# **3R-141**

# **Monitor Well Installation Report** And **Quarterly Report** Date: 6/2006



### MONITOR WELL INSTALLATION AND QUARTERLY MONITORING REPORT

### AT:

### NORTH HOGBACK 12-1, 12-4, AND 12-9 NAVAJO NATION SAN JUAN COUNTY, NEW MEXICO

District Copy For Scanning Only Has NOT been processed.

For: MR. STEVE FALLIN, PRODUCTION MANAGER DUNCAN OIL 1777 SOUTH HARRISON – PENTHOUSE ONE DENVER, COLORADO 80210



### **PROJECT NO. 05161-002**

### **JULY 2006**

5796 U.S. HIGHWAY 64 • FARMINGTON, NM 87401 • (505) 632-0615

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

July 24, 2006

Project No. 05161-002

Mr. Brandon Powell NMOCD 1000 Rio Brazos Road Aztec, NM 87410

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### **RE:** MONITOR WELL INSTALLATION AND QUARTERLY MONITORING REPORT

Dear Mr. Powell:

Enclosed please find one (1) copy of the report entitled, *Monitor Well Installation and Quarterly Monitoring Report.* This report details the drilling, monitor well installation, and quarterly monitoring for the North Hogback 12-1, 12-4, and 12-9 locations on the Navajo Nation in San Juan County, New Mexico.

We appreciate the opportunity to be of service. If you should have any questions or require additional information, please contact our office at (505) 632-0615.

Respectfully Submitted, ENVIROTECH, INC.

Greg W. Crabtree, EIT Environmental Engineer gcrabtree@envirotech-inc.com

Enclosure:

One (1) copy

### DUNCAN OIL MONITOR WELL INSTALLATION AND QUARTERLY MONITORING REPORT NORTH HOGBACK 12-1, 12-4, AND 12-9 NAVAJO NATION SAN JUAN COUNTY, NEW MEXICO

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### INTRODUCTION

Envirotech, Inc. has completed the installation of seven (7) monitor wells at the Duncan Oil North Hogback 12-1, 12-4, and 12-9 well sites. The drilling was necessary due to the presence of contaminated groundwater at the sites. Contaminated soil was excavated from the sites in September and October of 2005. The contaminated soil was hauled to Envirotech's NMOCD permitted landfarm at Hilltop, NM for remediation. Water samples collected at the time of excavation indicated that the three (3) sites previously referenced had contaminants in the groundwater above the guidelines set forth by the USEPA and adopted by the NNEPA.

### DRILLING AND SOIL SAMPLING PERFORMED

### North Hogback 12-9

On June 26, 2006 Envirotech personnel mobilized to the site to perform monitor well installation at the North Hogback 12-9 site. One (1) monitor well was installed in the middle of the excavated area; the other monitor well was installed down gradient approximately 120 feet to the north. Drill cuttings were analyzed every five (5) feet with use of an Organic Vapor Meter (OVM). A soil sample was also collected from the water/soil interface and analyzed for Total Petroleum Hydrocarbons (TPH) via USEPA Method 8015. Lithology logs were completed on the drill cuttings and are included in *Appendix A*, *Lithology Logs*. The results of the analysis are shown in **Table 1** below.

Sample ID	Monitor	Well #1	Monitor	r Well #2
	OVM (ppm)	TPH (ppm)	OVM (ppm)	TPH (ppm)
Sample at 5 feet Below Ground Surface	0		0	
Sample at 10 feet BGS (soil water interface)	17	15.8	30	42.1
Sample at 15 feet Below Ground Surface	8		5	
Sample at 20 feet Below Ground Surface	2			

Table 1: Summary of Laboratory Results for Soil from MW-1 and MW-2 at N. Hogback 12-9

Soil samples from the drill cuttings were also analyzed via USEPA Method 8021B for benzene, ethylbenzene, toluene and total xylenes. These results are summarized in **Table 2** below. All contaminants of concern analyzed for are below the regulatory levels for soil; see Appendix B, Laboratory Soil Sample Results.

Table 2: Summary of BTEX Results for Soil from MW-1 and MW-2 at N. Hogback 12-9

Sample ID	Monitor Well #1	Monitor Well #2
Benzene	ND	ND
Toluene	3.1	ND
Ethylbenzene	ND	ND
Total Xylenes	14.8	ND

Duncan Oil North Hogback Monitor Well Installation July 20, 2006 Project #05161-002 Page 2

#### North Hogback 12-1

Work on the North Hogback 12-1 began on June 28, 2006. Two (2) monitor wells were installed at this location. The first monitor well was installed in the middle of the previously excavated area. The second monitor well was installed approximately 100 feet to the north-northwest, see *Figure 2, North Hogback 12-9 and 12-1 Site Map*. Both monitor wells were installed to a depth of 20 feet BGS. A well consolidated shale layer was encountered at 18 feet BGS in MW-1 and 16 feet BGS in MW-2. Only a small amount of moisture was encountered at approximately 15 feet BGS in both monitor wells.

Drill cuttings were analyzed at five (5) feet increments. The results of the analysis are shown in **Table 3** and **Table 4** below. Lithology Logs were also completed on the monitor wells and can be seen in *Appendix A*, *Lithology Logs*.

Sample ID	ble ID Monitor Well #1		Monitor	r Well #2
	OVM (ppm)	TPH (ppm)	OVM (ppm)	TPH (ppm)
Sample at 5 feet Below Ground Surface	0		5	
Sample at 10 feet Below Ground Surface	6		4	
Sample at 15 feet Below Ground Surface	2	ND	67	345
Sample at 20 feet Below Ground Surface	3		76	

Table 3: Summary of Laboratory Results for Soil from MW-1 and MW-2 at N. Hogback 12-1

Table 4: Summary of BTEX Results for Soil from MW-1 and MW-2 at N. Hogback 12-1

Sample ID	Monitor Well #1	Monitor Well #2
Benzene	ND	55.2
Toluene	5.2	34.7
Ethylbenzene	5.0	26.3
Total Xylenes	20.5	206.6

The high amounts of Total Petroleum Hydrocarbons and BTEX in the sample collected from MW-2 indicate that there has been water present in the past at this location. Water in this area is from a perched water table whose source may be from a nearby irrigation canal. This would suggest that the water table in this area will have a large seasonal variation. This could also explain why no water was encountered during the drilling process. Complete laboratory results for the above soil samples can be viewed in *Appendix B, Laboratory Soil Sample Results*.

### North Hogback 12-4

Monitor well installation at the North Hogback 12-4 began on June 29, 2006 with the final two (2) monitor wells being installed on June 30, 2006. All three (3) monitor wells were drilled to a depth of approximately 10 feet. Approximately 2.0 feet of flowing sands entered the soil boring

of monitor well # 1 (MW-1) prior to the monitor well being installed. Drill cuttings were analyzed every five (5) feet with the use of an OVM.

Soil samples were also collected from the soil water interface and analyzed in the laboratory for TPH and BTEX via USEPA Method 8015 and 8021B respectively. **Tables 5 and 6** below summarize the field and laboratory results for TPH and OVM. Complete Laboratory results for the above soil samples can be viewed in *Appendix B, Laboratory Soil Sample Results*.

Sample ID N	Monitor	Well #1	Monitor Well #2		Monitor	Well #3
	OVM (ppm)	TPH (ppm)	OVM (ppm)	TPH (ppm)	OVM (ppm)	TPH (ppm)
Sample at 5 feet Below Ground Surface	3		3		3	
Sample at soil water interface	79	84.7	0	ND	1	ND
Sample at 10 feet Below Ground Surface	30		0		1	

Table 5: Summary of Laboratory Results for Soil from MW-1, MW-2, and MW-3 at N. Hogback 12-4

Table 6: Summary of BTEX Results for Soil from MW-1, MW-2, and MW-3 at N. Hogback 12-4

Sample ID	Monitor Well #1	Monitor Well #2	Monitor Well #3
Benzene	ND	3.7	ND
Toluene	27.1	4.6	2.0
Ethylbenzene	30.6	5.6	ND
Total Xylenes	140	50.4	9.7

### SURVEYING

Envirotech personnel returned to the site to survey the monitor well locations and collect groundwater samples at each monitor well. Surveying was performed using a total station. A spot was selected at the edge of the hill next to the river valley. This location was chosen since all seven (7) monitor wells and the Bench Mark could be seen from this location. Distance and direction from the set up location were noted for each monitor well as well as the dry hole marker for the 12-1, 12-4, and 12-9 well sites. Due to the scale of the map, the 12-9 and 12-1 sites are plotted on *Figure 2* and 12-4 is plotted on *Figure 3*.

### GROUNDWATER SAMPLING AND ANALYSIS

Groundwater sampling was performed on only five (5) of the seven (7) monitor wells. No water was observed in either monitor well at the North Hogback 12-1 well site. Prior to sampling a minimum of three (3) well volumes of water was bailed out of each well with a new disposable bailer.

Duncan Oil North Hogback Monitor Well Installation July 20, 2006 Project #05161-002 Page 4

Water Levels were calculated from the surveying data to draw a water level map. Since only two (2) monitor wells at the 12-1 and 12-9 sites had water, a groundwater gradient could not be determined for these sites. Water levels for these sites are shown on *Figure 4*. A water level map with the water gradient indicated is shown in *Figure 5* for the North Hogback 12-4. It appears that the groundwater is moving from east-northeast to west-southwest across the site. Water levels for the individual wells are tabulated in **Table 7** below.

Name	Casing Elevation	Water Level	Water Elevation
N. Hogback 12-1 MW-1	5025.84	Dry,	
N. Hogback 12-1 MW-2	5027.47	Dry	
N. Hogback 12-9 MW-1	5026.12	14.94	5011.18
N. Hogback 12-9 MW-2	5025.61	10.97	5014.64
N. Hogback 12-4 MW-1	4966.45	6.57	4959.88
N. Hogback 12-4 MW-2	4966.60	6.94	4959.66
N. Hogback 12-4 MW-3	4967.44	8.8	4958.64

Table 7: Water Levels

#### North Hogback 12-9

Samples were collected from the two (2) monitor wells at the North Hogback 12-9 and analyzed for lead, manganese, and iron via USEPA Method 6010B. Results from this are summarized in **Tables 8 and 9** below and laboratory certificates are presented in *Appendix C, Laboratory Water Sample Results*.

Analyte	Monitor Well #1	Monitor Well #2	<b>Regulated Level</b>
Iron (ppm)	0.541	ND	1.0
Manganese (ppm)	0.280	0.224	0.2
Lead (ppm)	ND	ND	0.050

Table 8: Summary of Laboratory Metals Analysis for North Hogback 12-9

Values in **bold** exceed the USEPA regulated level

#### North Hogback 12-1

No groundwater samples could be collected at the 12-1 well site. The monitor wells at this location did not have measurable amounts of water in them. Water levels will be rechecked at the next quarterly monitoring event.

#### North Hogback 12-4

All three (3) monitor wells at this location were sampled for BTEX via USEPA method 8021B. Prior to sampling three (3) well volumes were bailed from each well. The contaminants of concern analyzed for in Method 8021B are all below the regulated levels. A summary of the laboratory results is presented in **Table 9** below. All the contaminants of concern are below the EPA's regulated level for groundwater at the 12-4 site.

Duncan Oil North Hogback Monitor Well Installation July 20, 2006 Project #05161-002 Page 5

Analyte	Monitor Well #1	Monitor Well #2	Monitor Well #3	<b>Regulated Level</b>
Benzene (ppb)	1.2	1.6	1.3	5.0
Toluene (ppb)	5.9	1.8	0.4	1,000
Ethylbenzene (ppb)	23.4	1.6	0.8	700
Total Xylenes (ppb)	16.7	8.7	2.8	10,000

 Table 9: Summary of Laboratory BTEX Analysis for North Hogback 12-4

#### SUMMARY AND CONCLUSIONS

Envirotech has completed the installation of seven (7) monitor wells and the first quarter of sampling at the North Hogback 12-1, 12-4, and 12-9 well sites. All of the contaminants of concern analyzed for are below the EPA's regulated level at the North Hogback 12-4. Envirotech recommends two (2) additional quarters of sampling at this location. At the 12-9 location, manganese was slightly higher than the regulated level in both monitor wells at 0.28 and 0.224 ppm respectively. Envirotech recommends an additional three (3) quarters of sampling at this location. Since no sample was able to be collected from the 12-1 locations, Envirotech recommends checking the water level each quarter for an additional three (3) quarters. Samples from the 12-1 will be collected if a sufficient amount of water is present.

We appreciate the opportunity to be of service. Should you have any questions or require additional information, please contact our office at (505) 632-0615.

Respectfully submitted, ENVIROTECH, INC.

Greg Crabtree, EIT Environmental Engineer gcrabtree@envirotech-inc.com

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Morris

President NMCES #038 myoung@envirotech-inc.com

COLLINS, P.G. 0 m ŝ CEPTIFIED SCIENTIS AND YOUNG C ~



### FIGURES

3

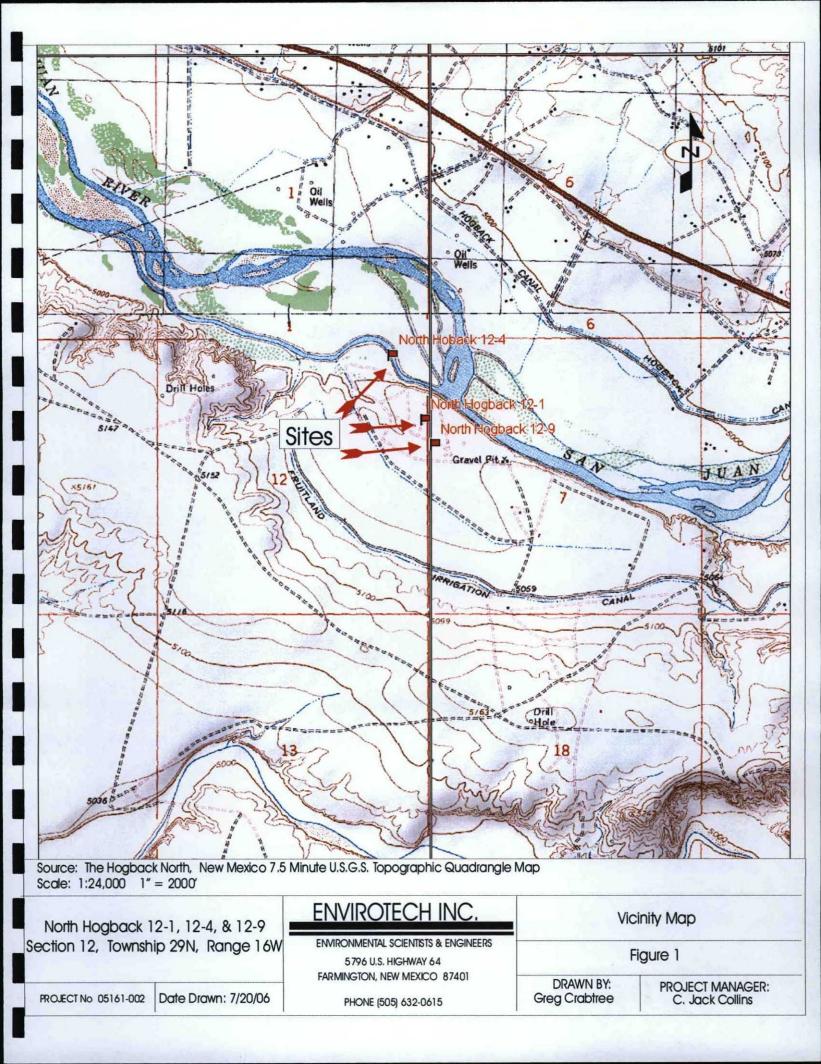
Figure 1, Vicinity Map

Figure 2, North Hogback 12-1 and 12-9 Site Map

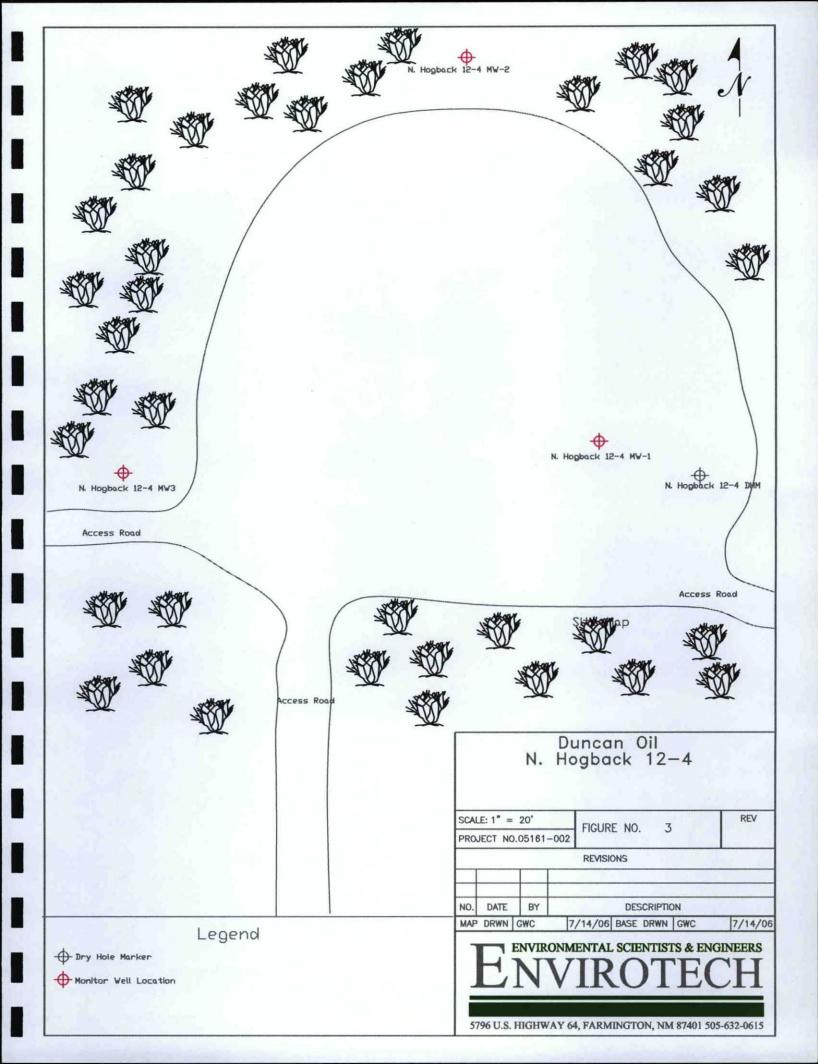
Figure 3, North Hogback 12-4 Site Map

Figure 4, North Hogback 12-1 and 12-9 Water Level Map

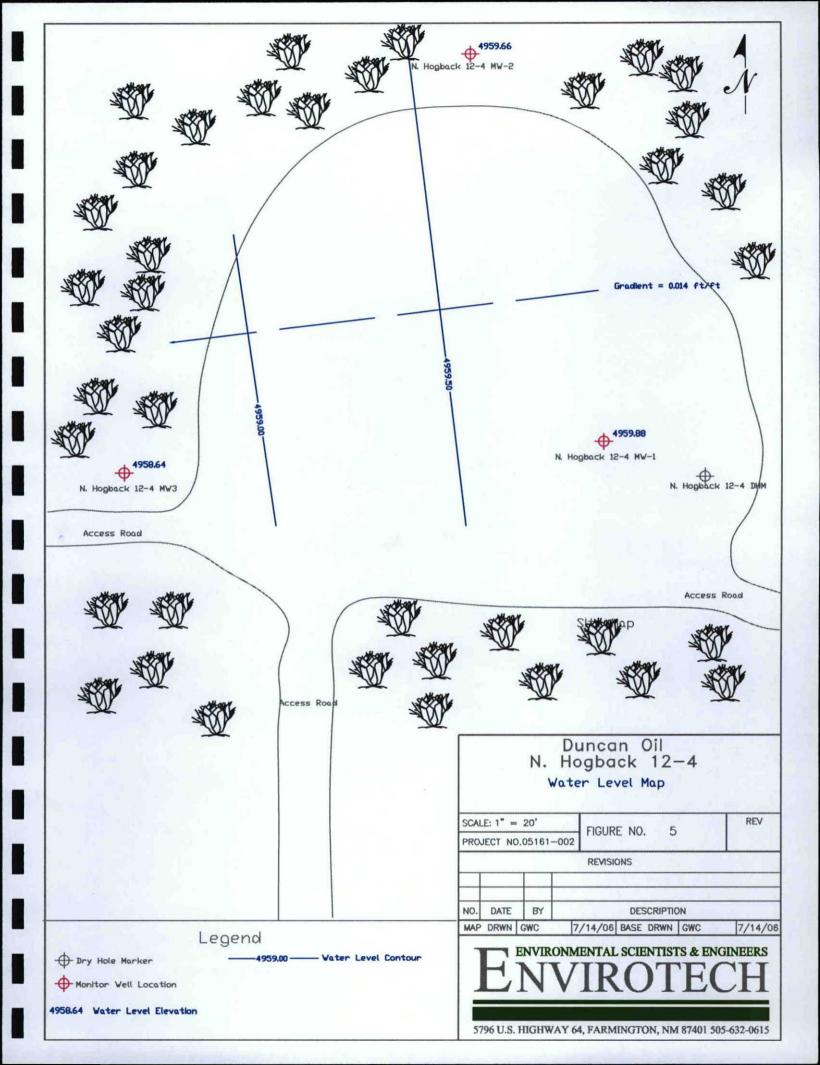
Figure 5, North Hogback 12-4 Water Level Map



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	Duncan Oil North Hogback 12–1 and 12–9 Site Map
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APPENDIX A

Lithology Logs

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	LOCKING PLUG	ABOVE GRADE WELL COMPLETION DIAGRAM / LITHOLOGY LOG MW 12-4 MW	7-3
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	Pumped 2.5 Gallons of Water Remarks:		-
	No Water encountered		
			_
		BIT SIZE: LOCATION: N. Hogback 12-4	_
	DRILLING COMPANY: Envirotech	TOTAL BORING DEPTH:     10'     ELEVATION:       DATE STARTED:     6/30/06     DATE COMPLETED     6/30/06	
		SAMPLER TYPE: Cuttings GEOLOGIST: Greg Crabtree	-
	Duncan Oil North Hogback 12-4	ENVIROTECH INC. MW-3	
	REVISIONS           BY         DATE           BY         DATE   JOB # 05161-00	2 ENVRONMENTAL SCIENTISTS & ENGINEERS 5796 U.S. HIGHWAY 64 FARMINGTON, NEW MEXICO 87401 (505) 632-0615 AbVGrdlog.dwg	= 1 DE 1

		AB			ADE WELL COMPLETION
	LOCHING CA	ip Of Casing			SB
oppet	STICK и	IP (FT.)	E HEADSP	ACE UNHOL	SAMPLE DESCRIPTION
		-			fill, light brown sand, dry, no odor
	1145	С	0		
2.0 NCH PVC FLUSH MT. THREADED SCHO 40 CASING		_			
SCHO 40 CISING					
			17		
	1205	C	17	•	sand and clay mixture, Dark gray, moist, slight odor
6'6" TOP SAND					
9'6" TOP SOREEN	1 F	-			WL on 7/5/06
SCHD 40 FLUSH ANT THREADED SCREEN	1220	С	8	78	very moist, dark gray sand/clay with some cobble, slight odor
		-		S.	
9' 6' BTM SCREEN				X	
20 TOTAL DEPTH	1300	С	2	Q.	dry, light gray sand with some cobble
Well Materials U				K	
4 Sks 10-12 S	ilica Sand				
1/2 Sks Bentonite Sks Class "A"					
Sks Quickcret		-			
10 Ft Screen					
Well Development:	-	-			
Pumped Gallons of	of Water				24 24
Remarks:	F				
	F				
		-			
DRILLER: Danny Padill	a	BIT	SIZE.		LOCATION: N. Hogback 12-9
HELPER: Brandon Ben	nally	TOT	AL BC	RING I	DEPTH: ELEVATION:
DRILLING COMPANY:		DAT	E STA	RTED:	5/19/06 DATE COMPLETED6/26/06
DRILLING METHOD: _T	udex	SAN	APLER	IYPE:	Cuttings GEOLOGIST: Greg Crabtree
Duncan North Hogb			Er	NVIR	ROTECH INC. MW-1
REVISIONS BY DATE BY DATE	јов # <u>05161</u> .	<u>-0</u> 02	ENV	571	TAL SCIENTISTS & ENGINEERS 96 U.S. HIGHWAY 64 STON, NEW MEXICO 87401 (505) 632-0615 Advortingedag

ſ		
	A	BOVE GRADE WELL COMPLETION
		DIAGRAM / LITHOLOGY LOG MW 12-9 MW-
	STEEL WELL TOP OF CAS	
		sing SB
	CONCRETE SURFACE V	
	Defet	A A A A
	WHEN THE STATE	The HEAD'S LITHELOC DESCRIPTION DEPT
ł	0.0 TOP BENT	sand/cobbles light brown
		2 0 sand/cobbles light brown
		C 0 sand/cobbles light brown
	2.0 INCH PVC FLUSH	
	SCHD 40 CASING	WL at 8.5 feet on 7/5/06
	1515 0	
	0945 0	
		Stand Coboles light olowin, moist
ł	4'1" TOP SAND	
	4'6" TOP SCREEN	
t		
	2 NCH PVC 0.010 SCH0 40 PULSH ANT 1000 C	5 very moist, dark gray sand/clay with some cobble $TD = 15'$
1		
t	14'6" ETM SCREEN	
Ī		
	Well Materials Used:	
	_6_Sks 10-12 Silica Sand	
	1 Sks Bentonite Chips	
	Sks Class "A" Cement Sks Quickcrete	
	10 Ft Blank Casing	
	10 Ft Screen	
	Well Development:	
	X Bailed	
	2.5 Gallons of Water	
	Remarks:	
	DRILLER: Danny/Kelly Padilla B	IT SIZE: LOCATION: N. Hogback 12-9
	HELPER: Brandon Benally / Sue Smith	OTAL BORING DEPTH:         15'         ELEVATION:         Image: Content of the second secon
		DATE STARTED: DATE COMPLETED6/28/06
		AMPLER TYPE:CuttingsGEOLOGIST:Greg Crabtree
	DRILLING METHOD: S	MMFLER ITPE: GEULUGIST: GEULUGIST:
	Duncan Oil	
	North Hogback 12-9	ENVIROTECH INC. MW-2
	TOTAL HOGOWA 12-7	
	REVISIONS	ENVIRONMENTAL SCIENTISTS & ENGINEERS 5796 U.S. HIGHWAY 64 EADIMUTTON AND BUT AND A COMPANY AND
	BY DATE JOB # 05161-002	FARMINGTON, NEW MEXICO 87401 (505) 632-0615 SCALE APPROVED OF
	BY DATE 508 # 05101-002	AbsGrdlogdwg SCALE APPROVED 1

### APPENDIX B

Laboratory Soil Sample Results

### **ENVIROTECH LABS** PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

### EPA METHOD 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

Client:	Duncan Oil	Project #:	05161-002
Sample ID:	MW #1	Date Reported:	06-30-06
Laboratory Number:	37595	Date Sampled:	06-28-06
Chain of Custody No:	1110	Date Received:	06-28-06
Sample Matrix:	Soil	Date Extracted:	06-29-06
Preservative:	Cool	Date Analyzed:	06-30-06
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)	
Gasoline Range (C5 - C10)	ND	0.2	
Diesel Range (C10 - C28)	ND	0.1	
Total Petroleum Hydrocarbons	ND	0.2	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: N. Hogback 12 - #1

un l. Qu en Analyst

Mistine Maeter

## PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

### EPA METHOD 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

Client:	Duncan Oil	Project #:	05161-002
Sample ID:	MW #2	Date Reported:	06-30-06
Laboratory Number:	37596	Date Sampled:	06-28-06
Chain of Custody No:	1110	Date Received:	06-28-06
Sample Matrix:	Soil	Date Extracted:	06-29-06
Preservative:	Cool	Date Analyzed:	06-30-06
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	3.4	0.2
Diesel Range (C10 - C28)	342	0.1
Total Petroleum Hydrocarbons	345	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: N. Hogback 12 - #1

Analyst

Mustine m Walter Review

## PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

### EPA Method 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

### **Quality Assurance Report**

Client:	QA/QC		Project #:	N/A	
Sample ID:	06-30-06 QA/0	20	Date Reported:		06-30-06
Laboratory Number:	37592		Date Sampled:		N/A
Sample Matrix:	Methylene Chlor	ide	Date Received:		N/A
Preservative:	N/A		Date Analyzed:		06-30-06
Condition:	N/A		Analysis Reque	sted:	TPH
	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	02-04-05	9.9794E+002	9.9894E+002	0.10%	0 - 15%
Diesel Range C10 - C28	02-04-05	1.0014E+003	1.0034E+003	0.20%	0 - 15%
Blank Conc. (mg/L - mg/Kg)		Concentration		Detection Limit	1.1.1.2
Gasoline Range C5 - C10		ND		0.2	
Diesel Range C10 - C28		ND		0.1	
Total Petroleum Hydrocarbons		ND		0.2	
Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range	
Gasoline Range C5 - C10	ND	ND	0.0%	0 - 30%	
Diesel Range C10 - C28	ND	ND	0.0%	0 - 30%	
Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	ND	250	250	100.0%	75 - 125%

ND - Parameter not detected at the stated detection limit.

**References:** 

Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments:

QA/QC for Samples 37592 - 37593, 37595 - 37596, 37598 - 37602.

Analyst

mistere on Waeters Review

### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

		2	Det.	
Condition:	Cool & Intact	Analysis Requested:	BTEX	
Preservative:	Cool	Date Extracted:	06-29-06	
Sample Matrix:	Soil	Date Analyzed:	06-30-06	
Chain of Custody:	1110	Date Received:	06-28-06	
Laboratory Number:	37595	Date Sampled:	06-28-06	
Sample ID:	MVV #1	Date Reported:	06-30-06	
Client:	Duncan Oil	Project #:	05161-002	-

		Det.	
Parameter	Concentration (ug/Kg)	Limit (ug/Kg)	
Benzene	ND	1.8	
Toluene	5.2	1.7	
Ethylbenzene	5.0	1.5	
p,m-Xylene	13.3	2.2	
o-Xylene	7.2	1.0	
Total BTEX	30.7		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	97.0 %
	1,4-difluorobenzene	97.0 %
	Bromochlorobenzene	97.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: N. Hogback 12 - #1

Analyst

hristine Water Review

## PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Duncan Oil	Project #:	05161-002	
Sample ID:	MW #2	Date Reported:	06-30-06	
Laboratory Number:	37596	Date Sampled:	06-28-06	
Chain of Custody:	1110	Date Received:	06-28-06	
Sample Matrix:	Soil	Date Analyzed:	06-30-06	
Preservative:	Cool	Date Extracted:	06-29-06	
Condition:	Cool & Intact	Analysis Requested:	BTEX	

	Concentration	Det. Limit	
Parameter	(ug/Kg)	(ug/Kg)	
Benzene	55.2	1.8	
Toluene	34.7	1.7	
Ethylbenzene	26.3	1.5	
p,m-Xylene	147	2.2	
o-Xylene	59.6	1.0	
Total BTEX	323		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	98.0 %
	1,4-difluorobenzene	98.0 %
	Bromochlorobenzene	98.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: N. Hogback 12 - #1

Analyst

pristine m Walter Review

### **ENVIROTECH LABS** PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client: Sample ID: Laboratory Number: Sample Matrix: Preservative: Condition:	06-30-BTEX QA/QC Date 37595 Date Soil Date N/A Date		Project #: Date Reported: Date Sampled: Date Received: Date Analyzed: Analysis:		N/A 06-30-06 N/A N/A 06-30-06 BTEX	
Calibration and	I-Cal RF:	C-Cal RF:	%Diff.	Blank	Detect.	
Detection Limits (ug/L)		Ассерт. ка	nge 0 - 15%	Conc	Linin	
Benzene	6.4411E+007	6.4540E+007	0.2%	ND	0.2	
Toluene	7.7076E+007	7.7230E+007	0.2%	ND	0.2	
Ethylbenzene	3.4236E+007	3.4305E+007	0.2%	ND	0.2	
p,m-Xylene	1.4479E+008	1.4508E+008	0.2%	ND	0.2	
o-Xylene	7.3511E+007	7.3658E+007	0.2%	ND	0.1	

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	ND	ND	0.0%	0 - 30%	1.8
Toluene	5.2	5.2	0.0%	0 - 30%	1.7
Ethylbenzene	5.0	5.0	0.0%	0 - 30%	1.5
p,m-Xylene	13.3	13.2	0.8%	0 - 30%	2.2
o-Xylene	7.2	7.2	0.0%	0 - 30%	1.0

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	50.0	49.9	99.8%	39 - 150
Toluene	5.2	50.0	55.2	100.0%	46 - 148
Ethylbenzene	5.0	50.0	55.0	100.0%	32 - 160
p,m-Xylene	13.3	100	113	99.9%	46 - 148
o-Xylene	7.2	50.0	57.1	99.8%	46 - 148

ND - Parameter not detected at the stated detection limit.

References:

Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996. Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using

Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

QA/QC for Samples 37595 - 37596, 37598 - 37599, 37602.

Comments: Analyst

hristine miladen Review

### **CHAIN OF CUSTODY RECORD**

Project Location

Client / Project Name

CORD	1	1	1	0
ANALYSIS / PARAMETERS				

Duncan Oil	*		N. Hogback	k 12-	. # 1					A	NALYS	IS / PAP	AMETER	10						
Sampler:	Client No.		Client No.	Client No. 05161-002		iant No				No. of Containers	2	1						Remarks		
Sample No./ Identification	Sample Date	Sample Time	Lab Number		Sample Matrix		Cont	BOIS	8021				-							
MW HI	6/28/06	1134	37595	5	0:1		1	~	~											
MW #2	6/28/06	1330	37596	S	50:1		1	Y	-											
			2.7%														_			
						1														
						1														
Relinquished by: (Sign	aft		4 v	6/20/0C	Time 1630					and	K				Date /28/06		ime <b>30</b>			
Relinquished by: (Sign	nature)					Rece	ived by: (	(Signatu	re)											
Relinquished by: (Sigr	nature)	in the second				Rece	ived by: (	(Signatu	re)			2 A Y								
				ENV	IRO	TE	CH	In	C.					Sample	Receipt	<u>.</u>				
															Y	N	N/A			
				Farm	5796 U.S ington, I	5. Hig New M	hway 6 /lexico	54 8740 <sup>-</sup>	1				Rece	eived Intact	$\checkmark$	-				
and the second second						632-							Cool -	Ice/Blue Ic	e		1			

### EPA METHOD 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

Client:	Duncan Oil	Project #:	05161-002
Sample ID:	MW #1	Date Reported:	06-30-06
Laboratory Number:	37602	Date Sampled:	06-29-06
Chain of Custody No:	1147	Date Received:	06-29-06
Sample Matrix:	Soil	Date Extracted:	06-29-06
Preservative:	Cool	Date Analyzed:	06-30-06
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	4.8	0.2
Diesel Range (C10 - C28)	79.9	0.1
Total Petroleum Hydrocarbons	84.7	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: N. Hogback 12 - #4.

Analyst

Mistine Mulaters Review

### EPA Method 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

### **Quality Assurance Report**

Client:	QA/QC		Project #:		N/A		
Sample ID:	06-30-06 QA/0	C	Date Reported:	06-30-06 N/A			
Laboratory Number:	37592		Date Sampled:				
Sample Matrix:	Methylene Chlor	ide	Date Received:		N/A 06-30-06		
Preservative:	N/A		Date Analyzed:				
Condition:	N/A		Analysis Reque	sted:	TPH		
A State of the second second	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range		
Gasoline Range C5 - C10	02-04-05	9.9794E+002	9.9894E+002	0.10%	0 - 15%		
Diesel Range C10 - C28	02-04-05	1.0014E+003	1.0034E+003	0.20%	0 - 15%		
Blank Conc. (mg/L - mg/Kg)		Concentration		Detection Limit			
Gasoline Range C5 - C10		ND		0.2			
Diesel Range C10 - C28		ND		0.1			
Total Petroleum Hydrocarbons		ND		0.2			
Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range			
Gasoline Range C5 - C10	ND	ND	0.0%	0 - 30%			
Diesel Range C10 - C28	ND	0.0%	0 - 30%				
Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range		
Gasoline Range C5 - C10	ND	250	250	100.0%	75 - 125%		
Diesel Range C10 - C28	ND	250	250	100.0%	75 - 125%		

ND - Parameter not detected at the stated detection limit.

References:

Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments:

QA/QC for Samples 37592 - 37593, 37595 - 37596, 37598 - 37602.

Analyst

prestere mulaetes Review

### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Duncan Oil	Project #:	05161-002
Sample ID:	MW #1	Date Reported:	06-30-06
Laboratory Number:	37602	Date Sampled:	06-29-06
Chain of Custody:	1147	Date Received:	06-29-06
Sample Matrix:	Soil	Date Analyzed:	06-30-06
Preservative:	Cool	Date Extracted:	06-29-06
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
time of the		
Benzene	ND	1.8
Toluene	27.1	1.7
Ethylbenzene	30.6	1.5
p,m-Xylene	111	2.2
o-Xylene	29.0	1.0
Total BTEX	198	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery	
	Fluorobenzene	97.0 %	
	1,4-difluorobenzene	97.0 %	
	Bromochlorobenzene	97.0 %	

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: N. Hogback 12 - #4

Analyst

mater mulaster Review

### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	N/A		Project #:		N/A		
Sample ID:	06-30-BTEX QA/Q	С	Date Reported:		06-30-06		
Laboratory Number:	37595		Date Sampled:		N/A		
Sample Matrix:	Soil		Date Received:		N/A		
Preservative:	N/A		Date Analyzed:		06-30-06		
Condition:	N/A		Analysis:		BTEX		
Calibration and	I-Cal RF:	C-Cal RF:	%Diff.	Blank	Detect.		
Detection Limits (ug/L)	The other second	Accept. Ra	nge 0 - 15%	Conc	Limit		
Benzene	6.4411E+007	6.4540E+007	0.2%	ND	0.2		
Toluene	7.7076E+007	7.7230E+007	0.2%	ND	0.2		
Ethylbenzene	3.4236E+007	3.4305E+007	0.2%	ND	0.2		
p,m-Xylene	1.4479E+008	1.4508E+008	0.2%	ND	0.2		
o-Xylene	7.3511E+007	7.3658E+007	0.2%	ND	0.1		

Duplicate Conc. (ug/Kg)	Sample	Duplicate %Diff.		Accept Range	Detect. Limit		
Benzene	ND	ND	0.0%	0 - 30%	1.8		
Toluene	5.2	5.2	0.0%	0 - 30%	1.7		
Ethylbenzene	5.0	5.0	0.0%	0 - 30%	1.5		
p,m-Xylene	13.3	13.2	0.8%	0 - 30%	2.2		
o-Xylene	7.2	7.2	0.0%	0 - 30%	1.0		

Spike Conc. (ug/Kg)	Sample	Sample Amount Spiked		% Recovery	Accept Range
Benzene	ND	50.0	49.9	99.8%	39 - 150
Toluene	5.2	50.0	55.2	100.0%	46 - 148
Ethylbenzene	5.0	50.0	55.0	100.0%	32 - 160
p,m-Xylene	13.3	100	113	99.9%	46 - 148
o-Xylene	7.2	50.0	57.1	99.8%	46 - 148

ND - Parameter not detected at the stated detection limit.

References:

Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996. Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using

Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

QA/QC for Samples 37595 - 37596, 37598 - 37599, 37602.

Comments: Analyst

Daeter hristen m Review

### **CHAIN OF CUSTODY RECORD**

Client / Project Name Duncan Oi	rect Name Project Location ANALYSIS/1 An Oil 05161-002 75					Project Location 05161-002 Client No. No. Hogbwack 12-#4					S / PAR	PARAMETERS					
Sampler: G. Crabtree Al Hogbreek			Client No. N. Hazbrack	12-#4 2)		)	No. of Containers	k	1	Γ,			-	F	emarks		
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample				8015	Borl								
Mw#1	6/29/02	1050	37602	. 5	ioil		I	/	1						-		
							1.										
						-											
			100														
Relinquished by: (Signature)		:	Date 6/29/06	6 1425 Received Dr: (Signature) Warth								Date 29/26		me 25			
Relinquished by: (Signa	ıture)		ng set			Recei	ived by: (	(Signatu			9						
Relinquished by: (Signa	ture)		33.24 <sup>4</sup>			Recei	ived by: (	(Signatu	ire)								
				ENV	<b>IRO</b>	TE	CH	Inc	C.					Sample	Receipt	1	
L. (12453) .					5796 U.S								Dees	hund Internt	Y	N	N/A
Farmington, New (505) 632				New M	<b>Aexico</b>		1					ived Intact Ice/Blue Ice	/	1	1		

#### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Duncan Oil	Project #:	05161-002	
Sample ID:	MW #3	Date Reported:	07-05-06	
Laboratory Number:	37629	Date Sampled:	06-30-06	
Chain of Custody:	1154	Date Received:	06-30-06	
Sample Matrix:	Soil	Date Analyzed:	07-05-06	
Preservative:	Cool	Date Extracted:	07-05-06	
Condition:	Cool & Intact	Analysis Requested:	BTEX	

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	3.7	1.8
Toluene	4.6	1.7
Ethylbenzene	5.6	1.5
p,m-Xylene	37.0	2.2
o-Xylene	13.4	1.0
Total BTEX	64.3	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	99.0 %
	1,4-difluorobenzene	99.0 %
	Bromochlorobenzene	99.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: N. Hogback 12 - #4.

Analyst

Mustere MWalter

#### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Duncan Oil	Project #:	05161-002	
Sample ID:	MW #2	Date Reported:	07-05-06	
Laboratory Number:	37630	Date Sampled:	06-30-06	
Chain of Custody:	1154	Date Received:	06-30-06	
Sample Matrix:	Soil	Date Analyzed:	07-05-06	
Preservative:	Cool	Date Extracted:	07-05-06	
Condition:	Cool & Intact	Analysis Requested:	BTEX	

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	1.8
Toluene	2.0	1.7
Ethylbenzene	ND	1.5
p,m-Xylene	6.6	2.2
o-Xylene	3.1	1.0
Total BTEX	11.7	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	98.0 %
	1,4-difluorobenzene	98.0 %
	Bromochlorobenzene	98.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: N. Hogback 12 - #4.

Analyst

Review Walter

# PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

#### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	N/A		Project #:		N/A
Sample ID:	07-05-BTEX QA/0	C	Date Reported:		07-05-06
Laboratory Number:	37629		Date Sampled:		N/A
Sample Matrix:	Soil		Date Received:		N/A
Preservative:	N/A		Date Analyzed:		07-05-06
Condition:	N/A		Analysis:		BTEX
Calibration and	I-Cal RF:	C-Cal RF:	%Diff.	Blank	Detect.
Detection Limits (ug/L)		Accept. Ra	nge 0 - 15%	Conc	Limit
Benzene	6.2492E+007	6.2618E+007	0.2%	ND	0.2
Toluene	7.5872E+007	7.6024E+007	0.2%	ND	0.2
Ethylbenzene	3.4126E+007	3.4195E+007	0.2%	ND	0.2
p,m-Xylene	1.4317E+008	1.4345E+008	0.2%	ND	0.2
	7.3136E+007	7.3283E+007	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	3.7	3.7	0.0%	0 - 30%	1.8
Toluene	4.6	4.6	0.0%	0 - 30%	1.7
Ethylbenzene	5.6	5.6	0.0%	0 - 30%	1.5
p,m-Xylene	37.0	37.0	0.0%	0 - 30%	2.2
o-Xylene	13.4	13.4	0.0%	0 - 30%	1.0

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	3.7	50.0	53.6	99.8%	39 - 150
Toluene	4.6	50.0	54.6	100.0%	46 - 148
Ethylbenzene	5.6	50.0	55.5	99.8%	32 - 160
p,m-Xylene	37.0	100	136	99.6%	46 - 148
o-Xylene	13.4	50.0	63.3	99.8%	46 - 148

ND - Parameter not detected at the stated detection limit.

References:

Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996. Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for Samples 37629 - 37630. Analyst

Review Waster

### EPA METHOD 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

Client:	Duncan Oil	Project #:	05161-002
Sample ID:	MW #3	Date Reported:	07-05-06
Laboratory Number:	37629	Date Sampled:	06-30-06
Chain of Custody No:	1154	Date Received:	06-30-06
Sample Matrix:	Soil	Date Extracted:	07-05-06
Preservative:	Cool	Date Analyzed:	07-05-06
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)	
Gasoline Range (C5 - C10)	ND	0.2	
Diesel Range (C10 - C28)	ND	0.1	
Total Petroleum Hydrocarbons	ND	0.2	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: N. Hogback 12 - #4.

en laun Analyst

Mustine m Walters Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

### **ENVIROTECH LABS** PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

### EPA METHOD 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

Client:	Duncan Oil	Project #:	05161-002
Sample ID:	MW #2	Date Reported:	07-05-06
Laboratory Number:	37630	Date Sampled:	06-30-06
Chain of Custody No:	1154	Date Received:	06-30-06
Sample Matrix:	Soil	Date Extracted:	07-05-06
Preservative:	Cool	Date Analyzed:	07-05-06
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: N. Hogback 12 - #4.

Analyst

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### EPA Method 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

#### **Quality Assurance Report**

Client:	QA/QC		Project #:		N/A
Sample ID:	07-05-06 QA/	QC	Date Reported:		07-05-06
Laboratory Number:	37629		Date Sampled:		N/A
Sample Matrix:	Methylene Chlo	ride	Date Received:		N/A
Preservative:	N/A		Date Analyzed:		07-05-06
Condition:	N/A		Analysis Reque	ested:	TPH
ALL STREET	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	02-04-05	9.9900E+002	1.0000E+003	0.10%	0 - 15%
Diesel Range C10 - C28	02-04-05	9.9800E+002	1.0000E+003	0.20%	0 - 15%
Blank Conc. (mg/L - mg/Kg)		Concentration	The second	Detection Limit	10.51
Gasoline Range C5 - C10		ND		0.2	
Diesel Range C10 - C28		ND		0.1	
Total Petroleum Hydrocarbons		ND		0.2	
Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range	
Gasoline Range C5 - C10	ND	ND	0.0%	0 - 30%	
Diesel Range C10 - C28	ND	ND	0.0%	0 - 30%	
Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	ND	250	250	100.0%	75 - 125%
Diesel Range C10 - C28	ND	250	250	100.0%	75 - 125%

ND - Parameter not detected at the stated detection limit.

References:

Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments:

QA/QC for Samples 37629 - 37630.

Analyst

metine m Walter Review

### CHAIN OF CUSTODY RECORD

Client / Project Name	1		Project Location N. Hogback 12-#4 ANALYSIS / PARA				AMETERS										
Sampler: G. Crabtre-			Client No. 05161-00	2			No. of Containers	5	.(					Re	marks		
Sample No./ Identification	Sample Date	Sample Time	Lab Number		Sample Matrix		Cont	Buis	1208								
MW #3	\$/30 kg	1205	37629		soi 1		T	-	1								
MW #2	6/30/00	1320	37630		soil		1	/	/	-							
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Relinquished by: (Signa	' I A			Date 6/30/06	Time 1530	Recei	veo pr:	Signaty	1997	N	an	00		6/8	ate	1000	ne 30
Relinquished by. (Signa		<u> </u>	1			Recei	ived by:	(Signatu	ire)								
Relinquished by: (Signa	ature)					Recei	ived by: (	(Signatu	ire)								
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					INC										Y	N	N/A
1					5796 U.S ington, N				1				Received I	ntact	1		
				rann	(505)			0140					Cool - Ice/Bl	ue Ice	~		1

# PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

### EPA METHOD 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

Client:	Duncan Oil	Project #:	05161-002
Sample ID:	MW #1	Date Reported:	06-28-06
Laboratory Number:	37565	Date Sampled:	06-26-06
Chain of Custody No:	1101	Date Received:	06-26-06
Sample Matrix:	Soil	Date Extracted:	06-27-06
Preservative:	Cool	Date Analyzed:	06-28-06
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	0.3	0.2
Diesel Range (C10 - C28)	15.5	0.1
Total Petroleum Hydrocarbons	15.8	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: North Hogback 12-9.

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Mister Walters Review

### EPA Method 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

#### **Quality Assurance Report**

Client:	QA/QC		Project #:		N/A
Sample ID:	06-28-06 QA/0	QC	Date Reported:		06-28-06
Laboratory Number:	37556		Date Sampled:		N/A
Sample Matrix:	Methylene Chlor	ride	Date Received:		N/A
Preservative:	N/A		Date Analyzed:		06-28-06
Condition:	N/A		Analysis Reque	ested:	TPH
	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	02-04-05	1.0014E+003	1.0024E+003	0.10%	0 - 15%
Diesel Range C10 - C28	02-04-05	1.0006E+003	1.0026E+003	0.20%	0 - 15%
Blank Conc. (mg/L - mg/Kg)		Concentration		Detection Limit	
Gasoline Range C5 - C10		ND		0.2	
Diesel Range C10 - C28		ND		0.1	
Total Petroleum Hydrocarbons		ND		0.2	
Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range	100
Gasoline Range C5 - C10	ND	ND	0.0%	0 - 30%	
Diesel Range C10 - C28	ND	ND	0.0%	0 - 30%	
Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	ND	250	250	100.0%	75 - 125%
Diesel Range C10 - C28	ND	250	250	100.0%	75 - 125%

ND - Parameter not detected at the stated detection limit.

References:

Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments:

QA/QC for Samples 37556 - 37557, 37565.

Analyst

husteren Walten

#### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Duncan Oil	Project #:	05161-002	
Sample ID:	MVV #1	Date Reported:	06-28-06	
Laboratory Number:	37565	Date Sampled:	06-26-06	
Chain of Custody:	1101	Date Received:	06-26-06	
Sample Matrix:	Soil	Date Analyzed:	06-28-06	
Preservative:	Cool	Date Extracted:	06-27-06	
Condition:	Cool & Intact	Analysis Requested:	BTEX	

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)	
Benzene	ND	1.8	
Toluene	3.1	1.7	
Ethylbenzene	ND	1.5	
p,m-Xylene	13.1	2.2	
o-Xylene	1.7	1.0	
Total BTEX	17.9		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	98.0 %
	1,4-difluorobenzene	98.0 %
	Bromochlorobenzene	98.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: North Hogback 12-9.

Analyst

cete Review

#### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	N/A		Project #:		N/A
Sample ID:	06-28-BTEX QA/0	QC	Date Reported:		06-28-06
Laboratory Number:	37556		Date Sampled:		N/A
Sample Matrix:	Soil		Date Received:		N/A
Preservative:	N/A		Date Analyzed:		06-28-06
Condition:	N/A		Analysis:		BTEX
Calibration and	I-Cal RF:	C-Cal RF:	%Diff.	Blank	Detect.
Detection Limits (ug/L)		Accept. Ra	ept. Range 0 - 15%		Limit
Benzene	6.8179E+007	6.8315E+007	0.2%	ND	0.2
Toluene	9.1539E+007	9.1723E+007	0.2%	ND	0.2
Ethylbenzene	4.5101E+007	4.5191E+007	0.2%	ND	0.2
p,m-Xylene	1.7240E+008	1.7275E+008	0.2%	ND	0.2
	9.2230E+007	9.2414E+007	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	ND	ND	0.0%	0 - 30%	1.8
Toluene	4.9	4.9	0.0%	0 - 30%	1.7
Ethylbenzene	3.7	3.7	0.0%	0 - 30%	1.5
p,m-Xylene	17.7	17.7	0.0%	0 - 30%	2.2
o-Xylene	6.0	6.0	0.0%	0 - 30%	1.0

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	50.0	50.0	100.0%	39 - 150
Toluene	4.9	50.0	54.8	99.8%	46 - 148
Ethylbenzene	3.7	50.0	53.7	100.0%	32 - 160
p,m-Xylene	17.7	100	118	99.9%	46 - 148
o-Xylene	6.0	50.0	55.9	99.8%	46 - 148

ND - Parameter not detected at the stated detection limit.

References:

Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996. Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using

Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments:

QA/QC for Samples 37556 - 37557, 37565.

Analyst

/ hustise m Walters Review

### CHAIN OF CUSTODY RECORD

Client / Project Name Duncan 0:1			Project Location North Hogb	Ack 12 -	9					ŀ	NALYS	IS / PAF	AMETE	ERS				
Sampler: G. Crabbrez			Client No. 05161 - 0	02			No. of Containers	5	51						Rema	rks		
Sample No./ Identification	Sample Date	Sample Time	Lab Number		Sample Matrix		Cont	8015	802									
MW #1	6/26/04	1205	37565	So	;1		1	/	~									
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			-6.3															
						-6												
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							6									_		
Relinquished by: (Signa	av			Date 1/24/06	Time 1700	A	ived by:	. C.(	lier						Date 6/26/0	A	Tir 172	me 90
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		-98 61		ENV	IRO	TEO	CH	In	C.	22				Sam	ple Rece	ipt		
the second					5796 U.S											Y	N	N/A
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					, (505)	002-	0015						0001	- icerbiue				

### EPA METHOD 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

Client:	Duncan Oil	Project #:	05161-002
Sample ID:	MW #2	Date Reported:	06-30-06
Laboratory Number:	37583	Date Sampled:	06-27-06
Chain of Custody No:	1105	Date Received:	06-27-06
Sample Matrix:	Soil	Date Extracted:	06-28-06
Preservative:	Cool	Date Analyzed:	06-29-06
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	42.1	0.1
Fotal Petroleum Hydrocarbons	42.1	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: North Hogback 12 - #9.

C.C. Analyst

"hristen m Walters Review

### EPA Method 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

#### **Quality Assurance Report**

Client:	QA/QC		Project #:		N/A	
Sample ID:	06-29-06 QA/0	QC	Date Reported:	06-30-06		
Laboratory Number:	37566		Date Sampled:	N/A		
Sample Matrix:	Methylene Chloride D		Date Received:	N/A		
Preservative:	N/A		Date Analyzed:	06-29-06		
Condition:	N/A		Analysis Reque	sted:	ТРН	
	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range	
Gasoline Range C5 - C10	02-04-05	9.9892E+002	9.9992E+002	0.10%	0 - 15%	
Diesel Range C10 - C28	02-04-05	1.0035E+003	1.0055E+003	0.20%	0 - 15%	
Blank Conc. (mg/L - mg/Kg)		Concentration		Detection Limit		
Gasoline Range C5 - C10		ND		0.2		
Diesel Range C10 - C28		ND		0.1		
Total Petroleum Hydrocarbons		ND		0.2		
Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range		
Gasoline Range C5 - C10	ND	ND	0.0%	0 - 30%		
Diesel Range C10 - C28	ND	ND	0.0%	0 - 30%		
Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range	
Gasoline Range C5 - C10	ND	250	250	100.0%	75 - 125%	
Diesel Range C10 - C28	ND	250	250	100.0%	75 - 125%	

ND - Parameter not detected at the stated detection limit.

**References:** 

Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments:

QA/QC for Samples 37566 - 37573, 37583, 37591.

~ 2.1 Analyst

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#### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Duncan Oil	Project #:	05161-002	-
Sample ID:	MW #2	Date Reported:	06-30-06	
Laboratory Number:	37583	Date Sampled:	06-27-06	
Chain of Custody:	1105	Date Received:	06-27-06	
Sample Matrix:	Soil	Date Analyzed:	06-29-06	
Preservative:	Cool	Date Extracted:	06-28-06	
Condition:	Cool & Intact	Analysis Requested:	BTEX	

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	1.8
Toluene	ND	1.7
Ethylbenzene	ND	1.5
p,m-Xylene	ND	2.2
o-Xylene	ND	1.0
Total BTEX	ND	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	98.0 %
	1,4-difluorobenzene	98.0 %
	Bromochlorobenzene	98.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: North Hogback 12 - #9.

Analyst

Daeten mosti Review

#### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	N/A		Project #:		N/A
Sample ID:	06-29-BTEX QA/QC		Date Reported:		06-30-06
Laboratory Number:	37566		Date Sampled:		N/A
Sample Matrix:	Soil		Date Received:		N/A
Preservative:	N/A		Date Analyzed:		06-29-06
Condition:	N/A		Analysis:		BTEX
Calibration and	I-Cal RF:	C-Cal RF:	%Diff.	Blank	Detect.
Detection Limits (ug/L)		Accept. Ra	nge 0 - 15%	Conc	Limit
Benzene	5.6305E+007	5.6418E+007	0.2%	ND	0.2
Toluene	6.5944E+007	6.6076E+007	0.2%	ND	0.2
Ethylbenzene	3.0333E+007	3.0394E+007	0.2%	ND	0.2
p,m-Xylene	1.2467E+008	1.2492E+008	0.2%	ND	0.2
o-Xylene	6.0957E+007	6.1079E+007	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	ND	ND	0.0%	0 - 30%	1.8
Toluene	4.3	4.3	0.0%	0 - 30%	1.7
Ethylbenzene	5.5	5.5	0.0%	0 - 30%	1.5
p,m-Xylene	17.0	17.0	0.0%	0 - 30%	2.2
o-Xylene	10.8	10.8	0.0%	0 - 30%	1.0

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	50.0	50.0	100.0%	39 - 150
Toluene	4.3	50.0	54.2	99.8%	46 - 148
Ethylbenzene	5.5	50.0	55.5	100.0%	32 - 160
p,m-Xylene	17.0	100	117	100.0%	46 - 148
o-Xylene	10.8	50.0	60.7	99.8%	46 - 148

ND - Parameter not detected at the stated detection limit.

References:

Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996. Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using

Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

QA/QC for Samples 37566 - 37573, 37583.

Comments: Analyst

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### **CHAIN OF CUSTODY RECORD**

Client / Project Name Duncan 0,1			Project Location North Hog	back 1	12 - # 4	7				A	NALYS	IS / PAF	RAMETEI	RS			
Sampler: G. Crabtree			Client No. 05161-				No. of Containers	5	1					I	Remarks		
Sample No./ Identification	Sample Date	Sample Time	Lab Number		Sample Matrix		Cont	Bois	1208								
Mw # 2	6/27/06	0945	37583	S	io: 1		1	~	5								
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					-		- 1										
				1	-												
Relinquished by: (Signatu Relinquished by: (Signatu				Date 6/27/00	Time H 10	M	ived by: Mutu ived by:	ne 1	ni	Nae	ter	,		4	Date 2 <u>/27/00</u>		me 1/0
Relinquished by: (Signatu	ure)					Rece	ived by:	(Signatu	ıre)								
	18 <sup>2</sup> - 199			ENV	IRO	TE	CH		C.					Sample	Receipt	l	
S. Sec															Y	N	N/A
					5796 U.S ington, I	New N	<b>Aexico</b>		1				Rec	eived Intact			
					(505)	) 632-	0615						Cool ·	- Ice/Blue Ice	9		3

APPENDIX C

Laboratory Water Sample Results

#### **TRACE METAL ANALYSIS**

Client:	Duncan Oil	Project #:	05161-002
Sample ID:	12 - 9 MW #1	Date Reported:	07-07-06
Laboratory Number:	37663	Date Sampled:	07-05-06
Chain of Custody:	1159	Date Received:	07-05-06
Sample Matrix:	Water	Date Analyzed:	07-07-06
Preservative:	Cool	Date Digested:	07-06-06
Condition:	Cool & Intact	Analysis Needed:	Fe, Mn, Pb
and the first state of the second second	· · · · · · · · · · · · · · · · · · ·	Det.	
Parameter	Concentration (mg/L)	Limit (mg/L)	
Iron	0.541	0.001	
Manganese	0.280	0.001	

ND - Parameter not detected at the stated detection limit.

References:

Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments:

N. Hogback.

Analyst

Review

#### **TRACE METAL ANALYSIS**

Client:	Duncan Oil	Project #:	05161-002
Sample ID:	12 - 9 MW #2	Date Reported:	07-07-06
Laboratory Number:	37664	Date Sampled:	07-05-06
Chain of Custody:	1159	Date Received:	07-05-06
Sample Matrix:	Water	Date Analyzed:	07-07-06
Preservative:	Cool	Date Digested:	07-06-06
Condition:	Cool & Intact	Analysis Needed:	Fe, Mn, Pb
	Concentration	Dẹt. Limit	
Parameter	(mg/L)	(mg/L)	
Iron	ND	0.001	
Manganese	0.224	0.001	
Lead	ND	0.001	

ND - Parameter not detected at the stated detection limit.

References:

Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments:

N. Hogback.

pristing n Walters Analyst

Review

#### TRACE METAL ANALYSIS Quality Control / Quality Assurance Report

Client:		QA/QC		Project #:			N/A
Sample ID:		07-07-TM	QA/QC	Date Repor	ted:		07-07-06
Laboratory Number:		37663		Date Samp	led:		N/A
Sample Matrix:		Water		Date Recei	ved:		N/A
Analysis Requested:		Fe, Mn, Pb		Date Analyz	zed:		07-07-06
Condition:		N/A		Date Diges	ted:		07-06-06
Blank & Duplicate Conc. (mg/L)	Instrument Blank (mg/L)		Detection Limit	Sample (mg/L)	Duplicate (mg/L)	% Diff.	Acceptance Range
Iron	ND		0.001	0.541	0.541	0.0%	0% - 30%
Manganese	ND		0.001	0.280	0.283	1.1%	0% - 30%
Lead	ND		0.001	ND	ND	0.0%	0% - 30%

Spike Conc. (mg/L)	Spike Added	Sample (mg/L)	Spiked Sample	Percent Recovery	Acceptance Range
Iron	0.500	0.541	1.060	101.8%	80% - 120%
Manganese	0.500	0.280	0.778	99.7%	80% - 120%
Lead	0.500	ND	0.518	103.5%	80% - 120%

ND - Parameter not detected at the stated detection limit.

References:

Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments:

QA/QC for samples 37663 - 37664, 37695 - 37698

pristine mi Dalters Analyst

eeen P. Course Review

#### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Duncan Oil	Project #:	05161-002	
Sample ID:	12 - 4 MW #1	Date Reported:	07-07-06	-
Chain of Custody:	1159	Date Sampled:	07-05-06	
Laboratory Number:	37665	Date Received:	07-05-06	
Sample Matrix:	Water	Date Analyzed:	07-07-06	
Preservative:	Cool	Analysis Requested:	BTEX	
Condition:	Cool & Intact			

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	1.2	1	0.2
Toluene	5.9	1	0.2
Ethylbenzene	23.4	1	0.2
p,m-Xylene	11.2	1	0.2
o-Xylene	5.5	1	0.1

#### **Total BTEX**

47.2

ND - Parameter not detected at the stated detection limit.

Surrogate Reco	veries: Parameter	Percent Recovery
	fluorobenzene	99.8 %
	1,4-difluorobenzen	e 99.8 %
	4-bromochloroben	zene 99.8 %
References:	Method 5030B, Purge-and-Trap, Test M December 1996.	ethods for Evaluating Solid Waste, SW-846, USEPA,

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments:

N. Hogback

Analyst

Mistise m Walters Review

#### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Duncan Oil	Project #:	05161-002	
Sample ID:	12 - 4 MW #2	Date Reported:	07-07-06	-
Chain of Custody:	1159	Date Sampled:	07-05-06	
Laboratory Number:	37666	Date Received:	07-05-06	
Sample Matrix:	Water	Date Analyzed:	07-07-06	
Preservative:	Cool	Analysis Requested:	BTEX	
Condition:	Cool & Intact			

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
1000			
Benzene	1.6	1	0.2
Toluene	1.8	1	0.2
Ethylbenzene	1.6	1	0.2
p,m-Xylene	5.6	1	0.2
o-Xylene	3.1	1	0.1

#### **Total BTEX**

13.7

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	veries:	Parameter	Percent Recovery
		fluorobenzene	99.8 %
		1,4-difluorobenzene	99.8 %
		4-bromochlorobenzene	99.8 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments:

N. Hogback

Analyst

Mostere m Walter Review

#### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Duncan Oil	Project #:	05161-002	
Sample ID:	12 - 4 MW #3	Date Reported:	07-07-06	-
Chain of Custody:	1159	Date Sampled:	07-05-06	
Laboratory Number:	37667	Date Received:	07-05-06	
Sample Matrix:	Water	Date Analyzed:	07-07-06	
Preservative:	Cool	Analysis Requested:	BTEX	
Condition:	Cool & Intact			

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	1.3	1	0.2
Toluene	0.4	1	0.2
Ethylbenzene	0.8	1	0.2
p,m-Xylene	1.8	1	0.2
o-Xylene	1.0	1	0.1

#### **Total BTEX**

5.3

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery	
	fluorobenzene	99.8 %	
	1,4-difluorobenzene	99.8 %	
	4-bromochlorobenzene	99.8 %	

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments:

N. Hogback

Analyst

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#### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS QUALITY ASSURANCE REPORT

Client:	N/A		Project #:		N/A		
Sample ID:	;	Date Reported:	07-07-06				
Laboratory Number:	37663		Date Sampled:	N/A			
Sample Matrix:	Water		Date Received:		N/A		
Preservative:	N/A		Date Analyzed:		07-07-06		
Condition:	N/A		Analysis:		BTEX		
Calibration and	I-Cal RF:	C-Cal RF:	%Diff.	Blank	Detect.		
Detection Limits (ug/L)		Accept. Ran	nge 0 - 15%	Conc	Limit		
Benzene	6.2672E+007	6.2861E+007	0.30%	ND	0.2		
Toluene	7.3255E+007	7.3476E+007	0.30%	ND	0.2		
Ethylbenzene	3.2873E+007	3.2972E+007	0.30%	ND	0.2 0.2		
p,m-Xylene	1.3735E+008	1.3776E+008	0.30%	ND			
o-Xylene	6.9100E+007	6.9308E+007	0.30%	ND	0.1		
Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit			
Benzene	1.2	1.2	0.0%	0 - 30%			
Toluene	5.9	5.9	0.0%	0 - 30%			
Ethylbenzene	23.4	23.3	0.4%	0 - 30%			
p,m-Xylene	11.2	11.1	0.9%	0 - 30%			
o-Xylene	5.5	5.5	0.0%	0 - 30%			
or Ayron o	0.0	0.0	0.070	0.00%			
Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limit		
Benzene	1.2	50.0	51.1	99.7%	39 - 150		
Toluene	5.9	50.0	55.8	99.8%	46 - 148		
Ethylbenzene	23.4	50.0	73.3	99.9%	32 - 160		

ND - Parameter not detected at the stated detection limit.

References:

p,m-Xylene

o-Xylene

Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996. Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

100

50.0

111

55.4

99.8%

99.8%

46 - 148

46 - 148

Comments:

QA/QC for samples 37665 - 37667.

11.2

5.5

Analyst

Mistere n Walters Review

### **CHAIN OF CUSTODY RECORD**

Client / Project Name Duncan Oil			Project Location N. Hogback			ANALYSIS / PARAMETERS										
Sampler: G. Crabtree / J. Collins		Client No. 05161-002		No. of Containers	0	2					Remarks					
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix			Cont	6010	8021							
12-9 MW #1	7/5/06	1400	37663	WATER			1	~								
12-9 MW#2	7/5/06	1405	37664	W	WATER		1	V								
12-4 Mw#1	7/5/0L	1530	37665	WATER			2		~							
12-4 MW#2	7/5/06	1540	37660	1	WATER		2		~							
12-4 MW#3 7/5/06 154		1545	37667	WATER			2		~							
								6								
								1.	-							
Relinquished by: (Signature)			Date 75/06	Time 1640	N	Received by: (Signature) Mustine Malters							Date 7/5/06		Time /646	
Relinquished by: (Signature)				Recei	ved by:	(Signati	ure) /									
Relinquished by: (Signature)				Recei	ved by:	(Signati	ure)									
				FOV	<b>IRO</b>	TE	сH		C.				Sample	Receipt	1	
					INU				<u>.</u>					Y	N	N/A
			5796 U.S. Highway 6 Farmington, New Mexico								Received Intact	V				
				(505) 632-0615				С	ool - Ice/Blue Ic	eV		1				