

June 12, 1996 31-01567

Hicks, Boyd, Chandler, Falconer 825 West 8th Avenue, Suite 200 Anchorage, Alaska 99501

Attention: Mr. Brian Boyd

RE: BASELINE ENVIRONMENTAL STUDY BULK FUELS FACILITY CRAIG, ALASKA

Dear Mr. Boyd:

AGRA Earth & Environmental, Inc. (AEE) is pleased to submit this Baseline Environmental Study for the property referenced above. AEE performed this study to review regulatory files concerning the subject site and to establish a baseline for contaminant levels which exist in the subsurface as a result of practices from former and/or current lessees.

Should you have any questions concerning this report, please do not hesitate to call.

Respectfully submitted,

AGRA Earth & Environmental, Inc.

Glenn Ruckhaus, P.G. Environmental Geologist

attachments (1)

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AGRA Earth & Environmental, Inc. 711 "H" Street Suite 450 Anchorage, Alaska U.S.A. 99501-3442

Tel (907) 276-6480 Fax (907) 258-4128

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BASELINE ENVIRONMENTAL STUDY BULK FUELS FACILITY CRAIG, ALASKA

Submitted To:

Hicks, Boyd, Chandler, Falconer 825 West 8th Avenue, Suite 200

Submitted By:

AGRA Earth & Environmental 711 H Street, Suite 450 Anchorage, Alaska 99501

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EXECUTIVE SUMMARY

This review of the existing condition of the subject property was performed in two parts. Part one was a historic and regulatory review of the subject property. Part two was an investigation of current surface and subsurface conditions which included the collection of soil, surface water, and ground water samples for analysis.

All correspondence on file with the Alaska Department of Environmental Conservation (ADEC) was addressed to, or received from, Chevron U.S.A., Inc. (Chevron). White Pass Alaska, the current lessee, was mentioned only as the current operator and was never addressed directly by ADEC. ADEC was not aware that Wards Cove Packing Company owned the subject property.

Due to the reduced hydrocarbon levels in the ground water, ADEC allowed Chevron to shut down the existing remediation system. Chevron was required to continue to submit semiannual ground water monitoring reports. The most recent semiannual report received from Chevron was August 1993. Based on a "Closure Rationale" presented by American North, Inc., Chevron requested closure of the site. As of the review date, ADEC had not formally responded to the request for closure.

Ground water and soil samples were collected to establish a baseline of contamination that exists in the subsurface on the subject property. Petroleum contaminated soils and groundwater remain at levels above ADEC and EPA recommended maximum contaminant levels (MCL). Elevated hydrocarbon levels indicate historic releases of gasoline and diesel fuel.

1.0 SITE DESCRIPTION

The Craig bulk fuels facility is located on the western shoreline of Prince of Wales Island in southeast Alaska. The facility includes 12 above ground storage tanks (ASTs), a pump house, a truck trailer loading rack (TTLR), above ground piping, and a pipeline corridor which extends to a boat fueling dock. Eight of the ASTs lie within an unlined earthen berm. The remaining four tanks lie on a concrete slab surrounded by a 3-foot high retaining wall. A water collection system is installed in the TTLR which drains into the unlined earthen dike with the eight ASTs. A chain link fence encompasses the entire facility. A Site Map is provided as Figure 1. The subject property is owned by Wards Cove Packing Company (WCP), leased by White Pass Alaska and currently in physical possession and operated by Harbor Enterprises d.b.a. Petro Marine. WCP owns land adjacent to the bulk fuels plant that has been improved with a bunkhouse, former fish processing plant, and several outbuildings. The adjacent property was operated and maintained independently and was not included in this assessment.



2.0 HISTORIC REVIEW

2.1 Interviews With Knowledgeable Sources

Mr. Carl Asplund managed the bunkhouse and fish processing plant from 1959, when WCP purchased the property, until 1989. Mr. Asplund stated (Personal Communication, May 24, 1995) that he was familiar with the history of the bulk fuels facility. Mr. Asplund stated that WCP purchased the subject site from Libby in 1959. At the time of his arrival, Chevron leased the property from WCP and operated the bulk fuels facility. Mr. Asplund stated that some time later (date unknown) the lease to the property was turned over to White Pass Alaska. When questioned about past practices, Mr. Asplund stated that he was aware of only one major incident in which fuels were spilled. Mr. Asplund stated that during filling, one of the tanks overflowed and spilled approximately 300 gallons of fuel into the bermed area. Mr. Asplund stated that the U.S. Coast Guard responded to the spill. Chevron was reportedly the operator at the time of the spill. Mr. Asplund stated that to the best of his knowledge the bulk fuels facility has been in operation since circa 1930's and that heavier fuels such "Bunker C" were never stored on-site.

Mr. Tony Liechty with White Pass Alaska stated (Personal Communication, May 10, 1995) that he has worked at the facility since 1985. Mr. Liechty stated that White Pass Alaska assumed operation of the facility in 1987. Mr. Liechty stated that he believed the facility had been operated as a bulk fuels facility since the 1930's and corroborated Mr. Asplund's belief that heavy oils had never been stored at the facility. Mr. Liechty stated that the likely source of the known soil and ground water contamination on-site was from past filling practices by Chevron. Mr. Liechty stated that he had been informed by local sources that on several occasions the tanks were overfilled, and during one incident, to such an extent that the secondary containment berm was full with fuel. Mr. Liechty never personally witnessed such an event.

2.2 Review of Regulatory Files

AGRA Earth & Environmental, Inc. (AEE) reviewed all reports and correspondence on file with the Alaska Department of Environmental Conservation (ADEC) in the Juneau office on April 22, <u>1995.</u> Additionally, AEE met with Mr. Randy Rice, ADEC's Project Manager, to discuss the site. Actions which have occurred in regard to the subject site can be divided into three basic categories: initial assessment of subsurface conditions; design, installation, and monitoring of a remediation system; and request for closure of the site. All analysis was performed for gasoline and diesel range compounds. No analysis was ever performed to fully characterize the subsurface contamination. A matrix score sheet was not observed in any of the reports to determine a clean up level. Based on readily available information, the subject site is classified at a minimum to be Level B and is likely Level A. Results of the review are presented below:

In February 1987, GeoEngineers, Inc, was contracted by White Pass Alaska to perform a geotechnical investigation for a proposed tank farm expansion. During the geotechnical investigation, petroleum contaminated soil was encountered.



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The initial report to ADEC was submitted by GeoEngineers on March 16, 1987 on behalf of Chevron.

From March 1987 through December 17, 1993 numerous reports were submitted to ADEC regarding the remediation of the subject site. The vast majority of the reports were status reports which described the installation of a remediation system and the steady decline of petroleum hydrocarbons, especially in the gasoline range.

The remediation system was designed and installed by Rittenhouse-Zeman and Associates (RZA) from Kirkland, Washington (now AGRA Earth & Environmental, Inc.). The system included a soil vapor extraction system and a ground water treatment system. Starting in 1991, America North, Inc. operated the remediation system and submitted reports to the ADEC on behalf of Chevron. The system was operational from 1989 until ADEC approved a partial system shutdown in April 1992. From April 1992 until December 1993 only the soil vapor extraction system was operational. In December 1993, ADEC authorized the complete shutdown of the remediation system. Review of the Quarterly Monitoring Reports indicated the system effectively remediated the gasoline range hydrocarbons, but did not significantly reduce the diesel range hydrocarbons.

The final communication between ADEC and Chevron was a report prepared by EMCON, on behalf of Chevron, requesting closure of the site. Rationale for closure was based on a "Closure Rationale" which in effect was a limited risk assessment. The risk assessment attempted to show that due to the restricted access and poor mobility of diesel, the risk to human health and the environment was low. EMCON noted that since the expected future use of the facility is a "limited industrial site," normal ADEC closure criteria should be waived. ADEC never responded to this closure request. A summary of the correspondence is provided as Appendix A. Copies of all documents on file with ADEC are provided as a separately bound attachment.

AEE spoke with Mr. Randy Rice, the ADEC Project Manager for the Craig Bulk Fuels Facility. Mr. Rice stated (Personal Communication, May 9, 1995) that Chevron has never received closure and has never been relieved of their semiannual reporting requirement. When questioned as to why a monitoring report has not been received since August 1993, Mr. Rice stated he was not aware that it had been so long since monitoring had been performed. Additionally, Mr. Rice stated that he was not aware that Wards Cove Packing Company was the owner of the property and that both Chevron and White Pass Alaska were lessees. (Note: Mr. Rice is no longer employed by the ADEC.)

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The field assessment consisted of a visual survey of the bulk fuels facility and adjacent properties. Mr. Chris Steele with Wards Cove Packing Company (WCP) and Mr. Tony Liechty with White Pass Alaska (WPA) was present during the reconnaissance. Mr. Liechty explained the WPA facility, indicated the location of the remediation system and ground water monitoring wells, and noted any items of potential environmental significance.

During the reconnaissance, Mr. Liechty noted the location of the air-stripping tower and associated water storage tank. The air stripper was shut down in approximately 1993, but since the water supply is a passive dewatering trench, it continues to drain water from beneath the bulk fuels facility. A ground water remediation system schematic is provided as Figure 2.

Since the air stripper is non-operational and the water storage tank is full, excess water leaks from the valve leading to the air stripper's water holding tank. An iridescent sheen was noted on the pooled water below the leaking connection. Mr. Liechty stated that during a prior environmental assessment (by an unknown party) this sheen caused some concern that it might be petroleum based. This sheen was thought to be "tannin", a group of complex vegetable hydrocarbons. The field determination was made by disturbing the sheen and noting the reaction. A tannin-based sheen will not readily reconnect, where as a petroleum hydrocarbon sheen will instantaneously reconnect. This sheen dispersed and did not reconnect after disturbance. Two water samples and a soil sample were collected to verify the observed results, Strip In and Strip W. Strip In was collected from the leaking valve, and Strip W was collected from the pooled water with the tannin. Analytical results indicate gasoline and diesel range organics are present in these samples. However, concentrations indicate these are dissolved phase hydrocarbons which would not be visible as a sheen. Photographs of the remediation system and tannin sheen are provided in Appendix B.

Within the bulk fuels storage area AEE observed evidence of distressed vegetation was noted at several locations. The distressed vegetation was located near the valves at the base of each tank. Additionally, it was noted that drainage from the TTLR is directed into the bermed area with the eight ASTs. An oil water separator removed free-phase hydrocarbons prior to the discharge. Photographs of the site are presented in Appendix B.

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3.2 Site Soil Conditions

As noted previously, soil stained from the apparent release of petroleum hydrocarbons was observed within the earthen berm section of the tank farm. This staining was noted in several locations. Soil samples were not collected from the locations with obvious surface staining.

AEE collected four soil samples from the subject site: three from hand augered soil borings, and one surface soil sample. The samples were labeled: B95-1, B95-2, B95-3, and Strip-S. Sample collection locations are shown on the Site Map provided as Figure 1. Soil borings were advanced with a hand auger to ground water, or until advancement was no longer physically possible. Soil samples were collected from levels with obvious petroleum contamination or from the point immediately above the ground water saturation zone.

Soils encountered within the earthen berm consisted of poorly graded, processed gravels less than ½-inch in diameter. This soil is indicative of non-native fill material used for the ASTs foundations. During advancement of B95-1, indication of petroleum contamination was observed at two feet below ground surface (bgs). Sample B95-1 was collected from this level. Drilling resistance was encountered at 2.8 feet bgs and the boring was terminated. Ground water was not encountered.

Indication of petroleum contamination was observed in B95-2 at a depth of 3 feet bgs. Soil sample B95-2 was collected from this level. The boring was continued to approximately 5.5 bgs and terminated due to drilling resistance. Ground water was encountered at 4.1 feet bgs.

Soil boring B95-3 was advanced down-slope and down-gradient from the bulk fuel facility. The soil consisted of an angular well graded gravel which proved difficult for hand boring. Two attempts were made before finally penetrating an adequate depth for sampling. Soil sample B95-3 was collected from a depth of 3.2 feet bgs. Olfactory evidence of contamination was not observed. Ground water was not encountered.

The fourth soil sample was collected from the saturated soil beneath the leaking pipe joint at the air stripping tower. The sample was collected from the area where the iridescent sheen thought to be tannin was observed.

3.3 Site Ground Water Conditions

According to previous reports and maps, thirteen 2-inch diameter ground water monitoring wells were installed on the subject site. During AEE's assessment, only ten wells were located. Wells MW-2, MW-3, and MW-8 had either been removed or abandoned. MW-7 was listed as a 2-inch monitoring well, but was found to be a 1½-inch diameter piezometer. Protective covers and sealed caps were not installed on any of the wells.

Upon identifying each well, phase-separated hydrocarbon thickness (if any), ground water level, and total depths were measured with a Keck Interface Probe. Water levels and total well



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depths were measured from the top of the casing which was typically 3 to 4 feet above the existing ground surface. Only four wells had a water column height greater than one foot. A table of ground water data is presented in Table 1.

Well ID	Depth to Water (from top of casing)	Total Well Depth (from top of casing)	Water Column Height (ft)	Free-Product Thickness (ft)
MW1	8.43	9.65	1.22	trace
MW2	no longer exists	NA	NA	NA
MW-3	destroyed	NA	NA	NA
MW-4	dry	5	0	NA
MW-5	8.96	10.14	1.18	0.00
MW-6	7.65	10.11	2.46	0.00
MW-7	dry	5.24	0	NA
MW-8	destroyed	NA	NA	NA
MW-9	7.24	7.7	0.46	0.00
MW-10	dry	8.18	0	NA
MW-11	6.45	7.1	0.65	0.00
MW-12	7.46	8.67	1.21	0.00
MW-13	5.4	5.63	0.23	0.00
Strip-In	NA	NA	NA	0.00
Strip-W	NA	NA	NA	0.00
B95-2	NA	NA	NA	0.005

Table 1 - Ground Water Levels

NA = not applicable

Since previous reports did not provide survey data with the top of casing elevations, AEE did not make a determination of the ground water gradient. Previous reports determined the ground water gradient was to the north.

Ground water samples were collected from the four wells (MW-1, MW-5, MW-6, MW-12) with the greatest water column heights. All other wells were determined to contain insufficient



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water for an accurate ground water sample. Each well was purged of three well volumes of water, allowed to recharge, and sampled. MW-1 recharged to only 50% of the original water column height allowing the collection of a minimal quantity of water for analysis.

Two additional water samples were collected for analysis. One water sample (Strip-In) was collected from the leaking influent water line to the air stripper. The source of this water was the passive dewatering trench located beneath the tank farm expansion and was considered an accurate representation of the water quality beneath the tank farm. Another water sample (Strip-W) was collected from the water with the apparent "tannin" sheen. Additionally, a water sample was collected from boring B95-2 to observe if phase-separated hydrocarbons were present. After allowing this sample to settle, 1.5 millimeters (0.005 ft) of phase-separated hydrocarbons were observed floating on the water surface. (It should be noted that this was not a valid water sample and may be biased). A photograph of the product thickness is provided in Appendix B.

4.0 ANALYTICAL RESULTS

All soil and ground water samples were stored in a cooler which maintained a temperature of approximately 5°C. Samples were shipped using proper chain-of-custody procedures to Superior Precision Analytical Inc. in Martinez, California. Types of analyses and results are described in the successive sub-sections.

4.1 Volatile Organic Analysis (VOA)

Three soil samples (B95-1, B95-2, B95-3) and three ground water samples (MW-1, MW-5, MW-6) were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), plus an additional 60 volatile organic analytes by EPA Method 8260. This analysis was performed to determine if in addition to gasoline and diesel fuel, analytes from other sources were present in the subsurface. An additional soil sample (Strip-S) and three ground water samples were analyzed exclusively for BTEX by EPA Method 8020.

In soils, only one sample contained BTEX compounds. B95-2 was analyzed with 640 micrograms/kilogram (μ g/kg) ethylbenzene and 7,000 μ g/kg xylenes. Additional volatile organics were analyzed in B95-3 and B95-1, none of which indicated sources other than from gasoline and/or diesel fuel

In ground water, benzene was analyzed from below method detection limits in MW-5 and MW-6 to 12 micrograms per liter (μ g/l) in Strip-In. Total BTEX analyzed from below detection limits in MW-5 and MW-6 to 266 μ g/l in Strip-In.

The surface water sample (Strip-W) was found to be below method detection limits for BTEX compounds. A summary of analytical results for soils is provided in Table 2, and a summary Table for water samples is provided in Table 3. Complete original analytical results are provided in Appendix C.



4.2 Semi-Volatile Analysis

Three soil (B95-1, B95-2, B95-3) and two ground water samples (MW-1 and MW-6) were analyzed for semi-volatile organics by EPA Method 8270. This analysis was performed to further characterize the subsurface contamination. All analytes for all samples were below method detection limits with one exception. B95-2 contained 670 μ g/l naphthalene. Naphthalene is a compound commonly found with diesel fuel.

4.3 Diesel Range Organics (DRO)

All soil, ground water, and surface water samples were analyzed for DRO by EPA Method 8015, modified. In soils, values ranged from below the method detection limit in B95-3 and Strip-S to 4,800 μ g/kg in B95-1. In ground water, values ranged from below the method detection limit in MW-6 to 6,500 μ g/kg in MW-1.

4.4 Gasoline Range Organics (GRO)

One soil (Strip-S) and four water samples (MW-1, MW-12, Strip-In, and Strip W) were analyzed for GRO by EPA Method 8015, modified. In soils, Strip-S was below the method detection limit. In ground water, results ranged from below the method detection limit in MW-12 and Strip-W to $150 \mu g/I$ in MW-1.

4.5 Polychlorinated Biphenols (PCB)

Two soil samples (B95-1 and B95-3) and two ground water samples (MW-1 and MW-6) were analyzed for PCBs by EPA Method 8080. All samples analyzed below the method detection limit.

4.6 Metals

Two soil (B95-2 and B95-3) and two water samples (MW-6 and Strip-In) were analyzed for the thirteen priority pollutant metals (PPMs) by EPA Methods 6010 and 7000 Series. The thirteen PPMs are: antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, silver, thallium, mercury, and zinc. Soil samples B95-2 and B95-3 analyzed with low levels or levels below method detection limits for: mercury, antimony, arsenic, beryllium, cadmium, chromium, nickel, and copper. Lead in samples B95-2 and B95-3 were 10 mg/kg and 290 mg/kg respectively. Zinc in soil samples B95-2 and B95-3 were 41 mg/kg and 79 mg/kg respectively.

Metals analyzed in the two water samples were either below method detection limits or at levels which are below ADEC maximum contaminant levels (MCLs). A discussion of all analysis with regard to regulatory maximum contaminant levels (MCLs) is presented in Section 5.0.



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Table 2 - Soil Analytical Results							
ANALYTE	METHOD	UNITS	STRIP-S	B95-1	895-2	B95-3	ADEC LEVEL A CLEANUP LEVELS
BENZENE	8020	<u>µq/kq</u>	ND	NA.	NA	NA	100
	8020	µg/kg	ND	NA	NA	NA	NE
ETHYLBENZENE	8020	µɑ/kɑ	ND	NA	NA	NA	NE
XYLENE	8020	µg/kg	ND	NA	NA	NA	NE
GRO	8015	mg/kg	ND	NA.	<u>NA</u>	NA	50
DRO	8015	mg/kg	ND	4800	4200	ND	100
BENZENE	8260	µa/ka	NA	ND	ND	ND	100
TOLUENE	8260	µa/ka	NA	ND	ND	ND	NE
ETHYLBENZENE	8260	µa/ka_	NA	ND	640	ND	NE
XYLENE	8260		NA	ND	7000	ND	NE
SOPROPYLBENZENE	8260	<u>µ</u> a/ka	NA	ND	300	ND	NE
1,3,5,TRIMETHYLBENZENE	8260	μα/kg	NA	850	5400	ND	NĘ
sec-BUTYL BENZENE	8260	ua/ka	NA	ND	960	ND	NE
1,2,4-TRIMETHYLBENZENE	8260	µa/ka	NA	ND	11000	ND	NE
n-PROPYLBENZENE	8260	µa/ka	NA	ND	840	ND	NE
p-ISOPROPYLTOLUENE	8260	ug/kg	NA	ND	1900	ND	NE
n-BUTYL BENZENE	8260	µa/ka	NA	ND	1900	ND	NE
NAPHTHALENE	8260	µa/ka	NA	ND	2600	ND	NE
РСВ	8080	µa/ka	NA	<u>NA</u>	NÐ	ND	NE_
SEMIVOLATILES	8270	µg/kg	NA	МА		ND	NE
NAPHTHALENE		_ <i>µ</i> ɑ/kɑ			670		
MERCURY	6010&7000	mg/kg	NA	NA	ND	0.12	NE
ANTIMONY	6010&7000	mg/kg	NA	NA	ND	ND	NE
ARSENIC	6010&7000	mg/kg	NA	NA	ND.	ND	NE
BERYLLIUM	6010&7000	ma/ka	NA	NA	0.2	0.3	NE
CADMIUM	6010&7000	mg/kg	NA	NA	0.7	1.3	NE
CHROMIUM	6010&7000	mg/kg	NA	NA	0.1	12	NE.
COPPER	6010&7000	ma/ka	NA	NA	7	10	NE
LEAD	6010&7000	ma/ka	NA	NA	10	290	NE
	6010&7000	mg/kg	NA	NA	6	8	NE
SELENIUM	6010&7000	mg/kg	NA	<u>N8</u> NA	ND	ND	NENE
SILVER	6010&7000	ma/ka	NA	NA	ND	1.7	NE
THALLIUM	6010&7000	ma/ka	NA NA	NA	ND	ND	NE
ZINC	6010&7000	ma/ka	NA	NA	41	79	NE.

Table 2 - Soil Analytical Results

 I
 6010&7000
 mg/kg
 NA
 NA
 41
 79
 I

 NA = Not analyzed
 ND = ANALYTE analyzed for, but not detected above method detection limits
 NE = Not established



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ANALYTE	METHOD	UNITS	MW-1	MW-5	MW-6	MW-12	STRIP-IN	STRIP-W	ADEC
BENZENE	8020	μg/I	NA	NA	NA	0.6	12	ND	5
TOLUENE	8020	μg/l	NA	NA	NA	ND	1.1	ND	1,000
ETHYLBENZENE	8020	µg/l	NA	NA	NA.	ND	ND	ND	70
XYLENE	8020	µg/1	NA	NA	NA	0.7	2.6	ND	10,000
GRO	8015	μg/l	150	NA	NA	ND	130	ND	NE
DRO	8015	µg/l	6500	3000	ND	2200	120	600	NE
					0		1		
BENZENE	8260	<u>µ</u> q/l	8,1	1.0	ND	NA	NA	NA.	5
TOLUENE	8260	<u>μ</u> α/Ι	ND	ND	ND	NA	NA.	NA	1,000
ETHYLBENZENE	8260	µg/I	ND	ND	ND	NA	NA	NA	70
XYLENE	8260	<u>μ</u> α/Ι		ND	ND	NA	NA	NA	10,000
РСВ	8080	µg/l	ND	NA	ND	NA	NA	NA	NE
SEMIVOLATILES	8270	/g/l_	ND	NA	ND	NA	NA	NA	NĘ
NAPHTHALENE									
MERCURY	6010&700		NA	NA	ND	NA	ND	NA	.002
ANTIMONY	_6010&700	<u>μ</u> α/Ι	NA	NA	ND	NA	ND	NA	.006
ARSENIC	6010&700	<u>μ</u> α/Ι	NA	NA	ND	NA	ND	NA	0.05
BERYLLIUM	6010&700	<i>μ</i> α/Ι	NA	NA	ND	NA	ND	NA	.004
CADMIUM	6010&700	μ <u>α/ </u>	NA	NA	0.008	NA	ND	NA	0.005
CHROMIUM	6010&700	<u>μ</u> α/Ι	NA	NA	0.03	NA	ND	NA	0.1
COPPER	6010&700	μg/I	NA	NA	0.06	NA	ND	NA	1.0
LEAD	6010&700	μ <u>α</u> /Ι	NA	NA	ND		ND	NA	-
NICKEL	6010&700	<u>//a/l</u>	NA	NA	0.06	NA	ND	NA	0.1
SELENIUM	6010&700	<u>µ</u> a/I	NA	NA	ND.	NA	ND	NA	.05
SILVER	6010&700	µg/I	NA	NA	ND	NA	ND	NA	0.1
THALLIUM	6010&700	<u>µg/l</u>	NA	NA	ND	NA	ND		.002
ZINC	6010&700		NA	NA	0.32		ND	NA	5

Table 3- Water Analytical Results

NA = Not analyzed

 $\mathsf{ND}=\mathsf{ANALYTE}$ analyzed for, but not detected above method detection limits $\mathsf{NE}=\mathsf{Not}$ established



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5.0 DISCUSSION OF RESULTS

5.1 Regulatory Review and Site Observations

Based on review of documents on file with ADEC and analytical results from this assessment, it is apparent that soil and ground water contamination remains on site. No communications or semi-annual monitoring reports have been submitted to ADEC since December 17, 1993. Though there is no document on file with ADEC specifically naming a responsible party, it appears that Chevron has accepted responsibility for the clean-up. Chevron has hired consultants to perform all work with regard to the delineation of the contamination plume, design and installation of the remediation system, and monitoring of the ground water conditions. Chevron has requested closure of the site based on a limited risk assessment which was performed by EMCON. The primary justification for the requested closure was the inferred continued site use as a bulk fuels facility. The risk assessment was performed in 1993 and, therefore, did not utilize the currently accepted methodology. The rationale for the requested closure was the assumed continued use as a bulk fuels facility. Since the site usage may change in the future, this argument is not valid. Additionally, the risk assessment did not address the situation that the operator was not the property owner.

The ground water and soil vapor extraction remediation systems were both shut down. From review of past monitoring reports, the systems successfully reduced gasoline range hydrocarbons (including BTEX), but did not significantly affect diesel range hydrocarbons in ground water. The passive ground water dewatering system was never closed and continues to drain water from the tank farm area and discharge it onto the ground near the abandoned air striping tower through a leaking valve.

5.2 Ground Water and Surface Water

Conditions in the field during AEE's site reconnaissance were significantly different from those stated in previous reports. Three of the ground water monitoring wells no longer existed and ground water was measured at approximately 4 to 6 feet bgs. Previous reports indicated ground water levels of approximately 2 feet bgs. Several of the ground water monitoring wells contained insufficient volumes to collect a sample. The wells which were sampled contained low volumes and with very poor recharge from the aquifer. It is possible these samples were not truly representative of the current ground water conditions.

BTEX levels in ground and surface waters were all below or slightly above ADEC maximum contaminant levels (MCLs). Additionally, the water sample collected from beneath the dripping valve at the air stripper contained 12 μ g/l benzene, 130 μ g/l gasoline range organics (GRO), and 120 μ g/l of diesel range organics (DRO). The ADEC MCL for benzene is 5 μ g/l. ADEC has not established an MCL for GRO or DRO in groundwater.

Tests on water samples for semivolatile compounds, PCB's, and metals did not identify previously unknown contamination. Semivolatiles analyzed in the ground water are all analytes



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which commonly occur in diesel fuel. PCBs were not detected in either of the two water samples analyzed. Metals in ground water are all below or only slightly above ADEC MCLs. None of these compounds appear to be a factor in determining the level of contamination at the site.

During this assessment, diesel range hydrocarbons were analyzed up to $6,500 \mu g/l$ (6.5 ppm) in the groundwater (MW-1). An MCL for DRO has not been established by ADEC. DRO was detected in the surface water sample, Strip-W, collected from standing water with an iridescent sheen. However, the $600 \mu g/l$ of DRO is not sufficient to produce the obvious sheen that was observed. The sheen was probably tannin as was surmised in Section 3.1 of this report.

5.3 Soils

Gasoline range organics and BTEX compounds were below ADEC Level A cleanup levels for all soil samples collected during this assessment, However, contamination from diesel range hydrocarbons in soils remains at levels above ADEC Level A cleanup levels within the tank farm. Soil samples B95-1 and B95-2 analyzed with 4,800 mg/kg and 4,200 mg/kg DRO. The ADEC Level A cleanup level for DRO is 100 mg/kg. Contamination in soils from gasoline range organics appears to have been effectively remediated.

Tests on soil samples for semivolatile compounds, PCBs, and metals did not identify previously unknown contamination. Semivolatile compounds analyzed in soils consisted of analytes that commonly occur in diesel fuel. PCBs were not detected in either of the two soil samples analyzed. Elevated levels of lead and zinc were analyzed in soils on site. However, the highest levels were from B95-3 which was collected from an area beyond the contamination plume. It is likely that soils in the vicinity contain naturally occurring elevated levels of zinc and lead.

6.0 **RECOMMENDATIONS**

Based on observations made during the site reconnaissance, and analytical results from sampling, AEE recommends the following items for consideration:

- Based on a limited risk assessment, Chevron has requested closure from ADEC. The currently accepted methodology for performing a risk assessment was not followed. No evaluations of toxicity were presented and the risk assessment did not consider that the operator was not the property owner. AEE recommends that as the property owner, WCP should notify ADEC of their opinion of the recommended risk based site closure.
- The ground water monitoring wells established on-site are in disrepair and many are no longer valid sampling points. At the time of the site visit for this assessment, only four wells had sufficient water for sample collection. The wells should be plugged and



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abandoned. It is advised that at least three 2-inch groundwater monitoring wells be established to monitor any advancement of the contamination plume. These wells should be installed to a depth that allows for sample collection during seasonal low ground water levels.

• The passive dewatering trench remains active and is discharging contaminated water beyond the existing plume. No treatment of this water is performed prior to discharge. Additionally, the earthen berm which contains eight of the ASTs is unlined. Should a release occur, fuel could readily flow into the trench and subsequently discharge beyond the constraints of the secondary containment system. AEE recommends that this system be grouted and abandoned. Since the trench appears to lie beneath the four ASTs of the tank farm expansion, the closure must properly investigated and engineered. "As built" information for the tank foundation and dewatering system, if available, should be reviewed prior to performance of any work.

7.0 **REFERENCES**

ADEC, April 2, 1992, Letter to Chevron U.S.A., Inc.

ADEC, Oct 31, 1991, Internal memo.

America North Inc., May 21, 1991, Ground Water Monitoring/Remediation Scope of Work.

America North Inc., July 2, 1991, Letter to ADEC.

America North Inc., Oct 7, 1991, Letter to ADEC.

America North Inc., July 1992, Groundwater Sampling Activities Report.

America North Inc., Aug 1993, Groundwater Sampling Activities Report.

America North Inc., Jan 1992, Environmental Monitoring and Remediation Status Report.

America North Inc., Jan 1992, Groundwater Sampling Activities.

Asplund, Carl, Wards Cove Packing, Personal Communication with Mr. Glenn Ruckhaus with AGRA Earth and Environmental, Inc. on May 24, 1995.

Briggs, Phil, Chevron U.S.A. Inc., Oct 29, 1990, letter to ADEC.

Bruce, Steve, Rittenhouse-Zeman and Associates, June 23, 1988, letter to ADEC

Chevron U.S.A. Inc., August 26, 1991 Letter to ADEC.

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EMCON, Dec 17, 1993, Letter to ADEC.

GeoEngineers, March 16, 1987 <u>Site Contamination Assessment Report</u> for Chevron U.S.A., Inc. on file with ADEC

Haavig, Steve, ADEC, April 21, 1987, Letter to Chevron USA, Inc.

Haavig, Steve, ADEC, July 8, 1988, letter to Steve Bruce with RZA.

Liechty, Tony, White Pass Alaska, Personal Communication with Mr. Glenn Ruckhaus with AGRA Earth and Environmental, Inc. on May 10, 1995.

Rittenhouse-Zeman and Assoc., Oct 12, 1989 report to Chevron USA, Inc. <u>Proposed Work Plan</u> for Remediation System Enhancements and Supplemental Site Characterization, on file with the ADEC.

Rittenhouse-Zeman and Assoc., Nov 3, 1989, Report to Chevron U.S.A, Inc. <u>Additional Site</u> <u>Characterization</u> on file with the ADEC.

Rittenhouse-Zeman and Assoc., Nov 7, 1989, Report to Chevron U.S.A, Inc. Installation of remedial system Enhancements. on file with the ADEC.

Rittenhouse-Zeman and Assoc., Feb 27, 1990, Report to Chevron U.S.A, Inc. <u>Quarterly Status</u> <u>Report</u>.

Rittenhouse-Zeman and Assoc., Nov 3, 1989, Report to Chevron U.S.A. Inc., <u>Additional Site</u> <u>Characterization</u>.

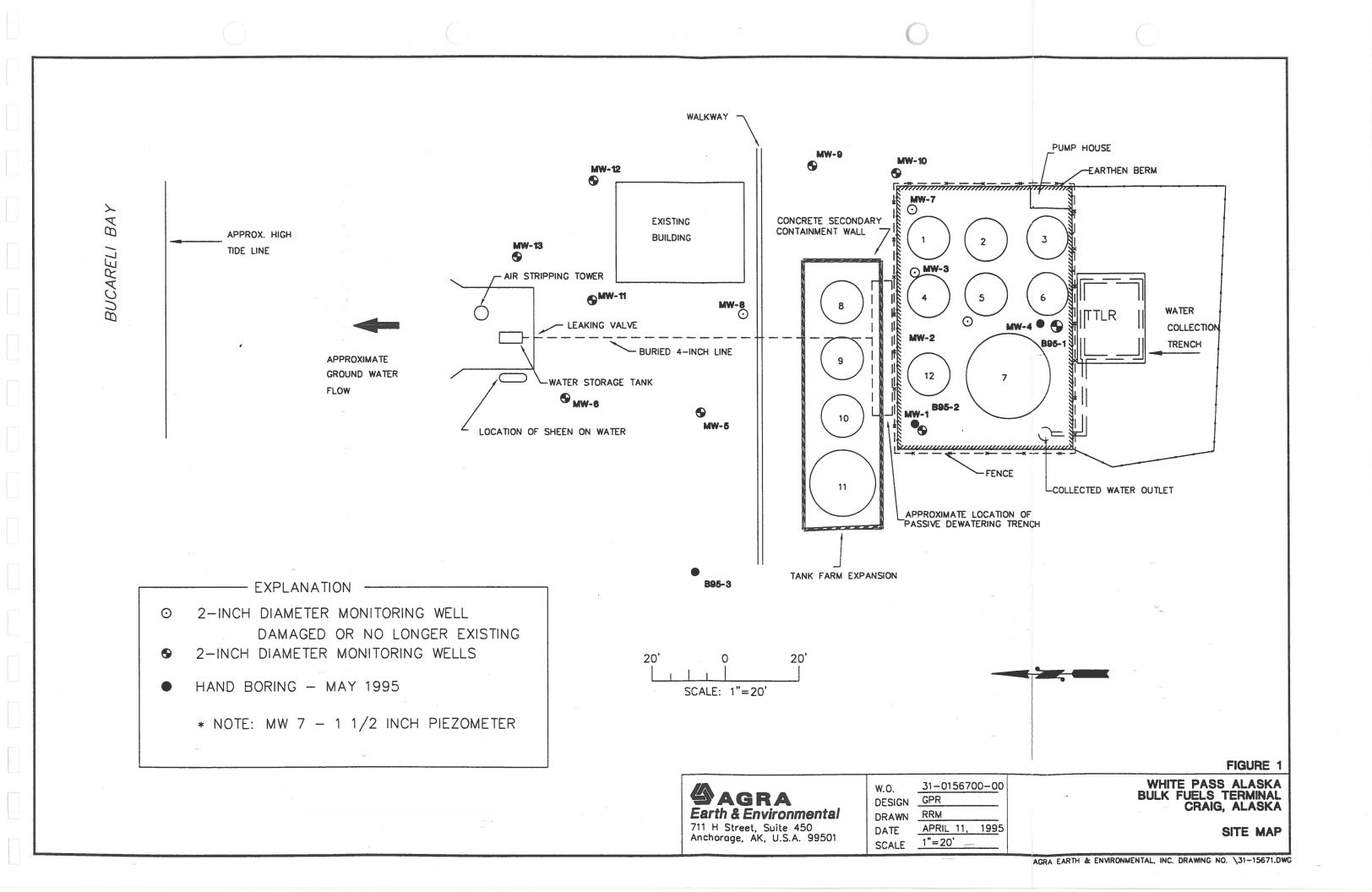
Rittenhouse-Zeman and Assoc., Oct 10, 1990, Quarterly Monitoring Report.

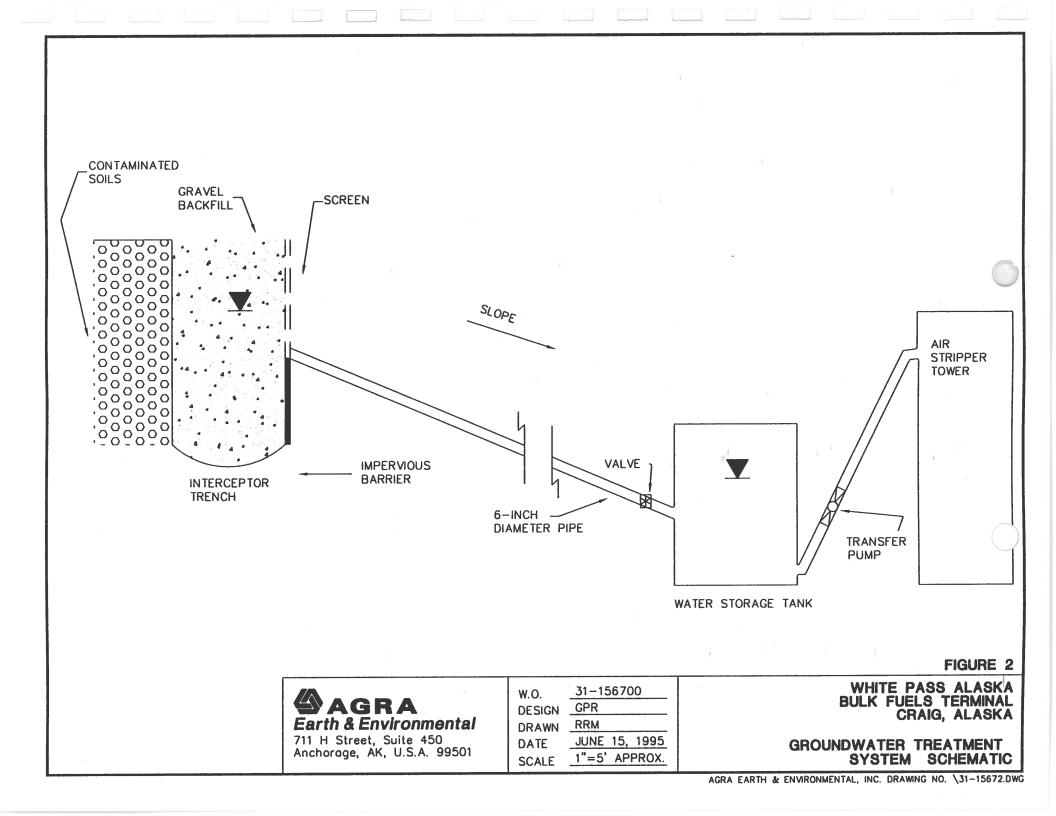


FIGURES

Figure A - Site Map Figure B - Groundwater Treatment System Schematic







APPENDIX A

Summary of ADEC File

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ADEC FILE REVIEW May 9, 1995

DATE October 14, 1986 NOTE

March 16, 1987 GeoEngineers <u>Site Contamination Assessment Report</u> for Chevron U.S.A., Inc. (Chevron). Four hand bored ground water monitoring wells were installed within the tank yard perimeter. A fifth boring was advanced for collection of a soil sample and abandoned. The report states that free product was measured in MW1, MW2, and MW3. The product thickness for MW1 was measured at 0.69 feet. Recommendations were to remediate contaminated soil which was estimated to be 15-25 yd³, by a soil agitation method. Soil samples were all collected between 1.0 feet in MW1 to 2.1 feet in B-5. Samples were analyzed for "gasoline, diesel #1, and diesel #2 and BTEX. No method numbers are given. BTEX values were only listed as very high to moderate and "gasoline' ranged from ND in MW4 and B5 to 700 ppm in MW1.

April 21, 1987 Letter from Steve Haavig (ADEC) to Chevron. Gave approval for the soil agitation remediation, but, requests additional monitoring outside the berm.

June 23, 1988 Letter to ADEC from Steve Bruce with Rittenhouse-Zeman and Associates (RZA). The letter describes the installation of monitoring wells MW5 and MW6 and sampling trenches TP1 through TP-4. Recommends installation of a soil vapor extraction (SVE) remediation system.

July 8, 1988 Letter from Steve Haavig with ADEC to Steve Bruce with RZA. Approves the SVE system, states that it appears some of the product has flushed off-site, and states that BTEX will be sufficient analysis for monitoring since gasoline is the only contaminant per GeoEngineers report. Copy not included in attachment 1.

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Hicks, Boyd, Chandler Baseline Environment Bulk Fuels Facility	al Study	31-01567 May 1996 Appendix A
Oct 12, 1989	RZA report to Chevron <u>Proposed Work Plan for Remediation</u> Enhancements and Supplemental Site Characterization	<u>System</u>
Nov 3, 1989	RZA report to Chevron <u>Additional Site Characterization</u> . Exp four backhoe trenches and installed and additional 3 monite wells.	
Nov 7, 1989	RZA report to Chevron Installation of remedial system Enhancements". Not included in attachment.	
Feb 27, 1990	RZA report to Chevron "Quarterly Status Report".	Ē
Oct 29, 1990	Cover letter from Phil Briggs with Chevron describing three reports from RZA: Nov 3, 1989 (<u>Additional Site Characteriz</u> 27, 1990 (<u>Quarterly Monitoring Report</u>), and Oct 10, 1990 <u>Monitoring Report</u>). (Letter and February 27 report not inc attachment)	<u>zation</u> , Feb (<u>Quarterly</u>
Jan 15, 1991	Cover letter to ADEC with DEC 31, <u>Quarterly Monitoring</u> from RZA, dated December 31, 1990.	<u>Report</u>
May 21, 1991	America North Inc. (ANI) report to ADEC, <u>Ground Water</u> <u>Monitoring/Remediation Scope of Work</u> , add nutrients to er bioremediation, continue with quarterly monitoring.	nhance
July 2, 1991	ANI letter to ADEC stating that White Pass Alaska will be entried their existing operation to include the area which the soil vextraction trench is currently installed. They plan to remove flexible hose with rigid 2" PVC piping. Additionally, during geotechinical investigation photoionization detector (PID) responses to 150 ppm was detected in soils at depths of 2-3 feet (copy not included).	apor ve the 4" a eadings of
August 26, 1991	Letter to ADEC from Chevron arranging a meeting to discurremediation activities. (copy not included in attachment)	SS
Oct 7, 1991	Letter to ADEC from ANI which includes a copy of The Mo Control Act Cleanup Regulation for a health risk assessmen not included in attachment)	

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Hicks, Boyd, Chandler, Baseline Environmenta Bulk Fuels Facility - C	l Study	31-01567 May 1996 Appendix A
Oct 31, 1991	Internal ADEC memo describing the shut down of the rem system at Craig. Discussion was based on what level of r assessment should be required, the "Cadillac" or "Chevro Elevated benzene levels remain up to 50 ppm.	isk
Jan 1992	ANI report to ADEC, <u>Groundwater Sampling Activities</u> . A status report which shows that BTEX and TRPH (EPA Me have not been detected above drinking water standards in wells. But wells MW1, MW2, and MW3 remain with up to benzene and 1,600 TRPH (418.1)	thod 418.1) h off-site
Jan 1992	ANI Environmental Monitoring and Remediation Status Re Discusses past remediation and a site closure rationale. F that the exposure pathways are limited. The gasoline ran hydrocarbons have been successfully remediated and that range are more readily adsorbed into soil. Chevron plans to operate the VES system but requests the shut down of stripper.	Rationale is ge t the diesel to continue
March 9, 1992	Chevron letter which includes an ANI letter. The ANI reputhe installation of a gravity aeration device to supersede the stripper and took samples to show the effectiveness. The samples analyzed with .010 ppm benzene. Chevron letter ADEC to authorize a cease to soil remediation at the site. no practical solution to the remediation of the diesel range hydrocarbons. (not included)	he air e effluent r requests They offer
April 2, 1992	Letter to Chevron from ADEC. Allows Chevron to cease aeration system. They are required to take water sample year, and ADEC reserves the right to take "appropriate m should contamination levels increase or a violation occurs	s twice per easures"
July 1992	ANI groundwater sampling activities report to ADEC. MV mg/I (ppm) benzene and 0.225 ppm BTEX, and 280 ppm	
Aug 1993	ANI groundwater sampling activities report similar results 1992 report	to July

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Dec 17, 1993

EMCON request to remove the VES system. The system has performed appropriately but is not expected to continue to influence the rate of degradation. Request complete closure. No response in the file from ADEC or any subsequent reports. The only item is a note at the bottom of this letter stating "2/10- waiting for additional data". No sampling event has been reported since the August 1993 ANI report.



APPENDIX B

Site Photographs

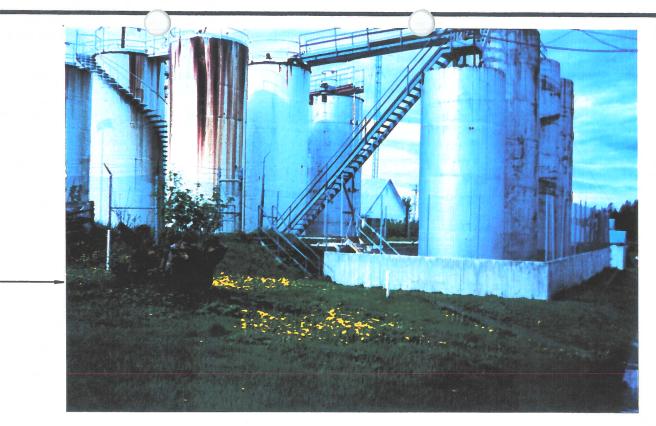
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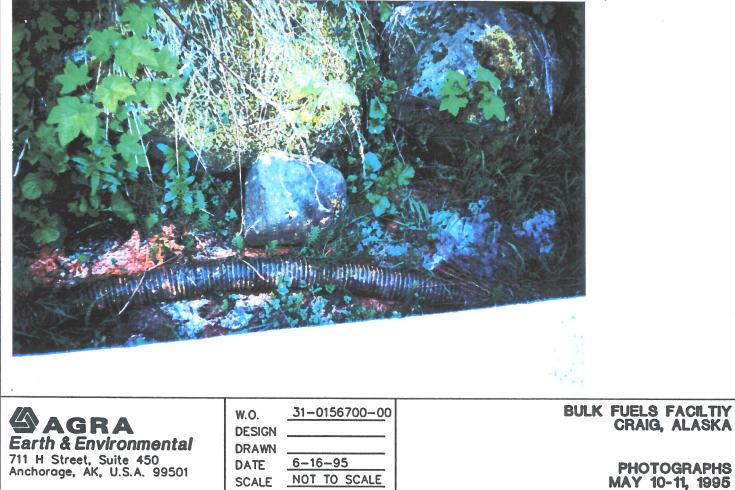
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DRIGINAL TANK FARM WITH EARTHEN BERM & EXPANSION WITH CONCRETE CONTAINMENT

SHEEN DBSERVED ON WATER NEAR AIR STRIPPER





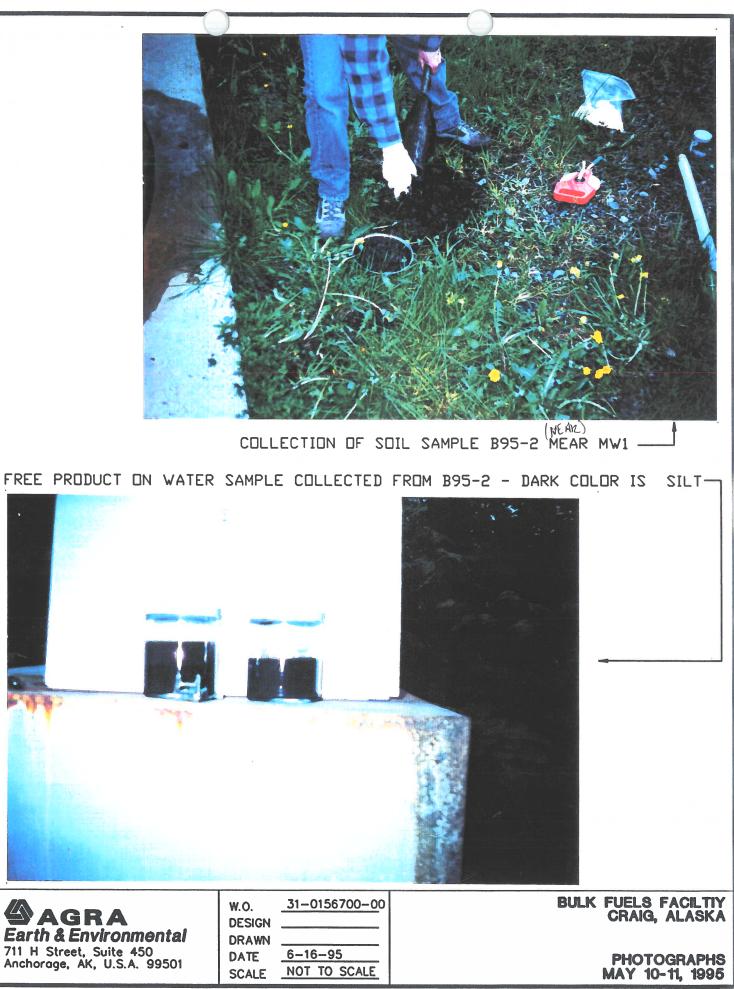
AGRA Earth & Environmental 711 H Street, Suite 450 Anchorage, AK, U.S.A. 99501

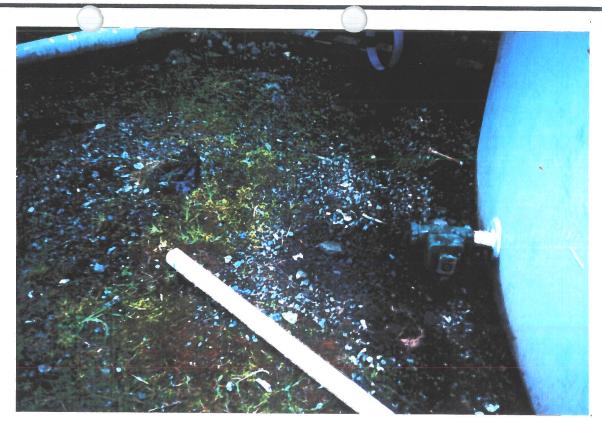
W.O .	31-0156700-00
DESIGN	
DRAWN	
DATE	6-16-95
SCALE	NOT TO SCALE

BULK FUELS FACILTIY CRAIG, ALASKA

> PHOTOGRAPHS MAY 10-11, 1995

AGRA EARTH & ENVIRONMENTAL, INC. DRAWING NO. t/proj/1567/oppenb.dwg





SOIL STAINING AT BASE OF AST

FUEL DISTRIBUTION LINES AND LOADING DOCK



AGRA Earth & Environmental 711 H Street, Suite 450 Anchorage, AK, U.S.A. 99501

W.O.	31-0156700-00
DESIGN	
DRAWN	
DATE	6-16-95
SCALE	NOT TO SCALE

BULK FUELS FACILTIY CRAIG, ALASKA PHOTOGRAPHS MAY 10-11, 1995

APPENDIX C

Analytical Results

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May 14, 1996



Superior Precision Analytical, Inc. A member of ESSCON E. Inmental Support Service Consortium 2 1995 Date: June 7, 1995 AGRA EARTH & ENVIRONMENTAL 711 H STREET, SUITE 450 ANCHORAGE, AK 99501 Attn: GLENN RUCKHAUS Project Number/Name : 31-0156700-00 Laboratory Number : 81546 This report has been reviewed and approved for release. un 6/7/95 lon hemist Account Manager

Certified Laboratories

825 Arnold Dr., Suite 114 Martinez, California 94553 (510) 229-1512 / fax (510) 229-1526 1555 Burke St., Unit I San Francisco, California 94124 (415) 647-2081 / fax (415) 821-7123 309 S. Cloverdale St., Suite B-24 Seattle, Washington 98108 (206) 763-2992 / fax (206) 763-8429 Superior Precision Analytical, Inc.

AGRA EARTH & ENVIRONMENTAL Attn: GLENN RUCKHAUS

Project 31-0156700-00 Reported on May 19, 1995 Revised _ on June 7, 1995

EPA SW-846 Method 8260 Volatile Organics by GC/MS

Chronology

Laboratory Number 81546

1	Sample ID			Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
	MW-1			05/10/95	05/12/95	05/16/95	05/16/95	BE161.09	01
	MW - 5			05/10/95	05/12/95	05/16/95	05/16/95	BE161.09	02
	MW - 6						05/16/95	BE161.09	03
4	B95-1			05/11/95	05/12/95	05/18/95	05/18/95	BE181.09	08
	B95-2			05/11/95	05/12/95	05/18/95	05/18/95	BE181.09	09
	B95-3			05/11/95	05/12/95	05/18/95	05/18/95	BE181.09	10
_1	QC Samples			10			±1.		
-	QC Batch #	QC Sample ID	ž		TY	peRef.	Matrix	Extract.	Analyzed
-	BE161.09-01	Method Blank	÷		MB		Water	05/16/95	05/16/95

	BE161.09-01	Method Blank	MB		Water	05/16/95	05/16/95
	BE161.09-02	Laboratory Spike	LS		Water	05/16/95	05/16/95
1	BE161.09-03	MW-1	MS	81546-01	Water	05/16/95	05/16/95
	BE161.09-04	MW-1	MSD	81546-01	Water	05/16/95	05/16/95
	BE181.09-01	Method Blank	MB		Soil	05/18/95	05/18/95
	BE181.09-02	Laboratory Spike	LS		Soil	05/18/95	05/18/95
	BE181.09-03	B95-3	MS	81546-10	Soil	05/18/95	05/18/95
	BE181.09-04	B95-3	MSD	81546-10	Soil	05/18/95	05/18/95

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LAB ID	Sample II)					Matrix	Dil.F	actor	Moisture	
81546-01	MW-1	8				2	Water	5	1.0		
		3					Water		1.0	-	
81546-02	MW-5									-	
81546-03	MW-6						Water		1.0	-	
81546-08 X	B95-1						Soil	T	0.0	-	
		RE	SUI	LTS 🖻	OFA	NAL	YSIS				
Compound			.546-0		81546		81546-		81546		
			nc.	RL	Conc.	RL	Conc.	RL	Conc.		
		ug	l\r		ug/L		ug/L		ug/kg		
Chloromethane		NE		10	ND	10	ND	10	ND	500	
Bromomethane		NE		10	ND	10	ND	10	ND	500	
Vinyl Chloride		NĒ		10	ND	10	ND	10	ND	500	
Chloroethane		NE		10	ND	10	ND	10	ND	500	
Methylene Chlor:	ide	NE)	10	ND	10	ND	10	ND	500	
Acetone		NE)	40	ND	40	ND	40	ND	2000	
Idomethane		NE)	10	ND	10	ND	10	ND	500	
Carbon Disulfide	e	NI)	3	ND	3	ND	3	ND	150	
Trichlorofluoro	methane	NI)	3	ND	3	ND	3	ND	150	
1,1-Dichloroeth	ene	NI)	3	ND	3	ND	3	ND	150	
2,2-Dichloropro	pane	NI)	3	ND	3	ND	3	ND	150	
1,1-Dichloroeth	ane	NI	>	3	ND	3	ND	3	ND	150	
Bromochlorometh	ane	NE	2	3	ND	3	ND	3	ND	150	
c-1,2-Dichloroe	thene	NI	2	3	ND	3	ND	3	ND	150	
t-1,2-Dichloroe		NI	2	3	ND	3	ND	3	ND	150	
Chloroform		NI	2	3	ND	3	ND	3	ND	150	
1,2-Dichloroeth	ane	NI	C	1	ND	1	ND	1	ND	50	
Toluene		NI	2	3	ND	3	ND	3	ND	150	
1,2,3-Trichloro	propane	NI	2	3	ND	3	ND	3	ND	150	
Bromobenzene	~ ~	NI		3	ND	3	ND	3	ND	150 🖂	
2-Butanone		NI	C	20	ND	20	ND	20	ND	1000	
1,1,1-Trichloro	ethane	NI		3	ND	3	ND	3	ND	150	
1,1-Dichloropro		NI	-	3	ND	3	ND	3	ND	150	
Carbon tetrachl		NI		3	ND	3	ND	3	ND	150	
Vinyl Acetate		NI		10	ND	10	ND	10	ND	500	
Bromodichlorome	thane	NI		3	ND	3	ND	3	ND	150	
Dibromomethane		NI		3	ND	3	ND	3	ND	150	
1,2-Dichloropro	pane	NI		3	ND	3	ND	3	ND	150	
c-1,3-Dichlorop	-	NI		3	ND	3	ND	3	ND	150	
Trichloroethene	-	NI		3	ND	3	ND	3	ND	150	
1,2-Dibromoetha		NI		3	ND	3	ND	3	ND	150	
Dibromochlorome		NI		3	ND	3	ND	3	ND	150	
DEDITORIOCHTOTOHIG	CHAILE	N		3	ND	3	ND	3	ND	150	

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Attn: GLENN RUCKHAUS

Project 31-0156700-00 Reported on May 19, 1995 Revised on June 7, 1995

<u>क</u>				8				
LAB ID Sample ID					Matrix	Dil	.Factor	Moisture
81546-01 MW-1					Water		1.0	-
81546-02 MW-5					Water		1.0	-
81546-03 MW-6					Water		1.0	-
81546-08 X B95-1					Soil		10.0	-
	RESU	LTS	OF P	ANAL	YSIS		3	
Compound	81546	-01	81546	81546-02		-03	81546	-08
	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL
	ug/L		ug/L		ug/L		ug/kg	T
Benzene	8.1	1	1	1	ND	1	ND	50
t-1,3-Dichloropropene	ND	3 🚌	ND	3	ND	3	ND	150
Isopropylbenzene	ND	3	ND	3	ND	3	ND	150
Bromoform	ND	3	ND	3	ND	3	ND	150
4-Methyl-2-Pentanone	ND	10	ND	10	ND	10	ND	500
2-Hexanone	ND	10	ND	10	ND	10	ND	500
1,3-Dichloropropane	ND	3	ND	3	ND	3	ND	150
Tetrachloroethene	ND	3	ND	3	ND	3	ND	150
4-Chlorotoluene	ND	3	ND	3	ND	3	ND	150
2-Chlorotoluene	ND	3	ND	3	ND	3	ND	150
1,3,5-Trimethylbenzene	ND	3	ND	3	ND	3	850	150
tert-Butylbenzene	ND	3	ND	3	ND	3	ND	150
sec-Butylbenzene	ND	3	ND	3	ND	3	ND	150
1,2,4-Trichlorobenzene	ND	6	ND	6	ND	6	ND	300
n-Propylbenzene	ND	3	ND	3	ND	3	ND	150
1,1,2,2-Tetrachloroethane	ND	3	ND	3	ND	3	ND	150
1,1,1,2-Tetrachloroethane	ND	3	ND	3	ND	3	ND	150
Chlorobenzene	ND	3	ND	3	ND	3	ND	150
Ethyl Benzene	ND	3	ND	3	ND	3	ND	150
Styrene	ND	3	ND	3	ND	3	ND	150
Xylenes	8	3	ND	3	ND	3	ND	150
1,3-Dichlorobenzene	ND	3	ND	3	ND	3	ND	150
1,4-Dichlorobenzene	ND	3	ND	3	ND	3	ND	150
p-Isopropyltoluene	ND	3	ND	3	ND	3	ND	150
1,2-Dichlorobenzene	ND	3	ND	3	ND	3	ND	150
n-Butylbenzene	ND	3	ND	3	ND	3	ND	150
1,2-Dibromo-3-chloropropan		6	ND	6	ND	6	ND	300
1,2,4-Trimethylbenzene	ND	3	ND	3	ND	3	ND	150
Napthalene	ND	6	ND	6	ND	6	ND	300
Hexachlorobutadiene	ND	6	ND	6	ND	6	ND	300
1,2,3-Trichlorobenzene	ND	6	ND	6	ND	6	ND	300

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Attn: GLENN RUCKHAUS

Project 31-0156700-00 Reported on May 19, 1995 Revised on June 7, 1995

-		Ξ	PA S	W-846 Method 8260	Volatile Organ	lics by GC/MS	25	
	LAB ID	Sample	ID			Matrix I)il.Factor	Moisture
	81546-01 81546-02 81546-03 81546-08 X	MW-1 MW-5 MW-6 B95-1	12		с "В	Water Water Water Soil	1.0 1.0 1.0 10.0	- - -
	Compound	5		RESULTS C 81546-01 Conc. RL ug/L	F ANALY 81546-02 Conc. RL ug/L	SIS 81546-03 Conc. RI ug/L	81546 Conc. ug/kg	RL
	>> Surrogate H	lecoveries	(%)	<< -			*	
	>> Surrogate H Dibromofluoro Toluene-d8 Bromofluorobe	omethane	(왕)	<< 94 95 91	96 96 88	98 99 94	93 97 94	

Page 4 of 11 - Certified Laboratories -

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AGRA EARTH & ENVIRONMENTAL

Attn: GLENN RUCKHAUS

Project 31-0156700-00 Reported on May 19, 1995 Revised on June 7, 1995

LAB ID	Sample ID					Matrix	Dil.Factor	Moisture
81546-09 Y	B95-2	<u> </u>				Soil	20.0	
81546-10	B95-3			-		Soil	1.0	-
					-			
		RESU	LTS	OFA	NAL	YSIS 🖻		
Compound		81546-	09	81546-	10	Q		
-		Conc:	RL	Conc.	RL		-	-
-		ug/kg		ug/kg				
	2			÷				
Chloromethane Bromomethane		ND	1000	ND	50			
Vinyl Chloride		ND ND	1000 1000	ND ND	50 50			
Chloroethane	3	ND	1000	ND	50 50			
Methylene Chlo	oride	ND	1000	ND	50			
Acetone	TTGC	ND	4000	ND	200			
Idomethane		ND ND	1000	ND	200 50			
Carbon Disulfi	ide	ND	300	ND	15			
Trichlorofluon		ND	300	ND	15			
1,1-Dichloroet		ND	300	ND	15			
2,2-Dichlorop		ND	300	ND	15			
1,1-Dichloroet	-	ND	300	ND	15			
Bromochloromet		ND	300	ND	15			
c-1,2-Dichlord		ND	300	ND	15			
t-1,2-Dichloro		ND	300	ND	15			
Chloroform		ND	300	ND	15			
1,2-Dichloroet	chane	ND	100	ND	5			
Toluene		ND	300	ND	15		Si	
1,2,3-Trichlo	ropropane	ND	300	ND	15			
Bromobenzene		ND	300	ND	15			
2-Butanone		ND	2000	ND	100			
1,1,1-Trichlor	roethane	ND	300	ND	15			
1,1-Dichlorop		ND	300	ND	15			
Carbon tetrach		ND	300	ND	15			
Vinyl Acetate		ND	1000	ND	50			
Bromodichlorom	nethane	ND	300	ND	1.5			
Dibromomethane	5	ND	300	ND	15			
1,2-Dichlorop	ropane	ND	300	ND	15			
c-1,3-Dichlord		ND	300	ND	15			
Trichloroether		ND	300	ND	15			
1,2-Dibromoet		ND	300	ND	15			
Dibromochlorom		ND	300	ND	15			
1,1,2-Trichlor	roethane	ND	300	ND	15			

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💭 Superior F	reci	sion	Ana	IYTI	cai, in	РС.				
A member of ESSCON E	invnment	al Support	Service Con	sortium	0					
AGRA EARTH & ENVIRONMENTAL Attn: GLENN RUCKHAUS			*			Project 31-0156700 Reported on May 19, 1 Revised on June 7, 1				
EPA SW	-846 Met	hod 826	0 Volati	le Orga	anics by GC	:/MS				
LAB ID Sample ID					Matrix	Dil.Factor	Moisture			
81546-09 Y B95-2 81546-10 B95-3	2				Soil Soil	20.0 D	-			
÷										
	RESU	LTS	OFA	NAL	YSIS					
Compound	- 81546-	09	81546	-10						
	Conc.	RL	Conc.	RL						
	ug/kg		ug/kg							
Benzene	ND	100	ND	5			14			
t-1,3-Dichloropropene	ND	300	ND	15						
Isopropylbenzene	300	300	ND	15						
Bromoform	ND	300	ND	15						
4-Methyl-2-Pentanone	ND	1000	ND	50						
2-Hexanone	ND	1000	ND	50						
1,3-Dichloropropane	ND	300	ND	15						
Tetrachloroethene	ND	300	ND	15						
4-Chlorotoluene	ND	300	ND	15						
2-Chlorotoluene	ND	300	ND	15						
1,3,5-Trimethylbenzene	5400	300	ND	15						
tert-Butylbenzene	ND	300	ND	15						
sec-Butylbenzene	960	300	ND	15						
1,2,4-Trichlorobenzene	ND	600	ND	30						
n-Propylbenzene	840	300	ND	15						
1,1,2,2-Tetrachloroethane	ND	300	ND	15						
1,1,1,2-Tetrachloroethane	ND	300	ND	15						
Chlorobenzene	ND	300	ND	15						
Ethyl Benzene	640	300	ND	15						
Styrene	ND	300	ND	15						
Xylenes	7000	300	ND	15						
1,3-Dichlorobenzene	ND	300	ND	15						
1,4-Dichlorobenzene	ND	300	ND	15						
p-Isopropyltoluene	1900	300	ND	15						
1,2-Dichlorobenzene	ND	300	ND	15						
n-Butylbenzene	1900	300	ND	15						
1,2-Dibromo-3-chloropropane	ND	600	ND	30						
1,2,4-Trimethylbenzene	11000	300	ND	15						
Napthalene	2600	600	ND	30						
Hexachlorobutadiene	ND	600	ND	30						
1,2,3-Trichlorobenzene	ND	600	ND	30						

Page 6 of 11 Certified Laboratories -

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Superior Precision Analytical, Inc. A member of ESSCON En....onmental Support Service Consortium AGRA EARTH & ENVIRONMENTAL Project 31-0156700-00 Attn: GLENN RUCKHAUS Reported on May 19, 1995 Revised on June 7, 1995 EPA SW-846 Method 8260 Volatile Organics by GC/MS LAB ID Sample ID Matrix Dil.Factor Moisture 81546-09 Y B95-2 Soil 20.0 _ 81546-10 B95-3 Soil 1.0 RESULTS OF ANALYSIS Compound 81546-09 81546-10 Conc. RL Conc. RL ug/kg ug/kg >> Surrogate Recoveries (%) << >> Surrogate Recoveries (%) << Dibromofluoromethane 94 90 Toluene-d8 100 97 Bromofluorobenzene 101 86

> Page 7 of 11 - Certified Laboratories -

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EPA SW-846 Method 8260 Volatile Organics by GC/MS

Quality Assurance and Control Data

Laboratory Number: 81546 Method Blank(s)

		BE161.	09-01	BE181.	09-01			11. 	
		Conc.	RL	Conc.	RL				
		ug/L		ug/kg					5
	Chloromethane	ND	10	ND	50		 		
	Bromomethane	ND	10	ND	50				
	Vinyl Chloride	ND	10	ND	50			~	
\cup	Chloroethane	ND	10	ND	50			2	
	Methylene Chloride	ND	10	ND	50				
	Acetone	ND -	40	ND	200				
	Idomethane	ND	10	ND	50			a 5	
	Carbon Disulfide	ND	3	ND	15				
1	Trichlorofluoromethane	ND	3	ND	15				
1	1,1-Dichloroethene	ND	3	ND	15				
لتبينا	2,2-Dichloropropane	ND	3	ND	15				
-	1,1-Dichloroethane	ND	3	ND	15				
	Bromochloromethane	ND	3	ND	15				
La	c-1,2-Dichloroethene	ND	3	ND	15				
	t-1,2-Dichloroethene	ND	3	ND	15				
M	Chloroform	ND	3	ND	15				
	1,2-Dichloroethane	ND	1	ND	5				
	Toluene	ND	3	ND	15				
-	1,2,3-Trichloropropane	ND	3	ND	⁼ 15				
	Bromobenzene	ND	3	ND	15				
	2-Butanone	ND	20	ND	100				
	1,1,1-Trichloroethane	ND	3	ND	15				
1	1,1-Dichloropropene	ND	3	ND	15				
	Carbon tetrachloride	ND	3	ND	15	÷.			
	Vinyl Acetate	ND	10	ND	50				
	Bromodichloromethane	ND	3	ND	15				
	Dibromomethane	ND	3	ND	15				
فسير	1,2-Dichloropropane	ND	3	ND	15				
-	c-1,3-Dichloropropene	ND	3	ND	15				
	Trichloroethene	ND	3	ND	15				
Ц	1,2-Dibromoethane	ND	3	ND	15				
	Dibromochloromethane	ND	3	ND	15				
	1,1,2-Trichloroethane	ND	3	ND	15				
	Benzene	ND	1	ND	5				
	t-1,3-Dichloropropene	ND	3	ND	15				
	Isopropylbenzene	ND	3	ND	15				
	Bromoform	ND	3	ND	15				
had	4-Methyl-2-Pentanone	ND	10	ND	50				
-	2-Hexanone	ND	10	ND	50				
13									

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EPA SW-846 Method 8260 Volatile Organics by GC/MS

Quality Assurance and Control Data

Laboratory Number: 81546 Method Blank(s)

\Box		BE161.	09-01	BE181.	09-0:	1				
		Conc.	RL	Conc.	RL					
Π		ug/L		ug/kg						
Ц	1,3-Dichloropropane	ND	3	ND	15		 	 		
	Tetrachloroethene	ND	3	ND	15					
1	4-Chlorotoluene	ND	3	ND	15					
\cup	2-Chlorotoluene	ND	3	ND	15	1. 1.				
	1,3,5-Trimethylbenzene	ND	3	ND	15		-		100	
n	tert-Butylbenzene	ND	3	ND	15					
П	sec-Butylbenzene	ND	3 *	ND	15					
_	1,2,4-Trichlorobenzene	ND	6	ND	30			12		
	n-Propylbenzene	ND	3	ND	15					
	1,1,2,2-Tetrachloroethane	ND	3	ND	15					
	1,1,1,2-Tetrachloroethane	ND	3	ND	15					
	Chlorobenzene	ND	3	ND	15					
\square	Ethyl Benzene	ND	3	ND	15					
	Styrene	ND	3	ND	15					
termal.	Xylenes	ND	3	ND	15					
-	1,3-Dichlorobenzene	ND	3	ND	15					
H	1,4-Dichlorobenzene	ND	3	ND	15					
5	p-Isopropyltoluene	ND	3	ND	15					
	1,2-Dichlorobenzene	ND		ND						
2	n-Butylbenzene	ND	3 3	ND	15 15					
	1,2-Dibromo-3-chloropropane	ND	5 6	ND						
	1,2,4-Trimethylbenzene	ND	-	ND	30					
	-	ND	3	ND	15					
1	Napthalene Hexachlorobutadiene	ND	6 6	ND	30					
6			6		30					
-	1,2,3-Trichlorobenzene	ND	6	ND	30					
	S Currente Decorrentes (%)									
Ц	<pre>>> Surrogate Recoveries (%) << Dibromofluoromethane</pre>			05						
		96 07		95 96						
	Toluene-d8	97		96 04						
	Bromofluorobenzene	88		94						

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	Superior	Preci	sion An	alytical,	Inc.		
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	EPA	SW-846 Met	hod 8260 Vola	tile Organics by	/ GC/MS		
		Quality	/ Assurance an	d Control Data			
		La	aboratory Numb	er: 81546			
	Compound	San cor	-	evel SPK Result	Recovery %	Limits %	RPD %
			For Water Ma	trix (ug/L)			
in such		BE161.09	02 / - Lak	ooratory Control	Spikes		
	1,1-Dichloroethene		40	47	118	61-145	
	Toluene		40	40	100	76-125	
	Trichloroethene		40	43	108	71-120	
	Benzene		40	41	103	76-127	8
	Chlorobenzene		40	32	80	75-130	
(5.75F		
>	> Surrogate Recoveries (%) <<					
Lawrence of	Dibromofluoromethane				96	86-121	
	Toluene-d8				99	90-112	
	Bromofluorobenzene				95	84-110	
			For Soil Mat	crix (uq/kq)			
M		BE181.09		poratory Control	Spikes		
	1,1-Dichloroethene		200	210	105	59-172	
1	Toluene		200	190	95	59-139	
	Trichloroethene		200	190	95	62-137	
	Benzene		200	190	95	66-142	
17	Chlorobenzene		200	160	80	60-133	
>	>> Surrogate Recoveries (%	;) <<					
177	Dibromofluoromethane				93	76-122	
	Toluene-d8				96	81-117	
اليريا	Bromofluorobenzene				92	68-113	
-							
			For Water Ma	atrix (ug/L)			
Lui		BE161.09	03 / 04 - Sa	mple Spiked: 815	46 - 01		
	1,1-Dichloroethene	ND	40	46/43	115/108	61-145	6
2000	Toluene	ND	40	40/39	100/98	76-125	2
1	Trichloroethene	ND	40	40/38	100/95	71-120	5
	Benzene	8	40	47/45	98/93	76-127	5
and a second	Chlorobenzene	ND	40	31/30	78/75	75-130	4
1							
1	>> Surrogate Recoveries (%	5) <<					
4	Dibromofluoromethane				98/93	86-121	
			Certified Lab	oratories			<u>`</u>
	ODE Amold Dr. Evine 114		1555 Burke S		309 S. Cloverda		-74
tool a	825 Arnold Dr., Suite 114		San Francisco, Cal		Seattle, Wash		
(-1	Martinez, California 94553				(206) 763-2992 / f	-	
	(510) 229-1512 / fax (510) 229	-1520 [4]	5) 647-2081 / fax	21/125	12001/05-2992/1	an 12001 / 05	

	Superior Pre	cisio	n Anal	ytica	Inc		e Santari	
	A member of ESSCON Enviro	nmental Supp	oort Service Conso	ntium	\bigcirc			
	EPA SW-840	6 Method 8	3260 Volatile	e Organics	s by GC/M	S		
-	Qua	ality Assu	urance and Co	ontrol Dat	a	-		
		Laborat	tory Number:	81546				
	Compound	Sample conc.	SPK Level	SPK Rest		Recover; *	y Limits %	RPD %
	Toluene-d8 Bromofluorobenzene			Ξ.		98/96 93/90	90-112 84-110	
			Soil Matrix					
	BE181	.09 03 /	04 - Sample	Spiked:	81546 - 1	0	_	
B	1,1-Dichloroethene Toluene Trichloroethene Benzene Chlorobenzene	ND ND ND ND ND	200 200 200 200 200	260/230 210/190 210/190 220/200 160/150		130/115 105/95 105/95 110/100 80/75	59-139 62-137 66-142	12 10 10 10
	<pre>> Surrogate Recoveries (%) << Dibromofluoromethane Toluene-d8 Bromofluorobenzene</pre>	U	200	190/120		93/97 97/100 97/95	60-133 76-122 81-117 68-113	6
				u -				
Y	-Sample was diluted to recover	all compo	unds within	calibrat	ion range	e .		
	Definitions: D = Not Detected L = Reporting Limit A = Not Analysed PD = Relative Percent Differe Ng/L = parts per billion (ppb) Ng/L = parts per million (ppm)	nce				-	per billion per million	
			Page 11 of 1	1				
1	<u> </u>	Ce	ertified Laborato	ries ———				
	825 Arnold Dr., Suite 114 Martinez, California 94553 (510) 229-1512 / fax (510) 229-1526	San Fra	55 Burke St., Ur incisco, Californi -2081 / fax (415	a 94124	Se	attle, Was	tale St., Suite B-3 hington 98108 / fax (206) 763-8	

Superior Precision Analytical Inc. A member of ESSCON Environmental Support Service Consortium AGRA EARTH & ENVIRONMENTAL Project 31-0156700-00 Attn: GLENN RUCKHAUS Reported on May 22, 1995 Gasoline Range Petroleum Hydrocarbons and BTXE by EPA SW-846 5030/8015M/8020 Gasoline Range quantitated as all compounds from C6-C10 Chronology Laboratory Number 81546 Sample ID Sampled Received Extract. Analyzed QC Batch LAB # 05/10/95 05/12/95 05/17/95 05/17/95 MW12 BE171.05 04 STRIP-W 05/10/95 05/12/95 05/17/95 05/17/95 BE171.05 05 STRIP-IN 05/11/95 05/12/95 05/17/95 05/17/95 BE171.05 06 STRIP-S 05/10/95 05/12/95 05/19/95 05/19/95 BE191.04 07 QC Samples QC Batch # QC Sample ID TypeRef. Matrix Extract. Analyzed BE171.05-01 Method Blank 05/17/95 05/17/95 MB Water BE171.05-02 MW-10 MS Water 05/17/95 05/17/95 81511-08 BE171.05-03 MW-10 MSD 81511-08 Water 05/17/95 05/17/95

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Superior Precision Analytical Inc.

AGRA EARTH & ENVIRONMENTAL Attn: GLENN RUCKHAUS Project 31-0156700-00 Reported on May 22, 1995

	Gasol Gasoline	by E	e Petrole PA SW-846 antitated	5030/8	015M/80	20			a.
LAB ID	Sample ID					Matrix	Dil.F	actor	Moisture
81546-04	MW12					Water		1.0	
81546-05	STRIP-W					Water		1.0	-
81546-06	STRIP-IN					Water		1.0	-
81546-07	STRIP-S					Soil -		1.0	11.1%
Compound		81546- Conc.	04 RL	81546- Conc.		81546- Conc.	06 RL	81546 Conc.	-
		ug/L		ug/L		ug/L		mg/kg	
Gasoline_Range	in Π		50	ug/L ND	50	ug/L 	50	mg/kg ND	1
Gasoline_Range Benzene	in an	ug/L	50 0.5		50 0.5		50 0.5	·····	
		ug/L ND		ND		130		ND	1
Benzene		ug/L ND 0.6	0.5	ND ND	0.5	130 12	0.5	ND ND	1 0.006
Benzene Toluene		ND 0.6 ND	0.5	ND ND ND	0.5	130 12 1.1	0.5	ND ND ND	1 0.006 0.006
Benzene Toluene Ethyl Benzene		ug/L ND 0.6 ND ND 0.7	0.5 0.5 0.5	ND ND ND ND	0.5 0.5 0.5	130 12 1.1 ND	0.5 0.5 0.5	ND ND ND ND	1 0.006 0.006 0.006

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		ESSCON Environment	a destant strange and strange	and the second s	Inc.	
	Ga	by E soline Range qu	PA SW-846 50 antitated as	Hydrocarbons an 30/8015M/8020 all compounds nd Control Data	from C6-C10	
		La BE171. Conc. ug/L	boratory Num Method Bl 05-01 RL		5 - 168 5	
6	Gasoline_Range Benzene Toluene Ethyl Benzene Total Xylenes >> Surrogate Recoverie Trifluorotoluene (SS)		50 0.5 0.5 0.5 0.5			F

Page 3 of 4

- Certified Laboratories -

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	nmentai Supp	ort Service Lonso	rtium				
	by EPA SU	croleum Hydro N-846 5030/80 cated as all	15M/8020				
Qua	lity Assu	urance and Co	ontrol Dat	a			
	Laborat	tory Number:	81546				ай 1
Compound	Sample conc.	SPK Level	SPK Resu	ılt	Recover %	y Limits %	RPD %
BE171		Water Matriz 03 - Sample	-	31511 -	08		
	05 02 /		opinca.		00		
Gasoline_Range Benzene	ND == ⁰ ND	2000 20	1888/180 19/19	00	94/90 95/95	65-135 65-135	4 0
Toluene	ND	20	19/19		95/95	65-135	0
Ethyl Benzene Total Xylenes	ND ND	20 60	20/19 60/58		100/95 100/97	65-135 65-135	5 3
		••	00,00		200751	00 100	3
>> Surrogate Recoveries (%) << Trifluorotoluene (SS)					96/98	50-150	
				i.			
Definitions: ND = Not Detected RL = Reporting Limit NA = Not Analysed							
<pre>RPD = Relative Percent Differen ug/L = parts per billion (ppb) mg/L = parts per million (ppm)</pre>	ice				_	per billion per million	
		Page 4 of 4					
		-	i				
		ertified Laborator					
825 Arnold Dr., Suite 114 Martinez, California 94553 (510) 229-1512 / fax (510) 229-1526	San Fra	55 Burke St., Un ncisco, California 2081 / fax (415)	94124	S	eattle, Was	lale St., Suite B-2 hington 98108 ′ fax (206) 763-8	
	. ,						

	Amember of ESSCON Eriviro		and the second se		nc.		
AGRA EARTH & E Attn: GLENN RU		-				oject 31-0 ted on May	
	Total Volatile Pe	stroleum Hydroca	rbons by H	EPA SW-846	5 5030/801	5M	121
Chronology					Labo	ratory Num	iber 81546
Sample ID		Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
MW-1		05/10/95	05/12/95	05/17/95	05/17/95	BE171.05	01
QC Samples							
QC Batch #	QC Sample ID	~.	Тур	peRef.	Matrix	Extract.	Analyzed
BE171.05-01	Method Blank		MB		- Water	05/17/95	05/17/95
BE171.05-02	MW-10		MS	81511-08	B Water	05/17/95	
BE171.05-03	MW-10	х	MSI	81511-08	8 Water	05/17/95	

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AGRA EARTH & ENVIRONMENTAL Attn: GLENN RUCKHAUS

Project 31-0156700-00 Reported on May 22, 1995

LAB ID	Sample I	D.			Mat	rix	Dil.Factor	Moisture
81546-01	MW-1.	5			Wat	er	1.0	-
		- R	ESULT	SOF	NALYSI	I S		
ompound			81546-01					
			Conc. RL					
			ug/L			-		
asoline_Ran	ge		150 50					
	Recoveries ((%) <<						
-Bromofluor	obenzene		88					
				Page 2 of	4			
			(Certified Labora	tories			

	💭 Superior	Precis	sion /	Analytica	I, Inc.	
	A member of ESSCO	N En onmenta	l Support Sei	rvice Consortium	0	
	Total Volat	ile Petrole	eum Hydro	carbons by EPA S	W-846 5030/8015M	
		Quality	Assuranc	e and Control Da	ta	nig.
		Lal		Number: 81546 Blank(s)		
		BE171. Conc. ug/L	05-01 RL		14. 14	
	Gasoline_Range	ND	50		-	
	> Surrogate Recoveries (%) 4-Bromofluorobenzene	<< 100				
8				9 1 8		
			Page	3 of 4		
			- Certified	Laboratories		
	825 Arnold Dr., Suite 114 Martinez, California 94553 (510) 229-1512 / fax (510) 229-1		n Francisco,	rke St., Unit I , California 94124 / fax (415) 821-7123	309 S. Cloverdale Seattle, Washin (206) 763-2992 / fay	gton 98108

Õ	Superior Pre	ecisio	n Anal	ytical.	Inc.		
AR	A member of ESSCON Emire	onmental Supp	ort Service Consc	ortium)		
	Total Volatile Po	etroleum H	ydrocarbons	by EPA SW-8	46 5030/801	LSM	
	Qua	ality Assu	rance and Co	ontrol Data			
		Laborat	ory Number:	81546			(=) 2
Compound		Sample conc.	SPK Level	SPK Result	Recov	very Limits %	RPD %
	BE171		Water Matrix 03 - Sample		511 - 08	6	
Gasoline_	_Range	ND	2000	1888/1800	94/90	0 65-135	4 -
	ce Recoveries (%) << Luorobenzene	-			100/9	98 50-150	
	-						
RL = Rep NA = Not RPD = Rel ug/L = par	s: Detected porting Limit Analysed lative Percent Differen rts per billion (ppb) rts per million (ppm)	nce		-		ts per billion ts per million	
		p	age 4 of 4				
		Cer	tified Laborator	ies		<u> </u>	
Martin	Arnold Dr., Suite 114 nez, California 94553 1512 / fax (510) 229-1526	San Fran	55 Burke St., Un cisco, California 1081 / fax (415)	94124	Seattle, V	rerdale St., Suite B- Vashington 98108 92 / fax (206) 763-	3

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Project 31-0156700-00 Reported on May 19, 1995

		ysis for Priority y EPA Methods 60					
Chronology		-			Labo	ratory Num	ber 81546
Sample ID		Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
MW-6	2	05/10/95	05/12/95	05/17/95	05/18/95	BE172.12 BE173.10	
STRIP-IN		05/11/95	05/12/95	05/17/95	05/18/95	BE172.12 BE173.10	06
B95-2		05/11/95	05/12/95	05/17/95	05/18/95	BE171.12 BE172.10	09
B95-3		05/11/95	05/12/95	05/18/95	05/19/95	BE181.12 BE172.10	10
QC Samples	-						
QC Batch #	QC Sample ID		Тур	eRef.	Matrix	Extract.	Analyzed
BE181.12-01 BE181.12-02	Method Blank Laboratory Spike		MB		Soil	05/18/95	
BE181.12-02 BE181.12-03	Laboratory Spike		LS		Soil	05/18/95	
BE181.12-04	COMP ULTR-P,T	Dupiicale	LSI MS	, 81594-02	Soil Soil	05/18/95	
BE181.12-05	COMP ULTR-P,T		_	81594-02 81594-02		05/18/95 05/18/95	
BE171.12-01	Method Blank		MB		Soil	05/17/95	
BE171.12-02	Laboratory Spike		LS		Soil	05/17/95	
BE171.12-03	Laboratory Spike	Duplicate	LSI)	Soil	05/17/95	· •
BE171.12-04	180C-ABUT1-SP1,2		MS	81545-04	Soil	05/17/95	• •
BE171.12-05	180C-ABUT1-SP1,2		MSI	81545-04	Soil	05/17/95	05/18/95
BE172.12-01	Method Blank		MB		Water	05/17/95	05/18/95
BE172.12-02	Laboratory Spike		LS		Water	05/17/95	05/18/95
BE172.12-03	Laboratory Spike	Duplicate	LSI)	Water	05/17/95	
BE172.12-04	ECS-1		MS	81545-02		05/17/95	
BE172.12-05	ECS-1			81545-02		05/17/95	
BE172.10-01	Method Blank		MB		Soil	05/17/95	· ·
BE172.10-02	Laboratory Spike	n	LS		Soil	05/17/95	
BE172.10-03 BE172.10-04	Laboratory Spike 1	Dupticate	LSI		Soil	05/17/95	
BE172.10-04 BE172.10-05	95-1006QS 95-1006QS		MS	81533-01		05/17/95	· ·
BE172.10-05 BE173.10-01	Method Blank			81533-01		05/17/95	
BE173.10-01 BE173.10-02	Laboratory Spike		MB LS		Water	05/17/95 05/17/95	
BE173.10-03	Laboratory Spike	Duplicate	LS)	Water Water	05/17/95	
BE173.10-04	ECS-1	- where and	MS	, 81545-02		05/17/95	
BE173.10-05	ECS-1			81545-02 81545-02		05/17/95	· ·
							e s, z, , , , , , e

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0.03

0.06

0.06

ND

ND

ND

ND

0.32

0.01

0.02

0.05

0.02

0.1

0.02

0.2

0.02

ND

ND

ND

ND

ND

ND

ND

ND

0.01

0.02

0.05

0.02

0.1

0.02

0.02

0.2

7

7

10

ND

ND

ND

41

6

0.2

1

2

1

3

2

0.5

0.5

Superior Precision Analytical Inc.

AGRA EARTH & ENVIRONMENTAL Attn: GLENN RUCKHAUS

Chromium

Copper

Nickel

Silver

Zinc

Selenium

Thallium

Lead

Project_31-0156700-00 Reported on May 19, 1995

0.2

1

2

1

3

2

0.5

0.5

12

10

8

ND

ND

79

1.7

290

Analysis for Priority Pollutant Metals by EPA Methods 6010 & 7000 Series LAB ID Sample ID Matrix Dil.Factor Moisture 81546-03 MW-6 1.0 Water 81546-06 STRIP-IN Water 1.0 81546-09 B95-2 Soil 1.0 B95-3 81546-10 Soil 1.0 RESULTS OF ANALYSIS 81546-03 Compound 81546-06 81546-09 81546-10 Conc. RL Conc. RL Conc. RL Conc. RL mg/L mg/L mg/kg mg/kg Mercury ND 0.002 ND 0.002 ND 0.05 0.12 0.05 Antimony ND 0.1 ND 0.1 ND 2.5 ND 2.5 Arsenic ND 0.05 ND 0.05 ND 2.5 ND 2.5 Beryllium ND 0.005 ND 0.005 0.2 0.1 0.3 0.1 Cadmium 0.008 0.005 ND 0.005 0.7 0.1 1.3 0.1

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A me	ember of ESSCON Environm	ental Support S	Service Con	isortium				
		s for Pric						
	Qual:	ity Assura	nce and	Control D	ata			
	×	Laboratory Metho	Y Number od Blank					-
	BE18 Cond mg/J		BE171 Conc. mg/kg		BE172.1 Conc. mg/L	2-01 RL	BE172. Conc. mg/kg	10-01 RL
Mercury Antimony Arsenic Beryllium Cadmium Chromium Copper Lead Mickel Selenium Silver Challium Zinc	ND	0.05	ND	0.05	ND	0.002	ND ND ND ND ND ND ND ND ND ND ND ND	2.5 2.5 0.1 0.1 0.2 1 2 1 3 0.5 2 0.5
8								
		Pag	e 3 of 7	7				

 Martinez, California 94553
 San Francisco, California 94124
 Seattle, Washington 98108

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 (415) 647-2081 / fax (415) 821-7123
 (206) 763-2992 / fax (206) 763-8429

	A member of ESSCON Eonr	nental Support Service Consortium	
		is for Priority Pollutant Met EPA Methods 6010 & 7000 Serie	
3	Qual	ity Assurance and Control Dat	a
		Laboratory Number: 81546 Method Blank(s)	
	BE1	73.10-01	
	Con mg/	c. RL	
Mercury			
Intimony	ND	0.1~	
rsenic	ND	0.05	-
eryllium	ND	0.005	19. 1
admium	ND	0.005	
hromium 🗉	ND	0.01	2
opper	ND	0.02	
ead	ND	0.05	
ickel	ND	0.02	
		0.1	
elenium	ND		
Selenium Silver Shallium	ND ND ND	0.02	

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				Priority Poll ods 6010 & 7	utant Metals 2000 Series			
	a	Qualit	y Assu	rance and Co	ontrol Data	177		
		L	aborat	ory Number:	81546	-		
Compo	und		mple nc.	SPK Level	SPK Result	Recovery %	Limits %	RI ु
<u></u>	····		For	Soil Matrix	(mg/kg)			8
		BE181.12			ory Control Spi	kes		
Mercu	ry			0.005	0.00471/0.00	94/93	75-125	1
		27		Soil Matrix				
		BE171.12	02 /	03 - Laborat	ory Control Spi	kes		
Mercu	ry			0.005	0.00487/0.00	97/96	75-125	1
		BE172.12		Water Matrix 03 - Laborat	(mg/L) ory Control Spi	kes		
			,					
Mercu	ry			0.005	0.00432/0.00	86/95	75-125	1
		BE172.10		Soil Matrix 03 - Laborat	(mg/kg) cory Control Spi	kes		
Antim Arsen	-			50 50	46.75/49.25 46.19/49.63	94/99 92/99	75-125 75-125	5 7
Beryl				50	49.53/50.49	92/99 99/101	75-125	2
Cadmi				50	48.09/49.28	96/99	75-125	3
Chrom	ium			50	47.72/48.81	95/98	75-125	3
Coppe	r			50	46.33/46.08	93/92	75-125	1
Lead				50	49.35/50.34	99/101	75-125	2
Nicke	1			50	48.40/49.88	97/100	75-125	3
Selen				50	47.32/47.05	95/94	75-125	1
Silve				50	49.39/51.28	99/103	75-125	4
Thall	ium			50	49.93/52.56	100/105	75-125	5
Zinc				50	49.62/51.37	99/103	75-125	4
		BE173.10		Water Matri: 03 - Labora	x (mg/L) tory Control Spi	.kes		
Antim	OTV			1	1.044/1.030	104/103	75-125	1
	-		1	Page 5 of 7	,			-
			Ce	rtified Laborator	ies			
c	325 Arnold Dr., Suite	114	15	55 Burke St., Ur	1 30	9 S. Cloverdal	e St. Suite B-	74

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Analysis for Priority Pollutant Metals by EPA Methods 6010 & 7000 Series

Quality Assurance and Control Data

Laboratory Number: 81546

Compound		Sample conc.	SPK Level	SPK Result	Recovery		I
		conc.	ŭ.		6	90	Ş
Arsenic			1	1.065/.9477	107/95	75-125]
Beryllium			1	1.031/1.01	103/101	75-125	-
Cadmium			1	1.078/1.037	108/104	75-125	4
Chromium			1	1.024/.9980	102/100	75-125	:
Copper			1	1.032/.9928	103/99	75-125	4
Lead			1	1.044/1.027	104/103		-
Nickel			1	1.070/1.052	107/105	75-125	
Selenium			1	1.040/.9374	104/94	75-125	
Silver			1	1.005/.9717	101/97	75-125	4
Thallium			1	1.056/.9637	106/96	75-125	-
Zinc			1	1.070/1.040	107/104		
		For	Soil Matrix	(mg/kg)			
				Spiked: 81594	- 02		
		78		- <u>-</u>			
Mercury		0.00249	0.005	0.00655/0.00	81/82	75-125	1
		For	Soil Matrix	(mg/kg)			
		BE171.12 04 /	05 - Sample	Spiked: 81545	- 04		
Mercury		0.000285	5 0.005	0.00516/0.00	98/101	75-125	
		For	Water Matri	x (mg/L)			
		BE172.12 04 /	05 - Sample	Spiked: 81545	- 02		
Mercury		0.00026	0.005	0.00464/0.00	88/86	75-125	:
		For	Soil Matrix	(mg/kg)			
				Spiked: 81533	- 01		
Antimony		ND	50	41.57/46.26	83/93	75-125	
Arsenic		ND	50	28.41/36.33	57/73	75-125	:
Beryllium		ND	50	46.11/51.87	92/104	75-125	
Cadmium		ND	50	43.45/48.58	87/97	75-125	
Chromium		8.7	50	52.13/59.24	87/101	75-125	
Copper		ND	50	45.65/51.42	91/103	75-125	
		1	Page 6 of 7				
		Ce	rtified Laborato	ies			
825 Arn	old Dr., Suite 114	15	55 Burke St., Ur	it 3(09 S. Cloverdale	e St., Suite B-J	24
	, California 94553		ncisco, California		Seattle, Washir		



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Analysis for Priority Pollutant Metals by EPA Methods 6010 & 7000 Series

Quality Assurance and Control Data

Laboratory Number: 81546

	Compound	Sample conc.	SPK Level	SPK Result	Recovery	Limits %	RPD %
1_		0			•	Ŭ	
	Lead	5	50	49.04/52.61	88/95	75-125	8
	Nickel	6	50	50.28/57.02	89/102	75-125	14
1	Selenium	ND	50	42.05/47.62	84/95	75-125	12
	Silver	ND	50	45.64/49.19	91/98	75-125	7
-	Thallium	ND	50	47.43/45.99	95/92	75-125	3
7	Zinc	7	50	50.05/56.92	86/100	75-125	15
		For	Water Matrix	c (mor/L)			
	BI			Spiked: 81545 -	02		
]							
4	Antimony	ND	1	1.054/1.051	105/105	75-125	0
1	Arsenic	ND	1	1.086/1.151	109/115	75-125	5
1	Beryllium	ND	1	1.071/1.053	107/105	75-125	2
J	Cadmium	° 1.9	1	2.922/2.905	102/101	75-125	1
	Chromium	.14	1	1.152/1.136	101/100	75-125	1
1	Copper	.18	1.	1.22/1.209	104/103	75-125	1
1	Lead	.68	1	1.675/1.662	100/98	75-125	2
	Nickel	0.07	1	1.102/1.10	103/103	75-125	0
1	Selenium	.4	1	1.574/1.584	117/118	75-125	1
	Silver	ND	1	.9724/.9688	97/97	75-125	0
	Thallium	ND	ì	.8928/.8456	89/85	75-125	5
1	Zinc	37	1	38.28c/37.90	128/90	75-125	35
c	- The Matrix Spike recovery		-	-			2
a.	 concentration of the anal MS and/or MSD recoveries recoveries were within ac MS and/or MSD recoveries recovery was within accepted by the second s	were out of o cceptable limi were out of o	control limit	s. LCS & LCSD			
ם	efinitions:						
N							
	L = Reporting Limit						
	A = Not Analysed						
	PD = Relative Percent Diff	ference					
- 1	g/L = parts per billion (pp			ug/kg	= parts p	er billion	(daa)
	g/L = parts per million (pr				= parts p		
		E	age 7 of 7				
-J.							
1		Ce	rtified Laborator	ies			
]	825 Arnold Dr., Suite 114		rtified Laborator 55 Burke St., Un)9 S. Cloverdal		

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Attn: GLENN RUCKHAUS

Project 31-0156700-00 Reported on May 23, 1995

Total Extractable Petroleum Hydrocarbons by EPA SW-846 Method 8015M

Chronology

- Laboratory Number 81546

Sample ID		Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
MW-1	÷.	 05/10/95	05/12/95	05/15/95	05/16/95	BE151.21	01
MW - 5		05/10/95	05/12/95	05/15/95	05/16/95	BE151.21	02
MW - 6		05/10/95	05/12/95	05/15/95	05/16/95	BE151.21	03
MW12		05/10/95	05/12/95	05/15/95	05/16/95	BE151.21	04
STRIP-W		05/10/95	05/12/95	05/15/95	05/16/95	BE151.21	05
STRIP-IN	~	05/11/95	05/12/95	05/15/95	05/16/95	BE151.21	06
STRIP-S		05/10/95	05/12/95	05/16/95	05/17/95	BE161.02	07
B95-1		05/11/95	05/12/95	05/16/95	05/17/95	BE161.02	08
B95-2		05/11/95	05/12/95	05/16/95	05/17/95	BE161.02	09
B95-3		05/11/95	05/12/95	05/18/95	05/19/95	BE181.29	10

QC Samples

Less.	QC Batch #	QC Sample ID	Түү	eRef.	Matrix	Extract.	Analyzed
1	BE181.29-01	Method Blank	MB		Soil	05/18/95	05/19/95
_	BE181.29-02	Laboratory Spike	LS		Soil		05/19/95
	BE181.29-03	Laboratory Spike Duplicate	LSI)	Soil		05/19/95
	BE181.29-04	95ANFM01SL	MS	81589-01	Soil		05/19/95
	BE181.29-05	95ANFM01SL	MSI	81589-01	Soil		05/19/95
1002.F	BE151.21-01	Method Blank	MB		Water	05/15/95	
	BE151.21-02	Laboratory Spike	LS		Water	05/15/95	
	BE151.21-03	Laboratory Spike Duplicate	LSI)	Water	05/15/95	
	BE161.02-01	Method Blank	MB		Soil		05/17/95
	BE161.02-02	Laboratory Spike	LS		Soil		05/17/95
	BE161.02-03	Laboratory Spike Duplicate	LSI)	Soil		05/17/95
	BE161.02-04	STRIP-S	MS	81546-07	Soil		05/17/95
	BE161.02-05	STRIP-S	MSI		Soil	05/16/95	• •
						, -, -,	

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AGRA EARTH & ENVIRONMENTAL Attn: GLENN RUCKHAUS Project 31-0156700-00 Reported on May 23, 1995

Total Extractable Petroleum Hydrocarbons by EPA SW-846 Method 8015M

LAB	ID Sampl	e ID			<u>.</u>		Matrix	Dil.Fact	or	Moisture
8154	6-01 MW-1						Water	1.0	<u>с</u>	-
81,54	6-02 MW-5						Water	1.0	C	
8154	6-03 MW-6						Water	1.0	C	-
8154	6-04 MW12						Water	1.0	C	100
A		R	ΕSŪ	LTS	OFA	NALY	SIS			
Compo	ound		81546-	01	81546-	02	81546-	03	81546-	04
-			Conc. ug/L	RL	Conc. ug/L	RL	Conc. ug/L	RL	Conc. ug/L	RL
Diese	el Range		6500	50	3000	50	ND	-50	2200	50
	crogate Recoverie acosane	:S (%) <<	240i		319i		87		176i	

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LAB ID	Sample ID					Matrix ⁼	Dil.Factor	Moisture
81546-05	STRIP-W	=				Water	1.0	
81546-06	STRIP-IN					Water	1.0	-
81546-07	STRIP-S					Soil	1.0	11.1%
81546-08	B95-1			-		Soil	10.0	13.3%
-		RESU	LTS	OFAI	NALY	SIS		
Germannal		01546	0.5	07546	0.0	07546		
Compound		81546		81546-		81546-		46-08
8		Conc. ug/L		Conc. ug/L	RL	Conc. mg/kg	RL Cone mg/3	
Diesel Rang	e	600	50	120	50	ND	11 480	0. 140
>> Surrogate	Recoveries (%)	<<						
Tetracosane		115		76		98	860	h

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 Inc.

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			To		actable EPA SW-8			ocarbons M		
Π	LAB ID	Sample 1	D					Matrix	Dil.Factor	Moisture
п	81546-09 81546-10	B95-2 B95-3		sa:	×		-	Soil Soil	10.0 1.0	29.1% 8.7%
				RESU	LTS	OFA	NAL	, YSIS		
	Compound			81546- Conc. mg/kg		81546- Conc. mg/kg	10	-		
_	Diesel Range	<u></u>		4200	200	ND	11		.	
	>> Surrogate Red Tetracosane	coveries	(%) <	<< 370h		97				
100										
								1		
					Page	4 of 7				
					— Certifie	d Laborato	ories —			

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	Total Extractable by EPA SW-8	Petroleum Hydrod 346 Method 8015M		
	Quality Assuran	nce and Control I	Data	
		y Number: 81546 od Blank(s)	- · · ·	
	BE181.29-01 Conc. RL mg/kg	BE151.21-01 Conc. RL ug/L	BE161.02-01 Conc. RL mg/kg	
Diesel Range		ND 50	ND 10	
>> Surrogate Recoveries			2	
Tetracosane	66	66	79	
- ×				
	2			
	же.			
	Pag	e 5 of 7		
	Certifi	ed Laboratories		
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San Francisco, California 94124 (415) 647-2081 / fax (415) 821-7123

	Õ	Superior	Praci	sion	Ana	lytical	Inc.	,		
	AA	A member of ESSC	CON Environmen	ntal Suppor	t Service Cons	ortium				
					e Petroleu -846 Metho	m Hydrocari od 8015M	bons		6 2	
			Qualit	y Assur	ance and O	Control Data	a			
				-	ry Number:				()."	
-				s	-				9.1 • 1 1	
	Compound	- * 		mple nc.	SPR Level	. SPK Resul	LC F	ecovery	\$	RPD %
			BE181.29		Soil Matı 3 - Labora	rix () atory Contro	ol Spikes	3		
	SUSurr	corate Recoveries	5 (%)							
	Tetracos	ane			15.1	2	\$1. T	74/93	50-150	
	ə ³		BE151.21		ater Matri 3 - Labora	ix (ug/L) atory Contro	ol Spikes	3		
	Diesel R	lange			2000	1450/163	0 7	73/82	50-150	12
	> Surroga Tetracos	te Recoveries (S sane	8) <<				•	70/74	50-150	
					oil Matriz					
			BE161.02	02 / 0	3 - Labora	atory Contr	ol Spikes	3 8		
	Diesel R	Range			67	50/59		75/88	50-150	16
1	Surroga	ate Recoveries (\$) <<							
1	Tetracos		•, •					75/84	50-150	
			BE181.29		Soil Mata 5 - Sample	rix () e Spiked: 8	1589 - 0:	L		
	SUSurr Tetracos	corate Recoverie: sane	s (%)					76/77	50-150	
			BE161.02		oil Matri: 5 - Sample	x (mg/kg) e Spiked: 8	1546 - 0	7		
	Diesel F	Range	6		67	51/47		67/61	50-150	9
>	> Surroga Tetracos	ate Recoveries (sane	%) <<	Pa	lge 6 of 7			73/77	50-150	
7				Cert	ified Laborate	ories				
	Mart	Arnold Dr., Suite 114 tinez, California 9455 9-1512 / fax (510) 229	3	San Franc	5 Burke St., L iisco, Califorr)81 / fax (41)	na 94124	Sea	ittle. Washi	e St., Suite B-2 ngton 98108 ax (206) 763-8	

A M A member of ESSCO	N Environmental Support	Service Consortium	- 50	
Narrative:		-		
i - The surrogate recovery interfering compounds i	was high due to t n the sample.	he presence of		
		-		
2			2	
h - Accurate quanitiation o the extent of sample di	f the surrogate w lution.	as not possible d	lue to	
Definitions:	1944 274	~		
ND = Not Detected RL = Reporting Limit		-		
NA = Not Analysed		-		
RPD = Relative Percent Di ug/L = parts per billion (ug/leg _ m	ente non billion (ma
mg/L = parts per million (arts per billion (pp) arts per million (pp)
			_	
2				
1				
	Pag	e 7 of 7		
	-			
	Comiti	ed Laboratories		

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Superior Procision Analytical, Anc. A member of ESSCON Environmental Support Service Consortium GRA EARTH & ENVIRONMENTAL Project 31-0156700-00 ttn: GLENN RUCKHAUS Reported on May 24, 1995 Polychlorinated Biphenyls by EPA SW-846 Method 8080 Chronology Laboratory Number 81546 Sample ID Sampled Received Extract. Analyzed QC Batch LAB # MW-1 05/10/95 05/12/95 05/15/95 05/18/95 BE153.17 01 MW-6 05/10/95 05/12/95 05/15/95 05/18/95 03 BE153.17 B95-2 05/11/95 05/12/95 05/15/95 05/18/95 BE151.17 09 B95-3 05/11/95 05/12/95 05/15/95 05/18/95 BE151.17 10 QC Samples QC Batch # QC Sample ID TypeRef. Matrix Extract. Analyzed BE151.17-04 Method Blank MB Soil 05/15/95 05/16/95 BE151.17-05 Laboratory Spike LS Soil 05/15/95 05/16/95 BE151.17-06 Laboratory Spike Duplicate LSD Soil 05/15/95 05/16/95 BE153.17-04 Method Blank MB Water 05/15/95 05/16/95 BE153.17-05 Laboratory Spike LS Water 05/15/95 05/16/95 BE153.17-06 Laboratory Spike Duplicate LSD Water 05/15/95 05/16/95

Page 1 of 4

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Polychlorinated Biphenyls by EPA SW-846 Method 8080

Quality Assurance and Control Data

Laboratory Number: 81546 Method Blank(s)

		BE151.	17-04	BE153.	17-04		
		Conc.	RL	Conc.	RL	280	
		ug/kg		ug/L			
Aroclor 1016		ND	30	ND	1		
Aroclor 1221		ND	30	ND	1		
Aroclor 1232		ND	30	ND	1		
Aroclor 1242	1.35	ND	30	ND	1		
Aroclor 1248		ND	30	ND	1		
Aroclor 1254		ND	30	ND	1	-	
Aroclor 1260		ND	30	ND	1		
>> Surrogate Recoverie	s (%)	<<					
Tetrachloro-m-xylene		82		64			
Decachlorobiphenyl		73		53			

Page 3 of 4

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Polychlorina	ted Bipl	henyls by EPA	SW-846 M	ethod 80	080	12	#
Qual	ity Ass	urance and Co	ntrol Dat	a			
	Labora	tory Number:	81546				
-	Sample conc.	SPK Level	SPK Resu	lt	Recovery %	/ Limits	RPD %
BE151.1		Soil Matrix 06 - Laborat		ol Spike	es		
Aroclor 1254		167	152/145		91/87		4
>> Surrogate Recoveries (%) << Tetrachloro-m-xylene Decachlorobiphenyl	13	20 20		173	71/70 68/60	60-150 60-150	
		Water Matrix	-				
BE153.1	7 05 /	06 - Laborat	cory Contr	OI SPIK	25		
Aroclor 1254		5	4.7/4.4		94/88	58-139	7
>> Surrogate Recoveries (%) << Tetrachloro-m-xylene Decachlorobiphenyl			5		71/70 68/60	60-150 60-150	
					·		
Definitions: ND = Not Detected RL = Reporting Limit NA = Not Analysed RPD = Relative Percent Difference ug/L = parts per billion (ppb) mg/L = parts per million (ppm)	e				-	per billion per million	
		Page 4 of 4					
	C	ertified Laborato	ries ———				
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Superior Precision Analytical

AGRA EARTH & ENVIRONMENTAL

Attn: GLENN RUCKHAUS

Project 31-0156700-00 Reported on May 24, 1995

Inc.

EPA SW-846 Method 8270 Semivolatile Organics by GC/MS

Chronology

Laboratory Number 81546

	Sample ID			Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
	MW-1			05/10/95	05/12/95	05/14/95	05/14/95	BE141.24	01
7	MW-6	27		05/10/95	05/12/95	05/14/95	05/14/95	BE141.24	03
1	B95-1		727	05/11/95	05/12/95	05/18/95	05/18/95	BE181.24	08
	B95-2			05/11/95	05/12/95	05/18/95	05/18/95	BE181.24	09
]	B95-3			05/11/95	05/12/95	05/18/95	05/18/95	BE181.24	10
4	QC Samples	10				-			

	QC Batch #	QC Sample ID	TypeRef.	Matrix	Extract.	Analyzed
_	BE141.24-01	Method Blank	MB	Water	05/14/95	05/14/95
1	BE141.24-02	Laboratory Spike	LS	Water	05/14/95	05/14/95
	BE141.24-03	Laboratory Spike Duplicate	LSD	Water	05/14/95	05/14/95
	BE181.24-01	Method Blank	MB	Soil	05/18/95	05/18/95
-1	BE181.24-02	Laboratory Spike	LS	Soil	05/18/95	05/18/95
	BE181.24-03	Laboratory Spike Duplicate	LSD	Soil	05/18/95	05/18/95
	BE181.24-04	95-1006QS	MS 81533-01	Soil	05/18/95	05/18/95
	BE181.24-05	95-1006QS	MSD 81533-01	Soil	05/18/95	05/18/95

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GRA EARTH & ENVIRONMENTAL

ttn: GLENN RUCKHAUS

Project 31-0156700-00 Reported on May 24, 1995

EPA SV	W-846 Meth	nod 8270	Semivola	tile O	rganics by	GC/MS		
LAB ID Sample ID				127	Matrix	Dil	.Factor	Moisture
81546-01 MW-1					Water	e.	1.0	-(*)
81546-03 MW-6					Water		1.0	-
81546-08 B95-1					Soil		1.0	13.3%
81546-09 B95-2					Soil		1.0	29.1%
	REST	JLTS	OF A	NAL	YSIS			
Compound	81546	5-01	81546	-03	81546-	08	81546	5-09
]P	Conc		Conc.	RL	Conc.	RL	Conc	RL
T	ug/L		ug/L		ug/Kg		ug/Ko	3
bis(2-chloroethyl)ether	ND	10	ND	10	ND	350	ND	420
aniline	ND	10	ND	10	ND .	350	ND	420
phenol	ND	10	ND	10	ND	350	ND	420
2-chlorophenol	ND	10	ND	10	ND	350	ND	420
1,3-dichlorobenzene	ND	10	ND	10	ND	350	ND	420
1,4-dichlorobenzene	ND	10	ND	10	ND	350	ND	420
1,2-dichlorobenzene	ND	10	ND	10	ND	350	ND	420
benzyl alcohol	ND	10	ND	10	ND	350	ND	420
bis-(2-chloroisopropyl)et	her ND	10	ND	10	ND	350	ND	420
2-methylphenol	ND	10	ND	10	ND	350	ND	420
hexachloroethane	ND	10	ND	10	ND	350	ND	420
n-nitroso-di-n-propylamin	e ND	10	ND	10	ND	350	ND	420
4-methylphenol	ND	10	ND	10	ND	350	ND	420
nitrobenzene	ND	10	ND	10	ND	350	ND	420
isophorone	ND	10	ND	10	ND	350	ND	420
2-nitrophenol	ND	10	ND	10	ND	350	ND	420
2,4-dimethylphenol	ND	10	ND	10	ND	350	ND	420
bis(2-chloroethoxy)methan	e ND	10	ND	10	ND	350	ND	420
2,4-dichlorophenol	ND	10	ND	10	ND	350	ND	420
1,2,4-trichlorobenzene	ND	10	ND	10	ND	350	ND	420
naphthalene	ND	10	ND	10	ND	350	670	420
benzoic acid	ND	10	ND	10	ND	350	ND	420
4-chloroaniline	ND	10	ND	10	ND	350	ND	420
hexachlorobutadiene	ND	10	ND	10	ND	350	ND	420
4-chloro-3-methylphenol	ND	10	ND	10	ND	350	ND	420
2-methyl-naphthalene	ND	10	ND	10	ND	350	ND	420
hexaclorocyclopentadiene	ND	10	ND	10	ND	350	ND	420
2,4,6-trichlorophenol	ND	10	ND	10	ND	350	ND	420
2,4,5-trichlorophenol	ND	10	ND	10	ND	350	ND	420
2-chloronaphthalene	ND	10	ND	10	ND	350	ND	420
2-nitroaniline	ND	10	ND	10	ND	350	ND	420
acenaphthylene	ND	10	ND	10	ND	350	ND	420
dimethylphthlate	ND	10	ND	10	ND	350	ND	420

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AGRA EARTH & ENVIRONMENTAL Attn: GLENN RUCKHAUS

Project 31-0156700-00 Reported on May 24, 1995

EPA	SW-846 Me	6 Method 8270 Semivolatile Organics by GC/MS								
LAB ID Sample	ID				Matrix	Dil	.Factor	Moisture		
81546-01 MW-1					Water		1.0	-		
81546-03 MW-6				5	Water		1.0			
81546-08 B95-1					Soil		1.0	13.3%		
81546-09 B95-2					Soil		1.0	29.1%		
Ψ.	RES	SULTS	OF A	NAL	YSIS					
Compound	81.	546-01	81546	-03	- 81546-	08	81546	-09		
	Cor	nc. RL	Conc.	RL	Conc.	RL	Conc.	RL		
	ug,	/L	ug/L		ug/Kg		ug/Kg			
(#)										
2,6-dinitrotoluene	 ND 	10	ND	10	ND	350	ND	420		
Acenaphthene	ND	10	ND	10	ND	350	ND	420		
3-nitroaniline	ND	10	ND	10	ND	350	ND	420		
2,4-dinitrophenol	ND	10	ND	10	ND	350	ND	420		
dibenzofuran	ND	10	ND	10	ND	350	ND	420		
2,4-dinitrotoluene	ND		ND	10 10	ND	350	ND	420 420		
4-nitrophenol	ND	10	ND		ND	350	ND	420 420		
fluorene	ND her ND		ND ND	10 10	ND ND	350 350	ND ND	420 420		
4-chlorophenyl-phenylet	ner ND ND		ND	10	ND	350	ND	420		
diethylphthlate 4-nitroaniline	ND ND		ND	10	ND	350	ND	420		
			ND	10	ND	350	ND	420		
4,6-dinitro-2-methylphe	ND ND		ND	10	ND	350	ND	420		
n-nitrosodiphenylamine			ND	10	ND	350	ND	420		
4-bromo-phenyl-phenylet hexachlorobenzene	ND ND		ND	10	ND	350	ND	420		
	ND		ND	10	ND	350	ND	420		
pentachlorophenol phenanthrene	ND		ND	10	ND	350	ND	420		
anthracene	ND		ND	10	ND	350	ND	420		
di-n-butylphthlate	ND		ND	10	ND	350	ND	420		
fluoranthene	ND		ND	10	ND	350	ND	420		
benzidine	ND		ND	10	ND	350	ND	420		
pyrene	ND		ND	10	ND	350	ND	420		
butylbenzylphthlate	ND		ND	10	ND	350	ND	420		
3.3'-dichlorobenzidine	ND		ND	10	ND	350	ND	420		
Benzo (a) Anthracene	ND		ND	10	ND	350	ND	420		
chrysene	ND		ND	10	ND	350	ND	420		
bis(2-ethylhexyl)phthal			ND	10	ND	350	ND	420		
di-n-octylphthalate	ND		ND	10	ND	350	ND	420		
benzo(b,k) fluoranthene	ND		ND	10	ND	350	ND	420		
9H-Carbazole	ND		ND	10	ND	300	ND	300		
Benzo (a) Pyrene	ND		ND	10	ND	350	ND	420		
Indeno (1, 2, 3) Pyrene	ND		ND	10	ND	350	ND	420		
dibenzo [a, h] anthracene	ND		ND	10	ND	350	ND	420		
dibenzo (a, nj anthracene	ND	10	ND	10		220		720		

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GRA EARTH & ENVIRONMENTAL

Attn: GLENN RUCKHAUS

Project 31-0156700-00 Reported on May 24, 1995

Inc.

81546-01 MW-1 81546-03 MW-6	11.12.12.12.12.12.12.12.12.12.12.12.12.1)il.Factor	Moisture
81546-03 MW-6		New York Had at the	Water	1.0	-
			Water	1.0	-
81546-08 B95-1		-	Soil	1.0	13.3%
81546-09 B95-2	5		Soil	1.0	29.1%
	RESULTS	OF ANALY	SIS	Ŕ	
Compound	81546-01	81546-03	81546-08	8154	6-09
-	Conc. RL	Conc. RL	Conc. RI	Conc	. RL
	ug/L	ug/L	ug/Kg	ug/K	g
Benzo(g,h,i)Perylene	ND 10	ND 10	ND 35	50 ND	420
> Surrogate Recoveries	(%) <<				
2-fluorophenol	31	51	79	92	
phenol-d5	26	46	90	100	
nitrobenzene-d5	64	78	93	121	
2-fluorobiphenyl	70	86	36	101	
2,4,6-tribromophenol	96	94	1022 i	132	
terphenyl-d14	74	109	0 k	116	
- The surrogate recove interfering compound		the presence of			
	-				
 The surrogate recove analysis was repeate 	-		e		

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GRA EARTH & ENVIRONMENTAL ttn: GLENN RUCKHAUS						Project 3 Reported on	81-0156700-0 May 24, 199
EPA SW-84	6 Metho	od 8270	Semiv	olatile	Organics by	GC/MS	
LAB ID Sample ID					Matrix	Dil.Factor	Moisture
81546-10 895-3					Soil	1.0	8.7%
	-						
1		T m C	OF	ה זה ה	LYSIS		
r	LESU	цтэ	0 F	ANA	11212		
Compound	81546	-10					
	Conc.	RL					
	ug/Kg						
bis(2-chloroethyl)ether	ND	330					
aniline	ND	330					
phenol	ND	330					
2-chlorophenol	ND	330					
1,3-dichlorobenzene	ND	330					
1,4-dichlorobenzene	ND	330					
1,2-dichlorobenzene	ND	330					
benzyl alcohol	ND	330					
bis-(2-chloroisopropyl)ether	ND	330					
2-methylphenol	ND	330					
hexachloroethane	ND	330					
n-nitroso-di-n-propylamine	ND	330					
4-methylphenol	ND	330					
nitrobenzene	ND	330					
isophorone	ND	330					
2-nitrophenol	ND	330					
2,4-dimethylphenol	ND	330					22
bis (2-chloroethoxy) methane	ND	330					
2,4-dichlorophenol	ND	330					
1,2,4-trichlorobenzene	ND	330			. (#		
naphthalene	ND	330					×
benzoic acid	ND	330					
4-chloroaniline	ND	330					
hexachlorobutadiene	ND	330					
4-chloro-3-methylphenol	ND	330					8
2-methyl-naphthalene	ND	330				*0	
hexaclorocyclopentadiene	ND	330					
2,4,6-trichlorophenol	ND	330	1				
2,4,5-trichlorophenol	ND	330					
2-chloronaphthalene	ND	330					
2-nitroaniline	ND	330					
acenaphthylene	ND	330					
dimethylphthlate	ND	330					
				sf 10			-
		Pa	age 5 d	JE 12			

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Superior Procision Analytical, Inc. A member of ESSCON Environmental Support Service Consortium

AGRA EARTH & ENVIRONMENTAL Attn: GLENN RUCKHAUS Project 31-0156700-00 Reported on May 24, 1995

LAB ID Sample ID					Matrix	Dil.Factor	Moisture
81546-10 B95-3					Soil	1.0	8.7%
					9		32
	RESU	T. TT S	OF	ΔΝΔ	LYSIS		
			01				
Compound	81546-						
	Conc.	RL					
	ug/Kg						
2,6-dinitrotoluene	ND	330					
Acenaphthene	ND	330	199				
3-nitroaniline	ND	330					
2,4-dinitrophenol	ND	330					
dibenzofuran	ND	330					
2,4-dinitrotoluene	ND	330					
4-nitrophenol	ND	330					
fluorene	ND	330					
4-chlorophenyl-phenylethe		330					
diethylphthlate	ND	330					
4-nitroaniline	ND	330					
4,6-dinitro-2-methylpheno		330					
n-nitrosodiphenylamine	ND	330					
4-bromo-phenyl-phenylethe		330					
hexachlorobenzene	ND	330					
pentachlorophenol	DM ND	330					
phenanthrene	ND	330					
anthracene	ND	330					
di-n-butylphthlate	ND	330					
fluoranthene benzidine	ND	330 330					
	ND						
pyrene bytylbengylphthlate	ND ND	330					
butylbenzylphthlate 3.3'-dichlorobenzidine	ND ND	330 330					
Benzo (a) Anthracene	ND	330					
chrysene	ND	330					
bis(2-ethylhexyl)phthalat		330					
di-n-octylphthalate	ND ND	330					
benzo(b,k) fluoranthene	ND	330					
9H-Carbazole	ND	300					
Benzo (a) Pyrene	ND	330					
Indeno(1,2,3) Pyrene	ND	330					
dibenzo [a, h] anthracene	ND	330					

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AGRA EARTH & ENVIRONMENTAL

Attn: GLENN RUCKHAUS

Project 31-0156700-00 Reported on May 24, 1995-

	EPA S	W-846 Me	thod 8270 S	Semivolati	le Organics by (GC/MS	
LAB ID	Sample ID				Matrix	Dil.Factor	Moisture
81546-10	B95-3	:			Soil	1.0	8.7%
	s ==						
		RES	ULTS	OF AN	ALYSIS		
1							
Compound			46-10				
_	-2		nc. RL	-			
7		ug,	'Kg				
Benzo(g,h,i)	Pervlene	ND	330	<u></u>			
>> Surrogate H) <<					
2-fluorophend	ol	71					
phenol-d5	_	85					
nitrobenzene		77					
2-fluorobiphe		81					
2,4,6-tribror		10	3				
terphenyl-dl	4	98					
ind in the second se							
9							

Page 7 of 12

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Superior Precision Analytical, Inc.

EPA SW-846 Method 8270 Semivolatile Organics by GC/MS

Quality Assurance and Control Data

Laboratory Number: 81546 Method Blank(s)

		BE141.	24-01	BE181	24-01				
		Conc.	RL	Conc.	RL				
\square		ug/L		ug/Kg	I.				
1						 			
	bis(2-chloroethyl)ether	ND	10	ND	300				_
1	aniline	ND	10	ND	300				
	phenol	ND	10	ND	~_300				
	2-chlorophenol	ND	10	ND	300				
	1,3-dichlorobenzene	ND	10	ND	300				
1	1,4-dichlorobenzene	ND	10	ND	300				
	1,2-dichlorobenzene	ND	10	ND	300			-	
	benzyl alcohol	ND	10	ND	300				
\square	bis-(2-chloroisopropyl)ether	ND	10	ND	300				
	2-methylphenol	ND	10	ND	300				
	hexachloroethane	ND	10	ND	300				
	n-nitroso-di-n-propylamine	ND	10	ND	300				
	4-methylphenol	ND	10	ND	300		222		
1	nitrobenzene	ND	10	ND	300				
	isophorone	ND	10	ND	300				
F	2-nitrophenol	ND	10	ND	300				
\Box	2,4-dimethylphenol	ND	10	ND	300				
	bis(2-chloroethoxy)methane	ND	10	ND	300				
	2,4-dichlorophenol	ND	10	ND	300				
	1,2,4-trichlorobenzene	ND	10	ND	300				
	naphthalene	ND	10	ND	300				
	benzoic acid	ND	10	ND	300				
	4-chloroaniline	ND	10	ND	300				
	hexachlorobutadiene	ND	10	ND	300				
	4-chloro-3-methylphenol	ND	10	ND	300				
	2-methyl-naphthalene	ND	10	ND	300				
	hexaclorocyclopentadiene	ND	10	ND	300				
	2,4,6-trichlorophenol	ND	10	ND	300				
	2,4,5-trichlorophenol	ND	10	ND	300				
	2-chloronaphthalene	ND	10	ND	300				
hid	2-nitroaniline	ND	10	ND	300				
	acenaphthylene	ND	10	ND	300				
	dimethylphthlate	ND	10	ND	300				
U	2,6-dinitrotoluene	ND	10	ND	300				
	Acenaphthene	ND	10	ND	300				
	3-nitroaniline	ND	10	ND	300				
	2,4-dinitrophenol	ND	10	ND	300				
	dibenzofuran	ND	10	ND	300				
0.00	2,4-dinitrotoluene	ND	10	ND	300				
13									

Page 8 of 12

Certified Laboratories

825 Arnold Dr., Suite 114 Martinez, California 94553 (510) 229-1512 / fax (510) 229-1526 1555 Burke St., Unit I San Francisco, California 94124 (415) 647-2081 / fax (415) 821-7123



Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

EPA SW-846 Method 8270 Semivolatile Organics by GC/MS

Quality Assurance and Control Data

Laboratory-Number: 81546 Method Blank(s)

295.3	Conc.				
		RL	Conc.	RL	
	ug/L		ug/Kg		
4-nitrophenol	ND	10	ND	300	ANA - MILL-
fluorene	ND	10	ND	300	
4-chlorophenyl-phenylether	ND	10	ND	300	
diethylphthlate	ND	10	ND	300	
4-nitroaniline	ND	10	ND	300	
4,6-dinitro-2-methylphenol	ND	10	ND	300	
n-nitrosodiphenylamine	ND	10	ND	300	
4-bromo-phenyl-phenylether	ND	10	ND	300	
hexachlorobenzene	ND	10	ND	300	
pentachlorophenol	ND	10	ND	300	
phenanthrene	ND	10	ND	300	
anthracene	ND	10	ND	300	
di-n-butylphthlate	ND	10	ND	300	
fluoranthene	ND	10	ND	300	
benzidine	ND	10	ND	300	
pyrene	ND	10	ND	300	
butylbenzylphthlate	ND	10	ND	300	
3.3'-dichlorobenzidine	ND	10	ND	300	
Benzo (a) Anthracene	ND	10	ND	300	
chrysene	ND	10	ND	300	
bis(2-ethylhexyl)phthalate	ND	10	ND	300	
di-n-octylphthalate	ND	10	ND	300	
benzo(b, k) fluoranthene	ND	10	ND	300	
9H-Carbazole	ND	10	ND	300	
Benzo (a) Pyrene	ND	10	ND	300	
Indeno(1,2,3) Pyrene	ND	10	ND	300	
dibenzo [a, h] anthracene	ND	10	ND	300	
Benzo(g,h,i) Perylene	ND	10	ND	300	
> Surrogate Recoveries (%) <	<<				
2-fluorophenol	24		73		
phenol-d5	16		86		
nitrobenzene-d5	42		82		
2-fluorobiphenyl	45		89		
2,4,6-tribromophenol	48		92		
terphenyl-d14	57		107		
Cer hwent I - at 4			207		<u>7</u>

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EPA SW-846 M	lethod 827	0 Semivolati	le Organics by	y GC/MS		
Qua	lity Assu	rance and Co	ntrol Data		re:	2
	Laborat	ory Number:	81546			
Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RI %
	For	Water Matrix	(uq/L)		÷	
BE141.			ory Control S	pikes	建	
phenol		100	34/33	34/33	12-110	. 3
2-chlorophenol		100	86/86	86/86	27-123	0
1,4-dichlorobenzene		50	43/43	86/86	36-97	0
n-nitroso-di-n-propylamine	1997 N.	50	46/46	92/92	41-116	- 0
1,2,4-trichlorobenzene		50 👘	39/39	78/78	39-98	0
4-chloro-3-methylphenol		100	73/74	73/74	23-97	1
Acenaphthene		50	44/43	88/86	46-118	2
2,4-dinitrotoluene		50	41/40	82/80	24-96	2
4-nitrophenol		100	33/33	33/33	10-80	0
pentachlorophenol pyrene		100 50	98/100 60/60	98/100 120/120	9-103 26-127	2
<pre>> Surrogate Recoveries (%) << 2-fluorophenol phenol-d5 nitrobenzene-d5 2-fluorobiphenyl 2,4,6-tribromophenol</pre>				49/44 31/31 84/85 90/89 118/118	21-110 10-110 35-114 43-116 10-123	
terphenyl-dl4				127/126	33-141	
	For	Soil Matrix	(ug/Kg)			
BE181	.24 02 /	03 - Labora	tory Control S	pikes		
				-		
phenol		3300	2505/2500	76/76	26-90	(
2-chlorophenol		3300	2776/2827	84/86	25-102	:
1,4-dichlorobenzene		1650	1380/1400	84/85	28-104	:
n-nitroso-di-n-propylamine		1650	1471/1488	89/90	41-126	
1,2,4-trichlorobenzene		1650	1364/1328	83/80	38-107	
4-chloro-3-methylphenol		3300	2479/2383	75/72	26-103	
Acenaphthene		1650	1393/1370	84/83	31-137	
2,4-dinitrotoluene		1650	1090/1118	66/68	28-89	
4-nitrophenol		3300	2392/2372	72/72 107/108	11-114 17-109	
pentachlorophenol		3300	3525/3552 1766/1836	107/111	35-142	
pyrene		1650	T\00\1830		33-142	
>> Surrogate Recoveries (%) << 2-fluorophenol				71/73	25-121	
	C	ertified Laborato	ries			
825 Arnold Dr., Suite 114 Martinez, California 94553		555 Burke St., Ui ancisco, Californi		309 S. Cloverda Seattle, Wash		

Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

EPA SW-846 Method 8270 Semivolatile Organics by GC/MS

Quality Assurance and Control Data

Laboratory Number: 81546

	Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
	phenol-d5			2 C	74/73	24-113	
	- nitrobenzene-d5				79/78	23-120	
Le.	2-fluorobiphenyl				84/83	30-115	
	2,4,6-tribromophenol				101/102	19-122	
	terphenyl-d14			· ·	99/101	18-137	
Ц	74) 20			-		-	
		For	Soil=Matrix	(ug/Kg)			
	- BE181.	24 04 /	05 - Sample	Spiked: 81533 -	01		
				5			
_	phenol	ND	3300	2341/2380	71/72	26-90	1
	2-chlorophenol	ND	3300	2660/2722	81/82	25-102	1
	1,4-dichlorobenzene	ND	1650	969/986	59/60	28-104	2
	n-nitroso-di-n-propylamine	ND	1650	983/988	60/60	41-126	0
	1,2,4-trichlorobenzene	ND	1650	1008/974	61/59	38-107	3 =
	4-chloro-3-methylphenol	ND	3300	2496/2397	76/73	26-103	4
	Acenaphthene	ND	1650	986/973	60/59	31-137	2
	2,4-dinitrotoluene	ND	1650	791/753	48/46	28-89	4
	4-nitrophenol	ND	3300	2402/2236	73/68	11-114	7
9	pentachlorophenol	ND	3300	3206/3310	97/100	17-109	3
	pyrene	ND	1650	1415/1411	86/86	35-142	0
	• A						
5	> Surrogate Recoveries (%) <<						
	2-fluorophenol				73/72	25-121	
P	phenol-d5				70/71	24-113	
	nitrobenzene-d5				79/77	23-120	
	2-fluorobiphenyl				81/81	30-115	
E.	2,4,6-tribromophenol				102/103	19-122	
	terphenyl-d14				106/105	18-137	
			÷: *:				

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Narrative:

Defi	nit:	ions:
ND	=	Not Detected
RL	=	Reporting Limit
NA	=	Not Analysed
RPD	=	Relative Percent Difference
ug/L	=	parts per billion (ppb)
mg/L	=	parts per million (ppm)

ug/kg = parts per billion (ppb)
mg/kg = parts per million (ppm)

Page 12 of 12

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1555 Burke St., Unit I San Francisco, California 94124 (415) 647-2081 / fax (415) 821-7123

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Salta-

TEL:907 258 4128

AY -12, 95(FRI) 14:08 AGRA E&A

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AGRA Earth & Environmental, Inc.

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TO: Katre Hall

COMPANY: Superior

FAX NO: 510 - 229-0916 SENDER: Glenn Ruckchane FAX OPERATOR:

NO. OF PAGES: 3 (including this page)

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2.5

Here is the updated COC if you have question

please call

August 2, 1994

00301 CHAIN OF CUSTODY to run it possible 4 SPECIAL INSTRUCTIONS / ADDITIONAL COMMENTS 502 0 0288 3 Ż From all anel 09 88 P ana AW JU4 102 may all do ANALYSIS REGUESTED (circle, check box or write preferred method in box) 22/0/09 Ho/el × PAGE もの 300 K X PCB by aoad MUL Sag lite DY 625 or B270 BMOD sonepOlice GCNS **JIME** to corr call work to Organica GCINS by A240 or 624 A netala B Peare TORN MAINE BY ICP AA chatto, DATE ag) bui Total Halogons (TOX) by 9076 9,33 Program Aromalica by 810 or 8310 **TURNAROUND TIME** De Onen Stond 209 An someon C 2 WEEK (stan D 24HOUR **OBIRIDOM LIBIH-HRTW** D 8 HOUR ACCEPTED BY / AFFILATION CI 1 VIEBK #0/i 24 0109 / 0005 Ag solution bet LIPH by 3550 / 416T BTEX/GRPH Combo by (030/8020-6015 Х $\mathbf{\Sigma}$ Х 1.1.1 S ORPH by 3550 / 6100 Х Х 2108/ 0009 A4 Hate \times 74 BTEX by 5020 / 8020 Þ ei. рачест м. *31-015670*000 рноме ма. 005 Yo. へいょう しんちょうし CONTAINERS -IME-1200 DOT DESIGNATION Ŝ б 8 *da* ക 0 Th 5 LABORATOBY PRESERVATIVE CARFIERS (U) SHIPPING LD. / 201012 00 DATE *G* PHONE No. PHONE No. 22 j 10 STIT Cpp: 101 ii S MATTIX 100 3 -----3 3 S 3 3 3 5 3 S 1500 1645 1645 520 1530 10745 كامك TIME REUNOUISHED BY (AFFILIATION Ancliprage, Alaska, U.S.A. 92501-3442 Fel (907) 276-6480 Fax (907) 258-4128 ちょうしょ 5/11/42 5/11/22 5/10/451 5/11/95 11/62 Earth & Environmental DATE Ruck haug 2aci 711 "H" Street, Suite 450 (Inng erseld) Shikir, Shirle (phase) AGRA CONDITION OF CONTAINERS 212 HU SATrip - W Strip-S SAMPLE RECEIPT TOTAL & CONTAINERS CONDITION OF SEALS an PROVECT MANAGER el mw Jenn o mu 1 d ".Strip-MWS 1. B95-895-MW " MS SAMPLE I.D. SANPLER'S PROJEC1 5 CLIENT õ ທ່ ۍ N Ń ÷

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