SDMS DocID 2221722

ORIGINAL
(Red)

R-585-1-6-25

SITE INSPECTION OF GULF OIL SINKING SPRING PREPARED UNDER

TDD NO. F3-8405-32
EPA NO. PA-1046
CONTRACT NO. 68-01-6699

FOR THE

HAZARDOUS SITE CONTROL DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

MARCH 17, 1986

NUS CORPORATION
SUPERFUND DIVISION

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

NUS CORPORATION
SUPERFUND DIVISION

Site Name: Gulf Oil Sinking Spring
TDD No.: F3-8405-32 ORIGINAL (Red)

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SECTION 1

1.0 INTRODUCTION

1.1 Authorization

NUS Corporation performed this work under Environmental Protection Agency Contract No. 68-01-6699. This specific report was prepared in accordance with Technical Directive Document No. F3-8405-32 for the Gulf Oil Sinking Spring site located in Sinking Spring, Pennsylvania.

1.2 Scope of Work

NUS FIT III was tasked to perform a sampling/site inspection of the subject site. The site was visited on October 30, 1984.

1.3 Summary

The Gulf Oil Sinking Spring site was a petroleum storage facility in Sinking Spring Township, Pennsylvania, which operated from 1962 until 1983 under state permits. This site was listed in the Eckhardt Survey because of a major spill which occurred at the site in 1978 and because of on-site disposal of process wastes. Recovery wells installed by Gulf Oil's contractor, R.E. Wright Associates, Incorporated, removed 2,500 gallons of spilled gasoline from the local groundwater system. Other wastes at the site include waste from separators and tank sludge. Groundwater, the major commercial, industrial, and potable water source within a 3-mile radius of the site, has been polluted in the area of the site. Regional groundwater flow is to the northeast.

FIT III inspected the site on October 30, 1984 and sampled 3 monitoring wells, 3 auger holes, and upstream and downstream locations on Cacoosing Creek. Analytical results of the samples appear in section 6.0 and a toxicological assessment of the results appears in section 7.0 of this report.

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SECTION 2

2.0 THE SITE

2.1 Location

The site is located in Sinking Spring, Pennsylvania on Mountain Home Road at the bottom of a hill which rolls toward Cacoosing Creek (see appendix B, figure 1).

2.2 Site Layout

The site is approximately 10 acres in size and consists of office buildings with bulk oil storage tanks and distribution pipes for tank trucks. The entire property is enclosed by a chain link fence. The tank area is in the far north section of the site and the truck filling area is at the south end of the site. The inactive lead sludge disposal areas (shown in appendix B, figure 2) are at the north end of the property.

2.3 Ownership History

Gulf Oil built the distribution center in 1962 and operated it until its closure in 1983 as a terminal for the receipt, storage, and distribution of bulk oil products, chiefly gasoline. The site was sold in the summer of 1984 to Mr. Carlos Lefler, of Richland, Pennsylvania.

2.4 Site Use History

The Gulf Oil Company used the site as a distribution center from 1962 until its closure in 1983. The on-site disposal of process wastes occurred routinely during the active years of petroleum processing. Tank and separator sludges were buried in unlined pits (see appendix B, figure 2). A major gasoline spill from tank 101, an above-ground bulk storage tank, occurred in 1978.

2.5 Permit and Regulatory Action History

According to Pennsylvania Department of Environmental Resources (PA DER) files, an NPDES application for this facility was submitted in 1974, but no ruling was made on the application by EPA or PA DER. No RCRA inspections were performed during the years of operation of this plant. No permits were issued for the inactive lead sludge disposal area (see appendix B, figure 2).

2.6 Remedial Action To Date

Monitoring wells have been installed by Gulf Oil Company. The inactive lead sludge area has been covered with 4 feet of soil and gravel.

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SECTION 3

3.0 ENVIRONMENTAL SETTING

3.1 Water Supply

(b) (9)

Potable sources outside of these areas are supplied by private wells. Drinking water at the site is bottled.

Industrial and commercial service is provided by private wells and the above mentioned water companies and authorities.

(b) (9)

[redacted]

Cacoosing and Little Cacoosing Creeks are not used for water supplies.

3.2 Surface Waters

Cacoosing Creek, which merges with Little Cacoosing Creek 1.8 stream miles north of the site, flows into Tulpehocking Creek. Tulpehocking Creek flows southeast into the Schuylkill River. Surface water within 3 miles downstream of the site is limited to the Cacoosing and Little Cacoosing Creeks (see appendix B, figure 1). Cacoosing Creek receives surface drainage from this site. The creek is 150 feet from the site boundary. Use of surface waters 3 miles downstream of the site was not determined, except that the creeks are not listed by the Pennsylvania Fish Commission as stocked creeks.

3.3 Geology and Soils

The site is underlain by alluvial deposits, residual limestone clay, and gray limestone bedrock (see appendix E for information provided by the site representative to FIT III). This limestone is from the Beekmantown Group. The Ontelaunee Formation (Beekmantown Group) is light to dark gray, very fine- to medium-grained crystalline dolomite with interbeds of bluish gray limestone; interbedded and nodular dark gray chert are at the base of the formation. Below the Beekmantown Group is the Conococheague Group, which consists of massive beds of limestone and dolomite of Cambrian age.

Soils weathered from parent rocks in the area of the site are of the Duffield Series and the Melvin Series. The Duffield silt loam consists of deep, well drained, nearly level to steep soils formed from the underlying, impure limestone. The Melvin silt loam consist of soils that are poorly drained and nearly level. These soils have formed from alluvium derived from sediment originating in uplands underlain by limestone and calcareous shale. The moisture capacity of both series is high, and the effects of erosion are slight or none.

The geology contained within the 3-mile radius surrounding the site is quite complex. The various formations present have been scattered about in a patchwork-like fashion. The forces necessary to produce this haphazard array were generated by several tectonic events. A description of the formations contained within the 3-mile radius is presented as follows.

Precambrian

Granite gneiss and granite - These intrusions, described as being medium to coarse grained, appear in 3 small areas within the south-central portions of the study region. Being gneissoid in some spots, they characteristically contain a parphysitic texture. The chief mineral constituents are quartz, feldspar, biotite, and hornblende.[1,2]

Lower Cambrian

Hardyston Formation (Cha) - This 600 feet thick formation is reported to contain quartzose and feldspathic sandstones and quartzites, with conglomerate occurring near the base. The Hardyston is found in 2 rather large areas in the southwest and southeast portions of the study region.[1,6]

Middle Cambrian

Buffalo Springs Formation (Ebs) - This interbedded limestone and dolomite occupies only a small portion of the study area to the southeast. Its color ranges from lighter gray to pinkish gray and its thickness is reported to be greater than 500 feet.[1]

Upper Cambrian

Millback Formation (Om) - The Millback is represented by a rather broad band crossing through the south central portion of the 3-mile radius. Described as an interbedded limestone and dolomite, its color is characteristically light gray, though occasional pinkish gray portions do exist. Conglomerates are also reported to be widely distributed throughout the formation. The Millback is thought to be greater than 1,000 feet thick.[1]

Richland Formation (Or) - Reported to be 1,700 feet thick within the study region, this formation consists of gray, thickly bedded dolomite. Interbedded within are smaller beds of limestone. Limestone is thought to be more prevalent towards the middle of the Richland, and is described as dolomitic and sandy towards the base. This formation occupies 2 bands, 1 broad, the other somewhat thinner, both trending approximately east-west across the region.[1]

Both the Richland and the Millback Formations are members of the Conococheague Group.[1]

Lower Ordovician

Rickenbach Formation (Or) - This cherty dolomite, which contains interbedded limestone, is described as being medium to medium-dark gray in color and is approximately 600 feet thick. Rickenbach occurrence is limited to a small area in the northeast section of the 3-mile radius.

Epler Formation - The 800 feet thick Epler Formation is reported to be composed of interbedded limestone and dolomite, which contains lines of calcarenite. Its color is reported as medium gray. The formation occurs in several small patches in the northern region of the 3-mile radius.

Ontelaunee Formation (Oo) - This medium-dark gray dolomite is reported to be interbedded with medium gray, mottled limestone. Dark gray chert beds may occur near its base. The thickness of the Ontelaunee is estimated to be between 600 and 700 feet and occupies a rather large body centrally located within the study region.[1]

The Rickenbach, Epler, and Ontelaunee Formations are all members of the Beekmantown Group.[1]

Middle Ordovician

Myerstown Formation (Omy) - This formation, which ranges in thickness from 0 to 200 feet, is described as a gray, thin bedded, crystalline limestone, and is carbonaceous at its base. This formation occupies only a very small portion to the west within the 3-mile radius.[1]

Hershey Formation (Ohy) - The Hershey, being a dark-gray argillaceous limestone, ranges in thickness from 800 to 1,200 feet. A dolomite conglomerate is found in the lower portions of the formation. As with the Myerstown, it occupies only a very small extent within the western portion of the study area.[1]

Lithotectonic unit 6 (Oh6) - This unit, of unknown thickness, is composed of siltstone, claystone, and shale which are greenish-brown in color. Interbedded with the above, limestone and a brown quartz-pebble graywacke conglomerate are found. Areal extent is limited to several small masses near the center of the study area.

Lithotectonic unit 8 (Oh8) - Situated to the northwest, this unit's thickness is also undetermined. It consists of gray shale, which weathers to a buff or olive color, and is interbedded with fine-grained graywacke.

Middle and Upper Ordovician

Martinsburg Formation (Om) - The Martinsburg is composed of 3 members, the Pen Argyl, the Ramseyburg, and the Bushkill.

Bushkill Member (Omb) - This 4,000 feet thick claystone slate is described as thin bedded and dark to medium gray in color. Interbedded within are graywacke siltstone, carbonaceous slate, and dolomite siltstone near its base.

Ramseyburg Member (Omn) - This member is reported to be an interbedded sequence involving a medium- to thick-bedded, graded graywacke with a graywacke siltstone. Its color ranges from dark to medium gray and the thickness is estimated to be 2,800 feet.[1]

Pen Argyl Member (Omp) - Consisting of dark-gray to grayish-black, thick-bedded claystone slate, this member is reported to be 3,000 to 6,000 feet thick. Interbedding of quartzose slate and carbonaceous claystone slate is reported.[1]

All of the above members weather from a medium-gray to yellowish-brown color. Within the 3-mile radius, 2 small masses of the Martinsburg outcrop in the south, and it is assumed that the individual members are indifferentiable at these locations. Two outcrops of the Bushkill member have been identified in the northwest portion of the region.[1]

Triassic

Hammer Creek Formation (Trh) - This formation represents an interbedded sequence of red, brown, and gray sandstone, fine to coarse conglomerate, and red shale. The most common lithology within the formation is a brown sandstone whose bedding thickness can range from 1 to 2 inches, and up to a foot or more. The thinner bedded varieties tend to be fine grained. Conglomerate portions tend typically to be thick bedded and occasionally massive. Ground mass generally comprises 50 percent of the conglomerate, while cobbles up to 5 and 6 inches in diameter may be present in the thicker beds. In general, the bedding of all lithologies tends to be lens shaped, and discontinuous in all directions, yet individual beds may extend for several thousand feet. The Hammer Creek occupies a large areal portion within the southern region of the study area.[6]

Triassic Diabase (Trd) - This medium-grained, crystalline, shallow intrusion rock is reported to be derived from a Basaltic magma. Occurring as dikes within the study region, several thin intrusions are located in the central and northern regions, while a large dike exists in the south.[1,3] The rocks' speckled appearance occurs as a result of the distribution of light plagioclase and dark pyroxene and olivine.[1,3]

Intense folding and thrust faulting represent the major features which have created the complex structural geology of this area. Before presenting a discussion of the structures found, the following definitions are presented in order to help make the section more meaningful.

The term "thrust fault" generally describes a reverse fault which dips at an angle of less than 45 degrees. This low angle of dip often will position older rocks over top of younger ones. "Thrust" or "slide" refers to the movement surface, while the terms "thrust sheet" and "nappe" describe the unit above the movement surface. "Nappe," an abbreviation for the French word "nappe de recovement," is used geologically to describe large, sheet-like geologic bodies, which cover lower rocks tectonically. Tectonic outliers, which are isolated outcrops surrounded in map pattern by tectonically lower rocks, have been given the term "klippe." The major structural feature has been described as "great recumbent anticlinal detachments." This description refers to an anticline which has had its axial plane turned near horizontal and was then later crosscut by a thrust fault. The result of this deformation will often be a relocation of a portion of the overturned anticline.[1,4]

Within the study region, the Lehigh Valley Sequence, referred to as the Irish Mountain Nappe, contains the Beekmantown Group. The Buffalo Springs Formation, Conococheague Group, Beekmantown Group, Meyerstown Formation, and Hershey Formation belong to the Lebanon Valley Sequence, representing the Lebanon Valley Nappe. Both sequences also contain granite gneiss and granite of the Precambrian and the Hardyston Formation. Each of these nappe systems contains rock sequences characteristic of their exposure area. The Irish Mountain Nappe and the Lebanon Valley Nappe interact in the site area, and both were derived from the same carbonate shelf.[1]

It is reported that, on the west of Sinking Spring, the Irish Mountain Nappe was overridden by the lower link of the Lebanon Valley Nappe. In later deformation, both of these units were in turn over-ridden by rocks of the upper limb and core of the Lebanon Valley Nappe. During both events, the rocks advanced as subunits, along internal thrusts of various magnitudes, rather than as a single unit.

Lithotectonic units 6 and 8, part of a group known as the Hamburg sequence, are also referred to as the "Hamburg Klippe." This sequence was originally deposited upon a northwest-facing bank in the Proto Atlantic. Tectonic events broke the sequence into blocks which slid deeper into this ocean. In later deformation, these blocks, stacked in their present order, were then thrust upon the Martinsburg Formation, forming a large, structurally complex sheet.[1]

The Taconic and Alleghanian orogenies are reported to have produced the major displacements in the region. The general structural trend is southwest to northeast and the dominant deformational force is reported to have come from the south and southeast. Dips range from 20 to 80 degrees, and some represent overturned strata.[1]

It should be noted that rocks of the Triassic exhibit different structural relationships than the other formations previously discussed. The Newark Group, of which Hammer Creek is a member, consists of a thick sequence of Triassic sediments. These sediments filled the Newark-Gettysburg basin. Forming a homoclinal structure, the Newark dips northwestward, and is broadly warped. Dips are reported to range from 15 to 20 degrees. The petrography and depositional structure of the Newark are reported to indicate derivation from Paleozoic sediments, which were located north and northwest. The Hammer Creek represents a relatively coarse member within the group and is thought to represent the deposits of a major stream system. The conglomerate portions of Hammer Creek would seem to represent localized alluvial fans, or perhaps mudflow deposits.[6]

3.4 Groundwaters

Within the study region, the majority of groundwater is found in the bedding planes, joints, faults, and fractures, representing the secondary openings. Water-bearing zones generally decrease with depth to approximately 300 feet. While the secondary openings in carbonate rocks also decrease with depth, they tend to exist farther below land surface than those in other formations. Solution has enhanced these openings, helping to explain the presence of water-bearing zones at greater depths. Conversely, the igneous and metamorphic species that are present contain jointing which generally decreases rapidly with depth, resulting in lower yields.[1,2,5]

It is reported that shale members with the highest transmissivities are those units which contain portions of limestone and dolomite. However, carbonates with the lowest transmissivities are those members which contain significant amounts of shale, and/or large clayey fractions. Those formations contained within the Conococheague and Beekmantown Groups, which occupy significant portions of the study region, are reported to be good to excellent aquifers.[1]

Groundwater flow, at least within the carbonates, is generally expected to be to the northeast.

Figure 1, appendix B, indicates those portions within the 3-mile radius which have been excluded from the aquifer of concern. From this map, we can observe that the entire extent of the Hammer Creek Formation, the major dike occurring in the south, and a large body of granite gneiss to the west have all been omitted. The rationale behind these exclusions is as follows:

1. The nature of the Hammer Creek Formation is such that the beds are lens shaped and discontinuous. The cyclic sequences observed cause permeability to differ substantially from 1 bed to another. Outcrops indicate that, where sandstone units are emplaced between shales, the hard sandstones tend to develop jointing, while the shales tend to deform without breaking. Within the thicker beds of sandstone and conglomerate, joints are few as a result of greater competency. Hydraulic interconnection between individual aquifers is reported to be poor.[7]

2. Diabase weathers to a maximum of approximately 30 feet and the majority of water storage occurred within this zone. Water movement occurs through the joints, the size of which tends to decrease rapidly with depth. Fractures rarely exist below 150 feet and there is very little primary porosity. Gneiss, also an impervious rock, displays water-bearing properties similar to those of igneous species.[2,7]

3. As can be seen in figure 1, appendix B, the portion of the study area excluded from the aquifer of concern has not been subjected to the same intense deformational processes that the rocks in the northern regions have undergone.[1,6]

Considering the above discussion, the remainder of the 3-mile radius has been identified as the aquifer of concern. The large number of faults and fractures cross cutting the area weighed heavily in making this decision. These secondary pathways act as water flow zones which would allow for the hydraulic interconnection of the remainder of the area. It should also be pointed out that, in addition to the faults and fractures mapped, numerous others could possibly exist which, at present, may be concealed.[1]

3.5 Climate and Meteorology

The mean annual temperature for the area is about 52°F. The mean annual precipitation in the study is approximately 37 inches. The mean annual lake evaporation is about 33 inches; therefore, the net precipitation in the area is approximately 4 inches.

3.6 Land Use

Land north and south of the site is agricultural. Light industry is located to the south of the site and residential properties are located to the east. The population within 1,000 feet of the site is less than 10 people.

3.7 Population Distribution

The population of the 3-mile radius, from a house count, is 46,109 people. House count information reveals the following:

1-mile radius: 1,794 houses x 3.8 persons/house = 7,817 people
2-mile radius: 2,808 houses x 3.8 persons/house = 10,670 people
3-mile radius: 7,269 houses x 3.8 persons/house = 27,622 people
TOTAL POPULATION = 46,109

3.8 Critical Environments

No known critical environments exist within 1 mile of the site.

3.9 References

1. Wood, Charles R., and David B. Machachlan, Commonwealth of Pennsylvania Department of Environmental Resources. Geology and Groundwater Resources of Northern Berks County, Pennsylvania. Water Resources Report 44, 1978.

2. Hall, George M., Commonwealth of Pennsylvania Department of Environmental Resources. Groundwater in Southeast Pennsylvania. Water Resources Report 2, 1934.

3. Bell, Pat, and David Wright. Rocks and Minerals. Macmillan Publishing Company, New York. 1985.

4. Dennis, John G. Structural Geology. The Ronald Press Company, New York. 1972.

5. Fetter, C.W. Jr. Applied Hydrogeology. Charles E. Merrill Publishing Company, Columbus, Ohio. 1980.

6. Machachlan, David, B., Traig V. Buckwalter, and Dean B. McLaughlin, Commonwealth of Pennsylvania Department of Environmental Resources. Geology and Mineral Resources of the Sinking Spring Quadrangle, Berks and Lancaster Counties, Pennsylvania. Atlas 177d, 1975.

7. Wood, Charles R., United States Geological Survey, Water Resources Division. Groundwater Resources of the Gettysburg and Hammer Creek Formations, Southeastern Pennsylvania. Water Resources Report 49, 1980.

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SECTION 4

4.0 WASTE TYPES AND QUANTITIES

Waste types and quantities reported by PA DER (see EPA file no. PA-1046), to have been disposed of at this site include the following:

K049 - Slop oil emulsion solids	3,500 pounds per year
K051 - API separator sludge	700 pounds per year
K052 - Tank bottoms (leaded)	3,500 pounds per year

The above wastes are listed in the Federal Register Part 261 as toxic wastes, based on the hazardous constituents chromium and lead. The site was active from 1962 to 1983, a total of 22 years. A gasoline spill occurred in 1978 in which at least 2,500 gallons of gasoline were spilled and recovered from groundwater under the site (see appendix B, figure 2).

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SECTION 5

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5.0 FIELD TRIP REPORT

5.1 Summary

FIT III representatives Michael Cramer, Andrew Frebowitz, Arthur Weber, and Robert Howell arrived on site at 9:30 AM on October 30, 1984 and met with Kenneth Talbott, of Gulf Oil. The command post was set up in the main yard area. The HNU was calibrated at the command post, and the mini-alert was set on the X1 position. Monitoring well, soil, and surface water samples were collected following standard operating procedures. A sample receipt was obtained by the FIT for samples. A chain-of-custody sheet was filled in and signed by the project manager and the company representatives for split samples.

The weather during the site inspection was fair.

5.2 Persons Contacted

5.2.1 Prior to Field Trip

Kenneth Talbott
Manager
Gulf Oil Terminal
Sinking Spring, PA 19608
(215) 264-0518

Bruce Beitler
PA DER
Norristown, PA 19407
(215) 270-1920

Mark Selmon
Weston T.A.T.
Cherry Hill, NJ 07080
(609) 663-7995

Charlotte Frick
Chemist
Gulf Oil
Pittsburgh, PA 15211
(412) 665-5725

Benjamin Reitnour
Supervisor
Citizen's Utility Water Co.
Four Wellington Boulevard
Wyomissing Hills, PA 19610
(215) 678-4545

5.2.2 At The Site

Kenneth Talbott
Manager
Gulf Oil Terminal
Sinking Spring, PA 19608
(215) 264-0518

Hans Decker
Supervisor
Wernersville Water Co.
Wernersville, PA 19565
(215) 678-1486

TDD Number F3-8405-41
EPA Number PA-1046

5.3 **SAMPLE LOG**

Site Name GULF OIL SINKING SPRING

TRAFFIC REPORTS Organic	Inorganic	High Hazard	SAMPLING LOCATION	PHASE	SAMPLE DESCRIPTION	DATE	TIME	pH	COMMENTS/OBSERVATIONS	LABORATORY
C9296	MC4986		M. W. 3 U.F.	AQ	UNFILTERED SAMPLE ON SITE MONITORING WELL	10-31-84	1100	5.4	OFF SITE BACKGROUND HNU=.4 Hnu = 4 ppm	
	MC4987		M. W. 3 F.	AQ	FILTERED ON SITE MONITORING WELL	10-31-84	1225			
C9297	MC4988		M. W. 2 U.F	AQ	UNFILTERED SAMPLE ON SITE MONITORING WELL	10-31-84	1130	5.5		
	MC4636		M. W. 2 F.	AQ	FILTERED SAMPLE ON SITE MONITORING WELL	10-31-84	1225		GASOLINE ODOR Hnu 120 ppm	
C9298	MC4990		M. W. 1 U.F	AQ	UNFILTERED SAMPLE ON SITE MONITORING WELL	10-30-84	1400		Hnu 71 ppm	
C9299	MC4634		DOWNSTREAM	AQ	STREAM ADJACENT TO SITE	10-30-84	1145	5.95	25' UPSTREAM OF BRIDGE	
C7256	MC4637		UPSTREAM	AQ		10-30-84	1210	6.0	20' DOWNSTREAM OF ROAD	
C9267	MC4642		~~UPSTREAM~~ BLANK	AQ	WATER	10-30-84	1030			
C9300	MC4635		DOWNSTREAM	SED		10-30-84	1145			ORG. AQ
C7257	MC4638		UPSTREAM	SED		10-30-84	1210			TO
C9501	MC4639		AUGER 1	SED	IN AREA OF KNOWN TANK SPILL	10-30-84	1235		REFUSAL AT 2 FEET SOIL IS GRAVELLY	G. C. A.
C9587	MC4640		AUGER 2	SED	IN AREA OF KNOWN TANK SPILL	10-30-84	1245		REFUSAL AT 1 FOOT SOIL IS GRAVELLY	
C9266	MC4641		AUGER 3	SED	IN AREA OF KNOWN TANK SPILL	10-30-84	1320		REFUSAL AT 1 FOOT SOIL IS GRAVELLY	ORG. SED
C9268	MC4643		BLANK (SED)	AQ	WATER	10-30-84	1030			TO
										E.R.C.O.
										INORG
										TO
										CHEM
										TECH

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5.4 Site Observations

- The background HNU reading was 0.4 ppm.
- The lid on well no. 2 was stamped "C.S. Garber and Sons, Inc.; Pumps, Drilling; Boyertown, PA."
- Monitoring well no. 1 was not filtered because of an oily sheen on the water. This oily sheen has the potential to cross-contaminate samples which may be run through the sampling equipment after filtering this sample. The oily sheen could also clog the equipment.
- The local topography slopes toward the Gulf Terminal from the northeast.
- Other tank farms are located upgradient of the Gulf Terminal.
- The area of lead sludge was covered by soil in excess of the hand auger depth.
- Monitoring well no. 2 showed an HNU reading of 120 ppm and emitted a gasoline odor during bailing.

5.5 PHOTOGRAPH LOG

Photo 1 - Auger sample 1

Photo 2 - Upstream sample area

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ROLL 1 PHOTO 5 F3-8405-32 PA24SI
GULF OIL SINKING SPRING 30 OCT 84
1235 R1P5
PHOTO5

AUGER SAMPLE 1

PHOTO BY MP CRAMER

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ROLL 1 PHOTO 4 F3-8405-32 PA24SI
GULF OIL SINKING SPRING 30 OCT 84
1210 R1P4
PHOTO4

UPSTREAM SAMPLE AREA

PHOTO BY A. FREBOWITZ

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Photo 3 - Downstream sample location

Photo 4- M.W. 2

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ROLL 1 PHOTO 3 F3-8405-32 PA245I
GULF OIL SINKING SPRING 30 OCT 84
1145

R1 P3
PHOTO 3

DOWNSTREAM SAMPLE LOCATION

BY
A. FREBOWITZ

NOV 1984

NOV 1984

Photo 3 - Downstream sample location

ROLL 1 PHOTO 2 F3-8405-32 PA245I
GULF OIL SINKING SPRING 30 OCT 84
1105

M.W. 2

R1 P2
PHOTO 2

PHOTO BY
M. P. CRAMER

NOV 1984

NOV 1984

ORIGINAL
(Red)

Photo 4- M.W. 2

Photo 5 - M.W. 3

ORIGINAL
(Red)

Photo 1 Roll 1 F3-8405-32 PA245I

Gulf Oil Sinking Spring 30 OCT 84

1050

R1 P1

Photo 1

M. W. 3

Photo By M.P. Cramer

NOV 1984

NOV 1984

ORIGINAL (Red)

Photo 5 - M.W. 3

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(Red)

F3-8405-32

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	1046

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Gulf Oil Sinking Spring Terminal	Mountain Home Road

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG. DIST.
Sinking Spring	PA	19608	Berks	011	PA06

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
40° 19' 00"	76° 12' 01"	☒ 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
10 / 30 / 84 (MONTH DAY YEAR)	☐ ACTIVE ☒ INACTIVE	1962 (BEGINNING YEAR) / 1983 (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☐ A. EPA ☒ B. EPA CONTRACTOR NUS Corp. (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
Michael Cramer	Geologist	FIT III	(215) 687-9510

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO
Arthur Weber	Environ. Technician	FIT III	(215) 687-9510
Andrew Frebowitz	Environ. Engineer	FIT III	(215) 687-9510
Robert Howell	Environ. Technician	FIT III	(215) 687-9510
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
K. Talbott	Manager	Gulf Oil P.O. Box 2091, Sinking Spring, PA	(215) 264-0518
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	9:00 to 4:30	fair

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO
Laura Boornazian	EPA	(215) 597-3153

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Michael Cramer	FIT III	NUS Corp.	(215) 687-9510	2 / 18 / 86 (MONTH DAY YEAR)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	1046

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- A SOLID
- B POWDER, FINES
- X 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 ~~Unknown~~
NO. OF DRUMS Unknown

03 WASTE CHARACTERISTICS (Check all that apply)

- X A TOXIC
- B CORROSIVE
- C RADIOACTIVE
- D PERSISTENT
- E SOLUBLE
- F INFECTIOUS
- X G FLAMMABLE
- H IGNITABLE
- I HIGHLY VOLATILE
- J EXPLOSIVE
- X 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	7,700	Lbs	Per year
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

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
	total xylenes			12,496	ug/l
	cis-1, 3-dichloropropene	10061-01-5		646	ug/l
	acetone			15,888	ug/l
	naphthalene	91-59-5		435	ug/l
	benzene	71-43-2		6,833	ug/l
	1,2-dichloroethane	95-50-1		1,599	ug/l
	1,1,2-trichloroethane	27-00-5		27	ug/l
	styrene	100-42-5		297	ug/l
	ethylbenzene			2,207	ug/l
	lead	7439-92-1		440	ug/l
K049	slop oil emulsion solids		landfilled	3,500	lbs/yr
K051	API separator sludge		landfilled	700	lbs/yr
K052	Tank bottoms (leaded)		landfilled	3,500	lbs/yr

V. FEEDSTOCKS See Appendix for CAS Numbers

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

SI Report, sections 6 and 7 (TDD No. F3-8405-32)
EPA file PA-1046

EPA FORM 2070-13 (7-81)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
PA	1046

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☒ OBSERVED (DATE 10/31/84) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

MW 1, on site 12,496 ug/l, total xylenes
MW 1, on site 435 ug/l napthalene
MW 1, on site 15,888 ug/l acetone
MW 1, on site, 1,599 ug/l, 1,2-dichloroethane
MW 1 on site, 6,833, benzene

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Not detected in samples taken at this time.

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Not expected, although an HNU reading of 120 ppm was recorded at MW no. 2 during bailing.

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Not expected, site inactive

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

Not expected

01 ☒ F. CONTAMINATION OF SOIL — 02 ☒ OBSERVED (DATE 10/31/84) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED _____ (Acres) 04 NARRATIVE DESCRIPTION

FIT III sample results showed trichloroethene, 4 ug/kg at augers.

01 ☒ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

On-site monitoring wells show contamination and area groundwater is used as a drinking water supply.

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

Not expected

01 ☒ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 40,490 04 NARRATIVE DESCRIPTION

See Groundwater above

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
PA	1046

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None known

01 ☒ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

Potential to harm aquatic organisms in Cacoosing Creek

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None known

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills, Runoff, standing liquids, Leaking drums) — 02 ☒ OBSERVED (DATE: 10/31/84) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

No liners at disposal area. Runoff drains to Cacoosing Creek.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Not observed

01 ☐ O CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Not observed

01 ☐ P ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Not observed

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

None

III. TOTAL POPULATION POTENTIALLY AFFECTED: 40,490

IV. COMMENTS

None

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT III 10/30/84 site inspection report

EPA FORM 2070-13 (7-81)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
PA	1046

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	06-312-008	3/19/82	5/30/83	state issued
☐ D. RCRA				
☒ E. RCRA INTERIM STATUS	no permit issued			
☒ F. SPCC PLAN				
☒ G. STATE (Specify)	0668201			for discharge from oil-waters separator
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☒ F. LANDFILL	7,700	lbs/yr
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ 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 (Specify)

05 OTHER

- ☒ A. BUILDINGS ON SITE

06 AREA OF SITE: 10 (Acres)

07 COMMENTS

The site was active from 1962 to 1983 a total of 22 years. Waste disposal was 7,700 lbs/yr for a total volume of 169,400 pounds.

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.

Inadequate containment due to no liners in areas of waste disposal and spills.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ☒ NO

02 COMMENTS

The facility is fenced.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

FIT III Site Inspection of 10/30/84 (F3-8405-32 - PA 1046)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	1046

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☐	B. ☒
NON-COMMUNITY	C. ☐	D. ☐

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☒	C. ☐
D. ☐	E. ☐	F. ☐

03 DISTANCE TO SITE
A. 0.2 (mi)
B. _____ (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 (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 40,490

03 DISTANCE TO NEAREST DRINKING WATER WELL 0.2 (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
8.5 (ft)	northeast	8.5 (ft)	unknown (gpd)	☒ YES ☐ NO

09 DESCRIPTION OF WELLS (including usage, depth, and location relative to population and buildings)

MW 1, 8 inch hole to 105 feet, slotted 6 inch casing from 22 ft., 5 in. to 105 ft., solid casing from surface to 22 ft., 5 in. Well is grouted from 22 ft., 5 in. to surface with about 7 cubic yards of cement. See appendix for further details.

10 RECHARGE AREA
☒ YES ☐ NO
COMMENTS: Recharge through rainfall

11 DISCHARGE AREA
☒ YES ☐ NO
COMMENTS: springs in area

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

Not listed as stocked stream

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Cacoosing Creek	☐	150 ft. (mi)
	☐	(mi)
	☐	(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. 1,794 NO OF PERSONS	B. 4,602 NO OF PERSONS	C. 11 NO OF PERSONS

02 DISTANCE TO NEAREST POPULATION 750 feet (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE _____

04 DISTANCE TO NEAREST OFF-SITE BUILDING .2 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

Population is low due to rural farmland surrounding the site area.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	1046

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)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
31 (ft)	8.5 (ft)	unknown

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
4 (in)	2.5 (in)	5 %	southwest	5 %

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. N/A (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

_____ (mi)

ENDANGERED SPECIES: None known

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. 0.0 (mi)	B. 0.5 (mi)	C. N/A (mi)	D. 0.01 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site lies in a valley which slopes southwest toward Cacoosing Creek, and rises gently to the northeast. Regionally, the site is in a valley of the Valley andRidge Province. These structures trend in a northeast to southwest direction.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT III October 30, 1984 Site.Inspection

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	1046

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	5	Inorganic: Chemtech	7/85
SURFACE WATER	2	Org. aq: GCA	
WASTE		Org. soil: ERCO	
AIR			
RUNOFF			
SPILL			
SOIL	5		
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
HNU photoionizer	120 ppm during well bailing (MW 2)

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL

02 IN CUSTODY OF FIT III and EPA (Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS F3-8405-32 SI report

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

EPA files, FIT III site inspection of 10/30/84

EPA FORM 2070-13 (7-81)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	1046

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Gulf Oil Products Co.		P.O. Box 2091	S171	Sinking Spring	PA	19608
N/A						
N/A						
N/A						

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
Gulf Oil Products Mid-atlantic		P.O. Box 2235		Baltimore	MD	21203
N/A						
N/A						
N/A						

III. PREVIOUS OWNER(S) (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
N/A						
N/A						
N/A						

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
N/A						
N/A						
N/A						

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

PA DER file No. PA-1046

EPA FORM 2070-13 (7-81)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
PA	1046

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME: Carlos Lefler Inc.	02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): 225 E. Main Street	04 SIC CODE:
05 CITY: Richland	06 STATE: PA
07 ZIP CODE: 17087	
08 YEARS OF OPERATION: 1	09 NAME OF OWNER: Carlos Lefler

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME: Carlos Lefler, Inc.	11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.): 225 E. Main Street	13 SIC CODE:
14 CITY: Richland	15 STATE: PA
16 ZIP CODE: 17087	
717-866-2105	

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME: Gulf Oil Products Co.	02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): P.O. Box 2091	04 SIC CODE: 5171
05 CITY: Sinking Spring	06 STATE: PA
07 ZIP CODE: 19608	
08 YEARS OF OPERATION: 22	09 NAME OF OWNER DURING THIS PERIOD: Gulf Oil Products Company

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME: Gulf Oil Products Co.	11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.): P.O. Box 2235	13 SIC CODE:
14 CITY: Baltimore	15 STATE: MD
16 ZIP CODE: 21203	

01 NAME: N/A	02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):	04 SIC CODE:
05 CITY:	06 STATE:
07 ZIP CODE:	
08 YEARS OF OPERATION:	09 NAME OF OWNER DURING THIS PERIOD:

10 NAME: N/A	11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.):	13 SIC CODE:
14 CITY:	15 STATE:
16 ZIP CODE:	

01 NAME: N/A	02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):	04 SIC CODE:
05 CITY:	06 STATE:
07 ZIP CODE:	
08 YEARS OF OPERATION:	09 NAME OF OWNER DURING THIS PERIOD:

10 NAME: N/A	11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.):	13 SIC CODE:
14 CITY:	15 STATE:
16 ZIP CODE:	

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA FORM 2070-13 (7-81)

ORIGINAL
(Red)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
PA	1046

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
Gulf Oil	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
Mountain Home Road	5171

05 CITY	06 STATE	07 ZIP CODE
Sinking Spring	PA	19608

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
None		N/A	

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
N/A		N/A	

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
N/A		N/A	

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
N/A		N/A	

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)

PA DER files
FIT III 10/30/84 Site Inspection

ORIGINAL
(Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
PA	1046

II. PAST RESPONSE ACTIVITIES

01 ☒ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY Water Authority
04 DESCRIPTION (b) (9) [redacted] (b) (9) [redacted]

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☒ D. SPILLED MATERIAL REMOVED — 02 DATE 12/7,8, 1/79 — 03 AGENCY site owner
04 DESCRIPTION R.E. Wright Associates reported recovering 2,500 gallons of gasoline as directed by Gulf Oil. The spill occurred in 1978.

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
No

ORIGINAL
(Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
PA	1046

II. PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED
02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
No

01 ☒ S. CAPPING/COVERING
02 DATE 1983 03 AGENCY owner initiated
04 DESCRIPTION
The waste disposal area was covered by site owners with cover in excess of 4 feet.

01 ☒ T. BULK TANKAGE REPAIRED
02 DATE _____ 03 AGENCY owner initiated
04 DESCRIPTION
A leaking tank was repaired after a 1978 spill.

01 ☐ U. GROUT CURTAIN CONSTRUCTED
02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ V. BOTTOM SEALED
02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ W. GAS CONTROL
02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ X. FIRE CONTROL
02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
No

01 ☐ Y. LEACHATE TREATMENT
02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ Z. AREA EVACUATED
02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
No

01 ☒ 1. ACCESS TO SITE RESTRICTED
02 DATE _____ 03 AGENCY _____
04 DESCRIPTION

01 ☐ 2. POPULATION RELOCATED
02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 3. OTHER REMEDIAL ACTIVITIES
02 DATE _____ 03 AGENCY _____
04 DESCRIPTION

None

III. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

EPA file PA-1046

EPA FORM 2070-13 (7-81)

ORIGINAL
(Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
PA	1046

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☒ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

None

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA FORM 2070-13 (7-81)

ORIGINAL
(Red)

SECTION 6

6.0 LABORATORY DATA

6.1 Sample Data Summary

TDD Number F3-8405-32
EPA Number PA-1046

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☒ Organic ☐ Inorganic

Site Name Gulf Oil Sinking Spring
Date of Sample Oct. 31, 1984

K-Approximate value: detected below quantitation limit.

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	Ethyl benzene	Styrene	Total Xylenes	Phenol	1,2-Dichloro benzene	4-Methyl phenol	Naphthalene	2-Methyl naphthalene	Acenaphthylene	Pentachlorophenol	Phenanthrene	Di-n-butyl phthalate	Fluoranthene	Remarks
C7256	Upstream	AQ	ug/L														
C7257	Upstream	Sol	ug/kg						50K			50K	50K	250K	50K◇	250K	
C9266	Auger 3	Sol	ug/kg								45K				90K◇		
C9267	Blank	AQ	ug/L														
C9268	Blank	Sol	ug/kg				150K	50K							50K		
C9296	MW 3	AQ	ug/L														
C9297	MW 2	AQ	ug/L	384		4223				140	54				/		
C9298	MW 1	AQ	ug/L	2207	297	12496				435	312						
C9299	Downstream	AQ	ug/L	20◇		230◇											
C9300	Downstream	Sol	ug/kg				140K◇	50K◇							100K◇	50K	
C9501	Auger 1	Sol	ug/kg														
C9587	Auger 2	Sol	ug/kg												50K◇		

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

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

ORIGINAL (Red)

TDD Number F3-8405-32
EPA Number PA-1046

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☒ Organic ☐ Inorganic

Site Name Gulf Oil Sinking Spring
Date of Sample Oct. 31, 1984

K-Approximate value: detected below quantitation limit.

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	Chloroethane	Methylene Chloride	Acetone	Carbon Disulfide	Chloroform	1,2-Dichloro ethane	2-Butanone	Trichloroethane	1,1,2-Trichloro ethane	Benzene	cis-1,3-Dichloropropene	Tetrachloro ethene	Toluene	Remarks
C7256	Upstream	AQ	ug/L		6 ◇			9 ◇									
C7257	Upstream	SOL	ug/kg														
C9266	Auger 3	SOL	ug/kg		4K ◇						4K					5K ◇	
C9267	BLANK	AQ	ug/L					9									
C9268	BLANK	SOL	ug/kg		3K											5K	
C9296	MW 3	AQ	ug/L				22	9 ◇									
C9297	MW 2	AQ	ug/L			5380		9 ◇	38				2269			731	
C9298	MW 1	AQ	ug/L	25	6 ◇	15888		11 ◇	1599	9805		27	6833	646		7543	
C9299	Downstream	AQ	ug/L		7 ◇			13 ◇					20 ◇			69 ◇	
C9300	Downstream	SOL	ug/kg														
C9501	Auger 1	SOL	ug/kg														
C9587	Auger 2	SOL	ug/kg													6K ◇	

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

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

ORIGINAL (Red)

TDD Number F3-8405-32
EPA Number PA-1046

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☒ Organic ☐ Inorganic

Site Name Gulf Oil Sinking Spring
Date of Sample Oct. 31, 1984

K-Approximate value: detected below quantitation limit.

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	Pyrene	Benzo(a) anthracene	bis(2-ethylhexyl) Phthalate	Chrysene	Di-N-Octyl Phthalate	Benzo(b) Fluoranthene	Benzo(k) Fluoranthene	Benzo(a) Pyrene	Indeno(1,2,3cd) Pyrene	Benzo(g,h,i) Perylene				Remarks
C7256	Upstream	AQ	ug/L			46											
C7257	Upstream	SOL	ug/kg	200K	60K	150K◇	100K	200K◇	II 150J	II 150J	100K	100K	50K				
C9266	Auger 3	SOL	ug/kg			630◇		540◇									
C9267	BLANK	AQ	ug/L														
C9268	BLANK	SOL	ug/kg			200K		200K									
C9296	MW3	AQ	ug/L			22◇											
C9297	MW2	AQ	ug/L														
C9298	MW1	AQ	ug/L														
C9299	Downstream	AQ	ug/L														
C9300	Downstream	SOL	ug/kg	50K		1100◇		1100◇	II 50K	II 50K	50K						
C9501	Auger 1	SOL	ug/kg			50K◇		100K◇									
C9587	Auger 2	SOL	ug/kg			100K◇		100K◇									

II - Indistinguishable Isomers

ORIGINAL (Red)

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

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☐ Organic ☒ Inorganic

TDD Number F3-8405-32
EPA Number PA-1046

Site Name GULF OIL SINKING SPRING
Date of Sample 30 OCTOBER 1984

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	Aluminum	Chromium	Barium	Beryllium	Cobalt	Copper	Iron	Nickel	Manganese	Zinc	Boron	Vanadium	Silver	Remarks
MC-4581	BLANK WATER F	AQ	UGL^{-1}	73						78							F: FILTERED WATER
MC-4642	BLANK WATER UF	AQ	UGL^{-1}							32			11◇				UF: UNFILTERED WATER
MC-4634	DOWNSTREAM	AQ	UGL^{-1}	127◇		63				202◇		27◇	12◇				
MC-4637	UPSTREAM	AQ	UGL^{-1}	151◇		62				248◇		35	17◇				
MC-4636	M.W.2 F.	AQ	UGL^{-1}	56◇		233				3387		9337	15◇				
MC-4986	M.W.3 U.F.	AQ	UGL^{-1}	15410	19◇	310		55	61	134900	60	9920	113		90		
MC-4987	M.W.3 F.	AQ	UGL^{-1}			146				1255		3681					
MC-4988	M.W.2 U.F.	AQ	UGL^{-1}	5726	10◇	326			31	46230	21	10460	41◇		28		
MC-4990	M.W.1 U.F.	AQ	UGL^{-1}	342◇	15◇	798		23	35	23240	26	6720	46◇				
MC-4635	DOWNSTREAM SED	SOL	$MGKG^{-1}$	10984	34◇	106		18	44	20047	20	913	136		53		DRY WEIGHT
MC-4639	UPSTREAM SED	SOL	$MGKG^{-1}$	7186	22◇	69			27	13875		400	116		40		DRY WEIGHT
MC-4639	AUGER 1	SOL	$MGKG^{-1}$	8267	15◇	122			14	13684		355	92		34		DRY WEIGHT
MC-4640	AUGER 2	SOL	$MGKG^{-1}$	14656	19◇	144		15	25	21714		806	86		55		DRY WEIGHT
MC-4641	AUGER 3	SOL	$MGKG^{-1}$	9744	7.5◇	91			19	15206		694	81		33		DRY WEIGHT

ORIGINAL (Red)

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

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☐ Organic ☒ Inorganic

TDD Number F3-8405-32
EPA Number PA-1046

Site Name GULFOIL SINKING SPRING
Date of Sample 30 OCTOBER 1984

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	Arsenic	Antimony	Selenium	Thallium	Mercury	Tin	Cadmium	Lead	CALCIUM	Cyanide	MAGNESIUM	POTASSIUM	SODIUM	Remarks
MC-4581	BLK WATER F	AQ	UGL^{-1}										NR				
MC-4642	BLANK WATER ~~(SOLID)~~ MC	AQ	UGL^{-1}				0.33										
MC-4634	DOWNSTREAM	AQ	UGL^{-1}								8.0	46380	11	15970	2024	9731	
MC-4637	UPSTREAM	AQ	UGL^{-1}									45320	24	15770	2303	9212	
MC-4631	M.W.2 F.	AQ	UGL^{-1}								19.7	53650	NR	15340	1484	3289	
MC-4986	M.W.3 U.F.	AQ	UGL^{-1}							13	30.4	59660	15	22980	4563	4467	
MC-4987	M.W.3 F.	AQ	UGL^{-1}									49860	NR	17150	1480	5323	
MC-4988	M.W.2 U.F.	AQ	UGL^{-1}								37.6	63330	17	19530	2549	3292	
MC-4990	M.W.1 U.F.	AQ	UGL^{-1}								440	66400	10	25080	1999	5390	
MC-4635	DOWNSTREAM SED	SOL	$MGKG^{-1}$				0.54◊				39.6	4308	0.94	7154	885	945	DRY WEIGHT
MC-4638	UPSTREAM SED	SOL	$MGKG^{-1}$								27.7	3432	0.88	4661	860	1196	DRY WEIGHT
MC-4639	AUGER 1	SOL	$MGKG^{-1}$	3.8			0.12◊				31	1860	0.52	1901	645	668	DRYWEIGHT
MC-4640	AUGER 2	SOL	$MGKG^{-1}$	10.4							38.3	2303	1.5	3637	704	842	DRY WEIGHT
MC-4641	AUGER 3	SOL	$MGKG^{-1}$	13							49.2	1532	0.75	2251		708	DRYWEIGHT

ORIGINAL (Red)

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

◊ Denotes results of questionable qualitative significance based upon quality assurance review of data.

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

TDD Number F3-8405-32
EPA Number PA-1046

☐ Organic ☒ Inorganic

Site Name GULFOIL SINKING SPRING
Date of Sample 30 OCTOBER 1984

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	Aluminum	Chromium	Barium	Beryllium	Cobalt	Copper	Iron	Nickel	Manganese	Zinc	Boron	Vanadium	Silver	Remarks
MC-4643	BLANK SOLID	SOLID	$MGKG^{-1}$	39									13				DRY WEIGHT

ORIGINAL (Red)

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

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☐ Organic ☒ Inorganic

TDD Number F3-8405-32
EPA Number PA-1046

Site Name GULF OIL SINKING SPRING
Date of Sample 30 OCTOBER 1984

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	Arsenic	Antimony	Selenium	Thallium	Mercury	Tin	Cadmium	Lead		Cyanide			SODIUM	Remarks
MC-4643	BLANK SOLID	SOLID ~~AG/KG~~	MGKG-1													605	DRY WEIGHT

ORIGINAL (Red)

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

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

6.2 Quality Assurance Review

6.2.1 Organic Data: Lab Case 3510

6.2.1.1 Introduction

The findings offered in this report are based upon a general review of all available organic laboratory data generated by 2 contract laboratories. The data package was divided into 2 sections, aqueous and solid samples, with each laboratory responsible for all routine analytical services on only one section. Blank analysis results, surrogate and matrix spike recoveries, duplicate analysis results, effects of instrument carry-over, initial and continuing calibration check standards, and pesticide summary evaluations were examined in detail.

6.2.1.2 Qualifiers

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

- The following compounds are deemed qualitatively questionable:

Compound	Questionable Results
methylene chloride	All positive results
chloroform	All positive results
di-n-butyl phthalate	All positive results
di-n-octyl phthalate	All positive results
bis(2-ethylhexyl) phthalate	All positive results, except C7256
toluene	C9266, C9299, and C9587
benzene	C9299
ethylbenzene	C9299
total xylenes	C9299

Compound	Questionable Results
phenol	C9300
1,2-dichlorobenzene	C9300

The aforementioned results were designated questionable because there is evidence to doubt the presence of these compounds at concentrations less than or similar to the levels reported. However, with certain exceptions listed below, it can be assumed that concentrations substantially greater than the levels reported cannot be present.

- Some volatile organic analysis (VOA) compound detection limits in sample C7257 may be slightly higher than those reported, in particular for 1,1-dichloroethene, although other compounds may be similarly affected.

- Some BNA compound actual values and detection limits reported in sample C7257 may be slightly higher than those reported, in particular for 2,4-dinitrotoluene and 4-nitrophenol, although other compounds may be similarly affected.

- Additionally, the reported concentrations for BNA compounds in sample C7257 may not represent the average values actually present in this sample.

- Most acid compound detection limits in samples C9296, C9297, C9298, and some acid compound detection limits in sample C9299 may be substantially higher than those reported. In samples C9296, C9297, and C9298 this is particularly true for phenol, and in sample C9299 this is particularly true for pentachlorophlenol and 4-nitrophenol, although other compounds may be similarly affected.

- The detection limit for chloromethane in all solid samples may be slightly higher than that reported.

Due to low acid surrogate recoveries in samples C9296, C9297, C9298, and C9299 these samples were re-extracted and reanalyzed for BNAs. Acid surrogates still recovered low and, as a result, the aforementioned detection limits have been addressed. Samples C9297 and C9298 contained naphthalene and 2-methylnaphthalene. However, several discrepancies were noted in these BN reported results and are further addressed.

- Since BN surrogate recoveries for sample C9297 agree closely for both analyses and the reported results for naphthalene and 2-methylnaphthalene vary slightly, the actual values reported on the data summary are reviewer-reported averages of the 2 analyses for this sample. It should be noted that BN detection limits for this sample are accurately reported.

- Since BN surrogate recoveries for the reanalysis of C9298 are very low and the initial analysis had acceptable surrogate recoveries, BN detection limits and the actual values for naphthalene and 2-methylnaphthalene are reported from the first analysis of this sample.

- Although there is no reason to suspect a problem, the actual quantitation of VOA results and detection limits in solid samples could not be verified due to insufficient documentation. Furthermore, VOA results within 10 times the contract required detection limits (CRDL) could not be verified due to insufficient documentation.

- Although there is no reason to suspect a problem, the actual quantitation of BNA results and detection limits in aqueous samples could not be verified due to insufficient documentation. Furthermore, BNA results within 10 times the CRDL could not be verified due to insufficient documentation.

6.2.1.3 Findings

- Methylene chloride, chloroform, phenol, 1,2-dichlorobenzene, di-n-butyl phthalate, di-n-octyl phthalate, and bis(2-ethylhexyl) phthalate were detected in field and/or laboratory blanks at levels sufficient to question the aforementioned sample results.

- It should be noted that, although the result for bis(2-ethylhexyl) phthalate was not questioned in sample C7256, this compound is frequently a laboratory contaminant at similar levels to that reported. It should also be noted that the laboratory blank run on the same day as C7256 did not show this compound. However, a later lab blank run in conjunction with the re-extractions showed a similar level of bis(2-ethylhexyl) phthalate as that reported in C7256. This later blank was not used to specifically question the bis(2-ethylhexyl) phthalate in C7256 due to the time span between the analyses, but it does suggest that the laboratory may have sporadic contamination of this compound.

- Toluene was questioned in samples C9266 and C9587 by field and/or laboratory blank contamination. Toluene in C9299 was questioned as a possible artifact of chromatographic carry-over from an immediately preceding standard.

- Benzene, ethylbenzene, and total xylenes in sample C9299 were also questioned as possible artifacts of chromatographic carry-over from an immediately preceding standard.

- 1,1-Dichloroethene, a matrix spike compound, exhibited a very low recovery in the matrix spike analysis for sample C7257.

- 2,4-Dinitrotoluene and 4-nitrophenol, both matrix spike compounds, exhibited very low recoveries in the matrix spike analysis for sample C7257. In addition, the duplicate matrix spike analysis for sample C7257 exhibited extremely poor replication for all BNA compounds, probably a result of solid sample inhomogeneity.

- All acid surrogate compounds exhibited zero recoveries in initial and reanalyses for samples C9296, C9297, and C9298. Pentachlorophenol and 4-nitrophenol, both matrix spike compounds, exhibited zero recoveries in the matrix spike analysis of sample C9299.

- Chloromethane, a systems performance check compound, exhibited an extremely low response factor in the initial calibration for VOA compounds for solid samples; no continuing calibration was given.

- The data systems used for solid sample VOA analyses and aqueous sample BNA analyses do not provide raw areas or retention times of possible peaks. As a result, it was not possible to check quantitation other than from the reported concentration values. Furthermore, it was not possible to ascertain if there was any low-level blank contamination in these analyses that was below CRDL, yet above instrument detection limits, which would have questioned low-level sample results.

6.2.1.4 Summary

The text of this report has been formatted to address only those areas which affect the application of the data to the subject investigation. These problem areas have been identified in the previous sections of this review. Documentation of these problems and also documentation of any observed areas of contractual noncompliance are included in the attached Support Documentation appendix.

Report prepared by Atwood F. Davis [signature] for AF. Davis Date: June 27, 1985

6.2.2 Inorganic Data: Lab Case 3510

6.2.2.1 Introduction

The findings offered in this report are based upon a general review of all available inorganic laboratory data. Blank analysis results, matrix spike recoveries, duplicate analysis results, and quality assurance documentation were examined in detail.

6.2.2.2 Qualifiers

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

- The positive results for aluminum in samples MC4634, MC4636, MC4637, and MC4990 are questionable.
- All positive results for chromium are questionable.
- The positive results for iron in samples MC4634 and MC4637 are questionable.
- The positive result for manganese in sample MC4634 is questionable.
- The positive results for zinc in samples MC4634, MC4636, MC4637, MC4642, MC4988, and MC4990 are questionable.
- The positive results for mercury in samples MC4635 and MC4639 are questionable.

The aforementioned results were designated questionable because there is evidence to doubt the presence of these constituents at concentrations less than or similar to the levels reported. However, it can be assumed that concentrations substantially greater than the levels reported cannot be present.

- The detection limits for silver and tin in sample MC4990 may be slightly higher than those reported.

- The detection limit for tin in sample MC4641 may be slightly higher than that reported.

- Although there is no direct evidence to suspect that the quantitation of furnace analysis constituents may be in error, it was not possible to verify actual quantitations for any of these parameters. Furthermore, lead results that were within 5 times the contract required detection limits (CRDL) could not be qualitatively verified.

6.2.2.3 Findings

- Aluminum, chromium, iron, manganese, zinc, and mercury were detected in field and/or laboratory blanks at levels sufficient to question the aforementioned sample results.

- Silver and tin exhibited very low recoveries in the matrix spike analyses for sample MC4990.

- Tin exhibited a very low recovery in the matrix spike analyses for sample MC4641.

- The furnace analysis raw data that was included in this package did not include any sample raw absorbances, only less than concentration values. As a result, it was not possible to ascertain if the actual concentrations were correctly interpolated from the standard curve (for which absorbances were supplied).

Additionally, without such absorbances, it was not possible to ascertain if there were any blank results for lead less than the CRDL, but above instrument detection limits, that would question low level sample results. Lead was the only parameter affected because it was the only constituent reported in blanks at less than CRDL value that had sample hits within 5 times the CRDL.

6.2.2.4 Summary

This report has been formatted to address only those problem areas which affect the application of the data to the subject investigation. These problems have been identified as blank contamination, poor matrix spike recoveries, and insufficient documentation. Please see the attached Support Documentation Appendix for specifics on these problems and for documentation of any observed areas of contractual noncompliance associated with this review.

Report prepared by Atwood F. Davis R Sloth for A.F. Davis Date: March 20, 1985

(Red)

SECTION 7

7.0 TOXICOLOGICAL EVALUATION

7.1 Summary

The major concern posed by the identified on-site contaminants is the degradation of the groundwater. Groundwater is the sole source of potable water in the area.

Aromatics (up to 12,496 ug/l), chlorinated aliphatics (up to 646 ug/l), ketones (15,888 ug/l), and naphthalenes (up to 435 ug/l) were among the organic priority pollutants identified in on-site monitoring well (MW) samples. The pollutants included benzene (6,833 ug/l), a recognized human carcinogen, and 1,2-dichloroethane (1,599 ug/l), 1,1,2-trichloroethane (27 ug/l), and styrene (297 ug/l), which have evidence of animal carcinogenicity. It can be calculated that if 2 liters per day of the groundwater were ingested over a lifetime, it might pose a carcinogenic risk as high as 1.3×10^{-2}. A number of the identified organics (benzene, 1,2-dichloroethane, styrene, toluene, xylene, ethylbenzene, cis-1,3-dichloropropene) were reported at levels exceeding drinking water standards that have been recommended to protect against noncarcinogenic toxic effects and/or at levels that could affect the palatability of the water.

Lead was identified in a MW sample at a concentration (440 ug/l) exceeding the primary Maximum Contaminant Level (MCL) of 50 ug/l. Levels of iron (up to 134,900 ug/l) and manganese (up to 10,460 ug/l) reported in MW samples might affect the palatability of the water, but would pose no apparent health risks if this water were ingested.

The results of limited sampling of nearby Cacoosing Creek were inadequate to determine whether the creek is being impacted by the site.

7.2 Support Data

7.2.1 On-Site Contamination

Samples were collected on site from 3 MWs and from augered soil at 3 locations in an area of a previous tank spill.

7.2.1.1 Organics

Benzene and other aromatics (12,496 ug/l*), ketones (15,888 ug/l), chlorinated aliphatics (646 ug/l), and naphthalenes (435 ug/l) were the major organic priority pollutants confidently reported in MW samples. Of the MWs sampled, the heaviest contamination was found in MW no. 1. The sample from this well was reported to have an oily sheen and a gasoline-like odor. An HNU reading of 71 ppm was recorded at the well when bailing.

The levels of some of the contaminants could pose health hazards and/or affect the palatability of the water if the groundwater was used as a potable water source. Among the reported organics, benzene is a recognized human carcinogen, 1,2-dichloroethane is a recognized animal carcinogen, and 1,1,2-trichloroethane and styrene have limited evidence of animal carcinogenicity.[1,2] Epidemiological evidence has associated inhalation exposure to benzene in the workplace with leukemia. The carcinogenicity of benzene by the oral route has been demonstrated in rodents.[3] 1,2-Dichloroethane and 1,1,2-trichloroethane have been reported to produce tumors in several different organs in rodents when administered orally.[1,4] Styrene exposure has been associated with lung and blood/lymphatic cancers.[2] Based on the maximum reported concentrations of benzene, 1,2-dichloroethane, and 1,1,2-trichloroethane (a carcinogenic risk factor is not currently available for styrene), it can be calculated that, if 2 liters of the groundwater were consumed daily over a lifetime, it could pose a carcinogenic risk of up to approximately 1.3×10^{-2} (1.3 in 100).[1,4]

*Maximum concentrations of individual contaminants are reported in parentheses throughout the report.

The levels of benzene (6,833 ug/l), 1,2-dichloroethane (1,599 ug/l), and styrene (297 ug/l) might also cause other toxicities. Benzene and 1,2-dichloroethane were reported at concentrations exceeding Adjusted Acceptable Daily Intakes (AADIs) (25 ug/l for benzene, 260 ug/l for 1,2-dichloroethane) which have been suggested to protect against noncarcinogenic toxic effects.[1] Styrene was below the recommended AADI (7,000 ug/l), but above a proposed Recommended Maximum Contaminant Level (RMCL) of 140 ug/l.[2]. AADIs are calculated on the assumption that drinking water is the sole route of exposure. The AADI for benzene was based on rodent studies in which leukopenia was the most sensitive observed effect.[1] The AADI for 1,2-dichloroethane was based upon changes in several (rodent) organs, including the lungs, heart, liver, kidney, and adrenals.[1] The AADI for styrene was calculated from data obtained from studies on dogs in which changes in the liver and hematological effects were observed.[2] There is currently no AADI for 1,1,2-trichloroethane. RMCLs are based upon AADIs, and take into consideration exposure routes other than drinking water. The proposed RMCL for styrene (regulated by EPA as a Category II carcinogen) also takes into account possible carcinogenic risk.[2]

Several other organics were reported in groundwater samples at levels above EPA criteria/guidelines for public drinking water supplies. Xylene was reported at concentrations (12,496 ug/l) exceeding a proposed RMCL (440 ug/l) and a provisional AADI (2,200 ug/l).[2] The principal toxic effects of xylene are on the central nervous system. Toluene (7,543 ug/l) and ethylbenzene (92,207 ug/l) were measured at levels that are below AADIs (10,100 ug/l for toluene, 3,400 ug/ for ethylbenzene), but above RMCLs (2,000 ug/l for toluene, 3,400 ug/l for ethylbenzene).[2] The main target organ of chronic oral exposure to toluene is the kidney. Chronic exposure to ethylbenzene primarily affects the liver, kidney, and nervous system.[2]

The reported concentration of cis-1,3-dichloropropene (646 ug/l) exceeds an Ambient Water Quality Criterion (87 ug/l) that has been calculated to protect consumers from the toxic properties of dichloropropenes through the ingestion of 2 liters of drinking water and 6.5 grams of fish per day, or the ingestion of drinking water alone.[5] Changes in blood serum enzymes and alterations in liver function are the minimal effects that have been observed in rodents chronically exposed to dichloropropenes.[5]

Due to inadequate data, there are currently no drinking water criteria for the other organic pollutants identified in the groundwater samples. The possibility that health hazards may be posed by the long-term ingestion of the reported levels of those contaminants cannot currently be ruled out. It would be expected, however, that any potential hazards would be outweighed by the carcinogenic risk and, possibly, other toxic risks posed by the compounds that have been discussed in this section.

In addition to posing potential health hazards, several of the organic contaminants could adversely affect the palatability of the water. Benzene, toluene, xylene, ethylbenzene, and styrene were measured at levels that exceed taste and/or odor thresholds.[2,6] As previously noted, the water from MW no. 2 was reported by FIT III to have a gasoline-like odor.

A low level of trichloroethene (TCE) (approximately 4 ug/kg) was the only confident identification of an organic priority pollutant in augered soil samples. TCE has limited evidence of carcinogenicity in animals.[1] Based on its octanol/water partition coefficient*, it can be predicted that TCE would be relatively mobile in soil and groundwater systems. It was not detected in the MW samples at the time of the survey. Any health risks that might be posed by exposure to the reported soil level of TCE through dermal contact or the inhalation of airborne, contaminant-laden particulates would be expected to be very low.

There are no individuals known that might be exposed to contaminants on site on a regular basis. The site is currently inactive and access is restricted.

*Ratio of a substance's solublity in octanol to its solubility in water

7.2.1.2 Inorganics

A few inorganics were reported in MW samples at levels that would pose human health concerns and/or could affect the palatability of the water, if it were to be used as a potable source. Lead was measured at a concentration (440 ug/l[u]) exceeding the primary MCL of 50 ug/l that is mandated by EPA for public drinking water supplies. Impairment of nervous function, reduced hemoglobin production, and altered testicular function are the most sensitive indicators of chronic lead exposure.[2] Young children are particularly sensitive to the neurotoxic effects of lead.

Iron (134,900 ug/l[u]; 3,382 ug/l[f]) and manganese (10,460 ug/l[u]; 9,337 ug/l[f]) were measured at levels exceeding secondary MCLs that are suggested to prevent undesirable taste and odor properties in drinking water (50 ug/l for manganese, 300 ug/l for iron). Aluminum was reported at a concentration (15,410 ug/l[u]) exceeding a 7-day Suggested No-Adverse-Response Level of 5,000 ug/l.[7] The criterion, which incorporates a safety factor of 1,000, is based upon a study in the rat in which decreases in liver glycogen and coenzyme A were the minimal observed effects.[7]

From a practical point of view, the high concentrations of metals (and organics) in the groundwater would probably render the taste and odor of the water highly objectionable. It is unlikely that, without further treatment, this water could be tolerated by most individuals, even on a short-term basis.

There were no unusual levels of inorganics measured in augered soil samples.

* Ratio of a substance's solublity in octanol to its solubility in water
u unfiltered sample

7.2.2 Off-Site Contamination

The major toxicological concern regarding on-site contaminants is the degradation of the groundwater. Groundwater in the area is the sole source of drinking water, as well as of water used for commercial and industrial purposes. Due to the nature of the local geology, the entire 3-mile area has been identified as the "aquifer of concern" (see section 3.4). The distance from the site to the nearest drinking water well is reportedly 0.2 miles (see section 5.6). There was no information available concerning the quality of the groundwater in the area surrounding the site.

In addition to posing potential health concerns (see section 7.2.1), the degradation of the local groundwater might also render it unsuitable for irrigation use. Land in the site vicinity is used for agricultural purposes. The levels of iron (up to 134,900 ug/l[u]) and dissolved manganese (up to 9,337 ug/l[f]) reported in on-site MW samples might be injurious to some crop plants. A criterion of 200 ug/l has been suggested for manganese in irrigation waters in areas where acidophilic crops are grown.[8] Long-term irrigation with water containing manganese levels of 10,000 ug/l may lead to problems in nonacid soils.[8] Iron is reportedly nontoxic in irrigation waters used on well aerated soils.[8] Precipitated iron may cause foliar spotting at concentrations as low as a few ppm.[9] There is insufficient information available to determine whether low ppm concentrations of organic solvents, similar to those measured in MW samples (approximately 58 ppm total), might adversely affect plant growth, if present in irrigation water.

---

f filtered sample

Another area of possible concern regarding on-site contaminants is the potential pollution of site-adjacent Cacoosing Creek. Sampling results were insufficient to conclude whether the site may be impacting upon the creek. Limited sampling of the creek (1 aqueous and 1 sediment sample at up- and downstream sampling locations) indicated slightly higher levels of organic contaminants in upstream than in downstream samples. PAHs (1,300 ug/kg total) and phenols (100 ug/kg total) were measured in the upstream sediment sample; DEHP (46 ug/l) was reported in the aqueous sample. PAHs were measured at a concentration of 200 ug/kg (total) in the downstream sediment sample.

The upstream aqueous concentration of DEHP might be injurious to some sensitive aquatic organisms. DEHP has been reported to be toxic to trout and cause reproductive impairment of Daphnia after chronic exposure to levels of 8.4 and 3 ug/l, respectively.[10] It may be noted that, while there is no reason to question the presence of DEHP in this sample, DEHP is a common laboratory contaminant and could not be confirmed in the upstream sediment sample or in other solid samples in which it was reported, due to blank contamination. It is unusual for DEHP, which strongly partitions in sediments, to be present in the aqueous sample when it cannot be confidently identified in the sediment.

The contaminants in the sediment could potentially enter food chains through sorption by aquatic plants or ingestion by bottom-feeding organisms. However, any environmental impacts of the sediment pollutants on the environment would be expected to be minimal due to their low concentrations and/or a lack of evidence for their long-term bioaccumulation. Their mobility would be expected to be limited by the movement of the particulate matter to which they are bound.

Prepared by: Isabel Mandelbaum
Isabel Mandelbaum, Ph.D.
Toxicologist

Date: January 16, 1986

ORIGINAL
(Red)

Site Name: Gulf Oil Sinking Spring
TDD No.: F3-8405-32

LIST OF SOURCES

1. Federal Register. June 12, 1984. National Primary Drinking Water Regulations: Volatile Synthetic Organic Chemicals; Proposed Rulemaking. 49(114):24330

2. Federal Register. November 13, 1985. National Primary Drinking Water Regulations: Synthetic Organic Chemicals, Inorganic Chemicals, and Microorganisms. 50(219):46936.

3. Maltoni, C., and C. Scarnato. 1979. First experimental demonstration of the carcinogenic effects of benzene. Long-term bioassays on Sprague-Dawley rats by oral administration. Med. Lav. 70:352.

4. United States Environmental Protection Agency. 1980. Ambient Water Quality Criteria for Chlorinated Ethanes (Office of Water Regulations and Standards). EPA PB81-117400.

5. United States Environmental Protection Agency. 1980. Ambient Water Quality Criteria for Dichloropropane (Office of Water Regulations and Standards). EPA PB81-117541.

6. Verschueren, K. 1983. Handbook of Environmental Data on Organic Chemicals, 2nd ed. New York: Van Nostrand Reinhold Co.

7. National Academy of Sciences. 1982. Drinking Water and Health, vol. 4. Washington, D.C.: National Academy Press.

8. United States Environmental Protection Agency. 1976. Quality Criteria for Water. U.S. Government Printing Office No. 055-001-01049-4.

9. Fay, C.D., et al. The physiology of metal toxicity in plants. Ann. Rev. Plant Physiol. 29:511.

10. United States Environmental Protection Agency. 1980. Ambient Water Quality Criteria for Phthalate Esters (Office of Water Regulations and Standards). EPA PB81-117780.

ORIGINAL
(Red)

APPENDIX A

ORIGINAL
(Red)

1. COST CENTER:	REM/FIT ZONE CONTRACT TECHNICAL DIRECTIVE DOCUMENT (TDD)	2. NO.:
ACCOUNT NO.:		F3-8405-32

3. PRIORITY:	4. ESTIMATE OF TECHNICAL HOURS:	5. EPA SITE ID:	6. COMPLETION DATE:	7. REFERENCE INFO.:
☐ HIGH ☒ MEDIUM ☐ LOW	200	PA-1046		☒ YES ☐ NO ☐ ATTACHED ☒ PICK UP
	4A. ESTIMATE OF SUBCONTRACT COST:	5A. EPA SITE NAME: Gulf Oil-Sinking Spring Terminal Sinking Springs, PA	3 wks after QA	

8. GENERAL TASK DESCRIPTION: Perform site inspection of subject site.

9. SPECIFIC ELEMENTS:

1.) Review background information.
2.) Contact state and local agencies for relevant information.
3.) Submit sampling plan for approval.
4.) Coordinate lab analysis.
5.) Arrange for site access.
6.) Conduct on and off site inspection and sampling.
7.) Take and ship samples according to standard protocol.
8.) Perfrom Quality Assurance Review of lab data.
9.) Prepare and submit report.

10. INTERIM DEADLINES:

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

OTHER (SPECIFY):

12. COMMENTS: PA DER contact is Bruce Beitler at (215) 270-1920.

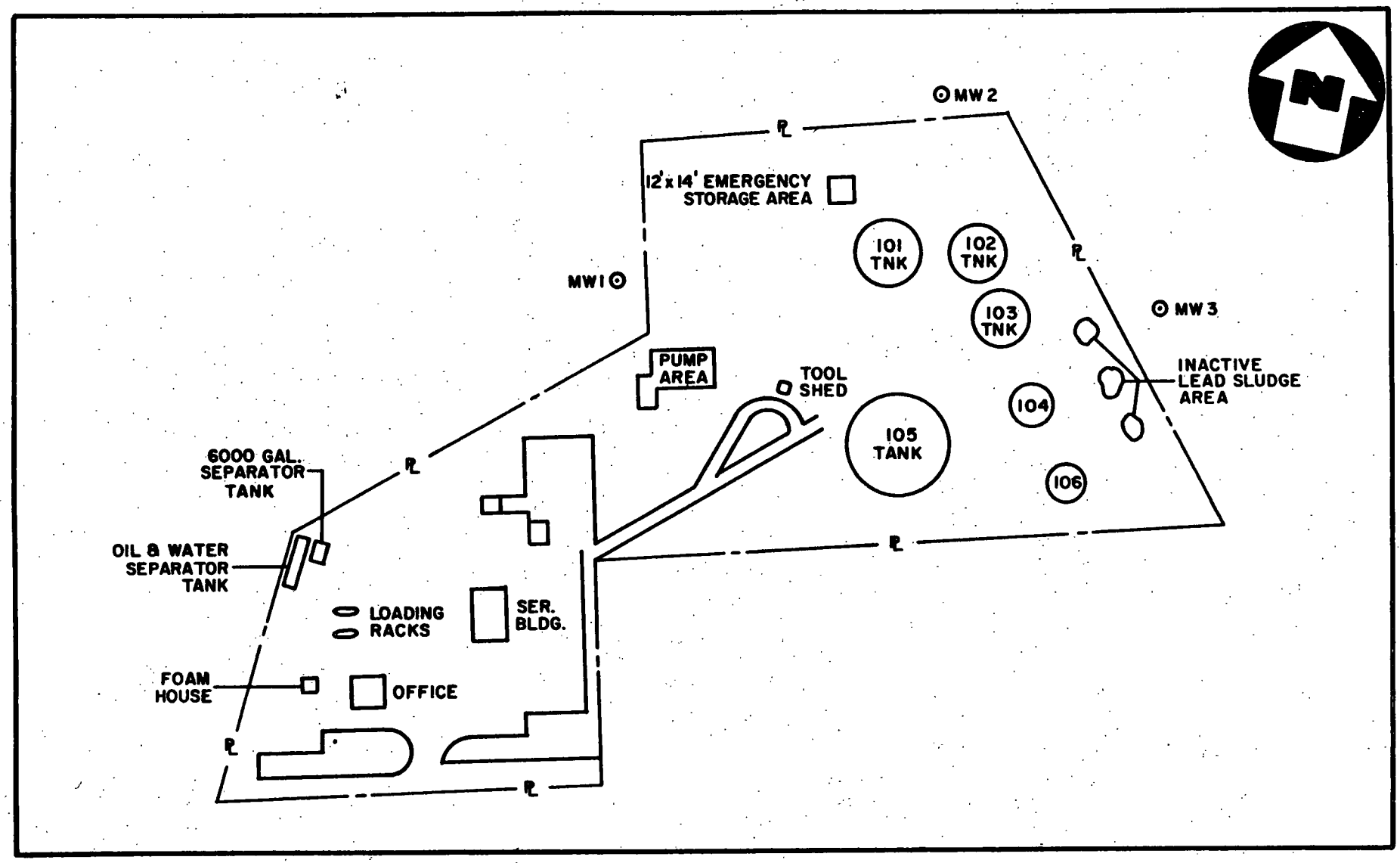
13. AUTHORIZING RPO: Harold G Byer (SIGNATURE) 14. DATE: 6/18/84

15. RECEIVED BY: ☒ ACCEPTED ☐ ACCEPTED WITH EXCEPTIONS ☐ REJECTED
(CONTRACTOR RPM SIGNATURE) 16. DATE: 6/19/84

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

ORIGINAL
(Red)

APPENDIX B



SITE SKETCH

GULF OIL-SINKING SPRING TERMINAL, SINKING SPRING, PA.

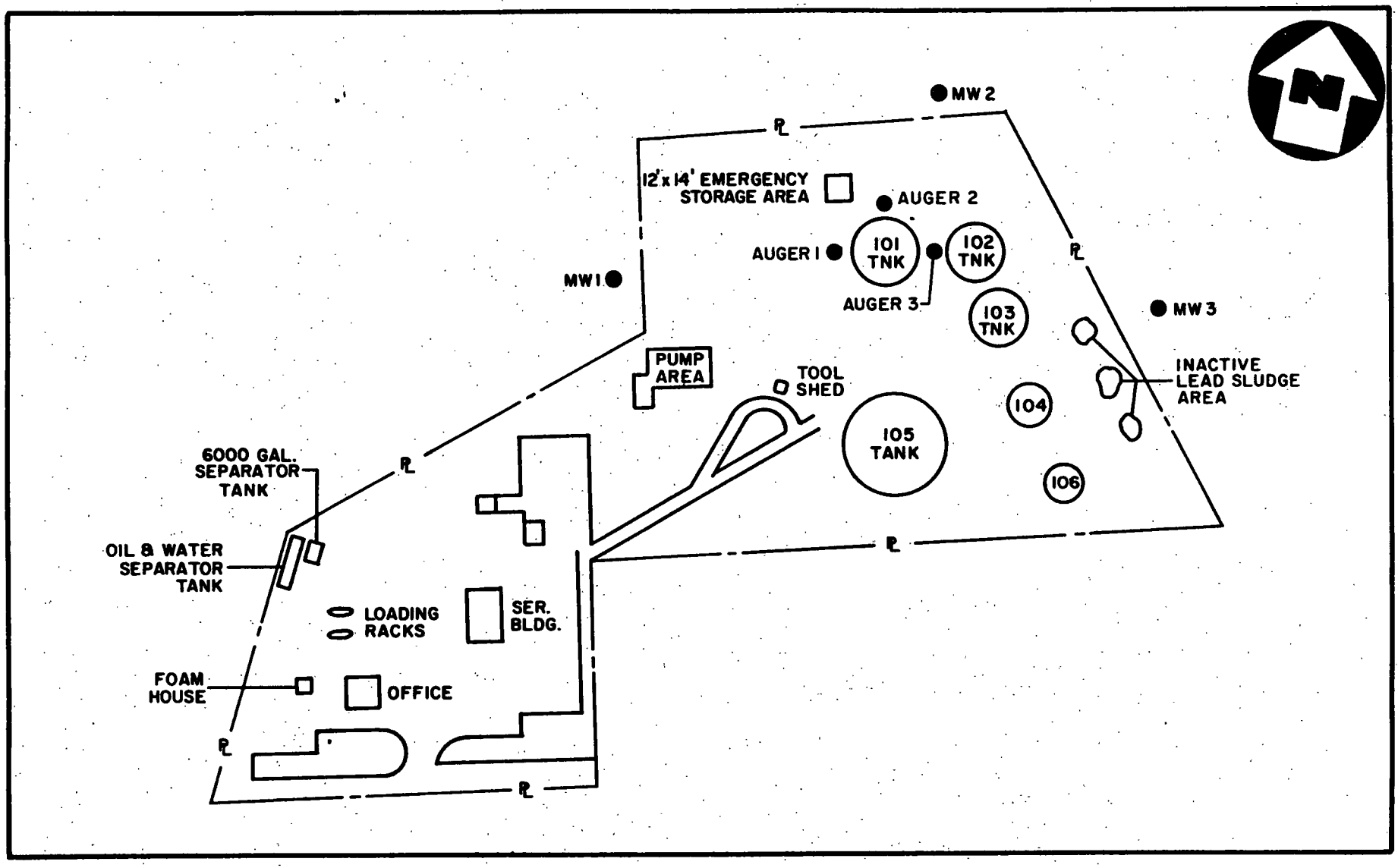
(NO SCALE)

FIGURE 2

NUS CORPORATION

A Halliburton Company

ORIGINAL



SAMPLE LOCATION MAP

GULF OIL-SINKING SPRING TERMINAL, SINKING SPRING, PA.

(NO SCALE)

FIGURE 3

NUS CORPORATION

A Halliburton Company

ORIGINAL (Red)

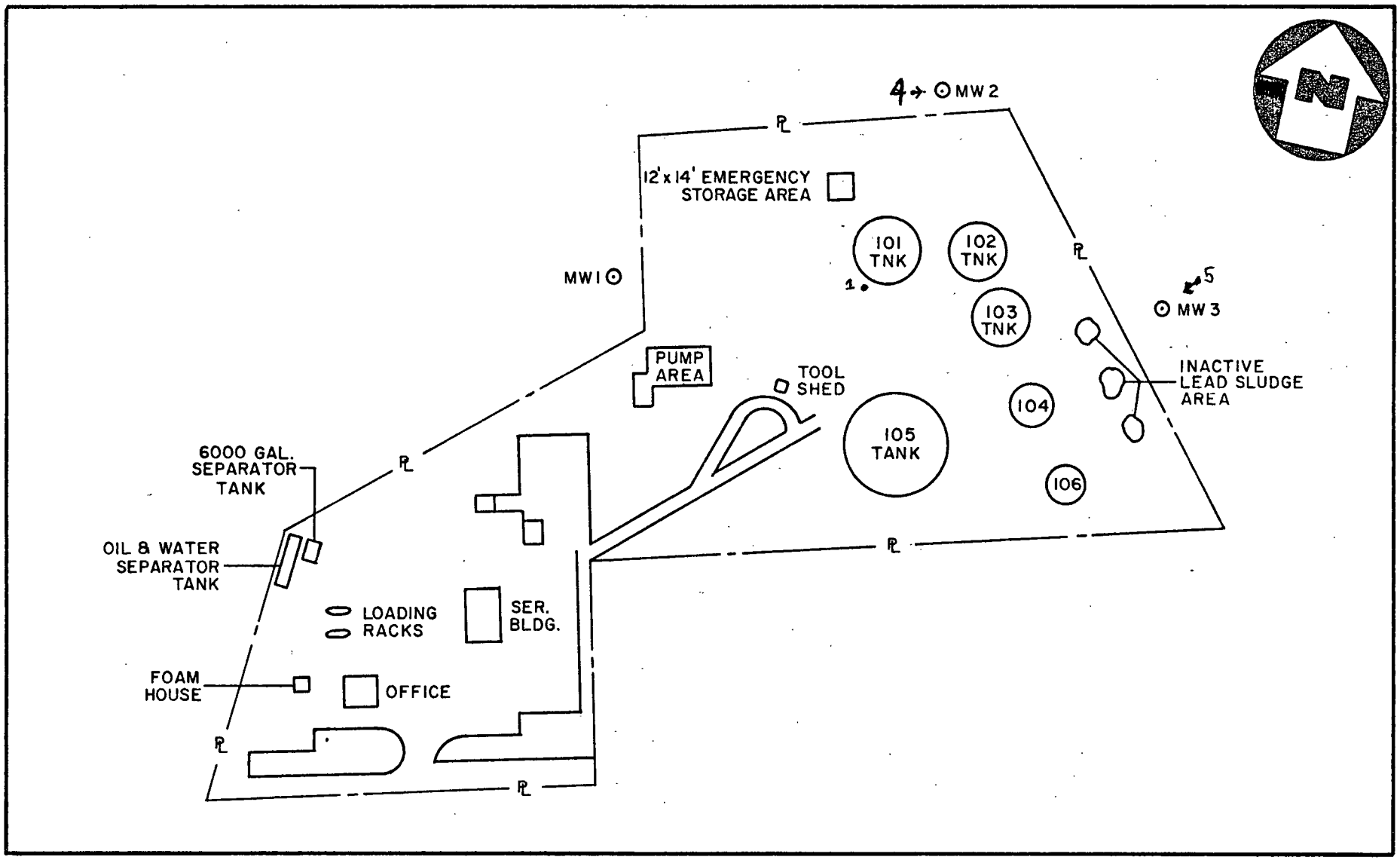


Photo Location MAP.

GULF OIL-SINKING SPRING TERMINAL, SINKING SPRING, PA.

(NO SCALE)

FIGURE 4

NUS CORPORATION

A Halliburton Company

ORIGINAL

ORIGINAL
(Red)

APPENDIX C

PROJECT NAME: Gulf Oil Sinking Spring
TDD NO: F3-8405-32

EPA SITE NO.: PA-1046
REGION: ~~III~~ (Med)

QUALITY ASSURANCE REVIEW OF ORGANIC ANALYSIS LAB DATA PACKAGE

Case No.: 3510
Contract No.: 68-01-6581
Contract Laboratory: ERCO
Applicable IFB No.: WA84-A267
Reviewer: Atwood F. Davis
Review Date: 4/8/85

Applicable Sample No's.: C-7257, C-9266, C-9268, C-9300, C-9501, C-9587

The organic analytical data for this case has been reviewed. The quality assurance evaluation is summarized in the following table:

Reviewer's Evaluation*	Fraction				
	VOLATILES	ACIDS	BASE/ NEUTRALS	PCB/ PEST.	
Acceptable				✓	
Acceptable with exception(s)	✓(1,2,3)	✓(1,2)	✓(1,2)		
Questionable					
Unacceptable					

* Definitions of the evaluation score categories are listed on next page.

This evaluation was based upon an analysis of the review items indicated below:

- ● DATA COMPLETENESS
- ● BLANK ANALYSIS RESULTS
- ● SURROGATE SPIKE RESULTS
- ● MATRIX SPIKE RESULTS
- ● DUPLICATE ANALYSIS RESULTS
- NA ○ EVALUATION OF CONFIRMATIONS
- ● QUANTITATIVE CALCULATIONS
- ‡ ● TARGET COMPOUND MATCHING QUALITY
- ( ) ◒ TENTATIVELY IDENTIFIED COMPOUNDS
- ○ CHROMATOGRAPHIC SENSITIVITY CHECKS
- ‡ ◒ DFTPP AND BFB SPECTRUM TUNE RESULTS
- ● STANDARDS
- ● CALIBRATION CHECK STANDARDS
- ‡ ◒ INTERNAL STANDARDS PERFORMANCE

Data review forms are attached for each of the review items indicated above.

‡ No errors noted, no form attached.

◒ Spot Check performed.

Comments: (1) See blank analysis results.
(2) See matrix spike results, duplicate analysis results.
(3) See calibration check stds

ORIGINAL (Red)

DATA EVALUATION SCORE CATEGORIES

ACCEPTABLE: Data is within established control limits, or the data which is outside established control limits does not affect the validity of the analytical results.

ACCEPTABLE WITH EXCEPTION(S): Data is not completely within established control limits. The deficiences are identified and specific data is still valid, given certain qualifications which are listed below.

QUESTIONABLE: Data is not within established control limits. The deficiences bring the validity of the entire data set into question. However, the data validity is neither proved nor disproved by the available information.

UNACCEPTABLE: Data is not within established control limits. The deficiences imply the results are not meaningful.

DATA COMPLETENESS	3510 CONC./MATRIX	L/S											
FRACTION	TRAFFIC REPORT # C	7257	9266	9268	9300	9501	9587						
	LAB I.D. # 36 –	351	352	353	354	355	356						
BNA :	RUN DATE/TIME (1)												
	TARGET COMPOUND TAB.	✓											
	TARGET COMPOUND D.L.	✓											
	TENT. I.D. COMPOUND TAB.	✓											
	SURROGATE RECOVERY	✓											
	GC SCREEN TABULATION	NR											
	GC/MS CHROMATOGRAMS	✓											
(2)	TARGET CMPD. QUAN. LIST	✓											
	TARGET CMPD. SPECTRA	✓											
	TENT. I.D. CMPD. Q.L.	✓											
	TENT. CMPD. LIB. SRCH.	✓											
	CHRO./SENS. CHECKS	MS											
	BFB/DFTPP TUNE DATA	✓											
	I.S AREAS CHARTS	NA											
	I.S. REL. RESP. FORM												
	RF & AMTS.: CALIB. CHK.	✓											
	RF & AMTS.: 3-PT CALIB.	✓											
	Chromatograms: Calib. Chk.	✓											
	Chromatograms: 3-Pt. Calib.	✓											
	LINEARITY: 3-PT. CALIB	✓											
	RF COMPARISON	✓											
	SAMPLE/FIELD BLANK			✓									
	METHOD/INSTR. BLANK												
	LAB DUPLICATE	✓											
	FIELD DUP/REP												
	MAT. SPK./M. STD.	✓											
PEST. :	PESTICIDE TABULATION	✓											
	PEST. D.L. TABULATION	✓											
	PESTICIDE CHRO.	✓											
	PESTICIDE STD. CHRO.	✓											
	PESTICIDE STD. I.D.	✓											
	2nd COLUMN CONF.	✓											
	GC/MS CONFIRMATION	NA											
	PESTICIDE DUPLICATE	✓											
	PESTICIDE SPIKE	✓											
	PESTICIDE BLANK			✓									
	STD SUMMARY	✓											
	LINEARITY CHK.	✓											
	DEGRAD. CHK.	✓											
	DBC RT SHIFT	✓											

ORIGINAL

DATA COMPLETENESS	3510 CONC./MATRIX	L/S											ORIGINAL (Red)
FRACTION	TRAFFIC REPORT # C	7257	9266	9268	9300	9501	9587						
	LAB I.D. # 36-	351	352	353	354	355	356						
VOA :	RUN DATE/TIME (1)												
	TARGET COMPOUND TAB.	✓											
	TARGET COMPOUND D.L.	✓											
	TENT. I.D. COMPOUND TAB.	✓											
	SURROGATE RECOVERY	✓											
	GC SCREEN TABULATION	NR											
	GC/MS CHROMATOGRAMS	✓											
(2)	TARGET CMPD. QUAN. LIST	✓											
	TARGET CMPD. SPECTRA	✓											
	TENT. I.D. CMPD. Q.L.	✓											
	TENT. CMPD. LIB. SRCH.	✓											
	CHRO./SENS. CHECKS	MS											
	BFB/DFTPP TUNE DATA	✓											
	I.S AREAS CHARTS	NA											
	I.S. REL. RESP. FORM												
	RF & AMTS.: CALIB. CHK.	✓											
	RF & AMTS.: 3-PT CALIB.	✓											
	Chromatograms: Calib. Chk.	✓											
	Chromatograms: 3-Pt. Calib.	✓											
	LINEARITY: 3-PT. CALIB	✓											
	RF COMPARISON	✓											
	SAMPLE/FIELD BLANK			✓									
	METHOD/INSTR. BLANK												
	LAB DUPLICATE	✓											
	FIELD DUP/REP												
	MAT. SPK./M. STD.	✓											

COMMENTS: (1) See RUN Chronicles included on Tune Summary Sheets.
(2) Quant. list only identifies target hits, as a result cannot ascertain if any blank results <10X CRDL may be further questioned.

ORIGINAL (Red)

KEY TO DATA COMPLETENESS FORM

Abbreviation Used on Form	Description of Checklist Item
Conc./Matrix	Concentration category submitted in analysis request (low, med, hi); and matrix (sol., aq.)
Fraction	Fill in acid, base/neutral, acid/base/neutral, or volatiles analysis
Run Date/Time	Instrument run date (to be used for correlating calibration)
Target Cmpd. Tab.	Tabulated results for target compounds
Target Cmpd. D.L.	Detection limits for target compounds (actual/level indicated by screen
Tent. I.D. Cmpd. Tab.	Tabulated results for tentatively identified compounds
Surr. Rec.	Surrogate recoveries results
GC Screen Tab.	Tabulated GC screen results indicating required level of followup
GC/MS Chromatograms	Chromatograms of GC/MS analysis runs
Target Cmpd. Quan. List	Target compounds quantitation list, showing areas, ret. times
Target Cmpd. Spectra	Enhanced and unenhanced spectra of target compound hits
Tent. I.D. Cmpd. Q.L.	Quantitation list for tentatively identified compounds
Tent. Cmpd. Lib. Srch.	Spectra and library match spectra of tentatively identified compounds
Chro./Sens. Checks	EICP's and R.R.F.'s for chromatographic sensitivity checks
BFB/DFTPP Tune Data	Spectra intensity lists, and criteria comparison forms for BFB, DFTPP
I.S. Areas Charts	Internal standards area control charts and description of remedial action
I.S. Rel. Resp. Form	Internal standards relative response listings for each sample run
RF and amts.: Calib. Chk.	Tabulated response factors and amount injected for all cmpds. in calibration check
RF and amts.: 3-Pt. Calib.	Tabulated response factors and amount injected for all cmpds. in 3-point calibration
Chromatograms: Calib. Chk.	Chromatograms for calibration check standard
Chromatograms: 3-Pt. Calib.	Chromatograms for 3-point multilevel calibration standards.
Linearity: 3-Pt. Calib.	Tabulated correlation coefficient or relative standard deviation for calibration
RF Comparison	Tabulated comparison of calibration Response Factor with check standard
Sample/Field Blank	Equipment rinse or reagent water blank shipped with samples from field
Method/Instr. Blank	Method or instrument blank which is prepared at lab
Lab Duplicate	Sample which was split by lab for duplicate analysis
Field Dup/Rep	Sample which was split or collected twice in the field
Mat. Spk./M. Std.	Matrix spike or method standard (blind, or done by lab)
Pest. Tab.	Tabulated results for pesticides
Pest. D.L. Tab.	Tabulated detection limits for pesticides
Pest. Chro.	Chromatograms for pesticide screening
2nd Col. Conf.	Confirmation of pesticide results by using a second GC column and temperature
GC/MS Conf.	Confirmation of pesticide results by GC/MS analysis
Pest. Dup., Spk. Blk.	Pesticide duplicate, spike, and blank
Pest. Std. Chro.	Chromatogram of pesticide standard
Pest. Std. I.D.	Pesticide standard identification form
TCDD	2,3,7,8-tetrachlorodibenzodioxin
TCDD Tab., D.L., EICP, Blk.	TCDD tabulated results, detection limits, extracted ion current profile, blank

KEY TO SYMBOLS USED IN DATA COMPLETENESS TABLE

Symbol	Meaning
✓	Data item present
NA	Data item not applicable or not required
P	Data item within established control limits
F	Data item outside established control limits
MS	Missing item

Symbol	Meaning
I	Incomplete data item
NC	Data item not clearly explained (units of conc., etc)
* or [number]	See footnote
XX/XX/XX XX:XX	Date/Time of run (calibration, etc.)

SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Case No. 3510 **Contractor** ERCO/A Division of ENSECO **Contract No.** 68-01-6581

Low Level x **Medium Level** _____

FRACTION	COMPOUND	CONC. SPIKE ADDED (µg)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY	
VOA SMO SAMPLE NO. C7257	1,1-Dicholorethene	79 , 74	0	27	34*	26	35*	3	22	59-172	(1)
	Trichloroethene	79 , 74	0	45	57*	43	58*	2	24	62-137	
	Chlorobenzene	79 , 74	0	60	76	62	84	10	21	60-133	
	Toluene	79 , 74	0	65	82	66	89	8	21	59-139	
	Benzene	79 , 74	0	58	73	57	77	5	21	66-142	
B/N SMO SAMPLE NO. C7257	1,2,4-Trichlorobenzene	2170	0	1500	69	870	40	53*	23	38-107	(3)
	Acenaphthene	2170	0	1500	69	870	40	53*	19	31-137	
	2,4 Dinitrotoluene	2170	0	1400	65	400	18*	113*	47	28-89	(2)
	Di-n-Butylphthalate	2170	50	1450	67	820	38	55*	47	29-135	
	Pyrene	2170	200	1800	83	670	31*	91*	36	35-142	
	N-Nitrosodi-n-Propylamine	2170	0	1400	65	870	40*	48*	38	41-126	
	1,4-Dichlorobenzene	2170	0	1200	55	870	40	32*	27	28-104	
ACID SMO SAMPLE NO. C7257	Pentachlorophenol	4350	50	5050	116	1650	38	101*	47	17-109	
	Phenol	4350	0	3100	71	1700	39	58*	35	26-90	
	2-Chlorophenol	4350	0	3300	76	1700	39	64*	50	25-102	
	4-Chloro-3-Methylphenol	4350	0	3700	85	1700	39	74*	33	26-103	
	4-Nitrophenol	4350	0	3700	85	400	9*	161*	50	11-114	(2)
PEST SMO SAMPLE NO. C7257	Lindane	94 , 93	0	90	96	83	89	8	50	46-127	
	Heptachlor	94 , 93	0	237	252*	207	223*	12	31	35-130	
	Aldrin	94 , 93	0	83	88	76	82	7	43	34-132	
	Dieldrin	235 , 233	0	211	90	192	82	9	38	31-134	
	Endrin	235 , 233	0	546	232*	475	204*	13	45	42-139	
	4,4'-DDT	235 , 233	0	1858	790*	1636	702*	12	50	23-134	

*ASTERISKED VALUES ARE OUTSIDE QC LIMITS.

RPD: VOAs 0 out of 5 ; outside QC limits
B/N 7 out of 7 ; outside QC limits
ACID 5 out of 5 ; outside QC limits
PEST 0 out of 6 ; outside QC limits

RECOVERY: VOAs 4 out of 10 ; outside QC limits
B/N 3 out of 14 ; outside QC limits
ACID 1 out of 10 ; outside QC limits
PEST 6 out of 12 ; outside QC limits

Comments: (1) Some VOA cmpds d.l.'s IN C-7257 may be slightly higher than those reported, in part. For 1,1-dichloroethene, altho other cmpds may be affected
(2) Some BNA cmpd. d.l.'s in C-7257 may be slightly higher than those reported, in part. For 2,4-Dinitrotoluene & 4-Nitrophenol, altho other cmpds may be sim. affected. (actual values may also be slightly higher).
(3) The reported results for BNA cmpds IN C-7257 may not represent the average values actually present (due to sample inhomogeneity)

ORIGINAL

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FORM III

Duplicate/Triplicate Analysis of Non-Matrix Spiked (Indigenous) Compounds

ORIGINAL (Red)

Outliers are tabulated below for three types of multiple analyses:

(1) Field duplicates

(2) Un-spiked laboratory duplicates

(3) Matrix spike duplicate plus corresponding unspiked sample evaluated for non-matrix spiked (indigenous) compounds. (Spike recoveries are evaluated on a separate form.)

Analytical Fraction	Outlier Criteria (for tabulation purposes only)			
	Relative standard deviation		Equivalent Relative Percent Difference	
	solid	aqueous	solid	aqueous
VOA				
BNA				
PEST				

COMPOUND	CONCENTRATIONS						relative standard deviation — or — relative percent difference	concentration units	footnotes
	Analysis No. 1		Analysis No. 2		Analysis No. 3				
	SAMPLE I.D.	CONC.	SAMPLE I.D.	CONC.	SAMPLE I.D.	CONC.			
Acenaphthylene	C7257	50	7257S	ND	7257SD	ND			
Phenanthrene		250		40		ND			
Fluoranthene		250		40		ND			
Benzo(a)anthracene		50		40		ND			
Chrysene		100		40		ND			
Benzo(b)fluoranthene		150		40		ND			
Benzo(k)fluoranthene		150		40		ND			
Benzo(a)pyrene		100		40		ND			
Indeno(1,2,3cd)pyrene		100		ND		ND			
Benzo(g,h,i)perylene		50		ND		ND			

COMMENTS: All values approximate & below quantitation limits, ND net effect

Initial Calibration Data
Volatile HSL Compounds

ORIGINAL (Red)

Case No: 3510
Contractor: ERCO
Contract No: 68-01-6581

Instrument I D: 5981
Calibration Date: 04 OCT 84

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % RSD for CCC is 30%

Laboratory ID								
Compound	RF_{20}	RF_{50}	RF_{100}	RF_{150}	RF_{200}	$\overline{RF}$	% RSD	CCC* SPCC**
Chloromethane	.47	.93	.37	.24	.41	.48	56	**
Bromomethane	.20	.36	.12	.09	.13	.18	60	
Vinyl Chloride	.42	.65	.42	.27	.29	.41	34	*
Chloroethane	.22	.40	.33	.32	.18	.29	31	
Methylene Chloride	.59	.71	.59	.47	.35	.54	25	
Acetone	.29	.28	.26	.17	.10	.22	38	
Carbon Disulfide	2.2	2.9	3.7	3.2	2.1	2.8	24	
1, 1-Dichloroethene	.76	1.0	1.1	.96	.62	.89	22	*
1, 1-Dichloroethane	.88	1.2	2.4	2.2	1.5	1.6	41	**
Trans-1, 2-Dichloroethene	1.7	2.1	1.1	1.0	.65	1.3	45	
Chloroform	2.1	2.6	2.7	2.1	1.6	2.2	20	*
1, 2-Dichloroethane	2.1	2.8	2.9	2.3	1.7	2.3	21	
2-Butanone	.28	.15	.24	.18	.11	.19	36	
1, 1, 1-Trichloroethane	.51	.61	.68	.57	~~.6~~ .47	.57	15	
Carbon Tetrachloride	.34	~~.47~~ .36	.60	.52	.43	.47	21	
Vinyl Acetate	.42	~~.44~~ .47	.73	.70	.63	.58	25	
Bromodichloromethane	.52	~~.62~~ .49	.77	.68	.57	.63	15	
1, 2-Dichloropropane	.33	~~.38~~ .32	.57	.51	.40	.43	23	*
Trans-1, 3-Dichloropropene	.22	.29	.36	.33	.29	.30	16	
Trichloroethene	.40	.47	.50	.40	.30	.41	19	
Dibromochloromethane	.27	.35	.35	.29	.23	.30	17	
1, 1, 2-Trichloroethane	.27	.36	.38	.29	.22	.30	22	
Benzene	.96	1.1	1.4	1.2	.98	1.1	16	
cis-1, 3-Dichloropropene	.64	.81	.91	.74	.61	.74	17	
2-Chloroethylvinylether	—	—	—	—	—	—	—	
Bromoform	.17	~~.28~~ .29	.34	.30	.25	.30	24	**
2-Hexanone	.23	.35	.50	.53	.40	.40	30	
4-Methyl-2-Pentanone	.24	.36	.56	.59	.45	.44	33	
Tetrachloroethene	.42	.47	.48	.37	.28	.40	21	
1, 1, 2, 2-Tetrachloroethane	.35	.52	.57	.60	.46	.50	20	**
Toluene	.88	1.0	1.2	1.1	.86	1.0	15	*
Chlorobenzene	1.1	1.3	1.4	1.2	.94	1.2	13	**
Ethylbenzene	.52	.63	.67	.58	.45	.57	15	*
Styrene	.79	.85	1.2 ~~.98~~	1.1	.86	.96	19	
Total Xylenes	.68	1.0	.98	.88	.69	.85	18	

RF -Response Factor (subscript is the amount of ug/L)
$\overline{RF}$ -Average Response Factor
%RSD -Percent Relative Standard Deviation

CCC -Calibration Check Compounds (*)
SPCC -System Performance Check Compounds (**)

65	~~3.9~~ 1.5	1.7	.82	Form VI	1.5	1.4	$\overline{65}$	1.4
100	~~1.9~~ .78	.82	.80		.86	.93	$\overline{100}$	.84
95	~~1.9~~ .78	.81	.79		.83	.89	$\overline{95}$	.82

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IGINAL
'ed)

Initial Calibration Data
Semivolatile HSL Compounds
(Page 1)

Case No: 3510 **Instrument ID:** FINN 4530

Contractor: ERCO **Calibration Date:** 11-8-84

Contract No: 68-01-6581

Minimum $\overline{RF}$ for SPCC is 0.050 **Maximum % RSD for CCC is 30%**

Laboratory ID		BNA 20 ANIL 20	BNA 50 ANIL 50	BNA 80 ANIL 80	BNA 120 ANIL 120	BNA 160 ANIL 160			CORRELAT. COEFFICIE
Compound		RF_{20}	RF_{50}	RF_{80}	RF_{120}	RF_{160}	$\overline{RF}$	%RSD	CCC• SPCC••
N-Nitrosodimethylamine	2	1.54	1.59	1.46	1.44	1.85	1.57	10	
Phenol	3	2.06	2.17	2.17	2.35	2.32	2.21	5	•
Aniline	2	2.09	2.30	2.56	2.67	2.86	2.49	13	
bis(-2-Chloroethyl)Ether	4	1.81	1.88	1.88	1.95	1.94	1.89	3	
2-Chlorophenol	5	1.43	1.51	1.50	1.57	1.56	1.51	4	
1, 3-Dichlorobenzene	6	1.73	1.75	1.75	1.79	1.79	1.76	2	
1, 4-Dichlorobenzene	7	1.84	1.90	1.90	1.95	1.88	1.91	2	• 0.999
Benzyl Alcohol	8	0.80	0.88	0.90	0.97	0.98	0.91	8	
1, 2-Dichlorobenzene	9	1.58	1.56	1.59	1.62	1.58	1.58	1	
2-Methylphenol	10	1.26	1.31	1.29	1.31	1.09	1.25	7	
bis(2-chloroisopropyl)Ether	11	1.05	1.12	1.11	1.05	1.11	1.09	3	
4-Methylphenol	12	1.32	1.47	1.47	1.61	1.53	1.48	7	
N-Nitroso-Di-n-Propylamine	13	0.35	0.36	0.37	0.35	0.38	0.36	4	••
Hexachloroethane	14	0.64	0.66	0.64	0.66	0.66	0.65	2	
Nitrobenzene	16	0.66	0.66	0.67	0.70	0.72	0.68	4	
Isophorone	17	0.90	0.93	0.94	0.96	0.94	0.93	2	
2-Nitrophenol	18	0.23	0.24	0.24	0.25	0.25	0.24	3	•
2, 4-Dimethylphenol	19	0.2[illegible]	0.2[illegible]	0.29	0.30	0.30	0.29	6	
Benzoic Acid	20	†	0.12	0.15	0.16	0.15	0.15	11	
bis(-2-Chloroethoxy)Methane	21	0.55	0.59	0.60	0.56	0.62	0.59	5	
2, 4-Dichlorophenol	22	0.31	0.34	0.36	0.37	0.36	0.35	7	
1, 2, 4-Trichlorobenzene	23	0.44	0.44	0.41	0.45	0.46	0.45	2	
Naphthalene	24	1.30	1.24	1.22	1.31	1.32	1.26	4	0.999
4-Chloroaniline	4	0.38	0.45	0.50	0.52	0.59	0.49	16	
Hexachlorobutadiene	25	0.24	0.24	0.24	0.24	0.25	0.24	2	•
4-Chloro-3-Methylphenol	26	0.30	0.32	0.33	0.35	0.34	0.33	6	•
2-Methylnaphthalene	27	0.25	0.26	0.25	0.28	0.27	0.26	5	
Hexachlorocyclopentadiene	28	0.42	0.35	0.46	0.48	0.51	0.44	14	••
2, 4, 6-Trichlorophenol	30	0.42	0.46	0.46	0.49	0.49	0.46	6	•
2, 4, 5-Trichlorophenol	31	†	0.49	0.53	0.54	0.67	0.47	17	
2-Chloronaphthalene	32	1.33	1.37	1.21	1.36	1.41	1.36	3	
2-Nitroaniline	6	†	0.47	0.48	0.52	0.53	0.50	6	
Dimethyl Phthalate	33	1.43	1.45	1.45	1.45	1.43	1.44	1	
Acenaphthylene	34	2.03	2.02	2.02	2.10	2.03	2.04	2	
3-Nitroaniline	7	†	0.34	0.37	0.40	0.38	0.38	7	
Acenaphthene	35	1.19	1.19	1.17	1.22	1.14	1.18	2	• 0.998
2, 4-Dinitrophenol	36	†	0.18	0.20	0.23	0.22	0.21	11	••
4-Nitrophenol	37	†	0.21	0.23	0.29	0.25	0.25	13	••
Dibenzofuran	38	2.03	1.78	1.78	1.76	1.76	1.81	7	

Response Factor (subscript is the amount of nanograms)
$\overline{RF}$ -Average Response Factor
%RSD -Percent Relative Standard Deviation
CCC -Calibration Check Compounds (•)
SPCC -System Performance Check Compounds (••)
† -not detectable at 20 ng

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ORIGINAL (Red)

Initial Calibration Data
Semivolatile HSL Compounds
(Page 2)

Case No: 3510 Instrument ID: FINN 4630

Contractor: ERCO Calibration Date: 11-8-84

Contract No: 68-01-6581

Minimum $\overline{RF}$ for SPCC is 0.050 Maximum % RSD for CCC is 30%

CORRELATION COEFFICIENT

Laboratory ID								
Compound	RF_{20}	RF_{50}	RF_{80}	RF_{120}	RF_{160}	$\overline{RF}$	% RSD	CCC* SPCC**
2, 4-Dinitrotoluene 39	0.50	0.53	0.53	0.51	0.48	0.51	4	
2, 6-Dinitrotoluene 40	0.39	0.42	0.42	0.40	0.36	0.40	6	
Diethylphthalate 41	1.81	1.36	1.60	1.31	1.30	1.38	9	
4-Chlorophenyl-phenylether 42	0.80	0.81	0.82	0.80	0.82	0.81	1	
Fluorene 43	1.44	1.48	1.42	1.45	1.43	1.44	2	
4-Nitroaniline 8	†	0.29	0.36	0.36	0.36	0.34	10	
4, 6-Dinitro-2-Methylphenol 9	†	0.18	0.20	0.20	0.20	0.20	5	
N-Nitrosodiphenylamine (1) 44	0.56	0.55	0.61	0.55	0.59	0.57	5	*
4-Bromophenyl-phenylether 45	0.26	0.26	0.28	0.30	0.30	0.28	7	
Hexachlorobenzene 46	0.28	0.27	0.29	0.31	0.30	0.29	5	*
Pentachlorophenol 49	†	0.15	0.17	0.18	0.18	0.17	8	
Phenanthrene 50	1.31	1.31	1.35	1.33	1.34	1.31	4	0.9999
Anthracene 51	1.28	1.31	1.27	1.31	1.33	1.28	4	
Di-N-Butylphthalate 52	1.27	1.31	1.34	1.32	1.33	1.31	2	
Fluoranthene 53	1.30	1.36	1.42	1.42	1.46	1.39	5	*
Benzidine 10	†	0.35	0.56	0.69	0.73	0.58	30	**
Pyrene 55	1.62	1.97	1.66	1.66	1.88	1.76	9	
Butylbenzylphthalate 56	0.62	0.74	0.68	0.69	0.79	0.71	9	
3, 3'-Dichlorobenzidine 11	0.34	0.40	0.43	0.50	0.48	0.43	13	
Benzo(a)Anthracene 57	1.46	1.50	1.54	1.54	1.58	1.52	3	
bis(2-Ethylhexyl)Phthalate 58	0.73	0.84	0.77	0.79	0.91	0.81	9	
Chrysene 59	1.44	1.50	1.54	1.49	1.65	1.52	5	0.9969
Di-n-Octyl Phthalate 61	1.33	1.63	1.40	1.70	1.68	1.55	11	*
Benzo(b)Fluoranthene 62	1.27	1.56	1.43	1.58	1.45	1.46	8	
Benzo(k)Fluoranthene 63	1.82	1.65	1.42	1.19	1.29	1.46	18	
Benzo(a)Pyrene 64	1.10	1.21	1.21	1.24	1.24	1.21	5	*
Indeno(1, 2, 3-cd)Pyrene 65	0.74	0.88	0.90	0.87	0.87	0.84	7	
Dibenz(a, h)Anthracene 66	0.88	0.96	1.005	1.01	0.98	0.96	8	
Benzo(g, h, i)Perylene 67	0.92	1.00	1.03	1.00	0.99	0.99	4	

Response Factor (subscript is the amount of nanograms)
$\overline{RF}$ -Average Response Factor
%RSD -Percent Relative Standard Deviation
CCC -Calibration Check Compounds (*)

SPCC -System Performance Check Compounds (**)
† -not detectable at 20 ng
(1) -Cannot be separated from diphenylamine

Form VI

ORIGINAL
(Red)

NUS CORPORATION
SUPERFUND DIVISION

Initial Calibration Comments

PROJECT NOTES

1.) SPCC averages for VOA all acceptable, scattered individual results slightly low but not enough to cause suspect sample results.
2.) CCC Vinyl Chloride slightly out of control but not enough to affect results.
3.) All Semivolatile Initial Calibrations within range.

NUS 443A 58 1182

Continuing Calibration Check
Volatile HSL Compounds

ORIGINAL (Red)

Case No: 3510
Contractor: Ecc
Contract No: 68-01-6581
Instrument ID: HP5996

Calibration Date: 06 NOV 84
Time: 0830
Laboratory ID: 6253
Initial Calibration Date: ~~[illegible]~~ 04 OCT 84

Minimum RF for SPCC is 0.300 Maximum %D for CCC is 25%

Compound	RF		RF_{50}	%D	CCC	SPCC
Chloromethane	.60	.48	.14			**
Bromomethane	.31	.18	.44			
Vinyl Chloride	.33	.41	.40	2	*	
Chloroethane	.16	.21	.26			
Methylene Chloride	.50	.54	.92			
Acetone	.11	.22	.13			
Carbon Disulfide	1.0	2.8	2.8			
1, 1-Dichloroethene	.49	.89	.73	18	*	
1, 1-Dichloroethane	1.2	1.6	1.9			**
Trans-1, 2-Dichloroethene	.55	.73	.76			
Chloroform	1.3	2.2	2.1	5	*	
1, 2-Dichloroethane	1.2	2.3	1.7			
2-Butanone	.10	.19	.69			
1, 1, 1-Trichloroethane	.44	.57	.54			
Carbon Tetrachloride	.34	.47	.53			
Vinyl Acetate	.43	.58	.12			
Bromodichloromethane	.53	.63	.67			
1, 2-Dichloropropane	.39	.43	.49	14	*	
Trans-1, 3-Dichloropropene	.05	.30	.31			
Trichloroethene	.30	.41	.44			
Dibromochloromethane	.26	.30	.34			
1, 1, 2-Trichloroethane	.25	.30	.35			
Benzene	.88	1.1	1.2			
cis-1, 3-Dichloropropene	.58	.74	.72			
2-Chloroethylvinylether						
Bromoform	.17	.30	.24			**
2-Hexanone	.36	.40	.35			
4-Methyl-2-Pentanone	.35	.44	.37			
Tetrachloroethene	.30	.40	.45			
1, 1, 2, 2-Tetrachloroethane	.45	.50	.50			**
Toluene	.76	1.0	1.0	0	*	
Chlorobenzene	.85	1.2	1.2			**
Ethylbenzene	.43	.57	.58	2	*	
Styrene	.77	.96	1.1			
Total Xylenes	.63	.85	.89			

RF_{50} -Response Factor from daily standard file at 50 ug/l
RF -Average Response Factor from initial calibration Form VI

%D -Percent Difference
CCC -Calibration Check Compounds (•)
SPCC -System Performance Check Compounds (••)

65 = 1.17
100 = .85
95 = .85

Form VII

Continuing Calibration Check
Volatile HSL Compounds

ORIGINAL (Red)

Case No: 3510
Contractor: ERCo
Contract No: 68-01-6581
Instrument ID: HP 5981

Calibration Date: 06 NOV 84
Time: 1400
Laboratory ID: 6264
Initial Calibration Date: 04 OCT 84

Minimum RF for SPCC is 0.300 Maximum %D for CCC is 25%

Compound	RF	RF_{50}	%D	CCC	SPCC
Chloromethane	.48	.05			**
Bromomethane	.18	.35			
Vinyl Chloride	.41	.22	46	*	
Chloroethane	.29	.22			
Methylene Chloride	.54	.89			
Acetone	.22	.13			
Carbon Disulfide	2.8	2.57			
1, 1-Dichloroethene	.89	.71	11	*	
1, 1-Dichloroethane	~~2.3~~ 1.6	1.78			**
Trans-1, 2-Dichloroethene	1.3	.74			
Chloroform	2.2	2.02	8	*	
1, 2-Dichloroethane	2.3	1.89			
2-Butanone	.19	.13			
1, 1, 1-Trichloroethane	.57	.45			
Carbon Tetrachloride	.47	.42			
Vinyl Acetate	.58	.62			
Bromodichloromethane	.63	.57			
1, 2-Dichloropropane	.43	.45	5	*	
Trans-1, 3-Dichloropropene	.30	.27			
Trichloroethene	.41	.39			
Dibromochloromethane	.30	.33			
1, 1, 2-Trichloroethane	.30	.45			
Benzene	1.1	1.03			
cis-1, 3-Dichloropropene	.74	.70			
2-Chloroethylvinylether	—	—			
Bromoform	.30	.26			**
2-Hexanone	.40	.43			
4-Methyl-2-Pentanone	.44	.44			
Tetrachloroethene	.40	.38			
1, 1, 2, 2-Tetrachloroethane	.50	.58			**
Toluene	1.0	.91	8	*	
Chlorobenzene	1.2	1.12			**
Ethylbenzene	.57	.49	14	*	
Styrene	.96	.96			
Total Xylenes	.85	.86			

RF_{50} -Response Factor from daily standard file at 50 ug/l
RF -Average Response Factor from initial calibration Form VI

%D -Percent Difference
CCC -Calibration Check Compounds (•)
SPCC -System Performance Check Compounds (••)

65 = 1.36
100 = .85
95 = 87

Form VII

4/84

ORIGINAL
(Red)

Continuing Calibration Check
Semivolatile HSL Compounds
(Page 1)

Case No: 3510

Contractor: ERCO

Contract No: 68-01-6581

Instrument ID: FINN 4530

Calibration Date: 11-20-84

Time: 10:21am and 11:12am

Laboratory ID: SD112084 and SDA112084

Initial Calibration Date: 11-8-84

Minimum RF for SPCC is 0.050 **Maximum %D for CCC is 25%**

Compound		RF	RF_{50}	%D	CCC	SPCC
N-Nitrosodimethylamine	2	1.57	a			
Phenol	3	2.21	2.18	1	*	
Aniline	2	2.49	2.22	10		
bis(-2-Chloroethyl)Ether	4	1.89	1.73	8		
2-Chlorophenol	5	1.51	1.53	1		
1, 3-Dichlorobenzene	6	1.76	1.70	3		
1, 4-Dichlorobenzene	7	1.91	1.78	7	*	
Benzyl Alcohol	8	0.91	0.99	9		
1, 2-Dichlorobenzene	9	1.58	1.55	2		
2-Methylphenol	10	1.25	1.27	2		
bis(2-chloroisopropyl)Ether	11	1.09	1.05	4		
4-Methylphenol	12	1.48	1.50	1		
N-Nitroso-Di-n-Propylamine	13	0.36	0.37	3		**
Hexachloroethane	14	0.65	0.61	6		
Nitrobenzene	16	0.68	0.58	15		
Isophorone	17	0.93	0.86	8		
2-Nitrophenol	18	0.24	0.25	4	*	
2, 4-Dimethylphenol	19	0.29	0.24	17		
Benzoic Acid	20	0.15	0.25	66		
bis(-2-Chloroethoxy)Methane	21	0.59	0.56	5		
2, 4-Dichlorophenol	22	0.35	0.38	9	*	
1, 2, 4-Trichlorobenzene	23	0.45	0.44	2		
Naphthalene	24	1.26	1.18	6		
4-Chloroaniline	4	0.49	0.49	0		
Hexachlorobutadiene	25	0.24	0.24	0	*	
4-Chloro-3-Methylphenol	26	0.33	0.36	9	*	
2-Methylnaphthalene	27	0.26	0.25	4		
Hexachlorocyclopentadiene	29	0.44	0.32	27		**
2, 4, 6-Trichlorophenol	30	0.46	0.49	7	*	
2, 4, 5-Trichlorophenol	31	0.47	0.57	21		
2-Chloronaphthalene	32	1.36	1.36	0		
2-Nitroaniline	6	0.50	0.47	6		
Dimethyl Phthalate	33	1.44	1.45	1		
Acenaphthylene	34	2.04	1.95	4		
3-Nitroaniline	7	0.38	0.38	0		
Acenaphthene	35	1.18	1.19	1	*	
2, 4-Dinitrophenol	36	0.21	0.27	29		**
4-Nitrophenol	37	0.25	0.24	8		**
Dibenzofuran	38	1.81	1.87	3		

a- elutes too close to solvent front

RF_{50} -Response Factor from daily standard file at concentration indicated

$\overline{RF}$ -Average Response Factor from initial calibratic

%D -Percent Difference

CCC -Calibration Check Compounds (•)

SPCC -System Performance Check Compounds (••)

4/84

ORIGINAL
(Red)

Continuing Calibration Check
Semivolatile HSL Compounds
(Page 2)

Case No: 3510

Contractor: ERCO

Contract No: 68-01-6581

Instrument ID: FINN 4530

Calibration Date: 11-20-84

Time: 10:21 am and 11:12 am

Laboratory ID: SDA112084 and SDA112084

Initial Calibration Date: 11-8-84

Minimum RF for SPCC is 0.050

Maximum %D for CCC is 25%

Compound		RF	RF_{50}	%D	CCC	SPCC
2, 4-Dinitrotoluene	39	0.51	0.56	10		
2, 6-Dinitrotoluene	40	0.40	0.41	3		
Diethylphthalate	41	1.38	1.33	4		
4-Chlorophenyl-phenylether	42	0.81	0.91	12		
Fluorene	43	1.44	1.53	6		
4-Nitroaniline	8	0.34	0.37	9		
4, 6-Dinitro-2-Methylphenol	45	0.20	0.22	10		
N-Nitrosodiphenylamine (1)	46	0.57	0.52	9	*	
4-Bromophenyl-phenylether	47	0.28	0.28	0		
Hexachlorobenzene	48	0.29	0.31	7		
Pentachlorophenol	49	0.17	0.25	49	*	
Phenanthrene	50	1.31	1.22	7		
Anthracene	51	1.28	1.22	5		
Di-N-Butylphthalate	52	1.31	1.26	4		
Fluoranthene	53	1.39	1.38	1	*	
Benzidine	10	0.58	0.51	12		* *
Pyrene	55	1.76	1.45	18		
Butylbenzylphthalate	56	0.71	0.60	15		
3, 3'-Dichlorobenzidine	11	0.43	0.47	9		
Benzo(a)Anthracene	57	1.52	1.55	2		
bis(2-Ethylhexyl)Phthalate	58	0.81	0.73	10		
Chrysene	59	1.52	1.49	2		
Di-n-Octyl Phthalate	61	1.55	1.67	8	*	
Benzo(b)Fluoranthene	62	1.46	1.72	2		
Benzo(k)Fluoranthene	63	1.46	1.63	12		
Benzo(a)Pyrene	64	1.21	1.36	12	*	
Indeno(1, 2, 3-cd)Pyrene	65	0.84	0.88	5		
Dibenz(a, h)Anthracene	66	0.96	1.01	5		
Benzo(g, h, i)Perylene	67	0.99	1.08	9		

RF_{50} -Response Factor from daily standard file at concentration indicated

RF -Average Response Factor from initial calibration Form VI

%D -Percent Difference

CCC -Calibration Check Compounds (*)

SPCC -System Performance Check Compounds (**)

(1) -Cannot be separated from diphenylamine

Form VII

4/84

ORIGINAL
(Red)

Continuing Calibration Check
Semivolatile HSL Compounds
(Page 1)

Case No: 3510

Contractor: ERCO

Contract No: 68-01-6581

Instrument ID: FINN 4630

Calibration Date: 11-21-84

Time: 8:37 am and 13:30 pm

Laboratory ID: SD112184 and SDA112184

Initial Calibration Date: 11-8-84

Minimum RF for SPCC is 0.050 **Maximum %D for CCC is 25%**

Compound		RF	RF_{50}	%D	CCC	SPCC
N-Nitrosodimethylamine	2	1.57	a			
Phenol	3	2.21	1.96	1	*	
Aniline	2	2.49	1.99	20		
bis(-2-Chloroethyl)Ether	4	1.89	1.56	17		
2-Chlorophenol	5	1.51	1.43	5		
1, 3-Dichlorobenzene	6	1.76	1.65	6		
1, 4-Dichlorobenzene	7	1.91	1.68	12	*	
Benzyl Alcohol	8	0.91	0.86	5		
1, 2-Dichlorobenzene	9	1.58	1.48	6		
2-Methylphenol	10	1.25	1.16	7		
bis(2-chloroisopropyl)Ether	11	1.09	0.99	9		
4-Methylphenol	12	1.48	1.32	11		
N-Nitroso-Di-n-Propylamine	13	0.36	0.35	3		**
Hexachloroethane	14	0.68	0.59	9		
Nitrobenzene	16	0.68	0.59	13		
Isophorone	17	0.93	0.83	10		
2-Nitrophenol	18	0.24	0.26	8	*	
2, 4-Dimethylphenol	19	0.29	0.24	17		
Benzoic Acid	20	0.15	0.23	53		
bis(-2-Chloroethoxy)Methane	21	0.59	0.55	7		
2, 4-Dichlorophenol	22	0.35	0.37	6	*	
1, 2, 4-Trichlorobenzene	23	0.45	0.45	0		
Naphthalene	24	1.26	1.17	7		
4-Chloroaniline	4	0.49	0.52	6		
Hexachlorobutadiene	25	0.24	0.26	8	*	
4-Chloro-3-Methylphenol	26	0.33	0.33	0	*	
2-Methylnaphthalene	27	0.26	0.25	4		
Hexachlorocyclopentadiene	29	0.44	0.31	30		**
2, 4, 6-Trichlorophenol	30	0.46	0.48	4	*	
2, 4, 5-Trichlorophenol	31	0.47	0.70	49		
2-Chloronaphthalene	32	1.36	1.29	5		
2-Nitroaniline	6	0.50	0.46	8		
Dimethyl Phthalate	33	1.44	1.37	5		
Acenaphthylene	34	2.04	1.89	7		
3-Nitroaniline	9	0.38	0.38	0		
Acenaphthene	35	1.18	1.21	3	*	
2, 4-Dinitrophenol	36	0.21	0.25	19		**
4-Nitrophenol	37	0.25	0.26	4		**
Dibenzofuran	38	1.81	1.84	2		

a - elutes too close to solvent front

RF_{50} -Response Factor from daily standard file at concentration indicated

RF -Average Response Factor from initial calibration Fr

%D -Percent Difference

CCC -Calibration Check Compounds (•)

System Performance Check Compounds (••)

ORIGINAL
(Red)

Continuing Calibration Check
Semivolatile HSL Compounds
(Page 2)

Case No: 3510

Contractor: ERCO

Contract No: 68-01-6581

Instrument ID: FINN 4530

Calibration Date: 11-21-84

Time: 8:37 am and 13:30 pm

Laboratory ID: SD112184 and SDA112184

Initial Calibration Date: 11-8-84

Minimum RF for SPCC is 0.050

Maximum %D for CCC is 25%

Compound		RF	RF_{50}	%D	CCC	SPCC
2, 4-Dinitrotoluene	39	0.51	0.53	4		
2, 6-Dinitrotoluene	40	0.40	0.41	3		
Diethylphthalate	41	1.38	1.28	7		
4-Chlorophenyl-phenylether	42	0.81	0.90	11		
Fluorene	43	1.44	1.51	5		
4-Nitroaniline	8	0.34	0.37	9		
4, 6-Dinitro-2-Methylphenol	45	0.20	0.23	15		
N-Nitrosodiphenylamine (1)	46	0.57	0.57	0	*	
4-Bromophenyl-phenylether	47	0.28	0.31	11		
Hexachlorobenzene	48	0.29	0.34	17		
Pentachlorophenol	49	0.17	0.26	53	*	
Phenanthrene	50	1.31	1.21	8		
Anthracene	51	1.28	1.15	10		
Di-N-Butylphthalate	52	1.31	1.16	11		
Fluoranthene	53	1.39	1.36	2	*	
Benzidine	10	0.58	0.53	5		**
Pyrene	55	1.76	1.62	8		
Butylbenzylphthalate	56	0.71	0.62	13		
3, 3'-Dichlorobenzidine	11	0.43	0.45	5		
Benzo(a)Anthracene	57	1.52	1.61	6		
bis(2-Ethylhexyl)Phthalate	58	0.81	0.74	9		
Chrysene	59	1.52	1.43	6		
Di-n-Octyl Phthalate	61	1.55	1.79	13	*	
Benzo(b)Fluoranthene	62	1.46	2.08	42		
Benzo(k)Fluoranthene	63	1.46	1.50	3		
Benzo(a)Pyrene	64	1.21	1.38	14	*	
Indeno(1, 2, 3-cd)Pyrene	65	0.84	1.15	37		
Dibenz(a, h)Anthracene	66	0.96	1.21	26		
Benzo(g, h, i)Perylene	67	0.99	1.35	36		

RF_{50} -Response Factor from daily standard file at concentration indicated

RF -Average Response Factor from initial calibration Form VI

%D -Percent Difference

CCC -Calibration Check Compounds (•)

SPCC -System Performance Check Compounds (••)

(1) -Cannot be separated from diphenylamine

Form VII

ORIGINAL
(Red)

Continuing Calibration Check
Semivolatile HSL Compounds
(Page 1)

Case No: 3510
Contractor: ERCO
Contract No: 68-01-6581
Instrument ID: FINN 4530

Calibration Date: 11-23-84
Time: 9:19AM & 10:09 AM
Laboratory ID: SDA112384 and SDA112384
Initial Calibration Date: 11-8-84

Minimum RF for SPCC is 0.050 Maximum %D for CCC is 25%

Compound		RF	RF_{50}	%D	CCC	SPCC
N-Nitrosodimethylamine	2	1.59	*a			
Phenol	3	2.21	2.03	8	*	
Aniline	2	2.49	2.30	8		
bis(-2-Chloroethyl)Ether	4	1.89	1.57	17		
2-Chlorophenol	5	1.51	1.42	6		
1, 3-Dichlorobenzene	6	1.76	1.66	6		
1, 4-Dichlorobenzene	7	1.91	1.72	10	*	
Benzyl Alcohol	8	0.91	0.79	13		
1, 2-Dichlorobenzene	9	1.58	1.49	6		
2-Methylphenol	10	1.25	1.20	4		
bis(2-chloroisopropyl)Ether	11	1.09	1.03	6		
4-Methylphenol	12	1.48	1.36	8		
N-Nitroso-Di-n-Propylamine	13	0.36	0.34	6		**
Hexachloroethane	14	0.65	0.57	12		
Nitrobenzene	16	0.68	0.62	9		
Isophorone	17	0.93	0.86	8		
2-Nitrophenol	18	0.24	0.26	8	*	
2, 4-Dimethylphenol	19	0.29	0.24	17		
Benzoic Acid	20	0.15	0.09	40		
bis(-2-Chloroethoxy)Methane	21	0.59	0.55	7		
2, 4-Dichlorophenol	22	0.35	0.38	9	*	
1, 2, 4-Trichlorobenzene	23	0.45	0.46	2		
Naphthalene	24	1.26	1.21	4		
4-Chloroaniline	4	0.49	0.51	4		
Hexachlorobutadiene	25	0.24	0.27	13	*	
4-Chloro-3-Methylphenol	26	0.33	0.34	3	*	
2-Methylnaphthalene	27	0.26	0.26	0		
Hexachlorocyclopentadiene	29	0.44	0.29	34		**
2, 4, 6-Trichlorophenol	30	0.46	0.50	9	*	
2, 4, 5-Trichlorophenol	31	0.47	0.58	23		
2-Chloronaphthalene	32	1.36	1.30	4		
2-Nitroaniline	6	0.50	0.48	4		
Dimethyl Phthalate	33	1.44	1.41	2		
Acenaphthylene	34	2.04	1.94	5		
3-Nitroaniline	7	0.38	0.37	3		
Acenaphthene	35	1.18	1.18	0	*	
2, 4-Dinitrophenol	36	0.21	0.25	19		**
4-Nitrophenol	37	0.25	0.25	0		**
Dibenzofuran	38	1.81	1.86	3		

* Eluted too close to solvent front

RF_{50} -Response Factor from daily standard file at concentration indicated
RF -Average Response Factor from initial calibration For

%D -Percent Difference
CCC -Calibration Check Compounds (•)
---- System Performance Check Compounds (••)

ORIGINAL
(Red)

Continuing Calibration Check
Semivolatile HSL Compounds
(Page 2)

Case No: 3510
Contractor: ERCO
Contract No: 68-01-6581
Instrument ID: FINN 4530

Calibration Date: 11-23-84
Time: 9:19AM & 10:09AM
Laboratory ID: SD112384 and SDA112384
Initial Calibration Date: 11-8-84

Minimum RF for SPCC is 0.050

Maximum %D for CCC is 25%

Compound		RF	RF_{50}	%D	CCC	SPCC
2, 4-Dinitrotoluene	39	0.51	0.54	6		
2, 6-Dinitrotoluene	40	0.40	0.41	3		
Diethylphthalate	41	1.38	1.31	5		
4-Chlorophenyl-phenylether	42	0.81	0.91	12		
Fluorene	43	1.44	1.53	6		
4-Nitroaniline	8	0.34	0.33	3		
4, 6-Dinitro-2-Methylphenol	45	0.20	0.26	0		
N-Nitrosodiphenylamine (1)	46	0.57	0.50	12	*	
4-Bromophenyl-phenylether	47	0.28	0.30	7		
Hexachlorobenzene	48	0.29	0.33	14		
Pentachlorophenol	49	0.17	0.26	52	*	
Phenanthrene	50	1.31	1.18	10		
Anthracene	51	1.28	1.19	7		
Di-N-Butylphthalate	52	1.31	1.17	11		
Fluoranthene	53	1.39	1.39	0	*	
Benzidine	10	0.58	0.53	9		* *
Pyrene	55	1.76	1.48	16		
Butylbenzylphthalate	56	0.71	0.58	18		
3, 3'-Dichlorobenzidine	11	0.43	0.37	14		
Benzo(a)Anthracene	57	1.52	1.43	6		
bis(2-Ethylhexyl)Phthalate	58	0.81	0.69	15		
Chrysene	59	1.52	1.33	13		
Di-n-Octyl Phthalate	61	1.55	2.39	54	*	
Benzo(b)Fluoranthene	62	1.46	2.17	49		
Benzo(k)Fluoranthene	63	1.46	1.73	18		
Benzo(a)Pyrene	64	1.21	1.20	1	*	
Indeno(1, 2, 3-cd)Pyrene	65	0.84	0.85	1		
Dibenz(a, h)Anthracene	66	0.96	0.90	6		
Benzo(g, h, i)Perylene	67	0.99	0.94	5		

RF_{50} -Response Factor from daily standard file at concentration indicated
RF -Average Response Factor from initial calibration Form VI
%D -Percent Difference

CCC -Calibration Check Compounds (*)
SPCC -System Performance Check Compounds (**)
(1) -Cannot be separated from diphenylamine

Form VII

ORIGINAL
(Red)

NUS CORPORATION
SUPERFUND DIVISION Cont. Calib Check Comments **PROJECT NOTES**

1.) SPCC Bromoform 11/6/84 LAB ID 6253 & 6264 A out of spec. .24, .26 RF not suff. out of range (compared to initial of .3 $\overline{RF}$) to affect sample results.

2.) CCC Vinyl Chloride %D 46 out of spec. but not sufficient to affect results. (6264 11/6) exp. since no vinyl chloride found

3.) Pentachlorophenol CCC %D 47 out of spec 11/20 SD112084 & SDA ~~10&11 am~~ & 11/21 SD112184 & SDA 112184 @ 53%D, 11/23 SD112384 & SDA @ 52%D - Pentachlorophenol reported @ 50ug/kg (<CRDL) since all three days consistent RF reported result not affected however - contractually lab should have recalibrated

4.) SPCC Chloromethane 11/6/84 6253 ID out of spec. .14 RF 6264 11/6 .05 RF out of spec - detection limits for this compound may be slightly higher than that reported.

5) Pentachlorophenol ~~SPC~~ CCC out of spec on every day result reported for this compound in C-7257 may be slightly lower than reported, however since reported value is approximate and BDL - actual result is not affected.

6.) Di-noctyl phthalate out of CCC spec on 11/23 however since results are questioned due to blanks and this would only serve to make reported results lower values - there is no net effect on data.

NUS 443A 58 1182

Pesticide Evaluation Standards Summary

ORIGINAL (Red)

Case No. 3510 Laboratory ERCO/ENSECO

Contract No. 68-01-6580#2 Column 2250/2401

Date of Analysis 1-20-85 Instrument ID GC#2

EVALUATION CHECK FOR LINEARITY

LABORATORY ID	5170	5178	5179	
PESTICIDE	CALIBRATION FACTOR EVAL. MIX A	CALIBRATION FACTOR EVAL. MIX B	CALIBRATION FACTOR EVAL. MIX C	% RSD (≤10%)
ALDRIN	1729757	2239879	1747976	15.2 *
ENDRIN	740514	901675	668911	15.5 *
4,4'-DDT	889981	924812	593849	22.7 *
DIBUTYL CHLORENDATE	17184210	18468491	14947368	10.6 *

(1)

EVALUATION CHECK FOR 4,4'-DDT/ENDRIN BREAKDOWN

	PERCENT BREAKDOWN EXPRESSED AS TOTAL DEGRADATION			
	EVAL. MIX B	EVAL. MIX B	EVAL. MIX B	EVAL. MIX B
ENDRIN	0	0	0	0
4,4'-DDT	0.2	1.1	18.6	23.6 *
LABORATORY ID	5170	5178	5179	5180
TIME OF ANALYSIS	1918	1140	1603	1857

(1)

EVALUATION OF RETENTION TIME SHIFT FOR DIBUTYLCHLORENDATE

SMO SAMPLE NO.	LAB ID	TIME OF ANALYSIS	PERCENT DIFF. ●	SMO SAMPLE NO.	LAB ID	TIME OF ANALYSIS	PERCENT DIFF. ●
C7257	35-351	1350	2.1				
C9266	35-352	1011	0.3				
C9268	35-353	0154	0.5				
C9300	35-354	1435	1.5				
C9501	35-355	0237	0.5				
C9587	35-356	1055	0.6				
C7257	35-357S	1519	2.0				
C7257	35-358S	1646	2.6				
ERCO BLANK	35-359B	0111	0.4				

● ≤2% PACKED, ≤0.3% CAPILLARY

4/84

FORM VIII

Form VIII. Pesticide Evaluation Standards Data.

* Results outside QC control limits

Comments - (1) Since no pesticides were identified, these results are not sufficiently out of range to question sample results.

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ORIGINAL (Red)

PESTICIDE/PCB STANDARDS SUMMARY

Case No. 3510 Laboratory ERCO/ENSECO
Contract No. 68-01-6580#2 GC Column 2250/2401 GC Instrument ID GC# 2

	DATE OF ANALYSIS 1-20-85				DATE OF ANALYSIS 1-21-85			
	TIME OF ANALYSIS 1707				TIME OF ANALYSIS 1940			
	LABORATORY ID 5169A				LABORATORY ID 5181			
COMPOUND	RT	RETENTION TIME WINDOW	CALIBRATION FACTOR	CONF. OR QUANT.	RT	CALIBRATION FACTOR	CONF. OR QUANT.	PERCENT DIFF.**
alpha-BHC	2.20	2.24	2746739	CONF.	2.24	2472368	CONF.	11.1
beta-BHC	3.21	3.89	1024565	CONF.	3.29	903290	CONF.	13.4
delta-BHC	3.75	3.83	1433696	CONF.	3.84	1703289	CONF.	15.8
gamma-BHC	2.80	2.86	2345652	CONF.	2.86	1810526	CONF.	29.6
Heptachlor	3.45	3.52	2068478	CONF.	3.51	850000	CONF.	58.9
Aldrin	4.18	4.26	2304348	CONF.	4.28	2346789	CONF.	1.6
Heptachlor Epoxide	6.38	6.51	2061957	CONF.	6.51	2240137	CONF.	8.0
Endosulfan I	8.06	8.22	1747283	CONF.	8.24	1991118	CONF.	12.3
Dieldrin	9.90	10.10	1976087	CONF.	10.10	2369737	CONF.	16.6
4,4'-DDE	9.28	9.47	1846739	CONF.	9.52	2194079	CONF.	15.8
Endrin	12.02	12.26	985326	CONF.	12.26	1398026	CONF.	29.5
Endosulfan II	14.41	14.70	3089674	CONF.	14.77	4105263	CONF.	24.7
4,4'-DDD	14.41	14.70	3089674	CONF.	14.77	4105263	CONF.	24.7
Endrin Aldehyde	19.49	19.88	1280072	CONF.	19.70	1123904	CONF.	13.9
Endosulfan Sulfate	23.79	24.27	1209058	CONF.	24.12	1406798	CONF.	16.1
4,4'-DDT	17.32	17.67	1240217	CONF.	17.70	134759	CONF.	89.1
Methoxychlor	33.58	34.25	711739	CONF.	—	—	—	—
Endrin Ketone	31.90	32.54	186421	CONF.	—	—	—	—
Tech. Chlordane	7.68	7.83	131579	CONF.	—	—	—	—
alpha-Chlordane*	—	—	—	—	—	—	—	—
gamma-Chlordane*	—	—	—	—	—	—	—	—
Toxaphene	17.96	18.32	1165868	CONF.	—	—	—	—
Aroclor - 1016	3.37	3.44	119063	CONF.	—	—	—	—
Aroclor - 1221	2.00	2.04	61370	CONF.	—	—	—	—
Aroclor - 1232	3.37	3.44	60195	CONF.	—	—	—	—
Aroclor - 1242	6.44	6.57	74505	CONF.	—	—	—	—
Aroclor - 1248	6.42	6.55	172303	CONF.	—	—	—	—
Aroclor - 1254	11.59	11.82	2551654	CONF.	—	—	—	—
Aroclor - 1260	26.40	26.99	378158	CONF.	—	—	—	—

4/84

* SEE EXHIBIT B, PART 7

** CONF. = CONFIRMATION (<20% DIFFERENCE)
QUANT. = QUANTITATION (<10% DIFFERENCE)

FORM IX

Form IX. Pesticide/PCB Standards Summary.

QUANTITATIVE CALCULATIONS

Although there is no reason to suspect a problem with quantitation of VOA results & detection limits for ~~VOA~~ these samples could not be verified due to the data system used for the analysis. The data system did not supply raw integration values (areas) of the peaks, so actual results could not be validated.

No errors were noted in BNA analyses, which used an adequate data system which included all raw data necessary for validation purposes.

PROJECT NAME: Gulf Oil Sinking Spring
TDD NO: F3-8405-32

ORIGINAL (Red)

EPA SITE NO.:
REGION: III

QUALITY ASSURANCE REVIEW OF ORGANIC ANALYSIS LAB DATA PACKAGE

Case No.: 3510
Contract No.: 68-01-6767
Contract Laboratory: GCA
Applicable IFB No.: WA84-A267
Reviewer: Atwood F. Davis
Review Date: 4/8/85

Applicable Sample No's.: C-7256, C-9267, C-9296, C-9297, C-9298, and C-9299

The organic analytical data for this case has been reviewed. The quality assurance evaluation is summarized in the following table:

Reviewer's Evaluation*	Fraction				
	VOLATILES	ACIDS	BASE/ NEUTRALS	PCB/ PEST.	
Acceptable				✓	
Acceptable with exception(s)	✓(1,2,3)	✓(1,2,4)	✓(1,2)		
Questionable					
Unacceptable					

* Definitions of the evaluation score categories are listed on next page.

This evaluation was based upon an analysis of the review items indicated below:

- ● DATA COMPLETENESS
- ● BLANK ANALYSIS RESULTS
- ● SURROGATE SPIKE RESULTS
- ● MATRIX SPIKE RESULTS
- ● DUPLICATE ANALYSIS RESULTS
- (NA) ○ EVALUATION OF CONFIRMATIONS
- ● QUANTITATIVE CALCULATIONS
- ‡ ● TARGET COMPOUND MATCHING QUALITY
- (5) ◒ TENTATIVELY IDENTIFIED COMPOUNDS
- ○ CHROMATOGRAPHIC SENSITIVITY CHECKS
- (3) ‡ ● DFTPP AND BFB SPECTRUM TUNE RESULTS
- ● STANDARDS
- ● CALIBRATION CHECK STANDARDS
- ‡ ◒ INTERNAL STANDARDS PERFORMANCE

Data review forms are attached for each of the review items indicated above.

‡ No errors noted, no form attached.

◒ Spot Check performed.

Comments: (1) See blank analysis results
(2) See surrogate & matrix spike recoveries
(3) See BFB run chronicles & instrument carryover effects
(4) See calibration RF's initial calibration sheets.
(5) Checked for possible target compound identifications.

ORIGINAL
(Red)

DATA EVALUATION SCORE CATEGORIES

ACCEPTABLE: Data is within established control limits, or the data which is outside established control limits does not affect the validity of the analytical results.

ACCEPTABLE WITH EXCEPTION(S): Data is not completely within established control limits. The deficiences are identified and specific data is still valid, given certain qualifications which are listed below.

QUESTIONABLE: Data is not within established control limits. The deficiences bring the validity of the entire data set into question. However, the data validity is neither proved nor disproved by the available information.

UNACCEPTABLE: Data is not within established control limits. The deficiences imply the results are not meaningful.

DATA COMPLETENESS	3510												
	CONC./MATRIX	L/A	→										
FRACTION	TRAFFIC REPORT # C	7256	9267	9296	9297	9298	9299						
	LAB I.D. # 41-	458	459	460	461	462	463						
BNA :	RUN DATE/TIME												
	TARGET COMPOUND TAB.	✓	→										
	TARGET COMPOUND D.L.	✓	→										
	TENT. I.D. COMPOUND TAB.	✓	→										
	SURROGATE RECOVERY	✓	→										
	GC SCREEN TABULATION	NA	→										
	GC/MS CHROMATOGRAMS	✓	→										
	TARGET CMPD. QUAN. LIST	✓	→										
*	TARGET CMPD. SPECTRA	✓	→										
	TENT. I.D. CMPD. Q.L.	NA	NA	NA	✓	✓	NA						
	TENT. CMPD. LIB. SRCH.	NA	NA	NA	✓	✓	NA						
	CHRO./SENS. CHECKS	MS	→										
	BFB/DFTPP TUNE DATA	✓	→										
	I.S AREAS CHARTS	NR	→										
	I.S. REL. RESP. FORM	MS	→										
	RF & AMTS.: CALIB. CHK.	MS	→										
	RF & AMTS.: 3-PT CALIB.	✓	→										
	Chromatograms: Calib. Chk.	MS	→										
	Chromatograms: 5-Pt. Calib.	✓	→										
	LINEARITY: 5-PT. CALIB	✓	→										
	RF COMPARISON	MS	→										
	SAMPLE/FIELD BLANK		✓										
	METHOD/INSTR. BLANK												
	LAB DUPLICATE						✓						
	FIELD DUP/REP												
	MAT. SPK./M. STD.						✓						
PEST. :	PESTICIDE TABULATION	✓	→										
	PEST. D.L. TABULATION	✓	→										
	PESTICIDE CHRO.	✓	→										
	PESTICIDE STD. CHRO.												
	PESTICIDE STD. I.D.												
	2nd COLUMN CONF.												
	GC/MS CONFIRMATION												
	PESTICIDE DUPLICATE	✓											
	PESTICIDE SPIKE	✓											
	PESTICIDE BLANK		✓										
	STD SUMMARY	✓	→										
	LINEARITY CHK.	✓	→										
	DEGRAD. CHK.	✓	→										
	DBC RT SHIFT	✓	→										

ORIGINAL (Red)

DATA COMPLETENESS	3510												
	CONC./MATRIX	L/A →											
FRACTION	TRAFFIC REPORT # C	9296	9297	9298	9299								
	LAB I.D. #	41460	41461	41462	41463								
BNA :	RUN DATE/~~TIME~~ FRN #	13621 12/10	13622	13623	13624 →								
RE-EXTRACTIONS DUE TO LOW SURROGATE RECOVERY	TARGET COMPOUND TAB.	✓ →											
	TARGET COMPOUND D.L.	✓ →											
	TENT. I.D. COMPOUND TAB.	✓ →											
	SURROGATE RECOVERY	✓ →											
	GC SCREEN TABULATION	NA →											
	GC/MS CHROMATOGRAMS	✓ →											
	TARGET CMPD. QUAN. LIST	✓ →											
	TARGET CMPD. SPECTRA *	✓ →											
	TENT. I.D. CMPD. Q.L.	✓ →											
	TENT. CMPD. LIB. SRCH.	✓ →											
	CHRO./SENS. CHECKS	MS →											
	BFB/DFTPP TUNE DATA	✓ →											
	I.S AREAS CHARTS	NA →											
	I.S. REL. RESP. FORM	MS →											
	RF & AMTS.: CALIB. CHK.	MS →											
	RF & AMTS.: 3-PT CALIB.	✓ →											
	Chromatograms: Calib. Chk.	MS →											
	Chromatograms: 3-Pt. Calib.	✓ →											
	LINEARITY: 3-PT. CALIB	✓ →											
	RF COMPARISON	MS →											
	SAMPLE/FIELD BLANK												
	METHOD/INSTR. BLANK												
	LAB DUPLICATE												
	FIELD DUP/REP												
	MAT. SPK./M. STD.												
PEST :	PESTICIDE TABULATION												
NA	PEST. D.L. TABULATION												
	PESTICIDE CHRO.												
	PESTICIDE STD. CHRO.												
	PESTICIDE STD. I.D.												
	2nd COLUMN CONF.												
	GC/MS CONFIRMATION												
	PESTICIDE DUPLICATE												
	PESTICIDE SPIKE												
	PESTICIDE BLANK												
	STD SUMMARY												
	LINEARITY CHK.												
	DEGRAD. CHK.												
	DBC RT SHIFT												

ORIGINAL (Red)

DATA COMPLETENESS	CONC./MATRIX	L/A											ORIGINAL (Red)
FRACTION	TRAFFIC REPORT # C	7256	9267	9296	9297	9298	9299						
	LAB I.D. # 41-	464	465	466	467	468	469						
VOA :	RUN DATE/TIME												
	TARGET COMPOUND TAB.	✓											
	TARGET COMPOUND D.L.	✓											
	TENT. I.D. COMPOUND TAB.	✓											
	SURROGATE RECOVERY	✓											
	GC SCREEN TABULATION	NR											
	GC/MS CHROMATOGRAMS	✓											
	TARGET CMPD. QUAN. LIST	✓											
*	TARGET CMPD. SPECTRA	✓											
	TENT. I.D. CMPD. Q.L.	NA	NA	✓	✓	NA	✓						
	TENT. CMPD. LIB. SRCH.	NA	NA	✓	✓	NA	✓						
	CHRO./SENS. CHECKS	MS											
	BFB/DFTPP TUNE DATA	✓											
	I.S AREAS CHARTS	NR											
	I.S. REL. RESP. FORM	MS											
	RF & AMTS.: CALIB. CHK.	✓											
	RF & AMTS.: 5-PT CALIB.	✓											
	Chromatograms: Calib. Chk.												
	Chromatograms: 5-Pt. Calib.	✓											
	LINEARITY: 5-PT. CALIB	✓											
	RF COMPARISON	✓											
	SAMPLE/FIELD BLANK		✓										
	METHOD/INSTR. BLANK												
	LAB DUPLICATE	✓											
	FIELD DUP/REP												
	MAT. SPK./M. STD.	✓											

COMMENTS: * Spectra only provided for laboratory reported hits above CRDL

ORIGINAL
(Red)

KEY TO DATA COMPLETENESS FORM

Abbreviation Used on Form	Description of Checklist Item
Conc./Matrix	Concentration category submitted in analysis request (low, med, hi); and matrix (sol., aq.)
Fraction	Fill in acid, base/neutral, acid/base/neutral, or volatiles analysis
Run Date/Time	Instrument run date (to be used for correlating calibration)
Target Cmpd. Tab.	Tabulated results for target compounds
Target Cmpd. D.L.	Detection limits for target compounds (actual/level indicated by screen
Tent. I.D. Cmpd. Tab.	Tabulated results for tentatively identified compounds
Surr. Rec.	Surrogate recoveries results
GC Screen Tab.	Tabulated GC screen results indicating required level of followup
GC/MS Chromatograms	Chromatograms of GC/MS analysis runs
Target Cmpd. Quan. List	Target compounds quantitation list, showing areas, ret. times
Target Cmpd. Spectra	Enhanced and unenhanced spectra of target compound hits
Tent. I.D. Cmpd. Q.L.	Quantitation list for tentatively identified compounds
Tent. Cmpd. Lib. Srch.	Spectra and library match spectra of tentatively identified compounds
Chro./Sens. Checks	EICP's and R.R.F.'s for chromatographic sensitivity checks
BFB/DFTPP Tune Data	Spectra intensity lists, and criteria comparison forms for BFB, DFTPP
I.S. Areas Charts	Internal standards area control charts and description of remedial action
I.S. Rel. Resp. Form	Internal standards relative response listings for each sample run
RF and amts.: Calib. Chk.	Tabulated response factors and amount injected for all cmpds. in calibration check
RF and amts.: 3-Pt. Calib.	Tabulated response factors and amount injected for all cmpds. in 3-point calibration
Chromatograms: Calib. Chk.	Chromatograms for calibration check standard
Chromatograms: 3-Pt. Calib.	Chromatograms for 3-point multilevel calibration standards.
Linearity: 3-Pt. Calib.	Tabulated correlation coefficient or relative standard deviation for calibration
RF Comparison	Tabulated comparison of calibration Response Factor with check standard
Sample/Field Blank	Equipment rinse or reagent water blank shipped with samples from field
Method/Instr. Blank	Method or instrument blank which is prepared at lab
Lab Duplicate	Sample which was split by lab for duplicate analysis
Field Dup/Rep	Sample which was split or collected twice in the field
Mat. Spk./M. Std.	Matrix spike or method standard (blind, or done by lab)
Pest. Tab.	Tabulated results for pesticides
Pest. D.L. Tab.	Tabulated detection limits for pesticides
Pest. Chro.	Chromatograms for pesticide screening
2nd Col. Conf.	Confirmation of pesticide results by using a second GC column and temperature
GC/MS Conf.	Confirmation of pesticide results by GC/MS analysis
Pest. Dup., Spk. Blk.	Pesticide duplicate, spike, and blank
Pest. Std. Chro.	Chromatogram of pesticide standard
Pest. Std. I.D.	Pesticide standard identification form
TCDD	2,3,7,8-tetrachlorodibenzodioxin
TCDD Tab., D.L., EICP, Blk.	TCDD tabulated results, detection limits, extracted ion current profile, blank

KEY TO SYMBOLS USED IN DATA COMPLETENESS TABLE

Symbol	Meaning	Symbol	Meaning
✓	Data item present	I	Incomplete data item
NA	Data item not applicable or not required	NC	Data item not clearly explained (units of conc., etc)
P	Data item within established control limits	* or [number]	See footnote
F	Data item outside established control limits	XX/XX/XX XX:XX	Date/Time of run (calibration, etc.)
MS	Missing item		

BLANK ANALYSIS RESULTS FOR TARGET COMPOUNDS

ORIGINAL

FRACTION	TYPE	CONC	MATRIX	SAMPLE #	SOURCE OF H_2O	CONTAMINANTS (CONCENTRATION / DETECTION LIMIT)
BNA	LAB Method BLK	Lo	AQ	MB1 12/10	GCA Re-extract (4)	Bis (2-ethylhexyl) phthalate (6ul Ng / 10) 3
VOA	FIELD	Lo	AQ*	C-9267	NUS	Methylene Chloride (4.5 ug/L / 5) 2 Chloroform (9 ug/L / 5) 1
VOA	LAB	Lo	AQ	MB1	GCA	Methylene Chloride (5.1 ug/L / 5) 1 Chloroform (11 ug/L / 5) 1
BNA	LAB	Lo	AQ	MB1 11/21	GCA	NONE FOUND
Pest	LAB	Lo	AQ	MB1	GCA	NONE FOUND
BNA	FIELD	Lo	AQ	C-9267	NUS	NONE FOUND
PEST	FIELD	Lo	AQ	C-9267	NUS	NONE FOUND

LABORATORY REPORTED FIELD BLANK DATA IS COMPARED WITH THE SAMPLE DATA IN A TABULATION FORM WITHIN THE SAMPLE ANALYTICAL DATA SUMMARY. TENTATIVELY IDENTIFIED COMPOUNDS IN BLANKS ARE LISTED ON A SEPARATE FOF

COMMENTS:

(1) RESULT REPORTED BY LABORATORY AND CONFIRMED BY REVIEWER.

(2) RESULT INFERRED FROM QUANTITATION LIST, DIAGNOSTICS, CHROMATOGRAM AND/OR SPECTRA.

(3) Result crossed off by lab as BDL, inferred from QL & MASS.

* Run immediately after 200 ppb STD. NOT USED to question sample results. Several other compds were flagged by lab & not reported due to BDL - these results are not listed because they would not be used and ~~Either the two compds listed~~ are probably artifacts of chromatographic ghosting (due to their higher weight & boiling properties, more often ghost).

(4) ONLY used to question re-extracted samples.

[redacted]

Case No. 3510 Contract Laboratory GCA Contract No. 68-01-6767

WATER SURROGATE RECOVERIES

pg 1 of 2

SMO TRAFFIC NO.	VOLATILE: TOLUENE-D8 (86-119)	VOLATILE: BFB (85-121)	VOLATILE: 1,2 DICHLORO-ETHANE-D4 (77-120)	SEMI-VOLATILE: NITRO-BENZENE-D5 (41-120)	SEMI-VOLATILE: 2-FLUORO-BIPHENYL (44-119)	SEMI-VOLATILE: TERPHENYL-D14 (33-128)			SEMI-VOLATILE: PHENOL-D5 (15-103)	SEMI-VOLATILE: 2-FLUORO-PHENOL (23-121)	SEMI-VOLATILE: 2,4,6 TRIBROMO-PHENOL (10-130)	PESTICIDE: ** DIBUTYL-CHLORENDATE (48-136)	
MB1	91	99	113	94.9	93.5	110							
C9299 MS				88.8	95.3	93.1			24.4	46.2	48.9	97	
C9299 MSD				92.4	96.8	133			38.9	54.7	62.5		
C7256	102	106	108	80.8	86.3	85.1			36.3	52.6	77.0		
C9267	100	97	89	87.0	89.1	86.6			23.0	44.5	53.5	96	
C9296	98	95	80	123.1 *	134 *	137 *			26.1	45.3	66.4	101	
C9297	98	111	97	147.2 *	142 *	128	(2)		-0- *	-0- *	-0- *	67	(1)
C9298	99	104	ND *	197.8 *	71.3	118			-0- *	5.0 *	-0- *	87	(1)
C9299	105	129 *	97	120	140 *	136 *			-0- *	7.8 *	-0- *	83	(1)
C7256MS	99	105	103						14.2 *	28.4	34.8	86	(1)
C7256MSD	100	102	81									99	
												100	

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

**ADVISORY LIMITS ONLY

Volatiles: 2 out of 27 ; outside of QC limits

Semi-Volatiles: 18 out of 54 ; outside of QC limits

Pesticides: 0 out of 9 ; outside of QC limits

Comments: (1) See reanalysis results sheet for comments on BNA fraction analyses.
(2) Since BN surrogates vary slightly in the initial & reanalysis (yet agree very well for these analyses) actual values reported for naphthalene & 2-methyl naphthalene are reviewer reported as averages for these 2 analyses of C9297. BN cmpd DL's are accurately reported.

ORIGINAL (Red)

FORM II

4/84

Case No. 3510 Contract Laboratory GCA Contract No. 68-01-6767

WATER SURROGATE RECOVERIES Re-extracts

	VOLATILE			SEMI-VOLATILE								PESTICIDE
SMO TRAFFIC NO.	TOLUENE-D8 (88-119)	BFB (85-121)	1,2 DICHLORO-ETHANE-D4 (77-120)	NITRO-BENZENE-D5 (41-120)	2-FLUORO-BIPHENYL (44-119)	TERPHENYL-D14 (33-128)			PHENOL-D5 (15-103)	2-FLUORO-PHENOL (23-121)	2,4,6 TRIBROMO-PHENOL (10-130)	DIBUTYL-CHLORENDATE (48-136) **
(1) C9296				59	81	94			0*	0*	0*	
(1) C9297				58	78	79	(3)		0*	0*	0*	
(1) C9298				0*	2*	10*	(2)		0.4*	0*	0*	
C9299				56	81	93			26	25	90	
MB1				51 ~~127~~ FM	79	90			17	22*	90	

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

** ADVISORY LIMITS ONLY

Volatiles: _____ out of _____ ; outside of QC limits

Semi-Volatiles: 13 out of 30 ; outside of QC limits

Pesticides: _____ out of _____ ; outside of QC limits

Comments: (1) MOST Acid and d.L's in C9296, C9297 C9298 may be subst. higher than reported in part for phenol although ~~other~~ Acid cmpds may be similarly affected.
(2) Since BN compound surrogates better in Acid d.L's may be most accurate as reported in the first analysis, also actual values reported in C9298 for Naphthalene & 2-methylnaphthalene, are reported from initial run since the quantitation is more accurate.
(3) See first page - comment (2) surrogates

ORIGINAL (Red)

FORM II

4/84

WATER MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Case No. 3510 Contractor GCA Contract No. 68-01-6767

FRACTION	COMPOUND	CONC. SPIKE ADDED (ug)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY	
VOA SMO SAMPLE NO. C7256	1,1-Dichloroethene	60	-0-	56	93	63	105	12	14	61-145	
	Trichloroethene	25	1	23	92	24	96	4	14	71-120	
	Chlorobenzene	50	1	47	94	49	98	4	13	75-130	
	Toluene	50	1	49	96	51	100	4	13	76-125	
	Benzene	50	1	47	92	52	102	10	11	76-127	
B/N SMO SAMPLE NO. C9299	1,2,4-Trichlorobenzene	50		21	42	22	44	5	28	39-98	
	Acenaphthene			20	40*	21	42*	5	31	46-118	
	2,4 Dinitrotoluene			4	8*	9	18*	77*	38	24-96	(1)(3)
	Di-n-Butylphthalate			5	10*	7	14	33	40	11-117	
	Pyrene			15	30	18	36	18	31	26-127	
	N-Nitroso-Di-n-Propylamine			12	*24	14	*28	15	38	41-116	
	1,4-Dichlorobenzene			23	46	21	42	9	28	36-97	
ACID SMO SAMPLE NO. C9299	Pentachlorophenol	91		-0-	-0-*	19	21	200*	50	9-103	(2)(3)
	Phenol	100		24	24	24	24	0	42	12-89	
	2-Chlorophenol	100		41	41	40	40	2	40	27-123	
	4-Chloro-3-Methylphenol	89		19	21*	24	27	25	42	23-97	
	4-Nitrophenol	99		-0-	-0-*	-0-*	-0-*	-0-	50	10-80	(2)
PEST SMO SAMPLE NO. C7256	Lindane	0.20	<0.05	0.20	100	0.19	95	5	15	56-123	
	Heptachlor	0.20	<0.05	0.18	90	0.20	100	11	20	40-131	
	Aldrin	0.20	<0.05	0.17	85	0.17	85	0	22	40-120	
	Dieldrin	0.50	<0.10	0.56	112	0.57	114	2	18	52-126	
	Endrin	0.50	<0.10	0.54	108	0.55	110	2	21	56-121	
	4,4'-DDT	0.50	<0.10	0.62	124	0.62	124	0	27	38-127	

*ASTERISKED VALUES ARE OUTSIDE QC LIMITS.

RPD: VOAs 0 out of 5; outside QC limits
B/N 1 out of 7; outside QC limits
ACID 1 out of 5; outside QC limits
PEST 0 out of 6; outside QC limits

RECOVERY: VOAs 0 out of 10; outside QC limits
B/N 7 out of 14; outside QC limits
ACID 4 out of 10; outside QC limits
PEST 0 out of 12; outside QC limits

Comments: (1) Some BN cmpd. d.l's in C9299 may be slightly higher than those reported in particular for 2,4 Dinitrotoluene
(2) Some Acid D.L's in C9299 may be ~~slightly~~ higher than those Reported (substantially) in part. For ~~[illegible]~~ 4 nitrophenol & pentachlorophenol
(3) High RPD's for Pentachlorophenol & 2,4-dinitrotoluene not signif due to low conc/recoveries.
Although C9299 was re-extracted & re-run due to low surrogate recoveries, the reanalysis showed very similar surr recoveries for this sample BNAs and no BNA's were identified with either run-above statements still apply.
MS of BNA's ~~[illegible]~~ was not re-analyzed.

4/84

II-2

Duplicate/Triplicate Analysis of Non-Matrix Spiked (Indigenous) Compounds

ORIGINAL (Red)

tabulated below for three types of multiple analyses:

(1) Field duplicates

(2) Un-spiked laboratory duplicates

(3) Matrix spike duplicate plus corresponding unspiked sample evaluated for non-matrix spiked (indigenous) compounds. (Spike recoveries are evaluated on a separate form.)

Analytical Fraction	Outlier Criteria (for tabulation purposes only)			
	Relative standard deviation		Equivalent Relative Percent Difference	
	solid	aqueous	solid	aqueous
VOA				
BNA				
PEST				

	CONCENTRATIONS								
	Analysis No. 1		Analysis No. 2		Analysis No. 3		relative standard deviation — or — relative percent difference	concentration units	footnotes
COMPOUND	SAMPLE I.D.	CONC.	SAMPLE I.D.	CONC.	SAMPLE I.D.	CONC.			
Methylene Chloride	C7256	6	7256MS	13	7256MSD	13	—		
Chloroform	C7256	9	7256MS	10	7256MSD	10	—		

COMMENTS: Results acceptable

GC/MS TUNING AND MASS CALIBRATION
Bromofluorobenzene (BFB)

ORIGINAL (Red)

Case No. 3510 Contractor GCA Contract No. 68-01-6767

Instrument ID FINNIGAN DVA Date NOV. 6, 1984 Time 8:35 a.m

Lab ID 110684BFB*◊4 Data Release Authorized By: F. Marquis

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE	
50	15.0 - 40.0% of the base peak	26.27	
75	30.0 - 60.0% of the base peak	57.19	
95	Base peak, 100% relative abundance	100.00	
96	5.0 - 9.0% of the base peak	7.01	
173	Less than 1.0% of the base peak	-0-	
174	Greater than 50.0% of the base peak	98.87	
175	5.0 - 9.0% of mass 174	7.75	(7.84)[1]
176	Greater than 95.0%, but less than 101.0% of mass 174	95.48	(96.6)[1]
177	5.0 - 9.0% of mass 176	6.37	(6.67)[2]

[1] Value in parenthesis is % mass 174.
[2] Value in parenthesis is % mass 176.

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

* Possible sample ghosting from 50 ppb STD. ◊ Possible ghosting from high sample results preceding.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
* C9297	41467A	11/6/84	10:41
* C9298	41468A	11/6/84	11:21
C9299 ◊	41469A	11/6/84	12:07
50PPB	V2309	11/6	9:10

4/84

FORM V

Bromofluorobenzene (BFB)

ORIGINAL (Red)

Case No. 3510 Contractor GCA Contract No. 68-01-6767

Instrument ID FINNEGAN 1WA Date NOV. 5, 1984 Time 12:33

Lab ID 110584BFB Data Release Authorized By: F Marquis

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	15.0 - 40.0% of the base peak	24.49
75	30.0 - 60.0% of the base peak	51.46
95	Base peak, 100% relative abundance	100
96	5.0 - 9.0% of the base peak	6.67
173	Less than 1.0% of the base peak	-0-
174	Greater than 50.0% of the base peak	90.99
175	5.0 - 9.0% of mass 174	6.77 (7.44)[1]
176	Greater than 95.0%, but less than 101.0% of mass 174	86.94 (95.5)[1]
177	5.0 - 9.0% of mass 176	5.69 (6.54)[2]

[1]Value in parenthesis is % mass 174.
[2]Value in parenthesis is % mass 176.

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
C7256	41464A	NOV. 5, 1984	22:15
C7256 (M.S)	41464A (M.S)	NOV. 5 1984	23:01
C7256 (M.S.D)	41464A (M.S.D)	NOV. 5, 1984	23:47
C9267 *	41465A	NOV 5 1984	19:57
C9296 *	41466A	NOV. 5, 1984	20:43
~~HBH0154~~	~~41470A~~	~~NOV. 5, 1984~~	CM
20 PPB	V2297	11/5	14:24
50 PPB	V2298	11/5	15:14
100 PPB	V2299	11/5	16:52
150 PPB	V2300	11/5	17:38
200 PPB	V2301	11/5	18:25
MB 1		11/5	13:30

*GHOSTING Possibility

4/84

FORM V

II-6

TUNE CHECK AND MASS CALIBRATION

Decafluorotriphenylphosphine (DFTPP)

ORIGINAL

Case No. ~~3519~~ EM 3510 Contractor GCA Contract No. 68-01-6767

Instrument ID HP 5985A Date 11/21/84 Time ~~1:00~~ EM 13:00

Lab ID 13388 Data Release Authorized By: F Marquis

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	40.4
68	less than 2.0% of mass 69	-0- (-0-)[1]
69	mass 69 relative abundance	73.6
70	less than 2.0% of mass 69	-0- (-0-)[1]
127	40.0 - 60.0% of mass 198	48.9
197	less than 1.0% of mass 198	-0-
198	base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.13
275	10.0 - 30.0% of mass 198	23.0
365	greater than 1.00% of mass 198	2.31
441	present, but less than mass 443	~~10.8~~ EM 10.76
442	greater than 40.0% of mass 198	61.6
443	17.0 - 23.0% of mass 442	10.9 (18)[2]

[1] Value in parenthesis is % mass 69.
[2] Value in parenthesis is % mass 442.

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

ALL 11/21

SAMPLE ID	FRN	LAB ID	FRN		FRN	DATE OF ANALYSIS	TIME OF ANALYSIS
MB1		QC-658	13404			~~12~~ EM 11/21/84	13:30
C9299 MS		QC-659	13405				14:30
C9299 MSD		QC-660	13406				15:00
C7256		414.58					15:30
C 9267		414.59					16:00
C 9296		41460					16:30
C 9297		41461					17:00
C 9298		41462					17:30
C 9299		41463					18:00
BN20 PPB	13395	SAMPLE ID	FRN	SAMPLE	FRN		
BN50 PPB	13396	A50 PPB	13391	MSLSI	13402		
BN 80 PPB	13397	A80 PPB	13392	SS 2	13403		
BN 120 PPB	13398	A120 PPB	13393	MBI	13404		
BN 160 PPB	13399	A160 PPB	13394				
A 20 PPB	13390	BN200	13401				

FORM V

Instrument ID [illegible] Date 12/10/84 Time 15:00

Lab ID 13602 Data Release Authorized By: F. Marquis

ORIGINAL (Red)

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	56.8
68	less than 2.0% of mass 69	-0- (-0-)[1]
69	mass 69 relative abundance	84.6
70	less than 2.0% of mass 69	-0- (-0-)[1]
127	40.0 - 60.0% of mass 198	47.5
197	less than 1.0% of mass 198	-0-
198	base peak, 100% relative abundance	100
199	5.0 - 9.0% of mass 198	6.93
275	10.0 - 30.0% of mass 198	23.7
365	greater than 1.00% of mass 198	1.94
441	present, but less than mass 443	0
442	greater than 40.0% of mass 198	66.4
443	17.0 - 23.0% of mass 442	12.9 (19)[2]

[1] Value in parenthesis is % mass 69.
[2] Value in parenthesis is % mass 442.

DFTPP MASS CALIBRATION

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

SAMPLE ID	LAB ID	FRN #	DATE OF ANALYSIS	TIME OF ANALYSIS
DFTPP	13602	13602	12/10	15:00
MB1	QC-726	13625	12/10/84	15:30 45
C9296 RE	QEM 41460	13621		16:30
C9297 RE	41461	13622		17:15
C9298 RE	41462	13623		18:00
C9299 RE	41463	13624		18:45
	BN 20 PPB	13603		
	BN 50 PPB	13604		
	BN 80 PPB	13605		

FORM V

#3

4/84

Instrument Carryover Effects

ORIGINAL (Red)

Possible Instances of Carryover Artifacts are Tabulated and Evaluated Below:

COMPOUND IN QUESTION	Initial Run (High Level)		Second Run			Third Run			Footnote
	Run I.D.	Instrument Level	Run I.D.	Instr. Level	Carryover Percent	Run I.D.	Instr. Level	Carryover Percent	Reference
Benzene	C9298	6833 ug/L	C9299	20 ug/L	.3				(1)
Toluene	"	7543	"	69	.9				(1)
Ethylbenzene	"	2207	"	20	.9				(1)
Total Xylenes	"	12496	"	230	1.8				(1)

COMMENTS: (Results which are concluded to be possible artifacts, etc.)

(1) Probable artifact of Instrument Carryover from preceding high sample run.

INITIAL CALIBRATION DATA
SEMIVOLATILE HSL COMPOUNDS
(PAGE 1)

ORIGINAL
(Red)

CASE NO. 3510
CONTRACTOR GCA
CONTRACT NO. 68-01-6767

INSTRUMENT ID HP 5985A
CALIBRATION DATE 12/10/84

MINIMUM RF FOR SPCC IS .050 MAXIMUM % RSD FOR CCC IS 30%

LABORATORY ID

COMPOUND	RF20	RF50	RF80	RF120	RF160	RF	%RSD	CCC* SPCC**
N-NITROSODIMETHYLAMINE	1	1	1	1	1	1	0	
PHENOL	1.2	1.62	1.12	1.38	1.26	1.31	11	*
ANILINE	1.53	1.1	.58	.29	.24	.74	60	
BIS(2-CHLOROETHYL)ETHER	1.24	.9	1.04	.87	.78	.96	14	
2-CHLOROPHENOL	.84	1.06	.83	.88	.92	.9	7	
1,3-DICHLOROBENZENE	.82	.64	.72	.63	.57	.67	11	
1,4-DICHLOROBENZENE	.9	.76	.86	.66	.51	.73	16	*
BENZYL ALCOHOL	.57	.43	.55	.4	.36	.46	16	
1,2-DICHLOROBENZENE	.82	.61	.69	.59	.52	.64	13	
2-METHYLPHENOL	.9	1.08	.81	.76	.94	.89	10	
BIS(2-CHLOROISOPROPYL)ETHER	1.43	1.05	1.24	1	.86	1.11	15	
4-METHYLPHENOL	.86	.99	.92	.82	.98	.91	6	
N-NITROSO-DI-N-PROPYLAMINE	.15	.12	.15	.12	.1	.12	13	**
HEXACHLOROETHANE	.39	.32	.37	.3	.27	.33	12	
NITROBENZENE	1.09	.9	.92	.72	.66	.85	15	
ISOPHORONE	.83	.64	.82	.89	.9	.81	8	
2-NITROPHENOL	.17	.2	.16	.15	.17	.17	7	*
2,4-DIMETHYLPHENOL	.27	.32	.24	.26	.25	.26	8	
BENZOIC ACID	^	.16	.13	.15	.17	.15	8	
BIS(2-CHLOROETHOXY)METHANE	.51	.42	.53	.59	.53	.51	7	
2,4-DICHLOROPHENOL	.23	.26	.22	.22	.22	.23	5	
1,2,4-TRICHLOROBENZENE	.21	.18	.22	.24	.23	.21	7	
NAPHTHALENE	.94	.81	.95	1.13	1.07	.98	9	
4-CHLOROANILINE	.4	.29	.23	.19	.2	.26	25	
HEXACHLOROBUTADIENE	.13	.11	.14	.16	.14	.13	9	*
4-CHLORO-3-METHYLPHENOL	.17	.2	.16	.17	.16	.17	6	*
2-METHYLNAPHTHALENE	.46	.38	.49	.46	.48	.45	6	
HEXACHLOROCYCLOPENTADIENE	.32	.4	.44	.51	.5	.43	13	**
2,4,6-TRICHLOROPHENOL	.31	.43	.33	.43	.41	.38	12	*
2,4,5-TRICHLOROPHENOL	^	.43	.33	.43	.41	.4	8	
2-CHLORONAPHTHALENE	1.08	.98	1.16	1.26	1.2	1.13	7	
2-NITROANILINE	^	.36	.36	.31	.29	.33	9	
DIMETHYLPHTHALATE	1.03	.94	1.13	1.13	1.12	1.07	6	
ACENAPHTHYLENE	1.33	1.16	1.37	1.58	1.43	1.37	7	
3-NITROANILINE	^	.28	.27	.22	.23	.25	9	
ACENAPHTHENE	.55	.46	.58	.63	.58	.56	7	*
2,4-DINITROPHENOL	^	.11	.09	.12	.11	.1	8	**
4-NITROPHENOL	^	.36	.29	.33	.36	.33	7	**
DIBENZOFURAN	1.29	1.21	1.48	1.57	1.47	1.4	8	

RESPONSE FACTOR(amount in nanograms) SPCC-SYSTEM PERFORMANCE CHECK COMPOUNDS(**)

RF-AVERAGE RESPONSE FACTOR ^-NOT DETECTABLE AT 20ng
%RSD-PERCENT RELATIVE STANDARD DEVIATION
CCC-CALIBRATION CHECK COMPOUND(*)

IV 3

INITIAL CALIBRATION DATA
SEMIVOLATILE HSL COMPOUNDS
(PAGE 2)

ORIGINAL
(Red)

CASE NO. 3510
CONTRACTOR GCA
CONTRACT NO. 68-01-6767

INSTRUMENT ID HP 5985A
CALIBRATION DATE 12/10/84

MINIMUM RF FOR SPCC IS .050 MAXIMUM % RSD FOR CCC IS 30%

LABORATORY ID

COMPOUND	RF20	RF50	RF80	RF120	RF160	RF	%RSD	CCC* SPCC**
2,4-DINITROTOLUENE	.25	.22	.27	.32	.32	.27	12	
2,6-DINITROTOLUENE	.23	.21	.28	.3	.29	.26	12	
DIETHYLPHTHALATE	.92	.87	1.06	1.13	1.03	1	8	
4-CHLOROPHENYL-PHENYETHER	.45	.45	.51	.54	.58	.5	8	
FLUORENE	.88	.82	.93	.97	.96	.91	5	
4-NITROANILINE	^	.19	.19	.15	.21	.18	9	
4,6-DINITRO-2-METHYLPHENOL	^	.16	.13	.16	.17	.15	8	
N-NITRSODIPHENYLAMINE	.21	.21	.26	.27	.27	.24	11	*
4-BROMOPHENYL-PHENYLETHER	.21	.2	.25	.29	.25	.24	11	
HEXACHLOROBENZENE	.26	.26	.31	.36	.37	.31	13	*
PENTACHLOROPHENOL	^	.21	.17	.19	.19	.19	5	
PHENATHNTHRENE	.45	.42	.61	.71	.7	.57	19	
ANTHRACENE	.45	.42	.61	.71	.7	.57	19	
DI-N-BUTYLPHTHALATE	.94	.84	1.08	1.18	1.37	1.08	14	
FLUORANTHENE	.75	.64	.76	.89	1.02	.81	14	*
BENZIDINE	1	1	1	1	1	1	0	**
PYRENE	1.59	1.74	1.9	2.24	1.7	1.83	10	
BUTYLBENZYLPHTHALATE	.68	.74	.89	.91	.82	.8	9	
3,3'-DICHLOROBENZIDINE	1	1	1	1	1	1	0	
BENZO(A)ANTHRACENE	.43	.43	.6	.69	.61	.55	17	
BIS(2-ETHYLHEXYLPHTHALATE)	.55	.58	.8	.86	.82	.72	17	
CHRYSENE	.43	.43	.6	.69	.61	.55	17	
DI--OCTYL PHTHALATE	.63	2.25	2.28	2.14	1.9	1.84	26	*
BENZO(B)FLUORANTHENE	.59	1.41	1.6	1.59	1.46	1.33	22	
BENZO(K)FLUORANTHENE	.59	1.41	1.6	1.59	1.46	1.33	22	
BENZO(A)PYRENE	.24	.47	.69	.76	.73	.57	30	*
INDENO(1,2,3-CD)PYRENE	.31	.85	.94	.97	.85	.78	24	
DIBENZ(A,H)ANTHRACENE	.33	.75	.79	.81	.75	.68	20	
BENZO(G,H,I)PERYLENE	.25	.66	.68	.75	.66	.6	23	

RESPONSE FACTOR(amount in nanograms) SPCC-SYSTEM PERFORMANCE CHECK COMPOUNDS(**)

RF-AVERAGE RESPONSE FACTOR ^-NOT DETECTABLE AT 20ng
%RSD-PERCENT RELATIVE STANDARD DEVIATION
CCC-CALIBRATION CHECK COMPOUND(*)

IV-4

JAN 11 1985
ORIGINAL
(Red)

Initial Calibration Data
Semivolatile HSL Compounds
(Page 1)

Case No: 351D
Contractor: GCA
Contract No: 68-01-6767

Instrument ID: HP 5985 A GC/MS
Calibration Date: 11/21/84

Minimum $\overline{RF}$ for SPCC is 0.050 Maximum % RSD for CCC is 30%

Laboratory ID								
Compound	RF_{20}	RF_{50}	RF_{80}	RF_{120}	RF_{160}	$\overline{RF}$	% RSD	CCC• SPCC••
N-Nitrosodimethylamine	NA	NA	NA	NA	NA			
Phenol	2.060	1.500	1.512	1.713	1.285	1.614	16	*
Aniline	1.128	1.169	1.088	0.920	0.881	1.037	11	
bis(-2-Chloroethyl)Ether	1.433	1.161	1.191	1.156	1.009	1.192	12	
2-Chlorophenol	1.395	1.163	1.122	1.332	0.999	1.202	12	
1, 3-Dichlorobenzene	1.274	1.016	1.052	0.988	0.869	1.040	13	
1, 4-Dichlorobenzene	1.303	1.017	1.117	1.006	0.885	1.066	13	*
Benzyl Alcohol	0.534	0.512	0.562	0.560	0.487	0.531	5	
1, 2-Dichlorobenzene	1.239	0.990	1.034	0.898	0.786	0.989	15	
2-Methylphenol	1.421	1.106	1.073	1.289	0.967	1.171	14	
bis(2-chloroisopropyl)Ether	0.395	0.297	0.314	0.295	0.272	0.315	13	
4-Methylphenol	1.309	1.047	0.993	1.234	0.925	1.102	13	
N-Nitroso-Di-n-Propylamine	0.215	0.179	0.187	0.160	0.149	0.178	13	* *
Hexachloroethane	0.518	0.471	0.495	0.456	0.412	0.482	11	
Nitrobenzene	0.911	0.788	0.863	0.765	0.689	0.803	10	
Isophorone	1.087	0.938	1.020	0.937	0.999	0.996	6	
2-Nitrophenol	0.263	0.232	0.249	0.275	0.244	0.253	6	*
2, 4-Dimethylphenol	0.500	0.399	0.408	0.449	0.411	0.433	9	
Benzoic Acid	†	0.023	0.027	0.054	0.063	0.042	40	
bis(-2-Chloroethoxy)Methane	0.741	0.664	0.679	0.673	0.666	0.685	4	
2, 4-Dichlorophenol	0.260	0.263	0.286	0.297	0.272	0.276	5	
1, 2, 4-Trichlorobenzene	0.305	0.261	0.273	0.283	0.281	0.281	5	
Naphthalene	0.155	0.147	0.168	0.153	0.141	0.153	6	
4-Chloroaniline	0.347	0.357	0.402	0.359	0.364	0.366	5	
Hexachlorobutadiene	0.196	0.168	0.194	0.181	0.187	0.185	5	*
4-Chloro-3-Methylphenol	0.243	0.226	0.197	0.225	0.213	0.221	7	*
2-Methylnaphthalene	0.673	0.614	0.655	0.628	0.583	0.631	5	
Hexachlorocyclopentadiene	0.468	0.502	0.566	0.528	0.618	0.536	10	* *
2, 4, 6-Trichlorophenol	0.291	0.218	0.347	0.383	0.386	0.325	20	*
2, 4, 5-Trichlorophenol	†	0.218	0.347	0.383	0.386	0.334	21	
2-Chloronaphthalene	1.921	1.699	1.834	1.827	1.742	1.806	4	
2-Nitroaniline	†	0.536	0.536	0.626	0.586	0.576	6	
Dimethyl Phthalate	1.436	1.436	1.416	1.545	1.418	1.450	3	
Acenaphthylene	2.155	1.916	1.991	1.926	1.889	1.975	5	
3-Nitroaniline	†	0.316	0.363	0.427	0.390	0.374	11	
Acenaphthene	0.775	0.684	0.745	0.711	0.684	0.720	5	*
2, 4-Dinitrophenol	†	0.016	†	0.016	0.029	0.020	30	* *
4-Nitrophenol	†	0.022	†	0.069	0.075	0.055	43	* *
Dibenzofuran	1.934	1.773	1.800	1.893	1.831	1.846	3	

*(1)

Response Factor (subscript is the amount of nanograms)
$\overline{RF}$ -Average Response Factor
%RSD -Percent Relative Standard Deviation
CCC -Calibration Check Compounds (•)
SPCC -System Performance Check Compounds (••)
† -not detectable at 20 ng

* $\overline{RF}$ SPCC 11/21/84 2,4-dinitrophenol low

JAN 04 1985
ORIGINAL (Red)

Initial Calibration Data
Semivolatile HSL Compounds
(Page 2)

Case No: 3510 Instrument ID: HP5985A GC/MS

Contractor: GCA Calibration Date: 11/21/84

Contract No: 68-01-6767

Minimum $\overline{RF}$ for SPCC is 0.050 Maximum % RSD for CCC is 30%

Laboratory ID								
Compound	RF_{20}	RF_{50}	RF_{80}	RF_{120}	RF_{160}	$\overline{RF}$	% RSD	CCC• SPCC••
2, 4-Dinitrotoluene	0.198	0.313	0.340	0.424	0.373	0.330	23	
2, 6-Dinitrotoluene	0.319	0.345	0.375	0.419	0.416	0.375	10	
Diethylphthalate	1.495	1.496	1.447	1.653	1.540	1.526	5	
4-Chlorophenyl-phenylether	0.567	0.532	0.513	0.606	0.543	0.552	6	
Fluorene	1.274	1.249	1.163	1.268	1.174	1.226	4	
4-Nitroaniline	†	0.173	0.243	0.348	0.295	0.265	24	
4, 6-Dinitro-2-Methylphenol	†	0.035	0.042	0.063	0.072	0.053	28	
N-Nitrosodiphenylamine (1)	0.406	0.492	0.516	0.672	0.631	0.543	18	*
4-Bromophenyl-phenylether	0.332	0.306	0.344	0.340	0.353	0.335	5	
Hexachlorobenzene	0.509	0.449	0.458	0.475	0.485	0.475	4	*
Pentachlorophenol	†	0.092	0.064	0.159	0.185	0.125	39	
Phenanthrene	0.658	0.701	0.749	0.705	0.689	0.700	4	
Anthracene	0.658	0.701	0.749	0.705	0.689	0.700	4	
Di-N-Butylphthalate	2.339	2.401	2.257	1.980	1.728	2.141	12	
Fluoranthene	1.304	1.397	1.380	0.993	0.860	1.187	18	*
Benzidine	†							* *
Pyrene	2.398	4.137	4.523	4.675	3.915	3.930	21	
Butylbenzylphthalate	1.752	2.254	2.038	1.883	1.751	1.936	10	
3, 3'-Dichlorobenzidine			~~0.786~~					
Benzo(a)Anthracene	0.698	0.632	0.786	0.780	0.819	0.743	9	
bis(2-Ethylhexyl)Phthalate	1.865	2.048	1.901	1.862	1.709	1.877	6	
Chrysene	0.698	0.632	0.786	0.780	0.819	0.743	9	
Di-n-Octyl Pnthalate	2.994	6.419	4.155	4.173	3.127	4.174	29	*
Benzo(b)Fluoranthene	1.848	2.994	2.372	2.836	2.313	2.473	18	
Benzo(k)Fluoranthene	1.848	2.994	2.372	2.836	2.313	2.473	18	
Benzo(a)Pyrene	0.921	1.482	1.501	1.742	1.430	1.415	27	*
Indeno(1, 2, 3-cd)Pyrene	†	†	1.212	1.841	1.234	1.429	20	
Dibenz(a, h)Anthracene	†	†	1.023	1.285	1.310	1.208	11	
Benzo(g, h, i)Perylene	†	†	0.940	1.537	1.148	1.208	20	

Response Factor (subscript is the amount of nanograms)
$\overline{RF}$ -Average Response Factor
%RSD -Percent Relative Standard Deviation
CCC -Calibration Check Compounds (•)
SPCC -System Performance Check Compounds (••)
† -not detectable at 20 ng
(1) -Cannot be separated from diphenylamine

Form VI

8

Initial Calibration Data
Volatile HSL Compounds

ORIGINAL (Red)

Case No: 3510

Contractor: GCA.

Contract No: 68-01-6767

Instrument I D: FINNEGAN OW/A

Calibration Date: NOV 5, 1984

Minimum $\overline{RF}$ for SPCC is 0.300 Maximum % RSD for CCC is 30%

Laboratory ID	V2297	V2298	V2299	V2300	V2301			
Compound	RF_{20}	RF_{50}	RF_{100}	RF_{150}	RF_{200}	$\overline{RF}$	% RSD	CCC• SPCC••
Chloromethane	0.67	0.504	0.346	0.350	0.289	0.4278	37	**
Bromomethane	1.165	1.056	0.590	0.761	0.783	0.937	19	
Vinyl Chloride	0.887	0.648	0.439	0.445	0.421	0.5682	35	* *(2)
Chloroethane	0.745	0.727	0.583	0.505	0.472	0.6124	23	
Methylene Chloride	3.452	2.214	1.777	1.798	1.544	2.167	35	
Acetone	0.316	0.223	0.168	0.154	0.133	0.199	37	
Carbon Disulfide	2.121	1.668	1.537	1.465	1.469	1.672	17	
1, 1-Dichloroethene	1.378	1.095	0.905	0.871	0.872	1.0242	21	*
1, 1-Dichloroethane	2.846	2.502	2.089	2.105	2.136	2.3316	14	**
Trans-1, 2-Dichloroethene	1.653	1.448	1.199	1.112	1.037	1.2858	19	
Chloroform	5.311	4.329	3.400	3.412	3.361	3.9626	22	*
1, 2-Dichloroethane	3.600	3.416	2.925	2.833	2.599	3.1396	11	
2-Butanone	1.045	0.773	0.730	0.666	0.642	0.7912	19	
1, 1, 1-Trichloroethane	3.087	3.006	2.565	2.675	2.675	2.8383	9	
Carbon Tetrachloride	2.766	2.587	2.531	2.529	2.556	2.6538	6	
Vinyl Acetate	0.112	0.058	0.037	0.033	0.026	0.053	59	
Bromodichloromethane	3.370	3.575	3.100	3.037	3.102	3.2648	8	
1, 2-Dichloropropane	1.878	1.691	1.424	1.449	1.440	1.5764	13	*
Trans-1, 3-Dichloropropene	1.963	2.002	1.656	1.768	1.768	1.8314	8	
Trichloroethene	2.426	2.236	1.873	1.834	1.830	2.044	13	
Dibromochloromethane	2.898	2.578	2.529	2.446	2.513	2.491	8	
1, 1, 2-Trichloroethane	1.547	1.535	1.337	1.225	1.310	1.454	17	
Benzene	4.035	3.952	3.287	3.273	3.283	3.5768	11	
cis-1, 3-Dichloropropene	1.632	1.819	1.609	1.706	1.802	1.7136	6	
2-Chloroethylvinylether	— *	— *	— *	— *	*	*		
Bromoform	0.470	0.428	0.469	0.491	0.483	0.4682	5	**
2-Hexanone	0.035	0.048	0.063	0.050	0.074	0.054	25	
4-Methyl-2-Pentanone	0.569	0.405	0.422	0.414	0.431	0.4482	15	
Tetrachloroethene	0.626	0.596	0.573	0.533	0.458	0.552	10	
1, 1, 2, 2-Tetrachloroethane	0.614	0.545	0.544	0.561	0.555	0.5648	5	**
Toluene	0.750	0.677	0.613	0.626	0.590	0.6512	10	*
Chlorobenzene	1.585	1.455	1.277	1.279	1.285	1.376	9	**
Ethylbenzene	0.626	0.602	0.508	0.515	0.514	0.553	10	*
Styrene	1.082	0.927	0.715	0.755	0.758	0.9074	12	
Total Xylenes	1.527	1.427	1.209	1.305	1.276	1.3529	9	

RF -Response Factor (subscript is the amount of ug/L)
$\overline{RF}$ -Average Response Factor
%RSD -Percent Relative Standard Deviation

CCC -Calibration Check Compounds (•)
SPCC -System Performance Check Compounds (••)
* - see narrative

Form VI

* Out of Control Range

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ORIGINAL
(Red)

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INITIAL Calibration Comments

PROJECT NOTES

Reanalysis Semi-volatiles 12/20/84
All QC Criteria were met regarding CCC & SPCC compounds.

BNA 11/21/84 Semi-volatiles
(1) 2,4-dinitrophenol SPCC $\bar{RF}$ .02 LOW - some acid cmpd d.L's run on this day (C-7256, C-9267) may be subst. higher than those reported.

VOA 11/5/84
(1) CCC Vinyl Chloride 35% - not sufficiently out of range to question sample results.

NUS 443A 58 1182

Continuing Calibration Check
Volatile HSL Compounds

ORIGINAL (Red)

Case No: 3510
Contractor: BCA
Contract No: 68-01-6767
Instrument ID: FINNEGAN OWA

Calibration Date: NOV. 6, 1984
Time: 9:10 a.m.
Laboratory ID: BCA V2309
Initial Calibration Date: NOV. 5, 1984

Minimum RF for SPCC is 0.300 Maximum %D for CCC is 25%

Compound	RF	RF_{50}	%D	CCC	SPCC
Chloromethane	0.4278	0.462	+8		**
Bromomethane	0.937	1.021	+9		
Vinyl Chloride	0.5682	0.499	-12	*	
Chloroethane	0.6124	0.614	+0.3		
Methylene Chloride	2.167	2.372	+9		
Acetone	0.199	0.181	-9		
Carbon Disulfide	1.692	1.758	+4		
1, 1-Dichloroethene	1.0242	0.981	-4	*	
1, 1-Dichloroethane	2.3316	2.30	-1		**
Trans-1, 2-Dichloroethene	1.2158	1.331	+4		
Chloroform	2.9626	4.218	+6	*	
1, 2-Dichloroethane	3.1796	3.064	-2		
2-Butanone	0.1912	0.756	-7		
1, 1, 1-Trichloroethane	2.8353	2.947	+4		
Carbon Tetrachloride	2.6538	2.902	+9		
Vinyl Acetate	0.053	0.053	-0-		
Bromodichloromethane	3.2648	3.383	+4		
1, 2-Dichloropropane	1.5764	1.576	-0.02	*	
Trans-1, 3-Dichloropropene	1.8314	1.820	-0.6		
Trichloroethene	2.044	2.192	~~-0.7~~ +7		
Dibromochloromethane	2.491	2.612	+5		
1, 1, 2-Trichloroethane	1.054	1.400	-4		
Benzene	3.5168	3.655	+2		
cis-1, 3-Dichloropropene	1.7136	1.657	-3		
2-Chloroethylvinylether	*	*	*		
Bromoform	0.4482	0.434	-7		**
2-Hexanone	0.054	0.045	9		
4-Methyl-2-Pentanone	0.4482	0.384	-14		
Tetrachloroethene	0.552	0.547	-0.9		
1, 1, 2, 2-Tetrachloroethane	0.5648	0.479	-15		**
Toluene	0.6512	0.649	-0.3	*	
Chlorobenzene	1.376	1.389	+0.9		**
Ethylbenzene	0.553	0.547	-1	*	
Styrene	0.9074	0.919	+1		
Total Xylenes	1.3528	1.412	+4		

RF_{50} -Response Factor from daily standard file at 50 ug/l
RF -Average Response Factor from initial calibration Form VI

%D -Percent Difference
CCC -Calibration Check Compounds (*)
SPCC -System Performance Check Compounds (**)

* - see narrative

Form VII

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ORIGINAL (Red)

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Continuing Calibration Comments

PROJECT NOTES

Volatiles
All results within control range.

BNA
None given - lab showed run times within initial calibration times. However checking FRN #'s for re-analysis shows that the standards were run 16 to 20 runs (16-20 hours) before standards - continuing calibration should have occurred at 12 hours
Further DFTPP run 20 to 24 runs (20-24 hours) tuning should have occurred @ 12 hours

NUS 443A 58 1182

Pesticide Evaluation Summary

Case No. 3287, 3510 Laboratory GCA

ORIGINAL (Red)

Contract No. 68-01-6767 Column SP2250

Date of Analysis 11-20-84 Instrument ID HP 5880

EVALUATION CHECK FOR LINEARITY

LABORATORY ID	Eval A	Eval B	Eval C	
PESTICIDE	CALIBRATION FACTOR EVAL. MIX A	CALIBRATION FACTOR EVAL. MIX B	CALIBRATION FACTOR EVAL. MIX C	% RSD (≤10%)
ALDRIN	51994	62695	62676	10
ENDRIN	55693	51143	51828	5
4,4'-DDT	43785	41832	46802	6
DIBUTYL CHLORENDATE	64613	64170	57239	7

EVALUATION CHECK FOR 4,4'-DDT/ENDRIN BREAKDOWN

** see narrative
* faulty peak integration (see narrative)

	PERCENT BREAKDOWN EXPRESSED AS TOTAL DEGRADATION			
	EVAL. MIX B	EVAL. MIX B	EVAL. MIX B	EVAL. MIX B
ENDRIN	528.91 / 6981.76 x100 = 8% **	526.52 / 6590.15 x100 = 9% **	0%	0%
4,4'-DDT	496.50 / 10954.60 x100 = 5%	785.59 / 10748.44 x100 = 7% *	297.20 / 11207.10 x100 = 3%	329.36 / 11256.76 x100 = 3%
LABORATORY ID	Eval B	Eval B	Eval B	Eval B
TIME OF ANALYSIS	11-20-84 @18:16	11-21-84 @ 03:24	11-21-84 @ 12:31	11-21-84 @ 18:49

EVALUATION OF RETENTION TIME SHIFT FOR DIBUTYLCHLORENDATE

SMO SAMPLE NO.	LAB ID	TIME OF ANALYSIS	PERCENT DIFF. *	SMO SAMPLE NO.	LAB ID	TIME OF ANALYSIS	PERCENT DIFF. *
Eval mix A	Eval A	17:34	Rt 33.13	Eval mix A	Eval A	18:07	0.33
Eval mix B	Eval B	18:16	0.09	Eval mix B	Eval B	18:49	0.27
Eval mix C	Eval C	18:28	0.06	Eval mix C	Eval C	19:31	0.27
115-167-4	115-167-4	20:22	0.06	Eval mix B	Eval B	01:52 (11-22)	0.57
Eval mix B	Eval B	03:24 (11-21)	0.39	C9267	41459	02:34	0.60
EA097	41277	04:06	0.36	C9296	41460	03:18	0.66
EA099	41279	04:49	0.36	C9297	41461	03:58	0.69
Method Blank	QC-618	05:31	0.36	C9298	41462	04:41	0.78
115-167-3	115-167-3	08:19	0.00	C9299	41463	05:23	0.81
Eval B	Eval B	12:31	0.24	115-167-3	115-167-3	06:48	0.94
Method Blank	QC-655	13:14	0.18	Eval mix B	Eval B	07:30	0.91
C7256 MS	QC656	13:56	0.18	115-167-5	115-167-5	09:36	0.66
C7256 MSD	QC-657	14:38	0.18	115-167-1	115167-1	11:01	0.45
~~115-167-3 PN~~	41458	16:01	0.03				
~~Eval Mix A~~	115-167-3	17:25	0.27				

* ≤2% PACKED, ≤0.3% CAPILLARY

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4/84

Pesticide Evaluation Real Time Data Summary

ORIGINAL (Red)

Case No. 3510 Laboratory GCA

Contract No. 68-01-6767 Column SP2250

Date of Analysis 11-20-84 Instrument ID HP5880

EVALUATION CHECK FOR LINEARITY

LABORATORY ID				
PESTICIDE	CALIBRATION FACTOR EVAL. MIX A	CALIBRATION FACTOR EVAL. MIX B	CALIBRATION FACTOR EVAL. MIX C	% RSD (≤10%)
ALDRIN				
ENDRIN				
4,4'-DDT				
DIBUTYL CHLORENDATE				

EVALUATION CHECK FOR 4,4'-DDT/ENDRIN BREAKDOWN

	PERCENT BREAKDOWN EXPRESSED AS TOTAL DEGRADATION			
	EVAL. MIX B	EVAL. MIX B	EVAL. MIX B	EVAL. MIX B
ENDRIN	0%	0%		
4,4'-DDT	0%	$\frac{764.10}{9582.24} \times 100 =$ 8%		
LABORATORY ID	Eval Mix B	Eval Mix B		
TIME OF ANALYSIS	11-22-84 @ 01:52	11-22-84 @ 07:30		

EVALUATION OF RETENTION TIME SHIFT FOR DIBUTYLCHLORENDATE

SMO SAMPLE NO.	LAB ID	TIME OF ANALYSIS	PERCENT DIFF. *	SMO SAMPLE NO.	LAB ID	TIME OF ANALYSIS	PERCENT DIFF. *

* ≤2% PACKED, ≤0.3% CAPILLARY IV 10

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Case No. 5519, 5510 Laboratory GCA

Contract No. 68-01-6767 GC Column SP2250 GC Instrument ID HP5880

	DATE OF ANALYSIS 11-26-84				DATE OF ANALYSIS 11-27-84			
	TIME OF ANALYSIS 21:00 / 21:42				TIME OF ANALYSIS 05:55 / 06:07			
	LABORATORY ID 115-159-5 / 115-167-3				LABORATORY ID 115-159-5 / 115-167-3			
COMPOUND	RT	RETENTION TIME WINDOW	CALIBRATION FACTOR	CONF. OR QUANT.	RT	CALIBRATION FACTOR	CONF. OR QUANT.	PERCENT DIFF.**
alpha-BHC	2.09	2.07-2.11	63666	conf	2.08	63393		
beta-BHC	3.13	3.11-3.15	55551	conf	3.11	56638		
delta-BHC	3.66	3.64-3.68	59738	conf	3.64	59562		
gamma-BHC	2.68	2.66-2.70	62589	conf	2.68	61607		
Heptachlor	3.33	3.31-3.35	68476	conf	3.33	73781		
Aldrin	4.05	4.03-4.07	64050	conf	4.05	65214		
Heptachlor Epoxide	6.27	6.25-6.29	70690	conf	6.27	73933		
Endosulfan I	7.96	7.90-8.02	69588	conf	7.92	70579		
Dieldrin	9.82	9.73-9.91	62666	conf	9.81	67483		
4,4'-DDE	9.39	9.33-9.42	103658	conf	9.34	98532		
Endrin	12.00	11.94-12.06	55558	conf	11.98	63293		
Endosulfan II	14.72	14.45-14.99	70121	conf	14.64	70273		
4,4'-DDD	14.71	14.50-14.92	48777	conf	14.76	82046		
Endrin Aldehyde	19.52	19.40-19.64	54784	conf	19.51	62318		
Endosulfan Sulfate	24.07	23.92-24.22	73367	conf	23.95	70932		
4,4'-DDT	17.82	17.70-17.94	39461	conf	17.79	53044		
Methoxychlor					35.62	62730	conf.	
Endrin Ketone	32.68	32.53-32.83	77935	conf	32.67	103252		
Tech. Chlordane								
alpha-Chlordane*								
gamma-Chlordane*								
Toxaphene								
Aroclor - 1016								
Aroclor - 1221								
Aroclor - 1232								
Aroclor - 1242								
Aroclor - 1248								
Aroclor - 1254								
Aroclor - 1260								

* SEE EXHIBIT B, PART 7

** CONF. = CONFIRMATION (<20% DIFFERENCE)
QUANT = QUANTITATION (>10% DIFFERENCE)

ORIGINAL (Red)

4/84

ORIGINAL
(Red)

NUS CORPORATION
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Pesticide Evaluation Summary Comments

PROJECT NOTES

No problems noted that would cause a problem for analysis, a slight problem associated with Endrin/DDT breakdown which lab felt was a problem of faulty peak integration. This could be true due to the same std. mix giving adequate results in a later analysis. Even with faulty integration breakdown results were not sufficienty out of control that results for samples would be affected.

NUS 443A 58 1182

ORIGINAL
(Red)

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Quantitative Calculations

PROJECT NOTES

Although no reason to suspect a problem actual quant. of BNA results & detection limits in these samples could not be verified due to insuff documentation. Also BNA results within 10X CRDL could not be verified due to insuff. documentation. Data System does not provide raw areas or RT of possible peaks. Could not backcheck calculations from integrations nor tell if low level blk results below CRDL yet above IDL that would question low level sample results.

NUS 443A 58 1182

PROJECT NAME: Gulf Oil Sinking Springs
TDD NO: F3-8405-32

EPA SITE NO.: PA-1046 ORIGINAL (Red)
REGION: III

QUALITY ASSURANCE REVIEW OF INORGANIC ANALYTICAL DATA PACKAGE

Case No.: 3510
Contract No.: 68-01-
Contract Laboratory: Chemtech
Applicable IFB No.: WA84-A267
Reviewer: Atwood F. Davis
Review Date: 3-18-85

Applicable Sample No's.: MC-4581, MC-4634 through and including MC-4643, MC-4986, MC-4987, MC-4988, and MC-4990

The inorganic analytical data for this case has been reviewed. The quality assurance evaluation is summarized in the following table:

Reviewer's Evaluation*	Fraction			
	TASK I ICP or AA METALS	TASK II FURNACE AA METALS	TASK II COLD VAPOR AA MERCURY	TASK III CYANIDE
Acceptable				✓
Acceptable with exception(s)	✓ (1)	✓ (2)	✓ (1)	
Questionable				
Unacceptable				

* Definitions of the evaluation score categories are listed on next page.

This evaluation was based upon an analysis of the review items indicated below:

- ● DATA COMPLETENESS
- ● BLANK ANALYSIS RESULTS
- ● MATRIX SPIKE RESULTS
- ● DUPLICATE ANALYSIS RESULTS
- ‡ (3) ● STANDARD ADDITIONS RESULTS
- ‡ ● QUANTITATIVE CALCULATIONS
- ● INITIAL CALIBRATION VERIFICATION
- ● CONTINUING CALIBRATION VERIFICATION
- ● INTERFERENCE QC RESULTS
- ● DETECTION LIMITS RESULTS
- ● INSTRUMENT SENSITIVITY REPORTS

Data review forms are attached for each of the review items indicated above.

‡ No errors noted, no form attached.

◒ Spot Check performed.

Comments: (1) See blank analysis results.
(2) See matrix spike results
(3) Checked for Task II furnace results, only stand add. performed.

DATA COMPLETENESS	3510 CONC./ MATRIX	L/A	L/A	L/S	L/A	L/A	L/S	L/S	L/S	L/S	L/A	L/S	L/A	L/A	L/A	L/A
	TRAFFIC REPORT # MC	4581	4634	4635	4636	4637	4638	4639	4640	4641	4642	4643	4986	4987	4988	4990
	LAB I.D. #G2-356	01	03	10	05	04	11	12	13	14	02	15	06	07	08	09
FIELD QC	BLANK															
	DUPLICATE															
	SPIKE															
TASK I: ICAP OR AA: METALS	RAW DATA	✓														
	TAB. RESULTS	✓														
	TAB. D.L.'s	✓														
	QA FORM	✓														
	ICAP INTER. QC	✓														
	INSTR. SENS.	MS														
TASK II: FURNACE AA: METALS	RAW DATA	✓														
	TAB. RESULTS	✓														
	TAB. D.L.'s	✓														
	QA FORM	✓														
	INSTR. SENS.	MS														
TASK II: COLD VAPOR AA: MERCURY	RAW DATA	✓														
	TAB. RESULTS	✓														
	TAB. D.L.'s	✓														
	QA FORM	✓														
	INSTR. SENS.	MS														
TASK III: CYANIDE	RAW DATA	✓														
	TAB. RESULTS	✓														
	TAB. D.L.'s	✓														
	QA FORM.	✓														
	INSTR. SENS.	MS														
OTHER (SPECIFY):	RAW DATA															
	TAB. RESULTS															
	TAB. D.L.'s															
	QA FORM															
	INSTR. SENS.															
OTHER (SPECIFY):	RAW DATA															
	TAB. RUSULTS															
	TAB. D.L.'s															
	QA FORM															
	INSTR. SENS.															

COMMENTS:

BLANK ANALYSIS RESULTS

ORIGINAL (Red)

TASK	TYPE	CONC	MATRIX	SAMPLE #	SOURCE OF H_2O	CONTAMINANTS (CONCENTRATION / DETECTION LIMIT
TASK I II	FIELD LO/AQ FILTERED CN⁻ NR			MC-4581	NUS	Al (72ug/L / 200) 1 Be (3ug/L / 5) 2 Fe (78ug/L / 78) 1 MN (6ug/L / 15) 2 ZN (8ug/L / 20) 2 Ca (137ug/L / 5000) 2 Na (577ug/L / 5000) 2
TASK II, CN	RBLK LAB LO/AQ			RBLK	Chemtech	NONE FOUND
TASK I, II, CN	FIELD LO/AQ unfiltered			MC-4642	NUS	Fe (32ug/L / 50) 2 ZN (11ug/L / 10) 2 Na (373ug/L / 5000) 2 Hg (.33ug/L / .2) 1

LABORATORY REPORTED FIELD BLANK DATA IS COMPARED WITH THE SAMPLE DATA IN A TABULATION FORM WITHIN SAMPLE ANALYTICAL DATA SUMMARY.

COMMENTS:

(1) RESULT REPORTED BY LABORATORY AND CONFIRMED BY REVIEWER.

(2) RESULT INFERRED FROM RAW DATA

BLANK ANALYSIS RESULTS

ORIGINAL (Red)

TASK	TYPE	CONC	MATRIX	SAMPLE #	SOURCE OF H_2O	CONTAMINANTS (CONCENTRATION / DETECTION LIMIT
	LAB	Lo	AQ	R.BLK 12-12	Chemtech	CR (8ug/L / 10) 2
						ZN (6ug/L / 20) 2
Task I ICP II, CN	LAB	Prep BLK	Lo/AQ	D-BLK I	Chemtech	CR (7ug/L / 10) 2
						ZN (9ug/L / 10) 2
						Ca (114ug/L / 5000) 2
						Na (129ug/L / 5000) 2
						K (46.7mg/L / 5000) 2,3
Task I ICP II, CN	LAB	Prep BLK	Lo/AQ	D-BLK II	Chemtech	Al (75ug/L / 200) 1
						CR (7ug/L / 10) 2
						ZN (9ug/L / 20) 2
						NA (203ug/L / 5000) 2
						K (96.7mg/L / 5000) 2,3
Task I ICP II, CN	LAB	Prep BLK	Lo/AQ	D-BLK III	Chemtech	Al (63ug/L / 200) 2
						CR (6ug/L / 10) 2
						ZN (9ug/L / 20) 2
						Na (193ug/L / 5000) 2
						K (113.3mg/L / 5000) 2,3
Task I ICP II, CN	LAB	Prep BLK	Lo/AQ	D-BLK IV	Chemtech	Al (74ug/L / 200) 1
						CR (9ug/L / 10) 2
						ZN (9ug/L / 20) 2
						Na (144ug/L / 5000) 2
						K (63.3mg/L / 5000) 2,3
Task I ICP II, CN	LAB	Prep BLK	Lo/AQ	D-BLK V	Chemtech	Al (73ug/L / 200) 2
						K (96.7mg/L / 5000) 2,3
Task I ICP II, CN	LAB	Prep BLK	Lo/AQ	D-BLK VI	Chemtech	Al (77ug/L / 200) 2
						K (13.3mg/L / 5000) 2,3
Task I ICP	LAB	Lo/AQ		R. BLK 12-12 12:23	Chemtech	Al (104ug/L / 200) 2
						Ca (9ug/L / 10) 2
						ZN (10ug/L / 20) 2
						Na (139ug/L / 5000) 2
						K (63.3mg/L / 5000) 2,3
Task I ICP	LAB	Lo/AQ		R.BLK 12-14 11:01	Chemtech	Be (4ug/L / 5) 2

LABORATORY REPORTED FIELD BLANK DATA IS COMPARED WITH THE SAMPLE DATA IN A TABULATION FORM WITHIN SAMPLE ANALYTICAL DATA SUMMARY.

COMMENTS:

(1) RESULT REPORTED BY LABORATORY AND CONFIRMED BY REVIEWER.

(2) RESULT INFERRED FROM RAW DATA

(3) Run ICP, results rep. & run flame, not need to question results.

ORIGINAL
(Red)

Form V

Q. C. Report No. 356

SPIKE SAMPLE RECOVERY

LAB NAME CHEMTECH

DATE 1-21-85 EH

CASE NO. 3510
EPA Sample No. MC 4990
Lab Sample ID No. G2-356-09
Units µg/L

Matrix Low Water

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:					
1. Aluminum	75-125	2069	342	2000	86.4
2. Antimony	"	439	60U	500	87.8
3. Arsenic	"	11	10 U	20	R55
4. Barium	"	2320	798	2000	76.1
5. Beryllium	"	46	5U	50	92.0
6. Cadmium	"	39	5U	50	78.0
7. Calcium	"	140200	66400	100,000	73.8
8. Chromium	"	176	15	200	80.5
9. Cobalt	"	409	[23]	500	81.8
10. Copper	"	239	35	250	81.6
11. Iron	"	25990	23240	1,000	275
12. Lead	"	790	440	500	R 70 (1) (2)
13. Magnesium	"	65790	25080	50,000	81.4
14. Manganese	"	6483	6720	200	119
15. Mercury	"	1.08	0.2U	1.0	108
16. Nickel	"	345	[26]	400	86.3
17. Potassium	"	47710	5000U	50 000	95.4
18. Selenium	"	7	5U	10	R70
19. Silver	"	18	10U	50	R36 (2)
20. Sodium	"	84170	5390	100,000	78.8
21. Thallium	"	45.7	10U	50	91.4
22. Tin	"	67	40U	200	R34 (2)
23. Vanadium	"	421	50U	500	84.2
24. Zinc	"	218	46	200	86.0
Other:					
Cyanide G2-356-03 EPA MC 4604	"	112	11	100	101

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

"R"- out of control - R values not commented upon, not subk. out of range

Comments: to question sample results. See following comments page.

ORIGINAL (Red)

Form V

Q. C. Report No. 356

SPIKE SAMPLE RECOVERY

LAB NAME CHEMTECH

DATE 1-21-85 EH

CASE NO. 3510

EPA Sample No. MC 4641

Lab Sample ID No. G2-356-14

Units µg/L

Matrix Low Soil

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:					
1. Aluminum	75-125				
2. Antimony	"	302	60U	500	R 60
3. Arsenic	"	50	21	40	R 73
4. Barium	"	1763	[146]	2000	88.2
5. Beryllium	"	47	5U	50	94.0
6. Cadmium	"	42	5U	50	84.0
7. Calcium	"				
8. Chromium	"	197	12	200	92.5
9. Cobalt	"	426	50U	500	85.2
10. Copper	"	237	30	250	82.8
11. Iron	"				
12. Lead	"	89	79	20	R50
13. Magnesium	"				
14. Manganese	"	871	1111	500	R —
15. Mercury	"	1.08	0.2U	1.0	108
16. Nickel	"	464	40U	500	92.8
17. Potassium	"				
18. Selenium	"	8	5U	10	80.0
19. Silver	"	34	10U	50	R 68
20. Sodium	"				
21. Thallium	"	42.4	10U	50	84.8
22. Tin	"	72	40U	200	R 36 (3)
23. Vanadium	"	446	53	500	89.2
24. Zinc	"	546	130	500	83.2
Other:					
Cyanide G2-356-13 EPA MC 4640	"	.143	.047	0.10	96

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

"R"- out of control R values not commented upon - not suff. out of range to question sample results. See following comments page.

Comments:

ORIGINAL
(Red)

NUS CORPORATION
SUPERFUND DIVISION

Matrix Spike Comments.

PROJECT NOTES

~~(1) The actual result for lead in MC-4998 may be subst. higher than the value reported - due to suppressed interference in MS. QAD~~

(2) DL for Ag & Sn in MC-4990 may be slightly higher than those reported.

(3) DL for Sn in MC-4641 " " " " than that reported.

NUS 443A 58 1182

ORIGINAL
(Red)

Form VI

Q. C. Report No. 356

DUPLICATES

LAB NAME CHEMTECH

DATE 1-21-85 EH

CASE NO. 3510
EPA Sample No. MC 4634
Lab Sample ID No. G2-356-03
Units µg/L

Matrix Low Water

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]	
Metals:					
1. Aluminum		[127]	[133]	NC 5	‡
2. Antimony		60U	60U	NC	
3. Arsenic		10U	10U	NC	
4. Barium		[64]	[70]	NC 9	‡
5. Beryllium		5U	5U	NC	
6. Cadmium		5U	5U	NC	
7. Calcium	±20%	46380	50740	8.98	
8. Chromium		10U	10U	NC	
9. Cobalt		50U	50U	NC	
10. Copper		25U	25U	NC	
11. Iron	(±100 ppb)	202	241	(39) 18	‡
12. Lead		8.0	5U	NC	
13. Magnesium	(±5000 ppb)	15970	17550	(1580) 9	‡
14. Manganese	(±15 ppb)	27	38	(11) 34	‡*
15. Mercury		0.2U	0.2U	NC	
16. Nickel		40U	40U	NC	
17. Potassium		5000U	5000U	NC	
18. Selenium		5U	5U	NC	
19. Silver		10U	10U	NC	
20. Sodium	(±5000 ppb)	9731	9822	(91) 1.0	‡
21. Thallium		10U	10U	NC	
22. Tin		40U	40U	NC	
23. Vanadium		50U	50U	NC	
24. Zinc		[12]	[16]	NC 28	‡*
Other:					
Cyanide	±10 ppb	11	11	0	

* Out of Control Control Range adopted for review of aqueous samples 20%

[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

‡ Reviewer calculated RPD

* Results not commented upon are not sufficiently out of range to question sample results

ORIGINAL
(Red)

Form VI

Q. C. Report No. 356

DUPLICATES

LAB NAME CHEMTECH

DATE 1-21-85 EH

CASE NO. 3510
EPA Sample No. MC 4640
Lab Sample ID No. G2-356-13
Units µg/L

Matrix Low Soil

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]
Metals:				
1. *Aluminum	±20%	22570	16760	29.5 *
2. Antimony		60U	60U	NC
3. Arsenic	(±10 ppb)	16	17	(1.0)
4. Barium	(±200 ppb)	222	207	(15)
5. Beryllium		5U	5U	NC
6. Cadmium		5U	5U	NC
7. Calcium		[3547]	[3544]	NC 0.1%
8. Chromium	(±10 ppb)	29	27	(2)
9. Cobalt		[23]	[26]	NC
10. Copper	(±25 ppb)	39	40	(1.0)
11. *Iron	±20%	33440	26560	22.9 *
12. Lead	±20%	59	90	41.6 *
13. Magnesium		5601	[4523]	NC 21
14. Manganese	±20%	1242	1193	4.02
15. Mercury		0.2U	0.2U	NC
16. Nickel		40U	40U	NC
17. Potassium		5000U	5000U	NC
18. Selenium		5U	5U	NC
19. Silver		10U	10U	NC
20. Sodium		[1297]	[1294]	NC
21. Thallium		10U	10U	NC
22. Tin		40U	40U	NC
23. Vanadium	(±50 ppb)	85	73	(12)
24. Zinc	±20%	133	106	22.6 *
Other:				
356-13 ~~PERCENT~~ SOLID (%)		77.0	76.6	0.5
Cyanide	(±0.25 mg/kg)	1.175	1.175	(0)

* Out of Control Control range adopted for solid samples 40%

[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

Out of control results not commented upon are not sufficiently out of range to question sample results.

ORIGINAL (Red)

Initial Calibration Verification and Continuing Calibration Verification

Documentation indicates calibrations were performed and checked every ten samples: Yes ✓ No___

Exceptions: _____

Calibrations and verifications were all within the control limits specified in WA-84-A267 : See following page. Yes ✓ No___

Outliers are listed below:

Parameter	Acceptable Range (%)	Calibration Identifier	% of True Value	Comments

Interference QC Results

Documentation indicates interference QC samples were run before and after every shift :Yes ✓ No___

Exceptions: _____

Interference QC results were all within the control limits specified in those adopted for review purposes of 85-115%. Yes___ No ✓

Exceptions: See following pages.

Parameter	Acceptable Range (%)	Calibration Identifier	% of True Value	Comments

ORIGINAL (Red)

Form II

Q. C. Report No. 356

INITIAL AND CONTINUING CALIBRATION VERIFICATION[3]

LAB NAME CHEMTECH CONSULTING GROUP

CASE NO. 3510

SOW NO. 784

DATE 1-21-85 EH

UNITS ug/L

Compound	Initial Calib.[1]			Continuing Calibration[2]					
Metals[4]:	True Value	Found	%R	True Value	Found	%R	Found	%R	Method[4]
1. Aluminum	2000	2107	105	2107	1960	93	1968	93	P
2. Antimony	973	984	101	984	1003	102	985	100	P
3. Arsenic	30	31	103	30	32	107	32	107	F
4. Barium	2000	2023	101	2023	1958	97	1958	97	P
5. Beryllium	894	878	98	878	875	100	914	104	P
6. Cadmium	65.6	64	97	64	63	98	63	98	P
7. Calcium	21200	22650	107	22650	21260	94	21730	96	P
8. Chromium	242	251	104	251	240	96	257	102	P
9. Cobalt	599	573	96	573	570	99	590	103	P
10. Copper	346	377	109	377	365	97	362	96	P
11. Iron	899	920	102	920	905	98	933	101	P
12. Lead	60F/399P	60F/407P	100/102	60/407	60/409	100/100	63/412	105/101	F/P
13. Magnesium	7200	7233	101	7233	7141	99	7163	99	P
14. Manganese	495	496	100	496	460	93	477	96	P
15. Mercury	1.0	1.04	104	1.04	0.98	94	0.98	94	MERCURY ANALYZER
16. Nickel	301	307	102	307	296	96	305	99	P
17. Potassium	10000	9880	99	9880	10183	103	9193	93	P
18. Selenium	15	16.5	110	15	13.5	90	14	93	F
19. Silver	49	48	98	48	45	94	45	94	P
20. Sodium	32800	35430	108	35430	34290	97	32810	93	P
21. Thallium	50.4	52.4	104	50.4	54.6	108.0	51.8	103	F
22. Tin	100	105	105	100	94	94	102	102	F
23. Vanadium	844	847	100	847	835	99	863	102	P
24. Zinc	396	415	105	415	427	103	445	107	P
Other:									
CYANIDE (1-4)	217	196	90	100	110	110			
Cyanide (5-15)	217	210	97	100	110	110			

[1] Initial Calibration Source _____ [2] Continuing Calibration Source _____

[3] Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110 .

[4] Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

NONE OUTSIDE OF CONTROL RANGES ESTABLISHED.

Form IV

ORIGINAL (Red)

Q. C. Report No. 356

ICP INTERFERENCE CHECK SAMPLE

LAB NAME CHEMTECH

DATE 1-21-85 EH

CASE NO. 3510

Check Sample I.D. ICSB

Check Sample Source SYNTHETIC

Units ug/L

Compound	Control Limits[1] Mean	Control Limits[1] Std. Dev.	True[2]	Initial Observed	Initial %R	Final Observed	Final %R
Metals:							
1. Aluminum							
2. Antimony	827	.0192	1000	825	99.8	829	100
3. Arsenic							
4. Barium	447	.0026	500	425	95.1	420	93.9
5. Beryllium	470	.0059	500	426	90.6	443	94.3
6. Cadmium	815	.0066	1000	779	95.6	771	94.6
7. Calcium							
8. Chromium	482	.0068	500	445	92.3	453	94.0
9. Cobalt	443	.0063	500	411	92.8	430	97.1
10. Copper	539	.0072	500	646 *	119	612	114
11. Iron							
12. Lead	786	.0197	1000	726	92.4	760	96.7
13. Magnesium							
14. Manganese	483	.0097	500	443	91.7	440	91.1
15. Mercury							
16. Nickel	890	.0104	1000	819	92.0	828	93.0
17. Potassium							
18. Selenium							
19. Silver	533	.0090	500	516	96.8	513	96.2
20. Sodium							
21. Thallium							
22. Tin							
23. Vanadium	536	.0069	500	463	86.4	491	91.6
24. Zinc	1070	.0141	1000	982	91.8	1003	93.7
Other:							

1 Mean value based on n = 8.

2 True value of EPA ICP Interference Check Sample or contractor standard.

Control range adopted for review purposes 85-115%.

*Asterisked values outside control range.

Asterisked values not commented upon are not sufficiently out of range to question sample results.

ORIGINAL
(Red)

Detection Limits Results

Detection limits were reported for all samples analyzed: Yes ✓ No ___

Exceptions: ___

Detection limits were less than or equal to the required detection limits specified in WA84-A267. Yes ✓ No ___

Exceptions: ___

Instrument Sensitivity Reports

Instrument sensitivity reports were documented for all parameters:

Yes ___ No ✓

Comments: Since all parameters had well documented d.l's instrument sensitivity had to be adequate.

Other Remarks Concerning this Case: Although ICP raw data was reported as "<" values all of these values were below CRDL and may be interpreted as Instrument D.L. ∴ Sample results at low levels near CRDL could be verified without any problems. However, positive results for Task II parameters could not have quantitations verified since raw absorbances were not reported, could not ascertain if results were correctly interpolated from std. curve (whose abs. were supplied). Furthermore, Task II constituents Pb, Se, Tl within 5X CRDL could not be verified (Se, Tl NO pos. results) because <(CRDL) value reported without raw abs.; low level blank results below CRDL but above IDL could not be ascertained, which may have questioned low level sample results.

ORIGINAL
(Red)

APPENDIX D

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

Sample Number: CT256

ORIGINAL (Red)

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: GCA
Case No. 3510
Lab Sample ID No: 41464A
QC Report No: 3510
Sample Matrix: WATER
Contract No: 68-01-6767
Data Release Authorized By: F Marquis
Date Sample Received: NOV. 1, 1984

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 11/5/84
Date Analyzed: NOV. 5, 1984
Conc/Dil Factor: 1 pH NA
Percent Moisture: NA
Percent Moisture (Decanted): NA

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	Methylene Chloride	6 ✓
67-64-1	Acetone	10 U
75-15-0	Carbon Disulfide	5 U
75-35-4	1, 1-Dichloroethene	5 U
75-34-3	1, 1-Dichloroethane	5 U
156-60-5	Trans-1, 2-Dichloroethene	5 U
67-66-3	Chloroform	9 ✓
107-06-2	1, 2-Dichloroethane	5 U
78-93-3	2-Butanone	10 U
71-55-6	1, 1, 1-Trichloroethane	8 FL
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U

CAS Number		ug/l or ug/Kg (Circle One)
79-34-5	1, 1, 2, 2-Tetrachloroethane	5 U
78-87-5	1, 2-Dichloropropane	5 U
10061-02-6	Trans-1, 3-Dichloropropene	5 U
79-01-6	Trichloroethene	5 U
124-48-1	Dibromochloromethane	5 U
79-00-5	1, 1, 2-Trichloroethane	5 U
71-43-2	Benzene	5 U
10061-01-5	cis-1, 3-Dichloropropene	5 U
110-75-8	2-Chloroethylvinylether	10 U
75-25-2	Bromoform	5 U
591-78-6	2-Hexanone	10 U
108-10-1	4-Methyl-2-Pentanone	10 U
127-18-4	Tetrachloroethene	5 U
108-88-3	Toluene	5 U
108-90-7	Chlorobenzene	5 U
100-41-4	Ethylbenzene	5 U
100-42-5	Styrene	5 U
	Total Xylenes	5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g., 10U) based on necessary concentration/dilution actions. (This is not necessarily 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 indicates 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).

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 data summary report.

III 2

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

ORIGINAL

Sample Number(s)
C 7256

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11/6/84

Date Analyzed: 11/21/84

Conc/Dil Factor: 1.0L → 1.0ml

CAS Number		ug/l or ug/Kg (Circle One)
62-75-9	N-Nitrosodimethylamine	NA
108-95-2	Phenol	10u
62-53-3	Aniline	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1, 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2, 4-Dinitrotoluene	10u
606-20-2	2, 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
92-87-5	Benzidine	50u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	46
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenz(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1)-Cannot be separated from diphenylamine

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

ORIGINAL (Red)

Sample Number C7256

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-5-84

Date Analyzed: 11-21-84

Conc/Dil Factor: 1

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.05u
319-85-7	Beta-BHC	0.05u
319-86-8	Delta-BHC	0.05u
58-89-9	Gamma-BHC (Lindane)	0.05u
76-44-8	Heptachlor	0.05u
309-00-2	Aldrin	0.05u
1024-57-3	Heptachlor Epoxide	0.05u
959-98-8	Endosulfan I	0.05u
60-57-1	Dieldrin	0.10u
72-55-9	4, 4'-DDE	0.10u
72-20-8	Endrin	0.10u
33213-65-9	Endosulfan II	0.10u
72-54-8	4, 4'-DDD	0.10u
7421-93-4	Endrin Aldehyde	0.10u
1031-07-8	Endosulfan Sulfate	0.10u
50-29-3	4, 4'-DDT	0.10u
72-43-5	Methoxychlor	0.5u
53494-70-5	Endrin Ketone	0.10u
57-74-9	Chlordane	0.5u
8001-35-2	Toxaphene	1.0u
12674-11-2	Aroclor-1016	0.5u
11104-28-2	Aroclor-1221	0.5u
11141-16-5	Aroclor-1232	0.5u
53469-21-9	Aroclor-1242	0.5u
12672-29-6	Aroclor-1248	0.5u
11097-69-1	Aroclor-1254	1.0u
11096-82-5	Aroclor-1260	1.0u

J M Hall 12/4/84

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 10000 µl V_i 5.0 µl

III 4

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

Sample Number
C 7256 (Rd)

ORIGINAL

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 compounds found	BN/A		
2.				
3.				
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.				

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

Sample Number
C7256

ORIGINAL (Red)

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 compounds found	VOA		
2.				
3.				
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.				
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Environmental Protection Agency. CLP Program
P. O. Box 818, Alexandria, Virginia 22313 703/557-2490

e9267

ORIGINAL (Red)

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: GCA
Lab Sample ID No: A1465A
Sample Matrix: WATER
Data Release Authorized By: F. Marquis

Case No: 3510
QC Report No: 3510
Contract No: 68-01-6767
Date Sample Received: NOV. 1, 1984

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 11/5/84
Date Analyzed: NOV 5, 1984
Conc/Dil Factor: 1 pH -
Percent Moisture: N/A
Percent Moisture (Decanted): N/A

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	Methylene Chloride	5 U
67-64-1	Acetone	10 U
75-15-0	Carbon Disulfide	5 U
75-35-4	1, 1-Dichloroethene	5 U
75-34-3	1, 1-Dichloroethane	5 U
156-60-5	Trans-1, 2-Dichloroethene	5 U
67-66-3	Chloroform	9
107-06-2	1, 2-Dichloroethane	5 U
78-93-3	2-Butanone	~~13~~ CM 10 U
71-55-6	1, 1, 1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U

CAS Number		ug/l or ug/Kg (Circle One)
79-34-5	1, 1, 2, 2-Tetrachloroethane	5 U
78-87-5	1, 2-Dichloropropane	5 U
10061-02-6	Trans-1, 3-Dichloropropene	5 U
79-01-6	Trichloroethene	5 U
124-48-1	Dibromochloromethane	5 U
79-00-5	1, 1, 2-Trichloroethane	5 U
71-43-2	Benzene	5 U
10061-01-5	cis-1, 3-Dichloropropene	5 U
110-75-8	2-Chloroethylvinylether	10 U
75-25-2	Bromoform	5 U
591-78-6	2-Hexanone	10 U
108-10-1	4-Methyl-2-Pentanone	10 U
127-18-4	Tetrachloroethene	5 U
108-88-3	Toluene	5 U
108-90-7	Chlorobenzene	5 U
100-41-4	Ethylbenzene	5 U
100-42-5	Styrene	5 U
	Total Xylenes	5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g., 10U) based on necessary concentration/dilution actions. (This is not necessarily 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 indicates 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).

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 data summary report.

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

Sample Number
C 9267

ORIGINAL (Red)

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11/6/84

Date Analyzed: 11/21/84

Conc/Dil Factor: 1.0 l → 1.0 ml

CAS Number		ug/l or ug/Kg (Circle One)
62-75-9	N-Nitrosodimethylamine	NA
108-95-2	Phenol	10u
62-53-3	Aniline	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1, 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2, 4-Dinitrotoluene	10u
606-20-2	2, 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
92-87-5	Benzidine	50u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenz(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1)-Cannot be separated from diphenylamine

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

Sample Number
C9267

ORIGINAL (Red)

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-5-84

Date Analyzed: 11-22-84

Conc/Dil Factor: 1

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma-BHC (Lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4, 4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endosulfan II	0.10U
72-54-8	4, 4'-DDD	0.10U
7421-93-4	Endrin Aldehyde	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4, 4'-DDT	0.10U
72-43-5	Methoxychlor	0.5U
53494-70-5	Endrin Ketone	0.10U
57-74-9	Chlordane	0.5U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.5U
11104-28-2	Aroclor-1221	0.5U
11141-16-5	Aroclor-1232	0.5U
53469-21-9	Aroclor-1242	0.5U
12672-29-6	Aroclor-1248	0.5U
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

J.M. Hall 12/4/84

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 10000 µl V_i 5.0 µl

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

Sample Number
C9267

ORIGINAL
(Red)

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 compounds found	BN/A		
2.				
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Environmental Protection Agency, CLP Sample Management Office,
P. O. Box 818, Alexandria, Virginia 22313 703/557-2490

Sample Number
C9 267

ORIGINAL
(Red)

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 compound found	VOA		
2.				
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Environmental Protection Agency, CLP Sample Management Office,
P.O. Box 818, Alexandria, Virginia 22313 703/557-2490

Sample Number
C9296

Organics Analysis Data Sheet
(Page 1)

ORIGINAL
(Red)

Laboratory Name: GCA
Case No. 3510
Lab Sample ID No: 41466A
QC Report No: 3510
Sample Matrix: WATER
Contract No: 68-01-6767
Data Release Authorized By: E Marquis
Date Sample Received: NOV. 1, 1984

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 11/5/84
Date Analyzed: NOV. 5, 1984
Conc/Dil Factor: 1 pH –
Percent Moisture: N/A
Percent Moisture (Decanted): N/A

CAS Number		ug/L or ug/Kg (Circle One)
74-87-3	Chloromethane	104
74-83-9	Bromomethane	104
75-01-4	Vinyl Chloride	104
75-00-3	Chloroethane	104
75-09-2	Methylene Chloride	54
67-64-1	Acetone	104
75-15-0	Carbon Disulfide	22
75-35-4	1, 1-Dichloroethene	54
75-34-3	1, 1-Dichloroethane	54
156-60-5	Trans-1, 2-Dichloroethene	54
67-66-3	Chloroform	9
107-06-2	1, 2-Dichloroethane	54
78-93-3	2-Butanone	104
71-55-6	1, 1, 1-Trichloroethane	54
56-23-5	Carbon Tetrachloride	54
108-05-4	Vinyl Acetate	104
75-27-4	Bromodichloromethane	54

CAS Number		ug/L or ug/Kg (Circle One)
79-34-5	1, 1, 2, 2-Tetrachloroethane	54
78-87-5	1, 2-Dichloropropane	54
10061-02-6	Trans-1, 3-Dichloropropene	54
79-01-6	Trichloroethene	54
124-48-1	Dibromochloromethane	54
79-00-5	1, 1, 2-Trichloroethane	54
71-43-2	Benzene	54
10061-01-5	cis-1, 3-Dichloropropene	54
110-75-8	2-Chloroethylvinylether	104
75-25-2	Bromoform	54
591-78-6	2-Hexanone	104
108-10-1	4-Methyl-2-Pentanone	104
127-18-4	Tetrachloroethene	54
108-88-3	Toluene	54
108-90-7	Chlorobenzene	54
100-41-4	Ethylbenzene	54
100-42-5	Styrene	54
	Total Xylenes	54

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g., 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read: "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 a mass spectral match indicates 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., 5J).

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 data summary report.

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

Sample Number
C 929 ORIGINAL
(Red)

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11/6/84

Date Analyzed: 11/21/84

Conc/Dil Factor: 1.0 l → 1.0 ml

CAS Number		(ug/l) or ug/Kg (Circle One)
62-75-9	N-Nitrosodimethylamine	NA
108-95-2	Phenol	10u
62-53-3	Aniline	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1, 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		(ug/l) or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2, 4-Dinitrotoluene	10u
606-20-2	2, 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
92-87-5	Benzidine	50u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenz(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1)-Cannot be separated from diphenylamine

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

Sample Number ORIGINAL
C9296 (Red)

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-5-84

Date Analyzed: 11-21-84

Conc/Dil Factor: 1

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma-BHC (Lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4, 4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endosulfan II	0.10U
72-54-8	4, 4'-DDD	0.10U
7421-93-4	Endrin Aldehyde	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4, 4'-DDT	0.10U
72-43-5	Methoxychlor	0.5U
53494-70-5	Endrin Ketone	0.10U
57-74-9	Chlordane	0.5U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.5U
11104-28-2	Aroclor-1221	0.5U
11141-16-5	Aroclor-1232	0.5U
53469-21-9	Aroclor-1242	0.5U
12672-29-6	Aroclor-1248	0.5U
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

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 1000ml or W_s _____ V_t 10000µl V_i 5.0µl

III 60

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

Sample Number
C 9296

ORIGINAL
(Red)

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 compounds found	GN/A		
2.				
3.				
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P. O. Box 818, Alexandria, Virginia 22313 703/557-2490

C 9296

Organics Analysis Data Sheet
(Page 4)

ORIGINAL
(Red)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	2 Methyl - 2 propanol	VOA	334	~60
2.	2 methyl Butane	|	359	~50
3.	2,2 - Dimethyl butane	|	417	~30
4.	3 methyl pentane	|	470	~25
5.	2,3 dimethyl butane	|	454	~25
6.	unknown	|	478	~20
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Organics Analysis Data Sheet
(Page 1)

C-9297

Laboratory Name: GCA
Lab Sample ID No: 41467A
Sample Matrix: WATER
Data Release Authorized By: F. Marquis

Case No. 3510
QC Report No: 3510
Contract No: 68-01-6767
Date Sample Received: NOV 1, 1984

ORIGINAL (Red)

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 11/5/84
Date Analyzed: NOV. 5, 1984
Conc/Dil Factor: 1 pH –
Percent Moisture: N/A
Percent Moisture (Decanted): N/A

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10U
74-83-9	Bromomethane	10U
75-01-4	Vinyl Chloride	10U
75-00-3	Chloroethane	10U
75-09-2	Methylene Chloride	5U
67-64-1	Acetone	5380
75-15-0	Carbon Disulfide	5U ~~6~~ CM
75-35-4	1, 1-Dichloroethene	5U
75-34-3	1, 1-Dichloroethane	5U
156-60-5	Trans-1, 2-Dichloroethene	5U
67-66-3	Chloroform	9
107-06-2	1, 2-Dichloroethane	3 J
78-93-3	2-Butanone	CM ~~37~~ 10U
71-55-6	1, 1, 1-Trichloroethane	5U
56-23-5	Carbon Tetrachloride	5U
108-05-4	Vinyl Acetate	10U
75-27-4	Bromodichloromethane	CM ~~15~~ 5U

CAS Number		ug/l or ug/Kg (Circle One)
79-34-5	1, 1, 2, 2-Tetrachloroethane	5U
78-87-5	1, 2-Dichloropropane	5U
10061-02-6	Trans-1, 3-Dichloropropene	5U
79-01-6	Trichloroethene	5U
124-48-1	Dibromochloromethane	5U
79-00-5	1, 1, 2-Trichloroethane	CM ~~39~~ 5U
71-43-2	Benzene	2269
10061-01-5	cis-1, 3-Dichloropropene	CM ~~97~~ 5U
110-75-8	2-Chloroethylvinylether	10U
75-25-2	Bromoform	5U
591-78-6	2-Hexanone	10U
108-10-1	4-Methyl-2-Pentanone	10U
127-18-4	Tetrachloroethene	5U
108-88-3	Toluene	731
108-90-7	Chlorobenzene	CM ~~6~~ 5U
100-41-4	Ethylbenzene	384
100-42-5	Styrene	5U
	Total Xylenes	4223

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g., 10U) based on necessary concentration/dilution actions. (This is not necessarily 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 indicates 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).

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 data summary report.

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

Sample Number ORIGINAL
C 9297 (Red)

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11/6/84

Date Analyzed: 11/21/84

Conc/Dil Factor: 1.0 l → 1.0 ml

CAS Number		(ug/l or ug/Kg (Circle One))
62-75-9	N-Nitrosodimethylamine	NA
108-95-2	Phenol	10u
62-53-3	Aniline	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1, 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	175
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	81 10u EM
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		(ug/l or ug/Kg (Circle One))
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2, 4-Dinitrotoluene	10u
606-20-2	2, 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
92-87-5	Benzidine	50u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenz(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1)-Cannot be separated from diphenylamine

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

Sample Number C9297 ORIGINAL (Red)

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-5-84

Date Analyzed: 11-22-84

Conc/Dil Factor: 1

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma-BHC (Lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4, 4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endosulfan II	0.10U
72-54-8	4, 4'-DDD	0.10U
7421-93-4	Endrin Aldehyde	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4, 4'-DDT	0.10U
72-43-5	Methoxychlor	0.5U
53494-70-5	Endrin Ketone	0.10U
57-74-9	Chlordane	0.5U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.5U
11104-28-2	Aroclor-1221	0.5U
11141-16-5	Aroclor-1232	0.5U
53469-21-9	Aroclor-1242	0.5U
12672-29-6	Aroclor-1248	0.5U.
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

JMH 12/4/84

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 10000 µl V_i 5.0 µl

P. O. Box 818, Alexandria, Virginia 22313 703/557-2490

Sample Number
C 9297

ORIGINAL
(Red)

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	VOA	193	~200
2.	ethyl cyclopropane		299	~900
3.	2-methyl 1 butene		385	~180
4.	2 methyl 2 butene		402	~220
5.	cyclohexane		411	~230
6.	methyl cyclopentane		427	~100
7.	Hexane		513	~25
8.	(alkylated benzene) unknown		961	~25
9.	unknown		958	~800
10.	unknown		344	3800
11.				
12.				
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Environmental Protection Agency, CLP Sample Management Office,
P. O. Box 818, Alexandria, Virginia 22313 703/557-2490

Sample Number C9297 ORIGINAL (Red)

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.	Cmp 1, unknown	SV/A	4.9	510000J
2.	Cmp 2, "		5.3	210000J
3.	Cmp 3 " spectra are		6.5	150000J
4.	Cmp 4 " all typical		6.6	160000J
5.	Cmp 5 " of substituted		6.8	460000J
6.	Cmp 6 " benzene		7.1	200000J
7.	Cmp 7 " hydrocarbons.		7.6	550000J
8.	Cmp 8 "		7.8	560000J
9.	Cmp 9 "		8.0	110000J
10.	Cmp 10 "		8.1	130000J
11.	Cmp 11 "		8.3	3400J
12.	Cmp 12 "		8.5	150000J
13.	Cmp 13 "		8.6	21000J
14.	Cmp 14 "		9.1	8900J
15.	Cmp 15 "		9.2	11000J
16.	Cmp 16 "		9.5	120000J
17.	Cmp 17 "		9.7	280000J
18.	Cmp 18, unidentified		11.8	11000J
19. 90120	Cmp 19, 1-methyl naphthalene		12.3	8100J
20.	Cmp 20, unidentified	✓	12.8	1000J
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

P.O. Box 818, Alexandria, Virginia 22313 703-557-2490

C9298

Organics Analysis Data Sheet
(Page 1)

ORIGINAL (Red)

Laboratory Name: GCA
Case No. 3510
Lab Sample ID No: 41468A
QC Report No: 3510
Sample Matrix: WATER
Contract No: 68-01-6767
Data Release Authorized By: E. Marquis
Date Sample Received: NOV. 1, 1984

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 11/5/84
Date Analyzed: NOV. 5, 1984
Conc/Dil Factor: 1 pH –
Percent Moisture: N/A
Percent Moisture (Decanted): N/A

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u
74-83-9	Bromomethane	10u
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	25
75-09-2	Methylene Chloride	6
67-64-1	Acetone	1583
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	11
107-06-2	1, 2-Dichloroethane	1599
78-93-3	2-Butanone	9805
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	27
71-43-2	Benzene	6833
10061-01-5	cis-1, 3-Dichloropropene	6446
110-75-8	2-Chloroethylvinylether	10u
75-25-2	Bromoform	5u
591-78-6	2-Hexanone	10u
108-10-1	4-Methyl-2-Pentanone	10u
127-18-4	Tetrachloroethene	5u
108-88-3	Toluene	7543
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	2207
100-42-5	Styrene	297
	Total Xylenes	12496

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g., 10U) based on necessary concentration/dilution actions. (This is not necessarily 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 this 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 [illegible] indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero.

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 data summary report.

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

ORIGINAL (Red)

Sample Number: C 9298

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11/6/84

Date Analyzed: 11/21/84

Conc/Dil Factor: 1.0 l → 1.0 ml

CAS Number		ug/l or ug/Kg (Circle One)
62-75-9	N-Nitrosodimethylamine	NA
108-95-2	Phenol	10u
62-53-3	Aniline	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1, 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	435
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	312
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2, 4-Dinitrotoluene	10u
606-20-2	2, 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
92-87-5	Benzidine	50u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenz(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1)-Cannot be separated from diphenylamine

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

Sample Number ORIGINAL
C9298 (Red)

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-5-84

Date Analyzed: 11-22-84

Conc/Dil Factor: 1

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.05u
319-85-7	Beta-BHC	~~0.5u~~ 0.05u
319-86-8	Delta-BHC	0.05u
58-89-9	Gamma-BHC (Lindane)	0.05u
76-44-8	Heptachlor	0.05u
309-00-2	Aldrin	0.05u
1024-57-3	Heptachlor Epoxide	0.05u
959-98-8	Endosulfan I	0.05u
60-57-1	Dieldrin	0.10u
72-55-9	4, 4'-DDE	0.10u
72-20-8	Endrin	0.10u
33213-65-9	Endosulfan II	0.10u
72-54-8	4, 4'-DDD	0.10u
7421-93-4	Endrin Aldehyde	0.10u
1031-07-8	Endosulfan Sulfate	0.10u
50-29-3	4, 4'-DDT	0.10u
72-43-5	Methoxychlor	0.5u
53494-70-5	Endrin Ketone	0.10u
57-74-9	Chlordane	0.5u
8001-35-2	Toxaphene	1.0u
12674-11-2	Aroclor-1016	0.5u
11104-28-2	Aroclor-1221	0.5u
11141-16-5	Aroclor-1232	0.5u
53469-21-9	Aroclor-1242	0.5u
12672-29-6	Aroclor-1248	0.5u
11097-69-1	Aroclor-1254	1.0u
11096-82-5	Aroclor-1260	1.0u

J Mall 12/4/84

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 10000 µl V_i 5.0 µl

TB 160

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

Sample Number
C9298 ORIGINAL (Red)

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.	Cmp1, unknown All spectra	BN/A	4.9	150000J
2.	Cmp2, " typical of		5.4	690000J
3.	Cmp3 " Substituted		6.6	590000J
4.	Cmp4, " benzene		6.7	230000J
5.	Cmp5, " hydrocarbons.		6.9	150000J
6.	Cmp6, "		7.1	500000J
7.	Cmp7 "		7.6	170000J
8.	Cmp8, "		7.9	130000J
9.	Cmp9, "		8.0	88000J
10.	Cmp10 "		8.2	38000J
11.	Cmp11, "		8.4	52000J
12.	Cmp12, "		8.5	81000J
13.	Cmp13, "		8.7	70000J
14.	Cmp14, "		9.0	23000J
15.	Cmp15, "		9.2	42000J
16.	Cmp16, "		9.2 PM	49000J
17.	Cmp17, "		9.6 PM	49000J
18.	Cmp18, "		11.9 PM	85000J
19.	Cmp19, unidentified		17.9 PM	36000J
20. 90-130	Cmp20, 1 methyl naphthalene		12.0	59000J
21.				
22.				
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25.				
26.				
27.				
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TH 161

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

Sample Number
C 9298

Organics Analysis Data Sheet
(Page 4)

(Red)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.				
2.				
3.				
4.				
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P. O. Box 818, Alexandria, Virginia 22313 703/557-2490

C9299

Organics Analysis Data Sheet
(Page 1)

ORIGINAL (Red)

Laboratory Name: GCA
Case No. 3510
Lab Sample ID No: 4469A
QC Report No: 3510
Sample Matrix: WATER
Contract No: 68-01-6767
Data Release Authorized By: F. Marquis
Date Sample Received: NOV. 1, 1984

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 11/5/84
Date Analyzed: NOV. 5, 1984
Conc/Dil Factor: 1 pH —
Percent Moisture: N/A
Percent Moisture (Decanted): N/A

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	Methylene Chloride	7
67-64-1	Acetone	10 U
75-15-0	Carbon Disulfide	5 U
75-35-4	1, 1-Dichloroethene	5 U
75-34-3	1, 1-Dichloroethane	5 U
156-60-5	Trans-1, 2-Dichloroethene	5 U
67-66-3	Chloroform	13
107-06-2	1, 2-Dichloroethane	5 U
78-93-3	2-Butanone	10 U
71-55-6	1, 1, 1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U

CAS Number		ug/l or ug/Kg (Circle One)
79-34-5	1, 1, 2, 2-Tetrachloroethane	5 U
78-87-5	1, 2-Dichloropropane	5 U
10061-02-6	Trans-1, 3-Dichloropropene	5 U
79-01-6	Trichloroethene	5 U
124-48-1	Dibromochloromethane	5 U
79-00-5	1, 1, 2-Trichloroethane	5 U
71-43-2	Benzene	20
10061-01-5	cis-1, 3-Dichloropropene	5 U
110-75-8	2-Chloroethylvinylether	10 U
75-25-2	Bromoform	5 U
591-78-6	2-Hexanone	10 U
108-10-1	4-Methyl 2-Pentanone	10 U
127-18-4	Tetrachloroethene	5 U
108-88-3	Toluene	69
108-90-7	Chlorobenzene	5 U
100-41-4	Ethylbenzene	30
100-42-5	Styrene	5 U
	Total Xylenes	230

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g., 10U based on necessary concentration/dilution actions. (This is not necessarily 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 [illegible] is assumed, or when the [illegible] is below the [illegible] but above the [illegible] the [illegible] [illegible] the identification criteria [illegible] [illegible]

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 data summary report.

III 202

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

Sample Number
C 9299 ORIGINAL (Red)

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11/6/84

Date Analyzed: 11/21/84

Conc/Dil Factor: 1.0 l → 1.0 ml

CAS Number		ug/l or ug/Kg (Circle One)
62-75-9	N-Nitrosodimethylamine	NA
108-95-2	Phenol	10u
62-53-3	Aniline	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1, 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2, 4-Dinitrotoluene	10u
606-20-2	2, 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
92-87-5	Benzidine	50u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenz(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1) Cannot be separated from diphenylamine

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

Sample Number
C9299 ORIGINAL
(Red)

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-5-84

Date Analyzed: 11-22-84

Conc/Dil Factor: 1

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma-BHC (Lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60 57-1	Dieldrin	0.10U
72-55-9	4, 4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endosulfan II	0.10U
72-54-8	4, 4'-DDD	0.10U
7421-93-4	Endrin Aldehyde	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4, 4'-DDT	0.10U
72-43-5	Methoxychlor	0.5U
53494-70-5	Endrin Ketone	0.10U
57-74-9	Chlordane	0.5U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.5U
11104-28-2	Aroclor-1221	0.5U
11141-16-5	Aroclor-1232	0.5U
53469-21-9	Aroclor-1242	0.5U
12672-29-6	Aroclor-1248	0.5U
11097-69-1	Aroclor-1254	0.5U
11096-82-5	Aroclor-1260	0.5U

JMHall 12/4/84

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 1000ml or W_s _____ V_t 10000 µl V_i 5.0 µl

TT 2004

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

Sample Number
C 9299 ORIGINAL (Red)

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 compounds found	SV/A		
2.				
3.				
4.				
5.				
6.				
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30.				

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

Sample Number
C 9299 ORIGINAL (Red)

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.	3,4-Dimethyl 2,3-Heptadiene	VOA	761	~300
2.	O-[(Alpha-Methylbenzyl) Phenol		900	~700
3.	Unknown		902	~150
4.				
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III 200

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

Sample Number
C7257 ORIGINAL (Red)

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ERCO/A Division of ENSECO
Case No: 3510
Lab Sample ID No: 36-351
QC Report No: 116
Sample Matrix: SOIL
Contract No: 68-01-6581
Data Release Authorized By: mc
Date Sample Received: 11/1/84

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 11.6.84
Date Analyzed: 11.6.84
Conc/Dil Factor: 1 pH 7
Percent Moisture: 22
Percent Moisture (Decanted): —

	CAS Number		ug/l or ug/Kg (Circle One)
45U	74-87-3	Chloromethane	17u
46U	74-83-9	Bromomethane	17u
88U	75-01-4	Vinyl Chloride	17u
16U	75-00-3	Chloroethane	17u
44U	75-09-2	Methylene Chloride	17u
	67-64-1	Acetone	25u
	75-15-0	Carbon Disulfide	17u
29U	75-35-4	1, 1-Dichloroethene	17u
13U	75-34-3	1, 1-Dichloroethane	17u
30U	156-60-5	Trans-1, 2-Dichloroethene	17u
23U	67-66-3	Chloroform	17u
10U	107-06-2	1, 2-Dichloroethane	17u
	78-93-3	2-Butanone	17u
11U	71-55-6	1, 1, 1-Trichloroethane	17u
6U	56-23-5	Carbon Tetrachloride	17u
	108-05-4	Vinyl Acetate	17u
48U	75-27-4	Bromodichloromethane	17u

	CAS Number		ug/l or ug/Kg (Circle One)
15U	79-34-5	1, 1, 2, 2-Tetrachloroethane	17u
32U	78-87-5	1, 2-Dichloropropane	17u
33U	10061-02-6	Trans-1, 3-Dichloropropene	17u
87U	79-01-6	Trichloroethene	17u
51U	124-48-1	Dibromochloromethane	17u
14U	79-00-5	1, 1, 2-Trichloroethane	17u
4U	71-43-2	Benzene	17u
	10061-01-5	cis-1, 3-Dichloropropene	17u
19U	110-75-8	2-Chloroethylvinylether	17u
47U	75-25-2	Bromoform	17u
	591-78-6	2-Hexanone	17u
	108-10-1	4-Methyl-2-Pentanone	17u
85U	127-18-4	Tetrachloroethene	17u
86U	108-88-3	Toluene	17u
7U	108-90-7	Chlorobenzene	17u
38U	100-41-4	Ethylbenzene	17u
	100-42-5	Styrene	17u
		Total Xylenes	17u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g., 10U) based on necessary concentration/dilution actions. (This is not necessarily 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 indicates 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).

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 data summary report.

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

ORIGINAL (Red)

Sample Number: C7257

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11·3·84

Date Analyzed: 11·20·84

Conc/Dil Factor: 1

	CAS Number		ug/l or ug/Kg (Circle One)
41B	62-75-9	N-Nitrosodimethylamine	500u
65A	108-95-2	Phenol	500u
	62-53-3	Aniline	500u
18B	111-44-4	bis(-2-Chloroethyl)Ether	500u
24A	95-57-8	2-Chlorophenol	500u
26B	541-73-1	1, 3-Dichlorobenzene	500u
23B	106-46-7	1, 4-Dichlorobenzene	500u
	100-51-6	Benzyl Alcohol	500u
25B	95-50-1	1, 2-Dichlorobenzene	500u
	95-48-7	2-Methylphenol	500u
42B	39638-32-9	bis(2-chloroisopropyl)Ether	500u
	106-44-5	4-Methylphenol	50K
63B	621-64-7	N-Nitroso-Di-n-Propylamine	500u
12B	67-72-1	Hexachloroethane	500u
56B	98-95-3	Nitrobenzene	500u
54B	78-59-1	Isophorone	500u
57A	88-75-5	2-Nitrophenol	500u
34A	105-67-9	2, 4-Dimethylphenol	500u
	65-85-0	Benzoic Acid	500u
43B	111-91-1	bis(-2-Chloroethoxy)Methane	500u
31A	120-83-2	2, 4-Dichlorophenol	500u
9B	120-82-1	1, 2, 4-Trichlorobenzene	500u
55B	91-20-3	Naphthalene	500u
	106-47-8	4-Chloroaniline	500u
52B	87-68-3	Hexachlorobutadiene	500u
22A	59-50-7	4-Chloro-3-Methylphenol	500u
	91-57-6	2-Methylnaphthalene	500u
53B	77-47-4	Hexachlorocyclopentadiene	500u
21A	88-06-2	2, 4, 6-Trichlorophenol	500u
	95-95-4	2, 4, 5-Trichlorophenol	500u
20B	91-58-7	2-Chloronaphthalene	500u
	88-74-4	2-Nitroaniline	500u
71B	131-11-3	Dimethyl Phthalate	500u
73B	208-96-8	Acenaphthylene	50K
	99-09-2	3-Nitroaniline	500u

	CAS Number		ug/l or ug/Kg (Circle One)
1B	83-32-9	Acenaphthene	500u
59A	51-28-5	2, 4-Dinitrophenol	500u
58A	100-02-7	4-Nitrophenol	500u
	132-64-9	Dibenzofuran	500u
35B	121-14-2	2, 4-Dinitrotoluene	500u
36B	606-20-2	2, 6-Dinitrotoluene	500u
70B	84-66-2	Diethylphthalate	500u
40B	7005-72-3	4-Chlorophenyl-phenylether	500u
30B	86-73-7	Fluorene	500u
	100-01-6	4-Nitroaniline	500u
60A	534-52-1	4, 6-Dinitro-2-Methylphenol	500u
62B	86-30-6	N-Nitrosodiphenylamine (1)	500u
41B	101-55-3	4-Bromophenyl-phenylether	500u
9B	118-74-1	Hexachlorobenzene	500u
64A	87-86-5	Pentachlorophenol	50K
81B	85-01-8	Phenanthrene	250K
78B	120-12-7	Anthracene	500u
68B	84-74-2	Di-n-Butylphthalate	50K
79B	206-44-0	Fluoranthene	250K
5B	92-87-5	Benzidine	500u
84B	129-00-0	Pyrene	200K
67B	85-68-7	Butylbenzylphthalate	500u
29B	91-94-1	3, 3'-Dichlorobenzidine	500u
72B	56-55-3	Benzo(a)Anthracene	50K
66B	117-81-7	bis(2-Ethylhexyl)Phthalate	150K
74B	218-01-9	Chrysene	100K
69B	117-84-0	Di-n-Octyl Phthalate	200K
34B	205-99-2	Benzo(b)Fluoranthene	150J
35B	207-08-9	Benzo(k)Fluoranthene	coelute
75B	50-32-8	Benzo(a)Pyrene	100K
33B	193-39-5	Indeno(1, 2, 3-cd)Pyrene	100K
82B	53-70-3	Dibenz(a, h)Anthracene	500u
77B	191-24-2	Benzo(g, h, i)Perylene	50K

ated from diphenylamine

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

Sample Number: C7257 R

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11·3·84

Date Analyzed: 1·21·85

Conc/Dil Factor: 1

	CAS Number		ug/l or ug/Kg (Circle One)
102P	319-84-6	Alpha-BHC	1u
103P	319-85-7	Beta-BHC	1u
104P	319-86-8	Delta-BHC	1u
105P	58-89-9	Gamma-BHC (Lindane)	1u
100P	76-44-8	Heptachlor	1u
89P	309-00-2	Aldrin	1u
101P	1024-57-3	Heptachlor Epoxide	1u
	959-98-8	Endosulfan I	1u
90P	60-57-1	Dieldrin	1u
93P	72-55-9	4, 4'-DDE	1u
98P	72-20-8	Endrin	1u
	33213-65-9	Endosulfan II	1u
94P	72-54-8	4, 4'-DDD	1u
99P	7421-93-4	Endrin Aldehyde	1u
97P	1031-07-8	Endosulfan Sulfate	1u
92P	50-29-3	4, 4'-DDT	1u
	72-43-5	Methoxychlor	1u
	53494-70-5	Endrin Ketone	1u
91P	57-74-9	Chlordane	1u
113P	8001-35-2	Toxaphene	1u
112P	12674-11-2	Aroclor-1016	1u
108P	11104-28-2	Aroclor-1221	1u
109P	11141-16-5	Aroclor-1232	1u
106P	53469-21-9	Aroclor-1242	1u
110P	12672-29-6	Aroclor-1248	1u
107P	11097-69-1	Aroclor-1254	1u
111P	11096-82-5	Aroclor-1260	1u

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 ——— or W_s 20.2 V_t 1000 V_i 3.8

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

ORIGINAL (Red)

Sample Number
C7257

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.				
2.				
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4.				
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29.				
30.				

NO UNKNOWNS

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

Sample Number: C9266 ORIGINAL (Red)

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ERCO/A Division of ENSECO
Case No: 3510
Lab Sample ID No: 36-352
QC Report No: 116
Sample Matrix: SOIL
Contract No: 68-01-6581
Data Release Authorized By: MC
Date Sample Received: 11/1/84

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 11·6·84
Date Analyzed: 11·6·84
Conc/Dil Factor: 1 pH 7
Percent Moisture: 13
Percent Moisture (Decanted): —

	CAS Number		ug/l or ug/Kg (Circle One)
45U	74-87-3	Chloromethane	17u
96U	74-83-9	Bromomethane	17u
88U	75-01-4	Vinyl Chloride	17u
16U	75-00-3	Chloroethane	17u
44U	75-09-2	Methylene Chloride	4 K
	67-64-1	Acetone	25u
	75-15-0	Carbon Disulfide	17u
29U	75-35-4	1, 1-Dichloroethene	17u
13U	75-34-3	1, 1-Dichloroethane	17u
20U	156-60-5	Trans-1, 2-Dichloroethene	17u
23U	67-66-3	Chloroform	17u
10U	107-06-2	1, 2-Dichloroethane	17u
	78-93-3	2-Butanone	17u
11U	71-55-6	1, 1, 1-Trichloroethane	17u
6U	56-23-5	Carbon Tetrachloride	17u
	108-05-4	Vinyl Acetate	17u
48U	75-27-4	Bromodichloromethane	17u

	CAS Number		ug/l or ug/Kg (Circle One)
15U	79-34-5	1, 1, 2, 2-Tetrachloroethane	17u
32U	78-87-5	1, 2-Dichloropropane	17u
33U	10061-02-6	Trans-1, 3-Dichloropropene	17u
87U	79-01-6	Trichloroethene	4 K
51U	124-48-1	Dibromochloromethane	17u
14U	79-00-5	1, 1, 2-Trichloroethane	17u
4U	71-43-2	Benzene	17u
	10061-01-5	cis-1, 3-Dichloropropene	17u
19U	110-75-8	2-Chloroethylvinylether	17u
47U	75-25-2	Bromoform	17u
	591-78-6	2-Hexanone	17u
	108-10-1	4-Methyl-2-Pentanone	17u
85U	127-18-4	Tetrachloroethene	17u
86U	108-88-3	Toluene	5 K
7U	108-90-7	Chlorobenzene	17u
38U	100-41-4	Ethylbenzene	17u
	100-42-5	Styrene	17u
		Total Xylenes	17u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g., 10U) based on necessary concentration/dilution actions. (This is not necessarily 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 indicates 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).

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 data summary report.

ORIGINAL
(Red)

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

Sample Number
C9266

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11·3·84

Date Analyzed: 11·20·84

Conc/Dil Factor: 1

	CAS Number		ug/l or ug/Kg (Circle One)
61B	62-75-9	N-Nitrosodimethylamine	450u
65A	108-95-2	Phenol	450u
	62-53-3	Aniline	450u
18B	111-44-4	bis(-2-Chloroethyl)Ether	450u
24A	95-57-8	2-Chlorophenol	450u
26B	541-73-1	1, 3-Dichlorobenzene	450u
27B	106-46-7	1, 4-Dichlorobenzene	450u
	100-51-6	Benzyl Alcohol	450u
25B	95-50-1	1, 2-Dichlorobenzene	450u
	95-48-7	2-Methylphenol	450u
42B	39638-32-9	bis(2-chloroisopropyl)Ether	450u
	106-44-5	4-Methylphenol	450u
63B	621-64-7	N-Nitroso-Di-n-Propylamine	450u
12B	67-72-1	Hexachloroethane	450u
56B	98-95-3	Nitrobenzene	450u
54B	78-59-1	Isophorone	450u
57A	88-75-5	2-Nitrophenol	450u
34A	105-67-9	2, 4-Dimethylphenol	450u
	65-85-0	Benzoic Acid	450u
43B	111-91-1	bis(-2-Chloroethoxy)Methane	450u
31A	120-83-2	2, 4-Dichlorophenol	450u
8B	120-82-1	1, 2, 4-Trichlorobenzene	450u
55B	91-20-3	Naphthalene	450u
	106-47-8	4-Chloroaniline	450u
52B	87-68-3	Hexachlorobutadiene	450u
22A	59-50-7	4-Chloro-3-Methylphenol	450u
	91-57-6	2-Methylnaphthalene	45 K
53B	77-47-4	Hexachlorocyclopentadiene	450u
21A	88-06-2	2, 4, 6-Trichlorophenol	450u
	95-95-4	2, 4, 5-Trichlorophenol	450u
20B	91-58-7	2-Chloronaphthalene	450u
	88-74-4	2-Nitroaniline	450u
71B	131-11-3	Dimethyl Phthalate	450u
73B	208-96-8	Acenaphthylene	450u
	99-09-2	3-Nitroaniline	450u

	CAS Number		ug/l or ug/Kg (Circle One)
1B	83-32-9	Acenaphthene	450u
59A	51-28-5	2, 4-Dinitrophenol	450u
58A	100-02-7	4-Nitrophenol	450u
	132-64-9	Dibenzofuran	450u
35B	121-14-2	2, 4-Dinitrotoluene	450u
36B	606-20-2	2, 6-Dinitrotoluene	450u
70B	84-66-2	Diethylphthalate	450u
40B	7005-72-3	4-Chlorophenyl-phenylether	450u
30B	86-73-7	Fluorene	450u
	100-01-6	4-Nitroaniline	450u
60A	534-52-1	4, 6-Dinitro-2-Methylphenol	450u
62B	86-30-6	N-Nitrosodiphenylamine (1)	450u
41B	101-55-3	4-Bromophenyl-phenylether	450u
9B	118-74-1	Hexachlorobenzene	450u
64A	87-86-5	Pentachlorophenol	450u
81B	85-01-8	Phenanthrene	450u
78B	120-12-7	Anthracene	450u
69B	84-74-2	Di-n-Butylphthalate	90 K
79B	206-44-0	Fluoranthene	450u
5B	92-87-5	Benzidine	450u
74B	129-00-0	Pyrene	450u
67B	85-68-7	Butylbenzylphthalate	450u
28B	91-94-1	3, 3'-Dichlorobenzidine	450u
72B	56-55-3	Benzo(a)Anthracene	450u
66B	117-81-7	bis(2-Ethylhexyl)Phthalate	630
76B	218-01-9	Chrysene	450u
68B	117-84-0	Di-n-Octyl Phthalate	540
74B	205-99-2	Benzo(b)Fluoranthene	450u
75B	207-08-9	Benzo(k)Fluoranthene	450u
77B	50-32-8	Benzo(a)Pyrene	450u
82B	193-39-5	Indeno(1, 2, 3-cd)Pyrene	450u
83B	53-70-3	Dibenz(a, h)Anthracene	450u
79B	191-24-2	Benzo(g, h, i)Perylene	450u

lad from diphenylamine

P.O. 2[illegible], Alexandria, Virginia 22313 703 557-2490

C9296

Organics Analysis Data Sheet
(Page 2)

ORIGINAL
(Red)

Semivolatile Compounds

F. Marquis

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 11/27/84

Date Analyzed: 12/10/84

Conc/Dil Factor: 500 mls → 1.0 ml

CAS Number		ug/l or ug/Kg (Circle One)
62-75-9	N-Nitrosodimethylamine	10u
108-95-2	Phenol	10u
62-53-3	Aniline	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1, 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2, 4-Dinitrotoluene	10u
606-20-2	2, 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	10u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
92-87-5	Benzidine	50u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	22
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenz(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1) Cannot be separated from diphenylamine

III 2

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

Sample Number
C9296

ORIGINAL
(Red)

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	BN/A	10.9	60J
2.	unknown	BN/A	20.8	125J
3.				
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III-3

P. O. Box 818, Alexandria, Virginia 22313 (703) 557-2490

C9297 AE

ORIGINAL
(Red)

F. Marques

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11/27/84

Date Analyzed: 12/10/84

Conc/Dil Factor: 1000mls → 1.0ml

CAS Number		ug/l or ug/Kg (Circle One)
62-75-9	N-Nitrosodimethylamine	10u
108-95-2	Phenol	10u
62-53-3	Aniline	10u
111-44-4	bis(2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1, 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	104
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	27
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2, 4-Dinitrotoluene	10u
606-20-2	2, 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	10u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
92-87-5	Benzidine	50u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenz(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1) Cannot be separated from diphenylamine

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

Sample Number
C9297 RE

ORIGINAL
(Red)

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	BN/A	4.7	4870 J
2.	Unknown		5.0	2107 J
3.	Unknown		6.5	452 J
4.	Unknown		6.7	4113 J
5.	Unknown		7.2	545 J
6.	Unknown		7.4	456 J
7.	Unknown		7.5	440 J
8.	Unknown		8.3	466 J
9.	Unknown		8.7	34 J
10.	Unknown		8.8	108 J
11.	Unknown		9.1	64 J
12.	Unknown		9.3	~~[illegible]~~
13.	Unknown		10.0	~~[illegible]~~ 39 J
14.	Unknown		10.6	18 J
15.	Unknown		10.9	24 J
16.	Unknown		11.0	12 J
17.	Unknown		11.2	6 J
18.	Unknown		11.4	165 J
19.	Unknown		11.7	12 J
20.	Unknown	✓	11.9	23 J
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

spectra typical of substituted benzenes

P. O. Box 818, Alexandria, Virginia 22313 703/557-2490

Sample Number
C 9298LE

ORIGINAL
(Red)

F. Marques

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 11/27/84

Date Analyzed: 12/10/84

Conc/Dil Factor: 1000mls → 1.0ml

CAS Number		ug/l or ug/Kg (Circle One)
62-75-9	N-Nitrosodimethylamine	10u
108-95-2	Phenol	10u
62-53-3	Aniline	10u
111-44-4	bis(2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1, 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(2-Chloroethoxy)Methane	10u
120-83-2	2, 4 Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	17
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	13
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2, 4 Dinitrotoluene	10u
606-20-2	2, 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4, 6 Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	10u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
92-87-5	Benzidine	50u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3 Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenz(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1) Cannot be separated from diphenylamine

III 39

L C 9298 RE

Organics Analysis Data Sheet
(Page 4)

ORIGINAL
(Red)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	Substituted benzene hydrocarbons	B N/A	4.6	75 J
2.	" "		5.0	42 J
3.	" "		6.1	40 J
4.	All substituted benzene hydro-		6.2	71 J
5.	carbons		6.4	10 J
6.			~~7~~ 6.7	70 J
7.			7.1	15 J
8.			7.4	32 J
9.	substituted benzene hydrocarbon		7.6	15 J
10.	unknown		7.9	40 J
11.			8.5	290 J
12.			9.1	140 J
13.			9.3	20 J
14.			10.3	22 J
15.			11.2	67 J
16.			11.7	39 J
17.			12.5	83 J
18.	Substituted benzene hydrocarbons		12.7	120 J
19.			12.9	54
20.			13.0	38
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

4/84

P. O. Box 818, Alexandria, Virginia 22313 703/557-2490

C 9299 RE

Organics Analysis Data Sheet
(Page 2)

ORIGINAL
(Red)

F. Marquis

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11/27/84

Date Analyzed: 12/10/84

Conc/Dil Factor: 500 mls ≥ 1.0 ml

CAS Number		ug/l or ug/Kg (Circle One)
62-75-9	N-Nitrosodimethylamine	10u
108-95-2	Phenol	10u
62-53-3	Aniline	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1, 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2, 4-Dinitrotoluene	10u
606-20-2	2, 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	10u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
92-87-5	Benzidine	50u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenz(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1) Cannot be separated from diphenylamine

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

Sample Number
C9297 ORIGINAL (Red)

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	BN/A	23.5	100 J
2.				
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30.				

III 65

BLANK ANALYSIS RESULTS FOR TARGET COMPOUNDS

FRACTION	TYPE	CONC	MATRIX	SAMPLE #	SOURCE OF H_2O	CONTAMINANTS (CONCENTRATION / DETECTION) ORIGINAL
ALL	FIELD	LO	SOL	C-9268 *	NUS	Methylene Chloride (3 ug/L / 10) 1 (Red)
						Toluene (5 ug/L / 10) 1
						Phenol (150 ug/L / 500) 1
						1,2-dichlorobenzene (50 ug/L / 500) 1
						Di-N-butylphthalate (50 ug/L / 500) 1
						bis-(2-ethylhexyl) phthalate (200 ug/L / 500) 1
						Di-N-octylphthalate (200 ug/L / 500) 1
ALL		LO	Lab AQ	ERCO BLK *	ERCO	Di-N-butylphthalate (50 ug/L / 500) 1
						phenol (16 ug/L / 500) 2
						1,2-dichlorobenzene (10 ug/L / 500) 2
						phenanthrene (2.8 ug/L / 500) 2 II
						anthracene (2.8 ug/L / 500) 2 II
						fluoranthene (1.6 ug/L / 500) 2
						pyrene (3.9 ug/L / 500) 2
						benzo(a)anthracene (15.5 ug/L / 500) 2
						bis(2-ethylhexyl)phthalate (25.2 ug/L / 500) 2
						chrysene (21.2 ug/L / 500) 2
						di-N-octylphthalate (16.1 ug/L / 500) 2
						benzo(b)fluoranthene (29.1 ug/L / 500) 2
						benzo(k)fluoranthene (57.6 ug/L / 500) 2
						benzo(a) pyrene (45.2 ug/L / 500) 2
						indeno(123 cd) pyrene (3.6 ug/L / 500) 2
						benzo(ghi)perylene (7.5 ug/L / 500) 2

LABORATORY REPORTED FIELD BLANK DATA IS COMPARED WITH THE SAMPLE DATA IN A TABULATION FORM WITHIN THE SAMPLE ANALYTICAL DATA SUMMARY. TENTATIVELY IDENTIFIED COMPOUNDS IN BLANKS ARE LISTED ON A SEPARATE FOR

COMMENTS:

II - Indistinguishable Isomers

(1) RESULT REPORTED BY LABORATORY AND CONFIRMED BY REVIEWER.

(2) RESULT INFERRED FROM QUANTITATION LIST, DIAGNOSTICS, CHROMATOGRAM AND/OR SPECTRA.

* Instrument Data System used for VOA analyses only lists less than values on Quant List - does not supply areas or concentrations below CRDL. Consequently, cannot verify results within 10X CRDL since cannot ascertain if there are any VOA positive results below CRDL but above Instr. DL which would question low level sample results - However all reported VOA's in samples were questioned due to field blank results except trichloroethene in C-9266. Additionally quantitation verified by areas being written in (for positive hits) on the quant list - if correctly transcribed.

GC/MS TUNING AND MASS CALIBRATION

Bromofluorobenzene (BFB)

ORIGINAL (Red)

Case No. 3510 Contractor ERCO/A Division of ENSECO Contract No. 68-01-6581

Instrument ID HP 5981 Date 11·6·84 Time 0800

Lab ID 6252 Data Release Authorized By: MC

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	15.0 - 40.0% of the base peak	23.0
75	30.0 - 60.0% of the base peak	52.0
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of the base peak	6.3
173	Less than 1.0% of the base peak	0
174	Greater than 50.0% of the base peak	60.3
175	5.0 - 9.0% of mass 174	3.5 (5.8)[1]
176	Greater than 95.0%, but less than 101.0% of mass 174	58.8 (97.5)[1]
177	5.0 - 9.0% of mass 176	3.5 (5.9)[2]

[1]Value in parenthesis is % mass 174.
[2]Value in parenthesis is % mass 176.

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
Tune	6252	11·6·84	0800
50 ppb STD	6253	↓	0830
ERCO BLANK	36-359 B		1130
C7257	36-351		1200
C9266	36-352		1230
C9268	36-353		1300

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GC/MS TUNING AND MASS CALIBRATION

Bromofluorobenzene (BFB)

ORIGINAL (Red)

Case No. 3510 Contractor ERCO/A Division of ENSECO Contract No. 68-01-6581

Instrument ID HP 5981 Date 11·6·84 Time 1400

Lab ID 6264 Data Release Authorized By: mc

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	15.0 - 40.0% of the base peak	25.3
75	30.0 - 60.0% of the base peak	57.7
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of the base peak	6.8
173	Less than 1.0% of the base peak	0
174	Greater than 50.0% of the base peak	64.0
175	5.0 - 9.0% of mass 174	3.7 (5.8)[1]
176	Greater than 95.0%, but less than 101.0% of mass 174	61.6 (96.2)[1]
177	5.0 - 9.0% of mass 176	4.2 (6.8)[2]

[1] Value in parenthesis is % mass 174.
[2] Value in parenthesis is % mass 176.

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

* Possible chromatographic ghosting samples

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
Tune	6264	11·6·84	1400
50 ppb STD	6264		1400
C9300 *	36-354		1430
C9501 *	36-355		1500
C9587	36-356		1530
C7257	36-357 S		1600
C7257	36 358 SD		1630

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GC/MS TUNING AND MASS CALIBRATION
Decafluorotriphenylphosphine (DFTPP)

ORIGINAL

Case No. 3510 Contractor ZRCO Contract No. 68-01-6581

Instrument ID FINN Date 11·20·84 Time 0939

Lab ID 5112084 Data Release Authorized By: mc

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	52.53
68	less than 2.0% of mass 69	0 (0)[1]
69	mass 69 relative abundance	46.40
70	less than 2.0% of mass 69	0 (0)[1]
127	40.0 - 60.0% of mass 198	42.17
197	less than 1.0% of mass 198	0
198	base peak, 100% relative abundance	100.00
199	5.0 - 9.0% of mass 198	6.66
275	10.0 - 30.0% of mass 198	27.97
365	greater than 1.00% of mass 198	3.41
441	present, but less than mass 443	9.28
442	greater than 40.0% of mass 198	69.32
443	17.0 - 23.0% of mass 442	12.06 (17.4)[2]

[1] Value in parenthesis is % mass 69.
[2] Value in parenthesis is % mass 442.

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
EPA TUNE	5112084	11·20·84	0939
50 ng STD	SD112084	↓	1021
Aniline STD	SDA112084		11 12
C7257	36-351		1615
C9266	36-352		1704
C9268	36-353		1752

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GC/MS TUNING AND MASS CALIBRATION
Decafluorotriphenylphosphine (DFTPP)

Case No. 3510 Contractor ERCO Contract No. 68-01-6581

Instrument ID Finn Date 11·21·84 Time 0807

Lab ID 5112184 Data Release Authorized By: ML

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	56.27
68	less than 2.0% of mass 69	0 (0)[1]
69	mass 69 relative abundance	45.48
70	less than 2.0% of mass 69	0 (0)[1]
127	40.0 - 60.0% of mass 198	40.29
197	less than 1.0% of mass 198	0
198	base peak, 100% relative abundance	100.00
199	5.0 - 9.0% of mass 198	6.94
275	10.0 - 30.0% of mass 198	26.12
365	greater than 1.00% of mass 198	2.74
441	present, but less than mass 443	5.16
442	greater than 40.0% of mass 198	41.56
443	17.0 - 23.0% of mass 442	7.36 (17.7)[2]

[1] Value in parenthesis is % mass 69.
[2] Value in parenthesis is % mass 442.

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
EPA Tune	5112184	11·21·84	0807
SD ug STD	SD112184		0837
Aniline STD	SDA112184		1330
C9300	36-354		1414
C9501	36-355		1504
C9587	36-356		1556
C7257	36-3575	✓	1650

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GC/MS TUNING AND MASS CALIBRATION
Decafluorotriphenylphosphine (DFTPP)

Case No. 3510 Contractor ERCO Contract No. 68-01-6581

Instrument ID FINN Date 11·23·84 Time 0838

Lab ID S1123 84 Data Release Authorized By: MC

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	53.39
68	less than 2.0% of mass 69	0 (0)[1]
69	mass 69 relative abundance	47.60
70	less than 2.0% of mass 69	0 (0)[1]
127	40.0 - 60.0% of mass 198	42.45
197	less than 1.0% of mass 198	0
198	base peak, 100% relative abundance	100.00
199	5.0 - 9.0% of mass 198	6.03
275	10.0 - 30.0% of mass 198	26.62
365	greater than 1.00% of mass 198	2.93
441	present, but less than mass 443	7.69
442	greater than 40.0% of mass 198	57.19
443	17.0 - 23.0% of mass 442	9.73 (17.0)[2]

[1] Value in parenthesis is % mass 69.
[2] Value in parenthesis is % mass 442.

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
EPA Tune	S1123 84	11·23·84	0838
50ng STD	SD112384	↓	0919
Aniline STD	SDA112384		1009
ERCO BLANK	36-359B		1051
C 7257	36-358 SD		1230

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SOIL SURROGATE PERCENT RECOVERY SUMMARY

Case No. 3510 Contract Laboratory ERCO/A Division of ENSECO Contract No. 68-01-6581

Low X Medium _____

	VOLATILE			SEMI-VOLATILE								PESTICIDE
SMO TRAFFIC NO.	TOLUENE-D8 (50-160)	BFB (50-160)	1,2 DICHLORO-ETHANE-D4 (50-160)	NITRO-BENZENE-D5 (20-140)	2-FLUORO-BIPHENYL (20-140)	TERPHENYL-D14 (20-150)			PHENOL-D5 (20-140)	2-FLUORO-PHENOL (20-140)	2,4,6 TRIBROMO-PHENOL (10-140)	DIBUTYL-CHLORENDATE** (20-150)
C7257	102	92	106	102	84	42			85	89	112	108
C9266	114	80	99	116	98	50			88	90	129	102
C9300	104	96	89	90	78	54			75	73	126	92
C9501	101	83	89	114	92	48			92	103	113	106
C9587	121	74	92	90	72	36			72	76	106	138
C7257s	106	88	93	94	96	52			77	77	120	147
C7257sD	107	88	91	40	40	20			40	40	100	127

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

**ADVISORY LIMITS ONLY

Volatiles: 0 out of 21 ; outside of QC limits

Semi-Volatiles: 0 out of 42 ; outside of QC limits

Pesticides: 0 out of 7 ; outside of QC limits

Comments: NONE OUT OF CONTROL RANGES.

WATER SURROGATE PERCENT RECOVERY SUMMARY

Case No. 3510 Contract Laboratory ERCO/A Division of ENSECO Contract No. 68-01-6581

SMO TRAFFIC NO.	VOLATILE: TOLUENE-D8 (88-110)	VOLATILE: BFB (95-121)	VOLATILE: 1,2 DICHLORO-ETHANE-D4 (77-120)	SEMI-VOLATILE: NITRO-BENZENE-D5 (41-120)	SEMI-VOLATILE: 2-FLUORO-BIPHENYL (44-119)	SEMI-VOLATILE: TERPHENYL-D14 (33-126)			SEMI-VOLATILE: PHENOL-D5 (15-103)	SEMI-VOLATILE: 2-FLUORO-PHENOL (23-121)	SEMI-VOLATILE: 2,4,6 TRIBROMO-PHENOL (10-130)	PESTICIDE: DIBUTYL-CHLORENDATE ** (48-136)
C9268	101	92	100	88	68	36			70	73	100	126
Erco Blank	100	93	108	72	62	28*			54	60	80	130

-2-

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

**ADVISORY LIMITS ONLY

Volatiles: _____ out of 6 ; outside of QC limits

Semi-Volatiles: 1 out of 12 ; outside of QC limits

Pesticides: _____ out of 2 ; outside of QC limits

Comments: None out of Control Ranges.

FORM II

4/84

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

Sample Number
C9266

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 11-3-84

Date Analyzed 1.21.85

Conc/Dil Factor: 1

	CAS Number		ug/l or ug/Kg (Circle One)
102P	319-84-6	Alpha-BHC	1u
103P	319-85-7	Beta-BHC	1u
104P	319-86-8	Delta-BHC	1u
105P	58-89-9	Gamma-BHC (Lindane)	1u
100P	76-44-8	Heptachlor	1u
89P	309-00-2	Aldrin	1u
101P	1024-57-3	Heptachlor Epoxide	1u
	959-98-8	Endosulfan I	1u
90P	60-57-1	Dieldrin	1u
93P	72-55-9	4,4'-DDE	1u
98P	72-20-8	Endrin	1u
	33213-65-9	Endosulfan II	1u
94P	72-54-8	4,4'-DDD	1u
99P	7421-93-4	Endrin Aldehyde	1u
97P	1031-07-8	Endosulfan Sulfate	1u
92P	50-29-3	4,4'-DDT	1u
	72-43-5	Methoxychlor	1u
	53494-70-5	Endrin Ketone	1u
91P	57-74-9	Chlordane	1u
113P	8001-35-2	Toxaphene	1u
112P	12674-11-2	Aroclor-1016	1u
108P	11104-28-2	Aroclor-1221	1u
109P	11141-16-5	Aroclor-1232	1u
106P	53469-21-9	Aroclor-1242	1u
110P	12672-29-6	Aroclor-1248	1u
107P	11097-69-1	Aroclor-1254	1u
111P	11096-82-5	Aroclor-1260	1u

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 ——— or W_s 22.5 V_t 1000 V_i 3.8

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

Sample Number
C9266

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.				
2.				
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30.				

NO unknowns

4/84

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

Sample Number
C9268

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ERCO/A Division of ENSECO
Case No: 3510
Lab Sample ID No: 36-353
QC Report No: 116
Sample Matrix: WATER
Contract No: 68-01-6581
Data Release Authorized By: MC
Date Sample Received: 11/1/84

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 11·6·84
Date Analyzed: 11·6·84
Conc/Dil Factor: 1 pH —
Percent Moisture: 100
Percent Moisture (Decanted): —

	CAS Number		ug/l or ug/Kg (Circle One)
45U	74-87-3	Chloromethane	10u
46U	74-83-9	Bromomethane	10u
83U	75-01-4	Vinyl Chloride	10u
16U	75-00-3	Chloroethane	10u
44U	75-09-2	Methylene Chloride	3K
	67-64-1	Acetone	25u
	75-15-0	Carbon Disulfide	10u
29U	75-35-4	1, 1-Dichloroethene	10u
13U	75-34-3	1, 1-Dichloroethane	10u
30U	156-60-5	Trans-1, 2-Dichloroethene	10u
23U	67-66-3	Chloroform	10u
10U	107-06-2	1, 2-Dichloroethane	10u
	78-93-3	2-Butanone	10u
11U	71-55-6	1, 1, 1-Trichloroethane	10u
6U	56-23-5	Carbon Tetrachloride	10u
	108-05-4	Vinyl Acetate	10u
48U	75-27-4	Bromodichloromethane	10u

	CAS Number		ug/l or ug/Kg (Circle One)
15U	79-34-5	1, 1, 2, 2-Tetrachloroethane	10u
32U	78-87-5	1, 2-Dichloropropane	10u
33U	10061-02-6	Trans-1, 3-Dichloropropene	10u
87U	79-01-6	Trichloroethene	10u
51U	124-48-1	Dibromochloromethane	10u
14U	79-00-5	1, 1, 2-Trichloroethane	10u
4U	71-43-2	Benzene	10u
	10061-01-5	cis-1, 3-Dichloropropene	10u
19U	110-75-8	2-Chloroethylvinylether	10u
47U	75-25-2	Bromoform	10u
	591-78-6	2-Hexanone	10u
	108-10-1	4-Methyl-2-Pentanone	10u
85U	127-18-4	Tetrachloroethene	10u
86U	108-88-3	Toluene	5K
7U	108-90-7	Chlorobenzene	10u
38U	100-41-4	Ethylbenzene	10u
	100-42-5	Styrene	10u
		Total Xylenes	10u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g., 10U) based on necessary concentration/dilution actions. (This is not necessarily 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 indicates 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)

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 data summary report

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

Sample Number
C 9268

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11·3·84

Date Analyzed: 11·20·84

Conc/Dil Factor: 1

	CAS Number		ug/l or ug/Kg (Circle One)
41B	62-75-9	N-Nitrosodimethylamine	500u
65A	108-95-2	Phenol	150K
	62-53-3	Aniline	500u
18B	111-44-4	bis(-2-Chloroethyl)Ether	500u
24A	95-57-8	2-Chlorophenol	500u
26B	541-73-1	1, 3-Dichlorobenzene	500u
27B	106-46-7	1, 4-Dichlorobenzene	500u
	100-51-6	Benzyl Alcohol	500u
25B	95-50-1	1, 2-Dichlorobenzene	50K
	95-48-7	2-Methylphenol	500u
42B	39638-32-9	bis(2-chloroisopropyl)Ether	500u
	106-44-5	4-Methylphenol	500u
63B	621-64-7	N-Nitroso-Di-n-Propylamine	500u
12B	67-72-1	Hexachloroethane	500u
56B	98-95-3	Nitrobenzene	500u
54B	78-59-1	Isophorone	500u
57A	88-75-5	2-Nitrophenol	500u
34A	105-67-9	2, 4-Dimethylphenol	500u
	65-85-0	Benzoic Acid	500u
43B	111-91-1	bis(-2-Chloroethoxy)Methane	500u
31A	120-83-2	2, 4-Dichlorophenol	500u
9B	120-82-1	1, 2, 4-Trichlorobenzene	500u
55B	91-20-3	Naphthalene	500u
	106-47-8	4-Chloroaniline	500u
52B	87-68-3	Hexachlorobutadiene	500u
22A	59-50-7	4-Chloro-3-Methylphenol	500u
	91-57-6	2-Methylnaphthalene	500u
53B	77-47-4	Hexachlorocyclopentadiene	500u
21A	88-06-2	2, 4, 6-Trichlorophenol	500u
	95-95-4	2, 4, 5-Trichlorophenol	500u
20B	91-58-7	2-Chloronaphthalene	500u
	88-74-4	2-Nitroaniline	500u
71B	131-11-3	Dimethyl Phthalate	500u
73B	208-96-8	Acenaphthylene	500u
	99-09-2	3-Nitroaniline	500u

	CAS Number		ug/l or ug/Kg (Circle One)
1B	83-32-9	Acenaphthene	500u
59A	51-28-5	2, 4-Dinitrophenol	500u
58A	100-02-7	4-Nitrophenol	500u
	132-64-9	Dibenzofuran	500u
35B	121-14-2	2, 4-Dinitrotoluene	500u
36B	606-20-2	2, 6-Dinitrotoluene	500u
70B	84-66-2	Diethylphthalate	500u
40B	7005-72-3	4-Chlorophenyl-phenylether	500u
30B	86-73-7	Fluorene	500u
	100-01-6	4-Nitroaniline	500u
60A	534-52-1	4, 6-Dinitro-2-Methylphenol	500u
62B	86-30-6	N-Nitrosodiphenylamine (1)	500u
41B	101-55-3	4-Bromophenyl-phenylether	500u
9B	118-74-1	Hexachlorobenzene	500u
64A	87-86-5	Pentachlorophenol	500u
81B	85-01-8	Phenanthrene	500u
77B	120-12-7	Anthracene	500u
68B	84-74-2	Di-n-Butylphthalate	50K
79B	206-44-0	Fluoranthene	500u
5B	92-87-5	Benzidine	500u
84B	129-00-0	Pyrene	500u
67B	85-68-7	Butylbenzylphthalate	500u
29B	91-94-1	3, 3'-Dichlorobenzidine	500u
72B	56-55-3	Benzo(a)Anthracene	500u
66B	117-81-7	bis(2-Ethylhexyl)Phthalate	200K
74B	218-01-9	Chrysene	500u
69B	117-84-0	Di-n-Octyl Phthalate	200K
34B	205-99-2	Benzo(b)Fluoranthene	500u
35B	207-08-9	Benzo(k)Fluoranthene	500u
75B	50-32-8	Benzo(a)Pyrene	500u
33B	193-39-5	Indeno(1, 2, 3-cd)Pyrene	500u
82B	53-70-3	Dibenz(a, h)Anthracene	500u
83B	191-24-2	Benzo(g, h, i)Perylene	500u

rated from diphenylamine

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

Sample Number
C9268

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11·3·84

Date Analyzed: 1·21·85

Conc/Dil Factor: 1

	CAS Number		ug/l or ug/Kg (Circle One)
102P	319-84-6	Alpha-BHC	1u
103P	319-85-7	Beta-BHC	1u
104P	319-86-8	Delta-BHC	1u
105P	58-89-9	Gamma-BHC (Lindane)	1u
100P	76-44-8	Heptachlor	1u
89P	309-00-2	Aldrin	1u
101P	1024-57-3	Heptachlor Epoxide	1u
	959-98-8	Endosulfan I	1u
90P	60-57-1	Dieldrin	1u
93P	72-55-9	4, 4'-DDE	1u
98P	72-20-8	Endrin	1u
	33213-65-9	Endosulfan II	1u
94P	72-54-8	4, 4'-DDD	1u
99P	7421-93-4	Endrin Aldehyde	1u
97P	1031-07-8	Endosulfan Sulfate	1u
92P	50-29-3	4, 4'-DDT	1u
	72-43-5	Methoxychlor	1u
	53494-70-5	Endrin Ketone	1u
91P	57-74-9	Chlordane	1u
113P	8001-35-2	Toxaphene	1u
112P	12674-11-2	Aroclor-1016	1u
108P	11104-28-2	Aroclor-1221	1u
109P	11141-16-5	Aroclor-1232	1u
106P	53469-21-9	Aroclor-1242	1u
110P	12672-29-6	Aroclor-1248	1u
107P	11097-69-1	Aroclor-1254	1u
111P	11096-82-5	Aroclor-1260	1u

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 20 or W_s ——— V_t 1000 V_i 3.8

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

Sample Number
C9268

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.				
2.				
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30.				

NO UNKNOWNS

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

Sample Number
C9300

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ERCO/A Division of ENSECO
Case No: 3510
Lab Sample ID No: 36-354
QC Report No: 116
Sample Matrix: SOIL
Contract No: 68-01-6581
Data Release Authorized By: MC
Date Sample Received: 11/1/84

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 11.6.84
Date Analyzed: 11.6.84
Conc/Dil Factor: 1 pH 7
Percent Moisture: 23
Percent Moisture (Decanted): —

	CAS Number		ug/l or ug/Kg (Circle One)
45U	74-87-3	Chloromethane	16u
96U	74-83-9	Bromomethane	16u
88U	75-01-4	Vinyl Chloride	16u
16U	75-00-3	Chloroethane	16u
44U	75-09-2	Methylene Chloride	16u
	67-64-1	Acetone	25u
	75-15-0	Carbon Disulfide	16u
29U	75-35-4	1, 1-Dichloroethene	16u
13U	75-34-3	1, 1-Dichloroethane	16u
20U	156-60-5	Trans-1, 2-Dichloroethene	16u
23U	67-66-3	Chloroform	16u
10U	107-06-2	1, 2-Dichloroethane	16u
	78-93-3	2-Butanone	16u
11U	71-55-6	1, 1, 1-Trichloroethane	16u
6U	56-23-5	Carbon Tetrachloride	16u
	108-05-4	Vinyl Acetate	16u
48U	75-27-4	Bromodichloromethane	16u

	CAS Number		ug/l or ug/Kg (Circle One)
15U	79-34-5	1, 1, 2, 2-Tetrachloroethane	16u
32U	78-87-5	1, 2-Dichloropropane	16u
33U	10061-02-6	Trans-1, 3-Dichloropropene	16u
87U	79-01-6	Trichloroethene	16u
51U	124-48-1	Dibromochloromethane	16u
14U	79-00-5	1, 1, 2-Trichloroethane	16u
4U	71-43-2	Benzene	16u
	10061-01-5	cis-1, 3-Dichloropropene	16u
19U	110-75-8	2-Chloroethylvinylether	16u
47U	75-25-2	Bromoform	16u
	591-78-6	2-Hexanone	16u
	108-10-1	4-Methyl-2-Pentanone	16u
85U	127-18-4	Tetrachloroethene	16u
86U	108-88-3	Toluene	16u
7U	108-90-7	Chlorobenzene	16u
38U	100-41-4	Ethylbenzene	16u
	100-42-5	Styrene	16u
		Total Xylenes	16u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g., 10U) based on necessary concentration/dilution actions. (This is not necessarily 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 indicates 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).

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 data summary report.

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

Sample Number
C 9300

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11·3·84

Date Analyzed: 11·20·84

Conc/Dil Factor: 1

	CAS Number		ug/l or ug/Kg (Circle One)
61B	62-75-9	N-Nitrosodimethylamine	480u
65A	108-95-2	Phenol	140K
	62-53-3	Aniline	480u
18B	111-44-4	bis(-2-Chloroethyl)Ether	480u
24A	95-57-8	2-Chlorophenol	480u
26B	541-73-1	1, 3-Dichlorobenzene	480u
23B	106-46-7	1, 4-Dichlorobenzene	480u
	100-51-6	Benzyl Alcohol	480u
25B	95-50-1	1, 2-Dichlorobenzene	50K
	95-48-7	2-Methylphenol	480u
42B	39638-32-9	bis(2-chloroisopropyl)Ether	480u
	106-44-5	4-Methylphenol	480u
63B	621-64-7	N-Nitroso-Di-n-Propylamine	480u
12B	67-72-1	Hexachloroethane	480u
56B	98-95-3	Nitrobenzene	480u
54B	78-59-1	Isophorone	480u
57A	88-75-5	2-Nitrophenol	480u
34A	105-67-9	2, 4-Dimethylphenol	480u
	65-85-0	Benzoic Acid	480u
43B	111-91-1	bis(-2-Chloroethoxy)Methane	480u
31A	120-83-2	2, 4-Dichlorophenol	480u
8B	120-82-1	1, 2, 4-Trichlorobenzene	480u
65B	91-20-3	Naphthalene	480u
	106-47-8	4-Chloroaniline	480u
52B	87-68-3	Hexachlorobutadiene	480u
22A	59-50-7	4-Chloro-3-Methylphenol	480u
	91-57-6	2-Methylnaphthalene	480u
53B	77-47-4	Hexachlorocyclopentadiene	480u
21A	88-06-2	2, 4, 6-Trichlorophenol	480u
	95-95-4	2, 4, 5-Trichlorophenol	480u
20B	91-58-7	2-Chloronaphthalene	480u
	88-74-4	2-Nitroaniline	480u
71B	131-11-3	Dimethyl Phthalate	480u
73B	208-96-8	Acenaphthylene	480u
	99-09-2	3-Nitroaniline	480u

	CAS Number		ug/l or ug/Kg (Circle One)
1B	83-32-9	Acenaphthene	480u
59A	51-28-5	2, 4-Dinitrophenol	480u
58A	100-02-7	4-Nitrophenol	480u
	132-64-9	Dibenzofuran	480u
35B	121-14-2	2, 4-Dinitrotoluene	480u
36B	606-20-2	2, 6-Dinitrotoluene	480u
70B	84-66-2	Diethylphthalate	480u
40B	7005-72-3	4-Chlorophenyl-phenylether	480u
90B	86-73-7	Fluorene	480u
	100-01-6	4-Nitroaniline	480u
60A	534-52-1	4, 6-Dinitro-2-Methylphenol	480u
62B	86-30-6	N-Nitrosodiphenylamine (1)	480u
41B	101-55-3	4-Bromophenyl-phenylether	480u
9B	118-74-1	Hexachlorobenzene	480u
64A	87-86-5	Pentachlorophenol	480u
81B	85-01-8	Phenanthrene	480u
78B	120-12-7	Anthracene	480u
68B	84-74-2	Di-n-Butylphthalate	100K
91B	206-44-0	Fluoranthene	50K
5B	92-87-5	Benzidine	480u
94B	129-00-0	Pyrene	50K
67B	85-68-7	Butylbenzylphthalate	480u
28B	91-94-1	3, 3'-Dichlorobenzidine	480u
72B	56-55-3	Benzo(a)Anthracene	480u
66B	117-81-7	bis(2-Ethylhexyl)Phthalate	1100
74B	218-01-9	Chrysene	480u
69B	117-84-0	Di-n-Octyl Phthalate	1100
39B	205-99-2	Benzo(b)Fluoranthene	50K
38B	207-08-9	Benzo(k)Fluoranthene	coelutes
75B	50-32-8	Benzo(a)Pyrene	50K
33B	193-39-5	Indeno(1, 2, 3-cd)Pyrene	480u
82B	53-70-3	Dibenz(a, h)Anthracene	480u
79B	191-24-2	Benzo(g, h, i)Perylene	480u

ited from diphenylamine

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

Sample Number
C9300

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11·3·84

Date Analyzed: 1·21·85

Conc/Dil Factor: 1

	CAS Number		ug/l or ug/Kg (Circle One)
102P	319-84-6	Alpha-BHC	1u
103P	319-85-7	Beta-BHC	1u
104P	319-86-8	Delta-BHC	1u
105P	58-89-9	Gamma-BHC (Lindane)	1u
100P	76-44-8	Heptachlor	1u
89P	309-00-2	Aldrin	1u
101P	1024-57-3	Heptachlor Epoxide	1u
	959-98-8	Endosulfan I	1u
90P	60-57-1	Dieldrin	1u
93P	72-55-9	4,4'-DDE	1u
98P	72-20-8	Endrin	1u
	33213-65-9	Endosulfan II	1u
94P	72-54-8	4,4'-DDD	1u
99P	7421-93-4	Endrin Aldehyde	1u
97P	1031-07-8	Endosulfan Sulfate	1u
92P	50-29-3	4,4'-DDT	1u
	72-43-5	Methoxychlor	1u
	53494-70-5	Endrin Ketone	1u
91P	57-74-9	Chlordane	1u
113P	8001-35-2	Toxaphene	1u
112P	12674-11-2	Aroclor-1016	1u
108P	11104-28-2	Aroclor-1221	1u
109P	11141-16-5	Aroclor-1232	1u
106P	53469-21-9	Aroclor-1242	1u
110P	12672-29-6	Aroclor-1248	1u
107P	11097-69-1	Aroclor-1254	1u
111P	11096-82-5	Aroclor-1260	1u

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 ——— or W_s 20.9 V_t 1000 V_i 3.8

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

Sample Number
C9300

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. 606-12-2	Methanone, (2 Hydroxy Phenyl)(4-	A-B/N	1151	920
2.	Hydroxy Phenyl) -			
3. 835-11-0	Methanone, Bis (2-Hydroxyphenyl)-	A-B/N	1225	320
4. 57-10-3	Hexadecanoic Acid	A-B/N	1289	1100
5. 10544-50-0	Sulfur, Mol. (S8)	A-B/N	1342	250
6. →	unknown	A-B/N	1409	1800
7. →	Phthalate	A-B/N	1670	300
8. →	Phthalate	A-B/N	1762	360
9. →	Phthalate	A-B/N	1807	6550
10. →	Phthalate	A-B/N	1940	320
11.				
12. →	Hexane	VOA	18.7	5
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Environmental Protection Agency, CLP Sample Management Office,
P.O. Box 818, Alexandria, Virginia 22313 703/557-2490

Sample Number
C9501

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ERCO/A Division of ENSECO
Lab Sample ID No: 36-255
Sample Matrix: SOIL
Data Release Authorized By: MC

Case No: 3510
QC Report No: 116
Contract No: 68-01-6581
Date Sample Received: 11/1/84

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 11.6.84
Date Analyzed: 11.6.84
Conc/Dil Factor: 1 pH 7
Percent Moisture: 8
Percent Moisture (Decanted): –

	CAS Number		ug/l or ug/Kg (Circle One)
45U	74-87-3	Chloromethane	15u
36U	74-83-9	Bromomethane	15u
88U	75-01-4	Vinyl Chloride	15u
16U	75-00-3	Chloroethane	15u
44U	75-09-2	Methylene Chloride	15u
	67-64-1	Acetone	25u
	75-15-0	Carbon Disulfide	15u
29U	75-35-4	1, 1-Dichloroethene	15u
13U	75-34-3	1, 1-Dichloroethane	15u
20U	156-60-5	Trans-1, 2-Dichloroethene	15u
23U	67-66-3	Chloroform	15u
10U	107-06-2	1, 2-Dichloroethane	15u
	78-93-3	2-Butanone	15u
11U	71-55-6	1, 1, 1-Trichloroethane	15u
6U	56-23-5	Carbon Tetrachloride	15u
	108-05-4	Vinyl Acetate	15u
48U	75-27-4	Bromodichloromethane	15u

	CAS Number		ug/l or ug/Kg (Circle One)
15U	79-34-5	1, 1, 2, 2-Tetrachloroethane	15u
32U	78-87-5	1, 2-Dichloropropane	15u
33U	10061-02-6	Trans-1, 3-Dichloropropene	15u
87U	79-01-6	Trichloroethene	15u
51U	124-48-1	Dibromochloromethane	15u
14U	79-00-5	1, 1, 2-Trichloroethane	15u
4U	71-43-2	Benzene	15u
	10061-01-5	cis-1, 3-Dichloropropene	15u
19U	110-75-8	2-Chloroethylvinylether	15u
47U	75-25-2	Bromoform	15u
	591-78-6	2-Hexanone	15u
	108-10-1	4-Methyl-2-Pentanone	15u
85U	127-18-4	Tetrachloroethene	15u
86U	108-88-3	Toluene	15u
7U	108-90-7	Chlorobenzene	15u
35U	100-41-4	Ethylbenzene	15u
	100-42-5	Styrene	15u
		Total Xylenes	15u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g., 10U) based on necessary concentration/dilution actions. (This is not necessarily 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 indicates 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).

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 data summary report.

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

Sample Number
C9501

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11·3·84

Date Analyzed: 11·21·84

Conc/Dil Factor: 1

	CAS Number		ug/l or ug/Kg (Circle One)
41B	62-75-9	N-Nitrosodimethylamine	480u
65A	108-95-2	Phenol	480u
	62-53-3	Aniline	480u
18B	111-44-4	bis(-2-Chloroethyl)Ether	480u
24A	95-57-8	2-Chlorophenol	480u
26B	541-73-1	1, 3-Dichlorobenzene	480u
23B	106-46-7	1, 4-Dichlorobenzene	480u
	100-51-6	Benzyl Alcohol	480u
25B	95-50-1	1, 2-Dichlorobenzene	480u
	95-48-7	2-Methylphenol	480u
42B	39638-32-9	bis(2-chloroisopropyl)Ether	480u
	106-44-5	4-Methylphenol	480u
63B	621-64-7	N-Nitroso-Di-n-Propylamine	480u
12B	67-72-1	Hexachloroethane	480u
56B	98-95-3	Nitrobenzene	480u
54B	78-59-1	Isophorone	480u
57A	88-75-5	2-Nitrophenol	480u
34A	105-67-9	2, 4-Dimethylphenol	480u
	65-85-0	Benzoic Acid	480u
43B	111-91-1	bis(-2-Chloroethoxy)Methane	480u
31A	120-83-2	2, 4-Dichlorophenol	480u
9B	120-82-1	1, 2, 4-Trichlorobenzene	480u
55B	91-20-3	Naphthalene	480u
	106-47-8	4-Chloroaniline	480u
52B	87-68-3	Hexachlorobutadiene	480u
22A	59-50-7	4-Chloro-3-Methylphenol	480u
	91-57-6	2-Methylnaphthalene	480u
53B	77-47-4	Hexachlorocyclopentadiene	480u
21A	88-06-2	2, 4, 6-Trichlorophenol	480u
	95-95-4	2, 4, 5-Trichlorophenol	480u
20B	91-58-7	2-Chloronaphthalene	480u
	88-74-4	2-Nitroaniline	480u
71B	131-11-3	Dimethyl Phthalate	480u
73B	208-96-8	Acenaphthylene	480u
	99-09-2	3-Nitroaniline	480u

	CAS Number		ug/l or ug/Kg (Circle One)
1B	83-32-9	Acenaphthene	480u
59A	51-28-5	2, 4-Dinitrophenol	480u
58A	100-02-7	4-Nitrophenol	480u
	132-64-9	Dibenzofuran	480u
35B	121-14-2	2, 4-Dinitrotoluene	480u
36B	606-20-2	2, 6-Dinitrotoluene	480u
70B	84-66-2	Diethylphthalate	480u
40B	7005-72-3	4-Chlorophenyl-phenylether	480u
30B	86-73-7	Fluorene	480u
	100-01-6	4-Nitroaniline	480u
60A	534-52-1	4, 6-Dinitro-2-Methylphenol	480u
62B	86-30-6	N-Nitrosodiphenylamine (1)	480u
41B	101-55-3	4-Bromophenyl-phenylether	480u
9B	118-74-1	Hexachlorobenzene	480u
64A	87-86-5	Pentachlorophenol	480u
81B	85-01-8	Phenanthrene	480u
78B	120-12-7	Anthracene	480u
68B	84-74-2	Di-n-Butylphthalate	480u
91B	206-44-0	Fluoranthene	480u
5B	92-87-5	Benzidine	480u
94B	129-00-0	Pyrene	480u
69B	85-68-7	Butylbenzylphthalate	480u
29B	91-94-1	3, 3'-Dichlorobenzidine	480u
72B	56-55-3	Benzo(a)Anthracene	480u
66B	117-81-7	bis(2-Ethylhexyl)Phthalate	50K
76B	218-01-9	Chrysene	480u
67B	117-84-0	Di-n-Octyl Phthalate	100K
74B	205-99-2	Benzo(b)Fluoranthene	480u
75B	207-08-9	Benzo(k)Fluoranthene	480u
77B	50-32-8	Benzo(a)Pyrene	480u
82B	193-39-5	Indeno(1, 2, 3-cd)Pyrene	480u
83B	53-70-3	Dibenz(a, h)Anthracene	480u
79B	191-24-2	Benzo(g, h, i)Perylene	480u

ated from diphenylamine

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Sample Number
C9501

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-3-84

Date Analyzed: 1-21-85

Conc/Dil Factor: 1

	CAS Number		ug/l or ug/Kg (Circle One)
102P	319-84-6	Alpha-BHC	1u
103P	319-85-7	Beta-BHC	1u
104P	319-86-8	Delta-BHC	1u
105P	58-89-9	Gamma-BHC (Lindane)	1u
100P	76-44-8	Heptachlor	1u
89P	309-00-2	Aldrin	1u
101P	1024-57-3	Heptachlor Epoxide	1u
	959-98-8	Endosulfan I	1u
90P	60-57-1	Dieldrin	1u
93P	72-55-9	4,4'-DDE	1u
98P	72-20-8	Endrin	1u
	33213-65-9	Endosulfan II	1u
94P	72-54-8	4,4'-DDD	1u
99P	7421-93-4	Endrin Aldehyde	1u
97P	1031-07-8	Endosulfan Sulfate	1u
92P	50-29-3	4,4'-DDT	1u
	72-43-5	Methoxychlor	1u
	53494-70-5	Endrin Ketone	1u
91P	57-74-9	Chlordane	1u
113P	8001-35-2	Toxaphene	1u
112P	12674-11-2	Aroclor-1016	1u
108P	11104-28-2	Aroclor-1221	1u
109P	11141-16-5	Aroclor-1232	1u
106P	53469-21-9	Aroclor-1242	1u
110P	12672-29-6	Aroclor-1248	1u
107P	11097-69-1	Aroclor-1254	1u
111P	11096-82-5	Aroclor-1260	1u

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 ——— or W_s 21.4 V_t 1000 V_i 3.8

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Sample Number
C9501

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 hydrocarbon	A-B/N	1108	220
2. →	UNKNOWN hydrocarbon	A-B/N	1120	680
3. →	UNKNOWN hydrocarbon	A-B/N	1215	200
4. →	UNKNOWN hydrocarbon	A-B/N	1272	230
5. →	UNKNOWN hydrocarbon	A-B/N	1294	360
6.				
7. →	Hexane	VOA	18.7	2
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Environmental Protection Agency, CLP Sample Management Office,
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Sample Number
C9587

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ERCO/A Division of ENSECO
Case No: 3510
Lab Sample ID No: 36-356
QC Report No: 116
Sample Matrix: SOIL
Contract No: 68-01-6581
Data Release Authorized By: MC
Date Sample Received: 11/1/84

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 11.6.84
Date Analyzed: 11.6.84
Conc/Dil Factor: 1 pH 7
Percent Moisture: 17
Percent Moisture (Decanted): —

	CAS Number		ug/l or ug/Kg (Circle One)
45U	74-87-3	Chloromethane	16u
96U	74-83-9	Bromomethane	16u
88U	75-01-4	Vinyl Chloride	16u
16U	75-00-3	Chloroethane	16u
44U	75-09-2	Methylene Chloride	16u
	67-64-1	Acetone	25u
	75-15-0	Carbon Disulfide	16u
29U	75-35-4	1, 1-Dichloroethene	16u
13U	75-34-3	1, 1-Dichloroethane	16u
20U	156-60-5	Trans-1, 2-Dichloroethene	16u
23U	67-66-3	Chloroform	16u
10U	107-06-2	1, 2-Dichloroethane	16u
	78-93-3	2-Butanone	16u
11U	71-55-6	1, 1, 1-Trichloroethane	16u
6U	56-23-5	Carbon Tetrachloride	16u
	108-05-4	Vinyl Acetate	16u
48U	75-27-4	Bromodichloromethane	16u

	CAS Number		ug/l or ug/Kg (Circle One)
15U	79-34-5	1, 1, 2, 2-Tetrachloroethane	16u
32U	78-87-5	1, 2-Dichloropropane	16u
33U	10061-02-6	Trans-1, 3-Dichloropropene	16u
87U	79-01-6	Trichloroethene	16u
51U	124-48-1	Dibromochloromethane	16u
14U	79-00-5	1, 1, 2-Trichloroethane	16u
4U	71-43-2	Benzene	16u
	10061-01-5	cis-1, 3-Dichloropropene	16u
19U	110-75-8	2-Chloroethylvinylether	16u
47U	75-25-2	Bromoform	16u
	591-78-6	2-Hexanone	16u
	108-10-1	4-Methyl-2-Pentanone	16u
85U	127-18-4	Tetrachloroethene	16u
86U	108-88-3	Toluene	6 K
7U	108-90-7	Chlorobenzene	16u
38U	100-41-4	Ethylbenzene	16u
	100-42-5	Styrene	16u
		Total Xylenes	16u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g., 10U) based on necessary concentration/dilution actions. (This is not necessarily 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 indicates 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).

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 data summary report.

Environmental Protection Agency. CLP Sample Management Office,
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Sample Number
C9587

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11·3·84

Date Analyzed: 11·21·84

Conc/Dil Factor: 1

	CAS Number		ug/l or ug/Kg (Circle One)
61B	62-75-9	N-Nitrosodimethylamine	470u
65A	108-95-2	Phenol	470u
	62-53-3	Aniline	470u
78B	111-44-4	bis(-2-Chloroethyl)Ether	470u
24A	95-57-8	2-Chlorophenol	470u
26B	541-73-1	1, 3-Dichlorobenzene	470u
27B	106-46-7	1, 4-Dichlorobenzene	470u
	100-51-6	Benzyl Alcohol	470u
25B	95-50-1	1, 2-Dichlorobenzene	470u
	95-48-7	2-Methylphenol	470u
42B	39638-32-9	bis(2-chloroisopropyl)Ether	470u
	106-44-5	4-Methylphenol	470u
63B	621-64-7	N-Nitroso-Di-n-Propylamine	470u
12B	67-72-1	Hexachloroethane	470u
56B	98-95-3	Nitrobenzene	470u
1B	78-59-1	Isophorone	470u
37A	88-75-5	2-Nitrophenol	470u
34A	105-67-9	2, 4-Dimethylphenol	470u
	65-85-0	Benzoic Acid	470u
43B	111-91-1	bis(-2-Chloroethoxy)Methane	470u
31A	120-83-2	2, 4-Dichlorophenol	470u
9B	120-82-1	1, 2, 4-Trichlorobenzene	470u
55B	91-20-3	Naphthalene	470u
	106-47-8	4-Chloroaniline	470u
52B	87-68-3	Hexachlorobutadiene	470u
33A	59-50-7	4-Chloro-3-Methylphenol	470u
	91-57-6	2-Methylnaphthalene	470u
53B	77-47-4	Hexachlorocyclopentadiene	470u
21A	88-06-2	2, 4, 6-Trichlorophenol	470u
	95-95-4	2, 4, 5-Trichlorophenol	470u
70B	91-58-7	2-Chloronaphthalene	470u
	88-74-4	2-Nitroaniline	470u
71B	131-11-3	Dimethyl Phthalate	470u
73B	208-96-8	Acenaphthylene	470u
	99-09-2	3-Nitroaniline	470u

	CAS Number		ug/l or ug/Kg (Circle One)
1B	83-32-9	Acenaphthene	470u
59A	51-28-5	2, 4-Dinitrophenol	470u
58A	100-02-7	4-Nitrophenol	470u
	132-64-9	Dibenzofuran	470u
35B	121-14-2	2, 4-Dinitrotoluene	470u
36B	606-20-2	2, 6-Dinitrotoluene	470u
70B	84-66-2	Diethylphthalate	470u
40B	7005-72-3	4-Chlorophenyl-phenylether	470u
30B	86-73-7	Fluorene	470u
	100-01-6	4-Nitroaniline	470u
60A	534-52-1	4, 6-Dinitro-2-Methylphenol	470u
62B	86-30-6	N-Nitrosodiphenylamine (1)	470u
41B	101-55-3	4-Bromophenyl-phenylether	470u
9B	118-74-1	Hexachlorobenzene	470u
64A	87-86-5	Pentachlorophenol	470u
81B	85-01-8	Phenanthrene	470u
77B	120-12-7	Anthracene	470u
68B	84-74-2	Di-n-Butylphthalate	50K
79B	206-44-0	Fluoranthene	470u
5B	92-87-5	Benzidine	470u
74B	129-00-0	Pyrene	470u
67B	85-68-7	Butylbenzylphthalate	470u
28B	91-94-1	3, 3'-Dichlorobenzidine	470u
72B	56-55-3	Benzo(a)Anthracene	470u
66B	117-81-7	bis(2-Ethylhexyl)Phthalate	100K
76B	218-01-9	Chrysene	470u
69B	117-84-0	Di-n-Octyl Phthalate	100K
75B	205-99-2	Benzo(b)Fluoranthene	470u
75B	207-08-9	Benzo(k)Fluoranthene	470u
75B	50-32-8	Benzo(a)Pyrene	470u
82B	193-39-5	Indeno(1, 2, 3-cd)Pyrene	470u
81B	53-70-3	Dibenz(a, h)Anthracene	470u
83B	191-24-2	Benzo(g, h, i)Perylene	470u

ted from diphenylamine

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P. O Box 818, Alexandria, Virginia 22313 703/557-2490

Sample Number
C9587

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 11-3-84

Date Analyzed 1-21-85

Conc/Dil Factor: 1

	CAS Number		ug/l or ug/Kg (Circle One)
102P	319-84-6	Alpha-BHC	1u
103P	319-85-7	Beta-BHC	1u
104P	319-86-8	Delta-BHC	1u
105P	58-89-9	Gamma-BHC (Lindane)	1u
100P	76-44-8	Heptachlor	1u
89P	309-00-2	Aldrin	1u
101P	1024-57-3	Heptachlor Epoxide	1u
	959-98-8	Endosulfan I	1u
90P	60-57-1	Dieldrin	1u
93P	72-55-9	4, 4'-DDE	1u
98P	72-20-8	Endrin	1u
	33213-65-9	Endosulfan II	1u
94P	72-54-8	4, 4'-DDD	1u
99P	7421-93-4	Endrin Aldehyde	1u
97P	1031-07-8	Endosulfan Sulfate	1u
92P	50-29-3	4, 4'-DDT	1u
	72-43-5	Methoxychlor	1u
	53494-70-5	Endrin Ketone	1u
91P	57-74-9	Chlordane	1u
113P	8001-35-2	Toxaphene	1u
112P	12674-11-2	Aroclor-1016	1u
108P	11104-28-2	Aroclor-1221	1u
109P	11141-16-5	Aroclor-1232	1u
106P	53469-21-9	Aroclor-1242	1u
110P	12672-29-6	Aroclor-1248	1u
107P	11097-69-1	Aroclor-1254	1u
111P	11096-82-5	Aroclor-1260	1u

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 ——— or W_s 21.5 V_t 1000 V_i 3.8

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Sample Number
C9587

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. →	HexANe	UOA	18.7	2 J
2. →	HexANe	UOA	23.6	
3.				
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APPENDIX E

regional ground water system.

2. Creates wells which can be used for gasoline recovery in the event that significant volumes of free gasoline have entered the regional ground water flow system.

3. Enables the static head and ground water flow direction of the regional ground water system to be determined thereby establishing risks to the environment as a result of potential downgradient migration of gasoline within the regional ground water system.

Well 1

Well 1 is located approximately 120 feet west of the spill site as illustrated in Figure 1. Figure 2 is a schematic drawing of this well which illustrates details of construction and subsurface geologic materials encountered during the drilling process. Shallow subsurface contamination was present in the form of decayed gasoline odors at depths of less than 15 feet; however, the subject spill is not the likely source of this gasoline. The probable source is minor losses from the surface pipelines and pumping station located 80 feet south of Well 1 which Gulf reports have leaked minor volumes of gasoline in the past. Only minor amounts of bedrock (less than 3 feet thick) were encountered until 100 feet, at which depth sufficient rock was encountered to set casing. The static water level on January 10, subsequent to grouting, was 8.50 feet - approximately 6 feet lower than the surface of the shallow ground water system within the alluvial gravel as evidenced by the static water level in adjacent TP-6b. The static water level of 8.50 feet represents the static head of the deeper regional ground water system, providing clear evidence of two distinctly separate ground water flow systems.

Well 2

Well 2 is located approximately 180 feet northeast of the spill site as illustrated in Figure 1. Details of its construction are illustrated in Figure 3. Bedrock was encountered at 37 feet, thus suggesting less intense subsurface weathering and dissolution as evidenced by the reduced thickness of residual limestone mud encountered in Well 2. At 18 feet gasoline odor was present; however, it was not present while drilling through the shallow alluvial material which suggests that the deeper regional ground water system is contaminated. The static water level in this well on January 10 was 11.13 feet. To REWAI's knowledge this well has not been grouted to date.

Well 3

Well 3 is located 190 feet east of the spill site as shown on Figure 1. Details of its construction are illustrated in Figure 4. Bedrock was encountered at 37 feet and gas odors were not present throughout drilling. Absence of gas odors in this well suggest that the flow direction of the regional ground water table is generally from the spill site toward Well 2, down the topographic gradient. No measurement of the static water level in this well was made due to suspension of project work.

A very important fact concerning Wells 1,2 and 3 is related to their details of construction. As stated, adequate grouting and sealing of the wells was a necessity; therefore, solid casing (not slotted) has been installed at the top of the three wells. This solid casing (Wells 1, 2 and 3) and grout (Well 1) will not allow free gasoline floating on the regional ground water table to enter the wells until the water level in the wells is pumped down to below the grout

seal and/or solid casing. None of the wells, to the knowledge of REWAI, have been pumped and, therefore, it is erroneous to assume that gasoline is not present on top of the regional ground water table due to its absence from "observation" Wells 1, 2 and 3.

The most significant data acquired to date by drilling the aforementioned observation wells is:

1. Gasoline odors in Well 2 were not encountered until 18 feet, after the drill bit had fully penetrated the overlying alluvial material. As stated, this suggests that the deep regional ground water system in the vicinity of Well 2 is contaminated.

2. No gas odors were encountered in Well 3, thus indicating that the flow direction of the regional ground water system is probably toward the north-northeast.

ENVIRONMENTAL IMPACT ASSESSMENT

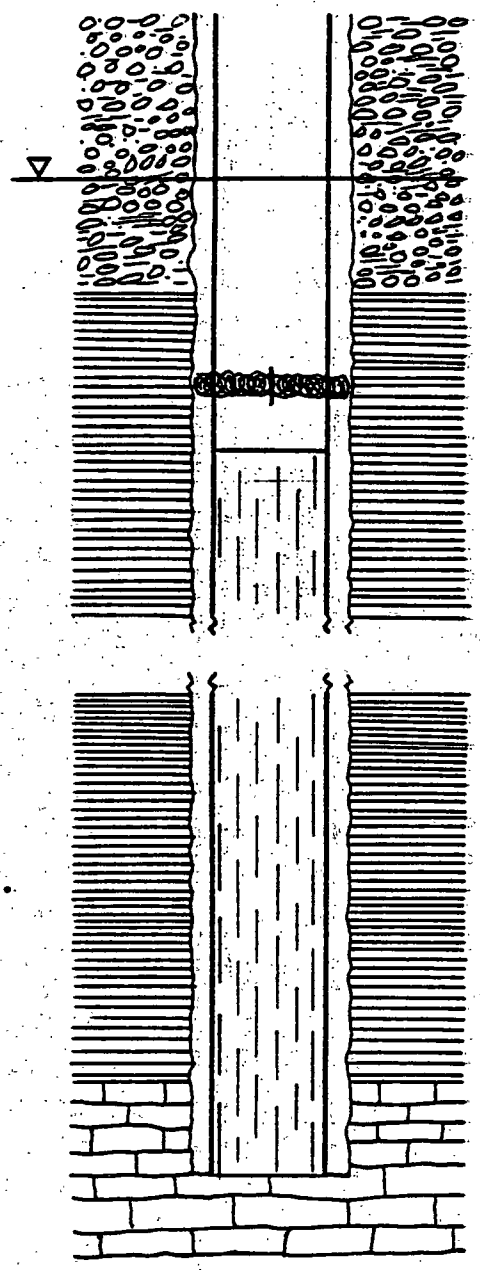
On 1/10/79 prior to surveying the well elevations or pumping any of the observation wells, as intended, REWAI's involvement with the subject gasoline spill was suspended by Gulf Oil. In our final discussion of 1/10/79 concerning the project with Mr. Noel, Terminal Manager, it was strongly recommended that grouting of Wells 2 and 3 be completed and that minimum 24-hour pumping - sampling tests of Wells 1,2, and 3 be performed. However, Mr. Noel stated that Gulf Oil and REWAI had performed a sufficient work effort toward recovering free gasoline and protecting the hydrologic environment with little tangible (2500 gallons recovered) results and that no additional work was justifiable. Therefore, to the knowledge of REWAI, no additional work has been performed subsequent to this date (1/10/79).

Figure 2

Well 1 Construction

8" hole to 105'
Slotted 6" casing from 22' 5" to 105'
Solid casing from surface to 22' 5"
Grouted from 22' 5" to surface with approximately 7 cubic yards of cement.
Grout composition: 3 to 1 mixture of cement and sand +3% calcium chloride.

Decayed gasoline odor at < 15', present throughout drilling.
Blown yield: 30-50 gpm.
Static water level: 8'6", 1/10/78.



Geologic Log

0-14' Alluvial deposits

14-100' Residual limestone clay

Minor thicknesses (<3') of limestone bedrock encountered at: 56', 59', 70', 84', 90'

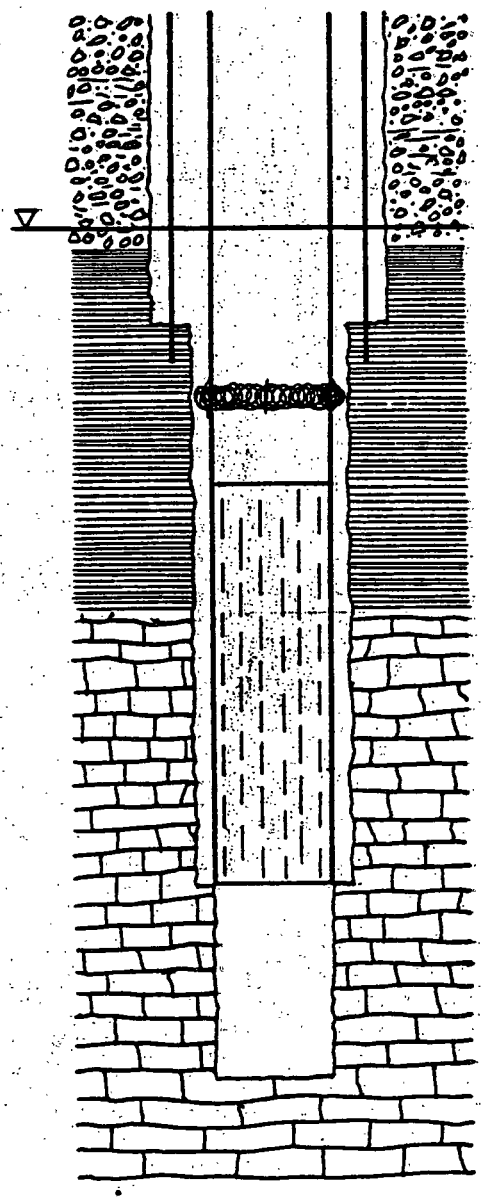
100-105' Gray limestone

Vertical Scale: 1 inch = 10 feet
Horizontal Scale: 1 inch = 10 inches

Well 2 Construction

12" hole to 16'
10" starter pipe from 18' to surface
8" hole to 45'
Slotted 6" casing from 45' to 24' 9"
Solid 6" casing from 24' 9" to surface
6" hole to 55'
Well not grouted.

Blown Yield: 40+ gpm
Static Water Level: 11' 1 1/2", 1/10/78
Gas odor present below 18'
No gas odor from 0-18'
No free gasoline present



Geologic Log

0-12' Alluvial

12-31' Residual limestone clay

31-55' Limestone bedrock

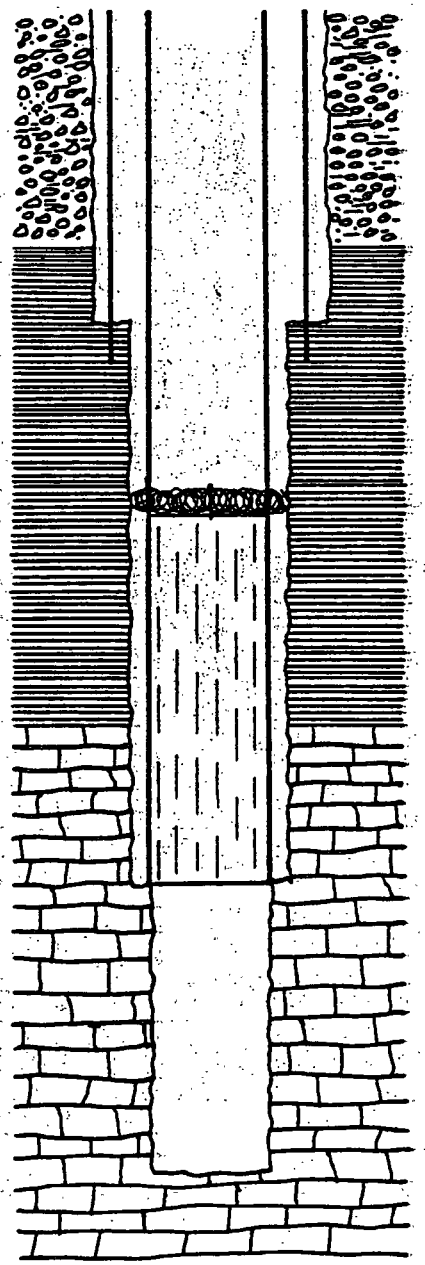
Vertical Scale: 1 inch = 10 feet
Horizontal Scale: 1 inch = 10 inches

Figure 4

Well 3 Construction

12" hole to 16'
10" starter pipe from 18' to surface
8" hole to 45'
Slotted 6" casing from 45' to 26'
Solid 6" casing from 26' to surface
6" hole to 60'
Well not grouted

Blown Yield: 60 gpm
Static Water Level not known
No gas odors present throughout drilling



Geologic Log

0-12' Alluvial

12-37' Residual limestone clay

37-60' Limestone bedrock

Vertical Scale: 1 inch = 10 feet
Horizontal Scale: 1 inch = 10 inches

APPENDIX F

SUMMARY OF WELL INFORMATION

CITIZENS UTILITY WATER COMPANY

TDD NO. F3-8405-32

SITE GULF OIL SINKING SPRING

Well No.	2	11	12	13	16	17A	18A	19	20	21
LOCATION	Mt. Home Rd	N. Slope Cir. Hills off Old Frittytown Rd.	Same as #11	SAME AS #11	Off OLD Frity T. Rd - near Columbia Ave	Reedy Rd.		Merit Pky	Skeleton Dr. Wyomissing Hills	Papermill Rd Spring Twp
Latitude & Longitude	40 18 25 76 02 40	40 18 03 76 01 37	40 18 04 76 01 34	40 17 59 76 01 18	40 18 17 76 01 00	40 20 19 76 00 59	40 19 14 76 01 01	40 20 09 76 00 38	40 20 24 75 59 24	40 02 27 75 58 30
YEAR	1971	1939	1941	1930	1960	Redrilled 1979	1965	1968	1967	1977
Well depth (ft.)	253	303	303	500	447	356	272	350	290	537
Diameter (ins.)	10	10	10	8	10	10	12	10	8	12
Depth cased (ft.)										
Depth screened (ft.)										
Depth to consolidated rock (ft.)										
Lithology of major aquifer	Richland Fm	Richland Fm	Richland Fm	Richland Fm	Millbach Fm	Ontelaunee Fm	Richland Fm	Epler Fm	Epler Fm	Richenback Fm
STATIC Water level (ft.)	6		170	169	103	31	41	42	70	80
Yield (gpm)	165	110	375	300	315	500	500	500	400	325
PUMP DEPTH (ft)	100		265	300	150	100	80	100	140	435
DRILLER	Kohl Bros.	Kohl Bros.	Kohl Bros.			Echelberger Drillers	LANE NY Drillers	LANE NY Drillers		

ORIGINAL (Red)

PRELIMINARY ASSESSMENT AND FIELD TRIP SUMMARY REPORT FOR GULF OIL PRODUCTS CO., SINKING SPRING TERMINAL SPRING TOWNSHIP, BERKS COUNTY, PENNSYLVANIA

Prepared by: Mark Selman
Solid Waste Specialist

For: Bruce Beitler, Operations Supervisor
Bureau of Solid Waste Management
Pennsylvania Department of
Environmental Resources

January 31, 1984

RECEIVED
Division of Operations

FEB 3 1984

SOLID WASTE MANAGEMENT

Corrs request 3/23

ORIGINAL (Red)

TABLE OF CONTENTS

1. General Site Information

2. EPA Form T2070-2, 10/79 Potential Hazardous Waste Site Identification & Preliminary Assessment

3. Field Trip Summary Report

4. Sinking Spring, Pennsylvania Quadrangle, U.S.G.S. 7.5 minute series

5. Site Diagram

6. Water Quality Management, Pennsylvania DER Inspection Reports

ORIGINAL (Red)

PRELIMINARY ASSESSMENT GULF OIL PRODUCTS CO., SINKING SPRING TERMINAL

General Information

Site Location: The site is located in Spring Township, Berks County, Pennsylvania on Mountain Home Road, just outside the borough limits of Sinking Spring. See attached topo sheet.

Site Operations: This 10 acre site operated from 1962 through March, 1983 as a terminal for receipt, storage, and distribution of Gulf Oil products, the majority being gasoline.

Gasoline was received from the Laurel Pipeline which runs adjacent to the site and pumped into six above-ground storage tanks. The products were then pumped into tankers for local distribution. Structures on-site included offices, maintenance shop, pump house, oil-water separator, and storage tanks.

Site Features

Topography: The site is located in a comparatively low-lying valley area at the base of nearby hills to the southwest. The site is bounded on the north by agriculture, on the east residential, on the west and south light industrial. The Cacoosing Creek passes along the northwest boundary of the site into which the facility had two point source discharges from an oil water separator. An NPDES permit application was submitted in 1974 for the discharges; however no permit was ever issued.

The residences within a quarter mile of the site are served by public water; with several public wells within a mile radius of the site. (See attached topo sheet.)

Permit History RCRA Compliance

An NPDES application was submitted in 1974 by the facility but no word was ever heard from either EPA or DER on this matter. The facility continued discharging until its closure in 1983. The facility notified EPA under Part A of the hazardous waste permit program that they were storing and treating hazardous wastes. No formal RCRA compliance inspection was conducted during the active site life, however the facility claims that they never did treat or store hazardous waste on site. This has not been confirmed. The facility was closed in March of 1983 and according to site representative Kenneth Talbot, all off-site shipments of hazardous waste generated were manifested and non-hazardous shipments were recorded on bills of lading. The closure steps included pumping sludge from the bottom of the tanks, removing the product, cleaning the tanks and disposing of the waste off site. The storage tanks were then purged by using nitrogen gas.

ORIGINAL (Red)

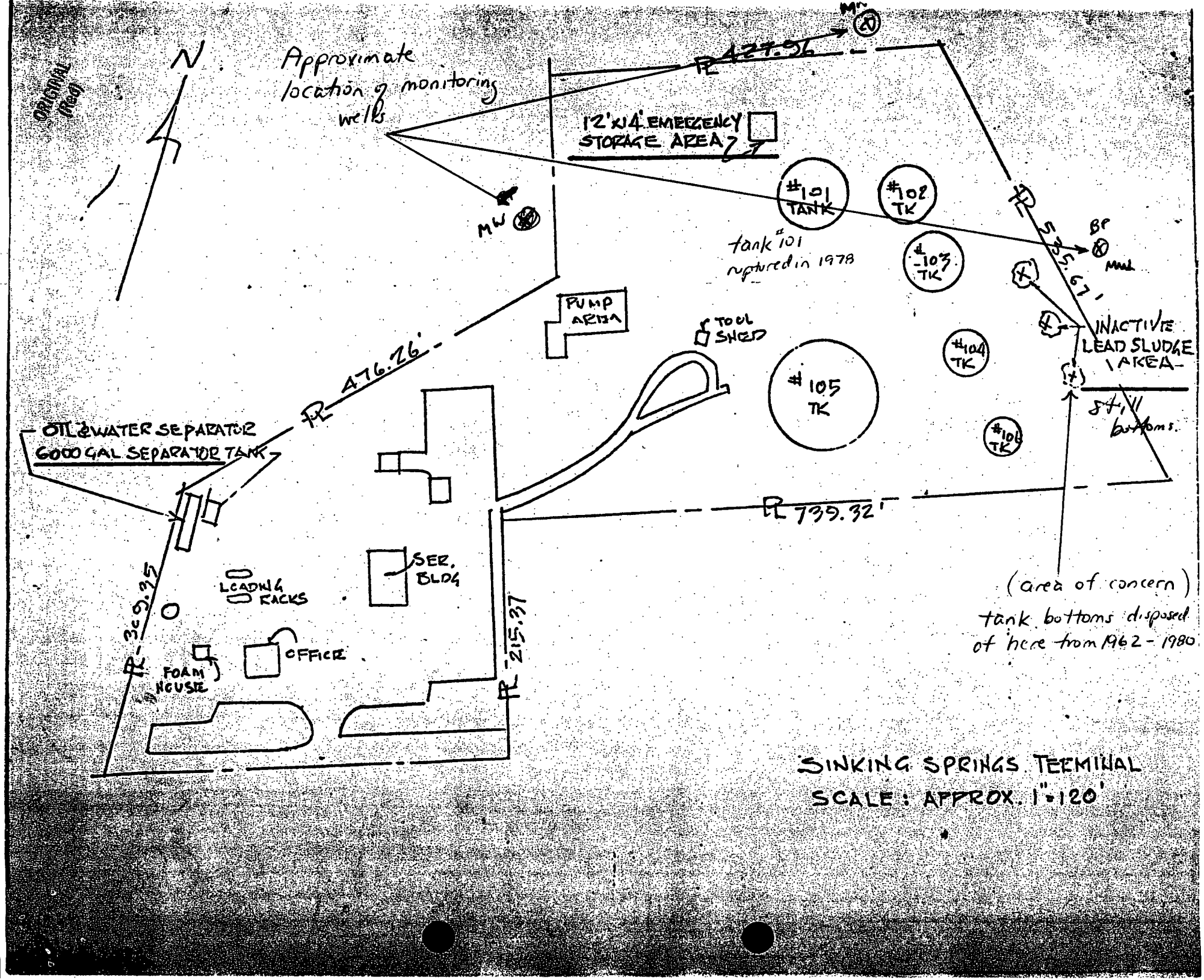
Pollution Incidents

Although not verified in the files, the site representative alleges that a major spill occurred in 1978. A large storage tank leaked its entire contents into the dike surrounding the tanks. The quantity of gas leaked was not adequately determined, however the facility had installed monitoring wells on the perimeter of the site (see site diagram).

Prior to RCRA requirements, the tank bottoms, which are a listed hazardous waste, were disposed of on site within the property boundaries. This occurred from 1962 through 1980 with the tanks being cleaned or emptied of their spill bottoms approximately once every three years. The quantity discharged through the dike is unknown.

Impact Assessment

The major hazard associated with this site was the disposal of an unknown quantity of tank bottoms in combination with a major gasoline spill in 1978 and the close proximity of public deep wells. It is recommended that monitoring wells on site be sampled for volatile organics and other purgeable hydrocarbons and that public wells within close proximity to the site be monitored for these constituents. A site inspection has been tentatively scheduled for April, 1984; at that time, three existing monitoring wells on site will be purged and sampled for the above perimeters.


ORIGINAL (Red)
N
Approximate location of monitoring wells
MW
427.96
12'x4' EMERGENCY STORAGE AREA
#101 TANK
#102 TK
#103 TK
#104 TK
#105 TK
#106 TK
tank #101 ruptured in 1978
BP
MW
535.67
INACTIVE LEAD SLUDGE AREA
54,11 bottoms.
PUMP AREA
TOOL SHED
476.26
OIL & WATER SEPARATOR
6000 GAL SEPARATOR TANK
739.32
SER. BLDG
LOADING RACKS
OFFICE
FOAM HOUSE
309.35
215.37
(area of concern)
tank bottoms disposed of here from 1962 - 1980
SINKING SPRINGS TERMINAL
SCALE: APPROX. 1" = 120'

R BWQ-32 REV. 4-77
IOTE: SEE COPY 2
EFORE SIGNING

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT
WASTE DISCHARGE INSPECTION REPORT

DATE 11-18-82
TIME

ESTABLISHMENT	ORIGINAL CASE (Red)	LOCATION (STREET/STATE ROUTE)	COUNTY	MUNICIPALITY	PROGRAM
Gulf Oil Corp.		Mt Home Rd.	Berks	Spring	IW

OPERATOR NAME	VALID CERTIFICATE POSTED	TELEPHONE NO.	POP SERVED	ACRES UNDER PERMIT	ACRES ALREADY MINED
	YES ☐ NO ☐ N/A	678-8026			

RESPONSIBLE OFFICIAL	ADDRESS	TELEPHONE NO.
Kenneth Talbot	PO Box 241 Sinking Spring PA 19608	

PERSON INTERVIEWED	ADDRESS	TELEPHONE NO.	INDUSTRIAL PRODUCTS 1.	2.
Benton Hemming		678-8026	Petr. Prod. Distr	

TREATMENT PROCESS	NUMBER OF UNITS TOT	NUMBER OF UNITS IN OP
Oil Separator 2000 gal. Cap.		
Vapor Recovery Unit		
Oil Separator (New) 4 Compartments with Baffles 65'x10'x8' deep		

REMARKS

Small oil separator (2000 gal) gives receives water ~~from~~ to the larger (new) separator. Gasoline fuel oil + Kerosene distributed. One loading rack present with gutters to separators. Booms of absorbent stored at station for spill containment. 6500 gal storage tank for storing oil from separator. Gasoline bottom loaded. I will review status of NPDES permit

VIOLATIONS

LAWS, REGULATIONS OR PERMIT NO. & COND.

SAMPLING POINT	W&W QUALITY REPORT NUMBER	pH	CHLOR RES	COLOR	ODOR	TEMP	D.O.	SPEC COND.	AVG. DAILY FLOW (MGD)
No Sample									

RECEIVING STREAM APPEARANCE NAME	ABOVE DIS APP	BELOW DIS APP
Cacoosing Cr		

IDENTIFICATION	CO	MUN	T	EST	CASE
1 C	4-5	6-8	9	10-11	12-13
2 A					
3 X					

FAC NO. 1	FAC NO. 2	FAC NO. 3	FAC NO. 4	DATE OF INSPECTION	INSPECTING AGENCY
14-16	14-16	14-16	14-16	17-22	23-25

FACILITY NAME	DIS. VOL. (MGD)	COMPLIANCE FED	INT	FAC	OP	PERMIT COMP	OPER STAT
	49-52	66	67	68	69	70	71-72

PERSON INTERVIEWED (SIGNATURE) K H Talbot

TITLE AND DATE Tech Supv. 11/18/82

INVESTIGATOR (SIGNATURE) Craig White

TITLE AND DATE W.Q. Spec. 11/18/82

CENTRAL OFFICE

BEFORE SIGNING

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT
WASTE DISCHARGE INSPECTION REPORT

DATE 5-23-83

TIME

ESTABLISHMENT	CASE	LOCATION (STREET/STATE ROUTE)	COUNTY	MUNICIPALITY	PROGRAM
Gulf Oil Corp	Oil Separator	Mountain Home Rd	Berks	Spring	IW

OPERATOR NAME	VALID CERTIFICATE POSTED	TELEPHONE NO.	POP SERVED	ACRES UNDER PERMIT	ACRES ALREADY MINED
	YES ☐ NO ☐				

RESPONSIBLE OFFICIAL	ADDRESS	TELEPHONE NO.
R. Talbot	264-0518 Whitehall	678-8026

PERSON INTERVIEWED	ADDRESS	TELEPHONE NO.
Ray Staley Plant Man	2451 Main St.	264-0518

INDUSTRIAL PRODUCTS: 1. Petr. Prod Distr. 2.

ORIGINAL (Red)

TREATMENT PROCESS	NUMBER OF UNITS TOT	NUMBER OF UNITS IN OP
Oil Separator (New) 4 Compartments w/ Baffles 65' x 10' x 8'	1	1
Vapor Recovery Unit	1	1

REMARKS

Letter written in Feb 83 indicating that they should get NPDES permit. Mr. Talbot said they had applied previously. I advised him to send a copy of the application to R. Rothrock. Nothing in our files or C.O. files indicates they applied.
Terminal is being sold so all petroleum products are being emptied from the tanks. Final sale date not known. I will confer w K. Talbot on status of permit.
No throughput since Apr 83

VIOLATIONS

LAWS, REGULATIONS OR PERMIT NO. & COND.

SAMPLING POINT	W&W QUALITY REPORT NUMBER	pH	CHLOR RES	COLOR	ODOR	TEMP	D.O.	SPEC COND.	AVG. DAILY FLOW (MGD)

RECEIVING STREAM APPEARANCE

NAME	ABOVE DIS APP	BELOW DIS APP
Cacoosing Cr.	OK	OK

IDENTIFICATION

	CO (4-5)	MUN (6-8)	T (9)	EST (10-11)	CASE (12-13)	FAC NO. 1 (14-16)	FAC NO. 2 (14-16)	FAC NO. 3 (14-16)	FAC NO. 4 (14-16)	DATE OF INSPECTION (17-22)	INSPECTING AGENCY (23-25)
1 C											
2 A											
3 X											

FACILITY NAME	DIS. VOL. (MGD) (49-52)	COMPLIANCE FED (66)	INT (67)	FAC (68)	OP (69)	PERMIT COMP (70)	OPER STAT (71-72)

PERSON INTERVIEWED (SIGNATURE) Ray Staley

TITLE AND DATE Plantman 5/23/83

INVESTIGATOR (SIGNATURE) Craig White

TITLE AND DATE WQ Spec. 5-23-83

BLACK INK ONLY

CENTRAL OFFICE

TSUR

REVISION OF
[illegible]
REVISED 3/15/63

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
DIVISION OF SANITARY ENGINEERING

9. INSPECTION DATE 2-13-69
10. FROM 9:15 AM TO 9:45 AM
PM PM

WASTE DISCHARGE REPORT

CODE

11. CASE NAME: Gulf Oil Corp.	12. LOCATION - STREET OR STATE ROUTE: Mountain Home Rd Sink Sp. LR06063 1m. W.S.S.	REGION: H.S. II	1. 0
13. PERSON INTERVIEWED: Ray Staley	14. TITLE: Plnt MAN; 15. PHONE NO. 678 8020	COUNTY: BERKS	2. 6
16. TYPE INDUSTRY: Oil Prod. Reservoir Area	17. NO. OF EMPLOYEES: 25± ; 21. POPULATION SERVED: NA	MUNICIPALITY: SPRING	3. 9 4. 6
18. INDUSTRIAL PRODUCTS (A) Gasoline (B) Kerosene (C) (D)		TYPE MUNICIPALITY: TWP.	5. 1
		TYPE CASE	6. 5
19. PRESENT PRODUCTION (A) Fuel Oil (B) (C) (D)		TYPE CASE NO.	7. 0 8. 3
		TYPE WASTE	27. 2
20. MAXIMUM PRODUCTION (A) (B) (C) (D)	22. NO. OF DISCHARGES: A. SEWAGE 0; B. IND. WASTE 0	OLD OR NEW ESTAB'MENT	28. 2

STREAM CODE NO.: 31. 1 32. 1 33. 5 5

23. TREATMENT PROCESS	24. NO. OF UNITS TOTAL	IN OPERATION	25. REMARKS
oil Separator	1	1	

STREAM CONDITION	35. 1
STREAM CLASSIFICATION	36. 0
PERMIT COVERAGE	48. 1
OPERATIONS	
OPERATION STATUS	57. 4
LAST VIOLATION	58. 1
VIOLATION HISTORY	59. 1
OPERATION COMPLIANCE	60. 1
DATE OF REPORT (MO. / DAY / YEAR)	61. 0 62. 2 63. 1 64. 3 65. 6 66. 9
CASE COMPLIANCE	74. 1

No discharge this date
(The existing oil separator is now under permit. Case is now in compliance. Discharge usually only after rains when oils are washed into the separator) CMK.

34A. RECEIVING STREAM: CACOOSING CK

26. LOCATION OF DISCHARGE	29. COLOR	30. TEMP.	37. TURB.	38. ODOR	39. pH	40. CHLOR. RES.	41. QUANTITY IN G. P. D. PRESENT	24 HR.	42. TYPE
A							NI	NI	IW
B									
C									

43. RECEIVING STREAM APPEARANCE

LOCATION	A	B	C
ABOVE DISTANCE (FEET)	/		
BELOW DISTANCE (FEET)			

ORIGINAL (Red)

44. INVESTIGATOR (SIGN): Richard Kraybill DATE 2-13-69

45. APPROVED

A. ASS'T. REG. ENGINEER - OPN'S. (SIGN): C. Kuder DATE 2-14-69

B. REG. SANITARY ENGINEER (SIGN) DATE

46. REGIONAL OFFICE FORWARDING DATE

47. REMARKS (CONT. ON SEP. SHEET)

ER BWQ-32 REV. 4-77

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WATER QUALITY MANAGEMENT
WASTE DISCHARGE INSPECTION REPORT

DATE 9-28-81

TIME

ESTABLISHMENT	CASE	LOCATION (STREET/STATE ROUTE)	COUNTY	MUNICIPALITY	PROGRAM
Gulf Oil Corp ORIGINAL (Red)		Mt. Home Rd.	Berks	Spring	IW.

OPERATOR NAME	VALID CERTIFICATE POSTED YES ☐ NO ☐	TELEPHONE NO.	POP SERVED	ACRES UNDER PERMIT	ACRES ALREADY MINED

RESPONSIBLE OFFICIAL	ADDRESS	TELEPHONE NO.	INDUSTRIAL PRODUCTS
Alex David PH Mgr.	PO Box 291 Sinking Spring 19608	678 8026	1. Pet. Prod. Distr. 2.

PERSON INTERVIEWED	ADDRESS	TELEPHONE NO.
Benton Hemmig	"	

TREATMENT PROCESS	NUMBER OF UNITS TOT	NUMBER OF UNITS IN OP	REMARKS	VIOLATIONS
Oil Separator Cap 2000 gals			90% bottom loading safety float prevents overfill	
Vapor Recovery UNIT			Storage tanks diked Regraded Recently	
Oil water Separator 4 Compartments 65'x10'x 8 deep			New separator has 4 sections w/ Baffles to separate	
			Surface water run-off goes to new separator. Mr Hemmig doesn't know where effluent from separator goes but it probably is pumped to storage tank	LAWS, REGULATIONS OR PERMIT NO. & COND.
			I will contact Donald Davis for more info.	

SAMPLING POINT	W&W QUALITY REPORT NUMBER	pH	CHLOR RES	COLOR	ODOR	TEMP	D.O.	SPEC COND.	AVG. DAILY FLOW (MGD)
No Disch									
No Samples									

RECEIVING STREAM APPEARANCE

NAME	ABOVE DIS APP	BELOW DIS APP
Cacoosing Cr.		

IDENTIFICATION

	CO	MUN	T	EST	CASE	FAC NO. 1	FAC NO. 2	FAC NO. 3	FAC NO. 4	DATE OF INSPECTION	INSPECTING AGENCY
1 C											
2 A	4-5	6-8	9	10-11	12-13	14-16	14-16	14-16	14-16	17-22	23-25
3 X											

FACILITY NAME	DIS. VOL. (MGD)	COMPLIANCE FED	COMPLIANCE INT	COMPLIANCE FAC	COMPLIANCE OP	PERMIT COMP	OPER STAT
	49-52	66	67	68	69	70	71-72
1							
2							
3							
4							

PERSON INTERVIEWED (SIGNATURE) X C B Hemmig

TITLE AND DATE

INVESTIGATOR (SIGNATURE) Craig White

TITLE AND DATE WQS

REGIONAL OFFICE

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SANITARY ENGINEERING

ORIGINAL (Red)

INSPECTION DATE 11-24-69
FROM 1100 M. TO 1200 M.

WASTE INSPECTION REPORT

CODE

CASE NAME: Gulf Oil Corp.	LOCATION—STREET OR STATE ROUTE: LR 06063 & Cacoosing CK		
RESPONSIBLE OFFICIAL: A. A. Arbogast	TITLE: Plnt. Supervisor	PHONE NO.: 678-8026	
TYPE DISCHARGE OR INDUSTRY: TANK FARM NO PRODUCTION	NO. OF EMPLOYEES OR POPULATION SERVED: 20±	ACRES UNDER PERMIT: NA	ACRES ALREADY MINED: NA
INDUSTRIAL PRODUCTS	1. OIL PRDTS	2. NA	3. NA

COUNTY: HS II BERKS	1	0
	2	6
POPULATION	3	9
MUNICIPALITY NO.: SPRING TWP	4	6
	5	1
TYPE CASE	6	5

TREATMENT PROCESS	NO. OF UNITS TOTAL	NO. OF UNITS IN OPERATION	REMARKS
Oil Separator	1	1	2,000 gal cap.
for surface runoff			No DISCHARGE

IND. WASTES & SEW.		
TYPE CASE NO.	7	0
	8	3
PERMIT COVERAGE	48	1
FACILITIES COMPLIANCE	49	1
OPERATION STATUS	57	4
LAST VIOLATION	58	1
VIOLATION HISTORY	59	1
OPERATION COMPLIANCE	60	1

LOCATION OF DISCHARGE	pH	CHOR. RES.	ODOR	TEMP.	D. O.	SPEC. COND.	QTY. M. G. D.
A							
B							
C							

MINE DRAINAGE

OPERATOR NO. 7 8 9 10 11 12

PERMIT NO. 13 14 15 16 17 18 19

MINE OPERATION STATUS 58

ALL PROGRAMS

DATE OF REPORT 61 62 63 64 65 66: 1 1 2 4 6 9

ENFORCEMENT STATUS 67: 0

DATE OF ACTION 68 69 70 71 72 73: 0 0 0 0 0 0

CASE COMPLIANCE 74: 1

RECEIVING STREAM APPEARANCE

NAME	ABOVE DIST.	ABOVE APP.	BELOW DIST.	BELOW APP.
Cacoosing CK	0'-50'	G	0'-50'	G

WATER & WASTE QUALITY REPORT

LOCATION	NUMBER
No samples	
No DISCHARGE	

VIOLATION:

LAW, REGULATION OR PERMIT COND. NOS.

REMARKS: No discharge this inspection
Discharge occurs during
periods of run-off.

FIELD INVESTIGATOR: Richard L. Kraybill WPGS CAK — TITLE:

PERSON INTERVIEWED: A. A. Arbogast — TITLE: Plant Supvr

PAGE 1 OF 1

REGIONAL OFFICE

EPA

POTENTIAL HAZARDOUS WASTE SITE
IDENTIFICATION AND PRELIMINARY ASSESSMENT

REGION: 3

SITE NUMBER (to be assigned by HQ): ORIGINAL (Red)

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

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

I. SITE IDENTIFICATION

A. SITE NAME: Gulf Oil Products Co., Sinking Spring Terminal

B. STREET (or other identifier): P.O. Box 2091 Sinking Spring Pa. 19608 Mountain Home Road

C. CITY: Sinking Spring

D. STATE: Pa.

E. ZIP CODE: 19608

F. COUNTY NAME: Berks

G. OWNER/OPERATOR (if known)

1. NAME: Gulf Oil Products, Co. Marketing Dept. Mid-Atlantic District P.O. Box 2235 Baltimore, MD. 21203

2. TELEPHONE NUMBER: 301-337-5300

H. TYPE OF OWNERSHIP

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

I. SITE DESCRIPTION: Petroleum Products, Storage, Distribution

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

K. DATE IDENTIFIED (mo., day, & yr.): unknown

L. PRINCIPAL STATE CONTACT

1. NAME: PA. DER Bruce Beitler, Bureau of Solid Waste Mgmt, Operations Supervisor

2. TELEPHONE NUMBER: (215) 270-1920

II. PRELIMINARY ASSESSMENT (complete this section last)

A. APPARENT SERIOUSNESS OF PROBLEM

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

B. RECOMMENDATION

☐ 1. NO ACTION NEEDED (*no hazard*)

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

☒ 3. SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR: April 84
b. WILL BE PERFORMED BY: State DER Bureau of Solid Waste Mgmt.

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

C. PREPARER INFORMATION

1. NAME: PA DER Mark Selman, Solid Waste Specialist

2. TELEPHONE NUMBER: 215-378-4175

3. DATE (mo., day, & yr.): 1/19/84

III. SITE INFORMATION

A. SITE STATUS

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

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

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

B. IS GENERATOR ON SITE?

☐ 1. NO ☒ 2. YES (*specify generator's four-digit SIC Code*): 5171

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

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

1. LATITUDE (*deg.—min.—sec.*): 40°19'001"

2. LONGITUDE (*deg.—min.—sec.*): 76°02'014"

E. ARE THERE BUILDINGS ON THE SITE?

☐ 1. NO ☒ 2. YES (*specify*): offices, garage, storage tanks

Continued From Front

ORIGINAL

IV. CHARACTERIZATION OF SITE ACTIVITY See below

ORIGINAL (Red)

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

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

ORIGINAL (Red)

E. SPECIFY DETAILS OF SITE ACTIVITIES AS NEEDED

This site notified EPA of interim status storage and treatment. No RCRA inspections were conducted here while the site was still active; however, representatives of the parent company claim that no such activities were ever conducted at the Sinking Spring Terminal and that they were generators only. Site is now closed

V. WASTE RELATED INFORMATION

A. WASTE TYPE

☐ 1. UNKNOWN ■ 2. LIQUID ☐ 3. SOLID ☐ 4. SLUDGE ☐ 5. GAS

B. WASTE CHARACTERISTICS

☐ 1. UNKNOWN ☐ 2. CORROSIVE ☒ 3. IGNITABLE ☐ 4. RADIOACTIVE ☒ 5. HIGHLY VOLATILE
☒ 6. TOXIC ☒ 7. REACTIVE ☐ 8. INERT ☒ 9. FLAMMABLE

☐ 10. OTHER (specify):

C. WASTE CATEGORIES

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

Yes, manifests, bill of lading

2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT
UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE
'X' (1) PAINT, PIGMENTS	'X' (1) OILY WASTES	'X' (1) HALOGENATED SOLVENTS	'X' (1) ACIDS	'X' (1) FLYASH	'X' (1) LABORATORY PHARMACEUT.
(2) METALS SLUDGES	(2) OTHER (specify):	(2) NON-HALOGNTD. SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL
(3) POTW		(3) OTHER (specify):	(3) CAUSTICS	(3) MILLING/ MINE TAILINGS	(3) RADIOACTIVE
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMLTG. WASTES	(4) MUNICIPAL
(5) OTHER (specify):			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	X (5) OTHER (specify):
			(6) CYANIDE	(6) OTHER (specify):	still bottoms + tank bottoms from petroleum storage tanks. Waste Nos K049 - 3500#/yr. K051 700#/yr. K052 - 3500#/yr.
			(7) PHENOLS		
			(8) HALOGENS		
			(9) PCB		
			(10) METALS		
			(11) OTHER (specify)		

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Continued From Page 2

ORIGINAL (Red)

V. WASTE RELATED INFORMATION (continued)

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

inorganic + organic constituents of petroleum products.

4. ADDITIONAL COMMENTS OR NARRATIVE DESCRIPTION OF SITUATION KNOWN OR REPORTED TO EXIST AT THE SITE. 1962-1980 Alleged on-site disposal of tank bottoms prior to RCRA. 1978, Dec, spill of leaded gasoline - no record in state files.

VI. HAZARD DESCRIPTION

A. TYPE OF HAZARD	B. POTENTIAL HAZARD (mark 'X')	C. ALLEGED INCIDENT (mark 'X')	D. DATE OF INCIDENT (mo., day, yr.)	E. REMARKS
1. NO HAZARD				
2. HUMAN HEALTH				
3. NON-WORKER INJURY/EXPOSURE				
4. WORKER INJURY				
5. CONTAMINATION OF WATER SUPPLY	X	X	Dec, 1978	see below, Also on-site disposal of tank bottoms
6. CONTAMINATION OF FOOD CHAIN				
7. CONTAMINATION OF GROUND WATER	X	X	Dec, 1978	see below
8. CONTAMINATION OF SURFACE WATER				
9. DAMAGE TO FLORA/FAUNA				
10. FISH KILL				
11. CONTAMINATION OF AIR				
12. NOTICEABLE ODORS				
13. CONTAMINATION OF SOIL		X		
14. PROPERTY DAMAGE				
15. FIRE OR EXPLOSION				
16. SPILLS/LEAKING CONTAINERS/RUNOFF/STANDING LIQUIDS		X	Dec, 1978	leaded gas storage tank #101 ruptured. No record of this in PA. files. Amount unknown.
17. SEWER, STORM DRAIN PROBLEMS				
18. EROSION PROBLEMS				
19. INADEQUATE SECURITY				
20. INCOMPATIBLE WASTES				
21. MIDNIGHT DUMPING				
22. OTHER (specify):				

Continue On Reverse

ORIGINAL (Red)

VII. PERMIT INFORMATION

A. INDICATE ALL APPLICABLE PERMITS HELD BY THE SITE.

* prior to closure!

- [ ] 1. NPDES PERMIT
- [x] 2. SPCC PLAN
- [x] 3. STATE PERMIT (specify): State Air Quality Permit # 06-312-008 issued March 19 1982 expired May 30, 1983
- [x] 4. AIR PERMITS
- [ ] 5. LOCAL PERMIT
- [ ] 6. RCRA TRANSPORTER
- [x] 7. RCRA STORER
- [x] 8. RCRA TREATER
- [ ] 9. RCRA DISPOSER

interim status

Water Quality Permit # 0668201 for discharge from oil-water separator.

- [ ] 10. OTHER (specify):

B. IN COMPLIANCE?

- [ ] 1. YES
- [ ] 2. NO
- [x] 3. UNKNOWN

4. WITH RESPECT TO (list regulation name & number):

VIII. PAST REGULATORY ACTIONS

- [ ] A. NONE
- [x] B. YES (summarize below)

Notice of Violation from Bureau of Water Quality PADER (Feb. 2, 1983) for discharging w/o NPDES permit. Application forms were forwarded to them with the N.O.V.

IX. INSPECTION ACTIVITY (past or on-going)

- [ ] A. NONE
- [x] B. YES (complete items 1,2,3, & 4 below) – reports attached.

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION (mo., day, & yr.)	3. PERFORMED BY: (EPA/State)	4. DESCRIPTION
Water Quality Inspection	5/23/83	state	N.O.V. regarding lack of N.P.D.E.S. permit.
"	11/18/82	"	
"	9/28/81	"	

X. REMEDIAL ACTIVITY (past or on-going)

- [ ] A. NONE
- [x] B. YES (complete items 1, 2, 3, & 4 below)

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION (mo., day, & yr.)	3. PERFORMED BY: (EPA/State)	4. DESCRIPTION
in response to spill in 1978	unknown	private	installation of monitoring wells on perimeter of site.

NOTE: Based on the information in Sections III through X, fill out the Preliminary Assessment (Section II) information on the first page of this form.

* Facility had applied for NPDES permit for a discharge from an oil water separator in 1974 - paperwork was apparently misplaced and the company did not pursue the matter.