REPORT OF FINDINGS
OILY WATER SEWER INVESTIGATIONS
IN THE AREAS AROUND MANHOLE 67 AND MANHOLE 71
ARCO CHERRY POINT REFINERY

Prepared for

ARCO PRODUCTS COMPANY
Ferndale, Washington

Prepared by

REMEDIATION TECHNOLOGIES, INC.
Seattle, Washington

RETEC Project No. 3-1173-240
ARCO File No. 884

SEPTEMBER 1993

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Prepared by: Susan Yapjoco/DAH

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1.0 INTRODUCTION

Reconnaissance of the oily water sewer (OWS) at the ARCO Cherry Point Refinery indicated that the sewer had deteriorated along the north side of the sulfur plant around manhole 67 and at manhole 71 between biosludge dewatering ponds 1 and 2. In response, ARCO relined approximately 300 feet of the sewer using in-situ-form technology and investigated the soils and groundwater in the vicinity of the deteriorated areas to determine if a release of any hazardous substance had occurred. Potential releases under the Model Toxics Control Act (MTCA; WAC 173-340-300) were investigated by advancing boreholes, sampling soil, and installing and sampling monitoring wells. Results indicated that a small release occurred in the immediate vicinity of manhole 67 and that hazardous substances were not released at manhole 71.

This report summarizes the investigations of soil and groundwater near the oily water sewer in the areas around manholes 67 and 71. The facility location, hydrogeology and other background information is provided in Section 2.0 and field procedures are discussed in Section 3.0. Results of the OWS investigation in the vicinity of the sulfur plant and biosludge dewatering ponds are discussed in Sections 4.0 and 5.0, respectively. Section 6.0 summarizes the results of the investigation.

2.0 BACKGROUND

2.1 GENERAL SITE LOCATION

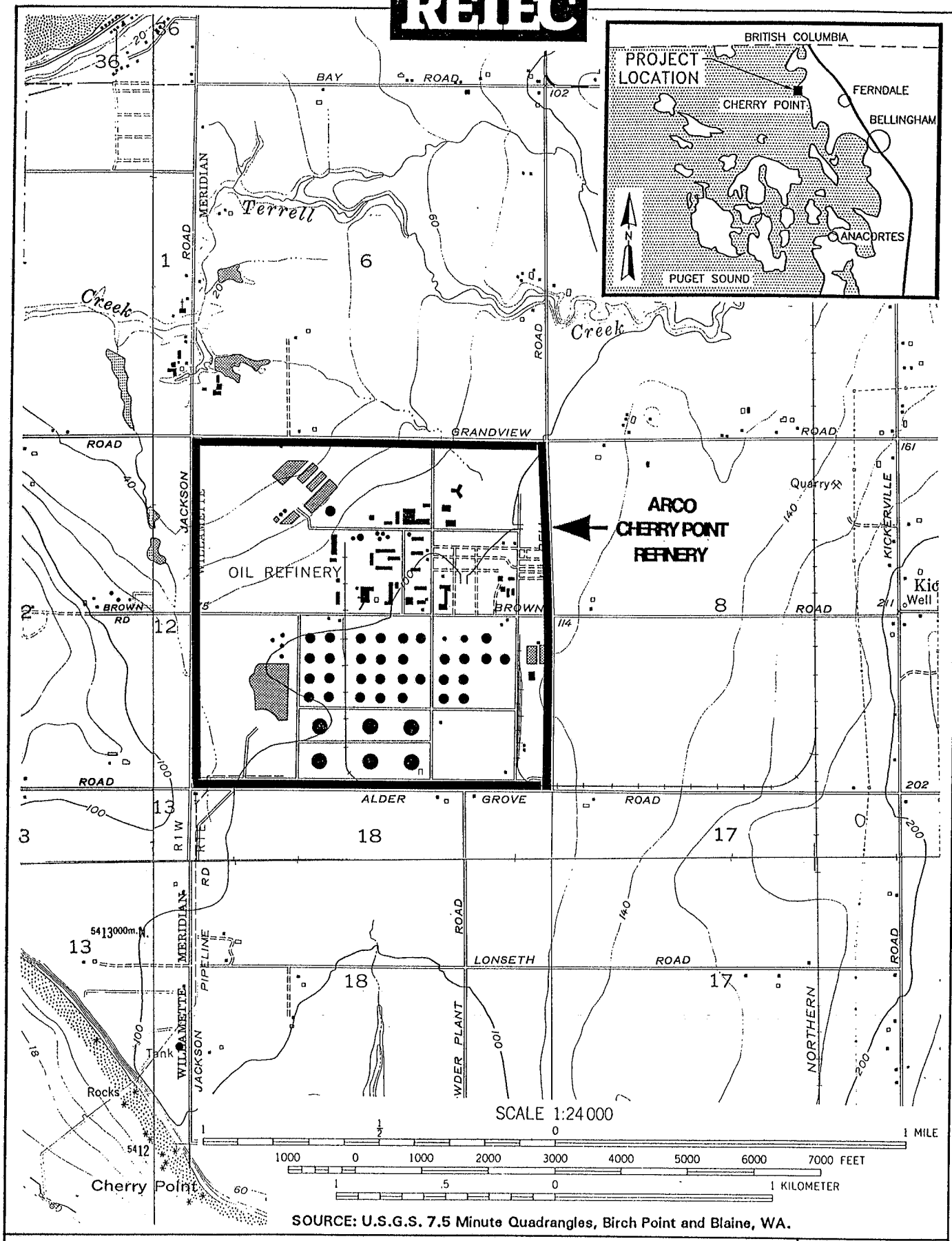
The ARCO Cherry Point Refinery is located in Whatcom County, Washington (Figure 2-1). The refinery lies within the boundaries of the Mountain View Industrial Park, approximately 7 miles northwest of Ferndale and 6.5 miles south of the Canadian-U.S. border. The two sections of the oily water sewer line that were investigated are located north of the sulfur plant, on the north western side of the refinery and in the southern portion of the wastewater area between biosludge dewatering ponds 1 and 2 (Figure 2-2).

Property located 1000 feet outside the refinery boundary is classified as either heavy impact industrial or light impact industrial. Land uses within the general area include undeveloped forest, pasture, low density residential and industrial. A preliminary well review indicates that no municipal, domestic, irrigation or stock wells lie within three-quarter of a mile of the OWS investigation area. Three withdrawal wells are present within two miles of the OWS investigation area at locations shown on Figure 2-3 (ARCO, 1987).

Perennial streams are not present inside the refinery boundaries. Intermittent drainages traverse the southwest and northeast corners of the facility approximately 2700 feet from the portion of the oily water sewer line which was investigated. The oily water sewer line is not located within a flood plain.

2.2 SITE HYDROGEOLOGY

The ARCO Cherry Point Refinery geology and hydrogeology have been studied in detail. ARCO operates and maintains three RCRA hazardous waste units. Groundwater, unsaturated zone water and soil monitoring are required under the RCRA permit. In addition, subsurface conditions at two solid waste management units have been investigated in detail as part of a RCRA Facility Investigation. Soils and groundwater at several other locations within the refinery have been investigated under voluntary MTCA clean-ups. Ninety-five monitoring wells, forty-five piezometers and numerous borings and test pits have been installed on the refinery property for the monitoring and investigation programs. Details of the refinery geology, hydrogeology and soil and groundwater quality are discussed in the following reports:

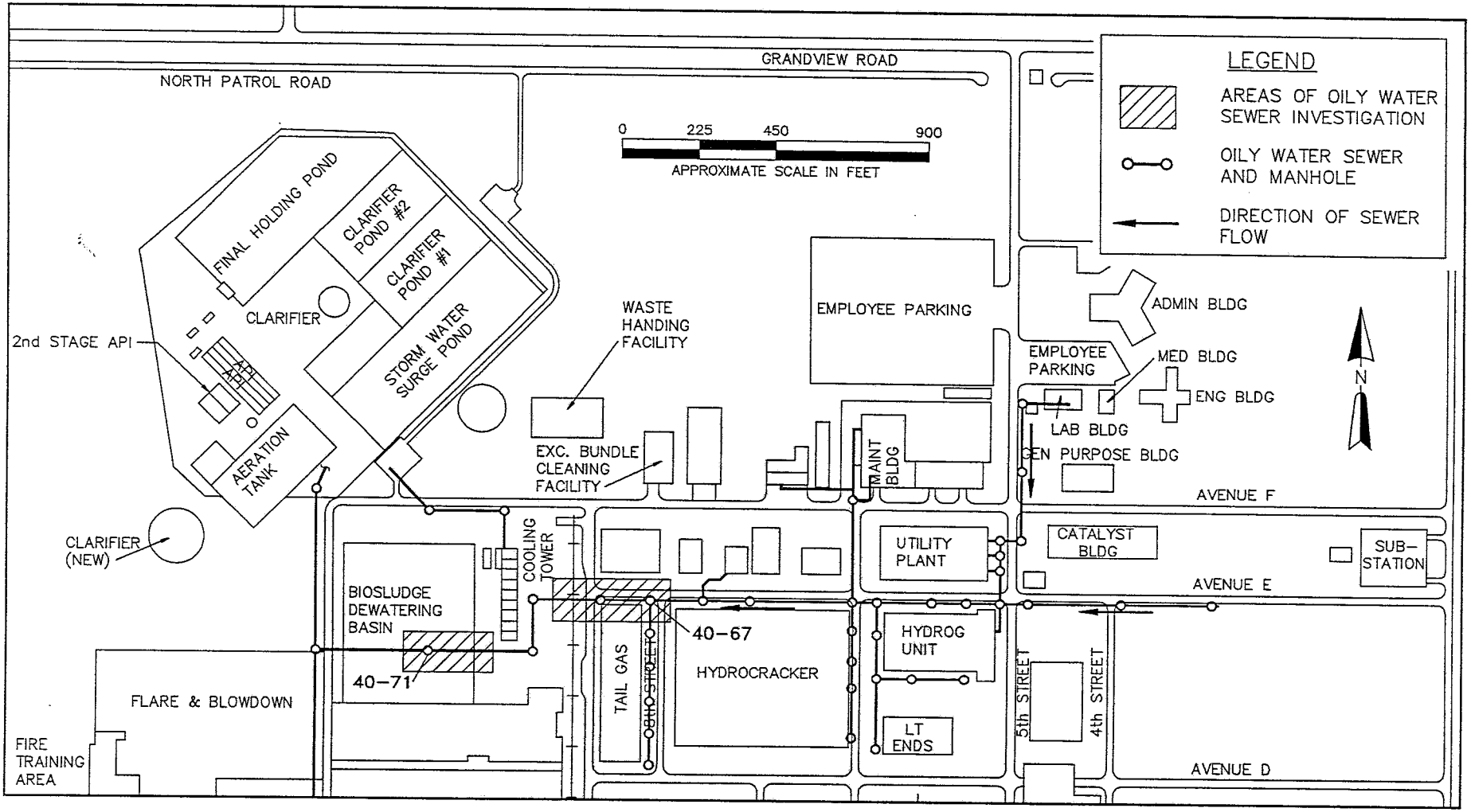


SOURCE: U.S.G.S. 7.5 Minute Quadrangles, Birch Point and Blaine, WA.

SITE LOCATION MAP
ARCO CHERRY POINT REFINERY

FIGURE 2-1

Revision 1 May 1993



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INVESTIGATION AREAS OF POTENTIAL OILY WATER SEWER RELEASE ARCO CHERRY POINT REFINERY

REMEDIATION TECHNOLOGIES INC

FIGURE 2-2

refinery. On the southern edge of the refinery, groundwater flows west to southwest. Groundwater levels are generally a maximum between January and April and a minimum between September and October. Depth to water is 4.5 to 12 feet below ground surface in the OWS investigation area.

2.3 AREAS OF OWS INVESTIGATION

Two sections of the OWS were found to be deteriorated during a video investigation of the area. Deteriorations were noted immediately downstream of manhole 67 (north of the sulfur plant) and at manhole 71 (between biosludge dewatering ponds 1 and 2).

2.3.1 Manhole 67 Area

The OWS in the vicinity of manhole 67 is located within the process area of the refinery. During the video reconnaissance of the sewer, substantial decay was noted in the initial 30 feet downstream from manhole 67. ARCO relined the OWS between manholes 67 and 71 (approximately 300 feet downstream of manhole 67) using in-situ-form technology. Deterioration of the OWS is thought to be directly related to the discharges from the process units in the area. The acid and caustic unit is located upstream of manhole 67 and the liquids in the OWS at manhole 67 have an elevated pH. At manhole 67, heated water enters the sewer and heats the caustic liquids in the sewer. This mix of hot water and caustic is believed to be the cause of the sewer degradation in the area. This is a unique situation and similar OWS degradation has not been noted in other areas of the refinery.

2.3.2 Manhole 71

Minor deterioration was noted at manhole 71 which was also relined using in-situ-form technology. Deterioration at manhole 71 is related to physical wearing of the manhole. Water flowing into the manhole comes in at approximately 6.5 feet below ground surface and falls to approximately 12 feet below ground surface where the outflow pipe is located. The cascading of water into the bottom of the manhole caused the deterioration.

Manhole 71 is located between biosludge dewatering ponds 1 and 2. The biosludge dewatering basin consists of four ponds encompassing a 250 feet by 300 feet area and is located south of the wastewater treatment facility. The depth of the ponds is approximately 10 feet. These ponds receive activated biosludge from the wastewater aeration basin for dewatering

through evaporation. Biosludge contains bacteria, oily material and coke fines. Historical testing of the biosludge for EP toxicity metals indicated the material is not a characteristic hazardous waste due to toxicity.

The EPA identified the biosludge dewatering basin as solid waste management unit 4 (SWMU 4) and a RCRA Facility Investigation (RFI) was completed in 1990. Two composite biosludge samples were analyzed for TCLP metals, volatile organic compounds and polynuclear aromatic hydrocarbons (PAH). Constituents were not detected at concentrations above the evaluation criteria established in the RFI work plan. A final RFI report was submitted to EPA Region X and WDOE (RETEC, May 1991) and no further investigation was recommended. ARCO has not received written comments from the agencies on the RFI report for the biosludge ponds, however, Dave Bartus of EPA Region X has verbally approved the RFI report and allowed ARCO to proceed with the decommissioning of the ponds. ARCO is currently in the process of decommissioning and cleaning out the ponds.

3.0 FIELD METHODS

Soil and groundwater were investigated in the areas of OWS degradation to evaluate if releases of hazardous substances had occurred. The investigation was completed in two phases. Initial information was collected by hand augering on May 3, 4 and 5, 1993. In most areas, the sewer is located up to 15 feet below ground surface (bgs). Because of the depth and the presence of cobbles in the backfill, additional soil information was collected in the second phase of investigation by drilling. Wells were installed in borings, developed and sampled to characterize groundwater quality. Drilling and well installation were completed on June 3 and 4, 1993; wells were developed on June 8, 1993 and sampled on June 10, 1993.

3.1 HAND AUGER SAMPLING

Near surface soil samples were collected using a hand auger. Soil sampling locations were selected based on the depth of the OWS. The hand auger was advanced to the sampling depth and the contents of the auger bucket were extracted using a clean stainless steel spoon or trowel. Soil was immediately placed into laboratory supplied sample jars. Field screening of the remaining soils was conducted using a photoionization detector (PID) and pH meter. As the oily water sewer contained caustics in the vicinity of manhole 67, field pH screening was used as an indication of a potential release. Soil pH was screened by mixing the soil with approximately an equal part (by weight) of deionized water to create a slurry. The pH of the slurry was then measured. Soils encountered are described in the boring logs included in Appendix A.

Sampling equipment was decontaminated between samples by washing with a TSP soap solution, rinsing with potable water and final rinsing with deionized water.

3.2 BOREHOLE SAMPLING AND WELL INSTALLATION

Boreholes from monitoring well installation were advanced using hollow stem auger drilling techniques. Samples were collected continuously from the depth of the bottom of the sewer to the total depth of the borehole with five foot split-spoon sampling devices. Soil samples for geologic logging and analytical testing were obtained from the split-barrel sampler. The lowermost soil in the split-spoon was transferred to a sample jar and placed on ice in a

cooler. The remaining soil was used to describe soil lithology and tested in the field for organic vapors (using a PID) and for pH (using a pH meter). Boreholes were advanced to approximately ten feet below the groundwater table.

Wells were constructed with 10 to 15 feet of 2-inch, schedule 40, PVC 0.010 slot screen and 2-inch, schedule 40, PVC blank riser. A filter pack of 10/20 silica sand was installed opposite the well screen and extended two to three feet above the top of the screen. The remaining annulus was backfilled with bentonite chips to within three feet of the ground surface and the bentonite was hydrated. The bentonite seal was a minimum of three feet thick. A steel well protector was cemented in place around each well. Well logs can be found in Appendix A.

Sampling equipment was decontaminated between samples by washing with a TSP solution and rinsing with potable water and deionized water. All downhole equipment (augers, drill rods, split-spoons, etc.) was steam cleaned at the nonhazardous landfarm decon pad prior to drilling and between drilling boreholes. The drill rig was steam cleaned prior to mobilizing off the refinery property.

3.3 WELL DEVELOPMENT

After installation, wells were developed to restore the natural permeability of the formation adjacent to the borehole and to remove any contamination or formation damage that may have occurred as a result of well drilling. Well development was accomplished by over pumping. A Brainard-Killman positive displacement pump was used to remove a minimum of ten well volumes from each well. The pH, conductivity and temperature of the purge water were monitored during development. All downhole equipment used in well development was decontaminated prior to initial use and after each borehole. Decontamination was accomplished by washing with TSP and rinsing with deionized water.

3.4 GROUNDWATER SAMPLING

Wells were purged and sampled using disposable polyethylene bailers. A new bailer was secured by an unused stretch of nylon line for each well. Prior to sampling, water levels were measured and the required purge volume calculated. Three to five well volumes were purged from each well prior to sampling. The groundwater pH, conductivity and temperature were

measured during purging to ensure that formation water was entering the well prior to sampling. Samples were collected after purging by carefully pouring groundwater from the bailer into the laboratory prepared sample bottles. Samples were chilled in a cooler or refrigerator and shipped to the laboratory under strict chain-of-custody procedures.

3.5 SAMPLE ANALYSIS

Soil and groundwater samples were analyzed for constituents which are commonly present in the refinery wastewater and pH (due to the caustic nature of the sewer contents). Samples were analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX; Method 8020), semivolatile organic compounds (SVOC; Method 8270) and the Skinners list metals (Methods 6010/7000). Total petroleum hydrocarbon (TPH) concentrations were evaluated by methods WTPH-G, WTPH-D and/or WTPH-418.1. The pH was also measured as an indicator parameter.

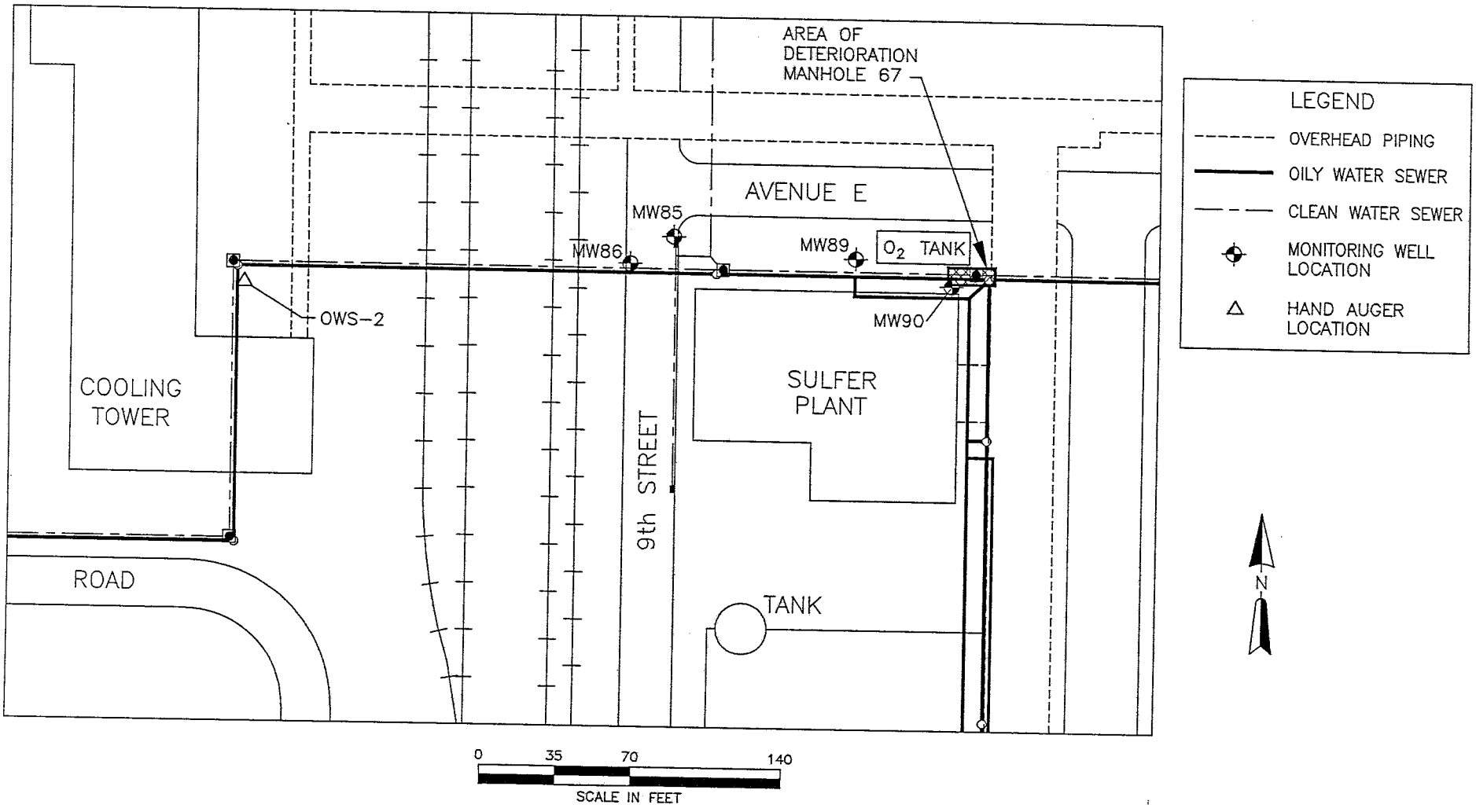
4.0 MANHOLE 67 AREA INVESTIGATION

Soil and groundwater in the vicinity of the deteriorated OWS near manhole 67 were investigated by the installation and sampling of five boreholes and three wells. Borehole and well locations are shown on Figure 4-1. Boreholes for the installation of wells 85, 86, 89 and 90 were advanced by drilling. Borehole OWS-2 was advanced using a hand auger. Sample locations are shown on Figure 4-1.

A gravelly to clayey sand fill was encountered in all boreholes. Fill thickness ranged from 8 to 15 feet and was underlain by the silty clays to clayey silts of the weathered Bellingham Drift which underlies the refinery. Adjacent to MW90, the clays appeared baked. These clays were stiffer and harder than the typical clays found at the refinery. In addition, a small amount of purple to green coloration was identified along several fractures at MW90; however, there was a distinct absence of sheen, odor or other signs of hydrocarbon contamination in all soils. Depth to groundwater ranged from 6.5 to 11 feet below ground surface (bgs).

Soil samples for laboratory analysis were collected immediately below the approximate elevation of the OWS or in the backfill immediately adjacent to the bottom of the OWS. At downgradient locations, attempts were made to sample the backfill to determine if contamination flowed through the preferential migration pathway. In the immediate vicinity of manhole 67, samples were also collected at greater depths to assess the vertical soil quality. Analytical results are summarized in Table 4-1. SVOC, BTEX and TPH were not detected in soils at the manhole 67 area. Metals concentrations were within the range of background metal concentrations at the refinery.

Groundwater samples were collected using disposable bailers from wells MW-85, MW-89 and MW-90 on June 10 and from well MW-90 on July 14. With the exception of benzene in well MW-90, BTEX, SVOC and TPH were not detected in any of the groundwater samples. Barium was detected in groundwater at very low concentrations (0.059 to 0.114 mg/l). During the June 10 sampling, benzene was detected in well MW-90 at a concentration of 0.0059 mg/l. This concentration slightly exceeds the MTCA method A limit of 0.005 mg/l. This sample result was confirmed by the July 14 sampling event when the benzene concentration in well MW-90 was 0.0126 mg/l. A field blank was also collected during the July 14 sampling to evaluate if MW-90 samples were being affected by airborne constituents in the immediate process area. A sample of deionized water was left open in the immediate vicinity of the well



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OILY WATER SEWER INVESTIGATION
MANHOLE 67 AREA
ARCO CHERRY POINT REFINERY

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FIGURE 4-1

TABLE 4-1
SOIL SAMPLING RESULTS
OILY WATER SEWER INVESTIGATION AROUND MANHOLE 67
JUNE 1993
ARCO CHERRY POINT REFINERY

CONSTITUENT	SAMPLE ID:	OWS-2-10	S-85-18	S-86-18	S-89-19	S-90-17	S-90-23	S-90-25	MTCA METHOD A LIMITS
	LOCATION:	OWS-2	MW-85	MW-86	MW-89	MW-90	MW-90	MW-90	
	DEPTH (FT):	10.5	18	18	19	17	23	25	
	TYPE:	HA	B	B	B	B	B	B	
	SAMPLE DATE:	05-04-93	06-02-93	06-03-93	06-04-93	06-04-93	06-04-93	06-04-93	
	Units								
MOISTURE	%	20.8	25.4	21.4	25.4	27.7	26.4	23.5	
pH	standard	6.8	7.5	NT	7.86	7.39	8.73	8.82	
VOLATILE ORGANICS (EPA Method 8020)									
Benzene	mg/kg	<0.010	NT	NT	NT	<0.010	NT	NT	0.5
Toluene	mg/kg	<0.021	NT	NT	NT	<0.021	NT	NT	40.0
Ethylbenzene	mg/kg	<0.010	NT	NT	NT	<0.010	NT	NT	20.0
Total Xylenes	mg/kg	<0.010	NT	NT	NT	<0.010	NT	NT	20.0
METALS (EPA Method 6010/7000)									
Antimony	mg/kg	NT	NT	NT	<5.0	<5.0	<5.0	<5.0	
Arsenic	mg/kg	<5.00	NT	NT	4.62	7.34	7.94	6.20	20.0
Barium	mg/kg	41.6	NT	NT	73.5	87.2	82.8	74.7	
Beryllium	mg/kg	NT	NT	NT	<0.50	<0.50	<0.50	<0.50	
Cadmium	mg/kg	<1.00	NT	NT	<1.0	<1.0	<1.0	<1.0	2.0
Chromium	mg/kg	21.3	NT	NT	35.1	46.4	34.0	34.2	100.0
Cobalt	mg/kg	NT	NT	NT	11.4	9.64	10.6	10.7	
Lead	mg/kg	<5.00	NT	NT	4.01	4.94	4.76	3.50	250
Mercury	mg/kg	<0.100	NT	NT	<0.10	0.181	<0.10	0.126	1.0
Nickel	mg/kg	NT	NT	NT	34.8	40.1	34.8	35.0	
Selenium	mg/kg	<5.00	NT	NT	<1.0	<1.0	<1.0	<1.0	
Silver	mg/kg	<1.00	NT	NT	<1.0	<1.0	<1.0	<1.0	
Vanadium	mg/kg	NT	NT	NT	56.3	60.0	55.6	56.8	
DIESEL (WTPH-D)	mg/kg	NT	<3.35	<3.18	<3.35	<3.46	<3.40	<3.27	200
GASOLINE (WTPH-G)	mg/kg	NT	NT	NT	<3.20	<3.33	NT	NT	100
TPH (WTPH-418.1)	mg/kg	<12.6	NT	NT	NT	NT	NT	NT	200
SEMIVOLATILE ORGANICS (EPA Method 8270)	mg/kg	ND	NT	NT	NT	ND	NT	NT	

Notes: B = Boring
HA = Hand auger
ND = all constituents were not detected at their respective detection limits

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TABLE 4–2
GROUNDWATER ANALYTICAL RESULTS
OILY WATER SEWER INVESTIGATION AROUND MANHOLE 67
JUNE AND JULY 1993
ARCO CHERRY POINT REFINERY

CONSTITUENT	WELL NO.: DATE: Units	MW–85 6–10–93	MW–89* 6–10–93	MW–90 6–10–93	MW–90 7–14–93	Field Blk 7–14–93	MTCA METHOD A LIMIT
VOLATILE ORGANICS (EPA Method 8020)							
Benzene	mg/L	<0.005	<0.005	**0.0059**	**0.0126**	<0.0005	0.005
Toluene	mg/L	<0.010	<0.010	<0.010	<0.001	<0.001	0.040
Ethylbenzene	mg/L	<0.005	<0.005	<0.005	<0.0005	<0.0005	0.030
Total Xylenes	mg/L	<0.005	<0.005	<0.005	<0.0005	<0.0005	0.020
METALS (EPA Method 6010/7000)							
Antimony	mg/L	<0.050	<0.050	<0.050	NT	NT	
Arsenic	mg/L	<0.005	<0.005	<0.005	NT	NT	0.005
Barium	mg/L	0.072	0.114	0.059	NT	NT	
Beryllium	mg/L	<0.005	<0.005	<0.005	NT	NT	
Cadmium	mg/L	<0.005	<0.005	<0.005	NT	NT	0.005
Chromium	mg/L	<0.020	<0.020	<0.020	NT	NT	0.050
Cobalt	mg/L	<0.010	<0.010	<0.010	NT	NT	
Lead	mg/L	<0.005	<0.005	<0.005	NT	NT	0.005
Mercury	mg/L	<0.001	<0.001	<0.001	NT	NT	0.002
Nickel	mg/L	<0.030	<0.030	<0.030	NT	NT	
Selenium	mg/L	<0.005	<0.005	<0.005	NT	NT	
Vanadium	mg/L	<0.001	<0.001	<0.001	NT	NT	
DIESEL (WTPH–D)	mg/L	<0.050	<0.052	<0.051	NT	NT	
GASOLINE (WTPH–G)	mg/L	<0.050	<0.050	<0.050	NT	NT	
SEMIVOLATILE ORGANICS (EPA Method 8270)	mg/L	ND	ND	ND	NT	NT	

Notes: *Semivolatiles (8270) were analyzed from a sample collected on 7–14–93.
NT = Not tested
ND = all constituents were not detected at their respective limits

during sampling. Benzene was not detected in the field blank. Results are summarized in Table 4-2.

Results of the manhole 67 area investigation indicate that a minor release occurred from the area of substantial OWS decay immediately downstream of manhole 67. Benzene is present at concentrations slightly above the MTCA Method A limit in groundwater. The release has not impacted groundwater or soils downstream of this area.

5.0 MANHOLE 71 INVESTIGATION

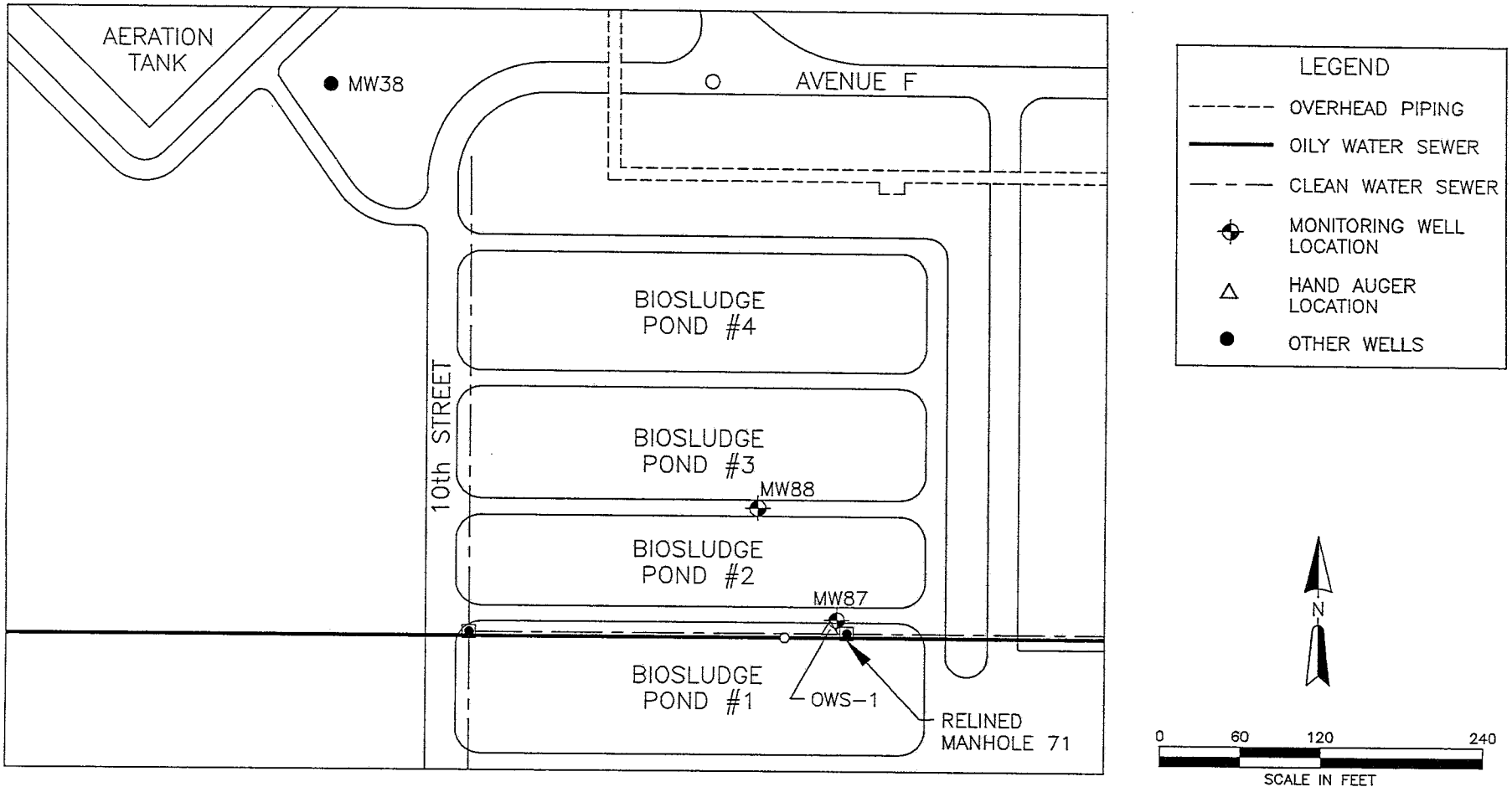
Deterioration at manhole 71 was investigated by advancing three borings (one with a hand auger and two with a drilling rig). Two monitoring wells were installed and one was sampled to evaluate groundwater quality immediately downgradient of manhole 71. Sample locations are shown on Figure 5-1 and soil and groundwater quality results are summarized on Tables 5-1 and 5-2.

Boreholes were advanced on the berms between biosludge dewatering ponds 1 and 2. Eight to ten feet of gravelly sand to clayey sand fill was underlain by the clayey silt to silty clay of the weathered Bellingham Drift. Unusual odors not typical of hydrocarbons were noted at 7 to 8 feet bgs in OWS-1. Depth to groundwater near manhole 71 ranged from 4.5 to 12 feet bgs. The biosludge level in the ponds was approximately 6 feet below the top of the pond berms.

Samples from the hand auger boring (OWS-1) were collected at 7 and 8 feet bgs. These samples were collected before the depth of the OWS was known. In this area, the OWS was measured at 12 feet bgs and therefore, the bottom of manhole 71 was deteriorated at 12 feet bgs. Since hand augered soils did not represent the soils around the deteriorated portion of the sewer, one soil sample was collected at 12 feet bgs during the installation of well 87.

Soil samples were analyzed for SVOCs, BTEX, TPH and metals. The TPH concentrations at OWS-1 were 117 mg/kg and 311 mg/kg at 7 and 8 feet, respectively. The TPH concentration at 7 feet was measured by method WTPH-D while the 8 foot sample was measured by method WTPH 418.1. The WTPH-418.1 method measures hydrogen-carbon bonds which includes humic and fulvic acids and other potential breakdown products from biosludge. Therefore, the 311 mg/kg result from the 8 foot sample is not thought to be representative of petroleum hydrocarbon concentration. The TPH results from 7 and 8 foot depths are not thought to be related to the OWS which was worn at approximately 12 feet bgs. These samples were taken several feet above the deteriorated manhole. Hydrocarbon concentrations in the vicinity of bug ponds will be evaluated further during the decommissioning of the bug ponds.

At well 87, TPH concentrations were non-detect by methods WTPH-D and WTPH-G. Xylene was detected at low concentrations, 3 magnitudes lower than the MTCA limit of 20 mg/kg. Metals concentrations in the sample was within background metal concentrations for the area.



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OILY WATER SEWER INVESTIGATION
MANHOLE 71 AREA
ARCO CHERRY POINT REFINERY

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FIGURE 5-1

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TABLE 5-1
SOIL SAMPLING RESULTS
OILY WATER SEWER INVESTIGATION AROUND MANHOLE 71
JUNE 1993
ARCO CHERRY POINT REFINERY

CONSTITUENT	SAMPLE ID: LOCATION: DEPTH (FT): TYPE: SAMPLE DATE: Units	OWS-1-7 OWS-1 7 HA 05-04-93	OWS-1-8 OWS-1 8 HA 05-04-93	S-87-12 MW-87 12 B 06-03-93	MTCA METHOD A LIMITS
MOISTURE	%	11.8	10.3	15.4	
pH	standard	7.2	NT	NT	
VOLATILE ORGANICS (EPA Method 8020)					
Benzene	mg/kg	NT	0.013	<0.010	0.5
Toluene	mg/kg	NT	<0.021	<0.021	40
Ethylbenzene	mg/kg	NT	<0.010	<0.010	20
Total Xylenes	mg/kg	NT	0.020	0.039	20
METALS (EPA Method 6010/7000)					
Antimony	mg/kg	NT	NT	<5.0	
Arsenic	mg/kg	NT	<5.00	5.53	20
Barium	mg/kg	NT	55.6	84.8	
Beryllium	mg/kg	NT	NT	<0.50	
Cadmium	mg/kg	NT	1.91	<1.0	2
Chromium	mg/kg	NT	25.4	36.8	100
Cobalt	mg/kg	NT	NT	11.4	
Lead	mg/kg	NT	13.9	3.89	250
Mercury	mg/kg	NT	0.130	0.462	1
Nickel	mg/kg	NT	NT	40.0	
Selenium	mg/kg	NT	<5.00	<1.0	
Silver	mg/kg	NT	<1.00	<1.0	
Vanadium	mg/kg	NT	NT	58.6	
DIESEL (WTPH-D)	mg/kg	117	NT	<2.96	200
GASOLINE (WTPH-G)	mg/kg	NT	NT	<2.82	100
TPH (WTPH-418.1)	mg/kg	NT	311	NT	200
SEMIVOLATILE ORGANICS (EPA Method 8270)	mg/kg	NT	ND	ND	

Notes: B = Boring
HA = Hand auger
ND = all constituents were not detected at their respective detection limits
NT = Not tested

TABLE 5–2
GROUNDWATER ANALYTICAL RESULTS
OILY WATER SEWER INVESTIGATION AROUND MANHOLE 71
JUNE 1993
ARCO CHERRY POINT REFINERY

CONSTITUENT	WELL NO.: DATE: Units	MW–87* 6–10–93	MTCA METHOD A LIMIT
VOLATILE ORGANICS (EPA Method 8020)			
Benzene	mg/L	<0.005	0.005
Toluene	mg/L	<0.010	0.04
Ethylbenzene	mg/L	<0.005	0.03
Total Xylenes	mg/L	<0.005	0.02
METALS (EPA Method 6010/7000)			
Antimony	mg/L	<0.050	
Arsenic	mg/L	<0.005	0.005
Barium	mg/L	0.064	
Beryllium	mg/L	<0.005	
Cadmium	mg/L	<0.005	0.005
Chromium	mg/L	<0.020	0.05
Cobalt	mg/L	<0.010	
Lead	mg/L	<0.005	0.005
Mercury	mg/L	<0.001	0.002
Nickel	mg/L	<0.030	
Selenium	mg/L	0.005	
Vanadium	mg/L	<0.001	
DIESEL (WTPH–D)	mg/L	<0.050	
GASOLINE (WTPH–G)	mg/L	<0.050	
SEMIVOLATILE ORGANICS (EPA Method 8270)	mg/L	ND	

Notes: *Semivolatiles (8270) were analyzed from a sample collected on 7–14–93.
NT = Not tested
ND = all constituents were not detected at their respective limits

Groundwater was sampled in well 87 using a disposable bailer. Groundwater was analyzed for SVOC, BTEX, TPH and metals. All constituents were not detected except for a low concentration of barium (0.064 mg/L).

The results of this investigation indicate that no release associated with the OWS occurred around manhole 71. The groundwater in the area has not been impacted and the constituents detected in the soils above the OWS are related to the biosludge ponds.

6.0 CONCLUSIONS AND ADDITIONAL ACTIVITIES

An OWS investigation was completed along the northside of the sulfur plant around manhole 67 and at manhole 71 between biosludge dewatering ponds 1 & 2. A reconnaissance survey had indicated sewer deterioration in these areas. No release of constituents regulated under MTCA was found at manhole 71 and a small release of benzene was present at and immediately downstream of manhole 67. Benzene concentrations in the groundwater were slightly above the MTCA method A limit of 0.005 mg/L in well 90.

The release at manhole 67 is located in the process area of an active refinery. The OWS has been lined in place with a resistant material which has eliminated the release source. Based on the low benzene concentrations in well 90 and the location of the well within an active facility, the release does not pose a significant threat to human health and the environment at this time. ARCO will continue monitoring the groundwater in well 90 for BTEX on a semiannual basis for two years and annually for two years thereafter. If concentrations increase substantially in well 90, well 89 which is downstream of well 90 will be sampled and additional site activity will be considered.

APPENDIX A

BORING AND GROUNDWATER MONITORING WELL LOGS

BORING LOG

OWS-1

RETEC
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PROJECT NO: 3-1173-220 ARCO Cherry Point Refinery		CLIENT: ARCO
LOCATION: Ferndale, WA 11.5' West of MH-71		DRILLING CO.: RETEC
START DATE: 05/04/93 TIME: 1115	BORING ID: 4"	DRILLER: D. Kinney/S. Yapjoco
COMPLETION DATE: 05/05/93 TIME: 1250	BORING DEPTH: 8.25'	RIG TYPE:
WATER LEVEL DURING DRILLING: '	SURFACE ELEV.: ' (MSL)	METHOD: Hand Auger
DATE MEASURED:	M. P. ELEVATION:	LOGGED BY: Linda Baker

DEPTH (in feet)	SAMPLE DATA TYPE	DEPTH	pH	%RECOVERY	PID (ppm)	U.S.C.S.	LITHOLOGY	SOIL DESCRIPTION
0								
								SANDY GRAVEL: Medium brown with some silt
								GRAVELLY SAND TO SILTY SAND: Medium brown with some silt; no odor or staining; moist (at 3'11" - clean sand layer; light gray)
5		6.6			2.5			SANDY SILT TO SILTY SAND: Trace gravel-mixed fill material; moist to wet
					4.4			
	G	7.2			24.4			SILTY SAND TO SANDY SILT: Medium gray; trace gravel-mixed fill material; odor; moist
	GS			90	9.3			SILTY SAND: Medium brown; trace gravel; sandier than 7-7.5'; odor; moist
								Augering halted because of rocks at 8.25'
10								

REMARKS: G = Grab Sample

BORING LOG
OWS-2

RETEC
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PROJECT NO: 3-1173-220 ARCO Cherry Point Refinery		CLIENT: ARCO
LOCATION: Ferndale, WA Near MH-69		DRILLING CO.: RETEC
START DATE: 05/04/93 TIME: 1704	BORING ID: 4"	DRILLER: D. Kinney/S. Yapjoco
COMPLETION DATE: 05/05/93 TIME: 1802	BORING DEPTH: 10.5'	RIG TYPE:
WATER LEVEL DURING DRILLING: '	SURFACE ELEV.: ' (MSL)	METHOD: Hand Auger
DATE MEASURED:	M. P. ELEVATION:	LOGGED BY: Linda Baker

DEPTH (in feet)	SAMPLE DATA: TYPE	DEPTH	pH	%RECOVERY	PID (ppm)	U.S.C.S.	LITHOLOGY	SOIL DESCRIPTION
								ASPHALT
								SANDY GRAVEL: Medium brown with trace silt; moist to wet
								SANDY CLAY: Brownish gray; moist
5								SILTY SAND TO SAND: Gray to rust; some clay lumps; no odor; moist to wet
								SAND: Wet
								SAND: Gray; wet
10	G	6.8		1.1				SILTY CLAY: Brownish gray; Native soils?

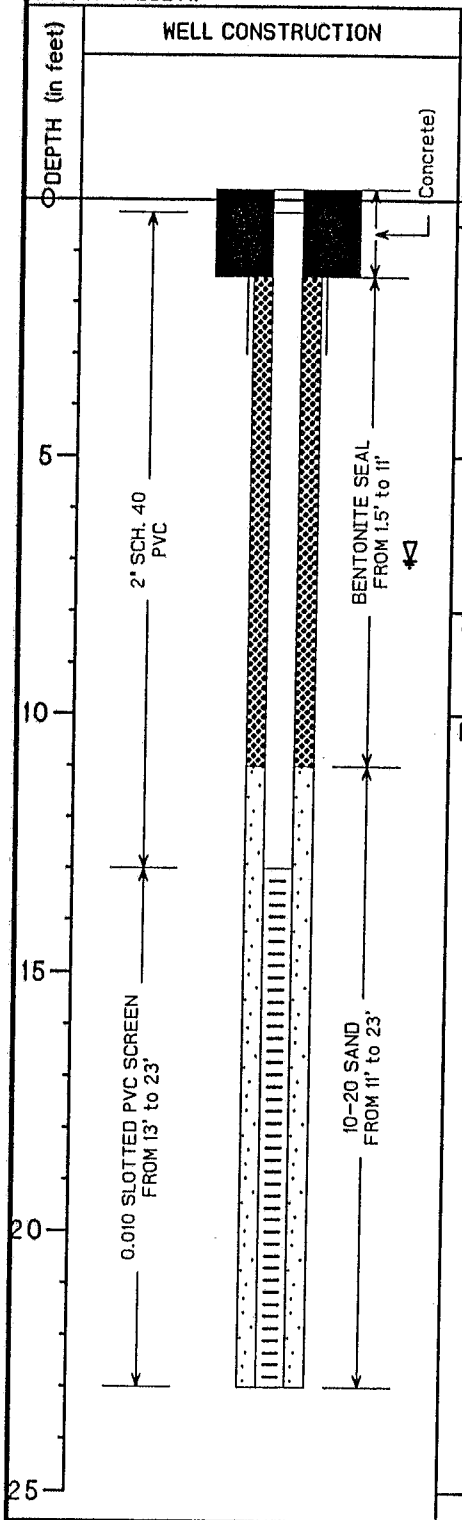
REMARKS: G = Grab Sample

RETEC

BORING/WELL INSTALLATION LOG
Monitoring MW-85

1011 SW Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PROJECT NO: 3-1173-230 ARCO Cherry Point Refinery		CLIENT: ARCO
LOCATION: Ferndale, WA SE corner of E & 9th St		DRILLING CO.: ESD
START DATE: 06/02/93 TIME: 1530	BORING ID: 7"	DRILLER: Ed/Mike
COMPLETION DATE: 06/02/93 TIME: 1700	TOTAL DEPTH: 25 feet	RIG TYPE: Mobile B60
WATER LEVEL DURING DRILLING: 7'bgs	PVC STICK-UP:	METHOD: HSA
SURFACE ELEV.:	MP ELEV.:	LOGGED BY: Linda Baker



DEPTH (in feet)	U.S.C.S.	LITHOLOGY	SOIL DESCRIPTION	SAMPLE DATA TYPE	DEPTH	pH	%RECOVERY	PID (ppm)
0	SW		Asphalt					
			GRAVELLY SAND: yellowish brown; damp					
5	SC		CLAYEY SAND: Medium brown with some gravel; damp to moist					
	CL		SANDY CLAY: Yellowish brown with trace gravel; damp to moist					
10	ML		CLAYEY SILT: Medium brown with trace gravel; root traces; organic matter; fractured; damp	SS		7.28	90	0.2
15			CLAYEY SILT: Grayish brown with trace gravel; root traces with moisture and fractured; damp to moist	SS		7.46	100	0.5
20				SS		7.28	100	0
25			CLAYEY SILT: Blue-gray with trace sand and gravel; fossils; soft; sticky; moist					

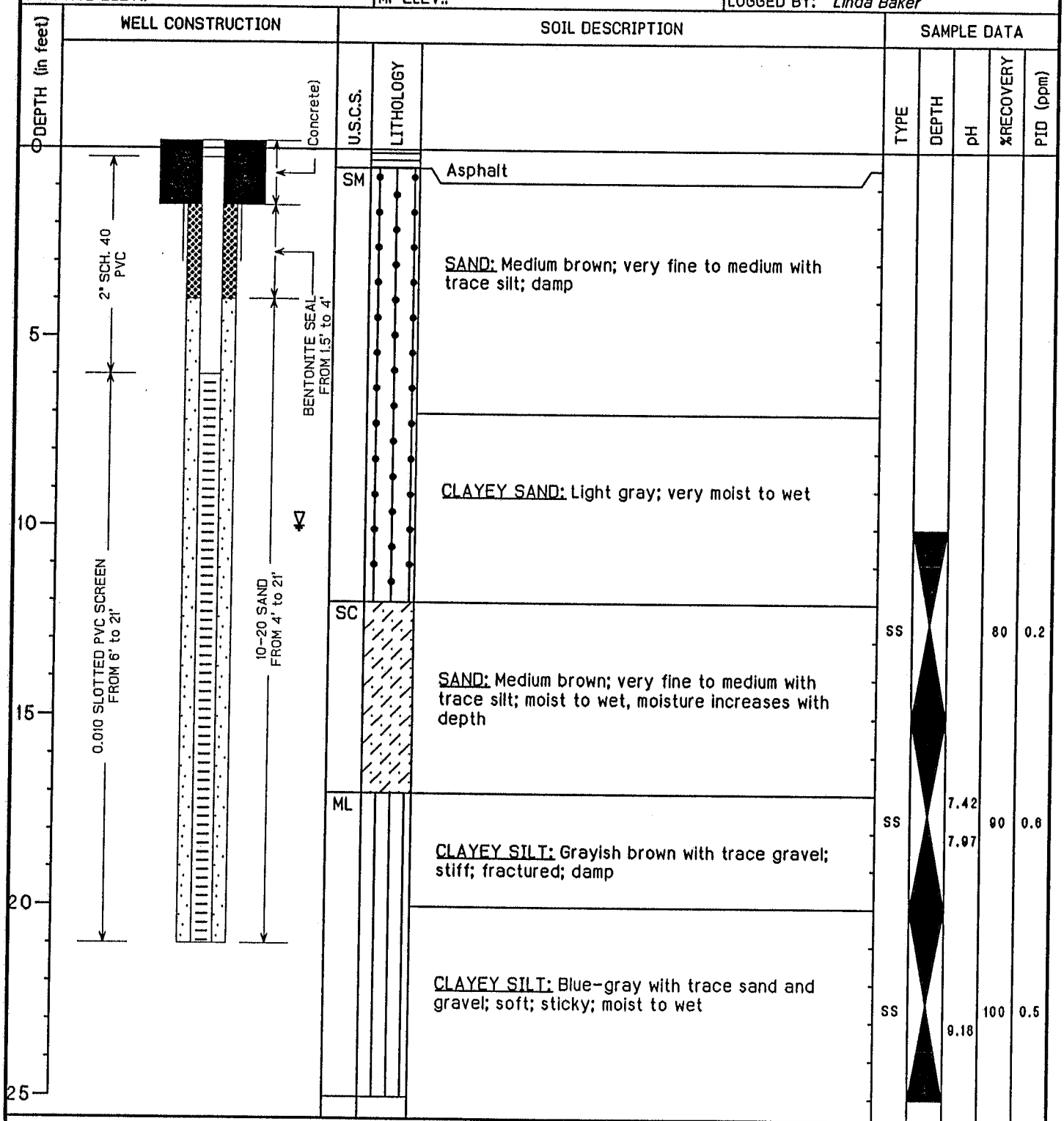
REMARKS: SS = Split Spoon No odor or other signs if contamination.
Fill: 0-9' Weathered Bellingham Drift: 9-23'
Unweathered Bellingham Drift: 23-25'

RETEC

BORING/WELL INSTALLATION LOG
Monitoring MW-86

1011 SW Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PROJECT NO: 3-1173-230 ARCO Cherry Point Refinery		CLIENT: ARCO
LOCATION: Ferndale, WA SW corner of E & 9th St		DRILLING CO.: ESD
START DATE: 06/03/93 TIME: 0900	BORING ID: 7"	DRILLER: Ed/Mike
COMPLETION DATE: 06/03/93 TIME: 1110	TOTAL DEPTH: 25 feet	RIG TYPE: Mobile B60
WATER LEVEL DURING DRILLING: 10'bgs	PVC STICK-UP:	METHOD: HSA
SURFACE ELEV.:	MP ELEV.:	LOGGED BY: Linda Baker



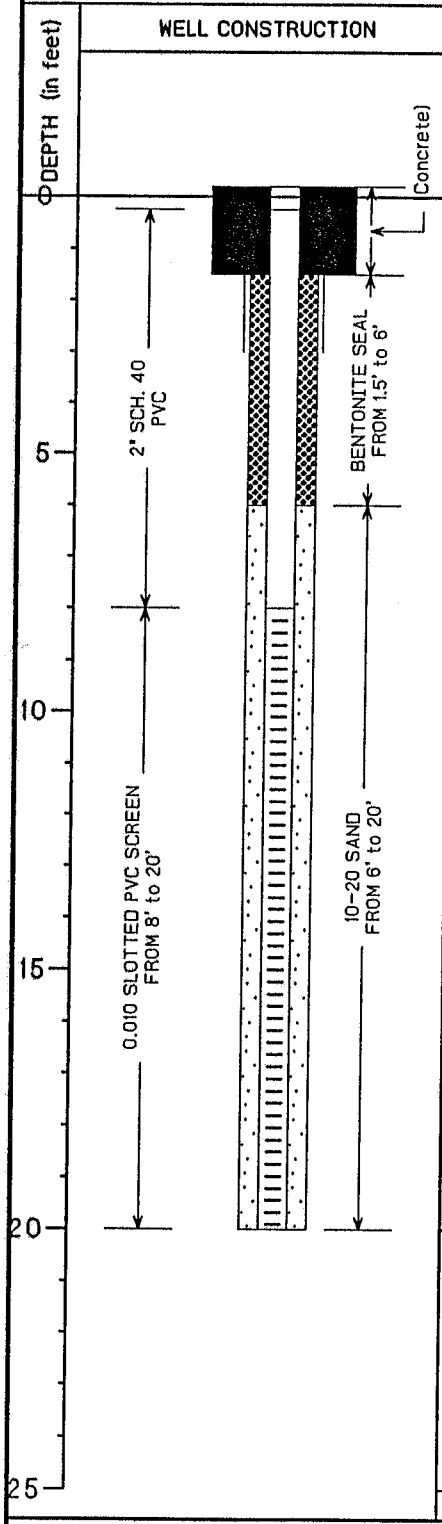
REMARKS: SS = Split Spoon
Fill: 0-17' Weathered Bellingham Drift: 17-20'
Unweathered Bellingham Drift: 20-25'

RETEC

BORING/WELL INSTALLATION LOG
Monitoring MW-87

1011 SW Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PROJECT NO: *3-1173-230 ARCO Cherry Point Refinery*		CLIENT: *ARCO*
LOCATION: *Ferndale, WA Between Bug Ponds 1 & 2 at E end*		DRILLING CO.: *ESD*
START DATE: *06/03/93 TIME: 1230*	BORING ID: *7"*	DRILLER: *Ed/Mike*
COMPLETION DATE: *06/03/93 TIME: 1330*	TOTAL DEPTH: *20 feet*	RIG TYPE: *Mobile B60*
WATER LEVEL DURING DRILLING: *'bgs*	PVC STICK-UP:	METHOD: *HSA*
SURFACE ELEV.:	MP ELEV.:	LOGGED BY: *Linda Baker*



DEPTH (in feet)	U.S.C.S.	LITHOLOGY	SOIL DESCRIPTION	SAMPLE DATA TYPE	DEPTH	pH	%RECOVERY	PID (ppm)
0	GP		SANDY GRAVEL: Medium brown; damp					
	SP		SAND: Medium brown with trace silt and gravel; damp to moist; no odor	SS		7.18	80	0.3
						8.73		
	ML		CLAYEY SILT: Grayish brown with trace gravel; medium stiff; sticky; not fractured stickier and softer than usual W.B.D.; damp to moist	SS			40	0.4
			CLAYEY SILT: Blue-gray with trace sand and gravel; soft; sticky; moist to wet; (at 8.5' – wet layer with shells and worm tubes)	SS		9.59	100	0.4
20			TD					

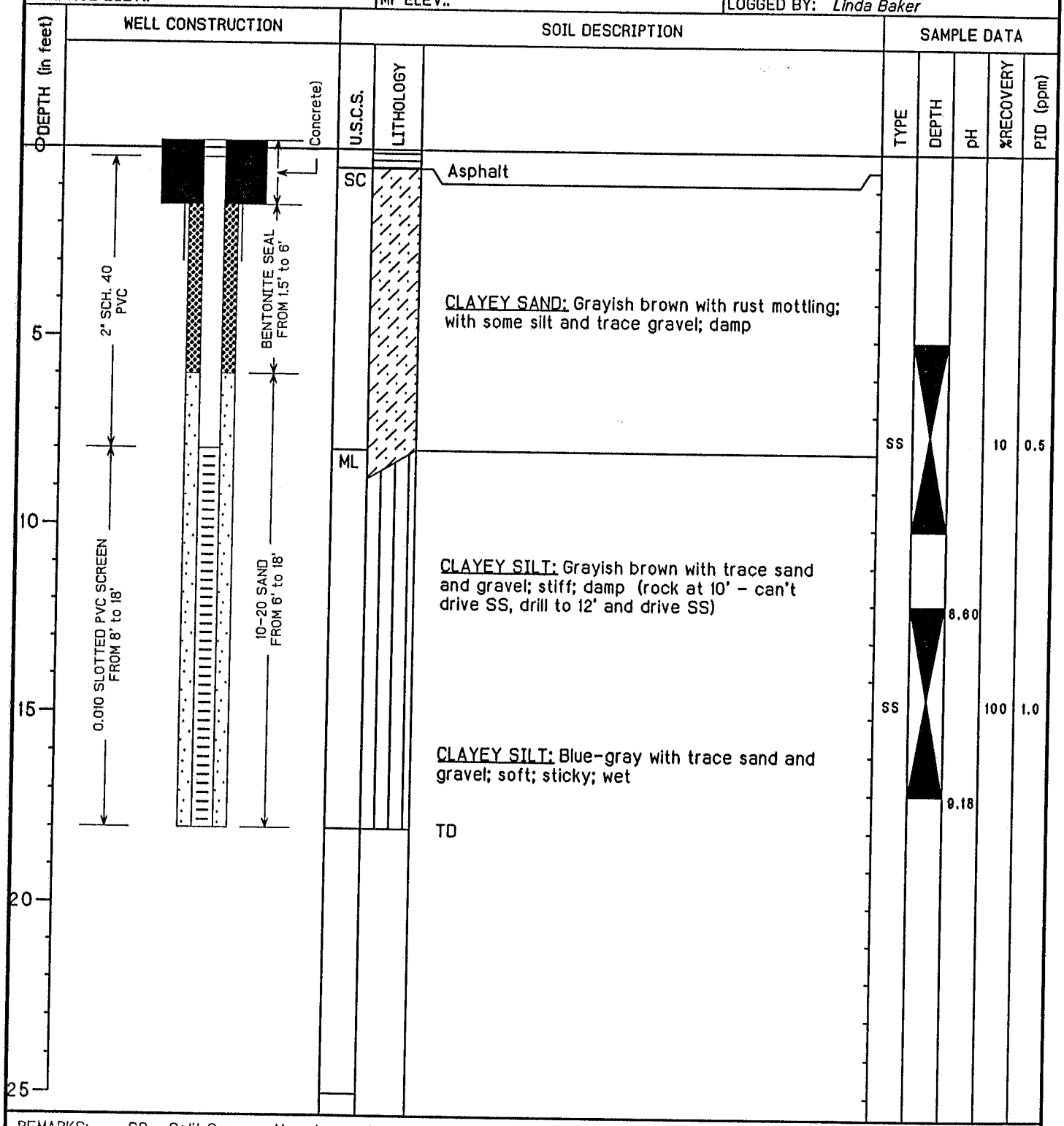
REMARKS: SS = Split Spoon No odor or other signs of contamination.
Fill: 0-11.5' Weathered Bellingham Drift: 11.5-17.5'
Unweathered Bellingham Drift: 17.5-20'

RETEC

BORING/WELL INSTALLATION LOG
Monitoring MW-88

1011 SW Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PROJECT NO: 3-1173-230 ARCO Cherry Point Refinery		CLIENT: ARCO
LOCATION: Ferndale, WA Between Bug Ponds 2 & 3		DRILLING CO.: ESD
START DATE: 06/03/93 TIME: 1430	BORING ID: 7"	DRILLER: Ed/Mike
COMPLETION DATE: 06/03/93 TIME: 1630	TOTAL DEPTH: 18 feet	RIG TYPE: Mobile B60
WATER LEVEL DURING DRILLING: 'bgs	PVC STICK-UP:	METHOD: HSA
SURFACE ELEV.:	MP ELEV.:	LOGGED BY: Linda Baker



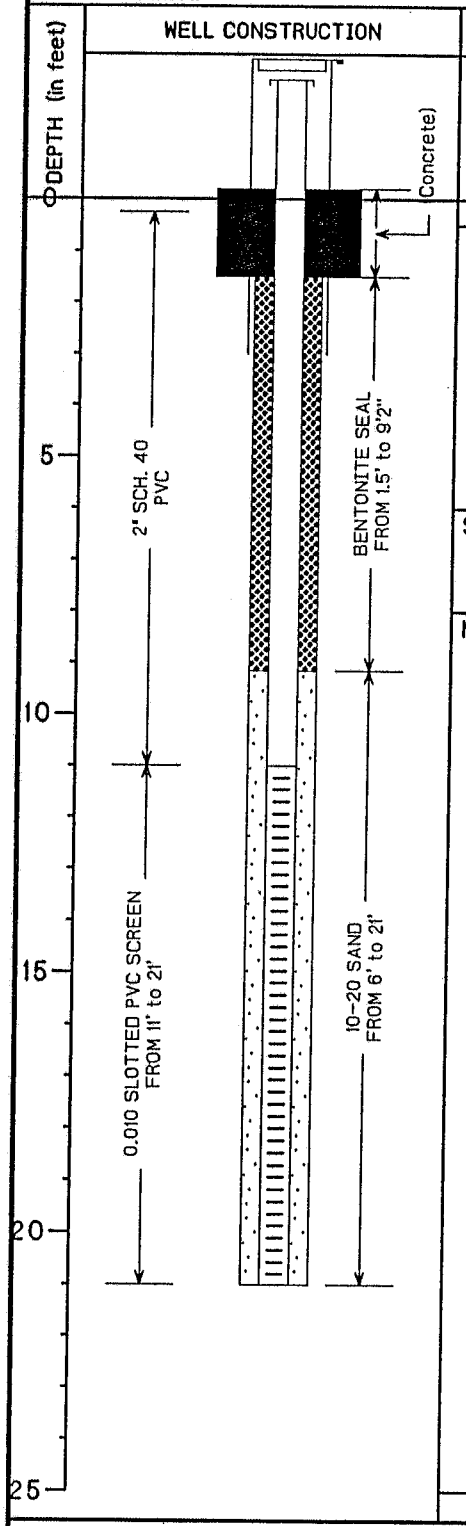
REMARKS: SS = Split Spoon No odor or signs of other contamination.
Fill: 0-8' Weathered Bellingham Drift: 8-16'
Unweathered Bellingham Drift: 16-18'

RETEC

BORING/WELL INSTALLATION LOG
Monitoring MW-89

1011 SW Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PROJECT NO: *3-1173-230 ARCO Cherry Point Refinery*		CLIENT: *ARCO*
LOCATION: *Ferndale, WA W End of Liquid Oxygen tank*		DRILLING CO.: *ESD*
START DATE: *06/04/93 TIME: 0730*	BORING ID: *7"*	DRILLER: *Ed/Mike*
COMPLETION DATE: *06/04/93 TIME: 0900*	TOTAL DEPTH: *21 feet*	RIG TYPE: *Mobile B60*
WATER LEVEL DURING DRILLING: *'bgs*	PVC STICK-UP:	METHOD: *HSA*
SURFACE ELEV.:	MP ELEV.:	LOGGED BY: *Linda Baker*



DEPTH (in feet)	U.S.C.S.	LITHOLOGY	SOIL DESCRIPTION	SAMPLE DATA: TYPE	DEPTH	pH	%RECOVERY	PID (ppm)
0			Asphalt					
	SP		SAND: Medium brown; fine to medium, well sorted; damp					
	SC		CLAYEY SAND: Lt. gray with some silt; damp; no odor					
	ML		CLAYEY SILT Grayish brown with trace sand and gravel; damp to approx. 16', moist to wet 16-20'; Rust stained halos around openings (fractures and root traces) and whitish crystalline precipitate in some fractures (approx. 0.1 mm thick)	SS		8.30	90	0
						7.86		
			CLAYEY SILT Blue-gray with trace sand and gravel; soft and sticky; moist	SS		8.79	90	0.4
			TD					

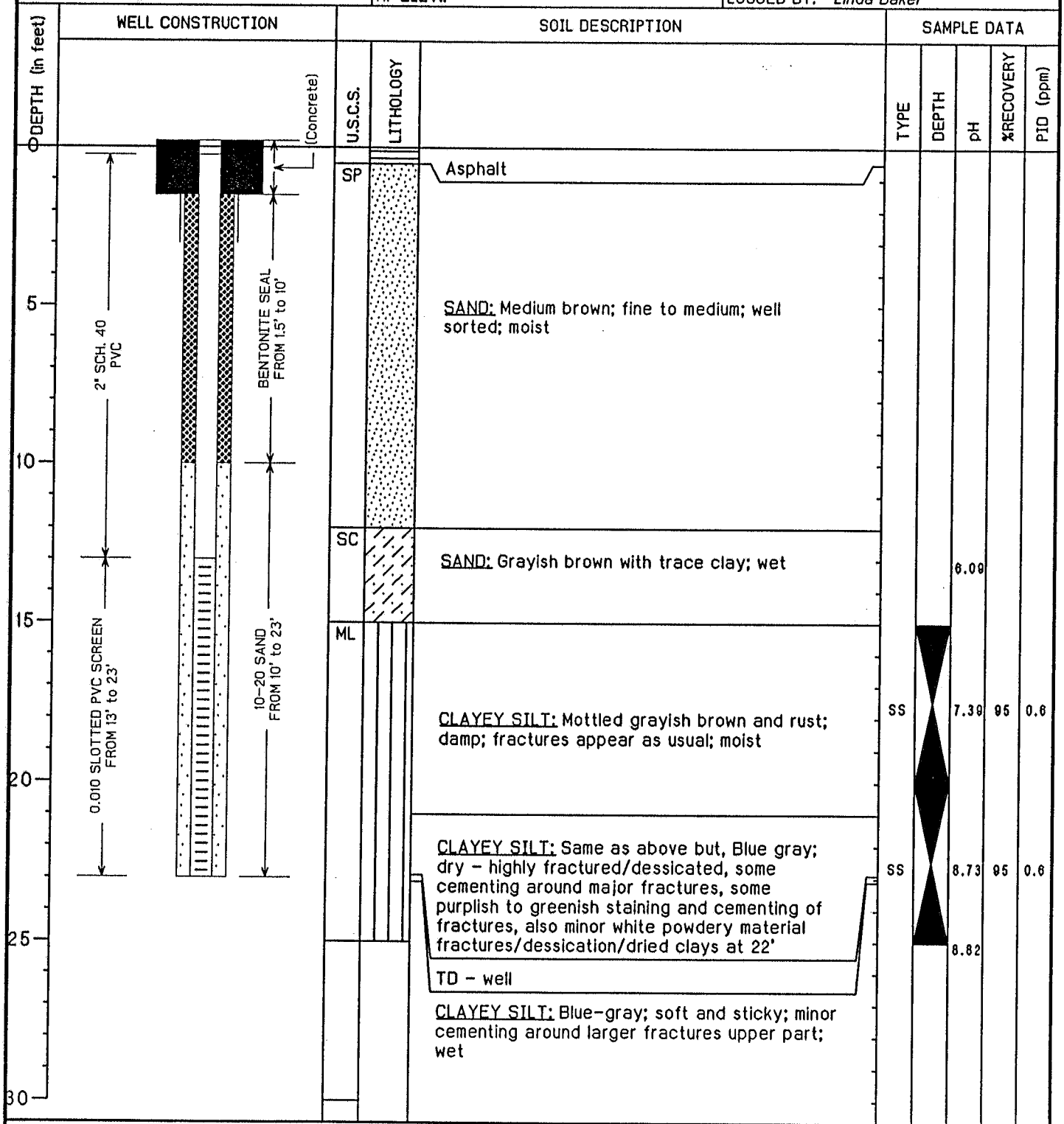
REMARKS: SS = Split Spoon No odor or other signs of contamination.
Fill: 0-8' Weathered Bellingham Drift: 8-20'
Unweathered Bellingham Drift: 20-25'

RETEC

BORING/WELL INSTALLATION LOG
Monitoring MW-90

1011 SW Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PROJECT NO: *3-1173-230 ARCO Cherry Point Refinery*		CLIENT: *ARCO*
LOCATION: *Ferndale, WA E of Liquid Oxygen tanks*		DRILLING CO.: *ESD*
START DATE: *06/04/93 TIME: 0945*	BORING ID: *7"*	DRILLER: *Ed/Mike*
COMPLETION DATE: *06/04/93 TIME: 1130*	TOTAL DEPTH: *23 feet*	RIG TYPE: *Mobile B60*
WATER LEVEL DURING DRILLING: *'bgs*	PVC STICK-UP:	METHOD: *HSA*
SURFACE ELEV.:	MP ELEV.:	LOGGED BY: *Linda Baker*



REMARKS: SS = Split Spoon No odor or signs of other contamination.
Fill: 0-15' Weathered Bellingham Drift: 15-21'
Unweathered Bellingham Drift: 21-25'

APPENDIX B

ANALYTICAL REPORTS

ENVIRONMENTAL TESTING AND CERTIFICATION CORP.
320 TESCONI CIRCLE, SUITE G, SANTA ROSA, CA. 95401 (707) 544-5570

July 2, 1993

CLIENT: ARCO PRODUCTS COMPANY
CHERRY POINT REFINERY
4519 GRANDVIEW ROAD
FERNDALE, WA 98248

ATTN: LINDA BAKER

JOBLINK: 808934
PROJECT: 3-1173-230 OWS INVESTIGATION

ANALYSIS

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34);
EPA METHOD 8015M - TOTAL VOLATILE HYDROCARBONS (ZR35); SEMI-VOLATILE ORGANICS - 8270;
EPA METHOD 8020 - AROMATIC VOLATILE ORGANICS (SR58); 6010 & 7000 SERIES METALS

CONVENTIONALS: MOISTURE

SAMPLE NUMBER	SAMPLE POINT	SAMPLE MATRIX	SAMPLE DATE	DATE IN LAB
ME4661	S-87-12	SOLID	06-03-93	06-08-93
ME4662	S-90-17	SOLID	06-04-93	06-08-93
ME4663	S-89-19	SOLID	06-04-93	06-08-93
ME4664	S-90-23	SOLID	06-04-93	06-08-93
ME4665	S-90-25	SOLID	06-04-93	06-08-93
ME4666	S-85-18	SOLID	06-02-93	06-08-93
ME4667	S-86-18	SOLID	06-03-93	06-08-93

Environmental Testing and Certification

Jennifer L. Roseberry, Laboratory Operations Manager

7/7/93
Date

ARCO PRODUCTS COMPANY
JULY 02, 1993
808934

SAMPLE MATRIX: SOLID

Parameter	EPA Prep Method	EPA Analysis Method
Aromatic Volatile Organics	5030	8020
Total Extractable Hydrocarbons	3540	*
Total Volatile Hydrocarbons	5030	*
GC/MS Semi-Volatile Organics	3540	8270
ICP Metals	3050	6010
Arsenic	3050	7060
Lead	3050	7421
Selenium	3050	7740
Mercury	7471	7471
Moisture	NA	SM 209F

* WASHINGTON STATE METHOD

ns

ARCO/RETEC
CHERRY POINT FACILITY
PROJECT #: 3-1173-230
OWS INVESTIGATION
06 JULY 1993

EXECUTIVE SUMMARY

ETC JOBLINK 808934

RETEC collected seven (7) soil samples at the ARCO Cherry Point Facility, Ferndale, Washington, from Wednesday through Friday, 02 through 04 June 1993 and submitted the samples to ETC (Santa Rosa) via Federal Express (Airbill #6914408992), Chain of Custody Number 6162. The samples were received at a temperature of 0°C. Additional metals were added by Ms. Linda Baker of ReTec on 10 June 1993; the PAH request for analysis was changed to full Semi-Volatile analysis on this date.

Samples were analyzed as noted on the preceding cover sheet; a summary of the results is included with the full results tables following this narrative. A Surrogate Summary is included for your convenience. A full copy of results and extended Quality Control data has been sent to Lynn Lane at the ARCO Carson facility.

DIESEL by WASHINGTON METHOD 8015m

Results are reported on a dry weight basis.

Due to the sample matrix, Quality Control Duplicate data was calculated using Replicate Blank Spikes (see Quality Control Batch QE31026).

GASOLINE by WASHINGTON METHOD 8015m

Results are reported on a dry weight basis.

Ginger Brinlee
Program Manager

06 Jy 1993
Date

QUALITY ASSURANCE DATA
SURROGATE SUMMARY REPORT 808934

SURROGATE ID	A158	A159	A884	B732	B142	A121	# OUT
QC BATCH: QC31086 Solid (Semi-Volatile organics by MS)							
SAMPLE ID							
7-A2-BTZ MD	83	60	85	61	99	84	0
7-A2-BTZ MS	89	62	94	66	107	92	0
BLANK	69	52	75	54	95	75	0
BLANK SPIKE	87	60	91	65	104	87	0
S-87-12	78	59	86	62	95	80	0
S-90-17	80	57	87	61	102	81	0

SURROGATE ID	B668	C109	C113	# OUT
QC BATCH: QE31026 Solid				
SAMPLE ID				
BLANK		126		0
BLANK SPIKE		119		0
S-85-18		134		0
S-86-18		135 *		1
S-87-12		117		0
S-89-19		130		0
S-90-17		132		0
S-90-23		118		0
S-90-25		128		0
QC BATCH: QT31051 Solid				
SAMPLE ID				
BLANK		128	118	0
BLANK SPIKE		128	105	0
S-87-12		128	126	0
S-89-19		128	96	0
S-89-19 MD		128	95	0
S-89-19 MS		128	95	0
S-90-17		128	110	0

SURROGATE ID	B668	C095	# OUT
QC BATCH: QX31045 Solid			
SAMPLE ID			
BLANK	102	102	0
BLANK SPIKE	100	92	0
S-87-12	86	83	0
S-90-17	77	78	0

SURROGATE ID	Aqueous QC Limits	Solid QC Limits
A158 = 2-Fluorobiphenyl	(43-116)	(30-115)
A159 = 2-Fluorophenol	(21-100)	(25-121)
A884 = Nitrobenzene-D5	(35-114)	(23-120)
B732 = Phenol-D6	(10-94)	(24-113)
B142 = Terphenyl-D14	(33-141)	(18-137)
A121 = 2,4,6-Tribromophenol	(10-123)	(19-122)
C109 = Pentacosane	(60-135)	(60-135)
C113 = 4-Bromofluorobenzene	(65-135)	(65-135)
B668 = Bromofluorobenzene	(77-127)	(62-122)
C095 = 1-Chloro-2-fluorobenzene	(74-128)	(62-110)

* Values outside of method quality control limits

QUALITY ASSURANCE DATA
SURROGATE SUMMARY REPORT

808934

SURROGATE ID	B668	C095	# OUT
QC BATCH: QX31045 Solid			
SAMPLE ID			
S-90-17 MD	89	84	0
S-90-17 MS	92	86	0

SURROGATE ID	Aqueous QC Limits	Solid QC Limits
A158 = 2-Fluorobiphenyl	(43-116)	(30-115)
A159 = 2-Fluorophenol	(21-100)	(25-121)
A884 = Nitrobenzene-D5	(35-114)	(23-120)
B732 = Phenol-D6	(10-94)	(24-113)
B142 = Terphenyl-D14	(33-141)	(18-137)
A121 = 2,4,6-Tribromophenol	(10-123)	(19-122)
C109 = Pentacosane	(60-135)	(60-135)
C113 = 4-Bromofluorobenzene	(65-135)	(65-135)
B668 = Bromofluorobenzene	(77-127)	(62-122)
C095 = 1-Chloro-2-fluorobenzene	(74-128)	(62-110)

* Values outside of method quality control limits

DATA SUMMARY REPORT

DATE: 07/01/93

Company: ARCO PRODUCTS COMPANY

PAGE: 1

Sample Point ID:		S-87-12	S-90-17
ETC Sample Number:		ME4661	ME4662
Sample Date:		930603	930604
Facility Code:		APCCHRYOWS	APCCHRYOWS
Parameters	Units		
EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (SR51)			
Acenaphthene	mg/kg	<.333	<.333
Acenaphthylene	mg/kg	<.333	<.333
Anthracene	mg/kg	<.333	<.333
Benzoic acid	mg/kg	<1.33	<1.33
Benzo(a)anthracene	mg/kg	<.333	<.333
Benzo(a)pyrene	mg/kg	<.333	<.333
Benzo(b)fluoranthene	mg/kg	<.333	<.333
Benzo(ghi)perylene	mg/kg	<.333	<.333
Benzo(k)fluoranthene	mg/kg	<.333	<.333
Benzyl alcohol	mg/kg	<.667	<.667
4-Bromophenyl phenyl ether	mg/kg	<.667	<.667
Butyl benzyl phthalate	mg/kg	<.667	<.667
p-Chloro-m-cresol	mg/kg	<.667	<.667
4-Chloroaniline	mg/kg	<1.33	<1.33
bis(2-Chloroethoxy)methane	mg/kg	<.667	<.667
bis(2-Chloroethyl) ether	mg/kg	<.667	<.667
bis(2-Chloroisopropyl)ether	mg/kg	<.667	<.667
2-Chloronaphthalene	mg/kg	<.333	<.333
4-Chlorophenyl phenyl ether	mg/kg	<.667	<.667
2-Chlorophenol	mg/kg	<.667	<.667
Chrysene	mg/kg	<.333	<.333
Di-n-butyl phthalate	mg/kg	<.667	<.667
Di-n-octyl phthalate	mg/kg	<.667	<.667
Dibenz[a,h]anthracene	mg/kg	<.333	<.333
Dibenzofuran	mg/kg	<.333	<.333
1,2-Dichlorobenzene	mg/kg	<.667	<.667
1,3-Dichlorobenzene	mg/kg	<.667	<.667
1,4-Dichlorobenzene	mg/kg	<.667	<.667
3,3'-Dichlorobenzidine	mg/kg	<1.33	<1.33
2,4-Dichlorophenol	mg/kg	<.667	<.667
Diethyl phthalate	mg/kg	<.667	<.667
Dimethyl phthalate	mg/kg	<.667	<.667
2,4-Dimethylphenol	mg/kg	<.667	<.667
4,6-Dinitro-o-cresol	mg/kg	<1.33	<1.33
2,4-Dinitrophenol	mg/kg	<1.33	<1.33

DATA SUMMARY REPORT

Company: ARCO PRODUCTS COMPANY

DATE: 07/01/93

Sample Point ID:		S-87-12	S-90-17
ETC Sample Number:		ME4661	ME4662
Sample Date:		930603	930604
Facility Code:		APCCHRYOWS	APCCHRYOWS
Parameters	Units		
EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (SR51)			
2,4-Dinitrotoluene	mg/kg	<.667	<.667
bis(2-Ethylhexyl)phthalate	mg/kg	<.667	<.667
2,6-Dinitrotoluene	mg/kg	<.667	<.667
Fluoranthene	mg/kg	<.333	<.333
Fluorene	mg/kg	<.333	<.333
Hexachlorobenzene	mg/kg	<.667	<.667
Hexachlorobutadiene	mg/kg	<.667	<.667
Hexachlorocyclopentadiene	mg/kg	<.667	<.667
Hexachloroethane	mg/kg	<.667	<.667
Indeno(1,2,3-cd)pyrene	mg/kg	<.333	<.333
Isophorone	mg/kg	<.667	<.667
2-Methylnaphthalene	mg/kg	<.333	<.333
2-Methylphenol	mg/kg	<.667	<.667
4-Methylphenol	mg/kg	<.667	<.667
Naphthalene	mg/kg	<.333	<.333
N-Nitrosodi-n-propylamine	mg/kg	<.667	<.667
N-Nitrosodiphenylamine	mg/kg	<.667	<.667
2-Nitroaniline	mg/kg	<1.33	<1.33
3-Nitroaniline	mg/kg	<1.33	<1.33
4-Nitroaniline	mg/kg	<1.33	<1.33
Nitrobenzene	mg/kg	<.667	<.667
2-Nitrophenol	mg/kg	<.667	<.667
4-Nitrophenol	mg/kg	<1.33	<1.33
Pentachlorophenol	mg/kg	<1.33	<1.33
Phenanthrene	mg/kg	<.333	<.333
Phenol	mg/kg	<.667	<.667
Pyrene	mg/kg	<.333	<.333
1,2,4-Trichlorobenzene	mg/kg	<.667	<.667
2,4,5-Trichlorophenol	mg/kg	<.667	<.667
2,4,6-Trichlorophenol	mg/kg	<.667	<.667

DATA SUMMARY REPORT

Company: ARCO PRODUCTS COMPANY

DATE: 07/01/93

Parameters	Units	S-85-18 ME4666 930602 APCCHRYOWS	S-86-18 ME4667 930603 APCCHRYOWS	S-87-12 ME4661 930603 APCCHRYOWS	S-89-19 ME4663 930604 APCCHRYOWS	S-90-17 ME4662 930604 APCCHRYOWS	S-90-23 ME4664 930604 APCCHRYOWS	S-90-25 ME4665 930604 APCCHRYOWS
Sample Point ID: / ETC Sample Number: / Sample Date: / Facility Code:								
CONVENTIONALS (SR55)								
Moisture	%	25.4	21.4	15.4	25.4	27.7	26.4	23.5

Parameters	Units	S-87-12 ME4661 930603 APCCHRYOWS	S-90-17 ME4662 930604 APCCHRYOWS
Sample Point ID: / ETC Sample Number: / Sample Date: / Facility Code:			
EPA METHOD 8020 - AROMATIC VOLATILE ORGANICS (SR58)			
Benzene	mg/kg	<.010	<.010
Ethylbenzene	mg/kg	<.010	<.010
Toluene	mg/kg	<.021	<.021
o-Xylene	mg/kg	.017	<.010
m+p-Xylenes	mg/kg	.022	<.010

Parameters	Units	S-87-12 ME4661 930603 APCCHRYOWS	S-89-19 ME4663 930604 APCCHRYOWS	S-90-17 ME4662 930604 APCCHRYOWS	S-90-23 ME4664 930604 APCCHRYOWS	S-90-25 ME4665 930604 APCCHRYOWS
Sample Point ID: / ETC Sample Number: / Sample Date: / Facility Code:						
EPA METHOD - 6010/7000 SERIES METALS (SR72)						
Arsenic, Total	mg/kg	5.53	4.62	7.34	7.94	6.20
Selenium, Total	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00
Mercury, Total	mg/kg	.462	<.100	.181	<.100	.126
Silver, Total	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00
Barium, Total	mg/kg	84.8	73.5	87.2	82.8	74.7
Beryllium, Total	mg/kg	<.500	<.500	<.500	<.500	<.500
Cadmium, Total	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00
Cobalt, Total	mg/kg	11.4	11.4	9.64	10.6	10.7

DATA SUMMARY REPORT

DATE: 07/01/93

Company: ARCO PRODUCTS COMPANY

Parameters	Units					
Sample Point ID:		S-87-12	S-89-19	S-90-17	S-90-23	S-90-25
ETC Sample Number:		ME4661	ME4663	ME4662	ME4664	ME4665
Sample Date:		930603	930604	930604	930604	930604
Facility Code:		APCCHRYOWS	APCCHRYOWS	APCCHRYOWS	APCCHRYOWS	APCCHRYOWS
EPA METHOD - 6010/7000 SERIES METALS (SR72)						
Chromium, Total	mg/kg	36.8	35.1	46.4	34.0	34.2
Nickel, Total	mg/kg	40.0	34.8	40.1	34.8	35.0
Lead, Total	mg/kg	3.89	4.01	4.94	4.76	3.50
Antimony, Total	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00
Vanadium, Total	mg/kg	58.6	56.3	60.0	55.6	56.8

Parameters	Units							
Sample Point ID:		S-85-18	S-86-18	S-87-12	S-89-19	S-90-17	S-90-23	S-90-25
ETC Sample Number:		ME4666	ME4667	ME4661	ME4663	ME4662	ME4664	ME4665
Sample Date:		930602	930603	930603	930604	930604	930604	930604
Facility Code:		APCCHRYOWS	APCCHRYOWS	APCCHRYOWS	APCCHRYOWS	APCCHRYOWS	APCCHRYOWS	APCCHRYOWS
EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)								
Diesel	mg/kg	<3.35	<3.18	<2.96	<3.35	<3.46	<3.40	<3.27

Parameters	Units			
Sample Point ID:		S-87-12	S-89-19	S-90-17
ETC Sample Number:		ME4661	ME4663	ME4662
Sample Date:		930603	930604	930604
Facility Code:		APCCHRYOWS	APCCHRYOWS	APCCHRYOWS
EPA METHOD 8015M - TOTAL VOLATILE HYDROCARBONS (ZR35)				
Gasoline	mg/kg	<2.82	<3.20	<3.33

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8020 - AROMATIC VOLATILE ORGANICS (SR58)

Jul 22, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4661	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-87-12	930603	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Benzene	ND	.010	ND	QX31045	930609	930616	
Ethylbenzene	ND	.010	ND	QX31045	930609	930616	
Toluene	ND	.021	ND	QX31045	930609	930616	
o-Xylene	.017	.010	ND	QX31045	930609	930616	
m+p-Xylenes	.022	.010	ND	QX31045	930609	930616	

TABLE 2: METHOD PERFORMANCE DATA

JU 22, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4661	ARCO PRODUCTS COMPANY	APCCHRYOWS	S S-87-12	930603		0

Compound	Amount added ug/kg	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	263	86	62	110
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	248	83	62	122
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)

Jul 29, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4661	ARCO PRODUCTS COMPANY	APCCHRYOWS	S S-87-12	930603	808934

Compound	Results					
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date
Diesel	ND	3.0	ND	QE31026	930610	930625

Result reported on a dry-weight basis.

TABLE 2: METHOD PERFORMANCE DATA

Jul 29, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4661	ARCO PRODUCTS COMPANY	APCCHRYOWS	S S-87-12	930603		0

Compound	Amount added ug/kg	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	25000	117	60	135
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8015M - TOTAL VOLATILE HYDROCARBONS (ZR35)

Jul 24, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4661	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-87-12	930603	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Gasoline	ND	2.82	ND	QT31051	930609	930617	

- Result reported on a dry-weight basis.

TABLE 2: METHOD PERFORMANCE DATA

Jun 23, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4661	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-87-12	930603		0

Compound	Amount added ug/kg	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	5000	126	65	135
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (SR51)

JU 24, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4661	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-87-12	930603	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Acenaphthene	ND	.333	ND	QC31086	930615	930622	
Acenaphthylene	ND	.333	ND	QC31086	930615	930622	
Anthracene	ND	.333	ND	QC31086	930615	930622	
Benzoic acid	ND	1.33	ND	QC31086	930615	930622	
Benzo(a)anthracene	ND	.333	ND	QC31086	930615	930622	
Benzo(a)pyrene	ND	.333	ND	QC31086	930615	930622	
Benzo(b)fluoranthene	ND	.333	ND	QC31086	930615	930622	
Benzo(ghi)perylene	ND	.333	ND	QC31086	930615	930622	
Benzo(k)fluoranthene	ND	.333	ND	QC31086	930615	930622	
Benzyl alcohol	ND	.667	ND	QC31086	930615	930622	
4-Bromophenyl phenyl ether	ND	.667	ND	QC31086	930615	930622	
Butyl benzyl phthalate	ND	.667	ND	QC31086	930615	930622	
p-Chloro-m-cresol	ND	.667	ND	QC31086	930615	930622	
4-Chloroaniline	ND	1.33	ND	QC31086	930615	930622	
bis(2-Chloroethoxy)methane	ND	.667	ND	QC31086	930615	930622	
bis(2-Chloroethyl) ether	ND	.667	ND	QC31086	930615	930622	
bis(2-Chloroisopropyl)ether	ND	.667	ND	QC31086	930615	930622	
2-Chloronaphthalene	ND	.333	ND	QC31086	930615	930622	
4-Chlorophenyl phenyl ether	ND	.667	ND	QC31086	930615	930622	
2-Chlorophenol	ND	.667	ND	QC31086	930615	930622	
Chrysene	ND	.333	ND	QC31086	930615	930622	
Di-n-butyl phthalate	ND	.667	ND	QC31086	930615	930622	
Di-n-octyl phthalate	ND	.667	ND	QC31086	930615	930622	
Dibenz[a,h]anthracene	ND	.333	ND	QC31086	930615	930622	
Dibenzofuran	ND	.333	ND	QC31086	930615	930622	
1,2-Dichlorobenzene	ND	.667	ND	QC31086	930615	930622	
1,3-Dichlorobenzene	ND	.667	ND	QC31086	930615	930622	
1,4-Dichlorobenzene	ND	.667	ND	QC31086	930615	930622	
3,3'-Dichlorobenzidine	ND	1.33	ND	QC31086	930615	930622	
2,4-Dichlorophenol	ND	.667	ND	QC31086	930615	930622	
Diethyl phthalate	ND	.667	ND	QC31086	930615	930622	
Dimethyl phthalate	ND	.667	ND	QC31086	930615	930622	
2,4-Dimethylphenol	ND	.667	ND	QC31086	930615	930622	
4,6-Dinitro-o-cresol	ND	1.33	ND	QC31086	930615	930622	
2,4-Dinitrophenol	ND	1.33	ND	QC31086	930615	930622	
2,4-Dinitrotoluene	ND	.667	ND	QC31086	930615	930622	
bis(2-Ethylhexyl)phthalate	ND	.667	ND	QC31086	930615	930622	
2,6-Dinitrotoluene	ND	.667	ND	QC31086	930615	930622	

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (SR51)

JUN 24, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4661	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-87-12	930603	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Fluoranthene	ND	.333	ND	QC31086	930615	930622	
Fluorene	ND	.333	ND	QC31086	930615	930622	
Hexachlorobenzene	ND	.667	ND	QC31086	930615	930622	
Hexachlorobutadiene	ND	.667	ND	QC31086	930615	930622	
Hexachlorocyclopentadiene	ND	.667	ND	QC31086	930615	930622	
Hexachloroethane	ND	.667	ND	QC31086	930615	930622	
Indeno(1,2,3-cd)pyrene	ND	.333	ND	QC31086	930615	930622	
Isophorone	ND	.667	ND	QC31086	930615	930622	
2-Methylnaphthalene	ND	.333	ND	QC31086	930615	930622	
2-Methylphenol	ND	.667	ND	QC31086	930615	930622	
4-Methylphenol	ND	.667	ND	QC31086	930615	930622	
Naphthalene	ND	.333	ND	QC31086	930615	930622	
N-Nitrosodi-n-propylamine	ND	.667	ND	QC31086	930615	930622	
N-Nitrosodiphenylamine	ND	.667	ND	QC31086	930615	930622	
2-Nitroaniline	ND	1.33	ND	QC31086	930615	930622	
3-Nitroaniline	ND	1.33	ND	QC31086	930615	930622	
4-Nitroaniline	ND	1.33	ND	QC31086	930615	930622	
Nitrobenzene	ND	.667	ND	QC31086	930615	930622	
2-Nitrophenol	ND	.667	ND	QC31086	930615	930622	
4-Nitrophenol	ND	1.33	ND	QC31086	930615	930622	
Pentachlorophenol	ND	1.33	ND	QC31086	930615	930622	
Phenanthrene	ND	.333	ND	QC31086	930615	930622	
Phenol	ND	.667	ND	QC31086	930615	930622	
Pyrene	ND	.333	ND	QC31086	930615	930622	
1,2,4-Trichlorobenzene	ND	.667	ND	QC31086	930615	930622	
2,4,5-Trichlorophenol	ND	.667	ND	QC31086	930615	930622	
2,4,6-Trichlorophenol	ND	.667	ND	QC31086	930615	930622	

TABLE 2: METHOD PERFORMANCE DATA

Jul 24, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4661	ARCO PRODUCTS COMPANY	APCCHRYOWS	S S-87-12	930603		0

Compound	Amount added ug/kg	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC/MS)				
1,2-Dichloroethane-D4	-	-	-	-
Bromofluorobenzene	-	-	-	-
Toluene-D8	-	-	-	-
BASE/NEUTRAL FRACTION (GC/MS)				
Nitrobenzene-D5	5250	86	23	120
2-Fluorobiphenyl	6070	78	30	115
Terphenyl-D14	3940	95	18	137
ACID FRACTION (GC/MS)				
Phenol-D6	14900	62	24	113
2-Fluorophenol	14900	59	25	121
2,4,6-Tribromophenol	14900	80	19	122

TABLE 1: QUANTITATIVE RESULTS DATA
EPA METHOD - 6010/7000 SERIES METALS (SR72)

JUL 1, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4661	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-87-12	930603	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Antimony, Total	ND	5.00	ND	QI31052	930625	930629	
Arsenic, Total	5.53	1.00	ND	QG31052	930625	930626	
Barium, Total	84.8	1.00	ND	QI31052	930625	930629	
Beryllium, Total	ND	.500	ND	QI31052	930625	930629	
Cadmium, Total	ND	1.00	ND	QI31052	930625	930629	
Chromium, Total	36.8	3.00	ND	QI31052	930625	930629	
Cobalt, Total	11.4	1.00	ND	QI31052	930625	930629	
Lead, Total	3.89	.500	ND	QG31052	930625	930630	
Mercury, Total	.462	.100	ND	QM31052	930625	930628	
Nickel, Total	40.0	3.00	ND	QI31052	930625	930629	
Selenium, Total	ND	1.00	ND	QG31052	930625	930628	
Silver, Total	ND	1.00	ND	QI31052	930625	930629	
Vanadium, Total	58.6	1.00	ND	QI31052	930625	930629	

TABLE 1: QUANTITATIVE RESULTS DATA
CONVENTIONALS (SR55)

Jl 17, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ME4661 ARCO PRODUCTS COMPANY APCCHRYOWS S S-87-12 930603 808934

ETC Sample No. *Company* *Facility* *Sample Point* *Date* *Joblink*

Compound	Results						
	Sample Concen. %	Report DL %	Blank Concen. %	Batch #	Prep Date	Analysis Date	
Moisture	15.4	1	N/A	QRZ30712		930609	

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8020 - AROMATIC VOLATILE ORGANICS (SR58)

JUL 22, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4662	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-90-17	930604	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Benzene	ND	.010	ND	QX31045	930609	930616	
Ethylbenzene	ND	.010	ND	QX31045	930609	930616	
Toluene	ND	.021	ND	QX31045	930609	930616	
o-Xylene	ND	.010	ND	QX31045	930609	930616	
m+p-Xylenes	ND	.010	ND	QX31045	930609	930616	

TABLE 2: METHOD PERFORMANCE DATA

JU 22, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4662	ARCO PRODUCTS COMPANY	APCCHRYOWS	S S-90-17	930604		0

Compound	Amount added ug/kg	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	263	77	62	110
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	248	78	62	122
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

JU 29, 1993

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4662	ARCO PRODUCTS COMPANY	APCCHRYOWS	S S-90-17	930604	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Diesel	ND	3.5	ND	QE31026	930610	930626	

Result reported on a dry-weight basis.

TABLE 2: METHOD PERFORMANCE DATA

Jul 29, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4662	ARCO PRODUCTS COMPANY	APCCHRYOWS	S S-90-17	930604		0

Compound	Amount added ug/kg	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	25000	132	60	135
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8015M - TOTAL VOLATILE HYDROCARBONS (ZR35)

JL 24, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4662	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-90-17	930604	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Gasoline	ND	3.33	ND	QT31051	930609	930617	

- Result reported on a dry-weight basis.

TABLE 2: METHOD PERFORMANCE DATA

JU__3, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4662	ARCO PRODUCTS COMPANY	APCCHRYOWS	S S-90-17	930604		0

Compound	Amount added ug/kg	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	5000	110	65	135
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

JU 4, 1993

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (SR51)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4662	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-90-17	930604	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Acenaphthene	ND	.333	ND	QC31086	930615	930622	
Acenaphthylene	ND	.333	ND	QC31086	930615	930622	
Anthracene	ND	.333	ND	QC31086	930615	930622	
Benzoic acid	ND	1.33	ND	QC31086	930615	930622	
Benzo(a)anthracene	ND	.333	ND	QC31086	930615	930622	
Benzo(a)pyrene	ND	.333	ND	QC31086	930615	930622	
Benzo(b)fluoranthene	ND	.333	ND	QC31086	930615	930622	
Benzo(ghi)perylene	ND	.333	ND	QC31086	930615	930622	
Benzo(k)fluoranthene	ND	.333	ND	QC31086	930615	930622	
Benzyl alcohol	ND	.333	ND	QC31086	930615	930622	
4-Bromophenyl phenyl ether	ND	.667	ND	QC31086	930615	930622	
Butyl benzyl phthalate	ND	.667	ND	QC31086	930615	930622	
p-Chloro-m-cresol	ND	.667	ND	QC31086	930615	930622	
4-Chloroaniline	ND	.667	ND	QC31086	930615	930622	
bis(2-Chloroethoxy)methane	ND	1.33	ND	QC31086	930615	930622	
bis(2-Chloroethyl) ether	ND	.667	ND	QC31086	930615	930622	
bis(2-Chloroisopropyl)ether	ND	.667	ND	QC31086	930615	930622	
2-Chloronaphthalene	ND	.667	ND	QC31086	930615	930622	
4-Chlorophenyl phenyl ether	ND	.333	ND	QC31086	930615	930622	
2-Chlorophenol	ND	.667	ND	QC31086	930615	930622	
Chrysene	ND	.667	ND	QC31086	930615	930622	
Di-n-butyl phthalate	ND	.333	ND	QC31086	930615	930622	
Di-n-octyl phthalate	ND	.667	ND	QC31086	930615	930622	
Dibenz[a,h]anthracene	ND	.667	ND	QC31086	930615	930622	
Dibenzofuran	ND	.333	ND	QC31086	930615	930622	
1,2-Dichlorobenzene	ND	.333	ND	QC31086	930615	930622	
1,3-Dichlorobenzene	ND	.667	ND	QC31086	930615	930622	
1,4-Dichlorobenzene	ND	.667	ND	QC31086	930615	930622	
3,3'-Dichlorobenzidine	ND	.667	ND	QC31086	930615	930622	
2,4-Dichlorophenol	ND	1.33	ND	QC31086	930615	930622	
Diethyl phthalate	ND	.667	ND	QC31086	930615	930622	
Dimethyl phthalate	ND	.667	ND	QC31086	930615	930622	
2,4-Dimethylphenol	ND	.667	ND	QC31086	930615	930622	
4,6-Dinitro-o-cresol	ND	.667	ND	QC31086	930615	930622	
2,4-Dinitrophenol	ND	1.33	ND	QC31086	930615	930622	
2,4-Dinitrotoluene	ND	1.33	ND	QC31086	930615	930622	
bis(2-Ethylhexyl)phthalate	ND	.667	ND	QC31086	930615	930622	
2,6-Dinitrotoluene	ND	.667	ND	QC31086	930615	930622	

TABLE 1: QUANTITATIVE RESULTS DATA

JUL 24, 1993

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (SR51)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4662	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-90-17	930604	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Fluoranthene	ND	.333	ND	QC31086	930615	930622	
Fluorene	ND	.333	ND	QC31086	930615	930622	
Hexachlorobenzene	ND	.667	ND	QC31086	930615	930622	
Hexachlorobutadiene	ND	.667	ND	QC31086	930615	930622	
Hexachlorocyclopentadiene	ND	.667	ND	QC31086	930615	930622	
Hexachloroethane	ND	.667	ND	QC31086	930615	930622	
Indeno(1,2,3-cd)pyrene	ND	.333	ND	QC31086	930615	930622	
Isophorone	ND	.667	ND	QC31086	930615	930622	
2-Methylnaphthalene	ND	.333	ND	QC31086	930615	930622	
2-Methylphenol	ND	.667	ND	QC31086	930615	930622	
4-Methylphenol	ND	.667	ND	QC31086	930615	930622	
Naphthalene	ND	.333	ND	QC31086	930615	930622	
N-Nitrosodi-n-propylamine	ND	.667	ND	QC31086	930615	930622	
N-Nitrosodiphenylamine	ND	.667	ND	QC31086	930615	930622	
2-Nitroaniline	ND	1.33	ND	QC31086	930615	930622	
3-Nitroaniline	ND	1.33	ND	QC31086	930615	930622	
4-Nitroaniline	ND	1.33	ND	QC31086	930615	930622	
Nitrobenzene	ND	.667	ND	QC31086	930615	930622	
2-Nitrophenol	ND	.667	ND	QC31086	930615	930622	
4-Nitrophenol	ND	1.33	ND	QC31086	930615	930622	
Pentachlorophenol	ND	1.33	ND	QC31086	930615	930622	
Phenanthrene	ND	.333	ND	QC31086	930615	930622	
Phenol	ND	.667	ND	QC31086	930615	930622	
Pyrene	ND	.333	ND	QC31086	930615	930622	
1,2,4-Trichlorobenzene	ND	.667	ND	QC31086	930615	930622	
2,4,5-Trichlorophenol	ND	.667	ND	QC31086	930615	930622	
2,4,6-Trichlorophenol	ND	.667	ND	QC31086	930615	930622	

TABLE 2: METHOD PERFORMANCE DATA

JU[illegible]24, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4662	ARCO PRODUCTS COMPANY	APCCHRYOWS	S S-90-17	930604		0

Compound	Amount added ug/kg	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC/MS)				
1,2-Dichloroethane-D4	-	-	-	-
Bromofluorobenzene	-	-	-	-
Toluene-D8	-	-	-	-
BASE/NEUTRAL FRACTION (GC/MS)				
Nitrobenzene-D5	5250	87	23	120
2-Fluorobiphenyl	6070	80	30	115
Terphenyl-D14	3940	102	18	137
ACID FRACTION (GC/MS)				
Phenol-D6	14900	61	24	113
2-Fluorophenol	14900	57	25	121
2,4,6-Tribromophenol	14900	81	19	122

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD - 6010/7000 SERIES METALS (SR72)

JUL 1, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4662	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-90-17	930604	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Antimony, Total	ND	5.00	ND	QI31052	930625	930629	
Arsenic, Total	7.34	1.00	ND	QG31052	930625	930626	
Barium, Total	87.2	4.00	ND	QI31052	930625	930629	
Beryllium, Total	ND	.500	ND	QI31052	930625	930629	
Cadmium, Total	ND	1.00	ND	QI31052	930625	930629	
Chromium, Total	46.4	3.00	ND	QI31052	930625	930629	
Cobalt, Total	9.64	1.00	ND	QI31052	930625	930629	
Lead, Total	4.94	.500	ND	QG31052	930625	930630	
Mercury, Total	.181	.100	ND	QM31052	930625	930628	
Nickel, Total	40.1	3.00	ND	QI31052	930625	930629	
Selenium, Total	ND	1.00	ND	QG31052	930625	930628	
Silver, Total	ND	1.00	ND	QI31052	930625	930629	
Vanadium, Total	60.0	1.00	ND	QI31052	930625	930629	

TABLE 1: QUANTITATIVE RESULTS DATA

CONVENTIONALS (SR55)

JUN 17, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ME4662 ARCO PRODUCTS COMPANY APCCHRYOWS S S-90-17 930604 808934

ETC Sample No. *Company* *Facility* *Sample Point* *Date* *Joblink*

Compound	Results						
	Sample Concen. %	Report DL %	Blank Concen. %	Batch #	Prep Date	Analysis Date	
Moisture	27.7	1	N/A	QRZ30712		930609	

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)

JUN 29, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4663	ARCO PRODUCTS COMPANY	APCCHRYOWS S S-89-19		930604	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Diesel	ND	3.4	ND	QE31026	930610	930626	

Result reported on a dry-weight basis.

TABLE 2: METHOD PERFORMANCE DATA

Jun 29, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4663	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-89-19	930604		0

Compound	Amount added ug/kg	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	25000	130	60	135
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8015M - TOTAL VOLATILE HYDROCARBONS (ZR35)

Jul 24, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4663	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-89-19	930604	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Gasoline	ND	3.20	ND	QT31051	930609	930617	

- Result reported on a dry-weight basis.

TABLE 2: METHOD PERFORMANCE DATA

JU 23, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4663	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-89-19	930604		0

Compound	Amount added ug/kg	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	5000	96	65	135
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD - 6010/7000 SERIES METALS (SR72)

JUL 1, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4663	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-89-19	930604	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Antimony, Total	ND	5.00	ND	QI31052	930625	930629	
Arsenic, Total	4.62	1.00	ND	QG31052	930625	930626	
Barium, Total	73.5	4.00	ND	QI31052	930625	930629	
Beryllium, Total	ND	.500	ND	QI31052	930625	930629	
Cadmium, Total	ND	1.00	ND	QI31052	930625	930629	
Chromium, Total	35.1	3.00	ND	QI31052	930625	930629	
Cobalt, Total	11.4	1.00	ND	QI31052	930625	930629	
Lead, Total	4.01	.500	ND	QG31052	930625	930630	
Mercury, Total	ND	.100	ND	QM31052	930625	930628	
Nickel, Total	34.8	3.00	ND	QI31052	930625	930629	
Selenium, Total	ND	1.00	ND	QG31052	930625	930628	
Silver, Total	ND	1.00	ND	QI31052	930625	930629	
Vanadium, Total	56.3	1.00	ND	QI31052	930625	930629	

TABLE 1: QUANTITATIVE RESULTS DATA

CONVENTIONALS (SR55)

JU 17, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ME4663 ARCO PRODUCTS COMPANY APCCHRYOWS S S-89-19 930604 808934

ETC Sample No. *Company* *Facility* *Sample Point* *Date* *Joblink*

Compound	Results						
	Sample Concen. %	Report DL %	Blank Concen. %	Batch #	Prep Date	Analysis Date	
Moisture	25.4	1	N/A	QRZ30712		930609	

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)

Jun 29, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4664	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-90-23	930604	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Diesel	ND	3.4	ND	QE31026	930610	930626	

Result reported on a dry-weight basis.

TABLE 2: METHOD PERFORMANCE DATA

Jul 29, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4664	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-90-23	930604		0

Compound	Amount added ug/kg	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	25000	118	60	135
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA
EPA METHOD - 6010/7000 SERIES METALS (SR72)

JUL 1, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4664	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-90-23	930604	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Antimony, Total	ND	5.00	ND	QI31052	930625	930629	
Arsenic, Total	7.94	1.00	ND	QG31052	930625	930626	
Barium, Total	82.8	4.00	ND	QI31052	930625	930629	
Beryllium, Total	ND	.500	ND	QI31052	930625	930629	
Cadmium, Total	ND	1.00	ND	QI31052	930625	930629	
Chromium, Total	34.0	3.00	ND	QI31052	930625	930629	
Cobalt, Total	10.6	1.00	ND	QI31052	930625	930629	
Lead, Total	4.76	.500	ND	QG31052	930625	930630	
Mercury, Total	ND	.100	ND	QM31052	930625	930628	
Nickel, Total	34.8	3.00	ND	QI31052	930625	930629	
Selenium, Total	ND	1.00	ND	QG31052	930625	930628	
Silver, Total	ND	1.00	ND	QI31052	930625	930629	
Vanadium, Total	55.6	1.00	ND	QI31052	930625	930629	

TABLE 1: QUANTITATIVE RESULTS DATA

CONVENTIONALS (SR55)

JUN 17, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4664	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-90-23	930604	808934

Compound	Results						
	Sample Concen. %	Report DL %	Blank Concen. %	Batch #	Prep Date	Analysis Date	
Moisture	26.4	1	N/A	QRZ30712		930609	

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)

JUN 29, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4665	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-90-25	930604	808934

Compound	Results					
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date
Diesel	ND	3.3	ND	QE31026	930610	930626

Result reported on a dry-weight basis.

TABLE 2: METHOD PERFORMANCE DATA

Jul 29, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4665	ARCO PRODUCTS COMPANY	APCCHRYOWS	S S-90-25	930604		0

Compound	Amount added ug/kg	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	25000	128	60	135
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD - 6010/7000 SERIES METALS (SR72)

JUL 1, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4665	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-90-25	930604	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Antimony, Total	ND	5.00	ND	QI31052	930625	930629	
Arsenic, Total	6.20	1.00	ND	QG31052	930625	930626	
Barium, Total	74.7	4.00	ND	QI31052	930625	930629	
Beryllium, Total	ND	.500	ND	QI31052	930625	930629	
Cadmium, Total	ND	1.00	ND	QI31052	930625	930629	
Chromium, Total	34.2	3.00	ND	QI31052	930625	930629	
Cobalt, Total	10.7	1.00	ND	QI31052	930625	930629	
Lead, Total	3.50	.500	ND	QG31052	930625	930630	
Mercury, Total	.126	.100	ND	QM31052	930625	930628	
Nickel, Total	35.0	3.00	ND	QI31052	930625	930629	
Selenium, Total	ND	1.00	ND	QG31052	930625	930628	
Silver, Total	ND	1.00	ND	QI31052	930625	930629	
Vanadium, Total	56.8	1.00	ND	QI31052	930625	930629	

TABLE 1: QUANTITATIVE RESULTS DATA
CONVENTIONALS (SR55)

Jul 17, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4665	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-90-25	930604	808934

Compound	Results						
	Sample Concen. %	Report DL %	Blank Concen. %	Batch #	Prep Date	Analysis Date	
Moisture	23.5	1	N/A	QRZ30712		930609	

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)

Jul 29, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4666	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-85-18	930602	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Diesel	ND	3.4	ND	QE31026	930610	930626	

Result reported on a dry-weight basis.

TABLE 2: METHOD PERFORMANCE DATA

JL 29, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4666	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-85-18	930602		0

Compound	Amount added ug/kg	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	25000	134	60	135
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

CONVENTIONALS (SR55)

J. 17, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4666	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-85-18	930602	808934

Compound	Results						
	Sample Concen. %	Report DL %	Blank Concen. %	Batch #	Prep Date	Analysis Date	
Moisture	25.4	1	N/A	QRZ30712		930609	

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)

J 29, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4667	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-86-18	930603	808934

Compound	Results						
	Sample Concen. mg/kg	Report DL mg/kg	Blank Concen. mg/kg	Batch #	Prep Date	Analysis Date	
Diesel	ND	3.2	ND	QE31026	930610	930626	

Result reported on a dry-weight basis.

TABLE 2: METHOD PERFORMANCE DATA

JU[illegible]29, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4667	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-86-18	930603		0

Compound	Amount added ug/kg	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	25000	135	60	135
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

CONVENTIONALS (SR55)

J[illegible]17, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4667	ARCO PRODUCTS COMPANY	APCCHRYOWS S	S-86-18	930603	808934

Compound	Results						
	Sample Concen. %	Report DL %	Blank Concen. %	Batch #	Prep Date	Analysis Date	
Moisture	21.4	1	N/A	QRZ30712		930609	

TABLE 1: QUALITY ASSURANCE DATA

Jul 22, 1993

EPA METHOD 8020 - AROMATIC VOLATILE ORGANICS (SR58)

Chain of Custody Data Required for ETC Data Management Summary Reports

See Below

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate			
	Blank Concen. mg/kg	Concen. Added mg/kg	% Recov	Unspiked Sample mg/kg	Concen. Added mg/kg	% Recov	First mg/kg	Second mg/kg	RPD	Batch #
Benzene	ND	.208	95	ND	.208	83	.173	.170	1	QX31045
Ethylbenzene	ND	.208	100	ND	.208	91	.189	.182	4	QX31045
Toluene	ND	.208	96	ND	.208	87	.180	.176	2	QX31045
o-Xylene	ND	.208	83	ND	.208	76	.158	.153	3	QX31045
m+p-Xylenes	ND	.417	99	ND	.417	90	.376	.362	4	QX31045

TABLE 1: QUALITY ASSURANCE DATA

JU 30, 1993

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)

Chain of Custody Data Required for ETC Data Management Summary Reports

See Below

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate			
	Blank Concen. mg/kg	Concen. Added mg/kg	% Recov	Unspiked Sample mg/kg	Concen. Added mg/kg	% Recov	First mg/kg	Second mg/kg	RPD	Batch #
Diesel	ND	400	105	-	-	-	422	397	6	QE31026

Due to sample matrix QC duplicate data was calculated using replicate blank spikes.

TABLE 1: QUALITY ASSURANCE DATA

EPA METHOD 8015M - TOTAL VOLATILE HYDROCARBONS (ZR35)

JUN 23, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

See Below

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate			
	Blank Concen. mg/kg	Concen. Added mg/kg	% Recov	Unspiked Sample mg/kg	Concen. Added mg/kg	% Recov	First mg/kg	Second mg/kg	RPD	Batch #
Gasoline	ND	51.6	107	ND	124	93	115	111	4	QT31051

TABLE 1: QUALITY ASSURANCE DATA

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (SR51)

Jun 30, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

See Below

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate			
	Blank Concen. mg/kg	Concen. Added mg/kg	% Recov	Unspiked Sample mg/kg	Concen. Added mg/kg	% Recov	First mg/kg	Second mg/kg	RPD	Batch #
Acenaphthene	ND	5.67	92	ND	5.67	97	5.50	5.01	9	QC31086
p-Chloro-m-cresol	ND	14.2	67	ND	14.2	72	10.2	9.33	9	QC31086
2-Chlorophenol	ND	17.2	53	ND	17.2	55	9.45	9.01	5	QC31086
Di-n-butyl phthalate	ND	5.80	95	1.15	5.80	84	6.04	5.61	7	QC31086
1,4-Dichlorobenzene	ND	6.13	74	ND	6.13	77	4.70	4.45	5	QC31086
2,4-Dinitrotoluene	ND	6.16	82	ND	6.16	88	5.44	4.91	10	QC31086
N-Nitrosodi-n-propylamine	ND	7.76	65	ND	7.76	64	5.00	4.72	6	QC31086
4-Nitrophenol	ND	13.5	85	ND	13.5	91	12.4	11.0	12	QC31086
Pentachlorophenol	ND	12.0	91	ND	12.0	98	11.9	11.1	6	QC31086
Phenol	ND	17.6	47	ND	17.6	48	8.50	8.12	5	QC31086
Pyrene	ND	5.66	95	ND	5.66	100	5.65	5.26	7	QC31086
1,2,4-Trichlorobenzene	ND	5.71	80	ND	5.71	84	4.79	4.57	5	QC31086

TABLE 1: QUALITY ASSURANCE DATA

EPA METHOD - 6010/7000 SERIES METALS (SR72)

JUL 1, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

See Below

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate			
	Blank Concen. mg/kg	Concen. Added mg/kg	% Recov	Unspiked Sample mg/kg	Concen. Added mg/kg	% Recov	First mg/kg	Second mg/kg	RPD	Batch #
Antimony, Total	ND	500	95	ND	500	63	313	271	14	QI31052
Arsenic, Total	ND	4.00	93	5.53	4.00	75	8.54	8.00	7	QG31052
Barium, Total	ND	100	95	84.8	100	77	162	172	6	QI31052
Beryllium, Total	ND	10.0	91	.312	10.0	92	9.54	9.02	6	QI31052
Cadmium, Total	ND	10.0	89	.219	10.0	92	9.38	8.86	6	QI31052
Chromium, Total	ND	100	95	36.8	100	92	129	123	5	QI31052
Cobalt, Total	ND	100	95	11.4	100	92	103	96.3	7	QI31052
Lead, Total	ND	4.00	95	3.89	4.00	80	7.09	6.80	4	QG31052
Mercury, Total	ND	1.00	104	.462	1.00	81	1.27	1.15	10	QM31052
Nickel, Total	ND	100	96	40.0	100	86	126	124	2	QI31052
Selenium, Total	ND	4.00	95	ND	4.00	80	3.19	3.21	.6	QG31052
Silver, Total	ND	20.0	91	ND	20.0	92	17.4	15.9	9	QI31052
Vanadium, Total	ND	100	103	58.6	100	97	156	152	3	QI31052

TABLE 1: QUALITY ASSURANCE DATA
CONVENTIONALS (SR55)

Jun 17, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

See Below

ETC Batch No.

Compound	*QC Blank and Spiked Data*			*QC Matrix Spike*			*QC Duplicate*			
	Blank Concen. %	*Concen. Added %*	*% Recov*	*Unspiked Sample %*	*Concen. Added %*	*% Recov*	*First %*	*Second %*	*RPD*	*Batch #*
Moisture	-	-	-	-	-	-	27.7	28.1	1	QRZ30712

№ 6162

CHAIN OF CUSTODY RECORD

808934

PROJ. NO.	PROJECT NAME
3-1173-230	OWS Investigation

SAMPLERS: L. BAKER

RECEIVING LABORATORY: ETC

SEND RESULTS TO: L. BAKER

LAB I.D. NO.	DATE	TIME	SAMPLE NO.	NO. OF CONTAINERS	TPH (WA 8015-D)	TPH (WA 8015-G)	PAH (8270)	BTEX (8020)	Metals (6010)	REMARKS
	6-2	1600	S-85-18	2	X					
	6-3	1000	S-86-18	1	X					
	6-3	1310	S-97-12	1	X	X	X	X	X	
	6-4	810	S-99-19	1	X	X			X	
	6-4	1015	S-90-17	1	X	X	X	X	X	
	6-4	1040	S-90-23	1	X				X	
	6-4	1040	S-90-25	1	X				X	

METALS = Arsenic
Barium
Cadmium
Chromium
Lead
Silver
Selenium, Mercury

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
L. J. BL	6-7-93 16:00				

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time
			6-8-93 9:50A

Shipper Information: FED EX BILL# 6914408992

ATTN: GINGER BRINDLE PROJ, 1173-230, NO EXTRA QA/QC

0° SMS

REMEDIATION TECHNOLOGIES INC

REMEDIATION TECHNOLOGIES
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PINK COPY - Sampler YELLOW COPY - Laboratory WHITE COPY - R.T.C.

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 6914408992

6914408992

RECIPIENT'S COPY

1 From (Your Name) Please Print: LINDA [illegible] Date: 6-7-93

Company

Your Phone Number (Very Important)

Department/Floor No.

Street Address

City State ZIP Required

2 To (Recipient's Name) Please Print: SAMUEL [illegible]

Company: E T C LABORATORY

Recipient's Phone Number (Very Important): (800) 433-LABS

Department/Floor No.

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 320 TESCONI CIRCLE SUITE 6

City: SANTA ROSA State: CA ZIP Required: 95401

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)

3-1173-230

3 PAYMENT 1 ☐ Bill Sender 2 ☐ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card 5 ☐ Cash/Check

H IF HOLD FOR PICK-UP, Print FEDEX Address Here

Street Address

City State ZIP Required

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)
- 11 ☒ OTHER PACKAGING
- 16 ☐ FEDEX LETTER*
- 12 ☐ FEDEX PAK*
- 13 ☐ FEDEX BOX
- 14 ☐ FEDEX TUBE

Standard Overnight (Delivery by next business afternoon† No Saturday delivery†)
- 51 ☐ OTHER PACKAGING
- 56 ☐ FEDEX LETTER*
- 52 ☐ FEDEX PAK*
- 53 ☐ FEDEX BOX
- 54 ☐ FEDEX TUBE

Economy Two-Day (Delivery by second business day †)
- 30 ☐ ECONOMY*

* Economy Letter rate not available. Minimum charge: One pound economy rate

Government Overnight (Restricted for authorized users only)
- 46 ☐ GOVT LETTER
- 41 ☐ GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
- 70 ☐ OVERNIGHT FREIGHT** (Customer reservation required)
- 80 ☐ TWO-DAY FREIGHT**

† Delivery commitment may be later in some areas

*Declared Value Limit $500. **Call for delivery schedule

5 DELIVERY AND SPECIAL HANDLING (Check services required)
- 1 ☐ HOLD FOR PICK-UP (Fill in Box H)
- 2 ☐ DELIVER WEEKDAY
- 3 ☐ DELIVER SATURDAY (Extra charge) (Not available to all locations)
- 4 ☐ DANGEROUS GOODS (Extra charge)
- 5 ☐
- 6 ☐ DRY ICE Dangerous Goods Shipper's Declaration not required. Dry Ice, 9, UN 1845, ... x ..... kg, 904 III
- 7 ☐ OTHER SPECIAL SERVICE
- 8 ☐
- 9 ☐ SATURDAY PICK-UP (Extra charge)
- ☐
- 12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
1	2 5	
Total 1	Total 2	Total

DIM SHIPMENT (Chargeable Weight) ☐ lbs. L x W x H

Received At: 1 ☐ Regular Stop 2 ☐ On-Call Stop 3 ☐ Drop Box 4 ☐ B.S.C. 5 ☐ Station

7 Release Signature:

Emp. No. Date

☐ Cash Received ☐ Return Shipment ☐ Third Party ☐ Chg. To Del. ☐ Chg. To Hold

Street Address

City State Zip

Received By: X

Date/Time Received FedEx Employee Number

Federal Express Use

Base Charges

Declared Value Charge

Other 1

Other 2

Total Charges

REVISION DATE 11/92
PART #137204 FXEM 1/93
FORMAT #155

155

ENVIRONMENTAL TESTING AND CERTIFICATION CORP.
320 TESCONI CIRCLE, SUITE G, SANTA ROSA, CA. 95401 (707) 544-5570

July 8, 1993

CLIENT: ARCO PRODUCTS COMPANY
CHERRY POINT REFINERY
4519 GRANDVIEW ROAD
FERNDALE, WA 98248

ATTN: LINDA BAKER

JOBLINK: 808964
PROJECT: 3-1173-230 ACP-OWS INVESTIGATION

ANALYSIS

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34);
EPA METHOD 8015M - TOTAL VOLATILE HYDROCARBONS (ZR35); SEMI-VOLATILE ORGANICS - 8270;
AROMATIC VOLATILE ORGANICS; 6010 & 7000 SERIES METALS

SAMPLE NUMBER	SAMPLE POINT	SAMPLE MATRIX	SAMPLE DATE	DATE IN LAB
ME4881	W-85	LIQUID	06-10-93	06-11-93
ME4882	W-87	LIQUID	06-10-93	06-11-93
ME4883	W-89	LIQUID	06-10-93	06-11-93
ME4884	W-90	LIQUID	06-10-93	06-11-93

Environmental Testing and Certification

Jennifer L. Roseberry, Laboratory Operations Manager

7/9/93
Date

ARCO PRODUCTS COMPANY
JULY 07, 1993
808964

SAMPLE MATRIX: LIQUID

Parameter	EPA Prep Method	EPA Analysis Method
Aromatic Volatile Organics	5030	8020
Total Extractable Hydrocarbons	3520*	**
Total Volatile Hydrocarbons	5030*	**
GC/MS Semi-Volatile Organics	3520	8270
ICP Metals	3015	6010
Arsenic	3015	7060
Lead	3015	7421
Selenium	3015	7740
Mercury	7470	7470

* SAMPLES WERE PREPARED AND ANALYZED FOLLOWING THE GUIDELINES OF THE STATE OF CALIFORNIA LEAKING UNDERGROUND FUEL TANK MANUAL (LUFT), OCTOBER 1989

** WASHINGTON STATE METHOD

ns

CHERRY POINT FACILITY
PROJECT #: 3-1173-230
OWS INVESTIGATION
06 JULY 1993

EXECUTIVE SUMMARY

ETC JOBLINK 808964

RETEC collected four (4) water samples at the ARCO Cherry Point Facility, Ferndale, Washington, on Thursday, 10 June 1993 and submitted the samples to ETC (Santa Rosa) via Federal Express (Airbill numbers 6914407522 and 6914407533), Chain of Custody (COC) Numbers 5219 and 5220, respectively. The samples were received on 11 June at a temperature of 1°C (COC 5219) and 2°C (COC 5220).

Samples were analyzed as noted on the preceding cover sheet; a summary of the results is included with the full results tables following this narrative. A Surrogate Summary is included for your convenience. A full copy of results and extended Quality Control data has been sent to Lynn Lane at the ARCO Carson facility.

SEMI-VOLATILE ORGANICS by EPA METHOD 8270

Sample locations W-87 and W-89 had poor surrogate recoveries due to acidity; these samples were canceled by Linda Baker of ReTec since re-extraction would have been outside the method-recommended hold time.

Ginger Brinlee
Program Manager

07 July 1993
Date

QUALITY ASSURANCE DATA

808964

SURROGATE SUMMARY REPORT

QC BATCH: QC31137 Aqueous (Semi-Volatile organics by MS)

SAMPLE ID	A158	A159	A884	B732	B142	A121	# OUT
BLANK	66	48	72	54	93	48	0
BLANK SPIKE	78	63	88	64	103	66	0
W-128 MD	74	51	78	56	85	77	0
W-128 MS	74	52	77	56	90	77	0
W-85	79	58	87	60	72	53	0
W-90	80	30	91	67	58	48	0

QC BATCH: QE31107 Aqueous (Diesel)

SAMPLE ID	B668	C109	C113	# OUT
BLANK		96		0
BLANK SPIKE		100		0
W-85		89		0
W-85 MD		92		0
W-85 MS		102		0
W-87		88		0
W-89		86		0
W-90		88		0

QC BATCH: QT31096 Aqueous (Gasoline)

SAMPLE ID	B668	C109	C113	# OUT
BLANK		88	98	0
BLANK SPIKE		88	106	0
W-85		88	86	0
W-87		88	102	0
W-89		88	103	0
W-89 MD		88	98	0
W-89 MS		88	98	0
W-90		88	99	0

QC BATCH: QX31109 Aqueous (BETX by 8020)

SAMPLE ID	B668	C095	# OUT
BLANK	98	104	0
BLANK SPIKE	101	99	0
W-85	102	110	0
W-87	99	100	0

SURROGATE ID		Aqueous QC Limits	Solid QC Limits
A158	= 2-Fluorobiphenyl	(43-116)	(30-115)
A159	= 2-Fluorophenol	(21-100)	(25-121)
A884	= Nitrobenzene-D5	(35-114)	(23-120)
B732	= Phenol-D6	(10-94)	(24-113)
B142	= Terphenyl-D14	(33-141)	(18-137)
A121	= 2,4,6-Tribromophenol	(10-123)	(19-122)
C109	= Pentacosane	(60-135)	(60-135)
C113	= 4-Bromofluorobenzene	(65-135)	(65-135)
B668	= Bromofluorobenzene	(77-127)	(62-122)
C095	= 1-Chloro-2-fluorobenzene	(74-128)	(62-110)

* Values outside of method quality control limits

QUALITY ASSURANCE DATA
SURROGATE SUMMARY REPORT

808964

SURROGATE ID	B668	C095	# OUT
QC BATCH: QX31109 Aqueous		(BETX by 8020)	
SAMPLE ID			
W-89	99	109	0
W-89 MD	101	100	0
W-89 MS	98	98	0
W-90	100	100	0

SURROGATE ID	Aqueous QC Limits	Solid QC Limits
A158 = 2-Fluorobiphenyl	(43-116)	(30-115)
A159 = 2-Fluorophenol	(21-100)	(25-121)
A884 = Nitrobenzene-D5	(35-114)	(23-120)
B732 = Phenol-D6	(10-94)	(24-113)
B142 = Terphenyl-D14	(33-141)	(18-137)
A121 = 2,4,6-Tribromophenol	(10-123)	(19-122)
C109 = Pentacosane	(60-135)	(60-135)
C113 = 4-Bromofluorobenzene	(65-135)	(65-135)
B668 = Bromofluorobenzene	(77-127)	(62-122)
C095 = 1-Chloro-2-fluorobenzene	(74-128)	(62-110)

* Values outside of method quality control limits

DATA SUMMARY REPORT

DATE: 07/05/93

PAGE: 1

Company: ARCO PRODUCTS COMPANY

Sample Point ID:		W-85	W-90
ETC Sample Number:		ME4881	ME4884
Sample Date:		930610	930610
Facility Code:		APCCHRYOWS	APCCHRYOWS
Parameters	Units		
EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (AR51)			
Acenaphthene	ug/L	<5.26	<5.00
Acenaphthylene	ug/L	<5.26	<5.00
Anthracene	ug/L	<5.26	<5.00
Benzoic acid	ug/L	<21.1	<20.0
Benzo(a)anthracene	ug/L	<5.26	<5.00
Benzo(a)pyrene	ug/L	<5.26	<5.00
Benzo(b)fluoranthene	ug/L	<5.26	<5.00
Benzo(ghi)perylene	ug/L	<5.26	<5.00
Benzo(k)fluoranthene	ug/L	<5.26	<5.00
Benzyl alcohol	ug/L	<10.5	<10.0
4-Bromophenyl phenyl ether	ug/L	<10.5	<10.0
Butyl benzyl phthalate	ug/L	<10.5	<10.0
4-Chloro-m-cresol	ug/L	<10.5	<10.0
4-Chloroaniline	ug/L	<21.1	<20.0
bis(2-Chloroethoxy)methane	ug/L	<10.5	<10.0
bis(2-Chloroethyl) ether	ug/L	<10.5	<10.0
bis(2-Chloroisopropyl)ether	ug/L	<10.5	<10.0
2-Chloronaphthalene	ug/L	<5.26	<5.00
4-Chlorophenyl phenyl ether	ug/L	<10.5	<10.0
2-Chlorophenol	ug/L	<10.5	<10.0
Chrysene	ug/L	<5.26	<5.00
Di-n-butyl phthalate	ug/L	<10.5	<10.0
Di-n-octyl phthalate	ug/L	<10.5	<10.0
Dibenz[a,h]anthracene	ug/L	<5.26	<5.00
Dibenzofuran	ug/L	<5.26	<5.00
1,2-Dichlorobenzene	ug/L	<10.5	<10.0
1,3-Dichlorobenzene	ug/L	<10.5	<10.0
1,4-Dichlorobenzene	ug/L	<10.5	<10.0
3,3'-Dichlorobenzidine	ug/L	<21.1	<20.0
2,4-Dichlorophenol	ug/L	<10.5	<10.0
Diethyl phthalate	ug/L	<10.5	<10.0
Dimethyl phthalate	ug/L	<10.5	<10.0
2,4-Dimethylphenol	ug/L	<10.5	<10.0
4,6-Dinitro-o-cresol	ug/L	<21.1	<20.0
2,4-Dinitrophenol	ug/L	<21.1	<20.0

DATA SUMMARY REPORT

Company: ARCO PRODUCTS COMPANY

DATE: 07/05/93

Parameters	Units	Sample Point ID: W-85 ETC Sample Number: ME4881 Sample Date: 930610 Facility Code: APCCHRYOWS	W-90 ME4884 930610 APCCHRYOWS
PA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (AR51)			
2,4-Dinitrotoluene	ug/L	<10.5	<10.0
bis(2-Ethylhexyl)phthalate	ug/L	<10.5	<10.0
2,6-Dinitrotoluene	ug/L	<10.5	<10.0
Fluoranthene	ug/L	<5.26	<5.00
Fluorene	ug/L	<5.26	<5.00
Hexachlorobenzene	ug/L	<10.5	<10.0
Hexachlorobutadiene	ug/L	<10.5	<10.0
Hexachlorocyclopentadiene	ug/L	<10.5	<10.0
Hexachloroethane	ug/L	<10.5	<10.0
Indeno(1,2,3-cd)pyrene	ug/L	<5.26	<5.00
Isophorone	ug/L	<10.5	<10.0
2-Methylnaphthalene	ug/L	<5.26	<5.00
2-Methylphenol	ug/L	<10.5	<10.0
4-Methylphenol	ug/L	<10.5	<10.0
Naphthalene	ug/L	<5.26	<5.00
N-Nitrosodi-n-propylamine	ug/L	<10.5	<10.0
N-Nitrosodiphenylamine	ug/L	<10.5	<10.0
2-Nitroaniline	ug/L	<21.1	<20.0
3-Nitroaniline	ug/L	<21.1	<20.0
4-Nitroaniline	ug/L	<21.1	<20.0
Nitrobenzene	ug/L	<10.5	<10.0
2-Nitrophenol	ug/L	<10.5	<10.0
4-Nitrophenol	ug/L	<21.1	<20.0
Pentachlorophenol	ug/L	<21.1	<20.0
Phenanthrene	ug/L	<5.26	<5.00
Phenol	ug/L	<10.5	<10.0
Pyrene	ug/L	<5.26	<5.00
1,2,4-Trichlorobenzene	ug/L	<10.5	<10.0
2,4,5-Trichlorophenol	ug/L	<10.5	<10.0
2,4,6-Trichlorophenol	ug/L	<10.5	<10.0

DATA SUMMARY REPORT

DATE: 07/05/93

Company: ARCO PRODUCTS COMPANY

PAGE: 3

Sample Point ID:		W-85	W-87	W-89	W-90
ETC Sample Number:		ME4881	ME4882	ME4883	ME4884
Sample Date:		930610	930610	930610	930610
Facility Code:		APCCHRYOWS	APCCHRYOWS	APCCHRYOWS	APCCHRYOWS
Parameters	Units				
PA METHOD 8020 - AROMATIC VOLATILE ORGANICS (AR58)					
Benzene	ug/L	<.500	<.500	<.500	5.93
Ethylbenzene	ug/L	<.500	<.500	<.500	<.500
Toluene	ug/L	<1.00	<1.00	<1.00	<1.00
o-Xylene	ug/L	<.500	<.500	<.500	<.500
m+p-Xylenes	ug/L	<.500	<.500	<.500	<.500
PA METHOD - 6010/7000 SERIES METALS (AR72)					
Antimony, Total	mg/L	<.050	<.050	<.050	<.050
Barium, Total	mg/L	.072	.064	.114	.059
Beryllium, Total	mg/L	<.005	<.005	<.005	<.005
Cadmium, Total	mg/L	<.005	<.005	<.005	<.005
Chromium, Total	mg/L	<.020	<.020	<.020	<.020
Cobalt, Total	mg/L	<.010	<.010	<.010	<.010
Nickel, Total	mg/L	<.030	<.030	<.030	<.030
Vanadium, Total	mg/L	<.010	<.010	<.010	<.010
Arsenic, Total	mg/L	<.005	<.005	<.005	<.005
Lead, Total	mg/L	<.005	<.005	<.005	<.005
Selenium, Total	mg/L	<.005	.005	<.005	<.005
Mercury, Total	mg/L	<.001	<.001	<.001	<.001
PA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)					
Diesel	ug/L	<50.0	<50.0	<51.5	<50.5
PA METHOD 8015M - TOTAL VOLATILE HYDROCARBONS (ZR35)					
Gasoline	ug/L	<50.0	<50.0	<50.0	<50.0

TABLE 1: QUANTITATIVE RESULTS DATA

JUN 21, 1993

EPA METHOD 8020 - AROMATIC VOLATILE ORGANICS (AR58)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4881	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-85		930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Benzene	ND	.500	ND	QX31109	930618	930618	
Ethylbenzene	ND	.500	ND	QX31109	930618	930618	
Toluene	ND	1.00	ND	QX31109	930618	930618	
o-Xylene	ND	.500	ND	QX31109	930618	930618	
m+p-Xylenes	ND	.500	ND	QX31109	930618	930618	

TABLE 2: METHOD PERFORMANCE DATA

JUN 21, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4881	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-85	930610		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	10	102	71	131
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	10	110	78	126
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

JUL 29, 1993

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4881	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-85	930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Diesel	ND	50	ND	QE31107	930618	930625	

TABLE 2: METHOD PERFORMANCE DATA

JUN 29, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4881	ARCO PRODUCTS COMPANY	APGCHRYOWS	L W-85	930610		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	500	89	60	135
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

JU__24, 1993

EPA METHOD 8015M - TOTAL VOLATILE HYDROCARBONS (ZR35)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4881	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-85	930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Gasoline	ND	50	ND	QT31096	930622	930622	

TABLE 2: METHOD PERFORMANCE DATA

JUN 24, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4881	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-85	930610		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	100	86	65	135
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

JU 5, 1993

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (AR51)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4881	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-85	930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Acenaphthene	ND	5.26	ND	QC31137	930616	930628	
Acenaphthylene	ND	5.26	ND	QC31137	930616	930628	
Anthracene	ND	5.26	ND	QC31137	930616	930628	
Benzoic acid	ND	21.1	ND	QC31137	930616	930628	
Benzo(a)anthracene	ND	5.26	ND	QC31137	930616	930628	
Benzo(a)pyrene	ND	5.26	ND	QC31137	930616	930628	
Benzo(b)fluoranthene	ND	5.26	ND	QC31137	930616	930628	
Benzo(ghi)perylene	ND	5.26	ND	QC31137	930616	930628	
Benzo(k)fluoranthene	ND	5.26	ND	QC31137	930616	930628	
Benzyl alcohol	ND	10.5	ND	QC31137	930616	930628	
4-Bromophenyl phenyl ether	ND	10.5	ND	QC31137	930616	930628	
Butyl benzyl phthalate	ND	10.5	ND	QC31137	930616	930628	
p-Chloro-m-cresol	ND	10.5	ND	QC31137	930616	930628	
4-Chloroaniline	ND	21.1	ND	QC31137	930616	930628	
bis(2-Chloroethoxy)methane	ND	10.5	ND	QC31137	930616	930628	
bis(2-Chloroethyl) ether	ND	10.5	ND	QC31137	930616	930628	
bis(2-Chloroisopropyl)ether	ND	10.5	ND	QC31137	930616	930628	
2-Chloronaphthalene	ND	5.26	ND	QC31137	930616	930628	
4-Chlorophenyl phenyl ether	ND	10.5	ND	QC31137	930616	930628	
2-Chlorophenol	ND	10.5	ND	QC31137	930616	930628	
Chrysene	ND	5.26	ND	QC31137	930616	930628	
Di-n-butyl phthalate	ND	10.5	ND	QC31137	930616	930628	
Di-n-octyl phthalate	ND	10.5	ND	QC31137	930616	930628	
Dibenz[a,h]anthracene	ND	5.26	ND	QC31137	930616	930628	
Dibenzofuran	ND	5.26	ND	QC31137	930616	930628	
1,2-Dichlorobenzene	ND	10.5	ND	QC31137	930616	930628	
1,3-Dichlorobenzene	ND	10.5	ND	QC31137	930616	930628	
1,4-Dichlorobenzene	ND	10.5	ND	QC31137	930616	930628	
3,3'-Dichlorobenzidine	ND	21.1	ND	QC31137	930616	930628	
2,4-Dichlorophenol	ND	10.5	ND	QC31137	930616	930628	
Diethyl phthalate	ND	10.5	ND	QC31137	930616	930628	
Dimethyl phthalate	ND	10.5	ND	QC31137	930616	930628	
2,4-Dimethylphenol	ND	10.5	ND	QC31137	930616	930628	
4,6-Dinitro-o-cresol	ND	21.1	ND	QC31137	930616	930628	
2,4-Dinitrophenol	ND	21.1	ND	QC31137	930616	930628	
2,4-Dinitrotoluene	ND	10.5	ND	QC31137	930616	930628	
bis(2-Ethylhexyl)phthalate	ND	10.5	ND	QC31137	930616	930628	
2,6-Dinitrotoluene	ND	10.5	ND	QC31137	930616	930628	

TABLE 1: QUANTITATIVE RESULTS DATA

Jul 5, 1993

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (AR51)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4881	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-85		930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Fluoranthene	ND	5.26	ND	QC31137	930616	930628	
Fluorene	ND	5.26	ND	QC31137	930616	930628	
Hexachlorobenzene	ND	10.5	ND	QC31137	930616	930628	
Hexachlorobutadiene	ND	10.5	ND	QC31137	930616	930628	
Hexachlorocyclopentadiene	ND	10.5	ND	QC31137	930616	930628	
Hexachloroethane	ND	10.5	ND	QC31137	930616	930628	
Indeno(1,2,3-cd)pyrene	ND	5.26	ND	QC31137	930616	930628	
Isophorone	ND	10.5	ND	QC31137	930616	930628	
2-Methylnaphthalene	ND	5.26	ND	QC31137	930616	930628	
2-Methylphenol	ND	10.5	ND	QC31137	930616	930628	
4-Methylphenol	ND	10.5	ND	QC31137	930616	930628	
Naphthalene	ND	5.26	ND	QC31137	930616	930628	
N-Nitrosodi-n-propylamine	ND	10.5	ND	QC31137	930616	930628	
N-Nitrosodiphenylamine	ND	10.5	ND	QC31137	930616	930628	
2-Nitroaniline	ND	21.1	ND	QC31137	930616	930628	
3-Nitroaniline	ND	21.1	ND	QC31137	930616	930628	
4-Nitroaniline	ND	21.1	ND	QC31137	930616	930628	
Nitrobenzene	ND	10.5	ND	QC31137	930616	930628	
2-Nitrophenol	ND	10.5	ND	QC31137	930616	930628	
4-Nitrophenol	ND	21.1	ND	QC31137	930616	930628	
Pentachlorophenol	ND	21.1	ND	QC31137	930616	930628	
Phenanthrene	ND	5.26	ND	QC31137	930616	930628	
Phenol	ND	10.5	ND	QC31137	930616	930628	
Pyrene	ND	5.26	ND	QC31137	930616	930628	
1,2,4-Trichlorobenzene	ND	10.5	ND	QC31137	930616	930628	
2,4,5-Trichlorophenol	ND	10.5	ND	QC31137	930616	930628	
2,4,6-Trichlorophenol	ND	10.5	ND	QC31137	930616	930628	

TABLE 2: METHOD PERFORMANCE DATA

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4881	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-85	930610		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC/MS)				
1,2-Dichloroethane-D4	-	-	-	-
Bromofluorobenzene	-	-	-	-
Toluene-D8	-	-	-	-
BASE/NEUTRAL FRACTION (GC/MS)				
Nitrobenzene-D5	83	87	35	114
2-Fluorobiphenyl	96	79	43	116
Terphenyl-D14	62	72	33	141
ACID FRACTION (GC/MS)				
Phenol-D6	235	60	10	94
2-Fluorophenol	235	58	21	100
2,4,6-Tribromophenol	236	53	10	123

TABLE 1: QUANTITATIVE RESULTS DATA
EPA METHOD - 6010/7000 SERIES METALS (AR72)

JUL 2, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4881	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-85	930610	808964

Compound	Results						
	Sample Concen. mg/L	Report DL mg/L	Blank Concen. mg/L	Batch #	Prep Date	Analysis Date	
Antimony, Total	ND	.050	ND	QI31080	930629	930701	
Arsenic, Total	ND	.005	ND	QG31080	930701	930702	
Barium, Total	.072	.010	ND	QI31080	930629	930701	
Beryllium, Total	ND	.005	ND	QI31080	930629	930701	
Cadmium, Total	ND	.005	ND	QI31080	930629	930701	
Chromium, Total	ND	.020	ND	QI31080	930629	930701	
Cobalt, Total	ND	.010	ND	QI31080	930629	930701	
Lead, Total	ND	.005	ND	QG31080	930701	930702	
Mercury, Total	ND	.001	ND	QM31080	930629	930629	
Nickel, Total	ND	.030	ND	QI31080	930629	930701	
Selenium, Total	ND	.005	ND	QG31080	930629	930701	
Vanadium, Total	ND	.010	ND	QI31080	930629	930701	

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8020 - AROMATIC VOLATILE ORGANICS (AR58)

Jul 1, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4882	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-87		930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Benzene	ND	.500	ND	QX31109	930619	930619	
Ethylbenzene	ND	.500	ND	QX31109	930619	930619	
Toluene	ND	1.00	ND	QX31109	930619	930619	
o-Xylene	ND	.500	ND	QX31109	930619	930619	
m+p-Xylenes	ND	.500	ND	QX31109	930619	930619	

TABLE 2: METHOD PERFORMANCE DATA

JUL 1, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4882	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-87	930610		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	10	99	71	131
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	10	100	78	126
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

JUN 29, 1993

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4882	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-87	930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Diesel	ND	50	ND	QE31107	930618	930625	

TABLE 2: METHOD PERFORMANCE DATA

JUN 29, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4882	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-87	930610		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	500	88	60	135
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

JUN 24, 1993

EPA METHOD 8015M - TOTAL VOLATILE HYDROCARBONS (ZR35)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4882	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-87		930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Gasoline	ND	50	ND	QT31096	930622	930622	

TABLE 2: METHOD PERFORMANCE DATA

JUN 24, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4882	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-87		930610		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	100	102	65	135
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD - 6010/7000 SERIES METALS (AR72)

JUL 2, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4882	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-87		930610	808964

Compound	Results						
	Sample Concen. mg/L	Report DL mg/L	Blank Concen. mg/L	Batch #	Prep Date	Analysis Date	
Antimony, Total	ND	.050	ND	QI31080	930629	930701	
Arsenic, Total	ND	.005	ND	QG31080	930701	930702	
Barium, Total	.064	.010	ND	QI31080	930629	930701	
Beryllium, Total	ND	.005	ND	QI31080	930629	930701	
Cadmium, Total	ND	.005	ND	QI31080	930629	930701	
Chromium, Total	ND	.020	ND	QI31080	930629	930701	
Cobalt, Total	ND	.010	ND	QI31080	930629	930701	
Lead, Total	ND	.005	ND	QG31080	930701	930702	
Mercury, Total	ND	.001	ND	QM31080	930629	930629	
Nickel, Total	ND	.030	ND	QI31080	930629	930701	
Selenium, Total	.005	.005	ND	QG31080	930629	930701	
Vanadium, Total	ND	.010	ND	QI31080	930629	930701	

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8020 - AROMATIC VOLATILE ORGANICS (AR58)

JU[illegible]1, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4883	ARCO PRODUCTS COMPANY	APGCHRYOWS L W-89		930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Benzene	ND	.500	ND	QX31109	930618	930619	
Ethylbenzene	ND	.500	ND	QX31109	930618	930619	
Toluene	ND	1.00	ND	QX31109	930618	930619	
o-Xylene	ND	.500	ND	QX31109	930618	930619	
m+p-Xylenes	ND	.500	ND	QX31109	930618	930619	

TABLE 2: METHOD PERFORMANCE DATA

JU[illegible]1, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4883	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-89	930610		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	10	99	71	131
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	10	109	78	126
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

JUN 29, 1993

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4883	ARCO PRODUCTS COMPANY	APCCHRYOWS L	W-89	930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Diesel	ND	52	ND	QE31107	930618	930625	

TABLE 2: METHOD PERFORMANCE DATA

JUN 29, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4883	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-89	930610		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	515	86	60	135
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8015M - TOTAL VOLATILE HYDROCARBONS (ZR35)

Jun 24, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4883	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-89		930610	808964

Compound	Results					
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date
Gasoline	ND	50	ND	QT31096	930622	930622

TABLE 2: METHOD PERFORMANCE DATA

JU_24, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4883	ARCO PRODUCTS COMPANY	APGCHRYOWS	L W-89	930610		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	100	103	65	135
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD - 6010/7000 SERIES METALS (AR72)

JUL 2, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4883	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-89		930610	808964

Compound	Results						
	Sample Concen. mg/L	Report DL mg/L	Blank Concen. mg/L	Batch #	Prep Date	Analysis Date	
Antimony, Total	ND	.050	ND	QI31080	930629	930701	
Arsenic, Total	ND	.005	ND	QG31080	930701	930702	
Barium, Total	.114	.010	ND	QI31080	930629	930701	
Beryllium, Total	ND	.005	ND	QI31080	930629	930701	
Cadmium, Total	ND	.005	ND	QI31080	930629	930701	
Chromium, Total	ND	.020	ND	QI31080	930629	930701	
Cobalt, Total	ND	.010	ND	QI31080	930629	930701	
Lead, Total	ND	.005	ND	QG31080	930701	930702	
Mercury, Total	ND	.001	ND	QM31080	930629	930629	
Nickel, Total	ND	.030	ND	QI31080	930629	930701	
Selenium, Total	ND	.005	ND	QG31080	930629	930701	
Vanadium, Total	ND	.010	ND	QI31080	930629	930701	

TABLE 1: QUANTITATIVE RESULTS DATA

Jul 21, 1993

EPA METHOD 8020 - AROMATIC VOLATILE ORGANICS (AR58)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4884	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-90		930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Benzene	5.93	.500	ND	QX31109	930619	930619	
Ethylbenzene	ND	.500	ND	QX31109	930619	930619	
Toluene	ND	1.00	ND	QX31109	930619	930619	
o-Xylene	ND	.500	ND	QX31109	930619	930619	
m+p-Xylenes	ND	.500	ND	QX31109	930619	930619	

TABLE 2: METHOD PERFORMANCE DATA

JU 1, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4884	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-90	930610		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	10	100	71	131
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	10	100	78	126
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

JU[illegible]29, 1993

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4884	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-90	930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Diesel	ND	51	ND	QE31107	930618	930625	

TABLE 2: METHOD PERFORMANCE DATA

JUN 29, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4884	ARCO PRODUCTS COMPANY	APCCHRYOWS L	W-90	930610		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	505	88	60	135
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

Jul 24, 1993

EPA METHOD 8015M - TOTAL VOLATILE HYDROCARBONS (ZR35)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4884	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-90	930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Gasoline	ND	50	ND	QT31096	930622	930622	

TABLE 2: METHOD PERFORMANCE DATA

JL 24, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4884	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-90	930610		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	-	-	-	-
4-Bromofluorobenzene	100	99	65	135
1-Chloro-2-fluorobenzene	-	-	-	-
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

JU__ 5, 1993

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (AR51)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4884	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-90		930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Acenaphthene	ND	5.00	ND	QC31137	930616	930630	
Acenaphthylene	ND	5.00	ND	QC31137	930616	930630	
Anthracene	ND	5.00	ND	QC31137	930616	930630	
Benzoic acid	ND	20.0	ND	QC31137	930616	930630	
Benzo(a)anthracene	ND	5.00	ND	QC31137	930616	930630	
Benzo(a)pyrene	ND	5.00	ND	QC31137	930616	930630	
Benzo(b)fluoranthene	ND	5.00	ND	QC31137	930616	930630	
Benzo(ghi)perylene	ND	5.00	ND	QC31137	930616	930630	
Benzo(k)fluoranthene	ND	5.00	ND	QC31137	930616	930630	
Benzyl alcohol	ND	10.0	ND	QC31137	930616	930630	
4-Bromophenyl phenyl ether	ND	10.0	ND	QC31137	930616	930630	
Butyl benzyl phthalate	ND	10.0	ND	QC31137	930616	930630	
p-Chloro-m-cresol	ND	10.0	ND	QC31137	930616	930630	
4-Chloroaniline	ND	20.0	ND	QC31137	930616	930630	
bis(2-Chloroethoxy)methane	ND	10.0	ND	QC31137	930616	930630	
bis(2-Chloroethyl) ether	ND	10.0	ND	QC31137	930616	930630	
bis(2-Chloroisopropyl)ether	ND	10.0	ND	QC31137	930616	930630	
2-Chloronaphthalene	ND	5.00	ND	QC31137	930616	930630	
4-Chlorophenyl phenyl ether	ND	10.0	ND	QC31137	930616	930630	
2-Chlorophenol	ND	10.0	ND	QC31137	930616	930630	
Chrysene	ND	5.00	ND	QC31137	930616	930630	
Di-n-butyl phthalate	ND	10.0	ND	QC31137	930616	930630	
Di-n-octyl phthalate	ND	10.0	ND	QC31137	930616	930630	
Dibenz[a,h]anthracene	ND	5.00	ND	QC31137	930616	930630	
Dibenzofuran	ND	5.00	ND	QC31137	930616	930630	
1,2-Dichlorobenzene	ND	10.0	ND	QC31137	930616	930630	
1,3-Dichlorobenzene	ND	10.0	ND	QC31137	930616	930630	
1,4-Dichlorobenzene	ND	10.0	ND	QC31137	930616	930630	
3,3'-Dichlorobenzidine	ND	20.0	ND	QC31137	930616	930630	
2,4-Dichlorophenol	ND	10.0	ND	QC31137	930616	930630	
Diethyl phthalate	ND	10.0	ND	QC31137	930616	930630	
Dimethyl phthalate	ND	10.0	ND	QC31137	930616	930630	
2,4-Dimethylphenol	ND	10.0	ND	QC31137	930616	930630	
4,6-Dinitro-o-cresol	ND	20.0	ND	QC31137	930616	930630	
2,4-Dinitrophenol	ND	20.0	ND	QC31137	930616	930630	
2,4-Dinitrotoluene	ND	10.0	ND	QC31137	930616	930630	
bis(2-Ethylhexyl)phthalate	ND	10.0	ND	QC31137	930616	930630	
2,6-Dinitrotoluene	ND	10.0	ND	QC31137	930616	930630	

TABLE 1: QUANTITATIVE RESULTS DATA

JU_ 5, 1993

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (AR51)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4884	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-90	930610	808964

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Fluoranthene	ND	5.00	ND	QC31137	930616	930630	
Fluorene	ND	5.00	ND	QC31137	930616	930630	
Hexachlorobenzene	ND	10.0	ND	QC31137	930616	930630	
Hexachlorobutadiene	ND	10.0	ND	QC31137	930616	930630	
Hexachlorocyclopentadiene	ND	10.0	ND	QC31137	930616	930630	
Hexachloroethane	ND	10.0	ND	QC31137	930616	930630	
Indeno(1,2,3-cd)pyrene	ND	5.00	ND	QC31137	930616	930630	
Isophorone	ND	10.0	ND	QC31137	930616	930630	
2-Methylnaphthalene	ND	5.00	ND	QC31137	930616	930630	
2-Methylphenol	ND	10.0	ND	QC31137	930616	930630	
4-Methylphenol	ND	10.0	ND	QC31137	930616	930630	
Naphthalene	ND	5.00	ND	QC31137	930616	930630	
N-Nitrosodi-n-propylamine	ND	10.0	ND	QC31137	930616	930630	
N-Nitrosodiphenylamine	ND	10.0	ND	QC31137	930616	930630	
2-Nitroaniline	ND	20.0	ND	QC31137	930616	930630	
3-Nitroaniline	ND	20.0	ND	QC31137	930616	930630	
4-Nitroaniline	ND	20.0	ND	QC31137	930616	930630	
Nitrobenzene	ND	10.0	ND	QC31137	930616	930630	
2-Nitrophenol	ND	10.0	ND	QC31137	930616	930630	
4-Nitrophenol	ND	20.0	ND	QC31137	930616	930630	
Pentachlorophenol	ND	20.0	ND	QC31137	930616	930630	
Phenanthrene	ND	5.00	ND	QC31137	930616	930630	
Phenol	ND	10.0	ND	QC31137	930616	930630	
Pyrene	ND	5.00	ND	QC31137	930616	930630	
1,2,4-Trichlorobenzene	ND	10.0	ND	QC31137	930616	930630	
2,4,5-Trichlorophenol	ND	10.0	ND	QC31137	930616	930630	
2,4,6-Trichlorophenol	ND	10.0	ND	QC31137	930616	930630	

TABLE 2: METHOD PERFORMANCE DATA

Jul 5, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME4884	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-90	930610		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC/MS)				
1,2-Dichloroethane-D4	-	-	-	-
Bromofluorobenzene	-	-	-	-
Toluene-D8	-	-	-	-
BASE/NEUTRAL FRACTION (GC/MS)				
Nitrobenzene-D5	79	91	35	114
2-Fluorobiphenyl	91	80	43	116
Terphenyl-D14	59	58	33	141
ACID FRACTION (GC/MS)				
Phenol-D6	223	67	10	94
2-Fluorophenol	223	30	21	100
2,4,6-Tribromophenol	224	48	10	123

TABLE 1: QUANTITATIVE RESULTS DATA
EPA METHOD - 6010/7000 SERIES METALS (AR72)

JUL 2, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME4884	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-90		930610	808964

Compound	Results						
	Sample Concen. mg/L	Report DL mg/L	Blank Concen. mg/L	Batch #	Prep Date	Analysis Date	
Antimony, Total	ND	.050	ND	QI31080	930629	930701	
Arsenic, Total	ND	.005	ND	QG31080	930701	930702	
Barium, Total	.059	.010	ND	QI31080	930629	930701	
Beryllium, Total	ND	.005	ND	QI31080	930629	930701	
Cadmium, Total	ND	.005	ND	QI31080	930629	930701	
Chromium, Total	ND	.020	ND	QI31080	930629	930701	
Cobalt, Total	ND	.010	ND	QI31080	930629	930701	
Lead, Total	ND	.005	ND	QG31080	930701	930702	
Mercury, Total	ND	.001	ND	QM31080	930629	930629	
Nickel, Total	ND	.030	ND	QI31080	930629	930701	
Selenium, Total	ND	.005	ND	QG31080	930629	930701	
Vanadium, Total	ND	.010	ND	QI31080	930629	930701	

TABLE 1: QUALITY ASSURANCE DATA

EPA METHOD 8020 - AROMATIC VOLATILE ORGANICS (AR58)

JUL 21, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

See Below

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate			
	Blank Concen. ug/L	Concen. Added ug/L	% Recov	Unspiked Sample ug/L	Concen. Added ug/L	% Recov	First ug/L	Second ug/L	RPD	Batch #
Benzene	ND	10.0	96	ND	10.0	95	9.53	9.51	.2	QX31109
Ethylbenzene	ND	10.0	98	ND	10.0	99	9.85	9.73	1	QX31109
Toluene	ND	10.0	97	ND	10.0	97	9.71	9.61	1	QX31109
o-Xylene	ND	10.0	98	ND	10.0	98	9.77	9.71	.6	QX31109
m+p-Xylenes	ND	20.0	98	ND	20.0	99	19.7	19.5	1	QX31109

TABLE 1: QUALITY ASSURANCE DATA

EPA METHOD 8015M - TOTAL VOLATILE HYDROCARBONS (ZR35)

JUN 24, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

See Below

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate			
	Blank Concen. ug/L	Concen. Added ug/L	% Recov	Unspiked Sample ug/L	Concen. Added ug/L	% Recov	First ug/L	Second ug/L	RPD	Batch #
Gasoline	ND	1000	101	ND	1000	91	909	818	11	QT31096

TABLE 1: QUALITY ASSURANCE DATA

J 29, 1993

EPA METHOD 8015M - TOTAL EXTRACTABLE HYDROCARBONS (ZR34)

Chain of Custody Data Required for ETC Data Management Summary Reports

See Below

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate			
	Blank Concen. ug/L	Concen. Added ug/L	% Recov	Unspiked Sample ug/L	Concen. Added ug/L	% Recov	First ug/L	Second ug/L	RPD	Batch #
Diesel	ND	8000	89	ND	8000	90	7230	6540	10	QE31107

TABLE 1: QUALITY ASSURANCE DATA

Ju 5, 1993

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (AR51)

Chain of Custody Data Required for ETC Data Management Summary Reports

See Below

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate			
	Blank Concen. ug/L	Concen. Added ug/L	% Recov	Unspiked Sample ug/L	Concen. Added ug/L	% Recov	First ug/L	Second ug/L	RPD	Batch #
Acenaphthene	ND	85.1	85	ND	170	81	138	141	2	QC31137
p-Chloro-m-cresol	ND	213	63	ND	426	65	276	265	4	QC31137
2-Chlorophenol	ND	257	50	ND	515	47	241	244	1	QC31137
Di-n-butyl phthalate	ND	86.9	55	ND	174	85	154	151	2	QC31137
1,4-Dichlorobenzene	ND	92.0	70	ND	184	64	118	127	7	QC31137
2,4-Dinitrotoluene	ND	92.4	86	ND	185	81	150	155	3	QC31137
N-Nitrosodi-n-propylamine	ND	116	62	ND	233	51	119	125	4	QC31137
4-Nitrophenol	ND	203	70	ND	406	69	281	298	6	QC31137
Pentachlorophenol	ND	181	78	ND	361	83	301	321	6	QC31137
Phenol	ND	265	46	ND	529	43	227	228	.5	QC31137
Pyrene	ND	84.9	86	ND	170	84	142	142	.2	QC31137
1,2,4-Trichlorobenzene	ND	85.7	78	ND	171	70	121	129	7	QC31137

TABLE 1: QUALITY ASSURANCE DATA

EPA METHOD - 6010/7000 SERIES METALS (AR72)

JUL 2, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

See Below

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate			
	Blank Concen. mg/L	Concen. Added mg/L	% Recov	Unspiked Sample mg/L	Concen. Added mg/L	% Recov	First mg/L	Second mg/L	RPD	Batch #
Antimony, Total	ND	5.55	99	ND	5.55	100	5.56	5.43	2	QI31080
Arsenic, Total	ND	.022	97	ND	.022	93	.022	.022	.9	QG31080
Barium, Total	ND	1.11	104	.072	1.11	103	1.22	1.22	0	QI31080
Beryllium, Total	ND	.111	98	ND	.111	97	.107	.104	3	QI31080
Cadmium, Total	ND	.111	98	ND	.111	99	.109	.103	6	QI31080
Chromium, Total	ND	1.11	101	ND	1.11	99	1.10	1.07	3	QI31080
Cobalt, Total	ND	1.11	100	ND	1.11	94	1.07	1.04	3	QI31080
Lead, Total	ND	.022	102	ND	.022	96	.022	.026	17	QG31080
Mercury, Total	ND	.020	97	ND	.020	70	.014	.014	3	QM31080
Nickel, Total	ND	1.11	101	ND	1.11	96	1.08	1.06	2	QI31080
Selenium, Total	ND	.022	88	ND	.022	73	.016	.015	8	QG31080
Vanadium, Total	ND	1.11	104	ND	1.11	102	1.15	1.13	2	QI31080

№ 5219

808964

CHAIN OF CUSTODY RECORD

PROJ. NO.: 3-1173-230
PROJECT NAME: ACP - OWS INVESTIGATION
SAMPLERS: D. KINNEY / S. YAPJOCO
RECEIVING LABORATORY: ETC
SEND RESULTS TO: Linda Baker

LAB I.D. NO.	DATE	TIME	SAMPLE NO.	NO. OF CONTAINERS	8270	WTPH D	METALS - Antimony, Arsenic, Ba, Be, Cd, Cr, Co, Pb, Hg, Ni, Selenium, Vanadium				REMARKS
	6/10/93	1015	W-85	1			X				Please call one results are complete.
	↓	1125	W-87	5	X	X	X				
		0940	W-89	1			X				
		1055	W-90	5	X	X	X				
											Metals include: Antimony, Arsenic, Barium, Berillium, Cadmium, Chromium, Cobalt, Lead, Mercury, Nickel, Selenium, and Vanadium

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Susan Yapjoco	6/10/93 1240				

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time
		Jeff Hayes	6-11-93 9:55

Shipper Information: Fed Ex # 6914407522

2° SMS #51

REMEDIATION TECHNOLOGIES INC
REMEDIATION TECHNOLOGIES
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PINK COPY - Sampler
YELLOW COPY -

№ 5220 808964

CHAIN OF CUSTODY RECORD

PROJ. NO.: 3-1173-230

PROJECT NAME: ACP-OWS INVESTIGATION

SAMPLERS: D. KINNEY / S. YAPJOCO

RECEIVING LABORATORY:

SEND RESULTS TO: LINDA BAKER

LAB I.D. NO.	DATE	TIME	SAMPLE NO.	NO. OF CONTAINERS	8270	WTPH-D	WTPH-G	BTEX (8020)				REMARKS
	6-10-93	1015	W-85	8	X	X	X	X				Please call when
	↓	1125	W-87	4			X	X				results are complete
	↓	0940	W-89	8	X	X	X	X				
	↓	1055	W-90	4			X	X				

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Susan Yapjoco	6/10/93 1245				

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time
		Jeff Hayes	6-11-93 9:55A

Shipper Information: Fed Ex# 6914407533

1°C SM7 #90

REMEDIATION TECHNOLOGIES INC

REMEDIATION TECHNOLOGIES
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PINK COPY - Sampler YELLOW COPY - Laboratory

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE
TRACKING NUMBER 6914407522

6914407522

RECIPIENT'S COPY

1 Date 6/10/93

From (Your Name) Please Print: S. Yapjoco

Your Phone Number (Very Important): [illegible]

Company

Department/Floor No.

Street Address: [illegible]

City: [illegible] State ZIP Required [illegible]

2 To (Recipient's Name) Please Print: [illegible]

Recipient's Phone Number (Very Important): (800) [illegible]

Company: ETC

Department/Floor No.

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 220 [illegible], Ste G

City: Santa Rosa State: CA ZIP Required: 95401

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 5-1173-020

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address
City State ZIP Required

3 PAYMENT 1 ☐ Bill Sender 2 ☐ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card
5 ☐ Cash/ Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)	Standard Overnight (Delivery by next business afternoon. No Saturday delivery†)
11 ☒ OTHER PACKAGING	51 ☐ OTHER PACKAGING
16 ☐ FEDEX LETTER*	56 ☐ FEDEX LETTER*
12 ☐ FEDEX PAK*	52 ☐ FEDEX PAK*
13 ☐ FEDEX BOX	53 ☐ FEDEX BOX
14 ☐ FEDEX TUBE	54 ☐ FEDEX TUBE
Economy Two-Day (Delivery by second business day †)	**Government Overnight** (Restricted for authorized users only)
30 ☐ ECONOMY*	46 ☐ GOVT LETTER
*Economy Letter rate not available. Minimum charge: One pound economy rate.	41 ☐ GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
70 ☐ OVERNIGHT FREIGHT** (Confirmed reservation required) 80 ☐ TWO-DAY FREIGHT**

† Delivery commitment may be later in some areas.
*Declared Value Limit $500
**Call for delivery schedule

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1 ☐ HOLD FOR PICK-UP (Fill in Box H)
2 ☒ DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) (Not available to all locations) ☐
4 ☐ DANGEROUS GOODS (Extra charge)
5 ☐
6 ☐ DRY ICE Dangerous Goods Shipper's Declaration not required
Dry Ice, 9, UN 1845, ______ x ______ kg. 904 III
7 ☐ OTHER SPECIAL SERVICE
8 ☐
9 ☐ SATURDAY PICK-UP (Extra charge)
☐
12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
1		$1,000
Total 1	Total 4/1	Total $1,000

DIM SHIPMENT (Chargeable Weight) ☐ lbs.
L x W x H

Received At
1 ☐ Regular Stop 3 ☐ Drop Box
2 ☐ On-Call Stop 4 ☐ B.S.C.
5 ☒ Station

Emp. No. Date
☐ Cash Received
☐ Return Shipment
☐ Third Party ☐ Chg. To Del. ☐ Chg. To Hold
Street Address
City State Zip
Received By:
X
Date/Time Received FedEx Employee Number

7 Release Signature:

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 11/92
PART #137204 FXEM 1/93
FORMAT #155

155

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PAC TRACKIN BER 6914407533

6914407533

RECIPIENT'S COPY

Date 6/10/93

om (Your Name) Please Print

Your Phone Number (Very Important)

Department/Floor No.

mpany

reet Address

ty State ZIP Required

2 To (Recipient's Name) Please Print

Recipient's Phone Number (Very Important)

Company ETC

Department/Floor No.

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.)

City SANTA ROSA State CA ZIP Required 95401

UR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on Invoice.)

5-1193-220

H IF HOLD FOR PICK-UP, Print FEDEX Address Here

Street Address

City State ZIP Required

YMENT 1 ☐ Bill Sender 2 ☐ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card

5 ☐ Cash/Check

5 SERVICES (Check only one box)

Priority Overnight

- ☒ OTHER PACKAGING
- ☐ FEDEX LETTER*
- ☐ FEDEX PAK*
- ☐ FEDEX BOX
- ☐ FEDEX TUBE

Standard Overnight (Delivery by next business afternoon No Saturday delivery†)

- 51 ☐ OTHER PACKAGING
- 56 ☐ FEDEX LETTER*
- 52 ☐ FEDEX PAK*
- 53 ☐ FEDEX BOX
- 54 ☐ FEDEX TUBE

Economy Two-Day (Delivery by second business day †)

- ☐ ECONOMY**

Economy Letter rate not available. Minimum charge: One pound economy rate.

Government Overnight (Restricted for authorized users only)

- 46 ☐ GOVT LETTER
- 41 ☐ GOVT PACKAGE

Freight Service (for packages over 150 lbs.)

- ☐ OVERNIGHT FREIGHT** (Confirmed reservation required)
- 80 ☐ TWO-DAY FREIGHT**

Delivery commitment may be later in some areas

*Declared Value Limit $500
**Call for delivery schedule

6 DELIVERY AND SPECIAL HANDLING (Check services required)

1 ☐ HOLD FOR PICK-UP (Fill in Box H)

2 ☒ DELIVER WEEKDAY

3 DELIVER SATURDAY (Extra charge) ☐ (Not available to all locations)

4 ☐ DANGEROUS GOODS (Extra charge)

5 ☐

6 ☐ DRY ICE Dangerous Goods Shipper's Declaration not required

Dry Ice, 9, UN 1845, X kg, 904 III

7 ☐ OTHER SPECIAL SERVICE

8 ☐

9 ☐ SATURDAY PICK-UP (Extra charge)

☐

12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
1		1,000
Total 1	Total 10.	Total 1,000

DIM SHIPMENT (Chargeable Weight)

☐ lbs.

L x W x H

Received At

1 ☐ Regular Stop 3 ☐ Drop Box 4 ☐ B.S.C. 5 ☐ Station

2 ☐ On-Call Stop

7 Release Signature:

Emp. No. Date

☐ Cash Received

☐ Return Shipment

☐ Third Party ☐ Chg. To Del. ☐ Chg. To Hold

Street Address

City State Zip

Received By: X

Date/Time Received FedEx Employee Number

Federal Express Use

Base Charges

Declared Value Charge

Other 1

Other 2

Total Charges

REVISION DATE 11/92
PART #137204 FXEM 1/93
FORMAT #155

155

ETC
Santa Rosa

An ETC Laboratory

320 Tesconi Circle

Suite G

Santa Rosa, CA
95401

Telephone
(707) 544-5570

Fascimile
(707) 544-4906

August 2, 1993

CLIENT: ARCO PRODUCTS COMPANY
CHERRY POINT REFINERY
4519 GRANDVIEW ROAD
FERNDALE, WA 98248

ATTN: LINDA BAKER

JOBLINK: 809165
PROJECT: 3-1173-230 ACP - OWS

ANALYSIS

SEMI-VOLATILE ORGANICS - 8270; AROMATIC VOLATILE ORGANICS

SAMPLE NUMBER	SAMPLE POINT	SAMPLE MATRIX	SAMPLE DATE	DATE IN LAB
ME5850	W-87	LIQUID	07-14-93	07-15-93
ME5851	W-89	LIQUID	07-14-93	07-15-93
ME5852	W-90	LIQUID	07-14-93	07-15-93
ME5853	W-90C	LIQUID	07-14-93	07-15-93

Jennifer L. Roseberry, Laboratory Operations Manager

8/3/93
Date

A division of
APBI Environmental
Sciences Group, Inc.

SAMPLE MATRIX: LIQUID

Parameter	EPA Prep Method	EPA Analysis Method
Aromatic Volatile Organics	5030	8020
GC/MS Semi-Volatile Organics	3520	625

ns

EXECUTIVE SUMMARY

ETC JOBLINK 809165

RETEC collected four (4) water samples at the ARCO Cherry Point Facility, Ferndale, Washington, on Wednesday, 14 July 1993 and submitted the samples to ETC - Santa Rosa via Federal Express (Airbill number 6914408815), Chain of Custody (COC) Number 6167. The samples were received on 15 July at a temperature of 1°C.

Samples were analyzed as noted on the preceding cover sheet; a summary of the results is included with the full results tables following this narrative. A Surrogate Summary is included for your convenience. A full copy of results and extended Quality Control data has been sent to Lynn Lane at the ARCO Carson facility.

Ginger Brinlee
Program Manager

02 Aug 1993
Date

QUALITY ASSURANCE DATA

809165

SURROGATE SUMMARY REPORT

SURROGATE ID	A158	A159	A884	B732	B142	A121	# OUT
QC BATCH: QC31335 Aqueous (Semi-Volatile organics by MS)							
SAMPLE ID							
BLANK	74	59	82	61	92	78	0
BLANK SPIKE	65	51	79	56	75	59	0
MW-611 MD	72	57	80	62	81	88	0
MW-611 MS	74	61	81	65	82	87	0
W-87	75	56	91	62	64	69	0
W-89	75	57	92	63	62	68	0

SURROGATE ID	B668	C095	# OUT
QC BATCH: QX31287 Aqueous(Aromatic Volatile Organics: BTEX)			
SAMPLE ID			
070993MP01 MD	98	98	0
070993MP01 MS	100	100	0
BLANK	102	109	0
BLANK SPIKE	101	101	0
W-90	102	108	0
W-90C	100	106	0

SURROGATE ID	Aqueous QC Limits	Solid QC Limits
A158 = 2-Fluorobiphenyl	(43-116)	(30-115)
A159 = 2-Fluorophenol	(21-100)	(25-121)
A884 = Nitrobenzene-D5	(35-114)	(23-120)
B732 = Phenol-D6	(10-94)	(24-113)
B142 = Terphenyl-D14	(33-141)	(18-137)
A121 = 2,4,6-Tribromophenol	(10-123)	(19-122)
B668 = Bromofluorobenzene	(77-127)	(62-110)
C095 = 1-Chloro-2-fluorobenzene	(74-128)	(62-122)

* Values outside of method quality control limits

DATA SUMMARY REPORT

DATE: 07/30/93

Company: ARCO PRODUCTS COMPANY

PAGE: 1

Sample Point ID:		W-87	W-89
ETC Sample Number:		ME5850	ME5851
Sample Date:		930714	930714
Facility Code:		APCCHRYOWS	APCCHRYOWS
Parameters	Units		
EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (AR51)			
Acenaphthene	ug/L	<5.00	<5.00
Acenaphthylene	ug/L	<5.00	<5.00
Anthracene	ug/L	<5.00	<5.00
Benzoic acid	ug/L	<20.0	<20.0
Benzo(a)anthracene	ug/L	<5.00	<5.00
Benzo(a)pyrene	ug/L	<5.00	<5.00
Benzo(b)fluoranthene	ug/L	<5.00	<5.00
Benzo(ghi)perylene	ug/L	<5.00	<5.00
Benzo(k)fluoranthene	ug/L	<5.00	<5.00
Benzyl alcohol	ug/L	<10.0	<10.0
4-Bromophenyl phenyl ether	ug/L	<10.0	<10.0
Butyl benzyl phthalate	ug/L	<10.0	<10.0
p-Chloro-m-cresol	ug/L	<10.0	<10.0
4-Chloroaniline	ug/L	<20.0	<20.0
bis(2-Chloroethoxy)methane	ug/L	<10.0	<10.0
bis(2-Chloroethyl) ether	ug/L	<10.0	<10.0
bis(2-Chloroisopropyl)ether	ug/L	<10.0	<10.0
2-Chloronaphthalene	ug/L	<5.00	<5.00
4-Chlorophenyl phenyl ether	ug/L	<10.0	<10.0
2-Chlorophenol	ug/L	<10.0	<10.0
Chrysene	ug/L	<5.00	<5.00
Di-n-butyl phthalate	ug/L	<10.0	<10.0
Di-n-octyl phthalate	ug/L	<10.0	<10.0
Dibenz[a,h]anthracene	ug/L	<5.00	<5.00
Dibenzofuran	ug/L	<5.00	<5.00
1,2-Dichlorobenzene	ug/L	<10.0	<10.0
1,3-Dichlorobenzene	ug/L	<10.0	<10.0
1,4-Dichlorobenzene	ug/L	<10.0	<10.0
3,3'-Dichlorobenzidine	ug/L	<20.0	<20.0
2,4-Dichlorophenol	ug/L	<10.0	<10.0
Diethyl phthalate	ug/L	<10.0	<10.0
Dimethyl phthalate	ug/L	<10.0	<10.0
2,4-Dimethylphenol	ug/L	<10.0	<10.0
4,6-Dinitro-o-cresol	ug/L	<20.0	<20.0
2,4-Dinitrophenol	ug/L	<20.0	<20.0

DATA SUMMARY REPORT

DATE: 07/30/93

Company: ARCO PRODUCTS COMPANY

Sample Point ID:		W-87	W-89
ETC Sample Number:		ME5850	ME5851
Sample Date:		930714	930714
Facility Code:		APCCHRYOWS	APCCHRYOWS
Parameters	Units		
EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (AR51)			
2,4-Dinitrotoluene	ug/L	<10.0	<10.0
bis(2-Ethylhexyl)phthalate	ug/L	<10.0	<10.0
2,6-Dinitrotoluene	ug/L	<10.0	<10.0
Fluoranthene	ug/L	<5.00	<5.00
Fluorene	ug/L	<5.00	<5.00
Hexachlorobenzene	ug/L	<10.0	<10.0
Hexachlorobutadiene	ug/L	<10.0	<10.0
Hexachlorocyclopentadiene	ug/L	<10.0	<10.0
Hexachloroethane	ug/L	<10.0	<10.0
Indeno(1,2,3-cd)pyrene	ug/L	<5.00	<5.00
Isophorone	ug/L	<10.0	<10.0
2-Methylnaphthalene	ug/L	<5.00	<5.00
2-Methylphenol	ug/L	<10.0	<10.0
4-Methylphenol	ug/L	<10.0	<10.0
Naphthalene	ug/L	<5.00	<5.00
N-Nitrosodi-n-propylamine	ug/L	<10.0	<10.0
N-Nitrosodiphenylamine	ug/L	<10.0	<10.0
2-Nitroaniline	ug/L	<20.0	<20.0
3-Nitroaniline	ug/L	<20.0	<20.0
4-Nitroaniline	ug/L	<20.0	<20.0
Nitrobenzene	ug/L	<10.0	<10.0
2-Nitrophenol	ug/L	<10.0	<10.0
4-Nitrophenol	ug/L	<20.0	<20.0
Pentachlorophenol	ug/L	<20.0	<20.0
Phenanthrene	ug/L	<5.00	<5.00
Phenol	ug/L	<10.0	<10.0
Pyrene	ug/L	<5.00	<5.00
1,2,4-Trichlorobenzene	ug/L	<10.0	<10.0
2,4,5-Trichlorophenol	ug/L	<10.0	<10.0
2,4,6-Trichlorophenol	ug/L	<10.0	<10.0

DATA SUMMARY REPORT

DATE: 07/30/93

Company: ARCO PRODUCTS COMPANY

Sample Point ID:		W-90	W-90C
ETC Sample Number:		ME5852	ME5853
Sample Date:		930714	930714
Facility Code:		APCCHRYOWS	APCCHRYOWS
Parameters	Units		
EPA METHOD 8020 - AROMATIC VOLATILE ORGANICS (AR58)			
Benzene	ug/L	12.6	<.500
Ethylbenzene	ug/L	<.500	<.500
Toluene	ug/L	<1.00	<1.00
o-Xylene	ug/L	<.500	<.500
m+p-Xylenes	ug/L	<.500	<.500

TABLE 1: QUANTITATIVE RESULTS DATA

JUL 27, 1993

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (AR51)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME5850	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-87		930714	809165

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Acenaphthene	ND	5.00	ND	QC31335	930719	930723	
Acenaphthylene	ND	5.00	ND	QC31335	930719	930723	
Anthracene	ND	5.00	ND	QC31335	930719	930723	
Benzoic acid	ND	20.0	ND	QC31335	930719	930723	
Benzo(a)anthracene	ND	5.00	ND	QC31335	930719	930723	
Benzo(a)pyrene	ND	5.00	ND	QC31335	930719	930723	
Benzo(b)fluoranthene	ND	5.00	ND	QC31335	930719	930723	
Benzo(ghi)perylene	ND	5.00	ND	QC31335	930719	930723	
Benzo(k)fluoranthene	ND	5.00	ND	QC31335	930719	930723	
Benzyl alcohol	ND	10.0	ND	QC31335	930719	930723	
4-Bromophenyl phenyl ether	ND	10.0	ND	QC31335	930719	930723	
Butyl benzyl phthalate	ND	10.0	ND	QC31335	930719	930723	
p-Chloro-m-cresol	ND	10.0	ND	QC31335	930719	930723	
4-Chloroaniline	ND	20.0	ND	QC31335	930719	930723	
bis(2-Chloroethoxy)methane	ND	10.0	ND	QC31335	930719	930723	
bis(2-Chloroethyl) ether	ND	10.0	ND	QC31335	930719	930723	
bis(2-Chloroisopropyl)ether	ND	10.0	ND	QC31335	930719	930723	
2-Chloronaphthalene	ND	5.00	ND	QC31335	930719	930723	
4-Chlorophenyl phenyl ether	ND	10.0	ND	QC31335	930719	930723	
2-Chlorophenol	ND	10.0	ND	QC31335	930719	930723	
Chrysene	ND	5.00	ND	QC31335	930719	930723	
Di-n-butyl phthalate	ND	10.0	ND	QC31335	930719	930723	
Di-n-octyl phthalate	ND	10.0	ND	QC31335	930719	930723	
Dibenz[a,h]anthracene	ND	5.00	ND	QC31335	930719	930723	
Dibenzofuran	ND	5.00	ND	QC31335	930719	930723	
1,2-Dichlorobenzene	ND	10.0	ND	QC31335	930719	930723	
1,3-Dichlorobenzene	ND	10.0	ND	QC31335	930719	930723	
1,4-Dichlorobenzene	ND	10.0	ND	QC31335	930719	930723	
3,3'-Dichlorobenzidine	ND	20.0	ND	QC31335	930719	930723	
2,4-Dichlorophenol	ND	10.0	ND	QC31335	930719	930723	
Diethyl phthalate	ND	10.0	ND	QC31335	930719	930723	
Dimethyl phthalate	ND	10.0	ND	QC31335	930719	930723	
2,4-Dimethylphenol	ND	10.0	ND	QC31335	930719	930723	
4,6-Dinitro-o-cresol	ND	20.0	ND	QC31335	930719	930723	
2,4-Dinitrophenol	ND	20.0	ND	QC31335	930719	930723	
2,4-Dinitrotoluene	ND	10.0	ND	QC31335	930719	930723	
bis(2-Ethylhexyl)phthalate	ND	10.0	ND	QC31335	930719	930723	
2,6-Dinitrotoluene	ND	10.0	ND	QC31335	930719	930723	

TABLE 1: QUANTITATIVE RESULTS DATA

Jul 27, 1993

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (AR51)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME5850	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-87		930714	809165

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Fluoranthene	ND	5.00	ND	QC31335	930719	930723	
Fluorene	ND	5.00	ND	QC31335	930719	930723	
Hexachlorobenzene	ND	10.0	ND	QC31335	930719	930723	
Hexachlorobutadiene	ND	10.0	ND	QC31335	930719	930723	
Hexachlorocyclopentadiene	ND	10.0	ND	QC31335	930719	930723	
Hexachloroethane	ND	10.0	ND	QC31335	930719	930723	
Indeno(1,2,3-cd)pyrene	ND	5.00	ND	QC31335	930719	930723	
Isophorone	ND	10.0	ND	QC31335	930719	930723	
2-Methylnaphthalene	ND	5.00	ND	QC31335	930719	930723	
2-Methylphenol	ND	10.0	ND	QC31335	930719	930723	
4-Methylphenol	ND	10.0	ND	QC31335	930719	930723	
Naphthalene	ND	5.00	ND	QC31335	930719	930723	
N-Nitrosodi-n-propylamine	ND	10.0	ND	QC31335	930719	930723	
N-Nitrosodiphenylamine	ND	10.0	ND	QC31335	930719	930723	
2-Nitroaniline	ND	20.0	ND	QC31335	930719	930723	
3-Nitroaniline	ND	20.0	ND	QC31335	930719	930723	
4-Nitroaniline	ND	20.0	ND	QC31335	930719	930723	
Nitrobenzene	ND	10.0	ND	QC31335	930719	930723	
2-Nitrophenol	ND	10.0	ND	QC31335	930719	930723	
4-Nitrophenol	ND	20.0	ND	QC31335	930719	930723	
Pentachlorophenol	ND	20.0	ND	QC31335	930719	930723	
Phenanthrene	ND	5.00	ND	QC31335	930719	930723	
Phenol	ND	10.0	ND	QC31335	930719	930723	
Pyrene	ND	5.00	ND	QC31335	930719	930723	
1,2,4-Trichlorobenzene	ND	10.0	ND	QC31335	930719	930723	
2,4,5-Trichlorophenol	ND	10.0	ND	QC31335	930719	930723	
2,4,6-Trichlorophenol	ND	10.0	ND	QC31335	930719	930723	

TABLE 2: METHOD PERFORMANCE DATA

J[illegible]27, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME5850	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-87	930714		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC/MS)				
1,2-Dichloroethane-D4	-	-	-	-
Bromofluorobenzene	-	-	-	-
Toluene-D8	-	-	-	-
BASE/NEUTRAL FRACTION (GC/MS)				
Nitrobenzene-D5	79	91	35	114
2-Fluorobiphenyl	91	75	43	116
Terphenyl-D14	59	64	33	141
ACID FRACTION (GC/MS)				
Phenol-D6	223	62	10	94
2-Fluorophenol	223	56	21	100
2,4,6-Tribromophenol	224	69	10	123

TABLE 1: QUANTITATIVE RESULTS DATA

JUL 27, 1993

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (AR51)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME5851	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-89		930714	809165

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Acenaphthene	ND	5.00	ND	QC31335	930719	930723	
Acenaphthylene	ND	5.00	ND	QC31335	930719	930723	
Anthracene	ND	5.00	ND	QC31335	930719	930723	
Benzoic acid	ND	20.0	ND	QC31335	930719	930723	
Benzo(a)anthracene	ND	5.00	ND	QC31335	930719	930723	
Benzo(a)pyrene	ND	5.00	ND	QC31335	930719	930723	
Benzo(b)fluoranthene	ND	5.00	ND	QC31335	930719	930723	
Benzo(ghi)perylene	ND	5.00	ND	QC31335	930719	930723	
Benzo(k)fluoranthene	ND	5.00	ND	QC31335	930719	930723	
Benzyl alcohol	ND	10.0	ND	QC31335	930719	930723	
4-Bromophenyl phenyl ether	ND	10.0	ND	QC31335	930719	930723	
Butyl benzyl phthalate	ND	10.0	ND	QC31335	930719	930723	
p-Chloro-m-cresol	ND	10.0	ND	QC31335	930719	930723	
4-Chloroaniline	ND	20.0	ND	QC31335	930719	930723	
bis(2-Chloroethoxy)methane	ND	10.0	ND	QC31335	930719	930723	
bis(2-Chloroethyl) ether	ND	10.0	ND	QC31335	930719	930723	
bis(2-Chloroisopropyl)ether	ND	10.0	ND	QC31335	930719	930723	
2-Chloronaphthalene	ND	5.00	ND	QC31335	930719	930723	
4-Chlorophenyl phenyl ether	ND	10.0	ND	QC31335	930719	930723	
2-Chlorophenol	ND	10.0	ND	QC31335	930719	930723	
Chrysene	ND	5.00	ND	QC31335	930719	930723	
Di-n-butyl phthalate	ND	10.0	ND	QC31335	930719	930723	
Di-n-octyl phthalate	ND	10.0	ND	QC31335	930719	930723	
Dibenz[a,h]anthracene	ND	5.00	ND	QC31335	930719	930723	
Dibenzofuran	ND	5.00	ND	QC31335	930719	930723	
1,2-Dichlorobenzene	ND	10.0	ND	QC31335	930719	930723	
1,3-Dichlorobenzene	ND	10.0	ND	QC31335	930719	930723	
1,4-Dichlorobenzene	ND	10.0	ND	QC31335	930719	930723	
3,3'-Dichlorobenzidine	ND	20.0	ND	QC31335	930719	930723	
2,4-Dichlorophenol	ND	10.0	ND	QC31335	930719	930723	
Diethyl phthalate	ND	10.0	ND	QC31335	930719	930723	
Dimethyl phthalate	ND	10.0	ND	QC31335	930719	930723	
2,4-Dimethylphenol	ND	10.0	ND	QC31335	930719	930723	
4,6-Dinitro-o-cresol	ND	20.0	ND	QC31335	930719	930723	
2,4-Dinitrophenol	ND	20.0	ND	QC31335	930719	930723	
2,4-Dinitrotoluene	ND	10.0	ND	QC31335	930719	930723	
bis(2-Ethylhexyl)phthalate	ND	10.0	ND	QC31335	930719	930723	
2,6-Dinitrotoluene	ND	10.0	ND	QC31335	930719	930723	

TABLE 1: QUANTITATIVE RESULTS DATA

J__27, 1993

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (AR51)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME5851	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-89	930714	809165

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Fluoranthene	ND	5.00	ND	QC31335	930719	930723	
Fluorene	ND	5.00	ND	QC31335	930719	930723	
Hexachlorobenzene	ND	10.0	ND	QC31335	930719	930723	
Hexachlorobutadiene	ND	10.0	ND	QC31335	930719	930723	
Hexachlorocyclopentadiene	ND	10.0	ND	QC31335	930719	930723	
Hexachloroethane	ND	10.0	ND	QC31335	930719	930723	
Indeno(1,2,3-cd)pyrene	ND	5.00	ND	QC31335	930719	930723	
Isophorone	ND	10.0	ND	QC31335	930719	930723	
2-Methylnaphthalene	ND	5.00	ND	QC31335	930719	930723	
2-Methylphenol	ND	10.0	ND	QC31335	930719	930723	
4-Methylphenol	ND	10.0	ND	QC31335	930719	930723	
Naphthalene	ND	5.00	ND	QC31335	930719	930723	
N-Nitrosodi-n-propylamine	ND	10.0	ND	QC31335	930719	930723	
N-Nitrosodiphenylamine	ND	10.0	ND	QC31335	930719	930723	
2-Nitroaniline	ND	20.0	ND	QC31335	930719	930723	
3-Nitroaniline	ND	20.0	ND	QC31335	930719	930723	
4-Nitroaniline	ND	20.0	ND	QC31335	930719	930723	
Nitrobenzene	ND	10.0	ND	QC31335	930719	930723	
2-Nitrophenol	ND	10.0	ND	QC31335	930719	930723	
4-Nitrophenol	ND	20.0	ND	QC31335	930719	930723	
Pentachlorophenol	ND	20.0	ND	QC31335	930719	930723	
Phenanthrene	ND	5.00	ND	QC31335	930719	930723	
Phenol	ND	10.0	ND	QC31335	930719	930723	
Pyrene	ND	5.00	ND	QC31335	930719	930723	
1,2,4-Trichlorobenzene	ND	10.0	ND	QC31335	930719	930723	
2,4,5-Trichlorophenol	ND	10.0	ND	QC31335	930719	930723	
2,4,6-Trichlorophenol	ND	10.0	ND	QC31335	930719	930723	

TABLE 2: METHOD PERFORMANCE DATA

J 27, 1993

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME5851	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-89	930714		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC/MS)				
1,2-Dichloroethane-D4	-	-	-	-
Bromofluorobenzene	-	-	-	-
Toluene-D8	-	-	-	-
BASE/NEUTRAL FRACTION (GC/MS)				
Nitrobenzene-D5	79	92	35	114
2-Fluorobiphenyl	91	75	43	116
Terphenyl-D14	59	62	33	141
ACID FRACTION (GC/MS)				
Phenol-D6	223	63	10	94
2-Fluorophenol	223	57	21	100
2,4,6-Tribromophenol	224	68	10	123

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8020 - AROMATIC VOLATILE ORGANICS (AR58)

JUL 21, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME5852	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-90		930714	809165

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Benzene	12.6	.500	ND	QX31287	930716	930717	
Ethylbenzene	ND	.500	ND	QX31287	930716	930717	
Toluene	ND	1.00	ND	QX31287	930716	930717	
o-Xylene	ND	.500	ND	QX31287	930716	930717	
m+p-Xylenes	ND	.500	ND	QX31287	930716	930717	

TABLE 2: METHOD PERFORMANCE DATA

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME5852	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-90	930714		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	10	102	71	131
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	10	108	78	126
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUANTITATIVE RESULTS DATA

EPA METHOD 8020 - AROMATIC VOLATILE ORGANICS (AR58)

JUL 21, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Joblink
ME5853	ARCO PRODUCTS COMPANY	APCCHRYOWS L W-90C		930714	809165

Compound	Results						
	Sample Concen. ug/L	Report DL ug/L	Blank Concen. ug/L	Batch #	Prep Date	Analysis Date	
Benzene	ND	.500	ND	QX31287	930716	930717	
Ethylbenzene	ND	.500	ND	QX31287	930716	930717	
Toluene	ND	1.00	ND	QX31287	930716	930717	
o-Xylene	ND	.500	ND	QX31287	930716	930717	
m+p-Xylenes	ND	.500	ND	QX31287	930716	930717	

TABLE 2: METHOD PERFORMANCE DATA

Surrogate

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
ME5853	ARCO PRODUCTS COMPANY	APCCHRYOWS	L W-90C	930714		0

Compound	Amount added ug/l	% Recovery	Control Limits	
			Lower	Upper
VOLATILE FRACTION (GC)				
Bromochloromethane	-	-	-	-
Bromofluorobenzene	10	100	71	131
4-Bromofluorobenzene	-	-	-	-
1-Chloro-2-fluorobenzene	10	106	78	126
EXTRACTABLE FRACTION (GC)				
2,4,6-Tribromophenol	-	-	-	-
Dibutylchlorendate	-	-	-	-
Pentachloronitrobenzene	-	-	-	-
Decachlorobiphenyl	-	-	-	-
2,4-Dichlorophenylacetic acid	-	-	-	-
1,3-Dimethyl-2-nitrobenzene	-	-	-	-
Pentacosane	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-

TABLE 1: QUALITY ASSURANCE DATA

EPA METHOD 8020 - AROMATIC VOLATILE ORGANICS (AR58)

Jul 16, 1993

Chain of Custody Data Required for ETC Data Management Summary Reports

See Below

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate			
	Blank Concen. ug/L	Concen. Added ug/L	% Recov	Unspiked Sample ug/L	Concen. Added ug/L	% Recov	First ug/L	Second ug/L	RPD	Batch #
Benzene	ND	10.0	100	104	50.0	87	148	148	.1	QX31287
Ethylbenzene	ND	10.0	102	ND	50.0	103	51.4	49.8	3	QX31287
Toluene	ND	10.0	101	6.15	50.0	96	54.1	56.5	4	QX31287
o-Xylene	ND	10.0	101	ND	50.0	105	52.4	53.6	2	QX31287
m+p-Xylenes	ND	20.0	101	2.76	100	101	104	103	.5	QX31287

TABLE 1: QUALITY ASSURANCE DATA

J[illegible]28, 1993

EPA METHOD 8270 - GC/MS FOR SEMI-VOLATILE ORGANICS (AR51)

Chain of Custody Data Required for ETC Data Management Summary Reports

See Below

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate			
	Blank Concen. ug/L	Concen. Added ug/L	% Recov	Unspiked Sample ug/L	Concen. Added ug/L	% Recov	First ug/L	Second ug/L	RPD	Batch #
Acenaphthene	ND	85.1	81	ND	170	85	146	141	4	QC31335
p-Chloro-m-cresol	ND	213	65	ND	426	83	352	333	6	QC31335
2-Chlorophenol	ND	257	51	ND	515	55	282	272	4	QC31335
Di-n-butyl phthalate	ND	86.9	65	ND	174	92	162	156	4	QC31335
1,4-Dichlorobenzene	ND	92.0	62	ND	184	64	117	112	4	QC31335
2,4-Dinitrotoluene	ND	92.4	74	ND	185	78	144	137	5	QC31335
N-Nitrosodi-n-propylamine	ND	116	61	ND	233	61	141	135	5	QC31335
4-Nitrophenol	ND	203	83	ND	406	105	425	373	13	QC31335
Pentachlorophenol	ND	181	95	ND	361	107	386	373	3	QC31335
Phenol	ND	265	50	ND	529	55	292	279	5	QC31335
Pyrene	ND	84.9	89	ND	170	92	159	156	2	QC31335
1,2,4-Trichlorobenzene	ND	85.7	70	ND	171	73	125	121	3	QC31335

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City	State / ZIP Required

2 To (Recipient's Name) Please Print: Sample Recvg	Recipient's Phone Number (Very Important): (804) 433-5227
Company: ETC	Department/Floor No.
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City: Santa Rosa	State: CA / ZIP Required: 95401

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 3-1173-232

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3 PAYMENT 1 ☐ Bill Sender 2 ☐ Bill Recipient's FedEx Acct No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card 5 ☐ Cash/Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)	Standard Overnight (Delivery by next business afternoon; no Saturday delivery†)
11 ☒ OTHER PACKAGING	51 ☐ OTHER PACKAGING
16 ☐ FEDEX LETTER*	56 ☐ FEDEX LETTER*
12 ☐ FEDEX PAK*	52 ☐ FEDEX PAK*
13 ☐ FEDEX BOX	53 ☐ FEDEX BOX
14 ☐ FEDEX TUBE	54 ☐ FEDEX TUBE
Economy Two-Day (Delivery by second business day †)	**Government Overnight** (Restricted for authorized users only)
30 ☐ ECONOMY*	46 ☐ GOV'T LETTER
* Economy Letter rate not available. Minimum charge: One pound economy rate	41 ☐ GOV'T PACKAGE
Freight Service (for packages over 150 lbs.)	
70 ☐ OVERNIGHT FREIGHT** (confirmed reservation required)	80 ☐ TWO-DAY FREIGHT**
† Delivery commitment may be later in some areas	*Declared Value Limit $500 **Call for delivery schedule

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1 ☐ HOLD FOR PICK-UP (Fill in Box H)
2 ☒ DELIVER WEEKDAY
3 ☐ DELIVER SATURDAY (Extra charge) (Not available to all locations)
4 ☐ DANGEROUS GOODS (Extra charge)
5 ☐
6 ☐ DRY ICE Dangerous Goods Shipper's Declaration not required
Dry Ice, 9, UN 1845, ___ x ___ kg. 904 III
7 ☐ OTHER SPECIAL SERVICE
8 ☐
9 ☐ SATURDAY PICK-UP (Extra charge)
☐
12 ☐ HOLIDAY DELIVERY (if offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
1	27	$1,000
Total 1	Total 27	Total $1,000

DIM SHIPMENT (Chargeable Weight) ☐ ___ lbs. L x W x H

Received At: 1 ☐ Regular Stop 3 ☐ Drop Box 2 ☐ On-Call Stop 4 ☐ B.S.C.

Emp. No.	Date
☐ Cash Received	
☐ Return Shipment	
☐ Third Party ☐ Chg. To Del. ☐ Chg. To Hold	
Street Address	
City	State / Zip
Received By: X	
Date/Time Received	FedEx Employee Number

7 Release Signature

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Base Charges
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Other 2
Total Charges

REVISION DATE 11/92
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FORMAT #155

155

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CHAIN OF CUSTODY RECORD

809165

PROJ. NO.	PROJECT NAME	SAMPLERS:	RECEIVING LABORATORY:	SEND RESULTS TO:
3-1173-230	ALP - OWS	D. Kinney	ETE	Linda Baker

LAB I.D. NO.	DATE	TIME	SAMPLE NO.	NO. OF CONTAINERS	BTEX (Method 8020)	Method 8270 SVOC					REMARKS
	7/14/93	1220	W-87	2		X					
	↓	1255	W-906	2	X						
		1300	W-90	2	X						
	↓	1335	W-89	2		X					

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Dan W Kinney	7/14/93 1400	Fed Ex			

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time
		Jeff Hagen	7-15-93 9:50

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