2320. 38.015

ROZAK ENGINEERING Civil, Construction & Environmental Consulting

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Received Report 4-14-11 For Paul Horwath and prepared a Summary for his review and oversight.

February 18, 2011

Alaska Department of Environmental Conservation
Spill Prevention and Response Program
43335 Kalifornsky Beach Road, Suite 11
Soldotna, Alaska 99669

Re: Report of Remedial Action and Cleanup Confirmation, ADEC File ID 2320.38.015
Former Doyle's Fuel Service Facility, 8847 Kenai Spur Highway, Kenai, AK 99611
Latitude 60.568333, Longitude 151.194444; SE ¼, BLM Lot 51, S34, T5S, R11W

Attn: Paul Horwath, P.E., Environmental Engineer

In August 1998, during an environmental assessment for a pending property transaction, soil contamination was encountered near small aboveground fuel tanks and a shop building located on the west portion of the subject facility. The department assigned Spill #1998230128901 and that contamination was assessed, cleaned up, and reported independent from the subject release. The owner expanded the investigation to include the east portion of the facility. During October 1998, fuel contaminated soil was encountered in a test hole near the location where two 15,000 gallon aboveground tanks (ASTs) had previously stored diesel fuel. The release was reported to the department, and the subsequent work plans, investigations and reports continued to reference the initial spill number. Doyle's Fuel Service, P.O. Box 582, Kenai, Alaska 99611, office phone 907-283-7957 was the owner/operator of the facility when the referenced releases were discovered. Redoubt Plumbing acquired the property and improvements in 1999.

After Rozak Engineering conducted the initial environmental assessment in 1998, additional soil investigation and groundwater monitoring activities characterized the type, degree and extent of soil and groundwater contamination associated with the subject release. Reports of investigations include installation and sampling of twenty-one soil borings and seven groundwater monitoring wells. Information from those investigations was evaluated with respect to the conditions at this site. An in-situ enhanced biological remediation plan, approved by the department in 2006, was implemented from 2007 through 2009. This report:

- summarizes the results of release investigation and site characterization work previously reported to the department,
- describes the in-situ remediation activities performed during 2008 and 2009,
- presents the laboratory analysis results of groundwater samples collected from October 1999 through August 2010,
- demonstrates the remedial action has successfully achieved compliance with the applicable cleanup levels without reliance on institutional controls, and
- requests issuance of a written determination that the cleanup is complete and authorization to decommission the monitoring wells and remediation system.

Contamination Characterization

Analytical results of soil and groundwater samples have characterized the release at the source to be primarily diesel range organic (DRO) product. Laboratory analysis results of groundwater samples also indicated the site had been impacted by erratic spikes of gasoline range organics (GRO), benzene(B), toluene(T) and xylenes(X) that was not consistent with the diesel products previously stored at the spill site. PHCs were detected at MW-1, unexpectedly because it is located 110 feet up-gradient from the spill site. In the *Conceptual Remedial Action Plan to Address In-situ Contamination,* dated September 7, 2006, we concluded the GRO and B/T/X spikes were a transient issue, overlaid on a relatively well-defined and otherwise straightforward diesel fuel release, therefore, we recommended that the spikes be treated as background levels.

Description and extent of environmental damage

PHC levels in excess of cleanup standards for DRO, GRO and benzene were detected in soil and groundwater at the site and at an off-site monitoring well (MW-4) located on the east edge of the Candlelight Drive right-of-way, 150 feet down-gradient from the spill source (Figure 3). We estimated that PHC contamination might migrate another 150 feet beyond MW-4 (300 feet from the source), creating a contamination plume of approximately 20,000 square feet (1/2 acre). Static water level surveys consistently showed the direction of groundwater flow at the site was to the southeast. A point of compliance (POC) monitoring well was installed on this alignment and beyond the leading (estimated) edge of the plume. Based on our evaluation of the steady declining trend of DRO analytical results of groundwater samples collected at MW-4, very low levels at MW-3 and MW-5, and nothing detected at MW-7, we believe the DRO plume was reducing and did not extend more than 100-150 feet beyond MW-4. The erratic benzene spikes detected at MW-3 and MW-4 indicate there might have been a volatile organic (not semivolatile, DRO) contribution to the plume from a source other than the subject AST site, or the roadway ditches.

Prior to beginning remedial activities in 2008, the highest DRO concentration (26 mg/L) detected in groundwater samples was collected in May 2000 from MW-2 (near the spill source). The highest GRO (54 mg/L) and benzene (2.7 mg/L) concentrations were collected from MW-4, also in May 2000. Analytical testing of soil samples collected during installation of MW-2 detected contamination from 3 feet to 11 feet below the ground surface (fbgs), i.e. from 5 feet above to 3 feet below the water table (8 fbgs) at time of drilling. Soil samples collected in 2007 while drilling to 28 fbgs, for installation of air sparge well AS1, indicated there was PHC contamination from 3 to 20 fbgs. AS1 was installed at the center of the former AST site, 14 feet southeast (down-gradient) from MW-2.

From 1999 to 2010, our surveys of the water table at MW-2 showed 1.2 feet of difference from the highest to lowest elevations. The analysis of soil samples collected while installing other monitoring wells, and subsequent water samples, indicated a contamination smear zone at MW-3 and MW-4, from 1/2 foot above the groundwater table to approximately 1.5 feet below. The surveyed water table variation at these locations was similar to MW-2 (1.2 feet maximum).

PHC contamination was not detected during the installation of POC monitoring well MW-7 in June 2007 or in water samples collected afterward. The well is located on the north edge of Aliak Street right of way, 600 feet down-gradient (southeast) from the spill site (500 feet from MW-4).

Applicable Cleanup Levels

Applicable cleanup levels for this site are based on Method Two Tables B1 and B2 (<40") for soil and Table C for groundwater, found at 18AAC75.341 and 75.345, listed below for reference:

	DRO	GRO	Benzene
Soil, mg/kg	250	300	0.02 0.025
Water, mg/L	1.5	2.2	0.005

Remedial Action Plan

We presented the rationale and design for using a combination of air sparging (AS), heating and injecting of nutrients at this site in the plan dated October 27, 2006, approved by the department on November 2, 2006. As explained in the plan, we used heated water to bring the vadose and smear zones, saturated soil and groundwater to 90-100°F. The hot water and nutrients were pumped to a series of small diameter perforated polyethylene lines laid 3 fbgs in two north-south trenches at the spill site. The eastern trench runs through the middle of the former AST site, above the known hot spots of shallow soil contamination. The primary purpose of the eastern trench was to provide hot water to heat the soils contaminated by the downward movement of free phase PHCs from surface spill(s). The second trench was located 25 feet further west to reach the up-gradient extent of the soil and groundwater plume. The attached *Site Plan for Remedial Action* (Figure 2) shows the layout of the two infiltration trenches and six AS wells relative to the former ASTs and monitoring wells MW-2, -3, -4, and -5. The location of monitoring well MW-2, on the north side of the AST site, is identified for reference on the *Aerial View of Vicinity-Former Doyle's Fuel Storage Facility* (Figure 1). The point of compliance well (MW-7), off the edge of Figure 2, is shown on Figure 1.

Remedial Action Conducted

Installation of AS wells, piping and equipment began in 2007 and was completed in June 2008, as shown in the layout on Figure 2. The remedial action work was conducted in general accordance with the elements presented in the work plan approved by the department, with minor modifications. Six AS wells were installed, instead of seven as shown in the remedial plan. The east trench was moved about 5 feet east of the conceptual location and closer to the center of the AST site, the apparent center of contamination. We observed, while boring for the AS wells, the soil cuttings were uniformly medium sand without noticeable silt or clay. Therefore the AS wells were set five feet deeper than planned, with less screened interval. Setting the bottom of well screens at 27.5 fbgs provided better radial overlap at the lower extent of the contamination plume. The remediation system designer, David Thomas, P.E., documented the startup, monitored the remediation progress, and recommended adjustments which were implemented for more efficient operation.

2008 Season

The hot water and air sparge systems were first placed in operation on July 1, 2008. Hot water was injected until mid-September when the water temperature in the middle of the source area reached 100°F, and air sparging continued until mid-November when ambient temperatures dropped. Late in July, fertilizer was mixed with water and the aqueous solution was added to the heated water being pumped to both infiltration trenches. Additional nutrients were added late in September. Overall, 60 pounds of nitrogen, 20 pounds of phosphorus and 15 pounds of potash were applied to the infiltration system in 2008, with 20% spread on the bottom of the infiltration trenches and 80% mixed to prepare a solution that was injected with the heated water pumped through the infiltration tubing.

The operation was monitored and water injection rates were adjusted to minimize ponding at the surface. The goal was to pump as much hot water as possible to treat the contaminated soils near the surface without causing excess water on the surface. The infiltration of hot water achieved the high end of our target temperature range (90-100°F) faster than expected and produced very good bacteria plate counts, i.e. 2,800,000 CFU/100 ml in September 2008. David Thomas, the consulting engineer for designing and monitoring this remediation system, reported the plate counts and groundwater temperature he observed at this site were the highest he had seen in a northern climate. By March 2009, the groundwater temperature had dropped to 40-42°F.

2009 Season

Prior to resuming the remedial operation in 2009, the rotary vane blower was rebuilt and the piping was tested for leaks. The air sparge system was restarted on June 10th and operated until late November 2009, except for approximately one week in early July when the circuit breaker had tripped and another week in early October when the air compressor was inoperative. Hot water was injected from mid-June to mid-November, typically using only two of the three boilers, to prevent free water on the surface as sometimes occurred in 2008 when using three boilers. The fertilizer supplied to the infiltration system in 2009 added a total of 50 pounds of nitrogen, 10 pounds of phosphorus and 5 pounds of potash

With two heaters, the subsurface temperature rise was slower than 2008 and the maximum groundwater temperature was 5-10°F less. The heat mass was still sufficient to produce groundwater temperatures (at MW-2) of 81°F on October 29, 2009 and 59°F on January 30, 2010. For comparison, the groundwater temperature was 42°F (at MW-2) on March 26, 2009, before we started heating for the second season. Historically, ground water temperatures we recorded at the site have varied from 40-45°F. We believe the variation is influenced by infiltration of melted snow in the spring and rain in the fall. In reviewing our field data, it appears that hot water pumped through the infiltration gallery raised the subsurface temperature at the site by 20°F to 60°F for 15 of the 20 months between July 2008 and February 2010.

Sampling Program and Analysis Reports

In the *Remedial Action Plan* we proposed collecting compliance samples from the POC well (MW-7) and two of the existing monitoring wells (MW-2 and MW-4), until the off-site contamination levels met the cleanup levels and the results showed a declining trend. We anticipated there would be 3 or 4 sample rounds. To help analyze the size and trend of the dissolved plume, and to evaluate contamination concentrations at the property line, we added wells MW-3 and MW-5 to the sampling program.

All samples for this project were discrete, collected and handled by qualified persons, Ron Rozak, P.E, except for one soil sample collected by David Thomas, P.E., in accordance with ADEC standard sampling procedures. Water for analytical samples was collected from the PVC monitor well casings with disposable PVC bailers and string, transferred directly to pre-cleaned containers supplied by the laboratory, placed in coolers with trip blanks and frozen jell packs, and maintained with custody until delivered to the SGS North America Inc. laboratory in Anchorage. After purging each well, a clean bailer was used to collect sample water, starting with containers for volatile analysis. As specified on the Chain of Custody that accompanied each sample shipment, the analytical laboratory tested samples for volatile organic compounds (BTEX) by method SW8021B, gas range organics (GRO) by method AK101, and diesel range organics (DRO) by method AK102. The typical sample numbering scheme for this project included the prefix "DFS" to indicate Doyle's Fuel Service, followed by "RA" for remedial action, then two digits "10" indicating the year (2010) collected, ending with a single or double digit sample number beginning with 1 (the first sample each year) and continuing consecutively until the last sample collected that year.

Were was the soil sample taken?

Quality Assurance Summary

The laboratory for this project (SGS) follows on-going quality assurance/quality control procedures to evaluate their conformance with applicable ADEC and EPA quality objectives. Internal Water samples, including trip blank and field duplicate, were submitted to SGS for analytical testing of BTEX, GRO and DRO. Internal laboratory quality controls include surrogates, method blanks, and duplicates. If a quality objective is not met, the laboratory provides a brief explanation in the Case Narrative at the front of their report.

Level II Laboratory Data and Analytical Reports prepared by SGS North America Inc. for the last three sampling events, SGS Work Orders 1096040 (10/28/09), 1100342 (1/30/10), and 1104485 (8/28/10), and the ADEC Laboratory Data Review Checklist for the final compliance SGS work order 1104485, are attached. The only non-conformance was lack of a field duplicate due to breakage of duplicate containers while handling in the field, therefore, precision could not be determined. The data quality or usability should not be affected because: the sampler collecting these samples has collected most of the previous samples on this project, all sample containers were provided by SGS shortly before the event and remained in custody by the sampler from kit pickup to sample delivery, a small number (5) of samples were collected, sampling conditions were good (moderate temperature, no wind), volatile levels were very low or non-detectable, and the cooler/sample temperature was low (<2°C).

Summary of Sampling Results

Evaluation of the analytical results for unfiltered groundwater samples collected at monitoring wells MW-2, -3, -4, -5 and -7, are presented in the attached tables and graphs (Figures 4-8). The table at the top of each figure presents the static water level (SWL), GRO, benzene, and DRO analytical results for each event sampled. The qualifier column notes when no sample was tested, the lab estimated value, or the reporting limit—when the analyte was tested but not detected. The yellow highlighted values exceed the cleanup levels. The graph at the bottom of each figure has columns representing the DRO values for each sample date listed at the top. NOTE - The DRO values range from 0-40 mg/L on the vertical scale at the left side MW-2 while the DRO scale on other graphs is less than 4 mg/L. The *Data Linear Trend* line is generated by using the Excel Trend function. The *Peak Linear Trend* line was drawn after we reduced the high-biased DRO value that produced by leaching of the contaminated soil column during the initial remediation.

- DRO, GRO and benzene concentrations are less than the site cleanup levels for all samples in the final sample round (8/28/10).
- DRO concentrations (mg/kg) at the spill site (MW-2) reflected a declining trend from 5/23/2000 until the remediation operation started in 2008. The sample collected on 11/1/2008, four months after starting the remediation, showed a significant increase in DRO (33.6). The sample 12 months later, at the end of the second season (10/28/2009), was significantly lower (4.9), and 10 months later the concentration (0.3) had dropped to the lowest recorded level and well below the cleanup level (1.5).
- DRO concentrations at MW-3 also increased after the remediation began, although not as significantly as MW-2, and sharply dropped to barely detectable levels. DRO has not been detected at MW-5, and the concentrations detected after start of remediation were barely above the method detection level.
- Benzene concentrations at MW-4 exceeded the cleanup level for all 8 samples collected before the remediation. Benzene is less than cleanup level for the 3 samples collected after start of remediation.
- DRO, GRO and/or benzene were not detected in samples collected at POC well MW-7.
- While bailing purge water and collecting water samples during the last two sample rounds, PHC odor was not detected at the top of monitor well casings and PHC sheen was not observed in the purge water at any wells.

Conclusions and Recommendations

The significant increase in DRO concentrations following the first season of remediation demonstrates that infiltration of hot water from the east gallery was very effective in leaching the PHCs down to the groundwater table. The equally significant decrease in DRO concentrations in the following sample events demonstrates the effectiveness of the aggressive biological degradation process. Based on similar non-detectable or very low PHC concentrations at the

other monitoring wells, it appears that the biomass that developed at the remediation site had effectively followed the PHC plume until the food source disappeared.

The cleanup actions and sampling have been performed in accordance with the approved work plan, with minor modifications noted herein, and the analytical results demonstrate compliance with the groundwater cleanup levels at the release source and the down-gradient locations where the contamination plume was monitored off the site.

Subject to the department's written determination that the applicable cleanup requirements have been satisfied for this site, the Client intends to decommission the remediation system and monitoring wells in 2011 after the ground thaws. When removing the infiltration gallery, we recommend checking the soil for PHC odor at 4 fbgs on a 20 by 20 foot grid (near the four corners of the former AST site). Although we tried to flood the surface, the infiltration gallery was only 3 fbgs and flooding may not have spread throughout shallow contamination at the source. Any additional assessment or cleanup would depend on the degree and extend of residual odor after the soil had been exposed for 15-30 minutes at 55-60°F ambient temperature.

Closure

Rozak Engineering prepared this report for use by Doyle's Fuel Service, other parties approved by Jim Doyle, and the Alaska Department of Environmental Conservation. The report addresses specific environmental conditions associated with the subject facility. No warranty or other conditions are intended. Within limitations of scope, budget and schedule, the services described herein were performed in accordance with approved work plans and followed generally accepted environmental practices in this area when this work was performed.

Prepared by,

Ronald T. Rozak, P.E.
Principal Investigator

cc: Jim Doyle, Doyle's Fuel Service

Attachments:

Figure 1 - Aerial Map (2003) of Vicinity
Figure 2 - Site Plan for Remedial Action
Figure 3 - Conceptual Plan of Contamination and Remedial Action
Figure 4 - Summary of GW Analytical Results for MW-2
Figure 5 - Summary of GW Analytical Results for MW-3
Figure 6 - Summary of GW Analytical Results for MW-4
Figure 7 - Summary of GW Analytical Results for MW-5
Figure 8 - Summary of GW Analytical Results for MW-7
SGS Level II Data and Laboratory Reports (3)
ADEC Laboratory Review Checklist

AERIAL VIEW OF VICINITY

Imagery from Quickbird Satellite, 2003

FORMER DOYLE'S FUEL STORAGE FACILITY

SITE arrow shows location of former A/G fuel tanks and source of diesel release
GROUNDWATER arrow indicates approximate direction of contamination plume
⊕ *-- shows proposed groundwater MW location for compliance monitoring*

SITE PLAN FOR REMEDIAL ACTION

FORMER DOYLE'S FUEL STORAGE FACILITY
ADEC SPILL NO. 1998230128901

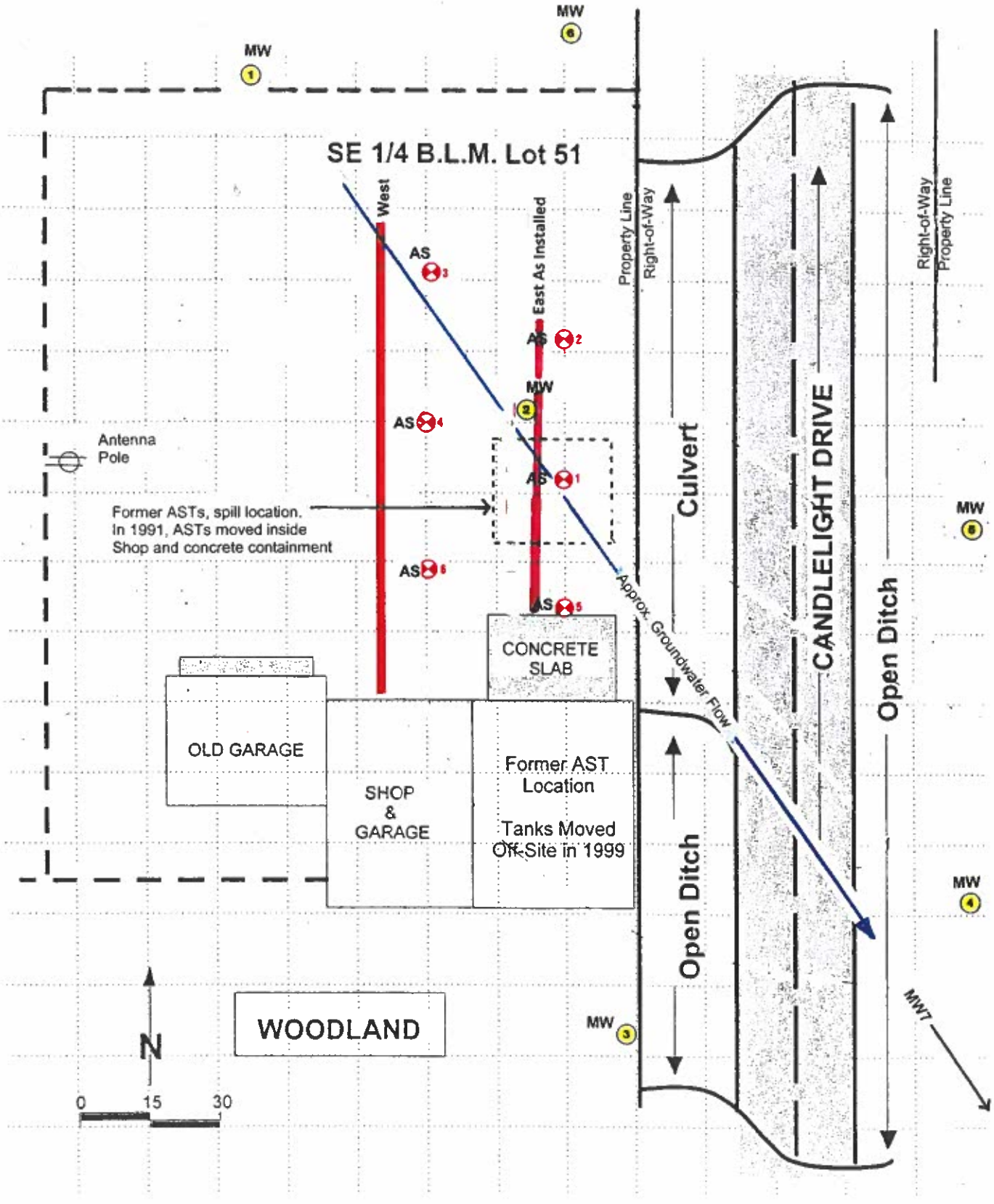
Rozak Engineering PO Box 350 Kenai, Alaska

LEGEND May 2008

MONITOR WELL MW

AIR SPARGE WELL AS

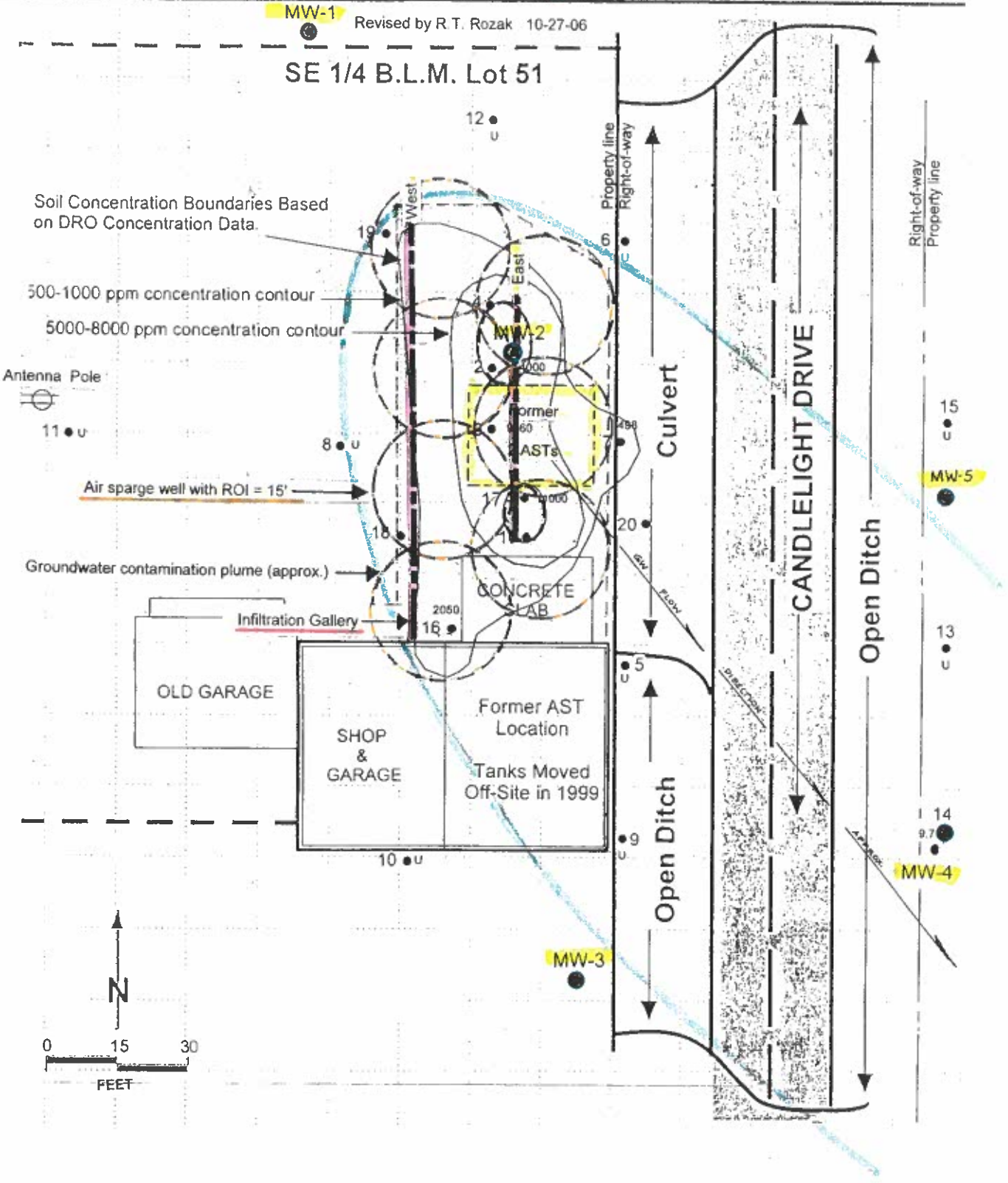
INFILTRATION GALLERY



Rozak Engineering
P.O. Box 350
Kenai, Alaska 99611
(907) 283 - 5640

Figure 2. Soil Contamination Map
Doyles Fuel Service
12-2-99

LEGEND
Monitor Well MW-2
Soil Boring 12 Soil Boring Number, Soil Boring Location, u DRO Concentration

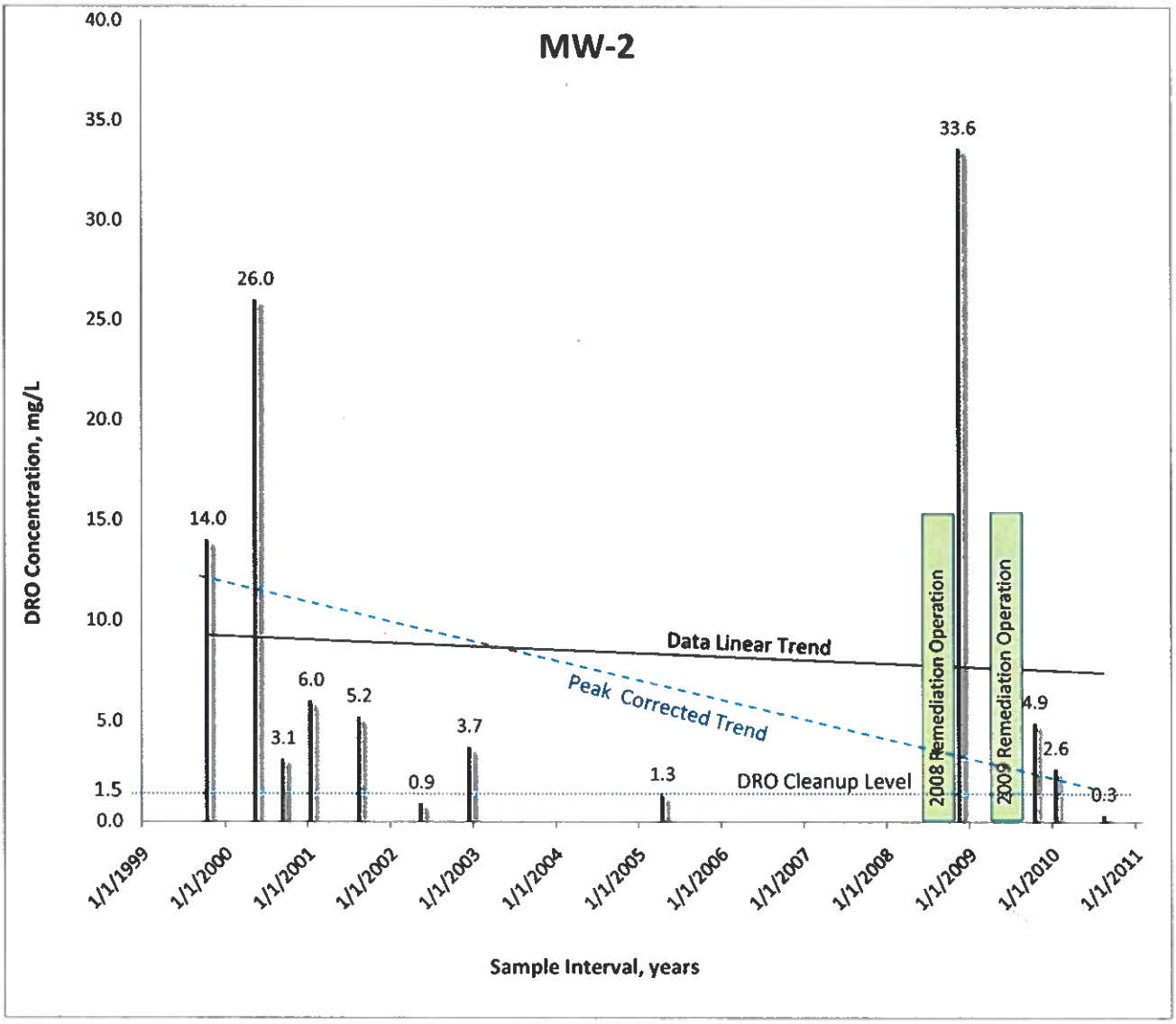


CONCEPTUAL CONTAMINATION AND REMEDIAL ACTION SYSTEM
FORMER DOYLE'S FUEL STORAGE FACILITY SPILL No. 1998230128901

Figure 4

Summary of Groundwater Analytical Results for MW-2

MW No. 2	Sample Date	SWL Feet	GRO mg/L	Qualifier	Benzene ug/L	Qualifier	DRO mg/L	Qualifier	Comments
	10/27/1999	90.17	2.4		1	U	14.0		Highlighted values
	5/23/2000	90.44	1.3		29		26.0		exceed cleanup levels
	9/12/2000	89.65	9.0		463		3.1		
	1/4/2001	89.43	0.2		4		6.0		
	8/27/2001	89.51	0.5		14		5.2		
	5/1/2002	89.57	0.3		1		0.9		
	12/4/2002	90.6	0.3		6		3.7		
	4/13/2005	90.31	0.4		2		1.3		Begin Remediation
	11/1/2008	90.21	0.0	ND @PQL	1	ND @PQL	33.6		End of 2008 Remediation
	10/28/2009	NT	0.1	ND @PQL	2		4.9		End of 2009 Remediation
	1/30/2010	89.26	0.1	ND @PQL	0	ND @PQL	2.6		
	8/28/2010	90.38		No Test	0	ND @PQL	0.3	Lab Est	
ADEC Cleanup Level			2.2		5		1.5		



Summary of Groundwater Analytical Results for MW-3

MW No. 3	Sample Date	SWL Feet	GRO mg/L	Qualifier	Benzene ug/L	Qualifier	DRO mg/L	Qualifier	Comments
	10/27/1999	89.91	0.1	ND @PQL	2		0.3	ND @PQL	
	5/23/2000	90.29	0.1	ND @PQL	1	ND @PQL	0.3	ND @PQL	
	9/12/2000	89.34	0.1	ND @PQL	3		0.6		
	1/4/2001	89.10	0.1	ND @PQL	1		0.3	ND @PQL	
	8/27/2001	89.15	0.1	ND @PQL	3		0.5	ND @PQL	
	5/1/2002	89.23	0.2		13		0.5	ND @PQL	
	12/4/2002	89.32	34.0		1170		0.6		
	4/13/2005	89.99	0.1	ND @PQL	1	ND @PQL	0.3	ND @PQL	
	11/1/2008	NT	0.5	ND @PQL	49		3.7		End of 2008 remediation
	10/28/2009	NT	NT	No Test		No Test		No Test	End of 2009 remediation
	1/30/2010	88.91	0.1	ND @PQL	5.5		0.7	Lab Est	
	8/28/2010	NT		No Test	0	Lab Est	0.5	ND @PQL	
ADEC Cleanup Level			2.2		5		1.5		

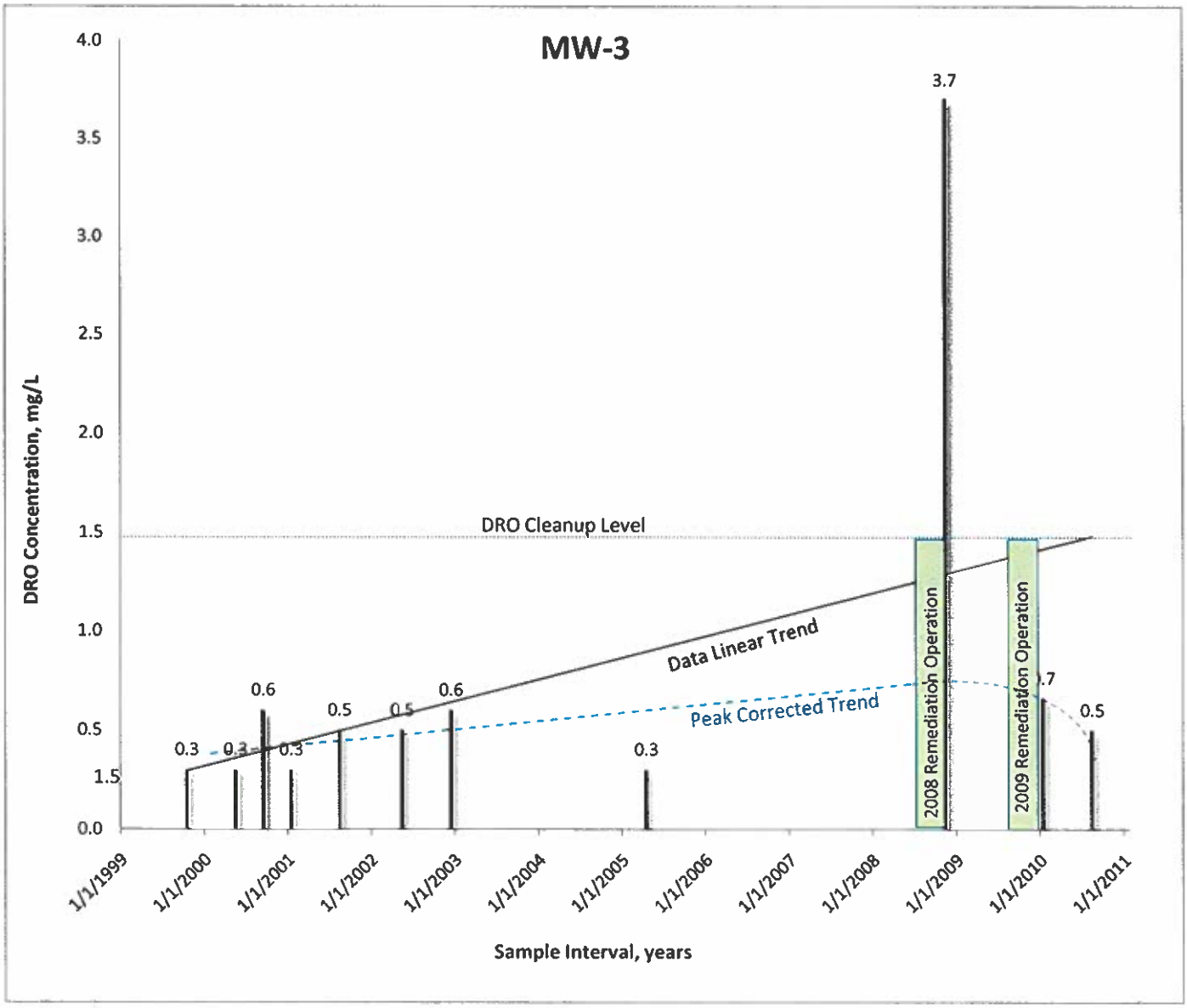
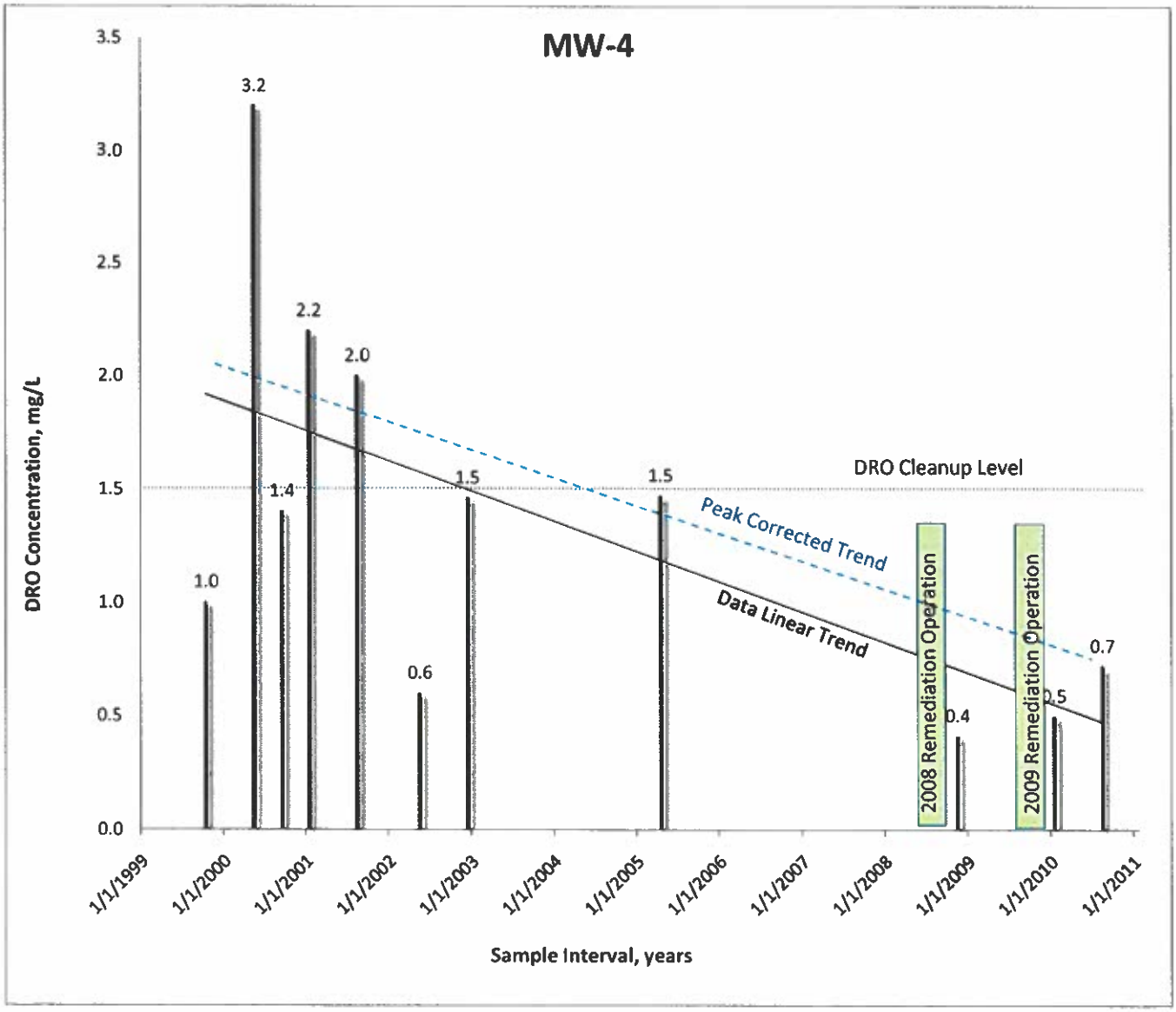


Figure 6

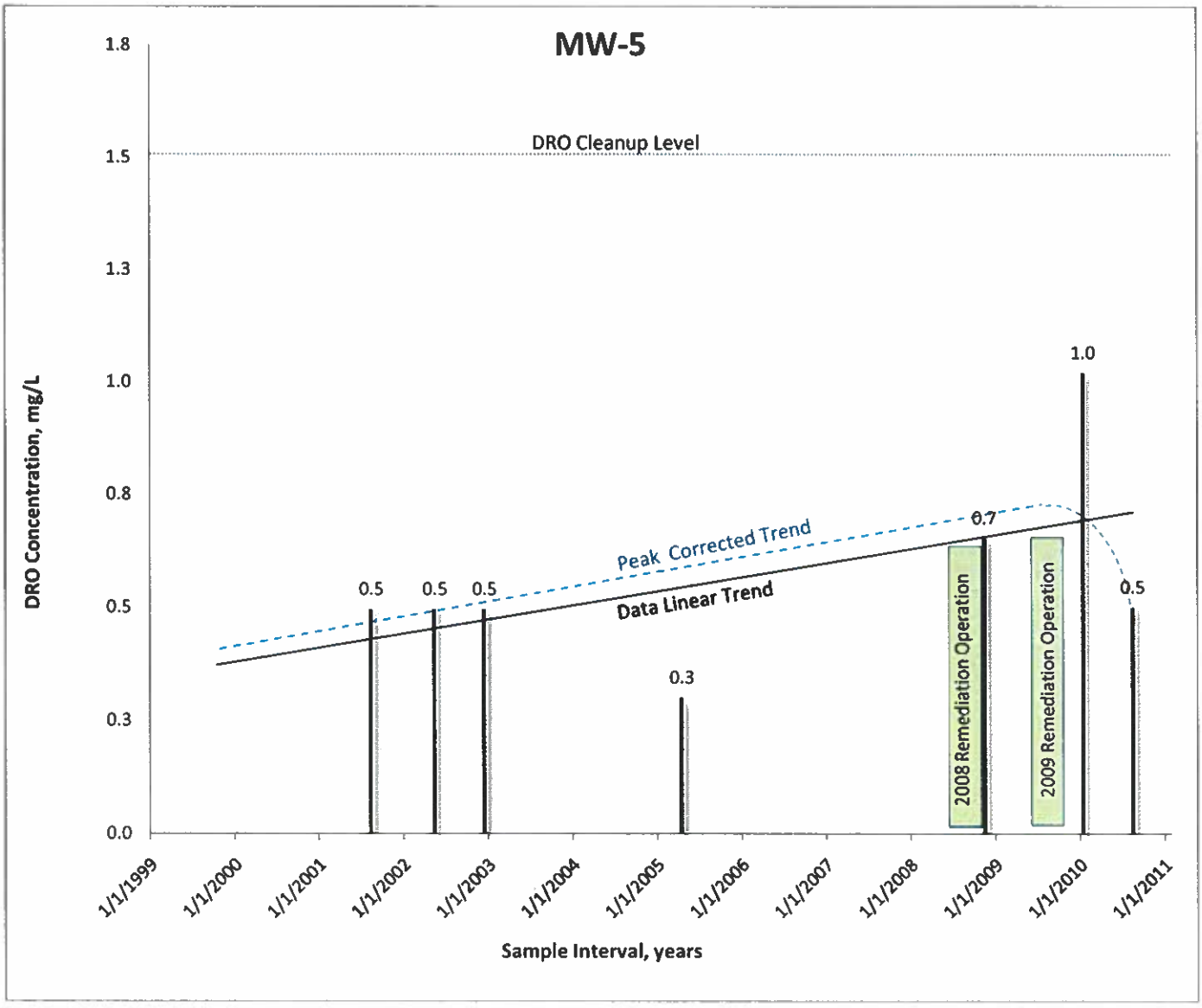
Summary of Groundwater Analytical Results for MW-4

MW No. 4	Sample Date	SWL Feet	GRO mg/L	Qualifier	Benzene ug/L	Qualifier	DRO mg/L	Qualifier	Comments
	10/27/1999	89.74	1.2		100		1.0		Highlighted values
	5/23/2000	90.13	54.0		2660		3.2		exceed cleanup levels
	9/12/2000	89.22	24.0		1500		1.4		
	1/4/2001	89.01	18.0		1810		2.2		
	8/27/2001	89.09	6.9		504		2.0		
	5/1/2002	89.13	0.2		7		0.6		
	12/4/2002	90.23	0.3		11		1.5		
	4/13/2005	89.92	0.3		38		1.5		
	11/1/2008	NT	0.1	ND @PQL	3		0.4		End of 2008 Remediation
	10/28/2009	NT		No Test		No Test		No Test	End of 2009 Remediation
	1/30/2010	89.55	0.1	ND @PQL	0	ND @PQL	0.5	ND @PQL	
	8/28/2010	NT		No Test	1		0.7	Lab Est	
ADEC Cleanup Level			2.2		5		1.5		



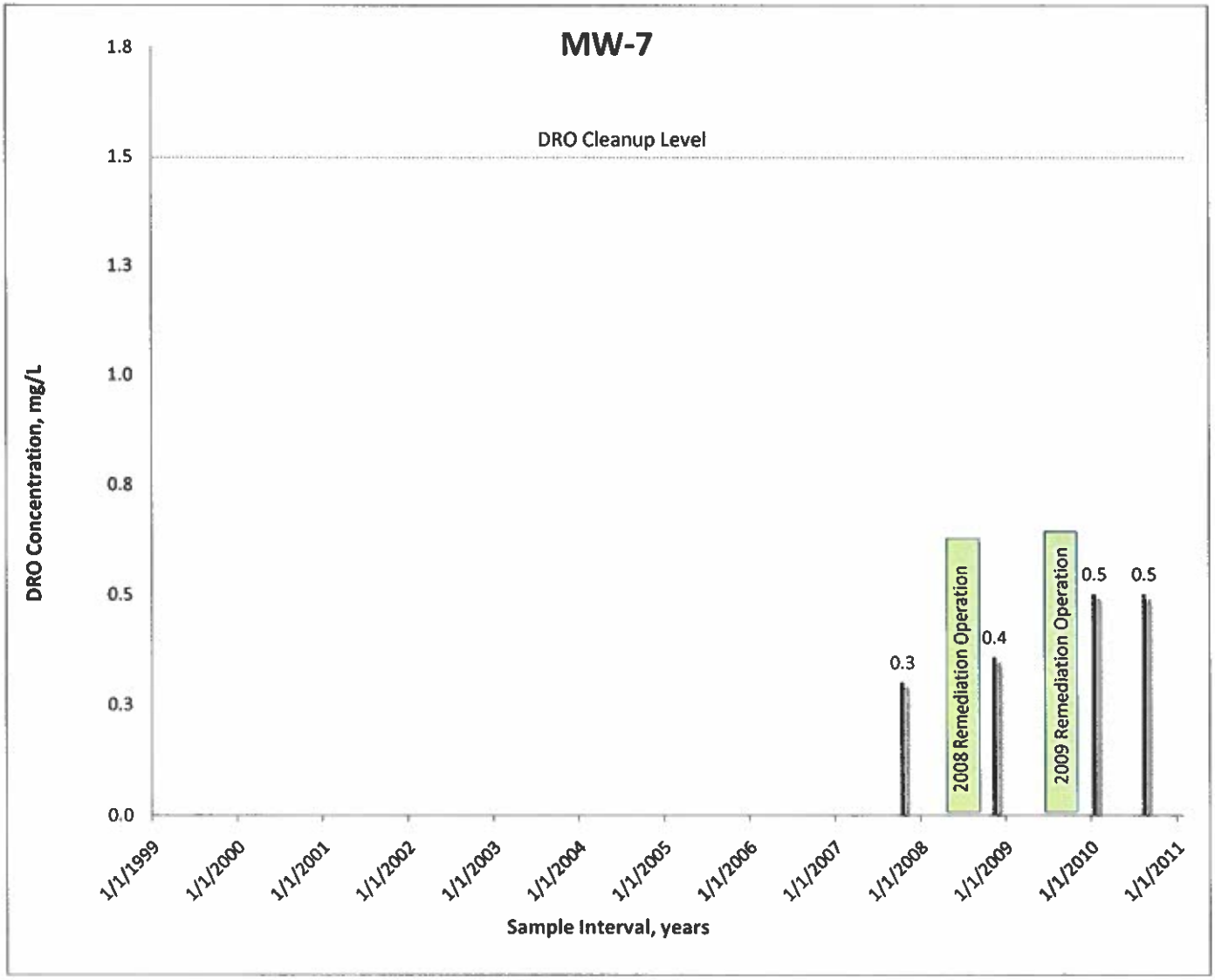
Summary of Groundwater Analytical Results for MW-5

MW No. 5	Sample Date	SWL Feet	GRO mg/L	Qualifier	Benzene ug/L	Qualifier	DRO mg/L	Qualifier	Comments
	10/27/1999								
	5/23/2000								
	9/12/2000								
	1/4/2001								
	8/27/2001	89.23	0.1	ND @PQL	0.6		0.5	ND @PQL	Installed, 1st sample
	5/1/2002	89.35	0.1	ND @PQL	0.5	ND @PQL	0.5	ND @PQL	
	12/4/2002	90.38	0.1	ND @PQL	0.5	ND @PQL	0.5	ND @PQL	
	4/13/2005	90.07	0.1	ND @PQL	0.5	ND @PQL	0.3	ND @PQL	
	11/1/2008		0.1	ND @PQL	0.5	ND @PQL	0.7		End of 2008 Remediation
	10/28/2009	NT		No Test		No Test		No Test	End of 2009 Remediation
	1/30/2010		0.1		6.5		1.0		Highlighted values
	8/28/2010			No Test	0.3		0.5	ND @PQL	exceed cleanup levels
ADEC Cleanup Level			2.2		5.0		1.5		



Summary of Groundwater Analytical Results for MW-7

MW No. 7	Sample Date	SWL Feet	GRO mg/L	Qualifier	Benzene ug/L	Qualifier	DRO mg/L	Qualifier	Comments
									Point of Compliance
	10/27/1999								
	5/23/2000								
	9/12/2000								
	1/4/2001								
	8/27/2001								
	5/1/2002								
	12/4/2002								
	4/13/2005								
	10/21/2007	87.62	No Test		0.5	ND @PQL	0.3	ND @PQL	Installed, 1st sample
	11/1/2008	88.42	0.1	ND @PQL	0.5	ND @PQL	0.4	ND @PQL	End of 2008 Remediation
	10/28/2009	No Test	No Test		No Test		No Test		End of 2009 Remediation
	1/30/2010	87.83	0.1	ND @PQL	0.3	ND @PQL	0.5	ND @PQL	
	8/28/2010	No Test	No Test		0.3	ND @PQL	0.5	ND @PQL	
ADEC Cleanup Level			2.2		5.0		1.5		



SGS North America Inc.
Alaska Division
Level II Laboratory Data Report

Project:	Doyles Fuel Service Rem Action
Client:	Rozak Engineering
SGS Work Order:	1096040

Released by: Heather L. Hall
SGS North America
Environmental Services - Alaska Division
Quality Assurance/Client Services
2009.11.16
18:03:54 -09'00'

Contents:

Cover Page
Case Narrative
Final Report Pages
Quality Control Summary Forms
Chain of Custody/Sample Receipt Forms

Note:
Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.

CASE NARRATIVE

Print Date: 11/16/2009

Client Name: Rozak Engineering
Project Name: Doyles Fuel Service Rem Action
Workorder No.: 1096040

Sample Comments

Refer to the sample receipt form for information on sample condition.

Lab Sample ID	Sample Type	Client Sample ID
1096040001	PS	MW-2

AK102 - The pattern is consistent with a weathered middle distillate.

Laboratory Analytical Report

Client: **Rozak Engineering**
1201 Denali St. #303
Anchorage, AK 99501

Attn: **David Thomas**
T: (907) 252-2954 F:(907) 263-7901
dthomas@alaska.net

Project: **Doyles Fuel Service Rem Action**

Workorder No.: **1096040**

Certification:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, other than the conditions noted on the sample data sheet(s) and/or the case narrative. This certification applies only to the tested parameters and the specific sample(s) received at the laboratory.

SGS North America
Environmental Services – Alaska Division
Quality Assurance-Client Services

Heather L. Hall
2009.11.16
18:03:35 -09'00'

If you have any questions regarding this report, or if we can be of further assistance, please contact your SGS Project Manager.

Heather Hall
Heather.Hall@sgs.com
Quality Assurance Manager

Print Date: 11/16/2009

Enclosed are the analytical results associated with this workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by SGS. A copy of our Quality Assurance Plan (QAP), which outlines this program is available at your request.

The Laboratory certification numbers are AK971-05 (DW), UTS-005 (CS) and AK00971 (Micro) for ADEC and AK100001 for NELAP (RCRA methods: 1020A, 1311, 6010B, 7470A, 7471A, 9040B, 9045C, 9056, 9060, 8015B, 8021B, 8081A/8082, 8260B, 8270C).

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP, the National Environmental Laboratory Accreditation Program and, when applicable, other regulatory authorities.

If you have any questions regarding this report or if we can be of any assistance, please contact your SGS Project Manager at 907-562-2343. All work is being provided under SGS general terms and conditions (http://www.sgs.com/terms_and_conditions.htm)

The following descriptors may be found on your report which will serve to further qualify the data.

MDL	Method Detection Limit
PQL	Practical Quantitation Limit (reporting limit).
CL	Control Limit
U	Indicates the analyte was analyzed for but not detected.
F	Indicates value that is greater than or equal to the MDL.
J	The quantitation is an estimation.
ND	Indicates the analyte is not detected
B	Indicates the analyte is found in a blank associated with the sample.
*	The analyte has exceeded allowable regulatory or control limits.
D	The analyte concentration is the result of dilution.
GT	Greater Than
LT	Less Than
Q	QC parameter out of acceptance range.
M	A matrix effect was present.
E	The analyte result is above the calibrated range.
R	Rejected
DF	Analytical Dilution Factor
JL	The analyte was positively identified, but the quantitation is a low estimation.
<Surr>	Surrogate QC spiked standard
<Surr/IS>	Surrogate / Internal Standard QC spiked standard
QC	Quality Control
QA	Quality Assurance
MB	Method Blank
LCS (D)	Laboratory Control Sample (Duplicate)
MS(D)	Matrix Spike (Duplicate)
BMS(D)	Site Specific Matrix Spike (Duplicate)
RPD	Relative Percent Difference
ICV	Initial Calibration Verification
CCV	Continuous Calibration Verification
MSA	Method of Standard Addition

Notes: Soil samples are reported on a dry weight basis unless otherwise specified
All DRO/RRO analyses are integrated per SOP.

SAMPLE SUMMARY

Print Date: 11/16/2009 5:02 pm

Client Name: Rozak Engineering
Project Name: Doyles Fuel Service Rem Action
Workorder No.: 1096040

Analytical Methods

Method Description	Analytical Method
AK101/8021 Combo.	AK101
AK101/8021 Combo.	SW8021B
Diesel Range Organics (W)	AK102

Sample ID Cross Reference

Lab Sample ID	Client Sample ID
1096040001	MW-2

Detectable Results Summary

Print Date: 11/16/2009 5:02 pm

Client Sample ID: **MW-2**

SGS Ref. #: 1096040001

Parameter	Result	Units
Volatile Fuels Department		
Benzene	1.45	ug/L
Semivolatile Organic Fuels Department		
Diesel Range Organics	4870	ug/L

SGS

Rozak Engineering

Print Date: 11/16/2009 5:02 pm

Client Sample ID: **MW-2**
SGS Ref. #: 1096040001
Project ID: Doyles Fuel Service Rem Action
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/28/09 10:40
Receipt Date/Time: 11/02/09 12:00

Volatile Fuels Department

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Gasoline Range Organics	ND	100	31.0	ug/L	1	VFC9755	VXX20244	
Benzene	1.45	0.500	0.150	ug/L	1	VFC9755	VXX20244	
Toluene	ND	2.00	0.620	ug/L	1	VFC9755	VXX20244	
Ethylbenzene	ND	2.00	0.620	ug/L	1	VFC9755	VXX20244	
o-Xylene	ND	2.00	0.620	ug/L	1	VFC9755	VXX20244	
P & M -Xylene	ND	2.00	0.620	ug/L	1	VFC9755	VXX20244	
4-Bromofluorobenzene <surr>	99	50-150		%	1	VFC9755	VXX20244	
1,4-Difluorobenzene <surr>	111	80-120		%	1	VFC9755	VXX20244	

Batch Information

Analytical Batch: VFC9755
Analytical Method: AK101
Analysis Date/Time: 11/07/09 17:04
Dilution Factor: 1
Prep Batch: VXX20244
Prep Method: SW5030B
Prep Date/Time: 11/07/09 14:34
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1096040001-A
Analyst: KPW

Analytical Batch: VFC9755
Analytical Method: SW8021B
Analysis Date/Time: 11/07/09 17:04
Dilution Factor: 1
Prep Batch: VXX20244
Prep Method: SW5030B
Prep Date/Time: 11/07/09 14:34
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1096040001-A
Analyst: KPW

SGS

Rozak Engineering

Print Date: 11/16/2009 5:02 pm

Client Sample ID: **MW-2**
SGS Ref. #: 1096040001
Project ID: Doyles Fuel Service Rem Action
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/28/09 10:40
Receipt Date/Time: 11/02/09 12:00

Semivolatile Organic Fuels Department

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Diesel Range Organics	4870	744	233	ug/L	1	XFC9015	XXX21945	
5a Androstane <surr>	71.8	50-150		%	1	XFC9015	XXX21945	

Batch Information

Analytical Batch: XFC9015
Analytical Method: AK102
Analysis Date/Time: 11/04/09 18:34
Dilution Factor: 1

Prep Batch: XXX21945
Prep Method: SW3520C
Prep Date/Time: 11/03/09 10:35

Initial Prep Wt./Vol.: 1075 mL
Prep Extract Vol.: 1 mL
Container ID:1096040001-C
Analyst: KDC

SGS

SGS Ref.#	936547 Method Blank		**Printed Date/Time**		11/16/2009 17:02
Client Name	Rozak Engineering		**Prep**	**Batch**	XXX21945
Project Name/#	Doyles Fuel Service Rem Action			**Method**	SW3520C
Matrix	Water (Surface, Eff., Ground)			**Date**	11/03/2009

QC results affect the following production samples:

1096040001

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Semivolatile Organic Fuels Department					
Diesel Range Organics	ND	800	250	ug/L	11/04/09
Surrogates					
5a Androstane <surr>	77.3	60-120		%	11/04/09
Batch	XFC9015				
Method	AK102				
Instrument	HP 6890 Series II FID SV D R				

SGS

SGS Ref.#	938177 Method Blank	**Printed Date/Time**	11/16/2009 17:02
Client Name	Rozak Engineering	**Prep Batch**	VXX20244
Project Name/#	Doyles Fuel Service Rem Action	**Method**	SW5030B
Matrix	Water (Surface, Eff., Ground)	**Date**	11/07/2009

QC results affect the following production samples:

1096040001

Parameter	Results	Reporting Control Limit	MDL	Units	Analysis Date
Volatile Fuels Department					
Gasoline Range Organics	ND	100	31.0	ug/L	11/07/09
Surrogates					
4-Bromofluorobenzene <surr>	95.7	50-150		%	11/07/09
Batch VFC9755					
Method AK101					
Instrument HP 5890 Series II PID+HECD VBA					
Benzene	ND	0.500	0.150	ug/L	11/07/09
Toluene	ND	2.00	0.620	ug/L	11/07/09
Ethylbenzene	ND	2.00	0.620	ug/L	11/07/09
o-Xylene	ND	2.00	0.620	ug/L	11/07/09
P & M -Xylene	ND	2.00	0.620	ug/L	11/07/09
Surrogates					
1,4-Difluorobenzene <surr>	110	80-120		%	11/07/09
Batch VFC9755					
Method SW8021B					
Instrument HP 5890 Series II PID+HECD VBA					

SGS

SGS Ref.#	936548	Lab Control Sample	**Printed Date/Time**	11/16/2009	17:02
	936549	Lab Control Sample Duplicate	**Prep Batch**	XXX21945	
Client Name	Rozak Engineering		**Method**	SW3520C	
Project Name/#	Doyles Fuel Service Rem Action		**Date**	11/03/2009	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1096040001

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Semivolatile Organic Fuels Department								
Diesel Range Organics	LCS	4040	81	(75-125)			5000 ug/L	11/04/2009
	LCSD	4020	81		0	(< 20)	5000 ug/L	11/04/2009
Surrogates								
5a Androstane <surr>	LCS		82	(60-120)				11/04/2009
	LCSD		82		0			11/04/2009

Batch XFC9015
Method AK102
Instrument HP 6890 Series II FID SV D R

SGS

SGS Ref.#	938178	Lab Control Sample	**Printed Date/Time**	11/16/2009	17:02
	938179	Lab Control Sample Duplicate	**Prep Batch**	VXX20244	
Client Name	Rozak Engineering		**Method**	SW5030B	
Project Name/#	Doyles Fuel Service Rem Action		**Date**	11/07/2009	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1096040001

Parameter		QC Results	Pct Recov	LCS LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department								
Benzene	LCS	97.5	98	(80-120)			100 ug/L	11/07/2009
	LCSD	103	103		6	(< 20)	100 ug/L	11/08/2009
Toluene	LCS	97.1	97	(80-120)			100 ug/L	11/07/2009
	LCSD	105	105		8	(< 20)	100 ug/L	11/08/2009
Ethylbenzene	LCS	99.6	100	(87-125)			100 ug/L	11/07/2009
	LCSD	106	106		6	(< 20)	100 ug/L	11/08/2009
o-Xylene	LCS	97.7	98	(85-120)			100 ug/L	11/07/2009
	LCSD	104	104		6	(< 20)	100 ug/L	11/08/2009
P & M -Xylene	LCS	200	100	(87-125)			200 ug/L	11/07/2009
	LCSD	212	106		6	(< 20)	200 ug/L	11/08/2009
Surrogates								
1,4-Difluorobenzene <surr>	LCS		105	(80-120)				11/07/2009
	LCSD		104		1			11/08/2009

Batch	VFC9755
Method	SW8021B
Instrument	HP 5890 Series II PID+HECD VBA

SGS

SGS Ref.#	938180	Lab Control Sample	**Printed Date/Time**	11/16/2009	17:02
	938181	Lab Control Sample Duplicate	**Prep Batch**	VXX20244	
Client Name	Rozak Engineering		**Method**	SW5030B	
Project Name/#	Doyles Fuel Service Rem Action		**Date**	11/07/2009	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1096040001

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department								
Gasoline Range Organics	LCS	211	106	(60-120)			200 ug/L	11/07/2009
	LCSD	215	108		2	(< 20)	200 ug/L	11/08/2009
Surrogates								
4-Bromofluorobenzene <surr>	LCS		98	(50-150)				11/07/2009
	LCSD		102		4			11/08/2009

Batch VFC9755
Method AK101
Instrument HP 5890 Series II PID+HECD VBA

SGS

SGS Environmental Services Inc.
CHAIN OF CUSTODY RECORD

1096040

(1)
CLIENT: ROZAK ENGINEERING
CONTACT: David Thomas PHONE NO: 252-2954
PROJECT: Doyle's Fuel Service SITE/PWSID#: REMEDIAL ACTION
REPORTS TO: ROZAK ENGINEERING EMAIL: dthomas@alaskanet
1201 DENALI ST #303 ANCHORAGE 99501
INVOICE TO: ROZAK ENGINEERING QUOTE #:
1201 DENALI ST #303 P.O. #ANCHORAGE, AK 9950

SGS Reference #: PWSID

page 1 of 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE C= COMP G= GRAB MI= Multi Incremental Samples	Preservatives Used	HCL	HCL	-								REMARKS/ LOC ID
							Analysis Required	(3) GRO/BTEX	AK 102									
	MW-2	10-28-09	10:40am	W	3	G		✓	✓		(1)	AC						MW-2

(5)
Collected/Relinquished By:(1) David B. Thomas — Date 10-29-09 9:50 — Time 9:50am — Received By: UPS
Relinquished By: (2) — Date — Time — Received By:
Relinquished By: (3) — Date — Time — Received By:
Relinquished By: (4) — Date 11/4/09 — Time 1200 — Received For Laboratory By:

(4)
DOD Project? YES (NO)
Cooler ID
Special Deliverable Requirements: NO
Requested Turnaround Time and-or Special Instructions: one week
Samples Received Cold? YES NO
Cooler TB
Temperature °C:
Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Page 1 of 3

200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5[illegible]
550 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-[illegible]

White - Retained by Lab
Pink - Retained by Client

SGS

SAMPLE RECEIPT FORM

SGS WO#: 1096040

Yes	No	NA	
✓			Are samples **RUSH**, priority or *w/in 72 hrs* of **hold time**?
✓			If yes, have you done *e-mail ALERT notification*?
	✓		Are samples *within 24 hrs.* of **hold time** or **due date**?
		✓	If yes, have you also *spoken with* supervisor?
		✓	Archiving bottles: Are lids marked w/ red "X"?
✓			Were samples collected with proper preservative?
	✓		**Any problems (ID, cond'n, HT, etc)? Explain:**
		✓	If this is for PWS, provide **PWSID:** _____
		✓	Payment received: $_____ by Check or Credit Card
	✓		Will courier charges apply?
	✓		Data package required? (Level: 1 / 2 / 3 / 4)
✓			*Notes:* _____
			Is this a DoD project? (USACE, Navy, AFCEE)

TAT (circle one): Standard -or- (Rush)
Received Date: 11-9-09
Received Time: 1200

Cooler ID	Temperature	Measured w/ (Therm #)
_____	_____ °C	_____
_____	_____ °C	_____
_____	_____ °C	_____
_____	_____ °C	_____

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply):
Client / Alert Courier / Lynden / SGS
(UPS) / FedEx / USPS / DHL / Carlile
AkAir Goldstreak / NAC / ERA / PenAir
Other: _____

Additional Sample Remarks: (√ *if applicable*)
_____ Extra Sample Volume?
✓ Limited Sample Volume?
_____ Multi-Incremental Samples?
_____ Lab-filtered for dissolved_____
_____ Ref Lab required for_____
_____ Foreign Soil?

This section must be filled out for DoD projects (USACE, Navy, AFCEE):

Yes	No	
		Is received temperature ≤6°C?
		Were containers ice-free? *Notify PM immediately of any ice in samples*
		If some cooler temperatures are non-compliant, see form FS-0029 (attached) for samples/analyses affected.
		Was there an airbill? *(If "yes," see attached.)*
		Was cooler sealed with custody seals & were they intact?
		# / where: _____
		Was there a COC with cooler?
		Was COC sealed in plastic bag & taped inside lid of cooler?
		Was the COC filled out properly? Did labels correspond?
		Did the COC indicate USACE / Navy / AFCEE project?
		Samples were packed to prevent breakage with *(circle one)*:
		Bubble Wrap Vermiculite Other (specify): _____
		Were all samples sealed in separate plastic bags?
		Were all VOCs free of headspace and/or MeOH preserved?
		Were correct container / sample sizes submitted?
		Was the PM notified of arrival so they can send
		Sample Receipt Acknowledgement to client?

Cooler ID _____ Cooler Temp °C _____ Cooler ID _____ Cooler Temp °C _____
Cooler ID _____ Cooler Temp °C _____ Cooler ID _____ Cooler Temp °C _____

This section must be completed if problems are noted.

Was client notified of problems? Yes / No
By (SGS PM): _____
Individual contacted: _____
Via: Phone / Fax / E-mail *(circle one)*
Date/Time: _____
Reason for contact: _____

Change Order Required? Yes / No

Notes: 11-9-09

Completed by (sign): _____ **(print):** Julie Rocchio

Login proof: **Self-check completed** ✓ **Peer-reviewer's Initials** _____

1096040

SGS

SAMPLE RECEIPT FORM - Bottle Tracking SGS WO#

#	Container ID	Matrix	Test	QC	TB	Container Volume: 1L	500mL	250mL or 8oz	125mL or 4oz	60mL	40mL	Other	Container Type: AG	CG	HDPE	Nalgene	Coli	Septa	Other	Preservative: None	HCl	HNO3	H2SO4	NaOH	Ascorbic Acid	NH_4Cl	Other	*Notes
1	A/B	1	GRO BTEX								2			✓				✓			✓						
	C		DRO			1							✓								✓							
Bottle Totals						1					2																	

* Note: Containers which require (additional) chemical preservation upon receipt must be documented per SOP#106

Completed by: _____ Date: 11-2-09

F042r02 Revised 9/8/2009

SGS North America Inc.
Alaska Division
Level II Laboratory Data Report

Project:	Doyle's Fuel Service Remedial
Client:	Rozak Engineering
SGS Work Order:	1100342

Released by:

SGS North America
Environmental Services – Alaska Division
Quality Assurance/Client Services

Heather L. Hall
2010.02.11
11:00:30 -09'00'

Contents:

Cover Page
Case Narrative
Final Report Pages
Quality Control Summary Forms
Chain of Custody/Sample Receipt Forms

Note:
Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.

SGS

CASE NARRATIVE

Print Date: 2/5/2010

Client Name: Rozak Engineering
Project Name: Doyle's Fuel Service Remedial
Workorder No.: 1100342

Sample Comments

Refer to the sample receipt form for information on sample condition.

Lab Sample ID	Sample Type	Client Sample ID
1100342004	PS	DFS-RA-10-4
	AK102 - Unknown hydrocarbon with several peaks is present.	
1100342005	PS	DFS-RA-10-5
	AK102 - The pattern is consistent with a weathered middle distillate.	
1100342006	PS	DFS-RA-10-6
	AK102 - The pattern is consistent with a weathered middle distillate.	

Laboratory Analytical Report

Client: **Rozak Engineering**
P. O. Box 350
Kenai, AK 99611

Attn: **Ron Rozak**
T: (907) 283-5640 F:(907) 283-0747
ronrozak@ak.net

Project: **Doyle's Fuel Service Remedial**

Workorder No.: **1100342**

Certification:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, other than the conditions noted on the sample data sheet(s) and/or the case narrative. This certification applies only to the tested parameters and the specific sample(s) received at the laboratory.

SGS North America
Environmental Services – Alaska Division
Quality Assurance/Client Services

Heather L. Hall
2010.02.11
11:00:12 -09'00'

If you have any questions regarding this report, or if we can be of further assistance, please contact your SGS Project Manager.

Heather Hall
Heather.Hall@sgs.com
Quality Assurance/Client Services

SGS

Print Date: 2/5/2010

Enclosed are the analytical results associated with the above work order. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<http://www.sgs.com/terms_and_conditions.htm>), unless other written agreements have been accepted by both parties.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and AK100001 for NELAP (RCRA methods: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6010B, 6020, 7470A, 7471B, 8021B, 8081B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, the National Environmental Laboratory Accreditation Program and other regulatory authorities. The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV	Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 2xDL)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content.
All DRO/RRO analyses are integrated per SOP.

SGS

SAMPLE SUMMARY

Print Date: 2/5/2010 10:29 am

Client Name: Rozak Engineering
Project Name: Doyle's Fuel Service Remedial
Workorder No.: 1100342

Analytical Methods

Method Description	Analytical Method
AK101/8021 Combo.	AK101
AK101/8021 Combo.	SW8021B
Diesel Range Organics (W)	AK102

Sample ID Cross Reference

Lab Sample ID	Client Sample ID
1100342001	DFS-RA-10-1 – mw-7
1100342002	DFS-RA-10-2 – mw-4
1100342003	DFS-RA-10-3 – mw-3
1100342004	DFS-RA-10-4 – mw-5
1100342005	DFS-RA-10-5 – mw-2
1100342006	DFS-RA-10-6 – Field Dup

SGS

Detectable Results Summary

Print Date: 2/5/2010 10:29 am

Client Sample ID: **DFS-RA-10-3** -MW-3
SGS Ref. #: 1100342003

Parameter	Result	Units
Volatile Fuels Department		
Benzene	5.47	ug/L
P & M -Xylene	0.980 J	ug/L
Semivolatile Organic Fuels Department		
Diesel Range Organics	664J	ug/L

Client Sample ID: **DFS-RA-10-4** -MW-5
SGS Ref. #: 1100342004

Parameter	Result	Units
Volatile Fuels Department		
Gasoline Range Organics	113	ug/L
Benzene	6.48	ug/L
Ethylbenzene	9.06	ug/L
o-Xylene	2.27	ug/L
P & M -Xylene	12.5	ug/L
Semivolatile Organic Fuels Department		
Diesel Range Organics	1020	ug/L

Client Sample ID: **DFS-RA-10-5** -MW-2
SGS Ref. #: 1100342005

Parameter	Result	Units
Volatile Fuels Department		
Benzene	0.490 J	ug/L
Semivolatile Organic Fuels Department		
Diesel Range Organics	2570	ug/L

Client Sample ID: **DFS-RA-10-6** Field Dup
SGS Ref. #: 1100342006

Parameter	Result	Units
Volatile Fuels Department		
Benzene	0.480 J	ug/L
Semivolatile Organic Fuels Department		
Diesel Range Organics	1950	ug/L

SGS

Rozak Engineering Print Date: 2/5/2010 10:29 am

Client Sample ID: **DFS-RA-10-1** – mw-7
SGS Ref. #: 1100342001
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/30/10 15:15
Receipt Date/Time: 02/01/10 11:55

Volatile Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Gasoline Range Organics	62.0 U	100	31.0	ug/L	1	VFC9856	VXX20447	
Benzene	0.300 U	0.500	0.150	ug/L	1	VFC9856	VXX20447	
Toluene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
Ethylbenzene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
o-Xylene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
4-Bromofluorobenzene <surr>	103	50-150		%	1	VFC9856	VXX20447	
1,4-Difluorobenzene <surr>	89.2	80-120		%	1	VFC9856	VXX20447	

Batch Information

Analytical Batch: VFC9856
Analytical Method: AK101
Analysis Date/Time: 02/02/10 10:53
Dilution Factor: 1
Prep Batch: VXX20447
Prep Method: SW5030B
Prep Date/Time: 02/02/10 09:00
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1100342001-A
Analyst: HM

Analytical Batch: VFC9856
Analytical Method: SW8021B
Analysis Date/Time: 02/02/10 10:53
Dilution Factor: 1
Prep Batch: VXX20447
Prep Method: SW5030B
Prep Date/Time: 02/02/10 09:00
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1100342001-A
Analyst: HM

SGS

Rozak Engineering Print Date: 2/5/2010 10:29 am

Client Sample ID: **DFS-RA-10-1** -mw-7
SGS Ref. #: 1100342001
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/30/10 15:15
Receipt Date/Time: 02/01/10 11:55

Semivolatile Organic Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Diesel Range Organics	500 U	800	250	ug/L	1	XFC9101	XXX22250	
5a Androstane <surr>	75.9	50-150		%	1	XFC9101	XXX22250	

Batch Information

Analytical Batch: XFC9101
Analytical Method: AK102
Analysis Date/Time: 02/03/10 19:32
Dilution Factor: 1

Prep Batch: XXX22250
Prep Method: SW3520C
Prep Date/Time: 02/02/10 11:00

Initial Prep Wt./Vol.: 1000 mL
Prep Extract Vol.: 1 mL
Container ID:1100342001-D
Analyst: HM

SGS

Rozak Engineering Print Date: 2/5/2010 10:29 am

Client Sample ID: **DFS-RA-10-2** -mw-4
SGS Ref. #: 1100342002
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/30/10 15:45
Receipt Date/Time: 02/01/10 11:55

Volatile Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Gasoline Range Organics	62.0 U	100	31.0	ug/L	1	VFC9856	VXX20447	
Benzene	0.300 U	0.500	0.150	ug/L	1	VFC9856	VXX20447	
Toluene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
Ethylbenzene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
o-Xylene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
4-Bromofluorobenzene <surr>	102	50-150		%	1	VFC9856	VXX20447	
1,4-Difluorobenzene <surr>	89.4	80-120		%	1	VFC9856	VXX20447	

Batch Information

Analytical Batch: VFC9856
Analytical Method: AK101
Analysis Date/Time: 02/02/10 11:12
Dilution Factor: 1
Prep Batch: VXX20447
Prep Method: SW5030B
Prep Date/Time: 02/02/10 09:00
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1100342002-A
Analyst: HM

Analytical Batch: VFC9856
Analytical Method: SW8021B
Analysis Date/Time: 02/02/10 11:12
Dilution Factor: 1
Prep Batch: VXX20447
Prep Method: SW5030B
Prep Date/Time: 02/02/10 09:00
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1100342002-A
Analyst: HM

SGS

Rozak Engineering Print Date: 2/5/2010 10:29 am

Client Sample ID: **DFS-RA-10-2** -MW-4
SGS Ref. #: 1100342002
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/30/10 15:45
Receipt Date/Time: 02/01/10 11:55

Semivolatile Organic Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Diesel Range Organics	500 U	800	250	ug/L	1	XFC9101	XXX22250	
5a Androstane <surr>	74	50-150		%	1	XFC9101	XXX22250	

Batch Information

Analytical Batch: XFC9101
Analytical Method: AK102
Analysis Date/Time: 02/03/10 19:53
Dilution Factor: 1

Prep Batch: XXX22250
Prep Method: SW3520C
Prep Date/Time: 02/02/10 11:00

Initial Prep Wt./Vol.: 1000 mL
Prep Extract Vol.: 1 mL
Container ID:1100342002-D
Analyst: HM

SGS

Rozak Engineering Print Date: 2/5/2010 10:29 am

Client Sample ID: **DFS-RA-10-3** – MW-3
SGS Ref. #: 1100342003
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/30/10 16:05
Receipt Date/Time: 02/01/10 11:55

Volatile Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Gasoline Range Organics	62.0 U	100	31.0	ug/L	1	VFC9856	VXX20447	
Benzene	5.47	0.500	0.150	ug/L	1	VFC9856	VXX20447	
Toluene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
Ethylbenzene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
o-Xylene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
P & M -Xylene	0.980 J	2.00	0.620	ug/L	1	VFC9856	VXX20447	
4-Bromofluorobenzene <surr>	107	50-150		%	1	VFC9856	VXX20447	
1,4-Difluorobenzene <surr>	89.9	80-120		%	1	VFC9856	VXX20447	

Batch Information

Analytical Batch: VFC9856
Analytical Method: AK101
Analysis Date/Time: 02/02/10 11:32
Dilution Factor: 1
Prep Batch: VXX20447
Prep Method: SW5030B
Prep Date/Time: 02/02/10 09:00
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID: 1100342003-A
Analyst: HM

Analytical Batch: VFC9856
Analytical Method: SW8021B
Analysis Date/Time: 02/02/10 11:32
Dilution Factor: 1
Prep Batch: VXX20447
Prep Method: SW5030B
Prep Date/Time: 02/02/10 09:00
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID: 1100342003-A
Analyst: HM

SGS

Rozak Engineering Print Date: 2/5/2010 10:29 am

Client Sample ID: **DFS-RA-10-3** -mw-3
SGS Ref. #: 1100342003
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/30/10 16:05
Receipt Date/Time: 02/01/10 11:55

Semivolatile Organic Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Diesel Range Organics	664J	800	250	ug/L	1	XFC9101	XXX22250	
5a Androstane <surr>	80.2	50-150		%	1	XFC9101	XXX22250	

Batch Information

Analytical Batch: XFC9101
Analytical Method: AK102
Analysis Date/Time: 02/03/10 20:15
Dilution Factor: 1

Prep Batch: XXX22250
Prep Method: SW3520C
Prep Date/Time: 02/02/10 11:00

Initial Prep Wt./Vol.: 1000 mL
Prep Extract Vol.: 1 mL
Container ID:1100342003-D
Analyst: HM

SGS

Rozak Engineering Print Date: 2/5/2010 10:29 am

Client Sample ID: **DFS-RA-10-4** -MW-5
SGS Ref. #: 1100342004
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/30/10 16:45
Receipt Date/Time: 02/01/10 11:55

Volatile Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Gasoline Range Organics	113	100	31.0	ug/L	1	VFC9856	VXX20447	
Benzene	6.48	0.500	0.150	ug/L	1	VFC9856	VXX20447	
Toluene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
Ethylbenzene	9.06	2.00	0.620	ug/L	1	VFC9856	VXX20447	
o-Xylene	2.27	2.00	0.620	ug/L	1	VFC9856	VXX20447	
P & M -Xylene	12.5	2.00	0.620	ug/L	1	VFC9856	VXX20447	
4-Bromofluorobenzene <surr>	112	50-150		%	1	VFC9856	VXX20447	
1,4-Difluorobenzene <surr>	89.4	80-120		%	1	VFC9856	VXX20447	

Batch Information

Analytical Batch: VFC9856
Analytical Method: AK101
Analysis Date/Time: 02/02/10 11:51
Dilution Factor: 1
Prep Batch: VXX20447
Prep Method: SW5030B
Prep Date/Time: 02/02/10 09:00
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1100342004-A
Analyst: HM

Analytical Batch: VFC9856
Analytical Method: SW8021B
Analysis Date/Time: 02/02/10 11:51
Dilution Factor: 1
Prep Batch: VXX20447
Prep Method: SW5030B
Prep Date/Time: 02/02/10 09:00
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1100342004-A
Analyst: HM

SGS

Rozak Engineering Print Date: 2/5/2010 10:29 am

Client Sample ID: **DFS-RA-10-4** -MW-5
SGS Ref. #: 1100342004
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/30/10 16:45
Receipt Date/Time: 02/01/10 11:55

Semivolatile Organic Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Diesel Range Organics	1020	800	250	ug/L	1	XFC9101	XXX22250	
5a Androstane <surr>	83.1	50-150		%	1	XFC9101	XXX22250	

Batch Information

Analytical Batch: XFC9101
Analytical Method: AK102
Analysis Date/Time: 02/03/10 20:36
Dilution Factor: 1

Prep Batch: XXX22250
Prep Method: SW3520C
Prep Date/Time: 02/02/10 11:00

Initial Prep Wt./Vol.: 1000 mL
Prep Extract Vol.: 1 mL
Container ID:1100342004-D
Analyst: HM

SGS

Rozak Engineering Print Date: 2/5/2010 10:29 am

Client Sample ID: **DFS-RA-10-5** -mw-2
SGS Ref. #: 1100342005
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/30/10 17:30
Receipt Date/Time: 02/01/10 11:55

Volatile Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Gasoline Range Organics	62.0 U	100	31.0	ug/L	1	VFC9856	VXX20447	
Benzene	0.490 J	0.500	0.150	ug/L	1	VFC9856	VXX20447	
Toluene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
Ethylbenzene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
o-Xylene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
4-Bromofluorobenzene <surr>	103	50-150		%	1	VFC9856	VXX20447	
1,4-Difluorobenzene <surr>	89.8	80-120		%	1	VFC9856	VXX20447	

Batch Information

Analytical Batch: VFC9856
Analytical Method: AK101
Analysis Date/Time: 02/02/10 12:10
Dilution Factor: 1
Prep Batch: VXX20447
Prep Method: SW5030B
Prep Date/Time: 02/02/10 09:00
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1100342005-A
Analyst: HM

Analytical Batch: VFC9856
Analytical Method: SW8021B
Analysis Date/Time: 02/02/10 12:10
Dilution Factor: 1
Prep Batch: VXX20447
Prep Method: SW5030B
Prep Date/Time: 02/02/10 09:00
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1100342005-A
Analyst: HM

SGS

Rozak Engineering Print Date: 2/5/2010 10:29 am

Client Sample ID: **DFS-RA-10-5** - MW-2
SGS Ref. #: 1100342005
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/30/10 17:30
Receipt Date/Time: 02/01/10 11:55

Semivolatile Organic Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Diesel Range Organics	2570	800	250	ug/L	1	XFC9101	XXX22250	
5a Androstane <surr>	77.5	50-150		%	1	XFC9101	XXX22250	

Batch Information

Analytical Batch: XFC9101
Analytical Method: AK102
Analysis Date/Time: 02/03/10 20:57
Dilution Factor: 1

Prep Batch: XXX22250
Prep Method: SW3520C
Prep Date/Time: 02/02/10 11:00

Initial Prep Wt./Vol.: 1000 mL
Prep Extract Vol.: 1 mL
Container ID:1100342005-D
Analyst: HM

SGS

Rozak Engineering Print Date: 2/5/2010 10:29 am

Client Sample ID: **DFS-RA-10-6** – Field Dup
SGS Ref. #: 1100342006
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/30/10 00:00
Receipt Date/Time: 02/01/10 11:55

Volatile Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Gasoline Range Organics	62.0 U	100	31.0	ug/L	1	VFC9856	VXX20447	
Benzene	0.480 J	0.500	0.150	ug/L	1	VFC9856	VXX20447	
Toluene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
Ethylbenzene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
o-Xylene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VFC9856	VXX20447	
4-Bromofluorobenzene <surr>	106	50-150		%	1	VFC9856	VXX20447	
1,4-Difluorobenzene <surr>	89.7	80-120		%	1	VFC9856	VXX20447	

Batch Information

Analytical Batch: VFC9856
Analytical Method: AK101
Analysis Date/Time: 02/02/10 12:29
Dilution Factor: 1
Prep Batch: VXX20447
Prep Method: SW5030B
Prep Date/Time: 02/02/10 09:00
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1100342006-A
Analyst: HM

Analytical Batch: VFC9856
Analytical Method: SW8021B
Analysis Date/Time: 02/02/10 12:29
Dilution Factor: 1
Prep Batch: VXX20447
Prep Method: SW5030B
Prep Date/Time: 02/02/10 09:00
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1100342006-A
Analyst: HM

SGS

Rozak Engineering Print Date: 2/5/2010 10:29 am

Client Sample ID: **DFS-RA-10-6** Field Dup
SGS Ref. #: 1100342006
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/30/10 00:00
Receipt Date/Time: 02/01/10 11:55

Semivolatile Organic Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Diesel Range Organics	1950	800	250	ug/L	1	XFC9101	XXX22250	
5a Androstane <surr>	78.4	50-150		%	1	XFC9101	XXX22250	

Batch Information

Analytical Batch: XFC9101
Analytical Method: AK102
Analysis Date/Time: 02/03/10 21:18
Dilution Factor: 1

Prep Batch: XXX22250
Prep Method: SW3520C
Prep Date/Time: 02/02/10 11:00

Initial Prep Wt./Vol.: 1000 mL
Prep Extract Vol.: 1 mL
Container ID:1100342006-D
Analyst: HM

SGS

SGS Ref.#	947816 Method Blank		**Printed Date/Time**		02/05/2010 10:29
Client Name	Rozak Engineering		**Prep**	**Batch**	XXX22250
Project Name/#	Doyle's Fuel Service Remedial			**Method**	SW3520C
Matrix	Water (Surface, Eff., Ground)			**Date**	02/02/2010

QC results affect the following production samples:

1100342001, 1100342002, 1100342003, 1100342004, 1100342005, 1100342006

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
Semivolatile Organic Fuels Department					
Diesel Range Organics	500 U	800	250	ug/L	02/03/10
Surrogates					
5a Androstane <surr>	76.9	60-120		%	02/03/10

Batch XFC9101
Method AK102
Instrument HP 7890A FID SV E F

SGS

SGS Ref.#	947833 Method Blank		**Printed Date/Time**		02/05/2010 10:29
Client Name	Rozak Engineering		**Prep**	**Batch**	VXX20447
Project Name/#	Doyle's Fuel Service Remedial			**Method**	SW5030B
Matrix	Water (Surface, Eff., Ground)			**Date**	02/02/2010

QC results affect the following production samples:

1100342001, 1100342002, 1100342003, 1100342004, 1100342005, 1100342006

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
Volatile Fuels Department					
Gasoline Range Organics	62.0 U	100	31.0	ug/L	02/02/10
Surrogates					
4-Bromofluorobenzene <surr>	101	50-150		%	02/02/10
Batch VFC9856					
Method AK101					
Instrument HP 5890 Series II PID+HECD VBA					
Benzene	0.300 U	0.500	0.150	ug/L	02/02/10
Toluene	1.24 U	2.00	0.620	ug/L	02/02/10
Ethylbenzene	1.24 U	2.00	0.620	ug/L	02/02/10
o-Xylene	1.24 U	2.00	0.620	ug/L	02/02/10
P & M -Xylene	1.24 U	2.00	0.620	ug/L	02/02/10
Surrogates					
1,4-Difluorobenzene <surr>	89.5	80-120		%	02/02/10
Batch VFC9856					
Method SW8021B					
Instrument HP 5890 Series II PID+HECD VBA					

SGS

SGS Ref.#	947817	Lab Control Sample	**Printed Date/Time**	02/05/2010	10:29
	947818	Lab Control Sample Duplicate	**Prep Batch**	XXX22250	
Client Name	Rozak Engineering		**Method**	SW3520C	
Project Name/#	Doyle's Fuel Service Remedial		**Date**	02/02/2010	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1100342001, 1100342002, 1100342003, 1100342004, 1100342005, 1100342006

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Semivolatile Organic Fuels Department								
Diesel Range Organics	LCS	4150	83	(75-125)			5000 ug/L	02/03/2010
	LCSD	4370	87		5	(< 20)	5000 ug/L	02/03/2010
Surrogates								
5a Androstane <surr>	LCS		81	(60-120)				02/03/2010
	LCSD		84		4			02/03/2010

Batch	XFC9101	
Method	AK102	
Instrument	HP 7890A	FID SV E F

SGS

SGS Ref.#	947834	Lab Control Sample	**Printed Date/Time**	02/05/2010	10:29
	947835	Lab Control Sample Duplicate	**Prep Batch**	VXX20447	
Client Name	Rozak Engineering		**Method**	SW5030B	
Project Name/#	Doyle's Fuel Service Remedial		**Date**	02/02/2010	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1100342001, 1100342002, 1100342003, 1100342004, 1100342005, 1100342006

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department								
Benzene	LCS	103	103	(80-120)			100 ug/L	02/02/2010
	LCSD	101	101		1	(< 20)	100 ug/L	02/02/2010
Toluene	LCS	107	107	(80-120)			100 ug/L	02/02/2010
	LCSD	105	105		2	(< 20)	100 ug/L	02/02/2010
Ethylbenzene	LCS	108	108	(87-125)			100 ug/L	02/02/2010
	LCSD	107	107		1	(< 20)	100 ug/L	02/02/2010
o-Xylene	LCS	104	104	(85-120)			100 ug/L	02/02/2010
	LCSD	102	102		2	(< 20)	100 ug/L	02/02/2010
P & M -Xylene	LCS	203	101	(87-125)			200 ug/L	02/02/2010
	LCSD	199	100		2	(< 20)	200 ug/L	02/02/2010
Surrogates								
1,4-Difluorobenzene <surr>	LCS		97	(80-120)				02/02/2010
	LCSD		96		0			02/02/2010

Batch	VFC9856
Method	SW8021B
Instrument	HP 5890 Series II PID+HECD VBA

SGS

SGS Ref.#	947836	Lab Control Sample	**Printed Date/Time**	02/05/2010	10:29
	947837	Lab Control Sample Duplicate	**Prep Batch**	VXX20447	
Client Name	Rozak Engineering		**Method**	SW5030B	
Project Name/#	Doyle's Fuel Service Remedial		**Date**	02/02/2010	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1100342001, 1100342002, 1100342003, 1100342004, 1100342005, 1100342006

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department								
Gasoline Range Organics	LCS	205	102	(60-120)			200 ug/L	02/02/2010
	LCSD	208	104		2	(< 20)	200 ug/L	02/02/2010
Surrogates								
4-Bromofluorobenzene <surr>	LCS		104	(50-150)				02/02/2010
	LCSD		104		0			02/02/2010

Batch VFC9856
Method AK101
Instrument HP 5890 Series II PID+HECD VBA

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1100342

(1)
CLIENT: ROZAK ENGINEERING
CONTACT: RON ROZAK PHONE NO: 252-5640
PROJECT: Doyle's Fuel Service SITE/PWSID# Remedial Action
REPORTS TO: Rozak Engineering EMAIL: ronrozak@ak.net
1201 Denali St. # 303
INVOICE TO: Anchorage, AK 99501 QUOTE #:
" SAME " P.O. #:

SGS Reference #:

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(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE C= COMP G= GRAB MI= Multi Incremental Samples	Preservatives Used	Analysis Required (3) GRO/BTEX	AK 102	REMARKS/ LOC ID
							HCL	HCL		
(1) A-E	DFS-RA-10-1	1-30-10	1515	Wtr	5	G	✓	✓		MW-7
(2)	-2		1545				✓	✓		MW-4
(3)	-3		1605				✓	✓		MW-3
(4)	-4		1645				✓	✓		MW-5
(5)	-5		1730				✓	✓		MW-2
(6)	-6		—				✓	✓		FLD DUPL

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Ronald Mazurek	2/1/10	1155	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date 2/1/10	Time 1155	Received For Laboratory By:

(4)
DOD Project? YES NO
Cooler ID _____
Cooler Temp °C _____

Special Deliverable Requirements:

Requested Turnaround Time and-or Special Instructions:
STANDARD

Temperature Blank °C: 3.8 or Ambient ☐
Therm # #350

Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT

☐ 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
☐ 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab
Pink - Retained by Client

SGS

1100342

SAMPLE RECEIPT FORM

SGS WO#:

Yes	No	NA	
	✓		Are samples **RUSH**, priority or *w/in 72 hrs* of **hold time**?
		✓	If yes, have you done *e-mail ALERT notification*?
	✓		Are samples *within 24 hrs.* of **hold time** or **due date**?
		✓	If yes, have you also *spoken with* supervisor?
		✓	Archiving bottles: Are lids marked w/ red "X" ?
✓			Were samples collected with proper preservative?
	✓		**Any problems (ID, cond'n , HT, etc)? Explain:**
		✓	If this is for PWS, provide **PWSID:** _____
		✓	Payment received: $_____ by Check or Credit Card
		✓	Will courier charges apply?
✓			Data package required? (Level: 1 / 2 / 3 / 4)
			Notes: _____
	✓		Is this a DoD project? (USACE, Navy, AFCEE)

TAT (circle one): ~~Standard~~ -or- Rush

Received Date: 2/1/10

Received Time: 1155

Cooler ID	Temperature	Measured w/ (Therm #)
1	3.8 °C	350
	°C	
	°C	
	°C	

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply):

(Client) / Alert Courier / Lynden / SGS UPS / FedEx / USPS / DHL / Carlile AkAir Goldstreak / NAC / ERA / PenAir

Other: _____

Additional Sample Remarks: *(√ if applicable)*

_____ Extra Sample Volume?

_____ Limited Sample Volume?

_____ Multi-Incremental Samples?

_____ Lab-filtered for dissolved _____

_____ Ref Lab required for _____

_____ Foreign Soil?

This section must be filled out for DoD projects (USACE, Navy, AFCEE):

Yes	No	Yes	N/A	
				Is received temperature <6°C? _____ Was pH verified upon receipt?
				Were containers ice-free? *Notify PM immediately of any ice in samples.* If some cooler temperatures are non-compliant, see form FS-0029 (attached) for samples/analyses affected.
				Was there an airbill? *(If "yes," see attached.)*
				Was cooler sealed with custody seals & were they intact? # / where: _____
				Was there a COC with cooler?
				Was COC sealed in plastic bag & taped inside lid of cooler?
				Was the COC filled out properly? Did labels correspond?
				Did the COC indicate USACE / Navy / AFCEE project?
				Samples were packed to prevent breakage with *(circle one)*: Bubble Wrap / Vermiculite / Other (specify): _____
				Were all samples sealed in separate plastic bags?
				Were all VOCs free of headspace and/or MeOH preserved?
				Were correct container / sample sizes submitted?
				Was the PM notified of arrival so they can send Sample Receipt Acknowledgement to client?

Cooler ID _____ Cooler Temp °C _____ Cooler ID _____ Cooler Temp °C _____

Cooler ID _____ Cooler Temp °C _____ Cooler ID _____ Cooler Temp °C _____

This section must be completed if problems are noted.

Was client notified of problems? Yes / No

By (SGS PM): _____

Individual contacted: _____

Via: Phone / Fax / E-mail *(circle one)*

Date/Time: _____

Reason for contact: _____

Change Order Required? Yes / No

Notes: _____

Completed by (sign): _____ **(print):** Joe Rund

Login proof: **Self-check completed** JJR **Peer-reviewer's initials** JJR

SGS

SAMPLE RECEIPT FORM - Bottle Tracking SGS WO#

#	Container ID	Matrix	Test	QC	TB	Container Volume: 1L	500mL	250mL or 8oz	125mL or 4oz	60mL	40mL	Other:	Container Type: AG	CG	HDPE	Nalgene	Coli	Septa	Other:	Preservative: None	HCl	HNO3	H2SO4	NaOH	Ascorbic Acid	NH4Cl	Other:	*Notes
1-6	A-C	1	GRO/BTex								18		✓					✓		✓	✓							
	D,E	1	DRO			12							✓							✗	✓							
Bottle Totals						12					18																	

* Note: Containers which require (additional) chemical preservation upon receipt must be documented per SOP#106

Completed by: Joe Rund Date: 2/1/10

F042r02 Revised 9/8/2009

SGS

SGS North America Inc.
Alaska Division
Level II Laboratory Data Report

Project:	Doyle's Fuel Service Remedial
Client:	Rozak Engineering
SGS Work Order:	1104485

Released by: Steven Crupi

Digitally signed by Steven Crupi
DN: cn=Steven Crupi, o=Alaska Division, ou=SGS North America Inc., email=steven.crupi@sgs.com, c=US
Date: 2010.09.07 17:46:59 -08'00'

Contents:

Cover Page
Case Narrative
Final Report Pages
Quality Control Summary Forms
Chain of Custody/Sample Receipt Forms

Note:
Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.

SGS

CASE NARRATIVE

Print Date: 9/7/2010

Client Name: Rozak Engineering
Project Name: Doyle's Fuel Service Remedial
Workorder No.: 1104485

Sample Comments

Refer to the sample receipt form for information on sample condition.

Lab Sample ID	Sample Type	Client Sample ID

There were no analytical anomalies associated with the data reported herein.

* QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

SGS

Laboratory Analytical Report

Client: **Rozak Engineering**
P. O. Box 350
Kenai, AK 99611

Attn: **Ron Rozak**
T: (907) 283-5640 F:(907) 283-0747
ronrozak@ak.net

Project: **Doyle's Fuel Service Remedial**

Workorder No.: **1104485**

Certification:

This data package is in compliance with the terms and conditions of the contract, both technically and for completeness, unless otherwise noted on the sample data sheet(s) and/or case narrative. This certification applies only to the tested parameters and the specific sample(s) received at the laboratory. If you have any questions regarding this report, or if we can be of further assistance, please contact your SGS Project Manager.

Steve Crupi

steven.crupi@sgs.com
Project Manager

Contents (Bookmarked in PDF):

Cover Page
Glossary
Sample Summary Forms
Case Narrative
Sample Results Forms
Batch Summary Forms (by method)
Quality Control Summary Forms (by method)
Chain of Custody/Sample Receipt Forms
Attachments (if applicable)

SGS

Print Date: 9/7/2010

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<http://www.sgs.com/terms_and_conditions.htm>), unless other written agreements have been accepted by both parties.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and AK100001 for NELAP (RCRA methods: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6010B, 6020, 7470A, 7471B, 8021B, 8081B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, the National Environmental Laboratory Accreditation Program and other regulatory authorities. The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV	Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 2xDL)
LOQ	Limit of Quantitation (i.e , reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RL	Reporting Limit
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content.
All DRO/RRO analyses are integrated per SOP.

SGS

SAMPLE SUMMARY

Print Date: 9/7/2010 12:28 pm

Client Name: Rozak Engineering
Project Name: Doyle's Fuel Service Remedial
Workorder No.: 1104485

Analytical Methods

Method Description	Analytical Method
BTEX 8021	SW8021B
Diesel Range Organics (W)	AK102

Sample ID Cross Reference

Lab Sample ID	Client Sample ID
1104485001	DFS-RA-10-7 - mw-2
1104485002	DFS-RA-10-8 - mw-5
1104485003	DFS-RA-10-9 - mw-4
1104485004	DFS-RA-10-10 - mw-3
1104485005	DFS-RA-10-11 - mw-7
1104485006	TRIP BLANK-12

SGS

Detectable Results Summary

Print Date: 9/7/2010 12:28 pm

Client Sample ID: **DFS-RA-10-7**
SGS Ref. #: 1104485001

Semivolatile Organic Fuels Department

Parameter	Result	Units
Diesel Range Organics	326J	ug/L

Client Sample ID: **DFS-RA-10-9**
SGS Ref. #: 1104485003

Volatile Fuels Department

Parameter	Result	Units
Benzene	1.04	ug/L
Ethylbenzene	1.07J	ug/L
P & M -Xylene	0.960J	ug/L

Semivolatile Organic Fuels Department

Parameter	Result	Units
Diesel Range Organics	721J	ug/L

Client Sample ID: **DFS-RA-10-10**
SGS Ref. #: 1104485004

Volatile Fuels Department

Parameter	Result	Units
Benzene	0.240J	ug/L

SGS

Rozak Engineering

Print Date: 9/7/2010 12:28 pm

Client Sample ID: **DFS-RA-10-7** MW-2
SGS Ref. #: 1104485001
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/28/10 15:40
Receipt Date/Time: 08/30/10 08:00

Volatile Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Benzene	0.300 U	0.500	0.150	ug/L	1	VFC10123	VXX21232	
Ethylbenzene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
o-Xylene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
Toluene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
1,4-Difluorobenzene <surr>	101	80-120		%	1	VFC10123	VXX21232	

Batch Information

Analytical Batch: VFC10123
Analytical Method: SW8021B
Analysis Date/Time: 09/03/10 20:23
Dilution Factor: 1

Prep Batch: VXX21232
Prep Method: SW5030B
Prep Date/Time: 09/03/10 08:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1104485001-A
Analyst: EAB

SGS

Rozak Engineering Print Date: 9/7/2010 12:28 pm

Client Sample ID: **DFS-RA-10-7** - MW-2
SGS Ref. #: 1104485001
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/28/10 15:40
Receipt Date/Time: 08/30/10 08:00

Semivolatile Organic Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Diesel Range Organics	326J	800	250	ug/L	1	XFC9477	XXX23529	
5a Androstane <surr>	80.7	50-150		%	1	XFC9477	XXX23529	

Batch Information

Analytical Batch: XFC9477
Analytical Method: AK102
Analysis Date/Time: 09/02/10 23:03
Dilution Factor: 1

Prep Batch: XXX23529
Prep Method: SW3520C
Prep Date/Time: 09/01/10 11:20

Initial Prep Wt./Vol.: 1000 mL
Prep Extract Vol.: 1 mL
Container ID: 1104485001-D
Analyst: LCE

SGS

Rozak Engineering

Print Date: 9/7/2010 12:28 pm

Client Sample ID: **DFS-RA-10-8** MW-5
SGS Ref. #: 1104485002
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/28/10 16:20
Receipt Date/Time: 08/30/10 08:00

Volatile Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Benzene	0.300 U	0.500	0.150	ug/L	1	VFC10123	VXX21232	
Ethylbenzene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
o-Xylene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
Toluene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
1,4-Difluorobenzene <surr>	101	80-120		%	1	VFC10123	VXX21232	

Batch Information

Analytical Batch: VFC10123
Analytical Method: SW8021B
Analysis Date/Time: 09/03/10 20:43
Dilution Factor: 1

Prep Batch: VXX21232
Prep Method: SW5030B
Prep Date/Time: 09/03/10 08:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1104485002-A
Analyst: EAB

SGS

Rozak Engineering

Print Date: 9/7/2010 12:28 pm

Client Sample ID: **DFS-RA-10-8** - MW-5
SGS Ref. #: 1104485002
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/28/10 16:20
Receipt Date/Time: 08/30/10 08:00

Semivolatile Organic Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Diesel Range Organics	500 U	800	250	ug/L	1	XFC9477	XXX23529	
5a Androstane <surr>	83.5	50-150		%	1	XFC9477	XXX23529	

Batch Information

Analytical Batch: XFC9477
Analytical Method: AK102
Analysis Date/Time: 09/02/10 23:24
Dilution Factor: 1

Prep Batch: XXX23529
Prep Method: SW3520C
Prep Date/Time: 09/01/10 11:20

Initial Prep Wt./Vol.: 1000 mL
Prep Extract Vol.: 1 mL
Container ID: 1104485002-D
Analyst: LCE

SGS

Rozak Engineering

Print Date: 9/7/2010 12:28 pm

Client Sample ID: **DFS-RA-10-9** MW-4
SGS Ref. #: 1104485003
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/28/10 16:50
Receipt Date/Time: 08/30/10 08:00

Volatile Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Benzene	1.04	0.500	0.150	ug/L	1	VFC10123	VXX21232	
Ethylbenzene	1.07J	2.00	0.620	ug/L	1	VFC10123	VXX21232	
o-Xylene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
P & M -Xylene	0.960J	2.00	0.620	ug/L	1	VFC10123	VXX21232	
Toluene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
1,4-Difluorobenzene <surr>	100	80-120		%	1	VFC10123	VXX21232	

Batch Information

Analytical Batch: VFC10123
Analytical Method: SW8021B
Analysis Date/Time: 09/03/10 21:03
Dilution Factor: 1

Prep Batch: VXX21232
Prep Method: SW5030B
Prep Date/Time: 09/03/10 08:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1104485003-A
Analyst: EAB

SGS

Rozak Engineering

Print Date: 9/7/2010 12:28 pm

Client Sample ID: **DFS-RA-10-9** - MW-4
SGS Ref. #: 1104485003
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/28/10 16:50
Receipt Date/Time: 08/30/10 08:00

Semivolatile Organic Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Diesel Range Organics	721J	800	250	ug/L	1	XFC9477	XXX23529	
5a Androstane <surr>	82.2	50-150		%	1	XFC9477	XXX23529	

Batch Information

Analytical Batch: XFC9477
Analytical Method: AK102
Analysis Date/Time: 09/02/10 23:45
Dilution Factor: 1

Prep Batch: XXX23529
Prep Method: SW3520C
Prep Date/Time: 09/01/10 11:20

Initial Prep Wt./Vol.: 1000 mL
Prep Extract Vol.: 1 mL
Container ID: 1104485003-D
Analyst: LCE

SGS

Rozak Engineering Print Date: 9/7/2010 12:28 pm

Client Sample ID: **DFS-RA-10-10** MW-3
SGS Ref. #: 1104485004
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/28/10 17:30
Receipt Date/Time: 08/30/10 08:00

Volatile Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Benzene	0.240J	0.500	0.150	ug/L	1	VFC10123	VXX21232	
Ethylbenzene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
o-Xylene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
Toluene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
1,4-Difluorobenzene <surr>	99.5	80-120		%	1	VFC10123	VXX21232	

Batch Information

Analytical Batch: VFC10123
Analytical Method: SW8021B
Analysis Date/Time: 09/03/10 21:22
Dilution Factor: 1

Prep Batch: VXX21232
Prep Method: SW5030B
Prep Date/Time: 09/03/10 08:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1104485004-A
Analyst: EAB

SGS

Rozak Engineering Print Date: 9/7/2010 12:28 pm

Client Sample ID: **DFS-RA-10-10** ~MW-3
SGS Ref. #: 1104485004
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/28/10 17:30
Receipt Date/Time: 08/30/10 08:00

Semivolatile Organic Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Diesel Range Organics	500 U	800	250	ug/L	1	XFC9477	XXX23529	
5a Androstane <surr>	80.7	50-150		%	1	XFC9477	XXX23529	

Batch Information

Analytical Batch: XFC9477
Analytical Method: AK102
Analysis Date/Time: 09/03/10 00:06
Dilution Factor: 1

Prep Batch: XXX23529
Prep Method: SW3520C
Prep Date/Time: 09/01/10 11:20

Initial Prep Wt./Vol.: 1000 mL
Prep Extract Vol.: 1 mL
Container ID:1104485004-D
Analyst: LCE

SGS

Rozak Engineering

Print Date: 9/7/2010 12:28 pm

Client Sample ID: **DFS-RA-10-11** MW-7 (POC)
SGS Ref. #: 1104485005
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/28/10 18:20
Receipt Date/Time: 08/30/10 08:00

Volatile Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Benzene	0.300 U	0.500	0.150	ug/L	1	VFC10123	VXX21232	
Ethylbenzene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
o-Xylene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
Toluene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
1,4-Difluorobenzene <surr>	99.3	80-120		%	1	VFC10123	VXX21232	

Batch Information

Analytical Batch: VFC10123
Analytical Method: SW8021B
Analysis Date/Time: 09/03/10 21:42
Dilution Factor: 1

Prep Batch: VXX21232
Prep Method: SW5030B
Prep Date/Time: 09/03/10 08:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID: 1104485005-A
Analyst: EAB

SGS

Rozak Engineering Print Date: 9/7/2010 12:28 pm

Client Sample ID: **DFS-RA-10-11** - mw-7
SGS Ref. #: 1104485005
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/28/10 18:20
Receipt Date/Time: 08/30/10 08:00

Semivolatile Organic Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Diesel Range Organics	500 U	800	250	ug/L	1	XFC9477	XXX23529	
5a Androstane <surr>	83.4	50-150		%	1	XFC9477	XXX23529	

Batch Information

Analytical Batch: XFC9477
Analytical Method: AK102
Analysis Date/Time: 09/03/10 00:27
Dilution Factor: 1

Prep Batch: XXX23529
Prep Method: SW3520C
Prep Date/Time: 09/01/10 11:20

Initial Prep Wt./Vol.: 1000 mL
Prep Extract Vol.: 1 mL
Container ID: 1104485005-D
Analyst: LCE

SGS

Rozak Engineering

Print Date: 9/7/2010 12:28 pm

Client Sample ID: **TRIP BLANK-12**
SGS Ref. #: 1104485006
Project ID: Doyle's Fuel Service Remedial
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/28/10 15:40
Receipt Date/Time: 08/30/10 08:00

Volatile Fuels Department

Parameter	Result	LOQ/CL	DL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Benzene	0.300 U	0.500	0.150	ug/L	1	VFC10123	VXX21232	
Ethylbenzene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
o-Xylene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
Toluene	1.24 U	2.00	0.620	ug/L	1	VFC10123	VXX21232	
1,4-Difluorobenzene <surr>	101	80-120		%	1	VFC10123	VXX21232	

Batch Information

Analytical Batch: VFC10123
Analytical Method: SW8021B
Analysis Date/Time: 09/03/10 22:42
Dilution Factor: 1

Prep Batch: VXX21232
Prep Method: SW5030B
Prep Date/Time: 09/03/10 08:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1104485006-A
Analyst: EAB

SGS

SGS Ref.#	986269	Method Blank	**Printed Date/Time**		09/07/2010 12:28
Client Name	Rozak Engineering		**Prep**	**Batch**	XXX23529
Project Name/#	Doyle's Fuel Service Remedial			**Method**	SW3520C
Matrix	Water (Surface, Eff., Ground)			**Date**	09/01/2010

QC results affect the following production samples:

1104485001, 1104485002, 1104485003, 1104485004, 1104485005

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
Semivolatile Organic Fuels Department					
Diesel Range Organics	500 U	800	250	ug/L	09/02/10
Surrogates					
5a Androstane <surr>	80.1	60-120		%	09/02/10
Batch XFC9477					
Method AK102					
Instrument HP 7890A FID SV E F					

SGS

SGS Ref.#	987283 Method Blank		**Printed Date/Time**		09/07/2010 12:28
Client Name	Rozak Engineering		**Prep**	**Batch**	VXX21232
Project Name/#	Doyle's Fuel Service Remedial			**Method**	SW5030B
Matrix	Water (Surface, Eff., Ground)			**Date**	09/03/2010

QC results affect the following production samples:

1104485001, 1104485002, 1104485003, 1104485004, 1104485005, 1104485006

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
Volatile Fuels Department					
Benzene	0.300 U	0.500	0.150	ug/L	09/03/10
Ethylbenzene	1.24 U	2.00	0.620	ug/L	09/03/10
o-Xylene	1.24 U	2.00	0.620	ug/L	09/03/10
P & M -Xylene	1.24 U	2.00	0.620	ug/L	09/03/10
Toluene	1.24 U	2.00	0.620	ug/L	09/03/10
Surrogates					
1,4-Difluorobenzene <surr>	101	80-120		%	09/03/10
Batch VFC10123					
Method SW8021B					
Instrument HP 5890 Series II PID+HECD VBA					

SGS

SGS Ref.#	986270	Lab Control Sample	**Printed Date/Time**	09/07/2010	12:28
	986271	Lab Control Sample Duplicate	**Prep Batch**	XXX23529	
Client Name	Rozak Engineering		**Method**	SW3520C	
Project Name/#	Doyle's Fuel Service Remedial		**Date**	09/01/2010	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1104485001, 1104485002, 1104485003, 1104485004, 1104485005

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Semivolatile Organic Fuels Department								
Diesel Range Organics	LCS	4440	89	(75-125)			5000 ug/L	09/02/2010
	LCSD	4290	86		3	(< 20)	5000 ug/L	09/02/2010
Surrogates								
5a Androstane <surr>	LCS		82	(60-120)				09/02/2010
	LCSD		79		3			09/02/2010

Batch XFC9477
Method AK102
Instrument HP 7890A FID SV E F

SGS

SGS Ref.#	987284	Lab Control Sample	**Printed Date/Time**	09/07/2010	12:28
	987285	Lab Control Sample Duplicate	**Prep Batch**	VXX21232	
Client Name	Rozak Engineering		**Method**	SW5030B	
Project Name/#	Doyle's Fuel Service Remedial		**Date**	09/03/2010	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1104485001, 1104485002, 1104485003, 1104485004, 1104485005, 1104485006

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department								
Benzene	LCS	99.3	99	(80-120)			100 ug/L	09/03/2010
	LCSD	101	101		2	(< 20)	100 ug/L	09/03/2010
Ethylbenzene	LCS	98.0	98	(87-125)			100 ug/L	09/03/2010
	LCSD	99.3	99		1	(< 20)	100 ug/L	09/03/2010
o-Xylene	LCS	99.3	99	(85-120)			100 ug/L	09/03/2010
	LCSD	100	100		1	(< 20)	100 ug/L	09/03/2010
P & M -Xylene	LCS	197	99	(87-125)			200 ug/L	09/03/2010
	LCSD	199	100		1	(< 20)	200 ug/L	09/03/2010
Toluene	LCS	98.5	99	(80-120)			100 ug/L	09/03/2010
	LCSD	100	100		2	(< 20)	100 ug/L	09/03/2010
Surrogates								
1,4-Difluorobenzene <surr>	LCS		106	(80-120)				09/03/2010
	LCSD		105		1			09/03/2010

Batch	VFC10123
Method	SW8021B
Instrument	HP 5890 Series II PID+HECD VBA

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

Loc
- Alaska
- New Jers
- North Car
- West Virg

1104485

(1)
CLIENT: ROZAK ENGINEERING
CONTACT: Ron Rozak PHONE NO: 907-252-5640
PROJECT NAME: Doyle's Fuel Service PROJECT/PWSID/PERMIT#: Remedial Action
REPORTS TO: ROZAK ENGINEERING 1201 DENALI ST #303 EMAIL: ronrozak@ak.net
INVOICE TO: ANCHORAGE, AK 99501 QUOTE #:
SAME AS REPORTS P.O. #:

SGS Reference #:

page 1 of 1

(2)

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE C=COMP G=GRAB M=Multi Incremental Samples	Preservatives Used	AK 102 (DRO) HCL	8021b (BTEX) HCL	(3) Analysis Required	REMARKS/ LOC ID
(1) A-E	PFS-RA-10-7	8-28-10	1540	WATER	5	G		✓	✓		MW-2
(2)	-8		1620		5	G		✓	✓		MW-5
(3)	-9		1650		5	G		✓	✓		MW-4
(4)	-10		1730		5	G		✓	✓		MW-3
(5) ↓	-11	↓	1820	↓	5	G		✓	✓		MW-7
(6) A-C	TRIP BLANK -12								✓		ID 978791

(5)

Collected/Relinquished By: (1)	Date	Time	Received By:
Ronald T Rozak	8/30/10	0800	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date 8/30/10	Time 0800	Received For Laboratory By:

(4)

DOD Project? YES NO

Cooler ID

Data Deliverable Requirements: LEVEL II

Requested Turnaround Time and-or Special Instructions: STANDARD

Temperature Blank °C: 1.8 ICE

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

SGS

1104485

SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	Yes No (N/A) ~~Yes~~ No N/A	
Temperature blank compliant* (i.e., 0-6°C after correction factor)? * *Note: Exemption permitted for chilled samples collected less than 8 hours ago.* Cooler ID: 1 @ 1.8 w/ Therm.ID: 107 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ *Note: If non-compliant, use form FS-0029 to document affected samples/analyses.* If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled." **If temperature(s) <0°C, were all sample containers ice free?**	(Yes) No N/A Yes No (N/A)	
Delivery method (specify all that apply): (Client) USPS Alert Courier Road Runner AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other:	Note airbill/tracking # See Attached or N/A	
→ For samples received with payment, note amount ($) and cash / check / CC (circle one).		N/A
→ For samples received in FBKS, ANCH staff will verify all criteria are reviewed.	SRF Initiated by:	N/A
Do samples **match COC*** (i.e., sample IDs, dates/times collected)? * *Note: Exemption permitted if collection times differ by less than an hour; in which case, the times on the COC will be used.* Are analyses requested unambiguous?	(Yes) No N/A (Yes) No N/A	
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): ~~Bubble Wrap~~ Separate plastic bags Vermiculite Other:	(Yes) No N/A	
Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB? Were the bottles provided by SGS? (Note apparent exceptions.)	(Yes) No N/A Yes No (N/A)	
Were **proper containers** (type/mass/volume/preservative*) used? * *Note: Exemption permitted for waters to be analyzed for metals.* Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	(Yes) No N/A (Yes) No N/A	
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant?** If pH was adjusted, were bottles flagged (i.e., stickers)? *Refer to attached bottle sheet (form F066) for documentation.*	(Yes) No N/A Yes No (N/A)	
For **RUSH** or **SHORT HOLD TIME** samples, were the COC & this SRF flagged, bottles flagged (e.g., stickers) and lab notified?	Yes No (N/A)	
For client requested, **site-specific QC** (e.g., MS/MSD/DUP), were bottles flagged (e.g., stickers) and numbered accordingly?	Yes No (N/A)	
For **special handling** (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No (N/A)	
Was the WO# recorded in Front Counter/Sample Receiving log? **For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?**	(Yes) No N/A Yes No N/A	SRF Completed by: Bottle Sheet by: PM = N/A
Was **PEER REVIEW** of sample numbering completed (i.e., compare WO# on containers to COC, container ID on containers to COC, unique lab ID on each container?)	(Yes) No N/A	Peer Reviewed by: JSH Metrics: 1020
Additional notes (if applicable):		

WO# (7 digits)	Sample # - Sample #	Container ID - Container ID	Matrix	QC	Preservative (CHECKED)	TEST GROUP	PRINT LABELS	Notes: ANOMALIES - *e.g., preservative added* or SPECIAL HANDLING - *e.g., Multi-Incremental (MI), Field Filter (FF), Lab Filter (LF), use "same jar as" (SJA) for QC, 2xMeOH, bubbles, etc.*
SAMPLE ID			TYPE		CONTAINERS	ANALYSIS		Type comments below:
1104485	001	005 A C	1 Water		HCl * VOA or LL-Hg *	W_GRO/VOA		
1104485	001	005 D E	1 Water		HCl (pH <2)	W_DRO_1L		
1104485	006	006 A C	1 Water	Trip Blank	HCl * VOA or LL-Hg *	W_GRO/VOA		

RE: REMEDIAL ACTION CONFIRMATION
FORMER DOYLE'S FUEL SERVICE, KENAI
ADEC FILE ID 2320.38.015
SGS W.O. 1104485 **Laboratory Data Review Checklist** - BY RT ROZAK

1. Laboratory
   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
      ☒ Yes ☐ No Comments:

   X b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
      ☐ Yes ☐ No Comments: NA

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      ☒ Yes ☐ No Comments:

   b. Correct analyses requested?
      ☒ Yes ☐ No Comments:

3. Laboratory Sample receipt documentation
   a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
      ☒ Yes ☒ No Comments: Samples were received at 1.8°C

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?
      ☒ Yes ☐ No Comments:

   c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?
      ☒ Yes ☐ No Comments: ok

   d. If there were any discrepancies, were they documented? – For example, incorrect sample containers/preservation, sample temperature outside of acceptance range, insufficient or missing samples, etc.?
      ☐ Yes ☐ No Comments: None

   e. Data quality or usability affected? Explain Okay

4. Case Narrative
   a. Present and understandable?
      ☒ Yes ☐ No Comments:

   b. Discrepancies, errors or QC failures identified by the lab?
      ☐ Yes ☒ No Comments: None

c. Were all corrective actions documented?
☐ Yes ☐ No Comments: NA

d. What is the effect on data quality/usability according to the case narrative? NA

5. Samples Results
   a. Correct analyses performed/reported as requested on COC?
   ☒ Yes ☐ No Comments:

   b. All applicable holding times met?
   ☒ Yes ☐ No Comments:

   c. All soils reported on a dry weight basis?
   ☐ Yes ☐ No Comments: N/A

   d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?
   ☒ Yes ☐ No Comments:

   e. Data quality or usability affected? Explain No
   several estimated "J" results were < 1/2 the cleanup level.

6. QC Samples
   a. Method Blank
      i. One method blank reported per matrix, analysis and 20 samples?
      ☒ Yes ☐ No Comments:

      ii. All method blank results less than PQL?
      ☒ Yes ☐ No Comments:

      iii. If above PQL, what samples are affected?

      iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
      ☐ Yes ☐ No Comments: N/A

      v. Data quality or usability affected? Explain No

   b. Laboratory Control Sample/Duplicate (LCS/LCSD)
      i. Organics - One LCS/LCSD reported per matrix, analysis and 20 samples?
      ☒ Yes ☐ No Comments:

ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? N/A

☐ Yes ☐ No Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? Or project specified DQOs? (AK Petroleum methods 75-125 %R; all other analyses see the laboratory QC pages)

☒ Yes ☐ No Comments:

iv. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? Or project specified DQOs? (AK Petroleum methods 20 %; all other analyses see the laboratory QC pages)

☒ Yes ☐ No Comments:

v. If %R or RPD outside of acceptable limits, what samples are affected?

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☒ No Comments:

vii. Data quality or usability affected? Explain okay

c. Surrogates – Organics only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

☒ Yes ☐ No Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? Or project specified DQOs? (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

☒ Yes ☐ No Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☐ Yes ☐ No Comments: N/A

iv. Data quality or usability affected? Explain okay

d. Trip Blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): water and soil

i. One trip blank reported per matrix, analysis and cooler?

☒ Yes ☐ No Comments: BTEX only

ii. All results less than PQL?
☒ Yes ☐ No Comments:
iii. If above PQL, what samples are affected?

iv. Data quality or usability affected? Explain N/ROY

e. Field Duplicate
i. One field duplicate submitted per matrix, analysis and 10 project samples?
☐ Yes ☒ No Comments: 1 set of containers was broken (accidently)

ii. Submitted blind to lab?
☐ Yes ☒ No Comments:

iii. Precision - All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)
☐ Yes ☐ No Comments:

iv. Data quality or usability affected? Explain

f. Decontamination or Equipment Blank (if applicable) N/A
☐ Yes ☐ No ☐ Not Applicable

i. All results less than PQL?
☐ Yes ☐ No Comments:

ii. If above PQL, what samples are affected?

iii. Data quality or usability affected? Explain

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab specific, etc.) N/A
a. Defined and appropriate
☐ Yes ☐ No Comments:

Completed by: Ronald T. Rozak, P.E
Title: Principal Investigator Date: 2/18/11
Report Name: Doyle's Fuel Service Remedial Report Date: 9.7.2010
Firm: ROZAK ENGINEERING File Number: SGS W.O. 1104485