

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Form C-144
June 1, 2004

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

For drilling and production facilities, submit to appropriate NMOCD District Office.
For downstream facilities, submit to Santa Fe office

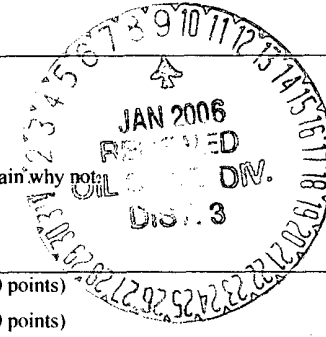
Pit or Below-Grade Tank Registration or Closure

Is pit or below-grade tank covered by a "general plan"? Yes ☐ No ☒

Type of action: Registration of a pit or below-grade tank ☐ Closure of a pit or below-grade tank ☒

Operator: Duncan Oil Telephone: (303) 759-3303 e-mail address: sfallin@duncanoil.com
Address: 1777 South Harrison Street - Penthouse One, Denver, Colorado, 80210
Facility or well name: N. Hogback 12 No. 9 API #: 3004521572 U/L or Qtr/Qtr H Sec 12 T 29N R 17W
County: San Juan Latitude 36° 45.222' Longitude -108° 34.332' NAD: 1927 ☒ 1983 ☐
Surface Owner: Federal ☐ State ☐ Private ☐ Indian ☒

Pit	Below-grade tank
Type: Drilling ☐ Production ☒ Disposal ☐ Workover ☐ Emergency ☐ Lined ☐ Unlined ☒ Liner type: Synthetic ☐ Thickness _____ mil Clay ☐ Pit Volume _____ bbl	Volume: _____ bbl Type of fluid: _____ Construction material: _____ Double-walled, with leak detection? Yes ☐ If not, explain why not: _____
Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)	Less than 50 feet (20 points) 50 feet or more, but less than 100 feet (10 points) 100 feet or more (0 points) 20
Wellhead protection area: (Less than 200 feet from a private domestic water source, or less than 1000 feet from all other water sources.)	Yes (20 points) No (0 points) 0
Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)	Less than 200 feet (20 points) 200 feet or more, but less than 1000 feet (10 points) 1000 feet or more (0 points) 10
Ranking Score (Total Points) 30	



If this is a pit closure: (1) Attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location: (check the onsite box if you are burying in place) onsite ☐ offsite ☒ If offsite, name of facility Envirotech Landfarm #2. (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No ☐ Yes ☒ If yes, show depth below ground surface 10 ft. and attach sample results. (5) Attach soil sample results and a diagram of sample locations and excavations.

Additional Comments:
Approximately 480 cubic yards of contaminated soil was excavated from the North Hogback 12-#9 Separator pit and hauled to Envirotech's Landfarm.
Documentation of BTEX analysis via USEPA Method 8021B is attached for the ground water sample.
Documentation of TPH and OVM results are also attached for the soil samples <u>Reached bedrock</u>

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒, a general permit ☐, or an (attached) alternative OCD-approved plan ☐.

Date: 1/4/06
Printed Name/Title Steve Fallin - Production Manager Signature Steve Fallin

Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

DEPUTY OIL & GAS INSPECTOR, DIST. 3
Approval:

Printed Name/Title _____ Signature Denny Faint Date: JAN 09 2006

CLIENT: <u>Duncan Oil</u>	ENVIROTECH INC. ENVIRONMENTAL SCIENTISTS & ENGINEERS 5796 U.S. HIGHWAY 64-3014 FARMINGTON, NEW MEXICO 87401 PHONE: (505) 632-0615	LOCATION NO: <u>12⁹</u> C.O.C. NO: _____
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FIELD REPORT: CLOSURE VERIFICATION		PAGE No: <u>1</u> of <u>1</u>
LOCATION: NAME: <u>N. Hogback 12</u> WELL #: <u>9</u> PIT: <u>Sep</u>		DATE STARTED: <u>10/31/05</u>
QUAD/UNIT: _____ SEC: <u>12</u> TWP: <u>29</u> RNG: <u>16</u> PM: <u>NMPM</u> CNTY: <u>San Juan</u> ST: <u>AM</u>		DATE FINISHED: <u>10/31/05</u>
QTR/FOOTAGE: <u>2140 FNL 165 FEL</u> CONTRACTOR: <u>Envirotech Inc</u>		ENVIRONMENTAL SPECIALIST: <u>GWC</u>

EXCAVATION APPROX. 33 FT. x 45 FT. x 10 FT. DEEP. CUBIC YARDAGE: 600 480

DISPOSAL FACILITY: Envirotech Landfarm #2 REMEDIATION METHOD: Landfarming

LAND USE: grazing LEASE: 14-20-0603-10010 FORMATION: _____

FIELD NOTES & REMARKS:	PIT LOCATED APPROXIMATELY _____ FT. _____ FROM WELLHEAD.	
DEPTH TO GROUNDWATER: <u>10'</u>	NEAREST WATER SOURCE: <u>200-1000</u>	NEAREST SURFACE WATER: <u>1000</u>
NMOC D RANKING SCORE: <u>>40</u>	NMOC D TPH CLOSURE STD: <u>100</u> PPM	
SOIL AND EXCAVATION DESCRIPTION:		

CHECK ONE :
☒ PIT ABANDONED
☐ STEEL TANK INSTALLED

Approximately 480 yd³ of contaminate soil was removed from the N. Hogback 12-#9 separator pit AND hauled to Envirotech's NMOC D permitted Landfarm #2

FIELD 418.1 CALCULATIONS

TIME	SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm
1101	Bottom		5.0	20		73	292
1107	South/EAST wells		5.0	20		19	76
1117	North/WEST wells		5.0	20		13	52

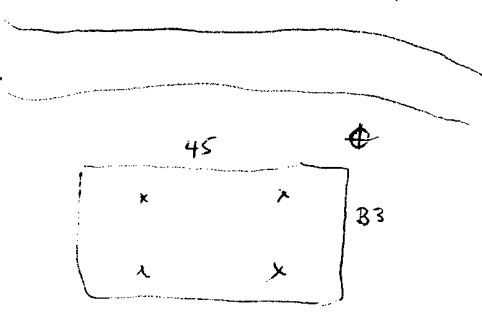
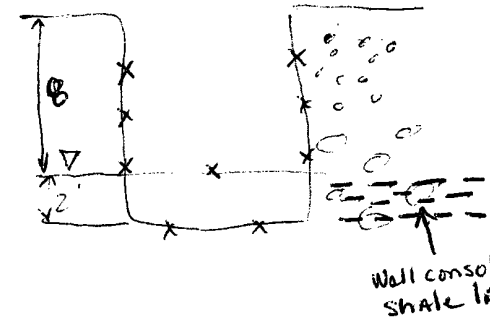
SCALE

 0 FT

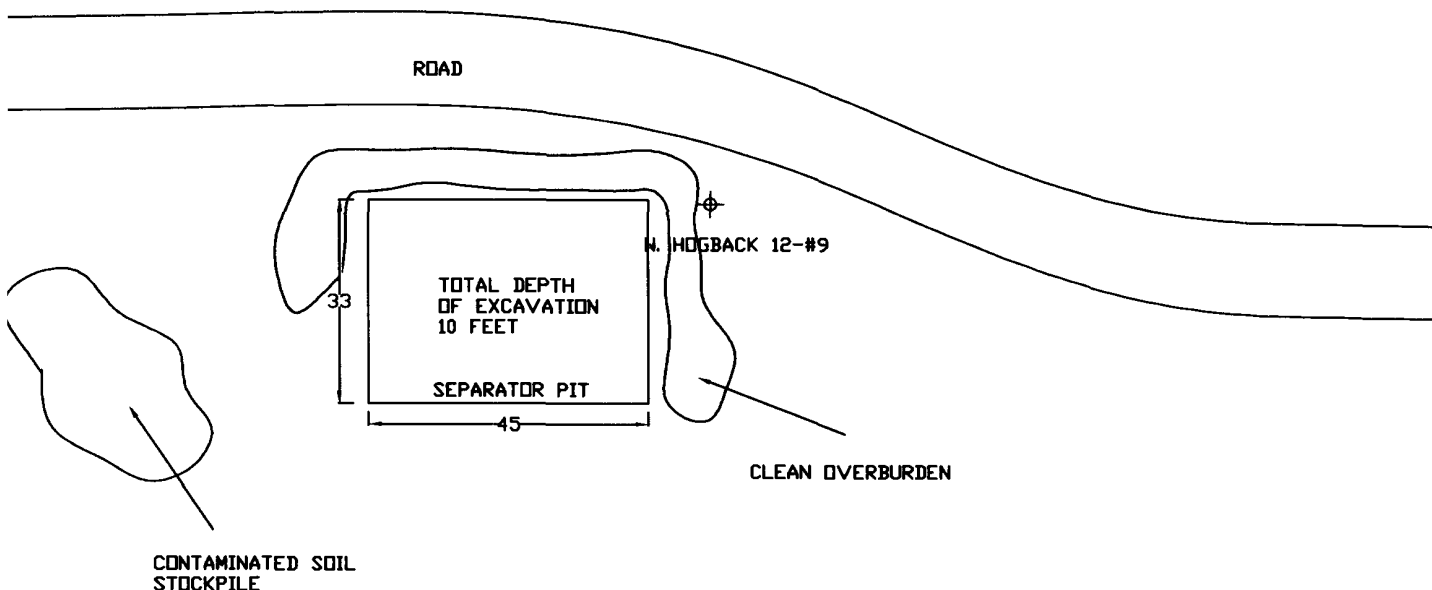
PIT PERIMETER

OVM
RESULTS

PIT PROFILE

	<table border="1" style="width:100%"> <thead> <tr> <th>SAMPLE ID</th><th>FIELD HEADSPACE PID (ppm)</th></tr> </thead> <tbody> <tr><td>1 bottom</td><td>8.0</td></tr> <tr><td>2 s/e</td><td>1.0</td></tr> <tr><td>3 u/w</td><td>1.0</td></tr> <tr><td>4</td><td></td></tr> <tr><td>5</td><td></td></tr> </tbody> </table>	SAMPLE ID	FIELD HEADSPACE PID (ppm)	1 bottom	8.0	2 s/e	1.0	3 u/w	1.0	4		5											
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TRAVEL NOTES: CALLOUT: _____ ONSITE: _____



NORTH HOGBACK 12-#9			
LEGEND			
 WELLHEAD			
SCALE:		FIGURE NO. 2	REV
PROJECT NO. 05161-001			
REVISIONS			
NO.	DATE	BY	DESCRIPTION
MAP DRWN	GWC	12/5/05	BASE DRWN
ENVIRONMENTAL SCIENTISTS & ENGINEERS			
ENVIROTECH			
5796 U.S. HIGHWAY 64, FARMINGTON, NM 87401 505-632-0615			

Method 418.1 Analysis Log Total Petroleum Hydrocarbons

Date 10/31/05

Analyst G. Crabtree

Location N. Hogback 12[#] 9

Instrument Infracal

Job No. 05161-001

Sample No.	Sample Description	Sample Wt. (g)	Volume Freon (mL)	Dilution Factor	Abs. Reading	TPH (mg/kg)
1	bottom 8'	5.0	20		73	292
2	South/EAST Wall Composite	5.0	20		19	76
3	North/WEST Wall Composite	5.0	20		13	52
4	bottom 10'	5.0	20		35	140

0.0m

8

1

1

8

Infrared Spectrophotometer Calibration

New Freon _____

Date Standards Prepared _____

Standard Concentration (mg/L)	Absorbance
100	_____
200	<u>196</u>
500	_____
1000	_____

I-CAL RF: _____

C-CAL RF: _____

RSD: _____ %

% Difference: _____ %

QA/QC Acceptance Criteria: I-CAL RSD +/- 20%

C-Cal Difference +/- 10%

**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client: Duncan Oil
Sample No.: 1
Sample ID: Composit Sample of Bottom at 8 feet BGS
Sample Matrix: Soil
Preservative: Cool
Condition: Cool and Intact

Project #: 05161-001
Date Reported: 11/1/2005
Date Sampled: 10/31/2005
Date Analyzed: 10/31/2005
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	292.0	5.0

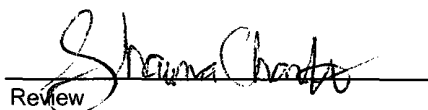
ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **North Hogback12 - #9, Separator**

Instrument calibration checked against 200 ppm standard. Zeroed before each sample


Analyst


Review

**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client: Duncan Oil
Sample No.: 2
Sample ID: Composit Sample of South and East Walls
Sample Matrix: Soil
Preservative: Cool
Condition: Cool and Intact

Project #: 05161-001
Date Reported: 11/1/2005
Date Sampled: 10/31/2005
Date Analyzed: 10/31/2005
Analysis Needed: TPH-418.1

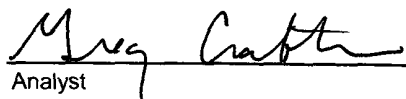
Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	76.0	5.0

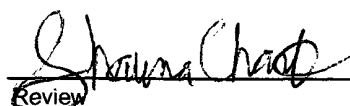
ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **North Hogback12 - #9, Separator**

Instrument callibration checked against 200 ppm standard. Zeroed before each sample


Analyst


Review

**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client: Duncan Oil
Sample No.: 3
Sample ID: Composit Sample of North and West Walls
Sample Matrix: Soil
Preservative: Cool
Condition: Cool and Intact

Project #: 05161-001
Date Reported: 11/1/2005
Date Sampled: 10/31/2005
Date Analyzed: 10/31/2005
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	52.0	5.0

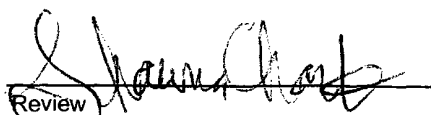
ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **North Hogback12 - #9, Separator**

Instrument callibration checked against 200 ppm standard. Zeroed before each sample


Analyst


Review

**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client: Duncan Oil
Sample No.: 4
Sample ID: Composit Sample of Bottom at 10 feet BGS
Sample Matrix: Soil
Preservative: Cool
Condition: Cool and Intact

Project #: 05161-001
Date Reported: 11/1/2005
Date Sampled: 10/31/2005
Date Analyzed: 10/31/2005
Analysis Needed: TPH-418.1

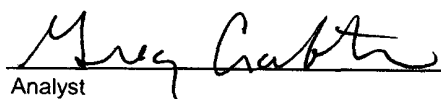
Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	140.0	5.0

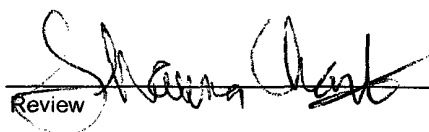
ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **North Hogback12 - #9, Separator**

Instrument callibration checked against 200 ppm standard. Zeroed before each sample


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

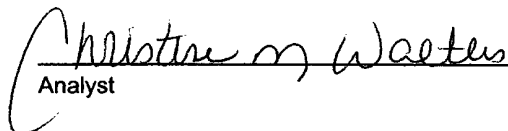
Client: Duncan Oil
Sample ID: Duncan Oil 12 #9 Monitor Well
Laboratory Number: 34271
Chain of Custody: 14791
Sample Matrix: Water
Preservative: Cool
Condition: Cool & Intact

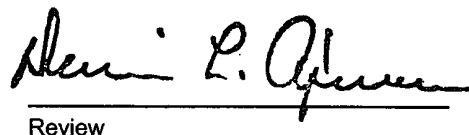
Project #: 05161-001
Date Reported: 09-08-05
Date Sampled: 09-07-05
Date Received: 09-07-05
Date Extracted: N/A
Date Analyzed: 09-08-05

Parameter	Analytical Result	Units		
pH	7.54	s.u.		
Conductivity @ 25° C	2,970	umhos/cm		
Total Dissolved Solids @ 180C	1,876	mg/L		
Total Dissolved Solids (Calc)	1,860	mg/L		
SAR	11.8	ratio		
Total Alkalinity as CaCO3	1,590	mg/L		
Total Hardness as CaCO3	135	mg/L		
Bicarbonate as HCO3	1,590	mg/L	26.06	meq/L
Carbonate as CO3	<0.1	mg/L	0.00	meq/L
Hydroxide as OH	<0.1	mg/L	0.00	meq/L
Nitrate Nitrogen	0.4	mg/L	0.01	meq/L
Nitrite Nitrogen	<0.001	mg/L	0.00	meq/L
Chloride	123	mg/L	3.48	meq/L
Fluoride	0.87	mg/L	0.05	meq/L
Phosphate	11.5	mg/L	0.36	meq/L
Sulfate	82.5	mg/L	1.72	meq/L
Iron	2.60	mg/L	0.09	meq/L
Calcium	99.2	mg/L	4.95	meq/L
Magnesium	36.1	mg/L	2.97	meq/L
Potassium	4.66	mg/L	0.12	meq/L
Sodium	541	mg/L	23.53	meq/L
Cations			31.67	meq/L
Anions			31.67	meq/L
Cation/Anion Difference			0.01%	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: N. Hogback.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

TRACE METAL ANALYSIS

Client:	Duncan Oil	Project #:	05161-001
Sample ID:	Duncan Oil 12 #9 Monitor Well	Date Reported:	09-08-05
Laboratory Number:	34271	Date Sampled:	09-07-05
Chain of Custody:	14791	Date Received:	09-07-05
Sample Matrix:	Water	Date Analyzed:	09-08-05
Preservative:	Cool	Date Digested:	09-08-05
Condition:	Cool & Intact	Analysis Needed:	Fe, Mn, Pb

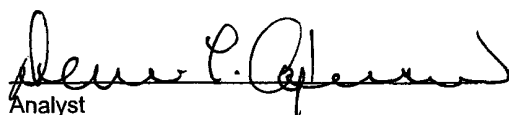
Parameter	Concentration (mg/L)	Det. Limit (mg/L)
Iron	2.60	0.001
Manganese	0.137	0.001
Lead	ND	0.001

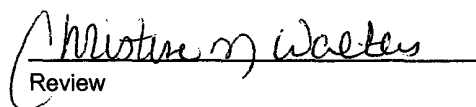
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References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils.
SW-846, USEPA, December 1996.

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

Comments: N. Hogback.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Duncan Oil	Project #:	05161-001
Sample ID:	Duncan Oil 12 #9 Monitor Well	Date Reported:	09-08-05
Chain of Custody:	14791 Prior to Excavation	Date Sampled:	09-07-05
Laboratory Number:	34271	Date Received:	09-07-05
Sample Matrix:	Water	Date Analyzed:	09-08-05
Preservative:	Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	0.2	1	0.2
Toluene	0.7	1	0.2
Ethylbenzene	1.2	1	0.2
p,m-Xylene	1.5	1	0.2
o-Xylene	0.7	1	0.1

Total BTEX 4.3

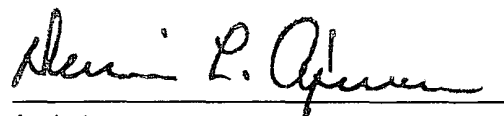
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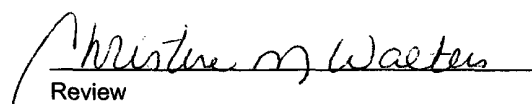
Surrogate Recoveries:	Parameter	Percent Recovery
	fluorobenzene	99 %
	1,4-difluorobenzene	99 %
	4-bromochlorobenzene	99 %

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


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Duncan Oil	Project #:	05161-001
Sample ID:	Bottom Corn 12' 12-#9	Date Reported:	11-03-05
Laboratory Number:	34856 <i>After Excavation</i>	Date Sampled:	10-31-05
Chain of Custody:	15004	Date Received:	10-31-05
Sample Matrix:	Soil	Date Analyzed:	11-03-05
Preservative:	Cool	Date Extracted:	11-03-05
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	1.8
Toluene	15.2	1.7
Ethylbenzene	4.0	1.5
p,m-Xylene	5.3	2.2
o-Xylene	ND	1.0
Total BTEX	24.5	

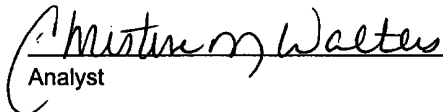
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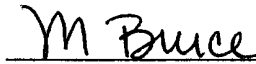
Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	98.0 %
	1,4-difluorobenzene	98.0 %
	Bromochlorobenzene	98.0 %

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.


Analyst


Review

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Duncan Oil	Project #:	05161-001
Sample ID:	Water N. Hogback 12-#9	Date Reported:	11-03-05
Chain of Custody:	15004	Date Sampled:	10-31-05
Laboratory Number:	34857	Date Received:	10-31-05
Sample Matrix:	Water	Date Analyzed:	11-03-05
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	12.5	1	0.2
Ethylbenzene	90.5	1	0.2
p,m-Xylene	10.6	1	0.2
o-Xylene	55.3	1	0.1

Total BTEX 170

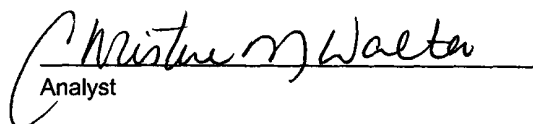
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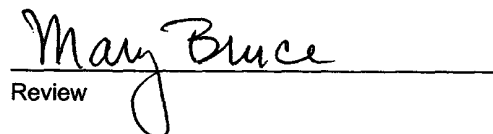
Surrogate Recoveries:	Parameter	Percent Recovery
	fluorobenzene	99 %
	1,4-difluorobenzene	99 %
	4-bromochlorobenzene	99 %

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


Review