



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

David Beattie
Murphy Oil Company
2407 Stinson Avenue
Superior, WI 54880

Report Summary

Tuesday May 18, 2010

Report Number: L459276

Samples Received: 05/15/10

Client Project:

Description: K30 Water from Dike

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

John Hawkins , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

May 18, 2010

David Beattie
Murphy Oil Company
2407 Stinson Avenue
Superior, WI 54880

Date Received : May 15, 2010
Description : K30 Water from Dike
Sample ID : K30 DIKE WATER
Collected By :
Collection Date : 05/14/10 09:00

ESC Sample # : L459276-01
Site ID :
Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include VOCGRO, Benzene, Toluene, Ethylbenzene, m&p-Xylene, o-Xylene, Methyl tert-butyl ether, Naphthalene, 1,3,5-Trimethylbenzene, 1,2,4-Trimethylbenzene, Gasoline (C6-C10), Surrogate recovery-% a,a,a-Trifluorotoluene(PID), TPH (GC/FID) High Fraction, Surrogate recovery(%) Triacotane.

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.
This report shall not be reproduced, except in full, without the written approval from ESC.
Reported: 05/18/10 13:34 Printed: 05/18/10 13:34

Summary of Remarks For Samples Printed
05/18/10 at 13:34:38

TSR Signing Reports: 341
R3 - Rush: Two Day

Sample: L459276-01 Account: MUROILSWI Received: 05/15/10 09:00 Due Date: 05/18/10 00:00 RPT Date: 05/18/10 13:34



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) High Fraction	< .1	ppm			WG478666	05/17/10 13:21
Triacotane		% Rec.	112.9	50-150	WG478666	05/17/10 13:21
1,2,4-Trimethylbenzene	< .001	mg/l			WG478678	05/15/10 18:28
1,3,5-Trimethylbenzene	< .001	mg/l			WG478678	05/15/10 18:28
Benzene	< .0005	mg/l			WG478678	05/15/10 18:28
Ethylbenzene	< .0005	mg/l			WG478678	05/15/10 18:28
Gasoline (C6-C10)	< .1	mg/l			WG478678	05/15/10 18:28
m&p-Xylene	< .001	mg/l			WG478678	05/15/10 18:28
Methyl tert-butyl ether	< .001	mg/l			WG478678	05/15/10 18:28
Naphthalene	< .005	mg/l			WG478678	05/15/10 18:28
o-Xylene	< .0005	mg/l			WG478678	05/15/10 18:28
Toluene	< .005	mg/l			WG478678	05/15/10 18:28
a,a,a-Trifluorotoluene(PID)		% Rec.	96.56	80-120	WG478678	05/15/10 18:28

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
TPH (GC/FID) High Fraction	mg/l	1	0.922	92.2	75-115	WG478666
Triacotane				115.0	50-150	WG478666
1,2,4-Trimethylbenzene	mg/l	.05	0.0508	102.	80-120	WG478678
1,3,5-Trimethylbenzene	mg/l	.05	0.0504	101.	80-120	WG478678
Benzene	mg/l	.05	0.0520	104.	79-114	WG478678
Ethylbenzene	mg/l	.05	0.0502	100.	80-116	WG478678
Gasoline (C6-C10)	mg/l	.5	0.473	94.6	80-120	WG478678
m&p-Xylene	mg/l	.1	0.100	100.	85-120	WG478678
Methyl tert-butyl ether	mg/l	.05	0.0479	95.9	64-125	WG478678
Naphthalene	mg/l	.05	0.0496	99.3	80-120	WG478678
o-Xylene	mg/l	.05	0.0500	100.	82-116	WG478678
Toluene	mg/l	.05	0.0500	100.	79-112	WG478678
a,a,a-Trifluorotoluene(PID)				99.16	80-120	WG478678

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) High Fraction	mg/l	0.924	0.922	92.0	75-115	0.172	20	WG478666
Triacotane				106.5	50-150			WG478666
1,2,4-Trimethylbenzene	mg/l	0.0460	0.0508	92.0	80-120	10.1	20	WG478678
1,3,5-Trimethylbenzene	mg/l	0.0454	0.0504	91.0	80-120	10.6	20	WG478678
Benzene	mg/l	0.0467	0.0520	93.0	79-114	10.8	20	WG478678
Ethylbenzene	mg/l	0.0452	0.0502	90.0	80-116	10.3	20	WG478678
Gasoline (C6-C10)	mg/l	0.449	0.473	90.0	80-120	5.16	20	WG478678
m&p-Xylene	mg/l	0.0903	0.100	90.0	85-120	10.5	20	WG478678
Methyl tert-butyl ether	mg/l	0.0436	0.0479	87.0	64-125	9.58	20	WG478678
Naphthalene	mg/l	0.0452	0.0496	90.0	80-120	9.45	20	WG478678
o-Xylene	mg/l	0.0455	0.0500	91.0	82-116	9.51	20	WG478678
Toluene	mg/l	0.0453	0.0500	91.0	79-112	9.91	20	WG478678
a,a,a-Trifluorotoluene(PID)				98.47	80-120			WG478678

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
1,2,4-Trimethylbenzene	mg/l	0.0488	0	.05	97.6	80-120	L459276-01	WG478678
1,3,5-Trimethylbenzene	mg/l	0.0449	0	.05	89.8	80-120	L459276-01	WG478678

* Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/l	0.0708	0.0150	.05	112.	35-147	L459276-01	WG478678
Ethylbenzene	mg/l	0.0531	0.000860	.05	104.	39-141	L459276-01	WG478678
Gasoline (C6-C10)	mg/l	0.568	0	.5	114.	80-120	L459276-01	WG478678
m&p-Xylene	mg/l	0.103	0.00260	.1	101.	26-157	L459276-01	WG478678
Methyl tert-butyl ether	mg/l	0.0529	0	.05	106.	37-147	L459276-01	WG478678
Naphthalene	mg/l	0.0541	0	.05	108.	80-120	L459276-01	WG478678
o-Xylene	mg/l	0.0562	0.00360	.05	105.	40-145	L459276-01	WG478678
Toluene	mg/l	0.0714	0.0170	.05	109.	35-148	L459276-01	WG478678
a,a,a-Trifluorotoluene(PID)					99.76	80-120		WG478678

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
1,2,4-Trimethylbenzene	mg/l	0.0470	0.0488	93.9	80-120	3.86	20	L459276-01	WG478678
1,3,5-Trimethylbenzene	mg/l	0.0443	0.0449	88.6	80-120	1.36	20	L459276-01	WG478678
Benzene	mg/l	0.0659	0.0708	102.	35-147	7.17	20	L459276-01	WG478678
Ethylbenzene	mg/l	0.0493	0.0531	96.9	39-141	7.33	20	L459276-01	WG478678
Gasoline (C6-C10)	mg/l	0.580	0.568	116.	80-120	2.15	20	L459276-01	WG478678
m&p-Xylene	mg/l	0.0971	0.103	94.5	26-157	6.28	20	L459276-01	WG478678
Methyl tert-butyl ether	mg/l	0.0467	0.0529	93.4	37-147	12.4	20	L459276-01	WG478678
Naphthalene	mg/l	0.0523	0.0541	105.	80-120	3.35	20	L459276-01	WG478678
o-Xylene	mg/l	0.0526	0.0562	98.0	40-145	6.70	20	L459276-01	WG478678
Toluene	mg/l	0.0674	0.0714	101.	35-148	5.80	20	L459276-01	WG478678
a,a,a-Trifluorotoluene(PID)				98.46	80-120				WG478678

Batch number /Run number / Sample number cross reference

WG478666: R1224769: L459276-01
 WG478678: R1225288: L459276-01

* * Calculations are performed prior to rounding of reported values .
 * Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.