K.P. KAUFFMAN COMPANY, INC.
WORLD TRADE CENTER
1675 BROADWAY, 28TH FLOOR
DENVER, COLORADO 80202-4628

TELEPHONE (303) 825-4822
FACSIMILE (303) 825-4825
www.kpk.com

Hand Delivered

April 23, 2014

Mr. Nathan Wiser
United States EPA Region 8
8OC-EISC
1595 Wynkoop Street
Denver, CO 80202-1129

C016938 - 02115

RE: Wattenberg Disposal, LLC
Quarterly Report for Suckla Farms Injection Well #1
Groundwater Monitoring Analysis and Observation Well Installation (OW-5)
Pressure Fall-off Test

Dear Mr. Wiser,

Enclosed please find the Quarterly Injection Report for the period of January 1, 2014 through March 31, 2014 for the above referenced facility, including water analyses for all three months. Additionally, a Groundwater Monitoring Sampling Analysis and approved permit for the new observation well installed by Apex Consulting Services as required by the Colorado Department of Public Health and Environment, and this year's Pressure Fall-off Test Results are attached.

If you have any questions or need additional information, please do not hesitate contacting me at 303-825-4822 or slaramesa@kpk.com

Sincerely,

Susana Lara-Mesa
VP of Engineering

U2 Entered
Date 4/28/14
Initial DB

Cc: Eric Jacobs, CDPHE
Stuart Ellsworth, COGCC
James Taloumis, Weld County

	GREEN	BLUE	CBI
TAB		2	

OMB No. 2040-0042 Approval Expires 12/31/2011

EPA

United States Environmental Protection Agency
Washington, DC 20460

Injection Well Monitoring Report

Year 2014	Month	Month	Month
	January	February	March
Injection Pressure (PSI)			
1. Minimum	300	300	300
2. Average	348	442	338
3. Maximum	500	500	500
Injection Rate (Gal/Min)			
1. Minimum	55	55	55
2. Average	55	55	55
3. Maximum	55	55	55
Annular Pressure (PSI)			
1. Minimum	130	130	130
2. Average	130	130	130
3. Maximum	130	130	130
Injection Volume (Gal)			
1. Monthly Total	437,304	346,836	353,178
2. Yearly Cumulative	437,304	784,140	1,137,318
Temperature (F °)			
1. Minimum			
2. Average			
3. Maximum			
pH			
1. Minimum			
2. Average			
3. Maximum			
Other			
Class I - Non-Hazardous	0	0	0
Class I - Non-Haz. Cumulative	0	0	0

Name and Address of Permittee		Permit Number
Wattenberg Disposal, LLC, 8979 WCR 22, Fort Lupton, CO 80621		CO-10938-2115
Name and Official Title *(Please type or print)*	**Signature**	**Date Signed**
Renae Patterson, Admin. Assistant	Renae Patterson	4/9/2014

EPA Form 7520-8 (Rev. 12-08)

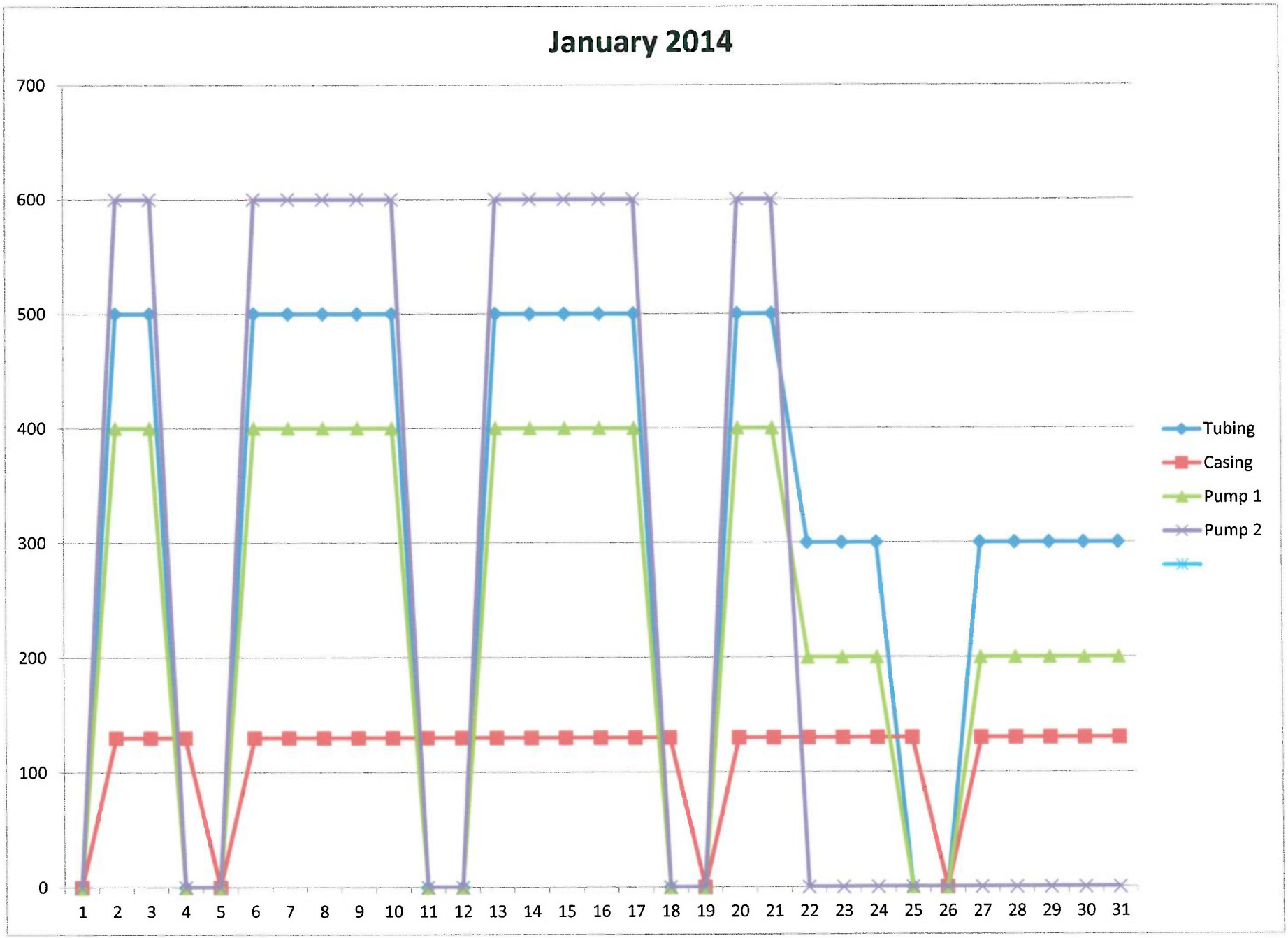
LEASE #	LEASE NAME	DATE 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	LEASE TOTALS
67528	AMEN 1																											40					40
61864	AMOCO-CHARTER-SCHNEI								43																								43
61883	AMOCO CHART SCHNEIDER A								44																								44
61902	AMOCO CHART SCHNEIDER B								43																								43
58368	AMOCO-ENERGY-SMITS U						45				35							40							35								155
67529	ANDERSON #1									10																							10
61450	ANDERSON 1, 2																	35															35
17450	ANDERSON										15										22								20				57
23789	ANDERSON 13-32									10																							10
23790	ANDERSON 12-32									10																							10
23792	ANDERSON 14-32									10																							10
192530	BAURER 41-36		43						27		12					43						23						27					175
58425	BELL UNIT, *CHARLES																								30								30
58406	BELL, *CHARLES C																								30								30
59850	BERGER A																						20										20
59850B	BERGER, *JACK & BERG																						20										20
22655	BERNHARDT 7-14																	30															30
22698	BERNHARDT 7-16																	30															30
103500	BRIGGS #1																65																65
24571	CAMENISCH 2-32																	18															18
24591	CAMENISCH 8-32																	19															19
24569	CAMENISCH 41-32																	19															19
24704	CAMENISCH 50-32																	19															19
17451	CARTER 21-33						130															80											210
58463	CHRISTENSEN UNIT, *N						15										18								18								51
58444	CHRISTENSEN, *NELS						15										17								17								49
09163	COBURN CLEMENTINE 1																				25												25
09593	COBURN CLEMENTINE B1																				25												25
58482	DAMIANA, *JAMES A								40																								40
60040	DEEPE C, *CARL R									35																					40		75
07895	DEVORE 1, 2			7										10											9								26
07896	DEVORE 2			8										10											8								26
09272	DEVORE 3, 4			7										10											9								26
09271	DEVORE 4			8										10											9								27
62611	ED KAM 1-21																								20								20
56054	ED KAM 3-28														35																		35
194160	EIBERGER 32-36		43						27		11					43						24						26					174
194110	EIBERGER 42-36		44						26		12					44						23						27					176
08391	ELKHORN CO B3		6																						7								13
08694	ELKHORN CO B5		5																						7								12
09488	ELKHORN CO B6		6																						6								12
09489	ELKHORN CO B7		6																						7								13
09490	ELKHORN CO B8		6																						6								12
09491	ELKHORN CO B9		6																						7								13
59268	ENERGY MINERALS A 1													13											10								23
00001	FACILITY 1									130				80			130													130			470
00002	FACILITY 2		130					80		80						130	80							80									580
00003	FACILITY 3									45	60												25		40								170
00004	FACILITY 4		80	130											130		130													260			730
00005	FACILITY 5		70	130				130			110				40						130		115	130				20			130		1005
00006	FACILITY 6			100										35	65	80						20		25				70					395
00007	FACILITY 7			130												130							130								130		520
00008	FACILITY 8														130						130											130	390
0004WA	FACILITY 4WA																													130			130
0004WB	FACILITY 4WB								125								80						80							75			360
60095	FINDLAY, *RICHARD R			130				115															130										375
59269	FIRECRACKER							60														60											120
32751	FRONT RANGE 11-17-5														23							20											43
32754	FRONT RANGE 11-17-6														22							20											42
62608	GENESIS 1							45																					45				90
62603	GENESIS 3		40							35							35						30										140
07887	GERHARDT GEORGE H 1			8																													8
08124	GERHARDT GEORGE H 2			7																													7
08946	GERHARDT GEORGE H 3			8																													8
13577	GERHARDT GEORGE H 4			7																													7
60135	GERHARDT MARIE B															50																	50
59839	GRANT #'S 1,2,3,4								45																								45
60173	GREELEY NATIONAL BAN								35																								35
5869	GUTHRIE 1 & 2		25				30				25					30					35				20						50		215
60192	HALEY TRUSTEE, *JAME			12														15			7												34
60211	HANKS						50																								20		70
60249	HART UNIT B, MARTIN														25										35								60
60270	HART UNIT F, MARTIN													13											10								23
60230	HART, MARTIN T 1,2,3													14											10								24
60271	HART UNIT G																														20		20
59033	HAUDRICH #1 & 2			30																			40										70
62020	HEIN 1-2			11														15			6												32
60290	HERMAN UNIT B, *ALFR						25											15											15			25	80
58505	HERMAN UNIT, *ALFRED						25											15											15			25	80
58501	HLADKY-O'GORMAN										22												20										42
60310	HORST B, JOHN 1 & 2						18															10									25		53
02128	HOSMER 1, 2																	30															30
60324	HUNZIKER																							45									45
60323	JEFFERS, A.D. #1																														20		20
62592	KAMMERZELL 1-9																								13								13

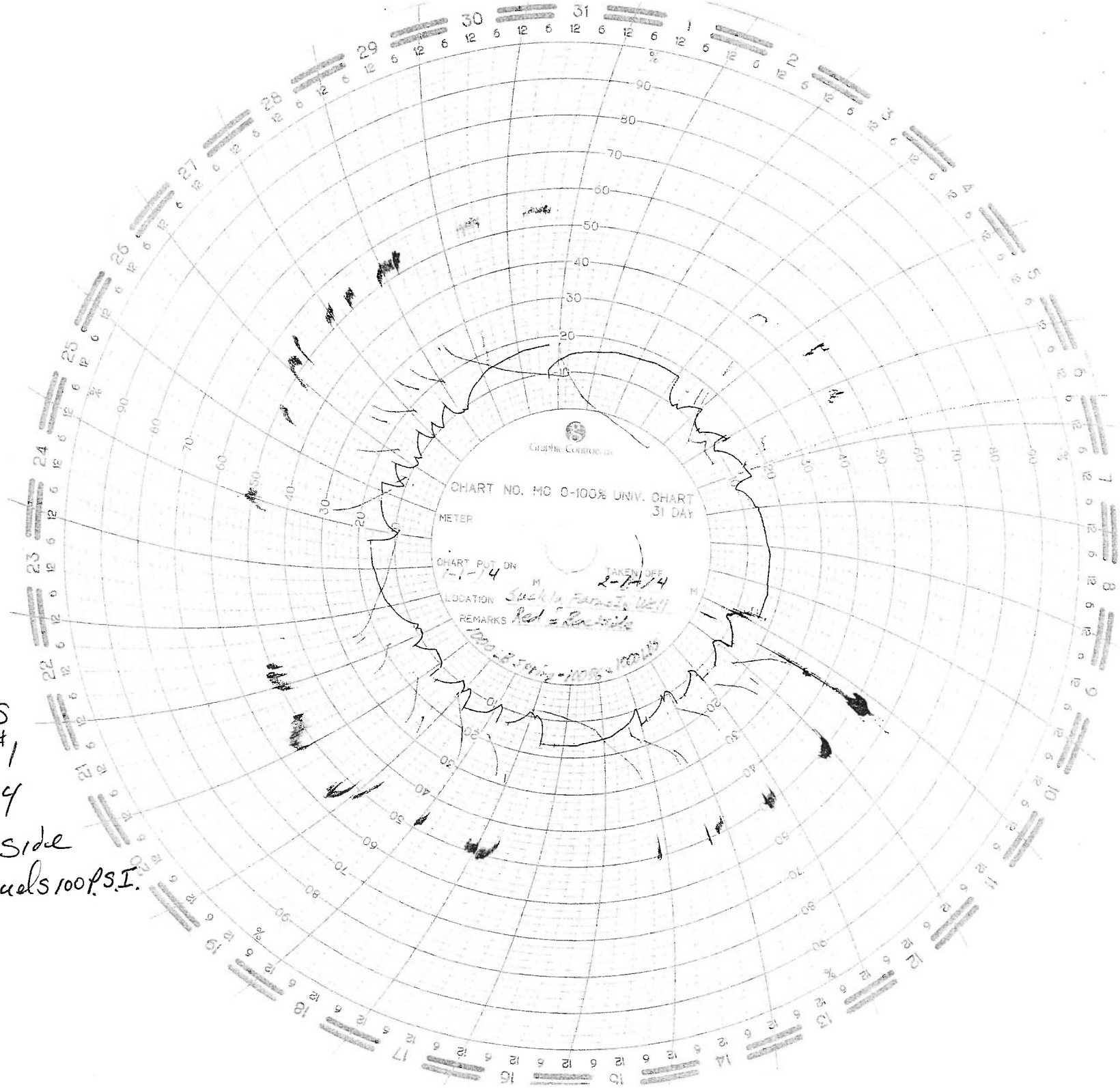
22643	KAMMERZELL 7-4																							12										12
16057	KOCH 41-6										15																							15
09204	KOCH, KEN										15																							15
29642	KOESTER 18-33									13								10																23
29643	KOESTER 18-33-6									14								10																24
29605	KOESTER 18-33-4									13								10																23
29606	KOESTER 3-33-3														40																			40
6080	KORTUM 2 A																15																	15
09653	LANSDOWN 1			18											25																30			73
07348	LANSDOWN WM D 1			17											25																30			72
10437	LANSDOWN WM D UNIT D1						17			30																								47
59831	LANSON'S FARM 1-16																						80											80
16883	LEGG 14-22						18			30																								48
67150	LOEFFLER 2-24									25												20												45
56144	MATSUSHIMA 1-5							40																										40
23517	MATSUSHIMA 2-6X							40																										40
56141	MATSUSHIMA 3-14																											20						20
23516	MATSUSHIMA 4-19X																											20						20
07881	MCCOY PHILLIP #1		55																		35			23							30			143
59071	MCCRUMB #'S 1 & 2																						20										45	65
60553	MCHALE															80																		80
08644	MILLARD 1									20					23						20								20					83
10548	MILLARD 2									20					22						20								20					82
58709	MILLER 13-5			22							27													23										72
60572	MILLER A, *CARL A			12														15			7													34
68278	MILLER B #14, *CARL			22							26													23										71
60559	MILLER E #1, *CARL A			21							27													24										72
6436	MITCHELL 32-3													40																				40
61697	MOSER #1-A								30							40																	45	115
69075B	MUSICK 3-5							50																										50
32872	NRC 9-9-15H			80										80									90								85			335
6119	NEWLANDER		35				30							45				25				20		15										170
34718	NOEL 3-18		60							45												50												155
259619	ROCKY MOUNTAIN FUEL 9-8							12																11									11	34
259204	ROCKY MOUNTAIN FUEL 15-9							43																										43
60740	ROCKY MOUNTAIN FUEL 33-9							44																										44
60762	ROCKY MTN FUEL CO C 7&8							56																11									11	78
68126	ROCKY MTN FUEL CO C 4, 10							25																23									23	71
60706	ROCKY MTN FUEL CO C 11													270								120												390
59337	TOM RUSSELL 2																												45		100			145
60790	SCHUTT, MARVIN E 1						17															10									25			52
61188	SELTZER 1A														20																			20
20008	SHAW 15-20										35																							35
20133	SHAW 16-20										35																							35
60800	SICKLER, SHELDON 1 T								45																									45
12602	SPRAGUE A M A 1										15										23								20					58
7684	STATE 1-26													30																				30
6515	STATE 14-32													10																				10
6741	STATE 14													10				33																43
6746	STATE 14-31													10				34																44
7601	STATE 16-22																	33																33
7676	STATE 32-26													30																				30
60819A	STREAR, *SIDNEY							30																					15					45
60820	STREAR							30																					15					45
62593	STRONG 1																											35						35
60838	SUCKLA A UNIT 1&2															10																		10
60895	SUCKLA D UNIT 1&2															10																		10
60952	SUCKLA FARMS C 2&3															10																		10
60933	SUCKLA BROWN 17																50																	50
24646	SUNMARKE									16																								16
35079	SUNMARKE 19-28-12									16																								16
35080	SUNMARKE 19-28-11									16																								16
35081	SUNMARKE 19-28-14									16																								16
35082	SUNMARKE 19-28-13									16																								16
67309	TOWNSEND																	100																100
58653	TWOMBLEY B, *MARGARE						45																											45
02091A	UPRR 23 D 3													50																				50
02091B	UPRR 23 D 4									50																								50
04250A	UPRR 23 M 1 & 2														35																			35
61070	UPRR 42 PAN AM AF 1,														40																			40
61008	UPRR 42 D																						60					50					60	170
61047	UPRR 42 PAN AM G																							50										50
58691	UPRR 42 PAN AM K																					40											40	80
61067	UPRR 43 PAN AM I							70										45						70										185
61068	UPRR 42 PAN AM N		50								45					40						50									50			235
67770	VINCENT J 3													30														45						75
61719	WAGNER #1B										10				15															13				38
62131	WAGNER #'S 1A & 2A										10				15															12				37
61095	WALKING, *CARY										23											20												43
16268	WEIGANDT A 1			50																														50
15925	WOOLEY 13-14																				35			22							30			87
66995	WUERTZ 12-3														45																			45
	TOTALS	0	710	975	0	0	480	870	530	705	585	0	0	800	775	740	620	615	0	0	520	360	860	530	670	0	0	380	230	620	815	415		
																																		13805
																																		13805

January 2014

WATTENBERG DAILY EVALUATION SHEET

Date	Time	Injecting Fluid Yes	Injecting Fluid No	Pressured Annulus Yes	Pressured Annulus No	Tubing Pressure	Annulus Pressure	Estimated Barrels Injected (prior 24 hrs)	Ambient Air Temperature (est)	Weather Conditions	Remarks/Summary Prior 24 Hrs.
1	Closed		X	X		Ø	130	583			
2	7:00A		X	X		Ø	130	Ø			
3	7:00A		X	X		Ø	130	490			
4	Closed		X	X		Ø	130	846			
5	Closed		X	X		Ø	130	Ø			
6	7:00A		X	X		Ø	130	Ø			
7	7:00A		X	X		Ø	130	92			
8	7:00A		X	X		Ø	130	703			
9	7:00A		X	X		Ø	130	555			
10	7:00A		X	X		Ø	130	774			
11	Closed		X	X		Ø	130	600			
12	Closed		X	X		Ø	130	Ø			
13	7:00A		X	X		Ø	130	Ø			
14	7:00A		X	X		Ø	130	350			
15	7:00A		X	X		Ø	130	676			
16	7:00A		X	X		Ø	130	603			
17	7:00A		X	X		Ø	130	596			
18	Closed		X	X		Ø	130	486			
19	Closed		X	X		Ø	130	Ø			
20	7:00A		X	X		Ø	130	Ø			
21	7:00A		X	X		Ø	130	433			
22	7:00A		X	X		Ø	130	237			
23	7:00A		X	X		Ø	130	457			
24	7:00A		X	X		Ø	130	318			
25	Closed		X	X		Ø	130	383			
26	Closed		X	X		Ø	130	Ø			
27	7:00A		X	X		Ø	130	Ø			
28	7:00A		X	X		Ø	130	289			
29	7:00A		X	X		Ø	130	511			
30	7:00A		X	X		Ø	130	296			
31	7:00A		X	X		Ø	130	455			


January 2014
700
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Tubing
Casing
Pump 1
Pump 2



Suckla Farms
Injection Well #1
1-1-14 to 2-1-14
100 LB Spring - Backside
Pressure @ 10% equals 100 P.S.I.

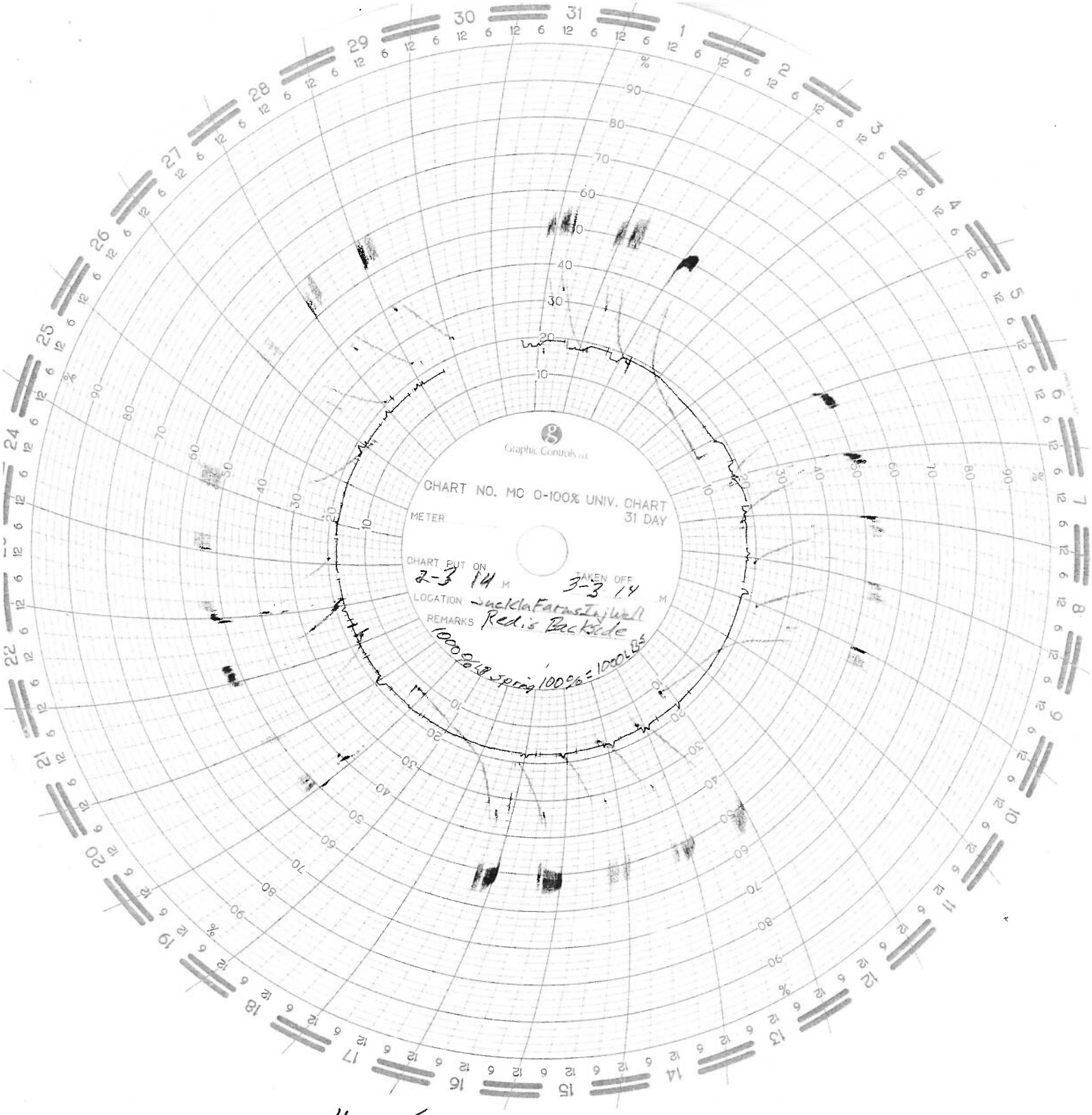
LEASE #	LEASE NAME	DATE 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	LEASE TOTALS
60003	1415 CORPORATION C												20																				20
60007	1415 CORPORATION E																	40															40
60022	1415 CORPORATION F																											100					100
61864	AMOCO-CHARTER-SCHNEI											38																					38
61883	AMOCO CHART SCHNEIDER A											39																					39
61902	AMOCO CHART SCHNEIDER B											38																					38
58368	AMOCO-ENERGY-SMITS U							40														40											80
17450	ANDERSON			20									37						15														72
192530	BAURER 41-36			43										27						27						42			27				166
58425	BELL UNIT, *CHARLES							32																					30				62
58406	BELL, *CHARLES C							33																					30				63
59850	BERGER A												25																18				43
59850B	BERGER, *JACK & BERG												25																17				42
62607	BERNHARDT 1-11												45																				45
103500	BRIGGS #1							50																			30						80
60113	CAMENISCH 1																									10							10
23577	CAMENISCH 32-10																									10							10
23578	CAMENISCH 32-16																									10							10
23579	CAMENISCH 32-9																									10							10
26440	CAMENISCH 20-32																									10							10
17451	CARTER 21-33							130											70	130							20						350
09163	COBURN CLEMENTINE 1			20															13														33
09593	COBURN CLEMENTINE B1			20															12														32
58482	DAMIANA, *JAMES A			25																													25
07895	DEVORE 1, 2																									8							8
07896	DEVORE 2																									9							9
09272	DEVORE 3, 4																									9							9
09271	DEVORE 4																									9							9
07886	DUTCHER B 1				20																												20
08945	DUTCHER B 2				20																												20
08684	DUTCHER C 1				20																												20
08899	DUTCHER C 2				20																												20
194160	EIBERGER 32-36			44										26						26						42			26				164
194110	EIBERGER 42-36			43										27						27						41			27				165
08391	ELKHORN CO B3										8											6											14
08694	ELKHORN CO B5										9											7											16
09488	ELKHORN CO B6										8											7											15
09489	ELKHORN CO B7										8											7											15
09490	ELKHORN CO B8										9											6											15
09491	ELKHORN CO B9										8											7											15
59268	ENERGY MINERALS A 1																					13											13
00001	FACILITY 1					15	130							100					70	130								130					575
00002	FACILITY 2							130			130			244						50								70					624
00003	FACILITY 3							40							50					45								70					205
00004	FACILITY 4											130			130			210										130					600
00005	FACILITY 5							90				50			130							130						130					530
00006	FACILITY 6										60							130	65		60	40				70							425
00007	FACILITY 7					120					130							130				130					130						640
00008	FACILITY 8							128				101						130		130													489
0004WA	FACILITY 4WA																											130					130
0004WB	FACILITY 4WB											50																					50
60095	FINDLAY, *RICHARD R											130																65					195
59269	FIRECRACKER																					50											50
32751	FRONT RANGE 11-17-5			40																													40
32754	FRONT RANGE 11-17-6			40																													40
59584	GAULKE 1, 2						45																										45
62603	GENESIS 3			50								40													40								130
07887	GERHARDT GEORGE H 1					15																											15
08124	GERHARDT GEORGE H 2					15																											15
08946	GERHARDT GEORGE H 3					15																											15
13577	GERHARDT GEORGE H 4					15																											15
5869	GUTHRIE 1 & 2					35							45									40											120
60192	HALEY TRUSTEE, *JAME							15																									15
60211	HANKS														50																		50
60249	HART UNIT B, MARTIN			25																40													65
60270	HART UNIT F, MARTIN																					13											13
60230	HART, MARTIN T 1,2,3																					14											14
59033	HAUDRICH #1 & 2																										60						60
62020	HEIN 1-2							15							80																		95
25314	HEPP 31-32																									50							50
60290	HERMAN UNIT B, *ALFR																	20										20					40
58505	HERMAN UNIT, *ALFRED																	20										20					40
56134	HILL 3-10																			50													50
58501	HLADKY-O'GORMAN							20														18											38
04200	HORTH R1-R2																				30												30
59592	JOHNSON #'S 1 & 2												40																				40
16057	KOCH 41-6													15																			15
09204	KOCH, KEN													15																			15
29642	KOESTER 18-33																									10							10
29643	KOESTER 18-33-6																									10							10
29605	KOESTER 18-33-4																									10							10
34022	KOESTER 18-33-22												45																				45
29606	KOESTER 3-33-3			50																						30							80
16116	KUNZMAN 43-6													9																			9
07666	KUNZMAN JOHN A #1													8																			8

09296	KUNZMAN 2													9																					9
09719	KUNZMAN 4													9																					9
07348	LANSDOWN WM D 1														20																				20
10437	LANSDOWN WM D UNIT D1						30								20																				50
59831	LANSON'S FARM 1-16														60																				60
16883	LEGG 14-22						30																												30
56138	LOEFFLER 1-18																			30															30
67150	LOEFFLER 2-24																										30								30
61685	MARCUS 1											20		35	20				30																105
07881	MCCOY PHILLIP #1																						20				32								52
08644	MILLARD 1			20									20						12											20					72
10548	MILLARD 2			20									20						13											20					73
58709	MILLER 13-5							23																					22						45
60572	MILLER A, *CARL A							15																											15
68278	MILLER B #14, *CARL							23																					22						45
60559	MILLER E #1, *CARL A							24																					21						45
09295	MILLER, ELTON N E 1																		50				30												80
6442	MITCHELL 32-8			40																															40
61697	MOSER #1-A																								45										45
69075A	MUSICK 1-2-4-7																									20									20
69075B	MUSICK 3-5																									50									50
32872	NRC 9-9-15H						100											90					50												240
34718	NOEL 3-18			60														50																	110
65003	OWEN																										45								45
07876	PREM TURKEY FARMS C1												25																						25
08943	PREM TURKEY FARMS C2												25																						25
259619	ROCKY MOUNTAIN FUEL 9-8																		9																9
259204	ROCKY MOUNTAIN FUEL 15-9													33																					33
60740	ROCKY MOUNTAIN FUEL 33-9													34																					34
60762	ROCKY MTN FUEL CO C 7&8													33					9																42
68126	ROCKY MTN FUEL CO C 4, 10																		17																17
5791	RUEBEL 1-4												70													30									100
20008	SHAW 15-20																													20					20
20133	SHAW 16-20																													20					20
12602	SPRAGUE A M A 1			20									38						15																73
6515	STATE 14-32																		43						23										66
6741	STATE 14																		44						24										68
6746	STATE 14-31																		43						23										66
60819A	STREAR, *SIDNEY				27																														27
60820	STREAR				28																														28
66643	STROH #2																										16								16
24147	STROH 28-16																										16								16
26308	STROH 15-28																										16								16
24238	STROH 28-9																										16								16
24237	STROH 28-10																										16								16
60933	SUCKLA BROWN 17							35																											35
24646	SUNMARKE																				18									100					118
35079	SUNMARKE 19-28-12																				18														18
35080	SUNMARKE 19-28-11																				18														18
35081	SUNMARKE 19-28-14																				18														18
35082	SUNMARKE 19-28-13																				18														18
67309	TOWNSEND										60			40				70																	170
58653	TWOMBLEY B, *MARGARE							60																											60
02091B	UPRR 23 D 4			50																			40												90
61070	UPRR 42 PAN AM AF 1,																													30					30
61008	UPRR 42 D																						80							40					120
61047	UPRR 42 PAN AM G																										60								60
58691	UPRR 42 PAN AM K										60																		30						90
61068	UPRR 42 PAN AM N										50												40												90
62130	WAGNER #1																		35																35
61719	WAGNER #1B														20											15									35
62131	WAGNER #'S 1A & 2A														20											15									35
61095	WALKING, *CARY							20															17												37
61104	WELD COUNTY B			37																															37
61105	WELD COUNTY C			38																															38
15925	WOOLEY 13-14																						20				33								53
66995	WUERTZ 12-3														50										50										100
	TOTALS	0	0	705	135	230	335	923	0	0	540	636	480	664	650	0	0	890	565	685	180	825	0	0	205	670	370	960	425	0	0	0			
																																			11073
																																			11073

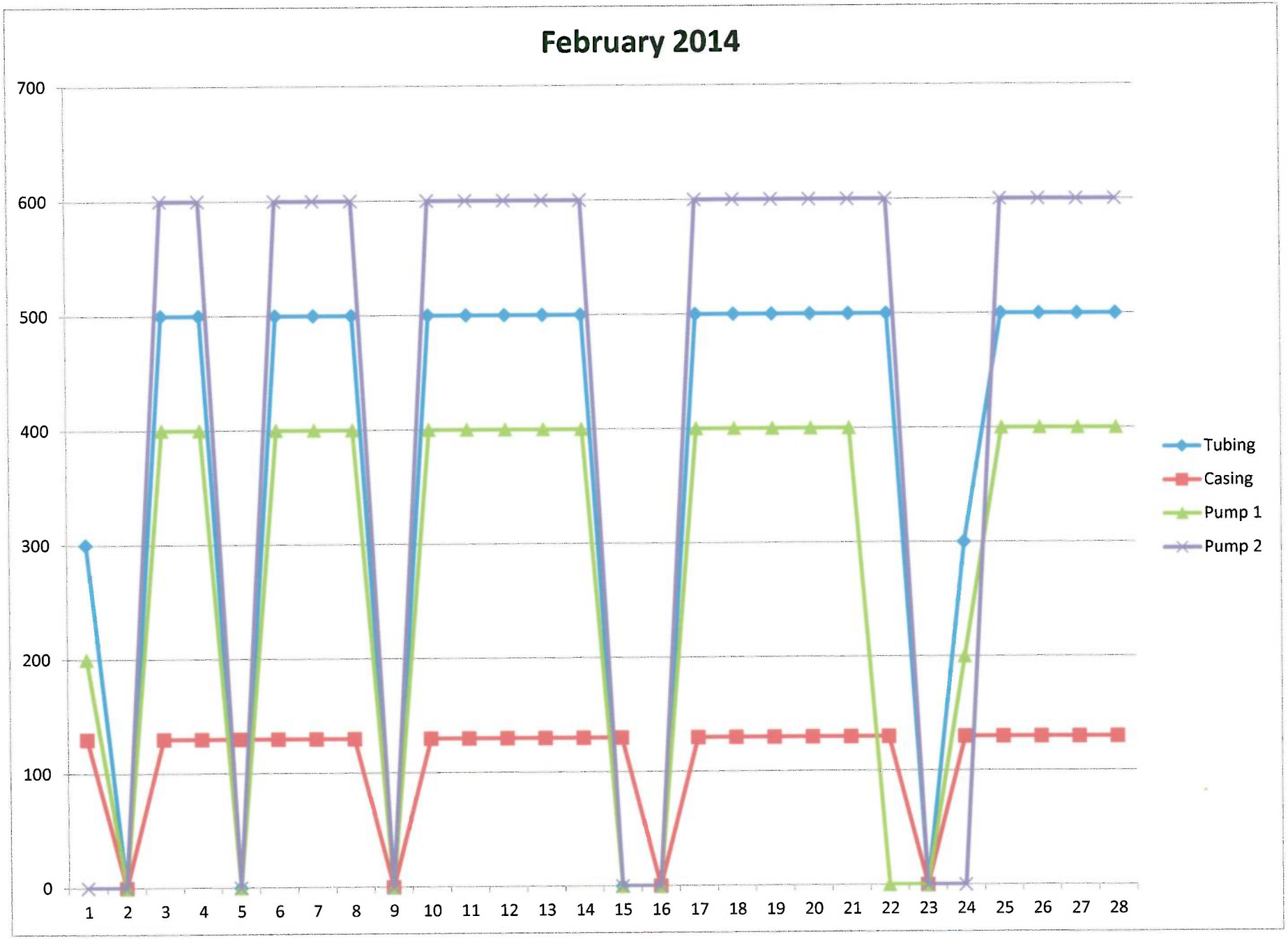
Febuary 2014

WATTENBERG DAILY EVALUATION SHEET

Date	Time	Injecting Fluid Yes	Injecting Fluid No	Pressured Annulus Yes	Pressured Annulus No	Tubing Pressure	Annulus Pressure	Estimated Barrels Injected (prior 24 hrs)	Ambient Air Temperature (est)	Weather Conditions	Remarks/Summary Prior 24 Hrs.
1	7:00A		X	X		Ø	130	412			
2	Closed		X	X		Ø	130	185			
3	7:00A		X	X		Ø	130	Ø			
4	7:00A		X	X		Ø	130	326			
5	7:00A		X	X		Ø	130	362			
6	7:00A		X	X		Ø	130	Ø			
7	7:00A		X	X		Ø	130	133			
8	7:00A		X	X		Ø	130	378			
9	Closed		X	X		Ø	130	270			
10	7:00A		X	X		Ø	130	Ø			
11	7:00A		X	X		Ø	130	165			
12	7:00A		X	X		Ø	130	732			
13	7:00A		X	X		Ø	130	431			
14	7:00A		X	X		Ø	130	333			
15	Closed		X	X		Ø	130	720			
16	Closed		X	X		Ø	130	Ø			
17	7:00A		X	X		Ø	130	Ø			
18	7:00A		X	X		Ø	130	444			
19	7:00A		X	X		Ø	130	462			
20	7:00A		X	X		Ø	130	688			
21	7:00A		X	X		Ø	130	326			
22	7:00A		X	X		Ø	130	141			
23	Closed		X	X		Ø	130	389			
24	7:00A		X	X		Ø	130	Ø			
25	7:00A		X	X		Ø	130	65			
26	7:00A		X	X		Ø	130	362			
27	7:00A		X	X		Ø	130	366			
28	700A		X	X		Ø	130	597			
29	~~7:00A~~							~~42~~			
30											
31											



Suckla Farms
Injection Well # 1
02-3-14 to 3-3-14
100 LB Spring - Back Side Pressure
@ 10% equals 100 P.S.I.


February 2014
700
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
Tubing
Casing
Pump 1
Pump 2

60323	JEFFERS, A.D. #1											25																					25
59592	JOHNSON #'S 1 & 2												25																				25
68431	JORDAN 34-4																					30											30
16057	KOCH 41-6																					13			20			20					53
09204	KOCH, KEN																					12			20			20					52
29642	KOESTER 18-33						10												15									12					37
29643	KOESTER 18-33-6						10												15									11					36
29605	KOESTER 18-33-4						10												15									12					37
34025	KOESTER 18-33-5						10																										10
29606	KOESTER 3-33-3																		45														45
6080	KORTUM 2 A									40																							40
10437	LANSDOWN WM D UNIT D1			35																								30					65
59831	LANSON'S FARM 1-16												55								30	60											145
16883	LEGG 14-22			35																								30					65
62294	LORENZ 1-D						40																										40
61685	MARCUS 1				25								30									25											80
23516	MATSUSHIMA 4-19X																						130									130	260
07881	MCCOY PHILLIP #1				27							25						23							28								103
59071	MCCRUMB #'S 1 & 2																						20										20
60553	MCHALE																								55								55
61487	MEREDITH				30																											20	50
08644	MILLARD 1											20															20						40
10548	MILLARD 2											20															20						40
58709	MILLER 13-5																		12		17												29
60572	MILLER A, *CARL A																								12								12
68278	MILLER B #14, *CARL																		11		16												27
60559	MILLER E #1, *CARL A																		12		17												29
60648	MONTOYA 1, 2							25																									25
61697	MOSER #1-A														35																		35
6352	MURPHY 5-2						40														30												70
07112	MURPHY 11-5									40																							40
6336	MURPHY 31-3									80																							80
6445	MURPHY 31-5																					70			55								125
69075A	MUSICK 1-2-4-7											20									30												50
32872	NRC 9-9-15H																		90									65					155
6119	NEWLANDER																		35							50							85
34718	NOEL 3-18			50								50														55							155
60699	PARKER 44-15									65																							65
52295	PARR 2							55																									55
08985	PREM TURKEY FARMS B2						10					12													8								30
07876	PREM TURKEY FARMS C1						10					11													9								30
08943	PREM TURKEY FARMS C2						10					12													8								30
259619	ROCKY MOUNTAIN FUEL 9-8																		11														11
60762	ROCKY MTN FUEL CO C 7&8																		11														11
68126	ROCKY MTN FUEL CO C 4, 10																		23														23
5787	RUEBEL 1 & 2																															35	35
60790	SCHUTT, MARVIN E 1							33					23									22											78
20008	SHAW 15-20																											35					35
20133	SHAW 16-20																											35					35
12602	SPRAGUE A M A 1			30								33									25											30	118
6515	STATE 14-32																				33						23						56
6741	STATE 14																				34						24						58
6746	STATE 14-31																				33						23						56
60819A	STREAR, *SIDNEY							10																					30				40
60820	STREAR							10																					30				40
62593	STRONG 1					35												40															75
60933	SUCKLA BROWN 17						25																										25
24646	SUNMARKE							25																				13					38
35079	SUNMARKE 19-28-12			22																15								13					50
35080	SUNMARKE 19-28-11			23																15								13					51
35081	SUNMARKE 19-28-14			22																15								13					50
35082	SUNMARKE 19-28-13			23																15								13					51
58653	TWOMBLEY B, *MARGARE															35													50				85
61070	UPRR 42 PAN AM AF 1,						35																										35
61047	UPRR 42 PAN AM G																		35														35
58691	UPRR 42 PAN AM K											45											40										85
61067	UPRR 43 PAN AM I						65																										65
61068	UPRR 42 PAN AM N			40						50												45											135
68295	VINCENT A 1									80			80			70																	230
67770	VINCENT J 3												50		50										40								140
61719	WAGNER #1B																					17											17
62131	WAGNER #'S 1A & 2A																					18											18
61095	WALKING, *CARY						15	70														23										25	133
66832	WIND 1											45																					45
15925	WOOLEY 13-14				28							25						22							27								102
66995	WUERTZ 12-3							50																	50								100
61142	YURK				30										40																		70
	TOTALS	0	0	785	560	395	810	765	0	0	825	680	795	260	670	225	0	409	650	130	520	1000	430	0	590	355	465	1075	705	0	0	500	
																																	13599
																																	13599

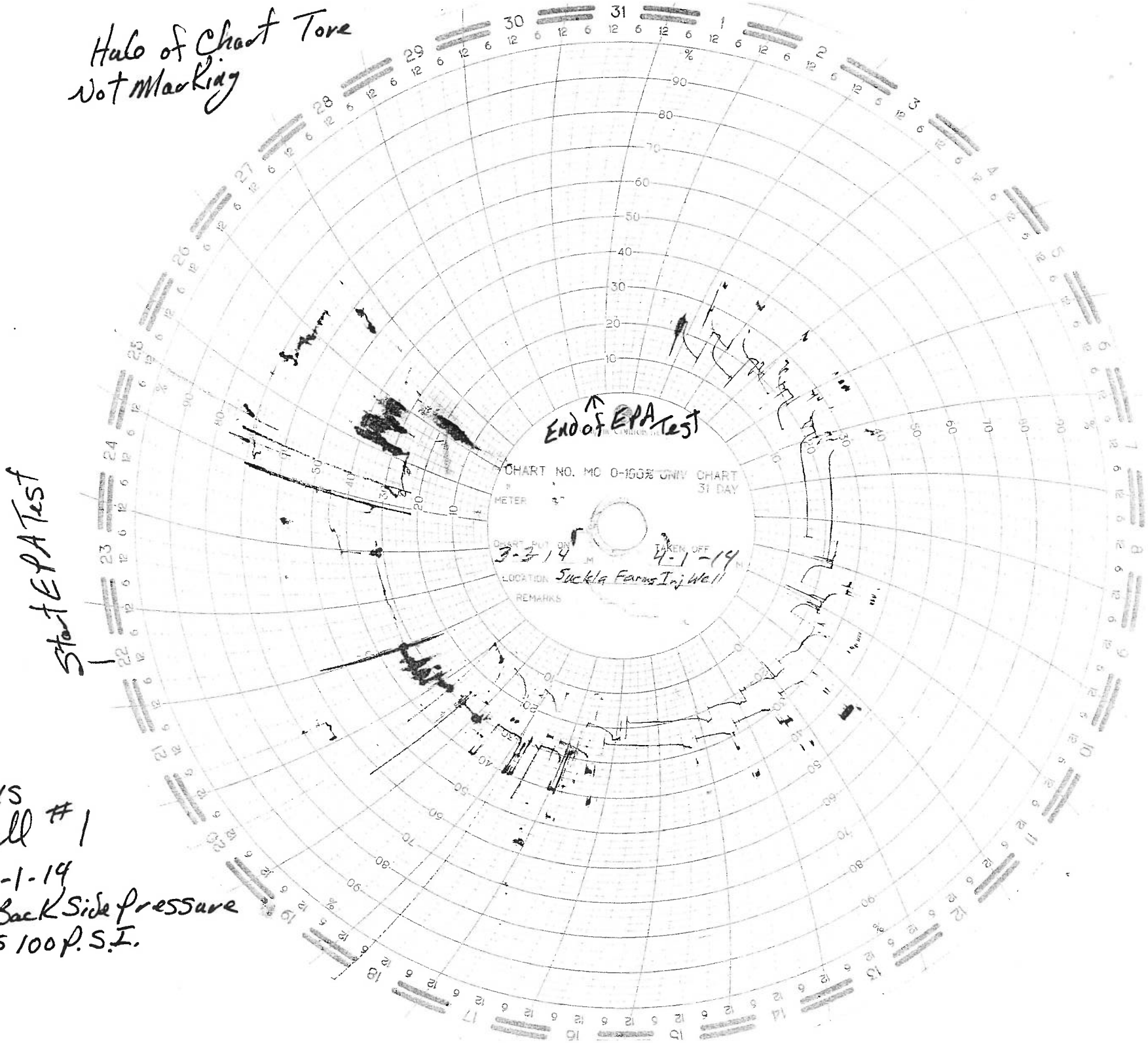
LEASE #	LEASE NAME	DATE 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	LEASE TOTALS
																																	0
	ANGI ALLES RECEIVER																																0
G018	BERTHOUD BOOSTER																																0
	CDP 7 RECEIVER																																0
G012	EATON PLANT																																0
G033	ENTERPRISE BOOSTER																																0
G009	GREELEY OFFICE																																0
G011	GREELEY PLANT																																0
	JODY BOOSTER																																0
G018	JOHNSTOWN BOOSTER																																0
G034	KRAUTHEAD																																0
GD06	LASALLE GAS																																0
G088	LIBSACK/GILL																																0
G013	LUCERNE PLANT																																0
	MARIA BOOSTER																																0
G018	MARILYN BOOSTER																																0
	MARLA STATION																																0
G018	MARTHA BOOSTER																																0
G014	MEWBOURN PLANT																																0
	MID POINT BOOSTER																																0
	PARKER PARSLEY BOOSTER																																0
G882	PLATTEVILLE PLANT																																0
	REINICK RECEIVER																																0
G035	RIVERSIDE BOOSTER																																0
G032	ROGGEN FIELD																																0
G031	ROGGEN PLANT							130																									130
G018	SINGLETREE BOOSTER																																0
	SOUTHFIELD BOOSTER																																0
G010	SPINDLE PLANT							80																									80
G018	SURREY BOOSTER																																0
G036	TAMPA																																0
G023	WELD BOOSTERS																																0
G017	WELD FIELD																																0
L095	WELD MEASUREMENT																																0
G018	WEST SPINDLE BOOSTER																																0
																																	0
	TOTAL	0	0	0	0	0	0	210	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	210
																																	210

March 2014

WATTENBERG DAILY EVALUATION SHEET

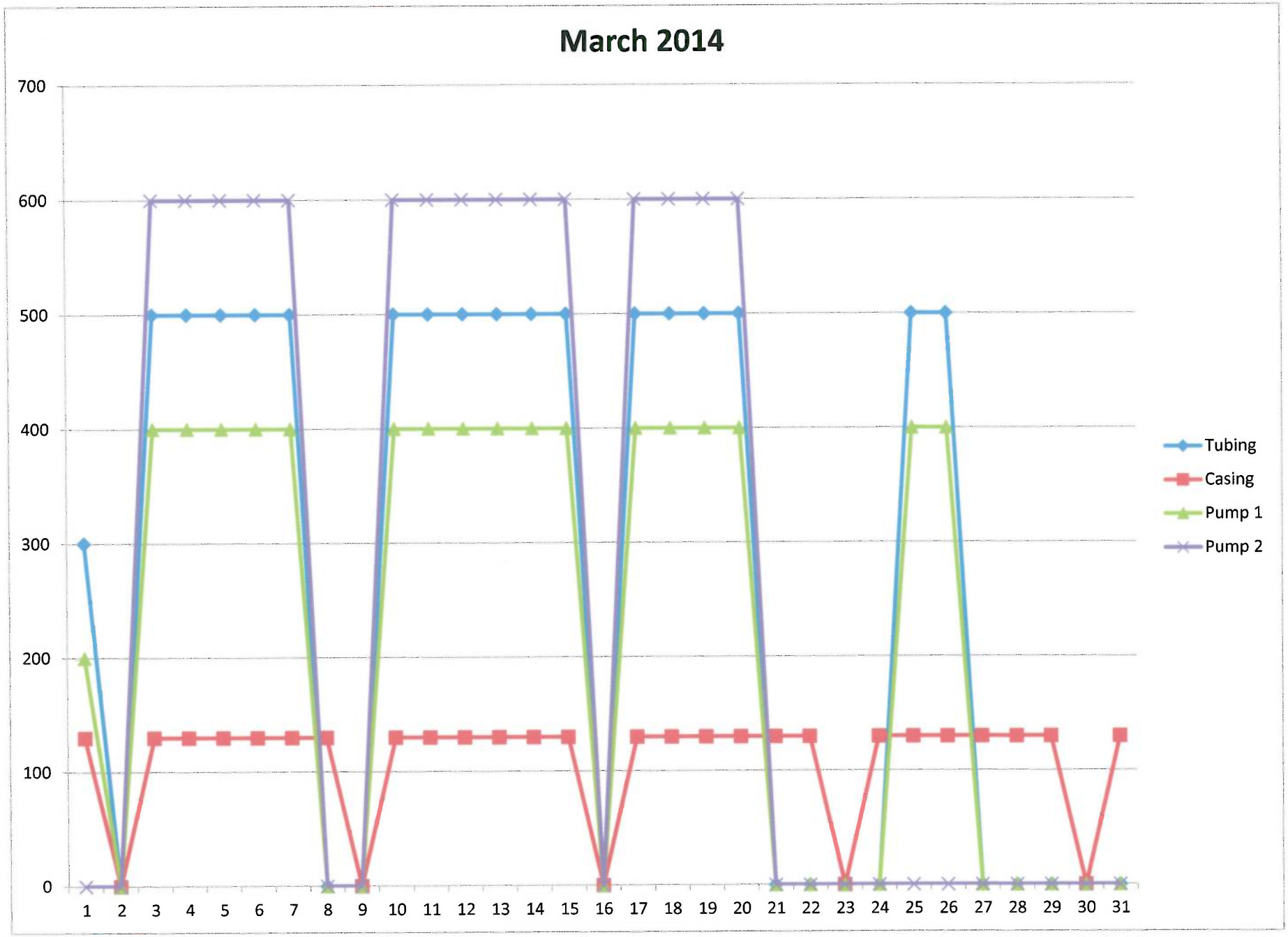
Date	Time	Injecting Fluid Yes	Injecting Fluid No	Pressured Annulus Yes	Pressured Annulus No	Tubing Pressure	Annulus Pressure	Estimated Barrels Injected (prior 24 hrs)	Ambient Air Temperature (est)	Weather Conditions	Remarks/Summary Prior 24 Hrs.
1	7:00		X	X		Ø	130	423			
2	Closed		X	X		Ø	130	97			
3	7:00A		X	X		Ø	130	Ø			
4	7:00A		X	X		Ø	130	402			
5	7:00A		X	X		Ø	130	383			
6	7:00A		X	X		Ø	130	426			
7	7:00A		X	X		Ø	130	698			
8	Closed		X	X		Ø	130	514			
9	Closed		X	X		Ø	130	Ø			
10	7:00A		X	X		Ø	130	Ø			
11	7:00A		X	X		Ø	130	719			
12	7:00A		X	X		Ø	130	689			
13	7:00A		X	X		Ø	130	768			
14	7:00A		X	X		Ø	130	559			
15	7:00A		X	X		Ø	130	265			
16	Closed		X	X		Ø	130	254			
17	7:00A		X	X		Ø	130	Ø			
18	7:00A		X	X		Ø	130	458			
19	7:00A		X	X		Ø	130	343			
20	7:00A		X	X		Ø	130	462			
21	7:00A		X	X		Ø	130	230			
22	7:00A		X	X		Ø	130	Ø			
23	Closed		X	X		Ø	130	Ø			
24	7:00A		X	X		Ø	130	Ø			
25	6:30A		X	X		Ø	130	Ø			
26	EPA Test		X	X		Ø	130	805			
27	7:00A		X	X		Ø	130	337			
28	7:00A		X	X		Ø	130	Ø			
29	Closed		X	X		Ø	130	Ø			
30	Closed		X	X		Ø	130	Ø			
31	7:00A		X	X		Ø	130	Ø			

Hole of Chart Tore
Not Marking



Start EPA Test

Suckla Farms
Injection Well #1
3-3-14 to 4-1-14
100 LB Spring Back Side Pressure
@ 10% equals 100 P.S.I.


March 2014
700
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Tubing
Casing
Pump 1
Pump 2

Mountain States ACCUTEST LABORATORIES

02/11/14

Technical Report for

K.P. Kauffmann Company, Inc.

Wattenberg Tank

Accutest Job Number: D54680

Sampling Date: 01/30/14

Report to:

Apex Consulting Services
PO Box 369
Louisville, CO 80027-0369
mhattel@msn.com; slaramesa@kpk.com

ATTN: Mike Hattel

Total number of pages in report: 28

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

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Test results relate only to samples analyzed.

Accutest Laboratories is the sole authority for authorizing edits or modifications to this document. Unauthorized modification of this report is strictly prohibited.

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Sample Summary

K.P. Kauffmann Company, Inc.

Job No: D54680

Wattenberg Tank

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D54680-1	01/30/14	07:55 MH	01/30/14	AQ	Water	TANK-I
D54680-1F	01/30/14	07:55 MH	01/30/14	AQ	Water Filtered	TANK-I

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	K.P. Kauffmann Company, Inc.	**Job No**	D54680
Site:	Wattenberg Tank	**Report Date**	2/11/2014 12:53:59 PM

On 01/30/2014, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.5 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D54680 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals By Method SW846 6010C

Matrix AQ **Batch ID:** MP12232

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D54625-1MSD, D54625-1SDL, D54625-1MS, D54625-1MSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Magnesium, Sodium, Calcium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Calcium, Magnesium, Sodium are outside control limits for sample MP12232-SD1. Probable cause due to sample homogeneity.
- MP12232-SD1 for Sodium: Serial dilution indicates possible matrix interference.
- MP12232-SD1 for Magnesium: Serial dilution indicates possible matrix interference.
- MP12232-SD1 for Calcium: Serial dilution indicates possible matrix interference.

Wet Chemistry By Method ASTM D287

Matrix ALL **Batch ID:** GN23563

- The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method EPA 1664A

Matrix AQ **Batch ID:** GP11940

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D54747-1MS were used as the QC samples for the HEM Oil and Grease analysis.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix	AQ	Batch ID:	GP11875

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D54670-1MS, D54670-1MSD were used as the QC samples for the Chloride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate, Chloride analysis.
- D54680-1 for Nitrogen, Nitrate: Elevated detection limit due to matrix interference.
- D54680-1 for Sulfate: Elevated detection limit due to matrix interference.

Wet Chemistry By Method SM 2540C-2011

Matrix	AQ	Batch ID:	GN23524

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D54680-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

Wet Chemistry By Method SM 5310B-2011

Matrix	AQ	Batch ID:	GP11900

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D54658-1MS, D54658-1MSD, D54658-2DUP were used as the QC samples for the Total Organic Carbon analysis.

Wet Chemistry By Method SM4500HB+-2011/9040C

Matrix	AQ	Batch ID:	GN23518

- D54680-1 for pH: Analysis performed past the required 15 minutes from collection time/holding time.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D54680
Account: K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank
Collected: 01/30/14

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D54680-1	**TANK-I**					
Chloride		12800	250		mg/l	EPA 300.0/SW846 9056
HEM Oil and Grease		51.6	4.8		mg/l	EPA 1664A
Nitrogen, Nitrite		2.5	2.0		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		20700	10		mg/l	SM 2540C-2011
Specific Gravity by Hydrometer		1.0143				ASTM D287
Total Organic Carbon		175	10		mg/l	SM 5310B-2011
pH [a]		6.68			su	SM4500HB+ -2011/9040C
D54680-1F	**TANK-I**					
Calcium		234000	20000		ug/l	SW846 6010C
Magnesium		31600	10000		ug/l	SW846 6010C
Potassium		132000	50000		ug/l	SW846 6010C
Sodium		6650000	20000		ug/l	SW846 6010C

(a) Analysis performed past the required 15 minutes from collection time/holding time.

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	TANK-I		
Lab Sample ID:	D54680-1	**Date Sampled:**	01/30/14
Matrix:	AQ - Water	**Date Received:**	01/30/14
		Percent Solids:	n/a
Project:	Wattenberg Tank		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	12800	250	mg/l	500	01/30/14 16:41	SK	EPA 300.0/SW846 9056
HEM Oil and Grease	51.6	4.8	mg/l	1	02/11/14	SWT	EPA 1664A
Nitrogen, Nitrate [a]	< 1.0	1.0	mg/l	100	01/30/14 12:56	SK	EPA 300.0/SW846 9056
Nitrogen, Nitrite	2.5	2.0	mg/l	500	01/30/14 16:41	SK	EPA 300.0/SW846 9056
Solids, Total Dissolved	20700	10	mg/l	1	02/03/14	RW	SM 2540C-2011
Specific Gravity by Hydromete	1.0143			1	02/06/14	MM	ASTM D287
Sulfate [a]	< 50	50	mg/l	100	01/30/14 12:56	SK	EPA 300.0/SW846 9056
Total Organic Carbon	175	10	mg/l	10	02/04/14 16:51	SK	SM 5310B-2011
pH [b]	6.68		su	1	01/31/14 14:50	AK	SM4500HB+ -2011/9040C

(a) Elevated detection limit due to matrix interference.
(b) Analysis performed past the required 15 minutes from collection time/holding time.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	TANK-I		
Lab Sample ID:	D54680-1F	**Date Sampled:**	01/30/14
Matrix:	AQ - Water Filtered	**Date Received:**	01/30/14
		Percent Solids:	n/a
Project:	Wattenberg Tank		

4.2

4

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	234000	20000	ug/l	50	01/31/14	02/03/14	KV	SW846 6010C [1]	SW846 3010A [2]
Magnesium	31600	10000	ug/l	50	01/31/14	02/03/14	KV	SW846 6010C [1]	SW846 3010A [2]
Potassium	132000	50000	ug/l	50	01/31/14	02/03/14	KV	SW846 6010C [1]	SW846 3010A [2]
Sodium	6650000	20000	ug/l	50	01/31/14	02/03/14	KV	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4425
(2) Prep QC Batch: MP12232

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST Laboratories

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: D54680

Client / Reporting Information

Company Name: K.P. Kauffman Company, Inc.
Address: 1675 Broadway, Suite 2800
City: Denver State: CO Zip: 80202-4628
Project Contact: SLaraMesa@kpk.com — Susan Lara-Mesa
Phone #: 303-825-4822
Samplers's Name: MICHAEL HATTEL (303-665-1400)

Project Information

Project Name: WATTENBERG TANK
Street:
City: Fort Lupton State: CO
Project #:
Fax #:
Client Purchase Order #: 7591

Requested Analysis

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	OIL & GREASE 1664	ANIONS (NITRATE, NITRITE, SULFATE, CHLORIDE)	pH	CATIONS (Ca, K, Mg, NA)	SPECIFIC GRAVITY	TDS	TOC					LAB USE ONLY
	TANK - I		11/30/14	7:55	MDH	LIQ	6	X			X					X	X	X	X	X	X	X					01

Matrix Codes: DW- Drinking Water; GW- Ground Water; WW- Water; SW- Surface Water; SO- Soil; SL-Sludge; Of-Oil; LIQ- Other Liquid; AIR- Air; SOL-Other Solid; WP-Wipe

Turnaround Time (Business days): X Std. 10 Business Days; Approved By:/ Date:

Emergency T/A data available VIA Lablink

Data Deliverable Information: Commercial "A"; Commercial "B"; NJ Reduced; NJ Full; X Hard Copy; FULL CLP; NYASP Category A; NYASP Category B; State Forms; X PDF

Comments / Remarks: NO Hard Copy; PDF copy to Mike Hattel with APEX at mhattel@msn.com; PDF copy to Susana Lara-Mesa w KPK at SLaraMesa@kpk.com

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		1	2		2 11/30/14 1047
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # Co	Preserved where applicable ☐	On Ice ☐ Cooler Temp. 3.5

5.1 5

D54680: Chain of Custody
Page 1 of 1

Mountain States ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12232
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/31/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	11	41		
Antimony	30	2.1	19		
Arsenic	25	3.8	5.6		
Barium	10	.2	1.4		
Beryllium	10	.9	1.2		
Boron	50	.8	6.6		
Cadmium	10	.2	.36		
Calcium	400	2.4	41	8.5	<400
Chromium	10	.3	.4		
Cobalt	5.0	.5	.57		
Copper	10	.8	1.9		
Iron	70	1.5	9.5		
Lead	50	2.1	21		
Lithium	5.0	.4	2.7		
Magnesium	200	6.8	19	7.5	<200
Manganese	5.0	.5	.46		
Molybdenum	10	.4	.84		
Nickel	30	.5	.87		
Phosphorus	100	15	20		
Potassium	1000	99	270	-13	<1000
Selenium	50	7.1	11		
Silicon	50	4.7	5.2		
Silver	30	.3	.6		
Sodium	400	7.3	170	30.9	<400
Strontium	5.0	.01	.12		
Thallium	10	1.8	4		
Tin	50	12	16		
Titanium	10	.1	2.1		
Uranium	50	2.9	5.5		
Vanadium	10	.4	.4		
Zinc	30	.4	3.2		

Associated samples MP12232: D54680-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12232
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

6.1.1
6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12232
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/31/14

Metal	D54625-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony	anr				
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Boron	anr				
Cadmium	anr				
Calcium	453000	461000	25000	32.0 (a)	75-125
Chromium	anr				
Cobalt	anr				
Copper	anr				
Iron					
Lead	anr				
Lithium					
Magnesium	4500000	4450000	25000	960.0(a)	75-125
Manganese					
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium	70800	97100	25000	105.2	75-125
Selenium	anr				
Silicon					
Silver	anr				
Sodium	500000000012600000		25000	-1320.0a	75-125
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	anr				

Associated samples MP12232: D54680-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12232
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

6.1.2

6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12232
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/31/14

Metal	D54625-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Boron	anr					
Cadmium	anr					
Calcium	453000	466000	25000	52.0 (a)	1.1	20
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron						
Lead	anr					
Lithium						
Magnesium	4500000	4370000	25000	640.0(a)	2.5	20
Manganese						
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	70800	99000	25000	112.8	1.9	20
Selenium	anr					
Silicon						
Silver	anr					
Sodium	500000000012300000		25000	-19950800.0a	1.9	20
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr					
Zinc	anr					

Associated samples MP12232: D54680-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12232
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

6.1.2

6

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12232
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/31/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium	25300	25000	101.2	80-120
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron				
Lead	anr			
Lithium				
Magnesium	24300	25000	97.2	80-120
Manganese				
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	24400	25000	97.6	80-120
Selenium	anr			
Silicon				
Silver	anr			
Sodium	24300	25000	97.2	80-120
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	anr			

Associated samples MP12232: D54680-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12232
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

9.1.3

6

ACCUTEST LABORATORIES
D54680

SERIAL DILUTION RESULTS SUMMARY

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12232
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/31/14

Metal	D54625-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium	453000	504000	11.2*(a)	0-10
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron				
Lead	anr			
Lithium				
Magnesium	4500000	3470000	17.7*(a)	0-10
Manganese				
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	70800	70800	0.0	0-10
Selenium	anr			
Silicon				
Silver	anr			
Sodium	12900000	9710000	28.1*(a)	0-10
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	anr			

Associated samples MP12232: D54680-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12232
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

6.1.4

6

ACCUTEST LABORATORIES
D54680

Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP11875/GN23506	0.050	0.0	mg/l	0.5	0.516	103.2	90-110%
Chloride	GP11875/GN23506	0.50	0.0	mg/l	5	4.88	97.6	90-110%
Fluoride	GP11875/GN23506	0.10	0.0	mg/l	1	1.01	101.0	90-110%
HEM Oil and Grease	GP11940/GN23601	5.0	0.0	mg/l	40	35.4	88.5	78-114%
Nitrogen, Nitrate	GP11875/GN23506	0.010	0.0	mg/l	0.1	0.0983	98.3	90-110%
Nitrogen, Nitrite	GP11875/GN23506	0.0040	0.0	mg/l	0.05	0.0504	100.8	90-110%
Phosphate, Ortho	GP11875/GN23506	0.050	0.0	mg/l	0.5	0.515	103.0	90-110%
Solids, Total Dissolved	GN23524	10	0.0	mg/l	400	411	102.8	90-110%
Sulfate	GP11875/GN23506	0.50	0.0	mg/l	5	5.15	103.0	90-110%
Total Organic Carbon	GP11900/GN23541	1.0	0.0	mg/l	8.82	8.85	100.3	90-110%
pH	GN23518			su	8.00	7.98	99.7	99.3-100.7%

Associated Samples:
Batch GN23518: D54680-1
Batch GN23524: D54680-1
Batch GP11875: D54680-1
Batch GP11900: D54680-1
Batch GP11940: D54680-1
(*) Outside of QC limits

7.1.7

BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
HEM Oil and Grease	GP11940/GN23601	mg/l	40	38.1	7.3	20%

Associated Samples:
Batch GP11940: D54680-1
(*) Outside of QC limits

7.2

7

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN23524	D54680-1	mg/l	20700	20800	0.5	0-20%
Total Organic Carbon	GP11900/GN23541	D54658-2	mg/l	18.0	17.7	1.7	0-20%

Associated Samples:
Batch GN23524: D54680-1
Batch GP11900: D54680-1
(*) Outside of QC limits

7.3

7

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP11875/GN23506	D54670-1	mg/l	0.0	1	1.0	100.0	80-120%
Chloride	GP11875/GN23506	D54670-1	mg/l	4.3	10	14.0	97.0	80-120%
Fluoride	GP11875/GN23506	D54670-1	mg/l	1.4	2	3.4	100.0	80-120%
HEM Oil and Grease	GP11940/GN23601	D54747-1	mg/l	8.1	40	43.2	87.8	78-114%
Nitrogen, Nitrate	GP11875/GN23506	D54670-1	mg/l	0.0	0.2	0.20	100.0	80-120%
Nitrogen, Nitrite	GP11875/GN23506	D54670-1	mg/l	0.0	0.1	0.10	100.0	80-120%
Phosphate, Ortho	GP11875/GN23506	D54670-1	mg/l	0.0	1	0.91	91.0	80-120%
Sulfate	GP11875/GN23506	D54670-1	mg/l	0.0	10	10.0	100.0	80-120%
Total Organic Carbon	GP11900/GN23541	D54658-1	mg/l	2.9	10	12.8	99.0	80-120%

Associated Samples:
Batch GP11875: D54680-1
Batch GP11900: D54680-1
Batch GP11940: D54680-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D54680
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP11875/GN23506	D54670-1	mg/l	0.0	1	1.0	0.0	20%
Chloride	GP11875/GN23506	D54670-1	mg/l	4.3	10	13.9	0.7	20%
Fluoride	GP11875/GN23506	D54670-1	mg/l	1.4	2	3.3	3.0	20%
Nitrogen, Nitrate	GP11875/GN23506	D54670-1	mg/l	0.0	0.2	0.19	5.1	20%
Nitrogen, Nitrite	GP11875/GN23506	D54670-1	mg/l	0.0	0.1	0.10	0.0	20%
Phosphate, Ortho	GP11875/GN23506	D54670-1	mg/l	0.0	1	0.93	2.2	20%
Sulfate	GP11875/GN23506	D54670-1	mg/l	0.0	10	10.0	0.0	20%
Total Organic Carbon	GP11900/GN23541	D54658-1	mg/l	2.9	10	12.7	0.8	20%

Associated Samples:
Batch GP11875: D54680-1
Batch GP11900: D54680-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

7.5
7

Mountain States ACCUTEST LABORATORIES

03/07/14

Technical Report for

K.P. Kauffmann Company, Inc.

Wattenberg Tank

Accutest Job Number: D55357

Sampling Date: 02/25/14

Report to:

K.P. Kauffman Company, Inc.
1675 Broadway Suite 2800
Denver, CO 80202-4628
mhattel@msn.com; slaramesa@kpk.com;
kgilbert@kpk.com
ATTN: Susana Lara-Mesa

Total number of pages in report: 28

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

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Accutest Laboratories

Sample Summary

K.P. Kauffmann Company, Inc.

Job No: D55357

Wattenberg Tank

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D55357-1	02/25/14	11:00 MDH	02/25/14	AQ	Water	TANK-1
D55357-1F	02/25/14	11:00 MDH	02/25/14	AQ	Water Filtered	TANK-1

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: K.P. Kauffmann Company, Inc. **Job No** D55357

Site: Wattenberg Tank **Report Date** 3/7/2014 2:41:17 PM

On 02/25/2014, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D55357 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals By Method SW846 6010C

Matrix AQ **Batch ID:** MP12383

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55359-1ASDL, D55359-1AMS, D55359-1AMSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Sodium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Wet Chemistry By Method ASTM D287

Matrix ALL **Batch ID:** GN23799

- The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method EPA 1664A

Matrix AQ **Batch ID:** GP12085

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55350-1MS were used as the QC samples for the HEM Oil and Grease analysis.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix AQ **Batch ID:** GP12028

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55346-1MS, D55346-1MSD were used as the QC samples for the Chloride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate, Chloride analysis.
- D55357-1 for Sulfate: Elevated detection limit due to matrix interference.
- D55357-1 for Nitrogen, Nitrate: Elevated detection limit due to matrix interference.
- D55357-1 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.

Wet Chemistry By Method SM 2540C-2011

Matrix AQ	Batch ID: GN23843

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55400-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

Wet Chemistry By Method SM 5310B-2011

Matrix AQ	Batch ID: GP12052

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55415-1DUP, D55415-1MS, D55415-1MSD were used as the QC samples for the Total Organic Carbon analysis.

Wet Chemistry By Method SM4500HB+-2011/9040C

Matrix AQ	Batch ID: GN23816

- The following samples were run outside of holding time for method SM4500HB+-2011/9040C: D55357-1 Analysis performed past the required 15 minutes from collection time/holding time.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D55357
Account: K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank
Collected: 02/25/14

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Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D55357-1	TANK-1					
Chloride		11500	250		mg/l	EPA 300.0/SW846 9056
HEM Oil and Grease		470	4.9		mg/l	EPA 1664A
Solids, Total Dissolved		19500	10		mg/l	SM 2540C-2011
Specific Gravity by Hydrometer		1.0158				ASTM D287
Total Organic Carbon		453	50		mg/l	SM 5310B-2011
pH [a]		6.74			su	SM4500HB+-2011/9040C
D55357-1F	TANK-1					
Calcium		210000	20000		ug/l	SW846 6010C
Magnesium		27000	10000		ug/l	SW846 6010C
Potassium		128000	50000		ug/l	SW846 6010C
Sodium		6280000	20000		ug/l	SW846 6010C

(a) Analysis performed past the required 15 minutes from collection time/holding time.

Mountain States ACCUTEST LABORATORIES

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Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	TANK-1		
Lab Sample ID:	D55357-1	Date Sampled:	02/25/14
Matrix:	AQ - Water	Date Received:	02/25/14
		Percent Solids:	n/a
Project:	Wattenberg Tank		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	11500	250	mg/l	500	02/25/14 17:36	SK	EPA 300.0/SW846 9056
HEM Oil and Grease	470	4.9	mg/l	1	03/07/14	SWT	EPA 1664A
Nitrogen, Nitrate [a]	< 1.0	1.0	mg/l	100	02/25/14 13:55	SK	EPA 300.0/SW846 9056
Nitrogen, Nitrite [a]	< 0.40	0.40	mg/l	100	02/25/14 13:55	SK	EPA 300.0/SW846 9056
Solids, Total Dissolved	19500	10	mg/l	1	03/04/14	AK	SM 2540C-2011
Specific Gravity by Hydromete	1.0158			1	02/28/14	MM	ASTM D287
Sulfate [a]	< 50	50	mg/l	100	02/25/14 13:55	SK	EPA 300.0/SW846 9056
Total Organic Carbon	453	50	mg/l	50	03/03/14 15:15	GH	SM 5310B-2011
pH [b]	6.74		su	1	02/28/14 15:30	RW	SM4500HB+-2011/9040C

(a) Elevated detection limit due to matrix interference.
(b) Analysis performed past the required 15 minutes from collection time/holding time.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	TANK-1		
Lab Sample ID:	D55357-1F	Date Sampled:	02/25/14
Matrix:	AQ - Water Filtered	Date Received:	02/25/14
		Percent Solids:	n/a
Project:	Wattenberg Tank		

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Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	210000	20000	ug/l	5	02/27/14	02/27/14	KV	SW846 6010C [1]	SW846 3010A [3]
Magnesium	27000	10000	ug/l	5	02/27/14	02/27/14	KV	SW846 6010C [1]	SW846 3010A [3]
Potassium	128000	50000	ug/l	5	02/27/14	03/04/14	KV	SW846 6010C [2]	SW846 3010A [3]
Sodium	6280000	20000	ug/l	5	02/27/14	03/04/14	KV	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA4505
(2) Instrument QC Batch: MA4516
(3) Prep QC Batch: MP12383

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST Laboratories

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: D55357

Client / Reporting Information

Company Name: K.P. Kauffman Company, Inc.
Address: 1675 Broadway, Suite 2800
City: Denver State: CO Zip: 80202-4628
Project Contact: Susana Lara-Mesa SLaraMesa@kpk.com
Phone #: 303-825-4822
Samplers's Name: MICHAEL HATTEL (303-665-1400)

Project Information

Project Name: WATTENBERG TANK
Street:
City: Fort Lupton State: CO
Project #:
Fax #:
Client Purchase Order #: 7591

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	MeOH	DI H2O	H2SO4	NaOH	NaHSO4	MEOH	ENCORE	OIL & GREASE 1664	ANIONS (NITRATE, NITRITE, SULFATE, CHLORIDE)	pH	CATIONS (Ca, K, Mg, NA)	SPECIFIC GRAVITY	TDS	TOC				LAB USE ONLY
	TANK - I		2/27/14	1100	MDH	LIQ	6	X			X					X	X	X	X	X	X	X				01
																										2-25-14

Requested Analysis

Matrix Codes: DW- Drinking Water; GW- Ground Water; WW- Water; SW- Surface Water; SO- Soil; SL-Sludge; OI-Oil; LIQ- Other Liquid; AIR- Air; SOL-Other Solid; WP-Wipe

Turnaround Time (Business days)

- [x] Std. 10 Business Days
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

Approved By:/ Date:

Emergency T/A data available VIA Lablink

Date Deliverable Information

- [ ] Commercial "A"
- [ ] Commercial "B"
- [ ] NJ Reduced
- [ ] NJ Full
- [x] Hard Copy
- [ ] FULL CLP
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [x] PDF

Comments / Remarks

PDF copy also to Mike Hattel with APEX at mhattel@msn.com

PDF copy also to Kent Gilbert with KPK at kgilbert@kpk.com

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	2/27/14 1305	1 [signature] 22514 1305	2		2
Relinquished By:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3		3	4		4
Relinquished by:	Date Time:	Received By:	Custody Seal # HD	Preserved where applicable ☑	On Ice ☑ Cooler Temp. 4.0
5		5			

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D55357: Chain of Custody
Page 1 of 1

Mountain States ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12383
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/27/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	8.6	41		
Antimony	30	2.1	19		
Arsenic	25	3.8	5.6		
Barium	10	.2	1.4		
Beryllium	10	.8	1.2		
Boron	50	6.7	6.6		
Cadmium	10	.2	.36		
Calcium	400	2.2	41	12.4	<400
Chromium	10	.3	.4		
Cobalt	5.0	.4	.57		
Copper	10	.8	1.9		
Iron	70	1.5	9.5		
Lead	50	2.1	21		
Lithium	5.0	.4	2.7		
Magnesium	200	6.8	19	7.8	<200
Manganese	5.0	.01	.46		
Molybdenum	10	.4	.84		
Nickel	30	.5	.87		
Phosphorus	100	15	20		
Potassium	1000	130	270	8.8	<1000
Selenium	50	7.1	11		
Silicon	50	4.7	5.2		
Silver	30	.3	.6		
Sodium	400	4.9	170	29.8	<400
Strontium	5.0	.01	.12		
Thallium	10	1.8	4		
Tin	50	12	16		
Titanium	10	.1	2.1		
Uranium	50	2.9	5.5		
Vanadium	10	.4	.4		
Zinc	30	.4	3.2		

Associated samples MP12383: D55357-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12383
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/27/14

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

6.1.1

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ACCUTEST LABORATORIES
D55357

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12383
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/27/14

Metal	D55359-1A Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony	anr				
Arsenic	anr				
Barium					
Beryllium	anr				
Boron	anr				
Cadmium	anr				
Calcium	5400	30800	25000	101.6	75-125
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	anr				
Lithium					
Magnesium	902	26200	25000	101.2	75-125
Manganese					
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium	5510	32000	25000	107.2	75-125
Selenium	anr				
Silicon					
Silver	anr				
Sodium	974000	1060000	25000	-40.0(a)	75-125
Strontium					
Thallium					
Tin	anr				
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP12383: D55357-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12383
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/27/14

Metal	D55359-1A Original MS	Spikelot ICPALL2	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

6.1.2

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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12383
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/27/14

Metal	D55359-1A Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium						
Beryllium	anr					
Boron	anr					
Cadmium	anr					
Calcium	5400	30800	25000	101.6	0.0	20
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	anr					
Lithium						
Magnesium	902	25900	25000	100.0	1.2	20
Manganese						
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	5510	32000	25000	107.2	0.0	20
Selenium	anr					
Silicon						
Silver	anr					
Sodium	974000	1080000	25000	40.0 (a)	1.9	20
Strontium						
Thallium						
Tin	anr					
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP12383: D55357-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12383
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/27/14

Metal	D55359-1A Original MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

6.1.2

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ACCUTEST LABORATORIES
D55357

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12383
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/27/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium				
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium	25800	25000	103.2	80-120
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Lithium				
Magnesium	26400	25000	105.6	80-120
Manganese				
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	26300	25000	105.2	80-120
Selenium	anr			
Silicon				
Silver	anr			
Sodium	25800	25000	103.2	80-120
Strontium				
Thallium				
Tin	anr			
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP12383: D55357-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12383
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/27/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits

(anr) Analyte not requested

6.1.3

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ACCUTEST LABORATORIES
D55357

SERIAL DILUTION RESULTS SUMMARY

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12383
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/27/14

Metal	D55359-1A Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium				
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium	5400	5560	3.0	0-10
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Lithium				
Magnesium	995	923	2.4	0-10
Manganese				
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	5200	5040	3.1	0-10
Selenium	anr			
Silicon				
Silver	anr			
Sodium	974000	1080000	0.3	0-10
Strontium				
Thallium				
Tin	anr			
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP12383: D55357-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12383
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 02/27/14

Metal	D55359-1A Original SDL 1:5	%DIF	QC Limits

(anr) Analyte not requested

6.1.4

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ACCUTEST LABORATORIES

D55357

Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP12028/GN23759	0.50	0.0	mg/l	5	5.06	101.2	90-110%
HEM Oil and Grease	GP12085/GN23881	5.0	0.0	mg/l	40	35.4	88.5	78-114%
Nitrogen, Nitrate	GP12028/GN23759	0.010	0.0	mg/l	0.1	0.103	103.0	90-110%
Nitrogen, Nitrite	GP12028/GN23759	0.0040	0.0	mg/l	0.05	0.0508	101.6	90-110%
Solids, Total Dissolved	GN23843	10	0.0	mg/l	400	401	100.3	90-110%
Sulfate	GP12028/GN23759	0.50	0.0	mg/l	5	5.07	101.4	90-110%
Total Organic Carbon	GP12052/GN23797	1.0	0.0	mg/l	8.82	8.76	99.3	90-110%
pH	GN23816			su	8.00	7.98	99.8	99.3-100.7%

Associated Samples:
Batch GN23816: D55357-1
Batch GN23843: D55357-1
Batch GP12028: D55357-1
Batch GP12052: D55357-1
Batch GP12085: D55357-1
(*) Outside of QC limits

7.1

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BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
HEM Oil and Grease	GP12085/GN23881	mg/l	40	34.4	2.9	20%

Associated Samples:
Batch GP12085: D55357-1
(*) Outside of QC limits

7.2

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DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN23843	D55400-1	mg/l	508	540	6.1	0-20%
Total Organic Carbon	GP12052/GN23797	D55415-1	mg/l	5.5	5.5	0.0	0-20%

Associated Samples:
Batch GN23843: D55357-1
Batch GP12052: D55357-1
(*) Outside of QC limits

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MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP12028/GN23759	D55346-1	mg/l	1.2	5	6.2	100.0	80-120%
HEM Oil and Grease	GP12085/GN23881	D55350-1	mg/l	0.0	40	35.9	89.8	78-114%
Nitrogen, Nitrate	GP12028/GN23759	D55346-1	mg/l	0.029	0.1	0.13	101.0	80-120%
Nitrogen, Nitrite	GP12028/GN23759	D55346-1	mg/l	0.0	0.05	0.055	110.0	80-120%
Sulfate	GP12028/GN23759	D55346-1	mg/l	9.4	5	14.6	104.0	80-120%
Total Organic Carbon	GP12052/GN23797	D55415-1	mg/l	5.5	10	15.8	103.0	80-120%

Associated Samples:
Batch GP12028: D55357-1
Batch GP12052: D55357-1
Batch GP12085: D55357-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

7.4
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MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D55357
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chloride	GP12028/GN23759	D55346-1	mg/l	1.2	5	6.2	0.0	20%
Nitrogen, Nitrate	GP12028/GN23759	D55346-1	mg/l	0.029	0.1	0.13	0.0	20%
Nitrogen, Nitrite	GP12028/GN23759	D55346-1	mg/l	0.0	0.05	0.054	1.8	20%
Sulfate	GP12028/GN23759	D55346-1	mg/l	9.4	5	14.6	0.0	20%
Total Organic Carbon	GP12052/GN23797	D55415-1	mg/l	5.5	10	15.2	3.9	20%

Associated Samples:
Batch GP12028: D55357-1
Batch GP12052: D55357-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

7.5
7

Mountain States ACCUTEST LABORATORIES

03/11/14

Technical Report for

K.P. Kauffmann Company, Inc.

Wattenberg Tank

Accutest Job Number: D55558

Sampling Date: 03/04/14

Report to:

K.P. Kauffman Company, Inc.
1675 Broadway Suite 2800
Denver, CO 80202-4628
mhattel@msn.com; slaramesa@kpk.com;
kgilbert@kpk.com; dkuhn@kpk.com
ATTN: Susana Lara-Mesa

Total number of pages in report: 72

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

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Test results relate only to samples analyzed.

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Sample Summary

K.P. Kauffmann Company, Inc.

Job No: D55558

Wattenberg Tank

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D55558-1	03/04/14	09:40 MH	03/04/14	AQ	Water	OW-1
D55558-2	03/04/14	11:45 MH	03/04/14	SO	Soil	KPK-W-1-10
D55558-4	03/04/14	13:15 MH	03/04/14	AQ	Water	KPK-W-1-W

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	K.P. Kauffmann Company, Inc.	**Job No**	D55558
Site:	Wattenberg Tank	**Report Date**	3/11/2014 3:05:29 PM

On 03/04/2014, 3 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.6 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D55558 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GC By Method SW846 8015B

Matrix SO **Batch ID:** GGB1317

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55558-2MS, D55558-2MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8021B

Matrix AQ **Batch ID:** GTA1198

- All samples were analyzed within the recommended method holding time.
- Sample(s) D55504-26MS, D55504-26MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- D55558-4: The pH of the sample was >2 at time of analysis.
- D55558-1: The pH of the sample was >2 at time of analysis.

Matrix SO **Batch ID:** GTB1317

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55558-2MS, D55558-2MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix SO **Batch ID:** OP9506

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D55543-1MS, D55543-1MSD were used as the QC samples indicated.

Wet Chemistry By Method SM2540G-2011 M

Matrix SO **Batch ID:** GN23864

- The data for SM2540G-2011 M meets quality control requirements.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D55558
Account: K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank
Collected: 03/04/14

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D55558-1	**OW-1**					
No hits reported in this sample.						
D55558-2	**KPK-W-1-10**					
TPH-DRO (C10-C28)		49.8	7.8		mg/kg	SW846-8015B
D55558-4	**KPK-W-1-W**					
Benzene [a]		17.5	1.0		ug/l	SW846 8021B
Ethylbenzene [a]		15.6	2.0		ug/l	SW846 8021B
Xylenes (total) [a]		39.0	2.0		ug/l	SW846 8021B

(a) The pH of the sample was > 2 at time of analysis.

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	OW-1		
Lab Sample ID:	D55558-1	**Date Sampled:**	03/04/14
Matrix:	AQ - Water	**Date Received:**	03/04/14
Method:	SW846 8021B	**Percent Solids:**	n/a
Project:	Wattenberg Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	TA21258.D	1	03/07/14	EV	n/a	n/a	GTA1198
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	104%		60-140%

(a) The pH of the sample was > 2 at time of analysis.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	KPK-W-1-10		
Lab Sample ID:	D55558-2	**Date Sampled:**	03/04/14
Matrix:	SO - Soil	**Date Received:**	03/04/14
Method:	SW846 8015B	**Percent Solids:**	85.5
Project:	Wattenberg Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB24002.D	1	03/07/14	BR	n/a	n/a	GGB1317
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	Units	Q
	TPH-GRO (C6-C10)	ND	13	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	101%		60-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	KPK-W-1-10		
Lab Sample ID:	D55558-2	**Date Sampled:**	03/04/14
Matrix:	SO - Soil	**Date Received:**	03/04/14
Method:	SW846 8021B	**Percent Solids:**	85.5
Project:	Wattenberg Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TB24002.D	1	03/07/14	BR	n/a	n/a	GTB1317
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	66	ug/kg	
108-88-3	Toluene	ND	130	ug/kg	
100-41-4	Ethylbenzene	ND	130	ug/kg	
1330-20-7	Xylenes (total)	ND	130	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	96%		60-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	KPK-W-1-10		
Lab Sample ID:	D55558-2	**Date Sampled:**	03/04/14
Matrix:	SO - Soil	**Date Received:**	03/04/14
Method:	SW846-8015B SW846 3546	**Percent Solids:**	85.5
Project:	Wattenberg Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI10576.D	1	03/06/14	JS	03/05/14	OP9506	GFI691
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	49.8	7.8	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	58%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	KPK-W-1-W		
Lab Sample ID:	D55558-4	**Date Sampled:**	03/04/14
Matrix:	AQ - Water	**Date Received:**	03/04/14
Method:	SW846 8021B	**Percent Solids:**	n/a
Project:	Wattenberg Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	TA21259.D	1	03/07/14	EV	n/a	n/a	GTA1198
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	17.5	1.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	15.6	2.0	ug/l	
1330-20-7	Xylenes (total)	39.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	109%		60-140%

(a) The pH of the sample was > 2 at time of analysis.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST Laboratories
4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

FED-EX Tracking #: | Bottle Order Control #:
Accutest Quote #: | Accutest Job #: D55558

Client / Reporting Information

Company Name: K.P. Kauffman Company, Inc.
Address: 1675 Broadway, Suite 2800
City: Denver State: CO Zip: 80202-4628
Project Contact: dkuhn@kpk.com Denny Kuhn
Phone #: 303-665-1400
Samplers's Name: MICHAEL HATTEL (303-665-1400)

Project Information

Project Name: Wattenberg
Street:
City: State: CO
Project #:
Fax #:
Client Purchase Order #: 7591

Requested Analysis

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	MeOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	BTEX (8021)	GRO/DRO (8015)	Hold								Matrix Codes / LAB USE ONLY
	OW-1		3/4/14	940	MDH	W	2									X	No									D1
	KPK-W-1-10		3/4/14	1145	MDH	S	2											X								D2
	KPK-W-1-11		3/4/14	1155	MDH	S	2											X								D3
	KPK-W-1-W		3/4/14	1315	MDH	W	3									X										D4
																										00
																										00
																										3/4/14

Matrix Codes: DW- Drinking Water; GW- Ground Water; WW- Water; SW- Surface Water; SO- Soil; SL-Sludge; OI-Oil; LIQ- Other Liquid; AIR- Air; SOL-Other Solid; WP-Wipe

Turnaround Time (Business days)

[X] Std. US1
Approved By/ Date:

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A"
- [ ] Commercial "B"
- [ ] NJ Reduced
- [ ] NJ Full
- [X] Hard Copy
- [ ] FULL CLP
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [X] PDF

Comments / Remarks

PDF copy to Denny Kuhn with KPK at dkuhn@kpk.com

PDF copy also to Mike Hattel with APEX at mhattel@msn.com

Hard copy ALSO to Mike Hattel with APEX, P.O. Box 369,

Louisville, CO 80027-0369

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	[signature]	3/4/14 1420	1 [signature] 3/4/14 1420	2 [signature] 3/4/14	1545	2 Jacob Porter 3/4/14 1545
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
5	Relinquished by:	Date Time:	Received By:	Custody Seal # HD/00	Preserved where applicable N	On Ice Y Cooler Temp. 3.6

NOTE for Email log in Sample 2 for BTEX/GRO/DRO only

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D55558 **Client:** KP KAUFFMAN **Immediate Client Services Action Required:** No

Date / Time Received: 3/4/2014 3:45:00 PM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: WATTENBERG **Airbill #'s:** HD

Cooler Security	Y	or N		Y	or N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	or N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	Infared gun	
3. Cooler media:	Ice (bag)	

Quality Control Preservation	Y	or N	N/A
1. Trip Blank present / cooler:	☐	☐	
2. Trip Blank listed on COC:	☐	☐	
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☑	☐	☐

Sample Integrity - Documentation	Y	or N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	or N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	or N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume rec'd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

5.1

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D55558: Chain of Custody
Page 2 of 2

Mountain States ACCUTEST LABORATORIES

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D55558
Account: KPKCOD K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1317-MB	GB24000.D	1	03/07/14	BR	n/a	n/a	GGB1317

The QC reported here applies to the following samples: **Method:** SW846 8015B

D55558-2

CAS No.	Compound	Result	RL	Units	Q
	TPH-GRO (C6-C10)	ND	9.9	mg/kg	

CAS No.	Surrogate Recoveries		Limits
120-82-1	1,2,4-Trichlorobenzene	95%	60-140%

6.1.1

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Method Blank Summary

Job Number: D55558
Account: KPKCOD K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTA1198-MB	TA21253.D	1	03/07/14	EV	n/a	n/a	GTA1198

The QC reported here applies to the following samples: **Method:** SW846 8021B

D55558-1, D55558-4

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
120-82-1	1,2,4-Trichlorobenzene	102%	60-140%

Method Blank Summary

Job Number: D55558
Account: KPKCOD K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTB1317-MB	TB24000.D	1	03/07/14	BR	n/a	n/a	GTB1317

The QC reported here applies to the following samples: **Method:** SW846 8021B

D55558-2

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	49	ug/kg	
100-41-4	Ethylbenzene	ND	99	ug/kg	
108-88-3	Toluene	ND	99	ug/kg	
1330-20-7	Xylenes (total)	ND	99	ug/kg	

CAS No.	Surrogate Recoveries		Limits
120-82-1	1,2,4-Trichlorobenzene	91%	60-140%

Blank Spike Summary

Job Number: D55558
Account: KPKCOD K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1317-BS	GB24001.D	1	03/07/14	BR	n/a	n/a	GGB1317

The QC reported here applies to the following samples: **Method:** SW846 8015B

D55558-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	109	117	107	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	95%	60-140%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: D55558
Account: KPKCOD K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTA1198-BS	TA21254.D	1	03/07/14	EV	n/a	n/a	GTA1198

The QC reported here applies to the following samples: **Method:** SW846 8021B

D55558-1, D55558-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	27.2	25.6	94	70-130
100-41-4	Ethylbenzene	45.6	44.0	96	70-130
108-88-3	Toluene	212	197	93	70-130
1330-20-7	Xylenes (total)	216	223	103	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	108%	60-140%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: D55558
Account: KPKCOD K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTB1317-BS	TB24001.D	1	03/07/14	BR	n/a	n/a	GTB1317

The QC reported here applies to the following samples: **Method:** SW846 8021B

D55558-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	1350	1400	104	70-130
100-41-4	Ethylbenzene	2260	2240	99	70-130
108-88-3	Toluene	10500	9730	93	70-130
1330-20-7	Xylenes (total)	10700	11100	104	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	91%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D55558
Account: KPKCOD K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55558-2MS	GB24003.D	1	03/07/14	BR	n/a	n/a	GGB1317
D55558-2MSD	GB24004.D	1	03/07/14	BR	n/a	n/a	GGB1317
D55558-2	GB24002.D	1	03/07/14	BR	n/a	n/a	GGB1317

The QC reported here applies to the following samples: **Method:** SW846 8015B

D55558-2

CAS No.	Compound	D55558-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		146	161	111	162	111	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D55558-2	Limits
120-82-1	1,2,4-Trichlorobenzene	101%	97%	101%	60-140%

* = Outside of Control Limits.

6.3.1

6

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D55558
Account: KPKCOD K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55504-26MS	TA21256.D	1	03/07/14	EV	n/a	n/a	GTA1198
D55504-26MSD	TA21257.D	1	03/07/14	EV	n/a	n/a	GTA1198
D55504-26	TA21255.D	1	03/07/14	EV	n/a	n/a	GTA1198

The QC reported here applies to the following samples: **Method:** SW846 8021B

D55558-1, D55558-4

CAS No.	Compound	D55504-26 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		27.2	25.1	92	24.6	90	2	55-133/30
100-41-4	Ethylbenzene	ND		45.6	43.2	95	42.1	92	3	63-130/30
108-88-3	Toluene	ND		212	193	91	188	89	3	70-130/30
1330-20-7	Xylenes (total)	ND		216	218	101	212	98	3	64-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D55504-26	Limits
120-82-1	1,2,4-Trichlorobenzene	106%	106%	103%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D55558
Account: KPKCOD K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D55558-2MS	TB24003.D	1	03/07/14	BR	n/a	n/a	GTB1317
D55558-2MSD	TB24004.D	1	03/07/14	BR	n/a	n/a	GTB1317
D55558-2	TB24002.D	1	03/07/14	BR	n/a	n/a	GTB1317

The QC reported here applies to the following samples: **Method:** SW846 8021B

D55558-2

CAS No.	Compound	D55558-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		1800	1890	105	1930	107	2	70-130/30
100-41-4	Ethylbenzene	ND		3020	3040	101	3050	101	0	70-130/30
108-88-3	Toluene	ND		14000	13200	94	13300	95	1	70-130/30
1330-20-7	Xylenes (total)	ND		14300	15300	107	15200	106	1	66-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D55558-2	Limits
120-82-1	1,2,4-Trichlorobenzene	95%	92%	96%	60-140%

* = Outside of Control Limits.

6.3.3

6

Mountain States ACCUTEST LABORATORIES

GC Volatiles

Raw Data

Manual Integrations
APPROVED
(compounds with "m" flag)
Judy Melson
03/10/14 13:59

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\030714\GB24002.D\FID1A.CH Vial: 7
Signal #2 : Y:\1\DATA\030714\GB24002.D\FID2B.CH
Acq On : 7 Mar 2014 1:36 pm Operator: BRIANR
Sample : D55558-2, 50X Inst : GC/MS Ins
Misc : GC4255,GGB1317,5.070,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 10:36:17 2014 Quant Results File: TB1310GB1310SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1310GB1310SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Mar 10 10:33:42 2014
Response via : Initial Calibration
DataAcq Meth : TVB4.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

7.1.1

7

		Compound	R.T.	Response	Conc	Units	
		System Monitoring Compounds					
2)	S	1,2,4-Trichlorobenzene	14.41	3342643	100.550	%	m
10)	S	1,2,4-Trichlorobenzene (P)	14.40	8899506	95.616	%	m
		Target Compounds					
1)	H	TVH-Gasoline	7.32	4253214	0.065	mg/L	
4)	T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5)	T	Benzene	0.00	0	N.D.	ug/L	d
6)	T	Toluene	7.74	107935	0.526	ug/L	
7)	T	Ethylbenzene	0.00	0	N.D.	ug/L	d
8)	T	m,p-Xylene	10.51	199087	0.955	ug/L	
9)	T	o-Xylene	0.00	0	N.D.	ug/L	d
11)	T	Naphthalene	14.59	181075	1.621	ug/L	m

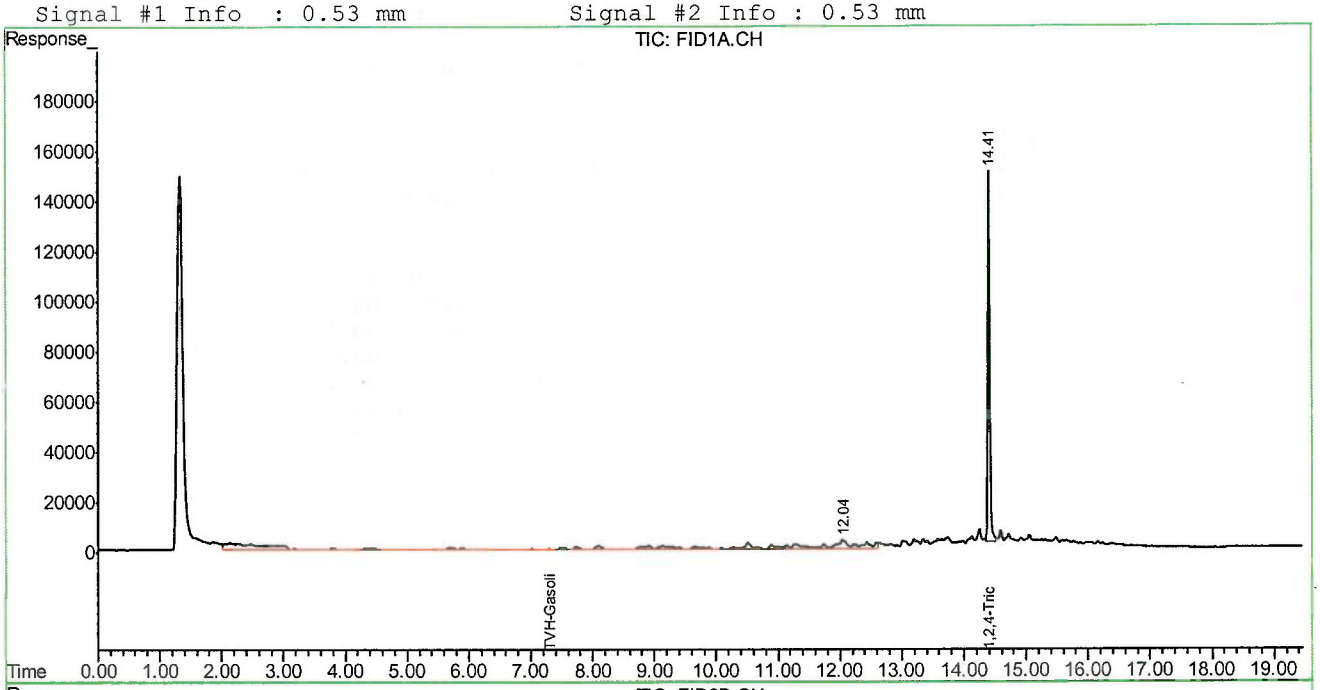
(f)=RT Delta > 1/2 Window (m)=manual int.
GB24002.D TB1310GB1310SOIL.M Mon Mar 10 11:42:40 2014 GC

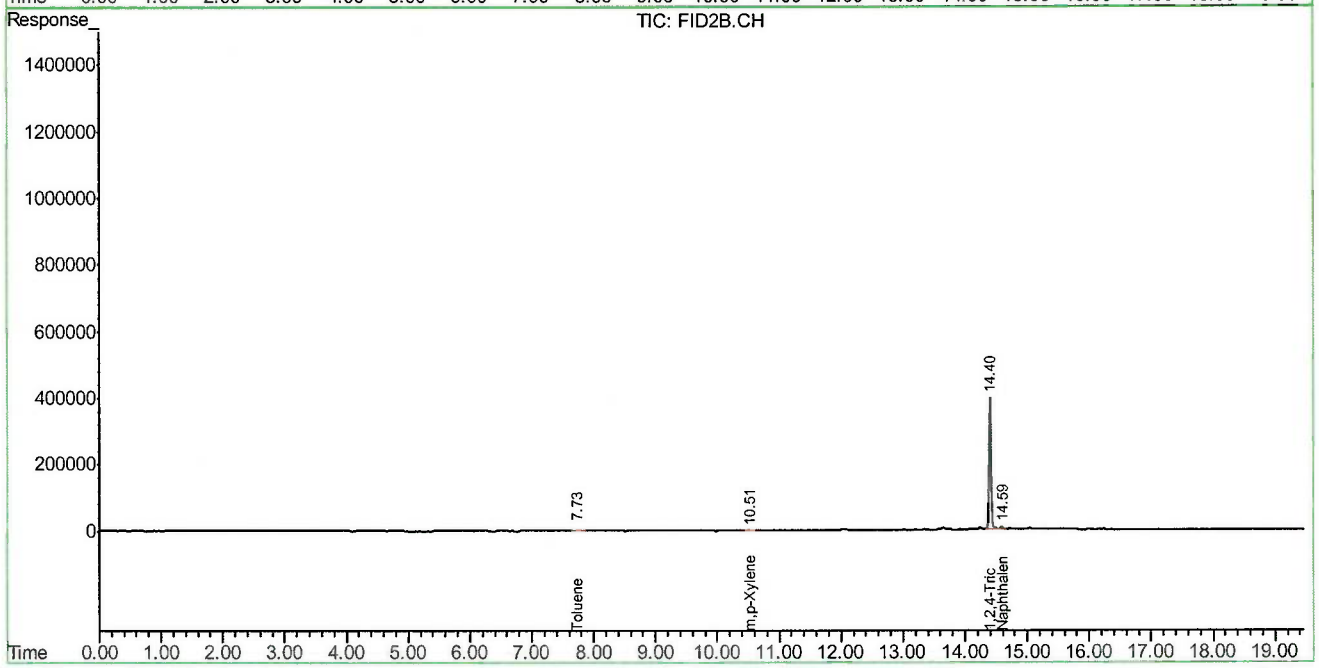
Quantitation Report (QT Reviewed)

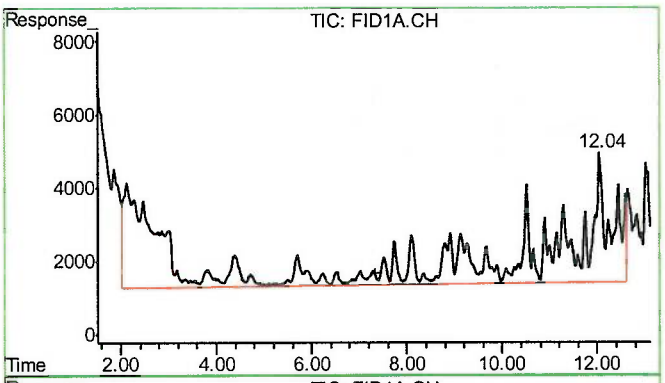
Signal #1 : Y:\1\DATA\030714\GB24002.D\FID1A.CH Vial: 7
Signal #2 : Y:\1\DATA\030714\GB24002.D\FID2B.CH
Acq On : 7 Mar 2014 1:36 pm Operator: BRIANR
Sample : D55558-2, 50X Inst : GC/MS Ins
Misc : GC4255,GGB1317,5.070,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 11:53 2014 Quant Results File: TB1310GB1310SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1310GB1310SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Mar 10 10:33:42 2014
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

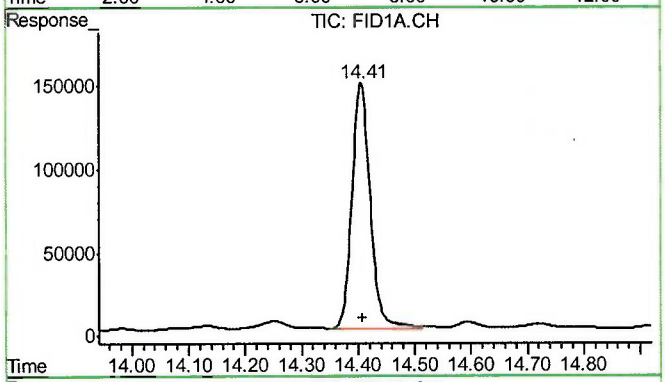






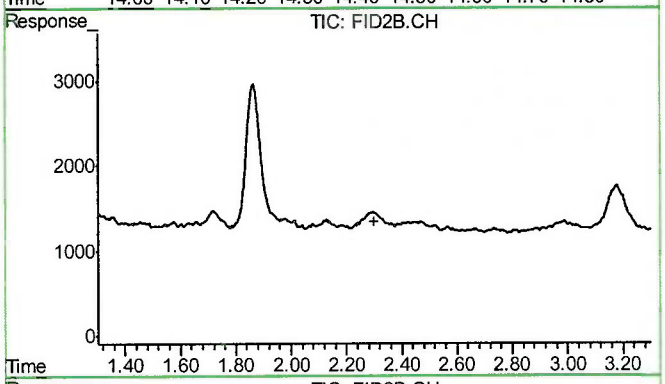
#1 TVH-Gasoline

R.T.: 7.320 min
Delta R.T.: 0.000 min
Response: 4253214
Conc: 0.07 mg/L m



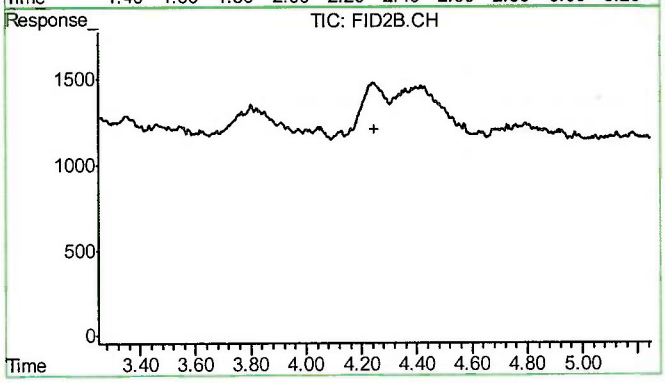
#2 1,2,4-Trichlorobenzene

R.T.: 14.405 min
Delta R.T.: -0.001 min
Response: 3342643
Conc: 100.55 % m



#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.302 min
Response: 0
Conc: N.D.

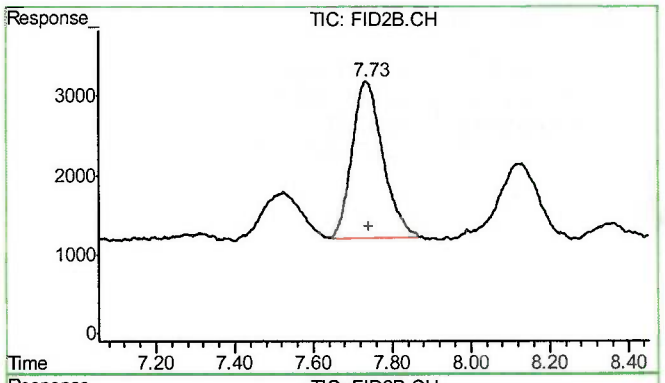


#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.249 min
Response: 0
Conc: N.D.

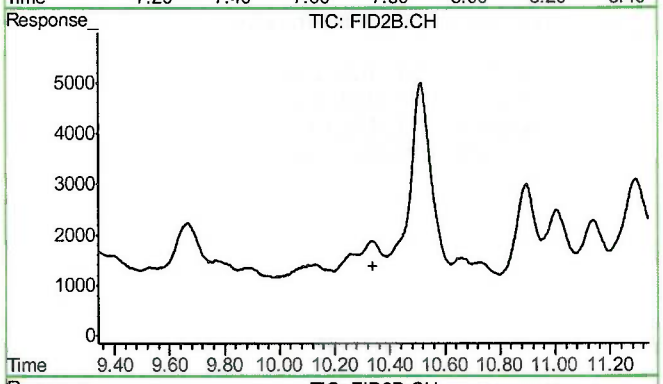
7.1.1

7



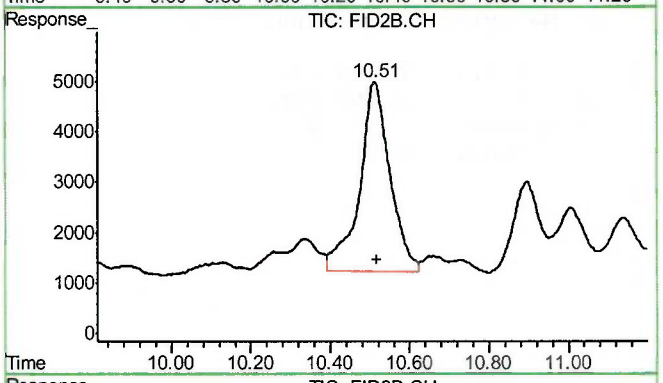
#6 Toluene

R.T.: 7.735 min
Delta R.T.: -0.007 min
Response: 107935
Conc: 0.53 ug/L



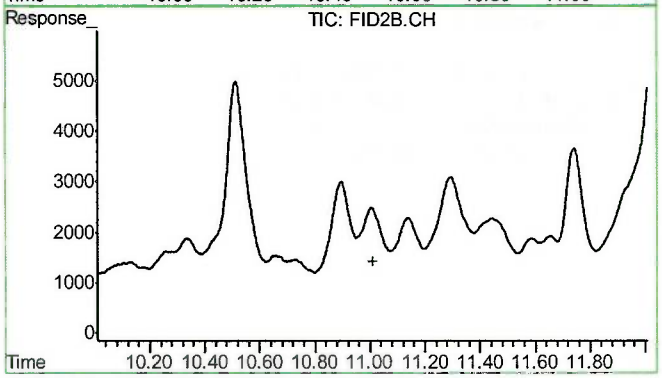
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.340 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

R.T.: 10.513 min
Delta R.T.: -0.005 min
Response: 199087
Conc: 0.96 ug/L

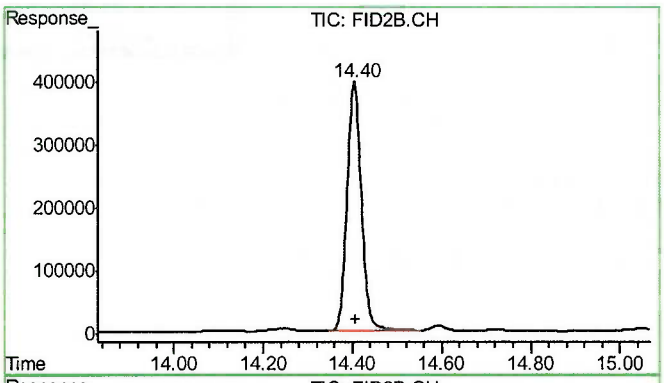


#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 11.010 min
Response: 0
Conc: N.D.

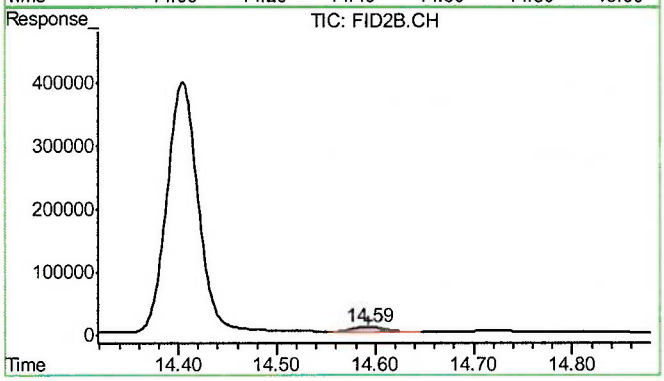
7.1.1

7



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.404 min
Delta R.T.: -0.002 min
Response: 8899506
Conc: 95.62 % m



#11 Naphthalene

R.T.: 14.592 min
Delta R.T.: -0.001 min
Response: 181075
Conc: 1.62 ug/L m

7.1.1

7

Manual Integrations APPROVED (compounds with "m" flag)
Judy Melson
03/10/14 16:35

Quantitation Report (QT Reviewed)

Signal #1 : Z:\030714\BTEX\TA21258.D\FID1A.CH Vial: 10
Signal #2 : Z:\030714\BTEX\TA21258.D\FID2B.CH
Acq On : 7 Mar 2014 2:20 pm Operator: ELISEV
Sample : D55558-1 Inst : BTEX2
Misc : GC4259,GTA1198,,,,,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 14:53:45 2014 Quant Results File: TA1171GA1171WATER.RES

Quant Method : C:\MSDCHEM\1...\TA1171GA1171WATER.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Mar 10 14:52:42 2014
Response via : Initial Calibration
DataAcq Meth : TVB2.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

		Compound	R.T.	Response	Conc	Units	
		System Monitoring Compounds					
2)	S	1,2,4-Trichlorobenzene	14.68	3432136	100.508	%	m
10)	S	1,2,4-Trichlorobenzene (P)	14.68	3867138	103.532	%	m
		Target Compounds					
1)	H	TVH-Gasoline	7.67	6654690	0.090	mg/L	
4)	T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5)	T	Benzene	5.13	124425	0.956	ug/L	m
6)	T	Toluene	8.51	38010	0.265	ug/L	m
7)	T	Ethylbenzene	0.00	0	N.D.	ug/L	d
8)	T	m,p-Xylene	11.02	77473	0.565	ug/L	m
9)	T	o-Xylene	0.00	0	N.D.	ug/L	d
11)	T	Naphthalene	14.86	157788	2.473	ug/L	m

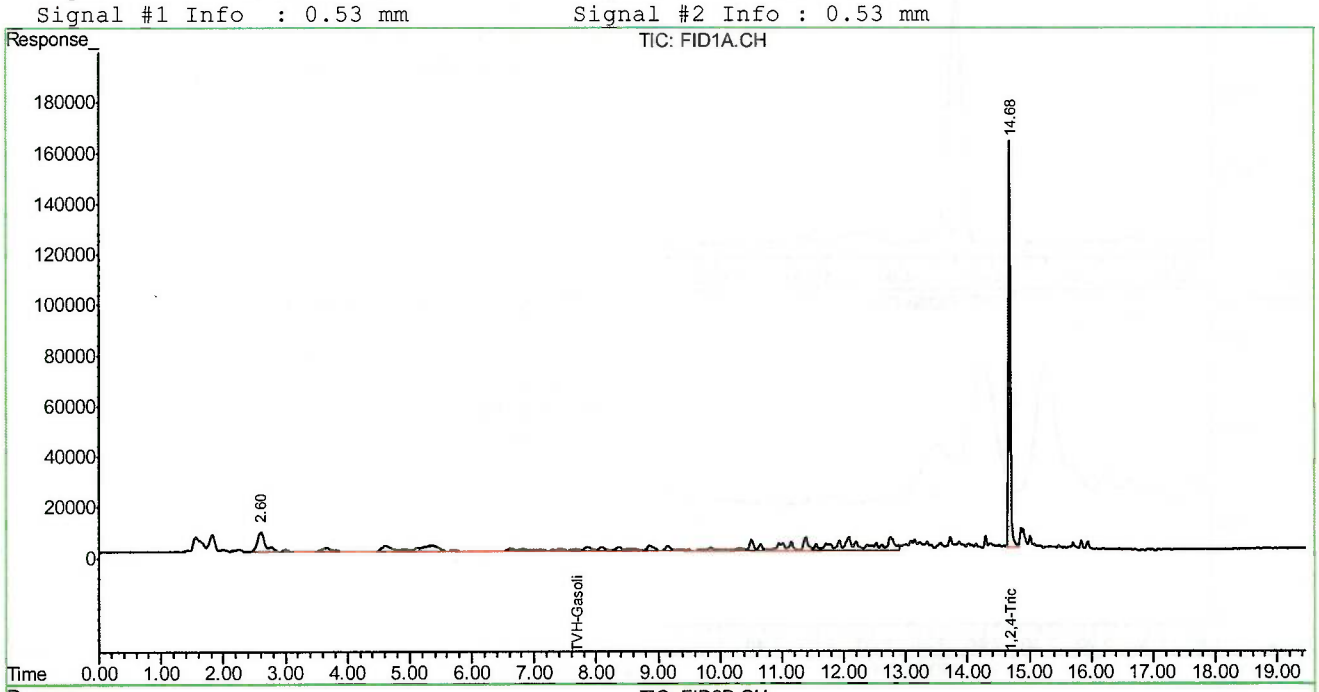
(f)=RT Delta > 1/2 Window (m)=manual int.
TA21258.D TA1171GA1171WATER.M Mon Mar 10 15:36:50 2014 GC

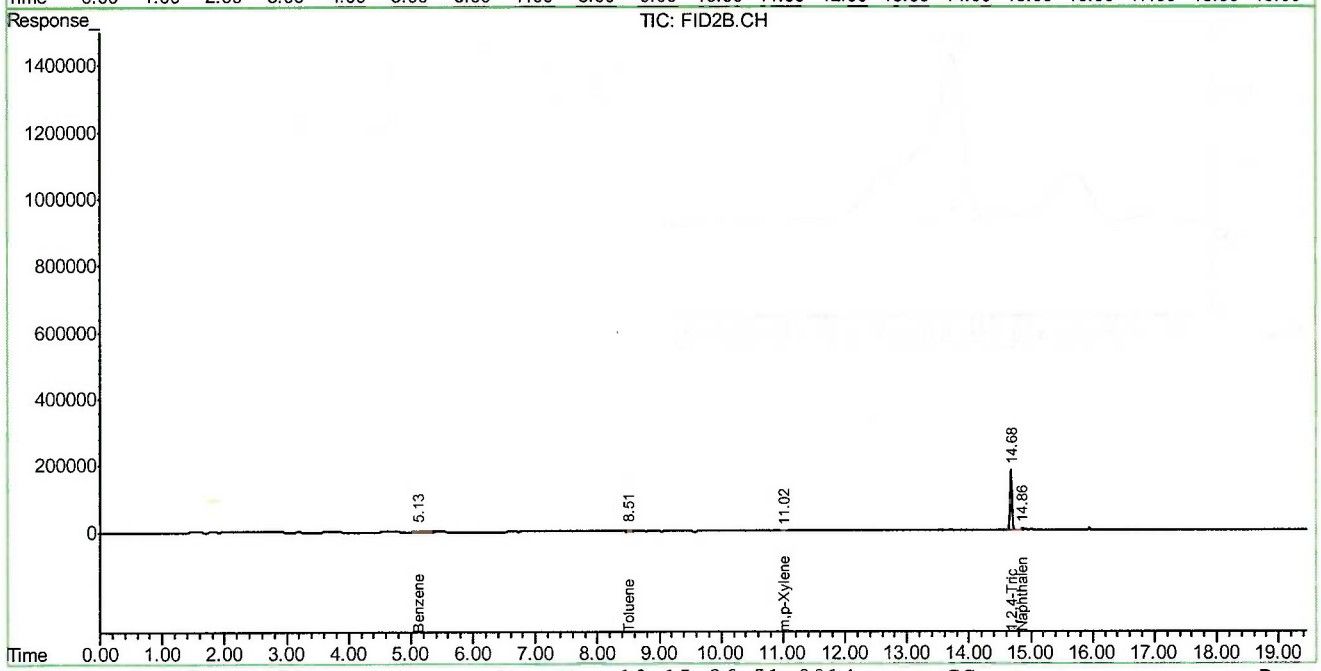
Quantitation Report (QT Reviewed)

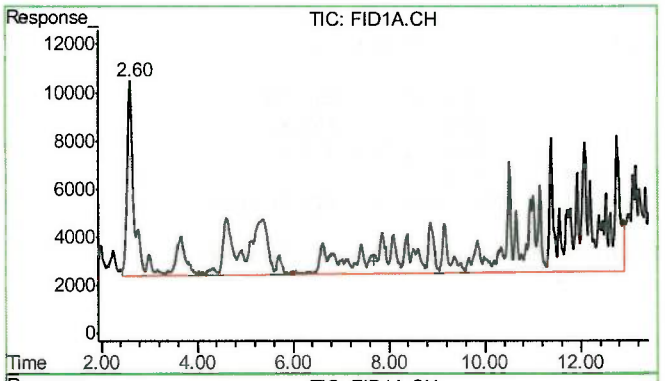
Signal #1 : Z:\030714\BTEX\TA21258.D\FID1A.CH Vial: 10
Signal #2 : Z:\030714\BTEX\TA21258.D\FID2B.CH
Acq On : 7 Mar 2014 2:20 pm Operator: ELISEV
Sample : D55558-1 Inst : BTEX2
Misc : GC4259,GTA1198,,,,,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 15:22 2014 Quant Results File: TA1171GA1171WATER.RES

Quant Method : C:\MSDCHEM\1...\TA1171GA1171WATER.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Mar 10 14:52:42 2014
Response via : Multiple Level Calibration
DataAcq Meth : TVB2.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

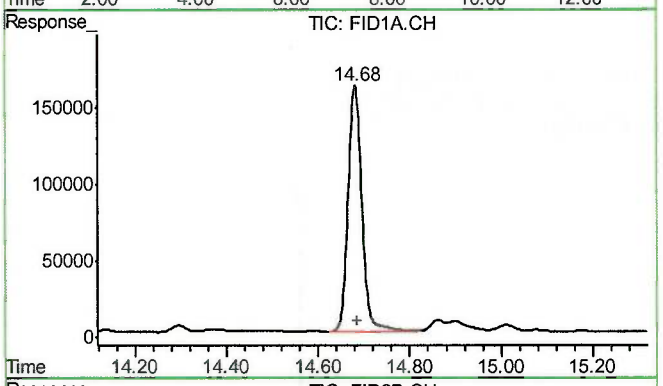






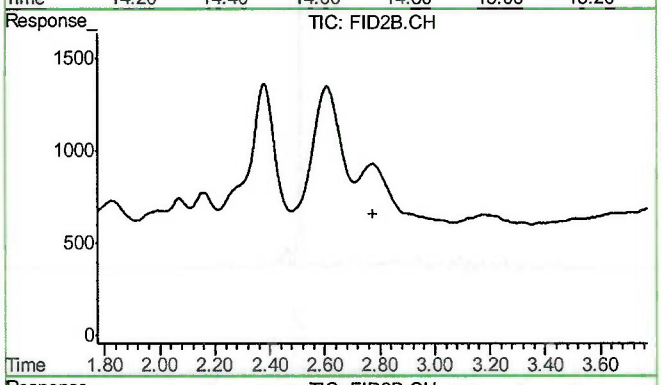
#1 TVH-Gasoline

R.T.: 7.675 min
Delta R.T.: 0.000 min
Response: 6654690
Conc: 0.09 mg/L m



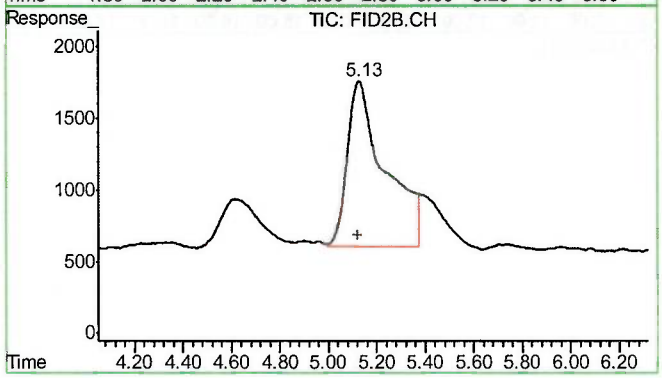
#2 1,2,4-Trichlorobenzene

R.T.: 14.681 min
Delta R.T.: -0.005 min
Response: 3432136
Conc: 100.51 % m



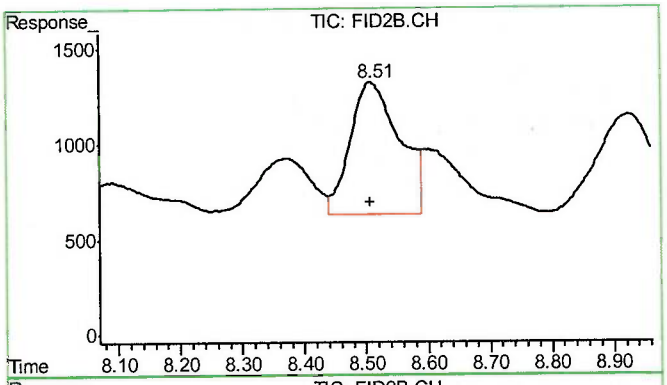
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.773 min
Response: 0
Conc: N.D.



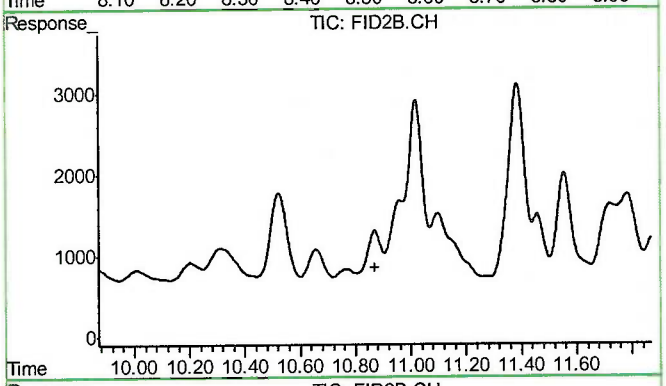
#5 Benzene

R.T.: 5.126 min
Delta R.T.: 0.004 min
Response: 124425
Conc: 0.96 ug/L m



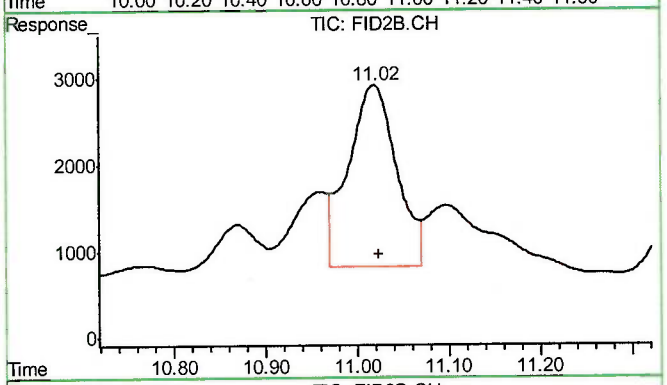
#6 Toluene

R.T.: 8.508 min
Delta R.T.: 0.001 min
Response: 38010
Conc: 0.27 ug/L m



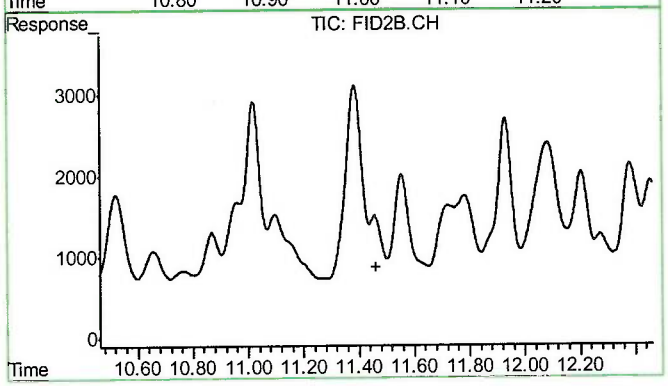
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.871 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

R.T.: 11.019 min
Delta R.T.: -0.004 min
Response: 77473
Conc: 0.57 ug/L m

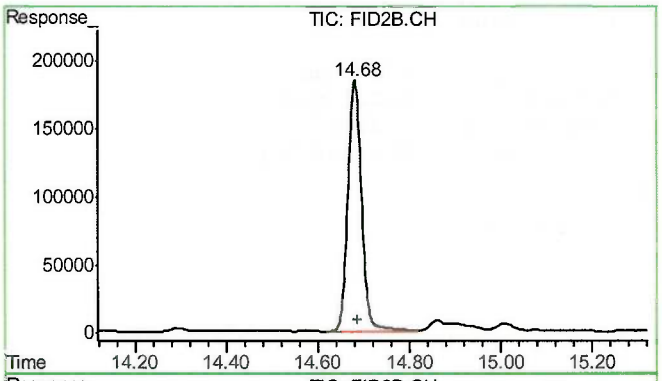


#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 11.463 min
Response: 0
Conc: N.D.

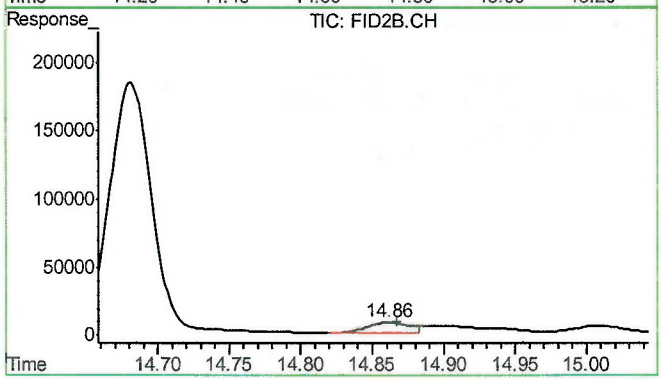
7.1.2

7



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.681 min
Delta R.T.: -0.006 min
Response: 3867138
Conc: 103.53 % m



#11 Naphthalene

R.T.: 14.860 min
Delta R.T.: -0.007 min
Response: 157788
Conc: 2.47 ug/L m

7.1.2

7

Manual Integrations
APPROVED
(compounds with "m" flag)
Judy Melson
03/10/14 13:54

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\030714\BTEX\TB24002.D\FID1A.CH Vial: 7
Signal #2 : Y:\1\DATA\030714\BTEX\TB24002.D\FID2B.CH
Acq On : 7 Mar 2014 1:36 pm Operator: BRIANR
Sample : D55558-2, 50X Inst : GC/MS Ins
Misc : GC4254,GTB1317,5.070,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 10:36:17 2014 Quant Results File: TB1310GB1310SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1310GB1310SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Mar 10 10:33:42 2014
Response via : Initial Calibration
DataAcq Meth : TVB4.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

7.1.3

7

		Compound	R.T.	Response	Conc	Units	
		System Monitoring Compounds					
2)	S	1,2,4-Trichlorobenzene	14.41	3342643	100.550	%	m
10)	S	1,2,4-Trichlorobenzene (P)	14.40	8899506	95.616	%	m
		Target Compounds					
1)	H	TVH-Gasoline	7.32	4253214	0.065	mg/L	
4)	T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5)	T	Benzene	0.00	0	N.D.	ug/L	d
6)	T	Toluene	7.74	107935	0.526	ug/L	
7)	T	Ethylbenzene	0.00	0	N.D.	ug/L	d
8)	T	m,p-Xylene	10.51	199087	0.955	ug/L	
9)	T	o-Xylene	0.00	0	N.D.	ug/L	d
11)	T	Naphthalene	14.59	181075	1.621	ug/L	m

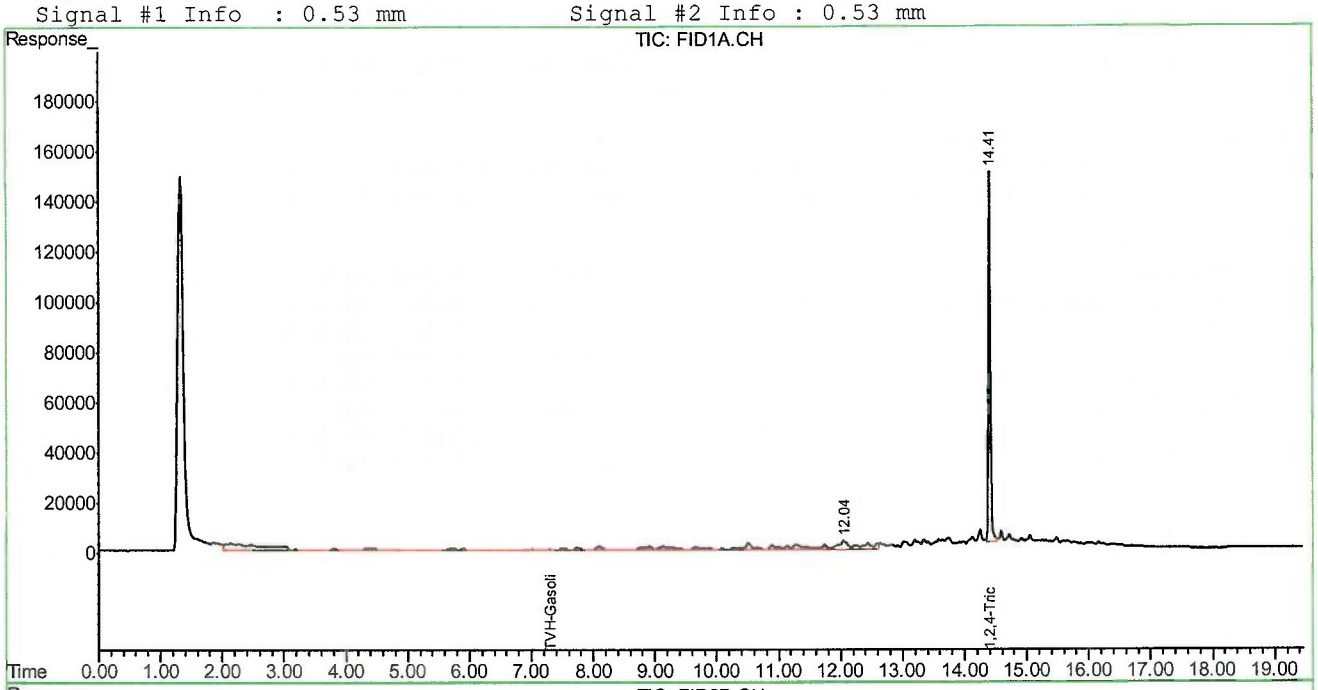
(f)=RT Delta > 1/2 Window (m)=manual int.
TB24002.D TB1310GB1310SOIL.M Mon Mar 10 11:42:22 2014 GC

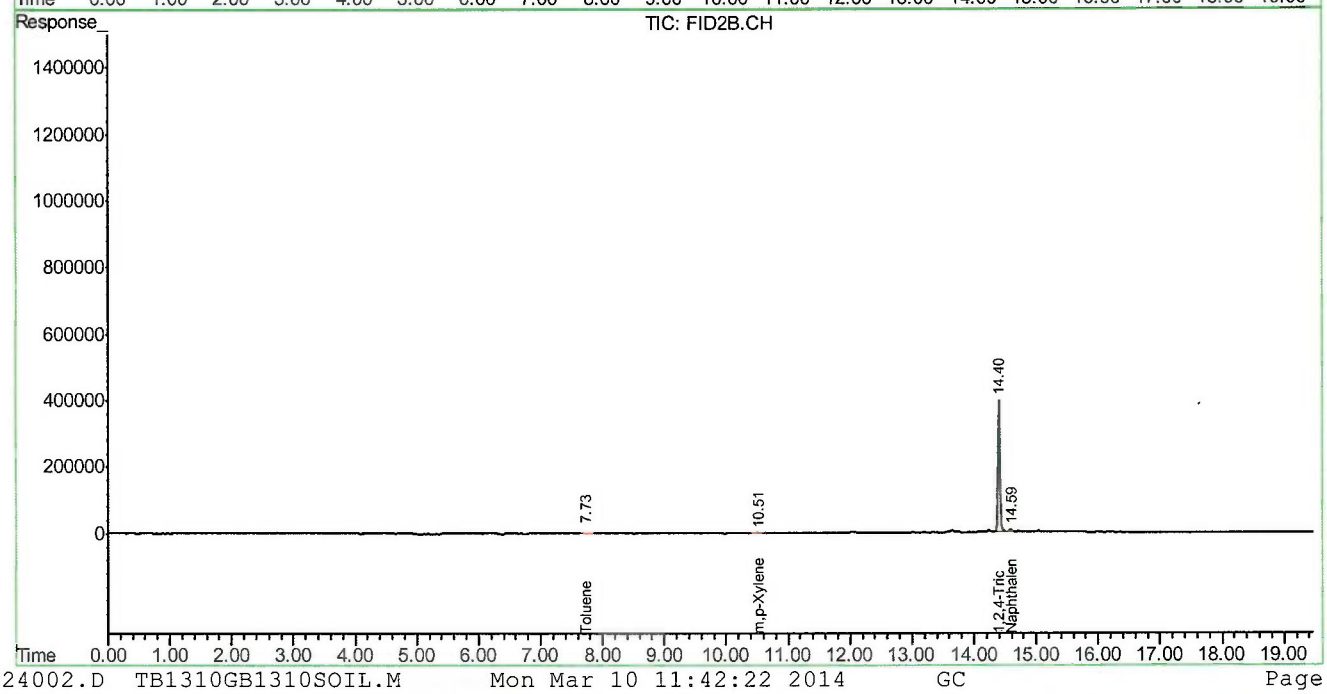
Quantitation Report (QT Reviewed)

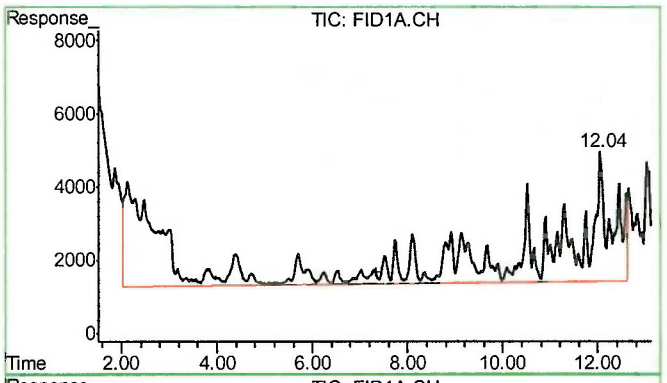
Signal #1 : Y:\1\DATA\030714\BTEX\TB24002.D\FID1A.CH Vial: 7
Signal #2 : Y:\1\DATA\030714\BTEX\TB24002.D\FID2B.CH
Acq On : 7 Mar 2014 1:36 pm Operator: BRIANR
Sample : D55558-2, 50X Inst : GC/MS Ins
Misc : GC4254,GTB1317,5.070,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 11:53 2014 Quant Results File: TB1310GB1310SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1310GB1310SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Mar 10 10:33:42 2014
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

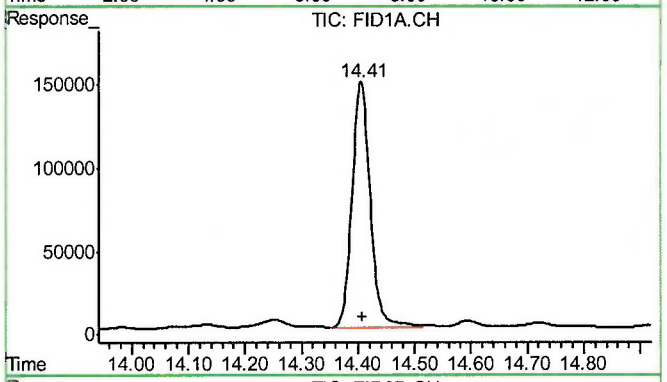






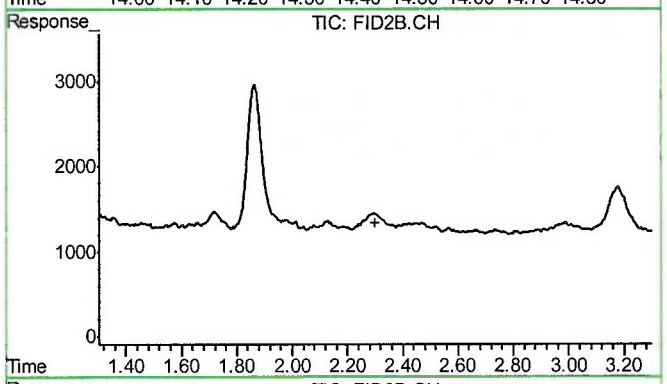
#1 TVH-Gasoline

R.T.: 7.320 min
Delta R.T.: 0.000 min
Response: 4253214
Conc: 0.07 mg/L m



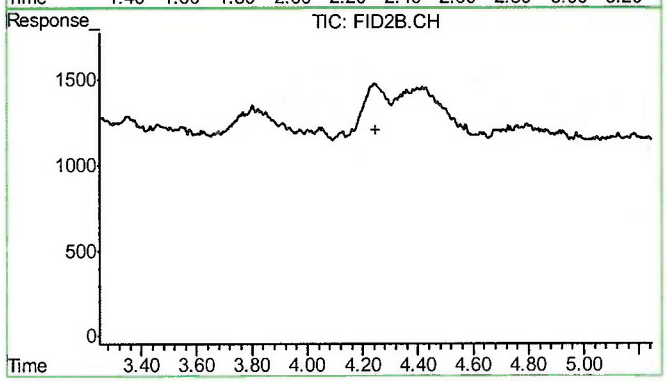
#2 1,2,4-Trichlorobenzene

R.T.: 14.405 min
Delta R.T.: -0.001 min
Response: 3342643
Conc: 100.55 % m



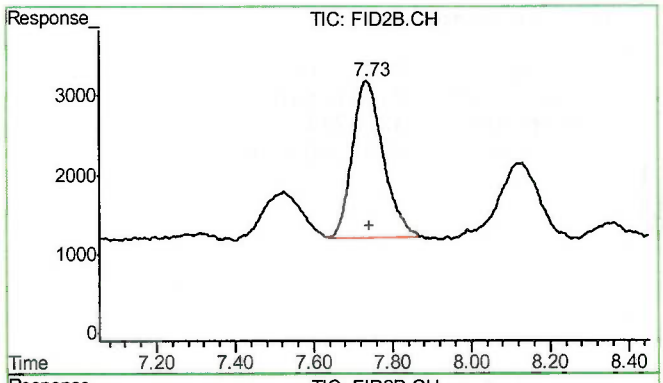
#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.302 min
Response: 0
Conc: N.D.



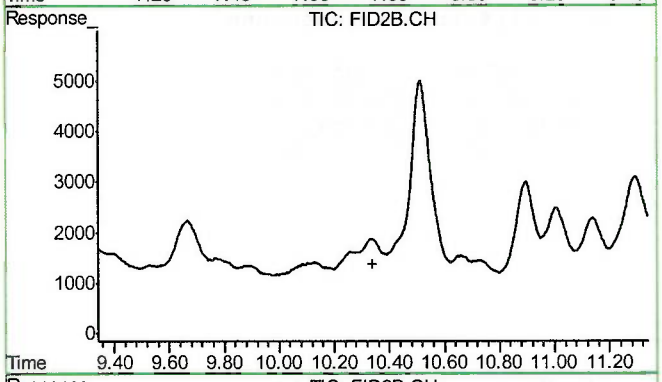
#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.249 min
Response: 0
Conc: N.D.



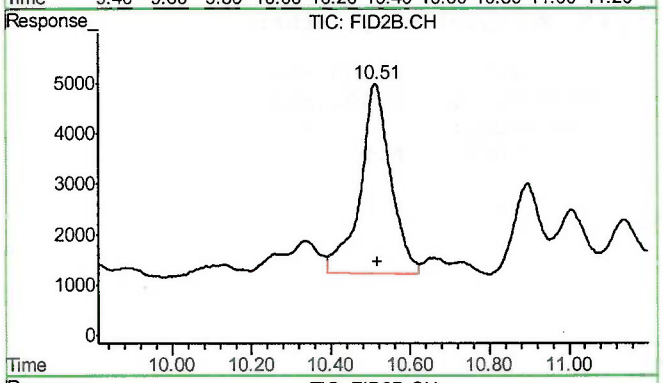
#6 Toluene

R.T.: 7.735 min
Delta R.T.: -0.007 min
Response: 107935
Conc: 0.53 ug/L



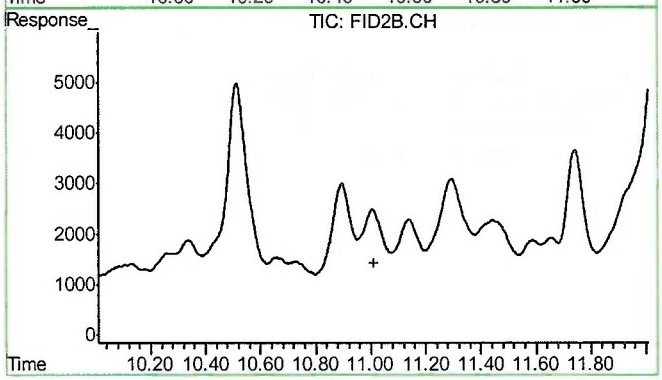
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.340 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

R.T.: 10.513 min
Delta R.T.: -0.005 min
Response: 199087
Conc: 0.96 ug/L

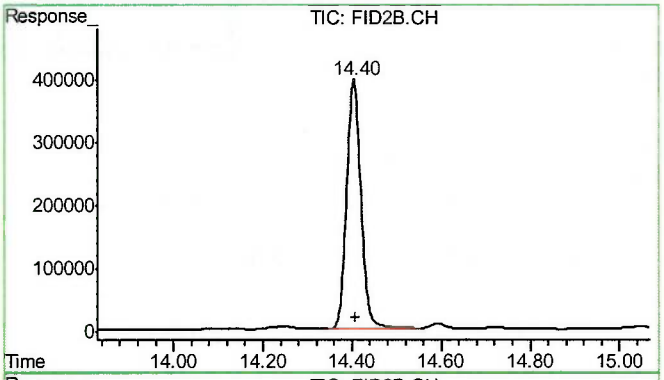


#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 11.010 min
Response: 0
Conc: N.D.

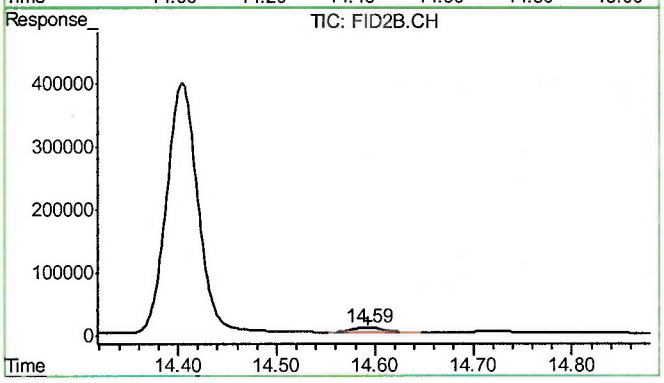
7.1.3

7



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.404 min
Delta R.T.: -0.002 min
Response: 8899506
Conc: 95.62 % m



#11 Naphthalene

R.T.: 14.592 min
Delta R.T.: -0.001 min
Response: 181075
Conc: 1.62 ug/L m

7.1.3

7

Manual Integrations
APPROVED
(compounds with "m" flag)
Judy Melson
03/10/14 16:35

Quantitation Report (QT Reviewed)

Signal #1 : Z:\030714\BTEX\TA21259.D\FID1A.CH Vial: 11
Signal #2 : Z:\030714\BTEX\TA21259.D\FID2B.CH
Acq On : 7 Mar 2014 2:54 pm Operator: ELISEV
Sample : D55558-4 Inst : BTEX2
Misc : GC4259,GTA1198,,,,,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 14:53:48 2014 Quant Results File: TA1171GA1171WATER.RES

Quant Method : C:\MSDCHEM\1...\TA1171GA1171WATER.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Mar 10 14:52:42 2014
Response via : Initial Calibration
DataAcq Meth : TVB2.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

		Compound	R.T.	Response	Conc	Units	
		System Monitoring Compounds					
2)	S	1,2,4-Trichlorobenzene	14.70	3710403	108.657	%	m
10)	S	1,2,4-Trichlorobenzene (P)	14.70	4085465	108.926	%	m
		Target Compounds					
1)	H	TVH-Gasoline	7.67	69842577	1.065	mg/L	
4)	T	Methyl-t-butyl-ether	2.77	69033	1.645	ug/L	m
5)	T	Benzene	5.11	2315518	17.486	ug/L	m
6)	T	Toluene	8.50	108772	0.861	ug/L	m
7)	T	Ethylbenzene	10.87	1604460	15.625	ug/L	m
8)	T	m,p-Xylene	11.02	3732472	31.885	ug/L	m
9)	T	o-Xylene	11.46	721186	7.082	ug/L	m
11)	T	Naphthalene	14.88	291652	4.762	ug/L	m

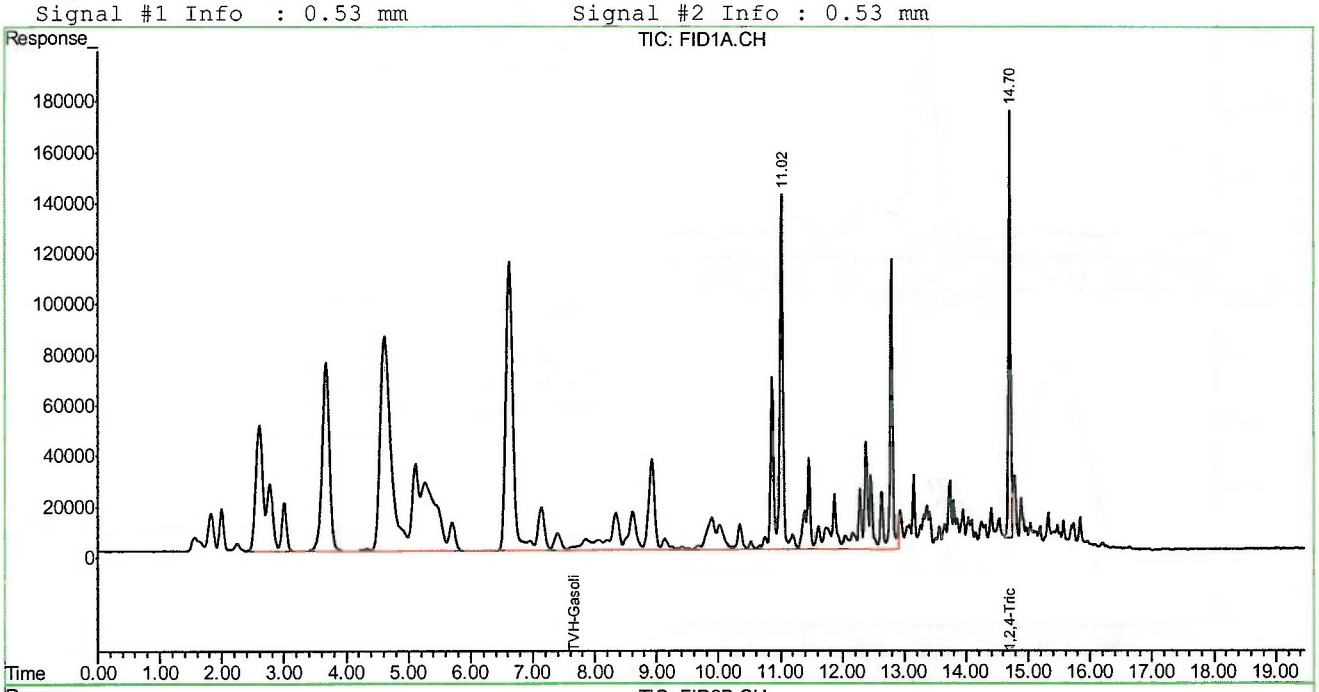
(f)=RT Delta > 1/2 Window (m)=manual int.

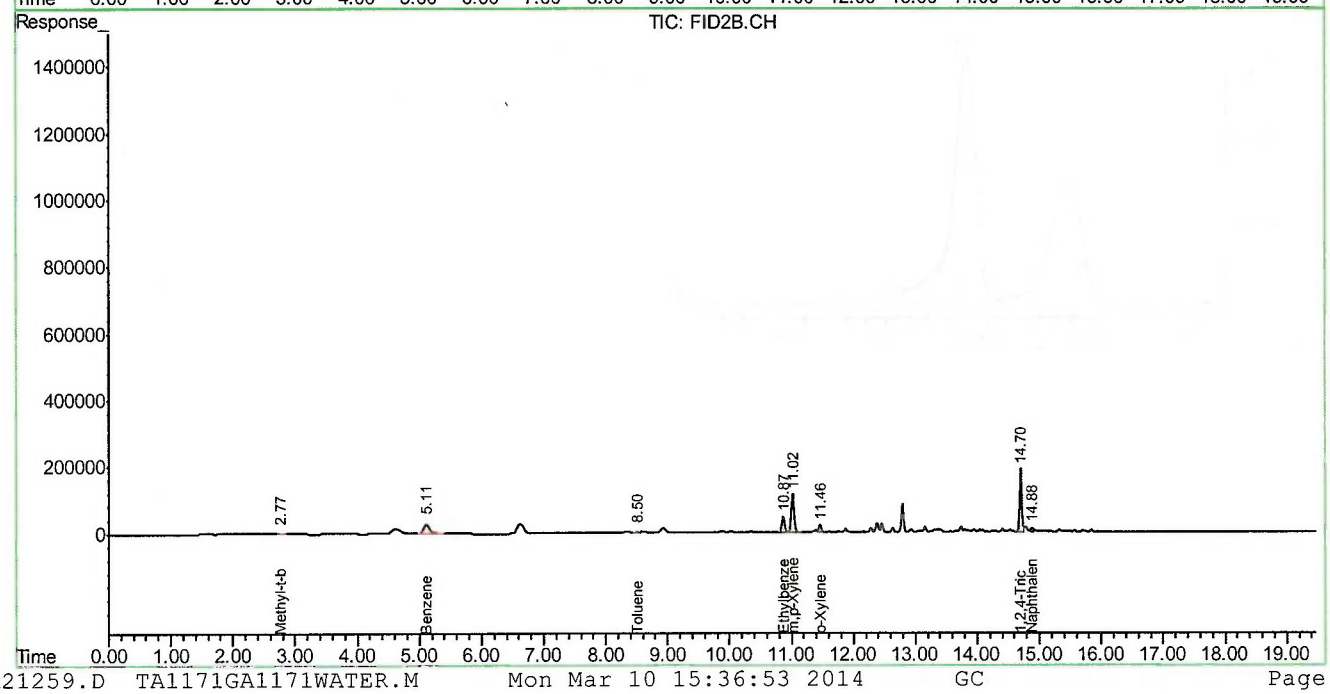
Quantitation Report (QT Reviewed)

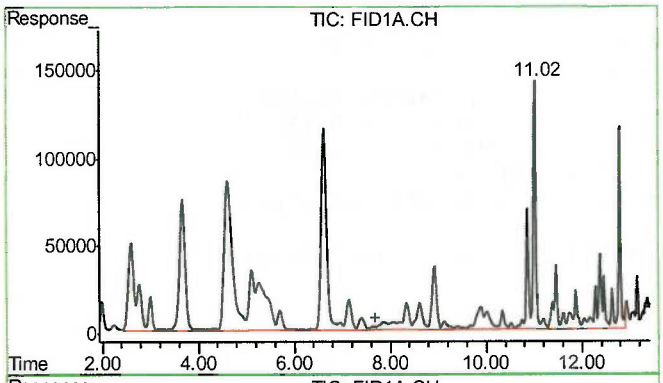
Signal #1 : Z:\030714\BTEX\TA21259.D\FID1A.CH Vial: 11
Signal #2 : Z:\030714\BTEX\TA21259.D\FID2B.CH
Acq On : 7 Mar 2014 2:54 pm Operator: ELISEV
Sample : D55558-4 Inst : BTEX2
Misc : GC4259,GTA1198,,,,,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 15:23 2014 Quant Results File: TA1171GA1171WATER.RES

Quant Method : C:\MSDCHEM\1...\TA1171GA1171WATER.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Mar 10 14:52:42 2014
Response via : Multiple Level Calibration
DataAcq Meth : TVB2.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

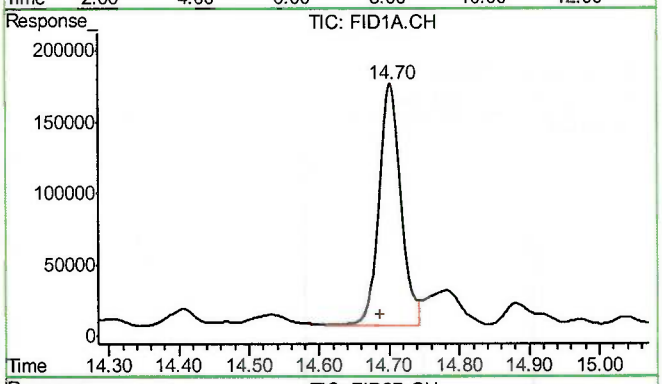






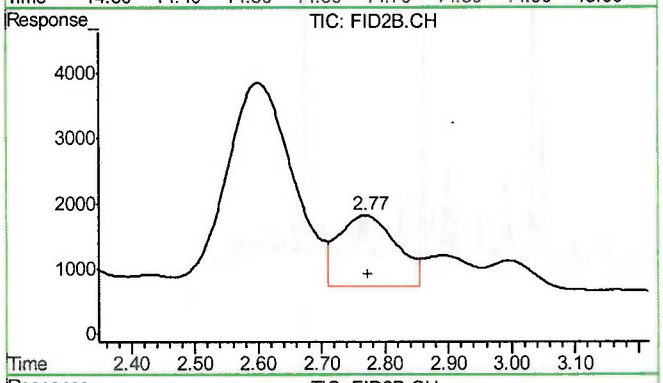
#1 TVH-Gasoline

R.T.: 7.675 min
Delta R.T.: 0.000 min
Response: 69842577
Conc: 1.06 mg/L m



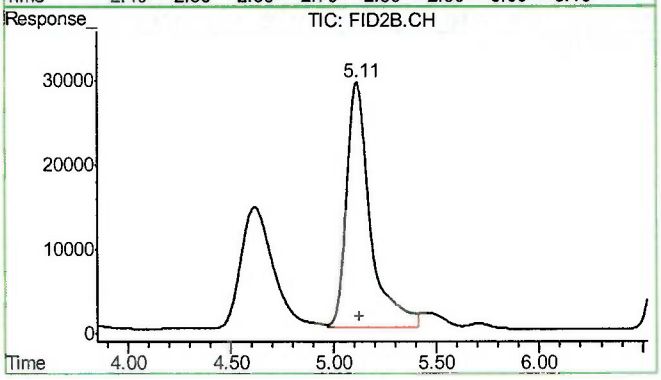
#2 1,2,4-Trichlorobenzene

R.T.: 14.701 min
Delta R.T.: 0.015 min
Response: 3710403
Conc: 108.66 % m



#4 Methyl-t-butyl-ether

R.T.: 2.768 min
Delta R.T.: -0.005 min
Response: 69033
Conc: 1.65 ug/L m

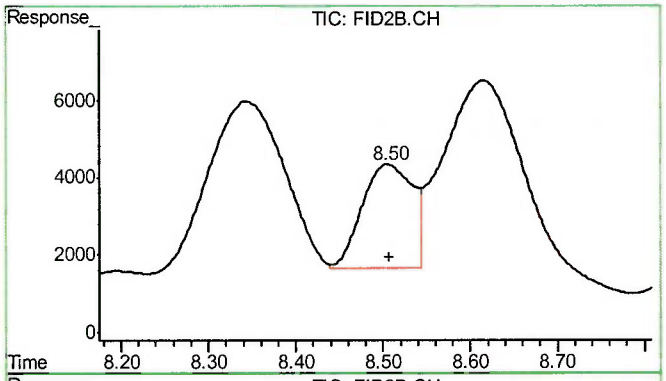


#5 Benzene

R.T.: 5.111 min
Delta R.T.: -0.011 min
Response: 2315518
Conc: 17.49 ug/L m

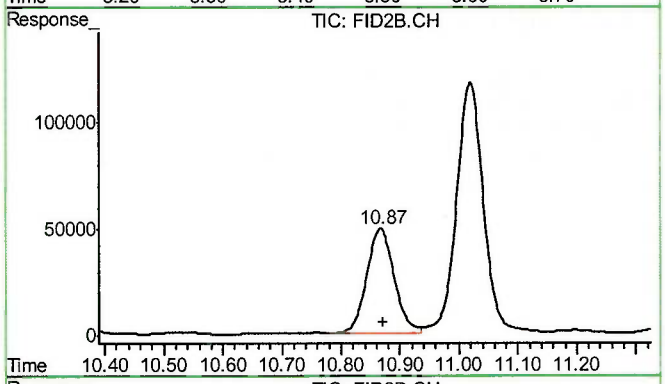
7.1.4

7



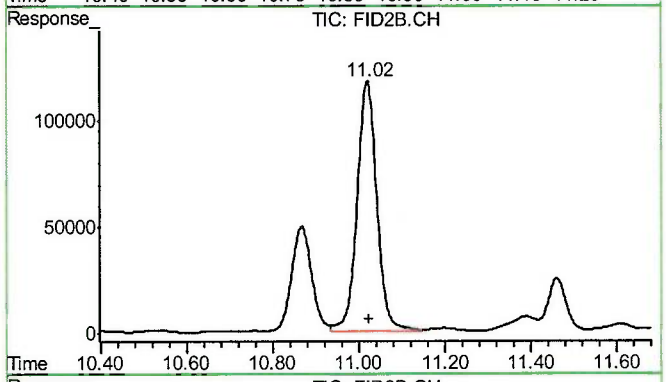
#6 Toluene

R.T.: 8.503 min
Delta R.T.: -0.004 min
Response: 108772
Conc: 0.86 ug/L m



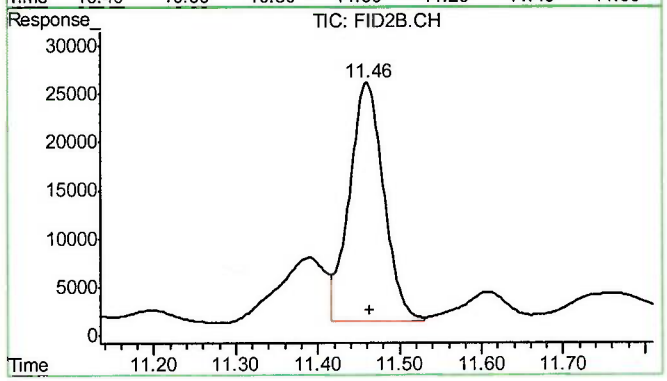
#7 Ethylbenzene

R.T.: 10.867 min
Delta R.T.: -0.004 min
Response: 1604460
Conc: 15.62 ug/L m



#8 m,p-Xylene

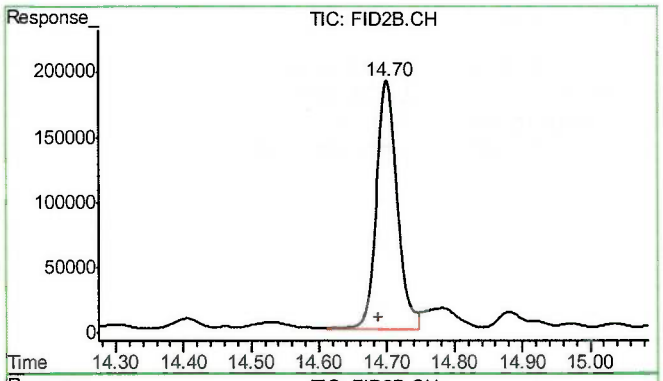
R.T.: 11.019 min
Delta R.T.: -0.004 min
Response: 3732472
Conc: 31.89 ug/L m



#9 o-Xylene

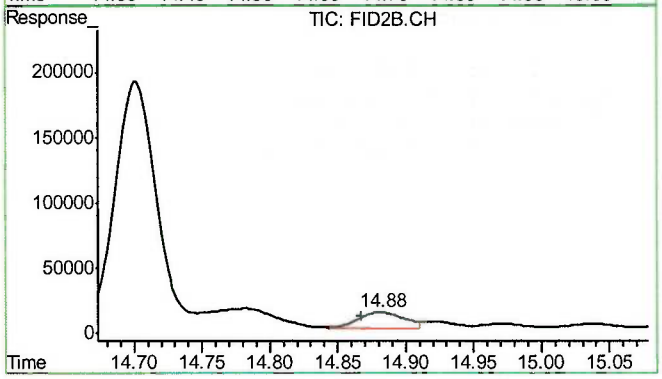
R.T.: 11.460 min
Delta R.T.: -0.004 min
Response: 721186
Conc: 7.08 ug/L m

ACCUTEST LABORATORIES
D55558



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.701 min
Delta R.T.: 0.014 min
Response: 4085465
Conc: 108.93 % m



#11 Naphthalene

R.T.: 14.881 min
Delta R.T.: 0.014 min
Response: 291652
Conc: 4.76 ug/L m

ACCUTEST LABORATORIES
D55558

Manual Integrations
APPROVED
(compounds with "m" flag)
Judy Melson
03/10/14 13:59

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\030714\GB24000.D\FID1A.CH Vial: 5
Signal #2 : Y:\1\DATA\030714\GB24000.D\FID2B.CH
Acq On : 7 Mar 2014 12:25 pm Operator: BRIANR
Sample : MB, S Inst : GC/MS Ins
Misc : GC4255,GGB1317,5.052,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 10:08:35 2014 Quant Results File: TB1310GB1310SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1310GB1310SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Mar 10 10:04:13 2014
Response via : Initial Calibration
DataAcq Meth : TVB4.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

		Compound	R.T.	Response	Conc	Units	
		System Monitoring Compounds					
2)	S	1,2,4-Trichlorobenzene	14.41	3155448	94.919	%	m
10)	S	1,2,4-Trichlorobenzene (P)	14.41	8487105	91.185	%	m
		Target Compounds					
1)	H	TVH-Gasoline	7.32	2362339	0.036	mg/L	
4)	T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	
5)	T	Benzene	0.00	0	N.D.	ug/L	
6)	T	Toluene	0.00	0	N.D.	ug/L	
7)	T	Ethylbenzene	0.00	0	N.D.	ug/L	
8)	T	m,p-Xylene	0.00	0	N.D.	ug/L	
9)	T	o-Xylene	0.00	0	N.D.	ug/L	
11)	T	Naphthalene	14.59	127202	1.139	ug/L	m

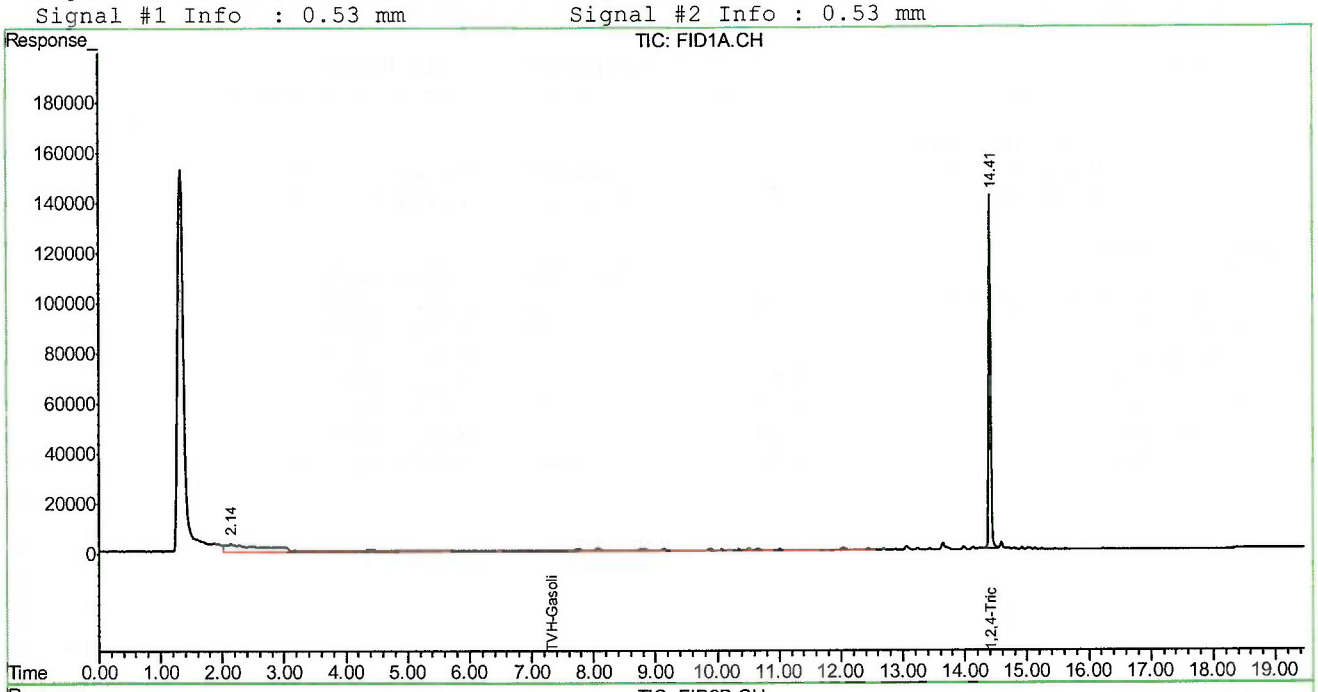
(f)=RT Delta > 1/2 Window (m)=manual int.

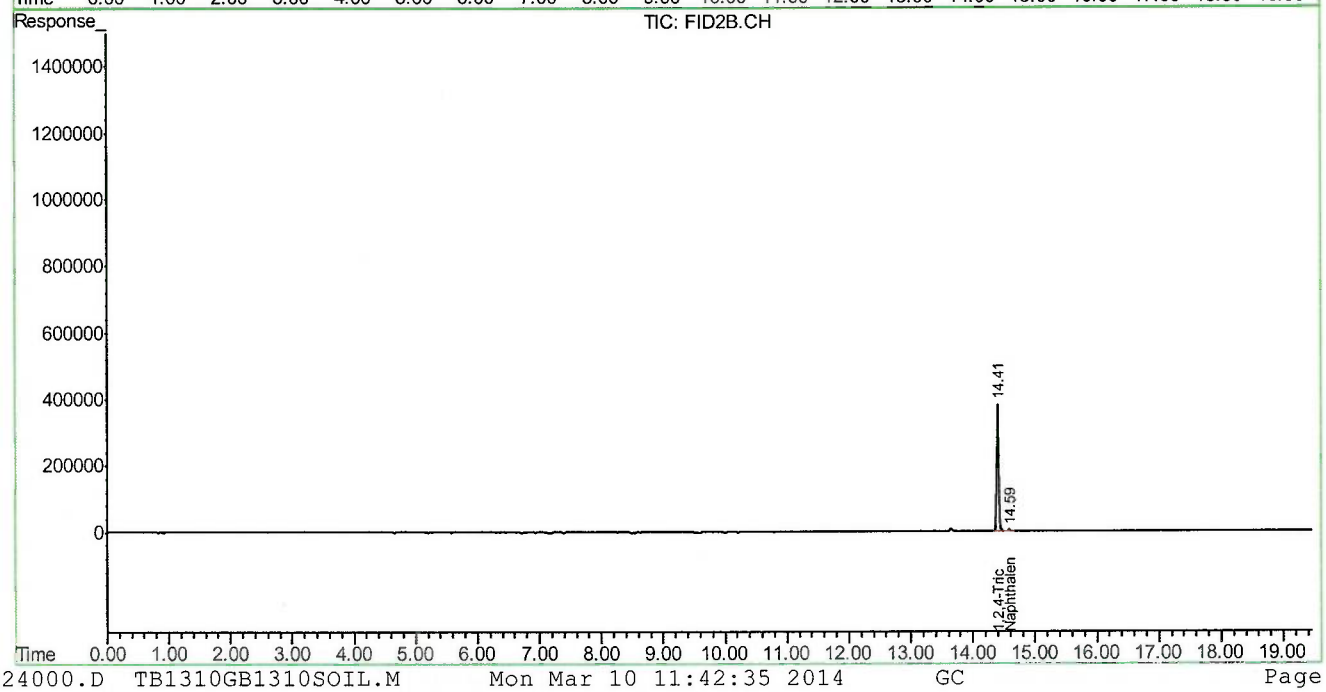
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\030714\GB24000.D\FID1A.CH Vial: 5
Signal #2 : Y:\1\DATA\030714\GB24000.D\FID2B.CH
Acq On : 7 Mar 2014 12:25 pm Operator: BRIANR
Sample : MB, S Inst : GC/MS Ins
Misc : GC4255,GGB1317,5.052,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 11:31 2014 Quant Results File: TB1310GB1310SOIL.RES

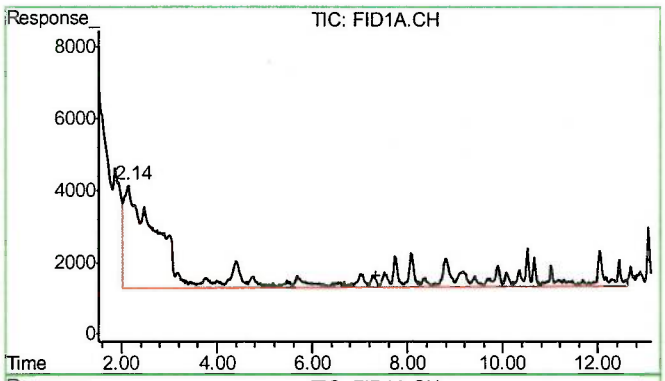
Quant Method : C:\MSDCHEM\1...\TB1310GB1310SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Mar 10 10:04:13 2014
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm



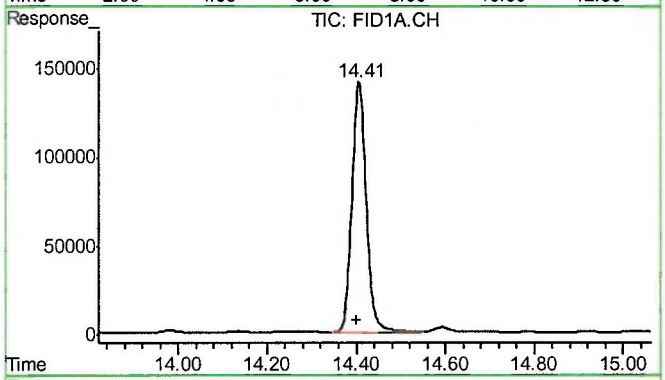


ACCUTEST LABORATORIES D55558



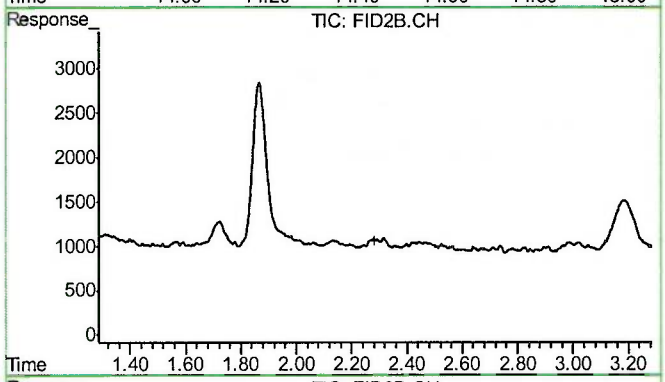
#1 TVH-Gasoline

R.T.: 7.320 min
Delta R.T.: 0.000 min
Response: 2362339
Conc: 0.04 mg/L m



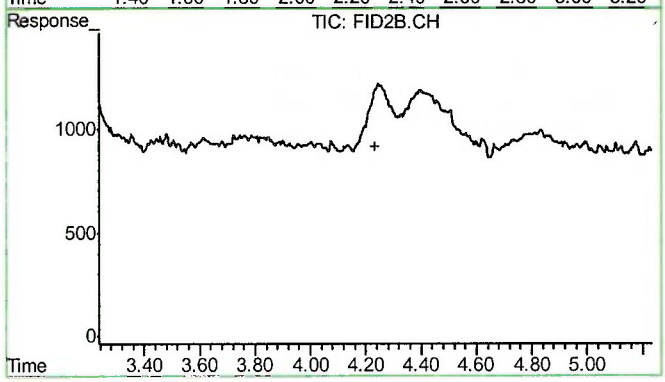
#2 1,2,4-Trichlorobenzene

R.T.: 14.406 min
Delta R.T.: 0.005 min
Response: 3155448
Conc: 94.92 % m



#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.285 min
Response: 0
Conc: N.D.

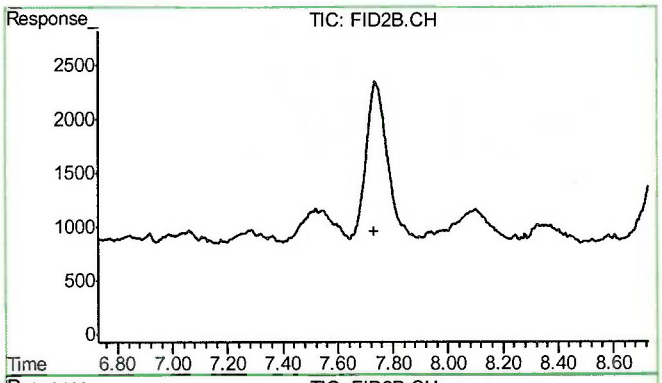


#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.235 min
Response: 0
Conc: N.D.

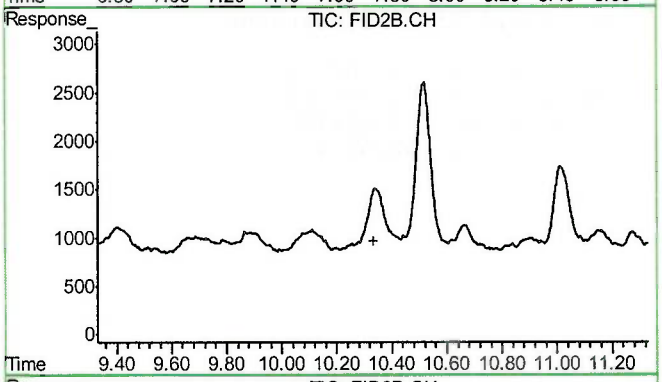
7.2.1

7



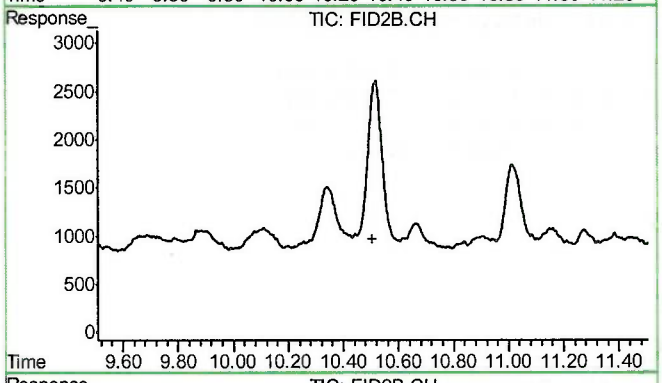
#6 Toluene

R.T.: 0.000 min
Exp R.T. : 7.730 min
Response: 0
Conc: N.D.



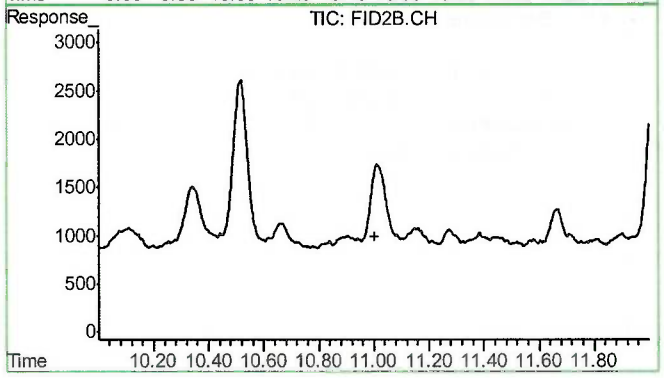
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.331 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.507 min
Response: 0
Conc: N.D.

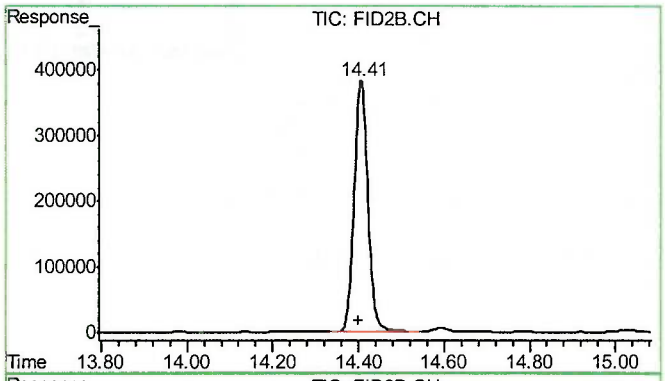


#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 11.001 min
Response: 0
Conc: N.D.

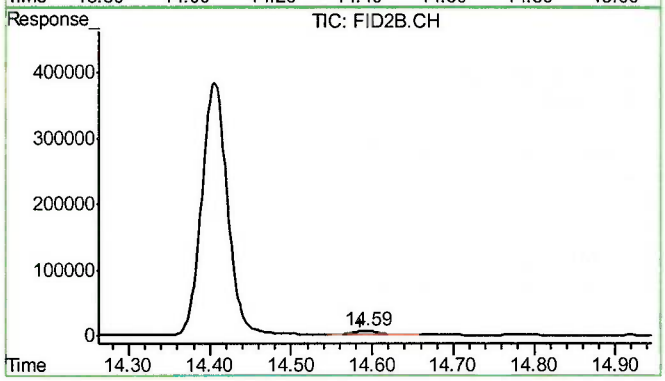
7.2.1

7



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.405 min
Delta R.T.: 0.007 min
Response: 8487105
Conc: 91.19 % m



#11 Naphthalene

R.T.: 14.592 min
Delta R.T.: 0.007 min
Response: 127202
Conc: 1.14 ug/L m

7.2.1

7

Manual Integrations
APPROVED
(compounds with "m" flag)
Judy Melson
03/10/14 16:35

Quantitation Report (QT Reviewed)

Signal #1 : Z:\030714\BTEX\TA21253.D\FID1A.CH Vial: 6
Signal #2 : Z:\030714\BTEX\TA21253.D\FID2B.CH
Acq On : 7 Mar 2014 11:28 am Operator: ELISEV
Sample : MB, W Inst : BTEX2
Misc : GC4259,GTA1198,,,,,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 14:25:56 2014 Quant Results File: TA1171GA1171WATER.RES

Quant Method : C:\MSDCHEM\1...\TA1171GA1171WATER.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Mar 10 14:24:31 2014
Response via : Initial Calibration
DataAcq Meth : TVB2.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

		Compound	R.T.	Response	Conc	Units	
		System Monitoring Compounds					
2)	S	1,2,4-Trichlorobenzene	14.70	3343880	97.923	%	m
10)	S	1,2,4-Trichlorobenzene (P)	14.70	3813093	102.189	%	m
		Target Compounds					
1)	H	TVH-Gasoline	7.67	1257578	0.007	mg/L	
4)	T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	d
5)	T	Benzene	0.00	0	N.D.	ug/L	d
6)	T	Toluene	0.00	0	N.D.	ug/L	d
7)	T	Ethylbenzene	0.00	0	N.D.	ug/L	d
8)	T	m,p-Xylene	11.03	32039	0.175	ug/L	
9)	T	o-Xylene	0.00	0	N.D.	ug/L	d
11)	T	Naphthalene	14.88	117851	1.789	ug/L	m

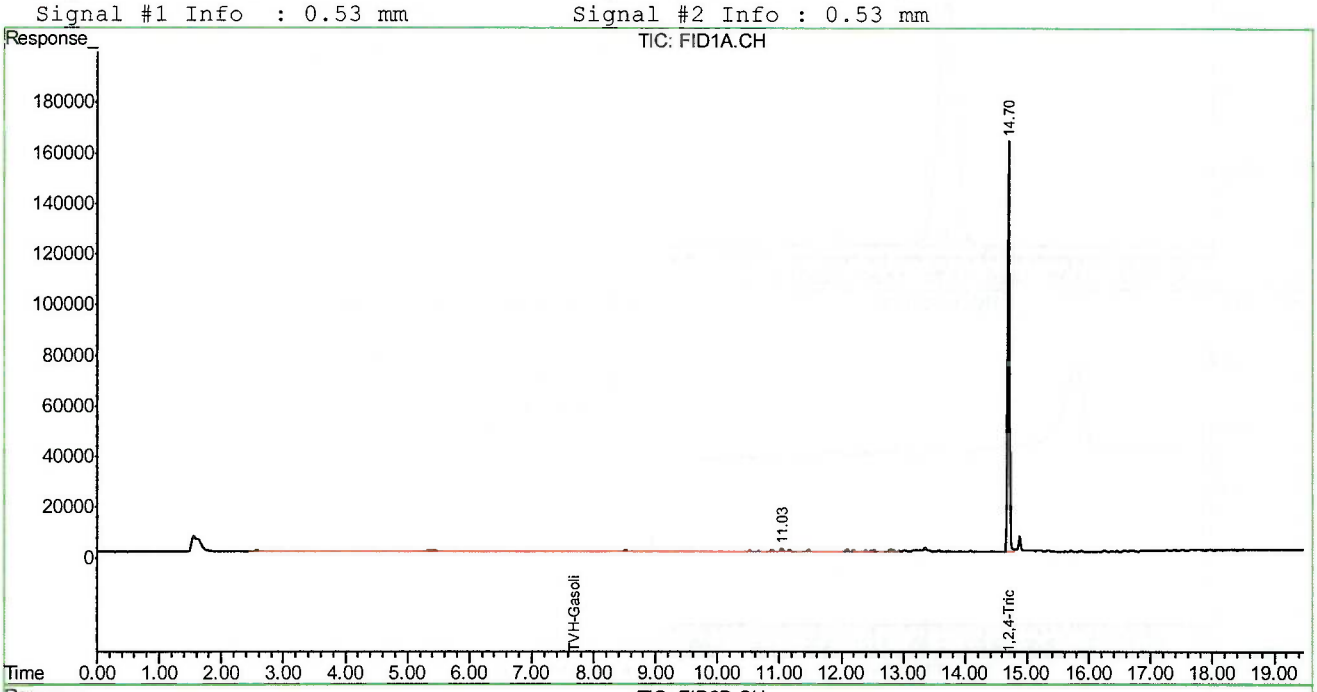
(f)=RT Delta > 1/2 Window (m)=manual int.

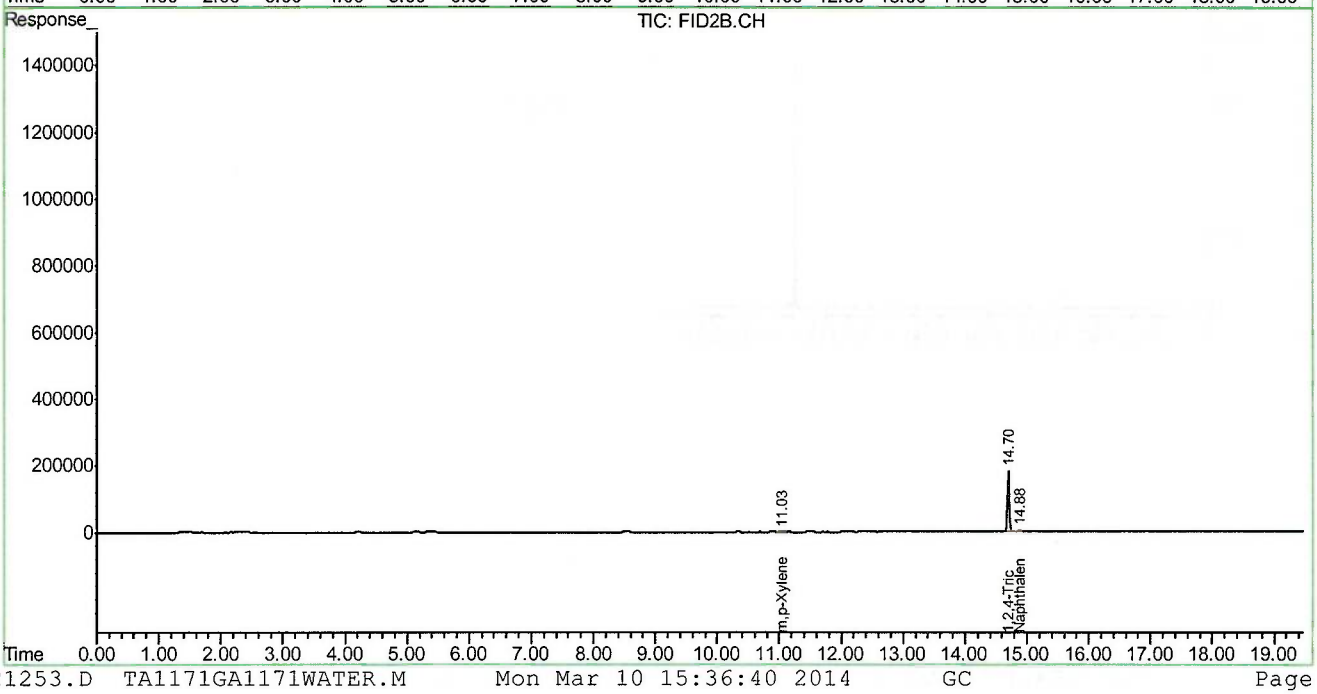
Quantitation Report (QT Reviewed)

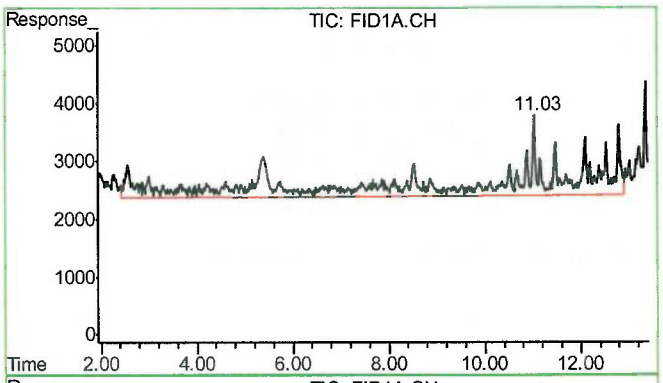
Signal #1 : Z:\030714\BTEX\TA21253.D\FID1A.CH Vial: 6
Signal #2 : Z:\030714\BTEX\TA21253.D\FID2B.CH
Acq On : 7 Mar 2014 11:28 am Operator: ELISEV
Sample : MB, W Inst : BTEX2
Misc : GC4259,GTA1198,,,,,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 14:28 2014 Quant Results File: TA1171GA1171WATER.RES

Quant Method : C:\MSDCHEM\1...\TA1171GA1171WATER.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Mar 10 14:24:31 2014
Response via : Multiple Level Calibration
DataAcq Meth : TVB2.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

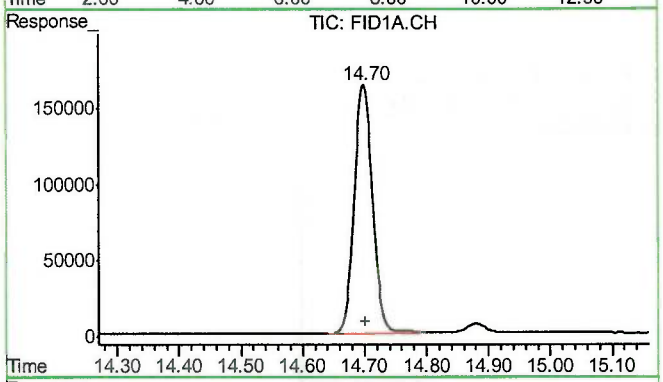






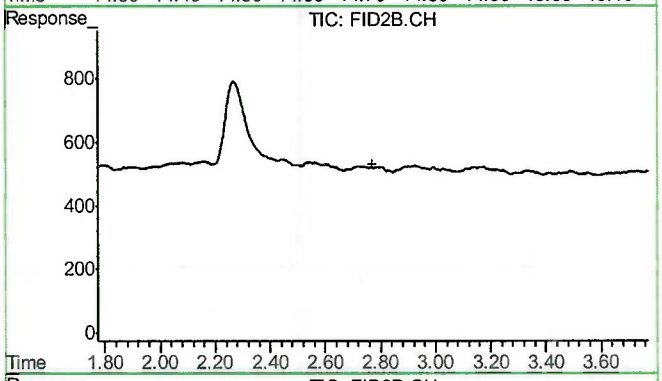
#1 TVH-Gasoline

R.T.: 7.675 min
Delta R.T.: 0.000 min
Response: 1257578
Conc: 0.01 mg/L m



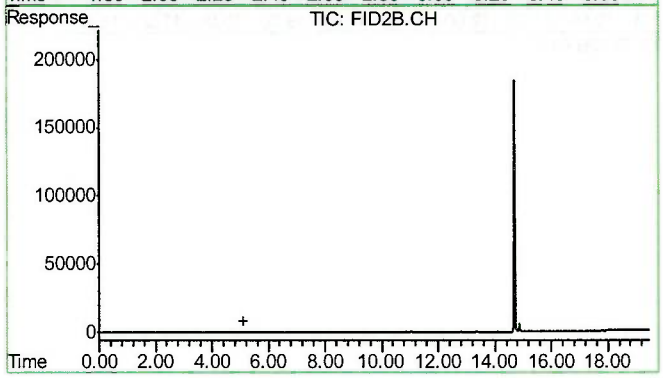
#2 1,2,4-Trichlorobenzene

R.T.: 14.698 min
Delta R.T.: -0.003 min
Response: 3343880
Conc: 97.92 % m



#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.772 min
Response: 0
Conc: N.D.

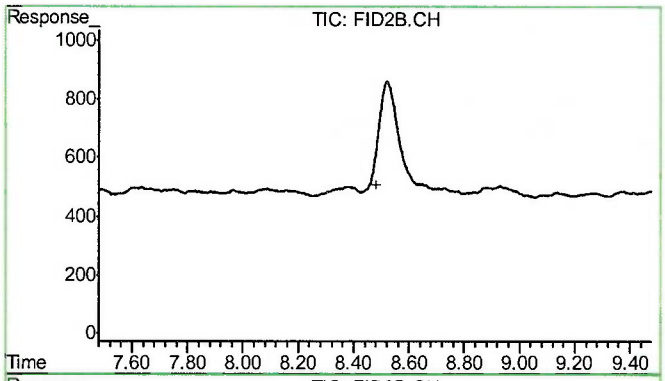


#5 Benzene

R.T.: 0.000 min
Exp R.T. : 5.117 min
Response: 0
Conc: N.D. d

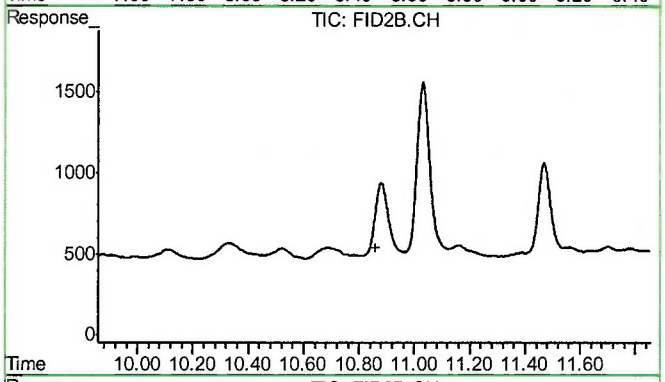
7.2.2

7



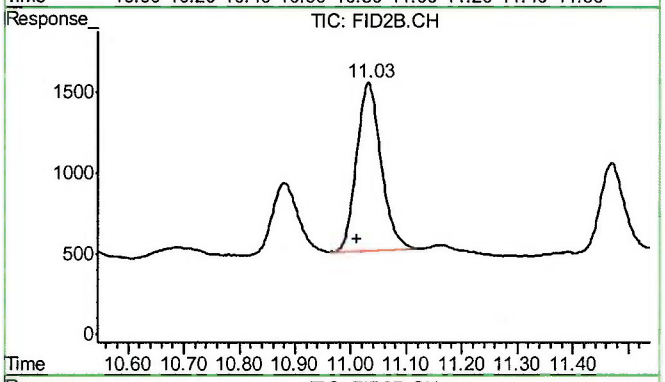
#6 Toluene

R.T.: 0.000 min
Exp R.T. : 8.480 min
Response: 0
Conc: N.D.



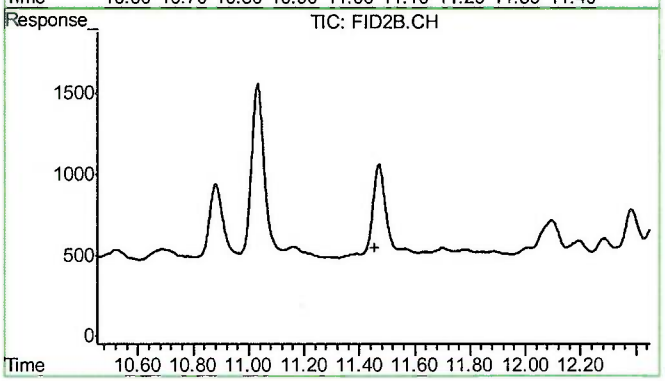
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.858 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

R.T.: 11.032 min
Delta R.T.: 0.021 min
Response: 32039
Conc: 0.18 ug/L



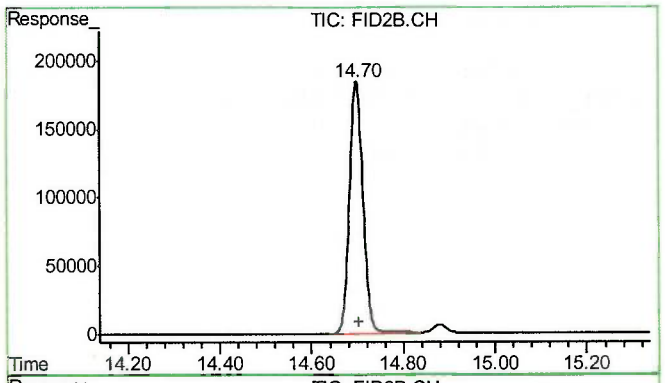
#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 11.453 min
Response: 0
Conc: N.D.

7.2.2

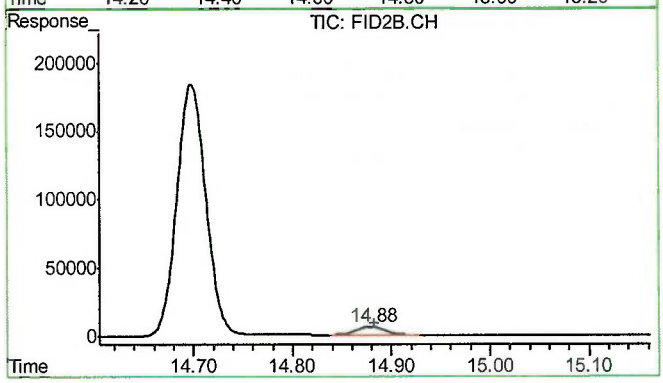
7

ACCUTEST LABORATORIES D55558



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.698 min
Delta R.T.: -0.003 min
Response: 3813093
Conc: 102.19 % m



#11 Naphthalene

R.T.: 14.879 min
Delta R.T.: -0.004 min
Response: 117851
Conc: 1.79 ug/L m

7.2.2

7

ACCUTEST LABORATORIES D55558

Manual Integrations
APPROVED
(compounds with "m" flag)
Judy Melson
03/10/14 13:54

Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\030714\BTEX\TB24000.D\FID1A.CH Vial: 5
Signal #2 : Y:\1\DATA\030714\BTEX\TB24000.D\FID2B.CH
Acq On : 7 Mar 2014 12:25 pm Operator: BRIANR
Sample : MB, S Inst : GC/MS Ins
Misc : GC4254,GTB1317,5.052,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 10:08:35 2014 Quant Results File: TB1310GB1310SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB1310GB1310SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Mar 10 10:04:13 2014
Response via : Initial Calibration
DataAcq Meth : TVB4.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

		Compound	R.T.	Response	Conc	Units	
		System Monitoring Compounds					
2)	S	1,2,4-Trichlorobenzene	14.41	3155448	94.919	%	m
10)	S	1,2,4-Trichlorobenzene (P)	14.41	8487105	91.185	%	m
		Target Compounds					
1)	H	TVH-Gasoline	7.32	2362339	0.036	mg/L	
4)	T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L	
5)	T	Benzene	0.00	0	N.D.	ug/L	
6)	T	Toluene	0.00	0	N.D.	ug/L	
7)	T	Ethylbenzene	0.00	0	N.D.	ug/L	
8)	T	m,p-Xylene	0.00	0	N.D.	ug/L	
9)	T	o-Xylene	0.00	0	N.D.	ug/L	
11)	T	Naphthalene	14.59	127202	1.139	ug/L	m

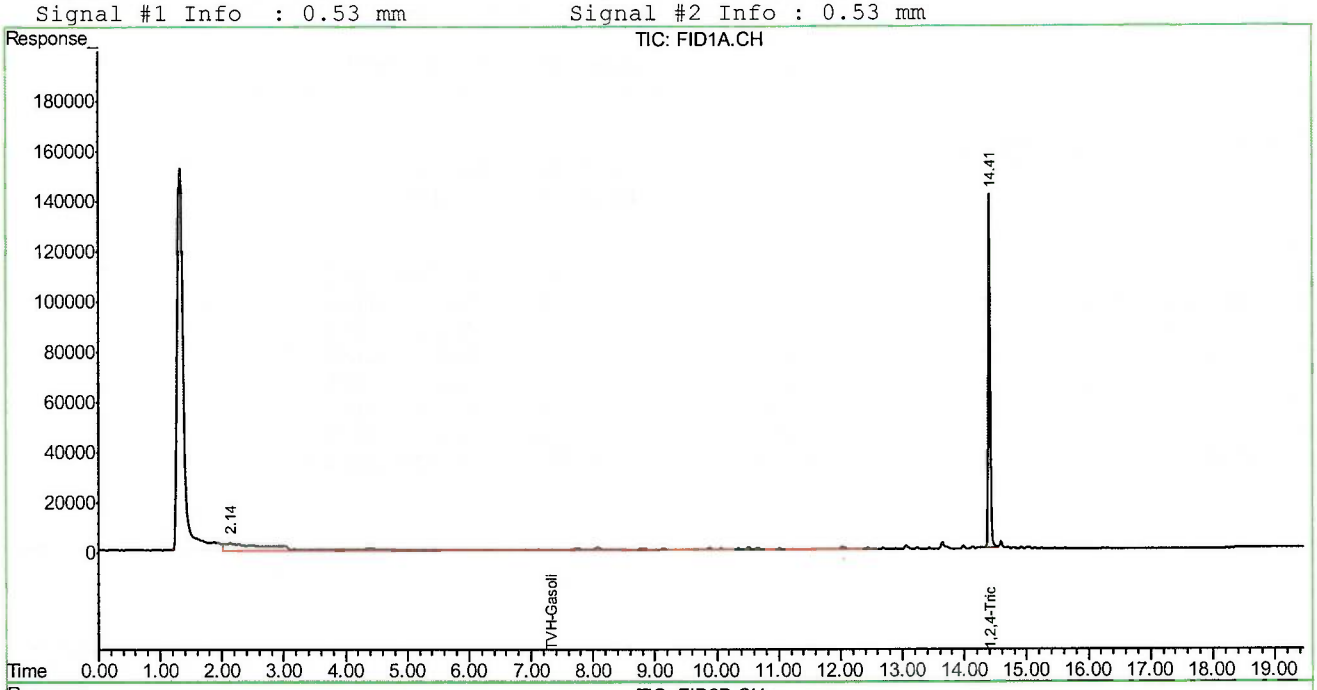
(f)=RT Delta > 1/2 Window (m)=manual int.

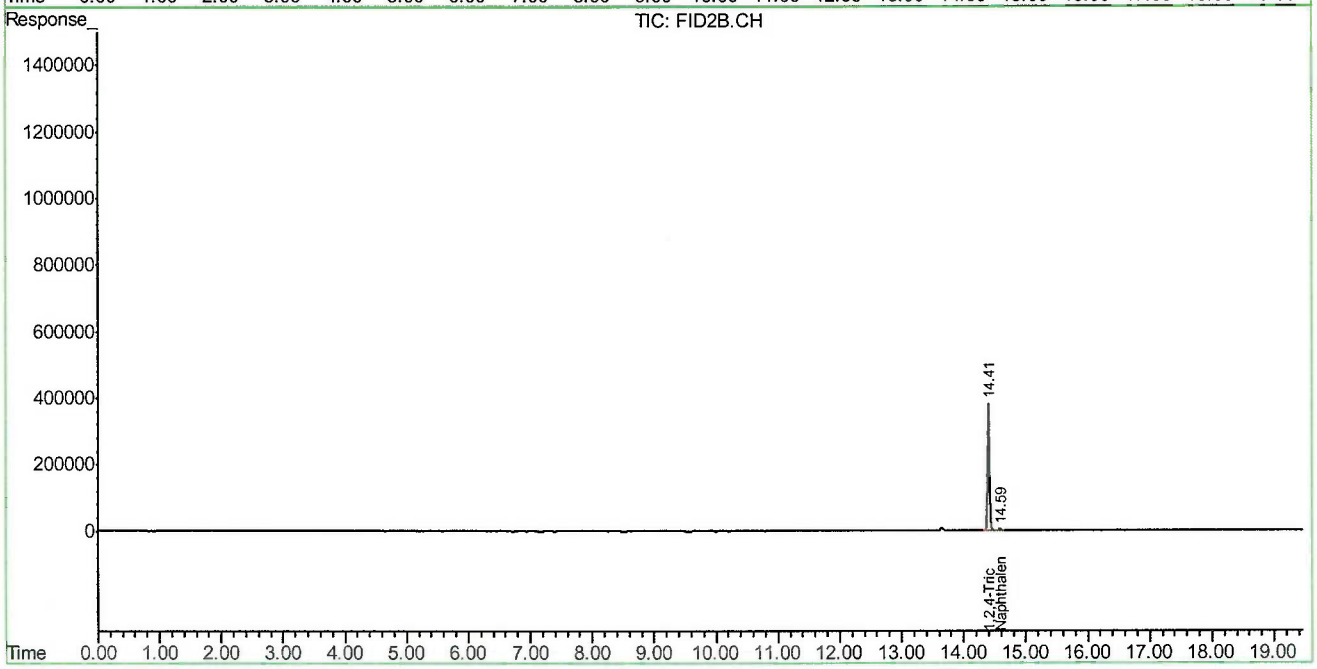
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\030714\BTEX\TB24000.D\FID1A.CH Vial: 5
Signal #2 : Y:\1\DATA\030714\BTEX\TB24000.D\FID2B.CH
Acq On : 7 Mar 2014 12:25 pm Operator: BRIANR
Sample : MB, S Inst : GC/MS Ins
Misc : GC4254,GTB1317,5.052,,100,5,1 Multiplr: 1.00
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E
Quant Time: Mar 10 11:31 2014 Quant Results File: TB1310GB1310SOIL.RES

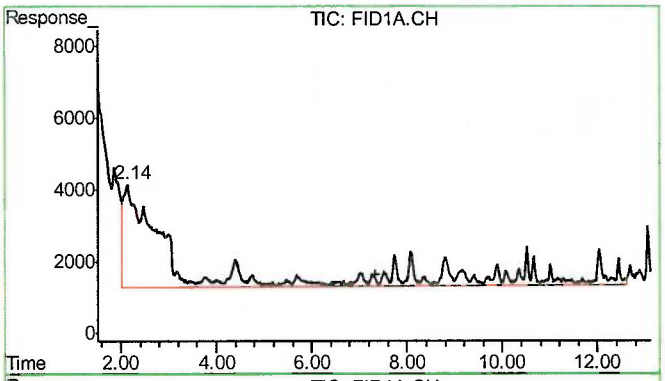
Quant Method : C:\MSDCHEM\1...\TB1310GB1310SOIL.M (Chemstation Integrator)
Title : 8015B/8021B TVH/BTEX
Last Update : Mon Mar 10 10:04:13 2014
Response via : Multiple Level Calibration
DataAcq Meth : TVB4.M

Volume Inj. :
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm



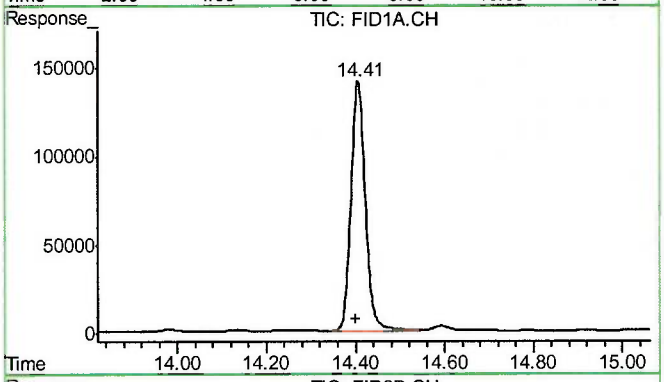


ACCUTEST LABORATORIES D55558



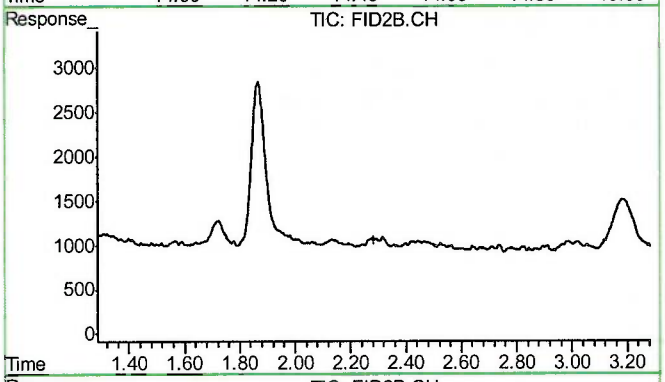
#1 TVH-Gasoline

R.T.: 7.320 min
Delta R.T.: 0.000 min
Response: 2362339
Conc: 0.04 mg/L m



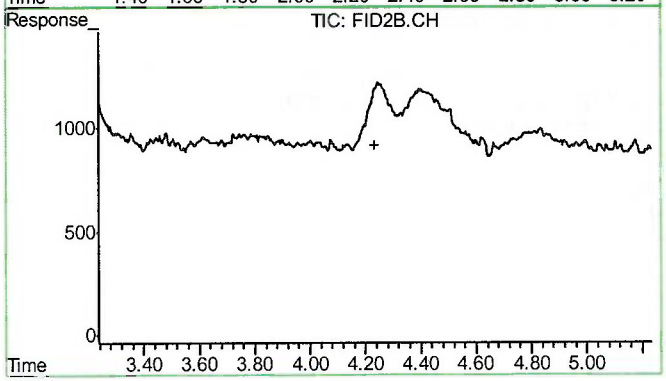
#2 1,2,4-Trichlorobenzene

R.T.: 14.406 min
Delta R.T.: 0.005 min
Response: 3155448
Conc: 94.92 % m



#4 Methyl-t-butyl-ether

R.T.: 0.000 min
Exp R.T. : 2.285 min
Response: 0
Conc: N.D.



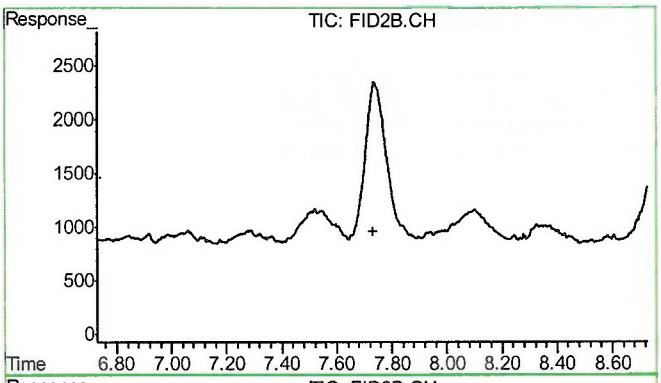
#5 Benzene

R.T.: 0.000 min
Exp R.T. : 4.235 min
Response: 0
Conc: N.D.

7.2.3

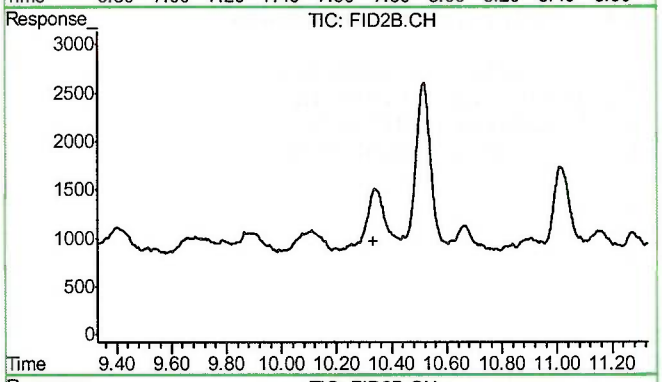
7

ACCUTEST LABORATORIES D55558



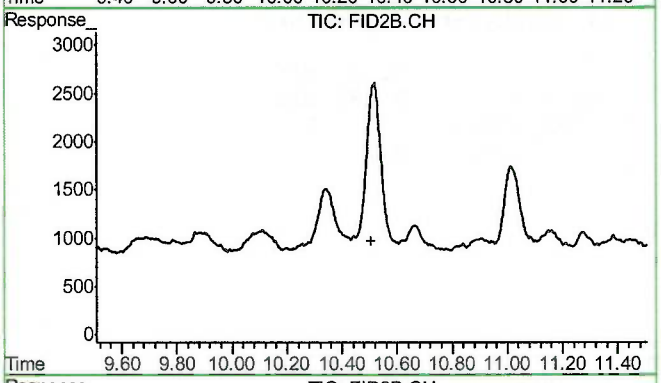
#6 Toluene

R.T.: 0.000 min
Exp R.T. : 7.730 min
Response: 0
Conc: N.D.



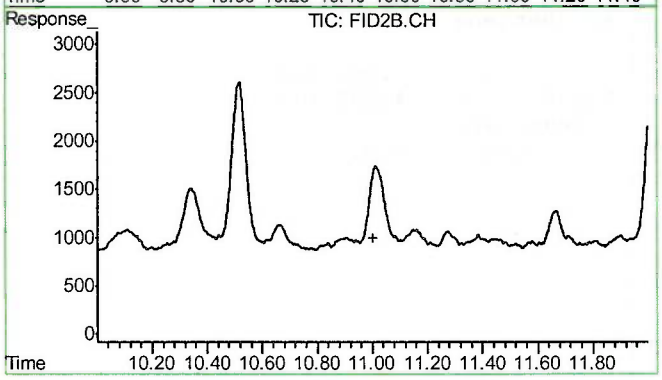
#7 Ethylbenzene

R.T.: 0.000 min
Exp R.T. : 10.331 min
Response: 0
Conc: N.D.



#8 m,p-Xylene

R.T.: 0.000 min
Exp R.T. : 10.507 min
Response: 0
Conc: N.D.

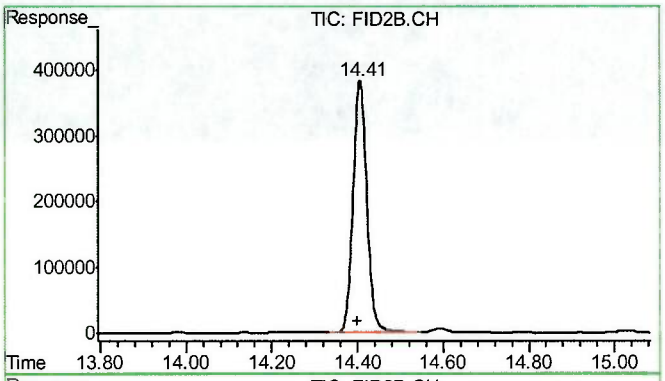


#9 o-Xylene

R.T.: 0.000 min
Exp R.T. : 11.001 min
Response: 0
Conc: N.D.

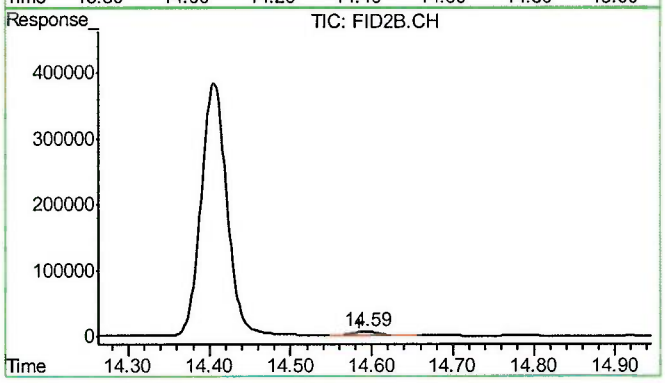
7.2.3

7



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.405 min
Delta R.T.: 0.007 min
Response: 8487105
Conc: 91.19 % m



#11 Naphthalene

R.T.: 14.592 min
Delta R.T.: 0.007 min
Response: 127202
Conc: 1.14 ug/L m

7.2.3

7

ACCUTEST LABORATORIES D55558

Mountain States ACCUTEST LABORATORIES

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D55558
Account: KPKCOD K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9506-MB	FI10528.D	1	03/05/14	JS	03/05/14	OP9506	GFI689

The QC reported here applies to the following samples: **Method:** SW846-8015B

D55558-2

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	ND	6.7	mg/kg	

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	86%	20-130%

8.1.1

8

Blank Spike Summary

Job Number: D55558
Account: KPKCOD K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9506-BS	FI10530.D	1	03/05/14	JS	03/05/14	OP9506	GFI689

The QC reported here applies to the following samples: **Method:** SW846-8015B

D55558-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	167	107	64	42-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	85%	20-130%

8.2.1

8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D55558
Account: KPKCOD K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9506-MS	FI10529.D	1	03/05/14	JS	03/05/14	OP9506	GFI690
OP9506-MSD	FI10531.D	1	03/05/14	JS	03/05/14	OP9506	GFI690
D55543-1	FI10533.D	1	03/05/14	JS	03/05/14	OP9506	GFI690

The QC reported here applies to the following samples: **Method:** SW846-8015B

D55558-2

CAS No.	Compound	D55543-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND		192	140	73	142	74	1	20-150/30

CAS No.	Surrogate Recoveries	MS	MSD	D55543-1	Limits
84-15-1	o-Terphenyl	88%	92%	77%	20-130%

8.3.1

8

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\FID6_DATA\FI030514.SEC\FI10576.D Vial: 19
Acq On : 6 Mar 2014 3:37 am Operator: JOHNS
Sample : D55558-2 Inst : Fid6
Misc : OP9506,GFI691,30.13,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 06 10:54:04 2014 Quant Results File: ORO-RR-GFI685.RES

Quant Method : C:\MSDCHEM\1...\ORO-RR-GFI685.M (Chemstation Integrator)
Title : 8015B TEH Front detector
Last Update : Sat Mar 01 14:24:17 2014
Response via : Initial Calibration
DataAcq Meth : DUAL_B2.M

Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um

Compound	R.T.	Response	Conc	Units
System Monitoring Compounds				
1) S O-Terphenyl	11.88	89554738	1154.793	mg/L
Target Compounds				
2) H TPH-DRO (C10-C28)	9.92	98776692	1283.674	mg/L

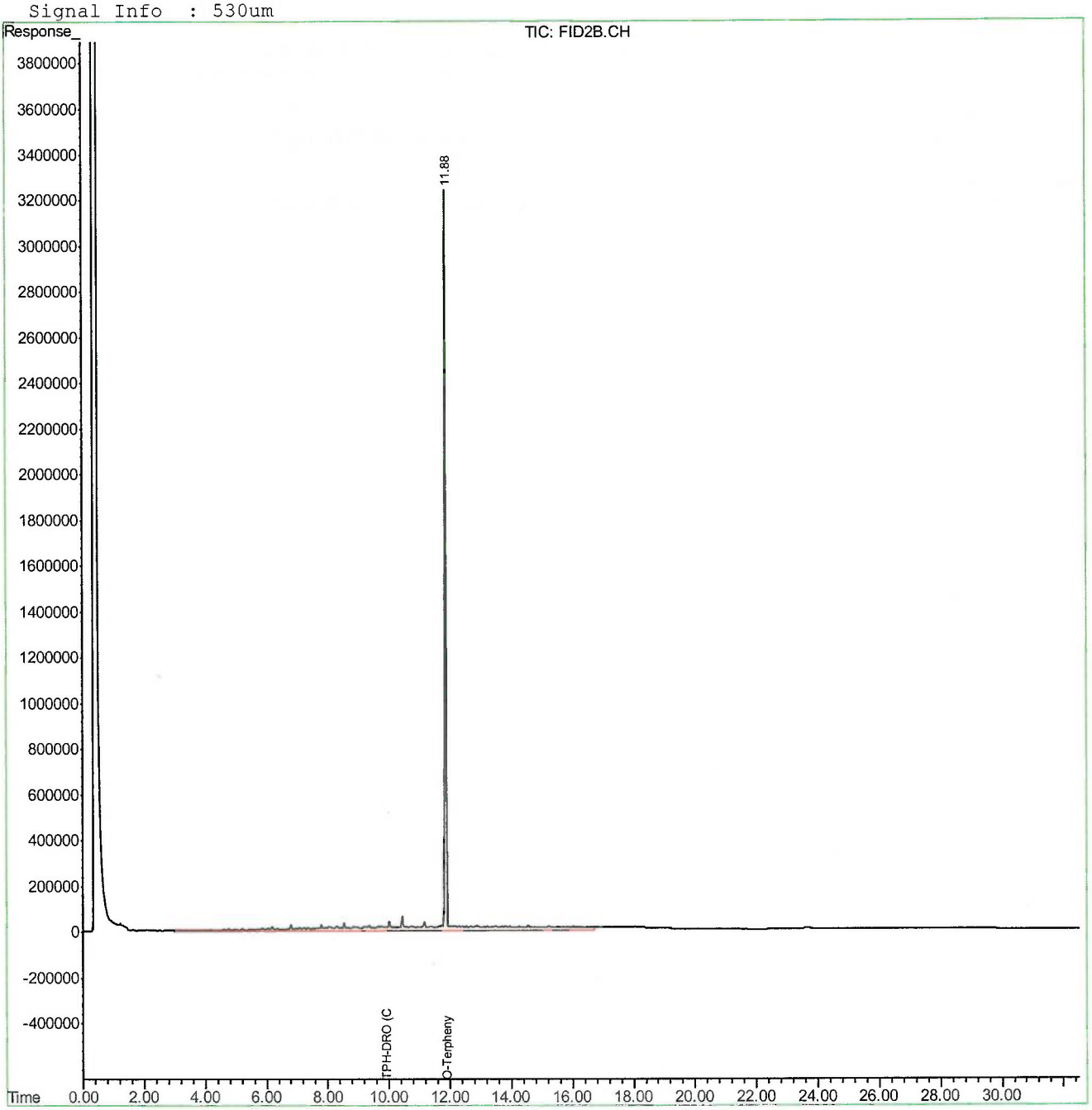
(f)=RT Delta > 1/2 Window (m)=manual int.
FI10576.D ORO-RR-GFI685.M Thu Mar 06 10:55:36 2014 TEH Page 1

Quantitation Report (QT Reviewed)

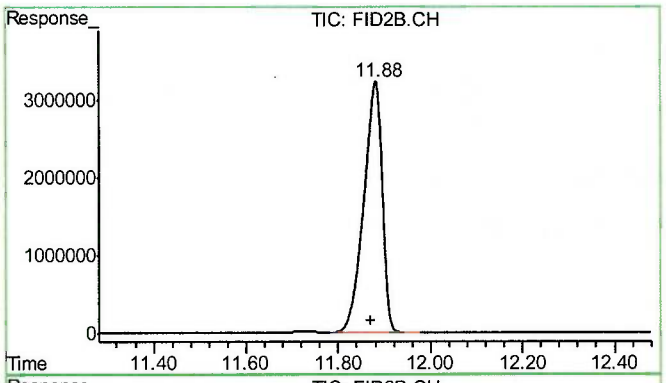
Data File : C:\FID6_DATA\FI030514.SEC\FI10576.D Vial: 19
Acq On : 6 Mar 2014 3:37 am Operator: JOHNS
Sample : D55558-2 Inst : Fid6
Misc : OP9506,GFI691,30.13,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 6 10:54 2014 Quant Results File: ORO-RR-GFI685.RES

Quant Method : C:\MSDCHEM\1...\ORO-RR-GFI685.M (Chemstation Integrator)
Title : 8015B TEH Front detector
Last Update : Sat Mar 01 14:24:17 2014
Response via : Multiple Level Calibration
DataAcq Meth : DUAL_B2.M

Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um

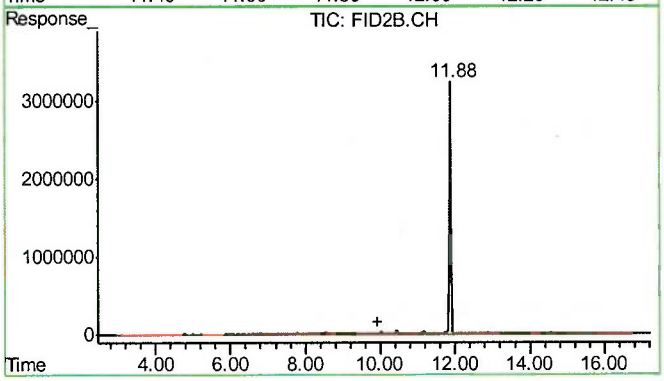


ACCUTEST LABORATORIES D55558



#1 O-Terphenyl

R.T.: 11.882 min
Delta R.T.: 0.012 min
Response: 89554738
Conc: 1154.79 mg/L



#2 TPH-DRO (C10-C28)

R.T.: 9.920 min
Delta R.T.: 0.000 min
Response: 98776692
Conc: 1283.67 mg/L m

9.1.1

9

Quantitation Report (QT Reviewed)

Data File : C:\FID6_DATA\FI030414.SEC\FI10528.D Vial: 3
Acq On : 5 Mar 2014 11:21 am Operator: JOHNS
Sample : OP9506-MB Inst : Fid6
Misc : OP9506,GFI689,30.00,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 05 12:32:10 2014 Quant Results File: ORO-RR-GFI685.RES

Quant Method : C:\MSDCHEM\1...\ORO-RR-GFI685.M (Chemstation Integrator)
Title : 8015B TEH Front detector
Last Update : Sat Mar 01 14:24:17 2014
Response via : Initial Calibration
DataAcq Meth : DUAL_B2.M

Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
1) S O-Terphenyl	11.89	133906710	1726.704 mg/L
Target Compounds			
2) H TPH-DRO (C10-C28)	9.92	2270074	29.501 mg/L

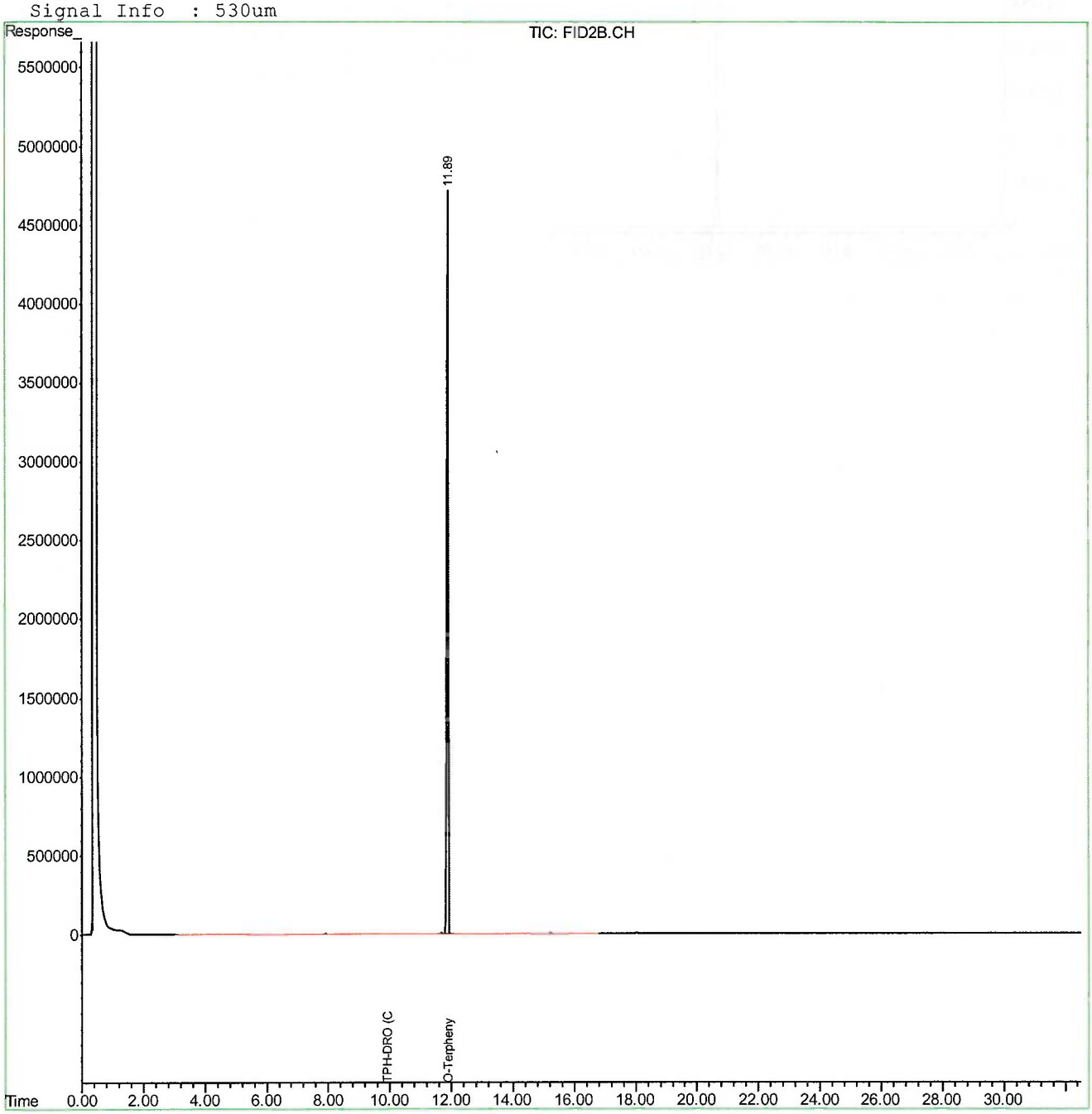
(f)=RT Delta > 1/2 Window (m)=manual int.
FI10528.D ORO-RR-GFI685.M Wed Mar 05 14:21:04 2014 TEH

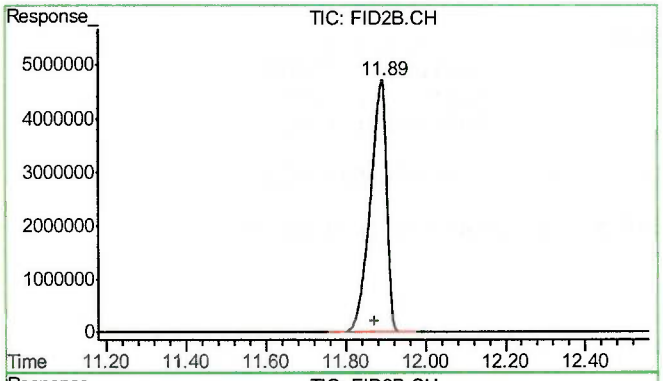
Quantitation Report (QT Reviewed)

Data File : C:\FID6_DATA\FI030414.SEC\FI10528.D Vial: 3
Acq On : 5 Mar 2014 11:21 am Operator: JOHNS
Sample : OP9506-MB Inst : Fid6
Misc : OP9506,GFI689,30.00,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Mar 5 12:32 2014 Quant Results File: ORO-RR-GFI685.RES

Quant Method : C:\MSDCHEM\1...\ORO-RR-GFI685.M (Chemstation Integrator)
Title : 8015B TEH Front detector
Last Update : Sat Mar 01 14:24:17 2014
Response via : Multiple Level Calibration
DataAcq Meth : DUAL_B2.M

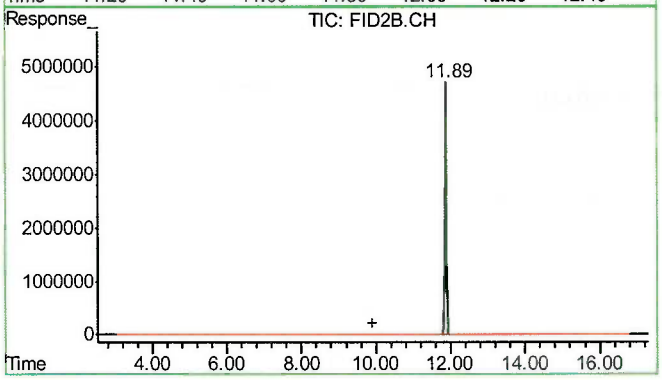
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 11.891 min
Delta R.T.: 0.021 min
Response: 133906710
Conc: 1726.70 mg/L



#2 TPH-DRO (C10-C28)

R.T.: 9.920 min
Delta R.T.: 0.000 min
Response: 2270074
Conc: 29.50 mg/L m

9.2.1

9

Mountain States ACCUTEST LABORATORIES

04/09/14

Technical Report for

K.P. Kauffmann Company, Inc.

Wattenberg Tank

Accutest Job Number: D56334

Sampling Date: 03/27/14

Report to:

K.P. Kauffman Company, Inc.
1675 Broadway Suite 2800
Denver, CO 80202-4628
mhattel@msn.com; slaramesa@kpk.com;
kgilbert@kpk.com; dkuhn@kpk.com
ATTN: Susana Lara-Mesa

Total number of pages in report: 28

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

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Test results relate only to samples analyzed.

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Sample Summary

K.P. Kauffmann Company, Inc.

Job No: D56334

Wattenberg Tank

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D56334-1	03/27/14	11:55 MH	03/27/14	AQ	Water	TANK-I
D56334-1F	03/27/14	11:55 MH	03/27/14	AQ	Water Filtered	TANK-I

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: K.P. Kauffmann Company, Inc. **Job No** D56334

Site: Wattenberg Tank **Report Date** 4/9/2014 11:02:05 AM

On 03/27/2014, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.5 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D56334 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals By Method SW846 6010C

Matrix AQ **Batch ID:** MP12611

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D56360-1FMS, D56360-1FMSD, D56360-1FSDL were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D287

Matrix ALL **Batch ID:** GN24261

- The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method EPA 1664A

Matrix AQ **Batch ID:** GP12299

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D56327-1MS were used as the QC samples for the HEM Oil and Grease analysis.
- The matrix spike (MS) recovery(s) of HEM Oil and Grease are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix AQ **Batch ID:** GP12253

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D56343-1MS, D56343-1MSD were used as the QC samples for the Chloride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate, Chloride analysis.
- D56334-1 for Nitrogen, Nitrate: Elevated detection limit due to matrix interference.
- D56334-1 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.
- D56334-1 for Sulfate: Elevated detection limit due to matrix interference.

Wet Chemistry By Method SM 2540C-2011

Matrix	AQ	Batch ID:	GN24151

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D56293-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

Wet Chemistry By Method SM 5310B-2011

Matrix	AQ	Batch ID:	GP12246

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D56325-3DUP, D56325-3MS, D56325-3MSD were used as the QC samples for the Total Organic Carbon analysis.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D56334
Account: K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank
Collected: 03/27/14

3

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D56334-1	TANK-I					
Chloride		11300	250		mg/l	EPA 300.0/SW846 9056
HEM Oil and Grease		71.0	5.6		mg/l	EPA 1664A
Solids, Total Dissolved		20000	10		mg/l	SM 2540C-2011
Specific Gravity by Hydrometer		1.0136				ASTM D287
Total Organic Carbon		844	50		mg/l	SM 5310B-2011
pH		7.21			su	SM4500HB+-2011/9040C
D56334-1F	TANK-I					
Calcium		175000	20000		ug/l	SW846 6010C
Magnesium		37200	10000		ug/l	SW846 6010C
Potassium		312000	50000		ug/l	SW846 6010C
Sodium		7030000	20000		ug/l	SW846 6010C

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	TANK-I		
Lab Sample ID:	D56334-1	Date Sampled:	03/27/14
Matrix:	AQ - Water	Date Received:	03/27/14
		Percent Solids:	n/a
Project:	Wattenberg Tank		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	11300	250	mg/l	500	03/28/14 12:15	SK	EPA 300.0/SW846 9056
HEM Oil and Grease	71.0	5.6	mg/l	1	04/08/14	SWT	EPA 1664A
Nitrogen, Nitrate [a]	< 1.0	1.0	mg/l	100	03/28/14 10:04	SK	EPA 300.0/SW846 9056
Nitrogen, Nitrite [a]	< 0.40	0.40	mg/l	100	03/28/14 10:04	SK	EPA 300.0/SW846 9056
Solids, Total Dissolved	20000	10	mg/l	1	03/31/14	BF	SM 2540C-2011
Specific Gravity by Hydromete	1.0136			1	04/09/14	MM	ASTM D287
Sulfate [a]	< 50	50	mg/l	100	03/28/14 10:04	SK	EPA 300.0/SW846 9056
Total Organic Carbon	844	50	mg/l	50	03/28/14 13:06	GH	SM 5310B-2011
pH	7.21		su	1	03/28/14 10:20	JB	SM4500HB+-2011/9040C

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	TANK-I		
Lab Sample ID:	D56334-1F	Date Sampled:	03/27/14
Matrix:	AQ - Water Filtered	Date Received:	03/27/14
		Percent Solids:	n/a
Project:	Wattenberg Tank		

4.2

4

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	175000	20000	ug/l	50	03/31/14	04/02/14	JB	SW846 6010C [1]	SW846 3010A [3]
Magnesium	37200	10000	ug/l	50	03/31/14	04/03/14	JB	SW846 6010C [2]	SW846 3010A [3]
Potassium	312000	50000	ug/l	50	03/31/14	04/02/14	JB	SW846 6010C [1]	SW846 3010A [3]
Sodium	7030000	20000	ug/l	50	03/31/14	04/02/14	JB	SW846 6010C [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA4619
(2) Instrument QC Batch: MA4620
(3) Prep QC Batch: MP12611

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST Laboratories

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: D56334

Client / Reporting Information

Company Name: K.P. Kauffman Company, Inc.
Address: 1675 Broadway, Suite 2800
City: Denver State: CO Zip: 80202-4628
Project Contact: Susana Lara-Mesa SLaraMesa@kpk.com
Phone #: 303-825-4822
Sampler's Name: MICHAEL HATTEL (303-665-1400)

Project Information

Project Name: WATTENBERG TANK
Street:
City: Fort Lupton State: CO
Project #:
Fax #:
Client Purchase Order #: 7591

Requested Analysis

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	OIL & GREASE 1664	ANIONS (NITRATE, NITRITE, SULFATE, CHLORIDE)	pH	CATIONS (Ca, K, Mg, NA)	SPECIFIC GRAVITY	TDS	TOC					LAB USE ONLY
	TANK - I		3/27/14	1155	MDH	LIQ	7	X			X					X	X	X	X	X	X	X					

Matrix Codes: DW- Drinking Water; GW- Ground Water; WW- Water; SW- Surface Water; SO- Soil; SL-Sludge; OI-Oil; LIQ- Other Liquid; AIR- Air; SOL-Other Solid; WP-Wipe

Turnaround Time (Business days)

- [X] Std. 10 Business Days
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

Approved By:/ Date:

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A"
- [ ] Commercial "B"
- [ ] NJ Reduced
- [ ] NJ Full
- [X] Hard Copy
- [ ] FULL CLP
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [X] PDF

Comments / Remarks

PDF copy to Mike Hattel with APEX at mhattel@msn.com

PDF copy to Susan Lara-Mesa with KPK at Slaramesa@kpk.com

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	3/27/14	1	2 CO		2 [signature] 3-27-14 1515
Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3		3	4		4
Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp.
5		5	CO		2.5

5.1 5

D56334: Chain of Custody
Page 1 of 1

Mountain States ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12611
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/31/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	8.6	41		
Antimony	30	3.2	19		
Arsenic	25	5.2	5.6		
Barium	10	1.4	1.4		
Beryllium	10	.8	1.2		
Boron	50	6.7	6.6		
Cadmium	10	.4	.36		
Calcium	400	2.2	41	15.0	<400
Chromium	10	.4	.4		
Cobalt	5.0	.4	.57		
Copper	10	1.2	1.9		
Iron	70	2.2	9.5		
Lead	50	3.6	21		
Lithium	5.0	1.9	2.7		
Magnesium	200	14	19	-3.8	<200
Manganese	5.0	.01	.46		
Molybdenum	10	.8	.84		
Nickel	30	.9	.87		
Phosphorus	100	15	20		
Potassium	1000	130	270	-1.2	<1000
Selenium	50	8.8	11		
Silicon	50	5.2	5.2		
Silver	30	.4	.6		
Sodium	400	4.9	170	15.4	<400
Strontium	5.0	.01	.12		
Thallium	10	2.9	4		
Tin	50	13	16		
Titanium	10	.15	2.1		
Uranium	50	3.7	5.5		
Vanadium	10	.4	.4		
Zinc	30	.6	3.2		

Associated samples MP12611: D56334-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12611
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/31/14

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

6.1.1

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12611
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/31/14

Metal	D56360-1F Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony	anr				
Arsenic	anr				
Barium	anr				
Beryllium					
Boron					
Cadmium	anr				
Calcium	1850	27800	25000	103.8	75-125
Chromium	anr				
Cobalt	anr				
Copper					
Iron	anr				
Lead	anr				
Lithium					
Magnesium	730	26200	25000	101.9	75-125
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium	0.00	26300	25000	105.2	75-125
Selenium	anr				
Silicon					
Silver	anr				
Sodium	392	26200	25000	103.2	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP12611: D56334-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12611
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/31/14

Metal	D56360-1F Original MS	Spikelot ICPALL2	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

6.1.2

6

ACCUTEST LABORATORIES
D56334

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12611
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/31/14

Metal	D56360-1F Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium						
Boron						
Cadmium	anr					
Calcium	1850	27900	25000	104.2	0.4	20
Chromium	anr					
Cobalt	anr					
Copper						
Iron	anr					
Lead	anr					
Lithium						
Magnesium	730	26200	25000	101.9	0.0	20
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	0.00	26300	25000	105.2	0.0	20
Selenium	anr					
Silicon						
Silver	anr					
Sodium	392	26000	25000	102.4	0.8	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP12611: D56334-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12611
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/31/14

Metal	D56360-1F Original MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

6.1.2

6

ACCUTEST LABORATORIES
D56334

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12611
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/31/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium	25900	25000	103.6	80-120
Chromium	anr			
Cobalt	anr			
Copper				
Iron	anr			
Lead	anr			
Lithium				
Magnesium	25200	25000	100.8	80-120
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	25900	25000	103.6	80-120
Selenium	anr			
Silicon				
Silver	anr			
Sodium	25300	25000	101.2	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP12611: D56334-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12611
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/31/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits

(anr) Analyte not requested

6.1.3

6

SERIAL DILUTION RESULTS SUMMARY

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12611
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/31/14

Metal	D56360-1F Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium	1850	1990	7.4	0-10
Chromium	anr			
Cobalt	anr			
Copper				
Iron	anr			
Lead	anr			
Lithium				
Magnesium	730	722	1.0	0-10
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	0.00	0.00	NC	0-10
Selenium	anr			
Silicon				
Silver	anr			
Sodium	392	381	2.8	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP12611: D56334-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP12611
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/31/14

Metal	D56360-1F Original	SDL 1:5	%DIF	QC Limits

(anr) Analyte not requested

6.1.4

6

ACCUTEST LABORATORIES

D56334

Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP12253/GN24150	0.050	0.0	mg/l	0.5	0.504	100.8	90-110%
Chloride	GP12253/GN24150	0.50	0.0	mg/l	5	4.85	97.0	90-110%
Fluoride	GP12253/GN24150	0.10	0.0	mg/l	1	0.986	98.6	90-110%
HEM Oil and Grease	GP12299/GN24231	5.0	0.0	mg/l	40	36.1	90.3	78-114%
Nitrogen, Nitrate	GP12253/GN24150	0.010	0.0	mg/l	0.1	0.103	103.0	90-110%
Nitrogen, Nitrite	GP12253/GN24150	0.0040	0.0	mg/l	0.05	0.0538	107.6	90-110%
Solids, Total Dissolved	GN24151	10	0.0	mg/l	400	396	99.0	90-110%
Sulfate	GP12253/GN24150	0.50	0.0	mg/l	5	4.92	98.4	90-110%
Total Organic Carbon	GP12246/GN24135	1.0	0.0	mg/l	8.82	8.88	100.7	90-110%
pH	GN24143			su	8.00	7.97	99.6	99.3-100.7%

Associated Samples:
Batch GN24143: D56334-1
Batch GN24151: D56334-1
Batch GP12246: D56334-1
Batch GP12253: D56334-1
Batch GP12299: D56334-1
(*) Outside of QC limits

7

BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
HEM Oil and Grease	GP12299/GN24231	mg/l	40	35.3	2.2	20%

Associated Samples:
Batch GP12299: D56334-1
(*) Outside of QC limits

7.2
7

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN24151	D56293-1	mg/l	1700	1710	0.6	0-20%
Total Organic Carbon	GP12246/GN24135	D56325-3	mg/l	2.8	2.8	0.0	0-20%

Associated Samples:
Batch GN24151: D56334-1
Batch GP12246: D56334-1
(*) Outside of QC limits

7.3

7

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP12253/GN24150	D56343-1	mg/l	0.0	1	1.1	110.0	80-120%
Bromide	GP12253/GN24150	D56343-1	mg/l	0.12	1	1.1	110.0	80-120%
Chloride	GP12253/GN24150	D56343-1	mg/l	21.7	10	33.0	113.0	80-120%
Chloride	GP12253/GN24150	D56343-1	mg/l	22.4	10	33.0	113.0	80-120%
Fluoride	GP12253/GN24150	D56343-1	mg/l	1.8	2	3.9	100.0	80-120%
Fluoride	GP12253/GN24150	D56343-1	mg/l	1.9	2	3.9	100.0	80-120%
HEM Oil and Grease	GP12299/GN24231	D56327-1	mg/l	35.4	40	65.4	75.0N(a)	78-114%
Nitrogen, Nitrate	GP12253/GN24150	D56343-1	mg/l	0.0	0.2	0.20	100.0	80-120%
Nitrogen, Nitrate	GP12253/GN24150	D56343-1	mg/l	0.0	0.2	0.20	100.0	80-120%
Nitrogen, Nitrite	GP12253/GN24150	D56343-1	mg/l	0.0	0.1	0.10	100.0	80-120%
Nitrogen, Nitrite	GP12253/GN24150	D56343-1	mg/l	0.0	0.1	0.10	100.0	80-120%
Sulfate	GP12253/GN24150	D56343-1	mg/l	172	50	247	98.0	80-120%
Sulfate	GP12253/GN24150	D56343-1	mg/l	198	50	247	98.0	80-120%
Total Organic Carbon	GP12246/GN24135	D56325-3	mg/l	2.8	10	12.5	97.0	80-120%

Associated Samples:
Batch GP12246: D56334-1
Batch GP12253: D56334-1
Batch GP12299: D56334-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

7.4

7

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D56334
Account: KPKCOD - K.P. Kauffmann Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP12253/GN24150	D56343-1	mg/l	0.12	1	1.2	8.7	20%
Bromide	GP12253/GN24150	D56343-1	mg/l	0.0	1	1.2	8.7	20%
Chloride	GP12253/GN24150	D56343-1	mg/l	21.7	10	32.9	0.3	20%
Chloride	GP12253/GN24150	D56343-1	mg/l	22.4	10	32.9	0.3	20%
Fluoride	GP12253/GN24150	D56343-1	mg/l	1.8	2	3.9	0.0	20%
Fluoride	GP12253/GN24150	D56343-1	mg/l	1.9	2	3.9	0.0	20%
Nitrogen, Nitrate	GP12253/GN24150	D56343-1	mg/l	0.0	0.2	0.20	0.0	20%
Nitrogen, Nitrate	GP12253/GN24150	D56343-1	mg/l	0.0	0.2	0.20	0.0	20%
Nitrogen, Nitrite	GP12253/GN24150	D56343-1	mg/l	0.0	0.1	0.10	0.0	20%
Nitrogen, Nitrite	GP12253/GN24150	D56343-1	mg/l	0.0	0.1	0.10	0.0	20%
Sulfate	GP12253/GN24150	D56343-1	mg/l	198	50	246	0.4	20%
Sulfate	GP12253/GN24150	D56343-1	mg/l	172	50	246	0.4	20%
Total Organic Carbon	GP12246/GN24135	D56325-3	mg/l	2.8	10	12.4	0.8	20%

Associated Samples:
Batch GP12246: D56334-1
Batch GP12253: D56334-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

April 14, 2014

Ms. Susana Lara-Mesa
K.P. Kauffman Company, Inc
1675 Broadway, Suite 2800
Denver, Colorado 80202

RE: EPA Falloff Test Analysis
Suckla Farms Injection Well (EPA) #1
API # 05-123-14291
SHL: 2140' FNL, 2020' FEL
Section 10 T1N R67W
Lyons Sandstone
Weld County, Colorado

Dear Ms. Lara-Mesa:

The EPA pressure falloff test analysis is attached for the Suckla Farms Injection Well (EPA) #1, Weld County, Colorado.

IPT appreciates the opportunity to work with you and K.P. Kauffman on this analysis. Please do not hesitate to call if you have any questions or require and additional assistance.

Sincerely,

COLORADO LICENSED
ERIC J. MARSHALL
43841
PROFESSIONAL ENGINEER

Jeff Whaley
Production and Reservoir Advisor

Eric Marshall, P.E.
Reservoir Engineering Manager

1) **Company Name & Address**

KP Kauffman Company, Inc.
1675 Broadway, Suite 2800
Denver, Colorado 80202

2) **Test Well Name & Location**

Suckla Farms Injection Well #1
NW/4 Section 10-T1N-R67W
Weld County, Colorado

3) **Facility Contact Person**

Susana Lara-Mesa 303-825-4822

Report Prepared by:
Eric Marshall P.E., 720-878-7491
Integrated Petroleum Technologies, Inc.
1707 Cole Boulevard, Suite 200, Golden, CO 80401

4) **Openhole Log**

See attached Dual Induction Log run 07/02/89
Lyons Sandstone injection zone

5) **Well Schematic**

See attached well schematic diagram

Wellbore radius:	0.328'
Completed interval depths:	Lyons, 9,276'-9,418'
Type of completion:	Cased & cemented, injection under a packer set at 9040' via 2-7/8" fiber-lined tubing

6) **Date of Fill Depth**

Current fill depth is 9,476', recorded in March, 2003.

7) **Offset well information**

The nearest well completed in the Lyons formation is the Wattenberg SWD #1, NWSW Section 19-2N-66W, operated by Anadarko. This well is approximately 4½ miles to the north-east. No interference between these two wells is assumed to occur for purposes of this analysis.

8) Chronological Listing of Daily Testing Activities

03/22/14	Intermittent daylight injection stopped, well shut in
03/23/14	Well Shut In
03/24/14	Tandem gauges installed at 9,030' WLM
03/25/14	Began 24 hr. injection process at 7:00 am
03/26/14	Injection stopped at 7:00 am, 1,094.24 BW injected
03/31/14	Bottom-hole tools pulled, re-start injecting

9) Electronic Submission of Raw Data

Attached CD contains a file of raw time-pressure-temperature data (at packer depth) for both gauges.

10) Offset Well Rate Information

As discussed above, no offset well rate information is considered to be useful in this test analysis.

11) Hard Copy of Time and Pressure Data

A tabular summary of raw time, pressure & temperature data (filtered) is attached.

12) Pressure Gauge Information

Bottom Gauge:
10,000 psi, QuartzDyne high pressure transducer, Model: QS20K-B
Model: PPS25
SN: 4887
Installed at: 9030.0' WLM
Pressure accuracy: 0.030% FS (+/-2.73 psi)
Last calibration: October 17, 2013

Top Gauge:
10,000 psi, QuartzDyne high pressure transducer, Model: QS20K-B
Model: PPS25
SN: 4888
Installed at: 9029.0' WLM
Pressure accuracy: 0.030% FS (+/-2.57 psi)
Last calibration: April 16, 2013

Calibration certificates for both gauges are attached.

Gauges supplied by Pioneer Petrotech Services Inc. (info@pioneerps.com)

13) General Test Information

Date of test: Injection commenced March 25, 2014, ceased March 26, 2014.
Bottom hole pressure monitored from March 26, 2014 to March 30, 2014.
Rate/Time information plotted from March 24, 2014 to March 30, 2014.

Time synchronization: see attached data files.

Location of shut-in valve: well was shut in at the wellhead

14) Reservoir Parameters

Water viscosity (μ):	0.2313 cp	(correlation)
Porosity (ϕ):	6%	(measured- density log porosity)
Total Compressibility (c_t):	9.36e-06	(correlation)
Formation Volume Factor:	1.055 rb/stb	(correlation)

Initial formation reservoir pressure: From the attached semi-log Diagnostic Analysis Radial diagnostic plot, p* is approximately 3,969 psia at perforation midpoint. This is 160 psi above the 3,809 p* estimated from the semi-log (radial) Diagnostic Analysis plot on the last pressure falloff test run in March, 2013.

Final injection pressure is approximately 4,474 psi, 152 psi below the 24-hour injection pressure on the March, 2013 pressure falloff test.

A summary of historical estimated Initial Formation Reservoir Pressure (p*) values at 9,347' perforation mid-point using a 0.442 psi/ft hydrostatic gradient follows:

July, 1993	4,417 psia, unreliable (23 hour shut in, surface gauges, no radial flow)
November, 1997	3,590 psia
October, 2001	3,760 psia
February, 2003	3,830 psia
April, 2004	3,859 psia (radial plot, multi-layer synthesis)
April, 2005	3,647 psia (radial plot, multi-layer synthesis)
April, 2006	3,656 psia (radial plot, multi-layer synthesis)
April, 2007	3,816 psia (radial plot, radial flow portion of radial test analysis)
March, 2008	3,694 psia (radial plot, single layer)
March, 2009	3,912 psia (radial plot, single layer)
March, 2010	3,931 psia (radial plot, single layer)
March, 2011	3,854 psia (radial plot, single layer)
March, 2012	3,828 psia (radial plot, single layer)
March, 2013	3,809 psia (radial plot, single layer)
March, 2014	3,969 psia (radial plot, single layer)

Date Reservoir Pressure was last stabilized: Stabilization likely occurred during a workover in March, 2003, 144 months prior to this test.

Justified Interval Thickness: Tracer survey run 5/6/13 & temperature logs run 5/6/13 indicate entire 142' perforated interval is taking fluid. Wireline 1/8/03 & during 3/03 workover shows all perforations open.

15) <u>Waste Plume</u>

Cumulative injection volume into completed interval: 5,923,825 bbls as of March 25, 2014 at 07:00 hrs (post-test volume, includes the 1,094.29 bbls injected on the current test). These figures were determined by using injection volumes supplied by the Colorado Oil & Gas Conservation Commission through December, 1997, and injection volumes supplied by the operator from January, 1998, through March, 2014.

There were 166,792 bbls water injected into this well in the year since the last test.

Calculated radial distance to the waste front: It is not possible to empirically calculate a distance to the waste front from this type of test as there is no contrast between historic waste plume viscosity and formation fluid viscosity.

Average historical waste fluid viscosity: Based on data provided, no direct viscosity measurements have been taken. Waste plume viscosity is assumed to be the same as formation fluid viscosity. Essentially all of the waste fluid injected into the Suckla Farms #1 has been oilfield produced water, which does not have a significant contrast to the Lyons formation water.

16) Injection Period

Time: 07:00:08 AM 3/25/2014 to 07:00:14 AM 3/26/2014, 24.001 hours, 1,094.29 bbls

Type fluid: oilfield brine/produced water

Pump Type: Water plant injection pump

Rate Meter: Halliburton digital turbine meter. SWD tanks were strapped before & after to confirm volume.

Final injection pressure, surface:	unknown
Final injection pressure at 9,347' mid-perf:	4,463.8 psia
Final injection temperature at 9,030' gauge depth:	145.951° F

17) Falloff Period

Total shut-in time: 07:00:14 AM 3/26/14 to 11:35:20 AM 3/31/14, 124.585 hours

Final shut-in pressure at 9,347' mid-perf:	3,998.8 psia
Final shut-in temperature at 9,030' gauge depth:	233.98°F

18) Pressure Gradient

A static gradient was run at the conclusion of this test. No fluid level was noted as the fluid level appeared to be at surface.

19-20) Calculated Test Data and Corresponding Graphs

Please see attached graphs of the current test:

Data Chart	(Rate & Pressure vs Time)
Diagnostic Analysis	(Log-Log Typecurve)
Diagnostic Analysis	(Radial Semi-Log Analysis)
Two Layer Reservoir Model	(Radial and Typecurve)

The Rate vs. Time plot shows bottomhole injection pressure had essentially stabilized after the 24 hour injection period at 4,464 psi. No pressure anomalies due to gauge temperature de-stabilization are evident during the test. Data quality appears good. Pressure change during later test times is 0.7 psi per time step. Gauge resolution (+/-0.03 psi) is adequate for the observed pressure change.

The Diagnostic Analysis (Typecurve) shows that a short radial flow period was reached approximately 89.2 hours into the falloff portion of the test. Analysis of this region gives a system permeability of 0.4 md, with a skin factor of -6.48.

Using the permeability value calculated from the falloff period, we can calculate a radius of investigation from the falloff test as follows for t = 124.585 hrs, with other parameters as defined above:

$$r_{inv} = \sqrt{\frac{kt}{948\phi\mu c_t}} = \sqrt{\frac{0.4 \cdot 124.585}{948 \cdot .06 \cdot 0.2313 \cdot 9.36 \times 10^{-6}}} = 636.15'$$

Radius of investigation = 636.15′

Plots were generated using the Saphir software package available from Kappa Engineering, Paris, France. A .ks3 data file is included on the attached CD.

21) <u>Comparison with Petition Demonstration</u>

Condition #5 on Page 12 in Permit # CO10938-02115 stipulates an upper limit of 8,300,000 barrels of injected waste. This corresponds with a waste front of 1,320′, assuming piston displacement. The current volume of 5,923,825 barrels injected corresponds to a waste front of 1,129′, assuming an injection interval of 142′. While the effective injection interval may be less than 142′, the additional fracture porosity postulated in this, and previous reports makes 1,129′ a conservative estimate of the radial front of the waste plume. If fractures exist, then the reservoir must contain additional storage in the fracture system, in addition to the 6% matrix porosity. This will have the result of increasing the effective porosity, which decreases the distance to the waste front for any assumed injection volume or effective zone height.

The injection front has progressed 16′ since the March 2013 test. There are 175 feet remaining for the front to advance before the 1320′ permit limit is reached. This represents approximately 10 years and 11 months at current conditions.

Equation:

$$r_{inj} = \sqrt{\frac{5.615 \cdot V \cdot B_w}{\pi \cdot h \cdot \phi}} = \sqrt{\frac{5.615 \cdot 5{,}923{,}825 \cdot 1.055}{\pi \cdot 142 \cdot 0.06}} = 1{,}145'$$

where V = 5,923,825 bbls, B_w = 1.055 rb/stb, h = 142′, ø = 0.06

It is IPT's opinion that the current test design is adequate to investigate this reservoir, given the constraints of daylight-only injection operations and available water storage. IPT recommends that subsequent tests follow this same design, which has now been used for eight consecutive annual tests.

22) Radioactive Tracer Survey

A radioactive tracer was not run during this test. The last radioactive tracer survey run in the Suckla Farms #1 was done May 6th, 2013.

23) Unusual Permit Approval Conditions

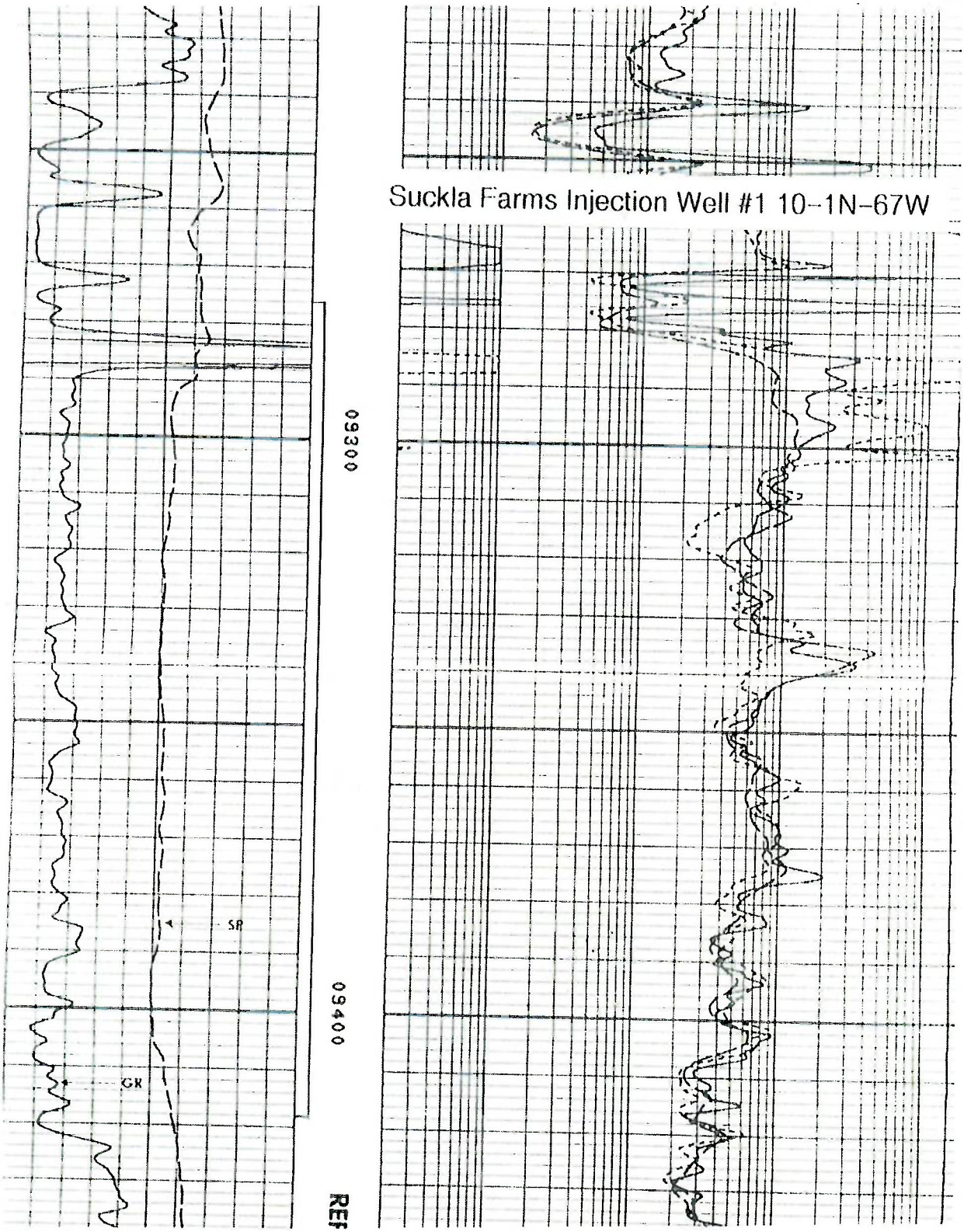
IPT is not aware of any unusual permit approval conditions.

Report prepared for Wattenberg Disposal, LLC. by

Integrated Petroleum Technologies, Inc.

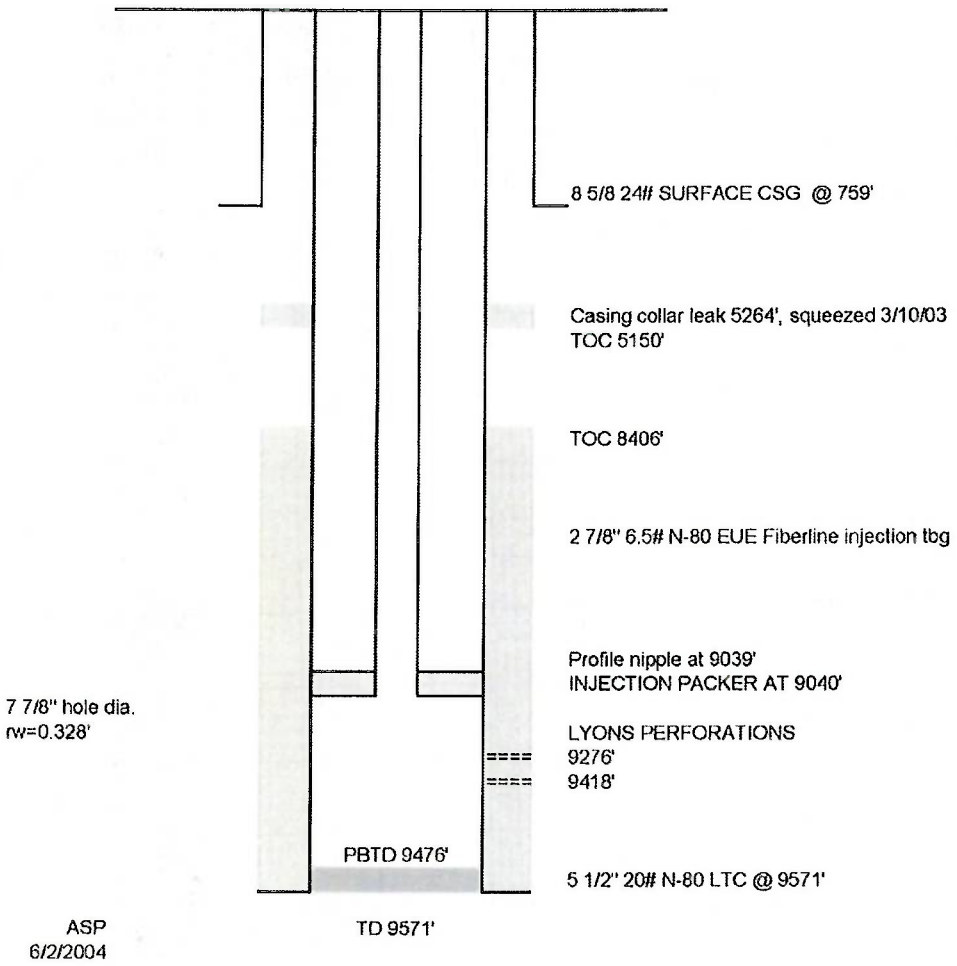
Eric Marshall, P.E.
April 14, 2014

Reference: EPA Region VI UIC Pressure Falloff Testing Guideline, Third Revision, August 8, 2002


Suckla Farms Injection Well #1 10-1N-67W
09300
09400
REF
SP
GR

WELLBORE SCHEMATIC

WATTENBERG DISPOSAL
SUCKLA FARMS INJECTION WELL #1
NW/4 SECTION 10-1N-67W
WELD COUNTY, CO
05-123-14291



ASP
6/2/2004

Pioneer Petrotech Services Inc.
Unit 1, 1431- 40 Ave. NE, Calgary, AB, Canada, T2E 8N6
Tel: (403)282-7669, Fax: (403)282-0509, Email: info@pioneerps.com

Calibration Certificate

Model:	**PPS25**	**Pressure Range:**	**10,000 psi**
Serial Number:	**4887**	**Calibration Date:**	**Oct 17, 2013**

Specifications

Pressure Range:	Minimum:	13 psia	Maximum:	10,000 psia
Temperature Range:	Minimum:	0 °C	Maximum:	150 °C
Pressure Accuracy:			±	0.03 %F.S.
Temperature Accuracy:			±	0.5 °C
Housing Material:				INCONEL 718
Housing OD:				1.25"

Calibration Summary

Calibration Pressure Range:	Minimum:	13.12psia	Maximum:	10,048psia
Calibration Temperature Range:	Minimum:	0.90°C	Maximum:	152°C
Pressure Accuracy (Maximum Error):			+	2.73psi
Temperature Accuracy (Maximum Error):			–	0.33°C

Working Standards
Sun Systems Environmental Chamber, Model: EC12
QuartzDyne Transducer Interface and Display, Model: Series I
QuartzdDyne High Pressure Transducer, Model: QS20K-B

Trace ability Statement
All working standards are traceable to nationally or internationally recognized standards.

Pioneer Petrotech Services Inc.

Oct 17, 2013
Date

Pioneer Petrotech Services Inc.
Unit 1, 1431- 40 Ave. NE, Calgary, AB, Canada, T2E 8N6
Tel: (403)282-7669, Fax: (403)282-0509, Email: info@pioneerps.com

Calibration Certificate

Model:	**PPS25**	**Pressure Range:**	**10,000 psi**
Serial Number:	**4888**	**Calibration Date:**	**Apr 16, 2013**

Specifications

Pressure Range:	Minimum:	13 psia	Maximum:	10,000 psia
Temperature Range:	Minimum:	0 °C	Maximum:	150 °C
Pressure Accuracy:			±	0.03 %F.S.
Temperature Accuracy:			±	0.5 °C
Housing Material:				INCONEL 718
Housing OD:				1.25"

Calibration Summary

Calibration Pressure Range:	Minimum:	13.12psia	Maximum:	10,050psia
Calibration Temperature Range:	Minimum:	0.90°C	Maximum:	154 °C
Pressure Accuracy (Maximum Error):			+	2.57psi
Temperature Accuracy (Maximum Error):			+	0.30°C

Working Standards

Sun Systems Environmental Chamber, Model: EC12
QuartzDyne Transducer Interface and Display, Model: Series I
QuartzdDyne High Pressure Transducer, Model: QS20K-B

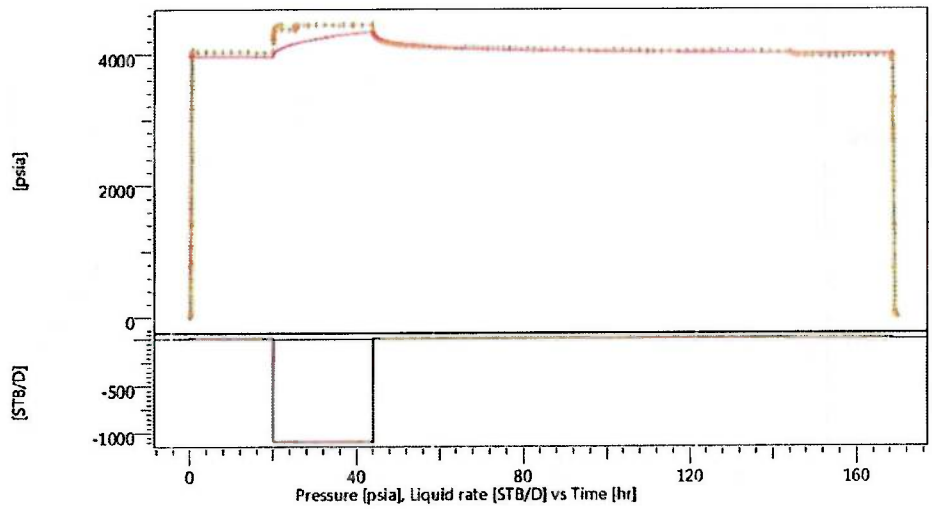
Trace ability Statement

All working standards are traceable to nationally or internationally recognized standards.

Pioneer Petrotech Services Inc.

June 05, 2013
Date

History plot	Bottom Gauge
Company KP Kauffman	Field
Well Suckla Farms Injection Well #1	Test Name / # EPA Pressure Fall-off Test March 2014



Bottom Gauge Kappa Data fall-off #1

Rate	0 STB/D
Rate change	1094.24 STB/D
P@dt=0	4355.57 psia
Pi	3969.73 psia
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	193 [hr]-1
PMatch	0.0015 [psia]-1
C	3.74E-4 bbl/psi
Total Skin	-6.48
k.h, total	56.7 md.ft
k, average	0.4 md
Pi	3969.73 psia

Model Parameters

Well & Wellbore parameters (Suckla Farms Injection Well #1)

C	3.74E-4 bbl/psi
Skin	-6.48

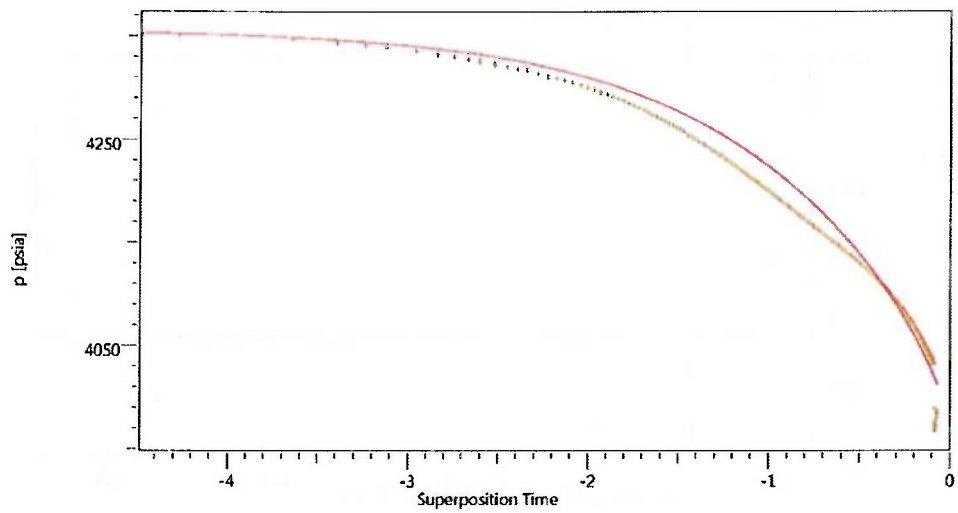
Reservoir & Boundary parameters

Pi	3969.73 psia
k.h	56.7 md.ft
k	0.4 md

Derived & Secondary Parameters

Rinv	567 ft
Test. Vol.	1.53262 MMB
Delta P (Total Skin)	-4303.49 psi
Delta P Ratio (Total Skin)	-12.4998 Fraction

Semi-Log plot	Bottom Gauge
Company KP Kauffman	Field
Well Suckla Farms Injection Well #1	Test Name / # EPA Pressure Fall-off Test March 2014



Bottom Gauge Kappa Data fall-off #1

Rate	0 STB/D
Rate change	1094.24 STB/D
P@dt=0	4355.57 psia
Pi	3969.73 psia
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	193 [hr]-1
PMatch	0.0015 [psia]-1
C	3.74E-4 bbl/psi
Total Skin	-6.48
k.h, total	56.7 md.ft
k, average	0.4 md
Pi	3969.73 psia

Model Parameters

Well & Wellbore parameters (Suckla Farms Injection Well #1)

C	3.74E-4 bbl/psi
Skin	-6.48

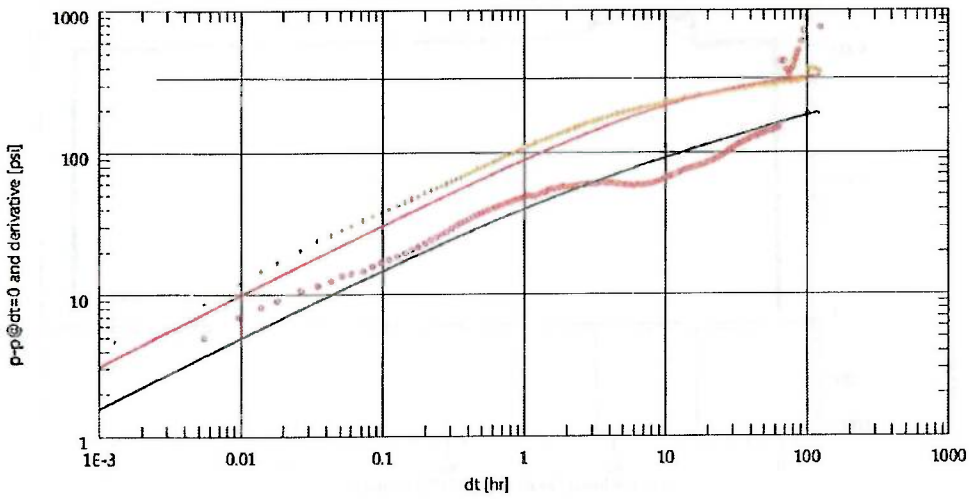
Reservoir & Boundary parameters

Pi	3969.73 psia
k.h	56.7 md.ft
k	0.4 md

Derived & Secondary Parameters

Rinv	567 ft
Test. Vol.	1.53262 MMB
Delta P (Total Skin)	-4303.49 psi
Delta P Ratio (Total Skin)	-12.4998 Fraction

Log-Log plot	Bottom Gauge
Company KP Kauffman	Field
Well Suckla Farms Injection Well #1	Test Name / # EPA Pressure Fall-off Test March 2014



Bottom Gauge Kappa Data fall-off #1

Rate	0 STB/D
Rate change	1094.24 STB/D
P@dt=0	4355.57 psia
Pi	3969.73 psia
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	193 [hr]-1
PMatch	0.0015 [psia]-1
C	3.74E-4 bbl/psi
Total Skin	-6.48
k.h, total	56.7 md.ft
k, average	0.4 md
Pi	3969.73 psia

Model Parameters

Well & Wellbore parameters (Suckla Farms Injection Well #1)

C	3.74E-4 bbl/psi
Skin	-6.48

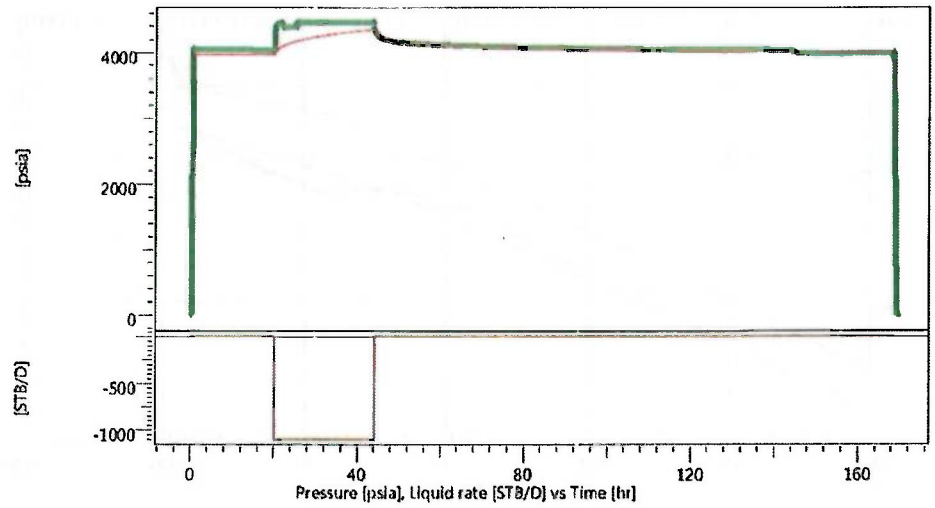
Reservoir & Boundary parameters

Pi	3969.73 psia
k.h	56.7 md.ft
k	0.4 md

Derived & Secondary Parameters

Rinv	567 ft
Test. Vol.	1.53262 MMB
Delta P (Total Skin)	-4303.49 psi
Delta P Ratio (Total Skin)	-12.4998 Fraction

History plot	Top Gauge
Company KP Kauffman	Field
Well Suckla Farms Injection Well #1	Test Name / # EPA Pressure Fall-off Test March 2014



Top Gauge Kappa Data fall-off #1

Rate	0 STB/D
Rate change	1094.24 STB/D
P@dt=0	4355 psia
Pi	3975.66 psia
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	651 [hr]-1
PMatch	0.0017 [psia]-1
C	1.26E-4 bbl/psi
Total Skin	-6.4
k.h, total	64.1 md.ft
k, average	0.451 md
Pi	3975.66 psia

Model Parameters

Well & Wellbore parameters (Suckla Farms Injection Well #1)

C	1.26E-4 bbl/psi
Skin	-6.4

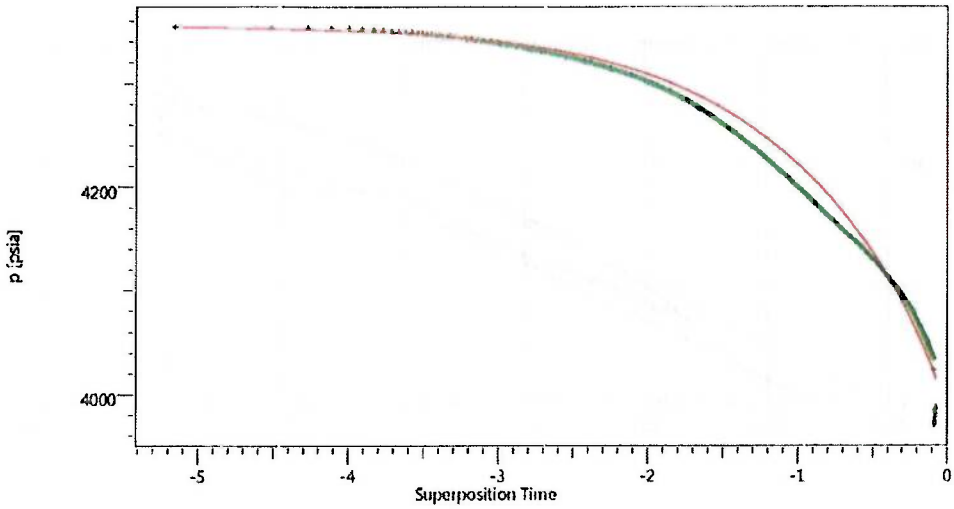
Reservoir & Boundary parameters

Pi	3975.66 psia
k.h	64.1 md.ft
k	0.451 md

Derived & Secondary Parameters

Rinv	599 ft
Test. Vol.	1.71041 MMB
Delta P (Total Skin)	-3766.1 psi
Delta P Ratio (Total Skin)	-11.0512 Fraction

Semi-Log plot	Top Gauge
Company KP Kauffman	Field
Well Suckla Farms Injection Well #1	Test Name / # EPA Pressure Fall-off Test March 2014



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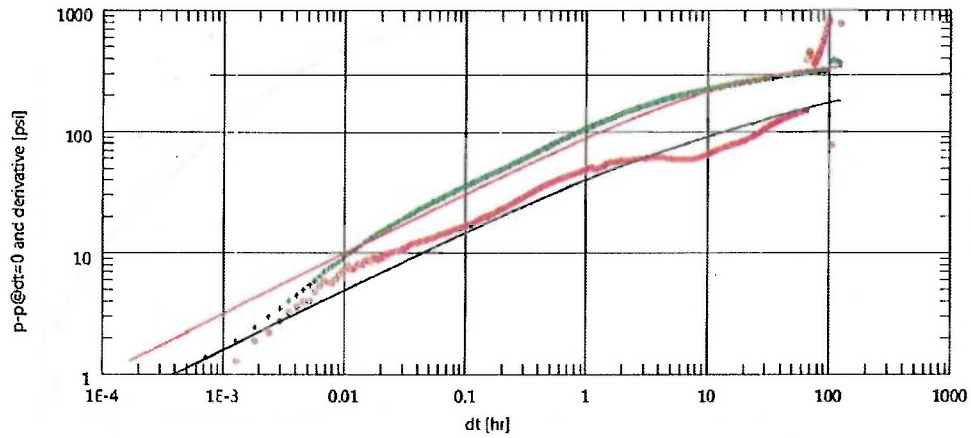
Delta P (Total Skin)	-3766.1 psi
Delta P Ratio (Total Skin)	-11.0512 Fraction

Log-Log plot	Top Gauge
Company KP Kauffman	Field
Well Suckla Farms Injection Well #1	Test Name / # EPA Pressure Fall-off Test March 2014



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Delta P Ratio (Total Skin)	-11.0512 Fraction

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

EXST

WELL PERMIT NUMBER 294033 - -
DIV. 1 WD 2 DES. BASIN MD

APPLICANT

K P KAUFFMAN COMPANY INC
C/O APEX CONSULTING SERVICES
PO BOX 369
LOUISVILLE, CO 80027-

(303) 665-1400

APPROVED WELL LOCATION
WELD COUNTY
NE 1/4 SW 1/4 Section 10
Township 1 N Range 67 W Sixth P.M.

DISTANCES FROM SECTION LINES
2477 Ft. from South Section Line
2487 Ft. from West Section Line

UTM COORDINATES (Meters,Zone:13,NAD83)
Easting: 510452 Northing: 4434976

PERMIT TO USE AN EXISTING WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-92-602(3)(b)(I) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling.
4) Approved for the use of an existing well acknowledged for construction under monitoring hole notice MH-052282, and known as OW-5.
5) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
6) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
7) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
8) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
9) This well must have been constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules.
10) This well must be located not more than 200 feet from the location specified on this permit.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

NOTICE: This permit has been approved subject to the following changes: The distances from section lines and quarter, quarter were calculated from UTM coordinate values provided with the permit application. You are hereby notified that you have the right to appeal the issuance of this permit, by filing a written request with this office within sixty (60) days of the date of issuance, pursuant to the State Administrative Procedures Act. (See Section 24-4-104 through 106, C.R.S.)

APPROVED
SVJ

State Engineer

By

Receipt No. 3664286 DATE ISSUED 04-11-2014 EXPIRATION DATE N/A

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

EXST

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