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FIELD INVESTIGATION TEAM ACTIVITIES AT UNCONTROLLED HAZARDOUS SUBSTANCES FACILITIES — ZONE I

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R-585-8-9-49

PRELIMINARY ASSESSMENT OF ST. ELIZABETH'S HOSPITAL PREPARED UNDER

TDD NO. F3-8904-20
EPA NO. DC-14
CONTRACT NO. 68-01-7346

FOR THE

HAZARDOUS SITE CONTROL DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

DECEMBER 29, 1989

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY	REVIEWED BY	APPROVED BY
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PROJECT MANAGER	SECTION SUPERVISOR	REGIONAL MANAGER, FIT 3

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Site Name: St. Elizabeth's Hospital
TDD No.: F3-8904-20

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SECTION 1

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1.0 INTRODUCTION

1.1 Authorization

NUS Corporation performed this work under Environmental Protection Agency Contract No. 68-01-7346. This specific report was prepared in accordance with Technical Directive Document No. F3-8904-20 for the St. Elizabeth's Hospital site, located in Washington, D.C.

1.2 Scope of Work

NUS FIT 3 was tasked to conduct a preliminary assessment of the subject site.

1.3 Summary

St. Elizabeth's Hospital is located along Martin Luther King, Jr. Avenue in southwestern Washington, D.C. Since 1977, portions of the hospital property have been used by the District of Columbia Solid Waste Disposal Division of the Department of Public Works as a permitted landfill. Fill material includes storm sewer cleanings, street sweepings, road construction debris including milled asphalt, and incinerator fly ash.

The fly ash is taken from the District of Columbia Solid Waste Reduction Center's (SWRC) electrostatic precipitators and is generated from the incineration of domestic waste. The fly ash comprises approximately 0.5 percent of the total fill material and is uniform in nature. All material is transported to the site in dump trucks with 10-yard capacities. Two or three truck loads arrive at the site daily.

The current landfill area, which has been in operation since October 1982, is approximately 6 to 7 acres in size, with an average depth of 40 feet. Approximately three acres of this area have been closed and capped. The remaining fill area is scheduled to be closed in October 1989.

In March 1985, by request of the EPA Region III Waste Management Division, because of the incinerator fly ash that was deposited on site, the Central Regional Laboratory (CRL) performed comprehensive sampling of the fill materials. Extensive dioxin sampling was performed, and trace, but negligible, levels of chlorinated dioxins and furans were revealed. Ash and soil samples revealed elevated levels of heavy metals, including lead and/or cadmium. Some low levels of organic contaminants were also revealed in leachate and sediment samples. Furthermore, fly ash samples obtained in December 1988 were found to be EP toxic for lead and/or cadmium. No remedial action has taken place to date.

All potable water within the study area is supplied by two public water authorities. Sources for these supplies come from intakes along the Patuxent and Potomac Rivers, approximately 20 miles upstream of the subject site. Surface waters within the study area include both of these rivers, which provide for significant riverine wetland areas.

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SECTION 2

2.0 THE SITE

2.1 Location

The St. Elizabeth's Hospital site is located at 2700 Martin Luther King, Jr. Avenue in Washington, D. C. (see figure 2.1, page 2-2). The coordinates of the site are north 38° 51' 05" latitude and west 76° 59' 35" longitude. The site may be located on the United States Geological Survey (U.S.G.S.) Anacostia, D. C. - Maryland quadrangle 7.5 minute series topographic map by measuring one inch east and 4.5 inches south from the northwestern corner of the map.[1]

2.2 Site Layout

The active fill area, approximately three acres in size, is located in the northeastern section of the hospital property, along the western edge of the Suitland Parkway and east of the facility's motor pool parking area (see figure 2.2, page 2-3). Two office trailers are located in this parking area. Access to the site is restricted by two gates (one is electrically operated) along a dirt road that branches off Dunbar Road to the northwest. The site is also accessible via entrance gate no. 3 of the hospital. This gate is located south of the maintenance garages. The hospital's entire property is fenced.[1,2,3] Hospital buildings and parking areas closely border the active fill to the northwest and southwest. The active fill area has an average depth of approximately 40 feet and consists primarily of street sweepings and road construction debris, including milled asphalt. Fly ash from the Department of Public Work's electrostatic precipitators is also present in the fill material. According to available information, the greatest concentrations of exposed ash were once located along the southeastern edge of the active fill area. No exposed ash was observed at the time of the FIT 3 visit. Woodland debris, including tree stumps, leaf mulch, and other timber, is located in a large pile along the dirt access road to the north of the site. According to Richard Smith, the chief of the District of Columbia Department of Public Works, this material was collected from the city streets and drainage systems after a thunderstorm.[2,3,4]

Available information indicates that a small road and intermittent stream were located along the southeastern edge of the active fill area. It was also noted that three leachate streams discharged into this pond and stream.[4] At the time of the FIT visit, this entire area had been filled.[2]

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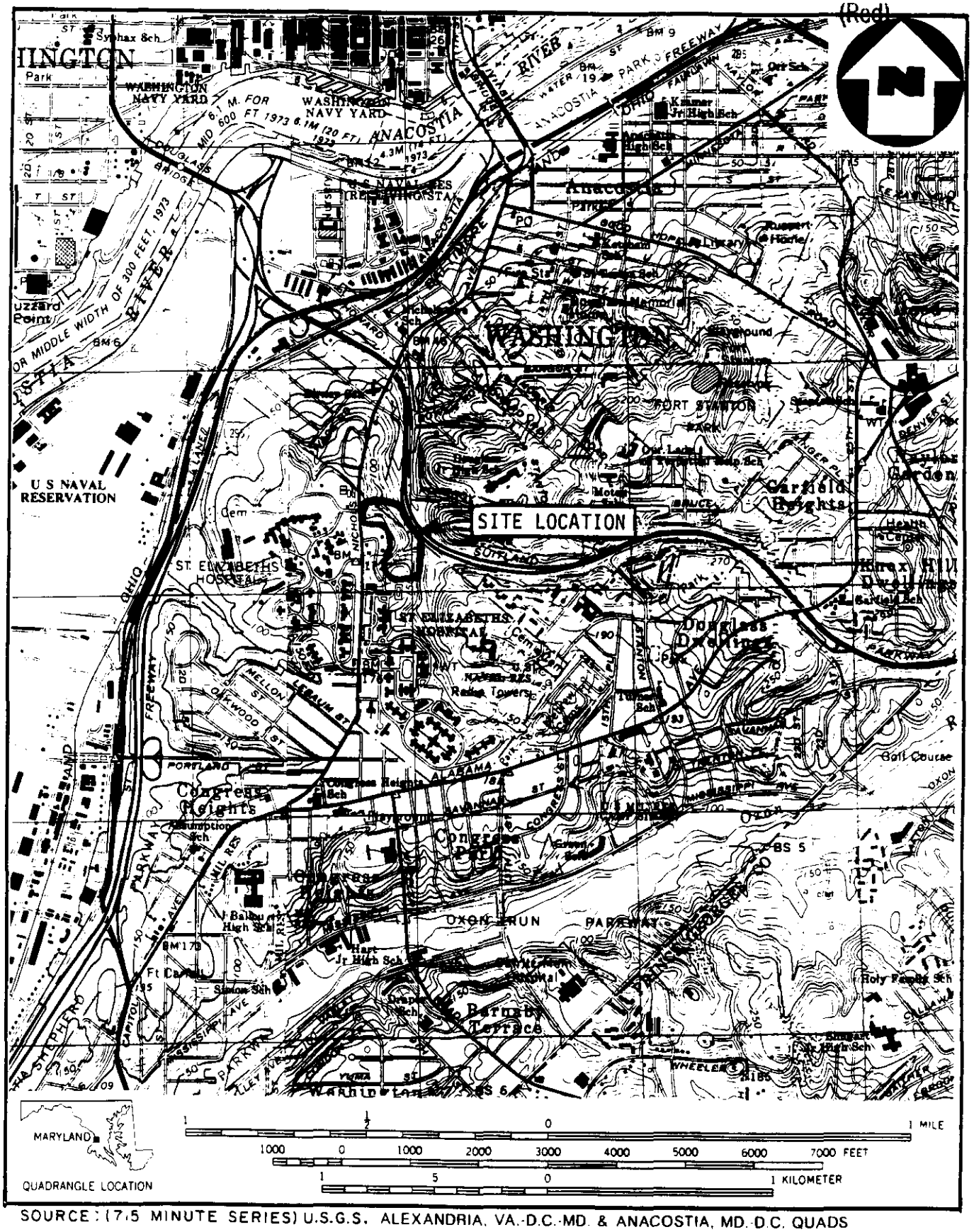

SOURCE: (7.5 MINUTE SERIES) U.S.G.S. ALEXANDRIA, VA.-D.C.-MD. & ANACOSTIA, MD.-D.C. QUADS

SITE LOCATION MAP

FIGURE 2.1

ST. ELIZABETHS HOSPITAL SITE, WASHINGTON, D.C.

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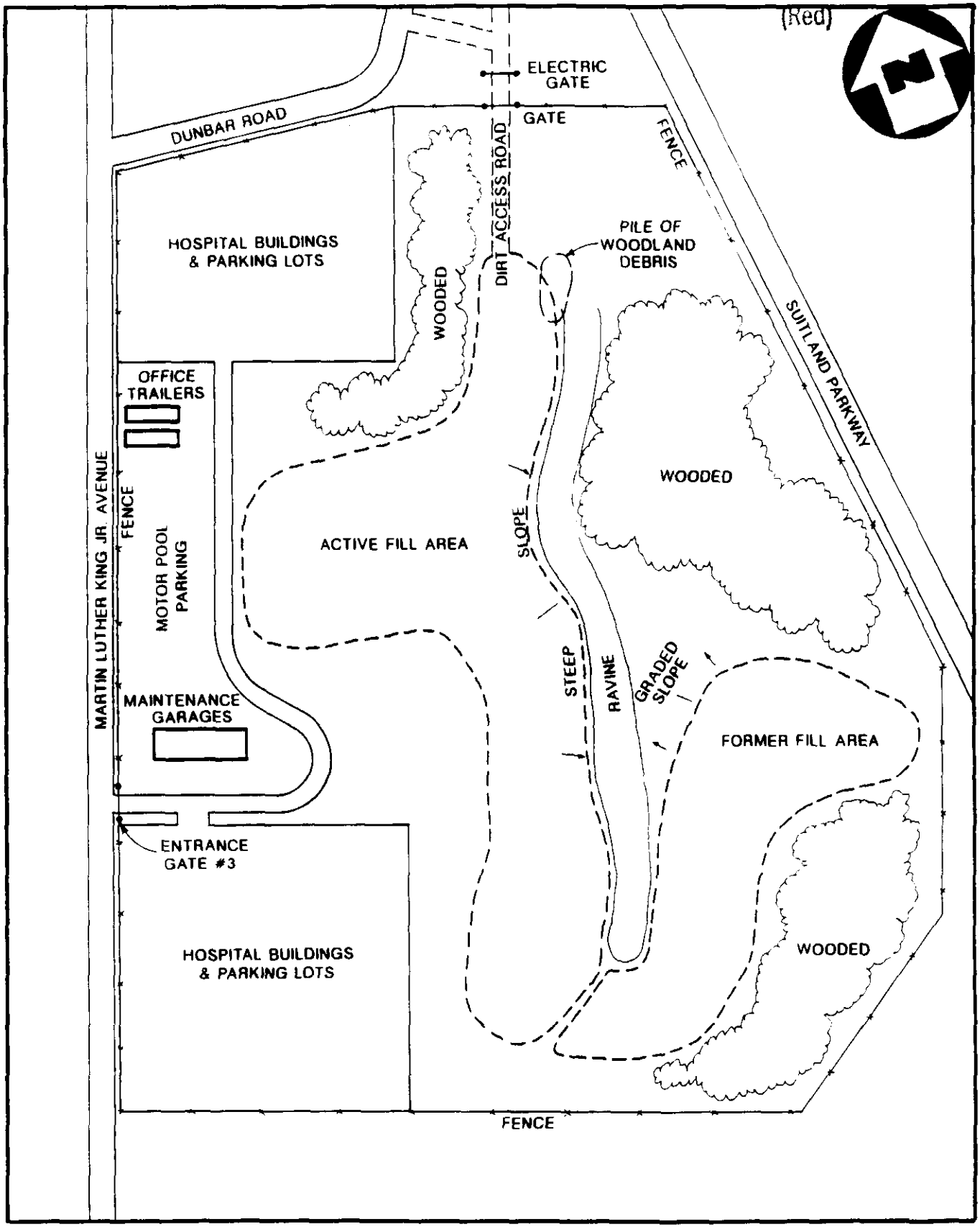

SITE SKETCH

FIGURE 2.2

ST. ELIZABETHS HOSPITAL SITE, WASHINGTON, D.C.

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Steeply sloping banks on the eastern side of the active fill prevented closer inspection of the ravine, which runs from north to south through the center of the property.[2] A former fill area, approximately three acres in size, is located southeast of the ravine and slopes gradually to the north and west into the ravine. This former fill area was recently capped with approximately 30 inches of compost and native soil. The area was also seeded and is currently overgrown with vegetation. Wooded areas border the site to the north, east, and south. The hospital property continues across Martin Luther King, Jr. Avenue to the west.[2,3]

2.3 Ownership History

According to Mr. Smith, St. Elizabeth's Hospital has been in operation since some time during the Civil War. The hospital was a federally owned and operated mental institution until 1987. In 1987, the hospital was turned over to the District of Columbia, which currently owns and operates the facility and the surrounding property.[3]

2.4 Site Use History

St. Elizabeth's Hospital is currently owned and operated by the District of Columbia, which utilizes some of the property as a solid waste landfill. Several areas within the hospital's property have been used as fill areas since 1977. According to Mr. Smith, the active fill area will be closed in October 1989. The facility use of these areas before 1977 is unknown.[3]

2.5 Permit and Regulatory Action History

The District of Columbia Department of Public Works, Solid Waste Disposal Division, currently disposes waste on the St. Elizabeth's Hospital site under license no. 1-83. The revocable license, granted by the United States Government, allows the District of Columbia Department of Environmental Services to use the hospital land for the purpose of depositing earth fill.[3,5]

When this license was issued, on October 19, 1982, the hospital property was federally owned. In 1987, St. Elizabeth's Hospital and the surrounding property were acquired by the District of Columbia from the federal government. This license, overseen by the St. Elizabeth's Hospital Administration, remained in effect subject to the provisions and conditions outlined therein. This license is the only permit currently held by the District of Columbia to dispose solid waste on the St. Elizabeth's Hospital property. Although a review and an update of this license were planned, no action has been taken because the active fill is scheduled to be closed in October 1989.[3,5]

The District of Columbia was also permitted, through a similar license (no. 78-1), in October 1977 for landfill practices in a smaller area of the St. Elizabeth's Hospital property. This area is west of Martin Luther King, Jr. Avenue and the current fill area. This former fill area remained active until 1982. After closure of this area, license I-83 was granted for continued landfill activities at the subject site.[3,6] Copies of both licenses can be found in appendix A.

On March 6, 7, and 8, 1985, by request of the EPA Region III Waste Management Division, CRL performed comprehensive sampling of the fill material deposited on St. Elizabeth's Hospital grounds by the District of Columbia. Fly ash samples from the electrostatic precipitators were found to contain trace levels of chlorinated dioxins and furans (tetra to octa isomers). 2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) was measured above the Centers for Disease Control (CDC)-recommended limit of 1 ppb in soil for residential areas.[4,7,8]

Samples were also collected from three leachate streams located southeast of the site. Sediment samples were taken from a small pond and an intermittent stream that receive surface runoff and leachate from the aforementioned leachate streams. Inorganic solid and aqueous samples from these locations show elevated levels of heavy metals. Organic analysis of leachate aqueous and sediment samples revealed trace to low levels of phenol (up to 110 ug/l and 790 ug/kg, respectively) and low levels of polyaromatic hydrocarbons (PAHs). Pond sediments revealed somewhat higher levels of PAHs and 340 ppb of polychlorinated biphenyl (PCB) 1260.[9,10]

At the time of the FIT visit, the pond, the intermittent streams, and the leachate streams had been covered with fill material.[2]

Further EPA sampling in December 1988 revealed that several ash samples and the furnace residue and electrostatic precipitator ash were EP toxic for lead (up to 23 ppm) and/or cadmium (up to 8.45 ppm).[11]

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2.6 Remedial Action to Date

A memorandum pertaining to the dioxin sampling at St. Elizabeth's Hospital, from the acting director of Health Assessment at the United States Department of Health and Human Services, stated the following conclusion: surface soil levels of 2,3,7,8-TCDD and other polychlorinated dioxins and furans present at the site should not pose a public health threat to employees, patients, residents, or landfill workers. Also, since polychlorinated dioxins and furans may exist at levels of concern at depths greater than one foot, future construction in the fill area or a land use change should be preceded by core sampling.[12] No remedial action has been taken to date.[3] For further analysis and conclusions of the sample data for the subject site, see appendix C.

SECTION 3

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3.0 ENVIRONMENTAL SETTING

3.1 Water Supply

All people residing within the three-mile-radius study area surrounding the St. Elizabeth's Hospital site utilize public supplies to obtain potable drinking water.

The Washington Suburban Sanitary Authority (WSSA) distributes water to the District of Columbia and the surrounding suburbs of Prince Georges County, Maryland. WSSA obtains its reserves from two surface water intakes. The first intake is located on the Patuxent River, in the town of Laurel, Maryland, about 19 land miles north-northeast of the site. The second intake is located on the Potomac River, approximately 20 miles northwest of the site. Both intakes are located upstream of the site. WSSA distributes water to an estimated population of 1.2 million people.[1,13,14]

Portions of Arlington County and Alexandria City, Virginia lie in the western portion of the study area. These areas are serviced by the Fairfax County Water Authority (FCWA). FCWA obtains its water from an upstream surface water intake on the Potomac River, near the Fairfax - Loudoun County, Virginia border, approximately 23 land miles northwest of the site. FCWA also maintains 19 groundwater wells to supplement the surface water supply. The contribution from these wells is less than 0.5 percent of the total surface water supply. These wells are located outside the study area and are drilled to depths ranging between 300 and 500 feet beneath the surface. The yields of these wells are unknown. The wells tap either the Coastal Plain sediments or the underlying Wissahickon Formation.[1,15,16]

Based on urbanization and the availability of public water supplies to the entire area, it is assumed that private wells are not operated within the study area to obtain drinking water supplies. Nevertheless, there is a moderate groundwater-bearing potential within the region. The Patapsco and Patuxent Formations of the Potomac Group, encountered directly beneath the site, are a quite productive interval. As reported in Prince Georges County, located adjacent to and east of the site, well yields from the Patapsco range between 0 and 1,230 gallons per minute (gpm). Yields in the Patuxent Formation range between 0 and 1,500 gpm. According to selected records of wells in Prince Georges County, wells tapping the Patuxent and Patapsco are drilled to depths between 17 and 1,176 feet beneath the surface.[17,18,19]

3.2 Surface Waters

Surface waters from the subject site flow chiefly to the east and northeast, following topographic contours. Storm sewers located along the Suitland Parkway, within 300 feet east of the subject site, are the most probable drainage pathways for the surface waters. The point of discharge of these sewers is unknown.[1,2,4]

The Anacostia River is located approximately 1.5 miles north of the site and empties into the Potomac River, which is located approximately 1.5 miles to the west. The Anacostia and Potomac Rivers are used for recreational and industrial purposes. Significant riverine wetland areas are located along both of these rivers.[1,20] Within one mile south of the site is Oxon Run, which flows approximately three stream miles to the southwest before entering the Potomac River.[1]

3.3 Hydrogeology

The geologic and hydrogeologic conditions in the study area were researched as part of the site investigation. A preliminary literature review was conducted to determine surface and subsurface geologic conditions, soil character, and the status of groundwater transport and storage.

3.3.1 Geology

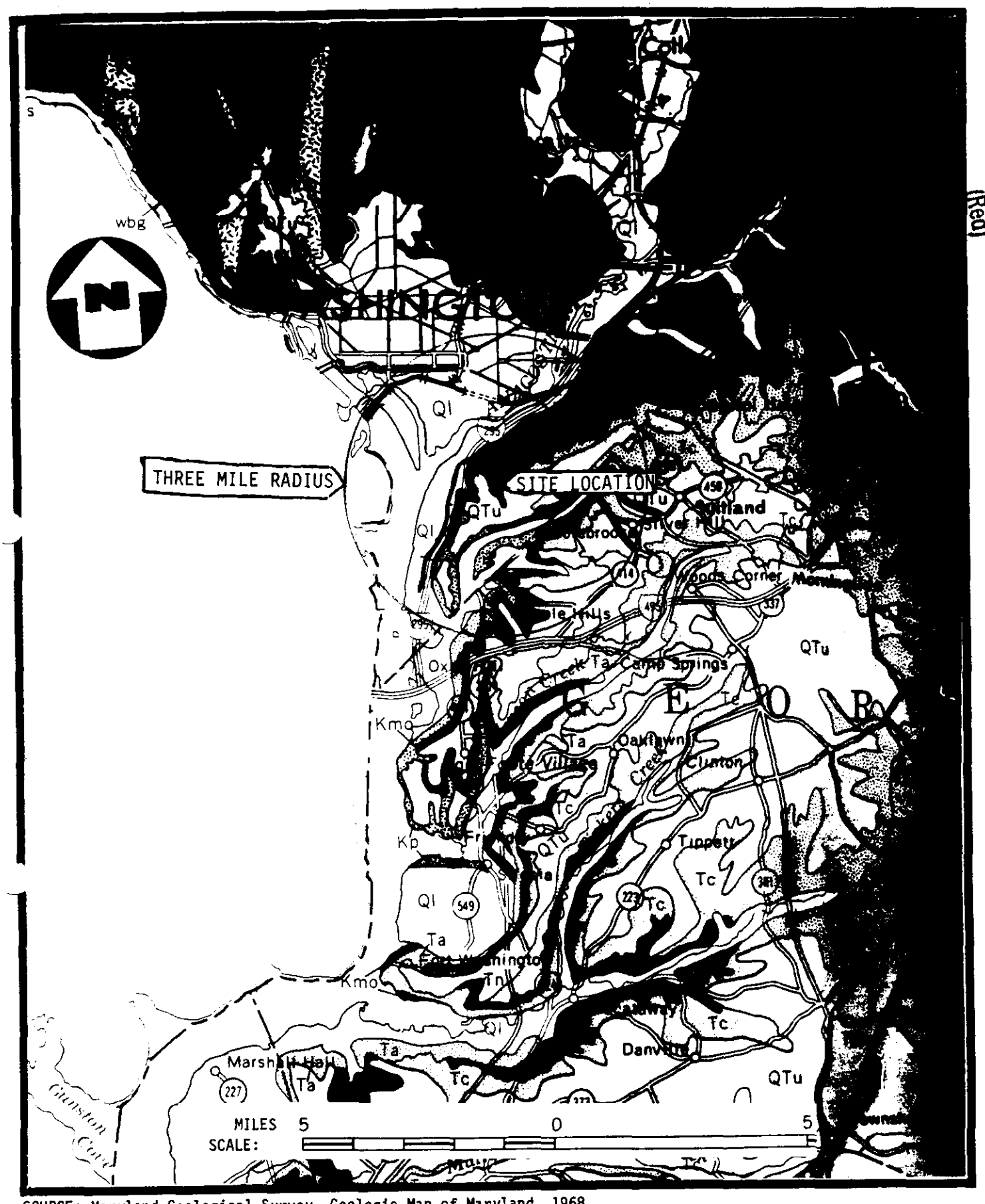
The study area surrounding the St. Elizabeth's Hospital site lies within the Coastal Plain Physiographic Province. The unconsolidated sediments of the Coastal Plain form a wedge that gently dips and thickens to the southeast. The topography of the study area is gently to moderately undulating. Elevations in the study area range from about 5 feet (as the Potomac River drains the area to the southwest) to nearly 300 feet above sea level (on uplands to the southeast of the site). A maturely dissected, dendritic drainage pattern dominates the study area. Wetlands exceeding five acres in size are mapped within the study area. The nearest of these, a forested, palustrine wetland area, is located approximately 0.5 mile south of the site on Oxon Run.[18,20,21]

The unconsolidated deposits of the Cretaceous age Potomac Group lie subjacent to soils at the site and are exposed throughout much of the study area. The Potomac Group contains the Raritan, Patapsco, Arundel, and Patuxent Formations (see figure 3.1, page 3-4). The Raritan and Patapsco Formations consist primarily of gray, brown, and red variegated silt and clay deposits that are lenticular, crossbedded, and argillaceous. The total thickness of the Raritan and Patapsco Formations ranges between 0 and 400 feet. The Arundel Clay underlies the Patapsco and consists of a series of tough, dark gray and maroon, lignite-bearing clays. The thickness of the Arundel Clay may reach 100 feet. The Patuxent Formation underlies the Arundel and overlies the crystalline basement rocks. The Patuxent Formation consists of white or light gray to orangish-brown, moderately sorted, crossbedded, argillaceous, angular sands and subrounded quartz gravels. Some lenses of silt and clay are also present. The thickness of the Patuxent Formation ranges between 0 and 250 feet. The maximum thickness of the Potomac Group is approximately 800 feet. The estimated depth to bedrock beneath the site exceeds 600 feet.[17,18,21]

The Tertiary age Calvert Formation is mapped approximately 0.4 mile east of the site. The Calvert consists predominantly of interbedded, dark green to dark bluish-gray, fine-grained, argillaceous sand and sandy clay. The thickness of the Calvert throughout the region ranges from 0 to 150 feet.[18,20]

Quaternary age undivided upland deposits are mapped approximately 0.2 mile west of the site and across much of the uplands of the study area. These units commonly consist of orange to brown, limonite-cemented sand and gravel. Lenses of silt and/or clay may also be present. The total thickness of these upland deposits is 90 feet.[18,21]

Quaternary age Lowland alluvial deposits are also mapped within the study area; the nearest are approximately 0.8 mile west of the site. These deposits, which are mapped across the entire northwestern portion of the study area, consist of gravel, sand, silt, and clay. Medium- to coarse-grained sand and gravel are also present. The thickness of these units ranges between 0 and 150 feet within the study area.[18,21]



SOURCE: Maryland Geological Survey. Geologic Map of Maryland. 1968.

GEOLOGIC MAP

ST. ELIZABETH'S HOSPITAL SITE

FIGURE 3-1

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3.3.2 Soils

Although soil maps for the site are unavailable, it is considered, based upon the location of the site in a highly urbanized area, that the soil type is probably mapped as Urban land. Based upon the underlying geology, the site has most likely been developed on materials that were once unconsolidated sand, gravel, and silt. Although no specific soil data are available, the permeability of the underlying materials is probably fairly high.[1,21]

3.3.3 Groundwater

Although essentially the entire population of the study area obtains water from public supplies utilizing surface water, there is a moderate groundwater-bearing potential within the region. The Potomac Group, encountered directly beneath the site, is a quite productive interval. In particular, the Patapsco and Patuxent Formations, as reported in Prince Georges County, located adjacent to and east of the site, are important water-bearing formations. Well yields from the Patapsco range between 0 and 1,230 gpm. Yields in the Patuxent Formation range between 0 and 1,500 gpm. According to selected records of wells in Prince Georges County, wells tapping the Patuxent and Patapsco are drilled to depths between 17 and 1,176 feet beneath the surface. Water-table elevations for the area of the site are unknown. These two aquifers are separated in some areas by the Arundel Clay, which serves as a leaky aquitard. As the stratigraphic position and composition of these units are variable throughout the region, both water-table and confined aquifer conditions are encountered. Throughout the Coastal Plain, wells tapping these Cretaceous units possess specific capacities exceeding 50 gpm per foot of drawdown (gpm per foot).[17,18,19]

Based on topographic control, groundwater migration beneath the site is probably toward the west and northwest, discharging into the Anacostia and Potomac Rivers. Based upon available information, it is considered that, although clay intervals may impede groundwater migration on a local scale, all units are probably connected on a regional scale because of discontinuous or leaky aquitards.[1,18]

3.4 Climate and Meteorology

The climate of the Washington, D.C. area is characteristically a continental type, marked by well-defined seasons. Average yearly temperatures range from a low of 43.2°F in January to a high of 88.5°F in July. Precipitation is highest in August, with five inches, and lowest in February, with 2.79 inches. The normal annual total precipitation is approximately 44 inches, and the mean annual lake evaporation is approximately 36.5 inches. This results in a net precipitation of 7.5 inches a year. A 1-year, 24-hour rainfall is expected to produce 2.7 inches.[22,23]

3.5 Land Use

St. Elizabeth's Hospital occupies approximately 50 acres west and south of the fill area. Other land use within three miles of the site consists primarily of residential communities. The site lies in the southwestern corner of the District of Columbia. The Anacostia River runs from northeast to southwest through the study area. The Potomac River runs from north to south and marks the border between Maryland and Virginia. Several military installments, including United States Naval facilities and Bolling Air Force Base, are located along the Maryland side of the Potomac. Downtown Washington is located within three miles northwest of the site.[1,2,3]

3.6 Population Distribution

The population within a 3-mile radius of the subject site is estimated to be as follows: 31,921 people within 1 mile; 95,763 people between 1 and 2 miles; and 106,888 people between 2 and 3 miles. The total population for the study area is approximately 234,572.[24]

3.7 Critical Environments

No endangered species' habitats have been identified within a three-mile radius of the site.[25] Wetland areas have been identified within 1.5 miles north of the site along the Anacostia River and along the Potomac River, located 1.5 miles west of the site.[1,20]

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4.0 WASTE TYPES AND QUANTITIES

Wastes disposed on site include storm sewer cleanings, street sweepings, road construction debris including milled asphalt, and incinerator ash. The incinerator ash comprises approximately 0.5 percent of the total fill material. All wastes are disposed under United States Government License No. 1-83.[3,4,5]

In March 1985, CRL performed comprehensive sampling of the fill material deposited at the subject site. Incinerator ash from the District of Columbia SWRC was found to contain some trace levels of chlorinated dioxins and furans. Other solid and aqueous samples obtained on site revealed elevated levels of heavy metals (lead up to 7,900 ppm) and trace levels of phenol (up to 110 ug/l and 790 ug/kg). Low to high levels of PAHs and up to 340 ppb of PCB 1260 were also revealed in on-site pond samples.[4,9,10]

Further EPA sampling in December 1988 revealed that the ash samples and the furnace residue were EP toxic for lead (up to 23 ppm) and/or cadmium (up to 8.45 ppm).[11]

Approximately 426,000 tons of material were deposited on the St. Elizabeth's Hospital property from January 1982 until August 1988. A breakdown of material deposited on site each year is as follows:[3]

1982:	74,667.00 tons
1983:	73,834.00 tons
1984:	62,683.00 tons
1985:	44,998.00 tons
1986:	66,007.00 tons
1987:	65,527.00 tons
1988:	37,564.00 tons (as of August 15, 1988)

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SECTION 5

5.0 FIELD TRIP REPORT

5.1 Summary

On Thursday, July 20, 1989, NUS FIT 3 members Richard Sheldon and Claire Olsovsky visited the St. Elizabeth's Hospital site in Washington, D.C. Richard Smith, the chief of the Solid Waste Disposal Division of the District of Columbia Department of Public Works, granted access and accompanied the team during the site visit. Weather conditions were overcast, with some sunshine and warm temperatures. Photographs were taken on site (see figure 5.1, page 5-3 and the photograph log, section 5.4).

5.2 Persons Contacted

5.2.1 Prior to Field Trip

Richard Smith
Chief of the Solid Waste Disposal Division
Department of Public Works
Second North Place, Southeast
Washington, DC 20003
(202) 727-4821

James McCreary
U.S. EPA
841 Chestnut Building
Ninth and Chestnut Streets
Philadelphia, PA 19107
(215) 597-1105

5.2.2 At the Site

Richard Smith
Chief of the Solid Waste Disposal Division
Department of Public Works
Second North Place, Southeast
Washington, DC 20003
(202) 727-4821

5.2.3 Water Supply Well Information

All residents within a three-mile radius of the subject site utilize public supplies as a source of potable water. No home wells exist in the study area.

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5.3 Site Observations

- The HNU was set to the 0 to 20 ppm position. A background reading of 0.3 ppm was recorded. No readings above background were recorded on site.

- The mini-alert was set on the X1 position; no readings above background were recorded.

- A portion of the landfill to the southeast, approximately three acres in size, had been closed and covered since the previous visit by EPA personnel. The area was richly overgrown with vegetation.

- A bulldozer was operating at the time of the visit, spreading recently dumped material throughout the active site.

- A small pond and an intermittent creek, observed on site at the time of the previous EPA visit, had been filled in.

- The entire hospital property was fenced.

- A ravine with steeply sloping banks runs from north to south and separates the active fill area from the former fill area.

- A large pile of organic debris, including tree stumps and mulchings, was located south of the entrance gate, along the dirt access road.

- Wooded areas surround the site to the north, south, and east.

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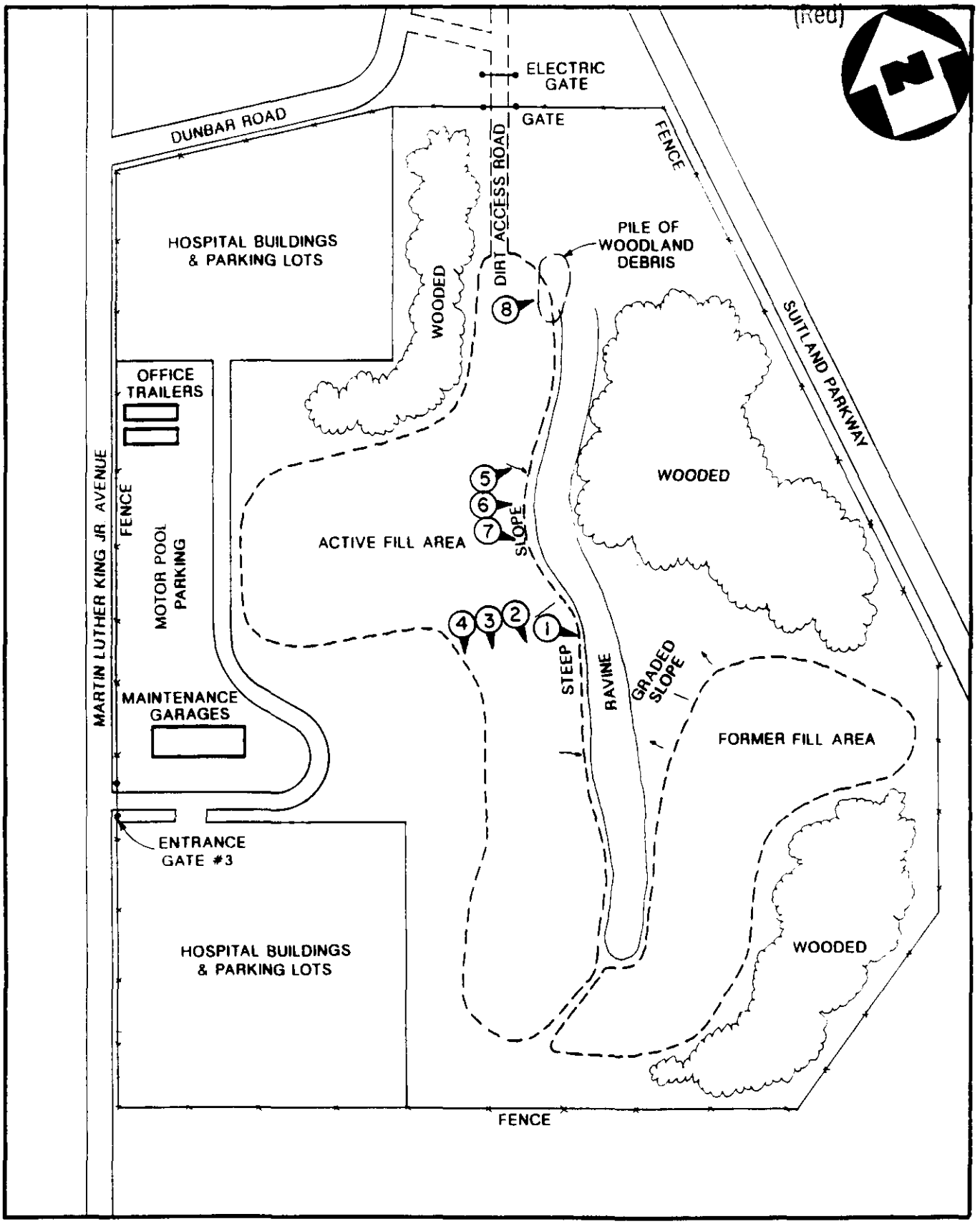

PHOTO LOCATION MAP

ST. ELIZABETHS HOSPITAL SITE, WASHINGTON, D.C.

(NO SCALE)

FIGURE 5.1

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Section 5.4 Photograph Log

Photo 1 - Former fill area across ravine
Looking east

Photos 2,3,4 - Pan of active fill area
Looking south

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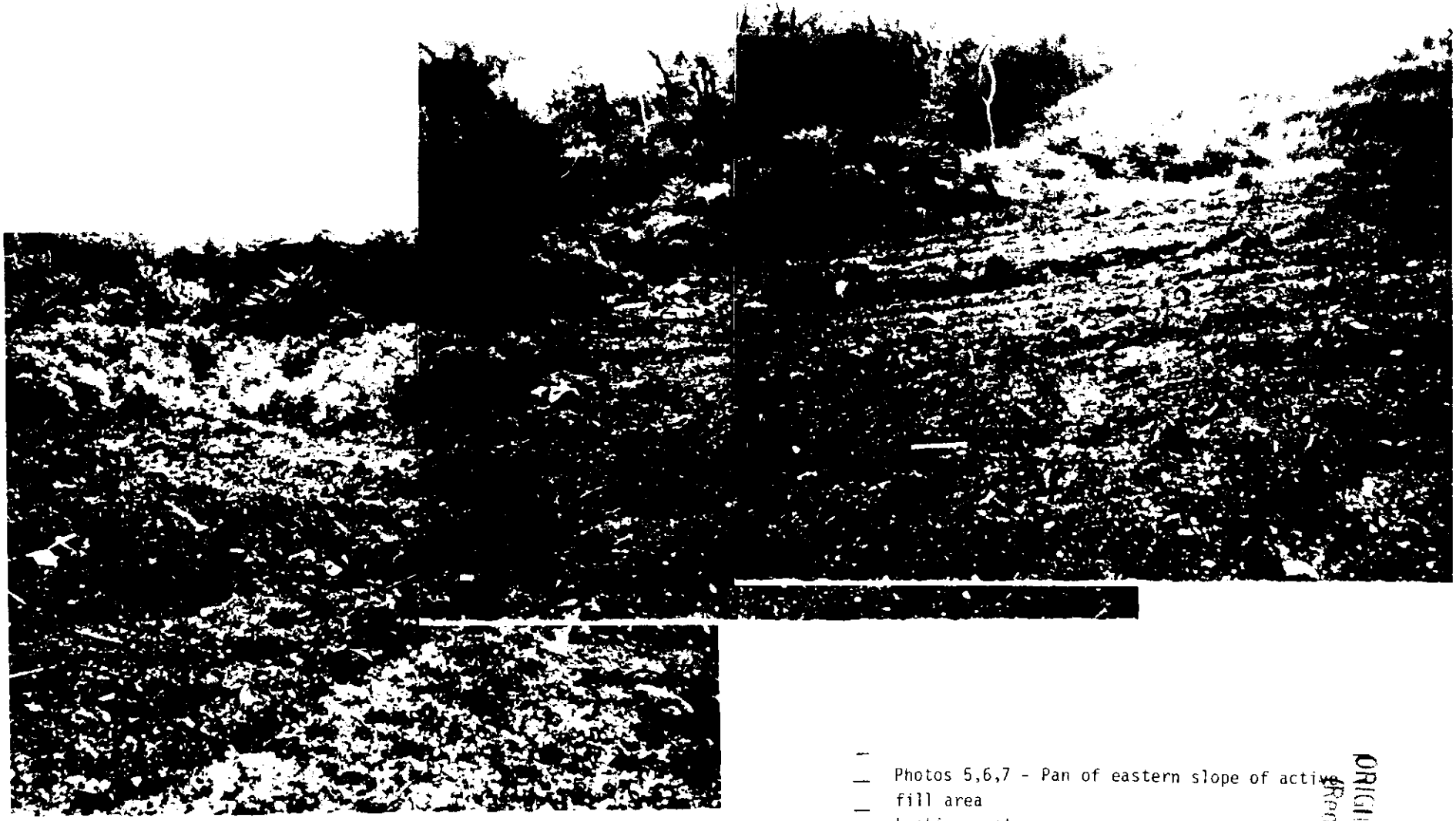

Photos 5,6,7 - Pan of eastern slope of active
fill area
Looking east

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Photo 8 - Pile of woodland debris at entrance gate

F3-8904-20

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION
01 STATE: DC | 02 SITE NUMBER: -014

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
St. Elizabeth's Hospital	2700 Martin Luther King Avenue				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Washington	DC	20032	N/A	0011	DC01

09 COORDINATES LATITUDE: 38° 51' 05" LONGITUDE: 76° 59' 35"

10 DIRECTIONS TO SITE (Starting from nearest public road)

Take Pennsylvania Avenue east from downtown Washington DC, turn right onto Alabama Avenue. Follow Alabama. Turn right onto Martin Luther King Avenue. The site is approximately 2 1/2 miles down, on the right.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)		
Government of the District of Columbia, Municipal Center	1301 E Street Northwest		
03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Washington	DC	20032	(202) 727-1000
07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)		
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)
☐ A. PRIVATE ☐ B. FEDERAL _____ (Agency name) ☒ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: ___ (MONTH DAY YEAR) ☒ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___ (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☒ YES DATE 7 / 20 / 89 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR ☐ C. STATE ☒ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)
CONTRACTOR NAME(S): NUS Corporation

02 SITE STATUS (Check one)
☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
November 1982 (BEGINNING YEAR) present (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Fly ash sampling, in March 1985, revealed some trace levels of chlorinated dioxins and furans. Soil samples were found to contain elevated levels of heavy metals. Ash samples, in December 1988, were EP toxic for lead and/or cadmium.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Although the site property is fenced, it has been noted in the past that site access via the entrance gates is frequently unrestricted. Therefore, the potential for direct contact exists. All residents in the study area rely on public water supplies with surface water sources approximately 20 land miles to the north.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time available basis) ☒ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency Organization)		03 TELEPHONE NUMBER
James McCreary	U.S. EPA		(215) 597-1106
04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER / 08 DATE
(b) (4)	NUS	FIT 3	((b) (4) / 8 / 14 / 89 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

ORIGINAL (Red)

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
DC	-014

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- _ A SOLID
- _ B POWDER FINES
- _ C SLUDGE
- _ E SLURRY
- _ F LIQUID
- _ G GAS
- X D OTHER Fly ash (Specify)

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS _____

CUBIC YARDS unknown

NO OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- X A TOXIC
- _ B CORROSIVE
- _ C RADIOACTIVE
- X D PERSISTENT
- _ E SOLUBLE
- _ F INFECTIOUS
- _ G FLAMMABLE
- _ H IGNITABLE
- _ I HIGHLY VOLATILE
- _ J EXPLOSIVE
- _ K REACTIVE
- _ L INCOMPATIBLE
- _ M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	unknown	unknown	Fly ash samples were found to contain elevated levels of 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
MES	lead	7439-92-1	Fly ash and road con-	7,900	ppm
MES	cadmium	7440-43-9	struction debris are	123	ug/l
OCC	phenol	108-95-2	disposed directly on site.	790	ug/kg
OCC	Aroclor 1260	11096-82-5		340	ppb

V. FEEDSTOCKS (See Appendix for CAS Numbers) N/A

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)

U.S. EPA. Inorganic data QA review, Case 5256/2057C.
St. Elizabeth's Hospital, March 6, 1986.

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EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
DC	-014

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 X A GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE _____) — X POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

Elevated levels of heavy metals have been located in wastes at the site. However, all residents within 3 miles of the subject site rely on public water supplies.

01 X B SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE _____) — X POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 234,572 — 04 NARRATIVE DESCRIPTION

The site is located on the edge of a ravine. There is a potential for contaminants in surface runoff to migrate off site into storm sewers or other drainage pathways. Surface waters within the study area are utilized for recreation. 234,572 people reside within 3 miles of the subject site.

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

None reported or observed.

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

None reported or observed.

01 X E DIRECT CONTACT — 02 ☐ OBSERVED (DATE _____) — X POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 31,921 — 04 NARRATIVE DESCRIPTION

Although the site is entirely fenced, it has been noted in the past that the entrance gates are frequently unrestricted. Residential communities are located within 1/8 mile to the northwest. 31,921 people reside within 1 mile of the subject site.

01 X F CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE _____) — X POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: approximately 7 acres (Acres) — 04 NARRATIVE DESCRIPTION

Elevated levels of heavy metals have been identified in wastes deposited on site. No liner is utilized. Approximately 7 acres of land have been filled into date.

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

None reported or observed.

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

None reported or observed.

01 ☐ I POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 31,921 — 04 NARRATIVE DESCRIPTION

Although the site is entirely fenced, it has been noted in the past that the entrance gates are frequently unrestricted. Residential communities are located within 1/8 mile to the northwest. 31,921 people reside within 1 mile of the subject site.

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POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
DC	-014

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

None reported or observed.

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

None reported or observed.

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

None reported or observed.

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills, runoff, standing liquids, leaking drums) — 02 ☐ OBSERVED (DATE _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 237,572 — 04 NARRATIVE DESCRIPTION

Wastes deposited on site are directly in contact with soils. No liner exists. 237,572 persons reside within 3 miles of the subject site.

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

None reported or observed.

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

Surface runoff from the subject site has the potential to migrate to storm sewers along the Suitland Parkway and other roadways within the study area. The Suitland Parkway is located within 1/3 mile to the east.

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

None reported or observed.

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

None reported or observed.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 234,572

IV. COMMENTS

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

U.S. EPA. Summary Report, Dioxin Sampling at St. Elizabeth's Hospital, March 6-8, 1985.
Smith, Richard, Chief Solid Waste Disposal Division, Government of D.C., with Richard Sheldon, NUS FIT 3. Meeting. July 20, 1989.

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SECTION 6

ORIGINAL

6.0 REFERENCES FOR SECTIONS 1.0 THROUGH 5.0

1. United States Geological Survey. Anacostia, D.C. - Maryland Quadrangle, 7.5 Minute Series. Topographic Map. 1965, photorevised 1979. Combined with Washington West, D.C. - Maryland - Virginia Quadrangle, 7.5 Minute Series. Topographic Map. 1965, photorevised 1983; Washington East, D.C. - Maryland - Virginia Quadrangle, 7.5 Minute Series. Topographic Map. 1965, photorevised 1983; and Alexandria, D.C. - Maryland - Virginia Quadrangle, 7.5 Minute Series. Topographic Map. 1965, photorevised 1983.

2. NUS Corporation, FIT 3. Preliminary assessment; site visit. TDD No. F3-8904-20, July 20, 1989.

3. Smith, Richard, Chief, Solid Waste Disposal Division, District of Columbia Department of Public Works, with Richard Sheldon, NUS FIT 3. Meeting. July 20, 1989.

4. Clark, Leo J., et al., United States Environmental Protection Agency. Summary Report; Dioxin Sampling at St. Elizabeth's Hospital, Washington, D.C. March 6 and 8, 1985.

5. United States Government, Represented by Saint Elizabeth's Hospital, as Granted to the District of Columbia Government, Department of Environmental Services. Revocable Permit No. I-83. October 19, 1982.

6. The United States Government, Represented by Saint Elizabeth's Hospital, as Granted to the District of Columbia Government, Department of Environmental Services. Revocable Permit No. 78-1, October 21, 1977.

7. Versar, Incorporated. Washington Ash Samples, Dioxin Analysis Report. January 15, 1984.

8. Austin, John, United States Environmental Protection Agency. Preliminary Quality Assurance Review for Dioxin, SIS Isomers, Saint Elizabeth's Hospital. July 10, 1985.

9. Markham, Steve L., United States Environmental Protection Agency. Inorganic Data Quality Assurance Review, Case No. 5256/2057C, Saint Elizabeth's Hospital. March 6, 1986.

10. Sands, Charles, United States Environmental Protection Agency. Organic Data Quality Assurance Review, Case No. 5256, Saint Elizabeth's Hospital, April 29, 1986.

11. Bernarding, Jay, Versar, Incorporated. EP Toxicity Analysis of Ash Samples. January 4, 1989.

12. Margolis, Stephen, United States Department of Health and Human Services. Review of Dioxin Sampling at Saint Elizabeth's Hospital. October 1, 1985.

13. Fallin, Wayne, Washington Suburban Sanitary Commission, with Gil Marshall, NUS FIT 3. Telecon. October 21,1985.

14. Kessler, Richard, Washington Suburban Sanitary Commission, with Paul Dietrich, NUS FIT 3. Telecon. March 17, 1987.

15. Cameron, Craig, Fairfax County Water Authority, with David Doran, NUS FIT 3. Telecon. September 12, 1986.

16. Eunpu, Floyd, Fairfax County Water Authority, with Edward Jamison, NUS FIT 3. Telecon. April 3, 1989.

17. Sanford, S., Virginia Geological Survey. The Underground Water Resources of the Coastal Plain Province of Virginia. Bulletin No. 5, 1913.

18. Meng, A.A. III, and J.F. Harsh, United States Geological Survey. Hydrogeologic Framework of the Virginia Coastal Plain. Open File Report 84-728, 1984.

19. Tompkins, M.D., Maryland Geological Survey. Prince Georges County Groundwater Information: Well Records, Chemical-Quality Data, Pumpage, Appropriation Data, Observation Well Records, and Well Logs. Water Resource Basis Data Report No. 13, 1983.

20. United States Department of the Interior. Anacostia, D.C. - Maryland Quadrangle, 7.5 Minute Series. National Wetlands Inventory Map. 1981. Combined with Washington East, Maryland - D.C. Quadrangle, 7.5 Minute Series. National Wetlands Inventory Map. 1981; and Washington West, D.C. - Maryland - Virginia Quadrangle, 7.5 Minute Series. National Wetlands Inventory Map. 1981.

21. Maryland Geological Survey. Geologic Map of Maryland. 1968.

22. National Oceanic and Atmospheric Administration. Climatography of the United States. Local Climatological Data, Baltimore, Maryland. 1985.

23. Uncontrolled Hazardous Waste Site Ranking System; A User's Manual. National Oil and Hazardous Substances Contingency Plan, Appendix A (40 CFR 300) (47FR31219). July 16, 1982.

24. Rand McNally. Commercial Reference Map and Guide. Maryland. 1983.

25. Wolflin, John, United States Department of the Interior, Fish and Wildlife Service, to Garth Glenn, NUS FIT 3. Correspondence. September 1, 1989.

APPENDIX A

SAINT ELIZABETHS HOSPITAL

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

REVOCABLE LICENSE

For the Use of Real Property

License No. 78-1

The United States of America, represented by Saint Elizabeths Hospital, National Institute of Mental Health, Public Health Service, Department of Health, Education, and Welfare hereinafter referred to as the U.S. Government, hereby grants a license to District of Columbia Government, Department of Environmental Services, hereinafter called the Licensee, to use the following described land of the Government located at Saint Elizabeths Hospital for the purpose of depositing earth fill thereon, which has been determined to be in the public interest.

A. The granting of this License will result in direct benefit to the Government in that the fill material will modify the existing slope to improve drainage and maintain a more stable angle of repose. When topsoiled and seeded, the area will be more usable for other than a dump.

The License is granted subject to the following provisions and conditions:

1. This License is unassignable and is revocable at will by the U.S. Government.

2. Use and occupancy of the premises shall be without cost to the Government and subject to the approval of Lawrence Whitney, Chief, Industrial & Environmental Branch (C&P phone 574-7700) who shall administer conditions prescribed herein and subject also to such further requirements which he may prescribe as conditions warrant.

3. All construction, maintenance, repair and operations performed hereunder shall be in strict conformity with all laws and regulations thereunto pertaining.

4. The U.S. Government shall not be liable or responsible in any manner whatsoever to the Licensee, its successors or assigns, for any damages of any nature whatsoever arising from the revocation of this License.

5. The decision of the Superintendent, Saint Elizabeths Hospital, concerning the interpretation, meaning or intent of any part of this License shall be final.

6. The Licensee shall exercise all normal and reasonable safety precautions. If needed, necessary barricades and suitable signs, flares, lanterns and other signal devices shall be provided and used

ORIGINAL
(Red)

at locations where desirable for safety of patients, employees and the public.

7. Vehicles shall enter and leave the fill area through the gate of the fence that is adjacent and runs parallel to the Anacostia Freeway. The gate shall be securely locked when not in use. The existing pavement of the access road shall be maintained free of mud and debris.

8. Every effort is to be made by Licensee to preserve the life of the trees located in the periphery of the fill area. If some trees interfere with the earth filling operations, they may be cut and removed if approved by the Hospital. Trees and brush that are within the fill area will be covered by earth, however, these trees and brush should not extend beyond the finished ground surface of the fill.

9. Burning of site of trees, logs, and brush will not be permitted.

10. Fill material shall be deposited under close supervision to maintain stabilization of ground.

11. Permission is granted to dump incinerator residue, a sterile material supplemented at times with clean dirt only. No paper, trash, concrete, wood or large boulders over one foot in diameter will be permitted. These fill materials will be spread to grade at least twice per week maintaining natural water drainage as the fill is developed. As areas are filled to the proposed limits they will be covered with 6 inches to 1 foot of earth or earth and compost and then seeded at appropriate times. During the filling operations DES will at least once per week dispose of all metallic goods delivered to the existing dump site by Saint Elizabeths Hospital personnel.

12. Fill over existing sewers will be limited to the estimated capacity of additional material as determined by good engineering practice and as portrayed on Figure 3, Titled "Proposed Saint Elizabeths Hospital Landfill for Incinerator Residue and other Spoil Material", drawn by D.C. Bureau of Design and Engineering, Department of Environmental Services, no date.

13. As the fill area progresses, manholes and storm inlet structures will be raised in advance of the fill to be placed but storm drainage will be continually maintained.

14. The area involved is shown in Figure 3 as indicated in Item 12.

15. The fill volume is estimated at about 367,400 cubic yards and constitutes a three to four year program assuming a density of one ton per cubic yard and a daylight generation of incinerator residue of 100,000 tons per year.

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In Witness WHEREOF this License has been executed this 5 day of October, 1977.

United States of America

By: Superintendent,
Saint Elizabeths Hospital

Accepted this 21 day of October, 1977, by and on behalf of the Licensee in acceptance and pursuant to the terms and considerations herein set forth.

District of Columbia Government
Department of Environmental
Services

By: Herbert L. Fuller
Director
(Title)

Memorandum

ORIGINAL
(Red)

Date October 14, 1982

From Director, Division of General Services, OM, ADAMHA

Subject Revocable License - D.C. Government Use of SEH Land

To Deputy Director, Division of Facilities
and Materials Management, SEH

In response to your memorandum of October 4 attached is the signed revocable license permitting the Department of Environmental Services, D.C. Government to use SEH land. After it is executed by an appropriate official of the D.C. Government, please send a signed copy to this office.

J. De Vierno

John De Vierno

Attachment

ORIGINAL (Red)

SAINT ELIZABETHS HOSPITAL

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

REVOCABLE LICENSE

For the Use of Real Property

License No. 1-83

The United States of America, represented by Saint Elizabeths Hospital, National Institute of Mental Health, Public Health Service, Department of Health and Human Services, hereinafter referred to as the U.S. Government, hereby grants a license to the District of Columbia Government, Department of Enviornmental Services, hereinafter called the Licensee, to use the following described land of the Government located at Saint Elizabeths Hospital for the purpose of depositing earth fill thereon, which has been determined to be in the public interest.

The granting of this License will result in direct benefit to the Government in that the fill material will modify the existing slope to improve drainage and maintain a more stable angle of repose. The Licensee has further agreed to permit the Hospital free use of its solid waste disposal service thus saving the Hospital approximately $1,500 per month in dump fees. The Licensee also has agreed to provide a temporary vehicle storage area (accommodating 70 to 100 vehicles) for use during our renovation program in the vicinity of Gate No. 1 at no charge to the Hospital.

The License is granted subject to the following provision and conditions:

1. This License is unassignable and is revocable at will by the U.S. Government.

2. Use and occupancy of the premises shall be without cost to the Government and subject to the approval of Lawrence R. Whitney, Deputy Director, Division of Facilities and Materials Management (574-7707) who shall administer conditions prescribed herein and subject also to such further requirements which he may prescribe as conditions warrant.

3. All construction, maintenance, repair, and operations performed hereunder shall be in strict conformity with all laws and regulations thereunto pertaining.

4. The U.S. Government shall not be liable or responsible in any manner whatsoever to the Licensee, its successors or assigns, for any damages of any nature whatsoever arising from the revocation of this License.

5. The decision of the Director, Division of General Services, Alcohol Drug Abuse and Mental Health Administration, concerning the interpretation, meaning, or intent of any part of this License shall be final.

6. The Licensee shall exercise all normal and reasonable safety precautions. If needed, necessary barricades and suitable signs, flares, lanterns, and other signal devices shall be provided and used at locations where desirable for safety of patients, employees, and the public.

7. Vehicles shall enter and leave the fill area through the access roadway through the fence off of Dunbar Street, S.E. The gate shall be securely locked when not in use. Under no circumstances will haul vehicles travel on existing Hospital roadways.

8. Every effort is to be made by Licensee to preserve the life of the trees located in the periphery of the fill area. If some trees interfere with the earth filling operations, they may be cut and removed if approved by the Hospital. Trees and brush that are within the fill area will be covered by earth, however, these trees and brush should not extend beyond the finished ground surface of the fill.

9. Burning on site of trees, logs, and brush will not be permitted.

10. Fill material shall be deposited under close supervision to maintain stabilization of ground.

11. Permission is granted to dump incinerator residue, a sterile material supplemented at times with clean dirt only. No paper, trash, concrete, wood or large boulders over one foot in diameter will be permitted. These fill materials will be spread to grade at least twice per week maintaining natural water drainage as the fill is developed. As areas are filled to the proposed limits, they will be covered with six inches to one foot of earth or earth and compost and then seeded at appropriate times. During the filling operations, the Licensee will at least once per week dispose of all metallic goods delivered to the existing dump site by Saint Elizabeths Hospital personnel.

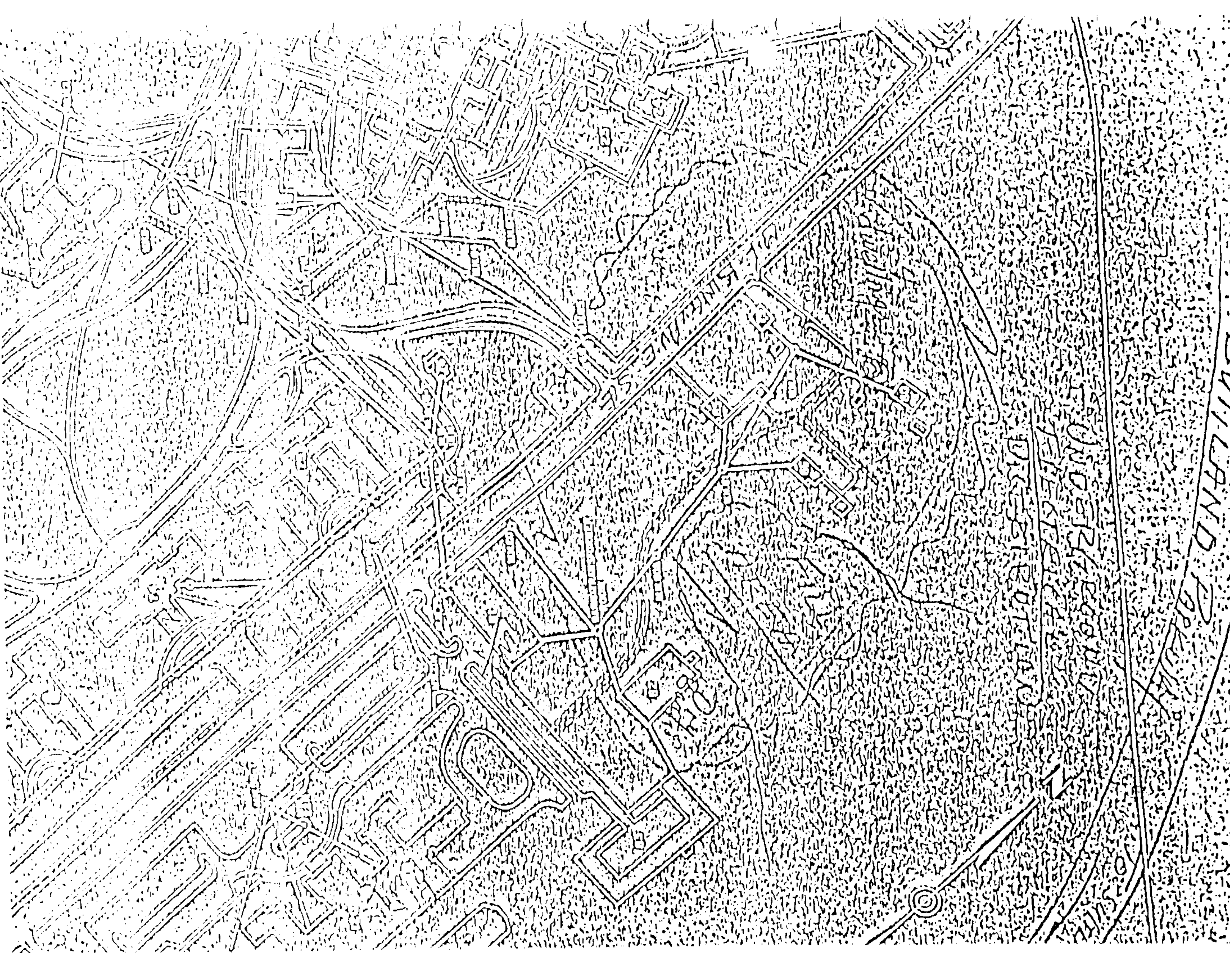
12. Fill over existing sewers will be limited to the estimated capacity of additional material as determined by good engineering practice.

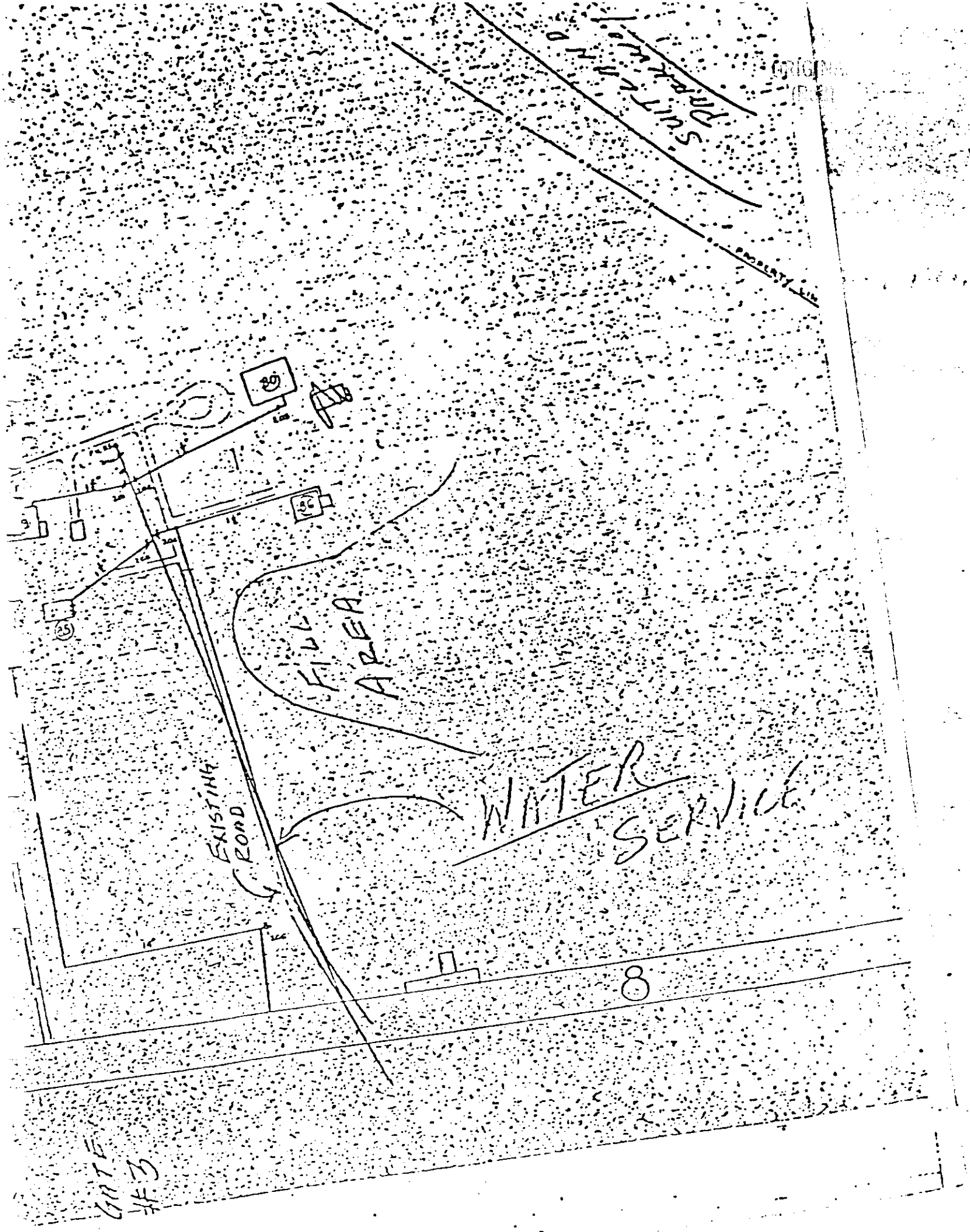
13. As the fill area progresses, manholes and storm inlet structures will be raised in advance of the fill to be placed but storm drainage will be continually maintained.

14. The area involved is shown on the attached sketches.

15. The fill volume is estimated at about 367,400 cubic yards and constitutes a three to four year program assuming a density of one ton per cubic yard and a daylight generation of incinerator residue of 100,000 tons per year.

16. Any changes to the above cited conditions must be approved by the Director, Division of General Services, Alcohol Drug Abuse and Mental Health Administration.





SUITLAND PARKWAY
PROPERTY LINE
80
85
FILL AREA
WATER SERVICE
EXISTING ROAD
8
GATE #3

In Witness WHEREOF this License has been executed this 14 day of October, 1982.

ORIGINAL
(Red)

United States of America

By: John DeVierno
Director, Division of General Services
Alcohol Drug Abuse and
Health Administration

Accepted this 19th day of OCTOBER, 1982, by and on behalf of the Licensee in acceptance and pursuant to the terms and considerations herein set forth.

District of Columbia Government
Department of Environmental Services

By: William B. Johnson

DIRECTOR, ENVIRONMENTAL SERVICES
(Title)

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(Red)

APPENDIX B

Summary Report

Dioxin Sampling

St. Elizabeth's Hospital
Washington, D. C.

March 6-8, 1985

(b) (4)

[redacted]

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Introduction

At the request of the Waste Management Division, EPA Region III, staff from the Central Regional Laboratory (CRL) performed extensive sampling of the fill material which was being deposited on the grounds of St. Elizabeth's Hospital by the District of Columbia. This fill material included incinerator (fly) ash from the electrostatic precipitator (ESP) at the District's Solid Waste Reduction Center (SWRC) that was found to contain Dioxin (see attachment for results). In addition, samples were collected of three leachate streams found to be emanating from the back (older exposed fill) portion of the site and of sediment in a pond and unnamed stream which received this leachate and any other drainage from the back side of the fill area.

Shortly after receiving this request for sampling, three representatives from CRL performed a reconnaissance survey of the St. Elizabeth's Hospital fill site to assist in developing a sampling strategy. Special attention was paid to the areal configuration and overall physical characteristics of the site, including uniformity of the fill material, and surface runoff patterns. This recon effort was followed by the preparation of a work or study plan. The purpose of the work plan was to help ensure a successful sampling operation by identifying the actual sampling, QA and safety protocols that would be maintained. During the finalization of the work plan CRL staff engaged in several discussions with staff from the Centers for Disease Cotnrol (CDC). To the extent possible, given existing resource constraints, CDC's recommendations were implemented in the actual sampling program. This assistance to enhance data credibility was appreciated.

Site Description

A mixture of incinerator ash and other residue along with storm sewer cleanings have been hauled from the SWRC to St. Elizabeth's Hospital for the past seven years. This mixture allegedly consists of 0.5% fly ash from the facility's ESP and appeared to be very uniform in nature. The current fill site, which has been used for the last two years, is a large ravine located in the northeastern sector of the Hospital's property along the Suitland Parkway. There are at least 300-400 yards separating this area containing fill from the main administrative region of the hospital where the patients reside. Neither patients nor hospital staff were ever seen at or near the fill area during the three days of sampling. There is a fence surrounding much of the fill site and access roads lead to it from the hospital's maintenance, shop and equipment storage areas and from the opposite side via Dunbar Street. The nearest private residences to the fill site are located on Dunbar Street, about 1/8th of a mile away. This area as well as the area along Suitland Parkway is primarily wooded. The nearby residences were situated at a noticeably lower elevation than the fill site itself.

The fill material is hauled to the site via the Dunbar Street access in several dump trucks, each of which has a 10 yard capacity. During this sampling project a truckload of fill was arriving about every hour or two. The fill would be dumped in one specific area and subsequently spread over a much larger area by means of a bulldozer. This bulldozer

ORIGINAL

was continuously spreading material and regrading to achieve the proper slope (4:1) while sampling was in progress.

The area of the ravine already filled comprised approximately 2-3 acres and had a depth ranging from 70 to 100 feet. The top of the fill pile did not appear to have a high ash content but was rather a combination of dirt, debris and assorted residue. Also observed at the top of the pile were six, 55 gallon drums, some of which were nearly full, and a gas cylinder. None of these items were labeled and their contents could not be discerned. There was no noticeable wind dispersal of the ash material during our sampling operation despite gusty winds and the effects of the bulldozing operation. The greatest concentrations of ash were observed along the embankment on the back side of the fill pile and within the plateau area below and behind this embankment. We were told that this material was deposited about a year ago. A total of three small leachate streams could be seen emanating from the bottom of the fill embankment near the plateau region which forms the outer perimeter of the fill site. Just beyond this area exists a small stream which was partly dammed by fallen trees and earthern material forming a small pond (<1/4 acre) near the far corner of the fill site. The stream flowed along the entire back side of the fill pile toward Suitland Parkway. Immediately upon leaving the hospital premises it entered an underground storm sewer which paralleled the parkway. This stream received the three aforementioned leachate discharges and appeared to be the primary conduit of other runoff from the older fill area.

Sampling Program

The active fill area was sampled in accordance with the grid system shown in Figure 1. Four or five generally equidistant samples were collected within each of the 19 grid elements and composited. All of these individual samples were of approximately the same volume and all were collected within a foot of the surface using a manually driven stainless steel auger. The rectangular grid elements were anywhere from 50 to 80 feet in length on each side and, where possible, were identified by means of 8 ft. stakes planted along the outer perimeter of the site. The composite samples from each of the numbered grid elements were homogenized in the field using a Waring commercial type blender and quart jars made of stainless steel. The homogenized samples were then placed in clean 8 oz. glass containers which were affixed with the appropriate labels. Duplicate samples for independent lab analysis were prepared for three of the grid elements (nos. 5, 15, and 16) which were selected because they were thought to be representative of different zones of the fill site. In addition to the grid sampling a special sample was collected of newly arrived fill prior to being spread at the site.

Besides the ash/soil sampling, four samples, including one duplicate, were collected from the three leachate streams leaving the fill site and seven sediment samples were collected from the unnamed stream and pond at three different locations. As indicated duplicate samples were collected at each of these latter sites. Lastly, two background soil samples were collected at a common site along the Suitland Parkway for dual lab analysis. The approximate locations of the various leachate and sediment/soil samples are also shown on Figure 1, along with the assigned sample numbers.

ORIGINAL (Red)

The augers and the blender jars were decontaminated between samplings by washing with soapy water and rinsing with clear water followed by a methanol rinse for drying purposes and two rinses using 1,1,1-trichloroethane. On each occasion a sample of the final rinsate was collected in order to ascertain the effectiveness of decontamination. These samples have been archived and could be analyzed if necessary. All of the sample containers were rinsed with a solvent and handled thereafter only with uncontaminated gloves. They were packaged in accordance with the Agency's dioxin sampling protocols and shipped by Federal Express to one of two laboratories: California Analytical Labs (received the bulk of the samples) and the EPA Lab in Bay St. Louis, Mississippi. Both laboratories also received two PE samples one for urban dust or ash and the other for sediment.

The samples collected at St. Elizabeth's Hospital were analyzed for the following:

Dioxins

Total TCDD
2, 3, 7, 8 - TCDD

Total PCDD
1, 2, 3, 7, 8 - PCDD

Total HCDD
1, 2, 3, 4, 7, 8 - HCDD

Total H_p CDD
1, 2, 3, 4, 6, 7, 8 - H_p CDD

Total OCDD

Furans

Total TSDF
2, 3, 7, 8 - TCDF

Total PCDF
1, 2, 3, 7, 8 - PCDF
2, 3, 4, 7, 8 - PCDF

Total HCDF
1, 2, 3, 5, 7, 8 - HCDF

Total H_p CDF
1, 2, 3, 4, 6, 7, 8 - H_p CDF
1, 2, 3, 4, 7, 8, 9 - H_p CDF
Total OCDF

Attached is a summary of the field sampling log that was used for sample identification purposes.

LJC:tlb

Sampling Log
St. Elizabeth's Hospital

mple No.	Tag No.	Label No.	Description
1-1	3-21771	013302	Ash - Grid # 16
1-2	3-21772	013802	" " " Duplicate Sample
1-3	3-21775	013303	Ash - Grid # 12
-4	3-21778	013304	" - Grid # 8
-5	3-21781	013305	" - Grid # 4
-6	3-21784	013306	" - Grid # 3
1-7	3-21787	013307	" - Grid # 7
-8	3-21790	013308	" - Grid # 11
1-9	3-21793	013309	" - Grid # 2
-10	3-21796	013310	" - Grid # 6
-11	3-21799	013311	" - Grid # 15
-12	3-21852	013312	" - Grid # 1
-13	3-21855	013313	" rid # 5

Sampling Log
St. Elizabeth's Hospital

Sample No.	Tag No.	Label No.	Description
A-13	3-21856	013803	Ash - Grid # 5 Duplicate Sample
-14	3-21859	013314	Ash - Grid # 9
-15	3-21862	013315	" - Grid # 13
-16	3-21865	013316	" - Grid # 14
-17	3-21868	013317	" - Grid # 15
-17	3-21869	013318	" - Grid # 15 Duplicate
-17	3-21870	013804	" - Grid # 15 Duplicate
-17	3-21871	013805	" - Grid # 15 Duplicate
-18	3-21875	013319	Ash - Grid # 17
-19	3-21878	013320	" - Grid # 18
-20	3-21881	013321	" - Grid # 19
-21	3-21887	013806	Ash - Newly arrived Truckload (before spreading)

Sampling Log
St. Elizabeth's Hospital

ORIGINAL (Red)

mple No.	Tag No.	Label No.	Description
-1	3-21751	1562C-01	Stream sediment - just before stream enters storm sewer
-2	3-21762	013701	" " " " " Duplicate
1	3-21760	013301	Background soil sample
B2	3-21759	013801	" " " Duplicate
-3	3-21768	1562C-02	Stream sediment - about 100 ft upstream of fence (below leachate stream)
-4	3-21769	013702	" " " " Duplicate
-6	3-21892	1562C-03	Pond Sediment
-7	3-21893	1562C-04	" " Duplicate

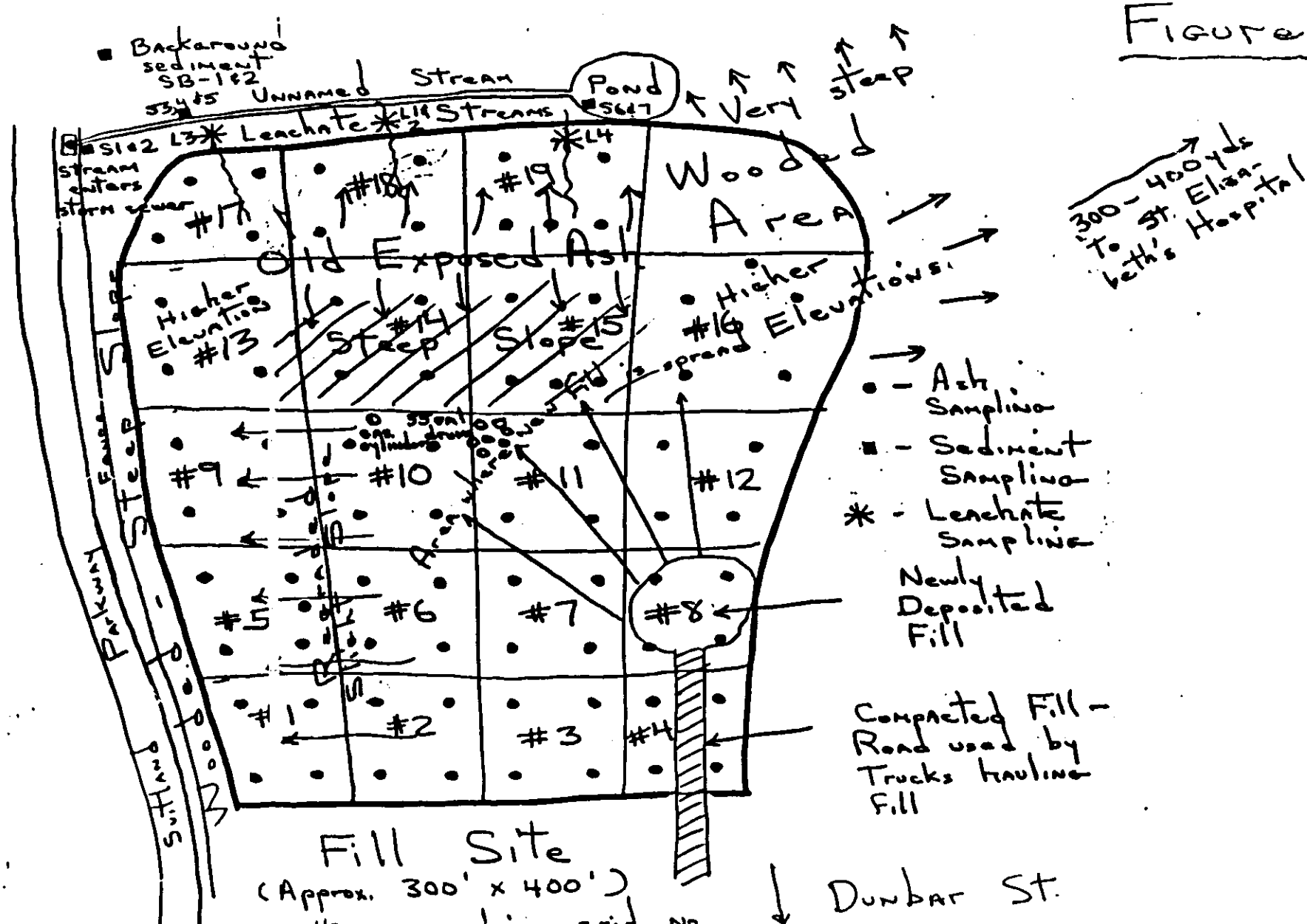
Sampling Log
St. Elizabeth's Hospital

Sample No.	Tag No.	Label No.	Description
-1	3-21754	1562C-05	Leachate From Grid # 18
-2	3-21764	1562C-06	" " " Duplicate
-3	3-21765	1562C-07	Leachate From Grid # 17
-4	3-21888	1562C-08	Leachate From Grid # 19

Sampling Log
St. Elizabeth's Hospital

Sample No.	Tag No.	Label No.	Description
—	3-21398	1562C-10	Blank Water
—	—	013807	PE Sample - Urban Dust (EPA Bay St. Louis)
—	—	013322	PE Sample - Urban Dust (Calif. Analytical Lab)
—	—	013703	PE Sample - Sediment (EPA Bay St. Louis)
—	—	1562C-09	PE Sample - Sediment (Calif. Analytical Lab)

Figure 1



ORIGINAL (Red)

Incinerator Ash Sample
Solid Waste Reduction Center
Washington, D.C.
(units ppb or ng/g)

ORIGINAL (Red)

		2,3,7,8	TETRA	PENTA	HEXA	HEPTA	OCTA	
	SAMPLE 34E	26	310	559	702	255	34	
FURANS-dup	27C	29	341	565	734	321	29	
	RPD%	10.4	9.3	1.1	4.5	23.0	13.9	10.4 AVE

		2,3,7,8	TETRA	PENTA	HEXA	HEPTA	OCTA	
	SAMPLE 36E	3.2	103	184	364	182	76	
DIOXINS-spike	28C	19.3	126	270	330	194	86	
	RPD% SPIKE	19.8	37.9	8.1	6.5	12.0		14.1 AVE

		2,3,7,8	TETRA	PENTA	HEXA	HEPTA	OCTA	
	SAMPLE 36E	16	166	227	307	129	15	
FURANS-spike	28C	15	210	310	288	129	13	
	RPD%	6.0	23.8	30.7	6.7	0.2	14.1	13.5 AVE

12.4 OVERALL AVE

rjr 1/15/85

ST. ELIZABETH'S POLYCHLORINATED DIOXIN/FURAN ANALYSIS
PARTS PER TRILLION

sample #	grid	TCDF total	TCDF (2,3,7,8)	PCDF total	PCDF (1,2,3,7,8)	PCDF (2,3,4,7,8)	HCDF total	HCDF (1,2,3,4,7,8)	HpCDF total	HpCDF (1,2,3,4,6,7,8)	HpCDF (1,2,3,4,7,8,9)	OCDF total
1562C-01	S-1	2.5	2.5									
1562C-02	S-3	10	5.5	110	11	9.6	97	43	65	30		22
1562C-02D	S-3	11	7.8	61	7.5	6.7	67	35	85	42		32
1562C-03	S-6	100	24	340	33	31	270	130	170	110	12	28
1562C-04	S-7	78	24	330	38	32	280	120	210	130	14	30
1562C-05	L-1			0.28	0.1				0.44	0.44		
1562C-06	L-2						1					
1562C-07	L-3											
1562C-08	L-4											
1562C-10	BLANK WATER											
BC013301	BACKGROUND											
BC013312	1	310	60	810	96	61	560	230	650	430	57	
BC013309	2	180	40	630	80	52	680	260	300	190	26	50
BC013306	3	140	31	400	42	40	400	160	250	150	21	39
BC013305	4	600	120	1800	250	210	1600	690	700	450	62	110
BC013313	5	790	150	2200	320	190	1600	750	1500	1100	100	210
BC013310	6	350	70	1300	170	110	1500	630	630	410	38	69
BC013307	7	180	36	510	60	46	450	180	220	140	17	44
BC013304	8	140	40	550	56	60	460	250	300	200	21	67
BC013314	9	720	150	2500	400	260	2700	1000	1200	840	130	190
BC013311	10	530	110	1600	190	150	1400	540	1800	1200	150	190
BC013308	11	520	110	2100	220	200	2200	920	1200	820	97	190
BC013303	12	140	37	1100	140	110	2500	940	630	440	46	110
BC013315	13	170	40	820	130	90	1000	470	470	310	38	82
BC013316D	14	1200	260	3000	330	300	2700	1100	3000	2100	240	380
BC013316	14	830	180	3200	360	300	3600	1500	2700	1600	180	330
BC013318	15	330	63	1000	95	83	360	270	1200	1200		
BC013317	15	300	55	950	120	61	560	350	640	670	52	
BC013302	16	510	130	4000	410	350	7500	2900	1600	1000	79	290
BC013319	17	280	71	850	85	70	570	240	510	350	42	64
BC013320	18	580	100	1100	120	100	790	290	750	490	51	84
BC013321	19	810	140	1300	170	110	770	280	1200	850	77	120
	MAX	1200	260	4000	410	350	7500	2900	3000	2100	240	380

blank cells denote not detected values

sample #	grid	TCDD total	TCDD (2,3,7,8)	PCDD total	PCDD (1,2,3,7,8)	HCDD total	HCDD (1,2,3,4,7,8)	HpCDD total	HpCDD (1,2,3,4,6,7,8)	OCDD total
1562C-01	S-1									310
1562C-02	S-3							190	76	1100
1562C-02D	S-3							170	80	1100
1562C-03	S-6	27	5	63	32	130	50	360	180	690
1562C-04	S-7	30	15	190	72	92		350	160	650
1562C-05	L-1							0.45	0.45	
1562C-06	L-2							3.4	3.4	
1562C-07	L-3									
1562C-08	L-4									
1562C-10	BLANK WATER									
BC013301	BACKGROUND									1900
BC013312	1	86		580	120	160	89	1100	510	1000
BC013309	2	28		350	83	210	120	460	230	460
BC013306	3	51		570	64	370	130	900	440	650
BC013305	4	260	41	1300	450	870	340	1300	750	610
BC013313	5	160		1300	240	430	220	1700	970	1000
BC013310	6	19		1100	220	680	240	1200	640	780
BC013307	7	67	9	430	73	200	120	660	330	660
BC013304	8	23		230		220		1100	560	830
BC013314	9	170		1600	340	690	360	1800	900	1500
BC013311	10	170	23	1000	180	380	190	2300	1300	1400
BC013308	11	240		2200	340	1400	510	3100	1700	1300
BC013303	12	14	22	710	160	920	370	1700	1000	720
BC013315	13	27		190	150	230	130	790	410	820
BC013316B	14	680	47	3000	440	1200	420	5200	2900	1700
BC013316	14	400	39	2600	430	1200	600	4400	2400	1800
BC013318	15	170	20	1200	190					
BC013317	15	120	18	590	130	260	140	2100	1100	1300
BC013302	16	360		3300	570	3200	1200	3100	1700	1700
BC013319	17	190	23	810	120	350	160	1100	560	860
BC013320	18	310	32	700	160	390	160	1600	850	1300
BC013321	19	630	26	1200	200	430	160	2400	1300	1000
	MAX	680	47	3300	570	3200	1200	5200	2900	1900

blank cells denote not detected values

ORIGINAL PAGE

Also sent Memo:

- July 10
- Prelim. QA Review Dixon
  SHS Cromers, St. Elizabeth's
- JA
- LC
- PJR

RECEIVED

JUL 15 1985

ENVIRONMENTAL PROGRAMS
SECTION (3ES12)

Work Plan

Dioxin Sampling
at
St. Elizabeth's Hospital
Washington, D.C.

Site Description

A mixture of incinerator ash and other residue along with storm sewer cleanings have been hauled from the District of Columbia's Solid Waste Reduction Center to St. Elizabeth's Hospital for use as fill material during the past seven years. This mixture allegedly consists of 1/2% fly ash from the facility's ESP and is uniform in nature. The current fill site which has been used for the last two years is a large ravine located in the northeastern sector of the Hospital's property along the Suitland Parkway. There is a dirt access road to the site which passes through a gate. The site itself is entirely fenced. The fill material is hauled to the site in several dump trucks each of which has a 10 yard capacity. Two or three truckloads arrive each day. No fill arrived at the time of our visit; however, it appeared as though the fill was dumped in one specific area and spread with a bulldozer shortly thereafter. One nearby area of the primary fill site was in the process of being regraded in order to achieve the proper slope.

An area of approximately 2-3 acres has already been filled in. The initially filled portion of the ravine, which has a depth of about 30 feet and a surface area of about 1/2 to 3/4 acre was in the process of being covered with composted leaves, wood chips, and perhaps some native soil. The ultimate thickness of the cover will be about 30 inches according to the responsible official. The active fill site is much larger (approx. 2 acres) and has a depth ranging from 70 to 100 feet. Surprisingly, much of the top of the fill pile did not appear to have a high ash content but was rather a combination of dirt, debris and assorted residue. There was also no noticeable wind dispersal of this material dispite the fact that winds were gusty during our visit. The greatest concentrations of ash could be observed along the back embankment and a plateau area below this embankment. We were told that this material was deposited about a year ago. A couple of small leachate streams could be seen emanating from the bottom of the fill embankment near the plateau region which is the outer perimeter of the fill site. Just beyond this area existed a small stream which was partly dammed by fallen trees and earthern material forming a pond near the far corner of the fill site. The stream flowed along the entire back side of the fill pile toward Suitland Parkway. Immediately after leaving the hospital premises it entered a storm sewer which paralleled the parkway. This stream appeared to be the primary conduit of leachate or other runoff from the fill site.

The nearest private residences to the fill site were located on Dunbar Street about 1/8 mile away. The area separating these residences was primarily wooded. The elevation of the fill site was noticeably higher than that of the residences.

Sampling Methods

The active fill area will be sampled in accordance with the grid system shown on the attached site plan. About 4 equidistant samples will be collected within each of the 19 grid elements, or if conditions warrant a worse case sampling scenerio, using a manually driven stainless steel auger. The rectangular grid elements should be about 50 ft. to 80 ft. in length on each side and will be identified by means of 8 ft. stakes planted along the outer perimeter. The ash/soil samples will all be collected within one foot of the surface and the material obtained will be composited and then homogenized in the field using a Waring commericial style blender and quart jars prior to its placement in the 8 oz. glass containers. Five field duplicate samples will also be collected at three of the more critical sites as indicated by the observable ash content. Four of the split samples will be shipped to a second laboratory for independent analysis. In addition to the 19 grid samples, ash/soil sample will also be collected from an incoming truckload before being spread at the site.

The sampling augers and the blender jars will be decontaminated by washing with soapy water and rinsed with clear water followed by a methanol rinse for drying (evaporative) purposes and two rinses using 1,1,1-trichloroethane. This equipment decontamination procedure will be strictly followed between samplings. On each occasion a sample of the final rinsate will be collected to ascertain effectiveness of decontamination. Remaining rinsates were captured and will be properly disposed of.

Besides the ash/soil sampling, four samples, including one duplicate will be collected from the small leachate streams along the back side of the site and six samples including one duplicate will be collected of the unnamed stream sediment at three different locations. Two of these samples are split samples for analyses by another laboratory (i.e., EPA Lab in Duluth, MN). If possible, one of the sediment sampling locations will be just beyond the fence but prior to the stream's entry to the nearby storm sewer. This would constitute the only sample actually taken off-site other tan a background soil sample.

Sample containers will be rinsed with a solvent and will be handled thereafter only with uncontaminated gloves. This should eliminate any problems with returning them to the laboratory. All containers will be tagged and identified with a special laboratory number. The official EPA chain of custody system will be in effect during the duration of the project.

All of the samples collected as part of this project will be analyzed for the following compounds:

1. 2,3,7,8-Tetrachlorodibenzo-p-dioxin
2. 2,3,7,8-Tetrachlorodibenzofuran
3. Total tetrachlorodibenzo-p-dioxin
4. Total pentachlorodibenzo-p-dioxin
5. Total hexachlorodibenzo-p-dioxin
6. Total heptachlorodibenzo-p-dioxin
7. Total octachlorodibenzo-p-dioxin
8. Total tetrachlorodibenzofuran
9. Total pentachlorodibenzofuran
10. Total hexachlorodibenzofuran
11. Total heptachlorodibenzofuran
12. Total octachlorodibenzofuran

Safety Plan

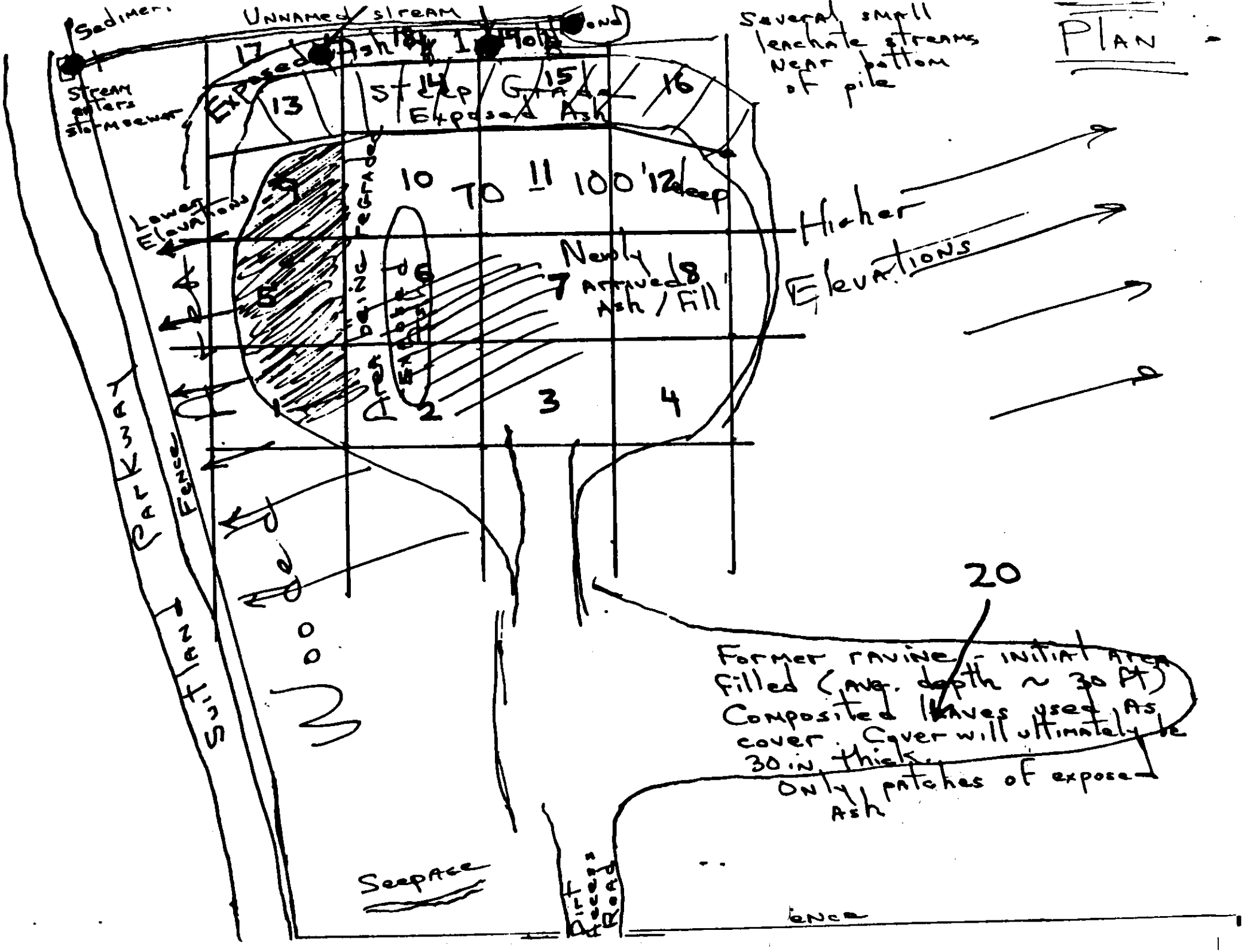
All personnel performing the sampling activities will adhere to a Level C protection. This includes the wearing of:

(1) Full body tyvex suits

(2) Three layer gloves including surgical, nitile and rubber types

(3) Rubber "over shoe" boots

(4) Full face respirator with organic and particulate cartridges



Sediment
Unnamed stream
Pond
Several small leachate streams near bottom of pile
Plan
Stream enters stormsewer
Exposed Ash
Steep Grade
Exposed Ash
17
18
19
13
14
15
16
10
TO
11
100'
12
deep
Lower Elevations
Higher Elevations
Area being regraded
Newly Arrived Ash / Fill
7
8
5
6
1
2
3
4
Suitland Parkway
Fence
Wooded
20
Former ravine - initial area filled (avg. depth ~ 30 ft)
Composited leaves used as cover. Cover will ultimately be 30 in. thick.
Only patches of exposed Ash
Seepage
Dirt Access Road
Fence

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: St. Elizabeth's Hospital

DATE: NOV 25 198

FROM: James W. Newsom, Chief
Environmental Management Branch (3ES10)

James W. Newsom

TO: Steve Hirsh
Environmental Impact and Marine Policy Branch (3ES40)

THRU: Randy Pomponio, Chief
Environmental Impact and Marine Policy Branch (3ES40)

Coincidental to being in the DC Area this past weekend, I visited the truck entry gate area of the St. Elizabeth's disposal site. On November 19, ESD sampled the leachate and sediment streams at the site for dioxin and priority pollutants. The purpose of my visit was to determine whether the area was being secured so as to ensure limited access and mitigate against uncontrolled dumping. As you may recall, the representatives from Health and Human Services told us at the meeting on October 18th that the gate was supposed to be locked after hours.

I visited the site through the truck entry gate at the lower end of the St. Elizabeth's property adjacent to the Suitland Parkway at 8:25 a.m. on Saturday, November 23rd. The duration of the visit was approximatley 15 minutes. Because of the extremely muddy condition, I confined the visit to the lower end of the site near the gate. My observations were as follows:

1. The entry gate is approximately 250 feet from a residential neighborhood and disposal activity is occurring within 350 feet of the nearest residence. A well-traveled pathway used by children is within 50 feet of the gate. I observed 2 separate groups of children within 15 minutes.

2. The entry gate was not locked or secured in any fashion.

3. There were no workers at the site, presumably because of the weekend.

4. From the position of one of the two gate doors, it was obvious that the gate had not been closed for some time, perhaps months. For example, the gate door on the downhill side of the road had brush growing upright in th path of closure. The brush would be knocked down if the gate was being used.

Also, the edge of the dirt road is approximatley 6 inches higher than the bottom of the gate door, thus obstructing full closure.

5. There are no signs posted to restrict access to the area or advise of a hazard from heavy equipment.

6. Approximately 120 feet inside the gate on the downhill side of the site, one (1) 55 gallon drum had been abandoned and was lying on its side in the disposal area. It was unmarked as to its contents or place of origin. Because it was sealed and partially embedded in mud, it could not be determined if the drum had any contents or was leaking.

7. In the same general area as the drum, discarded household items (carpet, air conditioner, broken furniture) had recently been dumped. The items constitute a pickup truck sized quantity.

8. A small quantity of lumber was scattered around the disposal area inside the gate indicating demolition or construction debris had possibly been disposed at the site.

9. Spent bottles and food cans with labels intact, were also scattered around the disposal area indicating a source other than an incinerator.

Based on the above observations, it is evident that the St. Elizabeth's disposal site is being operated without security or controlled access. It is easy for anyone, including children, to gain access to the property and disposal area. Based on the type of material observed and the previous photographs provided to the HHS officials, disposal is not limited to incinerator ash.

Should any questions arise concerning this matter, please let me know.

cc: Len Mangiaracina (3ES00)
R. Schrecongost (3HW00)
Bruce Smith (3HW10)
Neil Swanson (3HW14)
Fran Mulhern (3ES40)
Leo Clark (3ES22)

Field Sampling Log
St. Elizabeth's Hospital

Sample No	Matrix	Description	Depth	Date	Time	Split	Tag #	Label #
A-21	ASH	TRUCKLOAD SAMPLE		3/8/85	1115	NO	3-21887	DC013896
L-4	LEACHATE	LEACHATE FROM GRID #19		3/8/85	1027	NO	3-21888	15620-9
L-4	LEACHATE	" " " "		3/8/85	1027	NO	3-21889	↓
L-4	LEACHATE	" " " "		3/8/85	1027	NO	3-21890	↓
R-44	RINSATE	TRUCKLOAD SAMPLE CUP RINSATE		3/8/85	1152		3-21891	
S-6	SEDIMENT	POND SEDIMENT		3/8/85	1041	YES	3-21892	15620-[illegible]
S-7	SEDIMENT	POND SEDIMENT		3/8/85	1041	YES	3-21893	15620-[illegible]
R-45	RINSATE	POND SEDIMENT CUP RINSATE		3/8/85	1214		3-21894	
	BLANK WATER	EPA/CRL BLANK WATER		3/12/85	0915	NO	3-21398	15620-1[illegible]
	Urban Dust (Ash)	PE Sample	To	EPA - Bay St. Louis				DC013885
	"	"	To	California Analytical Labs				DC01332[illegible]
	Sed	"	To	EPA - Bay St. Louis				DC01370[illegible]
	"	"	To	California Analytical Labs				15620-0[illegible]

Field Sampling Log
St. Elizabeth's Hospital

Sample No	Matrix	Description	Depth	Date	Time	Split	Tag #	Label #
A-6	ASH	GRID #3 AUGER #1		3/7/85	0930	NO	3-21786	DC 013306
R-13	RINSATE	GRID #3 AUGER #1		3/7/85	1003		3-21785	[redacted]
R-14	RINSATE	GRID #3 CUP RINSATE		3/7/85	1017		3-21786	
A-7	ASH	GRID #7 AUGER #2		3/7/85	1000	NO	3-21787	DC 013307
R-15	RINSATE	GRID #7 AUGER #2		3/7/85	1050		3-21788	
R-16	RINSATE	GRID #7 CUP RINSATE		3/7/85	1108		3-21789	
A-8	ASH	GRID #11 AUGER #3		3/7/85	1019		3-21790	DC 013308
R-17	RINSATE	GRID #11 AUGER #3		3/7/85	1112		3-21791	
R-18	RINSATE	GRID #11 CUP RINSATE		3/7/85	1135 [redacted]		3-21792	
A-9	ASH	GRID #2 AUGER #1		3/7/85	1040		3-21793	DC 013309
R-19	RINSATE	GRID #2 AUGER #1		3/7/85	1155		3-21794	
R-20	RINSATE	GRID #2 CUP RINSATE		3/7/85	1201		3-21795	

Field Sample Log
St. Elizabeth's Hospital

Sample No	Matrix	Description	Depth	Date	Time	Split	Tag #	Label #
A-1	Ash	Grid 16		3/6/85	14:00	yes	3-217[illegible]1	013302
A-2	"	"		"	"	✓	3-217[illegible]	013802
R-5	Rinsate	" [illegible] Auger			" 14[illegible]0	[illegible] No	3-21773	
R-6	"	" [illegible] Cup			" [illegible]	No	3-21774	
A-3	Ash	" 12			14:20	No	3-21775	013303
R7	Rinsate	" " Auger			"	"	3-21776	
R8	"	" " Cup			"	"	3-21777	
A4	Ash	" 8			15:00	No	3-21778	013304
R9	Rinsate	" 8 Auger			"	"	3-21779	
R10	"	" 8 Cup			"	"	3-21780	
A-5	Ash	" 4			15:25	"	3-21781	013305
R11	Rinsate	" " Auger			"	"	3-21782	
R12	"	" " Cup			"	"	3-21783	

ORIGINAL (Red)

Field Sampling Log
St. Elizabeth's Hospital

Sample No.	Matrix	Description	Depth	Date	Time	Split	Tag #	Label #
S1	Sediment	Stream offsite	0.0"	3/6/95	9:10	yes ✓	3-21751	1562C-01
S2 ✓	"	" Duluth	"	"	"	✓	3-21762	013701
SB1 ✓	Background		0.0"	"	9:25	—	3-21760	01330
SB2 ✓	"	2nd hole		"	"	—	3-21759	01380
R1		from auger offsite background SB1/SB2			11:00		3-2176	
L1	Leachate	See Picture L1 3 bottles			11:00	yes ✓	3-2175 56	1562C-05
L2	"	" " L1 3 "			11:00	✓	3-21764 3-21752	1562C-06
S3	Sediment	UNNAMED STREAM about 100' upstream of fence (ON-SITE SAMPLE)			11:30	Yes	3-2176 3	1562C-02
S4		Duluth			"	"	3-21769	013702
S5					"			
R2		cup rinsate from sediment sample S1/S2			11:45		3-21758	
R3		" " " Background " SB1/SB2			11:55		3-21757	
L3	Leachate	See Picture L3 3 bottles			11:00	NO	3-21765,6,7	1562C-07
R4		Cup rinsate made from L3 L4			11:00	?	3-21770	

SAMPLING LOG

St. Elizabeth's Hospital

Sample No.	Matrix	Description	Depth	Date	Time	Split	Tag #	Label #
L4	Leachate	See picture L1						
L5								
L6								
L7								
L8								
L9								

ORIGINAL (Red)

Field Sampling Log
St. Elizabeth's Hospital

Sample No	Matrix	Description	Depth	Date	Time	Split	Tag #	Label #
A-10	ASH	GRID #6 AUGER #2		3/7/85	1127	NO	3-21796	DC013310
R-21	RINSATE	GRID #6 AUGER#2 RINSATE		3/7/85	1232		3-21797	
R-22	RINSATE	GRID #6 CUP RINSATE		3/7/85	1228		3-21798	
A-11	ASH	GRID #10 AUGER #3		3/7/85	1145	NO	3-21799	DC0133 11
R-23	RINSATE	GRID #10 AUGER #3 RINSATE		3/7/85	1240		3-21800	
R-24	RINSATE	GRID #10 CUP RINSATE		3/7/85	1355		3-21851	
A-12	ASH	GRID #1 AUGER #1		3/7/85	1205	NO	3-21852	DC0133 12
R-25	RINSATE	GRID #1 AUGER #1 RINSATE		3/7/85	1428		3-21853	
R-26	RINSATE	GRID #1 CUP RINSATE		3/7/85	1422		3-21854	
A-13	ASH	GRID #5 AUGER #2		3/7/85	1359	YES	3-21855 3-21856	DC0133 13 DC013303
R-27	RINSATE	GRID #5 AUGER#2 RINSATE		3/7/85	1435		3-21857	DC0133
R-28	RINSATE	GRID #5 CUP RINSATE		3/7/85	1450		3-21858	ORIGINAL (Red)

St. Elizabeth's Hospital

Sample No	Matrix	Description		Depth	Date	Time	Split	Tag #	Label #
A-14	ASH	GRID # 9	AUGER #3		3/7/85	1417	NO	3-21859	DC 0133
R-29	RINSATE	GRID # 9 AUGER #3 RINSATE			3/7/85	1458		3-21860	01380
R-30	RINSATE	GRID #9 CUP RINSATE			3/7/85	1503		3-21861	
A-15	ASH	GRID #13	AUGER #1		3/7/85	1532		3-21862	DC 0133
R-31	RINSATE	GRID # 13 AUGER #1 RINSATE			3/7/85	1634		3-21863	
R-32	RINSATE	GRID #13 CUP RINSATE			3/7/85	1644		3-21864	
A-16	ASH	GRID #14	AUGER #2		3/7/85	1542		3-21865	DC 0133
R-33	RINSATE	GRID #14 AUGER #2 RINSATE			3/7/85	1637		3-21866	
R-34	RINSATE	GRID #14 CUP RINSATE			3/7/85	1700		3-21867	
A-17	ASH	GRID #15 (SPLIT)	AUGER #3		3/7/85	1600	Yes	3-21868	DC 01331
A-17	ASH	GRID #15	AUGER #3		3/7/85	1600	"	3-21869	DC01331
A-17	ASH	GRID #15	AUGER #3		3/7/85	1600	"	3-21870	DC 01380
A-17	ASH	GRID #15 (SPLIT)	AUGER #3		3/7/85	1600	"	3-21871	DC 01380

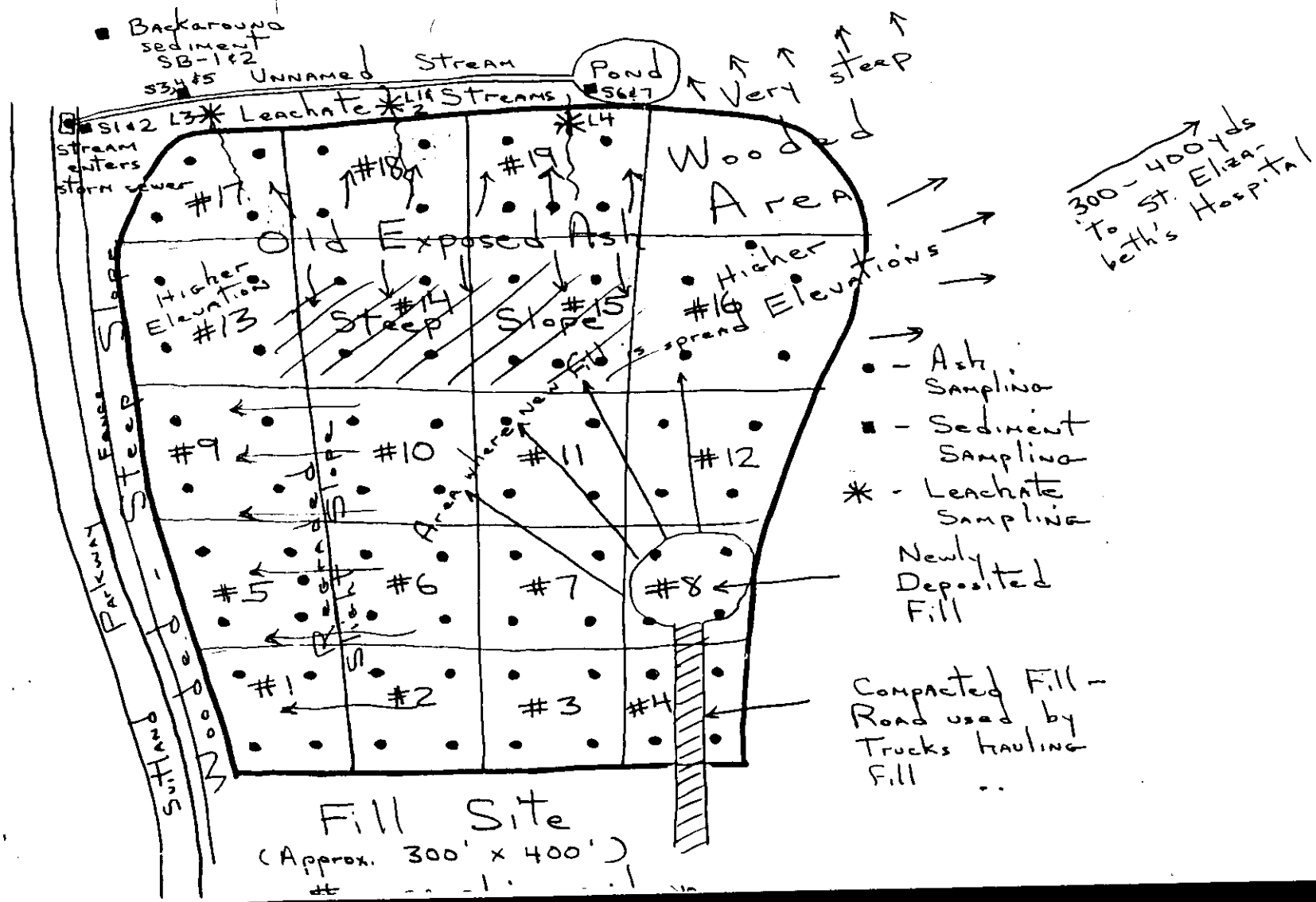
Field Sampling Log
St. Elizabeth's Hospital

Sample No	Matrix	Description	Depth	Date	Time	Split	Tag #	Label #
R-35	RINSATE	GRID #15 AUGER #3 RINSATE		3/7/85	1643		3-21872	
R-36	RINSATE	GRID #15 CUP RINSATE		3/7/85	1726		3-21873	
R-37	RINSATE	GRID #15 CUP RINSATE		3/7/85	1735		3-21874	

Field Sampling Log
St. Elizabeth's Hospital

Sample No	Matrix	Description	Depth	Date	Time	Split	Tag #	Label #
A-18	ASH	GRID #17 AUGER #1		3/8/85	0945	NO	3-21875	DC0133 1
R-38	RINSATE	GRID #17 AUGER #1 RINSATE			1030		3-21876	
R-39	RINSATE	GRID #17 CUP RINSATE			1036		3-21877	
A-19	ASH	GRID #18 AUGER #2			1000	NO	3-21878	DC0133 2
R-40	RINSATE	GRID #18 AUGER #2 RINSATE			1045		3-21879	
R-41	RINSATE	GRID #18 CUP RINSATE			1110		3-21880	
A-20	ASH	GRID #19 AUGER #3			1022	NO	3-21881	DC 0133 2
R-42	RINSATE	GRID #19 AUGER #3 RINSATE			1141		3-21882	
R-43	RINSATE	GRID #19 CUP RINSATE			1135		3-21883	
AP-1	ASH	Grid #1			1050		3-21884	
AP-2	ASH	Grid #7			1105		3-21885	
AP-3	ASH	Grid #12		3/8/85	1110		3-21886	

ORIGINAL (Red)



Background sediment SB-1&2
S3,4&5
Unnamed Stream
Pond
S6&7
Very steep
S1&2
L3
Leachate
L1&2
Streams
L4
Stream enters storm sewer
#17
#18
#19
Wooded Area
Old Exposed Ash
Higher Elevation
#13
Steep
#14
Slope
#15
Higher Elevations
#16
Area where new fill is spread
#9
#10
#11
#12
#5
#6
#7
#8
#1
#2
#3
#4
Parkway
Fence
Steep
Slope
Wooded
Suitland
300-400 yds to St. Elizabeth's Hospital
• - Ash Sampling
■ - Sediment Sampling
* - Leachate Sampling
Newly Deposited Fill
Compacted Fill - Road used by Trucks hauling Fill
Fill Site
(Approx. 300' x 400')

APPENDIX C

Versar INC.

January 15, 1984

Mr. John Chehaske
Engineering Science Company
10521 Rose Haven Road
Fairfax, Virginia 22030

Reference: Washington Ash Samples

Dear Mr. Chehaske:

I am pleased to enclose, herewith, the complete Battelle report on the Washington Ash Samples submitted by us for Engineering Science. We divided each sample into three viles, each containing about 1 gram of ash before submission to Battelle. Analyses were completed by Battelle for both dioxins and furans (2,3,7,8, tetra, penta, hexa, hepta, and octa).

Sincerely,

Richard J. Ronan
Vice President
Applied Chemistry Division

RFR:nan
Enclosures

cc: J. Strauss, Versar

6850 VERSAR CENTER • P.O. BOX 1549 • SPRINGFIELD, VIRGINIA 22151 • TELEPHONE: (703) 750-3000 • TELEX: 901125

Versar INC.

SUMMARY OF ATTACHMENTS

1. Versar QA Comments

2. Battelle Cover Letter to R. Ronan (Versar)
2A. Battelle Analytical Report

3. Engineering Science Chain-of-Custody Report

4. Versar Chain-of-Custody Report

5. Battelle Appendix A Chain-of-Custody

6. Battelle Appendix B (2,3,7,8-TCDD Standards)

7. Battelle Appendix C (All Sample Chromatographs)

ATTACHMENT 1.

QUALITY ASSURANCE SUMMARY

Versar split all samples into three viles to allow duplicate analyses, if required, and to allow complete analysis of the spiked sample. Samples 34E and 27C were duplicates of the same sample. Samples 36E and 28C were duplicates of the same sample except native 2,3,7,8-TCDD was added to all aliquotes at a level corresponding to 14.3 ppb.

ACCURACY - FROM RECOVERY

Spike level	14.3 ppb
Background	3.2 ppb
Expected	17.5 ppb
Found	13.3 ppb
Recovery	76%

This recovery from this matrix is excellent.

Both the duplicate pair and spiked pair were submitted blind to Battelle, and therefore are both summarized in the attached Table 1. The relative percent recovery for each pair of analysis is listed. Results ranged from a low of 0.2 percent to a high of 37.9 percent. Based on our experience these data are exceptionally good. The average recovery for each chemical group and overall recovery is also tabulated. The 12.4 percent relative percent difference indicates exceptionally high precision for ash analysis.

In summary, the additional samples added by Versar would indicate excellent performance on the part of Dr. Fred DeRoos and the Battelle staff.

ORIGINAL (Red)

TABLE 1
COMPARISON OF DUPLICATES - WASHINGTON, D.C. ASH SAMPLES
(all concentrations in PPB)

	SAMPLE	2,3,7,8	TETRA	PENTA	HEXA	HEPTA	OCTA	
DIOXINS-dup	34E	7.0	248	517	791	387	192	
	27C	8.2	259	570	820	472	161	
	RPD%	15.8	4.2	9.7	3.6	19.8	17.9	11.8 AVE

	SAMPLE	2,3,7,8	TETRA	PENTA	HEXA	HEPTA	OCTA	
FURANS-dup	34E	26	310	559	702	255	34	
	27C	29	341	565	734	321	29	
	RPD%	10.4	9.3	1.1	4.5	23.0	13.9	10.4 AVE

	SAMPLE	2,3,7,8	TETRA	PENTA	HEXA	HEPTA	OCTA	
DIOXINS-spike	36E	3.2	103	184	364	182	76	
	28C	13.3	126	270	336	194	86	
	RPD%	SPIKE	19.8	37.9	8.1	6.6	12.0	14.1 AVE

	SAMPLE	2,3,7,8	TETRA	PENTA	HEXA	HEPTA	OCTA	
FURANS-spike	36E	16	166	227	307	129	15	
	28C	15	210	310	288	129	13	
	RPD%	6.0	23.8	30.7	6.2	0.2	14.1	13.5 AVE

12.4 OVERALL AVE

rjr 1/15/85

ATTACHMENT 2.

Battelle
Columbus Laboratories
505 King Avenue
Columbus, Ohio 43201-2693
Telephone (614) 424-6424
Telex 245454

January 11, 1985

Dr. Richard Ronan
Versar, Inc.
6850 Versar Center
Springfield, VA 22151

Dear Rich:

We have completed the analyses of the ash samples from Washington, D.C. I am enclosing a final report describing the analytical methodology that we employed and the results of the analyses. Also included are selected ion current traces for the analyses and QA/QC documentation in a format similar to that required by the U.S. EPA.

Please call me at (614) 424-4247 if you have any questions.

Sincerely,

Fred

Fred L. DeRoos, Ph.D.
Principal Research Scientist
Analytical Chemistry Section

FLD/bsf

ATTACHMENT 2A.

Analytical Methodology

Introduction

This report describes the analytical procedures used to determine the levels of polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF) in ash samples from Washington, D.C. The samples were collected by Versar, Inc. and shipped to Battelle by Federal Express. They were received by Battelle on December 5, 1984. Copies of the Chain of Custody Sheets received with the shipments are included in Appendix A.

Extraction

The samples were allowed to air dry and were then transferred to extraction thimbles. They were spiked with three isotopically labelled internal standards and soxhlet extracted for 18 hours using 200 ml of benzene. The internal standard spikes were 50 ng of 2,3,7,8-tetrachlorodibenzofuran-$^{13}C_{12}$ (2,3,7,8-TCDF-$^{13}C_{12}$), 50 ng of 2,3,7,8-tetrachlorodibenzo-p-dioxin-$^{13}C_{12}$ (2,3,7,8-TCDD-$^{13}C_{12}$), and 50 ng of octachlorodibenzo-p-dioxin-$^{13}C_{12}$ (OCDD-$^{13}C_{12}$).

Extract Cleanup

The benzene extracts were concentrated to approximately 5 mL using a 3 stage Snyder column. The extracts were diluted with 5 mL hexane and transferred to a multilayered column containing activated silica gel, 44 percent concentrated sulfuric acic on silica gel, and 33 percent 1M sodium hydroxide on silica gel. The column was rinsed with 25 ml of benzene-hexane (1:1, v/v) and the entire eluate was collected. The purpose of this column was to remove acidic and basic compounds from the extract as well as oxidizable materials.

The benzene/hexane eluate was concentrated using a gentle stream of nitrogen gas and solvent exchanged into hexane. The hexane solution was chromatographed through a column containing approximately 1 gm of activated basic alumina using hexane, hexane/methylene chloride (97:3, v/v), and hexane/methylene chloride (1:1, v/v) as elution solvents. The 1:1 hexane/methylene chloride eluate was collected, concentrated to near dryness, and dissolved in 20 µl of n-decane. The solutions were stored at 0°C and protected from light until analyzed.

Analysis

The extracts were analyzed and quantified for PCDD/PCDF using combined capillary column gas chromatography/high resolution mass spectrometry (HRGC/HRMS). The HRGC/HRMS consisted of a Carlo Erba Model 4160 gas chromatograph interfaced directly into the ion source of a VG Model 7070 mass spectrometer. The primary chromatographic column was a 30M DB-5 fused silica column using helium carrier gas at a flow velocity of 25 cm/sec. The mass spectrometer was operated in the electron impact (EI) ionization mode at a mass resolution of 9000-12000 ($M/\Delta M$, 10% valley definition). The operating parameters of the HRGC/HRMS are summarized in Table 1.

The primary analyses, to determine the total level of each PCDD/PCDF class, were carried out using two separate HRGC/HRMS runs. This was necessary due to chromatographic overlap of adjacent isomer classes and hardware limitations to the number of masses that could be sequentially monitored. The first run provided data for the PCDD and PCDF isomers having four, six, or eight chlorine substituents, while the second run determined the levels of the isomers containing five or seven chlorines.

Although the DB-5 capillary column is excellent for PCDD/PCDF isomer class determinations, it does not provide the isomer specificity of the more polar phase columns. Since 2,3,7,8-TCDD and 2,3,7,8-TCDF

are the most toxic PCDD/PCDF isomers, all samples were reanalyzed using a 50M CP Sil-88 fused silica capillary column. Although this column provides complete separation of 2,3,7,8-TCDD from the other twenty-one TCDD isomers, it does not completely separate 2,3,7,8-TCDF from closely eluting TCDF isomers. The level of confidence, however, is far greater than with the DB-5 column and is considered to be state of the art. All HRGC/HMS data were acquired by multiple-ion-detection using a VG Model 2035 Data System. The exact masses that were monitored are shown in Table 2.

Quantification

The PCDD and PCDF isomers were quantified by comparing the areas of the two molecular ions that were monitored for each class to the m/z 334 and m/z 332 ion from the 2,3,7,8-TCDD-$^{13}C_{12}$ or the m/z 472 and m/z 470 ions from OCDD-$^{13}C_{12}$. The 2,3,7,8-TCDD-$^{13}C_{12}$ was used to quantify the tetrachloro through hexachloro isomers and the OCDD-$^{13}C_{12}$ used for the heptachloro and octachloro isomers. The TCDF isomers, however, were quantified using the 2,3,7,8-TCDF-$^{13}C_{12}$. Experimental relative response factors were obtained from triplicate analyses of a test mix which contained representatives of the tetra-through octa-dioxin classes. These response factors were included in all calculations used to quantify the data. The response factors for the furans were assumed to be the same as those for the corresponding dioxin class. The response factors were calculated using the molecular ions of the tetra through hexa classes compared to the m/z 334 and m/z 332 ions from the 2,3,7,8-TCDD-$^{13}C_{12}$ internal standard and for the hepta and octa classes by using the corresponding molecular ions from the Octa-CDD-$^{13}C_{12}$ internal standard. The experimental response factors are given below:

Tetra-CDF	0.98
Tetra-CDD	1.03
Penta	0.73
Hexa	0.67
Hepta	2.04
Octa	1.19

The formula used for quantifying the isomers was:

$$\text{Concentration (ppb)} = \frac{\text{Area of Quantification Masses}}{\text{Area of m/z 332, 334 (m/z 470,472)}} \times \frac{\text{Amount of Internal Standard (ng}}{\text{Response Factor x Sample Wt. (g}}$$

The criteria that were used to identify PCDD and PCDF isomers were:

(1) Simultaneous responses at both masses

(2) Chlorine isotope ratios within ± 10% of the theoretical value

(3) Retention times within windows determined by analyses of standards

(4) Signal to noise ratio equal to or greater than 2.5 to 1

The 2,3,7,8-TCDD and 2,3,7,8-TCDF included the additional criterion that they coeluted within ± 1 second of their isotopically labelled analogs.

A limit of detection was calculated for samples in which a particular chlorination class was not detected. The formula used was:

$$\text{Limit of Detection (ppb)} = \frac{\text{Ht of High Mass Quant. Ion}}{\text{Height of m/z 334 (m/z 472)}} \times \frac{\text{Amt of Int Std (ng)} \times 2.5}{\text{Resp. Fact.} \times \text{Sample Wt.(g)}}$$

Quality Assurance

The operation of the HRGC/HRMS was evaluated each day by analyzing standard mixtures. These consisted of native 2,3,7,8-TCDD, 2,3,7,8-TCDF and 2,3,7,8-TCDD-$^{13}C_{12}$ mixtures to evaluate accuracy of quantification, mixtures of selected PCDD/PCDF isomers to evaluate the stability of the chromatographic elution windows, and TCDD isomer mixtures to evaluate isomer resolution. The mass accuracy of the MID unit was evaluated at least every four hours by focusing selected ion masses from perfluorokerosene (PFK) and correcting the slope to account for minor variations. Mass focus stability was assured by the use of a reference PFK "lock mass" to correct for any mass focus drift.

Results

The results from the analyses of the samples are summarized in Tables 3 and 4. The data are grouped into separate tables for the PCDD and the PCDF data. A detection limit is listed, in parentheses, for samples in which a particular chlorination class was not detected. The chlorine isotope ratios for the sample analyses are summarized in Tables 5-6. The ion peak areas for the samples, including the internal standard areas, are listed in Tables 7-9. The calibration data for the 2,3,7,8-TCDD analyses and the single ion current traces for the samples are included in Appendices B and C.

TABLE 1. HRGC/HRMS OPERATING PARAMETERS

Mass Resolution	9000-12000 (M/ΔM, 10% valley definition
Electron Energy	70 eV
Accelerating Voltage	6000 volts
Source Temperature	200°C
Preamplifier Gain	10^7 volts/amp
Electron Multiplier Gain	$\sim 10^6$
Transfer Line Temperature	280°C
Column	DB-5 30M
	CP Sil-88 50M
Injector Temperature	300°C
Column Temp - Initial (3 min)	160°C
Column Temp - Program	30°C/min
Column Temp - Final	250°C (CP Sil-88)
	290°C (DB-5)
Carrier Gas	Helium
Flow Velocity	~ 25 cm/sec
Injection Mode	Splitless
Injection Volume	2 µl

TABLE 2. EXACT MASSES USED FOR THE DETERMINATION OF PCDD AND PCDF

Compound	Accurate Mass Mass 1	Accurate Mass Mass 2	Theoretical Isotope Ratio Mass 1/Mass 2
Monochlorodibenzo-p-dioxins	218.0134	220.0105	3.09
Monochlorodibenzofurans	202.0185	204.0156	3.09
Trichlorodiphenyl ethers	271.9562	273.9533	1.03
Dichlorodibenzo-p-dioxins	251.9745	253.9715	1.54
Dichlorodibenzofurans	235.9796	237.9766	1.54
Tetrachlorodiphenyl ethers	305.9173	307.9143	0.77
Trichlorodibenzo-p-dioxins	285.9355	287.9325	1.03
Trichlorodibenzofurans	269.9406	271.9376	1.03
Pentachlorodiphenyl ethers	341.8753	343.8724	1.54
Tetrachlorodibenzo-p-dioxins	319.8965	321.8936	0.77
Tetrachlorodibenzofurans	303.9016	305.8987	0.77
Hexachlorodiphenyl ethers	375.8364	377.8334	1.23
Pentachlodibenzo-p-dioxins	355.8546	357.8517	1.54
Pentachlorodibenzofurans	339.8597	341.8567	1.54
Heptachlorodiphenyl ethers	409.7974	411.7944	1.03
Hexachlorodibenzo-p-dioxins	389.8156	391.8127	1.23
Hexachlorodibenzofurans	373.8207	375.8178	1.23
Octachlorodiphenyl ethers	443.7584	445.7555	0.88
Heptachlorodibenzo-p-dioxins	423.7766	425.7737	1.03
Heptachlorodibenzofurans	407.7817	409.7788	1.03
Nonachlorodiphenyl ethers	477.7194	479.7165	0.77
Octachlorodibenzo-p-dioxin	457.7377	459.7347	0.88
Octachlorodibenzofuran	441.7428	443.7398	0.88
Decachlorodiphenyl ether	511.6805	513.6775	0.69

TABLE 3. LEVELS OF PCDD (DETECTION LIMIT) ppb

Sample	2,3,7,8-TCDD Conc.	Tetra-CDD Conc.	Penta-CDD Conc.	Hexa-CDD Conc.	Hepta-CDD Conc.	Octa-CDD Conc.
34E1	7.0	248.0	516.9	791.4	386.8	192.2
36L1	3.2	103.4	184.0	364.7	181.6	75.8
35E1	0.7	32.8	95.5	217.0	118.7	60.8
27C1	8.2	258.7	569.8	820.3	471.8	160.6
34M1	(0.14)	12.0	4.7	7.8[3]	(0.14)	(0.53)
28C1	13.3	126.1	270.0	335.8	193.9	85.5
36M1	(0.09)	12.3	2.6	12.9	6.2	3.3[3]
35M1	0.1	1.0	0.7	1.8	3.2	3.0
MB[1]	(0.03)	(0.03)	(0.09)	(0.07)	(0.40)	(1.12)
NS[2]	24.8	24.8	(0.08)	(0.13)	(0.20)	18.5
24C1	4.6	107.5	146.4	237.6	217.2	102.3
25C1	0.2	5.7	3.3	28.6	44.8	14.0
26C1	0.9	33.4	59.5	105.5	61.4	40.4

[1] Laboratory Method Blank

[2] Native spike (2,3,7,8-TCDD, 20 ng 2,3,7,8-TCDF and 20 ng OCDD)

[3] Isotopic Ratio Out of Range

TABLE 4. LEVELS OF PCDF (DETECTION LIMIT) ppb

Sample	2,3,7,8-TCDF Conc.	Tetra-CDF Conc.	Penta-CDF Conc.	Hexa-CDF Conc.	Hepta-CDF Conc.	Octa-CDF Conc.
34E1	26.4	310.3	558.5	701.8	254.8	33.8
36E1	15.5	165.6	227.3	306.9	128.7	15.2
35E1	3.5	37.5	47.1	70.7	41.9	10.4
27C1	29.3	340.7	564.8	734.2	320.9	29.4
34M1	0.6	4.6	2.7	3.1	1.6	(0.41)
28C1	14.6	210.3	309.6	288.3	129.0	13.2
36M1	0.9	12.4	1.5	1.5	(0.25)	(0.85)
35M1	0.2	2.9	(0.11)	(0.16)	1.3	(1.13)
MB[1]	(0.03)	(0.03)	(0.09)	(0.04)	(0.36)	(0.81)
NS[2]	21.2	21.2	(0.05)	(0.14)	(0.06)	(0.71)
24C1	11.8	125.7	147.6	155.6	90.1	18.1
25C1	1.0	9.0	6.7	5.2	7.1	3.4
26C1	5.1	65.5	25.3	31.4	13.9	5.7

[1] Laboratory method blank

[2] Native spike (20 ng 2,3,7,8-TCDD, 20 ng 2,3,7,8-TCDF and 20 ng OCDD)

TABLE 5. CHLORINE ISOTOPE RATIOS FOR PCDD CONGENER CLASSES AND 2,3,7,8-TCDD IN SAMPLES

Sample	2,3,7,8-Tetra	Tetra	Penta	Hexa	Hepta	Octa
34E1	.79	.79	1.61	1.25	1.07	.87
36E1	.80	.83	1.66	1.32	1.03	.82
35E1	.75	.80	1.70	1.28	1.01	.87
27C1	.81	.80	1.49	1.28	1.04	.85
34M1	--	.81	1.61	1.51[1]	--	--
28C1	.77	.79	1.60	1.29	1.07	.81
36M1	--	.78	1.50	1.25	.99	1.04[1]
35M1	.79	.80	1.45	1.22	1.05	.75
MB	--	--	--	--	--	--
NS	.81	.85	--	--	--	.88
24C1	.81	.80	1.65	1.29	1.04	.89
25C1	.73	.72	1.60	1.25	.84[1]	.85
26C1	.74	.78	1.59	1.27	1.06	.88

[1] Isotopic Ratio Out of Range

TABLE 7. PCDD ION PEAK AREAS FOR SAMPLES

Sample Number	2,3,7,8-TCDD 320 Area	2,3,7,8-TCDD 322 Area	TOTAL TCDD 320 Area	TOTAL TCDD 322 Area	PENTA-CDD 356 Area	PENTA-CDD 358 Area	HEXA-CDD 390 Area	HEXA-CDD 392 Area	HEPTA-CDD 424 Area	HEPTA-CDD 426 Area	OCTA-CDD 458 Area	OCTA-CDD 460 Area
34E1	1227	1542	43560	54880	7248	4499	9272	7390	4736	4439	1170	1350
36E1	457	570	15193	18354	2608	1566	3931	2975	2202	2146	436	534
35E1	104	144	5272	6577	3166	1863	6191	4850	2349	2318	653	753
27C1	963	1190	30051	37457	16088	10804	17682	13801	7610	7314	1307	1529
34M1	---	---	1113	1377	116	72	130	85.8	---	---	---	---
28C1	1845	2375	17735	22415	5399	3364	5322	4124	2744	2576	528	645
36M1	---	---	2048	2616	60	40	373	299	78	79	28	27
35M1	11	14	129	152	16	11	39	32	58	55	24	32
MB	---	---	---	---	---	---	---	---	---	---	---	---
NS	---	---	5442	6366	---	---	---	---	---	---	188	214
24C1	1624	2016	37508	46834	7720	4669	9687	7527	5493	5299	1456	1640
25C1	66	90	1882	2309	142	89	752	601	517	614	103	121
26C1	329	446	13121	16844	2696	1693	3345	2640	1917	1812	666	754

TABLE 8. PCDF ION PEAK AREAS FOR SAMPLES

Sample Number	2,3,7,8-TCDF 304 Area	2,3,7,8-TCDF 306 Area	TOTAL TCDF 304 Area	TOTAL TCDF 306 Area	PENTA-CDF 340 Area	PENTA-CDF 342 Area	HEXA-CDF 374 Area	HEXA-CDF 376 Area	HEPTA-CDF 408 Area	HEPTA-CDF 410 Area	OCTA-CDF 442 Area	OCTA-CDF 444 Area
34E1	4755	6050	56077	71030	7731	4961	8231	6546	3017	3026	219	224
36E1	2772	3497	29706	37487	3191	1965	3245	2566	1618	1463	95	100
35E1	593	730	6182	7929	1508	973	1988	1608	867	782	119	122
27C1	3533	4453	40825	51925	16502	10154	15574	12607	5227	4922	254	266
34M1	55	76	460	613	66	43	48	39	13	12	---	---
28C1	2205	2855	32091	40849	6024	4022	4628	3482	1864	1675	91	90
36M1	145	205	2136	2754	34	21	43	36	---	---	---	---
35M1	31	42	353	494	---	---	---	---	24	21	---	---
MB	---	---	---	---	---	---	---	---	---	---	---	---
NS	---	---	6327	7858	---	---	---	---	---	---	---	---
24C1	5965	7531	63245	80239	7626	4869	6377	4898	2322	2155	264	284
25C1	345	457	3107	3981	276	191	137	109	96	84	26	29
26C1	1949	2453	24641	31494	1146	718	989	791	410	435	99	101

TABLE 9. INTERNAL STANDARD ION PEAK AREAS

	Tetra Analyses				Hexa and Octa Analyses												Penta and Hepta Analyses							
	2,3,7,8-TCDF 13C12		2,3,7,8-TCDD 13C12		2,3,7,8-TCDD 13C12				OCDD - 13C12				2,3,7,8-TCDD 13C12				OCDD - 13C12			
Sample Number	316 Area	318 Area	332 Area	334 Area	332 Ht.	332 Area	334 Ht.	334 Area	470 Ht.	470 Area	472 Ht.	472 Area	332 Ht.	332 Area	334 Ht.	334 Area	470 Ht.	470 Area	472 Ht.	472 Area
34E1	9527	11801	9026	10707	159	724	182	876	37	268	35	295	173	699	218	894	31	290	33	302
36E1	8656	11246	7054	8149	146	564	218	792	28	239	36	279	169	625	217	873	34	264	40	299
35C1	8108	10162	7583	9167	366	1512	461	2097	58	430	62	497	379	1499	464	1946	44	422	50	494
27C1	6022	7731	5644	6947	280	1282	326	1548	54	363	51	373	316	1440	375	1770	51	382	52	384
34M1	5157	6402	4554	5396	211	928	258	1105	29	183	26	176	249	1197	315	1525	22	178	30	199
28C1	7310	9543	6756	8022	224	871	286	1124	35	269	32	281	194	951	247	1172	31	300	37	339
30M1	7769	9707	7397	8720	314	1487	420	1892	33	275	36	330	252	1029	282	1234	34	245	44	290
35M1	6665	8304	6546	7528	328	1344	385	1572	37	366	49	424	290	1199	341	1497	58	416	58	435
MB	26271	33496	20191	23997	770	2718	871	3498	33	286	33	320	641	2998	799	3633	53	336	60	408
NS	15425	18864	10450	12725	501	2298	613	2952	54	440	58	473	403	1925	479	2316	54	446	52	483
24C1	26748	32656	18010	21001	540	2437	670	3068	68	651	70	649	646	2613	799	3319	73	575	88	665
25C1	18456	23011	17058	19855	275	1585	372	2046	50	329	58	366	350	2144	452	2772	42	310	42	326
26C1	18716	23342	18917	23111	344	1818	412	2245	70	684	87	738	382	2176	474	2698	87	681	97	748

CALIBRATION SUMMARY

Native TCDD	RRF (Native)	Date	RRF (Surrogate)
1	1.1313	1/3	1.4904
	1.1674		1.4775
	1.0544		1.3956
5	1.0323	1/3	1.4325
	1.0204		1.4128
	0.9912		1.4173
25	0.9411	1/3	1.4615
	0.9488		1.4720
	0.9481		1.4922

ATTACHMENT 3.

SAMPLE ANALYSIS CUSTODY SHEET

Samples bearing Numbers See below

were received from Brian Hillis of Engineering - Science

on Nov 9, 1984 at _____ by the undersigned

and were in the custody of competent laboratory personnel at all times during the time required for analyses. After analyses were completed, samples were locked in a custody room.

At no time were there any unauthorized personnel in the area while the samples were being analyzed.

Signed [illegible]

[illegible]

Sample 2 Unit 4 Multiclone Ash
" 2 Unit 4 ESP Ash
" 2 Unit 5 Multiclone Ash
" 2 Unit 5 ESP Ash
" 2 Unit 6 Multiclone Ash
" 2 Unit 6 ESP Ash

Sample 3 Unit 4 Multiclone Ash
" 3 Unit 4 ESP Ash
" 3 Unit 5 Multiclone Ash
" 3 Unit 5 ESP Ash
" 3 Unit 6 Multiclone Ash
" 3 Unit 6 ESP Ash

Versar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	PARAMETERS	INDUSTRIAL HYGIENE SAMPLE Y / N
SAMPLERS: *(Signature)*	(Printed)		

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS									REMARKS

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
(Printed)		(Printed)	(Printed)		(Printed)

Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Remarks
(Printed)		(Printed)		

[illegible] Copy to Coordinator Field Files (pink)

ATTACHMENT 4 (Continued)

Versar INC

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME						PARAMETERS									INDUSTRIAL HYGIENE SAMPLE	Y / N
SAMPLERS: *(Signature)*					(Printed)												
FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS										REMARKS	

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
(Printed)		(Printed)	(Printed)		(Printed)

Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Remarks
(Printed)		(Printed)		

[illegible] Shipment [illegible] Copy to Coordinator Field Files (pink)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401

301-224-2740
FTS-922-3752

DATE : July 10, 1985

SUBJECT: Preliminary QA Review Dioxin, SAS Isomers, St. Elizabeth's
SAS 1562C; DC01302-22; 1562C-01-09

FROM : John Austin (3ES21)
Chemist

TO : Leo Clark (3ES14)
Chief, Annapolis Field Section

THRU: Patricia J. Krantz (3ES20)
DPOQA

Samples have been successfully analyzed for trace levels of 2,3,7,8-TCDD, 2,3,7,8-TCDF, and total tetra through octa isomers of polychlorinated dioxins and furans.

Additional confirmation analysis are to be performed for the specific isomers. The values reported are considered "maximum possible concentrations", because they have not been confirmed as yet. This work is still in progress.

The analysis for 2,3,7,8-TCDD has been completed and is QA reviewed in this report. In order to achieve measurable sample values at the trace levels present in the samples, the laboratory made the following method changes:

- Internal standard amount reduced from 50 ng to 5 ng.
- Surrogate spike amount reduced from 10 ng to 1 ng.
- Instruments were calibrated daily at .2, 1, and 5 ng. Average response factors were calculated daily.
- Results were reported in parts per trillion instead of parts per billion.

No environmental samples were found to contain 2,3,7,8-TCDD above 1.0 ppb. The highest reported value was .047 ppb or 47 parts per trillion.

For sample DC013310, a data transcription error was found. The value should be reported as 19 parts per trillion. The following samples gave no positive response for 2,3,7,8-TCDD during isomer analysis and therefore were not analyzed further for 2,3,7,8-TCDD.

1562C-05
1562C-06
1562C-07
1562C-08
1562C-10
DC013323

Estimated detection limits for these samples are noted on the isomer analysis reports.

cc: Walter Lee

ORIGINAL (Red)

Recommendations

1. Further Monitoring

- No additional dioxin sampling is recommended unless it becomes necessary to further demonstrate off-site migration of dioxin-contaminated sediments.

- Priority pollutant analysis of leachate and sediments may be warrented if the dump site is to remain active. Priority pollutant analysis could also provide information on the types of waste located in the fill. A meeting is scheduled with Saint Elizabeth's to discuss future actions regarding the dump. A decision on EPA leachate sampling should not be made until after meeting with Saint Elizabeth's representatives.

- No soil or ash sampling is recommend unless priority pollutant analysis of leachate and sediment indicate a release of priority pollutants from the dump is occuring.

- Although one or more drums were observed during this inspection and the March 1985 inspection, we do not recommend excavation of the site to locate drums because of the low probability of locating them for the effort expended. A CERCLA request for information has been sent to the potentially responsible parties and the responses may provide information warranting sub-soil investigation.

2. Further Action

- We recommend this report be reviewed for possible violations of NPDES or RCRA subtitle D regulations due to the observed leachate streams, surface runoff, and obvious erosion of ash previously found to be contaminated with low levels of dioxins and furans. These substances have the potential to bioaccumulate to unacceptable levels in an aquatic environment.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401

301-224-2740
FTS-922-3752

DATE : March 6, 1986

SUBJECT: Inorganic Data QA Review, Case 5256/2057C, Site: St. Elizabeth's
Sample : MCF102 thru MCF116

FROM : (b) (4) [redacted]
Environmental Scientist

TO : (b) (4) [redacted]
Environmental Engineer

THRU : (b) (4) [redacted]
DPO QA

Introduction

The findings offered in this report are based upon a general review of sample data, blank analyses results, matrix spike, and duplicate analysis results for 8 aqueous and 7 soil samples analyzed by Compuchem laboratories.

The attached data summary contains only compounds which were reported as detected in at least one sample. The complete list of compounds analyzed for, their results, and associated detection limits are located as Appendix A.

The data summary contains the following qualifier codes:

U - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because quality control criteria were not met.

R - Quality Control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

Z - No analytical result.

Qualifiers

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

- The following results have been qualified as not detected due to blank contamination:

Compound	Samples Affected
aluminum	MCF102, MCF103, MCF108, MCF109
lead	MCF102, MCF103, MCF108, MCF109

- Reported results for aluminum, copper, and silver in samples MCF104 and MCF105 and for sodium in samples MCF108 and MCF109 may not reflect the true average concentration for these constituents.

- Reported results for aluminum, copper, iron, magnesium, manganese, nickel, and zinc in samples MCF111 and MCF112 may not reflect the true average concentration for these constituents.

- Reported results for copper, magnesium, and zinc in the samples MCF115 and MCF116 may not reflect the true average concentration for these constituents.

- Reported results for arsenic and selenium in the soil sample MCF115 may not reflect the true average concentration for these constituents.

- Reported results for iron and sodium in the aqueous sample MCF108 may not reflect the true average concentration for these constituents.

- Reported detection limits for silver in the soil matrix and for calcium, magnesium, silver, and tin in the aqueous matrix may be significantly higher than reported. Reported results for silver in the soil matrix and for calcium, magnesium, silver, and tin in the aqueous matrix may be biased significantly low.

- Reported detection limits for antimony, arsenic, copper, manganese and thallium in the soil matrix and for nickel, sodium, and thallium in the aqueous matrix may be biased slightly higher than reported. Reported results for antimony, copper, and manganese in the soil matrix and for nickel and thallium in the aqueous matrix may be biased slightly low.

- Reported results for zinc in the aqueous matrix may be biased slightly high.

Findings

- Field blank analysis revealed the presence of aluminum and lead at concentrations significant enough to question the aforementioned results.

- Field duplicate analysis resulted in high relative percent differences for aluminum (23%), copper (22%), and silver (40%) in samples MCF104 and MCF105 and for sodium (44%) in samples MCF108 and MCF109 indicating a possible lack of sample homogeneity.

- Field duplicate analysis of samples MCF111 and MCF112 resulted in high relative percent differences for aluminum (36%), copper (113%), iron (41%), magnesium (40%), nickel (136%), and zinc (89%) indicating possible sample non-homogeneity.

- Field duplicate analysis of samples MCF115 and MCF116 resulted in high relative percent differences for copper (39%), magnesium (38%), manganese (36%), and zinc (42%) indicating possible sample non-homogeneity.

- Lab duplicate analysis of the soil sample MCF115 resulted in high relative percent differences for arsenic (37%) and selenium (78%).

- Lab duplicate analysis of the aqueous sample MCF108 resulted in high relative percent differences for iron (141%) and sodium (185%).

- Extremely low matrix spike recovery was reported for silver (20%) in the soil matrix and for calcium (0%), magnesium (0%), silver (20%), and tin (8%) in the aqueous matrix.

- Low matrix spike recovery was reported for antimony (46%), arsenic (50%), copper (72%) manganese (64%) and thallium (44%) in the soil matrix and for nickel (50%), sodium (52%), and thallium (64%) in the aqueous matrix.

- High matrix spike recovery was reported for zinc (140%) in the aqueous matrix.

Summary

This Quality Assurance Review has identified the following areas of concern: field blank contamination, possible lack of sample homogeneity, poor precision, and poor matrix spike recovery.

Please see the accompanying support documentation appendices for specifics on this Quality Assurance Review.

Attachment: Data Summary

Appendix	Content
A	Data Validation Summary
B	Sample Data Sheets

cc:

QC EXCEPTION SUMMARY REPORT

Case No. 5256/20576

Laboratory CompuChem

Reviewer [illegible]

Date [illegible] 96

[illegible]	OVERALL CASE QC									MATRIX SPECIFIC QC						SAMPLE SPECIFIC QC		FIELD QC			REGIONAL QC			OTHER / COMMENTS		
[illegible]	Holding Time	Cal Blanks	Init Cal ver	Contin Cal ver	Prep Blk AQ	Prep Blk SOL	ICS %R	LCS % AQ	LCS % SOL	Sol Dup RPD	Sol Spk %R	AQ Dup RPD	AQ Spk %R	Ser Dilu AQ	Ser Dilu SOL	GFAA Dup	GFAA Spike	Blank AQ	Dup RPD AQ	Spike %R	Blind Blank	Blind Spike %R	Split Sample RPD	[illegible]	[illegible]	[illegible]
Aluminum															11			210	23	NA	NA	NA	44		36	
Antimony											46															
Arsenic										[illegible]	50															
Barium																										
Beryllium																										
Cadmium																										
Calcium													0													
Chromium																										
Cobalt																										
Copper											72								22						113	39
Iron												141						130							41	
Lead																		40								33
Magnesium													0												40	36
Manganese											64			12												
Mercury																										
Nickel													50												136	
Potassium																		[200]								
Selenium										78																
Silver											20		20						40							
Sodium												[illegible]	52					[illegible]						44		
Thallium											44		64													
Tin													8					[7.9]								
Vanadium																										
Zinc													140					20							89	42
Cyanide																										

DATA SUMMARY

Case No. 5250/20576

Laboratory [illegible]

Matrix [illegible]

Units [illegible]

	Blank		Duplicate					
EPA TR #	MCF102	MCF103	MCF104	MCF105	MCF106	MCF107	MCF108	MCF109
Lab I.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Aluminum	~~210UJ~~	~~210UJ~~	42100	52900	95000	[illegible]	~~[170]UJ~~	[170]UJ
Antimony			[49]	[41]	101	[34]		
Arsenic			25	22	10	77		
Barium			1050	1150	2890	440		[40]
Beryllium								
Cadmium			45		123	15		
Calcium		4170J	56100J	64100J	146000	[illegible]J	3930	36700J
Chromium		10	310	360	330	[illegible]		[20]
Cobalt					70			
Copper		[20]	2330	2920	2220	130	[20]	
Iron	130J	1350J	7560J	[illegible]J	[illegible]J	[illegible]J	[illegible]	1010J
Lead	~~40UJ~~	~~50UJ~~	3110	3460	8020	370	~~60J~~	~~[illegible]UJ~~
Magnesium		2930J	[illegible]J	13100J	[illegible]J	945J	8000J	7030J
Manganese		130	1330	1440	3710	[illegible]	140	140
Mercury			1.0	0.7	[illegible]	[illegible]		
Nickel			210J	310J	340J	[illegible]J		
Potassium	[20]	[2100]	[illegible]	[illegible]	215000	173000	[1100]	[illegible]
Selenium			14	10	5	34		
Silver			80J	60J	[illegible]J	10J		
Sodium	[120]J	5700J	5120J	[illegible]J	[illegible]J	[illegible]J	4800J	30500J
Thallium			17J	17J	43J	15J		
Tin	[9.9]R	[9.2]R	400J	[illegible]J	[illegible]J	1410J		
Vanadium			310	380	440	[illegible]		
Zinc	20J	30J	6300J	7120J	[illegible]J	[illegible]J	20J	[illegible]J
Cyanide			640	536	[illegible]	[illegible]		
% Solids								

DATA SUMMARY

Case No. 525[illegible]

Laboratory Compu[illegible]

Matrix Solid

Units [illegible]

		Duplicate	Duplicate			Duplicate	Duplicate					
EPA TR #	MCF110	MCF111	MCF112	MCF113	MCF114	MCF115	MCF116					
Lab I.D.	693[illegible]	[illegible]	[illegible]	693[illegible]	[illegible]	693[illegible]	[illegible]					
[illegible]												
Aluminum	7730	4300	6210	3980	3000	4550	4720					
Antimony	[1.3]J	[2.9]J	81 J	6.3 J	[0.5]J							
Arsenic	[0.9]J	[0.83]J		5.7 J	[0.9]J	1.1 J	1.3 J					
Barium	72	76	98	98	41	42	44					
Beryllium												
Cadmium	3.1	7.5	6.4	11	1.2	2.3	2.8					
Calcium	18200	9950	11500	11200	1250	2990	3020					
Chromium	20	15	12	12		12	13					
Cobalt							[illegible]					
Copper	81 J	253 J	913 J	86 J	20 J	105 J	156 J					
Iron	17500	30700	20300	[illegible]	10100	14500	15300					
Lead	116	7900	[illegible]	367	[illegible]	31	123					
Magnesium	2030	2560	1700	1100	[37[illegible]]	1270	13[illegible]					
Manganese	209 J	245 J	201 J	249 J	101 J	153 J	105 J					
Mercury	0.24	0.53	0.5[illegible]	[illegible]	0.47	0.[illegible]	0.41					
Nickel	26	74	14			11	13					
Potassium	[338]	[181]	[36[illegible]]	[414]	[550]	[[illegible]]	[28[illegible]]					
Selenium					[illegible]J	2.3 J	1.6 J					
Silver	2.7 R		1.5 R				2.2 R					
Sodium	1215	4300	[illegible]	117[illegible]	4950	[illegible]	[illegible]					
Thallium												
Tin	[2.8]	9	[illegible]	14			[1.8]					
Vanadium	20	12	35	[illegible]	31	[illegible]	35					
Zinc	566	963	3[illegible]	453	82	1[illegible]7	[illegible]					
Cyanide												
% Solids	74.2	66.2	[illegible]	32.[illegible]	5.9	[illegible]	4[illegible]					

U.S.E.P.A. Region III
INORGANIC QUALITY ASSURANCE DATA REVIEW REPORT

Case No. 5256 Project Name St. Elizabeth

Laboratory Compuchem DPO for Lab Tom Kennet

Applicable Sample Nos. MCF 102 thru MCF 116

Date Sampled: 11-19-85

Date Data Received: 11-26-85

Review Date: 2-24-86

Contact of laboratory required _____ (yes, attach CLP logs) ✓ (no)

Resubmissions requested _____ Received _____

Data Qualifers:

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit. NOT DETECTED.

J - The associated numerical value is an estimated quantity because one or more quality control criteria were not met. ESTIMATED VALUE.

R - Quality control indicates that the data are unusable (analyte may or may not be present). Resampling and / or reanalysis is necessary for verification. UNUSABLE.

Z - No analytical result.

UJ - estimated quantitation limit due to blank contamination

DPO Action ✓ FYI _____

Quality Assurance Data Review Report (Cont.)

Case No. 5256

Laboratory Compu Chem

Comments

Lab is diluting many samples to below the instrument detection limit [illegible] furnace analysis. No raw data is present to indicate that [illegible] is necessary.

DPO Action Items

① Lab is diluting samples to 1:20 after digestion instead of [illegible] for 1:5 dilution as stated in SOW 7-4.

② [illegible] analyzed least by flame AA and only first dilution [illegible] by furnace AA.

③ Reporting non-detected samples to CRDL & not IDL.

④ Lab is not analyzing a calibration check sample at a 10% frequency.

Reviewed by: [redacted] (b) (4) Phone No. 301-224-2740 Date: [illegible]

FTS-952-3750

Attachments

CC:

Regional DPO (for laboratory)

Contract Laboratory Program, QAO

[redacted] (b) (4)) (4)

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF102

DUE DATE: 12/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: 69345 QC REPORT NO: A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: _____ PH 1.71 UNITS DATE: 11-27-85

MATRIX: WATER: XXX SOIL: _____ SLUDGE: _____ OTHER: _____

ug/l or mg/kg DRY WEIGHT (circle one) DRY WEIGHT FACTOR: NOT REQUIRED

1.	Aluminum	210	R P	200U	13.	Magnesium	R P 5000U
2.	Antimony		F	60U	14.	Manganese	P 15U
3.	Arsenic		P	10U	15.	Mercury	CV 0.2U
4.	Barium		P	200U	16.	Nickel	R P 40U
5.	Beryllium		P	5U	17.	Potassium	[200] P 5000U
6.	Cadmium		F	5U	18.	Selenium	F 5U
7.	Calcium		R P	5000U	19.	Silver	R P 10U
8.	Chromium		P	10U	20.	Sodium	[1200]* R P 5000U
9.	Cobalt		P	50U	21.	Thallium	F R 10U
10.	Copper		P	25U	22.	Tin	[7.9] R F 40U
11.	Iron	130*	R P	100U	23.	Vanadium	P 50U
12.	Lead	40	P	5U	24.	Zinc	20 R P 20U

Cyanide 10U Percent solids (%) NOT REQUIRED DATE: _____

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

COMMENTS: _____

LAB MANAGER: [illegible]

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF103

DUE DATE: 12/18/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: ~~69350~~ 69350

QC REPORT NO: A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: _____ PH 1.70 UNITS DATE: 11-27-8

MATRIX: WATER: XXX SOIL: _____ SLUDGE: _____ OTHER: _____

ug/l or mg/kg DRY WEIGHT (circle one) DRY WEIGHT FACTOR: NOT REQUIRED

1.	Aluminum	210	R P	200U	13.	Magnesium	8930 R P 5000U
2.	Antimony		F	60U	14.	Manganese	180 R P 15U
3.	Arsenic		P	10U	15.	Mercury	CV 0.2U
4.	Barium		P	200U	16.	Nickel	R P 40U
5.	Beryllium		P	5U	17.	Potassium	[2900] P 5000U
6.	Cadmium		F	5U	18.	Selenium	F 5U
7.	Calcium	41700	R P	5000U	19.	Silver	R P 10U
8.	Chromium	10	R P	10U	20.	Sodium	570(0) * R P 5000U
9.	Cobalt		P	50U	21.	Thallium	F R 10U
10.	Copper	[20]	P	25U	22.	Tin	9.2 R F 40U
11.	Iron	1350 *	P	100U	23.	Vanadium	P 50U
12.	Lead	50	P	5U	24.	Zinc	30 P 20U

Cyanide 10U Percent solids (%) NOT REQUIRED DATE: _____

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

COMMENTS: _____

LAB MANAGER: [illegible]

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF104

DUE DATE: 12/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: 69351

QC REPORT NO: A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: _____ PH 8.86 UNITS DATE: 11-27-85

MATRIX: WATER: XXX SOIL: _____ SLUDGE: _____ OTHER: _____

ug/l or mg/kg DRY WEIGHT (circle one) DRY WEIGHT FACTOR: NOT REQUIRED

1.	Aluminum	42100	P	200U	13.	Magnesium	11300 E P	5000U
2.	Antimony	[49]	F	60U	14.	Manganese	1330 E P	15U
3.	Arsenic	~~1050~~ 25	F	10U	15.	Mercury	1.0 CV	0.2U
4.	Barium	1050	P	200U	16.	Nickel	210 R P	40U
5.	Beryllium		P	(5U)	17.	Potassium	110000 P	5000U
6.	Cadmium	45	F	5U	18.	Selenium	14 F	5U
7.	Calcium	56100	RP	5000U	19.	Silver	80 RP	~~10U~~
8.	Chromium	310	P	10U	20.	Sodium	5120000 * RP	5000U
9.	Cobalt		P	(50U)	21.	Thallium	17 FR	10U
10.	Copper	2330	P	25U	22.	Tin	900 R F	40U
11.	Iron	75600 *	P	100U	23.	Vanadium	310 P	50U
12.	Lead	3110	P	5U	24.	Zinc	63600 R P	20U

Cyanide ~~320~~ 640 10U Percent solids (%) NOT REQUIRED DATE: _____

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

COMMENTS: This sample was used for "Serial Dilution"
See data ICP Page 85, raw data

LAB MANAGER: [signature]

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF105

DUE DATE: 12/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: 69352

QC REPORT NO: A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: _____ PH 8.90 UNITS DATE: 11-27-85

MATRIX: WATER: XXX SOIL: _____ SLUDGE: _____ OTHER: _____

ug/l or mg/kg DRY WEIGHT (circle one) DRY WEIGHT FACTOR: NOT REQUIRED

1.	Aluminum	52900	P	200U	13.	Magnesium	13100 R P	5000U
2.	Antimony	[41]	F	60U	14.	Manganese	1440 P	15U
3.	Arsenic	22	F	10U	15.	Mercury	0.7 CV	0.2U
4.	Barium	1150	P	200U	16.	Nickel	210 R P	40U
5.	Beryllium		P	5U	17.	Potassium	127000 P	5000U
6.	Cadmium	34	F	5U	18.	Selenium	16 F	5U
7.	Calcium	164100	R P	5000U	19.	Silver	60 RP	10U
8.	Chromium	360	P	10U	20.	Sodium	4440000 RP	5000U
9.	Cobalt		P	50U	21.	Thallium	17 FR	10U
10.	Copper	2920	P	25U	22.	Tin	1080 R F	40U
11.	Iron	85200*	P	100U	23.	Vanadium	380 P	50U
12.	Lead	3460	P	5U	24.	Zinc	7120 R P	20U

Cyanide 536 ~~260~~ 10U Percent solids (%) NOT REQUIRED DATE: _____

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

COMMENTS: _____

LAB MANAGER: [signature]

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF106

DUE DATE: 12/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: 69353 QC REPORT NO: A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: _____ PH 8.27 UNITS DATE: 11-27-8

MATRIX: WATER: XXX SOIL: _____ SLUDGE: _____ OTHER: _____

ug/l or mg/kg DRY WEIGHT (circle one) DRY WEIGHT FACTOR: NOT REQUIRED

1.	Aluminum	95000	P	200U	13.	Magnesium	33700 P	5000U
2.	Antimony	101	F	60U	14.	Manganese	3710 P	15U
3.	Arsenic	10	F	10U	15.	Mercury	0.6 CV	0.2U
4.	Barium	~~2900~~ 2890	P	200U	16.	Nickel	290 R P	40U
5.	Beryllium		P	5U	17.	Potassium	215000 P	5000U
6.	Cadmium	123	F	5U	18.	Selenium	5 F	5U
7.	Calcium	146000 R	P	5000U	19.	Silver	60 RP	10U
8.	Chromium	330	P	10U	20.	Sodium	6080000* R P	5000U
9.	Cobalt	70	P	50U	21.	Thallium	43 ~~48.0~~ FR	10U
10.	Copper	2220	P	25U	22.	Tin	925 R F	40U
11.	Iron	191000*	P	100U	23.	Vanadium	440	50U
12.	Lead	8020	P	5U	24.	Zinc	16900 R P	20U

Cyanide ~~2.03~~ 726 10U Percent solids (%) NOT REQUIRED DATE: _____

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

COMMENTS: _____

LAB MANAGER: [signature]

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF107

DUE DATE: 12/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: 69354

QC REPORT NO: A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: _____ PH 8.59 UNITS DATE: 11-27-8

MATRIX: WATER: XXX SOIL: _____ SLUDGE: _____ OTHER: _____

ug/l or mg/kg DRY WEIGHT (circle one) DRY WEIGHT FACTOR: NOT REQUIRED

1.	Aluminum	7260	~~R~~ RDS P	200U	13.	Magnesium	8450 R P	5000U
2.	Antimony	[34]	~~R~~ RDS F	60U	14.	Manganese	640 ~~R~~ RDS P	15U
3.	Arsenic	77	~~R~~ RDS P	10U	15.	Mercury	0.2 ~~R~~ RDS CV	0.2U
4.	Barium	440	~~R~~ RDS P	200U	16.	Nickel	50 R P	40U
5.	Beryllium		~~R~~ RDS P	5U	17.	Potassium	178000 P	5000U
6.	Cadmium	15	~~R~~ RDS F	5U	18.	Selenium	34 ~~R~~ RDS F	5U
7.	Calcium	28300	R P	5000U	19.	Silver	10 RP	10U
8.	Chromium	220	~~R~~ RDS P	10U	20.	Sodium	588000* RP	5000U
9.	Cobalt		~~R~~ RDS P	50U	21.	Thallium	15 F R	10U
10.	Copper	130	~~R~~ RDS P	25U	22.	Tin	~~1405~~ RDS 1410 R F	40U
11.	Iron	25000*	~~R~~ RDS P	100U	23.	Vanadium	230 ~~R~~ RDS P	50U
12.	Lead	370	P	5U	24.	Zinc	1930 R P	20U

Cyanide 760 10U Percent solids (%) NOT REQUIRED DATE: _____

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

COMMENTS: _____

LAB MANAGER: [illegible]

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF108

DUE DATE: 12/25/85 ORIGINAL

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: 69355 QC REPORT NO: A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: _____ PH 1.8 UNITS DATE: 11-27-85

MATRIX: WATER: XXX SOIL: _____ SLUDGE: _____ OTHER: _____

ug/l or mg/kg DRY WEIGHT (circle one) DRY WEIGHT FACTOR: NOT REQUIRED

1.	Aluminum	[170]	~~R~~ P	200U	13.	Magnesium	8020 R P	5000U
2.	Antimony		~~R~~ F ~~P~~	60U	14.	Manganese	140 ~~R~~ P	15U
3.	Arsenic		~~R~~ F	10U	15.	Mercury	~~R~~ CV	0.2U
4.	Barium		~~R~~ P	200U	16.	Nickel	R P	40U
5.	Beryllium		~~R~~ P	5U	17.	Potassium	[1100] P	5000U
6.	Cadmium		~~R~~ F	5U	18.	Selenium	~~R~~ F	5U
7.	Calcium	39300	R P	5000U	19.	Silver	RP	10U
8	Chromium		~~R~~ P	10U	20.	Sodium	48000* R P	5000U
9.	Cobalt		~~R~~ P	50U	21.	Thallium	F R	10U
10.	Copper	[20]	~~R~~ P	25U	22.	Tin	R F	40U
11.	Iron	1050*	~~R~~ P	100U	23.	Vanadium	~~R~~ P	50U
12.	Lead	60	P	5U	24.	Zinc	20 R P	20U

Cyanide 10U Percent solids (%) NOT REQUIRED DATE: _____

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

COMMENTS: _____

LAB MANAGER: [signature]

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF109

DUE DATE: 12/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: 69356

QC REPORT NO: A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: _____ PH 1.69 UNITS DATE: 11-27-85

MATRIX: WATER: XXX SOIL: _____ SLUDGE: _____ OTHER: _____

ug/l or mg/kg DRY WEIGHT (circle one) DRY WEIGHT FACTOR: NOT REQUIRED

1.	Aluminum	[170]	~~R~~ AFS P	200U	13.	Magnesium	7630 R P 5000U
2.	Antimony		~~R~~ AFS F	60U	14.	Manganese	140 ~~R~~ AFS P 15U
3.	Arsenic		~~R~~ AFS F	10U	15.	Mercury	~~R~~ AFS CV 0.2U
4.	Barium	[40]	~~R~~ AFS P	200U	16.	Nickel	R P 40U
5.	Beryllium		~~R~~ AFS P	5U	17.	Potassium	[600] P 5000U
6.	Cadmium		~~R~~ AFS F	5U	18.	Selenium	~~R~~ AFS F 5U
7.	Calcium	316900	R P	5000U	19.	Silver	R P 10U
8.	Chromium	[20]	~~R~~ AFS P	10U	20.	Sodium	30500* R P 5000U
9.	Cobalt		~~R~~ AFS P	50U	21.	Thallium	F R 10U
10.	Copper		~~R~~ AFS P	25U	22.	Tin	R F 40U
11.	Iron	1010*	~~R~~ AFS P	100U	23.	Vanadium	~~R~~ AFS P 50U
12.	Lead	60	P	5U	24.	Zinc	30 R P 20U

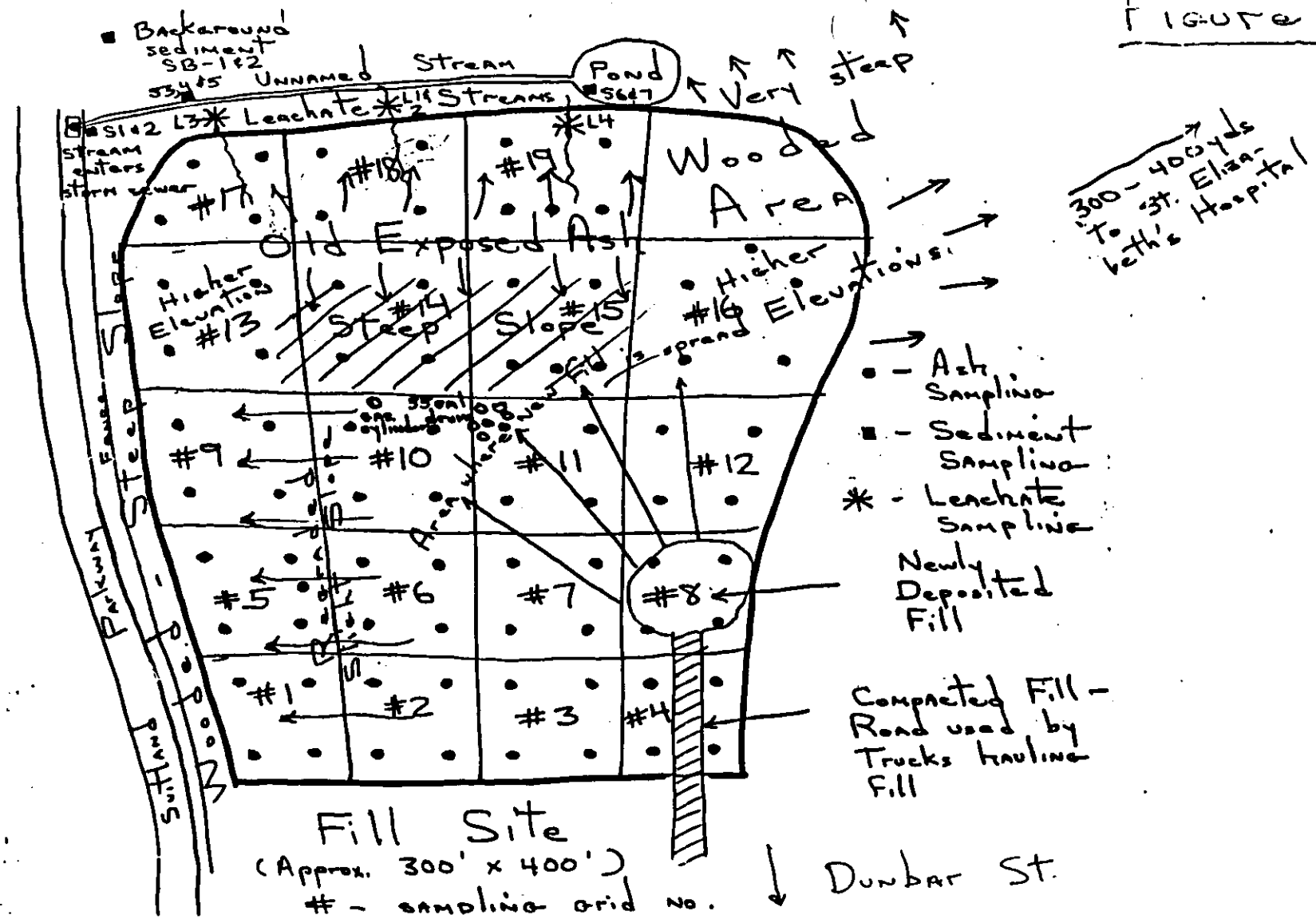
Cyanide 10U Percent solids (%) NOT REQUIRED DATE: _____

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

COMMENTS: _____

LAB MANAGER: [signature]

Figure 1



Background sediment SB-1&2
53,4&5 Unnamed Stream
Pond S6&7
Very steep
S1&2 L3 Leachate L1&2 Streams
L4
Stream enters storm sewer
Wooded Area
#17
#18
#19
Old Exposed Ash
Higher Elevation #13
Steep #14
Slope #15
Higher #16 Elevations
Fill is spread
300-400 yds to St. Elizabeth's Hospital
Steep Slope
Wooded
Parkway
Suitland
Fence
55 gal drum
gas cylinder
#9
#10
#11
#12
Area where new fill
#5
#6
#7
#8
#1
#2
#3
#4
• - Ash Sampling
■ - Sediment Sampling
* - Leachate Sampling
Newly Deposited Fill
Compacted Fill - Road used by Trucks hauling Fill
Fill Site
(Approx. 300' x 400')
- sampling grid no.
Dunbar St.

ORIGINAL

Also sent Memo:

- July 10
- Prelim. QA Review Dixon
  SHS Romero, St. Elizabeth's
- JA
- LC
- PJK

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF110

DUE DATE: 12/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: 69357

QC REPORT NO: B

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: ____ PH-NOT REQUIRED UNITS DATE: ____

MATRIX: WATER: ____ SOIL: XXX SLUDGE: ____ OTHER: ____

ug/l or (mg/kg) DRY WEIGHT (circle one) DRY WEIGHT FACTOR: 1.36

1.	Aluminum	7730	P	20U	13. Magnesium	2030	P	500U
2.	Antimony	[1.3]	R F	6U	14. Manganese	269 *	R P	1.5U
3.	Arsenic	[0.9] *	R F	1U	15. Mercury	~~0.1~~ 0.24	R CV	0.1U
4.	Barium	72 *	P	20U	16. Nickel	26	P	4U
5.	Beryllium		P	(0.5U)	17. Potassium	[338] *	P	500U
6.	Cadmium	~~[3.1]~~ 3.1	F R	0.5U	18. Selenium	*	R F	(0.5U)
7.	Calcium	18200 *	P	500U	19. Silver	2.7	R P	1U
8.	Chromium	20	P	1U	20. Sodium	1215 *	P	500U
9.	Cobalt		P	(5U)	21. Thallium		F R	(U)
10.	Copper	81 *	R P	2.5U	22. Tin	[2.8]	F	4U
11.	Iron	17500	P	10U	23. Vanadium	20	P	5U
12.	Lead	~~860~~ ~~115~~ 116	P	0.5U	24. Zinc	566	P	2U

Cyanide-NOT REQUIRED Percent solids (%) 74.3 DATE: ~~12-17-85~~ 12-3-85

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

COMMENTS:

LAB MANAGER: [signature]

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF111

DUE DATE: 12/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: 69360

QC REPORT NO: B

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: _____ PH-NOT REQUIRED_UNITS DATE: _____

MATRIX: WATER: _____ SOIL: XXX SLUDGE: _____ OTHER: _____

ug/l or mg/kg DRY WEIGHT (circle one) DRY WEIGHT FACTOR: 1.51

1.	Aluminum	4300	P	20U	13. Magnesium	2560	P	500U
2.	Antimony	[2.9]	R F	6U	14. Manganese	245*	R P	1.5U
3.	Arsenic	[0.88]*	R F	1U	15. Mercury	0.53	R CV	0.1U
4.	Barium	76*	P	20U	16. Nickel	74	P	4U
5.	Beryllium		P	0.5U	17. Potassium	[19.1]*	P	500U
6.	Cadmium	* 3.7.5	R F	0.5U	18. Selenium	*	R F	0.5U
7.	Calcium	9950*	P	500U	19. Silver		R P	1U
8.	Chromium	15	P	1U	20. Sodium	4300*	P	500U
9.	Cobalt		P	5U	21. Thallium		F R	1U
10.	Copper	490 25*	R P	2.5U	22. Tin	9	F	4U
11.	Iron	30700	P	10U	23. Vanadium	12	P	5U
12.	Lead	7960	P	0.5U	24. Zinc	963	P	2U

Cyanide-NOT REQUIRED Percent solids (%) 66.2 DATE: 12-3-85

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

COMMENTS: This sample was used for Serial dilution
See Raw ICP data Page 87 for results

LAB MANAGER: [signature]

ATTACHMENT #1

The quality assurance review performed on each data package consists of a review of all calibrations, ion ratios, column performance checks, duplicate precision, surrogate recoveries and a recalculation of all findings.

Isotope dilution selected ion mass spectrometry was used to test for the presence of 2,3,7,8-TCDD. In order for a result to be reported as dioxin, each of the following criteria had to be met:

1. Retention time (at maximum peak height) of the sample component must be within 3 seconds of the retention time of the $13C_{12}$-2,3,7,8-TCDD.

2. The integrated ion currents detected for m/z 257, 320 and 322 must maximize simultaneously.

3. The integrated ion current for each analyte and surrogate compound ion (m/z 257, 320, 322, and 328) must be at least 2.5 times background noise and must not have saturated the detector; internal standard ions (m/z 332 and 334) must be at least 10 times background and must not have saturated the detector.

4. Abundance of integrated ion counts detected for m/z 320 must be $\geq$67% and $\leq$87% of integrated ion counts detected for m/z 322.

If any of the above criteria were not met, the result was not reported as dioxin but flagged with the qualifier "EM", representing the estimated maximum possible concentration, and a foot note to the failed criteria.

For samples in which no unlabeled 2,3,7,8-TCDD was detected, the estimated minimum detectable concentration, which is the concentration required to produce a signal with area (or peak height) of 2.5 times the background signal area (or peak height), was reported.

California Analytical Laboratories, Inc.
2544 Industrial Boulevard • West Sacramento, CA 95691 • (916) 372-1393

July 5, 1985
Lab No. S5842-S5874
Received: 3/19/85
SAS 1562C

Ms. Patricia Krantz
U.S. EPA Region 3 Laboratory
Central Regional Laboratory
839 Bestgae Road
Annapolis, MD 21401

Dear Ms. Krantz:

Enclosed are data summaries and documentation for the samples and QA/QC comprising SAS 1562C which we received March 19, 1985. The samples were logged in under CAL Lab numbers S5842 through S5874 and analyzed for 2,3,7,8-TCDD, 2,3,7,8-TCDF, and tetra- through octa- dioxins and furans. The correlation of ID numbers is shown on the data summary sheet (form B-1).

Please note that the results are reported in units of pg/gram (pptr) or ng/L (pptr). The detection limits reported are the best we could achieve. We have reported isomer specific results for those isomers listed on the data sheets. These are the selected isomers that CAL had authentic standards and/or 13C-internal standards available and prepared during the analysis time of the samples. The values reported on the data sheets must be considered "maximum possible concentrations" for the specific isomers because they have not been confirmed yet on the SP-2330 column. This work is in progress, and we will be sending these results as soon as they are available. In the meantime, we are sending the rest of the data—as we feel there is a lot of useful data for you to review.

The 2,3,7,3-TCDD analysis using the 60-meter SP-2330 isomer specific column was used for all samples that had positive responses for the DB-5 analysis. Those samples that were negative were not analyzed on the SP-2330.

We apologise for the delay in sending out this data. We were initially delayed 45 days waiting for the necessary standards, and the analyses themselves proved to be very time consuming due to the low levels of positives in almost all the samples. Processing this data for isomer specific results should have been scheduled for a 60-day turnaround in the first place. Again, we apologise for the lateness of the data, but we feel that we did the best job we could given the nature of these analyses.

If you have any questions about the data, please don't hesitate to call.

(b) (4)

[redacted]

Director of GC/MS Services

TCDD DATA REPORT
California Analytical Laboratories
2544 Industrial Blvd.
W. Sacramento, CA 95691

Lab: California Analytical Laboratories
Case No. 1562C
Batch/Shipment No.

Report Date: 6-18-85
Column: SP-2330 60M X 0.32MM

Cal Labs ID	Sample Number	C U	Aliquot Wet Wt. (grams)	PPTr TCDD Meas	PPTr TCDD Det. Lmt	Inst ID	Date	Time	320/322	332/334	PPB Surrg Meas	Surrg % Acc'c	320	322	257	328*	332	334	Comments
S5842MB	METHOD BLANK	Y	10.00	ND	3.0	8	06/14/85	11:40:00	0.93	0.79	0.09	92	5830	6248	5516	484199	1054820	1330040	320/322 WRONG
S5842	1562C-01	Y	10.15	ND	2.0	8	06/14/85	15:06:00	1.00	0.77	0.08	83	-	-	-	408816	975737	1265320	
S5842MBNS	METH BLNK NS	Y	10.00	220	-	8	06/18/85	11:52:00	0.75	0.79	0.09	94	229768	304660	122328	248602	541350	684111	
S5843	1562C-02	Y	10.61	ND	1.0	8	06/14/85	13:36:00	1.00	0.77	0.07	79	-	-	-	611535	1524220	1978860	
S5843D	1562C-02D	Y	10.60	ND	1.0	8	06/18/85	12:43:00	1.00	0.80	0.07	77	-	-	-	471632	1260560	1583960	
S5844	1562C-03	Y	10.28	5.0	-	8	06/14/85	15:28:00	0.73	0.79	0.08	82	12766	17478	34516	514776	1260630	1585900	
S5845	1562C-04	Y	10.01	15	-	8	06/17/85	11:17:00	0.76	0.80	0.08	83	21696	28536	18518	303893	769997	968110	
S5846	1562C-09	Y	9.99	*6190	-	8	06/17/85	11:39:00	0.78	0.81	0.09	93	20590700	26349100	10682000	993160	1718450	2128430	
S5847MB	METHOD BLANK	Y	0.21L	ND	0.095	8	06/18/85	12:17:00	1.00	0.78	4.57	96	-	-	-	359261	768360	980493	
S5847MBNS	METH BLNK NS	Y	0.25L	9.8	-	8	06/18/85	13:52:00	0.80	0.79	3.93	98	201131	250842	105827	199429	413107	523385	
S5853	DC013302	Y	10.21	ND	31	8	06/14/85	14:02:00	0.89	0.79	0.08	86	8938	10070	7296	57633	134090	168861	MPC 320/322WRONG
S5854	DC013303	Y	10.19	22	-	8	06/17/85	12:01:00	0.83	0.79	0.09	94	32411	38880	12800	318909	712253	897874	
S5855	DC013304	Y	10.41	ND	8.0	8	06/14/85	14:24:00	0.95	0.80	0.09	89	14468	15232	22402	365494	832226	1037410	MPC 320/322WRONG
S5856	DC013305	Y	10.09	41	-	8	06/17/85	12:50:00	0.73	0.78	0.09	91	36672	49966	19488	203584	461768	594920	
S5857	DC013306	Y	10.08	ND	8.0	8	06/17/85	16:25:00	1.27	0.78	0.08	84	5336	4188	-	106362	264225	338240	MPC 320/322WRONG
S5858	DC013307	Y	10.09	9.0	-	8	06/17/85	13:50:00	0.77	0.80	0.09	91	17112	22193	21007	416322	964330	1202560	
S5859	DC013308	Y	10.28	ND	29	8	06/17/85	14:08:00	0.76	0.81	0.08	83	20668	27117	-	149808	381940	472940	MPC NO 257
S5860	DC013309	Y	10.31	ND	10	8	06/17/85	14:33:00	0.70	0.78	0.08	81	23398	33454	-	481770	1240870	1589240	MPC NO 257
S5861	DC013310	Y	10.31	ND	19 ~~79~~	8	06/17/85	15:37:00	0.68	0.77	0.08	82	14928	22107	-	167660	424520	548330	MPC NO 257
S5862	DC013311	Y	10.40	23	-	8	06/17/85	16:04:00	0.72	0.78	0.09	91	44239	61620	18056	431824	990418	1270640	
S5863	DC013312	Y	10.10	ND	24	8	06/17/85	18:06:00	1.00	0.86	0.10	100	-	-	-	34136	75342	87337	
S5864MB	METHOD BLANK	Y	10.00	ND	1.0	8	06/18/85	13:07:00	0.95	0.80	0.10	98	3463	3654	-	587676	1248060	1563210	
S5864	DC013313	Y	10.26	ND	33	8	06/17/85	19:01:00	0.00	0.75	0.08	80	-	6244	-	22922	58152	77060	MPC 320/322WRONG
S5865	DC013314	Y	10.26	ND	28	8	06/17/85	16:57:00	0.65	0.81	0.09	89	9171	14144	4608	71635	169674	209872	MPC 320/322WRONG
S5866	DC013315	Y	10.29	ND	10	8	06/14/85	14:44:00	0.54	0.79	0.09	89	9080	16901	7344	187531	425393	535773	MPC 320/322WRONG
S5867	DC013316	Y	10.26	39	-	8	06/17/85	20:57:00	0.77	0.80	0.09	93	70041	90525	47179	397797	906115	1131260	
S5867D	DC013316D	Y	10.26	47	-	8	06/18/85	14:32:00	0.80	0.79	0.10	98	78275	97316	48407	386856	818134	1030190	
S5868	DC013317	Y	10.15	18	-	8	06/17/85	21:51:00	0.85	0.79	0.09	93	12390	14530	8256	149855	335426	427215	
S5869MB	METHOD BLANK	Y	10.00	ND	6.0	8	06/18/85	13:25:00	1.00	0.79	0.10	103	-	-	-	147612	296421	372935	
S5869	DC013318	Y	10.04	20	-	8	06/17/85	22:53:00	0.67	0.78	0.09	93	23279	34782	6512	287497	642383	825316	
S5870	DC013319	Y	10.08	23	-	8	06/18/85	10:18:00	0.73	0.77	0.09	90	19128	26055	7285	190912	432051	562303	
S5871	DC013320	Y	10.05	32	-	8	06/18/85	10:37:00	0.86	0.80	0.09	94	6036	6986	2848	41207	90684	113709	USED NTS.
S5872	DC013321	Y	10.18	26	-	8	06/18/85	11:02:00	0.79	0.79	0.09	92	27798	35184	21129	236230	530452	669857	
S5873	DC013322	Y	0.85	*ND	81	8	06/18/85	11:35:00	0.92	0.80	1.11	95	4683	5104	-	157115	345575	430675	MPC 320/322WRONG

MPC = Detection Limit is Maximum Possible Concentration of 2,3,7,8-TCDD.

MB = Method Blank
P = Partial Scan/Confirmatory Analysis
NS = Native TCDD Spike
D = Duplicate/Fortified Field Blank
RI = Re-injection

FB = Field Blank
ND = Not Detected
DL = Detection Limit
RX = Re-extraction

*Corrected for contribution by native TCDD; 0.9% of m/z 322 subtracted

* NBS urban chart SRM 1649

** PE Sample T.V. = 8670 ppt

MPC = Maximum possible concentration

California Analy..cal Laboratories
Daily Calibration Summary

Native Conc ug/ml	ID	Injection Date	Injection Time	Standard ID	A320	A322	A323	A328	A332	A334	RF Native	RF Surr.	TCDD Isomer Resolut'ns
PC	8	06/14/85	09:47:00	DN8850614	698981	909677	111357	959214	1856310	2348680	.77	1.13	8.09
0.20	8	06/14/85	10:19:00	ST8850614	418149	532481		322189	2178910	2711320	.97	1.08	
1.00	8	06/14/85	10:50:00	ST8850614A	1498370	1932280		440886	1405190	1800310	1.07	1.10	
5.00	8	06/14/85	11:15:00	ST8850614B	9531070	12180300		1010070	1780280	2253050	1.08	1.12	
PC	8	06/14/85	15:53:00	DN8850614A	588006	760529	101374	789983	1454480	1830490	.82	1.19	8.70
0.20	8	06/14/85	16:14:00	ST8850614C	387067	500271		300958	1941970	2426960	1.02	1.13	

PC = Performance check solution

California Analytical Laboratories
Daily Calibration Summary

Native Conc ug/ml	ID	Injection Date	Injection Time	Standard ID	A320	A322	A323	A328	A332	A334	RF Native	RF Surr.	TCDD Isomer Resolut'ns
PC	8	06/17/85	09:10:00	DW8850617	805024	1024480	136494	1127840	2146850	2736340	.75	1.15	9.25
0.20	8	06/17/85	09:44:00	ST8850617	341503	429496		264626	1751280	2213280	.97	1.10	
1.00	8	06/17/85	10:11:00	ST8850617A	2426420	3090740		721352	2446750	3085780	1.00	1.04	
5.00	8	06/17/85	10:31:00	ST8850617B	9607400	12272600		1012080	1943870	2483550	.99	1.02	
PC	8	06/17/85	14:55:00	DW8850617A	808555	1021820	132746	1136870	2163620	2730800	.75	1.15	10.70
0.20	8	06/17/85	15:21:00	ST8850617C	441148	565066		354216	2370090	2992390	.94	1.09	
PC	8	06/17/85	23:14:00	DW8850617B	708016	880111	120508	960759	1869200	2336160	.76	1.13	11.00
0.20	8	06/17/85	23:36:00	ST8850617D	161032	210806		133001	839542	1077110	.97	1.14	

PC = Performance check solution

California Anal :al Laboratories
Daily Calibration Summary

Native Conc ug/ml	ID	Injection Date	Injection Time	Standard ID	A320	A322	A323	A328	A332	A334	RF Native	RF Surr.	TCDD Isomer Resolut'ns
PC	8	06/18/85	08:44:00	DH8850618	761556	1001840	128754	1059940	2017330	2568540	.77	1.15	13.30
0.20	8	06/18/85	09:11:00	ST8850618	217032	272884		167726	1083610	1395170	.99	1.11	
1.00	8	06/18/85	09:30:00	ST8850618A	912424	1162280		277939	936501	1185940	.98	1.05	
5.00	8	06/18/85	09:48:00	ST8850618B	7881540	10073800		844924	1585850	2006090	1.00	1.05	
PC	8	06/18/85	14:53:00	DH8850618A	869168	1050010	134391	1167870	2022470	2561810	.84	1.26	15.70
0.20	8	06/18/85	15:14:00	ST8850618C	302804	396158		235637	1531280	1943350	1.01	1.11	

PC = Performance check solution

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

DUPLICATE, RELATIVE % DIFFERENCE

CASE NO: 1562C

EPA ID: 1562C-02

CAL ID: S5843

FURANS	AMOUNT FOUND IN SAMPLE (ng/g)	DETECTION LIMIT IN DUPLICATE (ng/g)	RPD
tetra (total)	10	11	9.5
2378	5.5	7.8	35
penta	110	61	57
12378	11	7.5	38
23478	9.6	6.7	36
hexa	97	67	37
123478	43	35	21
hepta	65	85	27
1234678	30	42	33
2234789	ND	ND	0
octa	22	32	37
DIOXINS			
tetra (total)	ND	ND	0
2378	ND	ND	0
penta	ND	ND	0
12378	ND	ND	0
hexa	ND	ND	0
123478	ND	ND	0
hepta	190	170	11
1234678	76	80	5.1
octa	1100	1100	0

ND = Not Detected

PREPARED BY: JN

APPROVED BY: MM

DATE: 7-3-95

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

DUPLICATE, RELATIVE % DIFFERENCE

CASE NO: 1562C

EPA ID: 1562C-08

CAL ID: S5850

FURANS	AMOUNT FOUND IN SAMPLE (ng/g)	DETECTION LIMIT IN DUPLICATE (ng/g)	RPD
tetra (total)	ND	ND	0
2378	ND	ND	0
penta	ND	ND	0
12378	ND	ND	0
23478	ND	ND	0
hexa	ND	ND	0
123478	ND	ND	0
hepta	ND	ND	0
1234678	ND	ND	0
2234789	ND	ND	0
octa	ND	ND	0
DIOXINS			
tetra (total)	ND	ND	0
2378	ND	ND	0
penta	ND	ND	0
12378	ND	ND	0
hexa	ND	ND	0
123478	ND	ND	0
hepta	ND	ND	0
1234678	ND	ND	0
octa	ND	ND	0

ND = Not Detected

PREPARED BY: JN

APPROVED BY: [illegible]

DATE: 7-3-95

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

DUPLICATE, RELATIVE % DIFFERENCE

CASE NO: 1562C

EPA ID: DC013316

CAL ID: S5867

FURANS	AMOUNT FOUND IN SAMPLE (ng/g)	DETECTION LIMIT IN DUPLICATE (ng/g)	RPD
tetra (total)	830	1200	36
2378	180	260	36
penta	3200	3000	6.5
12378	380	330	14
23478	300	300	0
hexa	3600	2700	29
123478	1500	1100	31
hepta	2700	3000	11
1234678	1800	2100	15
2234789	180	240	29
octa	330	380	14
DIOXINS			
tetra (total)	400	680	52
penta	2600	3000	14
12378	430	440	2.3
hexa	1200	1200	0
123478	600	420	35
hepta	4400	5200	17
1234678	2400	2900	19
octa	1800	1700	5.7

ND = Not Detected

PREPARED BY: JN

APPROVED BY: [illegible]

DATE: 7-3-95

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: METHOD BLANK DATE ANALYZED: 5/10/85

CAL ID: S5842MB WEIGHT: 10.0 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	ND	1.8
2,3,7,8-TCDF	ND	1.8
Total PCDF	ND	1.1
1,2,3,7,8-PCDF	ND	1.1
2,3,4,7,8-PCDF	ND	1.1
Total HCDF	ND	1.7
1,2,3,4,7,8-HCDF	ND	1.7
Total HpCDF	ND	16
1,2,3,4,6,7,8-HpCDF	ND	16
1,2,3,4,7,8,9-HpCDF	ND	16
Total OCDF	ND	45
DIOXINS		
Total TCDD	ND	1.7
2,3,7,8-TCDD	ND	1.7
Total PCDD	ND	5.0
1,2,3,7,8-PCDD	ND	5.0
Total HCDD	ND	3.5
1,2,3,4,7,8-HCDD	ND	3.5
Total HpCDD	ND	27
1,2,3,4,6,7,8-HpCDD	ND	27
Total OCDD	ND	95

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

ORIGINAL (Red)

EPA ID: 1562C-01 DATE ANALYZED: 5/10/85

CAL ID: S5842 WEIGHT: 10.15 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	2.5	-
2,3,7,8-TCDF	2.5	-
Total PCDF	ND	2.1
1,2,3,7,8-PCDF	ND	2.1
2,3,4,7,8-PCDF	ND	2.1
Total HCDF	ND	2.5
1,2,3,4,7,8-HCDF	ND	2.5
Total HpCDF	ND	31
1,2,3,4,6,7,8-HpCDF	ND	31
1,2,3,4,7,8,9-HpCDF	ND	31
Total OCDF	ND	65
DIOXINS		
Total TCDD	ND	2.8
2,3,7,8-TCDD	ND	2.8
Total PCDD	ND	8.4
1,2,3,7,8-PCDD	ND	8.4
Total HCDD	ND	4.1
1,2,3,4,7,8-HCDD	ND	4.1
Total HpCDD	ND	42
1,2,3,4,6,7,8-HpCDD	ND	42
Total OCDD	310~~0~~ JA	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 2-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: 1562C-02 DATE ANALYZED: 5/10/85

CAL ID: S5843 WEIGHT: 10.61 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	10	-
2,3,7,8-TCDF	5.5	-
Total PCDF	110	-
1,2,3,7,8-PCDF	11	-
2,3,4,7,8-PCDF	9.6	-
Total HCDF	97	-
1,2,3,4,7,8-HCDF	43	-
Total HpCDF	65	-
1,2,3,4,6,7,8-HpCDF	30	-
1,2,3,4,7,8,9-HpCDF	ND	10
Total OCDF	22	-
DIOXINS		
Total TCDD	ND	3.1
2,3,7,8-TCDD	ND	3.1
Total PCDD	ND	3.2
1,2,3,7,8-PCDD	ND	3.2
Total HCDD	ND	2.8
1,2,3,4,7,8-HCDD	ND	2.8
Total HpCDD	190	-
1,2,3,4,6,7,8-HpCDD	76	-
Total OCDD	1100	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: 1562C-02DUP

DATE ANALYZED: 5/13/85

CAL ID: S5843D

WEIGHT: 10.60 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	11	-
2,3,7,8-TCDF	7.8	-
Total PCDF	61	-
1,2,3,7,8-PCDF	7.5	-
2,3,4,7,8-PCDF	6.7	-
Total HCDF	67	-
1,2,3,4,7,8-HCDF	35	-
Total HpCDF	85	-
1,2,3,4,6,7,8-HpCDF	42	-
1,2,3,4,7,8,9-HpCDF	ND	5.7
Total OCDF	32	-
DIOXINS		
Total TCDD	ND	0.61
2,3,7,8-TCDD	ND	0.61
Total PCDD	ND	2.5
1,2,3,7,8-PCDD	ND	2.5
Total HCDD	ND	1.8
1,2,3,4,7,8-HCDD	ND	1.8
Total HpCDD	170	-
1,2,3,4,6,7,8-HpCDD	80	-
Total OCDD	1100	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: [illegible]

APPROVED BY: [illegible]

DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: 1562C-03 DATE ANALYZED: 5/13/85

CAL ID: S5844 WEIGHT: 10.28 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	100	-
2,3,7,8-TCDF	24	-
Total PCDF	340	-
1,2,3,7,8-PCDF	33	-
2,3,4,7,8-PCDF	31	-
Total HCDF	270	-
1,2,3,4,7,8-HCDF	130	-
Total HpCDF	170	-
1,2,3,4,6,7,8-HpCDF	110	-
1,2,3,4,7,8,9-HpCDF	12	-
Total OCDF	28	-
DIOXINS		
Total TCDD	27	-
Total PCDD	63	-
1,2,3,7,8-PCDD	32	-
Total HCDD	130	-
1,2,3,4,7,8-HCDD	50	-
Total HpCDD	360	-
1,2,3,4,6,7,8-HpCDD	180	-
Total OCDD	690	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: 1562C-04 DATE ANALYZED: 5/13/85

CAL ID: S5845 WEIGHT: 10.01 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	78	-
2,3,7,8-TCDF	24	-
Total PCDF	330	-
1,2,3,7,8-PCDF	38	-
2,3,4,7,8-PCDF	32	-
Total HCDF	280	-
1,2,3,4,7,8-HCDF	120	-
Total HpCDF	210	-
1,2,3,4,6,7,8-HpCDF	130	-
1,2,3,4,7,8,9-HpCDF	14	-
Total OCDF	30	-
DIOXINS		
Total TCDD	30	-
Total PCDD	190	-
1,2,3,7,8-PCDD	72	-
Total HCDD	92	-
1,2,3,4,7,8-HCDD	ND	27
Total HpCDD	350	-
1,2,3,4,6,7,8-HpCDD	160	-
Total OCDD	650	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 2-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: 1562C-05 DATE ANALYZED: 5/13/85

CAL ID: S5847 VOLUME: 0.210 L

	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
FURANS		
Total TCDF	ND	0.018
2,3,7,8-TCDF	ND	0.018
Total PCDF	0.28	-
1,2,3,7,8-PCDF	0.10	-
2,3,4,7,8-PCDF	ND	0.034
Total HCDF	ND	0.20
1,2,3,4,7,8-HCDF	ND	0.20
Total HpCDF	0.44	-
1,2,3,4,6,7,8-HpCDF	0.44	-
1,2,3,4,7,8,9-HpCDF	ND	0.29
Total OCDF	ND	0.26
DIOXINS		
Total TCDD	ND	0.047
2,3,7,8-TCDD	ND	0.047
Total PCDD	ND	1.0
1,2,3,7,8-PCDD	ND	1.0
Total HCDD	ND	0.48
1,2,3,4,7,8-HCDD	ND	0.48
Total HpCDD	0.45	-
1,2,3,4,6,7,8-HpCDD	0.45	-
Total OCDD	ND	3.3

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: [illegible]

APPROVED BY: [illegible] DATE: [illegible]

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: 1562C-06 DATE ANALYZED: 5/13/85

CAL ID: S5848 VOLUME: 0.208 L

	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
FURANS		
Total TCDF	ND	0.017
2,3,7,8-TCDF	ND	0.017
Total PCDF	ND	0.032
1,2,3,7,8-PCDF	ND	0.032
2,3,4,7,8-PCDF	ND	0.032
Total HCDF	1.0	-
1,2,3,4,7,8-HCDF	ND	0.50
Total HpCDF	ND	0.30
1,2,3,4,6,7,8-HpCDF	ND	0.30
1,2,3,4,7,8,9-HpCDF	ND	0.30
Total OCDF	ND	0.30
DIOXINS		
Total TCDD	ND	0.028
2,3,7,8-TCDD	ND	0.028
Total PCDD	ND	0.13
1,2,3,7,8-PCDD	ND	0.13
Total HCDD	ND	0.068
1,2,3,4,7,8-HCDD	ND	0.068
Total HpCDD	3.4	-
1,2,3,4,6,7,8-HpCDD	3.4	-
Total OCDD	ND	0.48

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

ORIGINAL

EPA ID: 1562C-07 DATE ANALYZED: 5/13/85

CAL ID: S5849 VOLUME: 0.212 L

	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
FURANS		
Total TCDF	ND	0.023
2,3,7,8-TCDF	ND	0.023
Total PCDF	ND	0.033
1,2,3,7,8-PCDF	ND	0.033
2,3,4,7,8-PCDF	ND	0.033
Total HCDF	ND	0.049
1,2,3,4,7,8-HCDF	ND	0.049
Total HpCDF	ND	0.57
1,2,3,4,6,7,8-HpCDF	ND	0.57
1,2,3,4,7,8,9-HpCDF	ND	0.57
Total OCDF	ND	0.71
DIOXINS		
Total TCDD	ND	0.037
2,3,7,8-TCDD	ND	0.037
Total PCDD	ND	0.27
1,2,3,7,8-PCDD	ND	0.27
Total HCDD	ND	0.56
1,2,3,4,7,8-HCDD	ND	0.56
Total HpCDD	ND	1.1
1,2,3,4,6,7,8-HpCDD	ND	1.1
Total OCDD	ND	1.3

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: 1562C-08 DATE ANALYZED: 5/13/85

CAL ID: S5850 VOLUME: 0.208 L

	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
FURANS		
Total TCDF	ND	0.014
2,3,7,8-TCDF	ND	0.014
Total PCDF	ND	0.018
1,2,3,7,8-PCDF	ND	0.018
2,3,4,7,8-PCDF	ND	0.018
Total HCDF	ND	0.50
1,2,3,4,7,8-HCDF	ND	0.50
Total HpCDF	ND	0.40
1,2,3,4,6,7,8-HpCDF	ND	0.40
1,2,3,4,7,8,9-HpCDF	ND	0.40
Total OCDF	ND	0.18
DIOXINS		
Total TCDD	ND	0.065
2,3,7,8-TCDD	ND	0.065
Total PCDD	ND	0.13
1,2,3,7,8-PCDD	ND	0.13
Total HCDD	ND	0.040
1,2,3,4,7,8-HCDD	ND	0.040
Total HpCDD	ND	0.80
1,2,3,4,6,7,8-HpCDD	ND	0.80
Total OCDD	ND	0.44

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: 1562C-10 DATE ANALYZED: 5/13/85

CAL ID: S5851 VOLUME: 0.224 L

	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
FURANS		
Total TCDF	ND	0.015
2,3,7,8-TCDF	ND	0.015
Total PCDF	ND	0.045
1,2,3,7,8-PCDF	ND	0.045
2,3,4,7,8-PCDF	ND	0.045
Total HCDF	ND	0.50
1,2,3,4,7,8-HCDF	ND	0.50
Total HpCDF	ND	0.28
1,2,3,4,6,7,8-HpCDF	ND	0.28
1,2,3,4,7,8,9-HpCDF	ND	0.28
Total OCDF	ND	0.41
DIOXINS		
Total TCDD	ND	0.042
2,3,7,8-TCDD	ND	0.042
Total PCDD	ND	0.12
1,2,3,7,8-PCDD	ND	0.12
Total HCDD	ND	0.084
1,2,3,4,7,8-HCDD	ND	0.084
Total HpCDD	ND	0.59
1,2,3,4,6,7,8-HpCDD	ND	0.59
Total OCDD	ND	0.53

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: 1562C-08DUP DATE ANALYZED: 5/13/85

CAL ID: S5850D VOLUME: 0.216 L

	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
FURANS		
Total TCDF	ND	0.027
2,3,7,8-TCDF	ND	0.027
Total PCDF	ND	0.049
1,2,3,7,8-PCDF	ND	0.049
2,3,4,7,8-PCDF	ND	0.049
Total HCDF	ND	0.50
1,2,3,4,7,8-HCDF	ND	0.50
Total HpCDF	ND	0.30
1,2,3,4,6,7,8-HpCDF	ND	0.30
1,2,3,4,7,8,9-HpCDF	ND	0.30
Total OCDF	ND	0.55
DIOXINS		
Total TCDD	ND	0.028
2,3,7,8-TCDD	ND	0.028
Total PCDD	ND	0.17
1,2,3,7,8-PCDD	ND	0.17
Total HCDD	ND	0.085
1,2,3,4,7,8-HCDD	ND	0.085
Total HpCDD	ND	0.63
1,2,3,4,6,7,8-HpCDD	ND	0.63
Total OCDD	ND	0.72

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: 1562C-09*

DATE ANALYZED: 5/13/85

CAL ID: S5846

WEIGHT: 9.99 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	ND	0.72
2,3,7,8-TCDF	ND	0.72
Total PCDF	ND	0.41
1,2,3,7,8-PCDF	ND	0.41
2,3,4,7,8-PCDF	ND	0.41
Total HCDF	9.0	-
1,2,3,4,7,8-HCDF	9.0	-
Total HpCDF	120	-
1,2,3,4,6,7,8-HpCDF	45	-
1,2,3,4,7,8,9-HpCDF	15	-
Total OCDF	120	-
DIOXINS		
Total TCDD	8400	-
Total PCDD	2800	-
1,2,3,7,8-PCDD	420	-
Total HCDD	3000	-
1,2,3,4,7,8-HCDD	410	-
Total HpCDD	76300	-
1,2,3,4,6,7,8-HpCDD	30100	-
Total OCDD	94100	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

* PE SAMPLE TRUE VALUE 2,3,7,8 TCDD = 8.67
90% C.I. NOT AVAILABLE

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013301

DATE ANALYZED: 5/13/85

CAL ID: S5852

WEIGHT: 10.18 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	ND	0.55
2,3,7,8-TCDF	ND	0.55
Total PCDF	ND	0.79
1,2,3,7,8-PCDF	ND	0.79
2,3,4,7,8-PCDF	ND	0.79
Total HCDF	ND	10
1,2,3,4,7,8-HCDF	ND	10
Total HpCDF	ND	3.4
1,2,3,4,6,7,8-HpCDF	ND	3.4
1,2,3,4,7,8,9-HpCDF	ND	3.4
Total OCDF	ND	4.5
DIOXINS		
Total TCDD	ND	1.0
2,3,7,8-TCDD	ND	1.0
Total PCDD	ND	3.9
1,2,3,7,8-PCDD	ND	3.9
Total HCDD	ND	2.0
1,2,3,4,7,8-HCDD	ND	2.0
Total HpCDD	ND	36
1,2,3,4,6,7,8-HpCDD	ND	36
Total OCDD	1900	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: [signature]

APPROVED BY: [signature]

DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013302 DATE ANALYZED: 5/13/85

CAL ID: S5853 WEIGHT: 10.12 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	510	-
2,3,7,8-TCDF	130	-
Total PCDF	4000	-
1,2,3,7,8-PCDF	410	-
2,3,4,7,8-PCDF	350	-
Total HCDF	7500	-
1,2,3,4,7,8-HCDF	2900	-
Total HpCDF	1600	-
1,2,3,4,6,7,8-HpCDF	1000	-
1,2,3,4,7,8,9-HpCDF	79	-
Total OCDF	290	-
DIOXINS		
Total TCDD	360	-
Total PCDD	3300	-
1,2,3,7,8-PCDD	570	-
Total HCDD	3200	-
1,2,3,4,7,8-HCDD	1200	-
Total HpCDD	3100	-
1,2,3,4,6,7,8-HpCDD	1700	-
Total OCDD	1700	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013303 DATE ANALYZED: 5/14/85

CAL ID: S5854 WEIGHT: 10.19 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	140	-
2,3,7,8-TCDF	37	-
Total PCDF	1100	-
1,2,3,7,8-PCDF	140	-
2,3,4,7,8-PCDF	110	-
Total HCDF	2500	-
1,2,3,4,7,8-HCDF	940	-
Total HpCDF	630	-
1,2,3,4,6,7,8-HpCDF	440	-
1,2,3,4,7,8,9-HpCDF	46	-
Total OCDF	110	-
DIOXINS		
Total TCDD	14	-
Total PCDD	710	-
1,2,3,7,8-PCDD	160	-
Total HCDD	920	-
1,2,3,4,7,8-HCDD	370	-
Total HpCDD	1700	-
1,2,3,4,6,7,8-HpCDD	1000	-
Total OCDD	720	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 2-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013304 DATE ANALYZED: 5/14/85

CAL ID: S5855 WEIGHT: 10.41 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	140	-
2,3,7,8-TCDF	40	-
Total PCDF	550	-
1,2,3,7,8-PCDF	56	-
2,3,4,7,8-PCDF	60	-
Total HCDF	460	-
1,2,3,4,7,8-HCDF	250	-
Total HpCDF	300	-
1,2,3,4,6,7,8-HpCDF	200	-
1,2,3,4,7,8,9-HpCDF	21	-
Total OCDF	67	-
DIOXINS		
Total TCDD	23	-
Total PCDD	230	-
1,2,3,7,8-PCDD	ND	15
Total HCDD	220	-
1,2,3,4,7,8-HCDD	ND	38
Total HpCDD	1100	-
1,2,3,4,6,7,8-HpCDD	560	-
Total OCDD	830	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013305 DATE ANALYZED: 5/23/85

CAL ID: S5856RI WEIGHT: 10.04 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	600	-
2,3,7,8-TCDF	120	-
Total PCDF	1800	-
1,2,3,7,8-PCDF	250	-
2,3,4,7,8-PCDF	210	-
Total HCDF	1600	-
1,2,3,4,7,8-HCDF	690	-
Total HpCDF	700	-
1,2,3,4,6,7,8-HpCDF	450	-
1,2,3,4,7,8,9-HpCDF	62	-
Total OCDF	110	-
DIOXINS		
Total TCDD	260	-
Total PCDD	1300	-
1,2,3,7,8-PCDD	450	-
Total HCDD	870	-
1,2,3,4,7,8-HCDD	340	-
Total HpCDD	1300	-
1,2,3,4,6,7,8-HpCDD	750	-
Total OCDD	610	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013306 DATE ANALYZED: 5/23/85

CAL ID: S5857RI WEIGHT: 10.08 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	140	-
2,3,7,8-TCDF	31	-
Total PCDF	400	-
1,2,3,7,8-PCDF	42	-
2,3,4,7,8-PCDF	40	-
Total HCDF	400	-
1,2,3,4,7,8-HCDF	160	-
Total HpCDF	260	-
1,2,3,4,6,7,8-HpCDF	150	-
1,2,3,4,7,8,9-HpCDF	21	-
Total OCDF	59	-
DIOXINS		
Total TCDD	51	-
Total PCDD	570	-
1,2,3,7,8-PCDD	64	-
Total HCDD	370	-
1,2,3,4,7,8-HCDD	130	-
Total HpCDD	900	-
1,2,3,4,6,7,8-HpCDD	440	-
Total OCDD	650	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013307 DATE ANALYZED: 5/23/85

CAL ID: S5858 WEIGHT: 10.09 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	180	-
2,3,7,8-TCDF	36	-
Total PCDF	510	-
1,2,3,7,8-PCDF	60	-
2,3,4,7,8-PCDF	46	-
Total HCDF	450	-
1,2,3,4,7,8-HCDF	180	-
Total HpCDF	230	-
1,2,3,4,6,7,8-HpCDF	140	-
1,2,3,4,7,8,9-HpCDF	17	-
Total OCDF	44	-
DIOXINS		
Total TCDD	67	-
Total PCDD	430	-
1,2,3,7,8-PCDD	73	-
Total HCDD	200	-
1,2,3,4,7,8-HCDD	120	-
Total HpCDD	660	-
1,2,3,4,6,7,8-HpCDD	330	-
Total OCDD	660	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

2

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Agency for Toxic Substances
and Disease Registry

Memorandum

Date October 1, 1985

From Acting Director, Office of Health Assessment

Subject Review of Dioxin Sampling, St. Elizabeth's Hospital, Washington, D.C.

To Mr. Charles J. Walters
Public Health Advisor, EPA Region III

The U.S. Environmental Protection Agency (EPA) Region III, requested an Agency for Toxic Substances and Disease Registry (ATSDR) review of environmental sampling data for polychlorinated dioxins and furans in fill material (incinerator ash & soil), leachate streams, and a receiving pond and stream at a waste disposal area behind St. Elizabeth Hospital in Washington, D.C. The reviewed documents included: EPA's Summary Report-Dioxin Sampling dated March 6-8, 1985, EPA's Preliminary Quality Assurance (QA) Review dated July 10, 1985, and the data summaries and documentation for the samples by California Analytical Laboratories, Inc. (CAL) enclosed with their July 5, 1985 letter to EPA.

BACKGROUND

Fill material containing incinerator ash and other wastes, including, storm sewer cleanings from the District of Columbia's Solid Waste Reduction Center (SWRC) has been deposited for the last 7 years at a 2-3 acre site located about 300-400 yards from St. Elizabeth Hospital and about 650 feet from private residences. "Hopper ash" from the SWRC was found to be contaminated with 4 to 13 ppb of 2,3,7,8-TCDD (CDC's SIG Superfund Record of Communications dated February 28, 1985). As a result of these findings, EPA requested CDC's input on their proposed "Work Plan for Dioxin Sampling." Please refer to Mr. David Forney's report (dated March 13, 1985) on the Work Plan.

SAMPLING PLAN

With the exception of CDC's recommendation about sampling for particulates with high volume air samplers (March 13, 1985 report), EPA incorporated the remainder of CDC's sampling recommendations into their sampling program.

QUALITY ASSURANCE

Several problems with QA and documentation were noted. While EPA's QA review indicates that the instruments were calibrated daily at 0.2, 1.0, and 5.0 ng, CAL's Daily Calibration Summary reveals the "native conc" used for calibration were .20, 1.00, and 5.00 ug/ml. Since a ug/ml is eqivalent to a ppm, it appears that the CAL's instruments may have been calibrated with standards far above the analytical results which were determined for the environmental samples. In addition, an error appears to have been made in the "units" heading (i.e., using ng/g instead of ng/L or pg/g) on 3 CAL "Duplicate, Relative % Difference" data sheets for samples #1562C-02, 1562C-08 and DC013316. While these 3 samples have the same "approved" dates and numerical values on the "Polychlorinated Dioxin/Furan Analysis" data sheets as the values presented on the "Polychlorinated Dioxin/Furan Analysis-Date Analyzed" data sheets, the unit notations are different by a factor of 1000. While the grid locations for the Sample Nos. "L-1 to L-4" shown on the Field Sampling Log agree with the grid locations on Figure 1 (site map), the Label No. and the Sample No. on the Field Sampling Log do not correspond to the labeling provided on the summary data sheet of the EPA Summary Report. It appears that the original L-2 Sample No. was revised to L-1D since L-2 was a duplicate of L-1, thus altering the original Sample Nos. of L-3 and L-4 to L-2 and L-3, respectively.

The EPA QA Review indicated that all 4 leachate samples (1562C-05, 1562C-06, 1562C-07, 1562C-08) gave no positive response for the 2,3,7,8-TCDD during the isomer analysis. However, the summary data sheet in the EPA Summary Report revealed positive values for 2,3,7,8-TCDD in 2 leachate samples (5 ppt, 1562C-05; 15 ppt, 1562C-06). These summary sheet values are inconsistent with the values shown on CAL's separate data sheets for these 2 samples. Furthermore, the 2,3,7,8-TCDD values for pond sediment samples 1562C-03 and 1562C-04 on CAL's summary "TCDD Data Report" sheet do not exist on the summary data sheet of EPA's Summary Report for these 2 samples. Were these 2 values inadvertently transcribed under samples 1562C-05 and 1562-06 on the summary data sheet of the Summary Report?

The "ECD? total" heading used on the CDD summary data sheet of the Summary Report should be corrected.

CONTAMINANTS OF CONCERN

Landfill samples were analyzed for 2,3,7,8-TCDD, 2,3,7,8-TCDF, as well as total tetra through octa isomers of polychlorinated dioxins and furans (CDDs/CDFs).

2,3,7,8-TCDD, one of 75 CDDs, is viewed as the isomer of greatest acute and carcinogenic toxicity. Limited data suggest that some of the 74 other CDDs may have similar toxic effects, again at low doses.[1] These toxicity concerns are not, however, restricted to CDDs.

Research data indicates that some CDFs exhibit similar toxicity. Nevertheless, the CDFs are likely to be less toxic than their corresponding CDDs, based on a comparison of the toxicity data for 2,3,7,8-TCDD and 2,3,7,8,-TCDF in various animal species. In terms of chronic toxicities with a carcinogenic endpoint, EPA's Chlorinated Dioxins Work Group has recommended estimated relative toxicities for 8 CDD homologues and 5 CDF homologues, and their "2,3,7,8 congeners."[1] These relative toxicities are discussed below as "2,3,7,8-TCDD Toxicity Equivalence Factors (TEF)".

NB

PUBLIC HEALTH IMPLICATIONS

The "highest reported value" for 2,3,7,8-TCDD in the materials sampled on the site was 0.047 ppb (ash sample #DC013315D). In view of the present knowledge about 2,3,7,8-TCDD, the current use of the site and the surrounding land use, the surface soil levels of 2,3,7,8-TCDD present on the site, should not pose a public health threat to hospital patients or employees, nearby residents, or landfill workers. Since 2,3,7,8-TCDD may exist at or above levels of public health concern[2] at depths greater than 1 foot, any construction operations that excavate or significantly disturb the site should be preceded by and conditioned upon (1) core sampling of the site, and (2) evaluation of the core sampling data relative to the proposed construction and the proposed land use.

EPA should determine whether the 2,3,7,8-TCDD values of 5 ppt and 15 ppt in leachate samples #1562C-05 and 1562C-06, respectively, are valid and have been correctly transcribed in the data summary sheet of the Summary Report. If these values are correct, additional environmental sampling of leachates, receiving waters, and soils at depth should be conducted to determine if releases of 2,3,7,8-TCDD are adversely impacting the water quality[3] of the receiving stream or streams. Depending upon this water quality evaluation and an assessment of the aquatic organisms that exist downstream that can bioconcentrate TCDD in excess of the concern level[4] established by the Food and Drug Administration, remedial measures to control leachate and sediment discharges to the affected waters would need to be studied and implemented.

We also evaluated the public health implications of polychlorinated dioxins and furans other than 2,3,7,8-TCDD (see discussion above) found in the surface soils ("within 1 foot of the surface") of the site. The levels found in the surface soils for these compounds do not appear to pose a public health threat. We base this conclusion partly upon EPA's "Interim Risk Assessment Procedures for Mixtures of Chlorinated Dioxins and -Dibenzofurans". This procedure estimates a toxicity for each of the component dioxins and furans and expresses it as an "equivalent amount of 2,3,7,8-TCDD" or "2,3,7,8-TCDD Toxicity Equivalence Factor TEF)."[1] EPA's Chlorinated Dioxins Work Group recommends that TEF procedure be used on an interim basis to estimate the risks associated with emissions of polychlorinated dioxins and furans from combustion sources. Using this procedure, we first determined a worst case estimate of the toxicity of the ash/soil mixture assuming that (1) all maximum values for all samples exist at one location, and (2) each homologue or homologous group is composed entirely of the "2,3,7,8-isomers", which is not the case. The derived TEF was within the same order of magnitude as the concern level of 1 ppb of 2,3,7,8-TCDD in residential soils. For this reason, we made a more realistic estimate of the toxicity of the ash/soil mixture using isomer-specific data, but still assuming that all maximum values for all samples exist at one location. Using isomer-specific data, we found the TEF to be almost a magnitude lower than the concern level of 1 ppb of 2,3,7,8-TCDD in residential soils.[2] For details, please refer to the attachment, "Calculations Using EPA's Chlorinated Dioxins Work Group TEF Method."

Note

CONCLUSIONS AND RECOMMENDATIONS

1. Surface soil levels of 2,3,7,8-TCDD and the other polychlorinated dioxins and furans present at the site should not pose a public health threat to hospital patients or employees, nearby residents, or landfill workers.

2. Since levels of concern for polychlorinated dioxins and furans may exist at depths greater than 1 foot, any future construction on the fill area or change in the land use of the fill area should be preceded by core sampling of the site.

3. The documents reviewed do not indicate the presence or absence of other hazardous contaminants in or on the landfill. If other hazardous contaminants are known to exist on the site, this information should be evaluated considering the proximity of sensitive populations.

4. Other environmental health impacts of the site and associated truck traffic (ie., fugitive dust, noise and safety) through residential areas should be assessed by EPA and the responsible agencies.

5. Since these conclusions are based upon the quality of the data provided, efforts should be made to address the items discussed under QUALITY ASSURANCES above.

Stephen Margolis

Stephen Margolis, Ph.D.

Calculations Using EPA's Chlorinated Dioxins Work Group TEF Method*:

ISOMER	TEF	PROBABILITY	CONC.	TCDD EQTS.
Total TCDD	1	A	.680	.68
Total PCDD	.2	A	3.3	.66
Total HCDD	.04	A	3.2	.128
Total HpCDD	.001	A	5.2	.005
Total OCDD	0	A	1.9	0
Total TCDF	.1	A	1.2	.12
Total PCDF	.1	A	4.0	.40
Total HCDF	.01	A	7.5	.075
Total HpCDF	.001	A	3.0	.003
Total OCDF	0	A	.38	0
			Total TCDD Eqts. = 2.07	

A = 100% of the homologous group is made up of 2,3,7,8-isomers or congeners.

*This method is not based on a thoroughly established scientific foundation. It represents a consensus recommendation on science policy by the Chlorinated Dioxin Work Group.

The above table is a worst-case or upper-bound estimate of the toxicity of the ash and assumes, (1) that the maximum values of all ash samples existed in one sample or location, and (2) that the 2,3,7,8-congeners of concern constitute all of the CDDs and CDFs present in the mixture (i.e., the concentration of the homologous groups is treated as if it consisted completely of 2,3,7,8-members of the homologous class). In reality, this is not the case since isomer-specific data is available on the site.

Since the worst-case estimate of the soil/ash's toxicity (based on homologous group concentrations) for "2,3,7,8-TCDD equivalents" exceeds and is within the same order of magnitude as the 1 ppb 2,3,7,8-TCDD level of concern in residential soils, isomer specific data is used below to determine the 2,3,7,8-TCDD equivalents.

ISOMER	TEF	CONC.	TCDD EQTS.
2378 TCDD	1	.047	.047
other TCDD	.01	.68	.0068
12378 PCDD	.2	.57	.114
other PCDD	.002	3.3	.0066
2378 TCDD	1	.047	.047
other TCDD	.01	.68	.0068
12378 PCDD	.2	.57	.114

ISOMER	TEF	CONC.	TCDD EQTS.
other PCDD	.002	3.3	.0066
123478 HCDD	.04	1.2	.048
other HCDD	.0004	3.2	.00128
1234678 HpCDD	.001	2.9	.0029
other HpCDD	.00001	5.2	.00005
OCDD	0	1.9	0
2378 TCDF	.1	.26	.026
other TCDF	.001	1.2	.0012
12378 PCDF	.1	.41	.041
23478 PCDF	.1	.35	.035
other PCDF	.001	4.0	.004
123478 HCDF	.01	2.9	.029
other HCDF	.0001	7.5	.00075
1234673 HCDF	.001	2.1	.0021
1234789 HCDF	.001	.24	.00024
other HpCDF	.00001	2.1	.000021
OCDF	0	.38	0

Total TCDD Eqts. = .366

REFERENCES

1. U.S. Environmental Protection Agency, Chlorinated Dioxins Work Group, "Position Document-Interim Risk Assessment Procedures for Mixtures of Chlorinated Dioxins and -Dibenzofurans (CDDs and CDFs)", April 1985.

2. Kimbrough, Renate D., Falk, Henry and Stehr, Paul, Center for Environmental Health, Centers for Disease Control, Public Health Service, U.S. Department of Health and Human Services, and Fries, George, U.S. Department of Agriculture, "Health Implications of 2,3,7,8-Tetrachlorodibenzodioxin, (TCDD) Contamination of Residential Soil," Journal of Toxicology and Environmental Health, 14:47-93, 1984.

3. U.S. EPA, Criteria and Standards Division, Office of Water Planning and Standards, "Ambient Water Quality Criteria 2,3,7,8-Tetrachlorodibenzo-p-dioxin."

4. Miller, Sanford A., Food and Drug Administration, Public Health Service, U.S. Department of Health and Human Services, "Statement Before the ...U.S. House of Representatives," June 30, 1983. Also March 1984 telecon with Michael Bolger, Contaminants and Natural Toxicants Evaluation Branch, Div. of Toxicology, FDA.

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013308 DATE ANALYZED: 5/23/85

CAL ID: S5859 WEIGHT: 10.28 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	520	-
2,3,7,8-TCDF	110	-
Total PCDF	2100	-
1,2,3,7,8-PCDF	220	-
2,3,4,7,8-PCDF	200	-
Total HCDF	2300	-
1,2,3,4,7,8-HCDF	920	-
Total HpCDF	1200	-
1,2,3,4,6,7,8-HpCDF	820	-
1,2,3,4,7,8,9-HpCDF	97	-
Total OCDF	190	-
DIOXINS		
Total TCDD	240	-
Total PCDD	2200	-
1,2,3,7,8-PCDD	340	-
Total HCDD	1400	-
1,2,3,4,7,8-HCDD	510	-
Total HpCDD	3100	-
1,2,3,4,6,7,8-HpCDD	1700	-
Total OCDD	1300	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013309 DATE ANALYZED: 5/23/85

CAL ID: S5860 WEIGHT: 10.31 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	180	-
2,3,7,8-TCDF	40	-
Total PCDF	630	-
1,2,3,7,8-PCDF	80	-
2,3,4,7,8-PCDF	52	-
Total HCDF	680	-
1,2,3,4,7,8-HCDF	260	-
Total HpCDF	300	-
1,2,3,4,6,7,8-HpCDF	190	-
1,2,3,4,7,8,9-HpCDF	26	-
Total OCDF	50	-
DIOXINS		
Total TCDD	28	-
Total PCDD	350	-
1,2,3,7,8-PCDD	83	-
Total HCDD	210	-
1,2,3,4,7,8-HCDD	120	-
Total HpCDD	460	-
1,2,3,4,6,7,8-HpCDD	230	-
Total OCDD	460	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013310 DATE ANALYZED: 5/23/85

CAL ID: S5861 WEIGHT: 10.31 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	350	-
2,3,7,8-TCDF	70	-
Total PCDF	1300	-
1,2,3,7,8-PCDF	170	-
2,3,4,7,8-PCDF	110	-
Total HCDF	1500	-
1,2,3,4,7,8-HCDF	630	-
Total HpCDF	630	-
1,2,3,4,6,7,8-HpCDF	410	-
1,2,3,4,7,8,9-HpCDF	38	-
Total OCDF	69	-
DIOXINS		
Total TCDD	19	-
Total PCDD	1100	-
1,2,3,7,8-PCDD	220	-
Total HCDD	680	-
1,2,3,4,7,8-HCDD	240	-
Total HpCDD	1200	-
1,2,3,4,6,7,8-HpCDD	640	-
Total OCDD	780	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013312 DATE ANALYZED: 6/3/85

CAL ID: S5863RI WEIGHT: 10.10 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	310	-
2,3,7,8-TCDF	60	-
Total PCDF	810	-
1,2,3,7,8-PCDF	96	-
2,3,4,7,8-PCDF	61	-
Total HCDF	560	-
1,2,3,4,7,8-HCDF	230	-
Total HpCDF	650	-
1,2,3,4,6,7,8-HpCDF	430	-
1,2,3,4,7,8,9-HpCDF	57	-
Total OCDF	ND	71
DIOXINS		
Total TCDD	86	-
Total PCDD	580	-
1,2,3,7,8-PCDD	120	-
Total HCDD	160	-
1,2,3,4,7,8-HCDD	89	-
Total HpCDD	1100	-
1,2,3,4,6,7,8-HpCDD	510	-
Total OCDD	1000	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013311 DATE ANALYZED: 6/3/85

CAL ID: S5862RI WEIGHT: 10.4 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	530	-
2,3,7,8-TCDF	110	-
Total PCDF	1600	-
1,2,3,7,8-PCDF	190	-
2,3,4,7,8-PCDF	150	-
Total HCDF	1400	-
1,2,3,4,7,8-HCDF	540	-
Total HpCDF	1800	-
1,2,3,4,6,7,8-HpCDF	1200	-
1,2,3,4,7,8,9-HpCDF	150	-
Total OCDF	190	-
DIOXINS		
Total TCDD	170	-
Total PCDD	1000	-
1,2,3,7,8-PCDD	180	-
Total HCDD	380	-
1,2,3,4,7,8-HCDD	190	-
Total HpCDD	2300	-
1,2,3,4,6,7,8-HpCDD	1300	-
Total OCDD	1400	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-2-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: METHOD BLANK DATE ANALYZED: 6/3/85

CAL ID: S5864MBRI WEIGHT: 10.0 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	ND	0.62
2,3,7,8-TCDF	ND	0.62
Total PCDF	ND	0.93
1,2,3,7,8-PCDF	ND	0.93
2,3,4,7,8-PCDF	ND	0.93
Total HCDF	ND	1.2
1,2,3,4,7,8-HCDF	ND	1.2
Total HpCDF	ND	20
1,2,3,4,6,7,8-HpCDF	ND	20
1,2,3,4,7,8,9-HpCDF	ND	20
Total OCDF	ND	20
DIOXINS		
Total TCDD	ND	0.78
2,3,7,8-TCDD	ND	0.78
Total PCDD	ND	2.7
1,2,3,7,8-PCDD	ND	2.7
Total HCDD	ND	1.9
1,2,3,4,7,8-HCDD	ND	1.9
Total HpCDD	ND	42
1,2,3,4,6,7,8-HpCDD	ND	42
Total OCDD	ND	48

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013313 DATE ANALYZED: 6/3/85

CAL ID: S5864 WEIGHT: 10.26 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	790	-
2,3,7,8-TCDF	150	-
Total PCDF	2200	-
1,2,3,7,8-PCDF	320	-
2,3,4,7,8-PCDF	190	-
Total HCDF	1800	-
1,2,3,4,7,8-HCDF	750	-
Total HpCDF	1500	-
1,2,3,4,6,7,8-HpCDF	1100	-
1,2,3,4,7,8,9-HpCDF	100	-
Total OCDF	210	-
DIOXINS		
Total TCDD	160	-
Total PCDD	1300	-
1,2,3,7,8-PCDD	240	-
Total HCDD	430	-
1,2,3,4,7,8-HCDD	220	-
Total HpCDD	1700	-
1,2,3,4,6,7,8-HpCDD	970	-
Total OCDD	1000	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013314 DATE ANALYZED: 6/3/85

CAL ID: S5865 WEIGHT: 10.36 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	720	-
2,3,7,8-TCDF	150	-
Total PCDF	2500	-
1,2,3,7,8-PCDF	400	-
2,3,4,7,8-PCDF	260	-
Total HCDF	2300	-
1,2,3,4,7,8-HCDF	1000	-
Total HpCDF	1300	-
1,2,3,4,6,7,8-HpCDF	840	-
1,2,3,4,7,8,9-HpCDF	130	-
Total OCDF	190	-
DIOXINS		
Total TCDD	170	-
Total PCDD	1600	-
1,2,3,7,8-PCDD	340	-
Total HCDD	690	-
1,2,3,4,7,8-HCDD	360	-
Total HpCDD	1800	-
1,2,3,4,6,7,8-HpCDD	980	-
Total OCDD	1500	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: [illegible]

APPROVED BY: [illegible] DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013315 DATE ANALYZED: 6/3/85

CAL ID: S5866 WEIGHT: 10.29 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	170	-
2,3,7,8-TCDF	48	-
Total PCDF	820	-
1,2,3,7,8-PCDF	130	-
2,3,4,7,8-PCDF	90	-
Total HCDF	1000	-
1,2,3,4,7,8-HCDF	470	-
Total HpCDF	470	-
1,2,3,4,6,7,8-HpCDF	310	-
1,2,3,4,7,8,9-HpCDF	38	-
Total OCDF	82	-
DIOXINS		
Total TCDD	27	-
Total PCDD	190	-
1,2,3,7,8-PCDD	150	-
Total HCDD	230	-
1,2,3,4,7,8-HCDD	130	-
Total HpCDD	790	-
1,2,3,4,6,7,8-HpCDD	410	-
Total OCDD	820	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013316 DATE ANALYZED: 6/3/85

CAL ID: S5867 WEIGHT: 10.26 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	830	-
2,3,7,8-TCDF	180	-
Total PCDF	3200	-
1,2,3,7,8-PCDF	380	-
2,3,4,7,8-PCDF	300	-
Total HCDF	3600	-
1,2,3,4,7,8-HCDF	1500	-
Total HpCDF	2700	-
1,2,3,4,6,7,8-HpCDF	1800	-
1,2,3,4,7,8,9-HpCDF	180	-
Total OCDF	330	-
DIOXINS		
Total TCDD	400	-
Total PCDD	2600	-
1,2,3,7,8-PCDD	430	-
Total HCDD	1200	-
1,2,3,4,7,8-HCDD	600	-
Total HpCDD	4400	-
1,2,3,4,6,7,8-HpCDD	2400	-
Total OCDD	1800	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013316DUP DATE ANALYZED: 6/3/85

CAL ID: S5867D WEIGHT: 10.26 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	1200	-
2,3,7,8-TCDF	260	-
Total PCDF	3000	-
1,2,3,7,8-PCDF	330	-
2,3,4,7,8-PCDF	300	-
Total HCDF	2700	-
1,2,3,4,7,8-HCDF	1100	-
Total HpCDF	3000	-
1,2,3,4,6,7,8-HpCDF	2100	-
1,2,3,4,7,8,9-HpCDF	240	-
Total OCDF	380	-
DIOXINS		
Total TCDD	680	-
Total PCDD	3000	-
1,2,3,7,8-PCDD	440	-
Total HCDD	1200	-
1,2,3,4,7,8-HCDD	420	-
Total HpCDD	5200	-
1,2,3,4,6,7,8-HpCDD	2900	-
Total OCDD	1700	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013317 DATE ANALYZED: 6/4/85

CAL ID: S5868 WEIGHT: 10.15 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	300	-
2,3,7,8-TCDF	55	-
Total PCDF	990	-
1,2,3,7,8-PCDF	120	-
2,3,4,7,8-PCDF	81	-
Total HCDF	860	-
1,2,3,4,7,8-HCDF	350	-
Total HpCDF	840	-
1,2,3,4,6,7,8-HpCDF	670	-
1,2,3,4,7,8,9-HpCDF	52	-
Total OCDF	ND	72
DIOXINS		
Total TCDD	120	-
Total PCDD	590	-
1,2,3,7,8-PCDD	130	-
Total HCDD	260	-
1,2,3,4,7,8-HCDD	140	-
Total HpCDD	2100	-
1,2,3,4,6,7,8-HpCDD	1100	-
Total OCDD	1300	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 2-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

ORIGINAL (Red)

EPA ID: DC013318 DATE ANALYZED: 6/4/85

CAL ID: S5869 WEIGHT: 10.04 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	330	-
2,3,7,8-TCDF	63	-
Total PCDF	1000	-
1,2,3,7,8-PCDF	95	-
2,3,4,7,8-PCDF	83	-
Total HCDF	360	-
1,2,3,4,7,8-HCDF	270	-
Total HpCDF	1200	-
1,2,3,4,6,7,8-HpCDF	1200	-
1,2,3,4,7,8,9-HpCDF	ND	460
Total OCDF	ND	330
DIOXINS		
Total TCDD	170	-
Total PCDD	1200	-
1,2,3,7,8-PCDD	190	-
Total HCDD	ND	5.2
1,2,3,4,7,8-HCDD	ND	5.2
Total HpCDD	ND	1500
1,2,3,4,6,7,8-HpCDD	ND	1500
Total OCDD	ND	1300

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: [illegible]

APPROVED BY: [illegible] DATE: 2-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: METHOD BLANK DATE ANALYZED: 6/4/85

CAL ID: S5869MB WEIGHT: 10.0 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	ND	2.0
2,3,7,8-TCDF	ND	2.0
Total PCDF	ND	2.6
1,2,3,7,8-PCDF	ND	2.6
2,3,4,7,8-PCDF	ND	2.6
Total HCDF	ND	2.7
1,2,3,4,7,8-HCDF	ND	2.7
Total HpCDF	ND	350
1,2,3,4,6,7,8-HpCDF	ND	350
1,2,3,4,7,8,9-HpCDF	ND	350
Total OCDF	ND	360
DIOXINS		
Total TCDD	ND	3.5
2,3,7,8-TCDD	ND	3.5
Total PCDD	ND	25
1,2,3,7,8-PCDD	ND	25
Total HCDD	ND	7.3
1,2,3,4,7,8-HCDD	ND	7.3
Total HpCDD	ND	810
1,2,3,4,6,7,8-HpCDD	ND	810
Total OCDD	ND	1100

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

TABLE 6. CHLORINE ISOTOPE RATIOS FOR PCDF CONGENER CLASSES AND 2,3,7,8-TCDF IN SAMPLES

Sample	2,3,7,8-Tetra	Tetra	Penta	Hexa	Hepta	Octa
34E1	.79	.79	1.56	1.26	1.00	.98
36E1	.79	.79	1.62	1.26	1.10	.95
35E1	.81	.78	1.55	1.24	1.11	.98
27C1	.79	.79	1.63	1.24	1.06	.95
34M1	.72	.78	1.53	1.23	1.08	--
28C1	.77	.79	1.50	1.33	1.11	1.01
36M1	.71	.78	1.62	1.19	--	--
35M1	.74	.74	--	--	1.14	--
MB	--	--	--	--	--	--
NS	.81	.81	--	--	--	--
24C1	.79	.79	1.57	1.30	1.08	.93
25C1	.75	.78	1.45	1.26	1.14	.90
26C1	.79	.78	1.60	1.25	.94	.98

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013319 DATE ANALYZED: 6/5/85

CAL ID: S5870 WEIGHT: 10.08 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	380	-
2,3,7,8-TCDF	71	-
Total PCDF	830	-
1,2,3,7,8-PCDF	85	-
2,3,4,7,8-PCDF	70	-
Total HCDF	570	-
1,2,3,4,7,8-HCDF	240	-
Total HpCDF	510	-
1,2,3,4,6,7,8-HpCDF	320	-
1,2,3,4,7,8,9-HpCDF	42	-
Total OCDF	64	-
DIOXINS		
Total TCDD	190	-
Total PCDD	810	-
1,2,3,7,8-PCDD	120	-
Total HCDD	350	-
1,2,3,4,7,8-HCDD	160	-
Total HpCDD	1100	-
1,2,3,4,6,7,8-HpCDD	560	-
Total OCDD	880	-

ND = Not Detected
RX = Re-extraction.

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013320 DATE ANALYZED: 6/5/85

CAL ID: S5871 WEIGHT: 10.05 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	580	-
2,3,7,8-TCDF	100	-
Total PCDF	1100	-
1,2,3,7,8-PCDF	120	-
2,3,4,7,8-PCDF	100	-
Total HCDF	790	-
1,2,3,4,7,8-HCDF	290	-
Total HpCDF	750	-
1,2,3,4,6,7,8-HpCDF	490	-
1,2,3,4,7,8,9-HpCDF	51	-
Total OCDF	84	-
DIOXINS		
Total TCDD	310	-
Total PCDD	780	-
1,2,3,7,8-PCDD	160	-
Total HCDD	380	-
1,2,3,4,7,8-HCDD	160	-
Total HpCDD	1600	-
1,2,3,4,6,7,8-HpCDD	850	-
Total OCDD	1300	-

ND = Not Detected RI = Reinjection
RX = Re-extraction

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

ORIGINAL (Red)

EPA ID: DC013321 DATE ANALYZED: 6/5/85

CAL ID: S5872 WEIGHT: 10.18 g

	AMOUNT FOUND (pg/g)	DETECTION LIMIT (pg/g)
FURANS		
Total TCDF	810	-
2,3,7,8-TCDF	140	-
Total PCDF	1300	-
1,2,3,7,8-PCDF	130	-
2,3,4,7,8-PCDF	110	-
Total HCDF	770	-
1,2,3,4,7,8-HCDF	280	-
Total HpCDF	1200	-
1,2,3,4,6,7,8-HpCDF	880	-
1,2,3,4,7,8,9-HpCDF	77	-
Total OCDF	120	-
DIOXINS		
Total TCDD	630	-
Total PCDD	1200	-
1,2,3,7,8-PCDD	200	-
Total HCDD	430	-
1,2,3,4,7,8-HCDD	160	-
Total HpCDD	2400	-
1,2,3,4,6,7,8-HpCDD	1300	-
Total OCDD	1000	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: JV

APPROVED BY: [illegible]

DATE: 7-3-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013322*

DATE ANALYZED: 6/5/85

CAL ID: S5873

WEIGHT: 0.85 g

	AMOUNT FOUND (pg/g)	Lit. Reported Value	DETECTION LIMIT (pg/g)
FURANS			
Total TCDF	1300		-
2,3,7,8-TCDF	440		-
Total PCDF	3100		-
1,2,3,7,8-PCDF	370		-
2,3,4,7,8-PCDF	410		-
Total HCDF	2300		-
1,2,3,4,7,8-HCDF	840		-
Total HpCDF	6700		-
1,2,3,4,6,7,8-HpCDF	2000		-
1,2,3,4,7,8,9-HpCDF	ND		350
Total OCDF	1300		-
DIOXINS			
Total TCDD	130	120	-
Total PCDD	ND	160	33
1,2,3,7,8-PCDD	ND		33
Total HCDD	990	2000	-
1,2,3,4,7,8-HCDD	ND		240
Total HpCDD	64100	34000	-
1,2,3,4,6,7,8-HpCDD	27900	18000	-
Total OCDD	49700	210000	-

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: [illegible]

APPROVED BY: [illegible]

DATE: 7-3-85

* NBS urban dust SRM 1649

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO: 1562C

EPA ID: DC013323 DATE ANALYZED: 6/5/85

CAL ID: S5874 WEIGHT: 0.100 L

	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
FURANS		
Total TCDF	ND	0.060
2,3,7,8-TCDF	ND	0.060
Total PCDF	ND	0.070
1,2,3,7,8-PCDF	ND	0.070
2,3,4,7,8-PCDF	ND	0.070
Total HCDF	ND	0.074
1,2,3,4,7,8-HCDF	ND	0.074
Total HpCDF	ND	7.4
1,2,3,4,6,7,8-HpCDF	ND	7.4
1,2,3,4,7,8,9-HpCDF	ND	7.4
Total OCDF	ND	6.8
DIOXINS		
Total TCDD	ND	0.091
2,3,7,8-TCDD	ND	0.091
Total PCDD	ND	0.10
1,2,3,7,8-PCDD	ND	0.10
Total HCDD	ND	0.21
1,2,3,4,7,8-HCDD	ND	0.21
Total HpCDD	ND	24.1
1,2,3,4,6,7,8-HpCDD	ND	24.1
Total OCDD	ND	18.8

ND = Not Detected
RX = Re-extraction

RI = Reinjection

PREPARED BY: _____

APPROVED BY: _____ DATE: 7/3/85

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401

301-224-2740
FTS-922-3752

DATE : October 17, 1985

SUBJECT: Dioxin Sampling at St. Elizabeth's Hospital - QA Related Issues Raised by CDC (see October 1, 1985 Memorandum)

FROM : Leo J. Clark
Chief, Annapolis Field Section (3ES14)

John J. Austin
Chemist (3ES22)

TO : Len Manyiaracina
Deputy Director, Environmental Services Division (3ES00)

During their recent review of the dioxin sampling data collected at St. Elizabeth's Hospital, Washington, D.C., the Centers for Disease Control (CDC) identified several discrepancies relative to QA and data documentation and cited these in a memorandum dated October 1, 1985. This memo will attempt to address the issues raised by CDC.

The raw data table attached to CRL's Summary Report was prepared somewhat hastily and a few typographical errors did occur.

The leachate samples should have been numbered L-1 to L-4 rather than L-1, L-1D, L-2 and L-3. This numbering system is consistent on the field sampling log and the site plan (Figure 1) and it was intentionally used so the contract lab would not know that duplicate samples (L-1 and L-2) were collected at one of the stations.

The 2, 3, 7, 8 - TCDD concentrations of 5 and 15 ppt have been incorrectly entered on the data table. The value of 5 actually corresponds to sample # 1562C-03 (S-6) rather than 1562C-05 as shown. Likewise, 15 pertains to sample # 1562C-04 (S-7) instead of 1562C-06. No 2, 3, 7, 8 - TCDD was detected in the leachate samples.

Although it was not pointed out by CDC, the grid number S-6D (sample # 1562C-04) should have been S-7 for the same reason as indicated above.

The heading HCDF on the CDD data summary sheet should be HCDD.

In regards to instrument calibration employed by CAL and the units reported the following comments are made:

For the sample weight extracted, the absolute standard amount injected corresponds to .01, .1 and .5 ppb or 10, 100 and 500 ppt. The health assessment reviewer may be confused by the different references to the calibration standards by absolute amount seen by the instrument and by concentration in the reference standard. The range of calibration is consistent with the levels reported.

CAL labs, as a CLP Laboratory, normally reports results in ppb on required standard forms. Units on forms reoprting "Duplicate, Relative % Difference" for samples # 1562C-02, 1562C-08 and DC013316 carry the wrong units. Data sheet for the above sample are correct as reported.

Attached is a copy of the CRL Summary Report containing revised versions of the data tables.

LJC:tlb

Summary Report

Dioxin Sampling

St. Elizabeth's Hospital
Washington, D. C.

March 6-8, 1985

Leo J. Clark
George H. Houghton
Gerard W. Crutchley
Charles T. Hufnagel, Jr.

Introduction

At the request of the Waste Management Division, EPA Region III, staff from the Central Regional Laboratory (CRL) performed extensive sampling of the fill material which was being deposited on the grounds of St. Elizabeth's Hospital by the District of Columbia. This fill material included incinerator (fly) ash from the electrostatic precipitator (ESP) at the District's Solid Waste Reduction Center (SWRC) that was found to contain Dioxin (see attachment for results). In addition, samples were collected of three leachate streams found to be emanating from the back (older exposed fill) portion of the site and of sediment in a pond and unnamed stream which received this leachate and any other drainage from the back side of the fill area.

Shortly after receiving this request for sampling, three representatives from CRL performed a reconnaissance survey of the St. Elizabeth's Hospital fill site to assist in developing a sampling strategy. Special attention was paid to the areal configuration and overall physical characteristics of the site, including uniformity of the fill material, and surface runoff patterns. This recon effort was followed by the preparation of a work or study plan. The purpose of the work plan was to help ensure a successful sampling operation by identifying the actual sampling, QA and safety protocols that would be maintained. During the finalization of the work plan CRL staff engaged in several discussions with staff from the Centers for Disease Cotnrol (CDC). To the extent possible, given existing resource constraints, CDC's recommendations were implemented in the actual sampling program. This assistance to enhance data credibility was appreciated.

Site Description

A mixture of incinerator ash and other residue along with storm sewer cleanings have been hauled from the SWRC to St. Elizabeth's Hospital for the past seven years. This mixture allegedly consists of 0.5% fly ash from the facility's ESP and appeared to be very uniform in nature. The current fill site, which has been used for the last two years, is a large ravine located in the northeastern sector of the Hospital's property along the Suitland Parkway. There are at least 300-400 yards separating this area containing fill from the main administrative region of the hospital where the patients reside. Neither patients nor hospital staff were ever seen at or near the fill area during the three days of sampling. There is a fence surrounding much of the fill site and access roads lead to it from the hospital's maintenance, shop and equipment storage areas and from the opposite side via Dunbar Street. The nearest private residences to the fill site are located on Dunbar Street, about 1/8th of a mile away. This area as well as the area along Suitland Parkway is primarily wooded. The nearby residences were situated at a noticeably lower elevation than the fill site itself.

The fill material is hauled to the site via the Dunbar Street access in several dump trucks, each of which has a 10 yard capacity. During this sampling project a truckload of fill was arriving about every hour or two. The fill would be dumped in one specific area and subsequently spread over a much larger area by means of a bulldozer. This bulldozer

was continuously spreading material and regrading to achieve the proper slope (4:1) while sampling was in progress.

The area of the ravine already filled comprised approximately 2-3 acres and had a depth ranging from 70 to 100 feet. The top of the fill pile did not appear to have a high ash content but was rather a combination of dirt, debris and assorted residue. Also observed at the top of the pile were six, 55 gallon drums, some of which were nearly full, and a gas cylinder. None of these items were labeled and their contents could not be discerned. There was no noticeable wind dispersal of the ash material during our sampling operation despite gusty winds and the effects of the bulldozing operation. The greatest concentrations of ash were observed along the embankment on the back side of the fill pile and within the plateau area below and behind this embankment. We were told that this material was deposited about a year ago. A total of three small leachate streams could be seen emanating from the bottom of the fill embankment near the plateau region which forms the outer perimeter of the fill site. Just beyond this area exists a small stream which was partly dammed by fallen trees and earthern material forming a small pond (<1/4 acre) near the far corner of the fill site. The stream flowed along the entire back side of the fill pile toward Suitland Parkway. Immediately upon leaving the hospital premises it entered an underground storm sewer which paralleled the parkway. This stream received the three aforementioned leachate discharges and appeared to be the primary conduit of other runoff from the older fill area.

Sampling Program

The active fill area was sampled in accordance with the grid system shown in Figure 1. Four or five generally equidistant samples were collected within each of the 19 grid elements and composited. All of these individual samples were of approximately the same volume and all were collected within a foot of the surface using a manually driven stainless steel auger. The rectangular grid elements were anywhere from 50 to 80 feet in length on each side and, where possible, were identified by means of 8 ft. stakes planted along the outer perimeter of the site. The composite samples from each of the numbered grid elements were homogenized in the field using a Waring commercial type blender and quart jars made of stainless steel. The homogenized samples were then placed in clean 8 oz. glass containers which were affixed with the appropriate labels. Duplicate samples for independent lab analysis were prepared for three of the grid elements (nos. 5, 15, and 16) which were selected because they were thought to be representative of different zones of the fill site. In addition to the grid sampling a special sample was collected of newly arrived fill prior to being spread at the site.

Besides the ash/soil sampling, four samples, including one duplicate, were collected from the three leachate streams leaving the fill site and seven sediment samples were collected from the unnamed stream and pond at three different locations. As indicated duplicate samples were collected at each of these latter sites. Lastly, two background soil samples were collected at a common site along the Suitland Parkway for dual lab analysis. The approximate locations of the various leachate and sediment/soil samples are also shown on Figure 1, along with the assigned sample numbers.

The augers and the blender jars were decontaminated between samplings by washing with soapy water and rinsing with clear water followed by a methanol rinse for drying purposes and two rinses using 1,1,1-trichloroethane. On each occasion a sample of the final rinsate was collected in order to ascertain the effectiveness of decontamination. These samples have been archived and could be analyzed if necessary. All of the sample containers were rinsed with a solvent and handled thereafter only with uncontaminated gloves. They were packaged in accordance with the Agency's dioxin sampling protocols and shipped by Federal Express to one of two laboratories: California Analytical Labs (received the bulk of the samples) and the EPA Lab in Bay St. Louis, Mississippi. Both laboratories also received two PE samples one for urban dust or ash and the other for sediment.

The samples collected at St. Elizabeth's Hospital were analyzed for the following:

<u>Dioxins</u>

Total TCDD
2, 3, 7, 8 - TCDD

Total PCDD
1, 2, 3, 7, 8 - PCDD

Total HCDD
1, 2, 3, 4, 7, 8 - HCDD

Total H_p CDD
1, 2, 3, 4, 6, 7, 8 - H_p CDD

Total OCDD

<u>Furans</u>

Total TSDF
2, 3, 7, 8 - TCDF

Total PCDF
1, 2, 3, 7, 8 - PCDF
2, 3, 4, 7, 8 - PCDF

Total HCDF
1, 2, 3, 5, 7, 8 - HCDF

Total H_p CDF
1, 2, 3, 4, 6, 7, 8 - H_p CDF
1, 2, 3, 4, 7, 8, 9 - H_p CDF
Total OCDF

Attached is a summary of the field sampling log that was used for sample identification purposes.

LJC:tlb

Sampling Log
St. Elizabeth's Hospital

Sample No.	Tag No.	Label No.	Description
A-1	3-21771	013302	Ash - Grid # 16
A-2	3-21772	013802	" " " Duplicate Sample
A-3	3-21775	013303	Ash - Grid # 12
A-4	3-21778	013304	" - Grid # 8
A-5	3-21781	013305	" - Grid # 4
A-6	3-21784	013306	" - Grid # 3
A-7	3-21787	013307	" - Grid # 7
A-8	3-21790	013308	" - Grid # 11
A-9	3-21793	013309	" - Grid # 2
A-10	3-21796	013310	" - Grid # 6
A-11	3-21799	013311	" - Grid # 10
A-12	3-21852	013312	" - Grid # 1
A-13	3-21855	013313	" - Grid # 5

Sampling Log
St. Elizabeth's Hospital

ORIGINAL

Sample No.	Tag No.	Label No.	Description
A-13	3-21856	013803	Ash - Grid # 5 Duplicate Sample
[illegible]-14	3-21859	013314	Ash - Grid # 9
[illegible]-15	3-21862	013315	" - Grid # 13
[illegible]-16	3-21865	013316	" - Grid # 14
4-17	3-21868	013317	" - Grid # 15
A-17	3-21869	013318	" - Grid # 15 Duplicate
[illegible]-17	3-21870	013804	" - Grid # 15 Duplicate
[illegible]-17	3-21871	013805	" - Grid # 15 Duplicate
[illegible]-18	3-21875	013319	Ash - Grid # 17
4-19	3-21878	013320	" - Grid # 18
[illegible]-20	3-21881	013321	" - Grid # 19
[illegible]-21	3-21887	013806	Ash - Newly arrived truckload (before spreading)

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF112

DUE DATE: 12/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: 69362

QC REPORT NO: B

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: _____ PH-NOT REQUIRED UNITS DATE: _____

MATRIX: WATER: _____ SOIL: XXX SLUDGE: _____ OTHER: _____

ug/l or mg/kg DRY WEIGHT (circle one) DRY WEIGHT FACTOR: 1.53

1.	Aluminum	6210	P	20U	13.	Magnesium	~~17~~ ADJ 1700 P 500U
2.	Antimony	81	R F	6U	14.	Manganese	201 *RP 1.5U
3.	Arsenic	*	R F	1U	15.	Mercury	0.57 RCV 0.1U
4.	Barium	98 *	P	20U	16.	Nickel	14 P 4U
5.	Beryllium		P	0.5U	17.	Potassium	[363] * P 500U
6.	Cadmium	6.4	R F	0.5U	18.	Selenium	* R F 0.5U
7.	Calcium	11500 *	P	500U	19.	Silver	1.5 RP 1U
8.	Chromium	12	P	1U	20.	Sodium	4460 * P 500U
9.	Cobalt		P	5U	21.	Thallium	F R 1U
10.	Copper	913 *	R P	2.5U	22.	Tin	22 F 4U
11.	Iron	~~20300~~ ADJ 20300	P	10U	23.	Vanadium	35 P 5U
12.	Lead	6200	P	0.5U	24.	Zinc	369 P 2U

Cyanide-NOT REQUIRED Percent solids (%) 65.5 DATE: 12-3-85

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

COMMENTS: _____

LAB MANAGER: [signature]

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF113

DUE DATE: 12/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: 69366

QC REPORT NO: B

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: _____ PH-NOT REQUIRED_UNITS DATE: _____

MATRIX: WATER: _____ SOIL: XXX SLUDGE: _____ OTHER: _____

ug/l or (mg/kg) DRY WEIGHT (circle one) DRY WEIGHT FACTOR: 3.05

1.	Aluminum	3980	P	20U	13.	Magnesium	1100	P	500U
2.	Antimony	6.3	R F	6U	14.	Manganese	249*	R P	1.5U
3.	Arsenic	~~1.1~~ 5.7*	R F	1U	15.	Mercury	0.64	R CV	0.1U
4.	Barium	98*	P	20U	16.	Nickel		P	(4U)
5.	Beryllium		P	(0.5U)	17.	Potassium	[414]*	P	500U
6.	Cadmium	11	R F	0.5U	18.	Selenium	*	R F	(0.5U)
7.	Calcium	~~3118~~ 11200*	P	500U	19.	Silver		RP	(1U)
8.	Chromium	12	P	1U	20.	Sodium	11700*	P	500U
9.	Cobalt		P	(5U)	21.	Thallium		F R	(1U)
10.	Copper	86*	R P	2.5U	22.	Tin	14	F	4U
11.	Iron	11900	P	10U	23.	Vanadium	15	P	5U
12.	Lead	367	P	0.5U	24.	Zinc	453	P	2U

Cyanide-NOT REQUIRED Percent solids (%) 32.8 DATE: 12-3-85

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

COMMENTS: _____

LAB MANAGER: [signature]

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF114

DUE DATE: 12/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: 69367

QC REPORT NO: B

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: _____ PH-NOT REQUIRED_UNITS DATE: _____

MATRIX: WATER: _____ SOIL: XXX SLUDGE: _____ OTHER: _____

ug/l or mg/kg DRY WEIGHT (circle one) DRY WEIGHT FACTOR: 1.76

1.	Aluminum	3060	P	20U	13.	Magnesium	[396] P 500U
2.	Antimony	[0.5]	R F	6U	14.	Manganese	101* R P 1.5U
3.	Arsenic	[0.9]	* R F	1U	15.	Mercury	0.47 R CV 0.1U
4.	Barium	41*	P	20U	16.	Nickel	P 4U
5.	Beryllium		P	0.5U	17.	Potassium	[550]* P 500U
6.	Cadmium	1.2	R F	0.5U	18.	Selenium	[0.44]* R F 0.5U
7.	Calcium	1250*	P	500U	19.	Silver	R P 1U
8.	Chromium	9	P	1U	20.	Sodium	4950* P 500U
9.	Cobalt	8	P	5U	21.	Thallium	F R 1U
10.	Copper	[20]*	R P	2.5U	22.	Tin	F 4U
11.	Iron	10100	P	10U	23.	Vanadium	31 P 5U
12.	Lead	64	P	0.5U	24.	Zinc	82 P 2U

Cyanide-NOT REQUIRED Percent solids (%) 56.9 DATE: 12-3-85

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

COMMENTS: _____

LAB MANAGER: [signature]

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF115

DUE DATE: 12/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: 69368

QC REPORT NO: B

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: _____ PH-NOT REQUIRED_UNITS DATE: _____

MATRIX: WATER: _____ SOIL: XXX SLUDGE: _____ OTHER: _____

ug/l or (mg/kg) DRY WEIGHT (circle one) DRY WEIGHT FACTOR: 1.90

1.	Aluminum	4550	P	20U	13.	Magnesium	1270 P 500U
2.	Antimony		R F	(6U)	14.	Manganese	153* R P 1.5U
3.	Arsenic	1.1 *	R F	1U	15.	Mercury	0.20 R CV 0.1U
4.	Barium	42 *	P	20U	16.	Nickel	11 P 4U
5.	Beryllium		P	(0.5U)	17.	Potassium	281 * P 500U
6.	Cadmium	2.3	R	0.5U	18.	Selenium	2.3* R F 0.5U
7.	Calcium	2990*	P	500U	19.	Silver	R P (1U)
8.	Chromium	~~127~~ NAS 12	P	1U	20.	Sodium	420 * P 500U
9.	Cobalt		P	(5U)	21.	Thallium	F R (1U)
10.	Copper	105 *	R P	2.5U	22.	Tin	F (4U)
11.	Iron	14500	P	10U	23.	Vanadium	35 P 5U
12.	Lead	84		0.5U	24.	Zinc	167 P 2U

Cyanide-NOT REQUIRED Percent solids (%) 52.7 DATE: 12-3-85

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

COMMENTS: _____

LAB MANAGER: [signature]

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO: MCF116

DUE DATE: 12/25/85

ORIGINAL

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 5256

SOW NO: 784

LAB SAMPLE ID NO: 69369

QC REPORT NO: B

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW: XXX MEDIUM: _____ PH-NOT REQUIRED_UNITS DATE: _____

MATRIX: WATER: _____ SOIL: XXX SLUDGE: _____ OTHER: _____

ug/l or mg/kg DRY WEIGHT (circle one) DRY WEIGHT FACTOR: 2.35

1.	Aluminum	~~4710~~ ADS 4720	P	20U	13.	Magnesium	1820 P	500U
2.	Antimony	R F		6U	14.	Manganese	~~164~~ ADS 165 * R P	1.5U
3.	Arsenic	1.3 * R F		1U	15.	Mercury	0.41 R CV	0.1U
4.	Barium	44 *	P	20U	16.	Nickel	13 P	4U
5.	Beryllium	P		0.5U	17.	Potassium	[285] * P	500U
6.	Cadmium	2.8 R F		0.5U	18.	Selenium	1.6 * R F	0.5U
7.	Calcium	~~3010~~ ADS 3020 *	P	500U	19.	Silver	2.2 R P	1U
8.	Chromium	13	P	1U	20.	Sodium	~~564~~ ADS 505 * P	500U
9.	Cobalt	~~7~~ ADS 6.6 R	P	5U	21.	Thallium	F R	1U
10.	Copper	156 *	P	2.5U	22.	Tin	[1.8] F	4U
11.	Iron	15300	P	10U	23.	Vanadium	35 P	5U
12.	Lead	123	P	0.5U	24.	Zinc	~~254~~ ADS 255 P	2U

Cyanide-NOT REQUIRED Percent solids (%) 42.6 DATE: 12-3-85

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

COMMENTS: _____

LAB MANAGER: [signature]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401

301-224-2740
FTS-922-3752

DATE : April 29, 1986

SUBJECT: Organic Data QA Review, Case 5256, Site: St. Elizabeth's Samples CD601 - CD615

FROM : Chuck Sands
Chemist

TO : Leo Clark, Chief
Engineering Section

THRU : Patricia J. Krantz
DPO QA

Introduction

The findings offered in this report are based upon a general review of sample data, blank analyses results, surrogate and matrix spike results, field duplicate analysis, target compound matching quality, and tentatively identified compound results for 9 aqueous and 6 soil samples analyzed by Radian Corporation laboratory.

The attached data summary contains only compounds which were reported as detected in at least one sample. The complete list of target compounds, their results, and associated detection limits are located as an appendix.

The data summary contains the following qualifier codes:

- U - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The associated numerical value is the estimated sample detection limit.
- J - The associated numerical value is an estimated quantity because quality control criteria were not met.
- R - Quality Control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
- Q - No analytical result.
- N - Presumptive evidence of presence of material (tentative identification.)

Those data summary blocks which contain two numbers reflect results affected by blan contamination. The top number is the corrected sample result, and the bottom number is the detection limit corrected for blank contamination. In these cases (2 numbers per block) the result is "not detected due to blank contamination".

The Lab Result Sheets in Appendix B contain misreported results and improper detection limits. For interpretive decision-making, use the Data Summary prepared by the Reviewer, Appendix A, or contact Chuck Sands at the CRL in Annapolis, MD (FTS 922-3752).

Qualifiers/Findings

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

- The following results have been qualified as not detected due to blank contamination:

Compound	Samples Affected Summary	
methylene chloride	All sample results	
acetone	" " "	except CD610
2-butanone (MEK)	" " "	
2-hexanone (MBK)	CD610	
benzene	All sample results	
toluene	" " "	except CD610
total xylenes	CD613	
di-n-butyl phthalate	All sample results	
diethyl phthalate	CD605	
butyl benzyl phthalate	CD609, CD610	
bis-(2-ethylhexyl)phthalate	All sample results	

These sample results have been reported on the data summary as not detected and their sample detection limits have been qualified as estimated (UJ) code in the data summary.

- The following sample results were considered unusable, and qualified with an R code in the data summary.

  A. The benzo(A)anthracene result in sample CD611 did not meet spectral identification criteria. Many important ions of the target compound are absent. The compound identification is questionable. The compound is also noted at extreme trace concentrations. This sample result was coded R, unusable in the data summary. The detection limit for benzo(A)anthracene was 330 ug/kg. See Appendix C.

  B. The compound identified in sample CD602 as benzo(b)fluoranthene is probably benzo(k)fluoranthene. The benzo(b)fluoranthene result was coded R (unusable) in the data summary and a benzo(k)fluoranthene result was added to the data summary with a N qualifier, presumptive evidence of the presence of the material. The relative retention time index matches benzo(k) fluoranthene more closely than benzo(b)fluoranthene. The contract

- The wrong spectra was presented for phenol in sample CD606. The spectra for surrogate d5-phenol, not target compound phenol, was included. The lab was contacted and the correct spectra was requested and received. Both CD606 and its duplicate CD604 contain low concentrations of phenol. See Appendix C.

- Duplicate sampling data is reproducible with few exceptions.

  A. Benzoic acid was found in CD604 but not duplicate CD606.

  B. Low level semivolatile results from CD605 were not consistently reproduced in CD607. However, all results are trace level, approximately 20% of contract required detection limits.

  C. PCB-1260 was found in trace amounts in CD613. The duplicate, CD615, was not analyzed for the pesticide/PCB fraction.

- Some data was qualified because analysis occurrred after holding times had elapsed. Samples were collected 11/19/85, shipped 11/25/85 and arrived at the contract laboratory 11/26/85.

  The water samples for volatile arometics compounds (benzene, toluene, ethyl benzene and total xylenes) were qualified as estimated values for positive results(J code) and estimated detection limits (UJ code) because the sample holding time of seven days was exceeded. Only the volatile aromatic compounds of the volatiles fraction of water samples are qualified.

- Three water samples were qualified because of headspace in volatiles containers. For volatiles vials for samples CD606, CD608 and CD610, the contract laboratory noted on the Traffic Reports problems with both volatiles samples condition. Headspace may result in loss of volatile organics, so positive sample results were qualified as estimated values (J code) and sample detection limits were qualified as estimated values (UJ code). See Appendix C.

- Some DFTPP tuning information for the semivolatile samples is unacceptable. Although additional data was requested and received, additional investigation is required. This information may be necessary if the case proceeds to the enforcement stage.

  The unacceptable data is DFTPP tuning information for the initial standards calibration on GC/MS "5100". Semivolatile analyses for samples CD601, CD602, CD603, CD605, CD607, CD609, CD611, CD612 and CD613 were analyzed under this calibration. Although individual samples tune information is present and acceptable, they may be affected. See Appendix C.

- Sample CD615 was analyzed for the volatile fraction only. There was no analysis for semivolatile or pesticide compounds. The laboratory stated one sample bottle was missing, noted this on the traffic report, called SMO, and received permission to perform just the volatiles analysis. See Appendix C.

- There were problems with how the contract laboratory completed their data summary sheets, called Form I Organics Analyses Data Sheet (OADS).

  A. The pesticide analyses sheets for CD607 and CD608 had the "U" code omitted. There were no positive results, but omission of the U code gives the appearance of many positive results.

  B. The laboratory is inaccurately reporting trace results. If the contract required detection limit is 10 and the laboratory sees 3, it is required to report 3J. Instead, they are reporting 10J, falsely high. The data summary contains the true results.

     The laboratory has been contacted, and corrected Form I OADS have been requested.

- Tentatively identified compound results were evaluated in Appendix D.

Summary

This Quality Assurance Review has identified the following areas of concern: missing data, blank contamination, incorrect spectra submitted and spectral misidentification, sample analyses exceeding method holding times, missing sample containers, volatile samples with headspace, and incorrectly completed Form I Organics Analyses Data Sheets.

Please see the accompanying support documentation appendices for specifics on this Quality Assurance Review.

Attachment: Data Summary

Appendix	Content
A	Data Validation Summary
B	Sample Data Sheets, uncorrected
C	DPO Summary with Attached Sample Traffic Reports and Problem Documentation
D	Tentatively Identified Compound (TIC) Results

cc: Jim Newsom, Regional Office

TDD Number _____

EPA Number _____

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☑ Organic ☐ Inorganic

Site Name St. Elizabeth's

Date of Sample 11-19-85

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	chrysene	benzo(b)fluoranthene	Acenaphthene	benzo(k)fluoranthene	phenanthrene	fluoranthene	pyrene	benzo(A)anthracene						Remarks
CD 601	Field FB1 Blank	AQ	ug/L														
CD 602	S1 Stream Sediment	Solid	ug/kg	280J	200J R		200J N	150J	370J	500	180J						
CD 603	W1 Stream	AQ	ug/L														Suitland Pkwy
CD 604	L1 Leachate	AQ	ug/L														Duplicate of CD606
CD 605	S3 Leachate Sediment	Solid	ug/kg					77J	96J	120J							Duplicate of CD607
CD 606	L2 Leachate	AQ	ug/L														
CD 607	L4 Leachate Sediment	Solid	ug/kg					68J	110J	180J							
CD 608	L3 Leachate	AQ	ug/L														
CD 609	S5 Leachate Sediment	Solid	ug/kg			48J		120J	180J	190J							
CD 610	L4 Leachate	AQ	ug/L														
CD 611	S6 Leachate Sediment	Solid	ug/kg					96J		170J	61J R						
CD 612	W2 Pond	AQ	ug/L														Duplicate of CD614
CD 613	S7 Pond Sediment	Solid	ug/kg	490	660		320J	500	1000	780	270J						Duplicate of CD615
CD 614	W3 Pond	AQ	ug/L														

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

R Denotes results of questionable qualitative significance based on quality assurance review of data.

See page 1 of memo for data summary key

TDD Number _____

EPA Number _____

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☑ Organic ☐ Inorganic

Site Name St. Elizabeth's

Date of Sample 11-19-85

2 numbers per block = blank contamination
None detected

top number = Amount Found
bottom number = estimated detection limit due to contamination

Sample Number	Sample Description and Location	Phase	Units	Methylene chloride	Acetone	2-butanone (MEK)	2-hexanone (MBK)	benzene	toluene	Total xylenes	Chloroform	bromodichloromethane	dibromochloromethane				Aroclor-1260 (PCB-1260)	Remarks
				Compounds Detected														
CD 601	Field Blank FB1	Aq	ug/L	1.3 J 5UJ	8.3J 10UJ	5.8J 10UJ		1.0J 5UJ	0.5J 5UJ									
CD 602	S1 Stream Sediment	Solid	ug/Kg		15. 15UJ	2.3J 10UJ												
CD 603	W1 Stream	Aq	ug/L	0.9J 5UJ	9.1J 10UJ	5.6J 10UJ		0.9J 5UJ	0.6J 5UJ		11	1.9J						Sutland Pkwy
CD 604	L1 Leachate	Aq	ug/L		26 26UJ	12 12UJ		1.3J 5UJ										Duplicate of CD606
CD 605	S3 Leachate Sediment	Solid	ug/Kg		16 16UJ	6.0J 10UJ		2.1J 5UJ	2.5J 5UJ									Duplicate of CD607
CD 606	L2 Leachate	Aq	ug/L		12 12UJ	27 27UJ		1.0J 5UJ										Volatiles detection limits estimated
CD 607	L4 Leachate Sediment	Solid	ug/Kg		20 20UJ	3.5J 10UJ		1.0J 5UJ										
CD 608	L3 Leachate	Aq	ug/L		26 26UJ	18 18UJ		1.0J 5UJ	0.6J 5UJ									Volatiles detection limits estimated
CD 609	S5 Leachate Sediment	Solid	ug/Kg		34 34UJ	6.8J 10UJ		1.3J 5UJ	1.6J 5UJ									
CD 610	L4 Leachate	Aq	ug/L		308 J	32 32UJ	8.5 10UJ	0.9J 5UJ	5.1 J									Volatiles detection limits estimated
CD 611	S6 Leachate Sediment	Solid	ug/Kg		40 40UJ	10J 10UJ		2.7J 5UJ	5.6J 5.6UJ									
CD 612	W2 Pond	Aq	ug/L		3.1J 10UJ	5.1J 10UJ		1.1J 5UJ			16	3.5J						Duplicate of CD614
CD 613	S7 Pond Sediment	Solid	ug/Kg		18 18UJ	6.4J 10UJ			7.1J 11UJ	4.1J 5UJ							340	Duplicate of CD615
CD 614	W3 Pond	Aq	ug/L	0.9J 5UJ	7.6J 10UJ	5.3J 10UJ		0.9J 5UJ	0.6J 5UJ		17	4.0J	0.6J					

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

R Denotes results of questionable qualitative significance based on quality assurance review of data.

TDD Number _____

EPA Number _____

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☑ Organic ☐ Inorganic

Site Name St. Elizabeth's

Date of Sample 11-19-85

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	Phenol	4-methylphenol	benzoic Acid	napthalene	2-methyl-napthalene	diethyl phthalate	butyl benzyl phthalate	N-Nitroso-diphenyl amine (1)	di-n-butyl phthalate	bis-(2-ethyl-hexyl) phthalate				Remarks
CD 601	Field Blank FB1	Aq	ug/L														
CD 602	S1 Stream Sediment	Solid	ug/kg									320 J 330 UJ	680 680 UJ				
CD 603	W1 Stream	Aq	ug/L	3.5 J									1 J 15 UJ				Suitland Pkwy
CD 604	L1 Leachate	Aq	ug/L	7.3 J	23	150						8.2 J 10 UJ	4.9 J 10 UJ				Duplicate of CD606
CD 605	S3 Leachate Sediment	Solid	ug/kg	100 J	230 J		35 J	27 J	23 J 330 UJ			1100 1100 UJ	950 950 UJ				Duplicate of CD607
CD 606	L2 Leachate	Aq	ug/L	6.9 J	19							16 16 UJ	6.5 J 10 UJ				
CD 607	L4 Leachate Sediment	Solid	ug/kg		68 J							690 690 UJ	880 880 UJ				
CD 608	L3 Leachate	Aq	ug/L	39	270	500						9.2 J 10 UJ	6.9 J 10 UJ				
CD 609	S5 Leachate Sediment	Solid	ug/kg	790	2700					150 J 330 UJ		1200 1200 UJ	760 760 UJ				
CD 610	L4 Leachate	Aq	ug/L	110	650	6100				1.7 J 10 UJ		11 11 UJ	5.9 J 10 UJ				
CD 611	S6 Leachate Sediment	Solid	ug/kg	250 J	3200						94 J	1150 1150 UJ	820 820 UJ				
CD 612	W2 Pond	Aq	ug/L														Duplicate of CD614
CD 613	S7 Pond Sediment	Solid	ug/kg		640							1600 1600 UJ	1500 1500 UJ				Duplicate of CD615
CD 614	W3 Pond	Aq	ug/L														

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

R Denotes results of questionable qualitative significance based upon [illegible]lity assurance review of data.

(1) Can not be separated from diphenylamine

TDD Number _____

EPA Number _____

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☑ Organic ☐ Inorganic

Site Name St. Elizabeth's

Date of Sample 11-19-85

ORIGINAL (Red)

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	Methylene chloride	Acetone	2-butanone (MEK)	2-hexanone (MBK)	benzene	toluene	Total xylenes	Chloroform	bromodichloromethane	dibromochloromethane		Aroclor-1260 (PCB-1260)	Remarks
CD 615	S8 pond sediment	Solid	UG/KG		9.6J 10UJ	2.7J 10UJ										VOA only as per SMO

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

R Denotes results of questionable qualitative significance be[illegible]pon quality assurance review of data.

Appendix B Uncorrected Results Data Sheets

Sample Number
CD601

ORIGINAL (Red) 19

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Radian
Case No: 5256
Lab Sample ID No: 4EU1168V01
QC Report No: 89
Sample Matrix: Water
Contract No: 68-01-6855
Data Release Authorized By: K. Mhlanduca
Date Sample Received: 11-26-85

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 11-27-85
Date Analyzed: 11-27-85
Conc/Dil Factor: 1:1 pH —
Percent Moisture: (Not Decanted) 100

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	5JB
67-64-1	Acetone	10JB
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	5U
107-06-2	1, 2-Dichloroethane	5U
78-93-3	2-Butanone	10JB
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)
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	5U
71-43-2	Benzene	5JB
10061-01-5	cis-1, 3-Dichloropropene	5U
110-75-8	2-Chloroethylvinylether	10U
75-25-2	Bromoform	5U
108-10-1	4-Methyl-2-Pentanone	10U
591-78-6	2-Hexanone	10U
127-18-4	Tetrachloroethene	5U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5U
108-88-3	Toluene	5JB
108-90-7	Chlorobenzene	5U
100-41-4	Ethylbenzene	5U
100-42-5	Styrene	5U
	Total Xylenes	5U

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 action. (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 indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥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.

Laboratory Name: RADIAN

Case No: 5256

Sample Number
C0684

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11/26/95

Date Analyzed: 12/9/95

Conc/Dil Factor: 1:10 & 1:40

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.40 u	1:40
319-85-7	Beta-BHC	0.40 u	
319-86-8	Delta-BHC	0.40 u	
58-89-9	Gamma-BHC (Lindane)	0.40 u	
76-44-8	Heptachlor	0.40 u	
309-00-2	Aldrin	0.40 u	
1024-57-3	Heptachlor Epoxide	0.40 u	
959-98-8	Endosulfan I	0.40 u	
60-57-1	Dieldrin	0.40 u	
72-55-9	4, 4'-DDE	0.40 u	
72-20-8	Endrin	0.10 u	1:10
33213-65-9	Endosulfan II	0.10 u	
72-54-8	4, 4'-DDD	0.10 u	
7421-93-4	Endrin Aldehyde	0.10 u	
1031-07-8	Endosulfan Sulfate	0.50 u	
50-29-3	4, 4'-DDT	0.10 u	
72-43-5	Methoxychlor	0.50 u	
53494-70-5	Endrin Ketone	0.50 u	
57-74-9	Chlordane	2.5 u	
8001-35-2	Toxaphene	5.0 u	
12674-11-2	Aroclor-1016	1.5 u	
11104-28-2	Aroclor-1221	2.5 u	
11141-16-5	Aroclor-1232	2.5 u	
53469-21-9	Aroclor-1242	1.5 u	
12672-29-6	Aroclor-1248	1.5 u	
11097-69-1	Aroclor-1254	2.5 u	
11096-82-5	Aroclor-1260	2.5 u	

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s _____ V_t 5000 V_i 2.00

Sample Number
CD605

Organics Analysis Data Sheet
(Page 1)

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Laboratory Name: Radian
Case No: 5256
Lab Sample ID No: 4EU11170V05
QC Report No: 89
Sample Matrix: soil
Contract No: 68-01-6853
Data Release Authorized By: K. Ghilarducci
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 12/3/85
Date Analyzed: 12/3/85
Conc/Dil Factor: 1 pH - 9.2
Percent Moisture: (Not Decanted) 18%

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	16B
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	5U
107-06-2	1, 2-Dichloroethane	5U
78-93-3	2-Butanone	10JB
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)
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	5U
71-43-2	Benzene	5JB
10061-01-5	cis-1, 3-Dichloropropene	5U
110-75-8	2-Chloroethylvinylether	10U
75-25-2	Bromoform	5U
108-10-1	4-Methyl-2-Pentanone	10U
591-78-6	2-Hexanone	10U
127-18-4	Tetrachloroethene	5U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5U
108-88-3	Toluene	5JB
108-90-7	Chlorobenzene	5U
100-41-4	Ethylbenzene	5U
100-42-5	Styrene	5U
	Total Xylenes	5U

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 action. (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 indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC-MS. Single component pesticides ≥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

Laboratory Name: Radian

Case No: 5256

Sample Number: CD605

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-26-85

Date Analyzed: 12-16-85

Conc./Dil Factor: 30.63g / 1ml

Percent Moisture (Decanted): 18%

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☑Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	330J
111-44-4	bis(-2-ChloroethylEther	330U
95-57-8	2-Chlorophenol	330U
541-73-1	1,3-Dichlorobenzene	330U
106-46-7	1,4-Dichlorobenzene	330U
100-51-6	Benzyl Alcohol	330U
95-50-1	1,2-Dichlorobenzene	330U
95-48-7	2-Methylphenol	330U
39638-32-9	bis(2-chloroisopropyl)Ether	330U
106-44-5	4-Methylphenol	330J
621-64-7	N-Nitroso-Di-n-Propylamine	330U
67-72-1	Hexachloroethane	330U
98-95-3	Nitrobenzene	330U
78-59-1	Isophorone	330U
88-75-5	2-Nitrophenol	330U
105-67-9	2,4-Dimethylphenol	330U
65-85-0	Benzoic Acid	1600U
111-91-1	bis(-2-Chloroethoxy)Methane	330U
120-83-2	2,4-Dichlorophenol	330U
120-82-1	1,2,4-Trichlorobenzene	330U
91-20-3	Naphthalene	330J
106-47-8	4-Chloroaniline	330U
87-68-3	Hexachlorobutadiene	330U
59-50-7	4-Chloro-3-Methylphenol	330U
91-57-6	2-Methylnaphthalene	330J
77-47-4	Hexachlorocyclopentadiene	330U
88-06-2	2,4,6-Trichlorophenol	330U
95-95-4	2,4,5-Trichlorophenol	1600U
91-58-7	2-Chloronaphthalene	330U
88-74-4	2-Nitroaniline	1600U
131-11-3	Dimethyl Phthalate	330U
208-96-8	Acenaphthylene	330U
99-09-2	3-Nitroaniline	1600U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	330U
51-28-5	2,4-Dinitrophenol	1600U
100-02-7	4-Nitrophenol	1600U
132-64-9	Dibenzofuran	330U
121-14-2	2,4-Dinitrotoluene	330U
606-20-2	2,6-Dinitrotoluene	330U
84-66-2	Diethylphthalate	330J
7005-72-3	4-Chlorophenyl-phenylether	330U
86-73-7	Fluorene	330U
100-01-6	4-Nitroaniline	1600U
534-52-1	4,6-Dinitro-2-Methylphenol	1600U
86-30-6	N-Nitrosodiphenylamine (1)	330U
101-55-3	4-Bromophenyl-phenylether	330U
118-74-1	Hexachlorobenzene	330U
87-86-5	Pentachlorophenol	1600U
85-01-8	Phenanthrene	330J
120-12-7	Anthracene	330U
84-74-2	Di-n-Butylphthalate	1100
206-44-0	Fluoranthene	330J
129-00-0	Pyrene	330J
85-68-7	Butylbenzylphthalate	330U
91-94-1	3,3'-Dichlorobenzidine	660U
56-55-3	Benzo(a)Anthracene	330U
117-81-7	bis(2-Ethylhexyl)Phthalate	950
218-01-9	Chrysene	330U
117-84-0	Di-n-Octyl Phthalate	330U
205-99-2	Benzo(b)Fluoranthene	330U
207-08-9	Benzo(k)Fluoranthene	330U
50-32-8	Benzo(a)Pyrene	330U
193-39-5	Indeno(1,2,3-cd)Pyrene	330U
53-70-3	Dibenz(a,h)Anthracene	330U
191-24-2	Benzo(g,h,i)Perylene	330U

(1)-Cannot be separated from diphenylamine

Laboratory Name: RADIAN

Case No: 5256

Sample Number: CO685

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11/27/95

Date Analyzed: 12/9/95

Conc/Dil Factor: 30.63 g/5 ml : 1:4 and 1:40

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	64 u	1:40
319-85-7	Beta-BHC	64 u	
319-86-8	Delta-BHC	64 u	
58-89-9	Gamma-BHC (Lindane)	64 u	
76-44-8	Heptachlor	64 u	
309-00-2	Aldrin	64 u	
1024-57-3	Heptachlor Epoxide	64 u	
959-98-8	Endosulfan I	64 u	
60-57-1	Dieldrin	64 u	
72-55-9	4, 4'-DDE	64 u	
72-20-8	Endrin	16 u	1:4
33213-65-9	Endosulfan II	19 u	
72-54-8	4, 4'-DDD	16 u	
7421-93-4	Endrin Aldehyde	13 u	
1031-07-8	Endosulfan Sulfate	32 u	
50-29-3	4, 4'-DDT	13 u	
72-43-5	Methoxychlor	32 u	
53494-70-5	Endrin Ketone	32 u	
57-74-9	Chlordane	165 u	
8001-35-2	Toxaphene	325 u	
12674-11-2	Aroclor-1016	165 u	
11104-28-2	Aroclor-1221	165 u	
11141-16-5	Aroclor-1232	165 u	
53469-21-9	Aroclor-1242	165 u	
12672-29-6	Aroclor-1248	165 u	
11097-69-1	Aroclor-1254	165 u	
11096-82-5	Aroclor-1260	165 u	

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s — or W_s 30.63 V_t 5000 V_i 2.00

Sample Number
CD-606

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Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Radian
Case No: 5256
Lab Sample ID No: 4ER1168Y04
QC Report No: 89
Sample Matrix: water
Contract No: 68-01-6853
Data Release Authorized By: K Shlenducci
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 11/30/85
Date Analyzed: 11/30/85
Conc/Dil Factor: 1 pH -
Percent Moisture: (Not Decanted) 100%

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	12B
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	5U
107-06-2	1, 2-Dichloroethane	5U
78-93-3	2-Butanone	27B
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)
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	5U
71-43-2	Benzene	5J
10061-01-5	cis-1, 3-Dichloropropene	5U
110-75-8	2-Chloroethylvinylether	10U
75-25-2	Bromoform	5U
108-10-1	4-Methyl-2-Pentanone	10U
591-78-6	2-Hexanone	10U
127-18-4	Tetrachloroethene	5U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5U
108-88-3	Toluene	5U
108-90-7	Chlorobenzene	5U
100-41-4	Ethylbenzene	5U
100-42-5	Styrene	5U
	Total Xylenes	5U

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 action. (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 indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC-MS. Single component pesticides ≥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

Laboratory Name: Radian

Case No: 5256

Sample Number: CD606

Organics Analysis Data Sheet
(Page 2)

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Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: ~~12/12/85~~ 11-26-85

Date Analyzed: 12/12/85

Conc./Dil Factor: 1

Percent Moisture (Decanted): 100%

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☒Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	10J
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	19
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
05-67-9	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	16
206-44-0	Fluoranthene	10U
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	10J
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

Laboratory Name: RADIAN

Case No: 5256

Sample Number: CD6086

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11/26/85

Date Analyzed: 12/3/85

Conc/Dil Factor: 12/5 ml : 1:10 and 1:40

CAS Number		(ug/l or ug/Kg) (Circle One)	
319-84-6	Alpha-BHC	0.40 u	1:40
319-85-7	Beta-BHC	0.40 u	
319-86-8	Delta-BHC	0.40 u	
58-89-9	Gamma-BHC (Lindane)	0.40 u	
76-44-8	Heptachlor	0.40 u	
309-00-2	Aldrin	0.40 u	
1024-57-3	Heptachlor Epoxide	0.40 u	
959-98-8	Endosulfan I	0.40 u	
60-57-1	Dieldrin	0.40 u	
72-55-9	4, 4'-DDE	0.40 u	
72-20-8	Endrin	0.10 u	1:10
33213-65-9	Endosulfan II	0.50 u	
72-54-8	4, 4'-DDD	0.10 u	
7421-93-4	Endrin Aldehyde	0.10 u	
1031-07-8	Endosulfan Sulfate	0.50 u	
50-29-3	4, 4'-DDT	0.10 u	
72-43-5	Methoxychlor	0.50 u	
53494-70-5	Endrin Ketone	0.50 u	
57-74-9	Chlordane	2.5 u	
8001-35-2	Toxaphene	5.0 u	
12674-11-2	Aroclor-1016	1.5 u	
11104-28-2	Aroclor-1221	2.5 u	
11141-16-5	Aroclor-1232	2.5 u	
53469-21-9	Aroclor-1242	1.5 u	
12672-29-6	Aroclor-1248	1.5 u	
11097-69-1	Aroclor-1254	2.5 u	
11096-82-5	Aroclor-1260	2.5 u	

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s — V_t 5000 V_i 2.00

ORIGINAL (Red)

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Laboratory Name: Radian

Case No: 5256

Sample Number: CD602

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-26-85

Date Analyzed: 12-16-85

Conc./Dil Factor: 30.20g : 1ml

Percent Moisture (Decanted): 16%

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☑Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	330U
111-44-4	bis(-2-Chloroethyl)Ether	330U
95-57-8	2-Chlorophenol	330U
541-73-1	1,3-Dichlorobenzene	330U
106-46-7	1,4-Dichlorobenzene	330U
100-51-6	Benzyl Alcohol	330U
95-50-1	1,2-Dichlorobenzene	330U
95-48-7	2-Methylphenol	330U
39638-32-9	bis(2-chloroisopropyl)Ether	330U
106-44-5	4-Methylphenol	330U
621-64-7	N-Nitroso-Di-n-Propylamine	330U
67-72-1	Hexachloroethane	330U
98-95-3	Nitrobenzene	330U
78-59-1	Isophorone	330U
88-75-5	2-Nitrophenol	330U
105-67-9	2,4-Dimethylphenol	330U
65-85-0	Benzoic Acid	1600U
111-91-1	bis(-2-Chloroethoxyl)Methane	330U
120-83-2	2,4-Dichlorophenol	330U
120-82-1	1,2,4-Trichlorobenzene	330U
91-20-3	Naphthalene	330U
106-47-8	4-Chloroaniline	330U
87-68-3	Hexachlorobutadiene	330U
59-50-7	4-Chloro-3-Methylphenol	330U
91-57-6	2-Methylnaphthalene	330U
77-47-4	Hexachlorocyclopentadiene	330U
88-06-2	2,4,6-Trichlorophenol	330U
95-95-4	2,4,5-Trichlorophenol	1600U
91-58-7	2-Chloronaphthalene	330U
88-74-4	2-Nitroaniline	1600U
131-11-3	Dimethyl Phthalate	330U
208-96-8	Acenaphthylene	330U
99-09-2	3-Nitroaniline	1600U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	330U
51-28-5	2,4-Dinitrophenol	1600U
100-02-7	4-Nitrophenol	1600U
132-64-9	Dibenzofuran	330U
121-14-2	2,4-Dinitrotoluene	330U
606-20-2	2,6-Dinitrotoluene	330U
84-66-2	Diethylphthalate	330U
7005-72-3	4-Chlorophenyl-phenylether	330U
86-73-7	Fluorene	330U
100-01-6	4-Nitroaniline	1600U
534-52-1	4,6-Dinitro-2-Methylphenol	1600U
86-30-6	N-Nitrosodiphenylamine (1)	330U
101-55-3	4-Bromophenyl-phenylether	330U
118-74-1	Hexachlorobenzene	330U
87-86-5	Pentachlorophenol	1600U
85-01-8	Phenanthrene	330J
120-12-7	Anthracene	330U
84-74-2	Di-n-Butylphthalate	330J
206-44-0	Fluoranthene	330J
129-00-0	Pyrene	500
85-68-7	Butylbenzylphthalate	330U
91-94-1	3,3'-Dichlorobenzidine	660U
56-55-3	Benzo(a)Anthracene	330J
117-81-7	bis(2-Ethylhexyl)Phthalate	680
218-01-9	Chrysene	330J
117-84-0	Di-n-Octyl Phthalate	330U
205-99-2	Benzo(b)Fluoranthene	330J
207-08-9	Benzo(k)Fluoranthene	330U
50-32-8	Benzo(a)Pyrene	330U
193-39-5	Indeno(1,2,3-cd)Pyrene	330U
53-70-3	Dibenz(a,h)Anthracene	330U
191-24-2	Benzo(g,h,i)Perylene	330U

(1)-Cannot be separated from diphenylamine

Sample Number
CD602

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Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Radian
Case No: 5256
Lab Sample ID No: 4E411170V06
QC Report No: 89
Sample Matrix: Soil
Contract No: 68-01-6853
Data Release Authorized By: K. Ghilarducci
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 12/2/85
Date Analyzed: 12/2/85
Conc/Dil Factor: 1:1 pH 6.5
Percent Moisture: (Not Decanted) 16%

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	15B
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	5U
107-06-2	1, 2-Dichloroethane	5U
78-93-3	2-Butanone	10JB
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)
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	5U
71-43-2	Benzene	5U
10061-01-5	cis-1, 3-Dichloropropene	5U
110-75-8	2-Chloroethylvinylether	10U
75-25-2	Bromoform	5U
108-10-1	4-Methyl-2-Pentanone	10U
591-78-6	2-Hexanone	10U
127-18-4	Tetrachloroethene	5U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5U
108-88-3	Toluene	5U
108-90-7	Chlorobenzene	5U
100-41-4	Ethylbenzene	5U
100-42-5	Styrene	5U
	Total Xylenes	5U

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 action. (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 indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥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.

Laboratory Name: RADIAN

Case No: 5256

Sample Number: CD601

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-26-85

Date Analyzed: 12-9-85

Conc/Dil Factor: 1.0l/5.0ml

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.01 U
319-85-7	Beta-BHC	0.01 U
319-86-8	Delta-BHC	0.01 U
58-89-9	Gamma-BHC (Lindane)	0.01 U
76-44-8	Heptachlor	0.01 U
309-00-2	Aldrin	0.01 U
1024-57-3	Heptachlor Epoxide	0.01 U
959-98-8	Endosulfan I	0.01 U
60-57-1	Dieldrin	0.01 U
72-55-9	4, 4'-DDE	0.01 U
72-20-8	Endrin	0.01 U
33213-65-9	Endosulfan II	0.03 U
72-54-8	4, 4'-DDD	0.01 U
7421-93-4	Endrin Aldehyde	0.02 U
1031-07-8	Endosulfan Sulfate	0.05 U
50-29-3	4, 4'-DDT	0.02 U
72-43-5	Methoxychlor	0.05 U
53494-70-5	Endrin Ketone	0.05 U
57-74-9	Chlordane	0.25 U
8001-35-2	Toxaphene	0.50 U
12674-11-2	Aroclor-1016	0.15 U
11104-28-2	Aroclor-1221	0.25 U
11141-16-5	Aroclor-1232	0.25 U
53469-21-9	Aroclor-1242	0.15 U
12672-29-6	Aroclor-1248	0.15 U
11097-69-1	Aroclor-1254	0.25 U
11096-82-5	Aroclor-1260	0.25 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s ——— V_t 5000 V_i 200

Laboratory Name Radian

Case No 5256

Sample Number
CD601

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Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared ~~12/11/85~~ 11-26-85

Date Analyzed: 12/11/85

Conc./Dil Factor: 1000:1ml

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☒Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	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
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

Laboratory Name: Radian

Case No: 5256

Sample Number: CD604

Organics Analysis Data Sheet
(Page 2)

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Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: ~~12/12/85~~ 11-26-85

Date Analyzed: 12/12/85

Conc./Dil Factor: 1

Percent Moisture (Decanted) ~~0~~ 100

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☑Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	10 J
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-Methylpheno	23
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	150
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	10 J
206-44-0	Fluoranthene	10U
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	10 J.
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	Dibenzo(a h)Anthracene	10U
191-24-2	Benzo(g h i)Perylene	10U

(1)-Cannot be separated from diphenylamine

Sample Number
CD-604

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Radian
Case No: 5256
Lab Sample ID No: 4ER111685V05
QC Report No: 89
Sample Matrix: water
Contract No: 68-01-6853
Data Release Authorized By: K. Ahlenduci
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 11/30/85
Date Analyzed: 11/30/85
Conc/Dil Factor: 1 pH —
Percent Moisture: (Not Decanted) 100%

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	26B
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	5U
107-06-2	1, 2-Dichloroethane	5U
78-93-3	2-Butanone	12B
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)
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	5U
71-43-2	Benzene	5U
10061-01-5	cis-1, 3-Dichloropropene	5U
110-75-8	2-Chloroethylvinylether	10U
75-25-2	Bromoform	5U
108-10-1	4-Methyl-2-Pentanone	10U
591-78-6	2-Hexanone	10U
127-18-4	Tetrachloroethene	5U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5U
108-88-3	Toluene	5U
108-90-7	Chlorobenzene	5U
100-41-4	Ethylbenzene	5U
100-42-5	Styrene	5U
	Total Xylenes	5U

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 action. (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 indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC-MS. Single component pesticides ≥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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Sample Number
CD6Ø3

Laboratory Name: RADIAN

Case No: 5256

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-26-85

Date Analyzed: 12-9-85

Conc/Dil Factor: 1.Ø l/5.Ø ml

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	Ø.Ø1 ug
319-85-7	Beta-BHC	Ø.Ø1 ug
319-86-8	Delta-BHC	Ø.Ø1 ug
58-89-9	Gamma-BHC (Lindane)	Ø.Ø1 ug
76-44-8	Heptachlor	Ø.Ø1 ug
309-00-2	Aldrin	Ø.Ø1 ug
1024-57-3	Heptachlor Epoxide	Ø.Ø1 ug
959-98-8	Endosulfan I	Ø.Ø1 ug
60-57-1	Dieldrin	Ø.Ø1 ug
72-55-9	4, 4'-DDE	Ø.Ø1 ug
72-20-9	Endrin	Ø.Ø1 ug
33213-65-9	Endosulfan II	Ø.Ø3 ug
72-54-8	4, 4'-DDD	Ø.Ø1 ug
7421-93-4	Endrin Aldehyde	Ø.Ø2 ug
1031-07-8	Endosulfan Sulfate	Ø.Ø5 ug
50-29-3	4, 4'-DDT	Ø.Ø7 ug
72-43-5	Methoxychlor	Ø.Ø5 ug
53494-70-5	Endrin Ketone	Ø.Ø5 ug
57-74-9	Chlordane	Ø.75 ug
8001-35-2	Toxaphene	Ø.5Ø ug
12674-11-2	Aroclor-1016	Ø.15 ug
11104-28-2	Aroclor-1221	Ø.75 ug
11141-16-5	Aroclor-1232	Ø.25 ug
53469-21-9	Aroclor-1242	Ø.15 ug
12672-29-6	Aroclor-1248	Ø.15 ug
11097-69-1	Aroclor-1254	Ø.25 ug
11096-82-5	Aroclor-1260	Ø.25 ug

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 1ØØØ or W_s ——— V_t 5ØØØ V_i 2.ØØ

Laboratory Name: Radian

Case No: 5256

Sample Number: CD 603

Organics Analysis Data Sheet
(Page 2)

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Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: ~~12/16/85~~ 11-26-85

Date Analyzed: 12/16/85

Conc./Dil Factor: 1

Percent Moisture (Decanted) 100%

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☑Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	10J
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-Chloroethoxyl)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
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	10J
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	Dibenzo(a,h)Anthracene	10U
191-24-2	Benzo(g,h,i)Perylene	10U

(1)-Cannot be separated from diphenylamine

Sample Number
CD603

Organics Analysis Data Sheet
(Page 1)

91

Laboratory Name: Radian
Case No: 5256
Lab Sample ID No: 4EU11168V08
QC Report No: 89
Sample Matrix: Water
Contract No: 68-01-6853
Data Release Authorized By: K. Shiladucci
Date Sample Received: 11-26-85

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 11-27-85
Date Analyzed: 11-27-85
Conc/Dil Factor: 1:1 pH —
Percent Moisture: (Not Decanted) 100

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	5JB
67-64-1	Acetone	10JB
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	5U
78-93-3	2-Butanone	10JB
71-55-6	1, 1, 1-Trichloroethane	5U
56-23-5	Carbon Tetrachloride	5U
108-05-4	Vinyl Acetate	10U
75-27-4	Bromodichloromethane	5J

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

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 action. (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 indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥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

Laboratory Name: RADIAN

Case No: 5256

Sample Number: CD602

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-27-85

Date Analyzed: 12-9-85

Conc/Dil Factor: 30.20g/5.0ml (1:2)

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	3.2 ug
319-85-7	Beta-BHC	3.2 ug
319-86-8	Delta-BHC	3.2 ug
58-89-9	Gamma-BHC (Lindane)	3.2 ug
76-44-8	Heptachlor	3.2 ug
309-00-2	Aldrin	3.2 ug
1024-57-3	Heptachlor Epoxide	3.2 ug
959-98-8	Endosulfan I	3.2 ug
60-57-1	Dieldrin	3.2 ug
72-55-9	4, 4'-DDE	3.2 ug
72-20-8	Endrin	3.2 ug
33213-65-9	Endosulfan II	9.6 ug
72-54-8	4, 4'-DDD	3.2 ug
7421-93-4	Endrin Aldehyde	6.4 ug
1031-07-8	Endosulfan Sulfate	16. ug
50-29-3	4, 4'-DDT	6.4 ug
72-43-5	Methoxychlor	16 ug
53494-70-5	Endrin Ketone	16 ug
57-74-9	Chlordane	80. ug
8001-35-2	Toxaphene	160. ug
12674-11-2	Aroclor-1016	50 ug
11104-28-2	Aroclor-1221	50. ug
11141-16-5	Aroclor-1232	50. ug
53469-21-9	Aroclor-1242	50 ug
12672-29-6	Aroclor-1248	50 ug
11097-69-1	Aroclor-1254	50 ug
11096-82-5	Aroclor-1260	50. ug

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 30.20 V_t 5000 V_i 1000

Laboratory Name: Radian

Case No: 5256

Sample Number: CD609

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Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-26-85

Date Analyzed: 12-16-85

Conc./Dil Factor: 31.86g/1ml

Percent Moisture (Decanted) 25%

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☒Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	790
111-44-4	bis(-2-Chloroethyl)Ether	330U
95-57-8	2-Chlorophenol	330U
541-73-1	1,3-Dichlorobenzene	330U
106-46-7	1,4-Dichlorobenzene	330U
100-51-6	Benzyl Alcohol	330U
95-50-1	1,2-Dichlorobenzene	330U
95-48-7	2-Methylphenol	330U
39638-32-9	bis(2-chloroisopropyl)Ether	330U
106-44-5	4-Methylphenol	2700
621-64-7	N-Nitroso-Di-n-Propylamine	330U
67-72-1	Hexachloroethane	330U
98-95-3	Nitrobenzene	330U
78-59-1	Isophorone	330U
88-75-5	2-Nitrophenol	330U
105-67-9	2,4-Dimethylphenol	330U
65-85-0	Benzoic Acid	1600U
111-91-1	bis(-2-Chloroethoxyl)Methane	330U
120-83-2	2,4-Dichlorophenol	330U
120-82-1	1,2,4-Trichlorobenzene	330U
91-20-3	Naphthalene	330U
106-47-8	4-Chloroaniline	330U
87-68-3	Hexachlorobutadiene	330U
59-50-7	4-Chloro-3-Methylphenol	330U
91-57-6	2-Methylnaphthalene	330U
77-47-4	Hexachlorocyclopentadiene	330U
88-06-2	2,4,6-Trichlorophenol	330U
95-95-4	2,4,5-Trichlorophenol	1600U
91-58-7	2-Chloronaphthalene	330U
88-74-4	2-Nitroaniline	1600U
131-11-3	Dimethyl Phthalate	330U
208-96-8	Acenaphthylene	330U
99-09-2	3-Nitroaniline	1600U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	330J
51-28-5	2,4-Dinitrophenol	1600U
100-02-7	4-Nitrophenol	1600U
132-64-9	Dibenzofuran	330U
121-14-2	2,4-Dinitrotoluene	330U
606-20-2	2,6-Dinitrotoluene	330U
84-66-2	Diethylphthalate	330U
7005-72-3	4-Chlorophenyl-phenylether	330U
86-73-7	Fluorene	330U
100-01-6	4-Nitroaniline	1600U
534-52-1	4,6-Dinitro-2-Methylphenol	1600U
86-30-6	N-Nitrosodiphenylamine (1)	330U
101-55-3	4-Bromophenyl-phenylether	330U
118-74-1	Hexachlorobenzene	330U
87-86-5	Pentachlorophenol	1600U
85-01-8	Phenanthrene	330J
120-12-7	Anthracene	330U
84-74-2	Di-n-Butylphthalate	1200
206-44-0	Fluoranthene	330J
129-00-0	Pyrene	330J
85-68-7	Butylbenzylphthalate	330J
91-94-1	3,3'-Dichlorobenzidine	660U
56-55-3	Benzo(a)Anthracene	330U
117-81-7	bis(2-Ethylhexyl)Phthalate	760
218-01-9	Chrysene	330U
117-84-0	Di-n-Octyl Phthalate	330U
205-99-2	Benzo(b)Fluoranthene	330U
207-08-9	Benzo(k)Fluoranthene	330U
50-32-8	Benzo(a)Pyrene	330U
193-39-5	Indeno(1,2,3-cd)Pyrene	330U
53-70-3	Dibenz(a,h)Anthracene	330U
191-24-2	Benzo(g,h,i)Perylene	330U

(1)-Cannot be separated from diphenylamine

Sample Number
CD609

403

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Radian

Case No: 5256

Lab Sample ID No: 4EW117OV03

QC Report No: 89

Sample Matrix: soil

Contract No: 68-01-6853

Data Release Authorized By: K. Mikoladucci

Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 12/2/85

Date Analyzed: 12/2/85

Conc/Dil Factor: 1 pH 8.9

Percent Moisture: (Not Decanted) 25%

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	34B
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	5U
107-06-2	1, 2-Dichloroethane	5U
78-93-3	2-Butanone	10JB
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)
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	5U
71-43-2	Benzene	5J
10061-01-5	cis-1, 3-Dichloropropene	5U
110-75-8	2-Chloroethylvinylether	10U
75-25-2	Bromoform	5U
108-10-1	4-Methyl-2-Pentanone	10U
591-78-6	2-Hexanone	10U
127-18-4	Tetrachloroethene	5U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5U
108-88-3	Toluene	5J
108-90-7	Chlorobenzene	5U
100-41-4	Ethylbenzene	5U
100-42-5	Styrene	5U
	Total Xylenes	5U

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 action. (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 indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥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

Laboratory Name: RADIAH

Case No: 5256

Sample Number
CD608

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11/26/85

Date Analyzed: 12/9/85

Conc/Dil Factor: 1 l/5 ml: 1:10, 1:40, 1:100

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.40 u	1:40
319-85-7	Beta-BHC	0.40	
319-86-8	Delta-BHC	0.40	
58-89-9	Gamma-BHC (Lindane)	0.40	
76-44-8	Heptachlor	0.40	
309-00-2	Aldrin	0.40	
1024-57-3	Heptachlor Epoxide	0.40	
959-98-8	Endosulfan I	0.40	
60-57-1	Dieldrin	0.40	
72-55-9	4, 4'-DDE	0.40 u	
72-20-8	Endrin	0.10 u	1:10
33213-65-9	Endosulfan II	0.30 u	
72-54-8	4, 4'-DDD	0.10 u	
7421-93-4	Endrin Aldehyde	0.20 u	
1031-07-8	Endosulfan Sulfate	0.50 u	
50-29-3	4, 4'-DDT	0.20 u	
72-43-5	Methoxychlor	0.50 u	
53494-70-5	Endrin Ketone	0.50 u	
57-74-9	Chlordane	2.5 u	
8001-35-2	Toxaphene	5.0 u	
12674-11-2	Aroclor-1016	1.5 u	
11104-28-2	Aroclor-1221	2.5 u	
11141-16-5	Aroclor-1232	2.5 u	
53469-21-9	Aroclor-1242	1.5 u	
12672-29-6	Aroclor-1248	1.5 u	
11097-69-1	Aroclor-1254	2.0 u	
11096-82-5	Aroclor-1260	2.0 u	

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s — V_t 5000 V_i 2.00

ORIGINAL

Laboratory Name: Radian

Case No: 5256

Sample Number
CD608

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: ~~12/12/85~~ 11-26-85

Date Analyzed: 12/12/85

Conc./Dil Factor: 1

Percent Moisture (Decanted) 100%

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☒Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	39
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	270
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	500
111-91-1	bis(-2-Chloroethoxyl)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	10J
206-44-0	Fluoranthene	10U
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	10J
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

Sample Number
CD608

Organics Analysis Data Sheet
(Page 1)

340

Laboratory Name: Radian
Case No: 5256
Lab Sample ID No: 4ER11168V03
QC Report No: 89
Sample Matrix: water
Contract No: 68-01-6853
Data Release Authorized By: K. Shulanduca
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 12/2/85
Date Analyzed: 12/2/85
Conc/Dil Factor: 1 pH —
Percent Moisture: (Not Decanted) 100%

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	86B
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	5U
107-06-2	1, 2-Dichloroethane	5U
78-93-3	2-Butanone	18B
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)
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	5U
71-43-2	Benzene	5JB
10061-01-5	cis-1, 3-Dichloropropene	5U
110-75-8	2-Chloroethylvinylether	10U
75-25-2	Bromoform	5U
108-10-1	4-Methyl-2-Pentanone	10U
591-78-6	2-Hexanone	10U
127-18-4	Tetrachloroethene	5U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5U
108-88-3	Toluene	5J
108-90-7	Chlorobenzene	5U
100-41-4	Ethylbenzene	5U
100-42-5	Styrene	5U
	Total Xylenes	5U

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 action. (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 indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥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.

Laboratory Name: RADIAN

Case No: 5256

Sample Number: C0607

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11/27/85

Date Analyzed: 12/4/85

Conc/Dil Factor: 29.70 / 5.00 : 1:4 and 1:40

Should be "U"

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	64 U	1:40
319-85-7	Beta-BHC	64	
319-86-8	Delta-BHC	64	
58-89-9	Gamma-BHC (Lindane)	64	
76-44-8	Heptachlor	64	
309-00-2	Aldrin	64	
1024-57-3	Heptachlor Epoxide	64	
959-98-8	Endosulfan I	64	
60-57-1	Dieldrin	64	
72-55-9	4, 4'-DDE	64	
72-20-8	Endrin	16	
33213-65-9	Endosulfan II	19	
72-54-8	4, 4'-DDD	16	
7421-93-4	Endrin Aldehyde	13	
1031-07-8	Endosulfan Sulfate	32	
50-29-3	4, 4'-DDT	13	
72-43-5	Methoxychlor	32	
53494-70-5	Endrin Ketone	32	
57-74-9	Chlordane	160	1:4
8001-35-2	Toxaphene	320	
12674-11-2	Aroclor-1016	160	
11104-28-2	Aroclor-1221	160	
11141-16-5	Aroclor-1232	160	
53469-21-9	Aroclor-1242	160	
12672-29-6	Aroclor-1248	160	
11097-69-1	Aroclor-1254	160	
11096-82-5	Aroclor-1260	160	

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 29.70 V_t 5000 V_i 2.00

Laboratory Name: Radian

Case No: 5256

Sample Number: CD607 ORIGINAL 296 (Red)

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-26-85

Date Analyzed: 12-16-85

Conc./Dil Factor: 29.7g : 1ml

Percent Moisture (Decanted): 17%

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☑Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	330U
111-44-4	bis(2-Chloroethyl)Ether	330U
95-57-8	2-Chlorophenol	330U
541-73-1	1,3-Dichlorobenzene	330U
106-46-7	1,4-Dichlorobenzene	330U
100-51-6	Benzyl Alcohol	330U
95-50-1	1,2-Dichlorobenzene	330U
95-48-7	2-Methylphenol	330U
39638-32-9	bis(2-chloroisopropyl)Ether	330U
106-44-5	4-Methylphenol	330J
621-64-7	N-Nitroso-Di-n-Propylamine	330U
67-72-1	Hexachloroethane	330U
98-95-3	Nitrobenzene	330U
78-59-1	Isophorone	330U
88-75-5	2-Nitrophenol	330U
105-67-9	2,4-Dimethylphenol	330U
65-85-0	Benzoic Acid	1600U
111-91-1	bis(2-Chloroethoxy)Methane	330U
120-83-2	2,4-Dichlorophenol	330U
120-82-1	1,2,4-Trichlorobenzene	330U
91-20-3	Naphthalene	330U
106-47-8	4-Chloroaniline	330U
87-68-3	Hexachlorobutadiene	330U
59-50-7	4-Chloro-3-Methylphenol	330U
91-57-6	2-Methylnaphthalene	330U
77-47-4	Hexachlorocyclopentadiene	330U
88-06-2	2,4,6-Trichlorophenol	330U
95-95-4	2,4,5-Trichlorophenol	1600U
91-58-7	2-Chloronaphthalene	330U
88-74-4	2-Nitroaniline	1600U
131-11-3	Dimethyl Phthalate	330U
208-96-8	Acenaphthylene	330U
99-09-2	3-Nitroaniline	1600U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	330U
51-28-5	2,4-Dinitrophenol	1600U
100-02-7	4-Nitrophenol	1600U
132-64-9	Dibenzofuran	330U
121-14-2	2,4-Dinitrotoluene	330U
606-20-2	2,6-Dinitrotoluene	330U
84-66-2	Diethylphthalate	330U
7005-72-3	4-Chlorophenyl-phenylether	330U
86-73-7	Fluorene	330U
100-01-6	4-Nitroaniline	1600U
534-52-1	4,6-Dinitro-2-Methylphenol	1600U
86-30-6	N-Nitrosodiphenylamine (1)	330U
101-55-3	4-Bromophenyl-phenylether	330U
118-74-1	Hexachlorobenzene	330U
87-86-5	Pentachlorophenol	1600U
85-01-8	Phenanthrene	330J
120-12-7	Anthracene	330U
84-74-2	Di-n-Butylphthalate	690
206-44-0	Fluoranthene	330J
129-00-0	Pyrene	330J
85-68-7	Butylbenzylphthalate	330U
91-94-1	3,3'-Dichlorobenzidine	660U
56-55-3	Benzo(a)Anthracene	330U
117-81-7	bis(2-Ethylhexyl)Phthalate	880
218-01-9	Chrysene	330U
117-84-0	Di-n-Octyl Phthalate	330U
205-99-2	Benzo(b)Fluoranthene	330U
207-08-9	Benzo(k)Fluoranthene	330U
50-32-8	Benzo(a)Pyrene	330U
193-39-5	Indeno(1,2,3-cd)Pyrene	330U
53-70-3	Dibenz(a,h)Anthracene	330U
191-24-2	Benzo(g,h,i)Perylene	330U

(1)-Cannot be separated from diphenylamine

Sample Number
CD613

Organics Analysis Data Sheet
(Page 1)

ORIGINAL (Red) 624

Laboratory Name: Radian
Case No: 5256
Lab Sample ID No: 4E111170501
QC Report No: 89
Sample Matrix: soil
Contract No: 68-01-6853
Data Release Authorized By: K. Ghiloducci
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 12/3/85
Date Analyzed: 12/3/85
Conc/Dil Factor: 1 pH 6.2
Percent Moisture: (Not Decanted) 42%

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	18 B
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	5U
107-06-2	1, 2-Dichloroethane	5U
78-93-3	2-Butanone	10J B
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)
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	5U
71-43-2	Benzene	5U
10061-01-5	cis-1, 3-Dichloropropene	5U
110-75-8	2-Chloroethylvinylether	10U
75-25-2	Bromoform	5U
108-10-1	4-Methyl-2-Pentanone	10U
591-78-6	2-Hexanone	10U
127-18-4	Tetrachloroethene	5U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5U
108-88-3	Toluene	7 B
108-90-7	Chlorobenzene	5U
100-41-4	Ethylbenzene	5U
100-42-5	Styrene	5U
	Total Xylenes	5J

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 action. (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 indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC-MS. Single component pesticides ≥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)

601

Laboratory Name: RADIAN

Case No: 5256

Sample Number: CD612

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-26-85

Date Analyzed: 12-9-85

Conc/Dil Factor: 1.0L/5.0ml (1:2)

CAS Number		ug/L or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.02 u
319-85-7	Beta-BHC	0.02 u
319-86-8	Delta-BHC	0.02 u
58-89-9	Gamma-BHC (Lindane)	0.02 u
76-44-8	Heptachlor	0.02 u
309-00-2	Aldrin	0.02 u
1024-57-3	Heptachlor Epoxide	0.02 u
959-98-8	Endosulfan I	0.02 u
60-57-1	Dieldrin	0.02 u
72-55-9	4, 4'-DDE	0.02 u
72-20-8	Endrin	0.02 u
33213-65-9	Endosulfan II	0.06 u
72-54-8	4, 4'-DDD	0.01 u
7421-93-4	Endrin Aldehyde	0.04 u
1031-07-8	Endosulfan Sulfate	0.10 u
50-29-3	4, 4'-DDT	0.04 u
72-43-5	Methoxychlor	0.10 u
53494-70-5	Endrin Ketone	0.10 u
57-74-9	Chlordane	0.50 u
8001-35-2	Toxaphene	1.0 u
12674-11-2	Aroclor-1016	0.30 u
11104-28-2	Aroclor-1221	0.50 u
11141-16-5	Aroclor-1232	0.50 u
53469-21-9	Aroclor-1242	0.30 u
12672-29-6	Aroclor-1248	0.30 u
11097-69-1	Aroclor-1254	0.50 u
11096-82-5	Aroclor-1260	0.50 u

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s ——— V_t 5000 V_i 2.00

Laboratory Name: Radian

Case No: 5256

Sample Number: 40612

Organics Analysis Data Sheet
(Page 2)

600

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: ~~12/16/85~~ 11-26-85

Date Analyzed: 12/16/85

Conc./Dil Factor: 1

Percent Moisture (Decanted) —

GPC Cleanup ☐Yes (☒No)

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction (☐Yes)

CAS Number		(ug/l or ug/Kg) (Circle One)
108-95-2	Phenol	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
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

Sample Number
CO 612
599

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Radian
Lab Sample ID No: 4ER11168V07
Sample Matrix: water
Data Release Authorized By: K Shilodwai

Case No: 5256
QC Report No: 89
Contract No: 68-01-6853
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 11/30/85
Date Analyzed: 11/30/85
Conc/Dil Factor: 1 pH –
Percent Moisture: (Not Decanted) 100%

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	10J B
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	16
107-06-2	1, 2-Dichloroethane	5U
78-93-3	2-Butanone	10J B
71-55-6	1, 1, 1-Trichloroethane	5U
56-23-5	Carbon Tetrachloride	5U
108-05-4	Vinyl Acetate	10U
75-27-4	Bromodichloromethane	5J

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

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 action. (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 indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC-MS. Single component pesticides ≥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)

539

Laboratory Name: RADIAN

Case No: 5256

Sample Number
CD611

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11/27/85

Date Analyzed: 12/9/85

Conc/Dil Factor: 31.27g/5mL : 1:2 and 1:40

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	64	1:40
319-85-7	Beta-BHC	64	
319-86-8	Delta-BHC	64	
58-89-9	Gamma-BHC (Lindane)	64	
76-44-8	Heptachlor	64	
309-00-2	Aldrin	64	
1024-57-3	Heptachlor Epoxide	64	
959-98-8	Endosulfan I	64	
60-57-1	Dieldrin	64	
72-55-9	4, 4'-DDE	64	
72-20-8	Endrin	9.5	1:2
33213-65-9	Endosulfan II	9.5	
72-54-8	4, 4'-DDD	8.0	
7421-93-4	Endrin Aldehyde	6.5	
1031-07-8	Endosulfan Sulfate	16	
50-29-3	4, 4'-DDT	6.5	
72-43-5	Methoxychlor	16	
53494-70-5	Endrin Ketone	16	
57-74-9	Chlordane	8.5	
8001-35-2	Toxaphene	16.5	
12674-11-2	Aroclor-1016	50	
11104-28-2	Aroclor-1221	8.5	
11141-16-5	Aroclor-1232	8.0	
53469-21-9	Aroclor-1242	50	
12672-29-6	Aroclor-1248	50	
11097-69-1	Aroclor-1254	8.0	
11096-82-5	Aroclor-1260	8.0	

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 31.27 V_t 5000 V_i 2.00

Laboratory Name: Radian

Case No: 5256

Sample Number: CD611

Organics Analysis Data Sheet
(Page 2)

538

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-27-85

Date Analyzed: 12-16-85

Conc./Dil Factor: 31.27 g : 1ml

Percent Moisture (Decanted) 25%

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☑Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	330J
111-44-4	bis(2-Chloroethyl)Ether	330U
95-57-8	2-Chlorophenol	330U
541-73-1	1,3-Dichlorobenzene	330U
106-46-7	1,4-Dichlorobenzene	330U
100-51-6	Benzyl Alcohol	330U
95-50-1	1,2-Dichlorobenzene	330U
95-48-7	2-Methylphenol	330U
39638-32-9	bis(2-chloroisopropyl)Ether	330U
106-44-5	4-Methylphenol	3200
621-64-7	N-Nitroso-Di-n-Propylamine	330U
67-72-1	Hexachloroethane	330U
98-95-3	Nitrobenzene	330U
78-59-1	Isophorone	330U
88-75-5	2-Nitrophenol	330U
105-67-9	2,4-Dimethylphenol	330U
65-85-0	Benzoic Acid	1600U
111-91-1	bis(2-Chloroethoxy)Methane	330U
120-83-2	2,4-Dichlorophenol	330U
120-82-1	1,2,4-Trichlorobenzene	330U
91-20-3	Naphthalene	330U
106-47-8	4-Chloroaniline	330U
87-68-3	Hexachlorobutadiene	330U
59-50-7	4-Chloro-3-Methylphenol	330U
91-57-6	2-Methylnaphthalene	330U
77-47-4	Hexachlorocyclopentadiene	330U
88-06-2	2,4,6-Trichlorophenol	330U
95-95-4	2,4,5-Trichlorophenol	1600U
91-58-7	2-Chloronaphthalene	330U
88-74-4	2-Nitroaniline	1600U
131-11-3	Dimethyl Phthalate	330U
208-96-8	Acenaphthylene	330U
99-09-2	3-Nitroaniline	1600U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	330U
51-28-5	2,4-Dinitrophenol	1600U
100-02-7	4-Nitrophenol	1600U
132-64-9	Dibenzofuran	330U
121-14-2	2,4-Dinitrotoluene	330U
606-20-2	2,6-Dinitrotoluene	330U
84-66-2	Diethylphthalate	330U
7005-72-3	4-Chlorophenyl-phenylether	330U
86-73-7	Fluorene	330U
100-01-6	4-Nitroaniline	1600U
534-52-1	4,6-Dinitro-2-Methylphenol	1600U
86-30-6	N-Nitrosodiphenylamine (1)	330J
101-55-3	4-Bromophenyl-phenylether	330U
118-74-1	Hexachlorobenzene	330U
87-86-5	Pentachlorophenol	1600U
85-01-8	Phenanthrene	330J
120-12-7	Anthracene	330U
84-74-2	Di-n-Butylphthalate	1100B
206-44-0	Fluoranthene	330U
129-00-0	Pyrene	330J
85-68-7	Butylbenzylphthalate	330U
91-94-1	3,3'-Dichlorobenzidine	660U
56-55-3	Benzo(a)Anthracene	330J
117-81-7	bis(2-Ethylhexyl)Phthalate	820
218-01-9	Chrysene	330U
117-84-0	Di-n-Octyl Phthalate	330U
205-99-2	Benzo(b)Fluoranthene	330U
207-08-9	Benzo(k)Fluoranthene	330U
50-32-8	Benzo(a)Pyrene	330U
193-39-5	Indeno(1,2,3-cd)Pyrene	330U
53-70-3	Dibenz(a,h)Anthracene	330U
191-24-2	Benzo(g,h,i)Perylene	330U

(1)-Cannot be separated from diphenylamine

Sample Number
CD611

Organics Analysis Data Sheet
(Page 1)

537

Laboratory Name: Radian

Case No: 5256

Lab Sample ID No: 4EU111701V02

QC Report No: 89

Sample Matrix: Soil

Contract No: 68-01-6853

Data Release Authorized By: K. Milanducci

Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 12/3/85

Date Analyzed: 12/3/85

Conc/Dil Factor: 1 pH 9.0

Percent Moisture: (Not Decanted) 30%

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	40 B
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	5U
107-06-2	1, 2-Dichloroethane	5U
78-93-3	2-Butanone	10 B
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)
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	5U
71-43-2	Benzene	5J B
10061-01-5	cis-1, 3-Dichloropropene	5U
110-75-8	2-Chloroethylvinylether	10U
75-25-2	Bromoform	5U
108-10-1	4-Methyl-2-Pentanone	10U
591-78-6	2-Hexanone	10U
127-18-4	Tetrachloroethene	5U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5U
108-88-3	Toluene	6 B
108-90-7	Chlorobenzene	5U
100-41-4	Ethylbenzene	5U
100-42-5	Styrene	5U
	Total Xylenes	5U

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 action. (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 indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC-MS. Single component pesticides ≥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

Laboratory Name: RADIAN

Case No: 5256

Sample Number
CD61Ø

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11/26/85

Date Analyzed: 12/9/85

Conc/Dil Factor: 12/5 and : 1:1Ø, 1:6Ø, 1:2ØØ

CAS Number		(ug/l or ug/Kg) (Circle One)	
319-84-6	Alpha-BHC	2.Ø u	1:2ØØ
319-85-7	Beta-BHC	2.Ø u	
319-86-8	Delta-BHC	Ø.6Ø u	1:6Ø
58-89-9	Gamma-BHC (Lindane)	2.Ø u	1:2ØØ
76-44-8	Heptachlor	Ø.6Ø u	1:6Ø
309-00-2	Aldrin	Ø.6Ø u	
1024-57-3	Heptachlor Epoxide	Ø.6Ø u	
959-98-8	Endosulfan I	Ø.6Ø u	
60-57-1	Dieldrin	Ø.6Ø u	
72-55-9	4, 4'-DDE	Ø.6Ø u	
72-20-8	Endrin	Ø.1Ø u	1:1Ø
33213-65-9	Endosulfan II	Ø.5Ø u	
72-54-8	4, 4'-DDD	Ø.1Ø u	
7421-93-4	Endrin Aldehyde	Ø.1Ø u	
1031-07-8	Endosulfan Sulfate	Ø.5Ø u	
50-29-3	4, 4'-DDT	Ø.1Ø u	
72-43-5	Methoxychlor	Ø.5Ø u	
53494-70-5	Endrin Ketone	Ø.5Ø u	
57-74-9	Chlordane	7.5 u	
8001-35-2	Toxaphene	5.Ø u	
12674-11-2	Aroclor-1016	1.5 u	
11104-28-2	Aroclor-1221	1.5 u	
11141-16-5	Aroclor-1232	1.5 u	
53469-21-9	Aroclor-1242	1.5 u	
12672-29-6	Aroclor-1248	1.5 u	
11097-69-1	Aroclor-1254	1.5 u	
11096-82-5	Aroclor-1260	1.5 u	

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1ØØØ or W_s — V_t 5ØØØ V_i 2.Ø

Laboratory Name: Radian

Case No: 5256

Sample Number: CO 610

470

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: ~~12/12/85~~ 11-26-85

Date Analyzed: 12/12/85

Conc./Dil Factor: 1

Percent Moisture (Decanted) 100%

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☒Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	109
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	650
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	6100
111-91-1	bis(-2-Chloroethoxyl)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	11
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10J
91-94-1	3. 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10J
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	Dibenzo(a. h)Anthracene	10u
191-24-2	Benzo(g. h. i)Perylene	10u

(1)-Cannot be separated from diphenylamine

469

Sample Number
CD610

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Radian
Case No: 5256
Lab Sample ID No: 4ER11168V02
QC Report No: 89
Sample Matrix: water
Contract No: 68-01-6853
Data Release Authorized By: K. Shlenderici
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 12/2/85
Date Analyzed: 12/2/85
Conc/Dil Factor: 1 pH -
Percent Moisture: (Not Decanted) 100%

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	310 B
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	5U
107-06-2	1, 2-Dichloroethane	5U
78-93-3	2-Butanone	32 B
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)
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	5U
71-43-2	Benzene	5J B
10061-01-5	cis-1, 3-Dichloropropene	5U
110-75-8	2-Chloroethylvinylether	10U
75-25-2	Bromoform	5U
108-10-1	4-Methyl-2-Pentanone	10U
591-78-6	2-Hexanone	10J
127-18-4	Tetrachloroethene	5U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5U
108-88-3	Toluene	5
108-90-7	Chlorobenzene	5U
100-41-4	Ethylbenzene	5U
100-42-5	Styrene	5U
	Total Xylenes	5U

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.

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

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥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

Sampling Log
St. Elizabeth's Hospital

Sample No.	Tag No.	Label No.	Description
S-1	3-21751	1562C-01	Stream sediment - just before stream enters storm sewer
S-2	3-21762	013701	" " " " " Duplicate
B1	3-21760	013301	Background soil sample
B2	3-21759	013801	" " " Duplicate
S-3	3-21768	1562C-02	Stream sediment - about 100 ft upstream of fence (below leachate streams)
S-4	3-21769	013702	" " " " Duplicate
S-6	3-21892	1562C-03	Pond Sediment
S-7	3-21893	1562C-04	" " Duplicate

Sampling Log
St. Elizabeth's Hospital

Sample No.	Tag No.	Label No.	Description
L - 1	3-21754	1562C-05	Leachate From Grid # 18
L - 2	3-21764	1562C-06	" " " Duplicate
L - 3	3-21765	1562C-07	Leachate From Grid # 17
L - 4	3-21888	1562C-08	Leachate From Grid # 19

Sampling Log
St. Elizabeth's Hospital

Sample No.	Tag No.	Label No.	Description
—	3-21398	1562C-10	Blank Water
—	—	013807	PE Sample - Urban Dust (EPA Bay St. Louis)
—	—	013322	PE Sample - Urban Dust (Calif. Analytical Lab)
—	—	013703	PE Sample - Sediment (EPA Bay St. Louis)
—	—	1562C-09	PE Sample - Sediment (Calif. Analytical Lab)

Incinerator Ash Sample
Solid Waste Reduction Center
Washington, D.C.
(units ppb or ng/g)

		2,3,7,8	TETRA	PENTA	HEXA	HEPTA	OCTA	
	SAMPLE							
	34E	26	310	559	702	255	34	
URANS-dup								
	27C	29	341	565	734	321	29	
	RPD%	10.4	9.3	1.1	4.5	23.0	13.9	10.4 AVE

		2,3,7,8	TETRA	PENTA	HEXA	HEPTA	OCTA	
	SAMPLE							
	36E	3.2	103	184	364	182	76	
DIOXINS-spike								
	28C	13.3	126	270	330	194	66	
	RPD%	SPIKE	19.8	37.9	8.1	6.6	12.0	14.1 AVE

		2,3,7,8	TETRA	PENTA	HEXA	HEPTA	OCTA	
	SAMPLE							
	36E	16	166	227	307	129	15	
FURANS-spike								
	28C	15	210	310	288	129	13	
	RPD%	6.0	23.8	30.7	6.2	0.2	14.1	13.5 AVE

12.4 OVERALL AVE

r;r 1/15/85

ST. ELIZABETH'S POLYCHLORINATED DIOXIN/FURAN ANALYSIS
PARTS PER TRILLION

sample #	grid	TCDF total	TCDF (2,3,7,8)	PCDF total	PCDF (1,2,3,7,8)	PCDF (2,3,4,7,8)	HCDF total	HCDF (1,2,3,4,7,8)	HpCDF total	HpCDF (1,2,3,4,6,7,8)	HpCDF (1,2,3,4,7,8,9)	OCDF total
1562C-01	S-1	2.5	2.5									
1562C-02	S-3	10	5.5	110	11	9.6	97	43	65	30		22
1562C-02B	S-3	11	7.8	61	7.5	6.7	67	35	85	42		32
1562C-03	S-6	100	24	340	33	31	270	130	170	110	12	28
1562C-04	S-7	78	24	330	38	32	280	120	210	130	14	30
1562C-05	L-1			0.28	0.1				0.44	0.44		
1562C-06	L-2						1					
1562C-07	L-3											
1562C-08	L-4											
1562C-10	BLANK WATER											
DC013301	BACKGROUND											
DC013312	1	310	60	810	96	61	560	230	650	430	57	
DC013309	2	180	40	630	80	52	680	260	300	190	26	50
DC013306	3	140	31	400	42	40	400	160	250	150	21	59
DC013305	4	600	120	1800	250	210	1600	590	700	450	62	110
DC013313	5	790	150	2200	320	190	1600	750	1500	1100	100	210
DC013310	6	350	70	1300	170	110	1500	630	630	410	38	69
DC013307	7	180	36	510	60	46	450	180	230	140	17	44
DC013304	8	140	40	550	56	60	460	250	300	200	21	67
DC013314	9	720	150	2500	400	250	2200	1000	1200	840	130	190
DC013311	10	530	110	1600	190	150	1400	540	1800	1200	150	190
DC013308	11	520	110	2100	220	200	2200	920	1200	820	97	190
DC013303	12	140	37	1100	140	110	2500	940	630	440	46	110
DC013315	13	170	48	820	130	90	1000	470	470	310	38	62
DC013316B	14	1200	260	3000	330	300	2700	1100	3000	2100	240	380
DC013316	14	830	180	3200	360	300	3600	1500	2700	1600	180	330
DC013318	15	330	63	1000	95	83	360	270	1200	1200		
DC013317	15	300	55	950	120	81	560	250	640	670	52	
DC013302	16	510	130	4000	410	350	7500	2900	1600	1000	79	290
DC013319	17	380	71	830	85	70	570	240	510	320	42	64
DC013320	18	580	100	1100	120	100	790	290	750	490	51	84
DC013321	19	810	140	1300	170	110	770	280	1200	660	77	120
	MAX	1200	260	4000	410	350	7500	2900	3000	2100	240	380

blank cells denote not detected values

sample #	grid	TCDD total	TCDD (2,3,7,8)	PCDD total	PCDD (1,2,3,7,8)	HCDD total	HCDD (1,2,3,4,7,8)	HpCDD total	HpCDD (1,2,3,4,6,7,8)	OCDD total
1562C-01	S-1									310
1562C-02	S-3							190	76	1100
1562C-02D	S-3							170	80	1100
1562C-03	S-6	27	5	63	32	130	50	360	180	690
1562C-04	S-7	30	15	190	72	92		350	160	650
1562C-05	L-1							0.45	0.45	
1562C-06	L-2							3.4	3.4	
1562C-07	L-3									
1562C-08	L-4									
1562C-10	BLANK WATER									
DC013301	BACKGROUND									1900
DC013312	1	86		580	120	160	89	1100	510	1000
DC013309	2	28		350	83	210	120	460	230	460
DC013306	3	51		570	64	370	130	900	440	650
DC013305	4	260	41	1300	450	870	340	1300	750	610
DC013313	5	160		1300	240	430	220	1700	970	1000
DC013310	6	19		1100	220	680	240	1200	640	780
DC013307	7	67	9	430	73	200	120	660	330	660
DC013304	8	23		230		220		1100	560	830
DC013314	9	170		1600	340	690	360	1800	980	1500
DC013311	10	170	23	1000	180	380	190	2300	1300	1400
DC013308	11	240		2200	340	1400	510	3100	1700	1300
DC013303	12	14	22	710	160	920	370	1700	1000	720
DC013315	13	27		190	150	230	130	790	410	820
DC013316D	14	680	47	3000	440	1200	420	5200	2900	1700
DC013316	14	400	39	2600	430	1200	600	4400	2400	1800
DC013318	15	170	20	1200	190					
DC013317	15	120	18	590	130	260	140	2100	1100	1300
DC013302	16	360		3300	570	3200	1200	3100	1700	1700
DC013319	17	190	23	810	120	350	160	1100	560	860
DC013320	18	310	32	780	160	390	160	1600	850	1300
DC013321	19	630	26	1200	200	430	160	2400	1300	1000
	MAX	680	47	3300	570	3200	1200	5200	2900	1900

blank cells denote not detected values

Also sent Memo:

[illegible] – July 10

[illegible] – Prelim. QA Review Dixon
SHS Somers, St. Elizabeth's

[illegible] – JA

[illegible] – LC

[illegible] – PJK

Incinerator Ash Sample
Solid Waste Reduction Center
Washington, D.C.
(units ppb or ng/g)

		2,3,7,8	TETRA	PENTA	HEXA	HEPTA	OCTA	
URANS-dup	SAMPLE 34E	26	310	559	702	255	34	
	27C	29	341	565	734	321	29	
	RPD%	10.4	9.3	1.1	4.5	23.0	13.9	10.4 AVE

		2,3,7,8	TETRA	PENTA	HEXA	HEPTA	OCTA	
DIOXINS-spike	SAMPLE 36E	3.2	103	184	364	182	76	
	28C	19.3	126	270	330	194	86	
	RPD% SPIKE	19.8	37.9	8.1	6.6	12.0		14.1 AVE

		2,3,7,8	TETRA	PENTA	HEXA	HEPTA	OCTA	
FURANS-spike	SAMPLE 36E	16	166	227	307	129	15	
	28C	15	210	310	288	129	13	
	RPD%	6.0	23.8	30.7	6.7	0.2	14.1	13.5 AVE

12.4 OVERALL AVE

rjr 1/15/85

ST. ELIZABETH'S POLYCHLORINATED DIOXIN/FURAN ANALYSIS
PARTS PER TRILLION

sample #	grid	TCDF total	TCDF (2,3,7,8)	PCDF total	PCDF (1,2,3,7,8)	PCDF (2,3,4,7,8)	HCDF total	HCDF (1,2,3,4,7,8)	HpCDF total	HpCDF (1,2,3,4,6,7,8)	HpCDF (1,2,3,4,7,8,9)	OCDF total
1562C-01	S-1	2.5	2.5									
1562C-02	S-3	10	5.5	110	11	9.6	97	43	65	30		22
1562C-02B	S-3	11	7.8	61	7.5	6.7	67	35	85	42		32
1562C-03	S-6	100	24	340	33	31	270	130	170	110	12	28
1562C-04	S-7	70	24	330	38	32	280	120	210	130	14	30
1562C-05	L-1			0.28	0.1				0.44	0.44		
1562C-06	L-2						1					
1562C-07	L-3											
1562C-08	L-4											
1562C-10	BLANK WATER											
BC013301	BACKGROUND											
BC013312	1	310	60	810	96	61	560	230	650	430	57	
BC013309	2	180	40	630	80	52	680	260	300	190	26	50
BC013306	3	140	31	400	42	40	400	160	250	150	21	59
BC013305	4	600	120	1800	250	210	1600	590	700	450	62	110
BC013313	5	790	150	2200	320	190	1600	750	1500	1100	100	210
BC013310	6	350	70	1300	170	110	1500	630	630	410	38	69
BC013307	7	180	36	510	60	46	450	180	230	140	17	44
BC013304	8	140	40	550	56	60	460	250	300	200	21	67
BC013314	9	720	150	2500	400	260	2200	1000	1200	840	130	190
BC013311	10	530	110	1600	190	150	1400	540	1800	1200	150	190
BC013308	11	520	110	2100	220	200	2200	920	1200	820	97	190
BC013303	12	140	37	1100	140	110	2500	940	630	440	46	110
BC013315	13	170	48	820	130	90	1000	470	470	310	38	62
BC013316B	14	1200	260	3000	330	300	2700	1100	3900	2100	240	380
BC013316	14	830	180	3200	350	300	3600	1500	2700	1600	180	330
BC013318	15	330	63	1000	95	83	360	270	1200	1200		
BC013317	15	300	55	950	120	81	660	350	840	670	52	
BC013302	16	510	130	4000	410	350	7500	2900	1600	1000	79	290
BC013319	17	380	71	830	85	70	570	240	510	320	42	64
BC013320	18	580	100	1100	120	100	790	290	750	490	51	84
BC013321	19	810	140	1300	170	110	770	280	1200	860	77	120
	MAX	1200	260	4000	410	350	7500	2900	3900	2100	240	380

blank cells denote not detected values

sample #	grid	TCDD total	TCDD (2,3,7,8)	PCDD total	PCDD (1,2,3,7,8)	HCDD total	HCDD (1,2,3,4,7,8)	HpCDD total	HpCDD (1,2,3,4,6,7,8)	OCDD total
1562C-01	S-1									310
1562C-02	S-3							190	76	1100
1562C-02D	S-3							170	80	1100
1562C-03	S-6	27	5	63	32	130	50	360	180	690
1562C-04	S-7	30	15	190	72	92		350	160	650
1562C-05	L-1							0.45	0.45	
1562C-06	L-2							3.4	3.4	
1562C-07	L-3									
1562C-08	L-4									
1562C-10	BLANK WATER									
BC013301	BACKGROUND									1900
BC013312	1	86		580	120	160	89	1100	510	1000
BC013309	2	28		350	83	210	120	460	230	460
BC013306	3	51		570	64	370	130	900	440	650
BC013305	4	260	41	1300	450	870	340	1300	750	610
BC013313	5	160		1300	240	430	220	1700	970	1000
BC013310	6	19		1100	220	680	240	1200	640	780
BC013307	7	67	9	430	73	200	120	660	330	660
BC013304	8	23		230		220		1100	560	830
BC013314	9	170		1600	340	690	360	1800	980	1500
BC013311	10	170	23	1000	180	380	190	2300	1300	1400
BC013308	11	240		2200	340	1400	510	3100	1700	1300
BC013303	12	14	22	710	160	920	370	1700	1000	720
BC013315	13	27		190	150	230	130	790	410	820
BC013316D	14	680	47	3000	440	1200	420	5200	2900	1700
BC013316	14	400	39	2600	430	1200	600	4400	2400	1800
BC013318	15	170	20	1200	190					
BC013317	15	120	18	590	130	260	140	2100	1100	1300
BC013302	16	360		3300	570	3200	1200	3100	1700	1700
BC013319	17	190	23	810	120	350	160	1100	560	860
BC013320	18	310	32	780	160	390	160	1600	850	1300
BC013321	19	630	26	1200	200	430	160	2400	1300	1000
	MAX	680	47	3300	570	3200	1200	5200	2900	1900

blank cells denote not detected values

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

ORIGINAL

SUBJECT: Sampling at Saint Elizabeth's Hospital

DATE: NOV 08 1985

FROM: Steven Hirsh (3ES40) S Hirsh
Environmental Impact & Marine Policy Branch

TO: Greene A. Jones, Director
Environmental Services Division (3ES00)

THRU: James W. Newsom, Chief JC for
Environmental Management Branch (3ES10)

As requested by the Hazardous Waste Management Division, we began planning a second round of sampling at Saint Elizabeth's Hospital. Bruce Smith (and Roland Schrecongost) requested we do additional dioxin sampling of leachates and sediments, and priority pollutant analysis of all leachate streams and associated sediments.

Dan Donnelly began working with the Sample Management Ofifce to lineup laboratories to do the anlaysis.

The priority pollutant analysis is not a problem. Laboratories are available under the Contract Lab Program to do the analysis.

The isomer specific dioxin analysis will require a contract under the Special Analytical Services Program (SAS). At the present time, there is no money available to do this work. There will be no SAS money until the Government passes a budget for FY'86.

Based on this situation, we proposed the following strategy to HWMD:

The Annapolis Field Section would collect the requested samples during the week of 18-22 November. An additional alliquot of sample would be collected from each sample location. The priority pollutant samples would be run immediately and the additional samples for the dioxin isomer analysis would be kept in custody by CRL until money for the analysis is available.

The HWMD response to this strategy was that we should attempt to have the dioxin analysis done at the EPA Laboratory in Duluth, Minnesota.

I discussed this possibility with John Ruggero, and with CRL and got negative responses from both. CRL feels the backlog of samples at the Duluth Laboratory would preclude them from accepting any samples from Region III. John feels that since the situation at Saint Elizabeth's is not an emergency and the work is being done for potential enforcement actions, we should not pressure Duluth to accept the samples.

We need to know if our strategy is acceptable to you, or if we should postpone sample collection and priority pollutant analysis until the dioxin analysis issue is resolved. Mr. Schrecongost should be advised of ESD's planned actions as soon as possible.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

Copies to LR JA

SUBJECT: CDS - Followup Report on Saint Elizabeth Hospital

DATE: NOV 21 1985

FROM: Roland W. Schrecongost, Deputy Director
Hazardous Waste Management Division (3HW00)

TO: Bruce Smith (3HW10)
Walter Lee (3HW14)
James Newsom (3ES10)
Joe Galda (3WM50)
Francis Mulhern (3ES10)
John Pomponio (3ES40)
John Ruggero (3ES12)
Dan Donnelly (3ES21)

Attached is a copy of a November 4, 1985 followup report by CDS on the Saint Elizabeth Hospital.

This indicates that we have adequately answered their concerns about quality assurance and that the data revealed that No. 2, 3, 7, 8 - TCDD was detected in the leachate sample.

Whenever the results of the November 19, 1985 additional sampling efforts are available, we will meet and evaluate them accordingly.

Attachment

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Agency for Toxic Substances
and Disease Registry

Memorandum

Date November 4, 1985

From Acting Director
Office of Health Assessment

Subject Health Consultation, Saint Elizabeth Hospital, Washington, D. C.

To Mr. Charles J. Walters
Public Health Advisor
EPA Region III

BACKGROUND

The Agency for Toxic Substances and Disease Registry (ATSDR) reviewed the results of dioxin sampling at a waste disposal area behind St. Elizabeth Hospital in Washington, D.C. (ATSDR document dated October 1, 1985). Environmental Protection Agency (EPA), Region III Central Regional Laboratory, responded in a memo from Leo Clark, Annapolis Field Section, to Len Mangiaracina, Environmental Services Division, dated October 17, 1985. This document acknowledges and comments on the EPA response.

DISCUSSION

EPA has adequately answered our concerns about quality assurance and several apparent inconsistencies and contradictions in the CRL Summary Report. The problems resulted from typographical errors and a misunderstanding of the description of the calibration procedure. The memo confirms that no 2,3,7,8-TCDD was detected in the leachate samples.

CONCLUSIONS AND RECOMMENDATIONS

We have no additional comments except to reiterate the conclusions and recommendations in ATSDR memo October 1, 1985:

1. Surface soil levels and 2,3,7,8-TCDD and the other polychlorinated dioxins and furans present at the site should not pose a public health threat to hospital patients or employees, nearby residents, or landfill workers.

2. Since levels of concerns for polychlorinated dioxins and furans may exist at depths greater than 1 foot, any future construction of the fill area or change in the land use of the fill area should be preceded by core sampling of the site.

3. The documents reviewed do not indicate the presence or absence of other hazardous contaminants in or on the landfill. If other hazardous contaminants are known to exist on the site, this information should be evaluated considering the proximity of sensitive populations.

4. Other environmental health impacts of the site and associated truck traffic (ie., fugitive dust, noise and safety) through residential areas should be assessed by EPA and the responsible agencies.

We hope this information is useful to you. Please call me (FTS 236-4551) if you have any questions.

for Stephen Margolis, Ph.D

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: Follow-up Investigation to Dioxin Sampling at St. Elizabeth's Hospital

DATE: OCT 30 1985

FROM: Steven R. Hirsh
Environmental Management Branch (3ES10)

TO: Bruce P. Smith, Chief
Hazardous Waste Enforcement Branch (3HW10)

THRU: James W. Newsom, Chief
Environmental Management Branch (3ES10)

Attached is the report of our investigation conducted at St. Elizabeth's Hospital, Washington, D.C. on October 22, 1985. A meeting has been scheduled with representatives of Saint Elizabeth's Hospital for Friday, November 1, in Conference Room 6A at 10:30 a.m. We would like to meet at 9:30 a.m. for a pre-meeting. If you have any questions regarding this report, contact me at 597-1177.

Attachments

cc: Joe Galda (3WM50)
Mike Vaccaro (3RC00)
Roland Schrecongost (3HW00)
Francis Mulhern (3ES10)
Dick Park (EPIC)
Walt Lee
Neil Swanson
Iz Milner

ORIGINAL
(Red)

Report of Follow-up Inspection
Saint Elizabeth's Hospital
Washington, DC

October 22, 1985

EPA Representatives:

John Ruggero	Environmental Management Branch
Steven Hirsh	Environmental Management Branch
Leo Clark	Annapolis Field Section
George Houghton	Annapolis Field Section
Dick Park	EPIC
Walter Lee	Hazardous Waste Management Division

ORIGINAL
(Red)

Introduction

Based on a request from the Hazardous Waste Management Division an investigation was conducted at Saint Elizabeth's Hospital on October 22, 1985. The purpose of the investigation was to follow-up concerns expressed by CDC in their review of Saint Elizabeth dioxin data, and to confirm the presence of surface drums at the site. CDC concerns include bioaccumulation of dioxin and furans in aquactic organisms, future land use, other potentially hazardous substances at the landfill, and other environmental health impacts of the site and associated truck traffic. Several drums were observed in the fill material during the March sampling.

Observations

Prior to inspecting the active dumpsite, historical aerial photos of the site (1968 to 1984) were reviewed to determine the extent of past dumping and to look for evidence of drums in the dump. Due to the heavy vegetation and the terrain, the dump area was not clearly visible in the photos. A suspected dump area separate from the active dump was tentatively identified. At the request of the Environmental Services Division, EPIC will be reprinting magnified "chips" of the existing photo taken in 1984 (the only photo showing dumping).

After reviewing the photos we proceeded to the active dump site located along Suitland Parkway. Leo Clark and George Houghton explained that the extent of the active dump area had been enlarged since the time of their sampling in March 1985. Other changes since March of 1985 included regrading of the site, the addition of a layer of wood chips and compost over the surface of the dump area, and a reduction of the slope to an approximate 4:1 slope leading down into the ravine. The pond water level at the bottom of the fill area appeared higher than it had been in March. However, it should be noted that it had rained for two days prior to the inspection.

We inspected the entire upper plateau area and identified numerous areas where erosion of the fill was taking place. At the time of the inspection several streams of runoff were flowing across the fill area and down the slope toward the pond and stream. Leachate streams were observed near the bottom of the fill area discharging toward the stream.

A single 55-gallon drum was observed in the ravine at the bottom of the fill area. Due to the steep slope, it was not possible to examine the drum.

At approximately 1:10 p.m. we observed a truck entering the site and dump a load of smoldering ash.

After inspecting the active dump site, we proceeded to the old dump area identified on the aerial photos. Photographic interpretation and debris at the site indicate the area may have been a dump for construction debris. No ash was observed at the site.

Laboratory Name: RADIAN

Case No: 5156

Sample Number: CD 689

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11/27/85

Date Analyzed: 12/9/85

Conc/Dil Factor: 31.80g / 5mL : 1:4 and 1:40

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	64 u	1:40
319-85-7	Beta-BHC	64 u	
319-86-8	Delta-BHC	64 u	
58-89-9	Gamma-BHC (Lindane)	64 u	
76-44-8	Heptachlor	64 u	
309-00-2	Aldrin	64 u	
1024-57-3	Heptachlor Epoxide	64 u	
959-98-8	Endosulfan I	64 u	
60-57-1	Dieldrin	64 u	
72-55-9	4, 4'-DDE	64 u	
72-20-8	Endrin	16 u	1:10
33213-65-9	Endosulfan II	19 u	
72-54-8	4, 4'-DDD	16 u	
7421-93-4	Endrin Aldehyde	13 u	
1031-07-8	Endosulfan Sulfate	32 u	
50-29-3	4, 4'-DDT	13 u	
72-43-5	Methoxychlor	32 u	
53494-70-5	Endrin Ketone	32 u	
57-74-9	Chlordane	160 u	
8001-35-2	Toxaphene	320 u	
12674-11-2	Aroclor-1016	160 u	
11104-28-2	Aroclor-1221	160 u	
11141-16-5	Aroclor-1232	160 u	
53469-21-9	Aroclor-1242	160 u	
12672-29-6	Aroclor-1248	160 u	
11097-69-1	Aroclor-1254	160 u	
11096-82-5	Aroclor-1260	160 u	

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s — or W_s 31.36 V_t 5000 V_i 2.00

Laboratory Name: RADIAN

Case No: 5256

Sample Number: CD614

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-26-85

Date Analyzed: 12-9-85

Conc/Dil Factor: 1.0L/5.0ml (1:2)

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.02 ug
319-85-7	Beta-BHC	0.02 ug
319-86-8	Delta-BHC	0.02 ug
58-89-9	Gamma-BHC (Lindane)	0.02 ug
76-44-8	Heptachlor	0.02 ug
309-00-2	Aldrin	0.02 ug
1024-57-3	Heptachlor Epoxide	0.02 ug
959-98-8	Endosulfan I	0.02 ug
60-57-1	Dieldrin	0.02 ug
72-55-9	4, 4'-DDE	0.02 ug
72-20-8	Endrin	0.02 ug
33213-65-9	Endosulfan II	0.06 ug
72-54-8	4, 4'-DDD	0.01 ug
7421-93-4	Endrin Aldehyde	0.04 ug
1031-07-8	Endosulfan Sulfate	0.10 ug
50-29-3	4, 4'-DDT	0.04 ug
72-43-5	Methoxychlor	0.10 ug
53494-70-5	Endrin Ketone	0.10 ug
57-74-9	Chlordane	0.50 ug
8001-35-2	Toxaphene	1.0 ug
12674-11-2	Aroclor-1016	0.30 ug
11104-28-2	Aroclor-1221	0.50 ug
11141-16-5	Aroclor-1232	0.50 ug
53469-21-9	Aroclor-1242	0.50 ug
12672-29-6	Aroclor-1248	0.30 ug
11097-69-1	Aroclor-1254	0.50 ug
11096-82-5	Aroclor-1260	0.50 ug

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 or W_s ——— V_t 5000 V_i 2.00

Sample Number
CD615

Organics Analysis Data Sheet
(Page 1)

724

Laboratory Name: Radian
Case No: 5256
Lab Sample ID No: 4EU11170V07
QC Report No: 89
Sample Matrix: soil
Contract No: 68-01-6853
Data Release Authorized By: K. Ghilardini
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 12/2/85
Date Analyzed: 12/2/85
Conc/Dil Factor: 1 pH —
Percent Moisture: (Not Decanted) —

VOA only

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	10JB
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	5U
107-06-2	1, 2-Dichloroethane	5U
78-93-3	2-Butanone	10JB
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)
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	5U
71-43-2	Benzene	5U
10061-01-5	cis-1, 3-Dichloropropene	5U
110-75-8	2-Chloroethylvinylether	10U
75-25-2	Bromoform	5U
108-10-1	4-Methyl-2-Pentanone	10U
591-78-6	2-Hexanone	10U
127-18-4	Tetrachloroethene	5U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5U
108-88-3	Toluene	5U
108-90-7	Chlorobenzene	5U
100-41-4	Ethylbenzene	5U
100-42-5	Styrene	5U
	Total Xylenes	5U

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 action. (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 indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥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

Laboratory Name: Radian

Case No: 5256

Sample Number: CD65

725

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: _____

Date Analyzed: _____ NR

Conc./Dil Factor: _____

Percent Moisture (Decanted) _____

GPC Cleanup ☐Yes ☐No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

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

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

(1)-Cannot be separated from diphenylamine

Laboratory Name Radian

Case No 5256

Sample Number CD615

Organics Analysis Data Sheet
(Page 3)

726

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: _____

Date Analyzed: NR

Conc/Dil Factor: _____

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☐No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

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

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 _____ V_t _____ V_i _____

Sample Number
CD614

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Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Radian
Case No: 5256
Lab Sample ID No: 4EU11168V06
QC Report No: 89
Sample Matrix: Water
Contract No: 68-01-6853
Data Release Authorized By: K. Shiladucci
Date Sample Received: 11-26-85

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 11-27-85
Date Analyzed: 11-27-85
Conc/Dil Factor: 1:1 pH —
Percent Moisture: (Not Decanted) 100

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	5JB
67-64-1	Acetone	10JB
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	17
107-06-2	1, 2-Dichloroethane	5U
78-93-3	2-Butanone	10JB
71-55-6	1, 1, 1-Trichloroethane	5U
56-23-5	Carbon Tetrachloride	5U
108-05-4	Vinyl Acetate	10U
75-27-4	Bromodichloromethane	5J

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

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 action. (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 indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC-MS. Single component pesticides ≥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.

Laboratory Name: Radian

Case No: 5256

Sample Number: CD614

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Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 12/16/85

Date Analyzed: 12/16/85

Conc/Dil Factor: 1

Percent Moisture (Decanted) —

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☒Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	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-Methylpheno	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
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	Dibenzo(a h)Anthracene	10u
191-24-2	Benzo(g h i)Perylene	10u

(1)-Cannot be separated from diphenylamine

Laboratory Name: RADIAN

Case No: 5256

Sample Number: CD613

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-27-85

Date Analyzed: 12-9-85

Conc/Dil Factor: 29.84g/5.0ml (1:2)

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	3.2 u
319-85-7	Beta-BHC	3.2 u
319-86-8	Delta-BHC	3.2 u
58-89-9	Gamma-BHC (Lindane)	3.2 u
76-44-8	Heptachlor	3.2 u
309-00-2	Aldrin	3.2 u
1024-57-3	Heptachlor Epoxide	3.2 u
959-98-8	Endosulfan I	3.2 u
60-57-1	Dieldrin	3.2 u
72-55-9	4, 4'-DDE	3.2 u
72-20-8	Endrin	3.2 u
33213-65-9	Endosulfan II	9.6 u
72-54-8	4, 4'-DDD	3.2 u
7421-93-4	Endrin Aldehyde	6.4 u
1031-07-8	Endosulfan Sulfate	16 u
50-29-3	4, 4'-DDT	6.4 u
72-43-5	Methoxychlor	16 u
53494-70-5	Endrin Ketone	16 u
57-74-9	Chlordane	80 u
8001-35-2	Toxaphene	160 u
12674-11-2	Aroclor-1016	50 u
11104-28-2	Aroclor-1221	50 u
11141-16-5	Aroclor-1232	80 u
53469-21-9	Aroclor-1242	50 u
12672-29-6	Aroclor-1248	50 u
11097-69-1	Aroclor-1254	80 u
11096-82-5	Aroclor-1260	340

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 29.84 V_t 5000 V_i 2.00

Laboratory Name: Radian

Case No: 5256

Sample Number: CD613

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Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-27-05

Date Analyzed: 12-16-05

Conc./Dil Factor: 28.84g : 1ml

Percent Moisture (Decanted) 42%

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☑Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	330U
111-44-4	bis(-2-ChloroethylEther	330U
95-57-8	2-Chlorophenol	330U
541-73-1	1 3-Dichlorobenzene	330U
106-46-7	1 4-Dichlorobenzene	330U
100-51-6	Benzyl Alcohol	330U
95-50-1	1 2-Dichlorobenzene	330U
95-48-7	2-Methylphenol	330U
39638-32-9	bis(2-chloroisopropyl)Ether	330U
106-44-5	4-Methylphenol	640
621-64-7	N-Nitroso-Di-n-Propylamine	330U
67-72-1	Hexachloroethane	330U
98-95-3	Nitrobenzene	330U
78-59-1	Isophorone	330U
88-75-5	2-Nitrophenol	330U
105-67-9	2, 4-Dimethylphenol	330U
65-85-0	Benzoic Acid	1600U
111-91-1	bis(-2-ChloroethoxylMethane	330U
120-83-2	2, 4-Dichlorophenol	330U
120-82-1	1, 2, 4-Trichlorobenzene	330U
91-20-3	Naphthalene	330U
106-47-8	4-Chloroaniline	330U
87-68-3	Hexachlorobutadiene	330U
59-50-7	4-Chloro-3-Methylphenol	330U
91-57-6	2-Methylnaphthalene	330U
77-47-4	Hexachlorocyclopentadiene	330U
88-06-2	2, 4, 6-Trichlorophenol	330U
95-95-4	2, 4, 5-Trichlorophenol	1600U
91-58-7	2-Chloronaphthalene	330U
88-74-4	2-Nitroaniline	1600U
131-11-3	Dimethyl Phthalate	330U
208-96-8	Acenaphthylene	330U
99-09-2	3-Nitroaniline	1600U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	330U
51-28-5	2, 4-Dinitrophenol	1600U
100-02-7	4-Nitrophenol	1600U
132-64-9	Dibenzofuran	330U
121-14-2	2 4-Dinitrotoluene	330U
606-20-2	2 6-Dinitrotoluene	330U
84-66-2	Diethylphthalate	330U
7005-72-3	4-Chlorophenyl-phenylether	330U
86-73-7	Fluorene	330U
100-01-6	4-Nitroaniline	1600U
534-52-1	4 6-Dinitro-2-Methylphenol	1600U
86-30-6	N-Nitrosodiphenylamine (1)	330U
101-55-3	4-Bromophenyl-phenylether	330U
118-74-1	Hexachlorobenzene	330U
87-86-5	Pentachlorophenol	1600U
85-01-8	Phenanthrene	500
120-12-7	Anthracene	330U
84-74-2	Di-n-Butylphthalate	1600B
206-44-0	Fluoranthene	1000
129-00-0	Pyrene	780
85-68-7	Butylbenzylphthalate	330U
91-94-1	3 3 -Dichlorobenzidine	660U
56-55-3	Benzo(a)Anthracene	270
117-81-7	bis(2-Ethylhexyl)Phthalate	1500
218-01-9	Chrysene	490
117-84-0	Di-n-Octyl Phthalate	330U
205-99-2	Benzo(b)Fluoranthene	660
207-08-9	Benzo(k)Fluoranthene	320
50-32-8	Benzo(a)Pyrene	330U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	330U
53-70-3	Dibenz(a, h)Anthracene	330U
191-24-2	Benzo(g, h, i)Perylene	330U

(1)-Cannot be separated from diphenylamine

Sample Number
CD607

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Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Radian
Case No: 5256
Lab Sample ID No: 4ER111701V04
QC Report No: 89
Sample Matrix: Soil
Contract No: 68-01-6853
Data Release Authorized By: K. [illegible]
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 12/2/85
Date Analyzed: 12/2/85
Conc/Dil Factor: 1 pH 9.2
Percent Moisture: (Not Decanted) 17%

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	20 B
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	5U
107-06-2	1, 2-Dichloroethane	5U
78-93-3	2-Butanone	10J B
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)
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	5U
71-43-2	Benzene	5J
10061-01-5	cis-1, 3-Dichloropropene	5U
110-75-8	2-Chloroethylvinylether	10U
75-25-2	Bromoform	5U
108-10-1	4-Methyl-2-Pentanone	10U
591-78-6	2-Hexanone	10U
127-18-4	Tetrachloroethene	5U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5U
108-88-3	Toluene	5U
108-90-7	Chlorobenzene	5U
100-41-4	Ethylbenzene	5U
100-42-5	Styrene	5U
	Total Xylenes	5U

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 action. (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 indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC-MS. Single component pesticides ≥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

DATA VALIDATION SUMMARY--ORGANIC

FYI _____ ACTION REQUIRED ✓

Date 4/26/86
Case No. 5256 SAS No. — Site Name St Elizabeth's
Contract Lab Radian Corp Contract No. 68-01-6853
SMO Sample Nos. CD601 - CD615

Reviewer C. Sands of Region III Phone 922-3752

Summary of Samples by Matrix

	Soil/solid	Aqueous	Other
No. @ low level	6	9	—
No. @ med level			
No. @ high level			

	Acceptable	Non-critical Deviations*	Unacceptable*
VOLATILES			
1) GC/MS tuning--BFB	✓		
2) Initial Calibration	✓		
3) Continuing Calibration	✓		
4) Surrogate Recovery	✓		
5) Matrix Spikes	✓		
6) Reagent Blanks	✓		
7) Analysed within holding times		✓ 1	
SEMI-VOLATILES			
8) GC/MS tuning--DFTPP			✓ 2
9) Initial Calibration	✓		
10) Continuing Calibration	✓		
11) Surrogate Recovery	✓		
12) Matrix Spikes		✓ 3	
13) Reagent Blanks	✓		
14) Extacted/analysed within holding times	✓		
PESTICIDES			
15) Instrument Performance			
16) Initial Calibration	Considerable	See Attached	Appendix C
17) Continuing Calibration	Standard	Sheets	
18) Surrogate Recovery	Variability		
19) Matrix Spikes			
20) Reagent Blanks			
21) Extracted/analysed within holding times	✓		
OVERALL CASE			
22) Identification of target compounds		✓	
23) Data Completeness		✓	

REVIEWER'S COMMENTS:

1. VOA - aromatics qualified due to holding time - see QA/QC revi
2. See memo + attached examples - Appendix C
3. Soil BNA MS/MSD calculated wrong - see attached sheets

Appendix C

*Deviations itemized on following pages

In Reference to Case No(s): 5256

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Date of Call: 4/17/86

~~Laboratory~~ Region Name: III

~~Lab~~ Contact: Jim Newsome 597-9378

Region: III

Regional Contact: C. SANDS

Call Initiated By: ___ Laboratory ✓ Region

In reference to data for the following sample number(s):
What is status of CASE 5256
St Elizabeth's Data Review

Summary of Questions/Issues Discussed:
I told him I had completed DATA Review of 5256 for Organics and it is in typing now.
He was primarily interested in Aqueous lactate sample results. I read them to him over the phone.

Summary of Resolution:
- Most results found were disqualified due to blank contamination.
- Phenol, 4-methylphenol, benzoic Acid and low-level polynuclear aromatics compounds were the primary contaminants found and all were at low level.
- Some Required deliverables (data) are missing and have been requested.
- CC. Jim Newsome on copy of QA/QC Review

C. Sands
Signature

4/17/86
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

In Reference to Case No(s): 5256

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Date of Call: 4-18-86 1:15 pm

Laboratory Name: RADIAN Corp.
Lab Contact: KAREN Ghilarducci (916) 362-5332
Region: III
Regional Contact: C. SANDS

Call Initiated By: ___ Laboratory ✓ Region

In reference to data for the following sample number(s):

Summary of Questions/Issues Discussed:
(1) Sample CD606 need phenol spectra. See p 240-241 Sent d5-phenol surrogate spectra by mistake
(2) Where is Form I for initial Std calibration for 5100 SC/ms. P1019 raw data present but p13 missing
(3) Where are Form I (DFTPP) and Form VII (Check Calib. Std.) for ABN run of CD604 performed 12/16/85
(4) Where is VOA run for CD604 d4-1,2-dichloroethane surrogate recovery above QC limits
(5) Form I Organic Analyses Data Sheet (OADS) for Pesticides for CD607 and CD608 - need to correct by adding U code to results.

Summary of Resolution: (6) I notified lab they are incorrectly filling out form I for VOA+SV. When detection limit is 10 and the sample 3 they report 10J instead of 3J. This is incorrect. Correct use of Qualifier is in bottom left corner p1 of OADS DPO to be notified. Applies to reporting of trace results.
(7) CD602. Reviewer thinks benzo(b)fluoranthene reported is probably benzo(k)fluoranthene based upon Relative Retention Time. Could Lab check this result.
Agree to call back Monday 4/21/86 and settle differences

C. Sands
Signature

4/18/86
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy
Radian

case

In Reference to Case No(s): 5256

ORIGINAL

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Date of Call: 4/21/86 2:30 pm

Laboratory Name: RADIAN

Lab Contact: Karen Ghilarducci (916)-362-5332

Region: III

Regional Contact: C. SANDS

Call Initiated By: ✓ Laboratory ___ Region

In reference to data for the following sample number(s):

Summary of Questions/Issues Discussed:

Answers to Questions about case 5256
(1) Will submit spectra for phenol for CD606
(2) Will submit pB MISSING DFTPP Form V for initial Calibration for (GCMS) 5100
(3) Need Form V + Form VII Continuing Calibration for ABN review of CD614 run 12/14/85
Karen didn't understand question 1st time, will look this info up and include if possible
(4) VOA review for CD604 - 1,2 dichloroethane surrogate high. Will enclose 1st Quantitation list which shows lower recovery for surrogate that is within QC limits.

Summary of Resolution:

(5) Will revise + Resubmit Pesticide OADS for CD607 and CD608
(6) CD602 agree to change benzo(b)fluoranthene to benzo(k)fluoranthene. Will send Revised OADS

C. Sands
Signature

4/21/86
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

RADIAN
CORPORATION

April 21, 1986

USEPA Region III
Central Regional Laboratory
839 Bestgate Road
Annapolis, MD 21401

Attn: Chuck Sands

Dear Mr. Sands:

In response to your requests made on 4-18-86 for Case Number 5652, I have enclosed the following information:

1. Phenol spectrum for sample CD606.

2. Form V (p. 13) for the initial cal. data, 12-10-86.

3. Sample CD614 (BNA fraction) was not reextracted/reanalyzed. An error was made on the OADS form; the extraction date is 11-26-85 not 12-16-85. Thus, the Form V and Form VII for this analysis are pages 15 and 749 of the data package. The Form V has also been revised; the lab I.D. for the calibration standard is 5ES1215C050 not 5ES1216C050.

4. Revised Water Surrogate Percent Recovery Summary (Form II).

5. Revised OADS (Form I) for samples CD607 and CD608 for the Pesticide/PCB fraction only.

6. Sample CD602 (BNA)- Revised Quant. list and spectrum, pgs. 58 and 73.

Please call me if you have any questions regarding this information.

Sincerely,

Karen Ghilarducci

Karen Ghilarducci
Document Control
Radian Analytical Services, Sacramento

cc: SMO
EMSL-LV

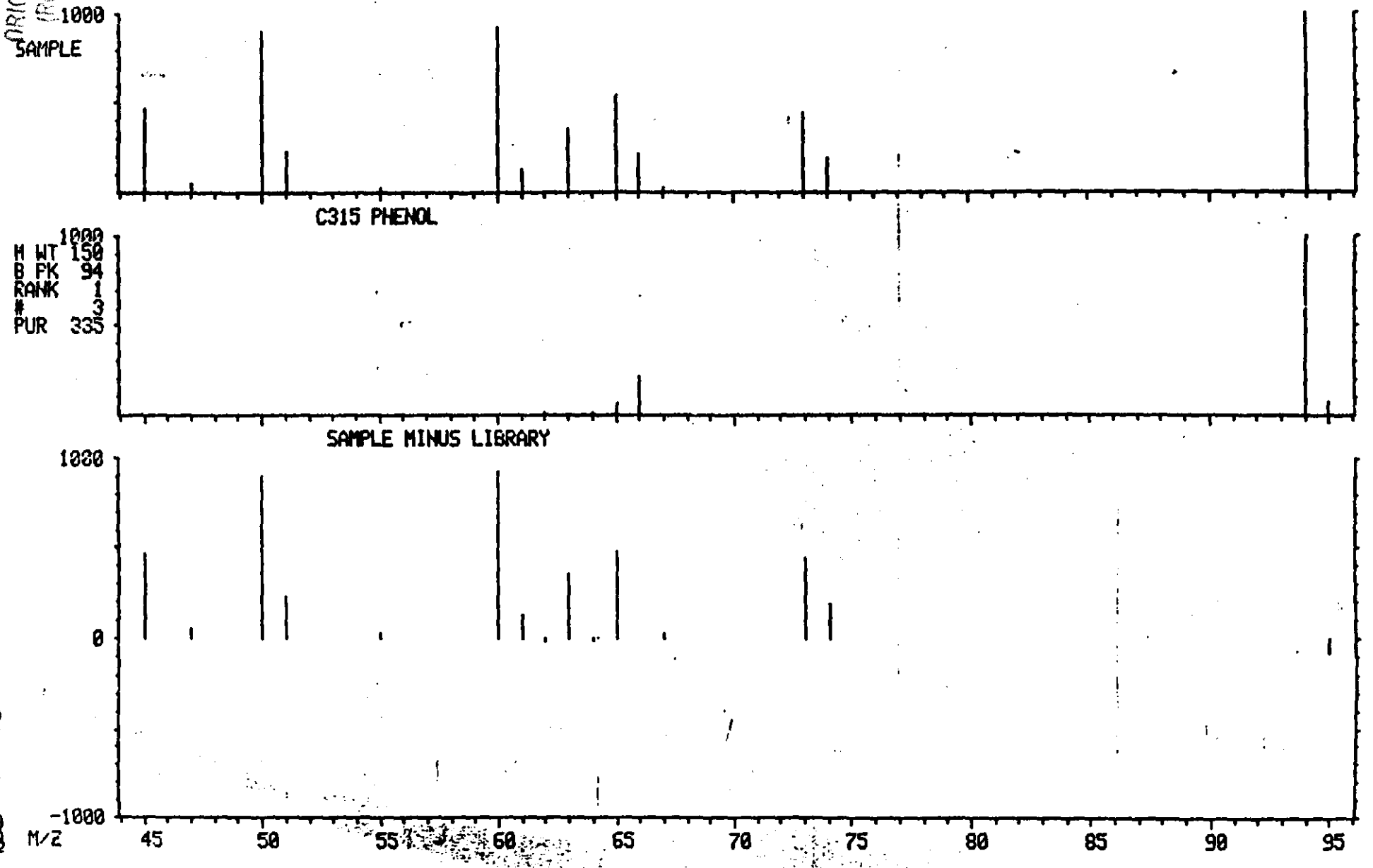
10395 Old Placerville Rd./Sacramento, California 95827/(916)362-5332

LIBRARY SEARCH
12/12/85 13:45:00 + 7:32
SAMPLE: CD-606 1000ML:1ML,11-26-85-DS
CONDS.: -
451 TO # 453 SUMMED → # 449

DATA: 2EU11168C04 # 452
CALI: F2CAL # 5

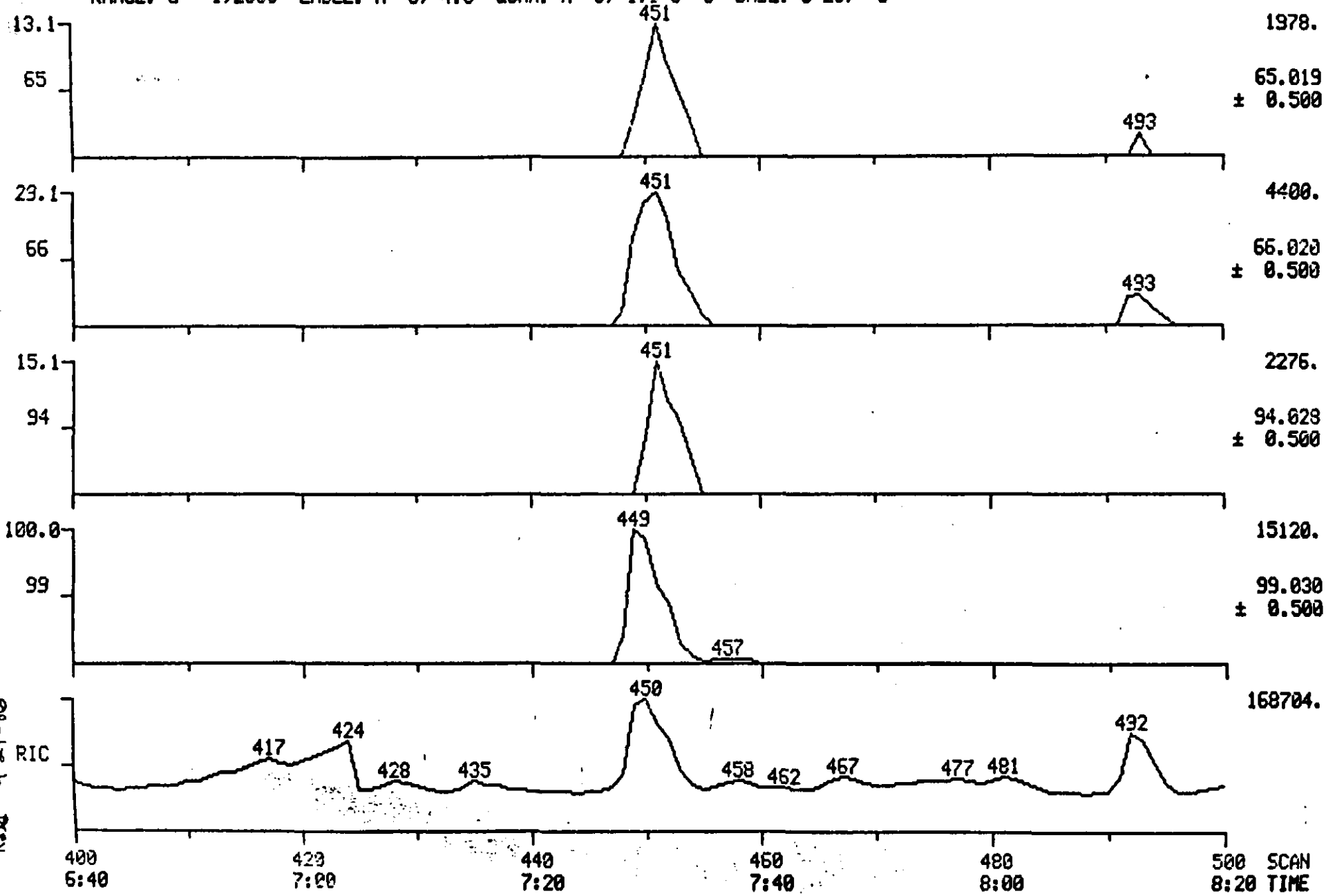
BASE M/Z: 94
RIC: 28511.

ORIGINAL (Red)



Resubmitted data
4-21-86

RIC+MASS CHROMATOGRAMS DATA: 2EU11168C04 #451 SCANS 400 TO 500
12/12/85 13:45:00 CALI: F2CAL #5
SAMPLE: CD-606 1000ML:1ML,11-26-85-DS
COMDS.: -
RANGE: G 1,2500 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3



Resubmitted data
KJd 4-21-86

GC/MS TUNING AND MASS CALIBRATION
Decafluorotriphenylphosphine (DFTPP)

Cal. Date:
Disk No.: 64

Case No. 5-Point Contractor Radian Corp Contract No. 68-01-6853

Instrument ID S100 Date 12-10-85 Time 7:14

Lab ID SEDFT1210E Data Release Authorized By: [signature]

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	52.56
68	less than 2.0% of mass 69	Ø ( )[1]
69	mass 69 relative abundance	52.59
70	less than 2.0% of mass 69	Ø ( )[1]
127	40.0 - 60.0% of mass 198	53.33
197	less than 1.0% of mass 198	Ø
198	base peak, 100% relative abundance	100.00
199	5.0 - 9.0% of mass 198	7.97
275	10.0 - 30.0% of mass 198	13.72
365	greater than 1.00% of mass 198	3.10
441	present, but less than mass 443	2.33
442	greater than 40.0% of mass 198	80.97
443	17.0 - 23.0% of mass 442	17.83 ( )[2]

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

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

SAMPLE ID	LAB ID	Analyst (Initials)	DATE OF ANALYSIS	TIME OF ANALYSIS
DFTPP	SEDFT1210E	[illegible]	12-10-85	7:14
~~BNA Std Mix~~	~~SES1210C050~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~
~~Well #70~~	~~SCR12020C03~~	~~WA~~	~~12-10-85~~	~~8:53~~
BNA Std Mix	SES1210C051	WA	12-10-85	10:47
BNA Std (20ng)	SES1210C020	WA	12-10-85	11:45
BNA Std (80ng)	SES1210C080	WA	12-10-85	14:13
BNA Std (120ng)	SES1210C120	WA	12-10-85	15:11
BNA Std (160ng)	SES1210C160	WA	12-10-85	17:21

Mass List
12/10/85 7:14:00 + 6:48
Sample: 51,D,EPA,DFTPP,00050,00,D,NA:NA,NA$
Conds.: 625C,30M,0.25,1@100,280@35,280@2
#816 to #817 Summed - #815 X1.00

Data: 5EDFT1210E # 816 Base m/z: 198
Cali: F5CAL # 5 RIC: 102016.

1019

41 0.00 0.00 0. Minima Min inten: 227.
444 # 0 Maxima

Mass		% RA	% RIC	Inten.	Mass		% RA	% RIC	Inten.
41.00?		2.86	0.26	268.	199.00	S	7.97	0.73	747.
44.00?	S	3.37	0.31	316.	201.00		3.31	0.30	310.
50.00?		14.59	1.34	1368.	204.00		4.27	0.39	400.
51.00?	S	52.56	4.83	4928.	205.00		7.22	0.66	677.
55.00?		2.72	0.25	255.	206.00	S	26.92	2.47	2524.
57.00?	S	7.28	0.67	683.	207.00		3.62	0.33	339.
64.00?		5.12	0.47	480.	217.00		3.33	0.31	312.
69.00		52.99	4.87	4968.	221.00		4.55	0.42	427.
73.00	S	8.03	0.74	753.	224.00		11.67	1.07	1094.
75.00		13.84	1.27	1298.	225.00		4.94	0.45	463.
77.00		64.76	5.95	6072.	227.00		8.30	0.76	778.
80.00		2.54	0.23	238.	242.00		2.89	0.27	271.
81.00		5.29	0.49	496.	244.00		12.14	1.12	1138.
84.00		2.59	0.24	243.	245.00		5.25	0.48	492.
96.00		2.42	0.22	227.	255.00		35.54	3.27	3332.
93.00		6.35	0.58	595.	256.00		8.50	0.78	797.
98.00		4.39	0.40	412.	258.00		3.67	0.34	344.
99.00		4.24	0.39	398.	259.00		3.74	0.34	351.
100.00		2.78	0.26	261.	265.00		3.00	0.28	281.
103.00		2.43	0.22	228.	267.00		3.81	0.35	357.
105.00		3.68	0.34	345.	270.00		3.00	0.28	281.
107.00		23.81	2.19	2232.	272.00		4.21	0.39	395.
110.00	S	38.23	3.51	3584.	274.00		9.27	0.85	869.
111.00		2.99	0.27	280.	275.00	S	13.72	1.26	1286.
116.00		3.59	0.33	337.	282.00		3.37	0.31	316.
117.00		7.81	0.72	732.	293.00		3.85	0.35	361.
118.00		2.50	0.23	234.	300.00		2.97	0.27	278.
125.00		2.57	0.24	241.	313.00		2.62	0.24	246.
127.00		53.33	4.90	5000.	327.00		3.80	0.35	356.
128.00		2.55	0.23	239.	338.00		3.09	0.28	290.
129.00		27.05	2.49	2536.	346.00		7.62	0.70	714.
130.00		5.66	0.52	531.	347.00		3.31	0.30	310.
147.00		13.76	1.26	1290.	353.00		3.36	0.31	315.
148.00		4.62	0.42	433.	365.00		3.10	0.29	291.
154.00		7.18	0.66	673.	381.00		4.19	0.39	393.
157.00		5.22	0.48	489.	388.00		6.41	0.59	601.
158.00		3.00	0.28	281.	390.00		2.43	0.22	228.
159.00		3.60	0.33	338.	392.00		3.92	0.36	368.
160.00		4.67	0.43	438.	394.00		3.32	0.30	311.
167.00	S	5.36	0.49	503.	395.00		5.54	0.51	519.
168.00	S	10.33	0.95	969.	402.00		3.51	0.32	329.
171.00		3.04	0.28	285.	411.00		3.19	0.29	299.
175.00		6.66	0.61	624.	417.00		2.49	0.23	233.
179.00		4.55	0.42	427.	421.00		4.48	0.41	420.
180.00		3.52	0.32	330.	424.00		10.44	0.96	979.
182.00		2.71	0.25	254.	427.00?		7.91	0.73	742.
186.00		15.49	1.42	1452.	439.00?		3.09	0.28	290.
187.00		12.76	1.17	1196.	442.00?	S	80.97	7.44	7592.
196.00		2.94	0.27	276.	443.00?		14.44	1.33	1354.
198.00	S	100.00	9.19	9376.	444.00?		3.10	0.29	291.

no Form V for this
no m/z 441 observed

Laboratory Name Radian

Case No 5256

Sample Number CD614

694

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: ~~12/16/85~~ 11-26-86

Date Analyzed: 12/16/85 KG

Conc./Dil Factor: 1

Percent Moisture (Decanted) —

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☒Yes

Reinjected 4-21-86

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	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
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

GC/MS TUNING AND MASS CALIBRATION
Decafluorotriphenylphosphine (DFTPP)

Cal. Date: 12-10-8
Disk No. (ST) 165/1

Case No. 5256 Contractor Radian Corp. Contract No. 68-01-6553

Instrument ID 5100 Date 12-15,16-85 Time 23:15

Lab ID SEDFT1215C Data Release Authorized By: [signature]

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	33.12
68	less than 2.0% of mass 69	Ø ( )[1]
69	mass 69 relative abundance	31.85
70	less than 2.0% of mass 69	Ø ( )[1]
127	40.0 - 60.0% of mass 198	44.68
197	less than 1.0% of mass 198	Ø
198	base peak, 100% relative abundance	100.00
199	5.0 - 9.0% of mass 198	8.33
275	10.0 - 30.0% of mass 198	16.75
365	greater than 1.00% of mass 198	2.46
441	present, but less than mass 443	7.97
442	greater than 40.0% of mass 198	42.Ø
443	17.0 - 23.0% of mass 442	9.Ø9 (21.3)[2]

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

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

SAMPLE ID	LAB ID	Analyst (Initials)	DATE OF ANALYSIS	TIME OF ANALYSIS
SEDFT1215C	DFTPP	[illegible]	12-15-85	23:15
SES12-15C050	BNA STD	[illegible]	12-15-85	23:43
SEQ1116SC06	CD-614	[illegible]	12-16-85	
CD-612	SEQ1116SC07	[illegible]	12-16-85	1:45
CD-603	SEQ1116SC08	[illegible]	12-16-85	2:45
Extn Blank	SEB1127S000	[illegible]	12-16-85	
CD-603	SEQ1117Ø301	[illegible]	12-16-85	4:44
CD-608	SEQ1117Ø502	[illegible]	12-16	5:44
CD-608MS	SEM1117Ø502	[illegible]	12-16	6:39
CD-601MSD	SED1117Ø502	[illegible]	12-16-85	[illegible]
CD-609	SEQ1117Ø503	WK	12-16-85	8:35
CD-607	SEQ1117Ø504	WA	12-16-85	9:39
CD-605	SEQ1117Ø505	WA	12-16-85	10:17
CD-602	SEQ1117Ø506	WA	12-16-85	11:14

WATER SURROGATE PERCENT RECOVERY SUMMARY

Case No. 5256 Contract Laboratory Radian Contract No. 68-01-6853

SMO TRAFFIC NO.	VOLATILE: TOLUENE-D8 (88-110)	BFB (86-115)	1,2 DICHLORO-ETHANE-D4 (76-114)	SEMI-VOLATILE: NITRO-BENZENE-D5 (35-114)	2-FLUORO-BIPHENYL (43-116)	TERPHENYL-D14 (33-141)			PHENOL-D5 (10-94)	2-FLUORO-PHENOL (21-100)	2,4,6 TRIBROMO PHENOL (10-123)	PESTICIDE: DIBUTYL-CHLORENDATE ** (24-154)
CD601	100	100	106	60	77	56			46	58	60	102
CD601MS	91	106	111	63	80	65			61	80	95	
CD601MSD	92	98	112	65	74	57			58	70	97	
CD603	95	101	114	72	79	91			104 *	100	103	64
CD604	93	104	~~115~~ 114	61	45	15 *			63	92	62	DL
CD606	109	96	110	67	48	22 *			66	74	74	DL
CD608	102	104	107	69	52	17 *			67	35	93	DL
CD610	101	107	108	73	57	16 *			56	76	93	DL
CD612	91	99	111	69	80	65			106 *	97	116	66
CD614	101	102	107	86	85	57			112 *	95	120	61
BLK 4EB427VCC	99	99	102									
BLK 4EB426VCC	101	108	98									
BLK 4EB413CVCC	96	103	98									
BLK 3EB311 2CVCC				69	70	42			60	90	86	
BLK ED1126RIO												84
CD614MS												65
CD614MSD												68

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

**ADVISORY LIMITS ONLY

Volatiles: 0 out of 39 ; outside of QC limits

Semi-Volatiles: 7 out of 66 ; outside of QC limits

Pesticides: _____ out of _____ ; outside of QC limits

Comments:

Revised 4-18-86

FORM II

7/85

QUANTITATION REPORT FILE: 4ER1118BV05

DATA: 4ER1118BV05.TI
11/30/85 12:56:00
SAMPLE: CD-604 5MLS,EPA
SUBMITTED BY: ANALYST: NJL

AMOUNT=AREA(HGHT) * REF.AMNT/(REF.AREA(HGHT)* RESP FACT)
RESP. FAC. FROM LIBRARY ENTRY

NO	NAME		
1	(IS1)	74-97-5	BRONOCHLOROMETHANE
2	(SU1)	SURROGATE	D4-1,2-DICHLOROETHANE
3	(IS2)		DIFLUOROBENZENE-1,2
4	(IS3)		CHLOROBENZENE-D5
5	(SU2)	SURROGATE	TOLUENE-D8
6	(SU3)	SURROGATE	P-BROMOFLUOROBENZENE
7	ACETONE		
8	2-BUTANONE		
9	BENZENE		

NO	M/E	SCAN	TIME	REF	RRT	METH	AREA(HGHT)	AMOUNT	%TOT
1	128	157	7:31	1	1.000	A BB	210880.	50.000 UG/L	9.89
2	67	204	10:12	1	1.299	QEDT	403496.	114.462 %	22.64
3	114	331	16:33	3	1.000	A BB	1184430.	50.000 UG/L	9.89
4	117	408	20:24	4	1.000	A BB	948971.	50.000 UG/L	9.89
5	98	391	19:33	4	0.958	A?BB	2272580.	97.994 %	19.38
6	95	484	24:12	4	1.186	A BB	1661690.	104.302 %	20.63
7	43	128	6:24	1	0.815	A?BB	51991.	25.778 UG/L	5.10
8	72	210	10:30	3	0.634	A BB	12504	11.804 UG/L	2.33
9	78	290	14:30	3	0.876	A?BB	31095.	1.344 UG/L	0.27

This page is already in the data package. Using this to show surrogate recoveries.

Laboratory Name: RADIAN

Case No: 5256

Sample Number
CD607

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11/27/85

Date Analyzed: 12/1/85

Conc/Dil Factor: 29.70 / 5 ml : 1:4 and 1:40

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	64 u	
319-85-7	Beta-BHC	64 u	
319-86-8	Delta-BHC	64 u	
58-89-9	Gamma-BHC (Lindane)	64 u	
76-44-8	Heptachlor	64 u	1:40
309-00-2	Aldrin	64 u	
1024-57-3	Heptachlor Epoxide	64 u	
959-98-8	Endosulfan I	64 u	
60-57-1	Dieldrin	64 u	
72-55-9	4, 4'-DDE	64 u	
72-20-8	Endrin	16 u	
33213-65-9	Endosulfan II	19 u	
72-54-8	4, 4'-DDD	16 u	
7421-93-4	Endrin Aldehyde	13 u	
1031-07-8	Endosulfan Sulfate	32 u	
50-29-3	4, 4'-DDT	13 u	
72-43-5	Methoxychlor	32 u	
53494-70-5	Endrin Ketone	32 u	
57-74-9	Chlordane	160 u	1:4
8001-35-2	Toxaphene	320 u	
12674-11-2	Aroclor-1016	160 u	
11104-28-2	Aroclor-1221	160 u	
11141-16-5	Aroclor-1232	160 u	
53469-21-9	Aroclor-1242	160 u	
12672-29-6	Aroclor-1248	160 u	
11097-69-1	Aroclor-1254	160 u	
11096-82-5	Aroclor-1260	160 u	

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s — or W_s 29.70 V_t 5000 V_i 2.0

Revised 4-18

Laboratory Name: RADIAN

Case No: 5256

Sample Number: CD6XB

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 12/14/85

Date Analyzed: 12/19/85

Conc/Dil Factor: 12/5 ; 1.19 , 1.43, 1.88

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.43 u	
319-85-7	Beta-BHC	0.48 u	
319-86-8	Delta-BHC	0.48 u	
58-89-9	Gamma-BHC (Lindane)	0.48 u	
76-44-8	Heptachlor	0.48 u	
309-00-2	Aldrin	0.48 u	1.73
1024-57-3	Heptachlor Epoxide	0.48 u	
959-98-8	Endosulfan I	0.48 u	
60-57-1	Dieldrin	0.48 u	
72-55-9	4, 4'-DDE	0.43 u	
72-20-8	Endrin	0.15 u	
33213-65-9	Endosulfan II	0.34 u	
72-54-8	4, 4'-DDD	0.18 u	
7421-93-4	Endrin Alcehyde	0.18 u	
1031-07-8	Endosulfan Sulfate	0.58 u	
50-29-3	4, 4'-DDT	0.19 u	
72-43-5	Methoxychlor	2.53 u	
53494-70-5	Endrin Ketone	2.53 u	1.18
57-74-9	Chlordane	7.5 u	
8001-35-2	Toxaphene	5.3 u	
12674-11-2	Aroclor-1016	1.5 u	
11104-28-2	Aroclor-1221	1.5 u	
11141-16-5	Aroclor-1232	1.5 u	
53469-21-9	Aroclor-1242	1.5 u	
12672-29-6	Aroclor-1248	1.5 u	
11097-69-1	Aroclor-1254	1.8 u	
11096-82-5	Aroclor-1260	1.6 u	

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s — V_t 5000 V_i 2.0

Revised 4-18-86

SAMPLE ID. CD-602 30.20GM:ML,D W FROM DISK# 0

LAB ID. 5EU11170S06 PROCESSED 00/00/00

CLIENT EPA ANALYST WAA 58

DATE INJECTED 12/16/95 11:14:00 VERIFIED BY WQ

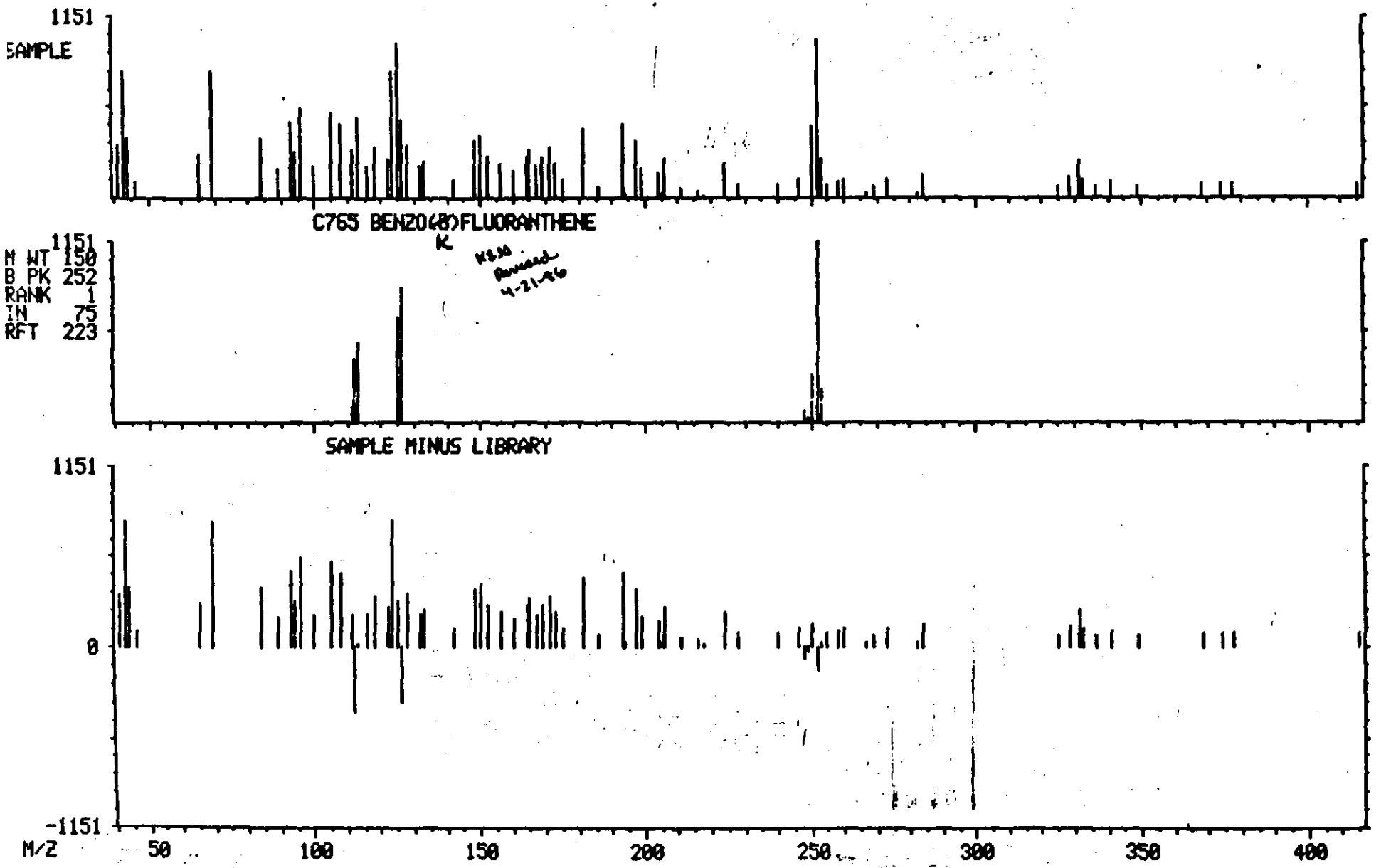
CASE NO. ~~5279~~ 5256 DIL. FACTOR 39.00

E#	SCAN#	-	COMPOUNDS	UG/L OR UG/KG		
7	315	CS50	2-FLUOROPHENOL	83 ~~164.8~~	%	165100
8	422	CS45	PHENOL-D5	82 ~~164.4~~	%	195503
9	541	CS20	NITROBENZENE-D5	118.2	%	90086
10	809	CS25	2-FLUOROBIPHENYL	85.8	%	217879
11	1035	CS55	2,4,6-TRIBROMOPHENOL	102 ~~204.9~~	%	31787
12	1397	CS30	TERPHENYL-D14	61.6	%	54684
~~13~~	~~424~~	~~C815~~	~~PHENOL~~	~~25~~		~~1998~~
~~14~~	~~844~~	~~C430~~	~~NAPHTHALENE~~	~~17~~		~~3804~~
~~15~~	~~997~~	~~C540~~	~~ACENAPHTHYLENE~~	~~15~~		~~2221~~
~~6~~	~~996~~	~~C590~~	~~FLUORENE~~	~~10~~		~~1310~~
~~17~~	~~1018~~	~~C615~~	~~N-NITROSODIPHENYLAMINE~~	~~20~~		~~2757~~
18	1144	C640	PHENANTHRENE	148		27045
19	1247	C650	DI-N-BUTYLPHTHALATE	319		61563
20	1333	C655	FLUORANTHENE	272		39241
21	1368	C715	PYRENE	499		36814
~~22~~	~~1483~~	~~C720~~	~~BUTYLBENZYLPHTHALATE~~	~~116~~		~~7254~~
23	1560	C730	BENZO(A)ANTHRACENE	180		9429
24	1581	C735	BIS(2-ETHYLHEXYL)PHTHALATE	684		42589
25	1567	C740	CHRYSENE	281		13454
~~26~~	~~1578~~	~~C760~~	~~DI-N-OCTYL PHTHALATE~~	~~21~~		~~1613~~
27	1745	C765	BENZO(B)FLUORANTHENE KK reused 4-21-96	201		6987
~~28~~	~~1747~~	~~C770~~	~~BENZO(K)FLUORANTHENE~~	~~81~~		~~3523~~
~~29~~	~~1809~~	~~C775~~	~~BENZO(A)PYRENE~~	~~125~~		~~4078~~
~~30~~	~~2115~~	~~C780~~	~~INDENO(1,2,3-CD)PYRENE~~	~~52~~		~~1360~~

73

LIBRARY SEARCH
12/16/95 11:14:00 + 29:05
SAMPLE: CD-602 30.20GM:ML,D WT=0.84,11-26-85-DS
CONDS.: 625C,30M,0.25,10100,280035,28002
ENHANCED (S 15B 2N 0T)

DATA: 5EU11170S06 #1745 BASE M/Z: 252
CALI: CALTAB # 5 RIC: 25023.



U.S. ENVIRONMENTAL PROTECTION AGENCY HWI Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 – 703/557-2490 • FTS/557-2490

ORGANICS TRAFFIC REPORT

Sample Number: CD 606

① Case Number: 5256
SAS 2057C

Sample Site Name/Code:

② SAMPLE CONCENTRATION (Check One)
✓ Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX (Check One)
✓ Water
___ Soil/Sediment

④ Ship To: 238
Radian Corporation
10395 Old Placerville Road
Sacramento, CA 95827

Attn:

Transfer
Ship To:

⑤ Regional Office: III
Sampling Personnel:
L. Clark
G Houghton
(Name)
301-224-2240
(Phone)
Sampling Date:
11-19-85
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume	⑪ Analysis Lab: Rec'd by: [illegible] Date Rec'd: 11/26/85 Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.)
Water (Extractable)	2	160 oz	OK
Water (VOA)	2	80 mL	Both VOAs w/headspace
Soil/Sediment (Extractable)			
Soil/Sediment (VOA)			
Other			

⑦ Shipping Information
Federal Express
Name of Carrier
11/25/85
Date Shipped:
013497293
Airbill Number:

⑧ Sample Description
___ Surface Water ___ Mixed Media
___ Ground Water ___ Solids
✓ Leachate ___ Other (specify) _____

⑨ Sample Location
Leachate
Appendix C
L2

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

Headspace Noted C.S

(6)

LAB FILE COPY

U.S. ENVIRONMENTAL PROTECTION AGENCY HWI Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 – 703/557-2490 • FTS/557-2490

ORGANICS TRAFFIC REPORT

Sample Number: CD 608

① Case Number: 5256
GAS 8057C

Sample Site Name/Code:

② SAMPLE CONCENTRATION (Check One)
✓ Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX (Check One)
✓ Water
___ Soil/Sediment

④ Ship To: 339
Radian Corporation
10395 Old Placerville Road
Sacramento, CA 95827

Attn:

Transfer
Ship To:

⑤ Regional Office: III
Sampling Personnel:
L Clark
G Houghton
(Name)
301-224-2740
(Phone)
Sampling Date:
11-19-85
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume	⑪ Analysis Lab: Rec'd by: C. Kramell Date Rec'd: 11/26/85 Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.)
Water (Extractable)	2	160 oz	OK
Water (VOA)	2	80 mL	Both VOAs w/ head space
Soil/Sediment (Extractable)			
Soil/Sediment (VOA)			
Other			

⑦ Shipping Information
Federal Express
Name of Carrier
11/25/85
Date Shipped:
013497293
Airbill Number:

⑧ Sample Description
___ Surface Water ___ Mixed Media
___ Ground Water ___ Solids
✓ Leachate ___ Other (specify) _____

⑨ Sample Location
Leachate
L3

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

Head space Noted CS

8

LAB FILE COPY

U.S. ENVIRONMENTAL PROTECTION AGENCY HWI Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490 • FTS/557-2490

ORGANICS TRAFFIC REPORT

Sample Number: CD 610

① Case Number: 5256
SAS 2051 C

Sample Site Name/Code:

② SAMPLE CONCENTRATION (Check One)
✓ Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX (Check One)
✓ Water
___ Soil/Sediment

④ Ship To: 468
Radian Corporation
10395 Old Placerville Road
Sacramento, CA 95827

Attn:

Transfer
Ship To:

⑤ Regional Office: III

Sampling Personnel:
L. Clark
G Houghton
(Name)
301-224-2740
(Phone)

Sampling Date:
11-19-85
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume	Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.)
Water (Extractable)	2	160 oz	OK
Water (VOA)	2	80 ml	Sorn VOA's w/ headspace
Soil/Sediment (Extractable)			
Soil/Sediment (VOA)			
Other			

⑦ Shipping Information

Federal Express
Name of Carrier
11/25/85
Date Shipped:
013497293
Airbill Number:

⑪ Analysis Lab:
Rec'd by: [illegible]
Date Rec'd: 11/26/85

⑧ Sample Description
___ Surface Water
___ Ground Water
✓ Leachate
___ Mixed Media
___ Solids
___ Other (specify) _____

⑨ Sample Location
Leachate
L4

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

Headspace Noted OS

(10)

LAB FILE COPY

U.S. ENVIRONMENTAL PROTECTION AGENCY HWI Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 – 703/557 2490 • FTS/557 2490

ORGANICS TRAFFIC REPORT

Sample Number
CD 615

① Case Number: 2256
SAS 2057C

Sample Site Name/Code:

② SAMPLE CONCENTRATION (Check One)
✓ Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX (Check One)
___ Water
✓ Soil/Sediment

④ Ship To:
Radian Corporation 723
10395 Old Placerville Road
Sacramento, CA 95827

Attn:

Transfer
Ship To:

⑤ Regional Office: III

Sampling Personnel:
L Clark
G Houghton
(Name)
301-224-2740
(Phone)

Sampling Date:
11-15-85
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume	Sample Condition on Receipt (e.g., broken, no ice, Chain-of-Custody, etc.)
Water (Extractable)			
Water (VOA)			OK
Soil/Sediment (Extractable)	1	8 oz	Not received on ice
Soil/Sediment (VOA)	1	120 ml	OK
Other			

⑦ Shipping Information

Federal Express
Name of Carrier

11/25/85
Date Shipped:

013497293
Airbill Number:

⑪ Analysis Lab:
Rec'd by:
Date Rec'd:

⑧ Sample Description

___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
✓ Solids
___ Other (specify)

⑨ Sample Location
Pond
Sediment #58

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)
Possible trace levels of dioxin in sample (5 - 15 ppt)

Sample container missing VOA only as per SMO

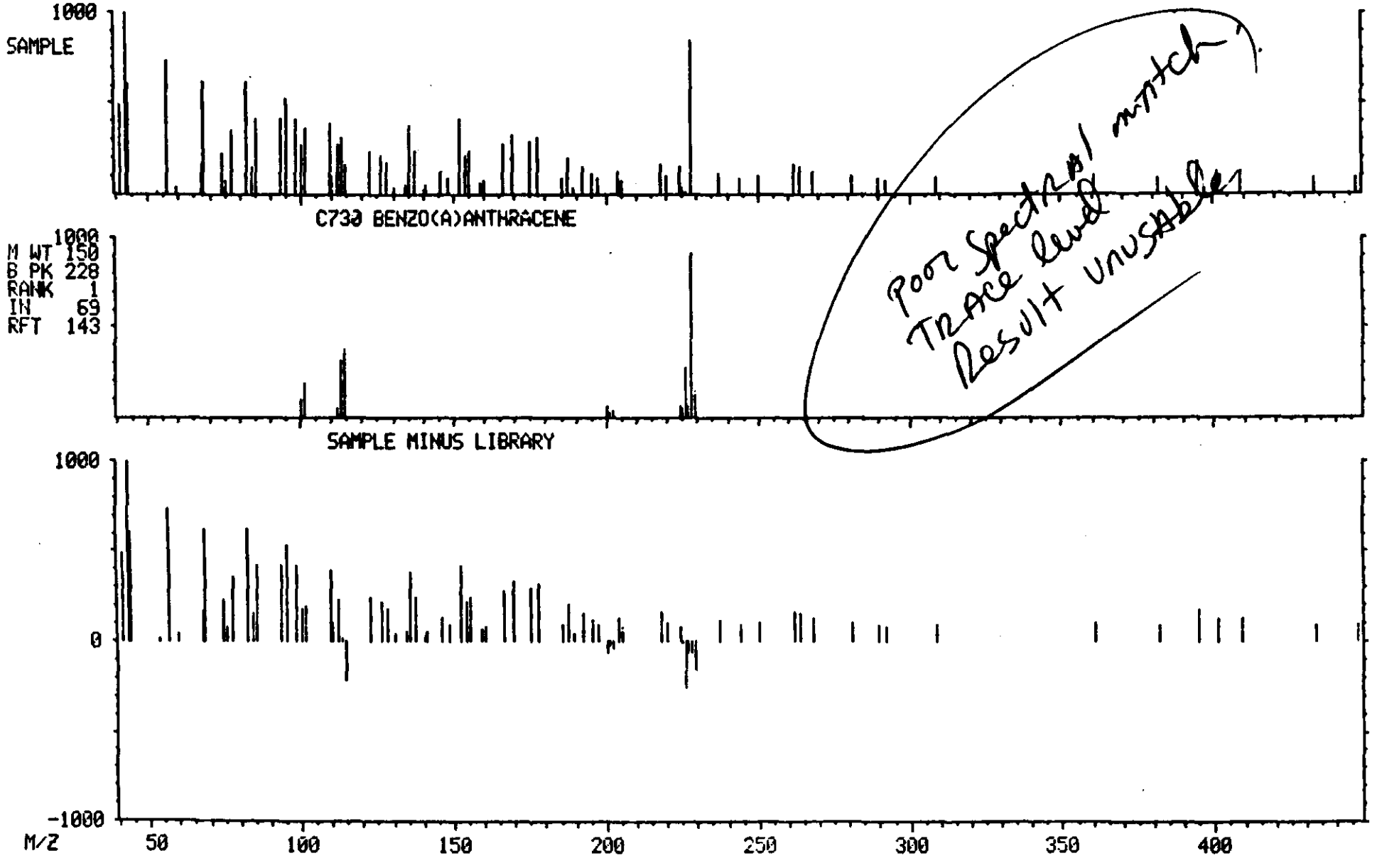
(15)

LAB FILE COPY

568

LIBRARY SEARCH
12/16/85 5:43:00 + 26:06
SAMPLE: CD-600 31.27GMS:1ML,D WT=0.75GMS,11-27-85-DS
CONDS.: 625C,30M,0.25,1@100,280@35,280@2
ENHANCED (S 15B 2N 0T)

DATA: 5EU11170S02 #1566 BASE M/Z: 43
CALI: CALTAB # 5 RIC: 19231.

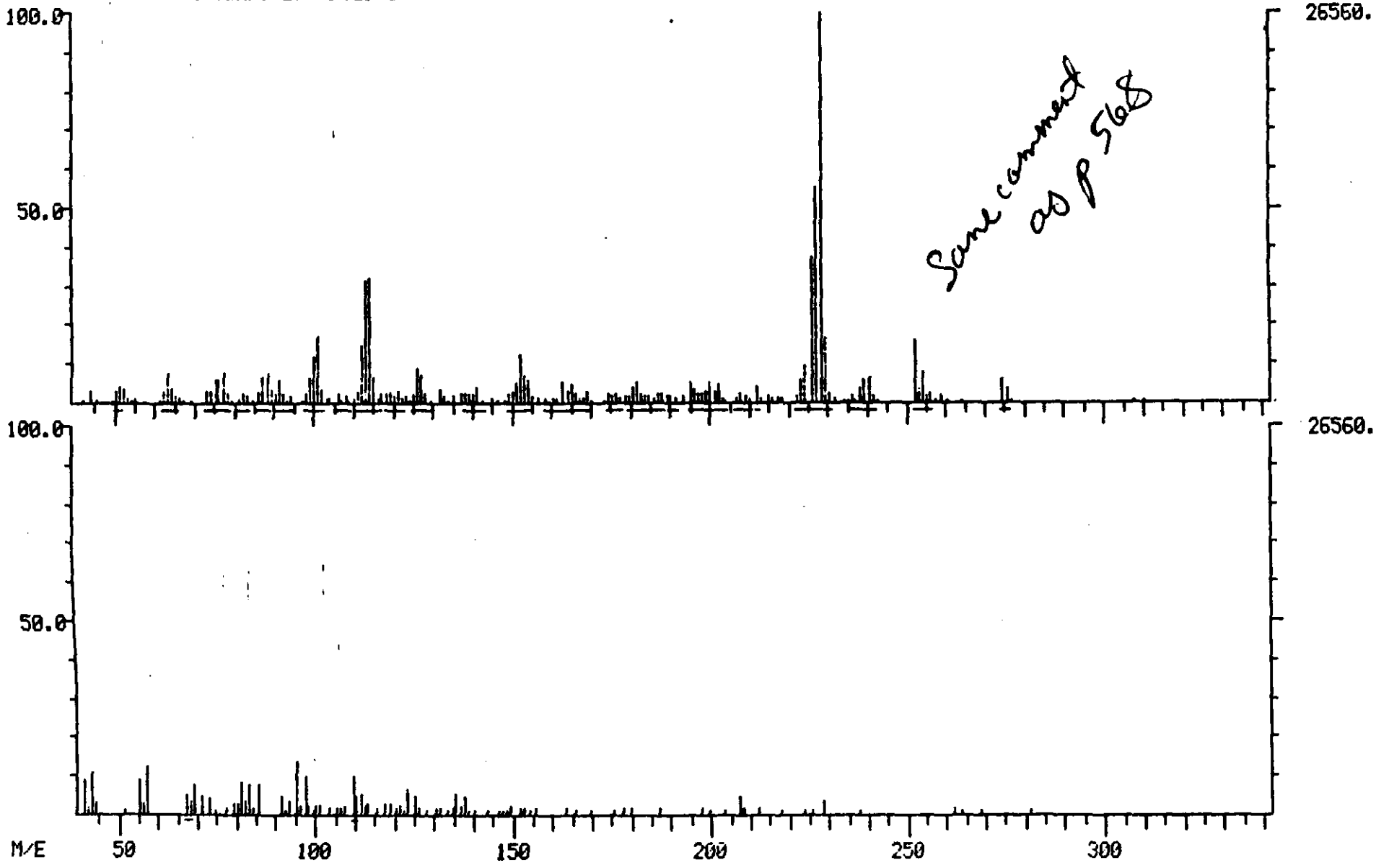


Poor Spectral match
Trace level
Result unusable

569

DUAL MASS SPECTRUM
11/21/85 8:40:00 + 25:29
SECOND SPECTRUM
SAMPLE: BNA STD (50 NG)
CONDS.: 625C,30M,0.25,1@100,280@35,280@2
GC TEMP: 278 DEG. C

DATA: ABSTD #1529 BASE M/Z: 228/ 95
CALI: CALTAB #5 RIC: 203775./ 77695.
DATA: SEU11170502 #1566



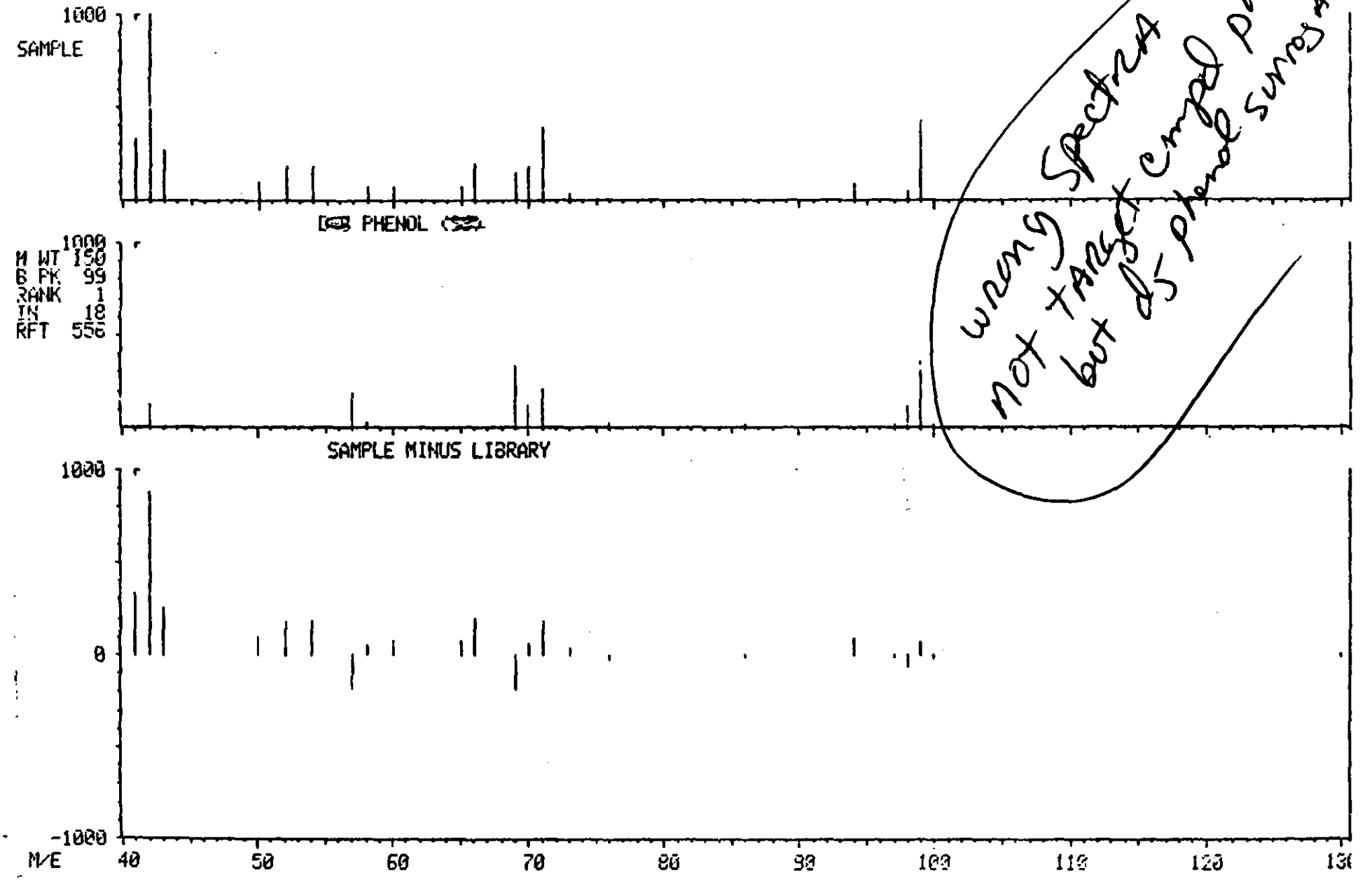
Same comment as p 568

260

LIBRARY SEARCH
12/12/85 13:45:00 + 7:31
SAMPLE: CD-606 1000ML:1ML,11-26-85-D5
ENHANCED (S 15B 2N 0T)

DATA: 2EU11168C04 # 451
CALI: F2CAL # 5

BASE M/E: 42
RIC: 84735.



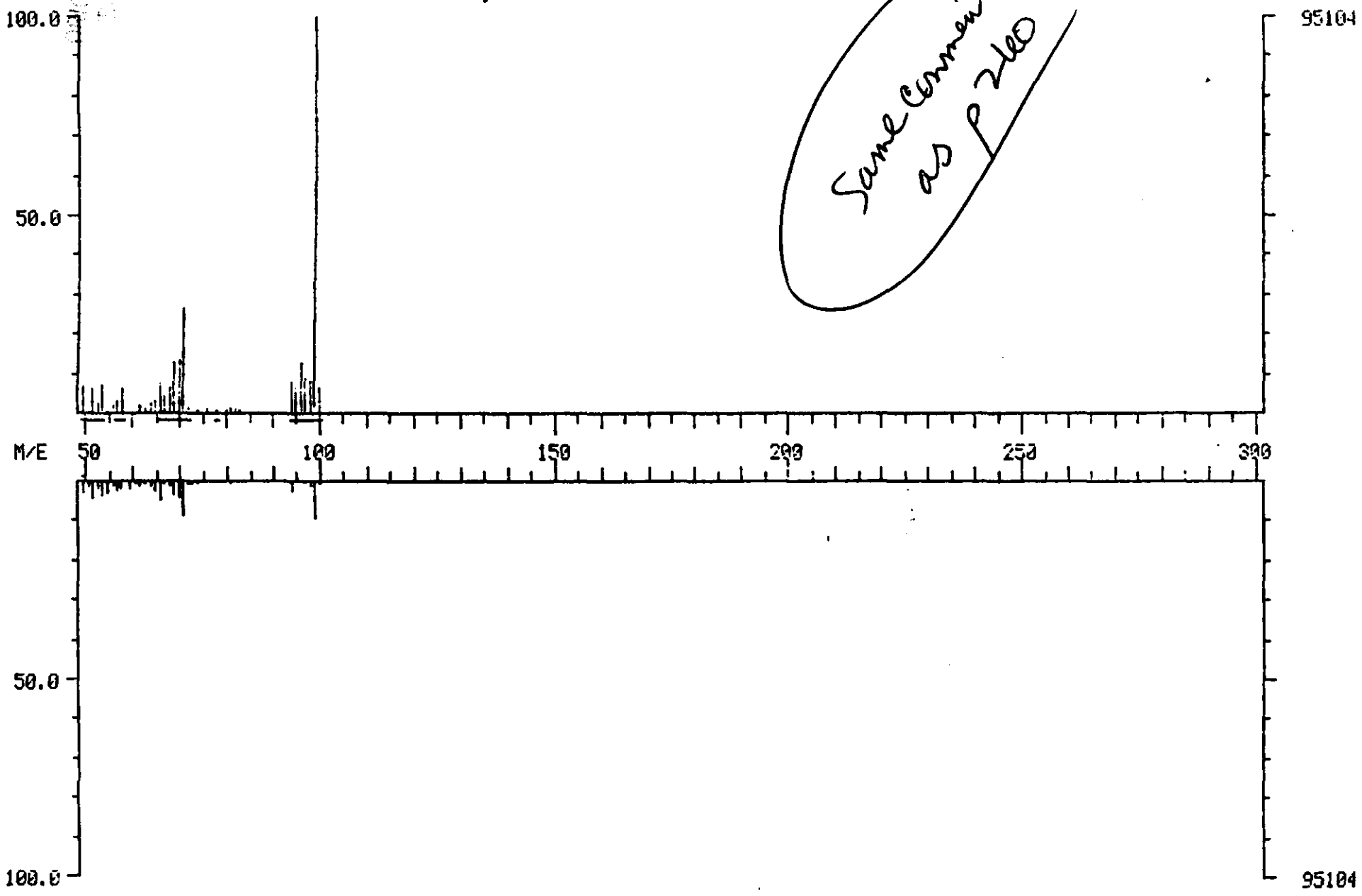
wrong spectra
not target cmpd phenol
but d5 phenol surrogate

261

DUAL MASS SPECTRUM
03/26/85 14:44:00 + 7:47
SAMPLE: STD050
DATA: 2EU11168C04 #451

DATA: EPSTD #467
CALI: F2CAL #5

BASE M/E: 99/ 44
PIC: 306887./ 134655.



Same comment as p 260

WATER SURROGATE PERCENT RECOVERY SUMMARY

2

Case No. 5256 Contract Laboratory Radian Contract No. 68-01-6853

SMO TRAFFIC NO.	VOLATILE: TOLUENE-D8 (88-110)	VOLATILE: BFB (86-115)	VOLATILE: 1,2 DICHLORO-ETHANE-D4 (76-114)	SEMI-VOLATILE: NITRO-BENZENE-D5 (35-114)	SEMI-VOLATILE: 2-FLUORO-BIPHENYL (43-116)	SEMI-VOLATILE: TERPHENYL-D14 (33-141)			SEMI-VOLATILE: PHENOL-D5 (18-94)	SEMI-VOLATILE: 2-FLUORO-PHENOL (21-100)	SEMI-VOLATILE: 2,4,6 TRIBROMO PHENOL (10-123)	PESTICIDE: DIBUTYL-CHLORENDATE ** (24-154)
CD601	100	100	106	60	77	56			46	58	60	102
CD601MS	91	106	111	63	90	65			61	80	95	
CD601MSD	92	98	112	65	74	59			58	70	87	
CD603	95	101	114	72	79	91			104 *	100	103	64
CD604	98	104	115	61	45	15 *			63	92	62	DL
CD606	109	96	110	67	48	22 *			66	74	74	DL
CD608	102	104	107	69	52	17 *			67	35	93	DL
CD610	101	107	108	73	57	16 *			56	76	93	DL
CD612	91	99	111	69	80	65			106 *	97	116	66
CD614	101	102	107	86	85	57			112 *	95	120	61
BLK 4EB427VOCC	98	99	102									
BLK 4EB1202WOI	101	108	98									
BLK 4EB413CUC	96	103	98									
BLK 5EB1126CCC				69	70	42			60	90	86	
BLK EB1126RCO												84
CD614MS												65
CD614MSD												68

outside QC surrogate limits, but no reruns

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

**ADVISORY LIMITS ONLY

Volatiles: 0 out of 39 ; outside of QC limits

Semi-Volatiles: 7 out of 66 ; outside of QC limits

Pesticides: ____ out of ____ ; outside of QC limits

Comments:

FORM II

7/85

3

SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Case No. 5256 Contractor Radian Contract No. 68-01-6853

Low Level ✓ Medium Level

Corrected RPD

FRACTION	COMPOUND	CONC. SPIKE ADDED (ug/Kg)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY
VOA SMO SAMPLE NO. CD602	1,1-Dicholoroethene	25	0	23	92	21	84	9	22	59-172
	Trichloroethene	25	0	24	96	23	92	4	24	62-137
	Chlorobenzene	25	0	26	104	26	104	0	21	60-133
	Toluene	25	0	29	116	28	112	4	21	59-139
	Benzene	25	0	28	112	28	112	0	21	66-142
B/N SMO SAMPLE NO. CD-611	1,2,4-Trichlorobenzene	50	0	20 ✓	40	39 ✓	78	33*	23	38-107 — (G4)
	Acenaphthene	50	0	46 ✓	92	45 ✓	96	4	19	31-137
	2,4 Dinitrotoluene	50	0	50 ✓	100*	54 ✓	109*	2	47	28-89
	Pyrene	50	4	66 ✓	124	65 ✓	122	3	36	35-142
	N-Nitrosodi-n-Propylamine	50	0	48 ✓	96	84 ✓	168*	55*	38	41-126 — (G4)
	1,4-Dichlorobenzene	50	0	17 ✓	34	31 ✓	62	55*	27	28-104
ACID SMO SAMPLE NO. CD-611	Pentachlorophenol	100	0	59 ✓	59	68 ✓	68	14	47	17-109
	Phenol	100	6	56 ✓	50	100 ✓	100	33	35	26-90 — (G7)
	2-Chlorophenol	100	0	45 ✓	45	40 ✓	40	67*	50	25-102
	4-Chloro-3-Methylphenol	100	0	143 ✓	143*	153 ✓	152*	6	33	26-103
	4-Nitrophenol	100	0	81 ✓	81	73 ✓	73	5	50	11-114
PEST SMO SAMPLE NO. (1:2) CD611	Lindane	0.80							50	46-127
	Heptachlor	0.80	←	See Comments Below →					31	35-130
	Aldrin	0.80							43	34-132
	Dieldrin	2.0	0	1.54	77	1.29	65	17	38	31-134
	Endrin	2.0	0	1.60	80	1.32	66	19	45	42-139
	4,4'-DDT	2.0	0	1.42	71	1.19	60	17	50	23-134

*ASTERISKED VALUES ARE OUTSIDE QC LIMITS.

RPD: VOAs 0 out of 5; outside QC limits
B/N 3 out of 6; outside QC limits
ACID 1 out of 5; outside QC limits (2 of 5)
PEST 0 out of 3; outside QC limits

RECOVERY: VOAs 0 out of 10; outside QC limits
B/N 3 out of 12; outside QC limits
ACID 0 out of 10; outside QC limits
PEST 0 out of 6; outside QC limits

Comments: Impossible to quantitate lindane, heptachlor & aldrin because of a large interference at the beginning of the chromatogram on both the quantitation and confirmation columns. After diluting to a point where the interference was no longer a problem, the spiked compounds were diluted out.

PESTICIDE/PCB STANDARDS SUMMARY

757

Case No. 5256 Laboratory Radian Corp.
Contract No. 68-01-6153 GC Column MP-SD625-01 GC Instrument ID 1-2

PMB

	DATE OF ANALYSIS 12/9/85				DATE OF ANALYSIS 12/10/85			
	TIME OF ANALYSIS 16:52				TIME OF ANALYSIS 14:48			
	LABORATORY ID 1-2-51209-06				LABORATORY ID 1-2-51209-43			
COMPOUND	RT	RETENTION TIME WINDOW	CALIBRATION FACTOR	CONF. OR QUANT.	RT	CALIBRATION FACTOR	CONF. OR QUANT.	PERCENT DIFF.**
alpha-BHC	1.78	1.78-1.78	1.52×10^7		1.79	1.45×10^7		-4.6
beta-BHC	2.63	2.62-2.64	5.48×10^6		2.64	5.14×10^6		-6.2
delta-BHC	3.08	3.08-3.08	1.16×10^7		3.09	1.14×10^7		-1.7
gamma-BHC								
Heptachlor								
Aldrin	3.44	3.41-3.47	1.39×10^7		3.45	1.29×10^7		-7.2
Heptachlor Epoxide								
Endosulfan I								
Dieldrin								
4,4'-DDE	7.73	7.72-7.74	1.22×10^7		7.75	1.13×10^7		-7.4
Endrin	9.84	9.83-9.85	9.63×10^6		9.86	9.55×10^6		-0.8
Endosulfan II								
4,4'-DDD	11.92	11.91-11.93	1.05×10^7		11.95	9.38×10^6		-11
Endosulfan Sulfate	18.84	18.80-18.88	6.99×10^6		18.87	6.69×10^6		-4.3
4,4'-DDT								
Methoxychlor								
Endrin Ketone								
Tech. Chlordane								
alpha-Chlordane*								
gamma-Chlordane*								
Toxaphene								
Aroclor - 1016								
Aroclor - 1221								
Aroclor - 1232								
Aroclor - 1242								
Aroclor - 1248								
Aroclor - 1254								
Aroclor - 1260								

7/85

* SEE EXHIBIT E, PART 7

** CONF. = CONFIRMATION (<20% DIFFERENCE)
QUANT. = QUANTITATION (<15% DIFFERENCE)

PESTICIDE/PCB STANDARDS SUMMARY

758

Case No. 5256 Laboratory Radian Corp.
Contract No. 68-01-6853 GC Column MP-SD625-01 GC Instrument ID 1-2

PMB

	DATE OF ANALYSIS 12/9/85				DATE OF ANALYSIS 12/10/85			
	TIME OF ANALYSIS 16:52				TIME OF ANALYSIS 21:55			
	LABORATORY ID 1-2-57209-06				LABORATORY ID 1-2-57209-55			
COMPOUND	RT	RETENTION TIME WINDOW	CALIBRATION FACTOR	CONF. OR QUANT.	RT	CALIBRATION FACTOR	CONF. OR QUANT.	PERCENT DIFF.**
alpha-BHC	1.78	1.78-1.78	1.52×10^7		1.77	1.57×10^7		3.3
beta-BHC	2.63	2.62-2.64	5.48×10^6		2.61	5.41×10^6		-1.3
delta-BHC	3.08	3.08-3.08	1.16×10^7		3.06	1.18×10^7		1.7
gamma-BHC								
Heptachlor								
Aldrin	3.44	3.41-3.47	1.39×10^7		3.42	1.34×10^7		-3.6
Heptachlor Epoxide								
Endosulfan I								
Dieldrin								
4,4'-DDE	7.73	7.72-7.74	1.22×10^7		7.68	1.14×10^7		-6.6
Endrin	9.84	9.83-9.85	9.63×10^6		9.71	9.37×10^6		-2.7
Endosulfan II								
4,4'-DDD	11.92	11.91-11.93	1.05×10^7		11.85	9.30×10^6		-11
Endosulfan Sulfate	18.84	18.80-18.88	6.99×10^6		18.67	5.84×10^6		-16
4,4'-DDT								
Methoxychlor								
Endrin Ketone								
Tech. Chlordane								
alpha-Chlordane*								
gamma-Chlordane*								
Toxaphene								
Aroclor - 1016								
Aroclor - 1221								
Aroclor - 1232								
Aroclor - 1242								
Aroclor - 1248								
Aroclor - 1254								
Aroclor - 1260								

7/85

* SEE EXHIBIT E, PART 7

** CONF. = CONFIRMATION (<20% DIFFERENCE)
QUANT. = QUANTITATION (<15% DIFFERENCE)

ORIGINAL (Red)

759

PESTICIDE/PCB STANDARDS SUMMARY

Case No. 5256 Laboratory Ladian Corp.

Contract No. 68-01-6153 GC Column SP-5072 -2 GC Instrument ID 1-1

PMA

	DATE OF ANALYSIS 12/9/85				DATE OF ANALYSIS 12/10/85			
	TIME OF ANALYSIS 16:36				TIME OF ANALYSIS 04:47			
	LABORATORY ID 1-1-57209-05				LABORATORY ID 1-1-57209-31			
COMPOUND	RT	RETENTION TIME WINDOW	CALIBRATION FACTOR	CONF. OR QUANT.	RT	CALIBRATION FACTOR	CONF. OR QUANT.	PERCENT DIFF.**
alpha-BHC								
beta-BHC								
delta-BHC								
gamma-BHC	1.80	1.79-1.81	2.38×10^7		1.80	1.98×10^7		-17
Heptachlor	2.91	2.90-2.92	1.37×10^7		2.90	1.53×10^7		12
Aldrin	3.61	[illegible]	2.63×10^7		3.59	2.25×10^7		-14
Heptachlor Epoxide	4.40	[illegible]	2.25×10^7		[illegible]	1.98×10^7		-12
Endosulfan I	5.48	[illegible]	2.03×10^7		5.45	1.80×10^7		-11
Dieldrin	6.41	[illegible]	2.25×10^7		[illegible]	2.01×10^7		-11
4,4'-DDE								
Endrin								
Endosulfan II	7.30	7.29-7.32	1.76×10^7		7.26	1.64×10^7		-6.8
4,4'-DDD								
Endosulfan Sulfate								
4,4'-DDT	10.52	10.48-10.56	1.05×10^7		10.48	1.05×10^7		0.0
Methoxychlor	15.63	[illegible]	5.62×10^6		[illegible]	5.76×10^6		2.5
Endrin Ketone								
Tech. Chlordane								
alpha-Chlordane*								
gamma-Chlordane*								
Toxaphene								
Aroclor - 1016								
Aroclor - 1221								
Aroclor - 1232								
Aroclor - 1242								
Aroclor - 1248								
Aroclor - 1254								
Aroclor - 1260								

7/85

* SEE EXHIBIT E, PART 7

** CONF. = CONFIRMATION (<20% DIFFERENCE)
QUANT. = QUANTITATION (<15% DIFFERENCE)

FORM IX

PESTICIDE/PCB STANDARDS SUMMARY

Case No. 5256 Laboratory Radian Corp.
Contract No. 68-01-6853 GC Column SP-5072 -2 GC Instrument ID 1-1

PMA

	DATE OF ANALYSIS 12/9/85				DATE OF ANALYSIS 12/10/85			
	TIME OF ANALYSIS 16:36				TIME OF ANALYSIS 18:25			
	LABORATORY ID 1-1-57209-05				LABORATORY ID 1-1-57209-56			
COMPOUND	RT	RETENTION TIME WINDOW	CALIBRATION FACTOR	CONF. OR QUANT.	RT	CALIBRATION FACTOR	CONF. OR QUANT.	PERCENT DIFF.**
alpha-BHC								
beta-BHC								
delta-BHC								
gamma-BHC	1.80	1.79-1.81	2.38×10^7		1.80	2.19×10^7		-8.0
Heptachlor	2.91	2.90-2.92	1.37×10^7		2.91	1.17×10^7		-15
Aldrin	3.61	3.60-3.62	2.63×10^7		3.60	2.34×10^7		-11.
Heptachlor Epoxide	4.40	4.39-4.41	2.25×10^7		4.39	2.03×10^7		-9.8
Endosulfan I	5.48	5.46-5.50	2.03×10^7		5.47	1.86×10^7		-8.4
Dieldrin	6.41	6.39-6.43	2.25×10^7		6.39	2.06×10^7		-8.4
4,4'-DDE								
Endrin								
Endosulfan II	7.30	7.29-7.32	1.76×10^7		7.32	1.65×10^7		-6.3
4,4'-DDD								
Endosulfan Sulfate								
4,4'-DDT	10.52	10.48-10.56	1.05×10^7		10.50	7.89×10^6		-25
Methoxychlor	15.63	15.58-15.68	5.62×10^6		15.59	4.66×10^6		-17
Endrin Ketone								
Tech. Chlordane								
alpha-Chlordane*								
gamma-Chlordane*								
Toxaphene								
Aroclor - 1016								
Aroclor - 1221								
Aroclor - 1232								
Aroclor - 1242								
Aroclor - 1248								
Aroclor - 1254								
Aroclor - 1260								

* SEE EXHIBIT E, PART 7

** CONF. = CONFIRMATION (<20% DIFFERENCE)
QUANT. = QUANTITATION (<15% DIFFERENCE)

7/85

PESTICIDE/PCB STANDARDS SUMMARY

Case No. 5256 Laboratory Radian Corp.
Contract No. 68-01-6853 GC Column SP-SD722-2 GC Instrument ID 1-1

761

PMB	DATE OF ANALYSIS 12/9/87 TIME OF ANALYSIS 17:03 LABORATORY ID 1-1-51209-06				DATE OF ANALYSIS 12/10/85 TIME OF ANALYSIS 11:48 LABORATORY ID 1-1-51209-44			
COMPOUND	RT	RETENTION TIME WINDOW	CALIBRATION FACTOR	CONF. OR QUANT.	RT	CALIBRATION FACTOR	CONF. OR QUANT.	PERCENT DIFF.**
alpha-BHC	1.53	1.52-1.54	2.60×10^7		1.54	2.51×10^7		-3.5
beta-BHC	1.63	1.62-1.64	1.01×10^7		1.64	9.16×10^6		-9.3
delta-BHC	1.85	1.82-1.88	2.07×10^7		1.85	1.42×10^7		-31
gamma-BHC								
Heptachlor								
Aldrin	3.61	3.60-3.62	2.67×10^7		3.61	2.41×10^7		-9.7
Heptachlor Epoxide								
Endosulfan I								
Dieldrin								
4,4'-DDE	6.37	6.36-6.38	2.19×10^7		6.38	2.00×10^7		-8.7
Endrin	7.13	7.12-7.14	1.31×10^7		7.15	1.29×10^7		-1.5
Endosulfan II								
4,4'-DDD	8.02	8.00-8.04	1.79×10^7		8.04	1.75×10^7		-2.2
Endosulfan Sulfate	9.37	9.34-9.40	1.39×10^7		9.39	1.44×10^7		3.6
4,4'-DDT								
Methoxychlor								
Endrin Ketone	12.02	12.00-12.04	1.74×10^7		12.05	1.82×10^7		4.6
Tech. Chlordane								
alpha-Chlordane*								
gamma-Chlordane*								
Toxaphene								
Aroclor - 1016								
Aroclor - 1221								
Aroclor - 1232								
Aroclor - 1242								
Aroclor - 1248								
Aroclor - 1254								
Aroclor - 1260								

7/85

* SEE EXHIBIT E, PART 7

** CONF. = CONFIRMATION (<20% DIFFERENCE)
QUANT. = QUANTITATION (<15% DIFFERENCE)

FORM IX

PESTICIDE/PCB STANDARDS SUMMARY

Case No. 5256 Laboratory Radian Corp.

Contract No. 68-01-6853 GC Column SP-5D222-2 GC Instrument ID 1-1

PMB

	DATE OF ANALYSIS 12/9/85				DATE OF ANALYSIS 12/10/85			
	TIME OF ANALYSIS 17:03				TIME OF ANALYSIS 23:40			
	LABORATORY ID 1-1-51209-06				LABORATORY ID 1-1-51209-61			
COMPOUND	RT	RETENTION TIME WINDOW	CALIBRATION FACTOR	CONF. OR QUANT.	RT	CALIBRATION FACTOR	CONF. OR QUANT.	PERCENT DIFF.**
alpha-BHC	1.53	1.52-1.54	2.60×10^7		1.53	2.48×10^7		-4.6
beta-BHC	1.63	1.62-1.64	1.01×10^7		1.63	9.06×10^6		-10.3
delta-BHC	1.85	1.82-1.88	2.07×10^7		1.85	1.62×10^7		-22
gamma-BHC								
Heptachlor								
Aldrin	3.61	3.60-3.62	2.67×10^7		3.59	2.40×10^7		-10
Heptachlor Epoxide								
Endosulfan I								
Dieldrin								
4,4'-DDE	6.37	6.36-6.38	2.19×10^7		6.35	2.02×10^7		-7.8
Endrin	7.13	7.12-7.14	1.31×10^7		7.11	1.31×10^7		0.0
Endosulfan II								
4,4'-DDD	8.02	8.00-8.04	1.79×10^7		7.99	1.64×10^7		-8.4
Endosulfan Sulfate	9.37	9.34-9.40	1.39×10^7		9.34	1.27×10^7		-8.6
4,4'-DDT								
Methoxychlor								
Endrin Ketone	12.02	12.00-12.04	1.74×10^7		11.98	1.66×10^7		-4.6
Tech. Chlordane								
alpha-Chlordane*								
gamma-Chlordane*								
Toxaphene								
Aroclor - 1016								
Aroclor - 1221								
Aroclor - 1232								
Aroclor - 1242								
Aroclor - 1248								
Aroclor - 1254								
Aroclor - 1260								

7/85

* SEE EXHIBIT E, PART 7

** CONF. = CONFIRMATION (<20% DIFFERENCE)
QUANT. = QUANTITATION (<15% DIFFERENCE)

FORM IX

Pesticide/PCB Identification

Case No. 5256 Laboratory RADIAN

Contract No. 68-01-6853

763

SAMPLE ID	PRIMARY COLUMN	PESTICIDE/ PCB	RT OF TENTATIVE ID	RT WINDOW OF APPROPRIATE STANDARD	CONFIRMATION COLUMN	RT ON CONFIRMATORY COLUMN	RT WINDOW OF APPROPRIATE STANDARD	GC/MS CONFIRMED (Y or N)
CD613	mixed phase	AR1260	14.11	14.09-14.15	single phase	10.91	10.82-10.86	N

4/84

FORM X

Appendix D
Tentatively Identified Compound (TIC) Results

SAMPLE NUMBER:
CD 601

ORGANICS ANALYSIS DATA SHEET
(PAGE 4)

TENTATIVELY IDENTIFIED COMPOUNDS

CAS NUMBER	COMPOUND NAME	FRACTION	RT OR SCAN NUMBER	ESTIMATED CONCENTRATIO UG/L OR UG/K
1 109-99-9	FURAN, TETRAHYDRO- (Agree)	VOA	174	6
2	~~DL-LEUCINE, METHYLESTER~~	~~VOA~~	~~285~~	~~1~~
3	~~PIPERAZINE~~	~~VOA~~	~~314~~	~~0~~
4	~~BENZENE, 1-BROMO-3-FLUORO~~	~~VOA~~	~~402~~	~~87~~

No Semivolatile Compounds Detected

SAMPLE NUMBER:
CD-602

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 29188-43-0	~~BENZENE, CYCLOHEXYLMETHYL-~~ Unknown	ABN	210	143
2 127-18-4	ETHENE, TETRACHLORO- Agree	ABN	252	253
~~3~~	~~2,5-HEXANEDIONE~~	~~ABN~~	~~280~~	~~9017~~
4 Unknown	~~4H-1,2,4-TRIAZOLE, 4-METHYL-~~ Unknown	ABN Agree	280	9017 ~~3892~~
5 3074-71-3	HEPTANE, 2,3-DIMETHYL-	ABN Agree	299	1443
6 2216-34-4	OCTANE, 4-METHYL-	ABN Agree	307	701
7 20019-64-1	2(5H)-FURANONE, 5,5-DIMETHYL-	ABN	389	353
8 Unknown	~~SILANE, [(3.BETA.,4.ALPHA.,17.BETA.)-A~~	ABN	437	19
9 Unknown	~~3-PENTENOICACID, 3-METHYL-, METHYLESTER~~	ABN	936	53
10 Unknown	~~2-CYCLOHEXENE-1-ACROLEIN, 2,6,6-TRIMET~~	ABN	1990	1847
11 Unknown	~~H-AMISICACID, THIO-, 8-ETHYLESTER~~	ABN Agree	2029	1038

No voa's detected

Laboratory Name Radian

Case No 5256

Sample Number CD 603

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 Detected	BNA		
2.	No " "	VOA		
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
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17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

A = Agree

C 125

SAMPLE NUMBER:
CD-604

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	~~CYCLOBUTANE~~	ABN	357	A	54
2 unknown	~~PROPANE, 2-METHOXY-2-METHYL-~~	ABN	424	A	211
3 unknown	~~CYCLOBUTANE, 1,2-DIETHYL-, CIS-~~	ABN	534	A	48
unknown	~~3-HEXENE, (E)-~~	ABN	614	A	157
074653-7	CYCLOPENTANE, 1-METHYL-2-(2-PROPENYL)-	ABN	691	unknown	35
6 unknown	~~CYCLOHEPTATRIENYLIUM, BROMIDE~~	ABN	728	A	54
7 98-54-4	~~D2-PHENOL (CS)~~ 4-(1,1-dimethylethyl)-phenol	ABN	770	A	2
885-44-9	1,3-ISOBENZOFURANDIONE	ABN	798	A	118
9501-52-0	BENZENEPROPANOICACID	ABN	812	A	168
10 Benzofuran	~~1,2-BENZENEDICARBOXYLICACID, 4-METHYL-~~	ABN	909	unknown	7
11 unknown	~~CYCLOHEPTATRIENYLIUM, BROMIDE~~	ABN	1032	A	5
12 unknown	~~ETHANOL-~~	ABN	1145	A	20
13 81-94-5	1H,3H-NAPHTHO[1,8-CD]PYRAN-1,3-DIONE	ABN	1221	Agree $C_{12}H_6O_3$	8
~~14~~	~~1H,3H-NAPHTHO[1,8-CD]PYRAN-1,3-DIONE~~	~~ABN~~	~~1355~~		~~15~~
15 2-O-(4-hydroxybenzoyl)-methyl(ethyl)-phenol	~~CYCLOHEPTATRIENYLIUM, BROMIDE~~	ABN	1424	A	13
16 1072-16-8	OCTANE, 2,7-DIMETHYL-	ABN	1833	Agree Alkane	14
17 20655-03-6	3,4-HEXANEDIONE, 2,2,5-TRIMETHYL-	ABN	2035	Alkane	25
~~18~~ —	~~unknown~~	~~ABN~~	~~357~~		
19 —	unknown	ABN	397	A	34
99-04-7	3-methyl benzoic acid	ABN	748	carboxylic Acid	11
—	unknown	ABN	925	A	12
22 (1821-12-1)	Benzene butanoic acid	ABN	892	carboxylic Acid	11
1066-40-6	Silanol, trimethyl-	VOA	225	A	28

SAMPLE NUMBER:
CD-605

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ORGANICS ANALYSIS DATA SHEET
(PAGE 4)

A = Agree

TENTATIVELY IDENTIFIED COMPOUNDS

CAS NUMBER	COMPOUND NAME	FRACTION	RT OR SCAN NUMBER		ESTIMATED CONCENTRATION UG/L OR UG/KG
1556-52-5	~~3-HEXEN-2-ONE~~ Oxiranemethanol	ABN	239	UNKNOWN	527
2127-18-4	~~OXIRANEMETHANOL~~ Tetrachloroethene	ABN	248	A	281
~~2~~	~~2-PENTANONE, 4-HYDROXY-4-METHYL-~~	~~ABN~~	~~277~~		~~10528~~
4 Unknown	~~2-PENTANONE, 4-HYDROXY-4-METHYL-~~	ABN	277	A	13755
53074-71-3	~~HEXANE, 3-ETHYL-2-METHYL-~~ Heptane, 2,3-Dimethyl	ABN	295	A	1468
17216-34-4	~~THIAZOLE, 2,4-DIMETHYL-~~ Octane, 4-methyl-	ABN	303	A	731
Unknown	~~1H-INDOLE~~	ABN	355	A	147
84436-75-3	~~1,2-PROPANEDIOL, 3-CHLORO-~~ 3-Hexene-2,5-Dione	ABN	387	$C_6H_8O_2$ Isomer	291
9 *	~~TUNGSTEN, (1-ALPHA-TERT-BUTYLBENZYLIDE~~	ABN	434	UNKNOWN	267
10542-10-9	~~METHANE, OXYBIS-~~ 1,1-Ethanediol, Diacetate	ABN	451	UNKNOWN	387
11 **	~~7-ISOQUINOLINOL, 1,2,3,4-TETRAHYDRO-6-~~	ABN	495	UNKNOWN	398
12 Unknown	~~HEXATHIEPANE~~	ABN	561	A	117
13 Unknown	~~ETHER, 2-BUTENYLPROPYL~~	ABN	762	A	150
14 10544-50-0	~~1-HEXANOL, 2-ETHYL-2-PROPYL-~~ Sulfur, Mol. (S8)	ABN	935	A	96
15 17312-63-9	~~HEXADECANE~~ Nonane, 5-Butyl-	ABN	1653	UNKNOWN	509

4401-11-0 * Ethanone, 1-Oxiranyl-

12-59-6 ** 1,2-Ethanediol, Monoacetate

1066-40-6 Silanol, trimethyl- VOA 224 A 6

SAMPLE NUMBER:
CD-606

A=Agree

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 13269-52-8	3-HEXENE, (E)-	ABN	611	C_6H_{12} isomer	128
~~2~~	~~5-TRIAZOLO[4,3-B]PYRIDAZIN-6-OL~~	~~ABN~~	~~676~~		~~24~~
3 unknown	~~CYCLOPENTANE,1-METHYL-2-(2-PROPENYL)-~~	ABN	689	A	26
98-54-4	~~DS-PHENOL (SS)~~ 4-(1,1-dimethylethyl) phenol	ABN	769	A	2
5-85-44-9	1,3-ISOBENZOFURANDIONE	ABN	796	A	112
6501-52-0	BENZENEPROPANDICACID	ABN	809	A	132
793-55-0	1-PROPANONE,1-PHENYL-	ABN	828	A	7
~~8~~	~~2-FLUOROBIPHENYL~~	~~ABN~~	~~844~~		~~11~~
5 Benzofuran	~~1,2-BENZENEDICARBOXYLICACID,4-METHYL-~~	ABN	907	unknown	8
10 unknown	~~ETHANOL~~	ABN	923	A	12
11 unknown	~~2-PYRIDINECARBOXYLICACID,6-METHYL-~~	ABN	948	A	7
~~12~~	~~2,4,6-TRIBROMOPHENOL~~	~~ABN~~	~~1072~~		~~5~~
13 unknown	~~ETHANOL~~	ABN	1144	A	18
~~14~~	~~D10-PHENANTHRENE (IS)~~	~~ABN~~	~~1179~~		~~17~~
~~15~~	~~1,2-BENZENEDICARBOXYLICACID,DIBUTYLES~~	~~ABN~~	~~1282~~		~~17~~
16 unknown	~~IMIDAZOLE-2-CARBOXALDEHYDE,1-METHYL-~~,	ABN	1319	A	2
17 81-84-5	1H,3H-NAPHTHO[1,8-CD]PYRAN-1,3-DIONE	ABN	1354	A	17
18 55591-18-9	AS-INDACEN-1(2H)-ONE,3,6,7,8-TETRAHYD	ABN	1424	unknown	41
19 unknown	~~MANGANESE,PENTACARBONYLETHYL-,(OC-6-2~~	ABN	1689	A	2
—	unknown	ABN	357	A	71
646-07-1	4-methyl-pentanoic acid	ABN	423	unknown	59
118-90-1	2-methyl-benzoic acid	ABN	704	unknown	5
81-84-5	1H,3H-Naphtho[1,8-cd]pyran-1,3-dione	ABN	1220	unknown	6
20651-88-1	3,3-dimethyl-1H-indene-1,2(3H)-dione	ABN	1030	unknown	14
1066-40-6	Silanol, trimethyl-	VOA	223	A	25
—	Unknown	VOA	435	A	3
—	unknown	VOA	526	A	5
—	Unknown	VOA	570	A	6

SAMPLE NUMBER:
CD-607

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ORGANICS ANALYSIS DATA SHEET
(PAGE 4)

TENTATIVELY IDENTIFIED COMPOUNDS

A=Agree

CAS NUMBER	COMPOUND NAME	FRACTION	RT OR SCAN NUMBER		ESTIMATED CONCENTRATION UG/L OR UG/KG
1 Unknown	~~FURAN, 2,5-BIS(P-FLUOROPHENYL)-3,4-DIP~~	ABN	210	A	35
2	~~CYCLOHEXANONE, 2,6-BIS(1-NAPHTHYLMETHY~~	~~ABN~~	~~279~~		~~209~~
3 (123-42-4)	2-PENTANONE, 4-HYDROXY-4-METHYL- Aldo-cond	ABN	280	A	6098
4 3074-71-3	HEPTANE, 2,3-DIMETHYL-	ABN	299	A	256
5 Unknown	~~ETHANE, CHLORO-~~	ABN	936	A	206
359-00-1	CYCLOPENTANE, 1,1,2-TRIMETHYL-	ABN	1551	unknown	678
5162-36-4	NONANE, 2-BROMO-5-ETHYL-	ABN	1602	unknown	1523
8072-16-8	OCTANE, 2,7-DIMETHYL-	ABN	1653	unknown	605
9 Unknown	~~P-MENTH-8(10)-EN-9-OL, TRANS-~~	ABN	1710	A	1035

No volatile compounds

2 VOA's seen and called Artifacts

C_2F_4	VOA	227
C_3F_6	VOA	232

SAMPLE NUMBER:
CD-608

A = Agree

343

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	~~AZIRIDINE, 2,2-DIMETHYL-~~	ABN	205	A	305
2 unknown	~~2-PROPANOL, 1-(2-PROPENYLOXY)-~~	ABN	276	A	406
3 116-53-0	BUTANOICACID, 2-METHYL-	ABN	295	Carboxylic Acid	424
4 107-92-6	BUTANOICACID	ABN	324	Carboxylic Acid	270
57-31-3	FORMICACID, METHYLESTER	ABN	398	Unknown	177
6 unknown	~~1-BENTEN-3-YNE~~	ABN	431	A	107
~~7~~	~~PHENOL, 4-METHYL-~~	~~ABN~~	~~543~~		~~414~~
8 2889-16-7	1,2,4-TRITHIOLANE	ABN	577	Unknown	998
9 unknown	~~3-2'-PI-1,3-DIOXOLANE~~	ABN	605	A	108
~~10~~	~~BENZOICACID~~	~~ABN~~	~~651~~		~~93~~
~~11~~	~~6-TRIAZOLO(4,3-B)PYRIDAZIN-6-OL~~	~~ABN~~	~~672~~		~~27~~
12 unknown	~~ACETICACID, METHOXY-~~	ABN	690	A	87
13 103-82-2	~~BICYCLO(3.2.0)HEPTA-2,6-DIENE~~ Benzeneacetic acid	ABN	741	A	987
14 529-19-1	~~THIETANE, 1-OXIDE~~ 2-methylbenzene Nitrile	ABN	775	Unknown	21
15 85-44-9	-1,3-ISOBENZOFURANDIONE	ABN	796	A	209
16 501-52-0	BENZENEPROPANOICACID	ABN	814	A	254
17 unknown	~~METHANE, CHLOROTRINITRO-~~	ABN	837	A	76
18 unknown	~~METHANE, OXYBIS-~~	ABN	858	A	110
19 unknown	~~ETHANOL~~	ABN	924	A	56
~~20 unknown~~	~~2H-INDOL-2-ONE, 1,3-DIHYDRO~~	~~ABN~~	~~934~~		~~35~~
~~21~~	~~BIPHENYL-D10 (SS)~~	~~ABN~~	~~949~~		~~18~~
22 unknown	~~PYRAZINE, TRIMETHYL-~~	ABN	1158	A	0
23 unknown	~~PHENAZINE, 1-AMINO-7-METHOXY-~~	ABN	1476	A	1
24 unknown	~~D3-PHENOL (SS)~~	ABN	1477	A	2
29560-47-0	DODECANE, 2-METHYL-	ABN	1584	Alkane	40
~~26~~	~~D12-CHRYSENE (IS)~~	~~ABN~~	~~1604~~		~~20~~
27 unknown	~~PHENOL, 4-[2-(METHYLAMINO)ETHYL]-~~	ABN	1688	A	6
28 1072-16-8	OCTANE, 2,7-DIMETHYL-	ABN	1833	Alkane	60
29 1072-16-8	OCTANE, 2,7-DIMETHYL-	ABN	2036	Alkane	47
30 26 452-21-6	ISOOCTANOL	ABN	2301	Unknown	35
1066-40-6	Silanol, trimethyl-	VOA	225	A	7

Laboratory Name: Radian

Case No: 5256

ORIGINAL (Red)

Sample Number: CD609

406

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

A = Agree

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)	
1. 141-79-7	3-Penten-2-One, 4-methyl	BNA	232	450	A
2. 556-52-5	Oxirane methanol		239	500	Unknown
3. 123-42-2	2-Pentanone, 4-Hydroxy-4-methyl		276	9000	A
4. 16789-46-1	Hexane, 3-ethyl-2-methyl		295	422	Alkan
5. 541-58-2	Thiazole, 2,4-Dimethyl		562	200	Unknown
6. 120-72-9	1H-Indole		741	77	C_8H_7N
7. —	Unknown		763	100	A
8. —	Unknown		845	98	A
9. —	Unknown		885	130	A
10. —	Unknown		941	120	A
11. 17233-71-5	Hexathiepane		1104	190	A
12. —	Unknown		1238	120	A
13. 54461-00-6	1-Hexanol, 2-ethyl-2-propyl		1442	400	Unknown
14. 544-76-3	Hexadecane		1549	500	Alkan
15. 30571-71-2	Decane, 3-Bromo-		1601	400	Alkan
16. 67238-13-5	Decane, 2,3,7-Trimethyl		1653	930	Alkan
17. 54004-41-0	1-Pentanol, 4-methyl-2-propyl		1708	400	Alkane
18. 55333-99-8	Eicosane, 7-Hexyl		1774	700	Alkan
19. —	Unknown		1853	300	A
20. 30571-71-2	Decane, 3-Bromo		1946	350	Unkn
21. —	Unknown		1981	320	A
22. —	Unknown		2028	230	A
23.					
24.	No volatile compounds				
25.					
26.					
27.					
28.					
29.					
30.					

ORIGINAL (Red)

472

SAMPLE NUMBER:
CD-610

ORGANICS ANALYSIS DATA SHEET
(PAGE 4)

TENTATIVELY IDENTIFIED COMPOUNDS

A = Agree

CAS NUMBER	COMPOUND NAME	FRACTION	RT OR SCAN NUMBER	ESTIMATED CONCENTRATION UG/L OR UG/KG	
1 unknown	~~2-PROPENOICACID,ETHENYLESTER~~	ABN	218	A	950
2 unknown	~~1-BUTANOL,4-(1-METHYLETHOXY)~~	ABN	284	A	1055
3 unknown	~~UREA,N,N'-DIMETHYL~~	ABN	302	A	900
4 540-73-8	HYDRAZINE,1,2-DIMETHYL-	ABN	390	unknown	1680
6-53-0	BUTANOICACID,2-METHYL-	ABN	397	A	985
6 unknown	~~HYDRAZINE,ETHYL-,ETHANEDIOATE(1:1)~~	ABN	409	A	508
7 592-84-7	FORMICACID,BUTYLESTER	ABN	424	unknown	124
8 unknown	~~CARBONICACID,METHYL-,PHENYLESTER~~	ABN	452	A	373
9 142-62-1	HEXANOICACID	ABN	485	A	595
10	~~P-1,4-DICHLOROBENZENE (IS)~~	ABN	~~497~~		~~37~~
11	~~PHENOL,3-METHYL-~~	ABN	~~555~~		~~953~~
12 unknown	~~1,2,4-TRITHIOLANE~~	ABN	589	A	1400
13 142-62-1	HEXANOICACID,2-ETHYL-	ABN	633	A	405
14 unknown	~~CYCLOPENTANE,PROPYL-~~	ABN	640	A	252
15 unknown	~~BENZOICACID~~	ABN	688	A	1084
16 unknown	~~ETHENE,1,2-DIFLUORO-~~	ABN	69[illegible]	A	697
17 unknown	~~BENZENEETHANOL,BETA,4-DIMETHYL-~~	ABN	768	A	0
18 85-44-9	1,3-ISOBENZOFURANDIONE	ABN	800	A	700
19 unknown	~~TRIETHYLENEGLYCOL,MONONITRATE~~	ABN	840	A	171
20 unknown	~~METHANE,FLUOROTRINITRO-~~	ABN	860	A	87
unknown	~~BETAINOICACID,O-HYDROXY-~~	ABN	910	A	81
unknown	~~METHANE,OXYBIS-~~	ABN	925	A	103
23 156-38-7	BENZENEACETICACID,4-HYDROXY-	ABN	1002	$C_8H_8O_3$ isomer	195
24	~~2,4,6-TRIBROMOPHENOL~~	ABN	~~1074~~		~~65~~
25 unknown	~~3,4-HEXANEDIONE,2,2,5-TRIMETHYL-~~	ABN	1140	A	81
26 100-72-1	2H-PYRAN-2-METHANOL,TETRAHYDRO-	ABN	1163	unknown	41
27 57-10-3	HEXADECANOICACID	ABN	1278	carboxylic acid	74
28 unknown	~~1H-TETRAZOL-5-AMINE~~	ABN	1306	A	24
29 2437-56-1	1-TRIDECENE	ABN	1391	unknown	32
30 55591-18-9	AS-INDACEN-1(2H)-ONE,3,6,7,8-TETRAHYD	ABN	1429	unknown	16
1066-40-6	Silanol trimethyl -	VOA	224	A	9

ORIGINAL (Red)

SAMPLE NUMBER: CD-609

540

A=Agree

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 1534-08-3	ETHANETHIOICACID, S-METHYLESTER	ABN	216	unknown	399
2 (Aldo-cond)	2-PENTANONE, 4-HYDROXY-4-METHYL-	ABN	274	A	4447
3 Unknown	~~OXAYOHIMBAN-16-CARBOXYLICACID, 11-METH~~	ABN	446	A	51
~~4~~	~~TRICYCLO[2.2.1.01,4]HEPTAN-2-ONE,6-NI~~	~~ABN~~	~~521~~		~~915~~
5 Unknown	~~THIAZOLE,2,4-DIMETHYL-~~	ABN	562	A	202
6 Unknown	~~2-PROPANOL,1-METHOXY-~~	ABN	676	A	121
7 Unknown	~~2-BUTANONE,3-HYDROXY-~~	ABN	763	A	412
8 Unknown	~~1H-BENZOTRIAZOLE,1-METHYL-~~	ABN	844	A	54
9 Unknown	~~5.ALPHA.-CHOLESTANE-1.ALPHA.,17-DIOL,~~	ABN	886	A	7
10 Unknown	~~PYRAZOLE,3-(P-CHLOROPHENYL)-5-METHYL-~~	ABN	936	A	266
11 17333-7	HEXATHIEPANE	ABN	1104	A	591
12 *	~~NAPHTHALENE,1,3,6-TRIMETHYL-~~	ABN	1201	unknown	87
13 Unknown	~~D3-PHENOL-(SS)~~	ABN	1237	A	31
~~14~~	~~1,2-BENZENEDICARBOXYLICACID,DIBUTYLES~~	~~ABN~~	~~1246~~		~~720~~
15 Unknown	~~1,3-CYCLOPENTANEDIONE,4-HYDROXY-2-MET~~	ABN	1298	A	98
16 Unknown	~~2H-1-BENZOPYRAN-2-ONE,3-(2-HYDROXYPHE~~	ABN	1348	A	225
~~17~~	~~D-14-TERPHENYL-(SS)~~	~~ABN~~	~~1396~~		~~280~~
18 Unknown	~~D3-PHENOL-(SS)~~	ABN	1548	A	194
~~19~~	~~D12-CHRYSENE-(IS)~~	~~ABN~~	~~1562~~		~~875~~
~~20~~	~~6H-DIBENZO[B,D]PYRAN-1-OL,3-HEXYL-6A,~~	~~ABN~~	~~1591~~		~~1259~~
21 Unknown	~~ACETAMIDE,N-(2,4-DIMETHYLPHENYL)-~~	ABN	1603	A	413
Unknown	~~2-PENTENE,5-BROMO-2,3-DIMETHYL-~~	ABN	1655	A	2048
17312-55-9	~~D3-PHENOL-(SS)~~ Decane,3,8-Dimethyl-	ABN	1775	alkane	117
24 Unknown	~~BENZENE,1-ETHYL-2-(1-METHYLETHYL)-~~	ABN	1980	A	622
25 Unknown	~~3-BENZOFURANCARBOXYLICACID,2,3-DIHYDR~~	ABN	2028	A	552

8052-80-7 * Silane, Trimethyl-1-Naphthalenyl- unknown

No Volatile Compounds

602

Laboratory Name Radian

Case No 5256

Sample Number CD6R

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 Detected	BNA		
2.	" " "	VOA		
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SAMPLE NUMBER:
CD-613

627

ORGANICS ANALYSIS DATA SHEET
(PAGE 4)

TENTATIVELY IDENTIFIED COMPOUNDS

A = Agree

CAS NUMBER	COMPOUND NAME	FRACTION	RT OR SCAN NUMBER		ESTIMATED CONCENTRATION UG/L OR UG/KG
1108-88-3	BENZENE, METHYL-	ABN	205	A	449
2	~~2-PENTANONE, 4-HYDROXY-4-METHYL~~	~~ABN~~	~~275~~		~~14787~~
2 (Aldocond)	2-PENTANONE, 4-HYDROXY-4-METHYL-	ABN	275	A	14787
4 1068-97-7	PENTANE, 3-ETHYL-2, 4-DIMETHYL-	ABN	295	Unknown	861
5 Unknown	~~CHOLESTANE-2,3,19-TRIOL,TRIACETATE,(2~~	ABN	303	A	45
26444-14-9	ETHANONE, 1-(METHYLPHENYL)-	ABN	477	A	623
7 Unknown	~~PROPANOICACID,3-CYANO-,METHYLESTER~~	ABN	539	A	235
8 3 6021-74-0	NAPHTHALENE, 1, 2, 3, 4, 4A, 5, 6, 8A-OCTAHYD	ABN	817	unknown	405
9 Unknown	~~SPIROL5.5]UNDEC-2-ENE,5,7,7-TRIMETHYL~~	ABN	833	A	469
10 1674-10-4	CYCLOHEXENE, 1, 2-DIMETHYL-	ABN	888	unknown	323
~~11~~	~~BIPHENYL-D10 (SS)~~	~~ABN~~	~~910~~		~~1254~~
12 500-00-5	CYCLOHEXENE, 4-METHYL-1-(1-METHYLETHYL	ABN	917	unknown	1726
13 31983-22-9	NAPHTHALENE, 1, 2, 4A, 5, 6, 8A-HEXAHYDRO-4	ABN	924	unknown	508
14 Unknown	~~7-ISOQUINOLINOL,1,2,3,4-TETRAHYDRO-6-~~	ABN	935	A	620
15 *	~~9,17-OCTADECADIENE-12,14-DIYNE-1,11,1~~	ABN	943	unknown	321
16 Unknown	~~1,7-NONADIENE,4,8-DIMETHYL-~~	ABN	1237	A	599
17	~~1,2-BENZENEDICARBOXYLICACID,DIBUTYLES~~	~~ABN~~	~~1246~~		~~925~~
18 Unknown	~~B9-PHENOL (SS)~~	ABN	1315	A	90
19	~~PYRENE~~	~~ABN~~	~~1332~~		~~636~~
20	~~PYRENE~~	~~ABN~~	~~1367~~		~~1658~~
21	~~B-14-TERPHENYL (SS)~~	~~ABN~~	~~1396~~		~~574~~
22 Unknown	~~2-HEXENE,1-(PENTYLOXY),(E)-~~	ABN	1549	A	1015
23	~~D12-CHRYSENE (IS)~~	~~ABN~~	~~1562~~		~~1196~~
24	~~4-OCTENOICACID,6-ETHYL-3-HYDROXY-3,7-~~	~~ABN~~	~~1590~~		~~1255~~
25 54461-00-6	1-HEXANOL, 2-ETHYL-2-PROPYL-	ABN	1654	Unknown	1624
26 17301-27-8	UNDECANE, 2, 10-DIMETHYL-	ABN	1776	Alkane	3632
27	DECANE, 5-ETHYL-5-METHYL-	ABN	1948	Unknown	3040
28 Unknown	~~CYCLOBUTANEACETONITRILE,1-METHYL-2-(1~~	ABN	1983	A	2555
29 Unknown	~~2-CYCLOHEXEN-1-OL,2,4,4-TRIMETHYL-,AC~~	ABN	2026	A	2707

183972 * Naphthalene, 1,2,3,4-Tetrahydro-1,6-Dimethyl-4 (1-methylethyl)-, (1S-Cis

No Volatile compounds

ORIGINAL

Laboratory Name Radian

Case No 5256

696

Sample Number CD614

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 Detected	BNA		
2.	" " "	VOA		
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SAMPLE NUMBER:
CD615

727

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	A ~~??~~	~~VOA~~	~~133~~	~~14~~
2	DL ~~??~~	~~VOA~~	~~448~~	~~1~~
3	IS ~~??~~	~~VOA~~	~~186~~	~~100~~
4	A ~~??~~	~~VOA~~	~~591~~	~~18~~
	DL		~~288~~	
	DL		316	
	DL		421	

No volatile compounds detected

R. Smith
COPY FOR YOUR INFORMATION

BRIEFING PAPER

SOLID WASTE REDUCTION CENTER #1
RESIDUE DISPOSAL
AT ST. ELIZABETH'S RECLAMATION PROJECT SITE

1. The Department/Government will never knowingly or deliberately utilize a waste disposal practice known to be hazardous or illegal.

2. The District has been disposing incinerator ash in selected portions of the St. Elizabeth's property as a land reclamation effort since 1977. All operations have been closely engineered and under agreement with the federal Department of Health and Human Services.

3. The amount of ash disposed is in direct proportion to tonnage burned at SWRC#1, which reduces it 90% by volume and 70% by weight. The current rate of ash disposal is 60 tons per day.

4. To date, the U.S. EPA has not determined incinerator ash to be a hazardous waste under Federal law, nor does it require testing on it. Ash buried at St. Elizabeth's consists of fly ash and bottom ash combined. This is the recommended disposal practice.

5. The ash disposal/reclamation project on the St. Elizabeth's site has been tested in the past and <u>has never been found to be hazardous or toxic</u>. The latest test was in September, 1987.

6. Quarterly tests of the ash will now be made to ensure on-going safety. Samples recently collected by The Department of Consumer and Regulatory Affairs are currently being analyzed with results expected in the next two weeks. The results will be made available to community.

7. Due to Metro construction, the haul route temporarily included some residential streets. This is <u>no longer</u> the case. In addition, all loads are to be covered and a water truck is assigned to control any dust on site.

8. Waste disposed at SWRC #1 is from residential uses - over 95% of which is collected by D.C. crews from residences in Wards 6, 7 and 8. (Waste collected from industrial and commercial establishments is taken directly to the I-95 landfill for disposal.)

<u>THIS MEANS THAT WHAT'S COMING OUT OF THE INCINERATOR IS ONLY WHAT'S LEFT (AFTER BURNING) OF WHAT WENT IN -- AND THAT CAME FROM OUR OWN INDIVIDUAL HOMES.</u>

9-28-88

~~Sabrina Greene~~

Tons of Wet Residue Delivered to St. Elizabeth

1982	74,667.00	TONS	
1983	73,834.00	TONS	
1984	62,683.00	TONS	
1985	44,998.00	TONS	
1986	66,667.00	TONS	
1987	65527.00	TONS	
1988	37564.00	TONS	As of 8-15-88

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401

301-224-2740
FTS-922-3752

DATE : May 1, 1986

SUBJECT: Data Validation of Dioxin and Furan Results for SAS 2057C: St. Elizabeths

FROM : Diana Pickens
Chemist

TO : Leo Clark
Chief, Engineering Section

THRU : Patricia J. Krantz
DPO QA

All 8 water/leachate samples and 11 soil/sediment samples in SAS 2057C have been successfully analyzed. The SAS request designated the following target analyses:

2,3,7,8-substituted tetra-octa chlorinated dibenzodioxins (CDD) and dibenzofurans (CDF)

total tetra-octa chlorinated dibenzodioxins and dibenzofurans

Water and leachate samples were extracted according to Method 613. Soil and sediment samples were extracted using an 18-hour soxhlet procedure. Once extracted, all samples were analyzed for 2,3,7,8-TCDD according to the IFB WA-84-A002. The total tetra-octa CDD/CDF analyses were performed using the EPA Region VII 10/85 protocol.

The positive results for environmental samples are summarized below. Results are based on dry weight.

Sample	1,2,3,4,6,7,8-HpCDD (ppb)	Total HpCDD (ppb)	Total OCDD (ppb)
DC017305			2.5
DC017306			2.0
DC017317	0.22	0.52	3.4
DC017320			3.7
DC017320D			4.7
DC017323			5.6

The lab report sheets state sample specific detection limits. The lab's method of estimating detection limits generates "best case" values. Practical detection limits may be 2 or 3 times the reported limits. Even the elevated detection limits are well below EPA's target of 1 ppb.

The soil and sediment samples are reported in ng/g units (ppb). The water and leachate samples are reported in ng/L units (pptr).

DC017324 was submitted as a QC sample. EPA EMSL-LV states the concentration to be 19 pptr, however no supporting documentation is available yet. In view of the low detection limits routinely reported by this lab, we intended to test their lower limit. The lab's result for this sample was ND (67 ppt detection limit). The raw data shows evidence of 2,3,7,8-TCDD, but it does not meet all identification criteria. It was not until after receipt of the original data submission that the lack of documentation for the audit sample became known to Region III. Due to an unrelated error in the original work (a one-point curve rather than a three-point curve for tetra-octa CDD's was submitted), the lab was required to reanalyze all extracts. At this time, a documented QC sample was added to the sample set. This sample was labeled DC017309. The lab achieved acceptable results for this sample.

If you desire more details in the analytical procedure or have any questions reqarding this review, please call me.

cc: Jim Newsom (3ES10)

TCDD DATA REPORT
California Analytical Laboratories
2544 Industrial Blvd.
W. Sacramento, CA 95691

Lab: California Analytical Laboratories
Case No. 5256
Batch/Shipment No.

2,3,7,8-TCDD most accurate results

Report Date: 3-26-86
Column: SP-2331

Cal Labs ID	Sample Number	C U	Aliquot Wet Wt. (grams)	PPB TCDD Meas	PPB TCDD Det. Lmt	Inst ID	Date	Time	320/322	332/334	PPB Surrg Meas	Surrg % Acc'c	320	322	257	328*	332	334	Comments
S7624MBRI	METHOD BLANK	Y	10.00	ND	0.075	8	03/26/86	09:07:00	-	0.81	0.96	96	-	-	-	100748	115951	142514	
S7624	DC017302	Y	10.23	ND	0.043	8	03/25/86	11:46:00	-	0.78	0.91	93	-	-	-	361134	416923	528992	
S7626	DC017305	Y	10.24	ND	0.022	8	03/25/86	12:13:00	-	0.79	0.94	96	-	-	-	639495	717940	907492	
S7626MS	DC017305MS	Y	10.18	1.1	-	8	03/25/86	12:32:00	0.76	0.79	0.94	96	321182	424949	208976	667205	753056	952707	112% RECOVERY
S7627	DC017306	Y	10.08	ND	0.030	8	03/25/86	14:12:00	-	0.83	0.94	96	-	-	-	374309	435705	524189	
S7629	DC017308	Y	10.18	ND	0.033	8	03/25/86	14:31:00	-	0.81	0.93	95	-	-	-	451616	519460	643516	
S7631	DC017311	Y	10.02	ND	0.074	8	03/25/86	14:48:00	-	0.81	0.92	92	-	-	-	218771	260808	320788	
S7633	DC017314	Y	10.30	ND	0.021	8	03/25/86	15:08:00	-	0.79	0.89	92	-	-	-	633110	746949	940018	
S7635	DC017317	Y	10.90	ND	0.022	8	03/25/86	15:29:00	-	0.79	0.82	90	-	-	-	595646	718256	906409	
S7637	DC017320	Y	10.49	ND	0.029	8	03/25/86	15:48:00	-	0.80	0.87	92	-	-	-	371889	442828	552740	
S7637D	DC017320-DUP	Y	10.87	ND	0.053	8	03/25/86	16:43:00	-	0.80	0.88	96	-	-	-	242428	275558	342748	
S7639	DC017323	Y	10.30	ND	0.047	8	03/25/86	17:15:00	-	0.82	0.90	92	-	-	-	248410	296784	363498	
S7640RI	DC017324	Y	10.01	ND **	0.067	8	03/26/86	09:25:00	-	0.79	0.99	99	-	-	-	259351	284984	359495	

Cal Labs ID	Sample Number	C U	Aliquot Volume (Liters)	PPTr TCDD Meas	PPTr TCDD Det. Lmt	Inst ID	Date	Time	320/322	332/334	PPTr Surrg Meas	Surrg % Acc'c	320	322	257	328*	332	334	Comments
S7623MB	METHOD BLANK	Y	0.50	ND	2.2	8	03/24/86	21:44:00	-	0.83	18.96	95	-	-	-	448670	525408	634816	
S7623	DC017301	Y	0.25	ND	2.5	8	03/24/86	22:04:00	-	0.83	36.99	92	-	-	-	448713	540192	648992	
S7623MS	DC017301MS	Y	0.25	43.5	-	8	03/26/86	09:56:00	0.80	0.80	38.56	96	154706	193819	96216	309286	348464	437544	109% RECOVERY
S7625	DC017304	Y	0.50	ND	2.3	8	03/24/86	22:24:00	-	0.73	18.53	93	-	-	-	344083	385024	525088	
S7628	DC017307	Y	0.10	ND	6.1	8	03/24/86	22:51:00	-	0.82	99.86	100	-	-	-	582458	646239	783392	
S7630	DC017310	Y	0.10	ND	8.0	8	03/24/86	23:12:00	-	0.78	93.34	93	-	-	-	550674	632418	813586	
S7632	DC017313	Y	0.10	ND	11.0	8	03/24/86	23:52:00	-	0.79	103.2	103	-	-	-	721920	754141	959257	
S7634	DC017316	Y	0.10	ND	2.3	8	03/25/86	09:45:00	-	0.82	95.53	95	-	-	-	750352	866440	1058660	
S7636	DC017319	Y	0.50	ND	0.32	8	03/25/86	10:07:00	-	0.81	18.88	92	-	-	-	653808	758222	939336	
S7638	DC017322	Y	0.50	ND	1.2	8	03/25/86	10:27:00	-	0.79	19.18	96	-	-	-	293666	331360	419112	

MB = Method Blank
P = Partial Scan/Confirmatory Analysis
MS = Native TCDD Spike
D = Duplicate/Fortified Field Blank
RI = Re-injection
CU = Clean Up

FB = Field Blank
ND = Not Detected
DL = Detection Limit
RX = Re-extraction
MPC = Maximum Possible Concentration

** experimental QC sample
estimated true value = 0.019 ppb

*Corrected for contribution by native TCDD; 0.9% of m/z 322 subtracted

Prepared by: MVO RJH

TCDD DATA REPORT
California Analytical Laboratories
2544 Industrial Blvd.
W. Sacramento, CA 95691

Lab: California Analytical Laboratories
Case No. 2057C
Batch/Shipment No.

2,3,7,8-TCDD - most accurate results

Report Date: 3-24-86
Column: SP-2331

Cal Labs ID	Sample Number	C U	Aliquot Wet Wt. (grams)	PPB TCDD Meas	PPB TCDD Det. Lmt	Inst ID	Date	Time	320/ 322	332/ 334	PPB Surrg Meas	Surrg % Acc'c	320	322	257	328*	332	334	Comments
S7793MB	2057C-1	Y	5.00	ND	0.17	8	03/24/86	20:41:00	-	0.81	1.88	94	-	-	-	564373	657108	812463	
S7793	DC017309	Y	5.00	4.9 *	-	8	03/24/86	21:03:00	0.86	0.81	1.79	90	794445	921600	720303	910399	1113020	1376770	
S7793D	DC017309-DUP	Y	5.02	3.3 *	-	8	03/24/86	21:21:00	0.86	0.79	1.86	93	926590	1076850	836256	1111448	1288040	1631200	

MB = Method Blank
P = Partial Scan/Confirmatory Analysis
NS = Native TCDD Spike
D = Duplicate/Fortified Field Blank
RI = Re-injection
CU = Clean Up

FB = Field Blank
ND = Not Detected
DL = Detection Limit
RX = Re-extraction
MPC = Maximum Possible Concentration

* P.E. sample true value = 4.3 ppb

*Corrected for contribution by native TCDD; 0.9% of m/z 322 subtracted

Prepared by: RJH

Approved by: BSM

Date: 3/22/86

FORM B-1

ORIGINAL

ORIGINAL (Red)

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

CLIENT ID: DC017301 Date Analyzed: 3/15/86 Column: DB-5

CAL ID: S7623RI Volume: 0.25 L

FURANS	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
tetra (total)	ND	0.62
penta	ND	3.1
hexa	ND	3.6
hepta	ND	9.1
octa	ND	27.2
DIOXINS		
tetra (total)	ND	0.67
penta	ND	4.6
hexa	ND	6.6
hepta	ND	11.7
octa	ND	36.4

% Accuracy 37Cl-TCDD = 94%

ND = Not Detected

PREPARED BY: [signature]

APPROVED BY: [signature] DATE: 3/26/86

California Analytical Laboratories, Inc.

QUALITY CONTROL SUMMARY

ORIGINAL (Red)

CASE NO: 2057C

EPA ID: DC017301-NS

CAL ID: S7623NSRI

FURANS	ng/L Found in Sample	ng/L Spiked	ng/L Found in NS Sample	NS % Recovery
2,3,7,8-TCDF	ND	40	39.6	99%
penta	ND	40	40.5	101%
hexa	ND	40	43.1	108%
hepta	ND	40	42.4	106%
octa	ND	200	254	127%
DIOXINS				
tetra	ND	40	39.5	99%
penta	ND	40	29.5	74%
hexa	ND	40	47.2	118%
hepta	ND	40	47.1	118%
octa	ND	200	183	92%

PREPARED BY: RJH

APPROVED BY: [illegible]

DATE: 3/26/86

California Analytical Laboratories, Inc.

ORIGINAL (Red)

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017302

CAL ID: S7624RI

Date Analyzed: 3/15/86 Column: DB-5
Wet Weight: 10.23 g
Dry Weight: 8.77 g
Percent Moisture: 14.3%

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.021
penta	ND	0.071
hexa	ND	0.081
hepta	ND	0.26
octa	ND	0.86
DIOXINS		
tetra (total)	ND	0.015
penta	ND	0.11
hexa	ND	0.16
hepta	ND	0.32
octa	ND	1.1

% Accuracy 37Cl-TCDD = 98%

ND = Not Detected

All calculations based on dry weight.

PREPARED BY: DH

APPROVED BY: MM DATE: 3/27/86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017304 | Date Analyzed: 3/15/86 | Column: DB-5

CAL ID: S7625RI | Volume: 0.5 L

FURANS	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
tetra (total)	ND	0.24
penta	ND	1.1
hexa	ND	1.4
hepta	ND	4.5
octa	ND	16.7
DIOXINS		
tetra (total)	ND	0.26
penta	ND	1.5
hexa	ND	2.1
hepta	ND	5.3
octa	ND	15.6

% Accuracy 37Cl-TCDD = 97%

ND = Not Detected

PREPARED BY: RJA

APPROVED BY: [illegible]

DATE: 3/26/86

California Analytical Laboratories, Inc.

QUALITY CONTROL SUMMARY

CASE NO: 2057C

EPA ID: DC017305-NS

CAL ID: S7626NSRI

FURANS	ng/g Found in Sample	ng/g Spiked	ng/g Found in NS Sample	NS % Recovery
2,3,7,8-TCDF	ND	1.2	1.1	92%
penta	ND	1.2	1.1	92%
hexa	ND	1.2	1.3	108%
hepta	ND	1.2	1.3	108%
octa	ND	5.8	8.2	141%
DIOXINS				
tetra	ND	1.2	1.1	92%
penta	ND	1.2	0.66	55%
hexa	ND	1.2	1.4	117%
hepta	ND	1.2	1.4	117%
octa	2.5	5.8	8.8	109%

PREPARED BY: RJA

APPROVED BY: MM

DATE: 3-27-86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017306

CAL ID: S7627RI

Date Analyzed: 3/15/86 Column: DB-5
Wet Weight: 10.08 g
Dry Weight: 8.27 g
Percent Moisture: 18.0%

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.0094
penta	ND	0.049
hexa	ND	0.050
hepta	ND	0.12
octa	ND	0.048
DIOXINS		
tetra (total)	ND	0.013
penta	ND	0.070
hexa	ND	0.090
hepta	ND	0.18
octa	2.0	-

% Accuracy 37Cl-TCDD = 99%

ND = Not Detected

All calculations based on dry weight.

PREPARED BY: RJH

APPROVED BY: [illegible] DATE: 3-27-86

0169

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017307 | Date Analyzed: 3/15/86 | Column: DB-5

CAL ID: S7628RI | Volume: 0.1 L

FURANS	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
tetra (total)	ND	0.96
penta	ND	5.0
hexa	ND	5.4
hepta	ND	13.3
octa	ND	45.4
DIOXINS		
tetra (total)	ND	1.1
penta	ND	5.5
hexa	ND	9.6
hepta	ND	18.2
octa	ND	65.8

% Accuracy 37Cl-TCDD = 95%

ND = Not Detected

PREPARED BY: _____

APPROVED BY: _____ DATE: 3/26/86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017308

CAL ID: S7629RI

Date Analyzed: 3/15/86 Column: DB-5
Wet Weight: 10.18 g
Dry Weight: 8.61 g
Percent Moisture: 15.4%

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.032
penta	ND	0.077
hexa	ND	0.064
hepta	ND	0.25
octa	ND	0.73
DIOXINS		
tetra (total)	ND	0.024
penta	ND	0.078
hexa	ND	0.13
hepta	ND	0.27
octa	ND	1.0

% Accuracy 37Cl-TCDD = 99%

ND = Not Detected

All calculations based on dry weight.

PREPARED BY: RJH

APPROVED BY: [illegible]

DATE: 3-27-86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017310 | Date Analyzed: 3/15/86 | Column: DB-5

CAL ID: S7630RI | Volume: 0.1 L

FURANS	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
tetra (total)	ND	1.3
penta	ND	5.3
hexa	ND	4.9
hepta	ND	11.6
octa	ND	40.5
DIOXINS		
tetra (total)	ND	0.94
penta	ND	7.7
hexa	ND	8.9
hepta	ND	17.3
octa	ND	44.8

% Accuracy 37Cl-TCDD = 95%

ND = Not Detected

PREPARED BY: RDH

APPROVED BY: [illegible]

DATE: 3/26/86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017311

CAL ID: S7631RI

Date Analyzed: 3/15/86 Column: DB-5
Wet Weight: 10.02 g
Dry Weight: 6.85 g
Percent Moisture: 31.6%

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.029
penta	ND	0.089
hexa	ND	0.11
hepta	ND	0.31
octa	ND	1.2
DIOXINS		
tetra (total)	ND	0.035
penta	ND	0.15
hexa	ND	0.18
hepta	ND	0.45
octa	ND	1.1

% Accuracy 37Cl-TCDD = 96%

ND = Not Detected

All calculations based on dry weight.

PREPARED BY: RJH

APPROVED BY: [illegible] DATE: 3-27-86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017313 | Date Analyzed: 3/15/86 | Column: DB-5

CAL ID: S7632RI | Volume: 0.1 L

FURANS	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
tetra (total)	ND	0.91
penta	ND	3.7
hexa	ND	4.2
hepta	ND	14.5
octa	ND	33.5
DIOXINS		
tetra (total)	ND	1.1
penta	ND	4.9
hexa	ND	6.4
hepta	ND	16.4
octa	ND	47.0

% Accuracy 37Cl-TCDD = 96%

ND = Not Detected

PREPARED BY: RJH

APPROVED BY: [signature]

DATE: 3/26/86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017314

CAL ID: S7633RI

Date Analyzed: 3/15/86 Column: DB-5
Wet Weight: 10.30 g
Dry Weight: 5.37 g
Percent Moisture: 47.9%

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.029
penta	ND	0.086
hexa	ND	0.12
hepta	ND	0.25
octa	ND	0.96
DIOXINS		
tetra (total)	ND	0.029
penta	ND	0.14
hexa	ND	0.21
hepta	ND	0.40
octa	ND	1.2

% Accuracy 37Cl-TCDD = 97%

ND = Not Detected

All calculations based on dry weight.

PREPARED BY: Nat

APPROVED BY: [illegible]

DATE: 3-27-86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017316 Date Analyzed: 3/15/86 Column: DB-5

CAL ID: S7634RI Volume: 0.1 L

FURANS	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
tetra (total)	ND	1.0
penta	ND	5.6
hexa	ND	6.2
hepta	ND	16.6
octa	ND	62.3
DIOXINS		
tetra (total)	ND	1.3
penta	ND	8.5
hexa	ND	10.2
hepta	ND	26.7
octa	ND	57.7

% Accuracy 37Cl-TCDD = 101%

ND = Not Detected

PREPARED BY: RDH

APPROVED BY: [illegible] DATE: 3/26/86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017317

CAL ID: S7635RI

Date Analyzed: 3/15/86 Column: DB-5
Wet Weight: 10.90 g
Dry Weight: 4.86 g
Percent Moisture: 55.4%

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.061
penta	ND	0.078
hexa	ND	0.13
hepta	ND	0.22
octa	ND	0.81
DIOXINS		
tetra (total)	ND	0.019
penta	ND	0.11
hexa	ND	0.16
hepta	0.52	-
(1234678)	0.22	-
octa	3.4	-

% Accuracy 37Cl-TCDD = 96%

ND = Not Detected

All calculations based on dry weight.

PREPARED BY: DH

APPROVED BY: MM

DATE: 3-22-86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017319 Date Analyzed: 3/15/86 Column: DB-5

CAL ID: S7636RI Volume: 0.5 L

FURANS	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
tetra (total)	ND	0.19
penta	ND	0.92
hexa	ND	0.90
hepta	ND	2.7
octa	ND	7.9
DIOXINS		
tetra (total)	ND	0.20
penta	ND	1.3
hexa	ND	2.3
hepta	ND	4.0
octa	ND	8.8

% Accuracy 37Cl-TCDD = 95%

ND = Not Detected

PREPARED BY: RJH

APPROVED BY: [signature] DATE: 3/24/86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017320

CAL ID: S7637RI

Date Analyzed: 3/15/86 Column: DB-5
Wet Weight: 10.49 g
Dry Weight: 5.34 g
Percent Moisture: 49.1%

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.057
penta	ND	0.14
hexa	ND	0.17
hepta	ND	0.57
octa	ND	2.8
DIOXINS		
tetra (total)	ND	0.041
penta	ND	0.22
hexa	ND	0.37
hepta	ND	0.88
octa	3.7	-

% Accuracy 37Cl-TCDD = 94%

ND = Not Detected

All calculations based on dry weight.

PREPARED BY: RJH

APPROVED BY: [illegible] DATE: 3-27-86

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017320-DUP
CAL ID: S7637DRI

Date Analyzed: 3/15/86 Column: DB-5
Wet Weight: 10.87 g
Dry Weight: 5.53 g
Percent Moisture: 49.1%

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.029
penta	ND	0.11
hexa	ND	0.15
hepta	ND	0.45
octa	ND	1.1
DIOXINS		
tetra (total)	ND	0.024
penta	ND	0.17
hexa	ND	0.29
hepta	ND	0.61
octa	4.7	-

% Accuracy 37Cl-TCDD = 95%

ND = Not Detected

All calculations based on dry weight.

PREPARED BY: RDH

APPROVED BY: MM DATE: 3-27-86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017322 Date Analyzed: 3/15/86 Column: DB-5

CAL ID: S7638RI Volume: 0.5 L

FURANS	AMOUNT FOUND (ng/L)	DETECTION LIMIT (ng/L)
tetra (total)	ND	0.16
penta	ND	0.82
hexa	ND	0.74
hepta	ND	2.7
octa	ND	9.6
DIOXINS		
tetra (total)	ND	0.17
penta	ND	1.1
hexa	ND	1.5
hepta	ND	3.3
octa	ND	8.6

% Accuracy 37Cl-TCDD = 95%

ND = Not Detected

PREPARED BY: RJA

APPROVED BY: MW DATE: 3/26/86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2057C

EPA ID: DC017323

CAL ID: S7639RI

Date Analyzed: 3/15/86 Column: DB-5
Wet Weight: 10.30 g
Dry Weight: 4.62 g
Percent Moisture: 55.1%

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.031
penta	ND	0.11
hexa	ND	0.12
hepta	ND	0.42
octa	ND	1.7
DIOXINS		
tetra (total)	ND	0.038
penta	ND	0.14
hexa	ND	0.20
hepta	ND	0.58
octa	5.6	-

% Accuracy 37Cl-TCDD = 98%

ND = Not Detected

All calculations based on dry weight.

PREPARED BY: [signature]

APPROVED BY: [signature] DATE: 3-27-86

[redacted]

Versar INC.

January 4, 1989

Mr. Angelo Tompros
D.C. Government
Dept. of Consumer & Regulatory Affairs
614 H Street N.W. Rm. 505
Washington, DC 20001

Reference: Versar Job. No. 5205.1.1

Dear Mr. Tompros:

Please find enclosed the analytical data package for the eight ash samples taken at the St. Elizabeth site.

Should you have any questions, please call me at (703) 642-6825.

Sincerely,

Jay Bernarding, Jr.

Jay Bernarding
Program Manager
Laboratory Operations

JB/jmh

Enclosure

[redacted]

[redacted]

6850 VERSAR CENTER • P.O. BOX 1549 • SPRINGFIELD, VIRGINIA 22151 • TELEPHONE: (703) 750-3000 • TELEX: 901125

ANALYSIS NARRATIVE

Project: 5205.001.01 - 1
Job Name: D.C. Gov't/C&R Aff.
Site: St Elizabeth Dump
Date: December 23, 1988

This project consisted of 8 ash samples which were received on December 7, 1988. EP Toxicity metals were determined using SW846, 2nd edition methods. The eight samples were extracted on December 8, 1988. The extracted samples were digested for Flame and HGA analyses on December 15, 1988. All digestions and analyses followed methods prescribed in SW-846, 2nd Edition.

The digestates were quantitated for Flame AA analytes during the week of December 15, 1988. Additionally, arsenic and selenium were analyzed by HGA during the same week. All calibration and analysis blanks were clean and all check standard recoveries were within the required limits. Duplicate precision was satisfactory. Spike recoveries were within 25% control windows with the exception of cadmium, which was marginally high. Detection limits for selenium are elevated due to dilutions for interferences. Samples 39741, 39742, and 39747 were found to exceed the maximum contaminant level for lead (5 mg/l).

Mercury was analyzed on December 16, 1988 by CVAA following a same day digestion of the extract. Blanks were clean and check standard recoveries were within 20% windows. Duplicate precision was good. No digestion spike was reported as the sample was run by Method of Standard Additions.

Prepared by: Bruce Thomas
Bruce Thomas
Laboratory Operations

Reviewed by: [signature]

DATE 12/23/88

COVER PAGE
INORGANIC ANALYSES DATA PACKAGE

LAB NAME: VERSAR, INC.
REFERENCE: SW-846, 2nd ed.

QC REPORT: 1
CASE NO. ---
PROJECT NO.: 5205.001

SAMPLE NUMBERS

FIELD NO.	LAB ID NO.	FIELD NO.	LAB ID NO.
39740	63075	39741	63076
39742	63077	39743	63078
39744	63079	39745	63080
39746	63081	39747	63082

COMMENTS:

ICP INTERELEMENT AND BACKGROUND CORRECTION APPLIED? YES.
CORRECTIONS APPLIED BEFORE GENERATION OF RAW DATA.

FOOTNOTES:

NR - NOT REQUIRED BY CONTRACT AT THIS TIME
FORM I:

DF - DILUTION FACTOR

FORM I

SAMPLE NO.
39740

DATE: 12/23/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: VERSAR INC.

QC REPORT NO.: 1

SOW NO.: SW-846 2ND ED.

LAB SAMPLE ID. NO.: 63075

MATRIX: EXTRACT

PROJECT-TASK: 5205.001

BATCH: 1

ELEMENTS IDENTIFIED AND MEASURED

MG/L

1.	ARSENIC	< 0.010
2.	BARIUM	< 0.50
3.	CADMIUM	0.20
4.	CHROMIUM	< 0.50
5.	LEAD	4.6
6.	MERCURY	< 0.004
7.	SELENIUM	< 0.050
8.	SILVER	< 0.50

COMMENTS:

FORM I

SAMPLE NO.
39741

DATE: 12/23/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: VERSAR INC.

QC REPORT NO.: 1

SOW NO.: SW-846 2ND ED.

LAB SAMPLE ID. NO.: 63076

MATRIX: EXTRACT

PROJECT-TASK: 5205.001

BATCH: 1

ELEMENTS IDENTIFIED AND MEASURED

MG/L

1.	ARSENIC	< 0.010
2.	BARIUM	< 0.50
3.	CADMIUM	0.14
4.	CHROMIUM	< 0.50
5.	LEAD	23.
6.	MERCURY	< 0.004
7.	SELENIUM	< 0.050
8.	SILVER	< 0.50

PR 12

COMMENTS:

FORM I

SAMPLE NO.
39742

DATE: 12/23/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: VERSAR INC.

QC REPORT NO.: 1

SOW NO.: SW-846 2ND ED.

LAB SAMPLE ID. NO.: 63077

MATRIX: EXTRACT

PROJECT-TASK: 5205.001

BATCH: 1

ELEMENTS IDENTIFIED AND MEASURED

MG/L

1.	ARSENIC	0.019
2.	BARIUM	1.5
3.	CADMIUM	0.45
4.	CHROMIUM	< 0.50
5.	LEAD	32.
6.	MERCURY	< 0.004
7.	SELENIUM	< 0.050
8.	SILVER	< 0.50

COMMENTS:

FORM I

SAMPLE NO.
39743

DATE: 12/23/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: VERSAR INC.

QC REPORT NO.: 1

SOW NO.: SW-846 2ND ED.

LAB SAMPLE ID. NO.: 63078

MATRIX: EXTRACT

PROJECT-TASK: 5205.001

BATCH: 1

ELEMENTS IDENTIFIED AND MEASURED

MG/L

1.	ARSENIC	< 0.010
2.	BARIUM	1.0
3.	CADMIUM	0.19
4.	CHROMIUM	< 0.50
5.	LEAD	4.3
6.	MERCURY	< 0.004
7.	SELENIUM	< 0.050
8.	SILVER	< 0.50

COMMENTS:

FORM I

SAMPLE NO.
39744

DATE: 12/23/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: VERSAR INC.

QC REPORT NO.: 1

SOW NO.: SW-846 2ND ED.

LAB SAMPLE ID. NO.: 63079

MATRIX: EXTRACT

PROJECT-TASK: 5205.001

BATCH: 1

ELEMENTS IDENTIFIED AND MEASURED

MG/L

1.	ARSENIC	< 0.010
2.	BARIUM	1.3
3.	CADMIUM	0.21
4.	CHROMIUM	< 0.50
5.	LEAD	4.3
6.	MERCURY	< 0.004
7.	SELENIUM	< 0.050
8.	SILVER	< 0.50

COMMENTS:

FORM I

SAMPLE NO.
39745

DATE: 12/23/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: VERSAR INC.

QC REPORT NO.: 1

SOW NO.: SW-846 2ND ED.

LAB SAMPLE ID. NO.: 63080

MATRIX: EXTRACT

PROJECT-TASK: 5205.001

BATCH: 1

ELEMENTS IDENTIFIED AND MEASURED

MG/L

1.	ARSENIC	< 0.010
2.	BARIUM	< 0.50
3.	CADMIUM	< 0.10
4.	CHROMIUM	< 0.50
5.	LEAD	< 0.50
6.	MERCURY	< 0.004
7.	SELENIUM	< 0.050
8.	SILVER	< 0.50

COMMENTS:

FORM I

SAMPLE NO.
39746

DATE: 12/23/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: VERSAR INC.

QC REPORT NO.: 1

SOW NO.: SW-846 2ND ED.

LAB SAMPLE ID. NO.: 63081

MATRIX: EXTRACT

PROJECT-TASK: 5205.001

BATCH: 1

ELEMENTS IDENTIFIED AND MEASURED

MG/L

1.	ARSENIC	< 0.010
2.	BARIUM	1.3
3.	CADMIUM	< 0.10
4.	CHROMIUM	< 0.50
5.	LEAD	< 0.50
6.	MERCURY	< 0.004
7.	SELENIUM	< 0.005
8.	SILVER	< 0.50

COMMENTS:

FORM I

ORIGINAL

SAMPLE NO.
39747

DATE: 12/23/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: VERSAR INC.

QC REPORT NO.: 1

SOW NO.: SW-846 2ND ED.

LAB SAMPLE ID. NO.: 63082

MATRIX: EXTRACT

PROJECT-TASK: 5205.001

BATCH: 1

ELEMENTS IDENTIFIED AND MEASURED

MG/L

1.	ARSENIC	< 0.010
2.	BARIUM	< 0.50
3.	CADMIUM	0.19
4.	CHROMIUM	< 0.50
5.	LEAD	7.8
6.	MERCURY	< 0.004
7.	SELENIUM	< 0.050
8.	SILVER	< 0.50

COMMENTS:

"SPECIALIZING IN ENVIRONMENTAL CLEANUP"

Office and Plant
6923 EBENEZER ROAD
BALTIMORE, MD. 21220
(301) 498-0800

J&L

J & L INDUSTRIES, Inc.

OIL SPILLS
TANK CLEANING
HAZARDOUS MATERI
LIQUID WASTE DISPC

WASTE CHARACTERIZATION SHEET

Residue from Conveyor

A. General Information

Generator: DC Dept.of Public Works Sample # 154987 IC #079

Address: 3200 Benning Road, NE, Washington, DC Contact & Phone # 202-727-5907

EPA I.D. # Sylvestre Yorric

B. Analysis Information

Color: Odor Specific Gravity

Phases/Layers Physical State @ 70 F

Viscosity PH Flash Point BTU/lb

% Water % Chlorine % Total Solids Solid

% Suspended Solids

C. Chemical Composition (Totals Must Add to 100%)

% %

% %

% %

D. Metals: Total (PPM) X EPA Leachate Extraction (mg/l)

Arsenic Lead 3.24 Silver

Barium Mercury Chromium 0.13

Cadmium 0.36 Selenium Others Zn-25

E. Other Components:

Cyanides Sulfides PCB's Pholics

F. Hazardous Characteristics:

Corrosive No EP Toxic Ignitable Pois

Other

US EPA Hazardous Waste? YES X NO

US EPA Hazardous Waste Numbers:

DOT Hazardous Material? YES NO

G. Shipping Information

Proper DOT Shipping Name:

DOT Hazard Class UN/NA Number

US EPA Hazard Code US EPA Waste No.

Waste Collected From: Drums Tank(

Other

(b) (4) [redacted]

9/2

"SPECIALIZING IN ENVIRONMENTAL CLEANUP"

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488-0800

OIL SPILLS
TANK CLEANING
HAZARDOUS MATERIALS
LIQUID WASTE DISPOSAL

J&L INDUSTRIES, Inc.

WASTE CHARACTERIZATION SHEET

Residue from Furnace #6 Cooling Chamber

A. General Information

Generator: DC Dept. of Public Works

Sample # 152987 IC #077

Address: 3200 Benning Road, NE, Washington, DC

Contact & Phone # 202-727-5907

EPA I.D. #

Sylvestre Yorrick

B. Analysis Information

Color: ____ Odor ____ Specific Gravity ____

Phases/Layers ____ Physical State @ 70 F Solid

Viscosity ____ PH ____ Flash Point ____ BTU/lb ____

% Water ____ % Chlorine ____ % Total Solids ____

% Suspended Solids ____

C. Chemical Composition (Totals Must Add to 100%)

____ ____% ____ ____%

____ ____% ____ ____%

____ ____% ____ ____%

D. Metals: ____ Total (PPM) X EPA Leachate Extraction (mg/l/l) (PPM)

Arsenic ____ Lead 0.47 Silver ____

Barium ____ Mercury ____ Chromium 0.13

Cadmium 1.51 Selenium ____ Others Zn - 55

E. Other Components:

Cyanides ____ Sulfides ____ PCB's ____ Pholics ____

Hazardous Characteristics:

____ Corrosive Yes EP Toxic ____ Ignitable ____ Poison

Other ____

US EPA Hazardous Waste? X YES ____ NO

US EPA Hazardous Waste Numbers: D005 ____ ____ ____

DOT Hazardous Material? ____ YES ____ NO

Shipping Information

Proper DOT Shipping Name: ____

DOT Hazard Class ____ UN/NA Number ____

US EPA Hazard Code ____ US EPA Waste No. ____

Waste Collected From: ____ Drums ____ Tank(s)

Other ____

(b) (4) [redacted]

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301 488-0800

OIL SPILLS
TANK CLEANING
HAZARDOUS MATERIALS
LIQUID WASTE DISPOSAL

J & L INDUSTRIES, Inc.

WASTE CHARACTERIZATION SHEET

A. General Information

Generator: DC Dept. of Public Works

Sample # Ash From Electrostatic Precipitator 153987 IC #078

Address: 3200 Benning Rd., NE, Washington, DC

Contact & Phone # 202-727-5907 Sylvestre Yorrick

EPA I.D. #

B. Analysis Information

Color: _____ Odor _____ Specific Gravity _____

Phases/Layers _____ Physical State @ 70 F Solid

Viscosity _____ PH _____ Flash Point _____ BTU/lb _____

% Water _____ % Chlorine _____ % Total Solids _____

% Suspended Solids _____

C. Chemical Composition (Totals Must Add to 100%)

_____ _____% _____ _____%

_____ _____% _____ _____%

_____ _____% _____ _____%

D. Metals: _____ Total (PPM) X EPA Leachate Extraction (mg/l) (ppm)

Arsenic _____ Lead 14.0 Silver _____

Barium _____ Mercury _____ Chromium 0.12

Cadmium 8.45 Selenium _____ Others Zn-406

E. Other Components:

Cyanides _____ Sulfides _____ PCB's _____ Pholics _____

F. Hazardous Characteristics:

_____ Corrosive YES EP Toxic _____ Ignitable _____ Poison

Other

US EPA Hazardous Waste? X YES _____ NO

US EPA Hazardous Waste Numbers: D008 D006 _____ _____

DOT Hazardous Material? _____ YES _____ NO

Shipping Information

Proper DOT Shipping Name: _____

DOT Hazard Class _____ UN/NA Number _____

US EPA Hazard Code _____ US EPA Waste No. _____

Waste Collected From: _____ Drums _____ Tank(s)

Other _____

(b) (4) [redacted]

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OIL SPILLS
TANK CLEANING
HAZARDOUS MATERIALS
LIQUID WASTE DISPOSAL

J & L INDUSTRIES, Inc.

WASTE CHARACTERIZATION SHEET

Residue from Furnace #6
Cooling Chamber

A. General Information

Generator: DC Dept. of Public Works

Sample # 152987 IC #077

Address: 3200 Benning Road, NE, Washington, DC

Contact & Phone # 202-727-5907

EPA I.D. #

Sylvestre Yorrick

B. Analysis Information

Color: _____ Odor _____ Specific Gravity _____

Phases/Layers _____ Physical State @ 70 F Solid

Viscosity _____ PH _____ Flash Point _____ BTU/lb _____

% Water _____ % Chlorine _____ % Total Solids _____

% Suspended Solids _____

C. Chemical Composition (Totals Must Add to 100%)

_____ _____% _____ _____%

_____ _____% _____ _____%

_____ _____% _____ _____%

D. Metals: _____ Total (PPM) X EPA Leachate Extraction (mg/l/l) (PPM)

Arsenic _____ Lead 0.47 Silver _____

Barium _____ Mercury _____ Chromium 0.13

Cadmium 1.51 Selenium _____ Others Zn - 55

E. Other Components:

Cyanides _____ Sulfides _____ PCB's _____ Pholics _____

Hazardous Characteristics:

_____ Corrosive Yes EP Toxic _____ Ignitable _____ Poison

Other _____

US EPA Hazardous Waste? X YES _____ NO

US EPA Hazardous Waste Numbers: D006 _____ _____ _____

DOT Hazardous Material? _____ YES _____ NO

F. Shipping Information

Proper DOT Shipping Name: _____

DOT Hazard Class _____ UN/NA Number _____

US EPA Hazard Code _____ US EPA Waste No. _____

Waste Collected From: _____ Drums _____ Tank(s)

Other _____

(b) (4) [redacted]

"SPECIALIZING IN ENVIRO... ...TAL CLEANUP"

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...11 488-0800

OIL SPILLS
TANK CLEANING
HAZARDOUS MATERIALS
LIQUID WASTE DISPOSAL

J & L INDUSTRIES, Inc.

WASTE CHARACTERIZATION SHEET

A. General Information

Generator: DC Dept. of Public Works

Address: 3200 Benning Rd., NE, Washington, DC

EPA I.D. #

Sample # Ash From Electrostatic Precipitator 153987 IC #078

Contact & Phone # 202-727-5907 Sylvestre Yorrick

B. Analysis Information

Color: ____ Odor ____ Specific Gravity ____

Phases/Layers ____ Physical State @ 70 F Solid

Viscosity ____ PH ____ Flash Point ____ BTU/lb ____

% Water ____ % Chlorine ____ % Total Solids ____

% Suspended Solids ____

C. Chemical Composition (Totals Must Add to 100%)

____ ____% ____ ____%

____ ____% ____ ____%

____ ____% ____ ____%

D. Metals: ____ Total (PPM) X EPA Leachate Extraction (~~mg/L~~) (ppm)

Arsenic ____ Lead 14.0 Silver ____

Barium ____ Mercury ____ Chromium 0.12

Cadmium 8.45 Selenium ____ Others Zn-406

E. Other Components:

Cyanides ____ Sulfides ____ PCB's ____ Pholics ____

F. Hazardous Characteristics:

____ Corrosive YES EP Toxic ____ Ignitable ____ Poison

Other

US EPA Hazardous Waste? X YES ____ NO

US EPA Hazardous Waste Numbers: D008 D006 ____ ____

DOT Hazardous Material? ____ YES ____ NO

G Shipping Information

Proper DOT Shipping Name: ____

DOT Hazard Class ____ UN/NA Number ____

US EPA Hazard Code ____ US EPA Waste No. ____

Waste Collected From: ____ Drums ____ Tank(s)

Other ____

(b) (4) [redacted]