

Appendix C
Analytical Data Packages – Samples below PSH



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May 31, 2014

Gabriela Floreslovo
EarthCon
14405 Walters Road
Suite 700
Houston, TX 77014

Work Order: **HS14050770**

Laboratory Results for: **Transwestern Compressor Station 9 SemiAnnual**

Dear Gabriela,

ALS Environmental received 4 sample(s) on May 16, 2014 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in cursive script that reads "Sonia West".

Generated By: Sonia.West
Sonia West
Project Manager

Client: EarthCon
Project: Transwestern Compressor Station 9 SemiAnnual
Work Order: HS14050770

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS14050770-01	MPE-13	Water		14-May-2014 10:20	16-May-2014 09:30	☐
HS14050770-02	MW-27	Water		14-May-2014 11:15	16-May-2014 09:30	☐
HS14050770-03	MPE-31	Water		14-May-2014 15:25	16-May-2014 09:30	☐
HS14050770-04	Trip Blank	Water		14-May-2014 00:00	16-May-2014 09:30	☐

Client: EarthCon
Project: Transwestern Compressor Station 9 SemiAnnual
Work Order: HS14050770

CASE NARRATIVE

Batch R234409, Volatile Organics by method 8260, Sample MPE-13 (HS14050770-01): This sample was analyzed at a 10 x dilution due to matrix interference. The lowest possible dilution was analyzed.

Batch R234250, Volatile Organics by method 8260, Sample MW-27 (HS14050770-02): This sample was analyzed at a 100 x dilution due to matrix interference. The lowest possible dilution was analyzed.

Batch R234250, Volatile Organics by method 8260, Sample MPE-31 (HS14050770-03): This sample was analyzed at a 100 x dilution due to matrix interference. The lowest possible dilution was analyzed.

Client: EarthCon
 Project: Transwestern Compressor Station 9 SemiAnnual
 Sample ID: MPE-13
 Collection Date: 14-May-2014 10:20

ANALYTICAL REPORT

WorkOrder:HS14050770
 Lab ID:HS14050770-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES - SW8260C		Method:SW8260		Analyst: AKP			
Benzene	5.2	J	2.0	10	ug/L	10	28-May-2014 09:19
Ethylbenzene	10		3.0	10	ug/L	10	28-May-2014 09:19
Toluene	U		2.0	10	ug/L	10	28-May-2014 09:19
m,p-Xylene	21		5.0	20	ug/L	10	28-May-2014 09:19
o-Xylene	14		3.0	10	ug/L	10	28-May-2014 09:19
Xylenes, Total	35		5.0	30	ug/L	10	28-May-2014 09:19
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>89.1</i>			<i>71-125</i>	<i>%REC</i>	<i>10</i>	<i>28-May-2014 09:19</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>93.8</i>			<i>70-125</i>	<i>%REC</i>	<i>10</i>	<i>28-May-2014 09:19</i>
<i>Surr: Dibromofluoromethane</i>	<i>92.3</i>			<i>74-125</i>	<i>%REC</i>	<i>10</i>	<i>28-May-2014 09:19</i>
<i>Surr: Toluene-d8</i>	<i>93.3</i>			<i>75-125</i>	<i>%REC</i>	<i>10</i>	<i>28-May-2014 09:19</i>

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: EarthCon
 Project: Transwestern Compressor Station 9 SemiAnnual
 Sample ID: MW-27
 Collection Date: 14-May-2014 11:15

ANALYTICAL REPORT

WorkOrder:HS14050770
 Lab ID:HS14050770-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES - SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		20	100	ug/L	100	22-May-2014 23:15
Ethylbenzene	36	J	30	100	ug/L	100	22-May-2014 23:15
Toluene	U		20	100	ug/L	100	22-May-2014 23:15
m,p-Xylene	72	J	50	200	ug/L	100	22-May-2014 23:15
o-Xylene	U		30	100	ug/L	100	22-May-2014 23:15
Xylenes, Total	72	J	50	300	ug/L	100	22-May-2014 23:15
<i>Surr: 1,2-Dichloroethane-d4</i>	98.6			71-125	%REC	100	22-May-2014 23:15
<i>Surr: 4-Bromofluorobenzene</i>	97.9			70-125	%REC	100	22-May-2014 23:15
<i>Surr: Dibromofluoromethane</i>	94.8			74-125	%REC	100	22-May-2014 23:15
<i>Surr: Toluene-d8</i>	103			75-125	%REC	100	22-May-2014 23:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: EarthCon
 Project: Transwestern Compressor Station 9 SemiAnnual
 Sample ID: MPE-31
 Collection Date: 14-May-2014 15:25

ANALYTICAL REPORT

WorkOrder:HS14050770
 Lab ID:HS14050770-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES - SW8260C		Method:SW8260		Analyst: AKP			
Benzene	130		20	100	ug/L	100	22-May-2014 23:41
Ethylbenzene	370		30	100	ug/L	100	22-May-2014 23:41
Toluene	U		20	100	ug/L	100	22-May-2014 23:41
m,p-Xylene	460		50	200	ug/L	100	22-May-2014 23:41
o-Xylene	U		30	100	ug/L	100	22-May-2014 23:41
Xylenes, Total	460		50	300	ug/L	100	22-May-2014 23:41
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>98.7</i>			<i>71-125</i>	<i>%REC</i>	<i>100</i>	<i>22-May-2014 23:41</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>100</i>			<i>70-125</i>	<i>%REC</i>	<i>100</i>	<i>22-May-2014 23:41</i>
<i>Surr: Dibromofluoromethane</i>	<i>93.2</i>			<i>74-125</i>	<i>%REC</i>	<i>100</i>	<i>22-May-2014 23:41</i>
<i>Surr: Toluene-d8</i>	<i>105</i>			<i>75-125</i>	<i>%REC</i>	<i>100</i>	<i>22-May-2014 23:41</i>

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: EarthCon
Project: Transwestern Compressor Station 9 SemiAnnual
WorkOrder: HS14050770

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R234250	Test Name : LOW LEVEL VOLATILES - SW8260C			Matrix: Water		
HS14050770-02	MW-27	14 May 2014 11:15			22 May 2014 23:15	100
HS14050770-03	MPE-31	14 May 2014 15:25			22 May 2014 23:41	100
Batch ID R234409	Test Name : LOW LEVEL VOLATILES - SW8260C			Matrix: Water		
HS14050770-01	MPE-13	14 May 2014 10:20			28 May 2014 09:19	10

Client: EarthCon
 WorkOrder: HS14050770
 Project: Transwestern Compressor Station 9 SemiAnnual

QC BATCH REPORT

Batch ID: R234250			Instrument: VOA7			Method: SW8260				
MBLK		Sample ID: VBLKW-140522		Units: ug/L		Analysis Date: 22-May-2014 16:08				
Client ID:		Run ID: VOA7_234250		SeqNo: 2847912		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	1.0								
Ethylbenzene	U	1.0								
m,p-Xylene	U	2.0								
o-Xylene	U	1.0								
Toluene	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	50.83	1.0	50	0	102	71 - 125				
Surr: 4-Bromofluorobenzene	53.41	1.0	50	0	107	70 - 125				
Surr: Dibromofluoromethane	49.45	1.0	50	0	98.9	74 - 125				
Surr: Toluene-d8	54.95	1.0	50	0	110	75 - 125				

LCS		Sample ID: VLCSW-140522		Units: ug/L		Analysis Date: 22-May-2014 14:58				
Client ID:		Run ID: VOA7_234250		SeqNo: 2847911		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	49.11	1.0	50	0	98.2	80 - 120				
Ethylbenzene	49.38	1.0	50	0	98.8	80 - 120				
m,p-Xylene	96.67	2.0	100	0	96.7	80 - 120				
o-Xylene	50.05	1.0	50	0	100	80 - 120				
Toluene	50.41	1.0	50	0	101	80 - 121				
Xylenes, Total	146.7	3.0	150	0	97.8	80 - 124				
Surr: 1,2-Dichloroethane-d4	48.4	1.0	50	0	96.8	71 - 125				
Surr: 4-Bromofluorobenzene	53.61	1.0	50	0	107	70 - 125				
Surr: Dibromofluoromethane	47.39	1.0	50	0	94.8	74 - 125				
Surr: Toluene-d8	52.46	1.0	50	0	105	75 - 125				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: EarthCon
 WorkOrder: HS14050770
 Project: Transwestern Compressor Station 9 SemiAnnual

QC BATCH REPORT

Batch ID: R234250		Instrument: VOA7		Method: SW8260						
MS		Sample ID: HS14050808-09MS		Units: ug/L		Analysis Date: 23-May-2014 00:05				
Client ID:		Run ID: VOA7_234250		SeqNo: 2848020		PrepDate:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	850.5	10	500	335.1	103	80 - 120				
Ethylbenzene	528.9	10	500	17.42	102	80 - 120				
m,p-Xylene	1099	20	1000	97.51	100	80 - 120				
o-Xylene	567.7	10	500	46.52	104	80 - 120				
Toluene	520.8	10	500	3.1	104	80 - 121				
Xylenes, Total	1667	30	1500	144	102	80 - 124				
Surr: 1,2-Dichloroethane-d4	493.1	10	500	0	98.6	71 - 125				
Surr: 4-Bromofluorobenzene	565.6	10	500	0	113	70 - 125				
Surr: Dibromofluoromethane	486.8	10	500	0	97.4	74 - 125				
Surr: Toluene-d8	540.5	10	500	0	108	75 - 125				

MSD		Sample ID: HS14050808-09MSD		Units: ug/L		Analysis Date: 23-May-2014 00:28				
Client ID:		Run ID: VOA7_234250		SeqNo: 2848021		PrepDate:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	795.2	10	500	335.1	92.0	80 - 120	850.5	6.73	20	
Ethylbenzene	496.5	10	500	17.42	95.8	80 - 120	528.9	6.32	20	
m,p-Xylene	1020	20	1000	97.51	92.2	80 - 120	1099	7.52	20	
o-Xylene	527.2	10	500	46.52	96.1	80 - 120	567.7	7.41	20	
Toluene	484.1	10	500	3.1	96.2	80 - 121	520.8	7.3	20	
Xylenes, Total	1547	30	1500	144	93.5	80 - 124	1667	7.48	20	
Surr: 1,2-Dichloroethane-d4	485.8	10	500	0	97.2	71 - 125	493.1	1.49	20	
Surr: 4-Bromofluorobenzene	528.1	10	500	0	106	70 - 125	565.6	6.86	20	
Surr: Dibromofluoromethane	472.5	10	500	0	94.5	74 - 125	486.8	2.99	20	
Surr: Toluene-d8	516.9	10	500	0	103	75 - 125	540.5	4.46	20	

The following samples were anayed in this batch:

HS14050770-01

HS14050770-02

HS14050770-03

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: EarthCon
 WorkOrder: HS14050770
 Project: Transwestern Compressor Station 9 SemiAnnual

QC BATCH REPORT

Batch ID: R234409		Instrument: VOA4		Method: SW8260						
MBLK	Sample ID: VBLKW-140527	Units: ug/L				Analysis Date: 28-May-2014 00:15				
Client ID:	Run ID: VOA4_234409		SeqNo: 2851991		PrepDate:			DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	1.0								
Ethylbenzene	U	1.0								
m,p-Xylene	U	2.0								
o-Xylene	U	1.0								
Toluene	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	44.53	1.0	50	0	89.1	71 - 125				
Surr: 4-Bromofluorobenzene	46.56	1.0	50	0	93.1	70 - 125				
Surr: Dibromofluoromethane	46.09	1.0	50	0	92.2	74 - 125				
Surr: Toluene-d8	47.39	1.0	50	0	94.8	75 - 125				

LCS	Sample ID: VLCSW-140527	Units: ug/L				Analysis Date: 27-May-2014 23:25				
Client ID:	Run ID: VOA4_234409		SeqNo: 2851990		PrepDate:			DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	51.49	1.0	50	0	103	80 - 120				
Ethylbenzene	53.2	1.0	50	0	106	80 - 120				
m,p-Xylene	105.3	2.0	100	0	105	80 - 120				
o-Xylene	53.07	1.0	50	0	106	80 - 120				
Toluene	52.81	1.0	50	0	106	80 - 121				
Xylenes, Total	158.4	3.0	150	0	106	80 - 124				
Surr: 1,2-Dichloroethane-d4	43.4	1.0	50	0	86.8	71 - 125				
Surr: 4-Bromofluorobenzene	48.09	1.0	50	0	96.2	70 - 125				
Surr: Dibromofluoromethane	46.34	1.0	50	0	92.7	74 - 125				
Surr: Toluene-d8	46.96	1.0	50	0	93.9	75 - 125				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: EarthCon
 WorkOrder: HS14050770
 Project: Transwestern Compressor Station 9 SemiAnnual

QC BATCH REPORT

Batch ID: R234409		Instrument: VOA4		Method: SW8260						
MS		Sample ID: HS14050670-18MS		Units: ug/L		Analysis Date: 28-May-2014 04:47				
Client ID:		Run ID: VOA4_234409		SeqNo: 2852002		PrepDate:		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	5170	100	5000	118.4	101	80 - 120				
Ethylbenzene	5908	100	5000	648.6	105	80 - 120				
m,p-Xylene	11680	200	10000	1236	104	80 - 120				
o-Xylene	6268	100	5000	981.7	106	80 - 120				
Toluene	5213	100	5000	34.29	104	80 - 121				
Xylenes, Total	17950	300	15000	2218	105	80 - 124				
Surr: 1,2-Dichloroethane-d4	4460	100	5000	0	89.2	71 - 125				
Surr: 4-Bromofluorobenzene	4801	100	5000	0	96.0	70 - 125				
Surr: Dibromofluoromethane	4816	100	5000	0	96.3	74 - 125				
Surr: Toluene-d8	4665	100	5000	0	93.3	75 - 125				

MSD		Sample ID: HS14050670-18MSD		Units: ug/L		Analysis Date: 28-May-2014 05:12				
Client ID:		Run ID: VOA4_234409		SeqNo: 2852003		PrepDate:		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	5013	100	5000	118.4	97.9	80 - 120	5170	3.09	20	
Ethylbenzene	5842	100	5000	648.6	104	80 - 120	5908	1.13	20	
m,p-Xylene	11370	200	10000	1236	101	80 - 120	11680	2.69	20	
o-Xylene	6124	100	5000	981.7	103	80 - 120	6268	2.31	20	
Toluene	5077	100	5000	34.29	101	80 - 121	5213	2.64	20	
Xylenes, Total	17490	300	15000	2218	102	80 - 124	17950	2.56	20	
Surr: 1,2-Dichloroethane-d4	4346	100	5000	0	86.9	71 - 125	4460	2.58	20	
Surr: 4-Bromofluorobenzene	4747	100	5000	0	94.9	70 - 125	4801	1.13	20	
Surr: Dibromofluoromethane	4727	100	5000	0	94.5	74 - 125	4816	1.87	20	
Surr: Toluene-d8	4678	100	5000	0	93.6	75 - 125	4665	0.279	20	

The following samples were anayzed in this batch: HS14050770-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: EarthCon
Project: Transwestern Compressor Station 9 SemiAnnual
WorkOrder: HS14050770

**QUALIFIERS,
ACRONYMS, UNITS**

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	AR - 2014	27-Mar-2015
California	06248CA 2013-2014	31-Jul-2014
Dept of Defense	L2231 Rev 3-20-2014	22-Dec-2015
Illinois	003403	09-May-2015
Kansas	E-10352 8/15/2013-2014	31-Jul-2014
Louisiana	03087 2013/2014	30-Jun-2014
North Carolina	624 - 2014	31-Dec-2014
Oklahoma	2013-024	31-Aug-2014
Texas	TX104704231-14-13	30-Apr-2015

Client: EarthCon
Project: Transwestern Compressor Station 9 SemiAnnual
Work Order: HS14050770

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS14050770-01	MPE-13	Login	20-May-14 12:18	DRC	VW-3
HS14050770-02	MW-27	Login	20-May-14 12:18	DRC	VW-3
HS14050770-03	MPE-31	Login	20-May-14 12:18	DRC	VW-3
HS14050770-04	Trip Blank	Login	20-May-14 12:18	DRC	VW-3

Sample Receipt Checklist

Client Name: EarthCon - North Houston
Work Order: HS14050770

Date/Time Received: **16-May-2014 09:30**
Received by: **DRC**

Checklist completed by: Dana.Capps 20-May-2014
eSignature Date

Reviewed by: Sonia West 21-May-2014
eSignature Date

Matrices: **Water**Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	2.2/2.2 C/U IR1		
Cooler(s)/Kit(s):	5474		
Date/Time sample(s) sent to storage:	05/20/2014		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☒
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: 0 Regarding:

Comments:

Corrective Action:



ALS Laboratory Group
10450 Standcliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

Chain of Custody Form

HS14050770

EarthCon

Transwestern Compressor Station 9 SemiAnnual

Page 1 of 1



Customer Information			Project Information		
Purchase Order		Project Name	Transwestern Compressor Station 9		
Work Order		Project Number	Semi-Annual		
Company Name	EarthCon	Bill To Company	EarthCon		
Send Report To	Gabriela Floreslova	Invoice Attn			
Address	14405 Walters Road Suite 700	Address	14405 Walters Road Suite 700		
City/State/Zip	Houston	City/State/Zip	Houston		
Phone	(281) 201-3513	Phone	(281) 240-5200		
Fax		Fax	(281) 201-3510		
e-Mail Address	gfloreslova@earthcon.com	e-Mail Address			

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MPE-13	05/14/14	10:20	H ₂ O	HCL 3		X										
2	MW-27	05/14/14	11:15	H ₂ O	HCL 3		X										
3	MPE-31	05/14/14	15:15	H ₂ O	HCL 3		X										
4																	
5	TRIP Blank																
6	Temp Blank																
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign <i>Clayton M. Barwick, Jr.</i>		Shipment Method FEDEX	Required Turnaround Time: (Check Box) ☐ STD 10 Wk Days ☒ 1 Wk Days ☐ 2 Wk Days ☐ 24 Hour				Results Due Date:	
Relinquished by: <i>Clayton M. Barwick, Jr.</i>	Date: 05/15/14	Time: 09:30	Received by: <i>Justin E.</i>		Notes: Any Questions please Contact EarthCon			
Relinquished by:	Date: 5.16.14	Time: 9:30	Received by (Laboratory):		Cooler ID	Cooler Temp	QC Package: (Check One Box Below)	
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):			☐ Level II Std QC ☐ TRRP Checklist ☐ Level III Std QC/Raw Date ☐ TRRP Level IV ☐ Level IV SW846/CLP ☐ Other	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035								

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.
2. Unless otherwise agreed in a formal contract, services provided by ALS Laboratory Group are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

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January 02, 2015

Gabriela Floreslovo
EarthCon
14405 Walters Road
Suite 700
Houston, TX 77014

Work Order: **HS14121080**

Laboratory Results for: **Transwestern Compressor Sta. #9 Sporadic**

Dear Gabriela,

ALS Environmental received 4 sample(s) on Dec 30, 2014 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in cursive script that reads "Sonia West".

Generated By: Dayna.Fisher
Sonia West
Project Manager

Client: EarthCon
Project: Transwestern Compressor Sta. #9 Sporadic
Work Order: HS14121080

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS14121080-01	MPE-39	Water		29-Dec-2014 13:55	30-Dec-2014 09:05	☐
HS14121080-02	MW-27	Water		29-Dec-2014 14:15	30-Dec-2014 09:05	☐
HS14121080-03	MPE-31	Water		29-Dec-2014 14:40	30-Dec-2014 09:05	☐
HS14121080-04	Field Blank	Water		29-Dec-2014 15:20	30-Dec-2014 09:05	☐

Client: EarthCon
Project: Transwestern Compressor Sta. #9 Sporadic
Work Order: HS14121080

CASE NARRATIVE

Work Order Comments

- Samples MPE-39 and MW-27 were received with all vials with approximately 14 mm of headspace.

GCMS Volatiles by Method SW8260

Batch ID: R247550

Sample ID: **MPE-31 (HS14121080-03)**

Sample ID: **MPE-39 (HS14121080-01)**

Sample ID: **MW-27 (HS14121080-02)**

- Lowest practical dilution due to matrix.
-

Client: EarthCon
 Project: Transwestern Compressor Sta. #9 Sporadic
 Sample ID: MPE-39
 Collection Date: 29-Dec-2014 13:55

ANALYTICAL REPORT

WorkOrder:HS14121080
 Lab ID:HS14121080-01
 Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP		
Benzene	4,700		100	ug/L	100	31-Dec-2014 23:10
Ethylbenzene	240		100	ug/L	100	31-Dec-2014 23:10
Toluene	1,400		100	ug/L	100	31-Dec-2014 23:10
m,p-Xylene	1,600		200	ug/L	100	31-Dec-2014 23:10
o-Xylene	300		100	ug/L	100	31-Dec-2014 23:10
Xylenes, Total	1,900		300	ug/L	100	31-Dec-2014 23:10
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>104</i>		<i>71-125</i>	<i>%REC</i>	<i>100</i>	<i>31-Dec-2014 23:10</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>103</i>		<i>70-125</i>	<i>%REC</i>	<i>100</i>	<i>31-Dec-2014 23:10</i>
<i>Surr: Dibromofluoromethane</i>	<i>101</i>		<i>74-125</i>	<i>%REC</i>	<i>100</i>	<i>31-Dec-2014 23:10</i>
<i>Surr: Toluene-d8</i>	<i>110</i>		<i>75-125</i>	<i>%REC</i>	<i>100</i>	<i>31-Dec-2014 23:10</i>

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: EarthCon
 Project: Transwestern Compressor Sta. #9 Sporadic
 Sample ID: MW-27
 Collection Date: 29-Dec-2014 14:15

ANALYTICAL REPORT

WorkOrder:HS14121080
 Lab ID:HS14121080-02
 Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP		
Benzene	ND		100	ug/L	100	31-Dec-2014 23:35
Ethylbenzene	ND		100	ug/L	100	31-Dec-2014 23:35
Toluene	ND		100	ug/L	100	31-Dec-2014 23:35
m,p-Xylene	ND		200	ug/L	100	31-Dec-2014 23:35
o-Xylene	ND		100	ug/L	100	31-Dec-2014 23:35
Xylenes, Total	ND		300	ug/L	100	31-Dec-2014 23:35
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>102</i>		<i>71-125</i>	<i>%REC</i>	<i>100</i>	<i>31-Dec-2014 23:35</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>106</i>		<i>70-125</i>	<i>%REC</i>	<i>100</i>	<i>31-Dec-2014 23:35</i>
<i>Surr: Dibromofluoromethane</i>	<i>98.7</i>		<i>74-125</i>	<i>%REC</i>	<i>100</i>	<i>31-Dec-2014 23:35</i>
<i>Surr: Toluene-d8</i>	<i>111</i>		<i>75-125</i>	<i>%REC</i>	<i>100</i>	<i>31-Dec-2014 23:35</i>

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: EarthCon
 Project: Transwestern Compressor Sta. #9 Sporadic
 Sample ID: MPE-31
 Collection Date: 29-Dec-2014 14:40

ANALYTICAL REPORT

WorkOrder:HS14121080
 Lab ID:HS14121080-03
 Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP		
Benzene	ND		100	ug/L	100	01-Jan-2015 00:01
Ethylbenzene	150		100	ug/L	100	01-Jan-2015 00:01
Toluene	ND		100	ug/L	100	01-Jan-2015 00:01
m,p-Xylene	ND		200	ug/L	100	01-Jan-2015 00:01
o-Xylene	ND		100	ug/L	100	01-Jan-2015 00:01
Xylenes, Total	ND		300	ug/L	100	01-Jan-2015 00:01
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>104</i>		<i>71-125</i>	<i>%REC</i>	<i>100</i>	<i>01-Jan-2015 00:01</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>104</i>		<i>70-125</i>	<i>%REC</i>	<i>100</i>	<i>01-Jan-2015 00:01</i>
<i>Surr: Dibromofluoromethane</i>	<i>102</i>		<i>74-125</i>	<i>%REC</i>	<i>100</i>	<i>01-Jan-2015 00:01</i>
<i>Surr: Toluene-d8</i>	<i>109</i>		<i>75-125</i>	<i>%REC</i>	<i>100</i>	<i>01-Jan-2015 00:01</i>

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: EarthCon
 Project: Transwestern Compressor Sta. #9 Sporadic
 Sample ID: Field Blank
 Collection Date: 29-Dec-2014 15:20

ANALYTICAL REPORT

WorkOrder:HS14121080
 Lab ID:HS14121080-04
 Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP		
Benzene	ND		1.0	ug/L	1	31-Dec-2014 18:58
Ethylbenzene	ND		1.0	ug/L	1	31-Dec-2014 18:58
Toluene	ND		1.0	ug/L	1	31-Dec-2014 18:58
m,p-Xylene	ND		2.0	ug/L	1	31-Dec-2014 18:58
o-Xylene	ND		1.0	ug/L	1	31-Dec-2014 18:58
Xylenes, Total	ND		3.0	ug/L	1	31-Dec-2014 18:58
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>98.2</i>		<i>71-125</i>	<i>%REC</i>	<i>1</i>	<i>31-Dec-2014 18:58</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>105</i>		<i>70-125</i>	<i>%REC</i>	<i>1</i>	<i>31-Dec-2014 18:58</i>
<i>Surr: Dibromofluoromethane</i>	<i>99.7</i>		<i>74-125</i>	<i>%REC</i>	<i>1</i>	<i>31-Dec-2014 18:58</i>
<i>Surr: Toluene-d8</i>	<i>108</i>		<i>75-125</i>	<i>%REC</i>	<i>1</i>	<i>31-Dec-2014 18:58</i>

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: EarthCon
Project: Transwestern Compressor Sta. #9 Sporadic
WorkOrder: HS14121080

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R247550	Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water		
HS14121080-01	MPE-39	29 Dec 2014 13:55			31 Dec 2014 23:10	100
HS14121080-02	MW-27	29 Dec 2014 14:15			31 Dec 2014 23:35	100
HS14121080-03	MPE-31	29 Dec 2014 14:40			01 Jan 2015 00:01	100
HS14121080-04	Field Blank	29 Dec 2014 15:20			31 Dec 2014 18:58	1

Client: EarthCon
Project: Transwestern Compressor Sta. #9 Sporadic
WorkOrder: HS14121080

QC BATCH REPORT

Batch ID: R247550		Instrument: VOA4		Method: SW8260					
MBLK	Sample ID: VBLKW-141231	Units: ug/L		Analysis Date: 31-Dec-2014 18:32					
Client ID:	Run ID: VOA4_247550	SeqNo: 3145334		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	ND	1.0							
Ethylbenzene	ND	1.0							
m,p-Xylene	ND	2.0							
o-Xylene	ND	1.0							
Toluene	ND	1.0							
Xylenes, Total	ND	3.0							
Surr: 1,2-Dichloroethane-d4	50.72	1.0	50	0	101	71 - 125			
Surr: 4-Bromofluorobenzene	51.06	1.0	50	0	102	70 - 125			
Surr: Dibromofluoromethane	49.68	1.0	50	0	99.4	74 - 125			
Surr: Toluene-d8	54.76	1.0	50	0	110	75 - 125			

LCS	Sample ID: VLCSW-141231	Units: ug/L		Analysis Date: 31-Dec-2014 17:42					
Client ID:	Run ID: VOA4_247550	SeqNo: 3145333		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	51.77	1.0	50	0	104	80 - 120			
Ethylbenzene	51.04	1.0	50	0	102	80 - 120			
m,p-Xylene	102.8	2.0	100	0	103	80 - 120			
o-Xylene	51.38	1.0	50	0	103	80 - 120			
Toluene	53.17	1.0	50	0	106	75 - 121			
Xylenes, Total	154.2	3.0	150	0	103	79 - 124			
Surr: 1,2-Dichloroethane-d4	52.7	1.0	50	0	105	71 - 125			
Surr: 4-Bromofluorobenzene	53.44	1.0	50	0	107	70 - 125			
Surr: Dibromofluoromethane	52.44	1.0	50	0	105	74 - 125			
Surr: Toluene-d8	54.36	1.0	50	0	109	75 - 125			

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: EarthCon
 Project: Transwestern Compressor Sta. #9 Sporadic
 WorkOrder: HS14121080

QC BATCH REPORT

Batch ID: R247550		Instrument: VOA4		Method: SW8260						
MS		Sample ID: HS14121096-05MS		Units: ug/L		Analysis Date: 31-Dec-2014 20:39				
Client ID:		Run ID: VOA4_247550		SeqNo: 3145339		PrepDate:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	533.3	10	500	0	107	80 - 120				
Ethylbenzene	522.7	10	500	0	105	80 - 120				
m,p-Xylene	1043	20	1000	0	104	80 - 120				
o-Xylene	510.1	10	500	0	102	80 - 120				
Toluene	531.7	10	500	0	106	75 - 121				
Xylenes, Total	1553	30	1500	0	104	80 - 124				
Surr: 1,2-Dichloroethane-d4	517.3	10	500	0	103	71 - 125				
Surr: 4-Bromofluorobenzene	539.2	10	500	0	108	70 - 125				
Surr: Dibromofluoromethane	515.6	10	500	0	103	74 - 125				
Surr: Toluene-d8	546.7	10	500	0	109	75 - 125				

MSD		Sample ID: HS14121096-05MSD		Units: ug/L		Analysis Date: 31-Dec-2014 21:04				
Client ID:		Run ID: VOA4_247550		SeqNo: 3145340		PrepDate:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	515.4	10	500	0	103	80 - 120	533.3	3.4	20	
Ethylbenzene	499.4	10	500	0	99.9	80 - 120	522.7	4.55	20	
m,p-Xylene	1025	20	1000	0	102	80 - 120	1043	1.78	20	
o-Xylene	501.7	10	500	0	100	80 - 120	510.1	1.66	20	
Toluene	522.1	10	500	0	104	75 - 121	531.7	1.82	20	
Xylenes, Total	1526	30	1500	0	102	80 - 124	1553	1.74	20	
Surr: 1,2-Dichloroethane-d4	527.3	10	500	0	105	71 - 125	517.3	1.91	20	
Surr: 4-Bromofluorobenzene	526.2	10	500	0	105	70 - 125	539.2	2.44	20	
Surr: Dibromofluoromethane	523.8	10	500	0	105	74 - 125	515.6	1.58	20	
Surr: Toluene-d8	540.1	10	500	0	108	75 - 125	546.7	1.22	20	

The following samples were analyzed in this batch:

HS14121080-01	HS14121080-02	HS14121080-03	HS14121080-04
---------------	---------------	---------------	---------------

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: EarthCon
Project: Transwestern Compressor Sta. #9 Sporadic
WorkOrder: HS14121080

**QUALIFIERS,
ACRONYMS, UNITS**

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	AR - 2014	27-Mar-2015
California	2919	31-Jul-2015
Dept of Defense	L2231 Rev 3-20-2014	22-Dec-2015
Illinois	003403	09-May-2015
Kansas	E-10352 2014-2015	31-Jul-2015
Kentucky	KY 2014-2015	30-Apr-2015
Louisiana	03087 2014/2015	30-Jun-2015
North Carolina	624 - 2015	31-Dec-2015
North Dakota	R-193 2025	30-Apr-2015
Oklahoma	2014-128	31-Aug-2015
Texas	T104704231-14-14	30-Apr-2015

Client: EarthCon
Project: Transwestern Compressor Sta. #9 Sporadic
Work Order: HS14121080

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS14121080-01	MPE-39	Login	12/30/2014 11:48:12 AM	DES	VW-3
HS14121080-02	MW-27	Login	12/30/2014 11:48:12 AM	DES	VW-3
HS14121080-03	MPE-31	Login	12/30/2014 11:48:12 AM	DES	VW-3
HS14121080-04	Field Blank	Login	12/30/2014 11:48:12 AM	DES	VW-3

Sample Receipt Checklist

Client Name: EarthCon - North Houston
 Work Order: HS14121080

Date/Time Received: **30-Dec-2014 09:05**
 Received by: **DES**

Checklist completed by: Derek E Sholl 30-Dec-2014
 eSignature Date

Reviewed by: Sonia West 30-Dec-2014
 eSignature Date

Matrices: **Water**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	

Temperature(s)/Thermometer(s):	4.4/4.4c C/UC 2		
Cooler(s)/Kit(s):	23606		
Date/Time sample(s) sent to storage:	12/30/2014 12:00		
Water - VOA vials have zero headspace?	Yes ☐	No ☒	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☒
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:			

Login Notes: **First two samples all six vials received with approximately 14 mm of headspace.**

Client Contacted: Gabriela Floreslovo Date Contacted: 30-Dec-2014 Person Contacted: Gabriela Floreslovo
 Contacted By: 542 Regarding: Headspace

Comments:

Corrective Action:



Environmental

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Fort Collins, CO
+1 970 490 1511

Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: **109330**

HS14121080

EarthCon

Transwestern Compressor Sta. #9 Sporadic



ALS Project Manager:

Customer Information		Project Information		
Purchase Order		Project Name	Transwestern Compressor Sta. #9	A BTEX 8260
Work Order		Project Number	Sporadic	B
Company Name	EarthCon	Bill To Company	EarthCon	C
Send Report To	Gabriela Floreslovo	Invoice Attn		D
Address	14405 Walters Road	Address	14405 Walters Road	E
	Suite 700		Suite 700	F
City/State/Zip	Houston	City/State/Zip	Houston	G
Phone	(281) 201-3513	Phone	(281) 240-5200	H
Fax		Fax	(281) 201-3510	I
e-Mail Address	gfloreslovo@earthcon.com	e-Mail Address		J

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MPE-39	12/29/14	1355	H ₂ O	1	3	X										
2	MW-27	12/29/14	1415	H ₂ O	1	3	X										
3	MPE-31	12/29/14	1440	H ₂ O	1	3	X										
4																	
5	Field Blank	12/29/14	1520	H ₂ O	1	2											
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign <i>Cheryl M. Barahill</i>		Shipment Method <i>FedEx</i>		Required Turnaround Time: (Check Box) ☐ Std. 10 WK days ☒ 5 WK Days ☐ Other ☐ 2 WK Days ☐ 24 Hour		Results Due Date:	
Relinquished by: <i>[Signature]</i>	Date: 12/29/14	Time: 1530	Received by: <i>[Signature]</i>		Notes:		
Relinquished by:	Date: 12-30-14	Time: 905	Received by (Laboratory): <i>[Signature]</i>		Notes:		
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		Cooler ID 23606	Cooler Temp. 4.40	QC Package: (Check One Box Below) ☒ Level 2 Std QC ☐ Level 3 Std QC/Row da ☐ Level 4 SW846/CLP ☐ Other/EDD ☐ TRRP ChkList ☐ TRRP Level 4
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035							

- Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

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From: (505) 622-2012
Clayton Barnhill
CMB ENVIRONMENTAL & GEOLOGICAL
115 East College Blvd. # 109

Origin ID: ROWA



ROSWELL, NM 88201

SHIP TO: (281) 530-5656

BILL RECIPIENT

Client Services
ALS Laboratory Group
10450 Stancliff Road
Suite 210
HOUSTON, TX 77099

Ship Date: 29DEC14
ActWgt: 20.0 LB
CAD: 5515970/INET3550

Dims: 15 X 10 X 15 IN

Delivery Address Bar Code



Ref # TWP Roswell Station # 9
Invoice #
PO #
Dept #

TUE - 30 DEC 10:30A
PRIORITY OVERNIGHT

TRK# 7724 1198 0330
0201

77099

TX-US

IAH

AB SGRA

522G210C758AC9

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 ALS Environmental 3352 128th Avenue Holland, Michigan 49424 Tel. +1 616 399 6070 Fax +1 616 399 6185	CUSTODY SEAL Date: 12/29/14 Time: 11:53 AM Name: Clayton Barnhill Co: CMB

Appendix D
2014 Plume Stability Analysis Figures

Summary of 1,1-DCE Plume Stability Characteristics			
Date	Area (acres)	Average Concentration (µg/L)	Mass Indicator (lbs)
1997	0.46	14.8	0.11
1998	0.77	14.0	0.18
1999	0.87	13.9	0.20
2000	1.28	14.4	0.30
2001	2.21	17.8	0.64
2002	2.03	15.1	0.50
2003	2.04	16.9	0.56
2004	1.94	17.1	0.54
2005	1.96	23.2	0.74
2006	1.75	14.3	0.41
2007	1.77	14.5	0.42
2008	1.93	15.7	0.49
2009	1.76	13.1	0.38
2010	1.83	13.7	0.41
2011	1.56	13.5	0.34
2012	1.61	12.2	0.32
Apr 2013	1.19	12.9	0.25
Nov 2013	0.72	12.2	0.14
Apr 2014	1.04	13.9	0.24
Nov 2014	1.28	13.7	0.29

1,1-DCE Mann-Kendall Trend Analysis Summary

Parameter	# of samples, n	S Statistic	Confidence Factor	Coeff. of Variation	Conclusion
Plume Area	20	-32	84%	0.34	Stable/No Trend
Plume Average Concentration	20	-76	>99%	0.17	Decreasing Trend
Plume Mass Indicator	20	-32	84%	0.45	Stable/No Trend

1,1-DCE Linear Regression Trend Analysis Summary

Parameter	# of samples, n	Slope (yr ⁻¹)	R ²	Confidence Factor	Coeff. of Variation	Conclusion
Plume Area	20	0.004	0.00	15.4%	0.34	Stable/No Trend
Plume Average Concentration	20	-0.16	0.14	89.9%	0.17	Stable/No Trend
Plume Mass Indicator	20	0	0.01	36.1%	0.45	Stable/No Trend

1,1-DCE Mann-Kendall Trend Analysis Summary - Data Since 2001

Parameter	# of samples, n	S Statistic	Confidence Factor	Coeff. of Variation	Conclusion
Plume Area	16	-92	>99%	0.25	Decreasing Trend
Plume Average Concentration	16	-68	>99%	0.18	Decreasing Trend
Plume Mass Indicator	16	-90	>99%	0.38	Decreasing Trend

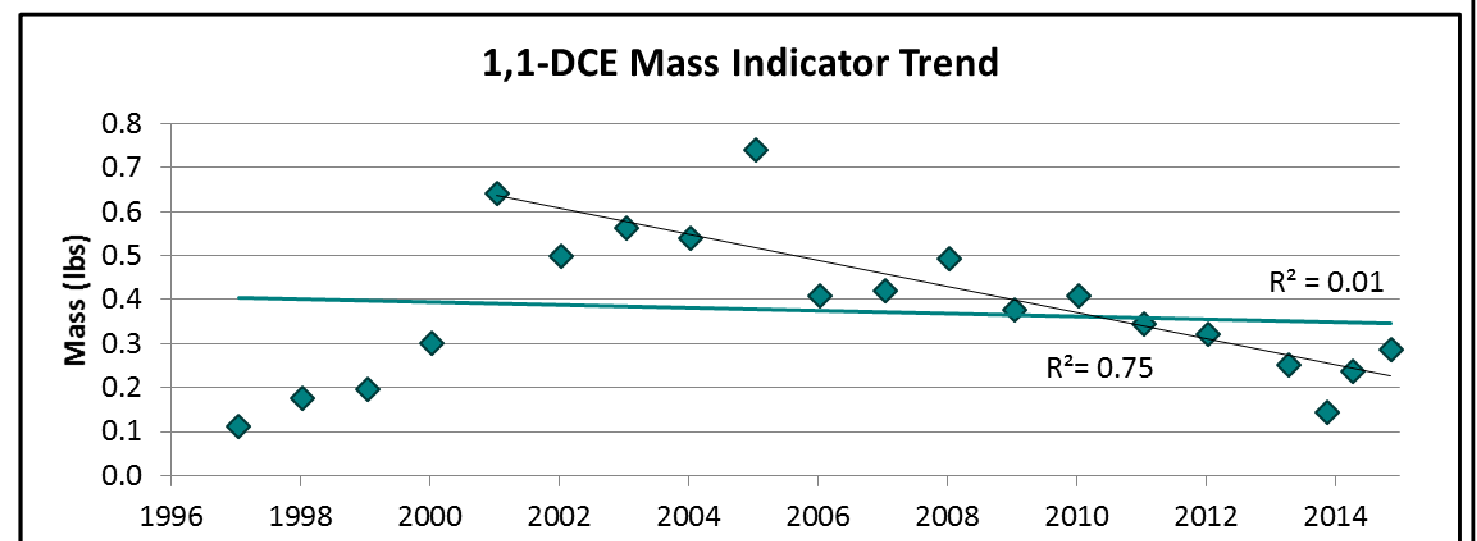
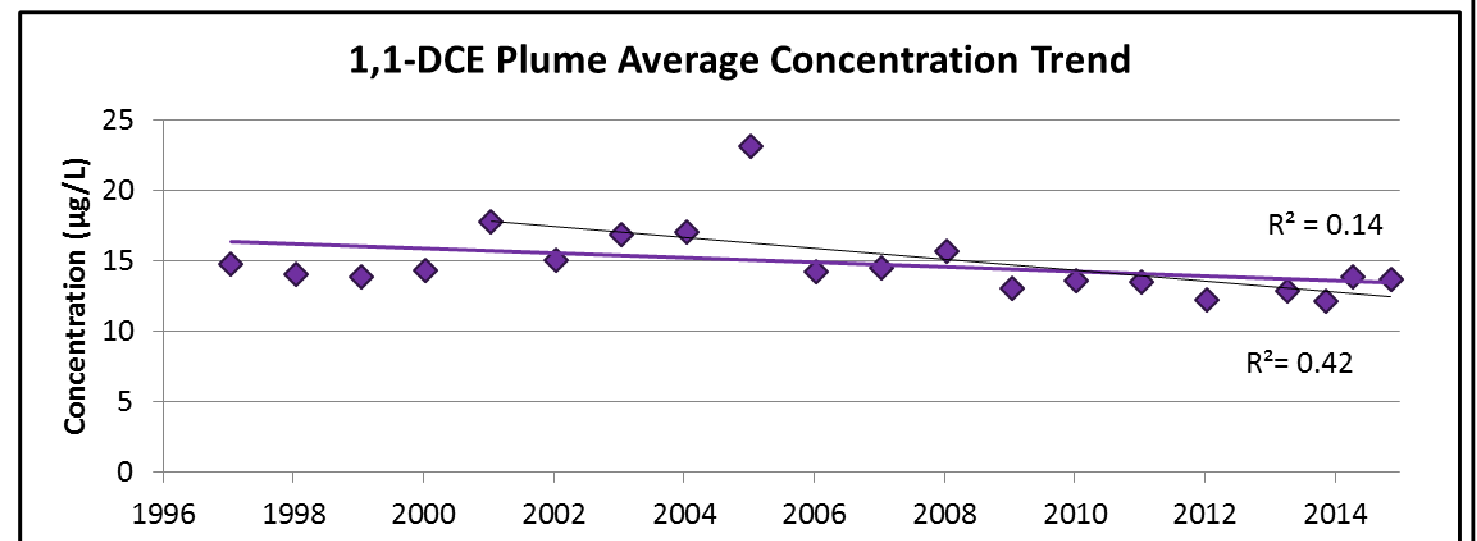
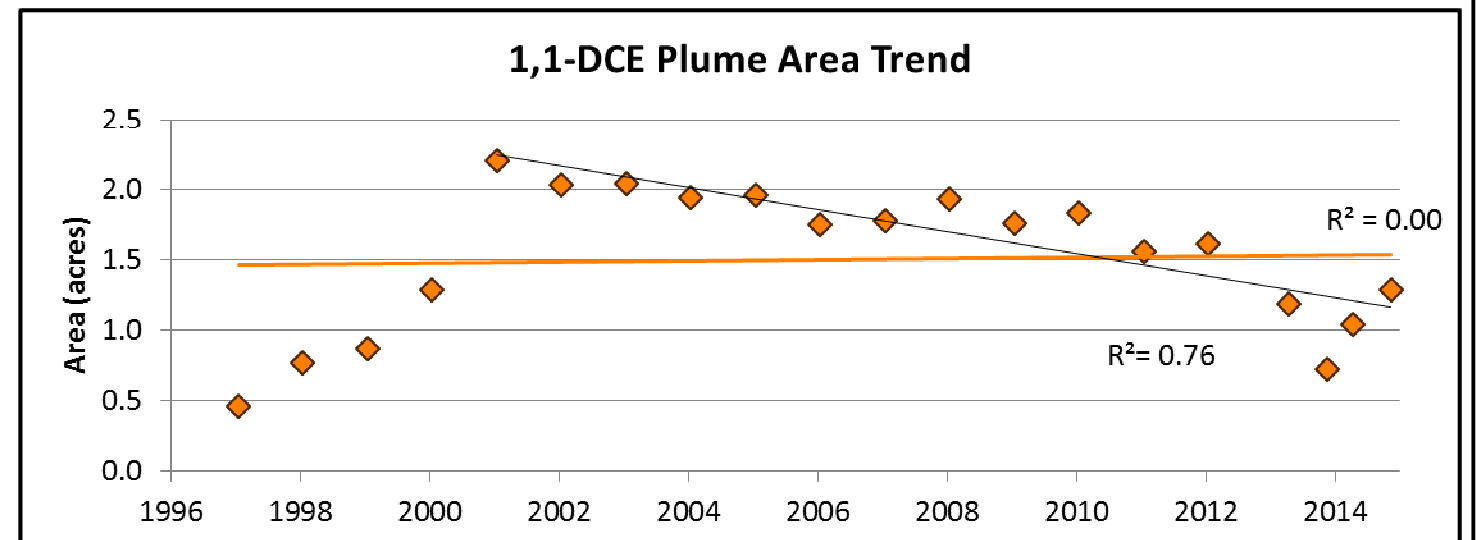
1,1-DCE Linear Regression Trend Analysis Summary - Data Since 2001

Parameter	# of samples, n	Slope (yr ⁻¹)	R ²	Confidence Factor	Coeff. of Variation	Conclusion
Plume Area	16	-0.08	0.77	>99%	0.25	Decreasing Trend
Plume Average Concentration	16	-0.39	0.42	>99%	0.18	Decreasing Trend
Plume Mass Indicator	16	-0.03	0.75	>99%	0.38	Decreasing Trend

Notes:
Sampling events were averaged in 1996-2012.

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1,1-DCE Plume Stability Analysis Summary



Summary of Benzene Plume Stability Characteristics			
Date	Area (acres)	Average Concentration (µg/L)	Mass Indicator (lbs)
1996	8.7	368	51.9
1997	8.5	194	26.9
1998	7.9	135	17.5
1999	7.8	156	19.9
2000	7.9	163	20.9
2001	8.1	206	27.2
2002	8.0	190	24.7
2003	8.0	116	15.2
2004	3.7	36.9	2.22
2005	4.4	29.2	2.10
2006	4.3	29.1	2.04
2007	3.5	65.8	3.79
2008	2.6	50.7	2.14
2009	2.5	66.2	2.65
2010	2.4	77.2	3.02
2011	2.9	75.7	3.60
2012	3.0	82.8	4.09
Apr 2013	2.2	81.6	2.98
Nov 2013	1.8	92.7	2.76
Apr 2014	1.9	89.9	2.77
Nov 2014	2.0	91.2	2.91

Benzene Mann-Kendall Trend Analysis Summary

Parameter	# of samples, n	S Statistic	Confidence Factor	Coeff. of Variation	Conclusion
Plume Area	21	-164	>99%	0.56	Decreasing Trend
Plume Average Concentration	21	-50	93%	0.69	Decreasing Trend
Plume Mass Indicator	21	-88	>99%	1.15	Decreasing Trend

Benzene Linear Regression Trend Analysis Summary

Parameter	# of samples, n	Slope (yr ⁻¹)	R ²	Confidence Factor	Coeff. of Variation	Conclusion
Plume Area	21	-0.42	0.87	>99%	0.56	Decreasing Trend
Plume Average Concentration	21	-8.53	0.42	>99%	0.69	Decreasing Trend
Plume Mass Indicator	21	-1.74	0.63	>99%	1.15	Decreasing Trend

Notes:

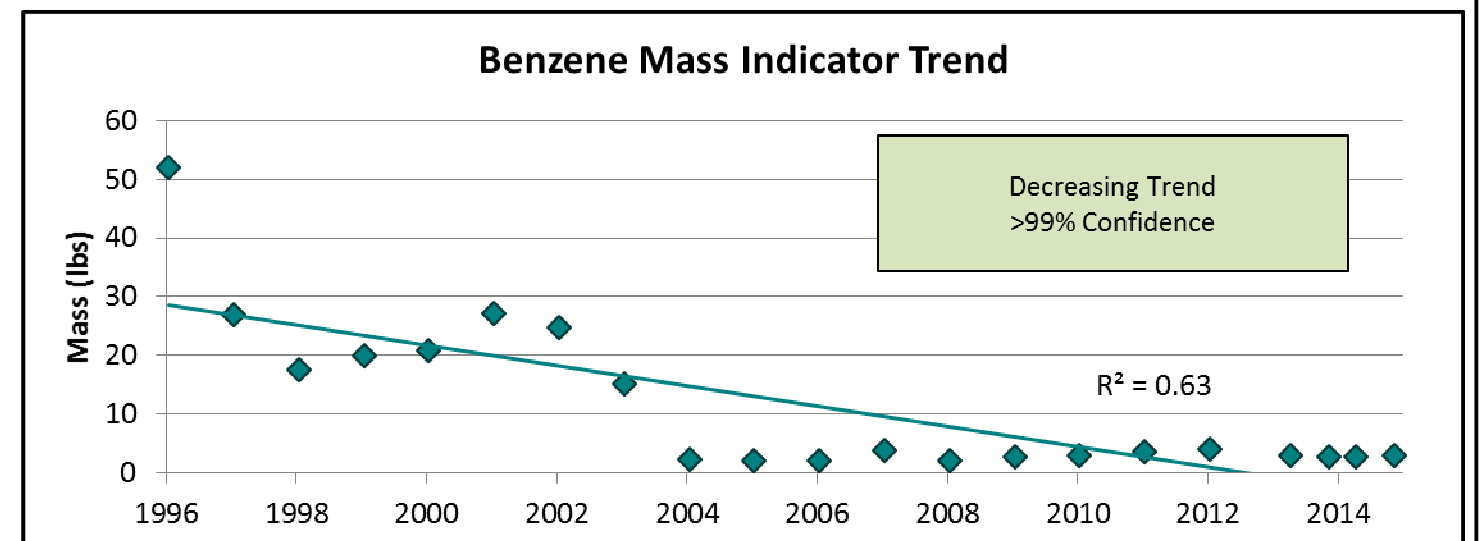
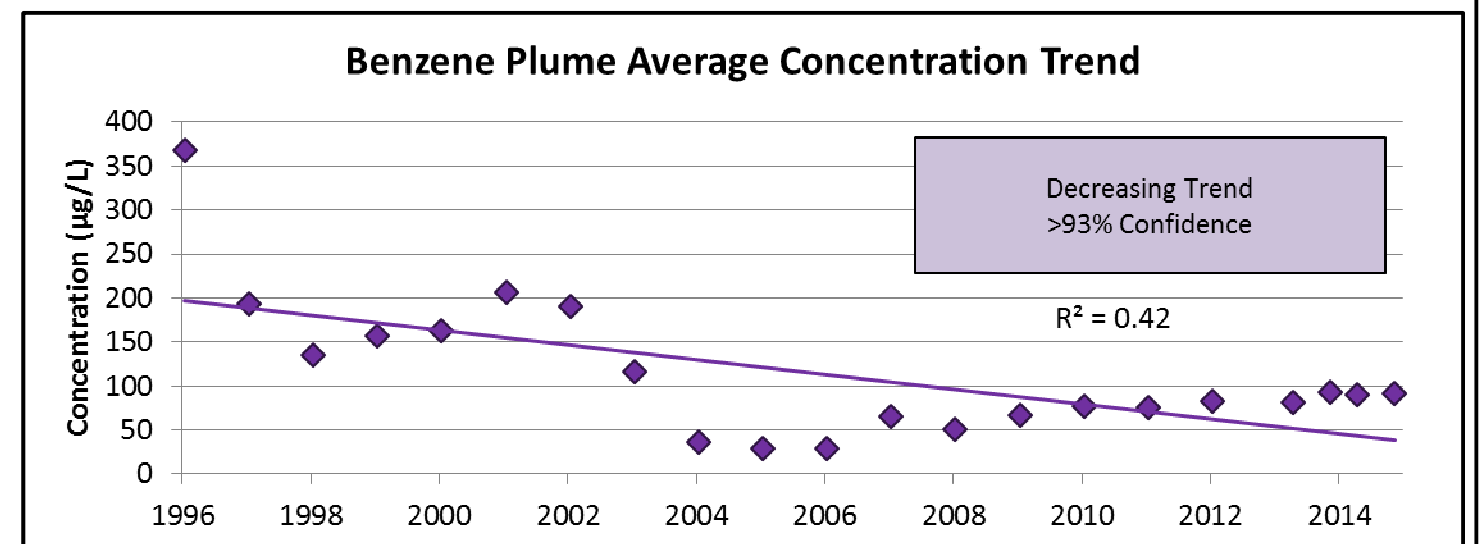
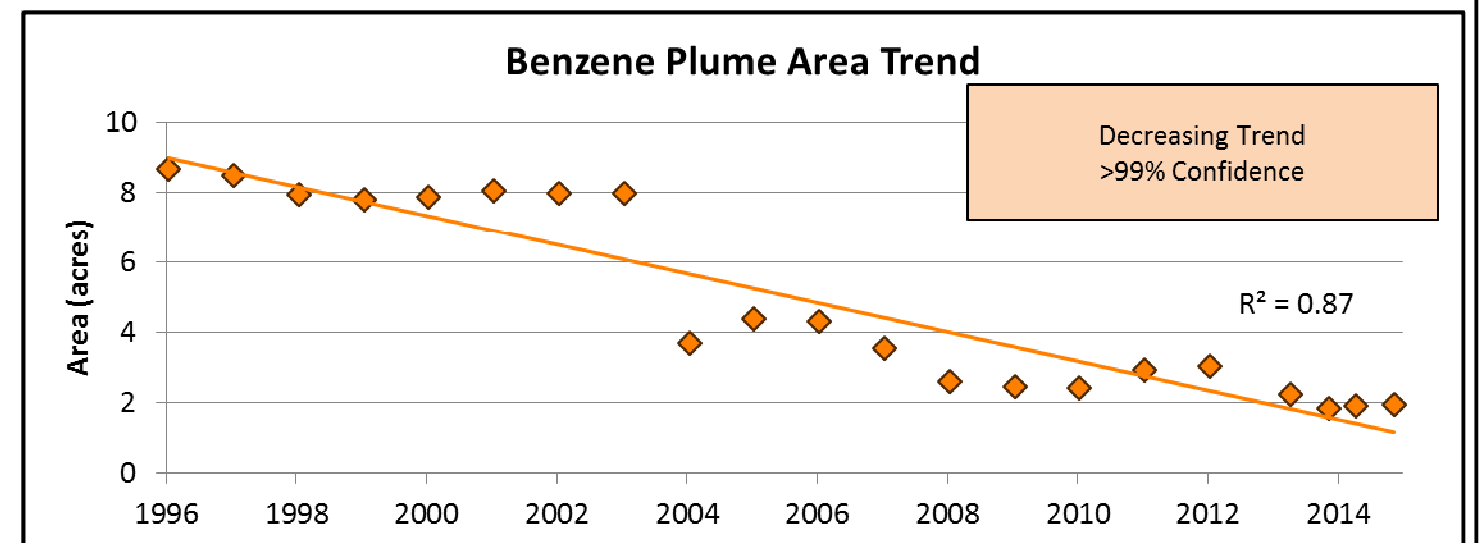
MPE wells were not used in the plume stability analysis.
Sampling events were averaged in 1996-2012.

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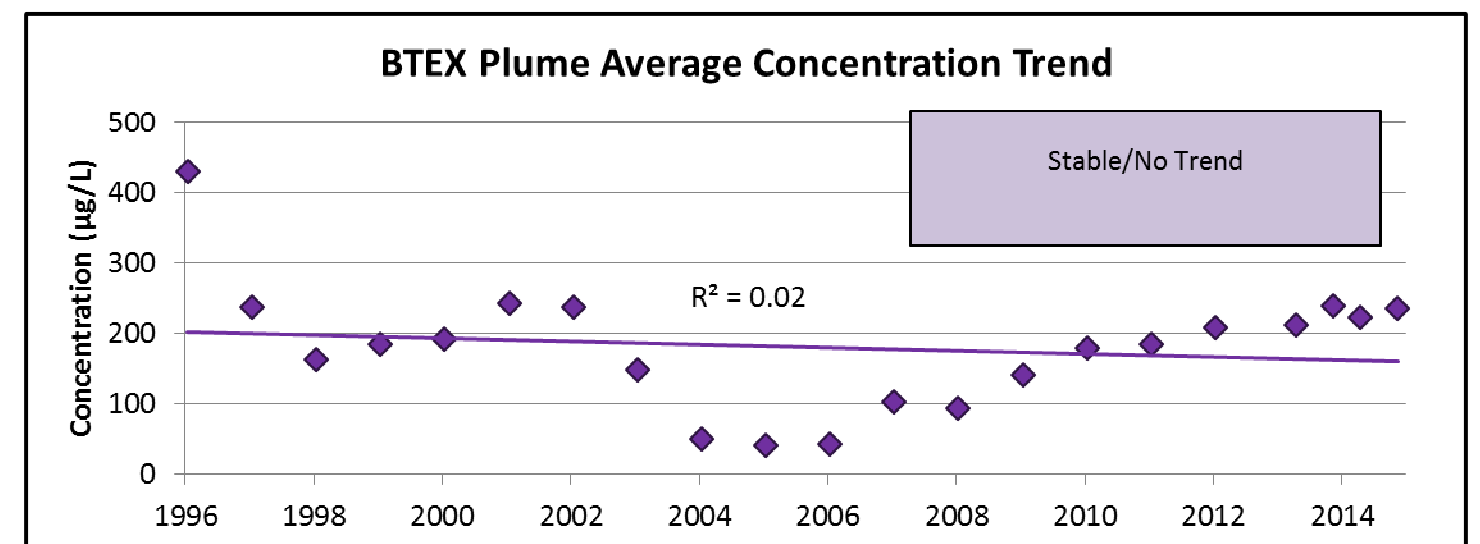
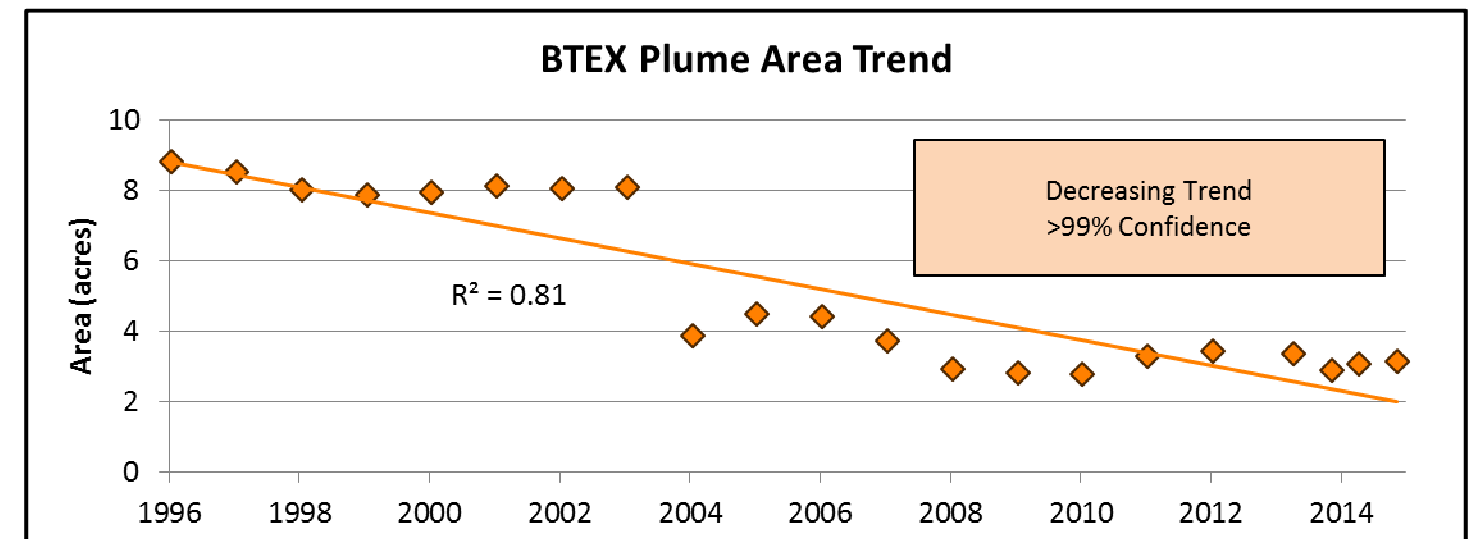


Benzene Plume Stability Analysis Summary

DRAWN	CHECKED	DATE	FIGURE NO.
MAF	EWL	March 5, 2015	2



Summary of BTEX Plume Stability Characteristics			
Date	Area (acres)	Average Concentration (µg/L)	Mass Indicator (lbs)
1996	8.8	431	61.8
1997	8.5	238	33.1
1998	8.0	164	21.4
1999	7.9	186	23.8
2000	7.9	192	24.8
2001	8.1	243	32.3
2002	8.1	237	31.2
2003	8.1	149	19.6
2004	3.9	50.0	3.15
2005	4.5	42.3	3.10
2006	4.4	44.0	3.18
2007	3.7	103	6.22
2008	2.9	94.6	4.49
2009	2.8	142	6.56
2010	2.8	180	8.16
2011	3.3	186	10.0
2012	3.4	209	11.7
Apr 2013	3.3	212	11.6
Nov 2013	2.9	240	11.3
Apr 2014	3.1	223	11.2
Nov 2014	3.2	236	12.2

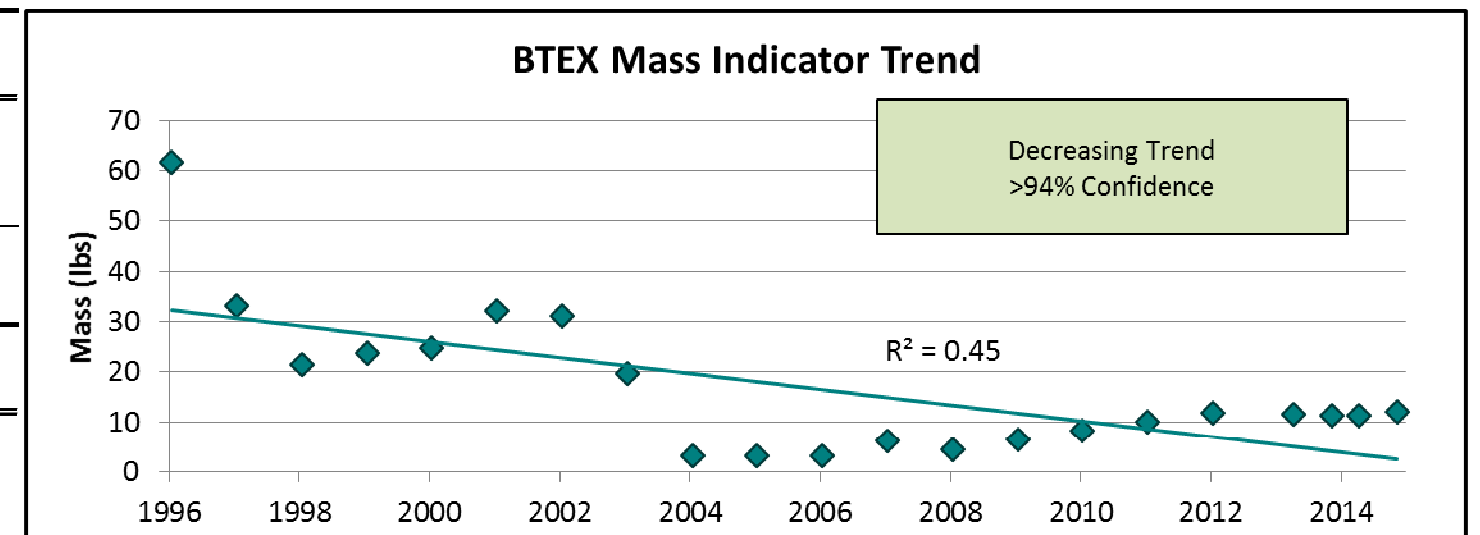


BTEX Mann-Kendall Trend Analysis Summary

Parameter	# of samples, n	S Statistic	Confidence Factor	Coeff. of Variation	Conclusion
Plume Area	21	-140	>99%	0.46	Decreasing Trend
Plume Average Concentration	21	8	58%	0.49	Stable/No Trend
Plume Mass Indicator	21	-52	94%	0.85	Decreasing Trend

BTEX Linear Regression Trend Analysis Summary

Parameter	# of samples, n	Slope (yr ⁻¹)	R ²	Confidence Factor	Coeff. of Variation	Conclusion
Plume Area	21	-0.36	0.81	>99%	0.46	Decreasing Trend
Plume Average Concentration	21	-2.26	0.02	50.0%	0.49	Stable/No Trend
Plume Mass Indicator	21	-1.58	0.45	>99%	0.85	Decreasing Trend



Notes:
MPE wells were not used in the plume stability analysis.
Sampling events were averaged in 1996-2012.

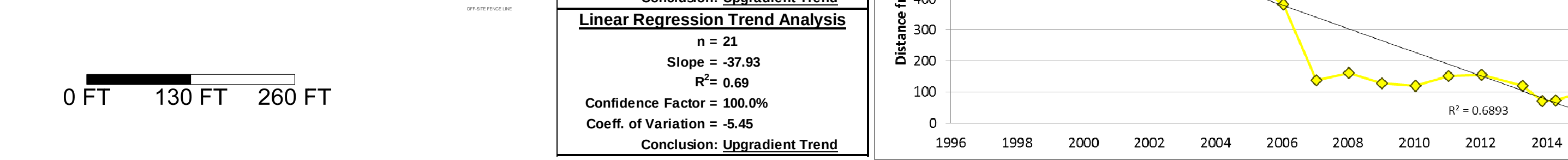
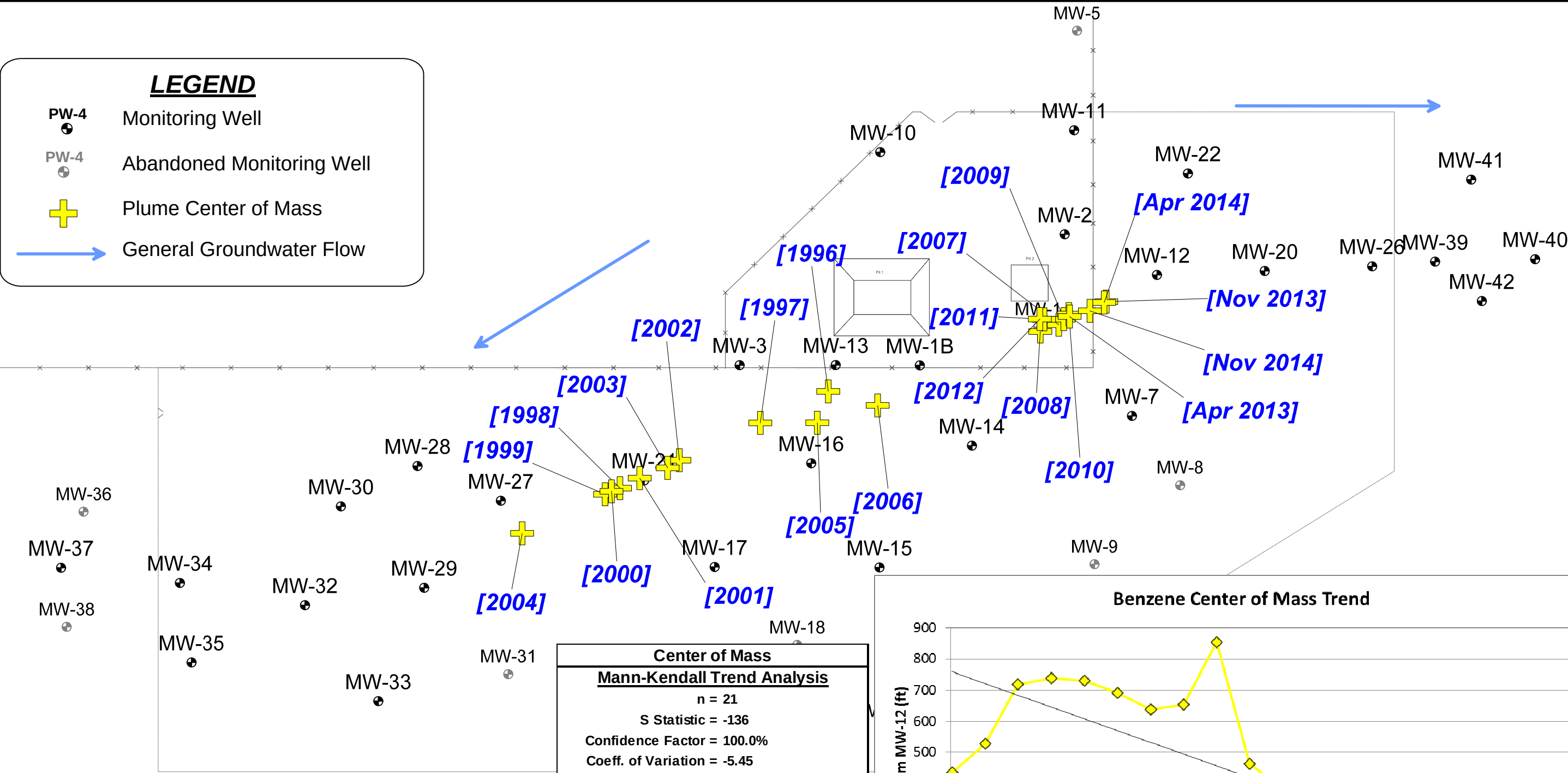
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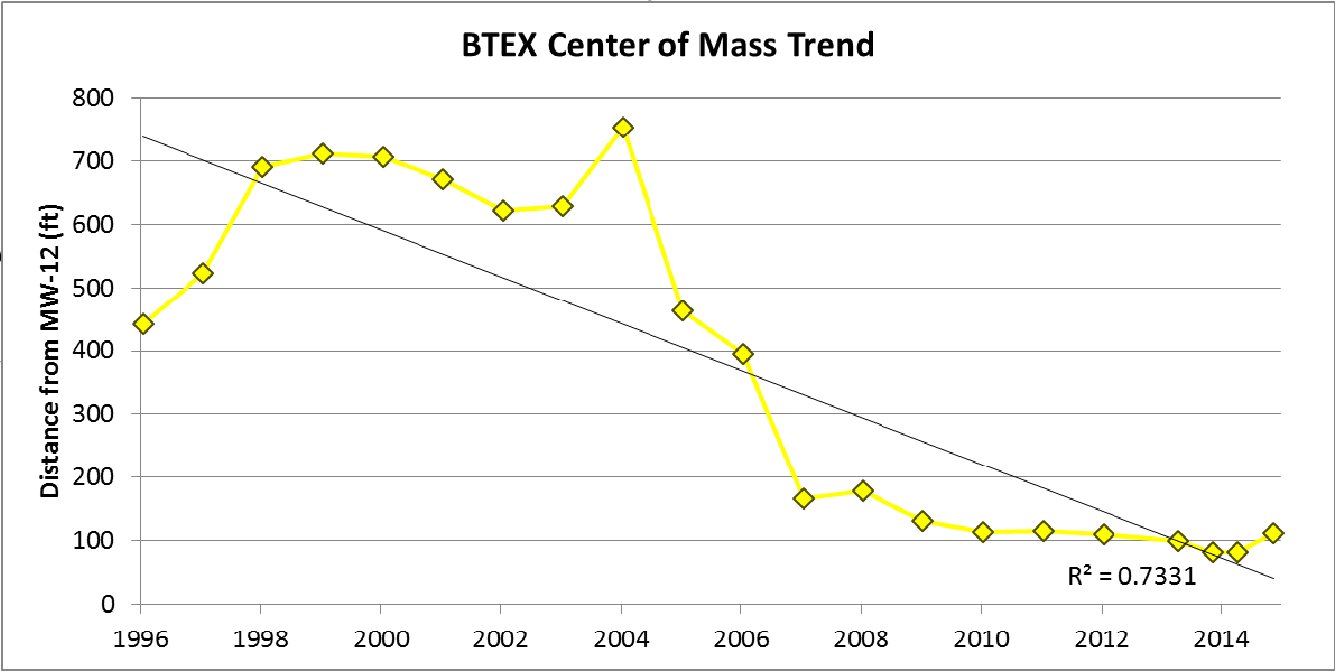
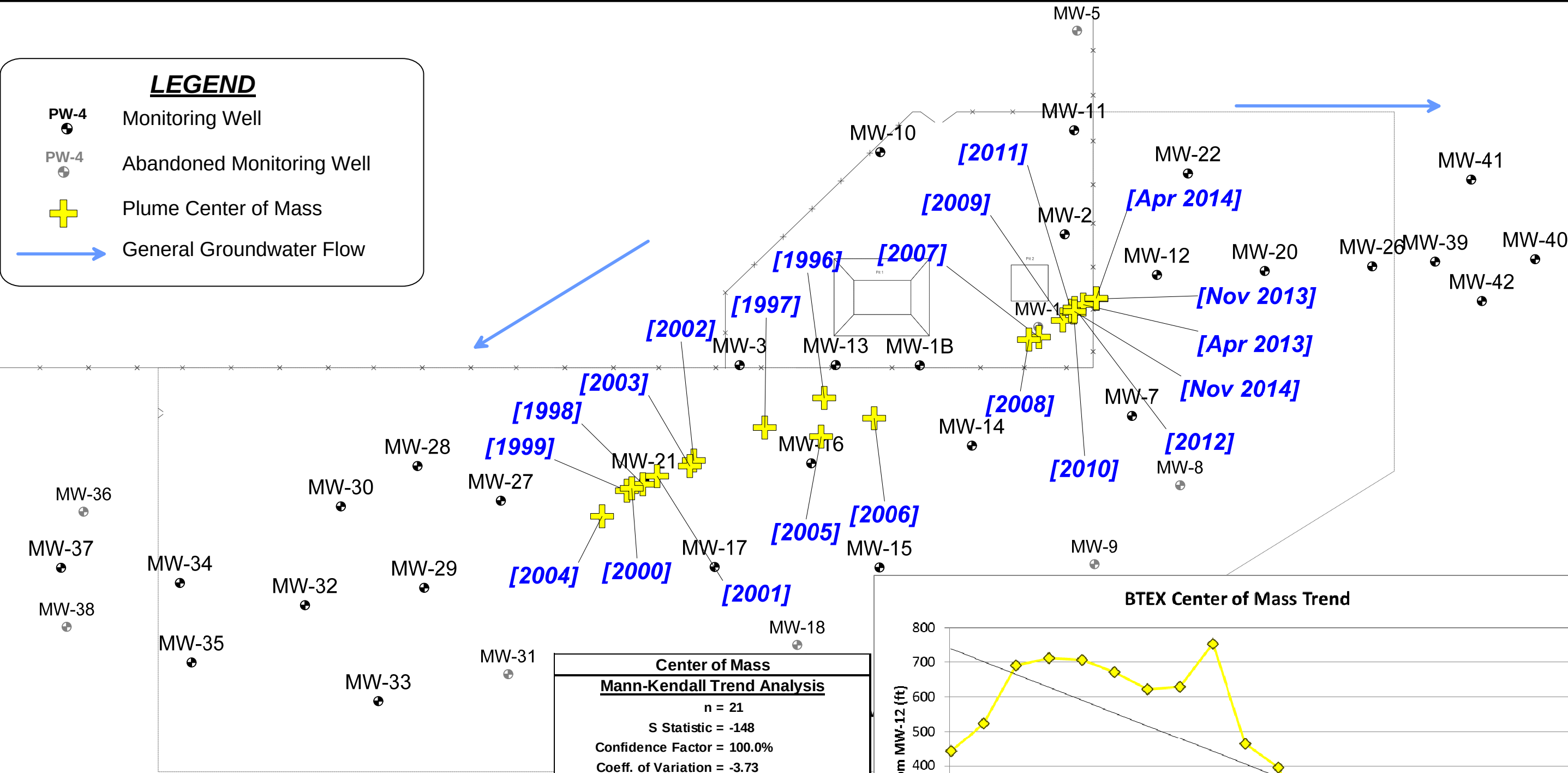
BTEX Plume Stability Analysis Summary

DRAWN: MAF CHECKED: EWL DATE: March 5, 2015 FIGURE NO: 3

LEGEND
 PW-4 Monitoring Well
 PW-4 Abandoned Monitoring Well
 Plume Center of Mass
 General Groundwater Flow



LEGEND
 PW-4 Monitoring Well
 PW-4 Abandoned Monitoring Well
 Plume Center of Mass
 General Groundwater Flow



Center of Mass
Mann-Kendall Trend Analysis
n = 21
S Statistic = -148
Confidence Factor = 100.0%
Coeff. of Variation = -3.73
Conclusion: <u>Upgradient Trend</u>
Linear Regression Trend Analysis
n = 21
Slope = -37.03
R ² = 0.73
Confidence Factor = 100.0%
Coeff. of Variation = -3.73
Conclusion: <u>Upgradient Trend</u>

Notes:
Sampling events were averaged in 1996-2012.

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BTEX Plume Center of Mass Summary

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