March 13, 2020

Ms. Ellen Jackson
Maryland Department of the Environment
Oil Control Program
1800 Washington Boulevard, Suite 620
Baltimore, Maryland 21230-1719

Re: **Monitoring Well Abandonment Request**
Gasoline Fueling Station – Royal Farms #64
7950 Pulaski Highway
Baltimore, Maryland 21237
MDE Case No. 2010-0339-BA
MDE Facility ID No. 3975

Dear Ms. Jackson,

In response to the Maryland Department of the Environment (MDE) Oil Control Program (OCP) correspondence, dated March 4, 2020,Two Farms, Inc. respectfully requests to abandon the following monitoring wells located at Royal Farms #64 (i.e., the "Site"): MW-3, MW-6, MW-9, MW-10, MW-11, MW-12, MW-13, MW-18, MW-19, MW-20, MW-25, and MW-30.

Each of these monitoring wells were selected for abandonment based on the following criteria:

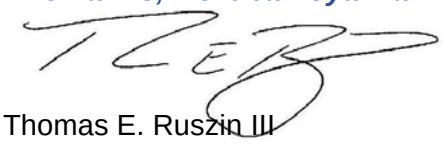
- Each monitoring well is not required for quarterly or semi-annual sampling by the MDE.
- No recovery wells were selected for abandonment.
- The Mann-Kendall statistical analysis for each well determined only "decreasing," "probably decreasing," "stable," or "no trend" for the dissolved concentrations of each of the three hydrocarbon constituents (benzene, methyl tert-butyl ether [MTBE], and naphthalene).
- For each instance where "no trend" for a hydrocarbon constituent was determined, the concentration of that constituent did not exceed 10 micrograms per liter (µg/L) for the last sampling event and also did not exceed 100 µg/L in the last two years of sampling.

A Monitoring Well Location Map showing the location of each monitoring well is included as Attachment A. Wells selected for abandonment are circled in red. Mann-Kendall statistical analyses for each well selected for abandonment are included as Attachment B. The MDE OCP correspondence is included as Attachment C.

Should you have any questions regarding the contents of this letter, please contact the undersigned at 410.812.9324 or truszin@royalfarms.com.

Sincerely,

Two Farms, Inc. dba Royal Farms

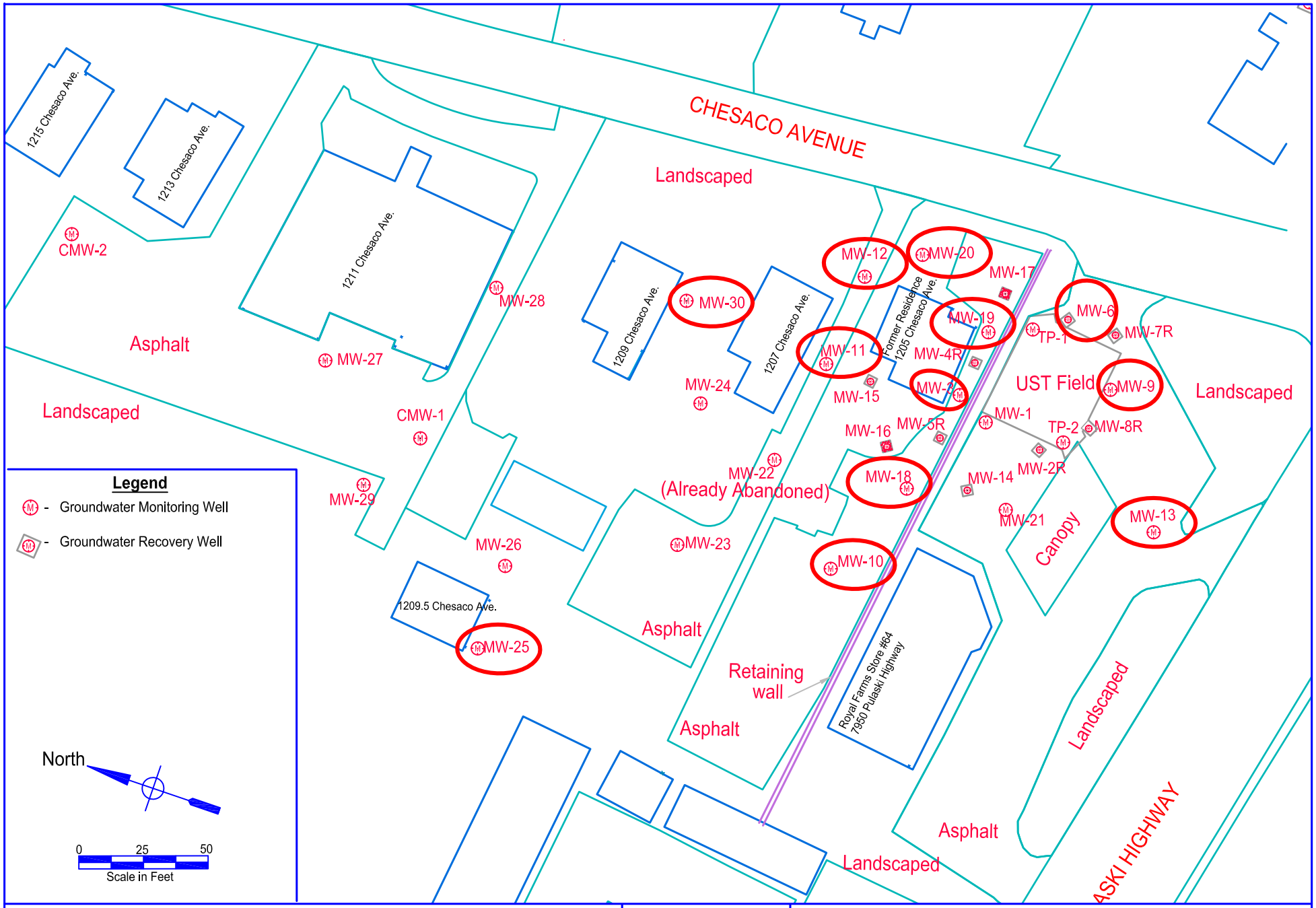


Thomas E. Ruszin III
Environmental & Fuel Leader

Cc: Mr. Andrew Miller, MDE OCP
Mr. Jeffrey Stein, Advantage Environmental Consultants, LLC
Ms. Debbie Cvach

Attachments

Attachment A



Advantage Environmental Consultants, LLC
8610 Washington Blvd. Suite 217
Jessup, MD 20794
Phone 301-776-0500
Fax 301-776-1123

Drawn by: STD

Project No. 05-056-RF064

Date: March 2020

Figure 1 - MW Abandonment Map
Royal Farms No. 64
7950 Pulaski Highway
Baltimore, MD 21237

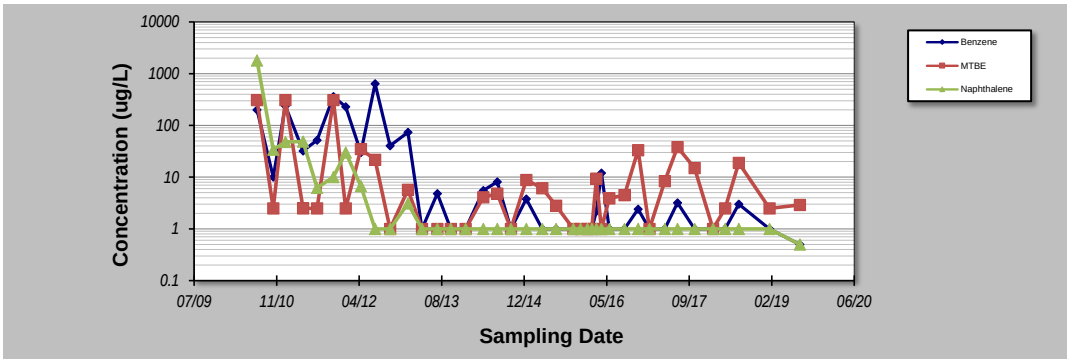
Attachment B

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 24-Jul-19
Facility Name: RF-64
Conducted By: AEC

Job ID: 05-056
Sampling Point ID: MW-3
Concentration Units: ug/L

Constituent	Benzene	MTBE	Naphthalene				
Sampling Event	Sampling Date	MW-3 CONCENTRATION (ug/L)						
1	7/22/2010	200	**310**	**1800**				
2	10/28/2010	10	2.5	**34.0**				
3	1/10/2011	240	**310**	**48.0**				
4	4/27/2011	32	2.5	**49.0**				
5	7/21/2011	52	2.5	**6.2**				
6	10/28/2011	360	**310.0**	**10.0**				
7	1/10/2012	230	2.5	**30.0**				
8	4/11/2012	30	**35.0**	**6.7**				
9	7/6/2012	639	**21.7**	1.0				
10	10/5/2012	40.4	1.0	1.0				
11	1/21/2013	73.4	**5.7**	**3.1**				
12	4/17/2013	1.0	1.0	1.0				
13	7/19/2013	**4.8**	1.0	1.0				
14	10/8/2013	1.0	1.0	1.0				
15	1/6/2014	1.0	1.0	1.0				
16	4/23/2014	**5.5**	4.1	1.0				
17	7/17/2014	**8.1**	4.8	1.0				
18	10/8/2014	1.0	1.0	1.0				
19	1/9/2015	3.8	8.8	1.0				
20	4/15/2015	1.0	6.1	1.0				
21	7/8/2015	1.0	2.8	1.0				
22	10/21/2015	1.0	1.0	1.0				
23	12/3/2015	1.0	1.0	1.0				
24	1/14/2016	1.0	1.0	1.0				
25	2/10/2016	1.0	1.0	1.0				
26	3/9/2016	2.2	9.4	1.0				
27	4/8/2016	12.0	1.0	1.0				
28	5/25/2016	1.0	3.9	1.0				
29	8/25/2016	1.0	4.5	1.0				
30	11/16/2016	2.4	33.1	1.0				
31	1/24/2017	1.0	1.0	1.0				
32	4/27/2017	1.0	8.4	1.0				
33	7/13/2017	3.2	38.0	1.0				
34	10/25/2017	1.0	15.0	1.0				
35	2/13/2018	1.0	1.0	1.0				
36	4/27/2018	1.0	2.5	1.0				
37	7/19/2018	3.0	18.9	1.0				
38	1/22/2019	1.0	2.5	1.0				
39	7/24/2019	0.5	2.9	0.5				
40								
Coefficient of Variation:		2.49	2.72	5.56				
Mann-Kendall Statistic (S):		-350	-37	-317				
Confidence Factor:		>99.9%	67.0%	>99.9%				
Concentration Trend:		Decreasing	No Trend	Decreasing				



Notes:

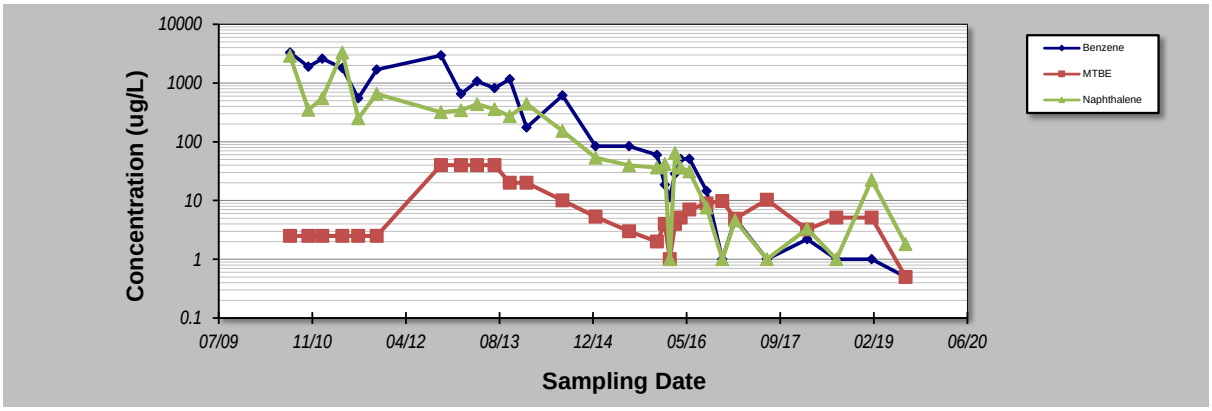
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 24-Jul-19
Facility Name: RF-64
Conducted By: AEC

Job ID: 05-056
Sampling Point ID: MW-6
Concentration Units: ug/L

Constituent	Benzene	MTBE	Naphthalene				
Sampling Event	Sampling Date	MW-6 CONCENTRATION (ug/L)						
1	7/22/2010	3,300	2.5	**2900.0**				
2	10/28/2010	1,900	2.5	**350.0**				
3	1/10/2011	2,600	2.5	**550.0**				
4	4/27/2011	1,800	2.5	**3300.0**				
5	7/21/2011	550	2.5	**250.0**				
6	10/28/2011	1,700	2.5	**650.0**				
7	10/5/2012	2,940	40.0	**318.0**				
8	1/21/2013	652	40.0	**343.0**				
9	4/17/2013	1,070	40.0	**436.0**				
10	7/19/2013	820	40.0	**358.0**				
11	10/8/2013	1,160	20.0	**272.0**				
12	1/6/2014	175	20.0	**442.0**				
13	7/17/2014	615	10.0	153.0				
14	1/9/2015	84	5.3	53.5				
15	7/8/2015	84.1	3.0	39.7				
16	12/3/2015	59.5	2.0	36.3				
17	1/14/2016	18.5	**4.0**	**41.8**				
18	2/10/2016	11.4	1.0	1.0				
19	3/9/2016	28.5	4.0	64.3				
20	4/8/2016	50.6	**5.1**	**36.2**				
21	5/25/2016	51.3	7.0	31.2				
22	8/25/2016	14.5	8.9	7.6				
23	11/16/2016	1.0	9.8	1.0				
24	1/24/2017	**4.9**	4.9	4.6				
25	7/13/2017	**1.0**	10.3	1.0				
26	2/13/2018	**2.2**	3.2	3.3				
27	7/19/2018	1.0	5.1	1.0				
28	1/23/2019	1.0	5.1	22.4				
29	7/24/2019	0.5	0.5	1.8				
30								
Coefficient of Variation:		1.45	1.23	2.13				
Mann-Kendall Statistic (S):		-336	-4	-296				
Confidence Factor:		>99.9%	52.2%	>99.9%				
Concentration Trend:		Decreasing	No Trend	Decreasing				



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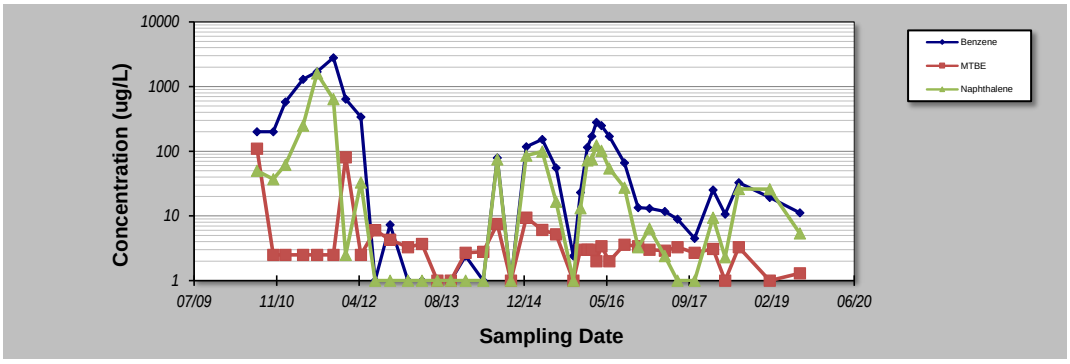
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 24-Jul-19
Facility Name: RF-64
Conducted By: AEC

Job ID: 05-056
Sampling Point ID: MW-9
Concentration Units: ug/L

Constituent	Benzene	MTBE	Naphthalene				
Sampling Event	Sampling Date	MW-9 CONCENTRATION (ug/L)						
1	7/22/2010	200	**110.0**	**50.0**				
2	10/28/2010	200	2.5	**37.0**				
3	1/10/2011	580	2.5	**62.0**				
4	4/27/2011	1,300	2.5	**250.0**				
5	7/21/2011	1,700	2.5	**1600.0**				
6	10/28/2011	2,800	2.5	**640.0**				
7	1/10/2012	640	**81.0**	2.5				
8	4/11/2012	340	2.5	**33.0**				
9	7/6/2012	1.0	**6.0**	1.0				
10	10/5/2012	7.3	**4.3**	1.0				
11	1/21/2013	1.0	**3.3**	1.0				
12	4/17/2013	1.0	**3.7**	1.0				
13	7/19/2013	1.0	1.0	1.0				
14	10/8/2013	1.0	1.0	1.0				
15	1/6/2014	2.4	**2.7**	1.0				
16	4/23/2014	1.0	**2.8**	1.0				
17	7/17/2014	**79.2**	**7.5**	**74.7**				
18	10/8/2014	1.0	1.0	1.0				
19	1/9/2015	118	9.4	85.6				
20	4/15/2015	153	6.1	99.1				
21	7/8/2015	55.4	5.2	16.6				
22	10/21/2015	2.4	1.0	1.0				
23	12/3/2015	23.1	3.0	13.2				
24	1/14/2016	115	3.0	**72.4**				
25	2/10/2016	170.0	3.0	75.6				
26	3/9/2016	281.0	2.0	123.0				
27	4/8/2016	249	3.4	**102.0**				
28	5/25/2016	170.0	2.0	54.2				
29	8/25/2016	66.2	3.6	27.4				
30	11/16/2016	13.5	3.4	3.3				
31	1/24/2017	13.1	3.0	6.4				
32	4/27/2017	11.7	2.9	2.4				
33	7/13/2017	8.9	3.3	1.0				
34	10/25/2017	4.5	2.7	1.0				
35	2/13/2018	25.3	3.1	9.4				
36	4/27/2018	10.7	1.0	2.3				
37	7/19/2018	32.8	3.3	26.2				
38	1/23/2019	19.3	1.0	26.0				
39	7/24/2019	11.2	1.3	5.4				
40								
Coefficient of Variation:		2.27	2.67	3.01				
Mann-Kendall Statistic (S):		-119	-77	-65				
Confidence Factor:		92.3%	82.0%	77.9%				
Concentration Trend:		Prob. Decreasing	No Trend	No Trend				



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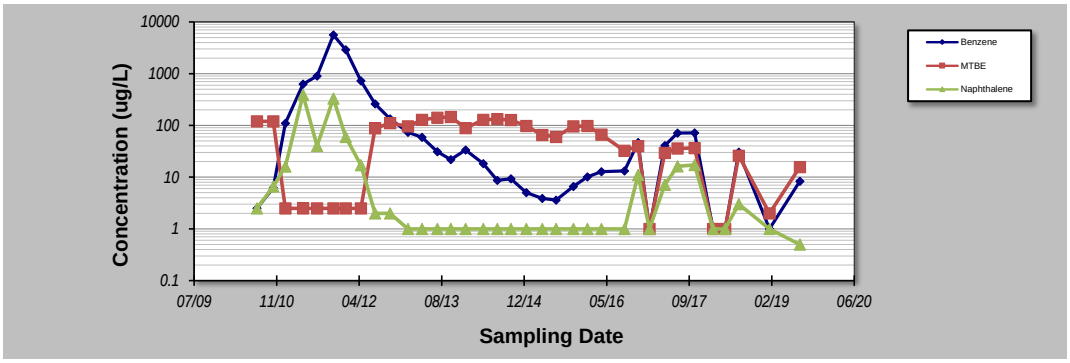
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 24-Jul-19
Facility Name: RF-64
Conducted By: AEC

Job ID: 05-056
Sampling Point ID: MW-10
Concentration Units: ug/L

Constituent	Benzene	MTBE	Naphthalene				
Sampling Event	Sampling Date	MW-10 CONCENTRATION (ug/L)						
1	7/22/2010	2.5	**120.0**	2.5				
2	10/28/2010	**6.2**	**120.0**	**6.6**				
3	1/10/2011	**110**	**2.5**	**16.0**				
4	4/27/2011	**630**	**2.5**	**390.0**				
5	7/21/2011	900.0	**2.5**	**40.0**				
6	10/28/2011	5600.0	**2.5**	**330.0**				
7	1/10/2012	2900.0	**2.5**	**60.0**				
8	4/11/2012	730.0	**2.5**	**17.0**				
9	7/6/2012	260.0	**88.1**	2.0				
10	10/5/2012	**134.0**	**111.0**	**2.0**				
11	1/21/2013	**73.3**	**95.5**	**1.0**				
12	4/17/2013	**58.8**	**128.0**	**1.0**				
13	7/19/2013	**31.1**	**141.0**	1.0				
14	10/8/2013	**21.9**	**146.0**	1.0				
15	1/6/2014	33.6	**88.8**	1.0				
16	4/23/2014	18.3	**128.0**	1.0				
17	7/17/2014	**8.7**	**133.0**	1.0				
18	10/8/2014	9.3	**127**	1.0				
19	1/9/2015	**5**	**97.7**	1.0				
20	4/15/2015	**3.9**	**65.4**	1.0				
21	7/8/2015	**3.6**	**60.1**	1.0				
22	10/21/2015	**6.6**	**95.8**	1.0				
23	1/14/2016	**10.1**	**97.5**	1.0				
24	4/8/2016	**12.8**	**66.5**	1.0				
25	8/25/2016	**13.2**	**32.3**	1.0				
26	11/16/2016	**46.8**	**39.6**	**11**				
27	1/24/2017	**1.0**	**1.0**	1.0				
28	4/27/2017	**40.9**	**29.4**	**7.1**				
29	7/13/2017	**70.8**	**36**	**16.2**				
30	10/25/2017	**71.6**	**36.6**	**17.2**				
31	2/13/2018	1.0	1.0	1.0				
32	4/27/2018	1.0	1.0	1.0				
33	7/19/2018	30.4	25.9	3.0				
34	1/22/2019	1.0	2.0	1.0				
35	7/24/2019	8.3	15.6	0.5				
36								
37								
38								
39								
40								
Coefficient of Variation:		**3.11**	**0.84**	**3.14**				
Mann-Kendall Statistic (S):		**-229**	**-147**	**-167**				
Confidence Factor:		**100.0%**	**98.1%**	**99.1%**				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



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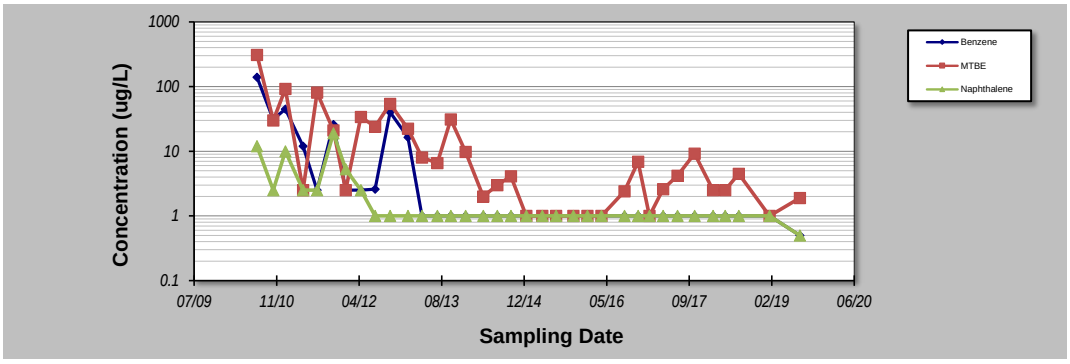
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **24-Jul-19**
Facility Name: **RF-64**
Conducted By: **AEC**

Job ID: **05-056**
Sampling Point ID: **MW-11**
Concentration Units: **ug/L**

Constituent	Benzene	MTBE	Naphthalene				
Sampling Event	Sampling Date	MW-11 CONCENTRATION (ug/L)						
1	7/22/2010	140	**310.0**	**12.0**				
2	10/28/2010	31	**30.0**	2.5				
3	1/10/2011	45	**92.0**	**10.0**				
4	4/27/2011	12	2.5	2.5				
5	7/21/2011	2.5	**81.0**	2.5				
6	10/28/2011	26	**21.0**	**19.0**				
7	1/10/2012	2.5	**2.5**	**5.3**				
8	4/11/2012	2.5	**34.0**	2.5				
9	7/6/2012	2.6	**24.0**	1.0				
10	10/5/2012	40	**54.0**	1.0				
11	1/21/2013	16.5	**22.3**	1.0				
12	4/17/2013	1.0	**8.0**	1.0				
13	7/19/2013	1.0	**6.6**	1.0				
14	10/8/2013	1.0	**31.0**	1.0				
15	1/6/2014	1.0	**9.8**	1.0				
16	4/23/2014	1.0	**2.0**	1.0				
17	7/17/2014	1.0	**3.0**	1.0				
18	10/8/2014	1.0	**4.1**	1.0				
19	1/9/2015	1.0	1.0	1.0				
20	4/15/2015	1.0	1.0	1.0				
21	7/8/2015	1.0	1.0	1.0				
22	10/21/2015	1.0	1.0	1.0				
23	1/14/2016	1.0	1.0	1.0				
24	4/8/2016	1.0	1.0	1.0				
25	8/25/2016	1.0	2.4	1.0				
26	11/16/2016	1.0	6.9	1.0				
27	1/24/2017	1.0	1.0	1.0				
28	4/17/2017	1.0	2.6	1.0				
29	7/13/2017	1.0	4.2	1.0				
30	10/25/2017	1.0	9.2	1.0				
31	2/13/2018	1.0	2.5	1.0				
32	4/27/2018	1.0	2.5	1.0				
33	7/19/2018	1.0	4.5	1.0				
34	1/22/2019	1.0	1.0	1.0				
35	7/24/2019	0.5	1.9	0.5				
36								
37								
38								
39								
40								
Coefficient of Variation:		2.58	2.44	1.60				
Mann-Kendall Statistic (S):		-303	-263	-246				
Confidence Factor:		>99.9%	>99.9%	>99.9%				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



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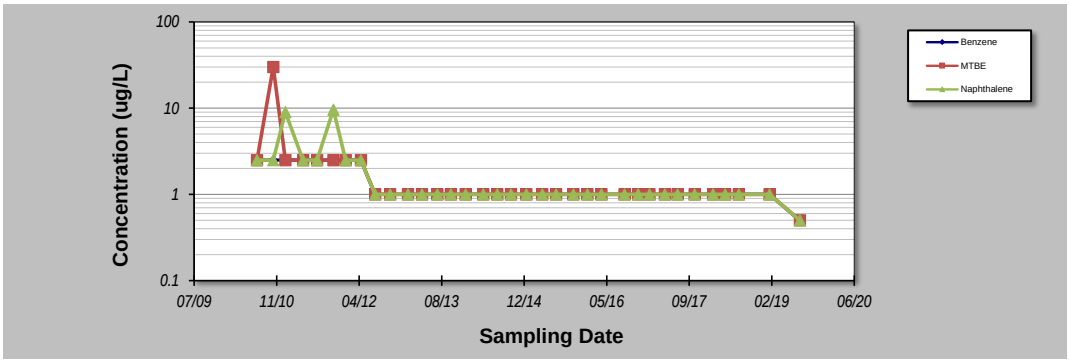
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 24-Jul-19
Facility Name: RF-64
Conducted By: AEC

Job ID: 05-056
Sampling Point ID: MW-12
Concentration Units: ug/L

Constituent	Benzene	MTBE	Naphthalene				
Sampling Event	Sampling Date	MW-12 CONCENTRATION (ug/L)						
1	7/22/2010	2.5	2.5	2.5				
2	10/28/2010	2.5	**30.0**	2.5				
3	1/10/2011	2.5	2.5	**9.0**				
4	4/27/2011	2.5	2.5	2.5				
5	7/21/2011	2.5	2.5	2.5				
6	10/28/2011	2.5	2.5	**9.6**				
7	1/10/2012	2.5	2.5	2.5				
8	4/11/2012	2.5	2.5	2.5				
9	7/6/2012	1.0	1.0	1.0				
10	10/5/2012	1.0	1.0	1.0				
11	1/21/2013	1.0	1.0	1.0				
12	4/17/2013	1.0	1.0	1.0				
13	7/19/2013	1.0	1.0	1.0				
14	10/8/2013	1.0	1.0	1.0				
15	1/6/2014	1.0	1.0	1.0				
16	4/23/2014	1.0	1.0	1.0				
17	7/17/2014	1.0	1.0	1.0				
18	10/8/2014	1.0	1.0	1.0				
19	1/9/2015	1.0	1.0	1.0				
20	4/15/2015	1.0	1.0	1.0				
21	7/8/2015	1.0	1.0	1.0				
22	10/21/2015	1.0	1.0	1.0				
23	1/14/2016	1.0	1.0	1.0				
24	4/8/2016	1.0	**1.0**	**1.0**				
25	8/25/2016	1.0	**1.0**	**1.0**				
26	11/16/2016	1.0	**1.0**	**1.0**				
27	1/24/2017	1.0	1.0	1.0				
28	4/27/2017	1.0	1.0	1.0				
29	7/13/2017	1.0	1.0	1.0				
30	10/25/2017	1.0	1.0	1.0				
31	2/13/2018	1.0	1.0	1.0				
32	4/27/2018	1.0	1.0	1.0				
33	7/19/2018	1.0	1.0	1.0				
34	1/22/2019	1.0	1.0	1.0				
35	7/24/2019	0.5	0.5	0.5				
36								
37								
38								
39								
40								
Coefficient of Variation:		0.49	2.31	1.15				
Mann-Kendall Statistic (S):		-242	-247	-241				
Confidence Factor:		>99.9%	>99.9%	>99.9%				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



Notes:

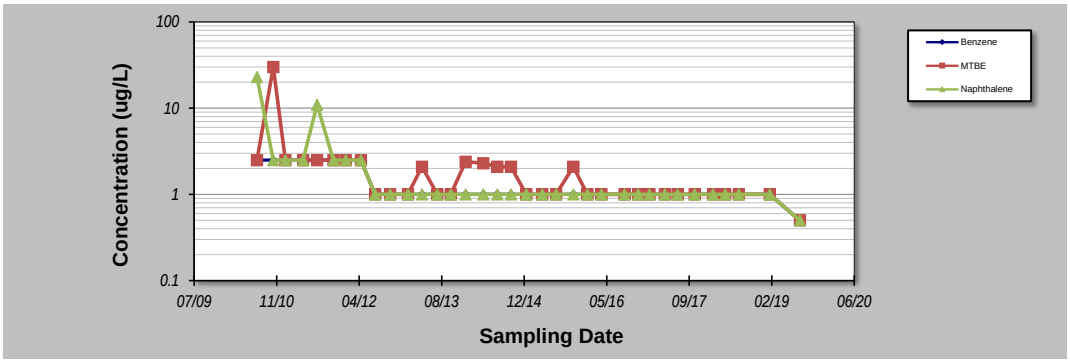
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 24-Jul-19
Facility Name: RF-64
Conducted By: AEC

Job ID: 05-056
Sampling Point ID: MW-13
Concentration Units: ug/L

Constituent	Benzene	MTBE	Naphthalene				
Sampling Event	Sampling Date	MW-13 CONCENTRATION (ug/L)						
1	7/22/2010	2.5	2.5	**23.0**				
2	10/28/2010	2.5	**30.0**	2.5				
3	1/10/2011	2.5	2.5	2.5				
4	4/27/2011	2.5	2.5	2.5				
5	7/21/2011	2.5	2.5	**11.0**				
6	10/28/2011	2.5	2.5	2.5				
7	1/10/2012	2.5	2.5	2.5				
8	4/11/2012	2.5	2.5	2.5				
9	7/6/2012	1.0	1.0	1.0				
10	10/5/2012	1.0	1.0	1.0				
11	1/21/2013	1.0	1.0	1.0				
12	4/17/2013	1.0	**2.1**	1.0				
13	7/19/2013	1.0	1.0	1.0				
14	10/8/2013	1.0	1.0	1.0				
15	1/6/2014	1.0	**2.4**	1.0				
16	4/23/2014	1.0	**2.3**	1.0				
17	7/17/2014	1.0	**2.1**	1.0				
18	10/8/2014	1.0	**2.1**	1.0				
19	1/9/2015	1.0	1.0	1.0				
20	4/15/2015	1.0	1.0	1.0				
21	7/8/2015	1.0	1.0	1.0				
22	10/21/2015	1.0	**2.1**	1.0				
23	1/14/2016	1.0	**1.0**	**1.0**				
24	4/8/2016	1.0	**1.0**	**1.0**				
25	8/25/2016	1.0	**1.0**	**1.0**				
26	11/16/2016	1.0	**1.0**	**1.0**				
27	1/24/2017	1.0	1.0	1.0				
28	4/27/2017	1.0	**1.0**	**1.0**				
29	7/13/2017	1.0	**1.0**	**1.0**				
30	10/25/2017	1.0	**1.0**	**1.0**				
31	2/13/2018	1.0	1.0	1.0				
32	4/27/2018	1.0	1.0	1.0				
33	7/19/2018	1.0	1.0	1.0				
34	1/23/2019	1.0	1.0	1.0				
35	7/24/2019	0.5	0.5	0.5				
36								
37								
38								
39								
40								
Coefficient of Variation:		0.49	2.10	1.87				
Mann-Kendall Statistic (S):		-242	-310	-249				
Confidence Factor:		>99.9%	>99.9%	>99.9%				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



Notes:

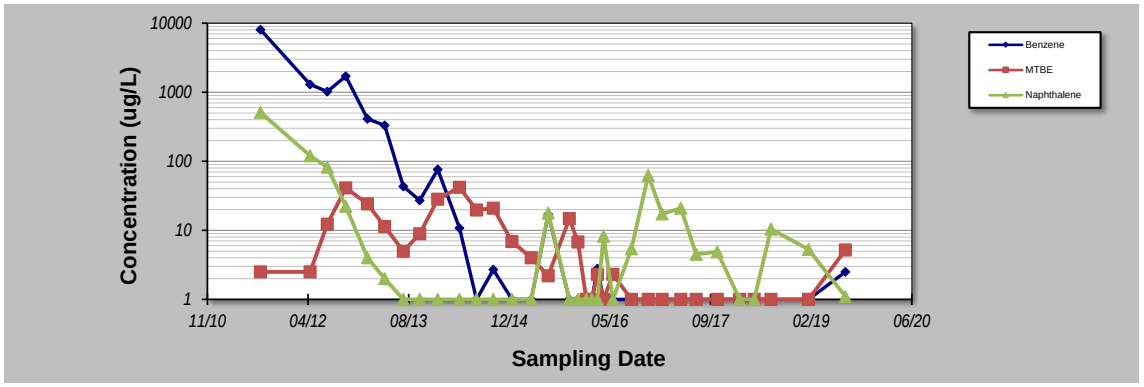
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 24-Jul-19
Facility Name: RF-64
Conducted By: AEC

Job ID: 05-056
Sampling Point ID: MW-18
Concentration Units: ug/L

Constituent	Benzene	MTBE	Naphthalene				
Sampling Event	Sampling Date	MW-18 CONCENTRATION (ug/L)						
1	8/9/2011	**8,050**	2.5	**511.0**				
2	4/11/2012	**1,300**	2.5	**120.0**				
3	7/6/2012	**1,020**	**12.3**	**82.4**				
4	10/5/2012	**1,700**	**41.3**	**22.3**				
5	1/21/2013	**413**	**24.1**	4.0				
6	4/17/2013	**332**	**11.3**	2.0				
7	7/19/2013	**43.2**	**5.0**	1.0				
8	10/8/2013	**27.1**	**8.9**	1.0				
9	1/6/2014	**76.4**	**28.3**	1.0				
10	4/23/2014	**10.8**	**42.0**	1.0				
11	7/17/2014	1.0	**19.7**	1.0				
12	10/8/2014	**2.7**	**21.0**	1.0				
13	1/9/2015	1.0	6.9	1.0				
14	4/15/2015	1.0	4.0	1.0				
15	7/8/2015	**17.1**	2.2	**17.8**				
16	10/21/2015	1.0	14.8	1.0				
17	12/3/2015	1.0	6.8	1.0				
18	1/14/2016	1.0	1.0	1.0				
19	2/10/2016	1.0	1.0	1.0				
20	3/9/2016	2.8	2.3	1.0				
21	4/8/2016	**1.0**	**1.0**	**8.2**				
22	5/25/2016	1.0	2.3	1.0				
23	8/25/2016	**1.0**	**1.0**	**5.4**				
24	11/16/2016	**1.0**	**1.0**	**62.4**				
25	1/24/2017	**1.0**	**1.0**	**17.3**				
26	4/27/2017	**1.0**	**1.0**	**21.0**				
27	7/13/2017	**1.0**	**1.0**	**4.5**				
28	10/25/2017	**1.0**	**1.0**	**4.9**				
29	2/13/2018	1.0	1.0	1.0				
30	4/27/2018	1.0	1.0	1.0				
31	7/19/2018	1.0	1.0	**10.4**				
32	1/22/2019	1.0	1.0	**5.3**				
33	7/24/2019	2.5	5.2	**1.1**				
34								
35								
Coefficient of Variation:		**3.63**	**1.36**	**3.26**				
Mann-Kendall Statistic (S):		**-283**	**-268**	**-28**				
Confidence Factor:		**>99.9%**	**>99.9%**	**66.1%**				
Concentration Trend:		Decreasing	Decreasing	No Trend				



Notes:

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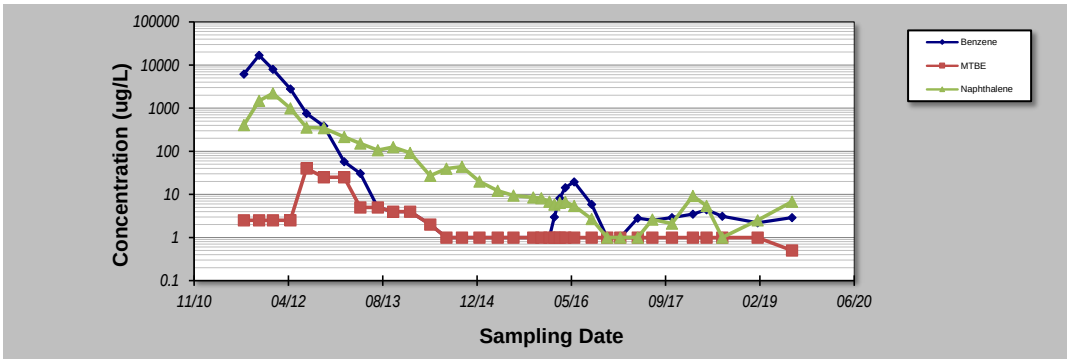
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **24-Jul-19**
Facility Name: **RF-64**
Conducted By: **AEC**

Job ID: **05-056**
Sampling Point ID: **MW-19**
Concentration Units: **ug/L**

Constituent	Benzene	MTBE	Naphthalene				
Sampling Event	Sampling Date	MW-19 CONCENTRATION (ug/L)						
1	8/9/2011	6,180	2.5	**405.0**				
2	10/28/2011	16,800	2.5	**1484.0**				
3	1/10/2012	8,000	2.5	**2200.0**				
4	4/11/2012	2,800	2.5	**990.0**				
5	7/6/2012	749	40.0	**356.0**				
6	10/5/2012	388	25.0	**345.0**				
7	1/21/2013	57.4	25.0	**215.0**				
8	4/17/2013	30.5	5.0	**152.0**				
9	7/19/2013	5.0	5.0	**106.0**				
10	10/8/2013	4.0	4.0	**125.0**				
11	1/6/2014	4.0	4.0	**92.1**				
12	4/23/2014	2.0	2.0	**27.0**				
13	7/17/2014	1.0	1.0	**39.8**				
14	10/8/2014	1.0	1.0	**43.8**				
15	1/9/2015	1.0	1.0	20.0				
16	4/15/2015	1.0	1.0	12.2				
17	7/8/2015	1.0	1.0	9.4				
18	10/21/2015	1.0	1.0	8.5				
19	12/3/2015	1.0	1.0	8.2				
20	1/14/2016	1.0	1.0	6.8				
21	2/10/2016	3.0	1.0	5.8				
22	3/9/2016	8.2	1.0	6.4				
23	4/8/2016	14.4	1.0	6.7				
24	5/25/2016	19.6	1.0	5.4				
25	8/25/2016	5.9	1.0	2.7				
26	11/16/2016	1.0	1.0	1.0				
27	1/24/2017	1.0	1.0	1.0				
28	4/27/2017	**2.8**	1.0	1.0				
29	7/13/2017	**2.5**	1.0	**2.6**				
30	10/25/2017	**2.9**	1.0	**2.1**				
31	2/13/2018	**3.5**	1.0	**9.2**				
32	4/27/2018	**4.4**	1.0	**5.4**				
33	7/19/2018	**3.1**	1.0	1.0				
34	1/22/2019	**2.2**	1.0	2.5				
35	7/24/2019	**2.9**	0.5	6.8				
36								
37								
38								
39								
40								
Coefficient of Variation:		3.23	2.06	2.41				
Mann-Kendall Statistic (S):		-200	-299	-479				
Confidence Factor:		99.8%	>99.9%	>99.9%				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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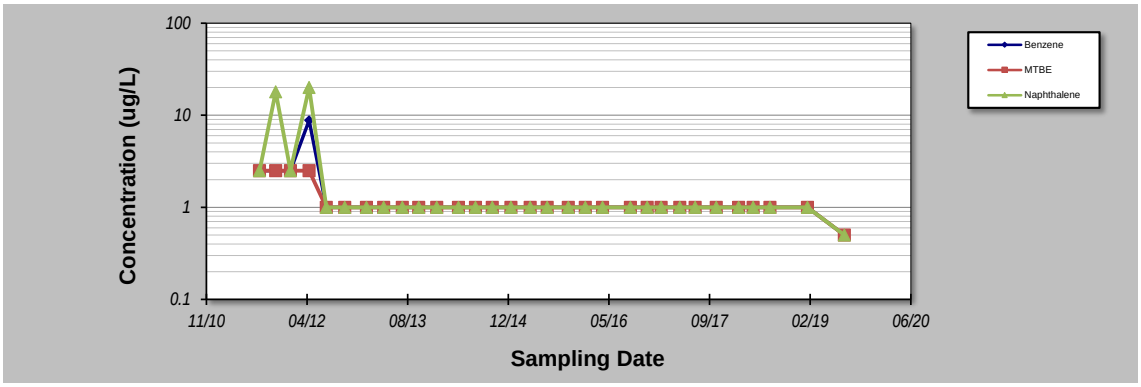
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	24-Jul-19	Job ID:	05-056
Facility Name:	RF-64	Sampling Point ID:	MW-20
Conducted By:	AEC	Concentration Units:	ug/L

Constituent	Benzene	MTBE	Naphthalene				
Sampling Event	Sampling Date	MW-20 CONCENTRATION (ug/L)						
1	8/9/2011	**2.5**	**2.5**	**2.5**				
2	10/28/2011	**2.5**	**2.5**	**18.0**				
3	1/10/2012	**2.5**	**2.5**	2.5				
4	4/11/2012	8.8	**2.5**	**20.0**				
5	7/6/2012	**1.0**	**1.0**	**1.0**				
6	10/5/2012	**1.0**	**1.0**	**1.0**				
7	1/21/2013	**1.0**	**1.0**	**1.0**				
8	4/17/2013	**1.0**	**1.0**	**1.0**				
9	7/19/2013	**1.0**	**1.0**	**1.0**				
10	10/8/2013	**1.0**	**1.0**	**1.0**				
11	1/6/2014	**1.0**	**1.0**	**1.0**				
12	4/23/2014	**1.0**	**1.0**	**1.0**				
13	7/17/2014	**1.0**	**1.0**	**1.0**				
14	10/8/2014	**1.0**	**1.0**	**1.0**				
15	1/9/2015	**1.0**	**1.0**	**1.0**				
16	4/15/2015	**1.0**	**1.0**	**1.0**				
17	7/8/2015	**1.0**	**1.0**	**1.0**				
18	10/21/2015	**1.0**	**1.0**	**1.0**				
19	1/14/2016	**1.0**	**1.0**	**1.0**				
20	4/8/2016	**1.0**	**1.0**	**1.0**				
21	8/25/2016	**1.0**	**1.0**	**1.0**				
22	11/16/2016	**1.0**	**1.0**	**1.0**				
23	1/24/2017	**1.0**	**1.0**	**1.0**				
24	4/27/2017	**1.0**	**1.0**	**1.0**				
25	7/13/2017	**1.0**	**1.0**	**1.0**				
26	10/25/2017	**1.0**	**1.0**	**1.0**				
27	2/13/2018	**1.0**	**1.0**	**1.0**				
28	4/27/2018	**1.0**	**1.0**	**1.0**				
29	7/19/2018	**1.0**	**1.0**	**1.0**				
30	1/22/2019	**1.0**	**1.0**	**1.0**				
31	7/24/2019	**0.5**	**0.5**	**0.5**				
32								
33								
34								
35								
Coefficient of Variation:		**1.05**	**0.45**	**2.01**				
Mann-Kendall Statistic (S):		**-131**	**-134**	**-131**				
Confidence Factor:		**98.7%**	**98.9%**	**98.7%**				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



Notes:

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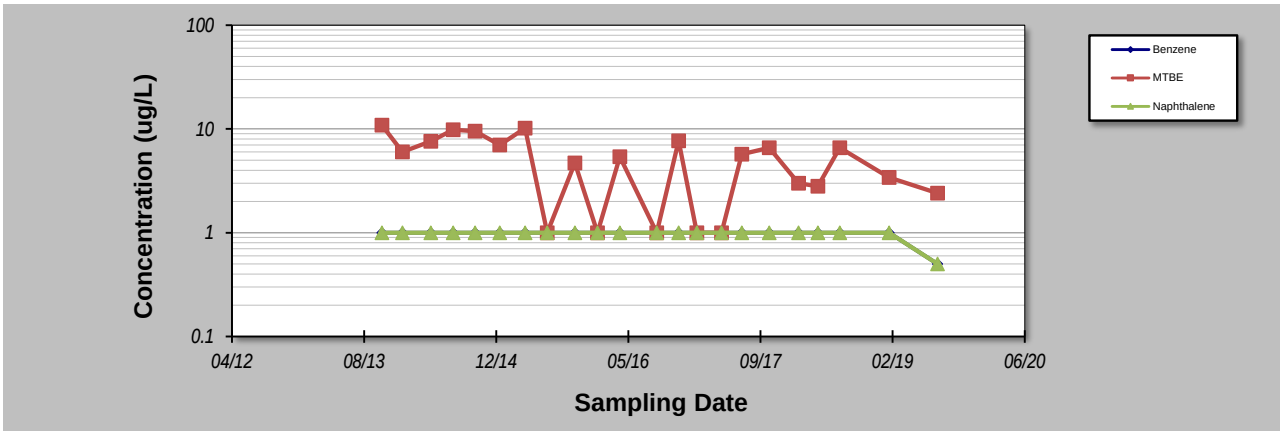
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **24-Jul-19**
Facility Name: **RF-64**
Conducted By: **AEC**

Job ID: **05-056**
Sampling Point ID: **MW-25**
Concentration Units: **ug/L**

Sampling Event	Sampling Date	Benzene	MTBE	Naphthalene				
		MW-25 CONCENTRATION (ug/L)						
1	10/20/2013	1.0	10.9	1.0				
2	1/6/2014	1.0	**6.0**	1.0				
3	4/23/2014	1.0	**7.6**	1.0				
4	7/17/2014	1.0	**9.8**	1.0				
5	10/8/2014	1.0	**9.5**	1.0				
6	1/9/2015	1.0	**7.0**	1.0				
7	4/15/2015	1.0	**10.2**	1.0				
8	7/8/2015	1.0	1.0	1.0				
9	10/21/2015	1.0	**4.7**	1.0				
10	1/14/2016	1.0	1.0	1.0				
11	4/8/2016	1.0	**5.4**	1.0				
12	8/25/2016	1.0	1.0	1.0				
13	11/16/2016	1.0	7.7	1.0				
14	1/24/2017	1.0	1.0	1.0				
15	4/27/2017	1.0	1.0	1.0				
16	7/13/2017	1.0	**5.7**	1.0				
17	10/25/2017	1.0	**6.6**	1.0				
18	2/13/2018	1.0	**3.0**	1.0				
19	4/27/2018	1.0	**2.8**	1.0				
20	7/19/2018	1.0	**6.6**	1.0				
21	1/22/2019	1.0	**3.4**	1.0				
22	7/24/2019	0.5	**2.4**	0.5				
23								
24								
25								
Coefficient of Variation:		**0.11**	**0.63**	**0.11**				
Mann-Kendall Statistic (S):		**-21**	**-76**	**-21**				
Confidence Factor:		**71.1%**	**98.4%**	**71.1%**				
Concentration Trend:		Stable	Decreasing	Stable				



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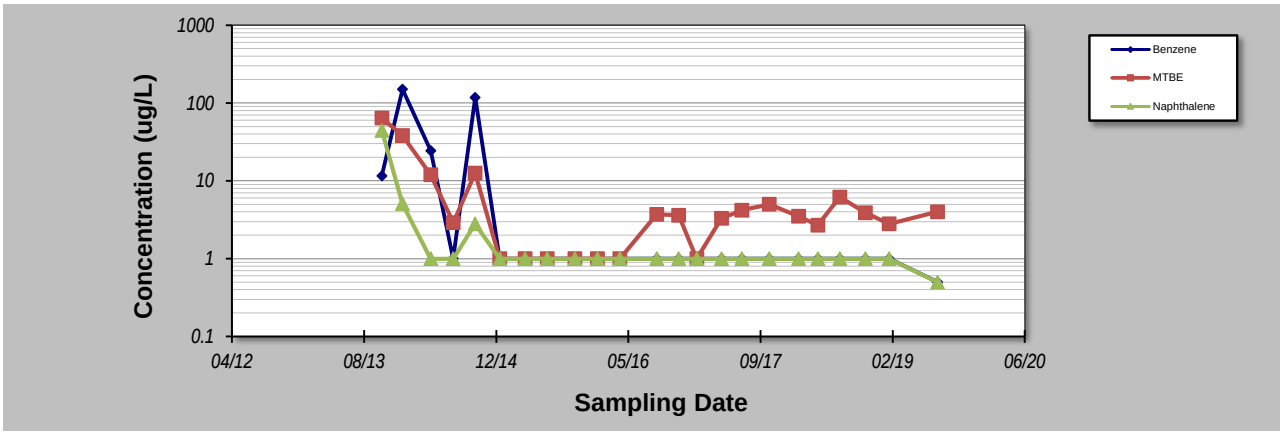
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	24-Jul-19	Job ID:	05-056
Facility Name:	RF-64	Sampling Point ID:	MW-30
Conducted By:	AEC	Concentration Units:	ug/L

Constituent	Benzene	MTBE	Naphthalene				
Sampling Event	Sampling Date	MW-30 CONCENTRATION (ug/L)						
1	10/20/2013	11.6	64.0	**44.5**				
2	1/6/2014	150	**38.2**	**5.1**				
3	4/23/2014	24.3	**12.0**	1.0				
4	7/17/2014	1.0	**2.9**	1.0				
5	10/8/2014	118	**12.6**	2.8				
6	1/9/2015	1.0	1.0	1.0				
7	4/15/2015	1.0	1.0	1.0				
8	7/8/2015	1.0	1.0	1.0				
9	10/21/2015	1.0	1.0	1.0				
10	1/14/2016	1.0	1.0	1.0				
11	4/8/2016	1.0	1.0	1.0				
12	8/25/2016	1.0	3.7	1.0				
13	11/16/2016	1.0	3.6	1.0				
14	1/24/2017	1.0	1.0	1.0				
15	4/27/2017	1.0	**3.3**	1.0				
16	7/13/2017	1.0	**4.2**	1.0				
17	10/25/2017	1.0	**5.0**	1.0				
18	2/13/2018	1.0	**3.5**	1.0				
19	4/27/2018	1.0	**2.7**	1.0				
20	7/19/2018	1.0	**6.2**	1.0				
21	10/24/2018	1.0	**3.9**	1.0				
22	1/22/2019	1.0	**2.8**	1.0				
23	7/24/2019	0.5	**4.0**	0.5				
24								
25								
Coefficient of Variation:		2.75	1.86	2.90				
Mann-Kendall Statistic (S):		-90	-4	-78				
Confidence Factor:		99.2%	53.2%	98.0%				
Concentration Trend:		Decreasing	No Trend	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

Attachment C

Maryland
Department of
the Environment

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor

Ben Grumbles, Secretary
Horacio Tablada, Deputy Secretary

March 4, 2020

Mr. Thomas Ruszin, III
Two Farms, Inc.
t/a Royal Farms
3611 Roland Avenue
Baltimore, MD 21211

RE: RESPONSE TO CASE CLOSURE REQUEST AND CONTINUED MONITORING REQUIREMENTS
Case No. 2010-0339-BA
Royal Farms No. 64
7950 Pulaski Highway, Rosedale
Baltimore County, Maryland
Facility I.D. No. 3975

Dear Mr. Ruszin:

The Maryland Department of the Environment's (MDE) Oil Control Program (OCP) completed a review of the case file for the above-referenced property, including the *Case Closure Request*, dated April 8, 2019; the *Request for Case Closure*, dated June 20, 2019; and the *Quarterly Progress Report - Second Quarter 2019*, dated August 16, 2019. Advantage Environmental Consultants, LLC (AEC), on behalf of Two Farms, Inc., requested case closure based on the evaluation of the seven risk factors described in MDE's *Maryland Environment Assessment Technology (MEAT) for Leaking Underground Storage Tanks* guidance document, Mann-Kendall statistical analysis of dissolved levels from the monitoring well network, potable well search, and the off-site receptor risk evaluation (Petroleum Vapor Intrusion-PVI). The OCP approved suspension of monitoring well sampling during MDE's evaluation of the case closure request and until a written response is received from MDE.

As approved in the *Correction Action Plan ("CAP") dated October 7, 2010, CAP Addendum ("CAPA")*, dated June 27, 2013, and MDE's *CAP Addendum Approval* letter, dated September 4, 2013, one of the remedial end goals for the project was the achievement of stable or decreasing trends of dissolved phase hydrocarbons in groundwater monitoring wells using Mann-Kendall statistical analyses. Based on the most recent Mann-Kendall analyses provided in the 2nd quarter 2019 report, this end goal has not been achieved. Specifically, increasing benzene concentration trends were noted in off-site monitoring wells MW-27 and CMW-1 (current concentration as of July 2019 was 129 and 152 parts per billion [ppb], respectively). Increasing or probably increasing trends were also noted in on-site wells MW-2R and MW-8R for methyl tertiary-butyl either (MTBE) and/or naphthalene.

The increasing trends of dissolved MTBE in MW-2R is not considered significant since the concentrations were all at the detection limits and the current reported concentration is 2.5 ppb. Naphthalene, however, demonstrates an increasing trend with a most recent concentration of 214 ppb. MW-8R demonstrated a probable increasing trend of naphthalene with a current concentration of 74.6 ppb. Additionally, no trend was demonstrated for one or more compounds for wells MW-1, MW-2R, MW-3, MW-5R, MW-6, MW-8R, MW-9, MW-18, MW-21, and MW-30.

The OCP has had discussions with AEC pertaining to prior Mann-Kendall analyses submitted regarding the appropriateness of the dataset used for Mann-Kendall calculations. Input data initially included assigned concentration values for wells that contained LPH but were not sampled. Another issue focused on values used when laboratory results were less than method detection or reporting limits (non-detect). AEC ran three Mann-Kendall analyses using different methods in the most recent 2nd quarter report. The first analysis used all data collected since 2010 and one-half the laboratory quantitative limit values for non-detect results. The second Mann-Kendall analysis used all laboratory data since 2010 and used a value of 1 ppb for non-detect results. The third Mann-Kendall analysis excluded the early dataset that contained elevated detection limits and used one-half the laboratory quantitative limit value for non-detections. Early dissolved phase data collected (2010 to 2012) were analyzed by a different laboratory (Anabell Laboratories), which contained non-detect results with elevated detection or reporting limits. In general, all three Mann-Kendall analyses of the three varied datasets yielded similar trends with limited exceptions.

The MDE requires that future Mann-Kendall statistical analyses be performed using all data (including the Anabell Laboratory data) and one-half the laboratory detection limit for entries when results are reported as non-detect (the first of three methods provided in the recent report). Using that statistical analysis evaluation, dissolved levels of all monitoring wells show either stable, probably declining, or declining trends with the exceptions of the calculated increasing, probably increasing, or no trends as discussed above.

Based on the increasing, probably increasing, and no trend evaluation results, the OCP requires continued quarterly monitoring of select monitoring wells. Once all wells demonstrate decreasing, probably decreasing, or stable trends based on the Mann-Kendall statistical evaluations, case closure may be requested. The OCP may consider allowing exceptions if well concentration trends are based on low level detections. An alternative contingency plan may also be proposed and discussed with the OCP to achieve case closure consideration.

The monitoring wells depicted in the following table must continue to be sample on a quarterly basis unless noted otherwise. These wells were selected based on the increasing trends in the identified wells discussed above and review of the dissolved phase data. The OCP also considered AEC's approach in prior monitoring well network selection based on sampling a set of wells within the plume source area, mid-plume area, and down-gradient plume. Once a year, all wells must continue to be sampled (4th quarter) for laboratory analysis. All wells must continue to be gauged on a quarterly basis. If LPH are detected, it must be reported to MDE within 2 hours of detection.

Table
Monitoring Well Sampling and Gauging Schedule to be Performed

Area	Current Quarterly Sampling Wells	MDE Required Quarterly Sampling	Notes
Source Area	MW-1 MW-21	MW-1, MW-21, MW-2R MW-5R, MW-8R	Additional wells added based on statistical increasing trends and concentrations detected in the wells.
Mid-Plume	MW-15, MW-23, MW-24, MW-30	MW-23, MW-24	Based on data, Royal Farms may reduce quarterly sampling to bi-annual for MW-15 and MW-30.
Down-gradient Plume	MW-26, MW-27 MW-28, MW-29 CMW-1, CMW-2	MW-26, MW-27, MW-28 MW-29, CMW-1, CMW-2	
****Note: Remaining monitoring and recovery wells must continue to be sampled on an annual basis. Gauging of all wells must be performed on a quarterly basis.**			

Groundwater samples must continue to be analyzed for full-suite volatile organic compounds (VOCs), including fuel oxygenates and naphthalene, using EPA Method 8260 and total petroleum hydrocarbons – diesel and gasoline range organics (TPH-DRO and TPH-GRO) using EPA Method 8015. If concentration trends meet the approved *CAPA* end goals (stable and/or declining trends), Two Farms, Inc. may request case closure. For future requests, a stand-alone case closure document must be provided that includes, at a minimum, the following:

- Brief history of site, with dates of milestones (i.e., dates of release, investigations performed, remediation system startup and shutdown, rebound assessment start and end; discussion of mass removal of petroleum contamination with supporting trend graphs and data tables.)
- Case Closure End Goals discussion for each goal established per the *CAP* and *CAPA* and a statement regarding if the goal was satisfied. If the goal was not satisfied, a discussion and rationale must be provided if case closure is warranted based on other cleanup goal achievements and risk evaluations.
- Reference to all pertinent documents (i.e., reference to potable well survey report soil vapor and air sampling reports, rebound assessment reports).
- Mann-Kendall statistical analyses as discussed above.
- Site maps, analytical summary data tables, trend graphs as provided in quarterly reports (groundwater concentrations and groundwater elevations with respect to time).

Based on years of dissolved sampling data, Two Farms, Inc. may also provide a request of select monitoring well abandonment for OCP consideration.

If you have any questions or concerns, please contact Ms. Ellen Jackson at 410-537-3482 (*ellen.jackson@maryland.gov*) or me at 410-537-3489 (*andrew.miller@maryland.gov*).

Sincerely,

Andrew Miller, Chief
Remediation Division
Oil Control Program

cc: Mr. Kevin Koepenick, Manager, Groundwater Management Section, Baltimore County DEPS
Ms. Ellen Jackson, Northern Region Supervisor, Remediation Division, Oil Control Program
Mr. Christopher H. Ralston, Program Manager, Oil Control Program