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June 12, 1996
31-01567

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

1504.38.001

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)

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, 1995. 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.

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.)

3.0 FIELD ASSESSMENT OF CURRENT CONDITIONS

AEE conducted a limited field assessment of the subject property on May 10-11, 1995. The purpose of the assessment was to record the existing conditions of the facility, and to collect soil and ground water samples for analysis.

3.1 Observations

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.

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

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.

Table 1 - Ground Water Levels

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

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

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 (μg/kg) ethylbenzene and 7,000 μg/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 (μg/l) in Strip-In. Total BTEX analyzed from below detection limits in MW-5 and MW-6 to 266 μg/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 μg/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 μg/kg in B95-1. In ground water, values ranged from below the method detection limit in MW-6 to 6,500 μg/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 μg/l 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.

Table 2 - Soil Analytical Results

ANALYTE	METHOD	UNITS	STRIP-S	B95-1	B95-2	B95-3	ADEC LEVEL A CLEANUP LEVELS
BENZENE	8020	µg/kg	ND	NA	NA	NA	100
TOLUENE	8020	µg/kg	ND	NA	NA	NA	NE
ETHYLBENZENE	8020	µg/kg	ND	NA	NA	NA	NE
XYLENE	8020	µg/kg	ND	NA	NA	NA	NE
GRO	8015	mg/kg	ND	NA	NA	NA	50
DRO	8015	mg/kg	ND	4800	4200	ND	100
BENZENE	8260	µg/kg	NA	ND	ND	ND	100
TOLUENE	8260	µg/kg	NA	ND	ND	ND	NE
ETHYLBENZENE	8260	µg/kg	NA	ND	640	ND	NE
XYLENE	8260	µg/kg	NA	ND	7000	ND	NE
SOPROPYLBENZENE	8260	µg/kg	NA	ND	300	ND	NE
1,3,5,TRIMETHYLBENZENE	8260	µg/kg	NA	850	5400	ND	NE
sec-BUTYL BENZENE	8260	ug/kg	NA	ND	960	ND	NE
1,2,4-TRIMETHYLBENZENE	8260	µg/kg	NA	ND	11000	ND	NE
n-PROPYLBENZENE	8260	µg/kg	NA	ND	840	ND	NE
p-ISOPROPYLTOLUENE	8260	ug/kg	NA	ND	1900	ND	NE
n-BUTYL BENZENE	8260	µg/kg	NA	ND	1900	ND	NE
NAPHTHALENE	8260	µg/kg	NA	ND	2600	ND	NE
PCB	8080	µg/kg	NA	NA	ND	ND	NE
SEMIVOLATILES	8270	µg/kg	NA	MA		ND	NE
NAPHTHALENE		µg/kg			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	mg/kg	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	7	12	NE
COPPER	6010&7000	mg/kg	NA	NA	7	10	NE
LEAD	6010&7000	mg/kg	NA	NA	10	290	NE
NICKEL	6010&7000	mg/kg	NA	NA	6	8	NE
SELENIUM	6010&7000	mg/kg	NA	NA	ND	ND	NE
SILVER	6010&7000	mg/kg	NA	NA	ND	1.7	NE
THALLIUM	6010&7000	mg/kg	NA	NA	ND	ND	NE
ZINC	6010&7000	mg/kg	NA	NA	41	79	NE

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

Table 3- Water Analytical Results

ANALYTE	METHOD	UNITS	MW-1	MW-5	MW-6	MW-12	STRIP-IN	STRIP-W	ADEC
BENZENE	8020	µg/l	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/l	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
BENZENE	8260	µg/l	8.1	1.0	ND	NA	NA	NA	5
TOLUENE	8260	µg/l	ND	ND	ND	NA	NA	NA	1,000
ETHYLBENZENE	8260	µg/l	ND	ND	ND	NA	NA	NA	70
XYLENE	8260	µg/l	8	ND	ND	NA	NA	NA	10,000
PCB	8080	µg/l	ND	NA	ND	NA	NA	NA	NE
SEMIVOLATILES	8270	µg/l	ND	NA	ND	NA	NA	NA	NE
NAPHTHALENE									
MERCURY	6010&700	µg/l	NA	NA	ND	NA	ND	NA	.002
ANTIMONY	6010&700	µg/l	NA	NA	ND	NA	ND	NA	.006
ARSENIC	6010&700	µg/l	NA	NA	ND	NA	ND	NA	0.05
BERYLLIUM	6010&700	µg/l	NA	NA	ND	NA	ND	NA	.004
CADMIUM	6010&700	µg/l	NA	NA	0.008	NA	ND	NA	0.005
CHROMIUM	6010&700	µg/l	NA	NA	0.03	NA	ND	NA	0.1
COPPER	6010&700	µg/l	NA	NA	0.06	NA	ND	NA	1.0
LEAD	6010&700	µg/l	NA	NA	ND	NA	ND	NA	
NICKEL	6010&700	µg/l	NA	NA	0.06	NA	ND	NA	0.1
SELENIUM	6010&700	µg/l	NA	NA	ND	NA	ND	NA	.05
SILVER	6010&700	µg/l	NA	NA	ND	NA	ND	NA	0.1
THALLIUM	6010&700	µg/l	NA	NA	ND	NA	ND	NA	.002
ZINC	6010&700	µg/l	NA	NA	0.32	NA	ND	NA	5

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

TPH 2.5 ppm

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 μg/l benzene, 130 μg/l gasoline range organics (GRO), and 120 μg/l of diesel range organics (DRO). The ADEC MCL for benzene is 5 μg/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

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 µg/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 µg/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

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.

EMCON, Dec 17, 1993, Letter to ADEC.

GeoEngineers, March 16, 1987 Site Contamination Assessment Report 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. Proposed Work Plan 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. Additional Site Characterization 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.

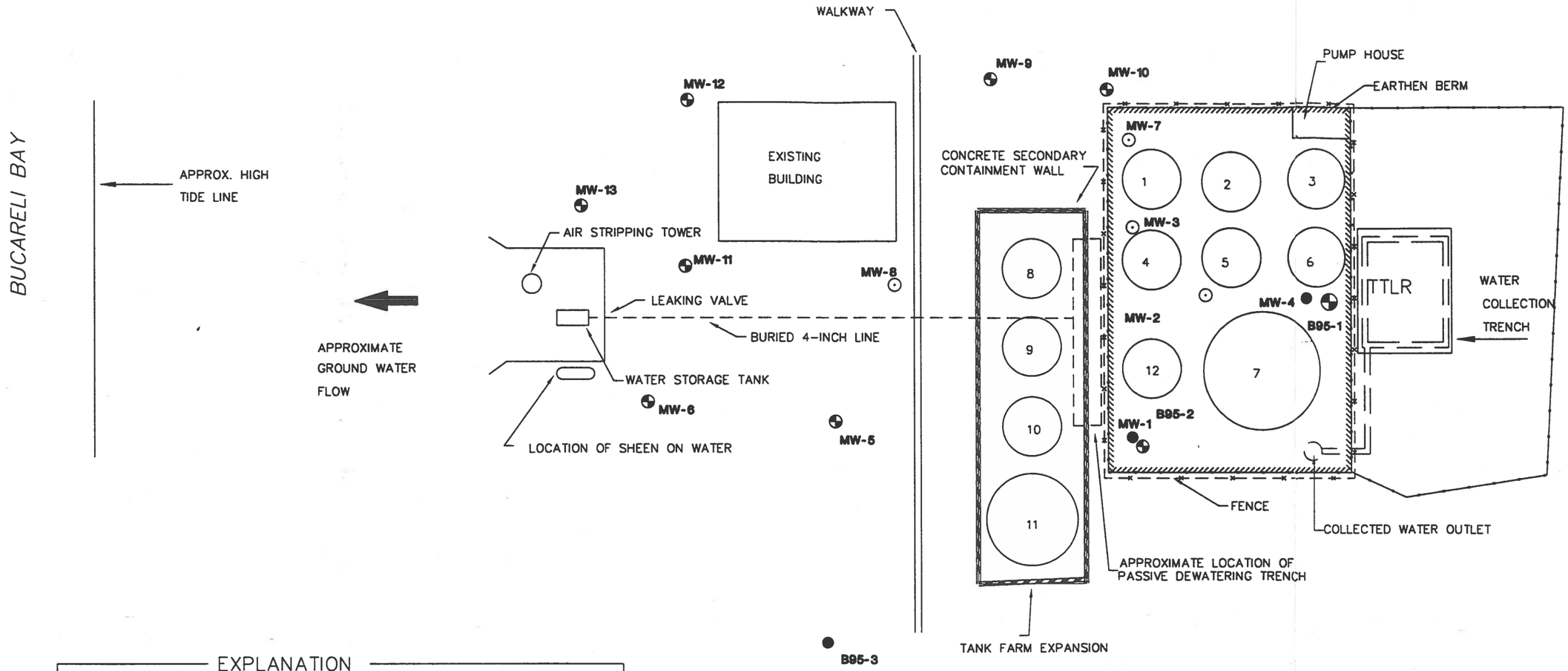
Rittenhouse-Zeman and Assoc., Feb 27, 1990, Report to Chevron U.S.A, Inc. Quarterly Status Report.

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

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

FIGURES

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



EXPLANATION

- ⊙ 2-INCH DIAMETER MONITORING WELL DAMAGED OR NO LONGER EXISTING
- ⊕ 2-INCH DIAMETER MONITORING WELLS
- ● HAND BORING – MAY 1995

* NOTE: MW 7 – 1 1/2 INCH PIEZOMETER

FIGURE 1

WHITE PASS ALASKA
BULK FUELS TERMINAL
CRAIG, ALASKA

SITE MAP

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

W.O.	31-0156700-00
DESIGN	GPR
DRAWN	RRM
DATE	APRIL 11, 1995
SCALE	1"=20'

AGRA EARTH & ENVIRONMENTAL, INC. DRAWING NO. \31-15671.DWG

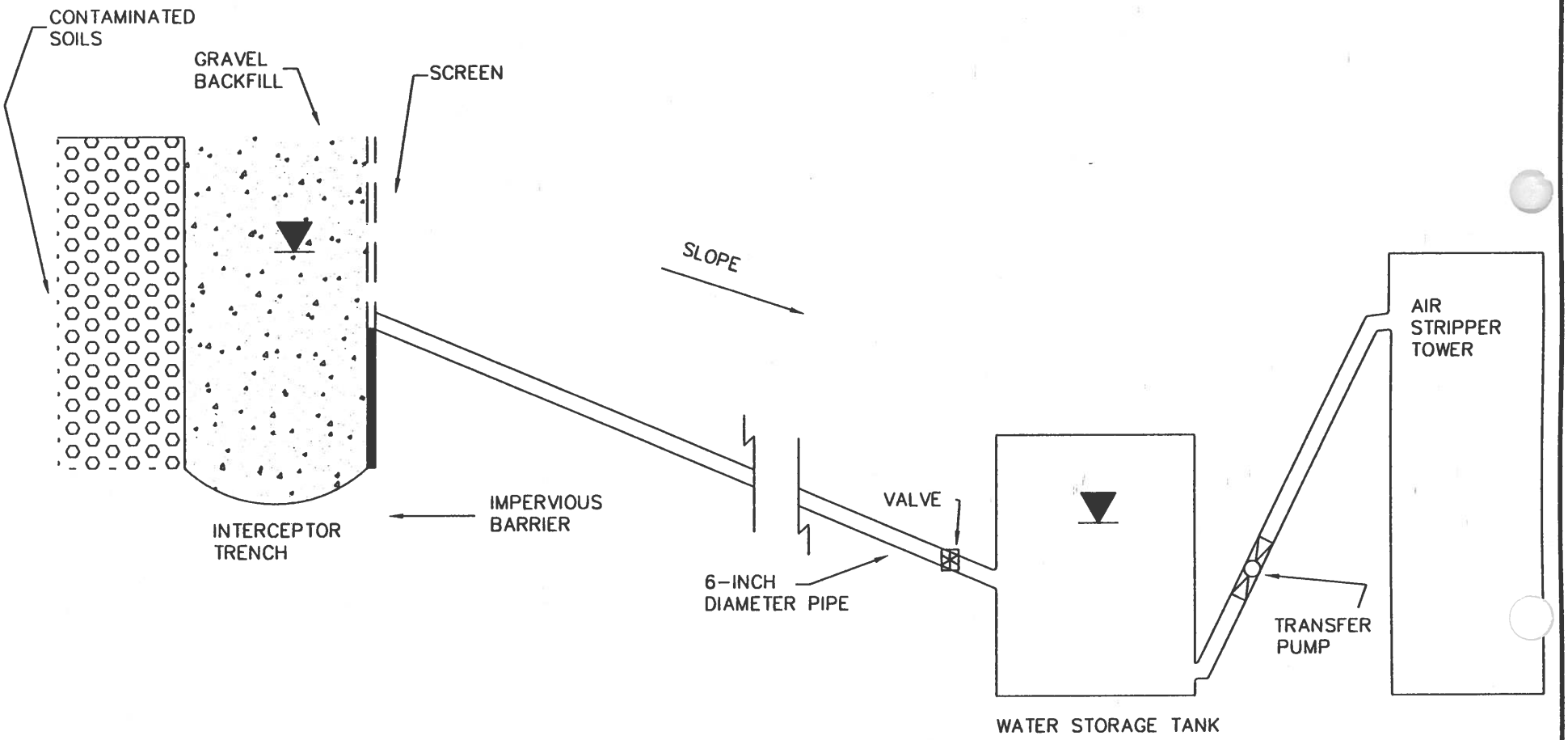


FIGURE 2

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

W.O.	31-156700
DESIGN	GPR
DRAWN	RRM
DATE	JUNE 15, 1995
SCALE	1"=5' APPROX.

WHITE PASS ALASKA
BULK FUELS TERMINAL
CRAIG, ALASKA

GROUNDWATER TREATMENT SYSTEM SCHEMATIC

AGRA EARTH & ENVIRONMENTAL, INC. DRAWING NO. \31-15672.DWG

APPENDIX A

Summary of ADEC File

ADEC FILE REVIEW May 9, 1995

DATE	NOTE
October 14, 1986	
March 16, 1987	GeoEngineers Site Contamination Assessment Report 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 yd^3, 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.

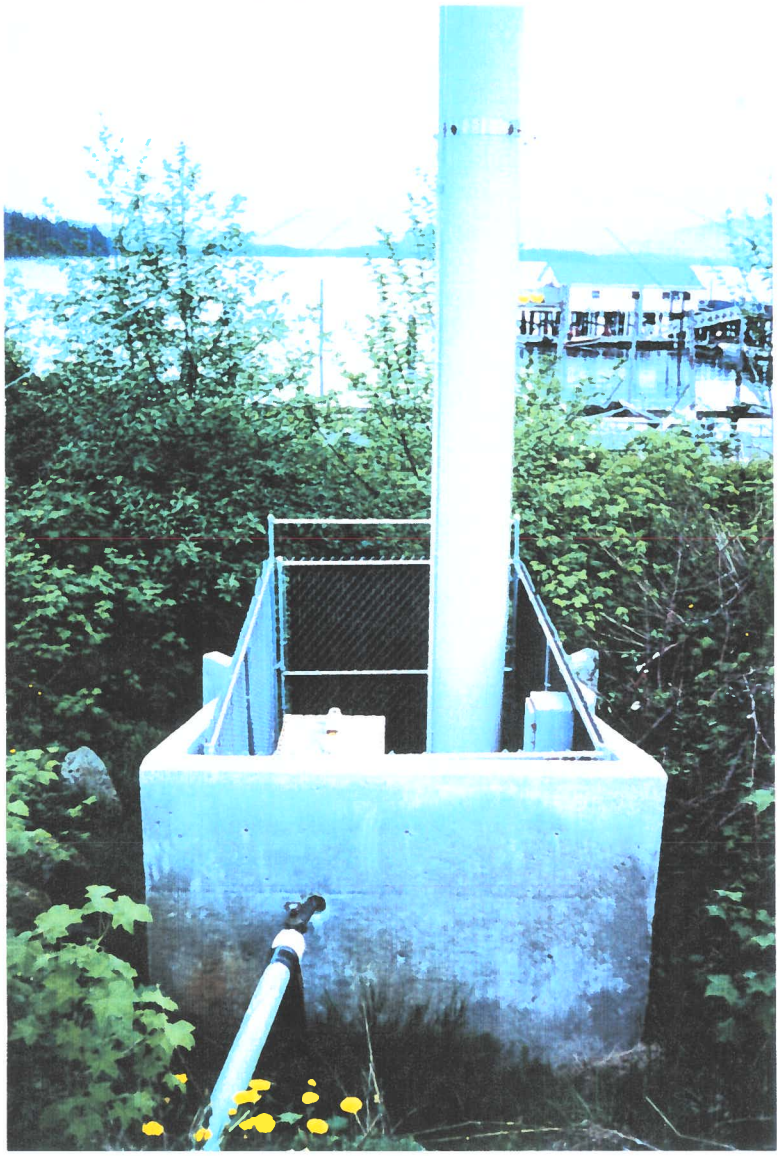
Oct 12, 1989	RZA report to Chevron Proposed Work Plan for Remediation System Enhancements and Supplemental Site Characterization
Nov 3, 1989	RZA report to Chevron Additional Site Characterization. Excavated four backhoe trenches and installed and additional 3 monitoring wells.
Nov 7, 1989	RZA report to Chevron Installation of remedial system Enhancements". Not included in attachment.
Feb 27, 1990	RZA report to Chevron "Quarterly Status Report".
Oct 29, 1990	Cover letter from Phil Briggs with Chevron describing three attached reports from RZA: Nov 3, 1989 (Additional Site Characterization, Feb 27, 1990 (Quarterly Monitoring Report), and Oct 10, 1990 (Quarterly Monitoring Report). (Letter and February 27 report not included in attachment)
Jan 15, 1991	Cover letter to ADEC with ADEC 31, Quarterly Monitoring Report from RZA, dated December 31, 1990.
May 21, 1991	America North Inc. (ANI) report to ADEC, Ground Water Monitoring/Remediation Scope of Work, add nutrients to enhance bioremediation, continue with quarterly monitoring.
July 2, 1991	ANI letter to ADEC stating that White Pass Alaska will be expanding their existing operation to include the area which the soil vapor extraction trench is currently installed. They plan to remove the 4" flexible hose with rigid 2" PVC piping. Additionally, during a geotechinical investigation photoionization detector (PID) readings of 50 to 150 ppm was detected in soils at depths of 2-3 feet bgs. (copy not included).
August 26, 1991	Letter to ADEC from Chevron arranging a meeting to discuss remediation activities. (copy not included in attachment)
Oct 7, 1991	Letter to ADEC from ANI which includes a copy of The Model Toxics Control Act Cleanup Regulation for a health risk assessment. (copy not included in attachment)

Oct 31, 1991	Internal ADEC memo describing the shut down of the remediation system at Craig. Discussion was based on what level of risk assessment should be required, the "Cadillac" or "Chevrolet". Elevated benzene levels remain up to 50 ppm.
Jan 1992	ANI report to ADEC, Groundwater Sampling Activities. A quarterly status report which shows that BTEX and TRPH (EPA Method 418.1) have not been detected above drinking water standards in off-site wells. But wells MW1, MW2, and MW3 remain with up to 58 ppb benzene and 1,600 TRPH (418.1)
Jan 1992	ANI Environmental Monitoring and Remediation Status Report. Discusses past remediation and a site closure rationale. Rationale is that the exposure pathways are limited. The gasoline range hydrocarbons have been successfully remediated and that the diesel range are more readily adsorbed into soil. Chevron plans to continue to operate the VES system but requests the shut down of the air-stripper.
March 9, 1992	Chevron letter which includes an ANI letter. The ANI report describes the installation of a gravity aeration device to supersede the air stripper and took samples to show the effectiveness. The effluent samples analyzed with .010 ppm benzene. Chevron letter requests ADEC to authorize a cease to soil remediation at the site. They offer no practical solution to the remediation of the diesel range hydrocarbons. (not included)
April 2, 1992	Letter to Chevron from ADEC. Allows Chevron to cease the active aeration system. They are required to take water samples twice per year, and ADEC reserves the right to take "appropriate measures" should contamination levels increase or a violation occurs.
July 1992	ANI groundwater sampling activities report to ADEC. MW2 had .035 mg/l (ppm) benzene and 0.225 ppm BTEX, and 280 ppm TPH.
Aug 1993	ANI groundwater sampling activities report similar results to July 1992 report

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



AIR STRIPPING TOWER

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711 H Street, Suite 450
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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

ORIGINAL TANK FARM WITH EARTHEN BERM & EXPANSION WITH CONCRETE CONTAINMENT

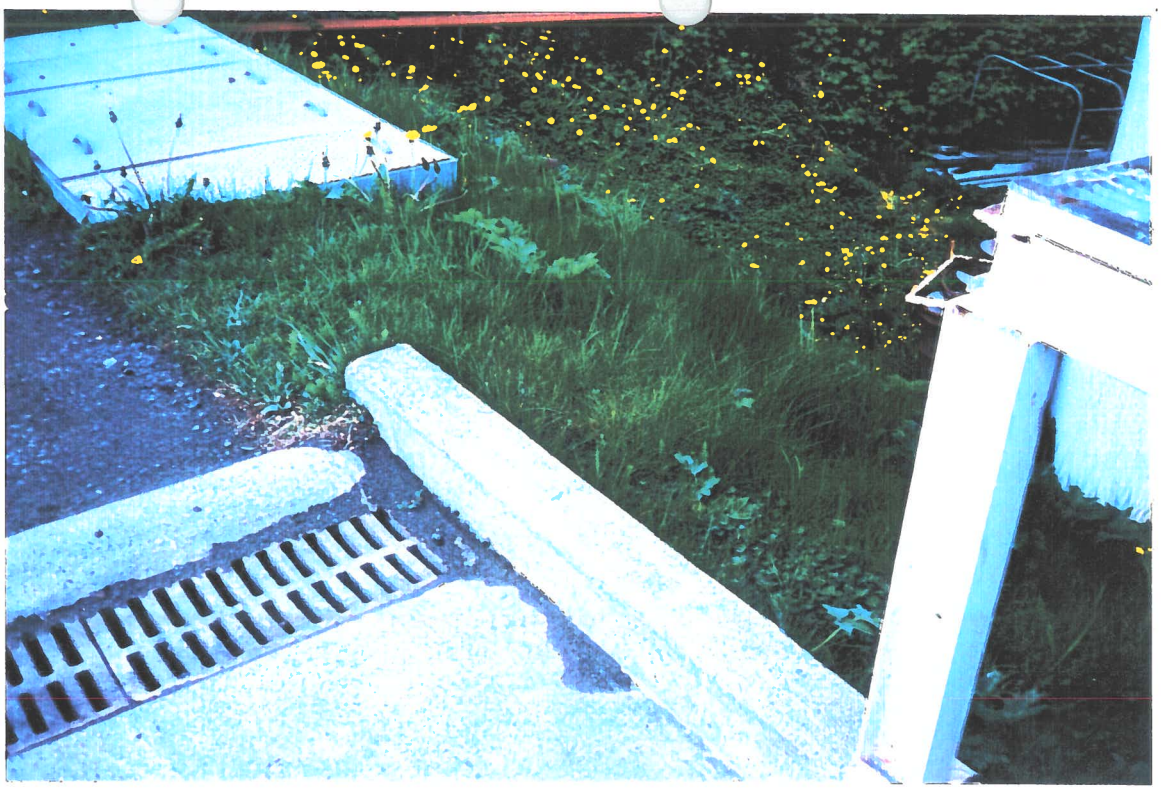
SHEEN OBSERVED ON WATER NEAR AIR STRIPPER

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



TTLR WATER COLLECTION SYSTEM

TTLR STORM/COLLECTION WATER DISCHARGE POINT

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

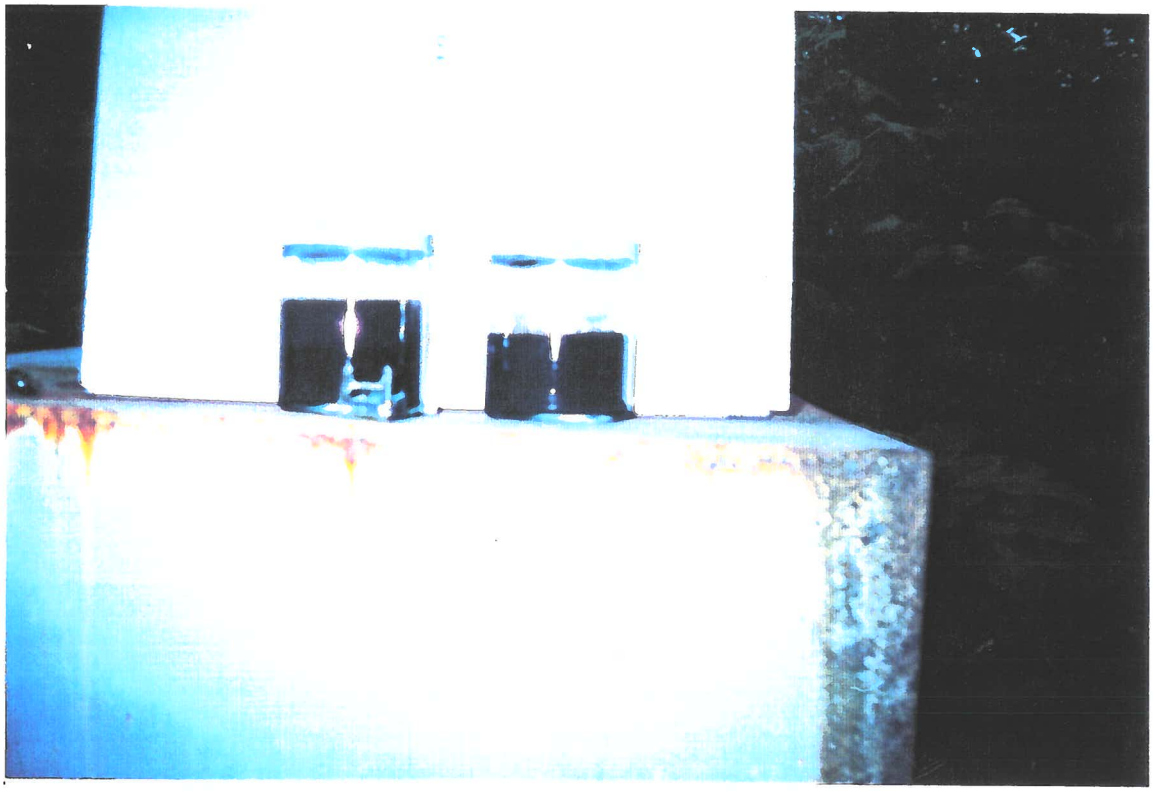
BULK FUELS FACILTIY
CRAIG, ALASKA

PHOTOGRAPHS
MAY 10-11, 1995

AGRA EARTH & ENVIRONMENTAL, INC. DRAWING NO. t\proj\1567\appenb.dwg

COLLECTION OF SOIL SAMPLE B95-2 (NEAR) NEAR MW1

FREE PRODUCT ON WATER SAMPLE COLLECTED FROM B95-2 - DARK COLOR IS SILT

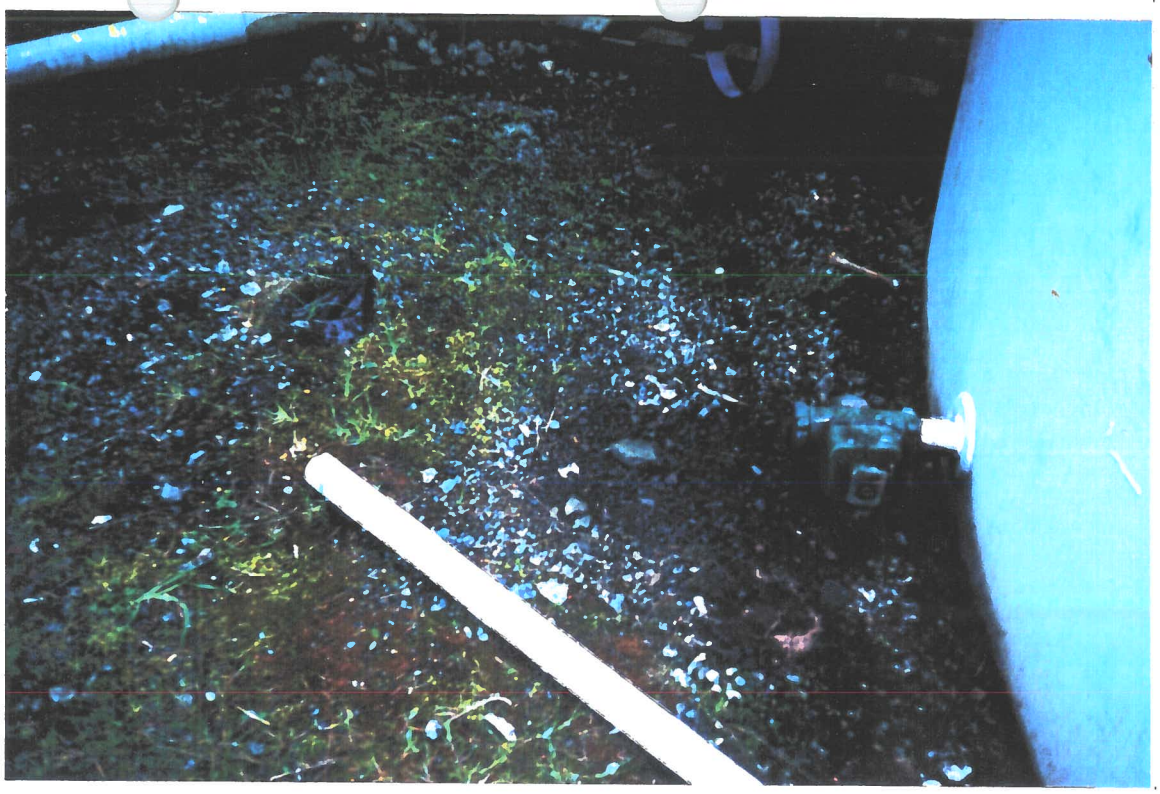


AGRA
Earth & Environmental
711 H Street, Suite 450
Anchorage, AK, U.S.A. 99501

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



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

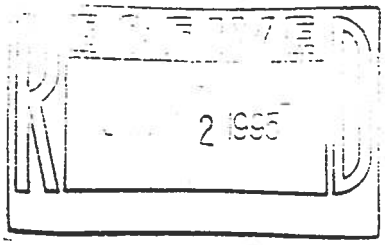
BULK FUELS FACILTIY
CRAIG, ALASKA

PHOTOGRAPHS
MAY 10-11, 1995

APPENDIX C

Analytical Results

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



AGRA EARTH & ENVIRONMENTAL
711 H STREET, SUITE 450
ANCHORAGE, AK 99501

Date: June 7, 1995

Attn: GLENN RUCKHAUS

Laboratory Number : 81546

Project Number/Name : 31-0156700-00

This report has been reviewed and

approved for release.

Cecilia J. Joaquin 6/7/95
Senior Chemist
Account Manager

Certified Laboratories

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Martinez, California 94553
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Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

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

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	05/10/95	05/12/95	05/16/95	05/16/95	BE161.09	03
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

QC Samples

QC Batch #	QC Sample ID	Type	Ref.	Matrix	Extract.	Analyzed
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
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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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

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	-

R E S U L T S O F A N A L Y S I S

Compound	81546-01 Conc. ug/L	RL	81546-02 Conc. ug/L	RL	81546-03 Conc. ug/L	RL	81546-08 Conc. ug/kg	RL
Chloromethane	ND	10	ND	10	ND	10	ND	500
Bromomethane	ND	10	ND	10	ND	10	ND	500
Vinyl Chloride	ND	10	ND	10	ND	10	ND	500
Chloroethane	ND	10	ND	10	ND	10	ND	500
Methylene Chloride	ND	10	ND	10	ND	10	ND	500
Acetone	ND	40	ND	40	ND	40	ND	2000
Idomethane	ND	10	ND	10	ND	10	ND	500
Carbon Disulfide	ND	3	ND	3	ND	3	ND	150
Trichlorofluoromethane	ND	3	ND	3	ND	3	ND	150
1,1-Dichloroethene	ND	3	ND	3	ND	3	ND	150
2,2-Dichloropropane	ND	3	ND	3	ND	3	ND	150
1,1-Dichloroethane	ND	3	ND	3	ND	3	ND	150
Bromochloromethane	ND	3	ND	3	ND	3	ND	150
c-1,2-Dichloroethene	ND	3	ND	3	ND	3	ND	150
t-1,2-Dichloroethene	ND	3	ND	3	ND	3	ND	150
Chloroform	ND	3	ND	3	ND	3	ND	150
1,2-Dichloroethane	ND	1	ND	1	ND	1	ND	50
Toluene	ND	3	ND	3	ND	3	ND	150
1,2,3-Trichloropropane	ND	3	ND	3	ND	3	ND	150
Bromobenzene	ND	3	ND	3	ND	3	ND	150
2-Butanone	ND	20	ND	20	ND	20	ND	1000
1,1,1-Trichloroethane	ND	3	ND	3	ND	3	ND	150
1,1-Dichloropropene	ND	3	ND	3	ND	3	ND	150
Carbon tetrachloride	ND	3	ND	3	ND	3	ND	150
Vinyl Acetate	ND	10	ND	10	ND	10	ND	500
Bromodichloromethane	ND	3	ND	3	ND	3	ND	150
Dibromomethane	ND	3	ND	3	ND	3	ND	150
1,2-Dichloropropane	ND	3	ND	3	ND	3	ND	150
c-1,3-Dichloropropene	ND	3	ND	3	ND	3	ND	150
Trichloroethene	ND	3	ND	3	ND	3	ND	150
1,2-Dibromoethane	ND	3	ND	3	ND	3	ND	150
Dibromochloromethane	ND	3	ND	3	ND	3	ND	150
1,1,2-Trichloroethane	ND	3	ND	3	ND	3	ND	150

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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	-

R E S U L T S O F A N A L Y S I S

Compound	81546-01 Conc. ug/L	RL	81546-02 Conc. ug/L	RL	81546-03 Conc. ug/L	RL	81546-08 Conc. ug/kg	RL
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-chloropropane	ND	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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AGRA EARTH & ENVIRONMENTAL
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Project 31-0156700-00
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EPA SW-846 Method 8260 Volatile Organics by GC/MS

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	-

R E S U L T S O F A N A L Y S I S

Compound	81546-01 Conc. RL ug/L	81546-02 Conc. RL ug/L	81546-03 Conc. RL ug/L	81546-08 Conc. RL ug/kg
>> Surrogate Recoveries (%) <<				
>> Surrogate Recoveries (%) <<				
Dibromofluoromethane	94	96	98	93
Toluene-d8	95	96	99	97
Bromofluorobenzene	91	88	94	94

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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

LAB ID	Sample ID	Matrix	Dil.Factor	Moisture
81546-09 Y	B95-2	Soil	20.0	-
81546-10	B95-3	Soil	1.0	-

R E S U L T S O F A N A L Y S I S

Compound	81546-09 Conc: ug/kg	RL	81546-10 Conc. ug/kg	RL
Chloromethane	ND	1000	ND	50
Bromomethane	ND	1000	ND	50
Vinyl Chloride	ND	1000	ND	50
Chloroethane	ND	1000	ND	50
Methylene Chloride	ND	1000	ND	50
Acetone	ND	4000	ND	200
Idomethane	ND	1000	ND	50
Carbon Disulfide	ND	300	ND	15
Trichlorofluoromethane	ND	300	ND	15
1,1-Dichloroethene	ND	300	ND	15
2,2-Dichloropropane	ND	300	ND	15
1,1-Dichloroethane	ND	300	ND	15
Bromochloromethane	ND	300	ND	15
c-1,2-Dichloroethene	ND	300	ND	15
t-1,2-Dichloroethene	ND	300	ND	15
Chloroform	ND	300	ND	15
1,2-Dichloroethane	ND	100	ND	5
Toluene	ND	300	ND	15
1,2,3-Trichloropropane	ND	300	ND	15
Bromobenzene	ND	300	ND	15
2-Butanone	ND	2000	ND	100
1,1,1-Trichloroethane	ND	300	ND	15
1,1-Dichloropropene	ND	300	ND	15
Carbon tetrachloride	ND	300	ND	15
Vinyl Acetate	ND	1000	ND	50
Bromodichloromethane	ND	300	ND	15
Dibromomethane	ND	300	ND	15
1,2-Dichloropropane	ND	300	ND	15
c-1,3-Dichloropropene	ND	300	ND	15
Trichloroethene	ND	300	ND	15
1,2-Dibromoethane	ND	300	ND	15
Dibromochloromethane	ND	300	ND	15
1,1,2-Trichloroethane	ND	300	ND	15

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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 Conc. ug/kg	RL	81546-10 Conc. ug/kg	RL
Benzene	ND	100	ND	5
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

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LAB ID	Sample ID	Matrix	Dil.Factor	Moisture
81546-09 Y	B95-2	Soil	20.0	-
81546-10	B95-3	Soil	1.0	-

R E S U L T S O F A N A L Y S I S

Compound	81546-09 Conc. ug/kg	RL	81546-10 Conc. ug/kg	RL
>> Surrogate Recoveries (%) <<				
>> Surrogate Recoveries (%) <<				
Dibromofluoromethane	94		90	
Toluene-d8	100		97	
Bromofluorobenzene	101		86	

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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	
	Conc. ug/L	RL	Conc. ug/kg	RL
Chloromethane	ND	10	ND	50
Bromomethane	ND	10	ND	50
Vinyl Chloride	ND	10	ND	50
Chloroethane	ND	10	ND	50
Methylene Chloride	ND	10	ND	50
Acetone	ND	40	ND	200
Idomethane	ND	10	ND	50
Carbon Disulfide	ND	3	ND	15
Trichlorofluoromethane	ND	3	ND	15
1,1-Dichloroethene	ND	3	ND	15
2,2-Dichloropropane	ND	3	ND	15
1,1-Dichloroethane	ND	3	ND	15
Bromochloromethane	ND	3	ND	15
c-1,2-Dichloroethene	ND	3	ND	15
t-1,2-Dichloroethene	ND	3	ND	15
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-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
1,2-Dichloropropane	ND	3	ND	15
c-1,3-Dichloropropene	ND	3	ND	15
Trichloroethene	ND	3	ND	15
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
4-Methyl-2-Pentanone	ND	10	ND	50
2-Hexanone	ND	10	ND	50

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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	
	Conc. ug/L	RL	Conc. ug/kg	RL
1,3-Dichloropropane	ND	3	ND	15
Tetrachloroethene	ND	3	ND	15
4-Chlorotoluene	ND	3	ND	15
2-Chlorotoluene	ND	3	ND	15
1,3,5-Trimethylbenzene	ND	3	ND	15
tert-Butylbenzene	ND	3	ND	15
sec-Butylbenzene	ND	3	ND	15
1,2,4-Trichlorobenzene	ND	6	ND	30
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
Ethyl Benzene	ND	3	ND	15
Styrene	ND	3	ND	15
Xylenes	ND	3	ND	15
1,3-Dichlorobenzene	ND	3	ND	15
1,4-Dichlorobenzene	ND	3	ND	15
p-Isopropyltoluene	ND	3	ND	15
1,2-Dichlorobenzene	ND	3	ND	15
n-Butylbenzene	ND	3	ND	15
1,2-Dibromo-3-chloropropane	ND	6	ND	30
1,2,4-Trimethylbenzene	ND	3	ND	15
Napthalene	ND	6	ND	30
Hexachlorobutadiene	ND	6	ND	30
1,2,3-Trichlorobenzene	ND	6	ND	30
>> Surrogate Recoveries (%) <<				
Dibromofluoromethane	96		95	
Toluene-d8	97		96	
Bromofluorobenzene	88		94	

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

Quality Assurance and Control Data

Laboratory Number: 81546

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
For Water Matrix (ug/L)						
BE161.09 02 / - Laboratory 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	
Chlorobenzene		40	32	80	75-130	
>> Surrogate Recoveries (%) <<						
Dibromofluoromethane				96	86-121	
Toluene-d8				99	90-112	
Bromofluorobenzene				95	84-110	
For Soil Matrix (ug/kg)						
BE181.09 02 / - Laboratory Control Spikes						
1,1-Dichloroethene		200	210	105	59-172	
Toluene		200	190	95	59-139	
Trichloroethene		200	190	95	62-137	
Benzene		200	190	95	66-142	
Chlorobenzene		200	160	80	60-133	
>> Surrogate Recoveries (%) <<						
Dibromofluoromethane				93	76-122	
Toluene-d8				96	81-117	
Bromofluorobenzene				92	68-113	
For Water Matrix (ug/L)						
BE161.09 03 / 04 - Sample Spiked: 81546 - 01						
1,1-Dichloroethene	ND	40	46/43	115/108	61-145	6
Toluene	ND	40	40/39	100/98	76-125	2
Trichloroethene	ND	40	40/38	100/95	71-120	5
Benzene	8	40	47/45	98/93	76-127	5
Chlorobenzene	ND	40	31/30	78/75	75-130	4
>> Surrogate Recoveries (%) <<						
Dibromofluoromethane				98/93	86-121	

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

Quality Assurance and Control Data

Laboratory Number: 81546

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
Toluene-d8				98/96	90-112	
Bromofluorobenzene				93/90	84-110	
For Soil Matrix (ug/kg)						
BE181.09 03 / 04 - Sample Spiked: 81546 - 10						
1,1-Dichloroethene	ND	200	260/230	130/115	59-172	12
Toluene	ND	200	210/190	105/95	59-139	10
Trichloroethene	ND	200	210/190	105/95	62-137	10
Benzene	ND	200	220/200	110/100	66-142	10
Chlorobenzene	ND	200	160/150	80/75	60-133	6
>> Surrogate Recoveries (%) <<						
Dibromofluoromethane				93/97	76-122	
Toluene-d8				97/100	81-117	
Bromofluorobenzene				97/95	68-113	

Y-Sample was diluted to recover all compounds within calibration range.

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

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AGRA EARTH & ENVIRONMENTAL
Attn: GLENN RUCKHAUS

Project 31-0156700-00
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 #
MW12	05/10/95	05/12/95	05/17/95	05/17/95	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	MB	Water	05/17/95	05/17/95
BE171.05-02	MW-10	MS 81511-08	Water	05/17/95	05/17/95
BE171.05-03	MW-10	MSD 81511-08	Water	05/17/95	05/17/95

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Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

LAB ID	Sample ID	Matrix	Dil.Factor	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%

R E S U L T S O F A N A L Y S I S

Compound	81546-04 Conc. ug/L	RL	81546-05 Conc. ug/L	RL	81546-06 Conc. ug/L	RL	81546-07 Conc. mg/kg	RL
Gasoline_Range	ND	50	ND	50	130	50	ND	1
Benzene	0.6	0.5	ND	0.5	12	0.5	ND	0.006
Toluene	ND	0.5	ND	0.5	1.1	0.5	ND	0.006
Ethyl Benzene	ND	0.5	ND	0.5	ND	0.5	ND	0.006
Total Xylenes	0.7	0.5	ND	0.5	2.6	0.5	ND	0.006
>> Surrogate Recoveries (%) <<								
Trifluorotoluene (SS)	104		102		109		101	

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Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

Quality Assurance and Control Data

Laboratory Number: 81546
Method Blank(s)

	BE171.05-01 Conc. ug/L	 RL
Gasoline_Range	ND	50
Benzene	ND	0.5
Toluene	ND	0.5
Ethyl Benzene	ND	0.5
Total Xylenes	ND	0.5
>> Surrogate Recoveries (%) <<		
Trifluorotoluene (SS)	100	

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Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

Quality Assurance and Control Data

Laboratory Number: 81546

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
For Water Matrix (ug/L) BE171.05 02 / 03 - Sample Spiked: 81511 - 08						
Gasoline_Range	ND	2000	1888/1800	94/90	65-135	4
Benzene	ND	20	19/19	95/95	65-135	0
Toluene	ND	20	19/19	95/95	65-135	0
Ethyl Benzene	ND	20	20/19	100/95	65-135	5
Total Xylenes	ND	60	60/58	100/97	65-135	3
>> Surrogate Recoveries (%) <<						
Trifluorotoluene (SS)				96/98	50-150	

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

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

Total Volatile Petroleum Hydrocarbons by EPA SW-846 5030/8015M

Chronology

Laboratory Number 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	Type	Ref.	Matrix	Extract.	Analyzed
BE171.05-01	Method Blank	MB		Water	05/17/95	05/17/95
BE171.05-02	MW-10	MS	81511-08	Water	05/17/95	05/17/95
BE171.05-03	MW-10	MSD	81511-08	Water	05/17/95	05/17/95

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Project 31-0156700-00
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Total Volatile Petroleum Hydrocarbons by EPA SW-846 5030/8015M

LAB ID	Sample ID	Matrix	Dil.Factor	Moisture
81546-01	MW-1	Water	1.0	-

R E S U L T S O F A N A L Y S I S

Compound	81546-01 Conc. ug/L	RL
Gasoline_Range	150	50
>> Surrogate Recoveries (%) <<		
4-Bromofluorobenzene	88	

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Total Volatile Petroleum Hydrocarbons by EPA SW-846 5030/8015M

Quality Assurance and Control Data

Laboratory Number: 81546
Method Blank(s)

	BE171.05-01 Conc. ug/L	RL
Gasoline_Range	ND	50
>> Surrogate Recoveries (%) <<		
4-Bromofluorobenzene	100	

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Total Volatile Petroleum Hydrocarbons by EPA SW-846 5030/8015M

Quality Assurance and Control Data

Laboratory Number: 81546

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
For Water Matrix (ug/L) BE171.05 02 / 03 - Sample Spiked: 81511 - 08						
Gasoline_Range	ND	2000	1888/1800	94/90	65-135	4
>> Surrogate Recoveries (%) <<						
4-Bromofluorobenzene				100/98	50-150	

Definitions:
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NA = Not Analysed
RPD = Relative Percent Difference
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ug/kg = parts per billion (ppb)
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AGRA EARTH & ENVIRONMENTAL
Attn: GLENN RUCKHAUS

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

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

Chronology

Laboratory Number 81546

Sample ID	Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
MW-6	05/10/95	05/12/95	05/17/95	05/18/95	BE172.12 BE173.10	03
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	Type	Ref.	Matrix	Extract.	Analyzed
BE181.12-01	Method Blank	MB		Soil	05/18/95	05/19/95
BE181.12-02	Laboratory Spike	LS		Soil	05/18/95	05/19/95
BE181.12-03	Laboratory Spike Duplicate	LSD		Soil	05/18/95	05/19/95
BE181.12-04	COMP ULTR-P,T	MS	81594-02	Soil	05/18/95	05/19/95
BE181.12-05	COMP ULTR-P,T	MSD	81594-02	Soil	05/18/95	05/19/95
BE171.12-01	Method Blank	MB		Soil	05/17/95	05/18/95
BE171.12-02	Laboratory Spike	LS		Soil	05/17/95	05/18/95
BE171.12-03	Laboratory Spike Duplicate	LSD		Soil	05/17/95	05/18/95
BE171.12-04	18OC-ABUT1-SP1,2	MS	81545-04	Soil	05/17/95	05/18/95
BE171.12-05	18OC-ABUT1-SP1,2	MSD	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	LSD		Water	05/17/95	05/18/95
BE172.12-04	ECS-1	MS	81545-02	Water	05/17/95	05/18/95
BE172.12-05	ECS-1	MSD	81545-02	Water	05/17/95	05/18/95
BE172.10-01	Method Blank	MB		Soil	05/17/95	05/17/95
BE172.10-02	Laboratory Spike	LS		Soil	05/17/95	05/18/95
BE172.10-03	Laboratory Spike Duplicate	LSD		Soil	05/17/95	05/18/95
BE172.10-04	95-1006QS	MS	81533-01	Soil	05/17/95	05/18/95
BE172.10-05	95-1006QS	MSD	81533-01	Soil	05/17/95	05/18/95
BE173.10-01	Method Blank	MB		Water	05/17/95	05/17/95
BE173.10-02	Laboratory Spike	LS		Water	05/17/95	05/17/95
BE173.10-03	Laboratory Spike Duplicate	LSD		Water	05/17/95	05/17/95
BE173.10-04	ECS-1	MS	81545-02	Water	05/17/95	05/17/95
BE173.10-05	ECS-1	MSD	81545-02	Water	05/17/95	05/17/95

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AGRA EARTH & ENVIRONMENTAL
Attn: GLENN RUCKHAUS

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

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

LAB ID	Sample ID	Matrix	Dil.Factor	Moisture
81546-03	MW-6	Water	1.0	-
81546-06	STRIP-IN	Water	1.0	-
81546-09	B95-2	Soil	1.0	-
81546-10	B95-3	Soil	1.0	-

R E S U L T S O F A N A L Y S I S

Compound	81546-03 Conc. mg/L	RL	81546-06 Conc. mg/L	RL	81546-09 Conc. mg/kg	RL	81546-10 Conc. mg/kg	RL
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
Chromium	0.03	0.01	ND	0.01	7	0.2	12	0.2
Copper	0.06	0.02	ND	0.02	7	1	10	1
Lead	ND	0.05	ND	0.05	10	2	290	2
Nickel	0.06	0.02	ND	0.02	6	1	8	1
Selenium	ND	0.1	ND	0.1	ND	3	ND	3
Silver	ND	0.02	ND	0.02	ND	0.5	1.7	0.5
Thallium	ND	0.2	ND	0.2	ND	2	ND	2
Zinc	0.32	0.02	ND	0.02	41	0.5	79	0.5

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

Quality Assurance and Control Data

Laboratory Number: 81546
Method Blank(s)

	BE181.12-01		BE171.12-01		BE172.12-01		BE172.10-01	
	Conc. mg/kg	RL	Conc. mg/kg	RL	Conc. mg/L	RL	Conc. mg/kg	RL
Mercury	ND	0.05	ND	0.05	ND	0.002		
Antimony							ND	2.5
Arsenic							ND	2.5
Beryllium							ND	0.1
Cadmium							ND	0.1
Chromium							ND	0.2
Copper							ND	1
Lead							ND	2
Nickel							ND	1
Selenium							ND	3
Silver							ND	0.5
Thallium							ND	2
Zinc							ND	0.5

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Analysis for Priority Pollutant Metals
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Quality Assurance and Control Data

Laboratory Number: 81546
Method Blank(s)

	BE173.10-01 Conc. mg/L	RL
Mercury		
Antimony	ND	0.1
Arsenic	ND	0.05
Beryllium	ND	0.005
Cadmium	ND	0.005
Chromium	ND	0.01
Copper	ND	0.02
Lead	ND	0.05
Nickel	ND	0.02
Selenium	ND	0.1
Silver	ND	0.02
Thallium	ND	0.2
Zinc	ND	0.02

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Quality Assurance and Control Data

Laboratory Number: 81546

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
		For Soil Matrix (mg/kg)				
	BE181.12	02 / 03 - Laboratory Control Spikes				
Mercury		0.005	0.00471/0.00	94/93	75-125	1
		For Soil Matrix (mg/kg)				
	BE171.12	02 / 03 - Laboratory Control Spikes				
Mercury		0.005	0.00487/0.00	97/96	75-125	1
		For Water Matrix (mg/L)				
	BE172.12	02 / 03 - Laboratory Control Spikes				
Mercury		0.005	0.00432/0.00	86/95	75-125	10
		For Soil Matrix (mg/kg)				
	BE172.10	02 / 03 - Laboratory Control Spikes				
Antimony		50	46.75/49.25	94/99	75-125	5
Arsenic		50	46.19/49.63	92/99	75-125	7
Beryllium		50	49.53/50.49	99/101	75-125	2
Cadmium		50	48.09/49.28	96/99	75-125	3
Chromium		50	47.72/48.81	95/98	75-125	3
Copper		50	46.33/46.08	93/92	75-125	1
Lead		50	49.35/50.34	99/101	75-125	2
Nickel		50	48.40/49.88	97/100	75-125	3
Selenium		50	47.32/47.05	95/94	75-125	1
Silver		50	49.39/51.28	99/103	75-125	4
Thallium		50	49.93/52.56	100/105	75-125	5
Zinc		50	49.62/51.37	99/103	75-125	4
		For Water Matrix (mg/L)				
	BE173.10	02 / 03 - Laboratory Control Spikes				
Antimony		1	1.044/1.030	104/103	75-125	1

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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 %
Arsenic		1	1.065/.9477	107/95	75-125	12
Beryllium		1	1.031/1.01	103/101	75-125	2
Cadmium		1	1.078/1.037	108/104	75-125	4
Chromium		1	1.024/.9980	102/100	75-125	2
Copper		1	1.032/.9928	103/99	75-125	4
Lead		1	1.044/1.027	104/103	75-125	1
Nickel		1	1.070/1.052	107/105	75-125	2
Selenium		1	1.040/.9374	104/94	75-125	10
Silver		1	1.005/.9717	101/97	75-125	4
Thallium		1	1.056/.9637	106/96	75-125	10
Zinc		1	1.070/1.040	107/104	75-125	3
		For Soil Matrix (mg/kg)				
BE181.12	04 / 05 - Sample Spiked: 81594 - 02					
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	0.005	0.00516/0.00	98/101	75-125	3
		For Water Matrix (mg/L)				
BE172.12	04 / 05 - Sample Spiked: 81545 - 02					
Mercury	0.00026	0.005	0.00464/0.00	88/86	75-125	2
		For Soil Matrix (mg/kg)				
BE172.10	04 / 05 - Sample Spiked: 81533 - 01					
Antimony	ND	50	41.57/46.26	83/93	75-125	11
Arsenic	ND	50	28.41/36.33	57/73	75-125	25
Beryllium	ND	50	46.11/51.87	92/104	75-125	12
Cadmium	ND	50	43.45/48.58	87/97	75-125	11
Chromium	8.7	50	52.13/59.24	87/101	75-125	15
Copper	ND	50	45.65/51.42	91/103	75-125	12

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by EPA Methods 6010 & 7000 Series

Quality Assurance and Control Data

Laboratory Number: 81546

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
Lead	5	50	49.04/52.61	88/95	75-125	8
Nickel	6	50	50.28/57.02	89/102	75-125	14
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
Zinc	7	50	50.05/56.92	86/100	75-125	15
		For Water Matrix (mg/L)				
		BE173.10 04 / 05 - Sample Spiked: 81545 - 02				
Antimony	ND	1	1.054/1.051	105/105	75-125	0
Arsenic	ND	1	1.086/1.151	109/115	75-125	5
Beryllium	ND	1	1.071/1.053	107/105	75-125	2
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
Copper	.18	1	1.22/1.209	104/103	75-125	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
Selenium	.4	1	1.574/1.584	117/118	75-125	1
Silver	ND	1	.9724/.9688	97/97	75-125	0
Thallium	ND	1	.8928/.8456	89/85	75-125	5
Zinc	37	1	38.28c/37.90	128/90	75-125	35

c - The Matrix Spike recovery is not meaningful due to the high concentration of the analyte in the sample relative to the spike
r - MS and/or MSD recoveries were out of control limits. LCS & LCSD recoveries were within acceptable limits.
s - MS and/or MSD recoveries were out of control limits. Post spike recovery was within acceptable range.

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

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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

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

QC Batch #	QC Sample ID	Type	Ref.	Matrix	Extract.	Analyzed
BE181.29-01	Method Blank	MB		Soil	05/18/95	05/19/95
BE181.29-02	Laboratory Spike	LS		Soil	05/18/95	05/19/95
BE181.29-03	Laboratory Spike Duplicate	LSD		Soil	05/18/95	05/19/95
BE181.29-04	95ANFM01SL	MS	81589-01	Soil	05/18/95	05/19/95
BE181.29-05	95ANFM01SL	MSD	81589-01	Soil	05/18/95	05/19/95
BE151.21-01	Method Blank	MB		Water	05/15/95	05/16/95
BE151.21-02	Laboratory Spike	LS		Water	05/15/95	05/16/95
BE151.21-03	Laboratory Spike Duplicate	LSD		Water	05/15/95	05/16/95
BE161.02-01	Method Blank	MB		Soil	05/16/95	05/17/95
BE161.02-02	Laboratory Spike	LS		Soil	05/16/95	05/17/95
BE161.02-03	Laboratory Spike Duplicate	LSD		Soil	05/16/95	05/17/95
BE161.02-04	STRIP-S	MS	81546-07	Soil	05/16/95	05/17/95
BE161.02-05	STRIP-S	MSD	81546-07	Soil	05/16/95	05/17/95

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

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

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	-
81546-04	MW12	Water	1.0	-

R E S U L T S O F A N A L Y S I S

Compound	81546-01 Conc. ug/L	RL	81546-02 Conc. ug/L	RL	81546-03 Conc. ug/L	RL	81546-04 Conc. ug/L	RL
Diesel Range	6500	50	3000	50	ND	50	2200	50
>> Surrogate Recoveries (%) <<								
Tetracosane	240i		319i		87		176i	

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Project 31-0156700-00
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Total Extractable Petroleum Hydrocarbons
by EPA SW-846 Method 8015M

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%

R E S U L T S O F A N A L Y S I S

Compound	81546-05 Conc. ug/L	RL	81546-06 Conc. ug/L	RL	81546-07 Conc. mg/kg	RL	81546-08 Conc. mg/kg	RL
Diesel Range	600	50	120	50	ND	11	4800	140
>> Surrogate Recoveries (%) <<								
Tetracosane	115		76		98		860h	

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

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

LAB ID	Sample ID	Matrix	Dil.Factor	Moisture
81546-09	B95-2	Soil	10.0	29.1%
81546-10	B95-3	Soil	1.0	8.7%

R E S U L T S O F A N A L Y S I S

Compound	81546-09 Conc. mg/kg	81546-09 RL	81546-10 Conc. mg/kg	81546-10 RL
Diesel Range	4200	200	ND	11
>> Surrogate Recoveries (%) <<				
Tetracosane	370h		97	

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

Quality Assurance and Control Data

Laboratory Number: 81546
Method Blank(s)

	BE181.29-01		BE151.21-01		BE161.02-01	
	Conc.	RL	Conc.	RL	Conc.	RL
	mg/kg		ug/L		mg/kg	
Diesel Range			ND	50	ND	10
>> Surrogate Recoveries (%) <<						
Tetracosane	66		66		79	

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

Quality Assurance and Control Data

Laboratory Number: 81546

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
		For Soil Matrix ()				
		BE181.29 02 / 03 - Laboratory Control Spikes				
||SUSurrorate Recoveries (%)						
Tetracosane				74/93	50-150	
		For Water Matrix (ug/L)				
		BE151.21 02 / 03 - Laboratory Control Spikes				
Diesel Range		2000	1450/1630	73/82	50-150	12
>> Surrogate Recoveries (%) <<						
Tetracosane				70/74	50-150	
		For Soil Matrix (mg/kg)				
		BE161.02 02 / 03 - Laboratory Control Spikes				
Diesel Range		67	50/59	75/88	50-150	16
>> Surrogate Recoveries (%) <<						
Tetracosane				75/84	50-150	
		For Soil Matrix ()				
		BE181.29 04 / 05 - Sample Spiked: 81589 - 01				
||SUSurrorate Recoveries (%)						
Tetracosane				76/77	50-150	
		For Soil Matrix (mg/kg)				
		BE161.02 04 / 05 - Sample Spiked: 81546 - 07				
Diesel Range	6	67	51/47	67/61	50-150	9
>> Surrogate Recoveries (%) <<						
Tetracosane				73/77	50-150	

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Narrative:

i - The surrogate recovery was high due to the presence of interfering compounds in the sample.

h - Accurate quanitiation of the surrogate was not possible due to the extent of sample dilution.

Definitions:

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

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AGRA EARTH & ENVIRONMENTAL
Attn: GLENN RUCKHAUS

Project 31-0156700-00
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	BE153.17	03
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

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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
	ug/kg		ug/L	
Aroclor 1016	ND	30	ND	1
Aroclor 1221	ND	30	ND	1
Aroclor 1232	ND	30	ND	1
Aroclor 1242	ND	30	ND	1
Aroclor 1248	ND	30	ND	1
Aroclor 1254	ND	30	ND	1
Aroclor 1260	ND	30	ND	1
>> Surrogate Recoveries (%) <<				
Tetrachloro-m-xylene	82		64	
Decachlorobiphenyl	73		53	

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Polychlorinated Biphenyls by EPA SW-846 Method 8080

Quality Assurance and Control Data

Laboratory Number: 81546

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
For Soil Matrix (ug/kg)						
BE151.17 05 / 06 - Laboratory Control Spikes						
Aroclor 1254		167	152/145	91/87	58-141	4
>> Surrogate Recoveries (%) <<						
Tetrachloro-m-xylene				71/70	60-150	
Decachlorobiphenyl				68/60	60-150	
For Water Matrix (ug/L)						
BE153.17 05 / 06 - Laboratory Control Spikes						
Aroclor 1254		5	4.7/4.4	94/88	58-139	7
>> Surrogate Recoveries (%) <<						
Tetrachloro-m-xylene				71/70	60-150	
Decachlorobiphenyl				68/60	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)
ug/kg = parts per billion (ppb)
mg/kg = parts per million (ppm)

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AGRA EARTH & ENVIRONMENTAL
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Project 31-0156700-00
Reported on May 24, 1995

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
MW-6	05/10/95	05/12/95	05/14/95	05/14/95	BE141.24	03
B95-1	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

QC Samples

QC Batch #	QC Sample ID	Type	Ref.	Matrix	Extract.	Analyzed
BE141.24-01	Method Blank	MB		Water	05/14/95	05/14/95
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
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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EPA SW-846 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	Water	1.0	-
81546-08	B95-1	Soil	1.0	13.3%
81546-09	B95-2	Soil	1.0	29.1%

R E S U L T S O F A N A L Y S I S

Compound	81546-01 Conc. ug/L	RL	81546-03 Conc. ug/L	RL	81546-08 Conc. ug/Kg	RL	81546-09 Conc. ug/Kg	RL
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)ether	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-propylamine	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)methane	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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EPA SW-846 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	Water	1.0	-
81546-08	B95-1	Soil	1.0	13.3%
81546-09	B95-2	Soil	1.0	29.1%

R E S U L T S O F A N A L Y S I S

Compound	81546-01 Conc. ug/L	RL	81546-03 Conc. ug/L	RL	81546-08 Conc. ug/Kg	RL	81546-09 Conc. ug/Kg	RL
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	10	ND	10	ND	350	ND	420
4-nitrophenol	ND	10	ND	10	ND	350	ND	420
fluorene	ND	10	ND	10	ND	350	ND	420
4-chlorophenyl-phenylether	ND	10	ND	10	ND	350	ND	420
diethylphthlate	ND	10	ND	10	ND	350	ND	420
4-nitroaniline	ND	10	ND	10	ND	350	ND	420
4,6-dinitro-2-methylphenol	ND	10	ND	10	ND	350	ND	420
n-nitrosodiphenylamine	ND	10	ND	10	ND	350	ND	420
4-bromo-phenyl-phenylether	ND	10	ND	10	ND	350	ND	420
hexachlorobenzene	ND	10	ND	10	ND	350	ND	420
pentachlorophenol	ND	10	ND	10	ND	350	ND	420
phenanthrene	ND	10	ND	10	ND	350	ND	420
anthracene	ND	10	ND	10	ND	350	ND	420
di-n-butylphthlate	ND	10	ND	10	ND	350	ND	420
fluoranthene	ND	10	ND	10	ND	350	ND	420
benzidine	ND	10	ND	10	ND	350	ND	420
pyrene	ND	10	ND	10	ND	350	ND	420
butylbenzylphthlate	ND	10	ND	10	ND	350	ND	420
3.3'-dichlorobenzidine	ND	10	ND	10	ND	350	ND	420
Benzo(a)Anthracene	ND	10	ND	10	ND	350	ND	420
chrysene	ND	10	ND	10	ND	350	ND	420
bis(2-ethylhexyl)phthalate	ND	10	ND	10	ND	350	ND	420
di-n-octylphthalate	ND	10	ND	10	ND	350	ND	420
benzo(b,k)fluoranthene	ND	10	ND	10	ND	350	ND	420
9H-Carbazole	ND	10	ND	10	ND	300	ND	300
Benzo(a)Pyrene	ND	10	ND	10	ND	350	ND	420
Indeno(1,2,3)Pyrene	ND	10	ND	10	ND	350	ND	420
dibenzo[a,h]anthracene	ND	10	ND	10	ND	350	ND	420

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GRA EARTH & ENVIRONMENTAL
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EPA SW-846 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	Water	1.0	-
81546-08	B95-1	Soil	1.0	13.3%
81546-09	B95-2	Soil	1.0	29.1%

R E S U L T S O F A N A L Y S I S

Compound	81546-01 Conc. ug/L	RL	81546-03 Conc. ug/L	RL	81546-08 Conc. ug/Kg	RL	81546-09 Conc. ug/Kg	RL
Benzo(g,h,i)Perylene	ND	10	ND	10	ND	350	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	

i - The surrogate recovery was high due to the presence of interfering compounds in the sample.

k - The surrogate recovery was low due to matrix effects. The analysis was repeated with similar effects.

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Project 31-0156700-00
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EPA SW-846 Method 8270 Semivolatile Organics by GC/MS

LAB ID	Sample ID	Matrix	Dil.Factor	Moisture
81546-10	B95-3	Soil	1.0	8.7%

R E S U L T S O F A N A L Y S I S

Compound	81546-10 Conc. ug/Kg	RL
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
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
2-methyl-naphthalene	ND	330
hexaclorocyclopentadiene	ND	330
2,4,6-trichlorophenol	ND	330
2,4,5-trichlorophenol	ND	330
2-chloronaphthalene	ND	330
2-nitroaniline	ND	330
acenaphthylene	ND	330
dimethylphthlate	ND	330

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

LAB ID	Sample ID	Matrix	Dil.Factor	Moisture
81546-10	B95-3	Soil	1.0	8.7%

R E S U L T S O F A N A L Y S I S

Compound	81546-10 Conc. ug/Kg	RL
2,6-dinitrotoluene	ND	330
Acenaphthene	ND	330
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-phenylether	ND	330
diethylphthlate	ND	330
4-nitroaniline	ND	330
4,6-dinitro-2-methylphenol	ND	330
n-nitrosodiphenylamine	ND	330
4-bromo-phenyl-phenylether	ND	330
hexachlorobenzene	ND	330
pentachlorophenol	ND	330
phenanthrene	ND	330
anthracene	ND	330
di-n-butylphthlate	ND	330
fluoranthene	ND	330
benzidine	ND	330
pyrene	ND	330
butylbenzylphthlate	ND	330
3.3'-dichlorobenzidine	ND	330
Benzo(a)Anthracene	ND	330
chrysene	ND	330
bis(2-ethylhexyl)phthalate	ND	330
di-n-octylphthalate	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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EPA SW-846 Method 8270 Semivolatile Organics by GC/MS

LAB ID	Sample ID	Matrix	Dil.Factor	Moisture
81546-10	B95-3	Soil	1.0	8.7%

R E S U L T S O F A N A L Y S I S

Compound	81546-10 Conc.	RL ug/Kg
Benzo(g,h,i)Perylene	ND	330
>> Surrogate Recoveries (%) <<		
2-fluorophenol	71	
phenol-d5	85	
nitrobenzene-d5	77	
2-fluorobiphenyl	81	
2,4,6-tribromophenol	103	
terphenyl-d14	98	

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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. ug/L	RL	Conc. ug/Kg	RL
bis(2-chloroethyl)ether	ND	10	ND	300
aniline	ND	10	ND	300
phenol	ND	10	ND	300
2-chlorophenol	ND	10	ND	300
1,3-dichlorobenzene	ND	10	ND	300
1,4-dichlorobenzene	ND	10	ND	300
1,2-dichlorobenzene	ND	10	ND	300
benzyl alcohol	ND	10	ND	300
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
nitrobenzene	ND	10	ND	300
isophorone	ND	10	ND	300
2-nitrophenol	ND	10	ND	300
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
2-nitroaniline	ND	10	ND	300
acenaphthylene	ND	10	ND	300
dimethylphthlate	ND	10	ND	300
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
2,4-dinitrotoluene	ND	10	ND	300

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

Quality Assurance and Control Data

Laboratory Number: 81546
Method Blank(s)

	BE141.24-01 Conc. ug/L	RL	BE181.24-01 Conc. ug/Kg	RL
4-nitrophenol	ND	10	ND	300
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	

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Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

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 %
For Water Matrix (ug/L)						
BE141.24 02 / 03 - Laboratory Control Spikes						
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		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		100	98/100	98/100	9-103	2
pyrene		50	60/60	120/120	26-127	0
>> Surrogate Recoveries (%) <<						
2-fluorophenol				49/44	21-110	
phenol-d5				31/31	10-110	
nitrobenzene-d5				84/85	35-114	
2-fluorobiphenyl				90/89	43-116	
2,4,6-tribromophenol				118/118	10-123	
terphenyl-d14				127/126	33-141	
For Soil Matrix (ug/Kg)						
BE181.24 02 / 03 - Laboratory Control Spikes						
phenol		3300	2505/2500	76/76	26-90	0
2-chlorophenol		3300	2776/2827	84/86	25-102	2
1,4-dichlorobenzene		1650	1380/1400	84/85	28-104	1
n-nitroso-di-n-propylamine		1650	1471/1488	89/90	41-126	1
1,2,4-trichlorobenzene		1650	1364/1328	83/80	38-107	4
4-chloro-3-methylphenol		3300	2479/2383	75/72	26-103	4
Acenaphthene		1650	1393/1370	84/83	31-137	1
2,4-dinitrotoluene		1650	1090/1118	66/68	28-89	3
4-nitrophenol		3300	2392/2372	72/72	11-114	0
pentachlorophenol		3300	3525/3552	107/108	17-109	1
pyrene		1650	1766/1836	107/111	35-142	4
>> Surrogate Recoveries (%) <<						
2-fluorophenol				71/73	25-121	

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				74/73	24-113	
nitrobenzene-d5				79/78	23-120	
2-fluorobiphenyl				84/83	30-115	
2,4,6-tribromophenol				101/102	19-122	
terphenyl-d14				99/101	18-137	
For Soil Matrix (ug/Kg)						
BE181.24 04 / 05 - Sample Spiked: 81533 - 01						
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
pentachlorophenol	ND	3300	3206/3310	97/100	17-109	3
pyrene	ND	1650	1415/1411	86/86	35-142	0
>> Surrogate Recoveries (%) <<						
2-fluorophenol				73/72	25-121	
phenol-d5				70/71	24-113	
nitrobenzene-d5				79/77	23-120	
2-fluorobiphenyl				81/81	30-115	
2,4,6-tribromophenol				102/103	19-122	
terphenyl-d14				106/105	18-137	

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Narrative:

Definitions:

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

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

8546

0

CHAIN OF CUST

PROJECT: Craig	PROJECT No.
CLIENT	PHONE No.
PROJECT MANAGER: Ruckhaus	PHONE No.
SAMPLER'S NAME (please print): Glenn Ruckhaus	PHONE No
SAMPLER'S SIGNATURE: Glenn Ruckhaus	

ANALYSIS REQUESTED (circle, check box or write preferred method in box)

SAMPLE I.D.	DATE	TIME	MATRIX	PRESERVATIVE	CONTAINERS No.	CONTAINERS VOL.
1. MW1	5/10/95	1500	Wtr		4	
2. MW1	5/11/95	0815			3	
3. MW5	5/10/95	1520			7	
4. MW6		1530			8	
5. MW12		1615			4	
6. Strip-W		1645			4	
7. Strip-In	5/11/95	0745			8	
8.						
9.						
10.						

SAMPLE I.D.	BTEX by 5030 / 8020	GRPH by 5030 /8015	ORPH by 8015 or 8100 8015m	BTEX/GRPH Combo by 5030 / 8020-8015	TPH by 3550 / 418.1	Halogenated Volatiles by 5030 / 8010	WTPH-418.1 MODIFIED	Aromatics by 602	Polynuclear Aromatics by 610 or 8310	Total Halogens (TOX) by 9078	Total Metals by ICP AA pp (13)	Purgeable Organics GC/MS by 8240 or 624	Base/Neutrals/Organics GC/MS by 625 or 8270	PCB by 8080	8240 +TIC's	8270 +TIC's	
1. MW1	{	X	X											X	X	X	} comb
2. MW1																	
3. MW5			X												X		
4. MW6			X	[redacted]							X			X	X	X	
5. MW12			X	X													
6. Strip-W			X	X													
7. Strip-In			X	X							X			[redacted]			
8.																	
9.																	
10.																	

SAMPLE RECEIPT	LABORATORY	TURNAROUND TIME	SPECIAL INSTRUCTIONS / ADDITIONAL COMMENTS
TOTAL # CONTAINERS	SHIPPING I.D. / AIRBILL #	☐ 8 HOUR	For 8015 m analyze for all Carbon Ranges
CONDITION OF CONTAINERS	CARRIER	☐ 24 HOUR	
CONDITION OF SEALS	DOT DESIGNATION	☐ 1 WEEK	After analysis - [redacted] Send to
		X [redacted] (standard)	
		☐ OTHER _____	

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
1.			1.		
2.			2.		
3.			3.		

B95 P 2 h

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CHAIN OF CUS

PROJECT: Craig
PROJECT No.:
CLIENT:
PHONE No:
PROJECT MANAGER: Glenn Ruckhaus
PHONE No.:
SAMPLER'S NAME (please print):
PHONE No.:
SAMPLER'S SIGNATURE:

ANALYSIS REQUESTED (circle, check box or write preferred method in box)

SAMPLE I.D.	DATE	TIME	MATRIX	PRESERVATIVE	CONTAINERS No.	CONTAINERS VOL.	BTEX by 5030 / 8020	GRPH by 5030 / 8015	DRPH by 3550 / 8100	BTEX/GRPH Comes by 5030 / 8020-8015	TPH by 3550 / 418.1	Halogenated Volatiles by 5030 / 8010	WTPH-418.1 MODIFIED	Aromatics by 602	Polynuclear Aromatics by 610 or 8310	Total Halogens (TOX) by 9076	Total Metals by ICP AA (pp 13)	Pumpable Organics GCMS by 1340 or 624	Base/Neutral/Organics GCMS by 625 or 8270	PCB by 8080	8260 + TIC	8270 + TIC
1. Strip-S	5/10/95	1645	Soil	NO	1	802			X	X												
2. B95-1	5/11/95	0900		NO	2	802			X												X	X
3. B95-2	5/11/95	0930		NO	2	802			X								X			X	X	X
4. B95-3	5/11/95	1030		NO	2	802			X								X			X	X	X
5.																						
6.																						
7.																						
8.																						
9.																						
10.																						

SAMPLE RECEIPT	LABORATORY	TURNAROUND TIME	SPECIAL INSTRUCTIONS / ADDITIONAL COMMENT
TOTAL # CONTAINERS	SHIPPING I.D. / AIRBILL #	☐ 4 HOUR	For 8015 m analyze for to carbon ranges.
CONDITION OF CONTAINERS	CARRIER	☐ 24 HOUR	- Hold all additional samp for possible ext analyses.
CONDITION OF SEALS	COC DESIGNATION	☐ 1 WEEK	
		[redacted] (standard)	
		☐ OTHER	

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
1.			1.		
2.			2.		
3.			3.		

PAGE 2 OF 2

AGRA Earth & Environmental, Inc.

FACSIMILE TRANSMITTAL

TO: Katre Hall

COMPANY: Superior

FAX NO: 510-229-0916

SENDER: Glenn Ruckhaus

FAX OPERATOR:

NO. OF PAGES: 3 (including this page)

AGRA Earth & Environmental, Inc.
711 H Street, Suite 450
ANCHORAGE, ALASKA, USA
99501

Phone NO. (907)276-6480
FAX NO. (907) 258-4128
CompuServe NO. 74103,2222

FILE NO. 31-0156700

DATE: 5/12/95

Katre!

Here is the updated COC if you have questions please call

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Earth & Environmental Group

00301

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Earth & Environmental
711 "H" Street, Suite 450
Anchorage, Alaska, U.S.A. 99501-3442
Tel (907) 276-6480 Fax (907) 258-4128

CHAIN OF CUSTODY

PROJECT: Craig	PROJECT No.: 31-01567000
CLIENT:	PHONE No.:
PROJECT MANAGER: G. Ruckhaus	PHONE No.:
SAMPLER'S NAME (please print): Glenn Ruckhaus	PHONE No.: 907-276-6480
SAMPLER'S SIGNATURE: Glenn Ruckhaus	

SAMPLE I.D.	DATE	TIME	MATRIX	PRESERVATIVE	CONTAINERS No.	CONTAINERS VOL.	BTEX by 5030 / 8020	GRPH by 5030 /8015	DRPH by 3550 / 8100	BTEX/GRPH Combo by 5030/ 8020-8015	TPH by 3550 / 418.1	Halogenated Volatiles by 5030 / 8010	WTPH-418.1 MODIFIED	Aromatics by 602	Polynuclear Aromatics by 610 or 8310	Total Halogens (TOX) by 9076	Total Metals by ICP AA	Purgeable Organics GCMS by 8240 or 624	Base/Neutral/Acid Organics GCMS by 625 or 8270	PCB by 8080	PP metals 6010/7000	8260	8270	
1. MW 1	5/10/95	1500	W		4			X	X											X	X	X	X	
2. MW 5		1520	W		7			X	X											X	X	X	X	Hold
3. MW 6		1530	W		8			X	X											X	X	X	X	
4. MW 12		1615	W		4				X	X														
5. Strip - S		1645	S	no	1	8oz			X	X														
6. Strip - W		1645	W		4				X	X														
7. Strip - In	5/11/95	0745	W		8							Hold												P
8. MW 1	5/11/95		W		2				See	line	9													
9. B95-1	5/11/95		S	no	2																Hold			P
10. B95-2	5/11/95		S	no	2			X	X											X	X	X	X	

SAMPLE RECEIPT	LABORATORY
TOTAL # CONTAINERS	SHIPPING I.D. / AIRBILL #
CONDITION OF CONTAINERS	CARRIER:
CONDITION OF SEALS	DOT DESIGNATION

TURNAROUND TIME
- ☐ 8 HOUR
- ☐ 24 HOUR
- ☐ 1 WEEK
- ☐ 2 WEEK (standard)
- ☒ OTHER Standard

SPECIAL INSTRUCTIONS / ADDITIONAL COMMENTS

Use all MW1 samples from both dates to complete all analysis. A metals sample was not collected but would like to run if possible. Please call -

Hold analysis of MW 5 until notified

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
1. Glenn Ruckhaus	5/11/95	1200	1.		
2.			2.		
3.			3. G. Ruckhaus 5/12/95 9:30		

PAGE 1 OF 2

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CHAIN OF CUSTODY

PROJECT	PROJECT No.
Bt Craig	31-0156700
CLIENT	PHONE No.
PROJECT MANAGER	PHONE No.
SAMPLER'S NAME (please print) Glenn Ruckhaus	PHONE No.
SAMPLER'S SIGNATURE Glenn Ruckhaus	

SAMPLE I.D.	DATE	TIME	MATRIX	PRESERVATIVE	CONTAINERS No.	CONTAINERS VOL.	BTEX by 5030 / 8020	GRPH by 5030 /8015	ORPH by 3550 / 8100	BTEX/GRPH Combo by 5030/ 8020-8015	TPH by 3550 / 418.1	Halogenated Volatiles by 5030 / 8010	WTPH-418.1 MODIFIED	Aromatics by 602	Polynuclear Aromatics by 610 or 8310	Total Halogens (TOX) by 9076	Total Metals by ICP AA	Purgeable Organics GCMS by 8240 or 624	Base/Neutrals/Acid Organics GCMS by 625 or 8270	PCB by 8080
1. B95-3	5/11/95		S	no	2	8oz			X	X										
2.																				
3.																				
4.																				
5.					Shipped Fed-Ex									5/11/95						
6.																				
7.					3 coolers - 1 empty															
8.																				
9.																				
10.																				

ANALYSIS REQUESTED (circle, check box or write preferred method in box)

SAMPLE RECEIPT	LABORATORY	TURNAROUND TIME	SPECIAL INSTRUCTIONS / ADDITIONAL COMMENTS
TOTAL # CONTAINERS	SHIPPING I.D. / AIRBILL #	☐ 8 HOUR	
CONDITION OF CONTAINERS	CARRIER	☐ 24 HOUR	
CONDITION OF SEALS	DOT DESIGNATION	☐ 1 WEEK	
		☐ 2 WEEK (standard)	
		☐ OTHER _____	

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
1.			1.		
2.			2.		
3.			3.		

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CHAIN OF CUSTODY

PROJECT	PROJECT No.
Craig	31-01567-00-00
CLIENT	PHONE No.
PROJECT MANAGER: G. Ruckhaus	PHONE No.
SAMPLER'S NAME (please print): Glenn Ruckhaus	PHONE No. 907-276-6480
SAMPLER'S SIGNATURE: Glenn Ruckhaus	

ANALYSIS REQUESTED (circle, check box or write preferred method in box)

SAMPLE I.D.	DATE	TIME	MATRIX	PRESERVATIVE	CONTAINERS No.	CONTAINERS VOL.	BTEX by 5030 / 8020	GRPH by 5030 / 8015	DRPH by 3550 / 8100	BTEX/GRPH Combo by 5030 / 8020-8015	TPH by 3550 / 418.1	Halogenated Volatiles by 5030 / 8010	WTPH-418.1 MODIFIED	Aromatics by 602	Polynuclear Aromatics by 610 or 8310	Total Halogens (TOX) by 9076	Total Metals by ICP AA	Purgeable Organics GC/MS by 8240 or 624	Base/Neutral/Acid Organics GC/MS by 625 or 8270	PCB by 8080	PP Metals 6010/7000	8260	8270	
1. MW 1	5/10/95	1500	W		4			X	X											X	X	X	X	
2. MW 5		1520	W		7			X	X											X	X	X	X	Hold
3. MW 6		1530	W		8			X	X											X	X	X	X	
4. MW 12		1615	W		4				X	X														
5. Strip - S		1645	S	no	1	8oz			X	X														
6. Strip - W		1645	W		4				X	X														
7. Strip - In	5/11/95	0745	W		8							Hold												
8. MW 1	5/11/95		W		2				See	line	#1													
9. B95-1	5/11/95		S	no	2																Hold			
10. B95-2	5/11/95		S	no	2			X	X											X	X	X	X	

SAMPLE RECEIPT	LABORATORY
TOTAL # CONTAINERS	SHIPPING I.D. / AIRBILL#
CONDITION OF CONTAINERS	CARRIER
CONDITION OF SEALS	DOT DESIGNATION

TURNAROUND TIME
- ☐ 8 HOUR
- ☐ 24 HOUR
- ☐ 1 WEEK
- ☐ 2 WEEK (standard)
- ☒ OTHER Standard

SPECIAL INSTRUCTIONS / ADDITIONAL COMMENTS
Use all MW1 samples from both dates to complete all analysis
A metals sample was not collected but would like to run if poss. 6/6
Please call -
Hold analysis of MW 5 until notified

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
1. Glenn Ruckhaus	5/11/95	1200	1.		
2.			2.		
3.			3. G. Harrell 5/12/95 9:30		

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

CHAIN OF CUSTODY

PROJECT: Br Craig	PROJECT No.: 31-0156700
CLIENT	PHONE No.
PROJECT MANAGER	PHONE No.
SAMPLER'S NAME (please print): Glenn Ruckhaus	PHONE No.
SAMPLER'S SIGNATURE: Glenn Ruckhaus	

ANALYSIS REQUESTED (circle, check box or write preferred method in box)

SAMPLE I.D.	DATE	TIME	MATRIX	PRESERVATIVE	CONTAINERS No.	CONTAINERS VOL.	BTEX by 5030 / 8020	GRPH by 5030 /8015	DRPH by 3550 / 8100	BTEX/GRPH Combo by 5030/ 8020-8015	TPH by 3550 / 418.1	Halogenated Volatiles by 5030 / 8010	WTPH-418.1 MODIFIED	Aromatics by 602	Polynuclear Aromatics by 610 or 8310	Total Halogens (TOX) by 9076	Total Metals by ICP AA	Purgeable Organics GC/MS by 8240 or 624	Base/Neutrals/Organics GC/MS by 625 or 8270	PCB by 8080				
1. B95-3	5/11/95		S	no	2	8oz			X	X														
2.																								
3.																								
4.																								
5.						Shipped Fed-Ex 5/11/95																			
6.																								
7.						3 coolers - 1 empty																			
8.																								
9.																								
10.																								

SAMPLE RECEIPT	LABORATORY	TURNAROUND TIME	SPECIAL INSTRUCTIONS / ADDITIONAL COMMENTS
TOTAL # CONTAINERS	SHIPPING I.D. / AIRBILL #	☐ 8 HOUR	
CONDITION OF CONTAINERS	CARRIER	☐ 24 HOUR	
CONDITION OF SEALS	DOT DESIGNATION	☐ 1 WEEK	
		☐ 2 WEEK (standard)	
		☐ OTHER _____	

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
1.			1.		
2.			2.		
3.			3.		

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