		
Sodium			1000		
Thallium	276.80	BD	2	2.0	F
Vanadium			10		
Zinc			20		

Comments:
SPECTRO-PRODUCTS EG-3 SPECTROPHOTOMETER USED FOR MANUAL COLD VAPOR DETERMINATION

11
INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 9288 SAS No.: 3554E SDG No.: MEW615

ICP ID Number: JA9000 Date: 01/26/88

Flame AA ID Number:

Furnace AA ID Number: Z5000

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			100		
Antimony	217.80	BZ	5	2.0	F
Arsenic	193.70	BZ	5	1.0	F
Barium			50		
Beryllium			5		
Cadmium			0.5		
Calcium			1000		
Chromium			10		
Cobalt			10		
Copper			10		
Iron			100		
Lead			2		
Magnesium			1000		
Manganese			10		
Mercury			0.2		
Nickel			20		
Potassium			2000		
Selenium	196.03	BZ	2	1.0	F
Silver			5		
Sodium			1000		
Thallium			2		
Vanadium			10		
Zinc			20		

Comments:
SPECTRO-PRODUCTS HG-3 SPECTROPHOTOMETER USED FOR MANUAL COLD VAPOR DETERMINATION

SF 5011

In Reference to Case No(s): SAS 3727E

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Date of Call: 4/5/88

Laboratory Name: PBS&J

Lab Contact: Tom French

Region: V

Regional Contact: Jeb Livingood, Tony Nesky (SMO)

Call Initiated By: ✓ Laboratory ___ Region

In reference to data for the following sample number(s):

3727E-01

Summary of Questions/Issues Discussed:

Received eight containers for this sample #; 4 preserved, 4 unpreserved. How do we treat this as 12 total samples or 9, using the extra aliquots of 3727E-01 for QC volume(s)? Also, nine samples were received, instead of eight as listed on the SAS Solicitation.

Summary of Resolution:

Treat 3727E-01 as an individual sample, use extra volume provided for QC.

Tom French
Signature

4/6/88
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

In Reference to Case No(s):

SAS 3727E

QC 1

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Date of Call: 5.11.88

Laboratory Name: PBS & J

Lab Contact: Kimberly Kunihiro

Region: V

Regional Contact: Ada Lewin

Call Initiated By: ___ Laboratory ✓ Region

In reference to data for the following sample number(s):

E01-E09

Summary of Questions/Issues Discussed:

1 Acidity - why you did not add 5ml 0.2N H_2SO_4 to the sample (method 305.1)
2. Alkalinity - what was your lab blank volume (end) 25mls or 50mls
3 How did you count chart units for chloride NO_3-NO_2; sulfate

Summary of Resolution:

1. Lab found problems with adding 5ml H_2SO_4
2 will be corrected and sent to the Region
3 Reduced copy was sent

Ada Lewin
Signature

5.12.88
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

PQ-00043-02

MINNESOTA POLLUTION CONTROL AGENCY
SUPPLEMENTAL SHEET

ANALYTICAL DATA

Samples Collected By Abrams Report To CLARK

Field Number		130402 a	2 b	3 c	— d	— e
Sample Number						
Date Rec'd. By Lab		10-1-82				
Color	012					
Cobalt µg/l	136					
Boron	031					
Sodium	026					
Potassium	027					
Sulphate	028					
Fluoride	029					
Silver µg/l	185					
Silicate	030					
Barium µg/l	115					
Selenium µg/l	178			X <1.0		
Sulfide	086					
Threshold Odor No.	016					
Bicarbonate Alk. as $CaCO_3$	019					
M-O Alkalinity	022					
Tot. Diss. Solids	005					
Spec. Conductivity	014	X 470.				
C.O.D.	097	X 41.				
T.O.C.	098					
Aluminum µg/l	101					
+						
−						
% Bal.						

COMPLETED
APR 06 1983
ANALYTICAL SERVICES

RECEIVED
APR 8 1983
MINN. POLLUTION CONTROL AGENCY

Results are in milligrams per liter except as otherwise noted.

MINNESOTA POLLUTION CONTROL AGENCY

ANALYTICAL DATA

BILLING NO: PCA - 304

Samples Collected By Abrams Report To CLARK

Field Number		River, Town, Etc.	Sampling Point and Source of Sample
1	a	Hader Dump	Surface Water (Gravel Pit)
2	b	Hader Dump	" " " "
3	c	Hader Dump	" " " "
	d		
	e		

This line for Lab use only						
Sample Number		130402 a	1 b	c	d	e
Date Collected		9-30-82	9-30-82	9-30-82		
Time Collected		12:00	12:00	12:00		
Date Received by Lab		10-1-82				
Temperature, °C						
Dissolved Oxygen						
pH value, SU	013	X 7.7				
Total Residual Chlorine						
Fecal Coliform, MPN/100 ml	305					
Fecal Strep., No/100 ml	313					
Total Solids	001					
Suspended Solids	003					
Turbidity, NTU	011					
Calcium as CaCO3	251					
Magnesium as CaCO3	253					
Total Hardness as CaCO3	021					
Chloride as Cl	023	X 35.				
5-Day B.O.D.	096					
Nitrification Inhibited BOD5	083					
Total Phosphorus as P	059					
Orthophosphorus as P	063		X 0.018			
Organic Nitrogen as N	055					
Ammonia Nitrogen as N	064					
Nitrite + Nitrate Nitro.	069		X <0.01			
Nitrite Nitrogen as N	067					
METALS (µg/l) Arsenic as As	108			X 2.2		
Cadmium as Cd	*125/122			X 0.10		
Total Chromium as Cr	/129			X <0.5		
Hexavalent Chromium as Cr	034					
Copper as Cu	145/143					
Iron as Fe	152/150					
Lead as Pb	159/157			X 1.7		
Manganese as Mn	166/164					
Mercury as Hg	/200					
Nickel as Ni	173/171					
Zinc as Zn 207	194/192			X 390.		
Cyanide	086					
Phenol µg/l	085					
Oil and Grease	089					
Chlorophyll a, µg/l	450					
Kjeldahl Nitrogen	068					

*Flame/Furnace

Results are in mg/l except as otherwise noted

COMPLETED APR 06 1983 ANALYTICAL SERVICES

APR 8 1983 MINN. POLLUTION CONTROL AGENCY

PQ-00043-02

MINNESOTA POLLUTION CONTROL AGENCY
SUPPLEMENTAL SHEET
ANALYTICAL DATA

Samples Collected By Abrams Report To CLARK

Field Number		130402 a	2 b	3 c	— d	— e
Sample Number						
Date Rec'd. By Lab		10-1-82				
Color	012					
Cobalt µg/l	136					
Boron	031					
Sodium	026					
Potassium	027					
Sulphate	028					
Fluoride	029					
Silver µg/l	185					
Silicate	030					
Barium µg/l	115					
Selenium µg/l	178			X <1.0		
Sulfide	088					
Threshold Odor No.	016					
Bicarbonate Alk. as $CaCO_3$	019					
M-O Alkalinity	022					
Tot. Diss. Solids	005					
Spec. Conductivity	014	X 470.				
C.O.D.	097	X 41.				
T.O.C.	098					
Aluminum µg/l	101					
+						
-						
% Bal.						

COMPLETED
APR 06 1983
ANALYTICAL SERVICES

RECEIVED
APR 8 1983
MINN. POLLUTION CONTROL AGENCY

Results are in milligrams per liter except as otherwise noted.

MINNESOTA POLLUTION CONTROL AGENCY

ANALYTICAL DATA

BILLING NO: PCA - 30

Samples Collected By Abrams Report To CLARK

Field Number		River, Town, Etc.	Sampling Point and Source of Sample
1	a	Hader Dump	Surface Water (Gravel Pit)
2	b	Hader Dump	" " " "
3	c	Hader Dump	" " " "
	d		
	e		

This line for Lab use only Sample Number		150402 a	b	c	d	e
Date Collected		9-30-82	9-30-82	9-30-82		
Time Collected		12:00	12:00	12:00		
Date Received by Lab		10-1-82				
Temperature, °C						
Dissolved Oxygen						
pH value, SU	013	X 7.7				
Total Residual Chlorine						
Fecal Coliform, MPN/100 ml	305					
Fecal Strep., No/100 ml	313					
Total Solids	001					
Suspended Solids	003					
Turbidity, NTU	011					
Calcium as CaCO3	251					
Magnesium as CaCO3	253					
Total Hardness as CaCO3	021					
Chloride as Cl	023	X 35.				
5-Day B.O.D.	096					
Nitrification Inhibited BOD5	083					
Total Phosphorus as P	059					
Orthophosphorus as P	063		X 0.018			
Organic Nitrogen as N	065					
Ammonia Nitrogen as N	064					
Nitrite + Nitrate Nitro.	069		X <0.01			
Nitrite Nitrogen as N	067					
METALS (µg/l) Arsenic as As	108			X 2.2		
Cadmium as Cd	*125/122			X 0.10		
Total Chromium as Cr	/129			X <0.5		
Hexavalent Chromium as Cr	034					
Copper as Cu	145/143					
Iron as Fe	152/150					
Lead as Pb	159/157			X 1.7		
Manganese as Mn	166/164					
Mercury as Hg	/200					
Nickel as Ni	173/171					
Zinc as Zn 207	194/192			X 390.		
Cyanide	086					
Phenol µg/l	085					
Oil and Grease	089					
Chlorophyll a, µg/l	450					
Kjeldahl Nitrogen	068					

*Flame/Furnace

Results are in mg/l except as otherwise noted.

COMPLETED APR 06 1983 ANALYTICAL SERVICES

APR 8 1983 MINN. POLLUTION CONTROL AGENCY

PQ-00043-02

MINNESOTA POLLUTION CONTROL AGENCY
SUPPLEMENTAL SHEET
ANALYTICAL DATA

Samples Collected By Abrams Report To CLARK

Field Number		130402 a	2 b	3 c	— d	— e
Sample Number						
Date Rec'd. By Lab		10-1-82				
Color	012					
Cobalt µg/l	136					
Boron	031					
Sodium	026					
Potassium	027					
Sulphate	028					
Fluoride	029					
Silver µg/l	185					
Silicate	030					
Barium µg/l	115					
Selenium µg/l	178			X <1.0		
Sulfide	086					
Threshold Odor No.	016					
Bicarbonate Alk. as $CaCO_3$	019					
M-O Alkalinity	022					
Tot. Diss. Solids	005					
Spec. Conductivity	014	X 470.				
C.O.D.	097	X 41.				
T.O.C.	098					
Aluminum µg/l	101					
+						
−						
% Bal.						

COMPLETED
APR 06 1983
ANALYTICAL SERVICES

APR 8 1983
MINN. POLLUTION CONTROL AGENCY

Results are in milligrams per liter except as otherwise noted.

COUNTY	AQUIFER	STATION NUMBER	OWNER, ETC.	CALENDAR YEAR SAMPLED
Faribault	PDCJ	0327	City of Wells, Well #2	1982
Fillmore	PDCJ	0018	Arlin Arneson	1978, 1979, 1984
	STPR	0019	Verlyn Dornink	1978, 1979
	PDCJ	0020	Percy Steffensrud (inactive)	1978
	CVMDG	0021	Edwin Hendrickson (inactive)	1978, 1979
	STPR	0022	Ole Brokken (inactive)	1978
	PDCJ	0025	Wayne & Sue Kester	1978, 1979
	CVMDG	0089	Freheit Spring	1978, 1979
	CVMDG	0090	Stagecoach Spring	1978, 1979
	CVMDG	0091	Cold Spring	1978, 1979
	CVMDG	0092	Seven Springs	1978, 1979
	CVMDG	0093	Big Spring	1978, 1979
	CVMDG	0094	Unnamed Spring	1978, 1979
	CVMDG	0095	Moth Spring	1978, 1979
	CVMDG	0096	Root Spring	1978, 1979
	CVMDG	0097	Koebke Farm Spring	1978, 1979
	CVMDG	0098	Abandoned Farm Spring	1978, 1979
	CVMDG	0099	Crystal Spring	1978, 1979
	CVMDG	0100	Trout (Big) Spring	1978, 1979
	CVMDG	0101	Black Rock Spring	1978, 1979
	PDCJ	0168	Craig & Pam Mensink	1979, 1984
	PDCJ	0233	Irene Weber	1980
	CVMDG	0234	Robert Koliha	1980
	CVMDG	0328	Bruce Dornink Farm	1982
	PDCJ	0329	City of Harmony, Well #2	1982
Freeborn	CVMDG	0388	Eugene Anderson Farm	1983
Goodhue	MSHK	0027	City of Red Wing, Well #7	1978, 1983
	MSHK	0028	City of Red Wing, Well #1 W.	1978, 1983
	MSHK	0029	City of Red Wing Well #1 E.	1978, 1983
	MSHK	0030	City of Red Wing 5th Street Station, Well #2	1978, 1983
	MSHK	0031	City of Red Wing, Well #3	1978, 1983

MAn

COUNTY	AQUIFER	STATION NUMBER	OWNER, ETC.	CALENDAR YEAR SAMPLED
			(inactive)	
	MSHK	0032	Archer Daniels Midland Company (inactive)	1978
	FIGV	0033	Central Research, Inc., Sargent Industries	1978, 1983
	MSHK	0034	S. B. Foot Company, Well #1	1978, 1983
	MSHK	0035	S. B. Foot Company, Well #2	1978, 1983
	MSHK	0036	S. B. Foot Company, Well #3	1978, 1983
	MSHK	0037	S. B. Foot Company, Well #4 (inactive)	1978
	MSHK	0038	S. B. Foot Company, Well #5	1978, 1983
	MSHK	0039	Royce Benson Residence	1978, 1983
	PDCJ	0132	Max Banks Farm	1978, 1983
	X PDCJ	0137	W. P. Hovide Farm	1978, 1983
	X PDCJ	0138	Frank Peterson Farm	1978, 1983
	X CVMDG	0139	Daryl Smith Farm (inactive)	1978
	UNK	0154	Fleishmann Malting Co. NE Well (inactive)	1979
	X PDCJ	0351	Richard Olson Farm	1982
Grant	BRDO	0381	Bill Marth Farm	1983
Hennepin	BRDO	0057	Don Des Lauries Residence	1978, 1979, 1981, 1984
	FIGV	0058	City of Rogers, Well #1	1978, 1979, 1984
	STPR	0059	Mary Nielson Residence	1978, 1983
	OTSH	0060	Ken Brown Residence	1978, 1981, 1984
	STPR	0061	Team Electronics, Well #5 (inactive)	1978
	MSHK	0062	City of Edina, Well #9	1978, 1983
	OTSH	0063	Gopher Bumper Exchange (inactive)	1978
	FIGV	0064	Metro Sports Stadium (inactive)	1978

GENERAL HIGHWAY MAP

GOODHUE COUNTY MINNESOTA

PREPARED BY THE
MINNESOTA DEPARTMENT OF TRANSPORTATION
TECHNICAL SERVICES DIVISION
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALE OF STATUTE MILES

SOUTHWEST PART

STORET RETRIEVAL DATE 85/05/07

/TYPA/AMBNT/WELL

442003092423401 1101614BBDD1 144668 GWQ0137
44 20 12.1 092 42 21.6 2
AQF: PRAIRIE OU CHIEN 367PRDC
27049 MINNESOTA GOODHUE
MAJOR BASIN: UPPER MISS 070641
MINOR BASIN: LOWER UPPER MISS RIVER
21MINNG 790122 07040004
0000 FEET DEPTH CSN-RSP 0493202-0870973

DESCRIPTION

STATION ESTABLISHED BY THE MINNESOTA POLLUTION CONTROL AGENCY IN 1978

AS PART OF A GROUND WATER QUALITY MONITORING PROGRAM.

non responsive

[redacted]

SAMPLING POINT: OUTSIDE FAUCET ON SOUTH SIDE OF HOUSE.

WELL DATA(OWNERSHIP): PRIVATE WELL USE: WITHDRAW YEAR CONSTR: 1977

DEPTH FT: 200 LAND SURF DATUM FT: 1030 WATER USE: DOMESTIC

CASING(FT CASED): 131 DIAM INCHES: 4 MATERIAL: STEEL

OBSERVATIONS: WATER APPEARANCE SLIGHTLY CLOUDY 831006. WELL LOG AVAILABLE.

QUAD: ZUMBROTA 7.5'

DATE FROM TO	TIME OF DAY	DEPTH FEET	84002 CODE GENERAL REMARKS	00008 LAB IDENT. NUMBER	00010 WATER TEMP CENT	00136 SAMPLE TEMP AT LAB DEGC	00400 PH SU	00403 LAB PH SU	00094 CNDUCTVY FIELD MICROMHO	00095 CNDUCTVY AT 25C MICROMHO	00431 T ALK FIELD MG/L	00410 T ALK CACO3 MG/L
78/10/25	15 30		RDM1		9.5		7.50	7.6	493	500	270	260
83/10/06	08 55		RDM1	125715	9.5	2.00000	6.80	7.6	464		252	250
	09 00		ORG	125716								

STORET RETRIEVAL DATE 85/05/07

442003092423401 1101614BBDD1 144668 GWO0137
44 20 12.1 092 42 21.6 2
AQF: PRAIRIE DU CHIEN 367PRDC
27049 MINNESOTA GOODHUE
MAJOR BASIN: UPPER MISS 070641
MINOR BASIN: LOWER UPPER MISS RIVER
21MINNG. 790122 07040004
0000 FEET DEPTH CSN-RSP 0493202-0870973

/TYPA/AMBNT/WELL

DATE FROM TO	TIME OF DAY	DEPTH FEET	00425 HCO3 ALK CACO3 MG/L	00900 TOT HARD CACO3 MG/L	00940 CHLORIDE TOTAL MG/L	00945 SULFATE SO4-TOT MG/L	00929 SODIUM NA,TOT MG/L	00937 PTSSIUM K,TOT MG/L	00951 FLUORIDE F,TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00665 PHOS-TOT MG/L P
78/10/25	15 30		260	270	0.5K					0.170	0.04	0.001K
83/10/06	08 55		250	260	1	16	2.30	1.30			0.01	

DATE FROM TO	TIME OF DAY	DEPTH FEET	00680 T ORG C C MG/L	00340 COD HI LEVEL MG/L	32730 PHENOLS TOTAL UG/L	31505 TOT COLI MPN CONF /100ML	31615 FEC COLI MPNECMED /100ML	31679 FECSTREP MF M-ENT /100ML	00500 RESIDUE TOTAL MG/L	00505 RESIDUE TOT VOL MG/L	70300 RESIDUE DISS-180 C MG/L	01002 ARSENIC AS,TOT UG/L
78/10/25	15 30		1.0K			2	2K			47	270	
83/10/06	08 55		1.0K			2K						

DATE FROM TO	TIME OF DAY	DEPTH FEET	01007 BARIUM BA,TOT UG/L	01022 BORON B,TOT UG/L	01027 CADMIUM CD,TOT UG/L	00910 CALCIUM CACO3 MG/L	01034 CHROMIUM CR,TOT UG/L	01042 COPPER CU,TOT UG/L	01045 IRON FE,TOT UG/L	01051 LEAD PB TOT UG/L	00920 MGNSIUM CACO3 MG/L	01055 MANGNESE MN UG/L
78/10/25	15 30				0.03	180.0	0.5K		220	2	94.0	50.0
83/10/06	08 55					170.0			300		90 0	30.0

DATE FROM TO	TIME OF DAY	DEPTH FEET	71900 MERCURY HG,TOTAL UG/L	01067 NICKEL NI,TOTAL UG/L	01147 SELENIUM SE,TOT UG/L	00956 SILICA TOTAL MG/L	01092 ZINC ZN,TOT UG/L
78/10/25	15 30		0.4	5			240

STORET RETRIEVAL DATE 85/05/07

/TYPA/AMBNT/WELL

441858093001801 1101820DCAA1 144664 GWQ0138
44 18 57.9 093 00 18.7 2
AQF: PRAIRIE DU CHIEN 367PRDC
27049 MINNESOTA GOODHUE
MAJOR BASIN: UPPER MISS 070639
MINOR BASIN: LOWER UPPER MISS RIVER
21MINNG 790122 07040002
0000 FEET DEPTH CSN-RSP 0493201-0870972

DESCRIPTION

STATION ESTABLISHED BY THE MINNESOTA POLLUTION CONTROL AGENCY IN 1978
AS PART OF A GROUND WATER QUALITY MONITORING PROGRAM.

non responsive

[redacted]

WELL LOCATED EAST OF HOUSE, NEAR WINDMILL; SAMPLED AT HYDRANT NEAR WELL
WELL DATA(OWNERSHIP): PRIVATE WELL USE: WITHDRAW YEAR CONSTR: 1977
DEPTH FT: 357 LAND SURF DATUM FT: 1190 WATER USE: DOMESTIC
CASING(FT CASED): 309 DIAM INCHES: 4 MATERIAL: STEEL
OBSERVATIONS: SEE GROUND WATER MONITORING PHOTO LOG FOR THE EXACT SITE
LOCATION. WELL LOG AVAILABLE. SLIGHT IRON ODOR.
QUAD: NERSTRAND 7.5'

DATE FROM TO	TIME OF DAY	DEPTH FEET	84002 CODE GENERAL REMARKS	00008 LAB IDENT. NUMBER	00010 WATER TEMP CENT	00136 SAMPLE TEMP AT LAB DEGC	00400 PH SU	00403 LAB PH SU	00094 CNDUCTVY FIELD MICROMHO	00095 CNDUCTVY AT 25C MICROMHO	00431 T ALK FIELD MG/L	00410 T ALK CACO3 MG/L
78/10/26	11 10		RDM1		9.8		7.30	7.4	491	540	260	230
83/10/26	14 00		RDM1	125748	10.0	2.50000	7.10	7.6	458		224	220
	14 05		ORG	125750								

STORET RETRIEVAL DATE 85/05/07

441858093001801 1101820DCAA1 144664 GWQ0138
44 18 57.9 093 00 18.7 2
AQF: PRAIRIE DU CHIEN 367PRDC
27049 MINNESOTA GOODHUE
MAJOR BASIN: UPPER MISS 070639
MINOR BASIN: LOWER UPPER MISS RIVER
21MINNG 790122 07040002
0000 FEET DEPTH CSN-RSP 0493201-0870972

/TYPA/AMBNT/WELL

DATE FROM TO	TIME OF DAY	DEPTH FEET	00425 HCO3 ALK CACO3 MG/L	00900 TOT HARD CACO3 MG/L	00940 CHLORIDE TOTAL MG/L	00945 SULFATE SO4-TOT MG/L	00929 SODIUM NA,TOT MG/L	00937 PTSSIUM K,TOT MG/L	00951 FLUORIDE F,TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00665 PHOS-TOT MG/L P
78/10/26	11 10		230	270	0.5K					0.800	0.06	0.033
83/10/26	14 00		220	236	1	45	6.10	2.20			0.01K	

DATE FROM TO	TIME OF DAY	DEPTH FEET T	00680 ORG C C MG/L	00340 COD HI LEVEL MG/L	32730 PHENOLS TOTAL UG/L	31505 TOT COLI MPN CONF /100ML	31615 FEC COLI MPNECMED /100ML	31679 FECSTREP MF M-ENT /100ML	00500 RESIDUE TOTAL MG/L	00505 RESIDUE TOT VOL MG/L	70300 RESIDUE DISS-180 C MG/L	01002 ARSENIC AS,TOT UG/L
78/10/26	11 10		2.0			2K	2K			48	290	
83/10/26	14 00		1.0K			2K						

DATE FROM TO	TIME OF DAY	DEPTH FEET	01007 BARIUM BA,TOT UG/L	01022 BORON B,TOT UG/L	01027 CADMIUM CD,TOT UG/L	00910 CALCIUM CACO3 MG/L	01034 CHROMIUM CR,TOT UG/L	01042 COPPER CU,TOT UG/L	01045 IRON FE,TOT UG/L	01051 LEAD PB,TOT UG/L	00920 MGNSIUM CACO3 MG/L	01055 MANGNESE MN UG/L
78/10/26	11 10				0.1	180.0	1		470	1	88.0	40.0
83/10/26	14 00					150.0			1100		88.0	20.0

DATE FROM TO	TIME OF DAY	DEPTH FEET	71900 MERCURY HG,TOTAL UG/L	01067 NICKEL NI,TOTAL UG/L	01147 SELENIUM SE,TOT UG/L	00956 SILICA TOTAL MG/L	01092 ZINC ZN,TOT UG/L
78/10/26	11 10		0.4	1K			140

STORET RETRIEVAL DATE 85/05/07

/TYPA/AMBNT/WELL

442216092540601 1111731DCD01 144691 GWQ0139
44 22 16.0 092 54 06.0 2
AQF: GALENA DOLOMITE 364GLEN
27049 MINNESOTA GOODHUE
MAJOR BASIN: UPPER MISS 070600
MINOR BASIN: LOWER UPPER MISSISSIPPI
21MINNG 790119 07040002
0000 FEET DEPTH CSN-RSP 0492937-0870977

DESCRIPTION

STATION ESTABLISHED BY THE MINNESOTA POLLUTION CONTROL AGENCY IN 1978

AS PART OF A GROUND WATER MONITORING PROGRAM

non responsive

[redacted]

WELL DATA - OWNERSHIP: PRIVATE WELL USE: WITHDRAW YEAR CONSTR: 1977

DEPTH FT: 0120 LAND SURF.DATUM FT: 1165 WATER USE: DOMESTIC

CASING - FEET CASED: 055 DIAM INCHES: 004 MATERIAL: STEEL

OBSERVATIONS -

DATE FROM TO	TIME OF DAY	DEPTH FEET	84002 CODE GENERAL REMARKS	00008 LAB IDENT. NUMBER	00010 WATER TEMP CENT	00136 SAMPLE TEMP AT LAB DEGC	00400 PH SU	00403 LAB PH SU	00094 CNDUCTVY FIELD MICROMHO	00095 CNDUCTVY AT 25C MICROMHO	00431 T ALK FIELD MG/L	00410 T ALK CACO3 MG/L
78/10/26	13 30		RDM1		9.3		7.50	7.5	729	450	302	290
83/10/26	11 55		ORG	125751								

STORET RETRIEVAL DATE 85/05/07

442216092540601 1111731DCD01 144691 GW00139
44 22 16.0 092 54 06.0 2
AQF: GALENA DOLOMITE 364GLEN
27049 MINNESOTA GOODHUE
MAJOR BASIN: UPPER MISS 070600
MINOR BASIN: LOWER UPPER MISSISSIPPI
21MINNG 790119 07040002
0000 FEET DEPTH CSN-RSP 0492937-0870977

/TYPA/AMBNT/WELL

DATE FROM TO	TIME OF DAY	DEPTH FEET	00425 HCO3 ALK CACO3 MG/L	00900 TOT HARD CACO3 MG/L	00940 CHLORIDE TOTAL MG/L	00945 SULFATE SO4-TOT MG/L	00929 SODIUM NA,TOT MG/L	00937 PTSSIUM K,TOT MG/L	00951 FLUORIDE F,TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00665 PHOS-TOT MG/L P
78/10/26	13 30		290	370	21					0.110	8.50	0.043

DATE FROM TO	TIME OF DAY	DEPTH FEET	00680 T ORG C C MG/L	00340 COD HI LEVEL MG/L	32730 PHENOLS TOTAL UG/L	31505 TOT COLI MPN CONF /100ML	31615 FEC COLI MPNECMED /100ML	31679 FECSTREP MF M-ENT /100ML	00500 RESIDUE TOTAL MG/L	00505 RESIDUE TOT VOL MG/L	70300 RESIDUE DISS-180 C MG/L	01002 ARSENIC AS,TOT UG/L
78/10/26	13 30		1.2			2K	2K			160	420	

DATE FROM TO	TIME OF DAY	DEPTH FEET	01007 BARIUM BA,TOT UG/L	01022 BORON B,TOT UG/L	01027 CADMIUM CD,TOT UG/L	00910 CALCIUM CACO3 MG/L	01034 CHROMIUM CR,TOT UG/L	01042 COPPER CU,TOT UG/L	01045 IRON FE,TOT UG/L	01051 LEAD PB,TOT UG/L	00920 MGNSIUM CACO3 MG/L	01055 MANGNESE MN UG/L
78/10/26	13 30				0.03	240.0	2		50K	1	130.0	20.0

DATE FROM TO	TIME OF DAY	DEPTH FEET	71900 MERCURY HG,TOTAL UG/L	01067 NICKEL NI,TOTAL UG/L	01147 SELENIUM SE,TOT UG/L	00956 SILICA TOTAL MG/L	01092 ZINC ZN,TOT UG/L
78/10/26	13 30		0.4	1K			24

STORET RETRIEVAL DATE 85/05/07

/TYPA/AMBNT/WELL

442128092570701 1101802CDCA1 144680 GWQ0351
44 21 28.0 092 57 07.0 2
AQF: PRAIRIE DU CHIEN 367PRDC
27049 MINNESOTA GOODHUE
MAJOR BASIN: UPPER MISS 070639
MINOR BASIN: LOWER UPPER MISS RIVER
21MINNG 821211
0000 FEET DEPTH CSN-RSP 0673631-0870976

DESCRIPTION

STATION ESTABLISHED BY THE MINNESOTA POLLUTION CONTROL AGENCY IN 1982 AS PART OF A GROUND WATER QUALITY MONITORING PROGRAM.

non responsive

[redacted]

WELL DATA(OWNERSHIP): PRIVATE WELL USE: WITHDRAW YEAR CONSTR: 1977

DEPTH FT: 260 LAND SURF DATUM FT: 1090 WATER USE: DOMESTIC

CASING(FT CASED): 227 DIAM INCHES: 4 MATERIAL: STEEL

OBSERVATIONS: SEE GROUND WATER MONITORING PHOTO LOG FOR THE EXACT SITE LOCATION. WELL LOG AVAILABLE.

QUAD: KENYON 7.5'

DATE FROM TO	TIME OF DAY	DEPTH FEET	84002 CODE GENERAL REMARKS	00008 LAB IDENT. NUMBER	00010 WATER TEMP CENT	00136 SAMPLE TEMP AT LAB DEGC	00400 PH SU	00403 LAB PH SU	00094 CNDUCTVY FIELD MICROMHO	00095 CNDUCTVY AT 25C MICROMHO	00431 T ALK FIELD MG/L	00410 T ALK CACO3 MG/L
82/06/29	11 20		RDM1	125472	9.5	5.00000	7.10	7.3	507	450	252	260
82/10/14	14 10		RDM1	125497	9.5	4.00000			522			

STORET RETRIEVAL DATE 85/05/07

442128092570701 1101802CDCA1 144680 GWQ0351
44 21 28.0 092 57 07.0 2
AQF: PRAIRIE DU CHIEN 367PRDC
27049 MINNESOTA GOODHUE
MAJOR BASIN: UPPER MISS 070639
MINOR BASIN: LOWER UPPER MISS RIVER
21MINNG 821211
0000 FEET DEPTH CSN-RSP 0673631-0870976

/TYPA/AMBNT/WELL

DATE FROM TO	TIME OF DAY	DEPTH FEET	00425 HCO3 ALK CACO3 MG/L	00900 TOT HARD CACO3 MG/L	00940 CHLORIDE TOTAL MG/L	00945 SULFATE SO4-TOT MG/L	00929 SODIUM NA,TOT MG/L	00937 PTSSIUM K,TOT MG/L	00951 FLUORIDE F,TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00665 PHOS-TOT MG/L P
82/06/29	11 20		260	270	1	42	5.50	2.40	0.32	0.540	0.01K	0.005K

DATE FROM TO	TIME OF DAY	DEPTH FEET	00680 T ORG C C MG/L	00340 COD HI LEVEL MG/L	32730 PHENOLS TOTAL UG/L	31505 TOT COLI MPN CONF /100ML	31615 FEC COLI MPNECMED /100ML	31679 FECSTREP MF M-ENT /100ML	00500 RESIDUE TOTAL MG/L	00505 RESIDUE TOT VOL MG/L	70300 RESIDUE DISS-180 C MG/L	01002 ARSENIC AS,TOT UG/L
82/06/29	11 20		1.0K	6	2K	24000L				120	310	1K
82/10/14	14 10					2K	2K	2K				

DATE FROM TO	TIME OF DAY	DEPTH FEET	01007 BARIUM BA,TOT UG/L	01022 BORON B,TOT UG/L	01027 CADMIUM CD,TOT UG/L	00910 CALCIUM CACO3 MG/L	01034 CHROMIUM CR,TOT UG/L	01042 COPPER CU,TOT UG/L	01045 IRON FE,TOT UG/L	01051 LEAD PB,TOT UG/L	00920 MGNSIUM CACO3 MG/L	01055 MANGNESE MN UG/L
82/06/29	11 20		63	120	0.01	170.0	0.5K	1	620	0 2K	95.0	20.0K

DATE FROM TO	TIME OF DAY	DEPTH FEET	71900 MERCURY HG,TOTAL UG/L	01067 NICKEL NI,TOTAL UG/L	01147 SELENIUM SE,TOT UG/L	00956 SILICA TOTAL MG/L	01092 ZINC ZN,TOT UG/L
82/06/29	11 20		0.1K	1K	1K	9.8	70

STORET RETRIEVAL DATE 85/05/07

/TYPA/MUN/INTAKE/AMBNT/WELL

440400092451601 1071616CCDC1 215847 GWQ0026
44 03 59.0 092 45 15.8 2
AQF: ST. PETER SANDSTONE 364STPR
27039 MINNESOTA DODGE
MAJOR BASIN: UPPER MISS 070341
MINOR BASIN: LOWER UPPER MISS RIVER
21MINNG 780816 07040004
0000 FEET DEPTH CSN-RSP 0475368-0870954

DESCRIPTION

STATION ESTABLISHED BY THE MINNESOTA POLLUTION CONTROL AGENCY IN 1978
AS PART OF A GROUND WATER QUALITY MONITORING PROGRAM.

non responsive

[redacted]

STATION; SAMPLED FROM INSIDE FAUCET ON E END OF BUILDING.

WELL DATA(OWNERSHIP): CITY WELL USE: WITHDRAW YEAR CONSTR: 1959

DEPTH FT: 181 LAND SURF DATUM FT: 1125 WATER USE: PS STANDBY, FIRE

CASING(FT CASED): 155 DIAM INCHES: 8 MATERIAL: STEEL

OBSERVATIONS: SEE GROUND WATER MONITORING PHOTO LOG FOR THE EXACT SITE
LOCATION. PARTIAL WELL LOG AVAILABLE. SLIGHT IRON ODOR 831006.

QUAD: DODGE CENTER 7.5'

DATE FROM TO	TIME OF DAY	DEPTH FEET	84002 CODE GENERAL REMARKS	00008 LAB IDENT. NUMBER	00010 WATER TEMP CENT	00136 SAMPLE TEMP AT LAB DEGC	00400 PH SU	00403 LAB PH SU	00094 CNDUCTVY FIELD MICROMHO	00095 CNDUCTVY AT 25C MICROMHO	00431 T ALK FIELD MG/L	00410 T ALK CACO3 MG/L
78/03/23	14 00		RDM1		9.7		7.10	7.5	591	600		290
83/10/06	13 50		RDM1	125714	10.5	2.00000	6.70	7.3	564		280	280
83/10/27	16 20		RDM1	125754		1.50000						
84/01/26	13 55		ORG	36424								

STORET RETRIEVAL DATE 85/05/07

440400092451601 1071616CCDC1 215847 GWQ0026
44 03 59.0 092 45 15.8 2
AQF: ST. PETER SANDSTONE 364STPR
27039 MINNESOTA DODGE
MAJOR BASIN: UPPER MISS 070341
MINOR BASIN: LOWER UPPER MISS RIVER
21MINNG 780816 07040004
0000 FEET DEPTH CSN-RSP 0475368-0870954

/TYPA/MUN/INTAKE/AMBNT/WELL

DATE FROM TO	TIME OF DAY	DEPTH FEET	00425 HCO3 ALK CACO3 MG/L	00900 TOT HARD CACO3 MG/L	00940 CHLORIDE TOTAL MG/L	00945 SULFATE SO4-TOT MG/L	00929 SODIUM NA,TOT MG/L	00937 PTSSIUM K,TOT MG/L	00951 FLUORIDE F,TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00665 PHOS-TOT MG/L P
78/03/23	14 00		290	310	1					0.300K	0.02	0.004
83/10/06	13 50		280	320	0.5K	47	4.00	2.30			0.01K	

DATE FROM TO	TIME OF DAY	DEPTH FEET	00680 T ORG C C MG/L	00340 COD HI LEVEL MG/L	32730 PHENOLS TOTAL UG/L	31505 TOT COLI MPN CONF /100ML	31615 FEC COLI MPNECMED /100ML	31679 FECSTREP MF M-ENT /100ML	00500 RESIDUE TOTAL MG/L	00505 RESIDUE TOT VOL MG/L	70300 RESIDUE DISS-180 C MG/L	01002 ARSENIC AS,TOT UG/L
78/03/23	14 00		1.0K			2K	2K	9K		120	350	
83/10/06	13 50		1.3			2						
83/10/27	16 20					2K						

DATE FROM TO	TIME OF DAY	DEPTH FEET	01007 BARIUM BA,TOT UG/L	01022 BORON B,TOT UG/L	01027 CADMIUM CD,TOT UG/L	00910 CALCIUM CACO3 MG/L	01034 CHROMIUM CR,TOT UG/L	01042 COPPER CU,TOT UG/L	01045 IRON FE,TOT UG/L	01051 LEAD PB,TOT UG/L	00920 MGNSIUM CACO3 MG/L	01055 MANGNESE MN UG/L
78/03/23	14 00				0.02	200.0	1		450	1	110.0	54.0
83/10/06	13 50					210.0			1300		110.0	50.0

DATE FROM TO	TIME OF DAY	DEPTH FEET	71900 MERCURY HG,TOTAL UG/L	01067 NICKEL NI,TOTAL UG/L	01147 SELENIUM SE,TOT UG/L	00956 SILICA TOTAL MG/L	01092 ZINC ZN,TOT UG/L
78/03/23	14 00		0.1K	2K			45

STORET RETRIEVAL DATE 79/07/18
MINNESOTA POLLUTION CONTROL AGENCY
GROUNDWATER MONITORING PROGRAM DATA - 1978

/TYPA/IND/INTAKE/AMBNT/WELL

443333092340101 1131525CDC01 216024 GWQ0037
44 33 33.0 092 34 01.0 2
AQF: MT SIMON SS 371MSMN
27049 GOODHUE CO MN
MAJOR BASIN: UPPER MISS 070600
MINOR BASIN: LOWER UPPER MISSISSIPPI
21MINNG 790125
0000 FEET DEPTH CLASS 00

DESCRIPTION

STATION ESTABLISHED BY THE MINNESOTA POLLUTION CONTROL AGENCY IN 1978

AS PART OF A GROUND WATER MONITORING PROGRAM

non responsive

[redacted]

OFFICE. SAMPLED AT THE DRAIN COCK AT THE BASE OF THE PRESSURE TANK.

WELL DATA - OWNERSHIP: COMPANY WELL USE: WITHDRAW YEAR CONSTR: 1963

DEPTH FT:0500 LAND SURF.DATUM FT: 0760 WATER USE: INDUSTRIAL

CASING - FEET CASED: DIAM INCHES: 006 MATERIAL: STEEL

OBSERVATIONS -

STORET RETRIEVAL DATE 79/10/09
MINNESOTA POLLUTION CONTROL AGENCY
GROUNDWATER MONITORING PROGRAM DATA - 1978

443333092340101 1131525CDC01 216024 GW00037
44 33 33.0 092 34 01.0 2
AQF: MT SIMON SS 371MSMN
27049 GOODHUE CO MN
MAJOR BASIN: UPPER MISS 070600
MINOR BASIN: LOWER UPPER MISSISSIPPI
21MINNG 790125
0000 FEET DEPTH CLASS 00

/TYPA/IND/INTAKE/AMBNT/WELL

DATE FROM TO	TIME OF DAY	DEPTH FEET	84002 CODE GENERAL REMARKS	00010 WATER TEMP CENT	00400 PH SU	00403 LAB PH SU	00094 CNDUCTVY FIELD MICROMHO	00095 CNDUCTVY AT 25C MICROMHO	00425 HCO3 ALK CACO3 MG/L	00080 COLOR PT-CO UNITS	00680 T ORG C C MG/L	38260 MBAS MG/L
78/04/12	10 50		RDM1	10.8	7.10	7.4	[redacted]	740	260	15	1.3	0.10K

DATE FROM TO	TIME OF DAY	DEPTH FEET	31505 TOT COLI MPN CONF /100ML	31615 FEC COLI MPNECMED /100ML	31679 FECSTREP MF M-ENT /100ML	00900 TOT HARD CACO3 MG/L	00431 T ALK FIELD MG/L	00410 T ALK CACO3 MG/L	00940 CHLORIDE CL MG/L	00946 SULFATE SO4-DISS MG/L	00930 SODIUM NA,DISS MG/L	00935 PTSSIUM K,DISS MG/L
78/04/12	10 50		2K	2K	9K	320		260	63	90.0	44.00	6.60

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00615 NO2-N TOTAL MG/L	00625 TOT KJEL N MG/L	00665 PHOS-TOT MG/L P	00505 RESIDUE TOT VOL MG/L	70300 RESIDUE DISS-180 C MG/L	00910 CALCIUM CACO3 MG/L	00915 CALCIUM AS CACO3 DIS MG/L	00950 FLUORIDE F,DISS MG/L	01020 BORON B,DISS UG/L
78/04/12	10 50		0.03	0.010	0.340	0.004	150	440	190.0	170.0	0.19	120

DATE FROM TO	TIME OF DAY	DEPTH FEET	00920 MGNSIUM CACO3 MG/L	00925 MGNSIUM AS CACO3 DIS MG/L	00955 SILICA DISOLVED MG/L	01051 LEAD PB,TOT UG/L	01092 ZINC ZN,TOT UG/L	01067 NICKEL NI,TOTAL UG/L	01027 CADMIUM CD,TOT UG/L	71900 MERCURY HG,TOTAL UG/L	01034 CHROMIUM CR,TOT UG/L	01055 MANGNESE MN UG/L
78/04/12	10 50		130.0	130.0	23.0	2	54	5K	0.01K	0.1K	0.1K	39.0

DATE FROM TO	TIME OF DAY	DEPTH FEET	01045 IRON FE,TOT UG/L	32730 PHENOLS TOTAL UG/L	39400 TOXAPHEN TOTUG/L	39760 SILVEX WHL SMPL UG/L	39370 DDT WHL SMPL UG/L	39730 2,4-D WHL SMPL UG/L	39740 2,4,5-T WHL SMPL UG/L	39350 CHLRDANE TECH&MET TOT UG/L	00310 BOD 5 DAY MG/L	00061 STREAM FLOW, INST-CFS
78/04/12	10 50		[redacted]									

IMMEDIATE REMOVAL ACTION CHECK SHEET

	High	Moderate	Low
Fire and Explosion Hazard			
Flammable Materials			X
Explosives			X
Incompatible Chemicals			X
Direct Contact With Acutely Toxic Chemicals			
Site Security			X
Leaking Drums or Tanks			X
Open Lagoons or Pits			X
Materials on Surface			X
Proximity of Population			X
Evidence of Casual Site Use			X
Contaminated Water Supply			
Exceeds 10 Day Snarl			X
Gross Taste or Odors			X
Alternate Water Available			X
Potential Contamination			X
Is the site abandoned, active, or inactive?			

Comments:

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	MND981961865

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
HADER DUMP	NE CORNER HWY 52 and COUNTY RD 8				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
HADER	MN	55992	GOODHUE	049	01

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
44 22 15.0	092 18 35.1	☒ A. PRIVATE ☐ B. FEDERAL ____ ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ____ ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
/ / (MONTH DAY YEAR)	☐ ACTIVE ☒ INACTIVE	1960 / 1988 (BEGINNING YEAR / ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ____ (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ____ (Name of firm)
☒ E. STATE ☐ F. STATE CONTRACTOR ____ (Name of firm) ☐ G. OTHER ____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO
Susan G Price	Hydrologist	MPCA	(612) 297 1806
09 OTHER INSPECTORS	**10 TITLE**	**11 ORGANIZATION**	**12 TELEPHONE NO**
Shawn Routsinoja	Pollution Control Specialist	MPCA	(612) 297 1806
			( )
			( )
			( )
			( )
non responsive [redacted]			16 TELEPHONE NO ( )
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	8:30 AM	CLEAR, 70-75°F

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO
Susan G. Price	Minnesota Pollution Control Agency	(612) 297 1806

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Susan G. Price	MPCA	GWSW/PD	612 297 1806	10 / 12 / 88 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [X] A SOLID
- [ ] B POWDER, FINES
- [ ] C SLUDGE
- [ ] D OTHER _____ (Specify)
- [ ] E SLURRY
- [X] F LIQUID
- [ ] G GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS Unknown

CUBIC YARDS _____

NO OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- [X] A TOXIC
- [X] B CORROSIVE
- [ ] C RADIOACTIVE
- [X] D PERSISTENT
- [ ] E SOLUBLE
- [ ] F INFECTIOUS
- [ ] G FLAMMABLE
- [ ] H IGNITABLE
- [ ] I HIGHLY VOLATILE
- [ ] J EXPLOSIVE
- [ ] K REACTIVE
- [ ] L INCOMPATIBLE
- [ ] M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE	UNKNOWN		
SOL	SOLVENTS	UNKNOWN		
PSD	PESTICIDES	UNKNOWN		UNDETECTED
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	UNKNOWN		

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	acetone	67-64-1	open dump	270	mg/l
	acetophenone	98-86-2		0.6J	
	benzaldehyde	100-52-7		1.0J	
OLW	benzene	71-43-2		0.2J	
SOL	carbon disulfide	75-15-0		1.0J	
	chloroform	67-66-3		10.0	
	methylene chloride	75-09-2		5.0	
	methyl heptane	NA		7.0JB	
	5-methyl-2-hexanone	75-09-2		9.0JB	
	3-methyl-2-hexanone	NA		4.0JB	
	3-methyl octane	NA		3.0JB	
	[illegible]	108-95-2		2.4	
	tetrachloroethene	127-18-4		0.4J	
OLW	toluene	108-88-3		10.0JB	
	trichloroethene	KX4550000		0.3J	
	tricosane	638675		0.6J	

V. FEEDSTOCKS (See Appendix for CAS Numbers)

see attached sheet

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Hader Dump File, MPCA/GWSW/PD
CLP Data, Appendix C

EPA FORM 2070-13 (7-81)

IV Hazardous Substances (Supplement)

01 CATEGORY	02 NAME	03 CAS#	04 STORAGE/ DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OLW	M-xylene		Open Dump	4.0J	ug/l
MES	Aluminum	7429905		11900	
	Antimony	7440-36-0		70	
	Barium	7440393		471	
	Cadmium	7440-43-9		1.6	
	Calcium	7440702		105000	
	Chromium	7440473		17	
	Copper	7440508		102	
	Iron	NA		17900	
	Lead	7439921		15J	
	Magnesium	7439954		32100	
	Manganese	7439965		577	
	Mercury	7439-97-6		0.3	
	Nickel	7440020		17J	
	Potassium	7440097		5650	
	Selenium	7782-49-2		3.0	
	Sodium	7440235		7660	
	Zinc	7440666		317	

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	MND981561865

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 448 — 04 NARRATIVE DESCRIPTION

Surface water is in direct contact with groundwater. Heavy metals have been detected under non-CLP laboratory analysis.

01 ☒ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE _____) — ☐ POTENTIAL — ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 224 — 04 NARRATIVE DESCRIPTION

Open dumping directly into quarry pond

01 ☒ C. CONTAMINATION OF AIR — 02 ☒ OBSERVED (DATE 8/10/82) — ☐ POTENTIAL — ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: Unknown — 04 NARRATIVE DESCRIPTION

Open burning at dump produced large amounts of black smoke.

01 ☒ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☒ OBSERVED (DATE 8/10/82) — ☐ POTENTIAL — ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 224 — 04 NARRATIVE DESCRIPTION

Complaints of exploding barrels were registered with the MPCA. Open burning reported periodically from 1972-82.

01 ☒ E. DIRECT CONTACT — 02 ☒ OBSERVED (DATE 6/6/88) — ☐ POTENTIAL — ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 76 — 04 NARRATIVE DESCRIPTION

Site is unsecured. Children intermittently play in and around the quarry pond.

01 ☒ F. CONTAMINATION OF SOIL — 02 ☒ OBSERVED (DATE 6/6/88) — ☐ POTENTIAL — ☒ ALLEGED
03 AREA POTENTIALLY AFFECTED: 1.5 (ACRES) — 04 NARRATIVE DESCRIPTION

3 semi volatile compounds were detected in sediments from quarry pond, but were estimated below laboratory detection limits

01 ☒ G. DRINKING WATER CONTAMINATION — 02 ☒ OBSERVED (DATE 6/6/88) — ☐ POTENTIAL — ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 448 — 04 NARRATIVE DESCRIPTION

5 residential wells sampled showed no contamination attributable to the dump.

01 ☒ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE 5/82) — ☐ POTENTIAL — ☒ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 12 — 04 NARRATIVE DESCRIPTION

Owner of adjacent quarry operation registered complaint with MPCA concerning open burning at dump was affecting employees

01 ☒ I. POPULATION EXPOSURE/INJURY — 02 ☒ OBSERVED (DATE 5/82) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: Unknown — 04 NARRATIVE DESCRIPTION

Open burning may have affected residents but no complaints were registered.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: MN | 02 SITE NUMBER: MND981961865

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☒ J. DAMAGE TO FLORA — 02 ☒ OBSERVED (DATE 6/6/88) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

No damage to Flora noted during SSI

01 ☒ K. DAMAGE TO FAUNA — 02 ☒ OBSERVED (DATE 6/6/88) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (include name(s) of species)

Large rodent problem reported 5/72
No evidence noted during SSI

01 ☒ L. CONTAMINATION OF FOOD CHAIN — 02 ☒ OBSERVED (DATE 6/6/88) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None oberved during SSI

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills, Runoff, Standing liquids, Leaking drums) — 02 ☒ OBSERVED (DATE 6/6/88) ☐ POTENTIAL ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED 448 — 04 NARRATIVE DESCRIPTION

Continued open dumping could cause a contaminant problem in the future

01 ☒ N. DAMAGE TO OFFSITE PROPERTY — 02 ☒ OBSERVED (DATE 6/6/88) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Contamination of adjacent quarry alleged in 5/72 in a complaint to MPCA. No evidence collected during SSI.

01 ☒ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☒ OBSERVED (DATE 6/6/88) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Not applicable because site is in rural area.

01 ☒ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☒ OBSERVED (DATE 6/6/88) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Initial contamination problem due to illegal dumping. Site is unsecured therefore dumping continues.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 748 (3-mile radius)

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

MPCA Screening Site Inspection Report
MPCA Hadrz Dump Files GWSW/PD

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	MND981961865

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☒ J. NONE				ILLEGAL DUMP

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☒ B. PILES	unknown	
☐ C. DRUMS, ABOVE GROUND		
☒ D. TANK, ABOVE GROUND	6 - 10	
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☒ H. OPEN DUMP	1.5	acre
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)
- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☒ H. OTHER N/A (Specify)

05 OTHER
- ☐ A. BUILDINGS ON SITE

06 AREA OF SITE: 1.5 (acres)

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☒ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

Open dump operated from 1960 to 1972, when site was closed by MPCA. Unpermitted, sporatic dumping has continued to present. Site is unsecure and current owner is not concerned with dumping (SSI 6/6/89).

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ☒ NO

02 COMMENTS

Waste along quarry is easily accessible, but waste dumped in quarry pond is not easily reached.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

MPCA SSI 6/6/88

Hader Dump File MPCA / GWSW/PD

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	MND981961865

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as appropriate)	SURFACE	WELL	02 STATUS: ENDANGERED	AFFECTED	MONITORED	03 DISTANCE TO SITE
COMMUNITY	A. ☐	B. ☐	A. ☐	B. ☐	C. ☒	A. .25 (mi)
NON-COMMUNITY	C. ☐	D. ☒	D. ☐	E. ☐	F. ☒	B. .5 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☒ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING (Other sources available) COMMERCIAL INDUSTRIAL IRRIGATION (No other water sources available) ☐ C. COMMERCIAL INDUSTRIAL IRRIGATION (Alternate water sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 448

03 DISTANCE TO NEAREST DRINKING WATER WELL .25 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
15 (ft)	NORTH	15 (ft)	10,000 (gpd)	☐ YES ☒ NO

09 DESCRIPTION OF WELLS (including average depth and location relative to population and buildings)

Residential wells range in depth from six to 400 feet. Wells are open-hole (without screens or grout).

10 RECHARGE AREA: ☒ YES ☐ NO — COMMENTS: Recharge area for Cannon River Valley Watershed

11 DISCHARGE AREA: ☐ YES ☒ NO — COMMENTS:

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☐ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☒ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Quarry Pond	☐	on-site (mi)
Belle Creek	☐	.5 (mi)
Cannon River	☐	7.5 (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 261	B. 187	C. 449
NO. OF PERSONS	NO. OF PERSONS	NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: .25 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE: _____

04 DISTANCE TO NEAREST OFF-SITE BUILDING: _____ (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, suburban, urban area)

Site is located in a rural, agricultural area. Residents report children play in quarry pond, but site is not an established recreational area.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	MND981961266

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B $10^{-4} - 10^{-6}$ cm/sec ☒ C $10^{-4} - 10^{-3}$ cm/sec ☐ D GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☐ C RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☒ D VERY PERMEABLE (Greater than 10^{-2} cm/sec) KARST

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
0 (ft)	N/A (ft)	unknown

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
-3 (in)	2.45 (in)	3-5 %	north	3 %

09 FLOOD POTENTIAL

SITE IS IN N/A YEAR FLOODPLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE: A. N/A (mi)

OTHER: B. Belle Creek .5 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

N/A (mi)

ENDANGERED SPECIES _____

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AGRICULTURAL LANDS: AG LAND
A. 0 (mi)	B. 0 (mi)	C. 0 (mi)	D. .1 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

Site is located in an abandoned limestone quarry. The watertable has risen, forming a pond in the bottom of the quarry. The surrounding terrain is karstified with glacial deposits randomly distributed throughout the area. The resulting topography is somewhat hummocky.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sampling results, photos)

U.S.G.S. Quadrangle 7½' maps; Zumbrota, Goodhue West, White Rock, and

Hydrologic Atlas Cannon River Valley Watershed (U.S.G.S)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	MAD 981961965

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	6	inorganics - Rocky Mt Analytical, PBS and J organics - S-cubed	5/19/88
SURFACE WATER	3.	inorganics Rocky Mt Analytical, PBS and J organics - S-cubed	5/21/88
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	1	inorganics - Rocky Mt Analytical organics - S-cubed	5/20/88
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
pH, conductivity, temp.	residential wells were stablized with these field measurements to insure a representative groundwater sample.

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☐ GROUND ☐ AERIAL N/A | 02 IN CUSTODY OF _____ (Name of organization or individual)

03 MAPS ☒ YES ☐ NO | 04 LOCATION OF MAPS U.S.G.S Quadrangle 7½' White Rock Goodhue Wes- Zumbrota, Wanamingo Minnesota

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

~~photographs~~ taken during SSI, see Appendix B of SSI report,

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Hadler Dump SSI

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	MND991061865

II. CURRENT OWNER(S)

non responsive

[redacted]

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER
10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE
12 CITY	13 STATE / 14 ZIP CODE

08 NAME	09 D+B NUMBER
10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE
12 CITY	13 STATE / 14 ZIP CODE

08 NAME	09 D+B NUMBER
10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE
12 CITY	13 STATE / 14 ZIP CODE

08 NAME	09 D+B NUMBER
10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE
12 CITY	13 STATE / 14 ZIP CODE

III. PREVIOUS OWNER(S) (List most recent first)

non responsive

[redacted]

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

IV. REALTY OWNER(S) (If applicable; list most recent first)

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Hacker Dump File, MPCA/GWSW/PD

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MA	MAD041961465

II. CURRENT OPERATOR			OPERATOR'S PARENT COMPANY		
01 NAME N/A		02 D+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER				

III. PREVIOUS OPERATOR(S)			PREVIOUS OPERATORS' PARENT COMPANIES		
01 NAME		02 D+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD				
01 NAME		02 D+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD				
01 NAME		02 D+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD				

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	MND 6 4 1 9 6 1 8 6 5

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER	
N/A		
03 STREET ADDRESS (P.O. box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE / 07 ZIP CODE	

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA FORM 2070-13 (7-81)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	MND981961965

II. PAST RESPONSE ACTIVITIES NONE TAKEN TO DATE

	02 DATE	03 AGENCY
01 ☒ A. WATER SUPPLY CLOSED 04 DESCRIPTION N/A		
01 ☒ B. TEMPORARY WATER SUPPLY PROVIDED 04 DESCRIPTION N/A		
01 ☒ C. PERMANENT WATER SUPPLY PROVIDED 04 DESCRIPTION N/A		
01 ☒ D. SPILLED MATERIAL REMOVED 04 DESCRIPTION N/A		
01 ☒ E. CONTAMINATED SOIL REMOVED 04 DESCRIPTION N/A		
01 ☒ F. WASTE REPACKAGED 04 DESCRIPTION N/A		
01 ☒ G. WASTE DISPOSED ELSEWHERE 04 DESCRIPTION N/A		
01 ☐ H. ON SITE BURIAL 04 DESCRIPTION N/A		
01 ☒ I. IN STU CHEMICAL TREATMENT 04 DESCRIPTION N/A		
01 ☒ J. IN STU BIOLOGICAL TREATMENT 04 DESCRIPTION N/A		
01 ☒ K. IN STU PHYSICAL TREATMENT 04 DESCRIPTION N/A		
01 ☒ L. ENCAPSULATION 04 DESCRIPTION N/A		
01 ☒ M. EMERGENCY WASTE TREATMENT 04 DESCRIPTION N/A		
01 ☒ N. CUTOFF WALLS 04 DESCRIPTION N/A		
01 ☒ O. EMERGENCY DIKING/SURFACE WATER DIVERSION 04 DESCRIPTION N/A		
01 ☒ P. CUTOFF TRENCHES/SUMP 04 DESCRIPTION N/A		
01 ☒ Q. SUBSURFACE CUTOFF WALL 04 DESCRIPTION N/A		

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	MND981961865

II. PAST RESPONSE ACTIVITIES (Continued)

01 ☒ R. BARRIER WALLS CONSTRUCTED — 02 DATE 6/6/88 — 03 AGENCY
04 DESCRIPTION N/A

01 ☒ S. CAPPING/COVERING — 02 DATE — 03 AGENCY
04 DESCRIPTION N/A

01 ☒ T. BULK TANKAGE REPAIRED — 02 DATE — 03 AGENCY
04 DESCRIPTION N/A

01 ☒ U. GROUT CURTAIN CONSTRUCTED — 02 DATE — 03 AGENCY
04 DESCRIPTION N/A

01 ☒ V. BOTTOM SEALED — 02 DATE — 03 AGENCY
04 DESCRIPTION N/A

01 ☒ W. GAS CONTROL — 02 DATE — 03 AGENCY
04 DESCRIPTION N/A

01 ☒ X. FIRE CONTROL — 02 DATE — 03 AGENCY
04 DESCRIPTION N/A

01 ☒ Y. LEACHATE TREATMENT — 02 DATE — 03 AGENCY
04 DESCRIPTION N/A

01 ☒ Z. AREA EVACUATED — 02 DATE — 03 AGENCY
04 DESCRIPTION N/A

01 ☒ 1. ACCESS TO SITE RESTRICTED — 02 DATE — 03 AGENCY
04 DESCRIPTION N/A

01 ☒ 2. POPULATION RELOCATED — 02 DATE — 03 AGENCY
04 DESCRIPTION N/A

01 ☒ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE — 03 AGENCY
04 DESCRIPTION

N/A

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

MPCA Ground Water and Solid Waste Files

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	MND981061865

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☒ YES ☐ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

The MPCA ordered the dump closed in 1972. See SSI for details.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Hader Dump SSI, MPCA
Hader Dump File, MPCA/GWSW/PD

EPA FORM 2070-13 (7-81)

H

WATER WELL RECORD

Minnesota Statutes 156A.01-08

MINNESOTA UNIQUE WELL NO. for Water Sample: 162712

1. LOCATION OF WELL

County Name: Goodhue

Township Name	Township Number	Range	Section No.	Fraction
Belle Creek	111	16W	31	NE NE SW

Distance and Direction from Road Intersections or Street Address and City of Well Location:

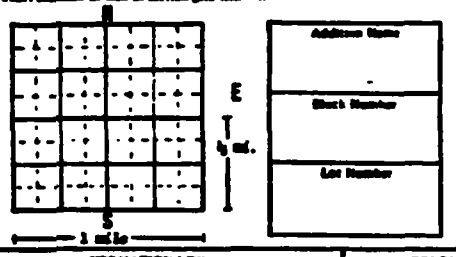
Show exact location of well in section grid with "X"

Sketch map of well location

Addition Name

Block Number

Lot Number



Now ARNDT

70A

2. PROPERTY OWNER'S

George Garretty — In PLAT (63)

Goodhue, Mn.

3. WELL DEPTH (completed) 390 ft. — Date of Completion 12/16/77

4. WELL DEPTH (completed) 390 ft. — Date of Completion 12/16/77

5. 1 Cable tool, 2 Hollow rod, 3 Rotary, 4 Reverse, 5 Air, 6 Jetted, 7 Driven, 8 Bored, 9 Power Auger, 10 Dug, 11

6. USE 1 Domestic, 2 Irrigation, 3 Test Well, 4 Public Supply, 5 Municipal, 6 Air Conditioning, 7 Industry, 8 Commercial, 9

7. CASING 1 Black, 2 Galv, 3 Plastic, 4 Threaded, 5 Welded, 6

HEIGHT Above/Below: Surface ___ ft. Drive Shoe? Yes ___ No ___

HOLE DIAM

8 in. to X46.5 ft. Weight ___ lbs./ft.

4 in. to 342'4" ft. Weight ___ lbs./ft.

___ in. to ___ ft. Weight ___ lbs./ft.

8. SCREEN Make ___ Or open hole from 342'4" ft. to 390 ft.

Type ___ Dia. ___

Slot/Gauze ___ Length ___

Set between ___ ft. and ___ ft.

FITTINGS

9. STATIC WATER LEVEL 230 ft. below land surface; above; Date Measured ___

10. PUMPING LEVEL (below land surface) ___ ft. after ___ hrs. pumping ___ g.p.m.

___ ft. after ___ hrs. pumping ___ g.p.m.

11. WELL HEAD COMPLETION 1 Pitless adapter, 2 Basement offset, 3 At least 12" above grade

12. Well grouted? Yes No; Cu. Yds. 4½

1 Neat Cement, 2 Bentonite, 3

Depth: from 0 ft. to 342'4" ft.

from ___ ft. to ___ ft.

13. Nearest sources of possible contamination ___ feet ___ direction ___ type

Well disinfected upon completion? Yes No

14. PUMP Date installed 1/16/78; Not installed

Manufacturer's Name: Flint and Walling

Model Number ___ HP 1 Volts ___

Length of drop pipe 263 ft. capacity ___ g.p.m.

Material of drop pipe galv. steel

Type: 1 Submersible, 2 Jet, 3 L.S. Turbine, 4 Centrifugal, 5 Reciprocating, 6

15. REMARKS, ELEVATION, SOURCE OF DATA, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Cannon Well Drilling — License Business Name — 25240 — License No.

Address: RR1 Box 266A Cannon Falls, Mn.

Signed: [signature] — Authorized Representative — Date 7/6/79

Frank Otto — Name of Driller — Date 12/16/77

5/74 30M
7/76 30M
7/78 30M

2. FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
QUUU clay			0	24
↓ shale			24	47
QTUU gravel & broken limerock			47	53
OEAL limerock	T/1157		53	115
ODPL shale	T/1095		115	217
OSTP sandrock	T/993		217	321
OPDC limerock	T/889		321	390
111-16-31 BDCDDA				
EL- 1210±5'				
Aquifer OPDC-OPDC	70-A			
owner				

CODED

Use a second sheet, if needed.

MINN. GEOLOGICAL SURVEY COPY 162712

150902

County: Dodge | County Number: 11 | Township: 106 N | Range: 14 W | Section No.: 36

Dodge Center Creek

Distance and Direction from Road Intersections or Street Address and City of Well Location

Show exact location of well in section grid with "X." Sketch map of well location.

W E S 1 mile ½ mi.

Addition Name

Block Number

Lot Number

IN PLAT

FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
QFUU Sand			0	46
QTUU Clay			46	115
Clay and gravel			115	295
OPDC Limestone	T/925		295	310
Aquifer				
OPDC-OPDC	111 - 16 - 34 CCABAB			
		EL-[redacted] ±5'		
		1222		
	Plat book			
		69c		

CODED

RECEIVED

Use a second sheet, if needed.

15. REMARKS, ELEVATION, SOURCE OF DATA, etc.

PLUG 1454

MINN. GEOLOGICAL SURVEY COPY

1. PROPERTY OWNER'S NAME: Bernard Hinz

Address: R. R. Hayfield, Mn 55942

(64) (69c)

4. WELL DEPTH (completed): 310 ft. Date of Completion: 7-28-78

5. 1☐ Cable tool 2☐ Rotary 3☒ Reverse 4☐ Air 5☐ Driven 6☐ Jetted 7☐ Bored 8☐ Dug 9☐ Hollow rod 10☐ Power Auger 11☐

6. USE: 1☒ Domestic 2☐ Irrigation 3☐ Test Well 4☐ Public Supply 5☐ Municipal 6☐ Air Conditioning 7☐ Industry 8☐ Commercial 9☐

7. CASING: 1☒ Black 2☐ Galv. 3☐ 4☐ 5☐ Threaded 6☒ Welded

HEIGHT Above/Below: Surface ____ ft. Other Stuff? Yes ___ No ___

4 in. to 304 ft. Weight ____ lbs./ft.

HOLE DIAM: ____ in. to ____ ft.

8. SCREEN: Make ____ Type ____ Dia. ____ Slot/Gauze ____ Length ____ Set between ____ ft. and ____ ft.

Of open hole: from 304 ft. to 310 ft.

FITTINGS

9. STATIC WATER LEVEL: 30 ft. below land surface ☒ ☐ above ☐ Date Measured ____

10. PUMPING LEVEL (below land surface): ____ ft. after ____ hrs. pumping ____ g.p.m.

11. WELL HEAD COMPLETION: 1☒ Below adapter 2☐ Basement offset 3☐ At least 12" above grade

12. Well grouted? Yes ☐ No ☒ Cu. Yds. ____ 1☐ Neat Cement 2☐ Bentonite 3☐ ____

13. Nearest source of possible contamination: ____ direction ____ type

Yes ☒ No ☐

14. PUMP: Date Installed 7-28-78 ☐ Not Installed

Manufacturer's Name: [illegible]

Model Number ____ HP 1½ Volts ____

Length of drop pipe 295 ft. capacity ____ g.p.m.

Material of drop pipe: Steel

Type: 1☒ Submersible 2☐ L.S. Turbine 3☐ Reciprocating 4☐ Jet 5☐ Centrifugal 6☐ ____

16. WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Common Well Drilling Inc. [illegible]

Licensee Business Name — License No.

Address: Rt. Box 266A Common Falls, Mn 56009

Signature: Robert M Vaught — Date: 9-30-79

Authorized Representative

Ray Otto — Date: 9-30-79

Name of Driller

WATER WELL RECORD

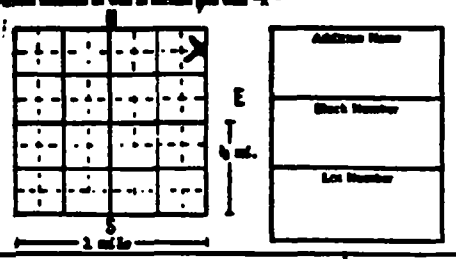
145810

County name: Goodhue | Township Number: 111 | Range No.: 16 | Section No.: 1 | Quarters: NW NE NE

Belle Creek

Address of Well: 2mi South of Co Rd 1 on Township Rd

Sketch location of well in section (at left) "X"



1. PROPERTY OWNER: John Werner
Address: Route #2 Goodhue OK

4. WELL DEPTH (completed): 215 ft. | Date of Completion: 10-19-77

5. 1☐ Water level 4☐ Bailer 7☐ Driven 10☒ Dug
2☐ Hollow rod 5☐ Air 8☐ Bored 11☐
3☒ Rotary 6☐ Jetted 9☐ Power Auger

6. USE: 1☒ Domestic 4☐ Public Supply 7☐ Industry
2☐ Irrigation 5☐ Municipal 8☐ Commercial
3☐ Test Well 6☐ Air Conditioning 9☐

7. CASING: 1☒ Black 4☐ Threaded
2☐ Galv. 5☒ Welded
3☐ 6☐
Height: Above/Below Surface 1 ft.
Drive Shoe? Yes ☒ No ☐
4 in. to 164 ft. Weight 10.79 lbs./ft.
in. to ft. Weight lbs./ft.
in. to ft. Weight lbs./ft.
HOLE DIAM: in. to ft.

8. SCREEN: Make
Type | Dia
Slot/Gauge | Length
Set between ft. and ft.
ft. and ft.
ft. and ft.
Open hole: from 164 ft. to 215 ft.
FITTINGS

9. STATIC WATER LEVEL: 120 ft. below land surface ☐ above | Date Measured 10-19-77

10. PUMPING LEVEL (below land surface): 120 ft. after 24 hrs. pumping 15 g.p.m.
ft. after hrs. pumping g.p.m.

11. WELL HEAD COMPLETION: 1☒ Pitless adapter 2☐ Basement offset 3☒ At least 12" above grade

12. Well grouted? ☒ Yes ☐ No | Cu. Yds. 2 yds.
1☒ Neat Cement 2☐ Bentonite 3☐
Depth: from 0 ft. to 164 ft.
from ft. to ft.

13. Nearest sources of possible contamination: 50 feet | W direction | septic type
Well disinfected upon completion? Yes ☒ No ☐

14. PUMP: Date Installed
☒ Not Installed
Manufacturer's Name
Model | HP | Volts
Length of drop pipe | ft. capacity g.p.m.
Type of drop pipe
1☐ Submersible 3☐ L.S. Turbine 5☐ Reciprocating
2☐ Jet 4☐ Centrifugal 6☐

16. WATER WELL CONTRACTOR'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Haber Well Drilling License No. 19301
Licensee Business Name
Address: Route #1 Hastings, Minn.
Signed: Tom Haber Date 11-22-77
Licensed Water Well Contractor
Rick Haber Date 12-22-77
Name of Driller

2. FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
RTUB CLAY				
Clay	Brown	Hard	0	15
DSTP SNDS T/1123				
Sandrock	Lite	Med.	15	92
OPDC DLMT T/1096				
Limerock	Yellow	Hard	92	180
CJDN SNDS T/950				
Sandrock	Grey	Med.	180	215
Final Inches				
111-16-1	OAAAAC			
Elev. 1138				
Goodhue Wat Qual 69B				
Aquifer				
CJDN -	CJDN			

Use a second sheet, if needed.

CODED

REMARKS, ELEVATION, SOURCE OF DATA, etc.

ELEV. = 1100

MINN. GEOLOGICAL SURVEY COPY

218663

70A

WELL LOG

CANNON WELL COMPANY

Cannon Falls, Minn. 55009

Well Owner: non responsive [redacted]

Location:

Date Completed: 6-26-71 Driller: John

111-17-24
BDBBAC

Depth				Description of Formation
0	to	17		Drift Sand & Clay
17	to	35	T/1136	yellow sandrock - Prob limestone
35	to	106		gray shale
106	to	110		yellow sand
110	to	130	T/1043	gray shale
130	to	165	T/1023	gray limerock
165	to	175		gray shale
175		180		light gray shale
180	to	275	T/973	white sandrock
	to			

Ele. 1153 ±51 70-A

MAILBOX

After CPVL - OSTP

SIZES AND MATERIALS USED

Top Casing Line: Inside Diameter 5 in. Wt. per ft. 15 lbs.

Depth 130 ft. in.

Any Reduced Casing Sizes none

Total Depth to bottom of Casing 130 ft. in.

Total Depth to bottom of Well 275 ft. in.

Depth measured from: ground Water level:

Screened Well: Size of Screen: Diam. in. Length ft. Slot

Make of Screen Metal

Fittings

Rock Well: Open Borehole 5 inches diam. 145 ft. deep below casing

Test data: 11 (gpm) (gph) ft. drawdown. Pumped for hrs.

Test Pump: 3/4 Hr sub.

Tot. Len. of Setting: 234'

NOTES:

CODED

DEPARTMENT OF HEALTH White Rock Qd WATER WELL RECORD for Water Sample 120118

non responsive

[redacted]

QUUU	Dirt DRFT			0	9
OPGW	Limerock LMSN	T/1026		9	41
OSTP	Sandrock SNDS	T/994		41	147
OPDC	Limerock DLMT	T/998		147	204

Aquifer
OPDC - OPDC

Field Checked
111-17-13 ABCABA
Elev. 1035
White Rock Quad 70A

CODED

Use a second sheet, if needed.

15. REMARKS, ELEVATION, SOURCE OF DATA, etc.

ELEV. = 1100

MINN. GEOLOGICAL SURVEY COPY

7. CASING DIAM.
Threaded ☐ 1 Welded ☒ 3
Black ☐ 2 Galv. ☐ 4
174 in. to 174 ft. depth
in. to ft. depth
in. to ft. depth

HEIGHT: Above/Below
Surface ft.
Weight 10.79 lbs./ft.
Drive Shoe? Yes No

8. SCREEN
Make
Type Dia.
Slot/Gauze Length
Set between ft. and ft.
ft. and ft.
ft. and ft.

Or open hole from 174 ft. to 204 ft.
FITTINGS:

9. STATIC WATER LEVEL
82 ft. ☐ below ☐ above land surface Date Measured 8-13-75

10. PUMPING LEVEL (below land surface)
ft. after hrs. pumping g.p.m.
ft. after hrs. pumping g.p.m.

11. WELL HEAD COMPLETION
1 ☒ Pitless adapter 2 ☐ Basement offset 3 ☐ At least 12" above grade

12. Well grouted?
☒ Yes ☐ No Cu. Yds. 3
1 ☒ Neat cement 2 ☐ Bentonite 3 ☐
Depth: from ft. to ft.
from ft. to ft.

13. Nearest source of possible contamination
feet direction type
Well disinfected upon completion? Yes ☒ No ☐

14. PUMP
Date installed 8-13-75
☐ Not installed
Manufacturer's Name Sta Rite
Model Number HP 3/4 Volts 220
Length of drop pipe ft. capacity g.p.m.
Material of drop pipe iron
Type: 1 ☒ Submersible 3 ☐ L.S. Turbine 5 ☐ Reciprocating
2 ☐ Jet 4 ☐ Centrifugal 6 ☐

16. WATER WELL CONTRACTOR'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Cannon Well Company 25249
Licensed Business Name Licence No.

Address R. R. 1 Box 266A, Cannon Falls, Minn

Signed Robert Vaught Date 8-20-75
Authorized Representative

Brian Vaught
Name of Driller

7/74 30M

218675

ROBT SWEET NOW

27

Goodhue Sheriff

WELL LOG

CANNON WELL COMPANY

Cannon Falls, Minn. 55009

MILES

69B

Well Owner: non responsive [redacted]

Location:

Date Completed: 3/5/71 Driller:

Depth			Description of Formation
0'	to	50'	Dirt & Sand
5	to	155'	Limestone w/ sandstone layer
155	to	210'	Limestone
	to	'	
	to	'	
	to	Aquifer	
	to	OPTIC - OPTIC	
	to	'	
	to	'	
	to	'	

112-16-34 CBBDAA

Elev. 1068±5

69-B

Ask In

Dean

Dicke's

SIZES AND MATERIALS USED

Top Casing Line: Inside Diameter 5 in. Wt. per ft. 15 lbs.

Depth 160 ft. in.

Any Reduced Casing Sizes

Total Depth to bottom of Casing 160 ft. in.

Total Depth to bottom of Well 210 ft. in.

Depth measured from: Water level: 110'

Screened Well: Size of Screen: Diam. in. Length ft. Slot

Make of Screen Metal

Fittings

Rock Well: Open Borehole inches diam. ft. deep below casing

Test data: (gpm) (gph) ft. drawdown. Pumped for hrs.

Test Pump:

Tot. Len. of Setting:

NOTES: Well was sealed

CODED

W 97-41
(Rev. 1-61)

MINNESOTA CONSERVATION DEPARTMENT
DIVISION OF WATERS

WELL LOG STATEMENT

	Director	
	Publ.	
	Ground W.	

Well No. 17-36

non responsive

[redacted]

Drilled for: _____ Driller Christenson

Address _____ Address Dodge Center

Date of Completion ?

Type of well Drift (Dug, Driven, Bored, Drilled) Depth ?

Casing diameter _____ inch, from _____ to _____

_____ inch, from _____ to _____

_____ inch, from _____ to _____

Screen: Length _____ Diameter _____ Slot size _____

Pump: Type _____ Horsepower _____

REPORT OF FINAL PUMPING TEST

Duration of Test _____ Hrs. _____ Min. Date _____

Rate of Pumping _____ GPM

Static Water Level _____ Ft. Above / Below land surf

Water Level While Pumping _____ Ft.

Use: Domestic ☐ Industrial ☐ Irrigation ☐

Public supply ☐ Commercial ☐ Stock ☐

WELL LOG

Geologic Formations Kind, Color, Hard or Soft	Depth in Feet From	Depth in Feet To	Geologic Formations Kind, Color, Hard or Soft	Depth in Feet From	Depth in Feet To
Drift	0	45	1180		
Limestone	45	?	45		
			1135		

WATER WELL RECORD

[redacted]

		FORMATION	FROM	TO
Drift	Brown gray	soft	0	100
Platteville Limestone	Lt. brown	hard	100	118
[illegible]	Lt. Green	soft	118	126
St. Peter Sandstone	White	soft	126	234
Shakopee Sandstone	White	med.	234	220

Use a [illegible] sheet, if needed.

15. REMARKS, ELEVATION, SOURCE OF DATA, etc.

Elevation: 1195'

Information from Driller's [illegible]

MINN. DEPT. OF NATURAL RESOURCES COPY

3 ☐ Cast Well 4 ☐

7. CASING DIAM.

Threaded ☐ 1 Welded ☒ 2

6 in. to 235 ft. depth

in. to ft. depth

in. to ft. depth

HEIGHT: Above/Below Surface 12" [illegible]

Weight [illegible] lbs./ft.

[illegible] No

8. SCREEN

Make

Type

Slot/Gauge

9. STATIC WATER LEVEL

[illegible]

10. PUMPING LEVEL (below surface)

[illegible] ft. after [illegible]

ft. after [illegible]

11. WELL HEAD COMPLETION

☒ Pitless adapter 2 ☐ Basement offset 3 ☐ [illegible] above grade

12. Well grouted?

☒ Yes ☐ No Cu. Yds.

1 ☐ Neat cement 2 ☒ Bentonite 3 ☐

Depth: from 10 ft. to 235 ft.

from ft. to ft.

13. Nearest source of possible contamination

100 + feet South direction Septic Tank type

Well disinfected upon completion? Yes ☒ No ☐

14. PUMP

Pump installed by: Date installed

Minrich's Plumbing & Hdg. Not installed

Manufacturer's Name

Zumbrota, Minn.

Model Number HP Volts

Length of drop pipe ft. capacity g.p.m.

Material of drop pipe

Type: 1 ☐ Submersible 3 ☐ L.S. Turbine 5 ☐ Reciprocating

2 ☐ Jet 4 ☐ Centrifugal 6 ☐

16. WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

CHRISTENSON WELL SERVICE, INC. 20065

Licensee Business Name Licence No.

Address R.R.#1, Dodge Center, Minn. 55927

Signed George J. Gil Date 3-3-75

George J. Gilman, Foreman

Allan Harvason, Driller

Name of Driller

7/74 30M

STATE OF MINNESOTA — DEPARTMENT OF HEALTH

WATER WELL RECORD

MINNESOTA UNIQUE WELL No.

416035

non responsive

[redacted]

FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Clay	Brown	Med	0	25
Lime	Blue	hard	25	110
Shale	Blue	Med	110	260
Sand Rock	White	Med	260	320
Lime Shavings	Blue	Hard	320	360

Use a second sheet, if needed

15 REMARKS, ELEVATION, SOURCE OF DATA, etc

1 Use: 1 Domestic 2 Irrigation 3 Test Well 4 Municipal 5 Air Conditioning 6 Commercial

7 CASING: 1 Black 2 Galv. 3 Plastic 4 Steel 5 Wood. Joints: 1 Threaded 2 Welded

Weight	Height Above/Below Surface	Drive Shoe? Yes / No	Diameter	Hole Diam
0 in. to 25 ft.		1	12	12 in. to 25 ft.
4 in. to 32 ft.		11	4	32 in. to 32 ft.
in. to ft.			4	36 in. to 36 ft.

8 SCREEN: Make; Type; Diameter; Slot/Gauze; Length; Set between ft. and ft.; ft. and ft.; FITTINGS

Open hole from 32 ft. to 36 ft.

9 STATIC WATER LEVEL: 245 ft. below land surface; Date Measured 10-22-85

10 PUMPING LEVEL (below land surface): 250 ft. after 2 hrs. pumping 20 g.p.m.; ft. after hrs. pumping g.p.m.

11 WELL HEAD COMPLETION: 1 Pitless adapter; 2 Basement offset; 3 At least 12" above grade

12 WELL GROUTED: 1 Neat Cement; 2 Bentonite; 3 Other; Grout Material; from 0 to 32 ft. Cu. Yds. 5

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION: 75 feet South direction Sewer type

Well disinfected upon completion? Yes X No

14 PUMP: Date Installed ~~10-26-85~~ Not Installed

Manufacturer's Name: Grundfos

Model Number: SP-2-15 HP 1 Volts 230

Length of drop pipe: 273' ft. capacity 10 g.p.m.

Material of drop pipe: 273' 1" Galv.

Type: 1 Submersible X 2 L.S. Turbine 3 Reciprocating 4 Jet 5 Centrifugal 6

16 WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

KIMMES - [illegible] INC. Licensee Business Name — 522 License No.

Address: 2130 Lillehei Ave. Hastings, [illegible] 55033

Signed: Authorized Representative Date

Lee [illegible] Name of Driller Date 11-[illegible]

MINN. GEOLOGICAL SURVEY COPY

416035

STATE OF MINNESOTA DEPARTMENT OF HEALTH MINNESOTA UNIQUE WELL NO.

non responsive

[redacted]

FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO

Use a second sheet, if needed

15 REMARKS, ELEVATION, SOURCE OF DATA, etc.

MINN. GEOLOGICAL SURVEY COPY 194075

Test Well / Air Conditioning

7 CASING — HEIGHT Above/Below — HOLE DIAM.

Black / Threaded / Galv. / Welded / Plastic

Surface ___ ft. Drive Shoe? Yes ___ No ___

4 in. to ___ ft. Weight ___ lbs./ft.

___ in. to ___ ft. Weight ___ lbs./ft.

___ in. to ___ ft. Weight ___ lbs./ft.

8 SCREEN — Or open hole from ___ ft. to ___ ft.

Make ___ Type ___ Dia. ___ Slot/Gauze ___ Length ___ Set between ___ ft. and ___ ft. FITTINGS

9 STATIC WATER LEVEL

___ ft. below / above land surface Date Measured ___

10 PUMPING LEVEL (below land surface)

___ ft. after ___ hrs. pumping ___ g.p.m.

___ ft. after ___ hrs. pumping ___ g.p.m.

11 WELL HEAD COMPLETION

Pitless adapter manufacturer ___ Model ___

Basement offset / At least 12" above grade

12 WELL GROUTED?

Yes / No

Neat Cement / Bentonite

Grout material: ___ from 6 to 10 ft. Cu. Yds. 1

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION

75 feet South direction Sewer type

Well disinfected upon completion? Yes / No

14 PUMP

Date installed 6-20-3 / Not installed

Manufacturer's Name Tait

Model Number ___ HP 3/4 Volts 23

Length of drop pipe 105' ft. capacity 10 g.p.m.

Material of drop pipe 1" Galv.

Type: Submersible / L.S. Turbine / Reciprocating / Jet / Centrifugal

16 WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

___ Licensee Business Name ___ License No. ___

Address ___

___ Minnesota 55033

Signed ___ Authorized Representative Date ___

___ Name of Driller Date ___

HE-01205-01 5/74 30M 7/76 30M 7/78 30M 2/82 10M

LOCATION OF WELL
County Name

STATE OF MINNESOTA DEPARTMENT OF HEALTH

WATER WELL RECORD

MINNESOTA UNIQUE WELL NO. 194057

non responsive

[redacted]

1 mile

2 FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
[illegible]	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Shakopee				

Use a second sheet, if needed

15 REMARKS ELEVATION SOURCE OF DATA, etc

MINN. GEOLOGICAL SURVEY COPY 194057

2 ☐ Irrigation 5 ☐ Municipal 8 ☐ Commercial
3 ☐ Test Well 6 ☐ Air Conditioning 9 ☐

7 CASING
☒ Black ☐ Threaded
2 ☐ Galv. ☒ Welded
3 ☐ Plastic 4 ☐

HEIGHT Above/Below
Surface [illegible] ft.
Drive Shoe? Yes ___ No ___

[illegible] in. to [illegible] ft. Weight [illegible] lbs./ft.
___ in. to ___ ft. Weight ___ lbs./ft.
___ in. to ___ ft. Weight ___ lbs./ft.

HOLE DIAM.
___ in. to ___ ft.
___ in. to ___ ft.
___ in. to ___ ft.

8 SCREEN
Make ___
Or open hole from [illegible] ft. to ___ ft.
Type ___ Dia. ___
Slot/Gauze ___ Length ___
Set between ___ ft. and ___ ft.
___ ft. and ___ ft.
FITTINGS

9 STATIC WATER LEVEL
[illegible] ft. ☒ below ☐ above land surface
Date Measured [illegible]

10 PUMPING LEVEL (below land surface)
[illegible] ft. after [illegible] hrs. pumping [illegible] g.p.m.
___ ft. after ___ hrs. pumping ___ g.p.m.

11 WELL HEAD COMPLETION
1 ☒ Pitless adapter manufacturer ___ model ___
2 ☐ Basement offset 3 ☐ At least 12" above grade

12 WELL GROUTED?
☒ Yes ☐ No
1 ☒ Neat Cement 2 ☐ Bentonite 3 ☐ ___
Grout material ___ from ___ to [illegible] ft. Cu. Yds. ___

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION
[illegible] feet [illegible] direction [illegible] type
Well disinfected upon completion? Yes ☐ No ☐

14 PUMP
Date Installed ___ ☒ Not Installed
Manufacturer's Name ___
Model Number ___ HP ___ Volts ___
Length of drop pipe ___ ft. capacity ___ g.p.m.
Material of drop pipe ___
Type 1 ☐ Submersible 3 ☐ L.S. Turbine 5 ☐ Reciprocating
2 ☐ Jet 4 ☐ Centrifugal 6 ☐ ___

16 WATER WELL CONTRACTOR'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

[illegible] [illegible]
Licensee Business Name License No.

Address [illegible]

[illegible]
Signed ___ Date ___
Authorized Representative

[illegible] Date [illegible]
Name of Driller

5/74 30M
7/76 30M
7/78 30M
2/82 10M

HE-01205-0

non responsive

[redacted]

STATE OF MINNESOTA DEPARTMENT OF HEALTH

WATER WELL RECORD

MINNESOTA UNIQUE WELL NO. 404847

FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Clay	brown	hard	0	0 25
Shale	blue	hard	25	220
Sand Rock	white	soft	220	320
Lime	brown	hard	320	360
Shakopee	buff			

Use a second sheet, if needed

15. REMARKS ELEVATION SOURCE OF DATA, etc.

MINN. GEOLOGICAL SURVEY COPY 404847

3☐ Test Well 6☐ Air Conditioning 9☐

7. CASING

☒ Black 4☐ Threaded

2☐ Galv 5☒ Welded

3☐ Plastic 6☐

HEIGHT Above/Below

Surface 1 ft.

Drive Shoe? Yes ☒ No

4 in. to 323 ft. Weight 11 lbs./ft.

in. to ft. Weight lbs./ft.

in. to ft. Weight lbs./ft.

HOLE DIAM

in. to ft.

8 in. to 303 ft.

4 in. to 360 ft.

8. SCREEN

Make

Or open hole from ft. to ft.

Type Dia.

Slot/Gauze Length

FITTINGS

Set between ft. and ft.

ft. and ft.

9. STATIC WATER LEVEL

220 ft. ☒ below land surface ☐ above

Date Measured 10-6-83

10. PUMPING LEVEL (below land surface)

230 ft. after 4 hrs. pumping 50 g.p.m.

ft. after hrs. pumping g.p.m.

11. WELL HEAD COMPLETION

1☒ Pitless adapter manufacturer model

2☐ Basement offset 3☐ At least 12" above grade

12. WELL GROUTED*

☒ Yes ☐ No

1☐ Neat Cement 2☒ Bentonite 3☐

Grout material from 0 to 323 ft. Cu. Yds.

13. NEAREST SOURCES OF POSSIBLE CONTAMINATION

75 feet North direction Sewer type

Well disinfected upon completion* Yes ☒ No ☐

14. PUMP

Date installed 10-11-83 ☐ Not Installed

Manufacturer's Name Deming

Model Number 5ALN HP 1 Volts 230

Length of drop pipe 231 ft. capacity 8 g.p.m.

Material of drop pipe Galvanized Steel

Type ☒ Submersible 3☐ L.S. Turbine 5☐ Reciprocating

2☐ Jet 4☐ Centrifugal 6☐

16. WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

KIMMES - BAUER INC. 621

Licensee Business Name License No.

Address 21830 Lillehei Avenue

Hastings, Minnesota 55033

Signed Date

Authorized Representative

Les Anderson Date 10-23-83

Name of Driller

HE 01805 01

STATE OF MINNESOTA DEPARTMENT OF HEALTH

MINNESOTA UNIQUE WELL NO. 404802

non responsive

[redacted]

3 FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Sand	Brown	Soft	0	30
Clay	Blue	Med	30	45
Lime	yellow	Med	45	230
Sand Rock	white	hard	230	270
Sorted				

Use a second sheet, if needed

15 REMARKS ELEVATION SOURCE OF DATA, etc

MINN. GEOLOGICAL SURVEY COPY 404802

3 ☐ Test Well 6 ☐ Air Conditioning 8 ☐

7 CASING — HEIGHT Above/Below — HOLE DIAM

1 ☒ Black 4 ☐ Threaded
2 ☐ Galv. ☒ Welded
3 ☐ Plastic 5 ☐

Surface 1 ft
Drive Shoe? Yes ☒ No ☐

6 in to 50 ft	Weight lbs/ft	12 in to 50 ft	
4 in to 245 ft	Weight lbs/ft	8 in to 245 ft	
in to ft	Weight lbs/ft	4 in to 280 ft	

8 SCREEN — Open hole from 245 ft to 22 ft

Make
Type — Dia
Slot/Gauze — Length
Set between ft and ft
ft and ft
FITTINGS

9 STATIC WATER LEVEL
3 ft below land surface ☐ above — Date Measured 8-26-84

10 PUMPING LEVEL (below land surface)
10 ft after 2 hrs pumping 30 g.p.m.
ft after hrs pumping g.p.m.

11 WELL HEAD COMPLETION
1 ☒ Pitless adapter manufacturer — Model
2 ☐ Basement offset 3 ☐ At least 12" above grade

12 WELL GROUTED?
☒ Yes ☐ No
1 ☒ Neat Cement 2 ☐ Bentonite 3 ☐
Grout material — From 0 to 45 ft Cu. Yds. 5

13 NEAREST SOURCES OF POSSIBLE CONTAMINATION
75 feet South. direction Sewer type
Well disinfected upon completion? Yes ☒ No ☐

14 PUMP
Date Installed 10-11-84 ☐ Not installed
Manufacturer's Name Webtrol
Model Number — HP ½ Volts 230
Length of drop pipe 165' ft. capacity 10 g.p.m.
Material of drop pipe 1" Galv.
Type 1 ☒ Submersible 3 ☐ L.S. Turbine 5 ☐ Reciprocating
2 ☐ Jet 4 ☐ Centrifugal 6 ☐

16 WATER WELL CONTRACTOR'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

~~KIMES DRILL INC~~ Business Name ~~521~~ License No.
21830 Lillehei Ave.
Address ~~Hastings, MN 55033~~
Signed [signature] Date [illegible]
Authorized Representative

Les Anderson Name of Driller Date ~~8-26-84~~

HT-01189-01 5/74 30M 7/76 30M 7/78 30M 2/82 10M

11-16-18

[illegible]
[illegible] DCARED
Elev. [illegible]
Goodwin Unit [illegible] 69[illegible]

218796

Geraldine

non responsive

[redacted] 00

322' 6" well
90' 8" pipe, placed & left ; Step Down
260' 6" pipe casing
191' to water
25 g.p.m.
6" Underground discharge
1 h.p. 15BC Red Jacket submersible pump
210' pump setting
203 Well X-trol tank

CODED

File's Checked 111-16-34

111-16-34 [illegible]

Exist. 1221

[illegible] 698 218799

OK

[redacted]

335' well
281' cased 6'
234½' to water

LOG:

QUVU	0-40	Drift DRFT	
CDCR	40-125	Shale SHLE	T/1161
OPVL	125-141	Platteville LMSN	
OGWD	141-150	Glenwood SHLE	
OSTP	150-263	St.Peter SNDS	T/1051
OPDC	263-335	Shakopee DLMT	T/938

Hardness--19ppm; iron 10''m; pH 7.0 neutral

Aquifer
OPDC - OPDC

CODED

HADER ~~[illegible]~~ Dump 6/6/88

Sunny

non responsive

[redacted]

Start well @ 10:33 AM
sample outside faucet on
south side of home.

time	T_c	S_c	pH ?
1052	24	205	9.4 ← recal. bad pH meter
10:57	23.9	312	8.2
11:02	25.0	278	8.5
11:07	25.0	289	8.4

If staff of the [illegible]

(2) non responsive [redacted]

kitchen tap - drink water
started water at 12:45 pm
softener - but avoided

time	Tc	Sc	pH	
12 55	24.5	400	10.1	← recalibrate
1 00	24.5	382	6.35	pH meter
1:05	24.2	345	6.65	

25 yds SW wellhead
old gasoline pump
tank still buried

well depth approximately
75 feet

(3) non responsive [redacted]

tap in back garage Zum 55992
- started water @ 1:20 pm
- not softened but has one

time	Tc	Sc	pH*
1:53	22.2	445	
1:58	24.8	398	
2:03	26.0	398	

400+ feet well depth

*- pH yielding erratic readings

well depth approx. 405'

Jordan SS

7 Dec 88

(4) non responsive [redacted]

- started pump @ 10:10
- pump rate approx. .5 gal/min
- directly from well head
- well approx. 40' ⅞

- time	S_c	Temp
10:20	205	24
10:25	249	26
10:30	405	24
10:35	412	26
10:40	402	26

matrix / dup.

500 l
36 times/min
3000

$\pi R^2 L$
$\pi 4(40)$
502 in^3

15000
18000 ml = 1.8 l/min

7 June 88

non responsive [redacted]

- started well @ 1:27
- 85 ft.

time	Temp	S_c (μmhos)	
1:32	23.5	380	(56°F)
137	13.5	375	
1:42	13.5	388	

this copy request to Maggie, please describe

Describ...

6/8/88

Sunny / P. cloudy

T° ~ 65°

non responsive [redacted]

all samples taken by hand - bottles placed under surface + filled.

Water depth ≈ 2.5-3 ft

samples taken in middle but away from macrophytes (submerged) and duckweed.

⊗ Quarry Pond sediment
QS-1 / 508

used Ekman grab to take
3 samples — composited.
put samples in tray
before putting in bottles.

sediments organic w/ parts
of dead plant matter.

was responsible for completing the copying
commented on the reverse side of this form

③ Quarry effluent (leachate)
QE-1/507

- took volatile sample a
- ~~not enough volume of water~~
- water not deep enough to get adequate sample for extractable and metals/cyanide.

- an oily film was on water surface.