Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services

DATA REPORT
AND PROPOSED ADDITIONAL MONITORING

TO: Brandon Pursel, USEPA
Dave Favero, RACER TRUST
Grant Trigger, RACER TRUST

FROM: Mike Smith, Applied EcoSystems, Inc.

DATE: September 4, 2019

SUBJECT: RACER Flint West Industrial Land (#12990)
Bi-Annual Monitoring

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ATTACHMENTS:

Attachment 1: Cross Section Diagrams
Attachment 2: Groundwater Analytical Tables – Routine Monitoring
(All investigations conducted by RACER to-date)
Attachment 3: Soil and Groundwater Analytical Laboratory Reports
Attachment 4: Soil Analytical Tables (All investigations conducted by RACER to-date)
Attachment 5: Pre- and Post HRC Injection Analytical Results and Natural Attenuation Parameters

1.0 INTRODUCTION

Since the previous Data Report (dated April 9, 2019), Applied EcoSystems, Inc. (Æ) completed in-situ pilot test follow-up monitoring, (as outlined in the January 2018 Data Report and a letter dated April 11, 2018 submitted to the United States Environmental Protection Agency (USEPA) and additional correspondence with the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and USEPA (as outlined in the Work Plan HRC Pilot Test and Addendum) for the RACER Trust Flint West Industrial Land - #12990 Site. In addition, all monitoring wells installed by RACER on the Site and the adjoining Genesee County Parks (GCP) site to the north were gauged for depth to groundwater. A routine groundwater monitoring event was conducted on July 16 and 17, 2019.

A Site Location Map is included as Figure 1. The Site consists of approximately five acres of land located west of Stevens Street and north of Glenwood Avenue in Flint, Genesee County, Michigan. Almost the entire Site consists of concrete pavement, remaining after the demolition of a former manufacturing building. The Site is secured with a locked chain-link fence.

The Site is developed with a Consumers Energy electrical substation with an equipment shelter in the central portion and a utility conduit shed on the southeast corner. Per John Ebenhoeh with Consumers Energy, the small building on the southeast corner is a shelter for conduits that run under the road to the GM tool and die facility. This building is accessed approximately once per year for approximately two hours. The building in the fenced area is a support equipment shelter for the substation. The fenced area is accessed approximately once per month for approximately two hours, and the building itself is accessed less frequently and for shorter durations.

A Work Plan for HRC Pilot Test was submitted to USEPA and EGLE. USEPA approved the plan on January 13, 2017, and EGLE approved the plan with amendments on October 13, 2017.

Access to the adjacent former railroad parcel was obtained on May 10, 2018 from GCP, which now owns the former railroad property to the north.

2.0 MONITORING ACTIVITIES COMPLETED

Groundwater Monitoring

- All monitoring wells were gauged for depth to water on July 16, 2019. A Groundwater Contour Map, prepared using the July 16, 2019 groundwater elevation data, is included as Figure 3 in Appendix A. Cross section diagrams, showing soil types, groundwater elevations, and soil and groundwater data, are included in Attachment 1.
- A routine groundwater monitoring event was conducted on July 16 and 17, 2019.

HRC Pilot Test

- Groundwater samples were collected from monitoring wells MW-109S, MW-111S, MW-112S, MW-113S, and MW-114S on July 17, 2019. Samples were analyzed for the following: VOCs, total organic carbon, metals (total and dissolved) including arsenic, chromium (total and hexavalent), manganese, copper, lead, selenium, zinc, iron and lead, and methane. Oxidation reduction potential, pH, dissolved oxygen, and conductivity were measured with a meter in the field during sampling. Results are reported on Attachment 2, Table 2.

PFAS Sampling

- Groundwater samples were collected from MW-102S, MW-103S, MW-108S, MW-109S, MW-110S, MW-111S, MW-113S, and MW-114S and analyzed for PFAS. Results are reported on Attachment 2, Table 2.

Laboratory analytical reports for all monitoring activities are included in Attachment 3.

3.0 MONITORING RESULTS

Groundwater (Semiannual Sampling)

Comparison of groundwater data (July 2019) to current EGLE Generic Residential and Non-Residential Cleanup Criteria (GRCC) dated December 30, 2013/June 25, 2018 (the June 25, 2018 date represents the date of some revised criteria) indicates the following:

Metals: Select metals were detected above drinking water and groundwater to surface water (GSI) criteria as shown in the table below. The metals concentrations are consistent with expected regional conditions, do not appear to represent a plume, and are believed to generally be naturally-occurring. Although EGLE has published state-wide and regional "background" concentrations for soils, there are no such values published for groundwater. The concentrations are generally consistent with concentrations encountered by Applied EcoSystems at other uncontaminated sites in the Flint area. Total metals results are generally lower than previous sampling events. The dissolved metals concentrations are considered to be more representative of site conditions for the purposes of this assessment.

Table 1.0 – Dissolved Metals Exceedances in Groundwater

Well ID	Metal	Drinking Water Criterion	GSI Criterion	Result
MW-112S	Dissolved Arsenic	**10**	**10**	**15**
MW-110S	Dissolved Manganese	**860***	4500	**2,400**

- All results are expressed in µg/L.
- * The EGLE residential aesthetic value for manganese is 50 µg/L.

VOCs: Exceedances were present as follows:

Table 2.0 – VOCs Exceedances in Groundwater

Well ID	VOC	Drinking Water Criterion	GSI Criterion	Result
MW-100S	Trichloroethene	**5**	200	**10**
MW-105S	Tetrachloroethane	**5**	60	**43**
MW-109S	Vinyl Chloride	**2**	13	**7**
MW-109S	Trichloroethene	**5**	200	**11**
MW-111S	Trichloroethene	**5**	200	**10**
MW-112S	Vinyl Chloride	**2**	13	**7**
MW-112S	Trichloroethene	**5**	200	**9**
MW-113S	Trichloroethene	**5**	200	**12**
MW-114S	Vinyl Chloride	**2**	13	**8**
MW-114S	cis-1,2-Dichloroethene	**70**	620	**244**
MW-114S	Trichloroethene	**5**	200	**179**

- All results are expressed in ug/L.
- Criteria in **red** indicate an exceedance for that pathway.

Monitoring wells MW-102S, MW-103S, MW-108S, MW-109S, MW-110S, MW-113S, and MW-114S were sampled for PFAS during this sampling event. Only PFOS was detected. The combined drinking water cleanup criterion for PFOA and PFOS established by EGLE on January 10, 2018 for the drinking water pathway is the 70 ng/L. Only PFOS in MW-103S (93 ng/L) exceeded that criterion. This result is similar to the previous PFAS result from MW-103S (90 ng/L) for the groundwater sample collected on February 28, 2019. Note that no other wells were sampled for PFAS at that time.

A table of all groundwater sample analytical results for all groundwater samples collected on behalf of RACER is included as Attachment 2. Sample analytical results for the July 2019 sampling events are included as Attachment 3. Figure 4 illustrates the GSI and drinking water exceedances in groundwater identified in groundwater samples collected from 2012 through 2019. Figure 6 includes data boxes for PFAS results.

Note that elevated tetrachloroethene levels have been consistently detected in one up gradient well, MW-105S since April 2012, and trichloroethene has also consistently been detected in the same well, likely as a degradation product of the tetrachloroethene. This well is hydrogeologically downgradient from a former print shop located south of the Site.

The primary Site-specific constituents of concern are trichloroethene and vinyl chloride, which appear to be exhibiting enhanced natural attenuation.

While groundwater monitoring results have shown a general downward trend in concentrations of TCE Site-wide over time, TCE concentrations in MW-114S and MW-109S following the HRC injection dropped substantially. This is likely due to the location of these two wells, which are expected to have been most affected by the HRC injection due to likely higher volumes of HRC reaching those wells in the short term, as well as generation of anerobic dichlorination conditions. MW-113S exhibited minor fluctuations in TCE concentrations, likely due to the greater distance from the HRC injection locations. The limited variability of TCE concentrations in MW-111S is likely due to limited injection of HRC upgradient from this well relative to the other wells, as upgradient anerobic dichlorination conditions were not established (because areas upgradient were not subjected to HRC injection).

Based on discussions with Regenesis (supplier of the HRC), the elevated concentrations of total organic carbon in downgradient monitoring wells is indicative of the HRC having created anerobic conditions suitable for contaminant dichlorination.

4.0 ADDITIONAL MONITORING

Future monitoring will be determined after USEPA review of the full scale in-situ remediation work plan.

5.0 SCHEDULE

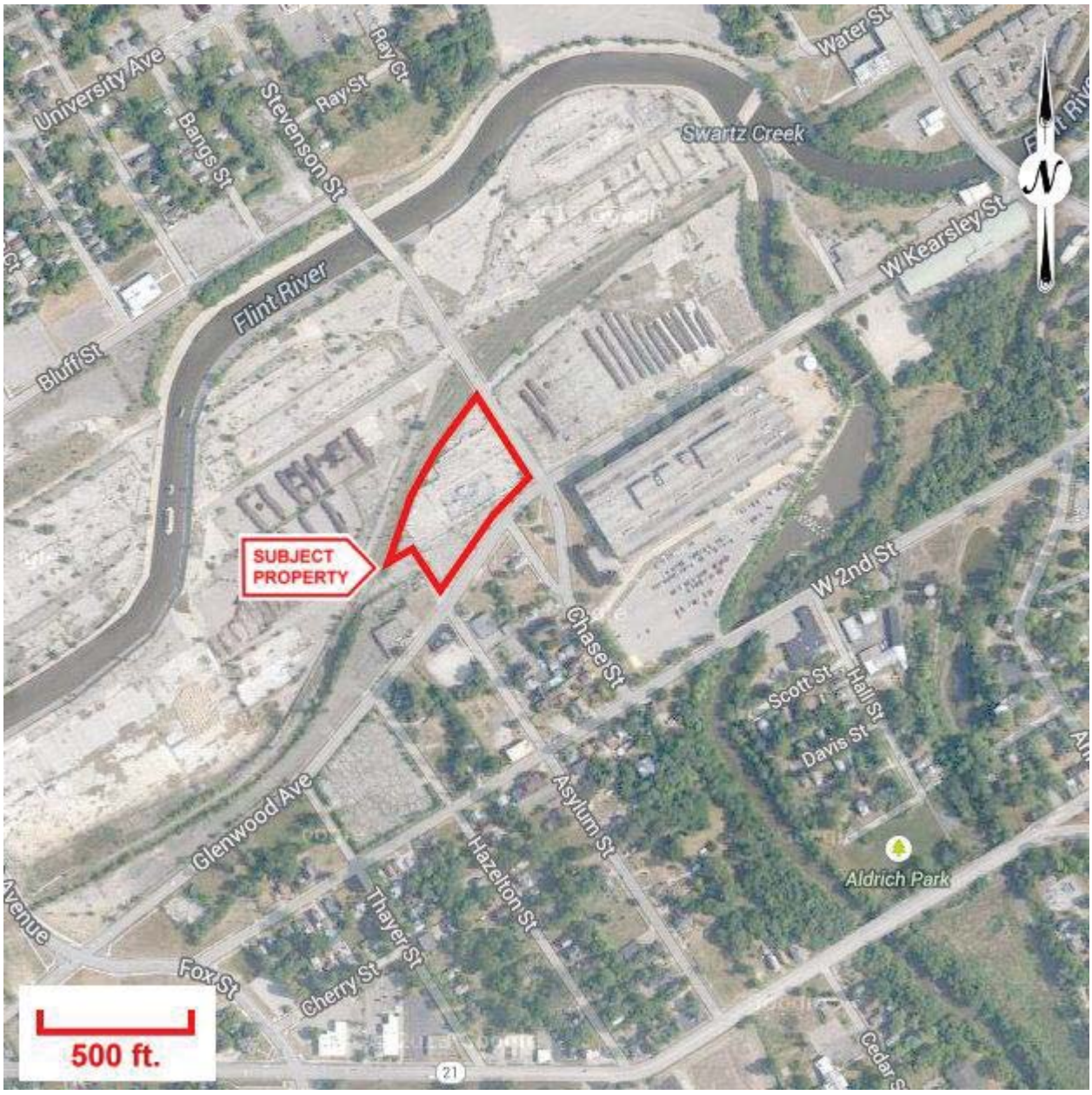
A Workplan for the full-scale HRC injection will be submitted to USEPA and EGLE for review in October 2019. Future monitoring will be determined after USEPA review of the full scale in-situ remediation work plan.

APPENDIX A: FIGURES

SITE LOCATION MAP

RACER Flint West

FIGURE	DATE	SCALE	PROJECT No.
1	2014	As Shown	11-4317-102



Source: United States Geological Survey

Property outline is approximate.

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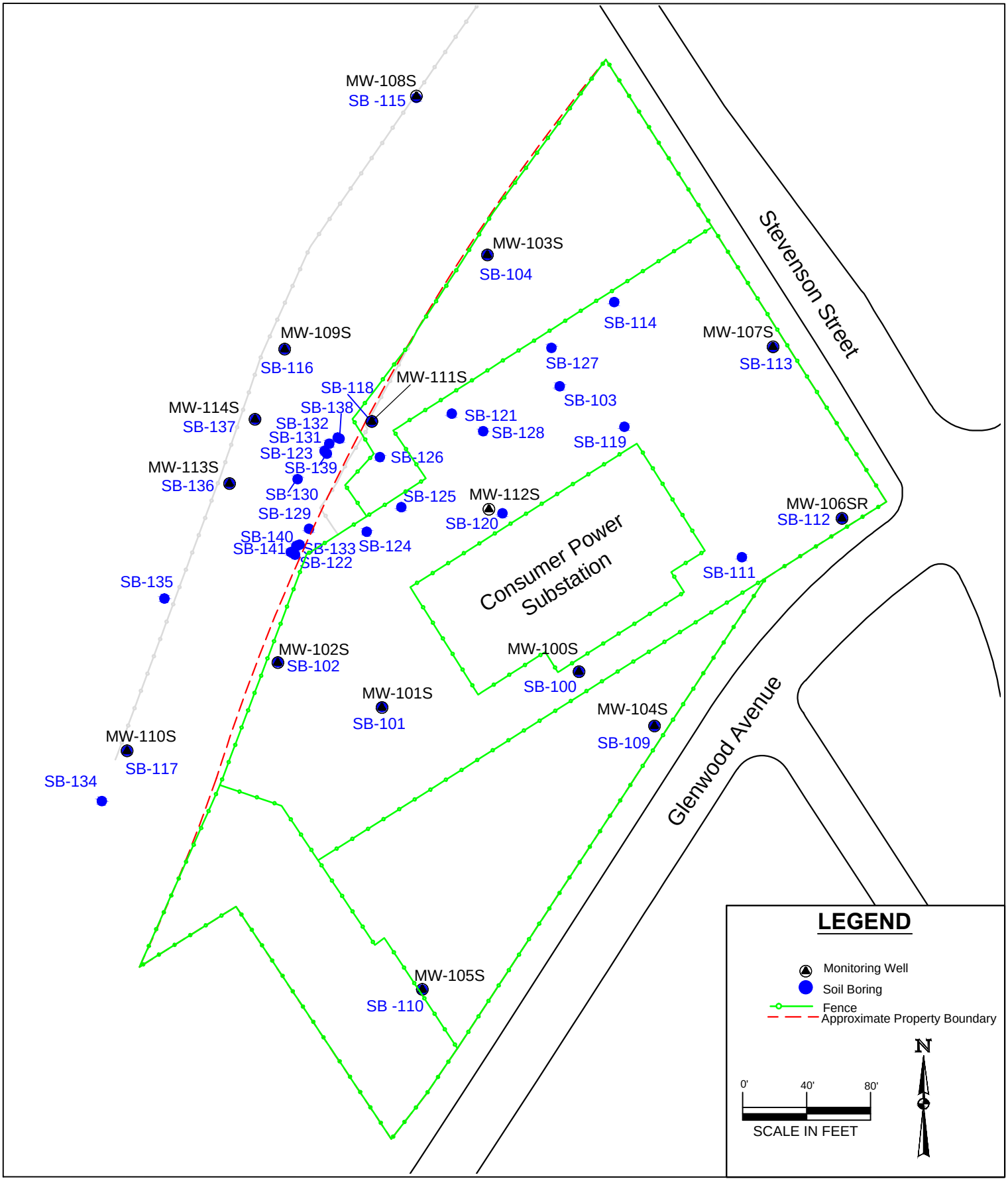

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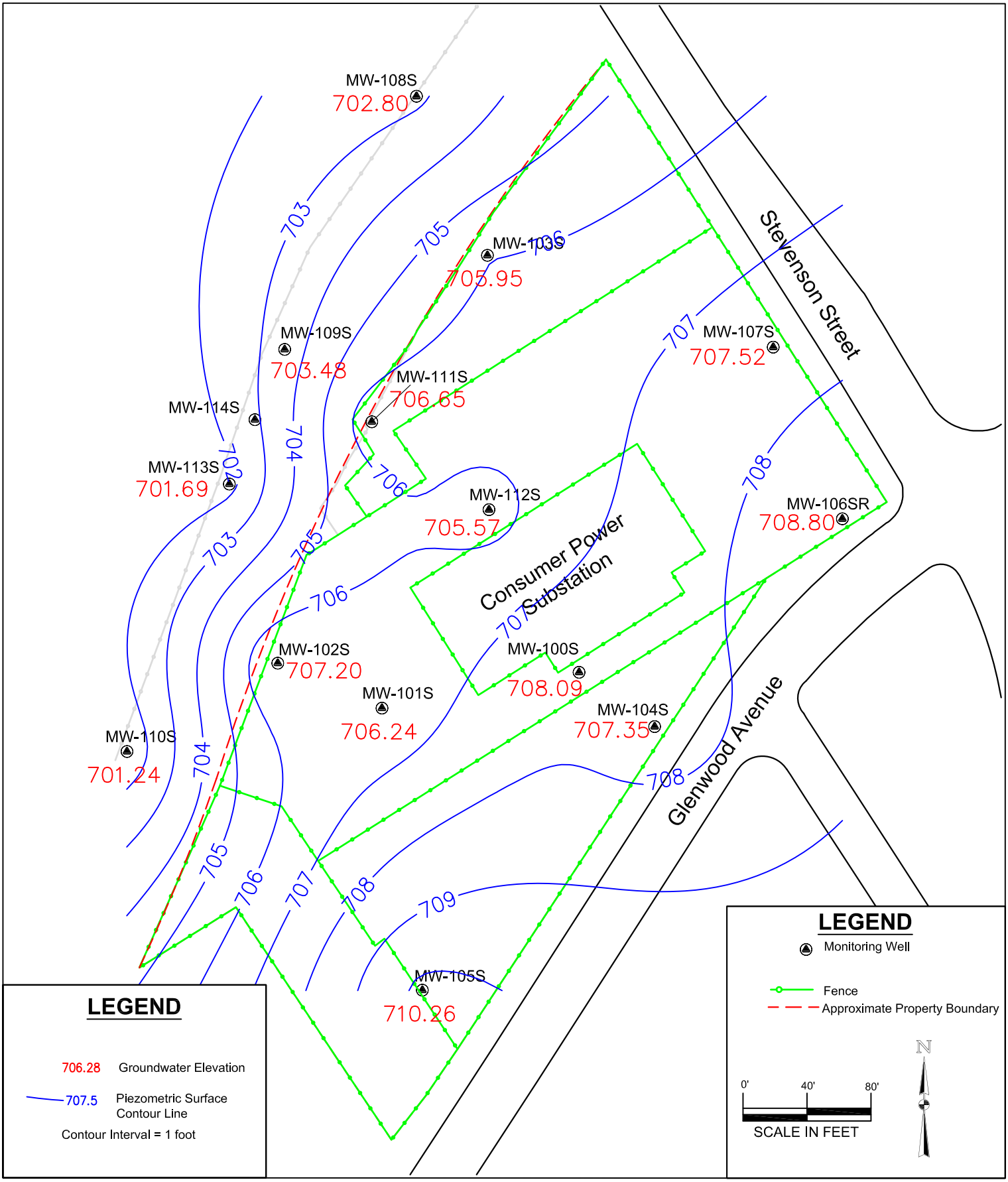
Soil Boring and Well Location Map

Racer Flint West -12990
Flint West Industrial Land, Flint, Michigan

DATE:	CHECKED BY:
02/25/2019	MDS
PROJECT:	**FIGURE:**
11-4317-102	2



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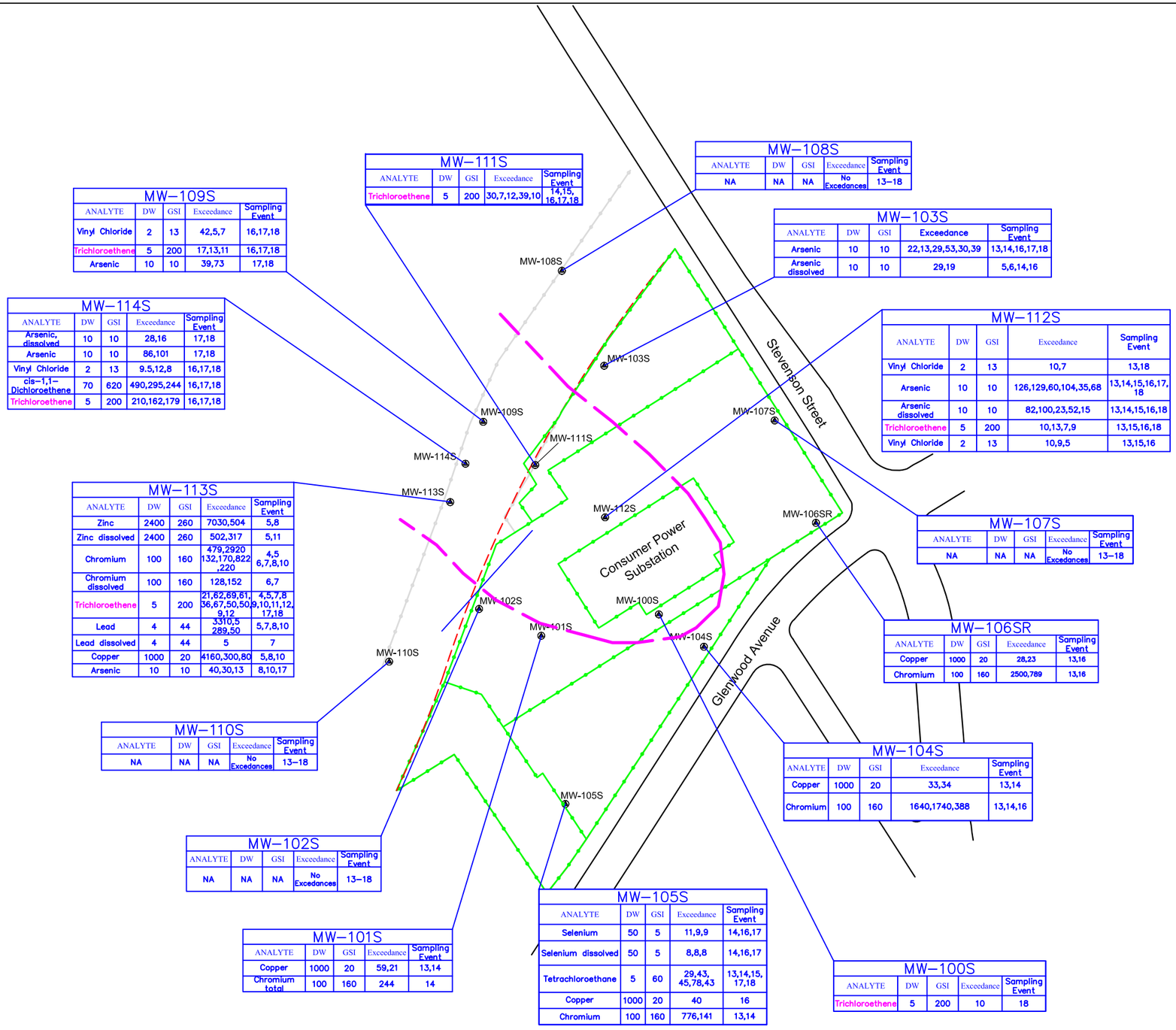
Groundwater Contour Map (July 16, 2019)

Racer Flint West -12990
Flint West Industrial Land, Flint, Michigan

DATE:	CHECKED BY:
08/20/2019	MDS
PROJECT:	**FIGURE:**
11-4317-102	3



MW–111S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Trichloroethene	5	200	30,7,12,39,10	14,15, 16,17,18

MW–108S

ANALYTE	DW	GSI	Exceedance	Sampling Event
NA	NA	NA	No Exceedances	13–18

MW–109S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Vinyl Chloride	2	13	42,5,7	16,17,18
Trichloroethene	5	200	17,13,11	16,17,18
Arsenic	10	10	39,73	17,18

MW–103S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Arsenic	10	10	22,13,29,53,30,39	13,14,16,17,18
Arsenic dissolved	10	10	29,19	5,6,14,16

MW–114S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Arsenic, dissolved	10	10	28,16	17,18
Arsenic	10	10	86,101	17,18
Vinyl Chloride	2	13	9.5,12,8	16,17,18
cis–1,1–Dichloroethene	70	620	490,295,244	16,17,18
Trichloroethene	5	200	210,162,179	16,17,18

MW–112S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Vinyl Chloride	2	13	10,7	13,18
Arsenic	10	10	126,129,60,104,35,68	13,14,15,16,17, 18
Arsenic dissolved	10	10	82,100,23,52,15	13,14,15,16,18
Trichloroethene	5	200	10,13,7,9	13,15,16,18
Vinyl Chloride	2	13	10,9,5	13,15,16

MW–113S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Zinc	2400	260	7030,504	5,8
Zinc dissolved	2400	260	502,317	5,11
Chromium	100	160	479,2920 132,170,822 ,220	4,5 6,7,8,10
Chromium dissolved	100	160	128,152	6,7
Trichloroethene	5	200	21,62,69,61, 36,67,50,50, 9,12	4,5,7,8 9,10,11,12, 17,18
Lead	4	44	3310,5 289,50	5,7,8,10
Lead dissolved	4	44	5	7
Copper	1000	20	4160,300,80	5,8,10
Arsenic	10	10	40,30,13	8,10,17

MW–107S

ANALYTE	DW	GSI	Exceedance	Sampling Event
NA	NA	NA	No Exceedances	13–18

MW–106SR

ANALYTE	DW	GSI	Exceedance	Sampling Event
Copper	1000	20	28,23	13,16
Chromium	100	160	2500,789	13,16

MW–110S

ANALYTE	DW	GSI	Exceedance	Sampling Event
NA	NA	NA	No Exceedances	13–18

MW–104S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Copper	1000	20	33,34	13,14
Chromium	100	160	1640,1740,388	13,14,16

MW–102S

ANALYTE	DW	GSI	Exceedance	Sampling Event
NA	NA	NA	No Exceedances	13–18

MW–105S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Selenium	50	5	11,9,9	14,16,17
Selenium dissolved	50	5	8,8,8	14,16,17
Tetrachloroethane	5	60	29,43, 45,78,43	13,14,15, 17,18
Copper	1000	20	40	16
Chromium	100	160	776,141	13,14

MW–101S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Copper	1000	20	59,21	13,14
Chromium total	100	160	244	14

MW–100S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Trichloroethene	5	200	10	18

LEGEND

Monitoring Well

GSI Ground Water to Surface Water Interface.
DW Drinking Water Threshold
GRCC General Residential Cleanup Criteria
NA – Not applicable

Laboratory analytical data presented in parts per billion (ug/L)

Fence

Trichloroethene - DW GRCC exceedance estimated boundary based on groundwater sampling results from June 2017 to July 2019.

Groundwater Sampling Events	
June 2017	13
January 2018	14
May 2018	15
Aug/Sept 2018	16
February 2019	17
July 2019	18

N

0' 60' 120'

SCALE IN FEET

DATE:	08/20/2019
CHECKED BY:	MDS
PROJECT:	11-4317-102
FIGURE:	4

Summary of Drinking Water and Groundwater to Surface Water Interface Exceedances in Groundwater 2017 to 2019

Racer Flint West -12990
Flint West Industrial Land, Flint, Michigan

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01/16/19	SB–139			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	21,000 3,440	18' 18'
Methylene Chloride	5	1,500	230 32	16' 18'
Vinyl chloride	40	260	ND 42	16' 18'
cis-1,2-Dichloroethene	1,400	12,000	1,800 3,440	16' 18'

04/22/14	SB–131			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	12,160	18'
Vinyl chloride	40	260	90	18'
cis-1,2-Dichloroethene	1,400	12,000	2,820	18'

12/11/2012	SB–116			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Vinyl Chloride	40	260	260	12–13'
cis-1,2-Dichloroethene	1,400	12,000	2,160	12–13'

7/10/2014	SB–132			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	29,500 / 13,700	11.5–12' 14.5–15'
Vinyl chloride	40	260	180 / 89	11.5–12' 14.5–15'
cis-1,2-Dichloroethene	1,400	12,000	2,200	11.5–12'

01/16/19	SB–138			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	2,880 2,300	15' 18'
Methylene Chloride	5	1,500	22 25.7	15' 18'
cis-1,2-Dichloroethene	1,400	12,000	470 550	15' 18'

12/11/2012	SB–118			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Vinyl Chloride	40	260	250	16–17'
cis-1,2-Dichloroethene	1,400	12,000	11,960	16–17'

03/13/2012	SB–104			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Benezene	100	4,000	210	7–8'

12/22/14	SB–137			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	4,250	18'

12/22/14	SB–137			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Vinyl chloride	40	260	56	20.5'

12/22/14	SB–136			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	8,760	19'

12/22/14	SB–136			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	9,390	20'

12/10/2012	SB–114			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	1,220	20–21'
Phenanthrene	56,000	2,100	2,700	7–8'

04/22/14	SB–130			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	6,080	18'
Vinyl chloride	40	260	73	18'
cis-1,2-Dichloroethene	1,400	12,000	6,380	18'

4/30/2013	SB–121			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	400	23–24'
Vinyl Chloride	40	260	110	23–24'
cis-1,2-Dichloroethene	1,400	12,000	2,970	23–24'

04/22/14	SB–129			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	6,170	18'

12/06/2012	SB–112			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Naphthalene	35,000	730	840	3.5–4.5'
1,2,4–Trimethylbenzene	2,100	570	600	3.5–4.5'
Vinyl Chloride	40	260	80	3.5–4.5'

01/16/19	SB–140			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	13,100 2,870	16' 19'
Methylene Chloride	5	1,500	260 30	16' 19'
cis-1,2-Dichloroethene	1,400	12,000	3,500 2,870	16' 19'

12/22/14	SB–135			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	7890.0	19'

12/22/14	SB–135			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	6540.0	21'

12/11/2012	SB–117			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	5,980	18–19'

12/22/14	SB–134			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	2,040	20'

01/16/19	SB–141			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	180 6,150 3,370	16' 18 19'
Methylene Chloride	5	1,500	27 25 26	16' 18 19'
cis-1,2-Dichloroethene	1,400	12,000	15 2,900 860	16' 18 19'

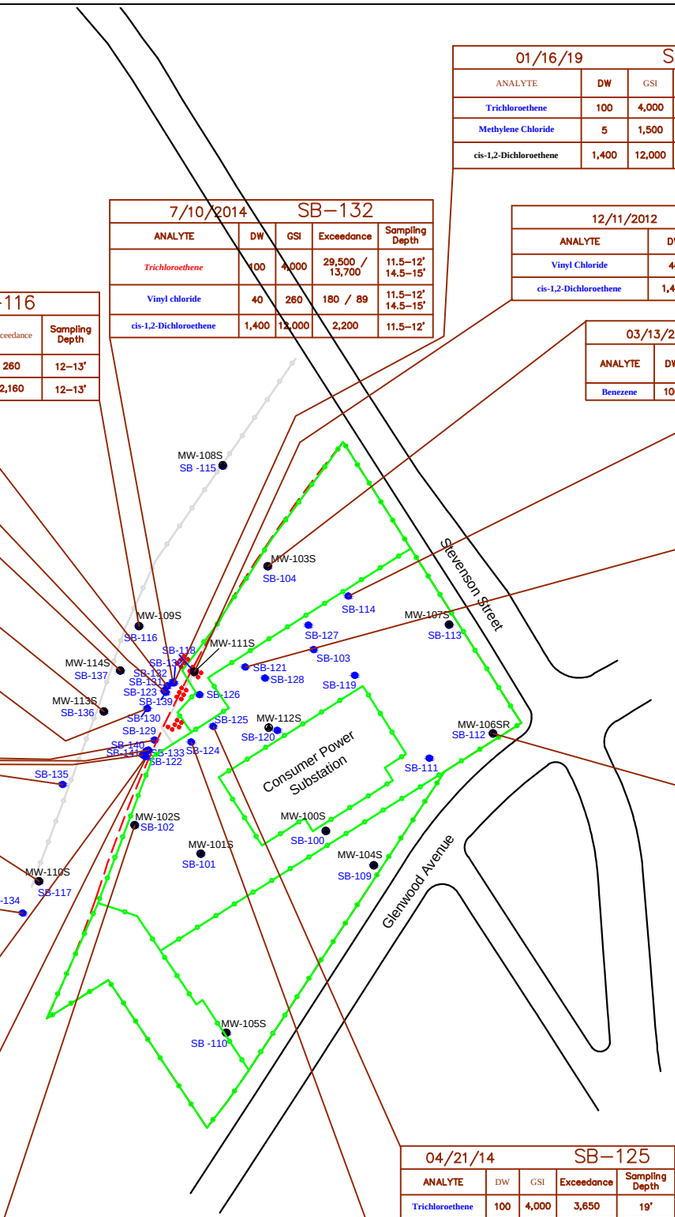
4/30/2013	SB–122			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	14,400	15–16'
cis-1,2-Dichloroethene	1,400	12,000	1,600	15–16'

7/10/2014	SB–133			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4000	11,680 / 10,860 7,520	16.5–17' 18–19' 19.5–20'
Vinyl Chloride	40	260	46	16.5–17'
cis-1,2-Dichloroethene	1,400	12,000	1,990	16.5–17'

3/08/2012	SB–102			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	330	6–7'

04/21/14	SB–125			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	3,650	19'

04/21/14	SB–124			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	1,420	21'



LEGEND

- Monitoring Well
- Soil boring
- Multiple soil borings in one location.
- HRC Injection boring

Analyte Exceeds GSI and DW criteria

Analyte Exceeds DW criteria only

Analyte Exceeds GSI criteria only

Laboratory analytical data presented in parts per billion (ug/Kg)

Fence

0' 75' 150'

SCALE IN FEET

N

DATE:	03/21/2019	CHECKED BY:	MDS
PROJECT:	11-4317-102	FIGURE:	5

Summary of Drinking Water and GSI Exceedances in Soil
2012 - 2019

Racer Flint West -12990
Flint West Industrial Land, Flint, Michigan

Applied EcoSystems, Inc.
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G-4300 South Saginaw Street, Burton, Michigan 48529
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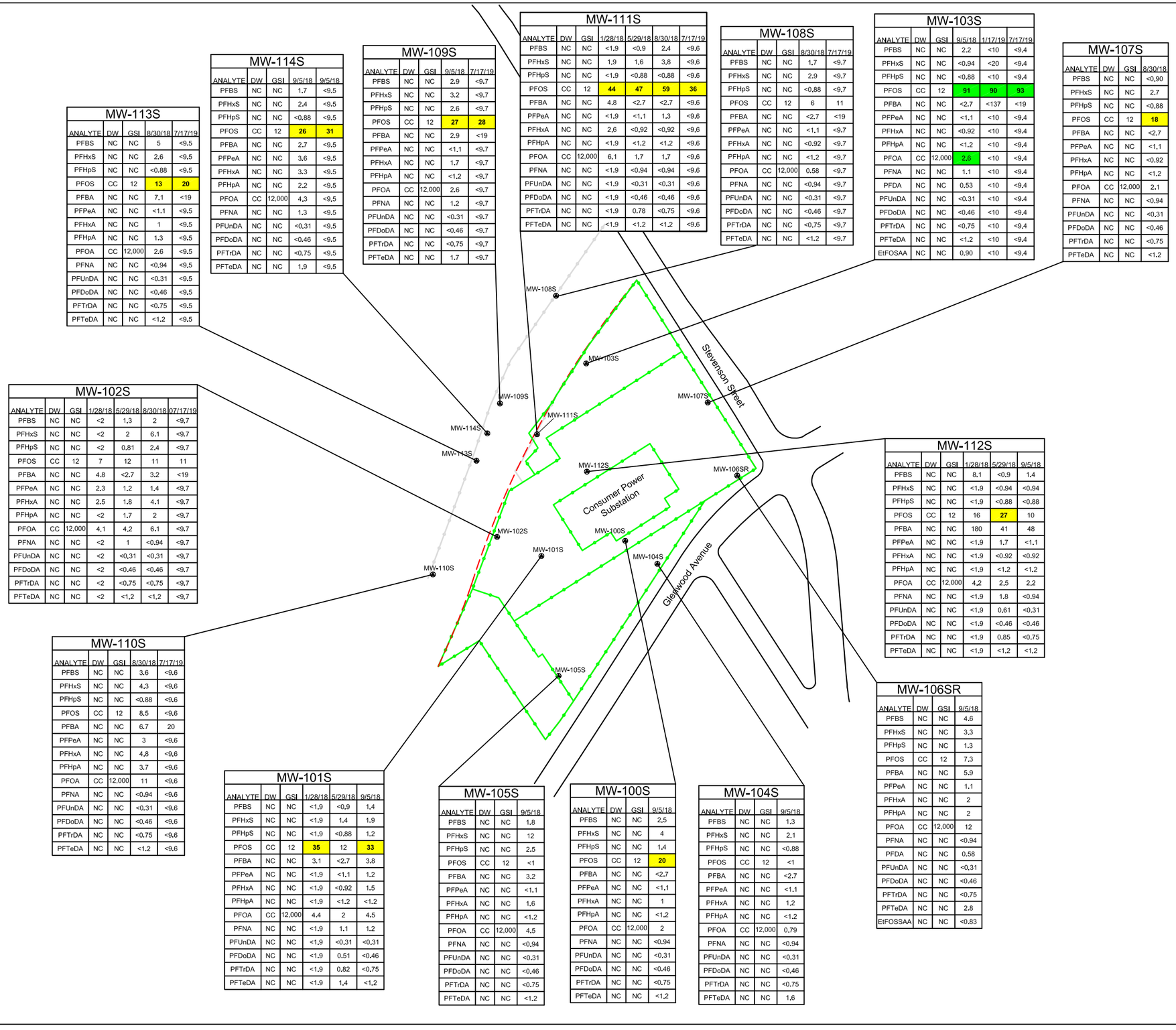


MW-113S

ANALYTE	DW	GSI	8/30/18	7/17/19
PFBS	NC	NC	5	<9.5
PFHxS	NC	NC	2.6	<9.5
PFHpS	NC	NC	<0.88	<9.5
PFOS	CC	12	13	20
PFBA	NC	NC	7.1	<19
PFPeA	NC	NC	<1.1	<9.5
PFHxA	NC	NC	1	<9.5
PFHpA	NC	NC	1.3	<9.5
PFOA	CC	12,000	2.6	<9.5
PFNA	NC	NC	<0.94	<9.5
PFUnDA	NC	NC	<0.31	<9.5
PFDoDA	NC	NC	<0.46	<9.5
PFTrDA	NC	NC	<0.75	<9.5
PFTeDA	NC	NC	<1.2	<9.5

MW-114S

ANALYTE	DW	GSI	9/5/18	9/5/18
PFBS	NC	NC	1.7	<9.5
PFHxS	NC	NC	2.4	<9.5
PFHpS	NC	NC	<0.88	<9.5
PFOS	CC	12	26	31
PFBA	NC	NC	2.7	<9.5
PFPeA	NC	NC	3.6	<9.5
PFHxA	NC	NC	3.3	<9.5
PFHpA	NC	NC	2.2	<9.5
PFOA	CC	12,000	4.3	<9.5
PFNA	NC	NC	1.3	<9.5
PFUnDA	NC	NC	<0.31	<9.5
PFDoDA	NC	NC	<0.46	<9.5
PFTrDA	NC	NC	<0.75	<9.5
PFTeDA	NC	NC	1.9	<9.5

MW-109S

ANALYTE	DW	GSI	9/5/18	7/17/19
PFBS	NC	NC	2.9	<9.7
PFHxS	NC	NC	3.2	<9.7
PFHpS	NC	NC	2.6	<9.7
PFOS	CC	12	27	28
PFBA	NC	NC	2.9	<19
PFPeA	NC	NC	<1.1	<9.7
PFHxA	NC	NC	1.7	<9.7
PFHpA	NC	NC	<1.2	<9.7
PFOA	CC	12,000	2.6	<9.7
PFNA	NC	NC	1.2	<9.7
PFUnDA	NC	NC	<0.31	<9.7
PFDoDA	NC	NC	<0.46	<9.7
PFTrDA	NC	NC	<0.75	<9.7
PFTeDA	NC	NC	1.7	<9.7

MW-111S

ANALYTE	DW	GSI	1/28/18	5/29/18	8/30/18	7/17/19
PFBS	NC	NC	<1.9	<0.9	2.4	<9.6
PFHxS	NC	NC	1.9	1.6	3.8	<9.6
PFHpS	NC	NC	<1.9	<0.88	<0.88	<9.6
PFOS	CC	12	44	47	59	36
PFBA	NC	NC	4.8	<2.7	<2.7	<9.6
PFPeA	NC	NC	<1.9	<1.1	1.3	<9.6
PFHxA	NC	NC	2.6	<0.92	<0.92	<9.6
PFHpA	NC	NC	<1.9	<1.2	<1.2	<9.6
PFOA	CC	12,000	6.1	1.7	1.7	<9.6
PFNA	NC	NC	<1.9	<0.94	<0.94	<9.6
PFUnDA	NC	NC	<1.9	<0.31	<0.31	<9.6
PFDoDA	NC	NC	<1.9	<0.46	<0.46	<9.6
PFTrDA	NC	NC	<1.9	0.78	<0.75	<9.6
PFTeDA	NC	NC	<1.9	<1.2	<1.2	<9.6

MW-108S

ANALYTE	DW	GSI	8/30/18	7/17/19
PFBS	NC	NC	1.7	<9.7
PFHxS	NC	NC	2.9	<9.7
PFHpS	NC	NC	<0.88	<9.7
PFOS	CC	12	6	11
PFBA	NC	NC	<2.7	<19
PFPeA	NC	NC	<1.1	<9.7
PFHxA	NC	NC	<0.92	<9.7
PFHpA	NC	NC	<1.2	<9.7
PFOA	CC	12,000	0.58	<9.7
PFNA	NC	NC	<0.94	<9.7
PFUnDA	NC	NC	<0.31	<9.7
PFDoDA	NC	NC	<0.46	<9.7
PFTrDA	NC	NC	<0.75	<9.7
PFTeDA	NC	NC	<1.2	<9.7

MW-103S

ANALYTE	DW	GSI	9/5/18	1/17/19	7/17/19
PFBS	NC	NC	2.2	<10	<9.4
PFHxS	NC	NC	<0.94	<20	<9.4
PFHpS	NC	NC	<0.88	<10	<9.4
PFOS	CC	12	91	90	93
PFBA	NC	NC	<2.7	<137	<19
PFPeA	NC	NC	<1.1	<10	<9.4
PFHxA	NC	NC	<0.92	<10	<9.4
PFHpA	NC	NC	<1.2	<10	<9.4
PFOA	CC	12,000	2.6	<10	<9.4
PFNA	NC	NC	1.1	<10	<9.4
PFDA	NC	NC	0.53	<10	<9.4
PFUnDA	NC	NC	<0.31	<10	<9.4
PFDoDA	NC	NC	<0.46	<10	<9.4
PFTrDA	NC	NC	<0.75	<10	<9.4
PFTeDA	NC	NC	<1.2	<10	<9.4
EtFOSAA	NC	NC	0.90	<10	<9.4

MW-107S

ANALYTE	DW	GSI	8/30/18
PFBS	NC	NC	<0.90
PFHxS	NC	NC	2.7
PFHpS	NC	NC	<0.88
PFOS	CC	12	18
PFBA	NC	NC	<2.7
PFPeA	NC	NC	<1.1
PFHxA	NC	NC	<0.92
PFHpA	NC	NC	<1.2
PFOA	CC	12,000	2.1
PFNA	NC	NC	<0.94
PFUnDA	NC	NC	<0.31
PFDoDA	NC	NC	<0.46
PFTrDA	NC	NC	<0.75
PFTeDA	NC	NC	<1.2

MW-102S

ANALYTE	DW	GSI	1/28/18	5/29/18	8/30/18	07/17/19
PFBS	NC	NC	<2	1,3	2	<9,7
PFHxS	NC	NC	<2	2	6.1	<9,7
PFHpS	NC	NC	<2	0,81	2,4	<9,7
PFOS	CC	12	7	12	11	11
PFBA	NC	NC	4.8	<2,7	3,2	<19
PFPeA	NC	NC	2,3	1,2	1,4	<9,7
PFHxA	NC	NC	2,5	1.8	4,1	<9,7
PFHpA	NC	NC	<2	1,7	2	<9,7
PFOA	CC	12,000	4,1	4,2	6,1	<9,7
PFNA	NC	NC	<2	1	<0,94	<9,7
PFUnDA	NC	NC	<2	<0,31	<0,31	<9,7
PFDoDA	NC	NC	<2	<0,46	<0,46	<9,7
PFTrDA	NC	NC	<2	<0,75	<0,75	<9,7
PFTeDA	NC	NC	<2	<1,2	<1,2	<9,7

MW-112S

ANALYTE	DW	GSI	1/28/18	5/29/18	9/5/18
PFBS	NC	NC	8.1	<0.9	1.4
PFHxS	NC	NC	<1.9	<0.94	<0.94
PFHpS	NC	NC	<1.9	<0.88	<0.88
PFOS	CC	12	16	27	10
PFBA	NC	NC	180	41	48
PFPeA	NC	NC	<1.9	1.7	<1.1
PFHxA	NC	NC	<1.9	<0.92	<0.92
PFHpA	NC	NC	<1.9	<1.2	<1.2
PFOA	CC	12,000	4.2	2.5	2.2
PFNA	NC	NC	<1.9	1.8	<0.94
PFUnDA	NC	NC	<1.9	0.61	<0.31
PFDoDA	NC	NC	<1.9	<0.46	<0.46
PFTrDA	NC	NC	<1.9	0.85	<0.75
PFTeDA	NC	NC	<1.9	<1.2	<1.2

MW-106SR

ANALYTE	DW	GSI	9/5/18
PFBS	NC	NC	4.6
PFHxS	NC	NC	3.3
PFHpS	NC	NC	1.3
PFOS	CC	12	7.3
PFBA	NC	NC	5.9
PFPeA	NC	NC	1.1
PFHxA	NC	NC	2
PFHpA	NC	NC	2
PFOA	CC	12,000	12
PFNA	NC	NC	<0.94
PFDA	NC	NC	0.58
PFUnDA	NC	NC	<0,31
PFDoDA	NC	NC	<0,46
PFTrDA	NC	NC	<0,75
PFTeDA	NC	NC	2.8
EtFOSSAA	NC	NC	<0.83

MW-110S

ANALYTE	DW	GSI	8/30/18	7/17/19
PFBS	NC	NC	3.6	<9.6
PFHxS	NC	NC	4,3	<9,6
PFHpS	NC	NC	<0.88	<9.6
PFOS	CC	12	8.5	<9.6
PFBA	NC	NC	6.7	20
PFPeA	NC	NC	3	<9.6
PFHxA	NC	NC	4,8	<9.6
PFHpA	NC	NC	3.7	<9.6
PFOA	CC	12,000	11	<9,6
PFNA	NC	NC	<0.94	<9.6
PFUnDA	NC	NC	<0,31	<9,6
PFDoDA	NC	NC	<0,46	<9,6
PFTrDA	NC	NC	<0.75	<9.6
PFTeDA	NC	NC	<1.2	<9.6

MW-101S

ANALYTE	DW	GSI	1/28/18	5/29/18	9/5/18
PFBS	NC	NC	<1,9	<0,9	1,4
PFHxS	NC	NC	<1.9	1,4	1,9
PFHpS	NC	NC	<1.9	<0,88	1,2
PFOS	CC	12	35	12	33
PFBA	NC	NC	3,1	<2,7	3,8
PFPeA	NC	NC	<1,9	<1,1	1,2
PFHxA	NC	NC	<1.9	<0,92	1,5
PFHpA	NC	NC	<1,9	<1,2	<1,2
PFOA	CC	12,000	4,4	2	4,5
PFNA	NC	NC	<1.9	1,1	1,2
PFUnDA	NC	NC	<1,9	<0,31	<0,31
PFDoDA	NC	NC	<1.9	0,51	<0,46
PFTrDA	NC	NC	<1.9	0,82	<0,75
PFTeDA	NC	NC	<1.9	1,4	<1,2

MW-105S

ANALYTE	DW	GSI	9/5/18
PFBS	NC	NC	1.8
PFHxS	NC	NC	12
PFHpS	NC	NC	2.5
PFOS	CC	12	<1
PFBA	NC	NC	3,2
PFPeA	NC	NC	<1.1
PFHxA	NC	NC	1,6
PFHpA	NC	NC	<1.2
PFOA	CC	12,000	4,5
PFNA	NC	NC	<0,94
PFUnDA	NC	NC	<0,31
PFDoDA	NC	NC	<0,46
PFTrDA	NC	NC	<0.75
PFTeDA	NC	NC	<1,2

MW-100S

ANALYTE	DW	GSI	9/5/18
PFBS	NC	NC	2,5
PFHxS	NC	NC	4
PFHpS	NC	NC	1,4
PFOS	CC	12	20
PFBA	NC	NC	<2,7
PFPeA	NC	NC	<1,1
PFHxA	NC	NC	1
PFHpA	NC	NC	<1,2
PFOA	CC	12,000	2
PFNA	NC	NC	<0,94
PFUnDA	NC	NC	<0,31
PFDoDA	NC	NC	<0,46
PFTrDA	NC	NC	<0,75
PFTeDA	NC	NC	<1,2

MW-104S

ANALYTE	DW	GSI	9/5/18
PFBS	NC	NC	1,3
PFHxS	NC	NC	2,1
PFHpS	NC	NC	<0.88
PFOS	CC	12	<1
PFBA	NC	NC	<2.7
PFPeA	NC	NC	<1.1
PFHxA	NC	NC	1,2
PFHpA	NC	NC	<1.2
PFOA	CC	12,000	0,79
PFNA	NC	NC	<0.94
PFUnDA	NC	NC	<0.31
PFDoDA	NC	NC	<0,46
PFTrDA	NC	NC	<0.75
PFTeDA	NC	NC	1,6

LEGEND

Monitoring Well

DW = Drinking Water Threshold.

GSI = Ground Water to Surface Water Interface based on Rule 57.

NC = Insufficient data to develop criterion/no criterion.

CC = Combined PFOA and PFOS concentrations compared to 0.070 ppb (70 ppt) for the drinking water pathway.

= Compound exceeds GSI criteria

= Compound exceeds GSI and DW criteria (CC).

Concentrations presented in parts per trillion (ng/L).

Only detected constituents listed.

PFA Constiuents

Perfluorobutane sulfonic acid	(PFBS)
Perfluorohexane sulfonic acid	(PFHxS)
Perfluoroheptane sulfonic acid	(PFHpS)
Perfluorooctane sulfonic acid	(PFOS)
Perfluorobutanoic acid	(PFBA)
Perfluoropentanoic acid	(PFPeA)
Perfluorohexanoic acid	(PFHxA)
Perfluoroheptanoic acid	(PFHpA)
Perfluorooctanoic acid	(PFOA)
Perfluorononanoic acid	(PFNA)
Perfluorodecanoic acid	(PFDA)
Perfluoroundecanoic acid	(PFUnDA)
Perfluorododecanoic acid	(PFDoDA)
Perfluorotridecanoic acid	(PFTrDA)
Perfluorotetradecanoic acid	(PFTeDA)
N-Ethyl perfluorooctane sulfonamidoacetic acid	(EtFOSSAA)

Fence

N

0' 75' 150'

SCALE IN FEET

DATE:	08/20/2019
CHECKED BY:	MDS
PROJECT:	11-4317-102
FIGURE:	6

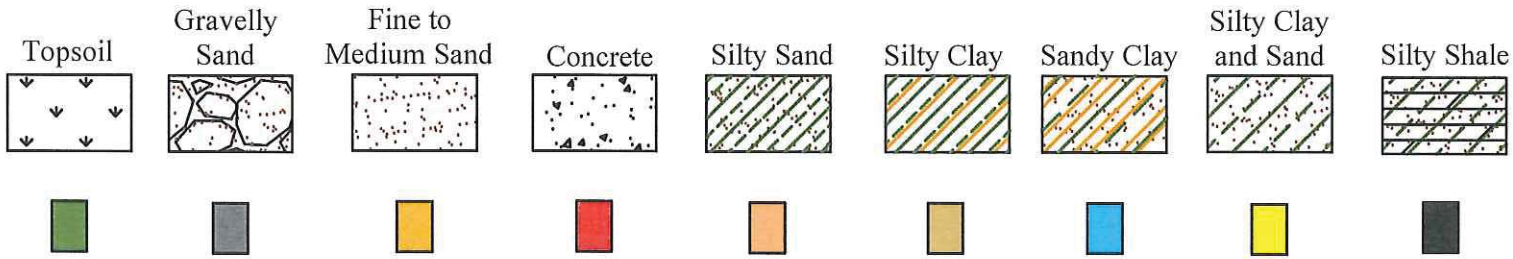
PFOS-PFAS Groundwater Analytical Map

Racer Flint West -12990
Flint West Industrial Land, Flint, Michigan

Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services
G-4300 South Saginaw Street, Burton, Michigan 48529
Phone: 810.715.2525; Fax: 810.715.2526

APPENDIX B: ATTACHMENTS

Cross Section Diagram Key



DW Residential Drinking Water Generic Cleanup Criteria

⊕ Monitoring Wells Installed by AE

GSI Groundwater Surface Water Interface Generic Cleanup Criteria GSI criteria calculation based on 257ppm total hardness in the Flint River

Soil and Groundwater analytical results are expressed as defined below;

Well Screen

Dissolved arsenic exceedance above DW and GSI GRCCs

Dissolved copper exceedance above GSI GRCCs

Dissolved lead exceedance above DW GRCCs

Dissolved chromium exceedance above DW GRCCs

Dissolved zinc exceedance above GSI GRCCs

Dissolved selenium exceedance above GSI GRCCs

TCE exceedance above DW GRCCs

TCE exceedance above DW and GSI GRCCs

Dissolved selenium exceedance above DW and GSI GRCCs

SCALE: None

Attachment: 1

DATE: 2016

PROJECT: 11-4317-102

Cross Section Diagram Key

Racer Flint West - 12990
Flint West Industrial Land, Flint, MI

Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services
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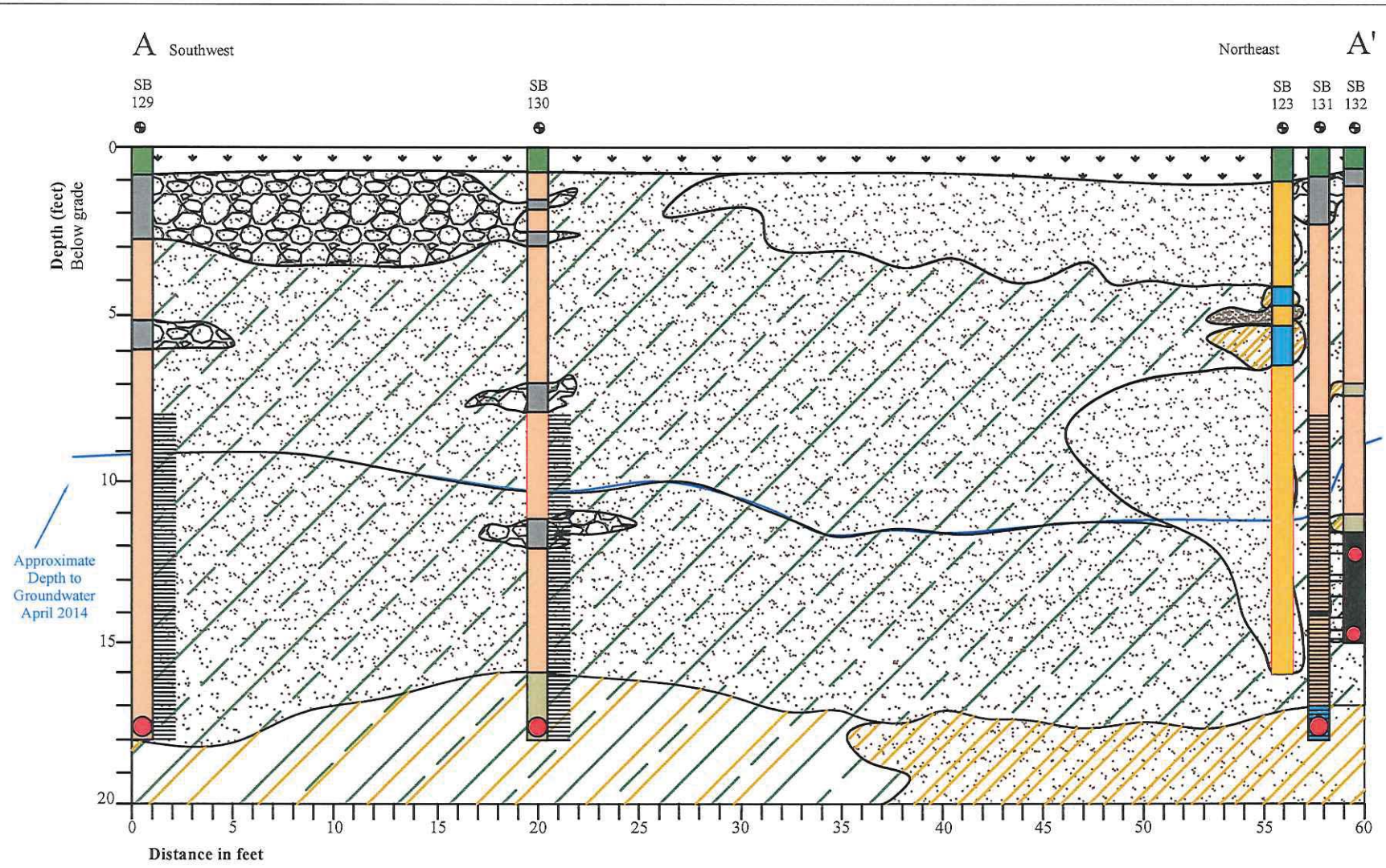

SCALE:	As Noted
Attachment:	1A (1)
DATE:	2016
PROJECT:	11-4317-102

Cross Section Diagram A - A'
TCE Exceedances in Soil

Racer Flint West - 12990
Flint West Industrial Land, Flint, MI

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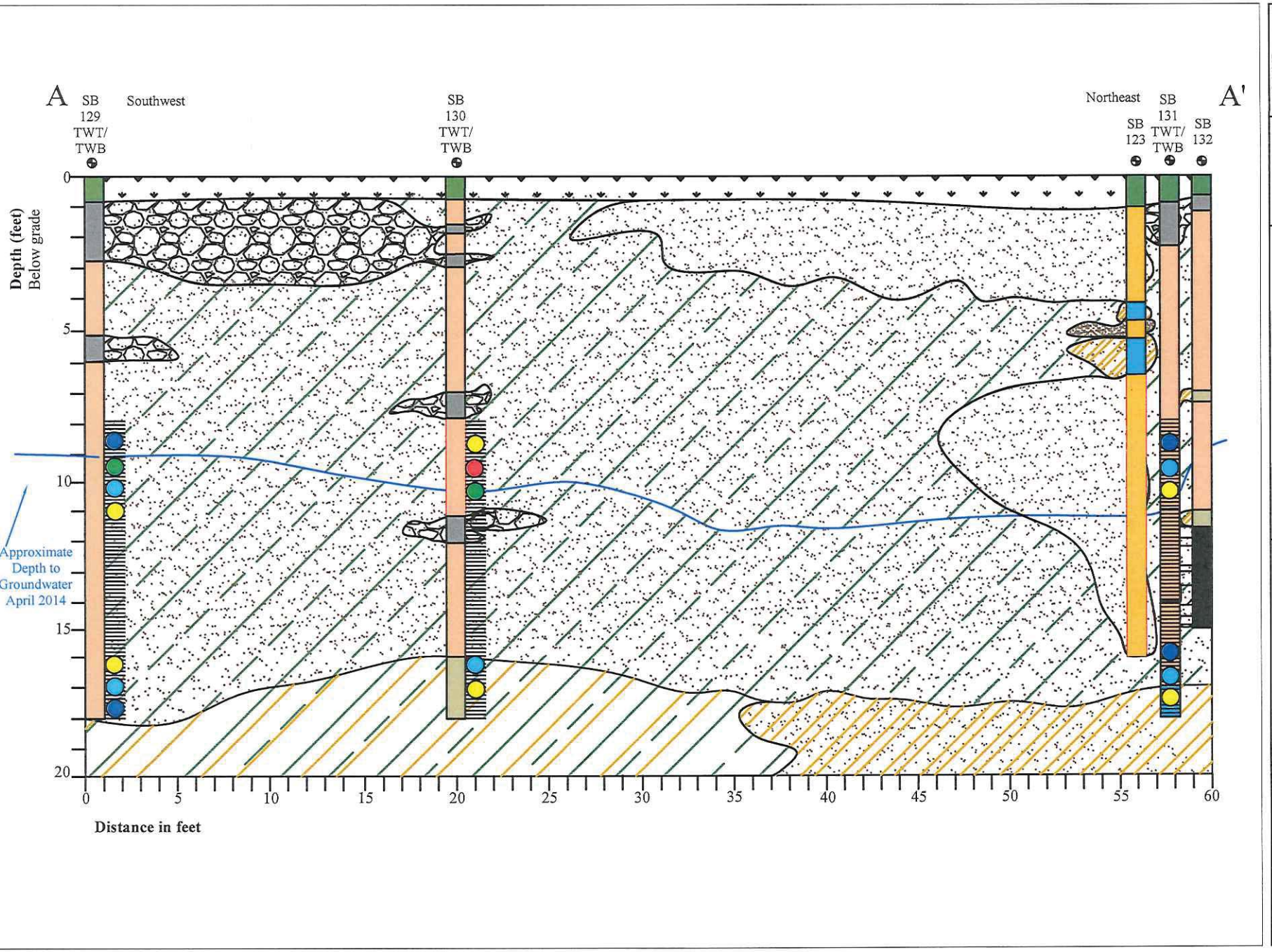

SCALE:	As Noted
Attachment:	1A (2)
DATE:	2015
PROJECT:	11-4317-102

Cross Section Diagram A - A'
Dissolved Metals and TCE Exceedances in Groundwater
Racer Flint West - 12990
Flint West Industrial Land, Flint, MI

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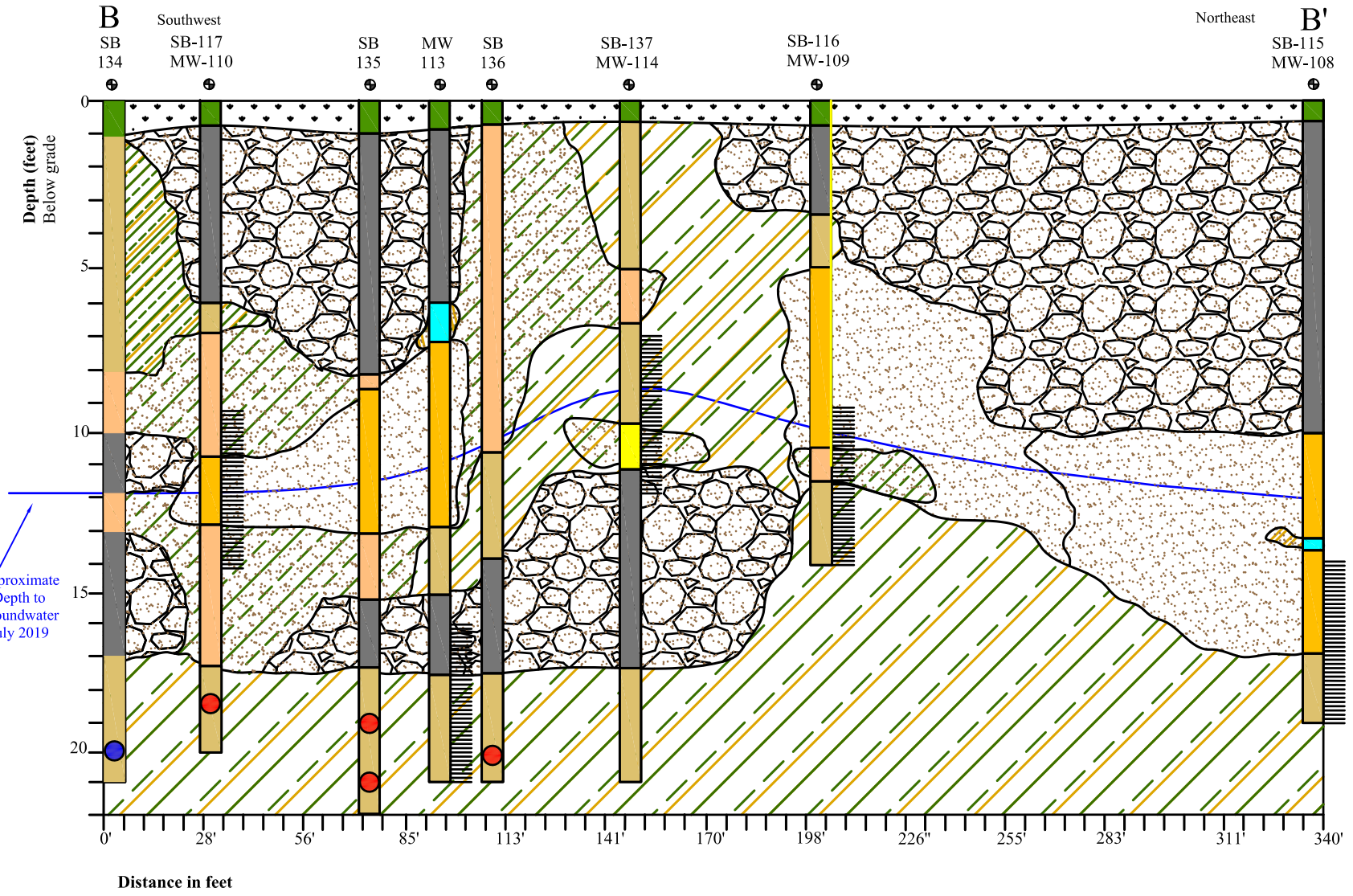

Cross Section Diagram B - B'
TCE Exceedances in Soil

Racer Flint West - 12990
Flint West Industrial Land, Flint, MI

SCALE: As Noted	**Attachment:** 1B (1)
DATE: 2015	**PROJECT:** 11-4317-102

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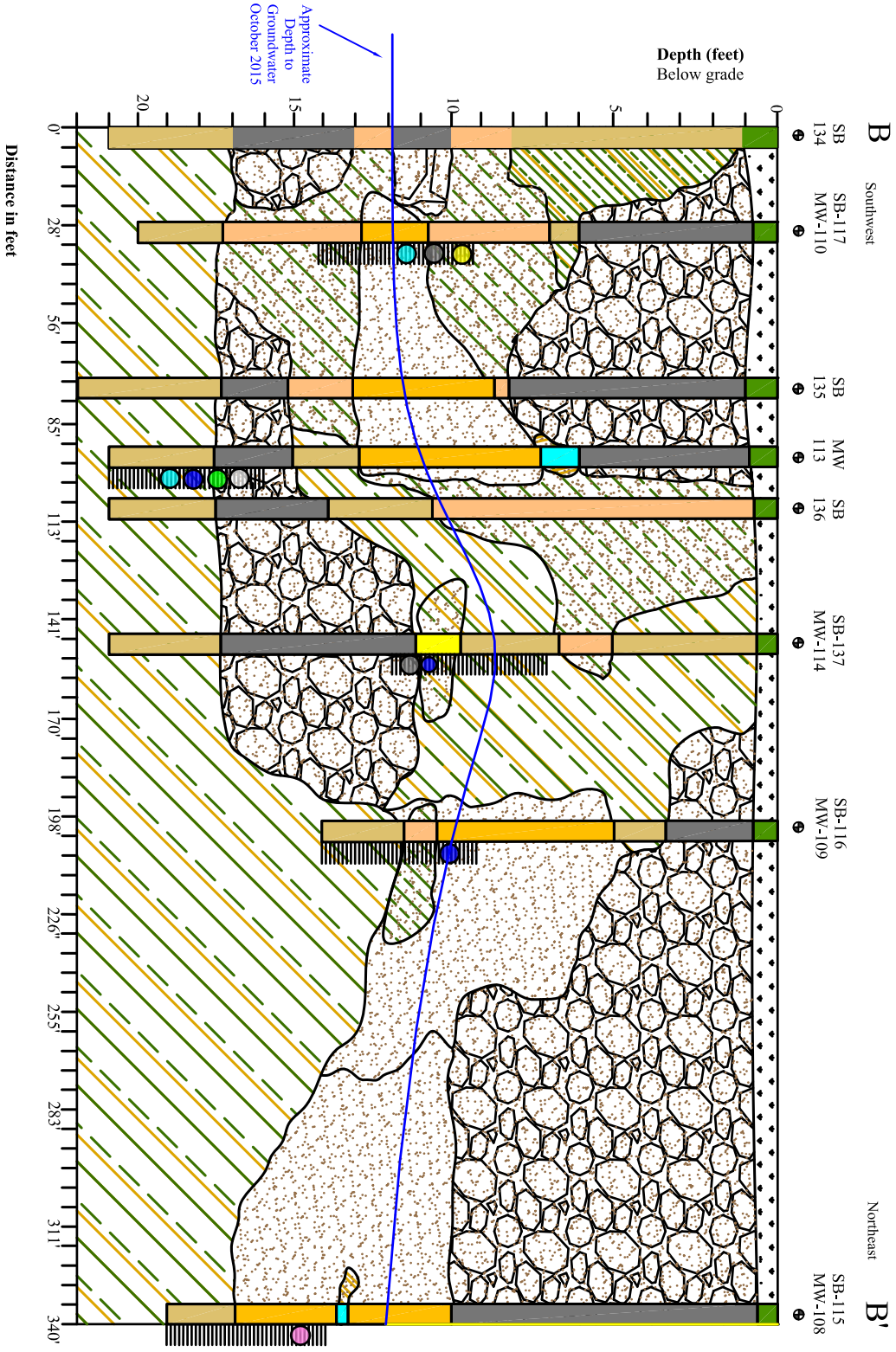

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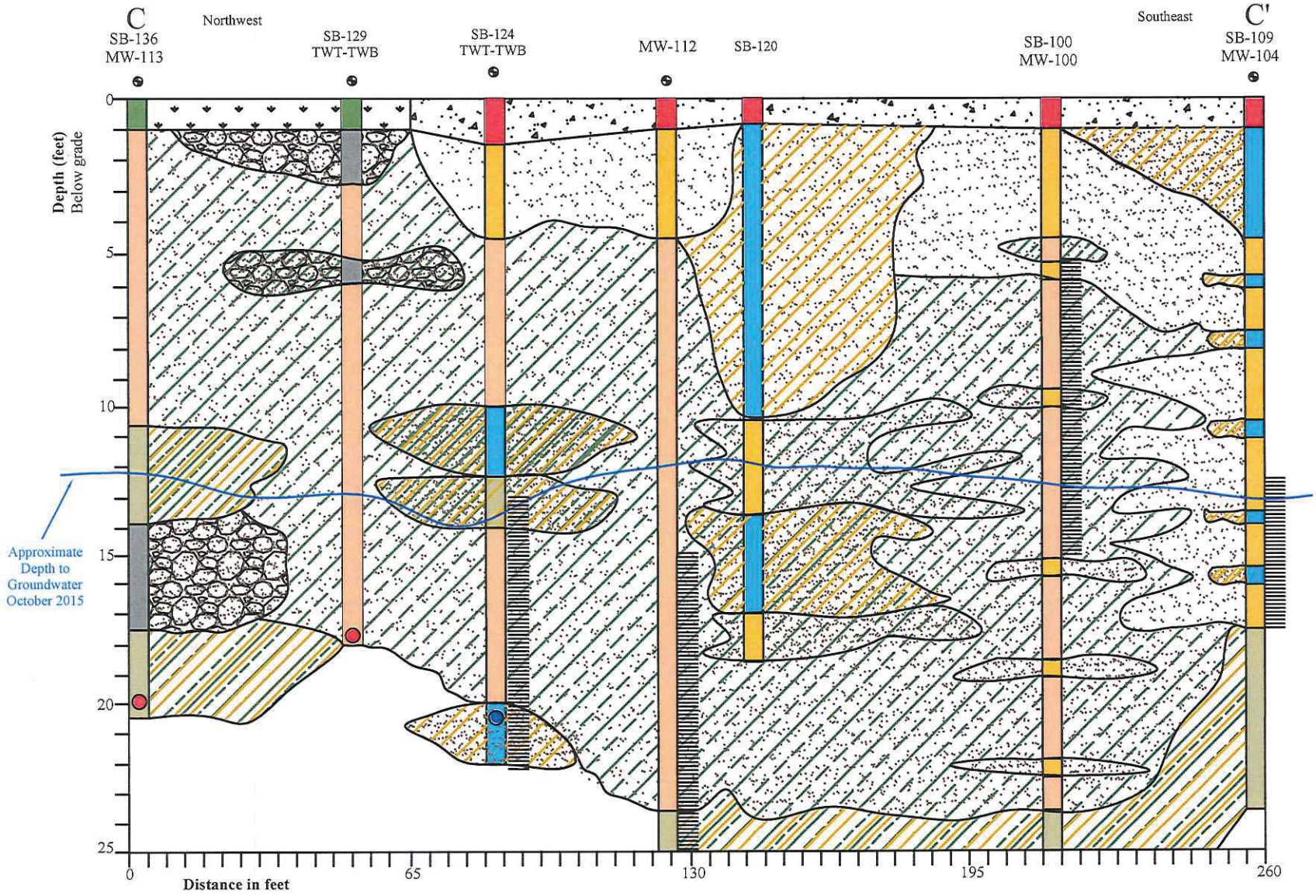
Cross Section Diagram B - B'
Dissolved Metals and TCE Exceedances in Groundwater
Racer Flint West - 12990
Flint West Industrial Land, Flint, MI

DATE:	SCALE:
2015	As Noted
PROJECT:	**Attachment:**
11-4317-102	1B (2)



Cross Section Diagram C - C'
TCE Exceedances in Soil

Racer Flint West - 12990
Flint West Industrial Land, Flint, MI

DATE:	SCALE:
2016	As Noted
PROJECT:	**Attachment:**
11-4317-102	1C (1)

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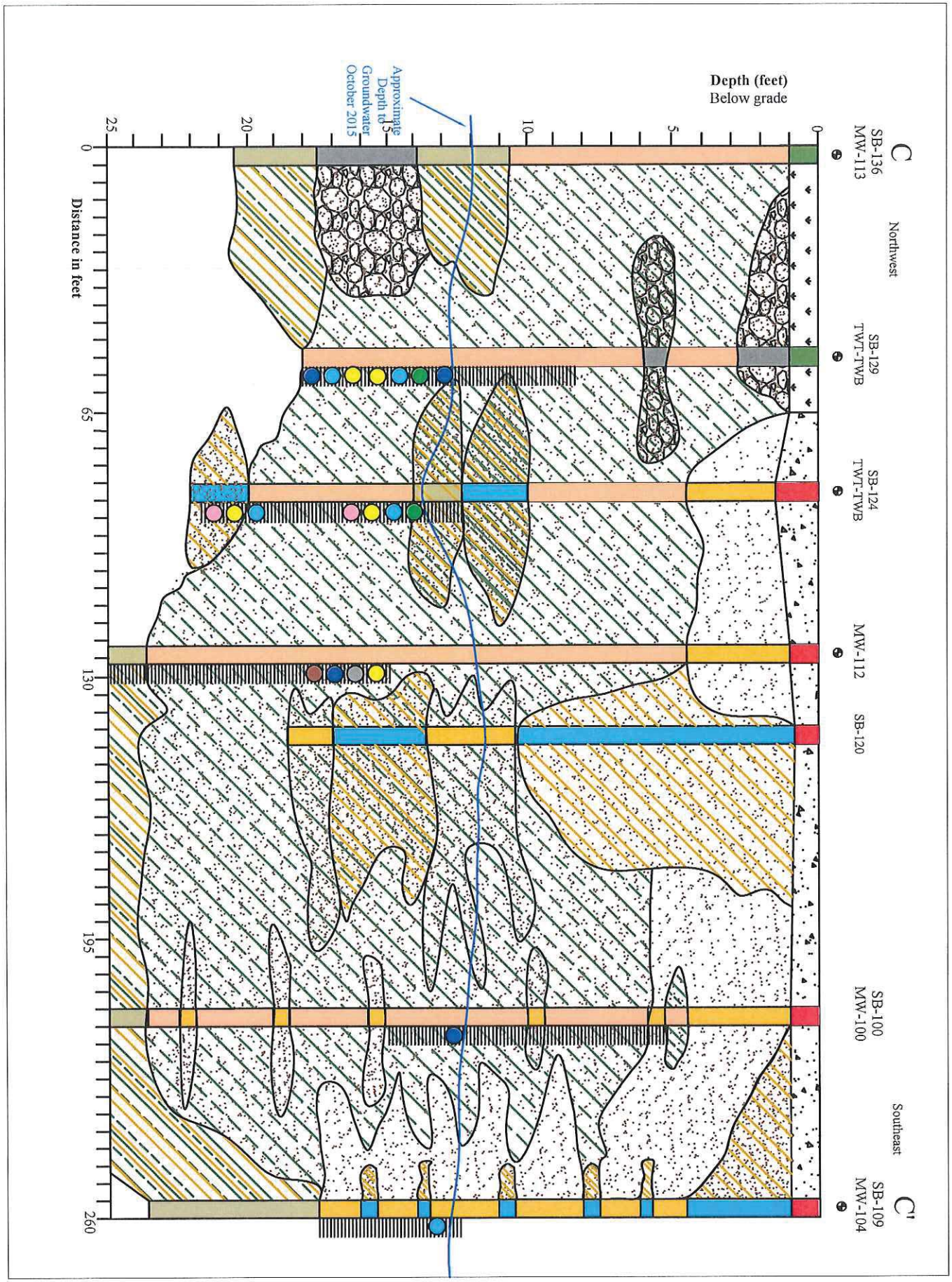

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Cross Section Diagram C - C'
Dissolved Metals and TCE Exceedances in Groundwater
Racer Flint West - 12990
Flint West Industrial Land, Flint, MI

DATE:	SCALE:
2016	As Noted
PROJECT:	**Attachment:**
11-4317-102	1C (2)

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	SB124-TWT	SB125-TWT	SB127-TWT	SB129-TWT	SB130-TWT	SB131-TWT	SB124-TWB	SB125-TWB	SB127-TWB	SB129-TWB	SB130-TWB	SB131-TWB	Dup1	Dup2	Dup3
	Date Collected				4/3/14	4/3/14	3/29/14	4/3/14	4/3/14	4/3/14	4/3/14	3/29/14	3/29/14	3/29/14	3/29/14	4/3/14	3/29/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	3/29/14		
ANALYTE (ug/L)	**DW**	GSI																														
Arsenic (dissolved)	10	10					**11**			4				**21**		**19**				**17**	**57**	4	3	2	3	**30**	**38**						
Chromium (dissolved)	100	160	G			35		22	18					7	12		**128**	13			**147**	64	25	16			17	89	19	33	14		
Copper (dissolved)	1,000	20	G											28				21		5	22	140	28	42		12	24	94	144			
Lead (dissolved)	4	44	G											**24**				**29**		**5**	**23**	**208**	**16**	**47**	1	**19**	**11**	**31**	**14**			
Selenium (dissolved)	50	5							6	5		5						12				4		12				5	3			
Zinc (dissolved)	2,400	260	G		97		23	5		62	5	16	18	81	21	9	24	311	167	82	323	326	103	241	400	166	68	241	191	12		

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105SR	MW-106S	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	SB124-TWT	SB125-TWT	SB127-TWT	SB129-TWT	SB130-TWT	SB131-TWT	SB124-TWB	SB125-TWB	SB127-TWB	SB129-TWB	SB130-TWB	SB131-TWB	Dup1	Dup2	Dup3
	Date Collected																															
ANALYTE (ug/L)	**DW**	GSI																														
Acetone	730	1,700			1.13	2.36		0.88	1.82	3.58	3.82		1.22	2.11	0.72	5.17	0.93	5.7		9.1	5.7			10.3	66	25.8	5.9		5.8	1.06		
Methyl iodide	NC	NC																														
Carbon disulfide	800	NC																							0.86	0.4						
2 Butanone (MEK)	13,000	2,200			0.73	0.86		0.41	0.83	0.78	0.94					2.98								11.6	8.6						
Chloromethane	260	NC																					0.33		0.61						
Vinyl Chloride	2.0	13									0.64		**18**		**4**	**6**	0.45			**5**			2		2			2	**4**		
Chloroethane	430	1,100													0.6	1.13				1.07					0.77						
trichlorofluoromethane	2,600	NA																														
1,1-Dichloroethene	7.0	130											4		1	0.40				1					0.81				1		
Methylene Chloride	5.0	1,500																														
trans-1,2-Dichloroethene	100	1,500											0.92		0.24	0.23												0.28	0.26		
1,1-Dichloroethane	880	740									0.21		3.00		2	0.69	2.00						3.00					2.00	2.00		
cis-1,2-Dichloroethene	70	620									3		59		46	2	26			0.042	0.69	2	21			0.36	0.93	3.00	21.00	43.00		
Tetrahydrofuran	95	11,000																														
Chloroform	80	350						3.00				0.35	0.35		0.29								0.042					0.41	0.29		
1,1,1-Trichloroethane	200	89											0.48		0.75								0.72					0.71	0.73		
4-Methyl-2-pentanone (M	1800	1000000000														0.67				0.390					0.590	2.190						
2-Hexanone	1000	1000000000																		0.750				0.210	2.170	4.570						
Carbontetrachloride	5.0	45										2																				
Benzene	5.0	200									0.25									0.43	0.12			0.17	0.21	0.81	0.21	0.16	0.23			
Bromodichloromethane	80.0	NC						0.89																								
Trichloroethene	5.0	200			3	2					4		**102**		**92**	3	**23**				**8**	3	**81**	0.55			**8**	5	**78**	**86**		
Toluene	790	270								0.35	0.63							0.23		0.39	0.20			0.38	0.30	1.00	0.35	0.24	0.44			
Tetrachloroethene	5.0	60							**47**														0.180						0.17			
Chlorobenzene	100	25																														
Styrene	100	80																		0.43												
Ethylbenzene	74	18																						0.12	0.11	0.31			0.11			
Total Xylenes	280	41																								0.79						
1,2 -Dichlorobenzene	600	13																														
1,2,4-Trimethylbenzene	63	17																							0.22	0.31						
1,2,3-Trimethylbenzene	NC	NC								0.07	0.07														0.20	0.18						
Naphthalene	520	11																0.34		0.31				0.75	1.68	0.55						
2-Methylnaphthalene	260	19																0.51		0.40				0.47	0.88	0.47						

NOTES:

	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria
X	Exceeds GSI criteria G
X	Exceeds both DW and GSI criteria
X	Compound also found in associated method blank, suggesting a laboratory artifact.
NC	Insufficient data to develop criterion/no criterion
G	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2	Dup3
	Date Collected			6/25/14	6/25/14	6/25/14	6/26/14	6/25/14	6/26/14	6/25/14	6/25/14	6/26/14	6/26/14	6/26/14	6/26/14	6/25/14	6/26/14			
ANALYTE (ug/L)	**DW**	GSI																		
Arsenic (dissolved)	10	10														**19**				
Chromium (dissolved)	100	160	G			51											**152**			
Copper (dissolved)	1,000	20	G														4			
Lead (dissolved)	4	44	G					**25**	**22**	**23**				**15**			**5**			
Selenium (dissolved)	50	5				**66**			8			6								
Zinc (dissolved)	2,400	260	G	5	11		10				5	7				8	13			

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105SR	MW-106S	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2	Dup3
	Date Collected			6/25/14	6/25/14	6/25/14	6/26/14	6/25/14	6/26/14	6/25/14	6/25/14	6/26/14	6/26/14	6/26/14	6/26/14	6/25/14	6/26/14			
ANALYTE (ug/L)	**DW**	GSI																		
Acetone	730	1,700		1.74	1.45	2.04	2.67	1.55	1.86	1.59	2.82	1.32	1.47	1.29	1.48	4.93	1.32			
Methyl iodide	NC	NC																		
Carbon disulfide	800	NC														0.42	0.36			
2 Butanone (MEK)	13,000	2,200									0.4	0.65	0.29		0.29	1.99				
Chloromethane	260	NC		0.32				0.34									0.29			
Vinyl Chloride	2.0	13											**10**			**21**	2			
Chloroethane	430	1,100														2.9				
trichlorofluoromethane	2,600	NA																		
1,1-Dichloroethene	7.0	130											4			2.00	0.39			
Methylene Chloride	5.0	1,500																		
trans-1,2-Dichloroethene	100	1,500											0.7			0.64	0.24			
1,1-Dichloroethane	880	740														1.00	3.00			
cis-1,2-Dichloroethene	70	620		0.62									3			7	59			
Tetrahydrofuran	95	11,000											70.0							
Chloroform	80	350						5.00		0.22		0.5	0.37				0.320			
1,1,1-Trichloroethane	200	89											0.50				1.00			
4-Methyl-2-pentanone (MI	1800	1000000000														0.83				
2-Hexanone	1000	1000000000														1.46				
Carbontetrachloride	5.0	45										2								
Benzene	5.0	200																		
Bromodichloromethane	80.0	NC						0.82												
Trichloroethene	5.0	200		5	1	3			**26**		2		**104**		2	**24**	**69**			
Toluene	790	270																		
Tetrachloroethene	5.0	60																		
Chlorobenzene	100	25																		
Styrene	100	80																		
Ethylbenzene	74	18																		
Total Xylenes	280	41																		
1,2 -Dichlorobenzene	600	13																		
1,2,4-Trimethylbenzene	63	17																		
1,2,3-Trimethylbenzene	NC	NC																		
Naphthalene	520	11																		
2-Methylnaphthalene	260	19																		

NOTES:

	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria
X	Exceeds GSI criteria G
X	Exceeds both DW and GSI criteria
X	Compound also found in associated method blank, suggesting a laboratory artifact.
NC	Insufficient data to develop criterion/no criterion
G	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2
	Date Collected			12/22/14	12/22/14	11/18/14	12/22/14	11/18/14	11/18/14	11/18/14	11/18/14	11/20/14	11/20/14	11/18/14	11/20/14	11/18/14	11/20/14	11/18/14	11/20/14
ANALYTE (ug/L)	**DW**	**GSI**																	
Arsenic (dissolved)	10	10		**na**										**17**		**20**			
Arsenic	10	10		**29**	4	**12**	**na**	**12**	**42**	**13**	2	5	**16**	**55**	9	**400**	**40**	**11.00**	5.00
Cadmium (dissolved)	5	5	GX	**na**		**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Cadmium	5	5	GX	**6.90**		**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Chromium (dissolved)	100	160	G	**na**	**na**	7	**na**	9	6	15				7	7			10	
Chromium	100	160	GX	**na**	**na**	62	**na**	**17,800**	**42,600**	**68,000**	14	19	16	69	**237**	**140**	**822**	**14,000**	11
Copper (dissolved)	1,000	20	G	**na**			**na**												
Copper	1,000	20	GX	230	32	22	**na**	716	802	402	29	31	26	736	22	502	300	583	21
Lead (dissolved)	4	44	G	**na**			**na**												
Lead	4	44	GX	**70**	**21**	**14**	**na**	**6**	**29**	**44**	**6**	**15**	**32**	**249**	**20**	**354**	**289**	**5**	**23**
Selenium (dissolved)	50	5		**na**			**na**		14	5									
Selenium	50	5					**na**		16	5								6	
Zinc (dissolved)	2,400	260	G	**na**	66		**na**	28		15	9	13	11	25	34	9	23	36	43
Zinc	2,400	260	GX	493	74	33	**na**	29	52	210	27	222	47	556	36	920	504	23	75

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2
	Date Collected			12/22/14	12/22/14	11/18/14	12/22/14	11/18/14	11/18/14	11/18/14	11/18/14	11/20/14	11/20/14	11/18/14	11/20/14	11/18/14	11/20/14		
ANALYTE (ug/L)	**DW**	**GSI**																	
Acetone	730	1,700		1.83	2.77		**na**									42			
Methyl iodide	NC	NC					na												
Carbon disulfide	800	NC		0.29			**na**	0.70											
2 Butanone (MEK)	13,000	2,200		0.55			**na**									24			
Chloromethane	260	NC					**na**	0.27	0.35		0.33		0.53	0.58	0.88		0.48	0.58	
Vinyl Chloride	2.0	13					**na**				0.58		**12**			**3**			
Chloroethane	430	1,100					**na**									0.88			
trichlorofluoromethane	2,600	NA					**na**												
1,1-Dichloroethene	7.0	130					**na**						5						
Methylene Chloride	5.0	1,500					**na**												
trans-1,2-Dichloroethene	100	1,500					**na**						0.9						
1,1-Dichloroethane	880	740					**na**				0.71		1			0.76	0.47		
cis-1,2-Dichloroethene	70	620		1			**na**				2	0.57	45		1	3	9		0.56
Tetrahydrofuran	95	11,000					**na**												
Chloroform	80	350					**na**	3				2	0.18					3	2
1,1,1-Trichloroethane	200	89					**na**						0.37				0.29		
4-Methyl-2-pentanone (MIBK)	1800	1000000000					**na**									3.88			
2-Hexanone	1000	1000000000					**na**									12			
Carbontetrachloride	5.0	45					**na**					2							2
Benzene	5.0	200					**na**							0.12		0.29			
Bromodichloromethane	80.0	NC					**na**	0.54										0.46	
Trichloroethene	5.0	200		2	4	0.36	**na**				5		**160**		**7**		**61**	0.3	
Toluene	790	270					**na**							0.22		0.51			
Tetrachloroethene	5.0	60			0.23		**na**		**73**				0.2				0.20		
Chlorobenzene	100	25					**na**												
Styrene	100	80					**na**												
Ethylbenzene	74	18					**na**									0.17			
Total Xylenes	280	41					**na**												
1,2 -Dichlorobenzene	600	13					**na**												
1,2,4-Trimethylbenzene	63	17					**na**												
1,2,3-Trimethylbenzene	NC	NC					na												
Naphthalene	520	11					**na**												
2-Methylnaphthalene	260	19					**na**												

NOTES:

	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria
X	Exceeds GSI criteria G =
X	Exceeds both DW and GSI criteria
X	Compound also found in associated method blank, suggesting a laboratory artifact.
NC	Insufficient data to develop criterion/no criterion
G	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River
na	Sample not analyzed for this constituent

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2
	Date Collected			DRY	4/28/15	4/28/15	4/30/15	4/28/15	4/28/15	4/28/15	4/28/15	4/30/15	4/30/15	4/30/15	4/30/15	4/28/15	4/30/15	4/28/15	4/30/15
ANALYTE (ug/L)	**DW**	GSI																	
Arsenic (dissolved)	10	10					6									**16**			6
Arsenic	10	10			4		**23**			5				2	6	**277**	6		**20**
Chromium (dissolved)	100	160	G			22		5	8									10	
Chromium	100	160	G		17	24		**1590**	**829**	**58300**					29	9	73	16	
Copper (dissolved)	1000	20	G																
Copper	1000	20	G		31	9		40	13	306						14	12		
Lead (dissolved)	4	44	G																
Lead	4	44	G		**24**					**26**						**9**	**11**		
Selenium (dissolved)	50	5							9										
Selenium	50	5							9										
Zinc (dissolved)	2400	260	G		9			8		120		6			9	39	22	11	
Zinc	2400	260	G		9			8		133		6			9	39	22	11	
Final Field Turbidity Reading, before flitering stated in ug/L					785E+3	432E+3	595E+3	1010E+3	1105E+3	1694E+3	479E+3	453E+3	505E+3	585E+3	617E+3	829E+3	729E+3		
	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105SR	MW-106S	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2
	Date Collected			DRY	4/28/15	4/28/15	4/30/15	4/28/15	4/28/15	4/28/15	4/28/15	4/30/15	4/30/15	4/30/15	4/30/15	4/28/15	4/30/15	4/28/15	4/30/15
ANALYTE (ug/L)	**DW**	GSI																	
PNAs	varies	varies																	

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105SR	MW-106S	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2
	Date Collected			DRY	4/28/15	4/28/15	4/30/15	4/28/15	4/28/15	4/28/15	4/28/15	4/30/15	4/30/15	4/30/15	4/30/15	4/28/15	4/30/15	4/28/15	4/30/15
ANALYTE (ug/L)	**DW**	GSI																	
Acetone	730	1,700														10			
Methyl iodide	NC	NC																	
Carbon disulfide	800	NC								0.17						0.16			
2 Butanone (MEK)	13,000	2,200														6.6			
Chloromethane	260	NC			4	6	2	6	5	5	4	4	4	5	5	4	2		3
Vinyl Chloride	2.0	13									0.6		**21**		**4**	**4**	2		
Chloroethane	430	1,100					0.7									5			0.77
trichlorofluoromethane	2,600	NA																	
1,1-Dichloroethene	7.0	130											4		0.88				
Methylene Chloride	5.0	1,500																	
trans-1,2-Dichloroethene	100	1,500											1		0.99		0.26		
1,1-Dichloroethane	880	740									0.56		2		2	0.52	3		
cis-1,2-Dichloroethene	70	620									2		51		48	0.66	19		
Tetrahydrofuran	95	11,000																	
Chloroform	80	350						1		0.7		1	0.28		0.29	0.21	0.19		
1,1,1-Trichloroethane	200	89											0.51		0.36				
4-Methyl-2-pentanone (MIBK	1800	1E+09														1			
2-Hexanone	1000	1E+09														3			
Carbontetrachloride	5.0	45										2							
Benzene	5.0	200			0.26		0.23												0.25
Bromodichloromethane	80.0	NC																	
Trichloroethene	5.0	200			2	0.51					2		**138**		**78**	0.62	**36**		
Toluene	790	270			0.71					0.18									
Tetrachloroethene	5.0	60							**69**										
Chlorobenzene	100	25																	0.17
Styrene	100	80					0.15												0.21
Ethylbenzene	?	?																	
Total Xylenes	280	41																	
1,2 -Dichlorobenzene	?	?																	
1,2,4-Trimethylbenzene	63	17																	
1,2,3-Trimethylbenzene	NC	NC																	
Naphthalene	520	11																	
2-Methylnaphthalene	260	19																	

NOTES:

	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated method blank, suggesting a laboratory artifact.
NC	Insufficient data to develop criterion/no criterion
G	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank
	Date Collected			DRY	10/26/15	10/26/15	10/27/15	10/26/15	10/26/15	10/26/15	10/26/15	10/27/15	10/27/15	10/27/15	10/27/15	10/26/15	10/27/15	10/26/15	10/26/15
ANALYTE (ug/L)	**DW**	GSI																	
Arsenic (dissolved)	10	10		DRY			4							3.31	0.51	4	1.09		
Arsenic	10	10		DRY	4.3	**20**	**140**	**13.6**	**70**	**53**	**68**	**18.4**	**40**	**30**	**60**	**235**	**30**		
Chromium (dissolved)	100	160	G	DRY	2.39	7.1	0.51		23	**128**		0.67	0.5	0.66	4.35	0.57	0.76		
Chromium	100	160	G	DRY	49.1	90	**120**	**10,000**	16.2	**446,000**	29.5	70	70	16.4	**1,140**	**150**	**220**		
Copper (dissolved)	1000	20	G	DRY				1.04	1.89	1.5	4.88	2.28	7.11	12	2.85	115	3.13		
Copper	1000	20	G	DRY	14.42	37.44	160	210	820	**2,760**	70	90	90	90	70	200	80		
Lead (dissolved)	4	44	G	DRY				1.57		1.11						1.27			
Lead	4	44	G	DRY	**7.61**	**20.45**	**80**	**29.78**	**180**	**300**	**16.86**	**90**	**70**	**20.3**	**40**	**100**	**50**		
Selenium (dissolved)	50	5		DRY		1.3		1.9	9.9	4.6	2.2	1.4	2	***1.2***		**102**			
Selenium	50	5		DRY	12	16		15	17						***16***				
Zinc (dissolved)	2400	260	G	DRY	35	111	12	42	24	22	17	16	15	19	34	101	84		
Zinc	2400	260	G	DRY	40.3	100	410	160	800	1,600	110	350	230	70	140	450	170		
	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank
	Date Collected			DRY	10/26/15	10/26/15	10/27/15	10/26/15	10/26/15	10/26/15	10/26/15	10/27/15	10/27/15	10/27/15	10/27/15	10/26/15	10/27/15	10/26/15	10/26/15
ANALYTE (ug/L)	**DW**	GSI																	
Acetone	730	1,700		DRY															
Methyl iodide	NC	NC		DRY															
Carbon disulfide	800	NC		DRY															
2 Butanone (MEK)	13,000	2,200		DRY			1.74											0.82	0.79
Chloromethane	260	NC		DRY															
Vinyl Chloride	2.0	13		DRY									**20**		**97**				
Chloroethane	430	1,100		DRY															
trichlorofluoromethane	2,600	NA		DRY															
1,1-Dichloroethene	7.0	130		DRY									5.3		4	0.76			
Methylene Chloride	5.0	1,500		DRY															
trans-1,2-Dichloroethene	100	1,500		DRY											1		0.27		
1,1-Dichloroethane	880	740		DRY									3.3		2		1		
cis-1,2-Dichloroethene	70	620		DRY							0.42	0.66	**80**		42	1	23		
Tetrahydrofuran	95	11,000		DRY															
Chloroform	80	350		DRY				2				3							
1,1,1-Trichloroethane	200	89		DRY											0.33		0.45		
4-Methyl-2-pentanone (MIBK)	1800	1000000000		DRY												1.09			
2-Hexanone	1000	1000000000		DRY												1.64			
Carbontetrachloride	5.0	45		DRY								3							
Benzene	5.0	200		DRY			0.21		0.26	0.22						0.2			
Bromodichloromethane	80.0	NC		DRY				0.65											
Trichloroethene	5.0	200		DRY	3	0.68		0.68			2	0.33	**200**		**92**		**67**		
Toluene	790	270		DRY					0.58	0.4	0.31					0.37			
Tetrachloroethene	5.0	60		DRY					**58**										
Chlorobenzene	100	25		DRY															
Styrene	100	80		DRY															
Ethylbenzene	74	18		DRY															
Total Xylenes	280	41		DRY															
1,2 -Dichlorobenzene	600	13		DRY															
1,2,4-Trimethylbenzene	63	17		DRY															
1,2,3-Trimethylbenzene	NC	NC		DRY															
Naphthalene	520	11		DRY															
2-Methylnaphthalene	260	19		DRY															

NOTES:

	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated method blank, suggesting a laboratory artifact.
NC	Insufficient data to develop criterion/no criterion
G	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River

Table 1

GROUNDWATER ANALYTICAL DATA

RACER - Flint West #12990

As Erronously Labeled in May 23, 2016 Laboratory Report

														MW-112	**MW-113**							**MW-120**									
	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank	Trip Blank	Field Blank	Dup1	Trip Blank	Field Blank	Dup2	Dup3
	Date Collected			5/11/16	5/11/16	NS	6/8/16	6/1/16	NS	5/11/16	5/11/16	6/1/16	6/1/16	6/1/16	6/8/16	5/11/16	6/1/16	5/11/16	5/11/16	6/1/16	6/1/16	6/1/16	6/8/16	6/8/16	6/8/16	6/8/16
ANALYTE (ug/L)	**DW**	GSI																													
Arsenic (dissolved)	10	10				**NS**	6	1.65	**NS**				0.65	1.21	0.55	**18**	2.08										
Arsenic	10	10			3	**NS**	**22**	1.62	**NS**	3		0.96	5	3	1	**79**	9										
Chromium (dissolved)	100	160	G			**NS**	1.16	1.19	**NS**			1.42	1.17	1.77	3.33		1.73										
Chromium (total)	100	160	G	5	13	**NS**	1	**465**	**NS**	77	3	1.91	3.38	1.3	4		4.86										
Chromium VI (dissolved)	100	160				**NS**			**NS**																		
Chromium VI (total)	100	160		**NA**	**NA**	**NS**	**NA**		**NS**	**NA**				**NA**		**NA**	**NA**										
Copper (dissolved)	1000	20	G			**NS**	2.02	0.51	**NS**			2.32	6	1.49	1.25		0.73										
Copper	1000	20	G	4	7	**NS**	0.77	16	**NS**	7	3	1.95	8	0.74	1.38												
Lead (dissolved)	4	44	G			**NS**	0.278	0.764	**NS**			0.187	0.325	0.32	0.094	1	0.155										
Lead	4	44	G	2	3	**NS**	0.105	0.554	**NS**	2		0.785	2.6		0.5												
Selenium (dissolved)	50	5				**NS**			**NS**			6															
Selenium	50	5				**NS**		6	**NS**			6															
Zinc (dissolved)	2400	260	G	21		**NS**	1870	18	**NS**			1220	730	373	49	5	317										
Zinc	2400	260	G	11	22	**NS**	2.46	1.48	**NS**	12	7	6	10		2.95	7											

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank	Trip Blank	Field Blank	Dup2	Trip Blank	Field Blank	Dup3	Dup3
	Date Collected			5/11/16	5/11/16	NS	6/8/16	6/1/16	NS	5/11/16	5/11/16	6/1/16	6/1/16	6/1/16	6/8/16	5/11/16	6/1/16	5/11/16	5/11/16	6/1/16	6/1/16	6/1/16	6/8/16	6/8/16	6/8/16	6/8/16
ANALYTE (ug/L)	**DW**	GSI																													
Acetone	730	1,700		2.72	1.62	**NS**			**NS**	2.72	2.1		0.6	0.67		4.21			1.98		0.69						
Methyl iodide	NC	NC				**NS**			**NS**																		
Carbon disulfide	800	NC				**NS**			**NS**																		
2 Butanone (MEK)	13,000	2,200				**NS**			**NS**							1.36			0.37								
Chloromethane	260	NC				**NS**			**NS**																		
Vinyl Chloride	2.0	13				**NS**			**NS**				**15**			**17**											
Chloroethane	430	1,100				**NS**			**NS**							2.59											
trichlorofluoromethane	2,600	NA				**NS**			**NS**																		
1,1-Dichloroethene	7.0	130				**NS**			**NS**				3														
Methylene Chloride	5.0	1,500				**NS**			**NS**																		
trans-1,2-Dichloroethene	100	1,500				**NS**			**NS**				0.59			0.36											
1,1-Dichloroethane	880	740				**NS**			**NS**				1			1	3										
cis-1,2-Dichloroethene	70	620		0.34		**NS**			**NS**							3	30										
Tetrahydrofuran	95	11,000				**NS**			**NS**																		
Chloroform	80	350				**NS**		3	**NS**			1									0.490	3.000					
1,1,1-Trichloroethane	200	89				**NS**			**NS**				0.31				0.3										
4-Methyl-2-pentanone (MIBK)	1800	ID				**NS**			**NS**							0.3											
2-Hexanone	1000	ID				**NS**			**NS**							0.47											
Carbontetrachloride	5.0	45				**NS**			**NS**			2															
Benzene	5.0	200				**NS**			**NS**																		
Bromodichloromethane	80.0	NC				**NS**		0.74	**NS**													0.710					
Trichloroethene	5.0	200		4	2	**NS**			**NS**	4	0.26		**93**		**11**	**12**	**50**										
Toluene	790	270				**NS**			**NS**																		
Tetrachloroethene	5.0	60				**NS**			**NS**																		
Chlorobenzene	100	25				**NS**			**NS**																		
Styrene	100	80				**NS**			**NS**																		
Ethylbenzene	74	18				**NS**			**NS**																		
Total Xylenes	280	41				**NS**			**NS**																		
1,2 -Dichlorobenzene	600	13				**NS**			**NS**																		
1,2,4-Trimethylbenzene	63	17				**NS**			**NS**																		
1,2,3-Trimethylbenzene	NC	NC				**NS**			**NS**																		
Naphthalene	520	11				**NS**			**NS**																		
2-Methylnaphthalene	260	19				**NS**			**NS**																		
Diethyl ether	10 (E)	ID				**NS**			**NS**																		
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)				**NS**			**NS**																		
Acrylonitrile	2.6	2.0 (M); 1.2				**NS**			**NS**																		
Dichlorodifluoromethane	1,700	ID				**NS**			**NS**																		
Bromomethane	10	35				**NS**			**NS**																		
1,2-Dichloroethane	5.0 (A)	360 (X)				**NS**			**NS**																		
Trichloroethene	5.0 (A)	200 (X)				**NS**			**NS**																		
1,2-Dichloropropane	5.0 (A)	230 (X)				**NS**			**NS**																		
cis-1,3-Dichloropropene	NC	NC				**NS**			**NS**																		
trans-1,3-Dichloropropene	NC	NC				**NS**			**NS**																		
1,1,2-Trichloroethane	5.0 (A)	330 (X)				**NS**			**NS**																		
trans-1,4-Dichloro-2-butene	NC	NC				**NS**			**NS**																		
Dibromochloromethane	80 (A,W)	ID				**NS**			**NS**																		
1,2-Dibromoethane	NC	NC				**NS**			**NS**																		
1,1,1,2-Tetrachloroethane	77	ID				**NS**			**NS**																		
Isopropylbenzene	800	28				**NS**			**NS**																		
Bromoform	80 (A,W)	ID				**NS**			**NS**																		
1,1,2,2-Tetrachloroethane	8.5	78 (X)				**NS**			**NS**																		
1,2,3-Trichloropropane	42	NA				**NS**			**NS**																		
n-Propylbenzene	80	ID				**NS**			**NS**																		
Bromobenzene	18	NA				**NS**			**NS**																		
1,3,5-Trimethylbenzene	72 (E)	45				**NS**			**NS**																		
tert-Butylbenzene	80	ID				**NS**			**NS**																		
1,2,4-Trimethylbenzene	63 (E)	17				**NS**			**NS**																		
1,2,3-Trichlorobenzene	NC	NC				**NS**			**NS**																		

NOTES:

	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated method blank, suggesting a laboratory artifact.
NC	Insufficient data to develop criterion/no criterion
G	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S			Dup			Dup			
	Date Collected			10/27/16	10/27/16	11/1/16	10/31/16	11/1/16	11/1/16	10/27/16	10/27/16	10/31/16	10/31/16	10/31/16	10/31/16	10/27/16	10/31/16			10/27/16			10/31/16			
ANALYTE (ug/L)	DW	GSI																								
Arsenic (dissolved)	10	10				1.63			1.23		0.79	15			6	108	4			34						
Arsenic	10	10		1.69	0.7	4			6	0.93	1.05	52	1.26		11	265	17			259			2			
Chromium (dissolved)	100	160	G	0.95	20	6		24	407	340	0.18	0.56			0.41	2.41	2.86			0.59			0.64			
Chromium (total)	100	160	G	10	63	8	0.059	146	6540	619	19	1.31	0.62	6	2	9	22			6			1.38			
Chromium VI (dissolved)	100	160												14												
Chromium VI (total)	100	160																								
Copper (dissolved)	1000	20	G	0.91	4.31	2.20	0.99	2.22	31	32	1.25		6		6	6				3			0.86			
Copper	1000	20	G	5	18	1.41	1.1	4.16	203	64	2.46		6	1.85	6	10	2.94			6			1.63			
Lead (dissolved)	4	44	G	0.144	0.148	0.97	0.116		0.85	0.451			0.151	0.075	0.978	1.651				0.191			0.361			
Lead	4	44	G	2.32	0.895	1.33	0.306		3.00	0.632	0.35	0.161	0.479	0.523	1.3	5	2.855			3.000			0.928			
Selenium (dissolved)	50	5																								
Selenium	50	5																								
Zinc (dissolved)	2400	260	G	20.6	2.28	5	4.19		390	2.89	10	2.36	3.46		6	16	2.05			10			6			
Zinc	2400	260	G	12	5	6	2.35		1380	2	11		3.59	2.3	7	32	9			21			6			

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank	Dup	Trip Blank	Field Blank	Dup			
	Date Collected			10/27/16	10/27/16	11/1/16	10/31/16	11/1/16	11/1/16	10/27/16	10/27/16	10/31/16	10/31/16	10/31/16	10/31/16	10/27/16	10/31/16	10/27/16	10/27/16	10/27/16	10/31/16	10/31/16	10/31/16			
ANALYTE (ug/L)	DW	GSI																								
Acetone	730	1,700														10										
Methyl Iodide	NC	NC																								
Carbon disulfide	800	NC																								
2 Butanone (MEK)	13,000	2,200																								
Chloromethano	260	NC																								
Vinyl Chloride	2.0	13											8		72	2				2						
Chloroethane	430	1,100														3				3						
Irichlorofluoromethane	2,600	NA																								
1,1-Dichloroethene	7.0	130											3		4											
Methylene Chloride	5.0	1,500																								
trans-1,2-Dichloroetheno	100	1,500																								
1,1-Dichloroethane	880	740											2		2											
cis-1,2-Dichloroethene	70	620									2		32		10	2	11			2						
Tetrahydrofuran	95	11,000																								
Chloroform	80	350						1				3											2			
1,1,1-Trichloroethane	200	89																								
4-Methyl-2-pentanono (MIBK)	1800	ID																								
2-Hexanone	1000	ID																								
Carbontetrachloride	5.0	45										2											1			
Benzene	5.0	200																								
Bromodichloromethane	80.0	NC																								
Trichloroethene	5.0	200		3	2						3		119		41	3	50			2						
Toluene	790	270																								
Tetrachloroethene	5.0	60							34																	
Chlorobenzene	100	25																								
Styrene	100	80																								
Ethylbenzene	74	18																								
Total Xylenes	280	41																								
1,2 -Dichlorobenzene	600	13																								
1,2,4-Trimethylbenzene	63	17																								
1,2,3-Trimethylbenzene	NC	NC																								
Naphthalene	520	11																								
2-Methylnaphthalene	260	19																								
Diethyl ether	10 (E)	ID																								
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)																								
Acrylonitrile	2.6	2.0 (M); 1.2																								
Dichlorodifluoromethane	1,700	ID																								
Bromomethane	10	35																								
1,2-Dichloroethane	5.0 (A)	360 (X)																								
Trichloroethene	5.0 (A)	200 (X)																								
1,2-Dichloropropane	5.0 (A)	230 (X)																								
cis-1,3-Dichloropropene	NC	NC																								
trans-1,3-Dichloropropene	NC	NC																								
1,1,2-Trichloroethano	5.0 (A)	330 (X)																								
trans-1,4-Dichloro-2-butene	NC	NC																								
Dibromochloromethane	80 (A,W)	ID																								
1,2-Dibromoethano	NC	NC																								
1,1,1,2-Tetrachloroethane	77	ID																								
Isopropylbenzene	800	28																								
Bromoform	80 (A,W)	ID																								
1,1,2,2-Tetrachloroethane	8.5	78 (X)																								
1,2,3-Trichloropropane	42	NA																								
n-Propylbenzene	80	ID																								
Bromobenzene	18	NA																								
1,3,5-Trimethylbenzene	72 (E)	45																								
tert-Butylbenzene	80	ID																								
1,2,4-Trimethylbenzene	63 (E)	17																								
1,2,3-Trichlorobenzeno	NC	NC																								

NOTES:

	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
NC	Insufficient data to develop criterion/no criterion
G	Groundwator to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River
NS	No Sample
1	Filtered in lab
2	Filtered and preserved in lab
NA	Not analyzed due to turbidity

Derected Concentrations for compounds also found in the method blank that appear to be laboratory artifacts are not provided.

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990
As Erronously Labeled in May 23, 2016 Laboratory Report

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank	Trip Blank	Field Blank	Dup1	Trip Blank	Field Blank	Dup2	Dup3
	Date Collected			NS	6/13/17	6/13/17	6/13/17	6/13/17	6/13/17	6/13/17	6/13/17	NS	NS	NS	6/13/17	6/13/17	NS	6/13/17	6/13/17			6/13/17				
ANALYTE (ug/L)	**DW**	GSI																								
Arsenic (dissolved)	10	10			0.85		9.00	0.41	0.64	0.58		**NS**	**NS**	**NS**	1.37	**82.00**	**NS**					**84.000**				
Arsenic	10	10			0.63	3.00	**13.00**	0.53	0.56	1.11	0.44	**NS**	**NS**	**NS**	1.45	**126.00**	**NS**					**123.000**				
Chromium (dissolved)	100	160	G		1.57	12.00	0.22	28.00	37.00	100.00	0.16	**NS**	**NS**	**NS**	2.69	0.34	**NS**					0.62				
Chromium (total)	100	160	G		21	72.00	1.50	**1640.00**	**776.00**	**2500.00**		**NS**	**NS**	**NS**	7.00	0.37	**NS**					0.7				
Chromium VI (dissolved)	100	160				8.00	0.86					**NS**	**NS**	**NS**			**NS**									
Chromium VI (total)	100	160				6.00						**NS**	**NS**	**NS**			**NS**									
Copper (dissolved)	1000	20	G		0.59	1.56	0.86	6.00	2.38	4.31	1.61	**NS**	**NS**	**NS**	1.34		**NS**					0.4				
Copper	1000	20	G		2.47	8.00	1.81	33.00	8.00	28.00	1.60	**NS**	**NS**	**NS**	1.38		**NS**					0.62				
Lead (dissolved)	4	44	G			0.15	0.09		0.06	0.18	0.13	**NS**	**NS**	**NS**	0.21	0.06	**NS**									
Lead	4	44	G		0.547	2.82	0.53	0.14	0.22	0.76	0.14	**NS**	**NS**	**NS**	0.96	0.08	**NS**					0.066				
Selenium (dissolved)	50	5										**NS**	**NS**	**NS**			**NS**									
Selenium	50	5										**NS**	**NS**	**NS**			**NS**									
Zinc (dissolved)	2400	260	G		1.69	2.09	2.48	3.13	5.00	2.20	4.41	**NS**	**NS**	**NS**	1.72	2.22	**NS**					2.25				
Zinc	2400	260	G		3.16	9.00	3.22	2.59	13.00	4.68	3.01	**NS**	**NS**	**NS**	2.54	4.07	**NS**					5				

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank	Trip Blank	Field Blank	Dup1	Trip Blank	Field Blank	Dup3	Dup3
	Date Collected			6/13/17	6/13/17	6/13/17	6/13/17	6/13/17	6/13/17	6/13/17	6/13/17	NS	NS	NS	6/13/17	6/13/17	NS	6/13/17	6/13/17			6/13/17				
ANALYTE (ug/L)	**DW**	GSI																								
Acetone	730	1,700		**NS**	4.29	2.15	3.86	2.50	4.15	2.26	2.40	**NS**	**NS**	**NS**	4.31	5.87	**NS**	3.04	5.67			4.61				
Methyl iodide	NC	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
Carbon disulfide	800	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
2 Butanone (MEK)	13,000	2,200		**NS**	0.89							**NS**	**NS**	**NS**	0.80	2.00	**NS**		0.9			1.37				
Chloromethane	260	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
Vinyl Chloride	2.0	13		**NS**								**NS**	**NS**	**NS**		**10.00**	**NS**					**12**				
Chloroethane	430	1,100		**NS**								**NS**	**NS**	**NS**		1.59	**NS**					2.05				
trichlorofluoromethane	2,600	NA		**NS**	0.56							**NS**	**NS**	**NS**			**NS**									
1,1-Dichloroethene	7.0	130		**NS**								**NS**	**NS**	**NS**		1.00	**NS**					2				
Methylene Chloride	5.0	1,500		**NS**								**NS**	**NS**	**NS**		0.35	**NS**		0.31			0.41				
trans-1,2-Dichloroethene	100	1,500		**NS**								**NS**	**NS**	**NS**		0.39	**NS**					0.53				
1,1-Dichloroethane	880	740		**NS**								**NS**	**NS**	**NS**		1.00	**NS**					1				
cis-1,2-Dichloroethene	70	620		**NS**								**NS**	**NS**	**NS**		4.00	**NS**					6				
Tetrahydrofuran	95	11,000		**NS**								**NS**	**NS**	**NS**			**NS**									
Chloroform	80	350		**NS**				1.00				**NS**	**NS**	**NS**			**NS**		11.000							
1,1,1-Trichloroethane	200	89		**NS**								**NS**	**NS**	**NS**			**NS**									
4-Methyl-2-pentanone (MIBK)	1800	ID		**NS**							0.15	**NS**	**NS**	**NS**		0.75	**NS**									
2-Hexanone	1000	ID		**NS**								**NS**	**NS**	**NS**		0.97	**NS**									
Carbontetrachloride	5.0	45		**NS**								**NS**	**NS**	**NS**			**NS**									
Benzene	5.0	200		**NS**								**NS**	**NS**	**NS**		0.20	**NS**									
Bromodichloromethane	80.0	NC		**NS**				0.55				**NS**	**NS**	**NS**			**NS**		2.00							
Trichloroethene	5.0	200		**NS**	0.97	0.74					0.25	**NS**	**NS**	**NS**	3.00	**10.00**	**NS**					**15**				
Toluene	790	270		**NS**								**NS**	**NS**	**NS**			**NS**									
Tetrachloroethene	5.0	60		**NS**					**29.00**			**NS**	**NS**	**NS**			**NS**									
Chlorobenzene	100	25		**NS**								**NS**	**NS**	**NS**			**NS**									
Styrene	100	80		**NS**								**NS**	**NS**	**NS**			**NS**									
Ethylbenzene	74	18		**NS**								**NS**	**NS**	**NS**			**NS**									
Total Xylenes	280	41		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2 -Dichlorobenzene	600	13		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2,4-Trimethylbenzene	63	17		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2,3-Trimethylbenzene	NC	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
Naphthalene	520	11		**NS**								**NS**	**NS**	**NS**			**NS**									
2-Methylnaphthalene	260	19		**NS**								**NS**	**NS**	**NS**	**1.40**		**NS**									
Diethyl ether	10 (E)	ID		**NS**								**NS**	**NS**	**NS**			**NS**									
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)		**NS**								**NS**	**NS**	**NS**			**NS**									
Acrylonitrile	2.6	2.0 (M); 1.2		**NS**								**NS**	**NS**	**NS**			**NS**									
Dichlorodifluoromethane	1,700	ID		**NS**								**NS**	**NS**	**NS**			**NS**		0.32							
Bromomethane	10	35		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2-Dichloroethane	5.0 (A)	360 (X)		**NS**								**NS**	**NS**	**NS**			**NS**									
Trichloroethene	5.0 (A)	200 (X)		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2-Dichloropropane	5.0 (A)	230 (X)		**NS**								**NS**	**NS**	**NS**			**NS**									
cis-1,3-Dichloropropene	NC	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
trans-1,3-Dichloropropene	NC	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
1,1,2-Trichloroethane	5.0 (A)	330 (X)		**NS**								**NS**	**NS**	**NS**			**NS**									
trans-1,4-Dichloro-2-butene	NC	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
Dibromochloromethane	80 (A,W)	ID		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2-Dibromoethane	NC	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
1,1,1,2-Tetrachloroethane	77	ID		**NS**								**NS**	**NS**	**NS**			**NS**									
Isopropylbenzene	800	28		**NS**								**NS**	**NS**	**NS**			**NS**									
Bromoform	80 (A,W)	ID		**NS**								**NS**	**NS**	**NS**			**NS**									
1,1,2,2-Tetrachloroethane	8.5	78 (X)		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2,3-Trichloropropane	42	NA		**NS**								**NS**	**NS**	**NS**			**NS**									
n-Propylbenzene	80	ID		**NS**								**NS**	**NS**	**NS**	**0.30**		**NS**									
Bromobenzene	18	NA		**NS**								**NS**	**NS**	**NS**			**NS**									
1,3,5-Trimethylbenzene	72 (E)	45		**NS**								**NS**	**NS**	**NS**			**NS**									
tert-Butylbenzene	80	ID		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2,4-Trimethylbenzene	63 (E)	17		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2,3-Trichlorobenzene	NC	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
n-Butylbenzene	NC	NC		**NS**								**NS**	**NS**	**NS**	**0.270**		**NS**									

NOTES:

	Blank cells indicate no detectable concentrations	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria	Exceeds DW criteria
X	Exceeds GSI criteria	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria	Exceeds both DW and GSI criteria
X	Compound also found in associated method blank, suggestin	Compound also found in associated method blank, suggesting a laboratory artifact.
NC	Insufficient data to develop criterion/no criterion	Insufficient data to develop criterion/no criterion
G	Groundwater to Surface Water Interface Criteria - calculated	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Field Dupe	Trip Blank	Field Blank	Equip Blank
Date Collected				1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18
METALS ANALYTE (ug/L)	**DW**	GSI																				
Arsenic (dissolved)	10	10			2	1.094	**29**	<2	<2		0.548				4	**100**		**108**			
Arsenic	10	10			3	3	**34**	<2	<2		<2				10	**129**		**131**			
Chromium (dissolved)	100	160	G		41	9	<5	86	13		<5				37	1.217		0.537			
Chromium (total)	100	160	G		**244**	28	<5	**1,740**	**141**		<5				68	1.540		0.4368			
Chromium VI (dissolved)	100	160			<10	<10	<10	<10	<10		<10				<10	<10		<10			
Chromium VI (total)	100	160			<10	<10	<20	<10	<10		<10				<10	<20		<20			
Copper (dissolved)	1000	20	G		5	2.446	0.908	5	1.182		1.134				3.403	0.547		0.555			
Copper	1000	20	G		**21**	4.359	0.736	**34**	3.337		1.057				7	1.333		1.671			
Lead (dissolved)	4	44	G		1.836	1.058	<3	<3	<3		<3				2.084	<3		<3			
Lead	4	44	G		4	3	<3	0.739	<3		<3				**6**	<3		1.217			
Selenium (dissolved)	50	5			2	4	<5	2	**8**		1				1	1		1			
Selenium	50	5			2	4	<5	2	**11**		1				1	<5		1			
Zinc (dissolved)	2400	260	G		8	5	1.90	<5	2		2.24				7	2.480		2.5			
Zinc	2400	260	G		18	11	2.55	14	2.31		1.55				12	6		15			
VOC ANALYTE (ug/L)	**DW**	GSI																				
Acetone	730	1,700																		6.3	6.4
Methyl iodide	NC	NC																			
Carbon disulfide	800	NC																			
2 Butanone (MEK)	13,000	2,200																			
Chloromethane	260	NC																			
Vinyl Chloride	2.0	13					0.29				0.77					2		1			
Chloroethane	430	1,100																0.31			
trichlorofluoromethane	2,600	NA																			
1,1-Dichloroethene	7.0	130													0.31						
Methylene Chloride	5.0	1,500																			
trans-1,2-Dichloroethene	100	1,500													0.16						
1,1-Dichloroethane	880	740									0.97				2	0.70		0.75			
cis-1,2-Dichloroethene	70	620									2.00				51	3		2			
Tetrahydrofuran	95	11,000																			
Chloroform	80	350						2.00							0.24						
1,1,1-Trichloroethane	200	89																			
4-Methyl-2-pentanone (MIBK)	1800	ID																0.410			
2-Hexanone	1000	ID																0.95			
Carbon tetrachloride	5.0	45																			
Benzene	5.0	200					0.20				0.18										
Bromodichloromethane	80.0	NC						0.68													
Trichloroethene	5.0	200			3						5.00				**30**	2		0.83			
Toluene	790	270																			
Tetrachloroethene	5.0	60							**43**												
Chlorobenzene	100	25																			
Styrene	100	80																			

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

		Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Field Dupe	Trip Blank	Field Blank	Equip Blank
		Date Collected	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18
VOC ANALYTE (ug/L) {cont}	**DW**	GSI																		
Ethylbenzene	74	18																		
Total Xylenes	280	41																		
1,2 -Dichlorobenzene	600	13																		
1,3 -Dichlorobenzene	6.6	28		0.36	0.46	0.43		0.23						0.30	0.30		0.26			
1,2,4-Trimethylbenzene	63	17																		
1,2,3-Trimethylbenzene	NC	NC																		
Naphthalene	520	11																		
2-Methylnaphthalene	260	19																		
Diethyl ether	10 (E)	ID																		
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)																		
Acrylonitrile	2.6	2.0 (M); 1.2																		
Dichlorodifluoromethane	1,700	ID																		
Bromomethane	10	35																		
1,2-Dichloroethane	5.0 (A)	360 (X)																		
Trichloroethene	5.0 (A)	200 (X)																		
1,2-Dichloropropane	5.0 (A)	230 (X)																		
cis-1,3-Dichloropropene	NC	NC																		
trans-1,3-Dichloropropene	NC	NC																		
1,1,2-Trichloroethane	5.0 (A)	330 (X)																		
trans-1,4-Dichloro-2-butene	NC	NC																		
Dibromochloromethane	80 (A,W)	ID																		
1,2-Dibromoethane	NC	NC																		
1,1,1,2-Tetrachloroethane	77	ID																		
Isopropylbenzene	800	28																		
Bromoform	80 (A,W)	ID																		
1,1,2,2-Tetrachloroethane	8.5	78 (X)																		
1,2,3-Trichloropropane	42	NA																		
n-Propylbenzene	80	ID																		
Bromobenzene	18	NA																		
1,3,5-Trimethylbenzene	72 (E)	45																		
tert-Butylbenzene	80	ID																		
1,2,4-Trimethylbenzene	63 (E)	17																		
1,2,3-Trichlorobenzene	NC	NC																		
n-Butylbenzene	NC	NC																		
1,4-Dioxane (EPA8260)	7.2	2,800 (X)																		

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Field Dupe	Trip Blank	Field Blank	Equip Blank
Date Collected			1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18
PFA ANALYTE (ng/L)	**DW**	GSI																		
Perfluorobutanesulfonic acid (PFBS)	NC	NC														8.1		5.3			
Perfluorohexanesulfonic acid (PFHxS)	NC	NC													1.9						
Perfluoroheptanesulfonic Acid (PFHpS)	NC	NC																			
Perfluorooctanesulfonic acid (PFOS)	CC	12 (X)			35	7									44	16		16			
Perfluorodecanesulfonic acid (PFDS)	NC	NC																			
Perfluorobutanoic acid (PFBA)	NC	NC			3.1	4.8									4.8	180		180			
Perfluoropentanoic acid (PFPeA)	NC	NC				2.3															
Perfluorohexanoic acid (PFHxA)	NC	NC				2.5									2.6						
Perfluoroheptanoic acid (PFHpA)	NC	NC																			
Perfluorooctanoic acid (PFOA)	CC	12,000 (X)			4.4	4.1									6.1	4.2		4			
Perfluorononanoic acid (PFNA)	NC	NC																			
Perfluorodecanoic acid (PFDA)	NC	NC																			
Perfluoroundecanoic acid (PFUnA)	NC	NC																			
Perfluorododecanoic acid (PFDoA)	NC	NC																			
Perfluorotridecanoic Acid (PFTriA)	NC	NC																			
Perfluorotetradecanoic acid (PFTeA)	NC	NC																			
Perfluorooctane Sulfonamide (FOSA)	NC	NC																			

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

DW - Drinking Water Residential Generic Criteria.

GSI - Groundwater Surface Water Interface Generic Criteria per MDEQ Surface Water Division Rule 57.

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	**X**
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	**X**
Compound also found in associated method blank, suggesting a laboratory artifact.	**X**
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed due to turbidity	NA
Combined PFOA and PFOS concentrations compared to 0.070 ppb (70 ppt) for the drinking water pathway.	CC

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

				Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Field Dupe	Trip Blank	Field Blank	Equip Blank
				Date Collected	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18		5/29/18	5/29/18
METALS ANALYTE (ug/L)	**DW**	GSI			**DRY**				**DRY**		**DRY**		**NS**	**NS**	**NS**			**NS**	**MW-102S**			
Arsenic (dissolved)	10	10						1.41									**23**					
Arsenic	10	10						9									**60**					
Chromium (dissolved)	100	160	G			1.62	14	0.168		1.01		0.328				4.13	0.431		14			
Chromium (total)	100	160	G			2.64	14	0.276		44		0.208				4.17	0.296		14			0.095
Chromium VI (dissolved)	100	160																				
Chromium VI (total)	100	160																				
Copper (dissolved)	1000	20	G			0.381	0.498			0.816		1.73				0.611			0.469			
Copper	1000	20	G			0.748	0.341			1.78		1.43				2.42						
Lead (dissolved)	4	44	G																			
Lead	4	44	G			0.408		0.068		0.304		0.121				0.067	0.062					
Selenium (dissolved)	50	5																				
Selenium	50	5																				
Zinc (dissolved)	2400	260	G			6	8	7		8		12				15	8		9			
Zinc	2400	260	G			6	7	8		7		8				6	4.76		9			1.79
VOC ANALYTE (ug/L)	**DW**	GSI																				
Acetone	730	1,700				5	4.5	6.4		5.6						5.9	8.2		5.6	4.8		8.4
Methyl iodide	NC	NC																				
Carbon disulfide	800	NC																				
2 Butanone (MEK)	13,000	2,200																				
Chloromethane	260	NC																				
Vinyl Chloride	2.0	13															**9**					
Chloroethane	430	1,100																				
trichlorofluoromethane	2,600	NA																				
1,1-Dichloroethene	7.0	130															1					
Methylene Chloride	5.0	1,500															0.17					
trans-1,2-Dichloroethene	100	1,500															0.25					
1,1-Dichloroethane	880	740															1					
cis-1,2-Dichloroethene	70	620															3					
Tetrahydrofuran	95	11,000																			4.8	
Chloroform	80	350																				0.46
1,1,1-Trichloroethane	200	89																				
4-Methyl-2-pentanone (MIBK)	1800	ID																				
2-Hexanone	1000	ID																				
Carbon tetrachloride	5.0	38 (X)																				
Benzene	5.0	200															0.20					
Bromodichloromethane	80.0	NC																				
Trichloroethene	5.0	200				1	0.67									**7**	**13**		0.7			
Toluene	790	270					0.39															
Tetrachloroethene	5.0	60								**45**												
Chlorobenzene	100	25																				
Styrene	100	80																				

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

		Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Field Dupe	Trip Blank	Field Blank	Equip Blank
		Date Collected	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18		5/29/18	5/29/18
VOC ANALYTE (ug/L) {cont}	**DW**	GSI																		
Ethylbenzene	74	18																		
Total Xylenes	280	49																		
1,2 -Dichlorobenzene	600	13																		
1,3 -Dichlorobenzene	6.6	28				0.23														
1,2,4-Trimethylbenzene	63	17																		
1,2,3-Trimethylbenzene	NC	NC																		
Naphthalene	520	11			0.21															
2-Methylnaphthalene	260	19																		
Diethyl ether	10 (E)	ID																		
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)																		
Acrylonitrile	2.6	2.0 (M); 1.2																		
Dichlorodifluoromethane	1,700	ID																		
Bromomethane	10	4.2; [5(M)]																		
1,2-Dichloroethane	5.0 (A)	360 (X)																		
Trichloroethene	5.0 (A)	200 (X)																		
1,2-Dichloropropane	5.0 (A)	230 (X)																		
cis-1,3-Dichloropropene	NC	NC																		
trans-1,3-Dichloropropene	NC	NC																		
1,1,2-Trichloroethane	5.0 (A)	330 (X)																		
trans-1,4-Dichloro-2-butene	NC	NC																		
Dibromochloromethane	80 (A,W)	ID																		
1,2-Dibromoethane	NC	NC																		
1,1,1,2-Tetrachloroethane	77	ID																		
Isopropylbenzene	800	28																		
Bromoform	80 (A,W)	ID																		
1,1,2,2-Tetrachloroethane	8.5	78 (X)																		
1,2,3-Trichloropropane	42	NA																		
n-Propylbenzene	80	ID																		
Bromobenzene	18	NA																		
1,3,5-Trimethylbenzene	72 (E)	45																		
tert-Butylbenzene	80	ID																		
1,2,4-Trimethylbenzene	63 (E)	17																		
1,2,3-Trichlorobenzene	NC	NC																		
n-Butylbenzene	NC	NC																		
1,4-Dioxane (EPA SIM8270)	7.2	2,800 (X)														0.13		0.025	0.025		

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

		Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Field Dupe	Trip Blank	Field Blank	Equip Blank
		Date Collected	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18		5/29/18	5/29/18
PFA ANALYTE (ng/L)	**DW**	GSI																		
Perfluorobutane sulfonic acid (PFBS)	NC	NC			1.3												1.2			
Perfluoropentane sulfonic acid (PFPeS)	NC	NC																		
Perfluorohexane sulfonic acid (PFHxS)	NC	NC		1.4	2									1.6			2			
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC			0.18												1.1			
Perfluorooctane sulfonic acid (PFOS)	CC	12 (X)		12	12									47	27		12			
Perfluorononane sulfonic acid (PFNS)	NC	NC																		
Perfluorodecane sulfonic acid (PFDS)	NC	NC																		
Perfluorobutanoic acid (PFBA)	NC	NC													41					
Perfluoropentanoic acid (PFPeA)	NC	NC			1.2										1.7					
Perfluorohexanoic acid (PFHxA)	NC	NC			1.8												2.5			
Perfluoroheptanoic acid (PFHpA)	NC	NC			1.7															
Perfluorooctanoic acid (PFOA)	CC	12,000 (X)		2	4.2									1.7	2.5		4.3			
Perfluorononanoic acid (PFNA)	NC	NC		1.1	1										1.8					
Perfluorodecanoic acid (PFDA)	NC	NC																		
Perfluoroundecanoic acid (PFUnDA)	NC	NC													0.61					
Perfluorododecanoic acid (PFDoDA)	NC	NC		0.51																
Perfluorotridecanoic acid (PFTrDA)	NC	NC		0.82										0.78	0.85				0.94	1.1
Perfluorotetradecanoic acid (PFTeDA)	NC	NC		1.4	1.2															
Perfluorooctane sulfonamide (FOSA)	NC	NC																		
N-Methyl perfluorooctane sulfonamidoacetic acid	NC	NC																		
N-Ethyl perfluorooctane sulfonamidoacetic acid	NC	NC																		
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC																		
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC																		
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC																		

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

DW - Drinking Water Residential Generic Criteria.

GSI - Groundwater Surface Water Interface Generic Criteria per MDEQ Surface Water Division Rule 57.

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	**X**
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	**X**
Compound also found in associated method blank, suggesting a laboratory artifact.	**X**
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed due to turbidity	NA
Combined PFOA and PFOS concentrations compared to 0.070 ppb (70 ppt) for the drinking water pathway.	CC

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

				Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Field Dup (Dup-1)	Field Dup (Dup-2)	Trip Blank	Trip Blank	Field Blank	Field Blank (FB2)	Equip Blank	Equip Blank
				Date Collected	9/5/18	9/5/18	8/30/18	9/5/18	9/5/18	9/5/18	9/5/18	8/30/18	8/30/18	9/5/18	8/30/18	8/30/18	9/5/18	8/30/18	9/5/18	9/5/18	9/5/18	9/5/18	8/30/18	9/5/18	8/30/18	9/5/18	8/30/18	9/5/18
METALS ANALYTE (ug/L)	**DW**	GSI																		**MW-104S**	**MW-109S**						
Arsenic (dissolved)	10	10						**19**						4	1		**52**		1		3				1		1
Arsenic	10	10						**53**		1	1			5	3		**104**		2		5				1		1
Chromium (dissolved)	100	160	G		1				10	1	6				1	4		1	7	1							
Chromium (total)	100	160	G		2	6			**388**	62	**789**				1			1	9	13							
Chromium VI (dissolved)	100	160				1																					
Chromium VI	100	160														5			6								
Copper (dissolved)	1000	20	G	1	1	1		2	1	4	2	1	1	7	1		1	2	1								
Copper	1000	20	G		1	1		13	2	23	1	1	1		1		1	3	1								
Lead (dissolved)	4	44	G																								
Lead	4	44	G						1	1																	
Selenium (dissolved)	50	5		1	4	2	3	3	**8**	1		2	4		5	1		1	9	2				1		1
Selenium	50	5		2	4	4	4	3	**9**	5		4	1	3	2	3	3	3	6	2			1	1		1
Zinc (dissolved)	2400	260	G	2	4	3	1	3	2	2	4	3	3	5	6	2	5	4	1	2			2	2	1	1
Zinc	2400	260	G	3	2	5	2	5	2	6	2	4	5	3	2	4	5	3	1	2			1	1	1	1
VOC ANALYTE (ug/L)	**DW**	GSI																									
Acetone	730	1,700			2.55	2.72	5.20	0.81	1.12	0.63	0.61		2.32			4.98	2.11	18.6		2.75	5.13	4.54	1.26	7.48	1.74	7.35
Methyl iodide	NC	NC																									
Carbon disulfide	800	NC																									
2 Butanone (MEK)	13,000	2,200					1.14									1.09								0.32	2.48	
Chloromethane	260	NC																			1.92						
Vinyl Chloride	2.0	13											42			5		9.5		**41**							
Chloroethane	430	1,100																									
trichlorofluoromethane	2,600	NA																									
1,1-Dichloroethene	7.0	130											2			0.66											
Methylene Chloride	5.0	1,500																									
trans-1,2-Dichloroethene	100	1,500											0.7							0.66							
1,1-Dichloroethane	880	740											1		0.27	0.63		3.6		1							
cis-1,2-Dichloroethene	70	620		9							0.34		68		5	2		490	0.36	65							
Tetrahydrofuran	95	11,000																16									
Chloroform	80	350						1				1												0.4	0.4	0.3
1,1,1-Trichloroethane	200	89																									
4-Methyl-2-pentanone (MIBK)	1800	ID																									
2-Hexanone	1000	ID																									
Carbon tetrachloride	5.0	38 (X)										4															
Benzene	5.0	200					0.67																				
Bromodichloromethane	80.0	NC						0.5																	0.35		
Trichloroethene	5.0	200		4	4	0.39					1		17		12	7	1	210		17							
Toluene	790	270																									
Tetrachloroethene	5.0	60							40										40	0.22							
Chlorobenzene	100	25																									
Styrene	100	80																									

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

		Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Field Dup (Dup-1)	Field Dup (Dup-2)	Trip Blank	Trip Blank	Field Blank	Field Blank (FB2)	Equip Blank	Equip Blank
		Date Collected	9/5/18	9/5/18	8/30/18	9/5/18	9/5/18	9/5/18	9/5/18	8/30/18	8/30/18	9/5/18	8/30/18	8/30/18	9/5/18	8/30/18	9/5/18	9/5/18	9/5/18	8/30/18	9/5/18	8/30/18	9/5/18	8/30/18	9/5/18
VOC ANALYTE (ug/L) {cont}	**DW**	GSI																							
Ethylbenzene	74	18																							
Total Xylenes	280	49																							
1,2 -Dichlorobenzene	600	13																							
1,3 -Dichlorobenzene	6.6	28																							
Naphthalene	520	11																							
2-Methylnaphthalene	260	19																	0.23						
Diethyl ether	10 (E)	ID																							
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)																							
Acrylonitrile	2.6	2.0 (M); 1.2																							
Dichlorodifluoromethane	1,700	ID																							
Bromomethane	10	4.2; [5(M)]																							
1,2-Dichloroethane	5.0 (A)	360 (X)																							
Trichloroethene	5.0 (A)	200 (X)																							
1,2-Dichloropropane	5.0 (A)	230 (X)																							
cis-1,3-Dichloropropene	NC	NC																							
trans-1,3-Dichloropropene	NC	NC																							
1,1,2-Trichloroethane	5.0 (A)	330 (X)																							
trans-1,4-Dichloro-2-butene	NC	NC																							
Dibromochloromethane	80 (A,W)	ID																							
1,2-Dibromoethane	NC	NC																							
1,1,1,2-Tetrachloroethane	77	ID																							
Isopropylbenzene	800	28																							
Bromoform	80 (A,W)	ID																							
1,1,2,2-Tetrachloroethane	8.5	78 (X)																							
1,2,3-Trichloropropane	42	NA																							
n-Propylbenzene	80	ID																							
Bromobenzene	18	NA																							
1,3,5-Trimethylbenzene	72 (E)	45																							
tert-Butylbenzene	80	ID																							
1,2,4-Trimethylbenzene	63 (E)	17																							
1,2,4-Trichlorobenzene	NC	NC																					0.21		
1,2,3-Trichlorobenzene	NC	NC																					0.21		
n-Butylbenzene	NC	NC																							

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

		Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Field Dup (Dup-1)	Field Dup (Dup-2)	Trip Blank	Trip Blank	Field Blank	Field Blank (FB2)	Equip Blank	Equip Blank
		Date Collected	9/5/18	9/5/18	8/30/18	9/5/18	9/5/18	9/5/18	9/5/18	8/30/18	8/30/18	9/5/18	8/30/18	8/30/18	9/5/18	8/30/18	9/5/18	9/5/18	9/5/18	8/30/18	9/5/18	8/30/18	9/5/18	8/30/18	9/5/18
PFA ANALYTE (ng/L)	**DW**	GSI																							
Perfluorobutane sulfonic acid (PFBS)	NC	NC	2.5	1.4	2	2.2	1.3	1.8	4.6		1.7	2.9	3.6	2.4	1.4	5	1.7	2.3	1.7						
Perfluoropentane sulfonic acid (PFPeS)	NC	NC																							
Perfluorohexane sulfonic acid (PFHxS)	NC	NC	4	1.9	6.1		2.1	12	3.3	2.7	2.9	3.2	4.3	3.8		2.6	2.4	12	2.6						
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC	1.4	1.2	2.4			2.5	1.3			2.6						2.1							
Perfluorooctane sulfonic acid (PFOS)	CC	12	20	33	11	91			7.3	18	6	27	8.5	59	10	13	26		30						
Perfluorononane sulfonic acid (PFNS)	NC	NC																							
Perfluorodecane sulfonic acid (PFDS)	NC	NC																							
Perfluorobutanoic acid (PFBA)	NC	NC		3.8	3.2			3.2	5.9			2.9	6.7		48	7.1	2.7		3.2						
Perfluoropentanoic acid (PFPeA)	NC	NC		1.2	1.4				1.1				3	1.3			3.6								
Perfluorohexanoic acid (PFHxA)	NC	NC	1	1.5	4.1		1.2	1.6	2			1.7	4.8			1	3.3	1.7			1.3		1.6		1.2
Perfluoroheptanoic acid (PFHpA)	NC	NC			2				2				3.7			1.3	3.3	2.4							
Perfluorooctanoic acid (PFOA)	CC	12,000	2	4.5	6.1	2.6	0.79	4.5	12	2.1	0.58	2.6	11	1.7	2.2	2.6	4.3	4.1	2.8						
Perfluorononanoic acid (PFNA)	NC	NC		1.2		1.1						1.2					1.3		1.1						
Perfluorodecanoic acid (PFDA)	NC	NC				0.53			0.58																
Perfluoroundecanoic acid (PFUnDA)	NC	NC																							
Perfluorododecanoic acid (PFDoDA)	NC	NC																							
Perfluorotridecanoic acid (PFTrDA)	NC	NC																							
Perfluorotetradecanoic acid (PFTeDA)	NC	NC					1.6		2.8			1.7					1.9				3.3		1.8	1.9	1.7
Perfluorooctane sulfonamide (FOSA)	NC	NC																					0.44		
N-Methyl perfluorooctane sulfonamidoacetic acid	NC	NC																							
N-Ethyl perfluorooctane sulfonamidoacetic acid	NC	NC				0.9																			
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC																							
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC																							
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC																							

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

DW - Drinking Water Residential Generic Criteria.

GSI - Groundwater Surface Water Interface Generic Criteria per MDEQ Surface Water Division Rule 57.

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	**X**
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	**X**
Compound also found in associated method blank, suggesting a laboratory artifact.	**X**
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed due to turbidity	NA
Combined PFOA and PFOS concentrations compared to 0.070 ppb (70 ppt) for the drinking water pathway.	CC

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Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Field Dup (Dupe-1)	Field Dup (Dupe-2)	Trip Blank	Field Blank	Field Blank	Equip Blank
Date Collected				DRY	DRY	02/27/19	02/28/19	02/27/19	02/27/19	NS	02/27/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/27/19	02/28/19	02/28/19
METALS ANALYTE (ug/L)	**DW**	GSI																	**MW-112S**	**MW-114S**				
Arsenic (dissolved)	10	10					10				0.711	0.445	2	1.05	0.317	**35**	1.11	**28**	9	**20**				
Arsenic	10	10					**30**				0.33	0.265	**39**	1.952	0.759	**102**	**13**	**86**	0.101	**80**				
Chromium (dissolved)	100	160	G			2.604	0.103	0.105	1.711			0.155	0.246	0.172	4.979	0.357	1.61	0.172	0.436			0.131		0.052
Chromium (total)	100	160	G			4.664	0.251	43	65			0.354	0.6	0.522	4.651	0.507	13	0.258	0.417	0.412		0.175	0.748	0.655
Chromium VI (dissolved)	100	160																						
Chromium VI	100	160																						
Copper (dissolved)	1000	20	G			0.937		1.208	1.375		1.733	0.993		0.704	1.32		1.34	0.823		0.434		1.685	1.53	1.47
Copper	1000	20	G			0.679		1.871	2.247		1.124	0.979	0.381	0.963	0.691		3.06	1.92		2.25		2.092	1.59	1.24
Lead (dissolved)	4	44	G								0.706													
Lead	4	44	G									0.23	0.206				1.14	0.191		0.208				
Selenium (dissolved)	50	5				2		4	8			3												
Selenium	50	5				3		4	9			0												
Zinc (dissolved)	2400	260	G			7	3.45	1	5		11	6	3	3	7	4	8	4	3	3		4	6	7
Zinc	2400	260	G			1.482		0.892	1.577		7	2.24	2.19	1.61	0.776	0.774	13	3.98		5		1.814	2.27	0.962
VOC ANALYTE (ug/L)	**DW**	GSI																						
Acetone	730	1,700				7.88		8.1	6.7		7.8	7.6	9.51	9.07	8.79	12.41	11.34	33.8	11.74	35.1	6.99	7.3	9.10	9.36
Methyl iodide	NC	NC																						
Carbon disulfide	800	NC																						
2 Butanone (MEK)	13,000	2,200					3.13						0.34	0.3	0.33	1.61	1.95	11.1	1.63	11.9	0.64		0.78	0.77
Chloromethane	260	NC																						
Vinyl Chloride	2	13					0.64				0.88		**5**			2	1	**12**	2	**12**				
Chloroethane	430	1,100																						
trichlorofluoromethane	2,600	NA																						
1,1-Dichloroethene	7	130											0.6			0.41			0.38					
Methylene Chloride	5	1,500																						
trans-1,2-Dichloroethene	100	1,500											0.41					1.9		1.80				
1,1-Dichloroethane	880	740									0.55		0.97		0.76	0.82		3.2	0.79	3.5				
cis-1,2-Dichloroethene	70	620									2		9		13	2	2	**295**	1	**290**				
Tetrahydrofuran	95	11,000					2.3										1.9	11.1		11.9				
Chloroform	80	350						2				1			0.25									
1,1,1-Trichloroethane	200	89																		1.7				
4-Methyl-2-pentanone (MIBK)	1800	ID														0.31			0.38					
2-Hexanone	1000	ID																						
Carbon tetrachloride	5.0	38	X									2												
Benzene	5.0	200					1				0.24													
Bromodichloromethane	80.0	NC						0.25																
Trichloroethene	5.0	200									1	0.25	**13**		**39**	3	**9**	**162**	3	**163**				
Toluene	790	270					0.32																	
Tetrachloroethene	5.0	60							**78**															
Chlorobenzene	100	25					2																	
Styrene	100	80														0.58	0.28		0.64					

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Groundwater Analytical Results
RACER - Flint West # 12990

		Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Field Dup (Dupe-1)	Field Dup (Dupe-2)	Trip Blank	Field Blank	Field Blank	Equip Blank
		Date Collected	DRY	DRY	02/27/19	02/28/19	02/27/19	02/27/19	NS	02/27/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/27/19	02/28/19	02/28/19
VOC ANALYTE (ug/L) {cont}	**DW**	GSI																					
Ethylbenzene	74	18																					
Total Xylenes	280	49																					
1,2 -Dichlorobenzene	600	13																					
1,3 -Dichlorobenzene	6.6	28																					
Naphthalene	520	11																					
2-Methylnaphthalene	260	19				0.18																	
Diethyl ether	10 (E)	ID																					
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)																					
Acrylonitrile	2.6	2.0 (M); 1.2																					
Dichlorodifluoromethane	1,700	ID																					
Bromomethane	10	4.2; [5(M)]																					
1,2-Dichloroethane	5.0 (A)	360 (X)																					
1,2-Dichloropropane	5.0 (A)	230 (X)																					
cis-1,3-Dichloropropene	NC	NC																					
trans-1,3-Dichloropropene	NC	NC																					
1,1,2-Trichloroethane	5.0 (A)	330 (X)																					
trans-1,4-Dichloro-2-butene	NC	NC																					
Dibromochloromethane	80 (A,W)	ID																					
1,2-Dibromoethane	NC	NC																					
1,1,1,2-Tetrachloroethane	77	ID																					
Isopropylbenzene	800	28																					
Bromoform	80 (A,W)	ID																					
1,1,2,2-Tetrachloroethane	8.5	78 (X)																					
1,2,3-Trichloropropane	42	NA																					
n-Propylbenzene	80	ID																					
Bromobenzene	18	NA																					
1,3,5-Trimethylbenzene	72 (E)	45																					
tert-Butylbenzene	80	ID																					
1,2,4-Trimethylbenzene	63 (E)	17																					
1,2,4-Trichlorobenzene	NC	NC																					
1,2,3-Trichlorobenzene	NC	NC																					
n-Butylbenzene	NC	NC																					

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		Date Collected	DRY	DRY	02/27/19	02/28/19	02/27/19	02/27/19	NS	02/27/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/27/19	02/28/19	02/28/19
PFA ANALYTE (ng/L)	**DW**	GSI	**NS**	**NS**	**NS**	**01/17/19**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**01/17/19**	**NS**	**NS**	**NS**	**NS**	**NS**
Perfluorobutane sulfonic acid (PFBS)	NC	NC																					
Perfluoropentane sulfonic acid (PFPeS)	NC	NC																					
Perfluorohexane sulfonic acid (PFHxS)	NC	NC																					
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC																					
Perfluorooctane sulfonic acid (PFOS)	CC	12				**90**												**90**					
Perfluorononane sulfonic acid (PFNS)	NC	NC																					
Perfluorodecane sulfonic acid (PFDS)	NC	NC																					
Perfluorobutanoic acid (PFBA)	NC	NC																					
Perfluoropentanoic acid (PFPeA)	NC	NC																					
Perfluorohexanoic acid (PFHxA)	NC	NC																					
Perfluoroheptanoic acid (PFHpA)	NC	NC																					
Perfluorooctanoic acid (PFOA)	CC	12,000																					
Perfluorononanoic acid (PFNA)	NC	NC																					
Perfluorodecanoic acid (PFDA)	NC	NC																					
Perfluoroundecanoic acid (PFUnDA)	NC	NC																					
Perfluorododecanoic acid (PFDoDA)	NC	NC																					
Perfluorotridecanoic acid (PFTrDA)	NC	NC																					
Perfluorotetradecanoic acid (PFTeDA)	NC	NC																					
Perfluorooctane sulfonamide (FOSA)	NC	NC																					
N-Methyl perfluorooctane sulfonamidoacetic acid	NC	NC																					
N-Ethyl perfluorooctane sulfonamidoacetic acid	NC	NC																					
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC																					
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC																					
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC																					

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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Blank cells indicate no detectable concentrations	
Exceeds DW criteria	**X**
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	**X**
Compound also found in associated method blank, suggesting a laboratory artifact.	**X**
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed due to turbidity	NA
Combined PFOA and PFOS concentrations compared to 0.070 ppb (70 ppt) for the drinking water pathway.	CC

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Groundwater Analytical Results
RACER - Flint West # 12990

				Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Dupe 1	Dupe 2	Equipment Blank	Equipment Blank	Field Blank	Field Blank	Trip Blank	Trip Blank
				Date Collected	07/16/2019	07/16/2019	07/17/2019	07/17/2019	07/16/2019	07/16/2019	07/16/2019	07/16/2019	07/17/2019	07/17/2019	07/17/2019	07/17/2019	07/16/2019	07/17/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019
METALS ANALYTE (ug/L)	**DW**	GSI																		MW-112S	MW-114S						
Arsenic, Dissolved	10	10		0.298	0.475	0.577	7	0.496	0.399	<0.002	0.485	0.483	10	0.295	0.535	**15**	1.38	**16**	**15**	**18**	<0.002	<0.002	0.11	<0.002	NA	NA
Arsenic	10	10		0.572	0.521	<0.002	**39**	0.358	1.03	0.275	<0.002	0.328	**73**	1.72	0.942	**68**	5	**101**	**63**	**95**	0.111	<0.002	0.201	<0.002	NA	NA
Chromium, Dissolved	100	160	G	0.345	3.944	5	0.246	0.302	0.802	0.328	0.286	0.326	0.265	0.406	5	0.512	1.132	0.171	0.343	0.329	0.215	0.078	0.283	1.827	NA	NA
Chromium	100	160	G	0.56	2.54	6	0.382	34	83	4.544	0.301	0.575	2.927	1.283	6	0.495	1.634	0.371	0.365	0.369	0.154	0.184	0.104	1.791	NA	NA
Chromium VI, Dissolved	100	160		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA	NA
Chromium VI	100	160		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	NA	NA
Copper, Dissolved	1000	20	G	0.829	2.404	0.579	<0.005	1.698	2.039	0.898	1.576	0.545	<0.005	0.497	0.752	1.826	1.465	0.879	<0.005	0.707	0.321	0.157	0.194	<0.005	NA	NA
Copper	1000	20	G	0.816	3.124	0.742	0.775	3.404	4.683	1.603	1.663	0.975	0.774	0.543	0.938	0.458	1.144	1.317	1.106	1.541	0.177	0.23	0.178	<0.005	NA	NA
Lead, Dissolved	4	44	G	<0.003	1.434	<0.003	<0.003	<0.003	0.673	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.263	<0.003	<0.003	<0.003	<0.003	0.248	<0.003	0.18	<0.003	NA	NA
Lead	4	44	G	<0.003	0.361	<0.003	<0.003	<0.003	0.303	0.216	<0.003	0.37	<0.003	<0.003	0.214	0.274	0.195	0.385	<0.003	0.615	0.083	0.076	0.098	<0.003	NA	NA
Selenium, Dissolved	50	5		<0.005	<0.005	<0.005	<0.005	<0.005	2.39	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA
Selenium	50	5		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA
Zinc, Dissolved	2400	260	G	7	9	8	4.05	7	7	7	27	1.13	1.92	5	5	20	6	13	3.34	4.37	4.64	3.23	2.71	2.61	NA	NA
Zinc	2400	260	G	2.75	7	2.47	1.04	4.85	6	2.62	22	5	4.43	2.37	3.3	2	6	12	2.32	10	1.51	1.26	0.56	<0.005	NA	NA
VOC ANALYTE (ug/L)	**DW**	GSI																		MW-112S	MW-114S						
Diethyl ether	10 (E)	ID		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<50	<10	<50	<10	<10	<10	<10	<10	<10
Acetone	730	1,700		<50	<50	<50	4.1	<50	<50	<50	<50	<50	<50	<50	<50	4.8	<50	48	4.1	51	<50	5.9	<50	<50	4.1	<50
Methyl iodide	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Carbon disulfide	800	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	0.15	0.2	0.19	0.16	<5	<5
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
Acrylonitrile	2.6	2.0 (M); 1.2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<2	<10	<2	<2	<2	<2	<2	<2
2-Butanone (MEK)	13,000	2,200		<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	17	<25	18	<25	<25	<25	<25	<25	<25
Dichlorodifluoromethane	1,700	ID		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
Chloromethane	260	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
Vinyl chloride	2	13		<1	<1	<1	<1	<1	<1	<1	<1	<1	**7**	<1	<1	**7**	0.78	**8**	**6**	**8**	<1	<1	<1	<1	<1	<1
Bromomethane	10	4.2; [5(M)]		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
Chloroethane	430	1,100		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
Trichlorofluoromethane	2,600	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	7	130		<1	<1	<1	<1	<1	<1	<1	<1	<1	0.82	<1	<1	1	<1	<5	1	<5	<1	<1	<1	<1	<1	<1
Methylene chloride	5	1,500		<5	<5	<5	<5	<5	<5	0.18	0.17	0.18	0.19	0.19	<5	<5	<5	2.5	0.19	2.5	<5	2.34	<5	<5	0.19	<5
trans-1,2-Dichloroethene	100	1,500		<1	<1	<1	<1	<1	<1	<1	<1	<1	0.42	<1	<1	0.29	<1	1.35	0.31	1.45	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	880	740		<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	0.85	<1	2.5	0.78	2.55	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	70	620		12	<1	<1	<1	<1	<1	<1	<1	<1	9	<1	0.82	3	1	**244**	3	**244**	<1	<1	<1	<1	<1	<1
Tetrahydrofuran	95	11,000		<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	9.3	<90	9.8	<90	<90	<90	<90	2	1.2
Chloroform	80	350		<1	<1	<1	<1	0.29	<1	<1	<1	1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Bromochloromethane	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	200	89		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.7	<1	1.5	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone (MIBK)	1800	ID		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<250	<50	<250	<50	<50	<50	<50	<50	<50
2-Hexanone	1000	ID		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	2.05	<50	1.65	<50	<50	<50	<50	<50	<50
Carbon tetrachloride	5.0	38	X	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Benzene	5.0	200		<1	<1	<1	0.26	<1	<1	<1	<1	<1	<1	<1	<1	0.19	<1	<5	0.21	<5	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	5.0 (A)	360 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Trichloroethene	5.0	200		**10**	1	<1	<1	<1	<1	<1	<1	<1	**11**	<1	**10**	**9**	**12**	**179**	**9**	**169**	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	5.0 (A)	230 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Bromodichloromethane	80.0	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Dibromomethane	230	NA		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Toluene	790	270		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	0.17	<5	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5.0 (A)	330 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Tetrachloroethene	5.0	60		<1	0.14	<1	<1	<1	**43**	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
trans-1,4-Dichloro-2-butene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Dibromochloromethane	80 (A,W)	ID		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Chlorobenzene	100	25		<1	<1	<1	0.47	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	77	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

	Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Dupe 1	Dupe 2	Equipment Blank	Equipment Blank	Field Blank	Field Blank	Trip Blank	Trip Blank
	Date Collected	07/16/2019	07/16/2019	07/17/2019	07/17/2019	07/16/2019	07/16/2019	07/16/2019	07/16/2019	07/17/2019	07/17/2019	07/17/2019	07/17/2019	07/16/2019	07/17/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019
VOC ANALYTE (ug/L) {cont}	**DW** GSI																							
Ethylbenzene	74 18	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Total Xylenes	280 49	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Styrene	100 80	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Isopropylbenzene	800 28	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
Bromoform	80 (A,W) ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	8.5 78 (X)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	42 NA	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
n-Propylbenzene	80 ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Bromobenzene	18 NA	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	72 (E) 45	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	80 ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	63 (E) 17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	230 ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene	NC NC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	6.6 28	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	75 17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	600 13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,2,3-Trimethylbenzene	NC NC	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
n-Butylbenzene	NC NC	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Hexachloroethane	21 6.7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	NC NC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	NC NC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	NC NC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
Naphthalene	520 11	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
2-Methylnaphthalene	260 19	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	**0.26**	<5	**0.22**	<5	<5

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Dupe 1	Dupe 2	Equipment Blank	Equipment Blank	Field Blank	Field Blank	Trip Blank	Trip Blank
Date Collected			07/16/2019	07/16/2019	07/17/2019	07/17/2019	07/16/2019	07/16/2019	07/16/2019	07/16/2019	07/17/2019	07/17/2019	07/17/2019	07/17/2019	07/16/2019	07/17/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019
PFA ANALYTE (ng/L)	**DW**	GSI	**NS**	**NS**			**NS**	**NS**	**NS**	**NS**					**NS**			**NS**	**MW-114S**	**NS**			**7/17/2019**		**7/17/2019**
Perfluorobutanoic acid (PFBA)	NC	NC	NA	NA	<19	<19	NA	NA	NA	NA	<19	<19	20	<19	NA	<19	<19	NA	<19	NA	<19	NA	<20	NA	<19
Perfluoropentanoic acid (PFPeA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorohexanoic acid (PFHxA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorobutane sulfonic acid (PFBS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluoroheptanoic acid (PFHpA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluoropentane sulfonic acid (PFPeS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorooctanoic acid (PFOA)	CC	12,000	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorohexane sulfonic acid (PFHxS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorononanoic acid (PFNA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorodecanoic acid (PFDA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorooctane sulfonic acid (PFOS)	CC	12	NA	NA	11	**93**	NA	NA	NA	NA	11	**28**	<9.6	**36**	NA	**20**	**31**	NA	**32**	NA	<9.4	NA	<10	NA	<9.3
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NC	NC	NA	NA	<9.7	44	NA	NA	NA	NA	<9.7	12	<9.6	16	NA	<9.5	17	NA	16	NA	<9.4	NA	<10	NA	<9.3
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NC	NC	NA	NA	<9.7	48	NA	NA	NA	NA	<9.7	16	<9.6	21	NA	16	15	NA	16	NA	<9.4	NA	<10	NA	<9.3
Perfluoroundecanoic acid (PFUnDA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorononane sulfonic acid (PFNS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorododecanoic acid (PFDoDA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorodecane sulfonic acid (PFDS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorotridecanoic acid (PFTrDA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorooctane sulfonamide (FOSA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorotetradecanoic acid (PFTeDA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

DW - Drinking Water Residential Generic Criteria.

GSI - Groundwater Surface Water Interface Generic Criteria per MDEQ Surface Water Division Rule 57.

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	**X**
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	**X**
Compound also found in associated method blank, suggesting a laboratory artifact.	**X**
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed due to turbidity	NA
Combined PFOA and PFOS concentrations compared to 0.070 ppb (70 ppt) for the drinking water pathway.	CC

Analytical Laboratory Report

Report ID: S04616.01(01)
Generated on 08/01/2019

Report to

Attention: Rodney Abke
Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
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Report Summary

Lab Sample ID(s): S04616.01-S04616.11
Project: RACER Flint West #12990
Collected Date(s): 07/16/2019
Submitted Date/Time: 07/16/2019 16:30
Sampled by: Unknown
P.O. #: 795930

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
N/A	Not Applicable
RSK-175	RSK-175
SM3500-Cr B	Standard Method 3500 Cr B 2011
SM5310C	Standard Method 5310C 2011
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Sample Summary (11 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S04616.01	MW-104S	Liquid	07/16/19 10:10
S04616.02	MW-105S	Liquid	07/16/19 11:10
S04616.03	MW-106SR	Liquid	07/16/19 11:42
S04616.04	MW-100S	Liquid	07/16/19 12:15
S04616.05	MW-101S	Liquid	07/16/19 12:53
S04616.06	MW-107S	Liquid	07/16/19 13:22
S04616.07	MW-112S	Liquid	07/16/19 00:01
S04616.08	Dupe 1	Liquid	07/16/19 00:01
S04616.09	Field Blank	Water	07/16/19 00:01
S04616.10	Trip Blank	Water	07/16/19 00:01
S04616.11	Equipment Blank	Water	07/16/19 00:01

Lab Sample ID: S04616.01
Sample Tag: MW-104S
Collected Date/Time: 07/16/2019 10:10
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	3.4	IR
1	125ml Plastic	HNO3	Yes	3.4	IR
3	40ml Glass	HCL	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/30/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/17/19 09:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/17/19 09:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 07/23/19 12:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000358	0.002	0.000255	mg/L	5	7440-38-2	b
Chromium	0.034	0.005	0.0000950	mg/L	5	7440-47-3	
Copper	0.003404	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	0.41	0.02	0.00192	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese	0.027	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.00485	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 07/23/19 12:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000496	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.000302	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.001698	0.005	0.000375	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.00363	0.02	0.00192	mg/L	5	7439-89-6	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Manganese, Dissolved	0.020	0.005	0.000515	mg/L	5	7439-96-5	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.007	0.005	0.000730	mg/L	5	7440-66-6	f

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04616.01 (continued)
Sample Tag: MW-104S

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 19:03, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	0.29	1	0.15	ug/L	1	67-66-3	J
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S04616.01 (continued)
Sample Tag: MW-104S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 19:03, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Lab Sample ID: S04616.02
Sample Tag: MW-105S
Collected Date/Time: 07/16/2019 11:10
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	3.4	IR
1	125ml Plastic	HNO3	Yes	3.4	IR
3	40ml Glass	HCL	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/30/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/17/19 09:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/17/19 09:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 07/23/19 12:34, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.001030	0.002	0.000255	mg/L	5	7440-38-2	b
Chromium	0.083	0.005	0.0000950	mg/L	5	7440-47-3	
Copper	0.004683	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	0.32	0.02	0.00192	mg/L	5	7439-89-6	
Lead	0.000303	0.003	0.000190	mg/L	5	7439-92-1	b
Manganese	0.007	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.006	0.005	0.000730	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 07/23/19 12:36, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000399	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.000802	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.002039	0.005	0.000375	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.05	0.02	0.00192	mg/L	5	7439-89-6	f
Lead, Dissolved	0.000673	0.003	0.000190	mg/L	5	7439-92-1	bf
Manganese, Dissolved	0.004937	0.005	0.000515	mg/L	5	7439-96-5	bf
Selenium, Dissolved	0.00239	0.005	0.00209	mg/L	5	7782-49-2	bf
Zinc, Dissolved	0.007	0.005	0.000730	mg/L	5	7440-66-6	f

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04616.02 (continued)
Sample Tag: MW-105S

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 19:23, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	43	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	

Lab Sample ID: S04616.02 (continued)
Sample Tag: MW-105S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 19:23, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Lab Sample ID: S04616.03
Sample Tag: MW-106SR
Collected Date/Time: 07/16/2019 11:42
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	3.4	IR
1	125ml Plastic	HNO3	Yes	3.4	IR
3	40ml Glass	HCL	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/30/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/17/19 10:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/17/19 09:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 07/23/19 12:39, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000328	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.000898	0.005	0.000375	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.00551	0.02	0.00192	mg/L	5	7439-89-6	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Manganese, Dissolved	0.025	0.005	0.000515	mg/L	5	7439-96-5	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.007	0.005	0.000730	mg/L	5	7440-66-6	f

Method: E200.8, Run Date: 07/23/19 12:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000275	0.002	0.000255	mg/L	5	7440-38-2	b
Chromium	0.004544	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.001603	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	0.51	0.02	0.00192	mg/L	5	7439-89-6	
Lead	0.000216	0.003	0.000190	mg/L	5	7439-92-1	b
Manganese	0.026	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.00262	0.005	0.000730	mg/L	5	7440-66-6	b

c-Filtered in lab
f-Filtered and preserved in lab
b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S04616.03 (continued)
Sample Tag: MW-106SR

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 19:42, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	0.18	5	0.16	ug/L	1	75-09-2	J
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S04616.03 (continued)
Sample Tag: MW-106SR

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 19:42, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Lab Sample ID: S04616.04
Sample Tag: MW-100S
Collected Date/Time: 07/16/2019 12:15
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	3.4	IR
1	125ml Plastic	HNO3	Yes	3.4	IR
3	40ml Glass	HCL	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/30/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/17/19 10:40, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/17/19 10:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 07/23/19 12:50, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000572	0.002	0.000255	mg/L	5	7440-38-2	b
Chromium	0.000560	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.000816	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	0.09	0.02	0.00192	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese	0.009	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.00275	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 07/23/19 12:53, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000298	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.000345	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.000829	0.005	0.000375	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.00314	0.02	0.00192	mg/L	5	7439-89-6	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Manganese, Dissolved	0.001395	0.005	0.000515	mg/L	5	7439-96-5	bf
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.007	0.005	0.000730	mg/L	5	7440-66-6	f

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04616.04 (continued)
Sample Tag: MW-100S

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 20:01, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	12	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	10	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	

Lab Sample ID: S04616.04 (continued)
Sample Tag: MW-100S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 20:01, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Lab Sample ID: S04616.05
Sample Tag: MW-101S
Collected Date/Time: 07/16/2019 12:53
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	3.4	IR
1	125ml Plastic	HNO3	Yes	3.4	IR
3	40ml Glass	HCL	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/30/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/17/19 10:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/17/19 10:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 07/23/19 12:54, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000521	0.002	0.000255	mg/L	5	7440-38-2	b
Chromium	0.002540	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.003124	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	0.42	0.02	0.00192	mg/L	5	7439-89-6	
Lead	0.000361	0.003	0.000190	mg/L	5	7439-92-1	b
Manganese	0.011	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.007	0.005	0.000730	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 07/23/19 12:55, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000475	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.003944	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.002404	0.005	0.000375	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.08	0.02	0.00192	mg/L	5	7439-89-6	f
Lead, Dissolved	0.001434	0.003	0.000190	mg/L	5	7439-92-1	bf
Manganese, Dissolved	0.001352	0.005	0.000515	mg/L	5	7439-96-5	bf
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.009	0.005	0.000730	mg/L	5	7440-66-6	f

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04616.05 (continued)
Sample Tag: MW-101S

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 20:20, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	1	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	0.14	1	0.13	ug/L	1	127-18-4	J
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S04616.05 (continued)
Sample Tag: MW-101S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 20:20, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Lab Sample ID: S04616.06
Sample Tag: MW-107S
Collected Date/Time: 07/16/2019 13:22
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	3.4	IR
1	125ml Plastic	HNO3	Yes	3.4	IR
3	40ml Glass	HCL	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/30/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/17/19 10:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/17/19 10:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 07/23/19 12:56, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000301	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.001663	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	0.03	0.02	0.00192	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese	1.12	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.022	0.005	0.000730	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 07/23/19 12:59, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000485	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.000286	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.001576	0.005	0.000375	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.00570	0.02	0.00192	mg/L	5	7439-89-6	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Manganese, Dissolved	1.17	0.005	0.000515	mg/L	5	7439-96-5	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.027	0.005	0.000730	mg/L	5	7440-66-6	f

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04616.06 (continued)
Sample Tag: MW-107S

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 20:39, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	0.17	5	0.16	ug/L	1	75-09-2	J
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S04616.06 (continued)
Sample Tag: MW-107S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 20:39, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Lab Sample ID: S04616.07
Sample Tag: MW-112S
Collected Date/Time: 07/16/2019 00:01
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	3.4	IR
1	125ml Plastic	HNO3	Yes	3.4	IR
6	40ml Glass	HCL	Yes	3.4	IR
2	40ml Glass	H2SO4	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/30/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/17/19 10:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/17/19 10:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Method: SM5310C, Run Date: 07/22/19 14:25, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	26.1	1	0.414	mg/L	1		

Metals

Method: E200.8, Run Date: 07/23/19 13:10, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.068	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000495	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.000458	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	5.75	0.02	0.00192	mg/L	5	7439-89-6	
Lead	0.000274	0.003	0.000190	mg/L	5	7439-92-1	b
Manganese	0.263	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.00200	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 07/23/19 13:13, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.015	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000512	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.001826	0.005	0.000375	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.17	0.02	0.00192	mg/L	5	7439-89-6	f
Lead, Dissolved	0.000263	0.003	0.000190	mg/L	5	7439-92-1	bf

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04616.07 (continued)
Sample Tag: MW-112S

Method: E200.8, Run Date: 07/23/19 13:13, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese, Dissolved	0.258	0.005	0.000515	mg/L	5	7439-96-5	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.020	0.005	0.000730	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 20:58, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	4.8	50	4.0	ug/L	1	67-64-1	JB
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	7	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	1	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	0.29	1	0.14	ug/L	1	156-60-5	J
1,1-Dichloroethane	0.85	1	0.15	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene	3	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	0.19	1	0.11	ug/L	1	71-43-2	J
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	9	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	

f-Filtered and preserved in lab

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S04616.07 (continued)
Sample Tag: MW-112S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 20:58, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Organics

Method: RSK-175, Run Date: 07/30/19 13:30, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	1,700	1.0	0.17	ug/L	1	74-82-8	O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S04616.08
Sample Tag: Dupe 1
Collected Date/Time: 07/16/2019 00:01
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	3.4	IR
1	125ml Plastic	HNO3	Yes	3.4	IR
6	40ml Glass	HCL	Yes	3.4	IR
2	40ml Glass	H2SO4	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/30/19 15:40	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/17/19 11:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/17/19 10:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Method: SM5310C, Run Date: 07/22/19 15:36, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	26.6	1	0.414	mg/L	1		

Metals

Method: E200.8, Run Date: 07/23/19 13:15, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.063	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000365	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.001106	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	5.82	0.02	0.00192	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese	0.270	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.00232	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 07/23/19 13:18, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.015	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000343	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	Not detected	0.005	0.000375	mg/L	5	7440-50-8	f
Iron, Dissolved	0.16	0.02	0.00192	mg/L	5	7439-89-6	f
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04616.08 (continued)
Sample Tag: Dupe 1

Method: E200.8, Run Date: 07/23/19 13:18, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese, Dissolved	0.251	0.005	0.000515	mg/L	5	7439-96-5	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.00334	0.005	0.000730	mg/L	5	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 14:45, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	4.1	50	4.0	ug/L	1	67-64-1	JB
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	6	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	1	1	0.27	ug/L	1	75-35-4	
Methylene chloride	0.19	5	0.16	ug/L	1	75-09-2	J
trans-1,2-Dichloroethene	0.31	1	0.14	ug/L	1	156-60-5	J
1,1-Dichloroethane	0.78	1	0.15	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene	3	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	0.21	1	0.11	ug/L	1	71-43-2	J
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	9	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	0.17	1	0.17	ug/L	1	108-88-3	J
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	

f-Filtered and preserved in lab

b-Value detected less than reporting limit, but greater than MDL

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S04616.08 (continued)
Sample Tag: Dupe 1

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 14:45, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Organics

Method: RSK-175, Run Date: 07/30/19 13:48, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	2,000	1.0	0.17	ug/L	1	74-82-8	O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S04616.09
Sample Tag: Field Blank
Collected Date/Time: 07/16/2019 00:01
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	3.4	IR
1	125ml Plastic	HNO3	Yes	3.4	IR
3	40ml Glass	HCL	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/30/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/17/19 11:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/17/19 10:25, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 07/23/19 12:10, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000201	0.002	0.000102	mg/L	2	7440-38-2	b
Chromium	0.000104	0.005	0.0000380	mg/L	2	7440-47-3	b
Copper	0.000178	0.005	0.000150	mg/L	2	7440-50-8	b
Iron	0.00165	0.02	0.000768	mg/L	2	7439-89-6	b
Lead	0.000098	0.003	0.0000760	mg/L	2	7439-92-1	b
Manganese	0.000269	0.005	0.000206	mg/L	2	7439-96-5	b
Selenium	Not detected	0.005	0.000838	mg/L	2	7782-49-2	
Zinc	0.00056	0.005	0.000292	mg/L	2	7440-66-6	b

Method: E200.8, Run Date: 07/23/19 12:12, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000110	0.002	0.000102	mg/L	2	7440-38-2	bf
Chromium, Dissolved	0.000283	0.005	0.0000380	mg/L	2	7440-47-3	bf
Copper, Dissolved	0.000194	0.005	0.000150	mg/L	2	7440-50-8	bf
Iron, Dissolved	0.02	0.02	0.000768	mg/L	2	7439-89-6	f
Lead, Dissolved	0.000180	0.003	0.0000760	mg/L	2	7439-92-1	bf
Manganese, Dissolved	0.000270	0.005	0.000206	mg/L	2	7439-96-5	bf
Selenium, Dissolved	Not detected	0.005	0.000838	mg/L	2	7782-49-2	f
Zinc, Dissolved	0.00271	0.005	0.000292	mg/L	2	7440-66-6	bf

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04616.09 (continued)
Sample Tag: Field Blank

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 13:17, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	0.19	5	0.13	ug/L	1	75-15-0	J
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S04616.09 (continued)
Sample Tag: Field Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 13:17, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Organics

Method: RSK-175, Run Date: 07/30/19 14:06, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	Not detected	1.0	0.17	ug/L	1	74-82-8	O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S04616.10
Sample Tag: Trip Blank
Collected Date/Time: 07/16/2019 00:01
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/30/19 12:00	JML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 13:37, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	4.1	50	4.0	ug/L	1	67-64-1	JB
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	0.19	5	0.16	ug/L	1	75-09-2	J
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	2.0	90	1.2	ug/L	1	109-99-9	JB
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S04616.10 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 13:37, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Lab Sample ID: S04616.11
Sample Tag: Equipment Blank
Collected Date/Time: 07/16/2019 00:01
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	3.4	IR
1	125ml Plastic	HNO3	Yes	3.4	IR
6	40ml Glass	HCL	Yes	3.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/30/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/17/19 11:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/17/19 10:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 07/23/19 12:13, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000111	0.002	0.000102	mg/L	2	7440-38-2	b
Chromium	0.000154	0.005	0.0000380	mg/L	2	7440-47-3	b
Copper	0.000177	0.005	0.000150	mg/L	2	7440-50-8	b
Iron	0.00255	0.02	0.000768	mg/L	2	7439-89-6	b
Lead	0.000083	0.003	0.0000760	mg/L	2	7439-92-1	b
Manganese	0.000307	0.005	0.000206	mg/L	2	7439-96-5	b
Selenium	Not detected	0.005	0.000838	mg/L	2	7782-49-2	
Zinc	0.00151	0.005	0.000292	mg/L	2	7440-66-6	b

Method: E200.8, Run Date: 07/23/19 12:14, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000102	mg/L	2	7440-38-2	f
Chromium, Dissolved	0.000215	0.005	0.0000380	mg/L	2	7440-47-3	bf
Copper, Dissolved	0.000321	0.005	0.000150	mg/L	2	7440-50-8	bf
Iron, Dissolved	0.00248	0.02	0.000768	mg/L	2	7439-89-6	bf
Lead, Dissolved	0.000248	0.003	0.0000760	mg/L	2	7439-92-1	bf
Manganese, Dissolved	0.000272	0.005	0.000206	mg/L	2	7439-96-5	bf
Selenium, Dissolved	Not detected	0.005	0.000838	mg/L	2	7782-49-2	f
Zinc, Dissolved	0.00464	0.005	0.000292	mg/L	2	7440-66-6	bf

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04616.11 (continued)
Sample Tag: Equipment Blank

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 13:56, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	0.15	5	0.13	ug/L	1	75-15-0	J
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S04616.11 (continued)
Sample Tag: Equipment Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/29/19 13:56, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Organics

Method: RSK-175, Run Date: 07/30/19 14:24, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	Not detected	1.0	0.17	ug/L	1	74-82-8	O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S04616
Client: APPLIED (Applied Ecosystems)
Project: RACER Flint West #12990
Submitted: 07/16/2019 16:30 Login User: MMC

Attention: Rodney Abke
Address: Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	Missing collection dates/times and sample .10 analyses not checked
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[X] Yes	[ ] No	[ ] N/A	Subcontracting needed? Subcontacted to:	Test America
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S04616 Initials: MMC

Client: APPLIED (Applied Ecosystems)

Project: RACER Flint West #12990

Submitted: 07/16/2019 16:30 Login User:

Attention: Rodney Abke
Address: Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Lab ID	125 ml Plastic HNO_3	250 ml Plastic HNO_3	1 L Plastic HNO_3	250 ml Plastic H_2SO_4	125 ml Amber H_2SO_4	32 oz Glass HCl	125 ml Plastic NaOH	125 ml Amber $PbCO_3$ NaOH	pH					Notes
									<2	>12	other	ml add	new pH	
S04616.01	X								X					
S04616.02	X								X					
S04616.03	X								X					
S04616.04	X								X					
S04616.05	X								X					
S04616.06	X								X					
S04616.07	X								X					
S04616.08	X								X					
S04616.09	X								X					
S04616.11	X								X					

Prepared by Merit Laboratories

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Rodney Abke
COMPANY: Applied EcoSystems
ADDRESS: G-4300 South Saginaw Street
CITY: Burton | STATE: MI | ZIP CODE: 48529
PHONE NO.: 810-715-2525 | FAX NO.: 810-715-2526 | P.O. NO.: PO795930
E-MAIL ADDRESS: rabke@appliedecosystems.com | QUOTE NO.:

INVOICE TO

☐ SAME
CONTACT NAME: Monica Wallingford
COMPANY: Revitalizing Auto Communities Environmental Response (RACER) Trust
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: 313.486.2978 | E-MAIL ADDRESS: mwallingford@racertrust.org

PROJECT NO./NAME: RACER Flint West #12990 | SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☒ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other _____
Special Instructions: * - Metals list incldues: Ar, Cr-total, CR-Hex, Cu, Pb, Se, Zn, Fe, Mn

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	Metals, dissolved*	Metals, Total*	Total Organic Carbon	Methane	PFAS/PFOS
04616.01	7/16	10:10	MW-104S		5	1	3	1					X	X	X			
.02	7/16	11:10	MW-105S		5	1	3	1					X	X	X			
.03	7/16	11:42	MW-106SR		5	1	3	1					X	X	X			
.04	7/16	12:15	MW-100S		5	1	3	1					X	X	X			
.05	7/16	12:53	MW-101S		5	1	3	1					X	X	X			
.06	7/16	13:22	MW-107S		5	1	3	1					X	X	X			
~~.~~	~~7/16~~				~~5~~	~~1~~							X	X	X	X	X	
.07	7/16		MW-112S		10	1	6	1	2				X	X	X	X	X	
.08			Dupe 1		10	1	6	1	2				X	X	X	X	X	
.09			Field blank			1	3	1					X	X	X		X	
.10			TRIP blank															
.11			Equipment blank			1	6	1					X	X	X		X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Joshua Hendrickson ☐ Sampler	DATE: 7-16	TIME: 3:00	
RECEIVED BY: SIGNATURE/ORGANIZATION: AE	DATE: 7-16	TIME: 7:00	
RELINQUISHED BY: SIGNATURE/ORGANIZATION: Jacob Shepherd	DATE: 7/16/19	TIME: 16:30	
RECEIVED BY: SIGNATURE/ORGANIZATION: M Allcock	DATE: 7/16/19	TIME: 1630	

RELINQUISHED BY: SIGNATURE/ORGANIZATION: AE	DATE: 9-16	TIME: 7:12	
RECEIVED BY: SIGNATURE/ORGANIZATION: Jacob Shepherd 07061	DATE:	TIME: 15:22	
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	NOTES: TEMP. ON ARRIVAL 3.4
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Job Number: 190-20372-1

Job Description: S04616 - Methane

For:
Merit Laboratories
2680 E Lansing Drive
East Lansing, MI 48823

Attention: John Laverty

Approved for release.
Sue Schafer
Project Manager II
7/31/2019 8:25 PM

Sue Schafer, Project Manager II
4101 Shuffel Street NW, North Canton, OH, 44720
(810)229-2763
sue.schafer@testamericainc.com
07/31/2019

cc: Barbara Ball

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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job Narrative
190-20372-1

Comments
No additional comments.

Receipt
The samples were received on 7/18/2019 3:38 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 14.3º C.

Receipt Exceptions

The following samples were received at the laboratory outside the required temperature criteria: 04616.07 (190-20372-1), 04616.08 (190-20372-2), 04616.09 (190-20372-3) and 04616.11 (190-20372-4). Temperature upon receipt was 14.3 degrees Celsius.

GC VOA
Method(s) RSK-175: 1,1,1-Trifluoroethane surrogate in the continuing calibration verification (CCVRT) failed criteria at -20.2% D. All analytes of interest in the CCVs meet criteria and all of the samples meet surrogate criteria. After careful evaluation, the data is reported.: 04616.07 (190-20372-1), 04616.08 (190-20372-2), 04616.09 (190-20372-3) and 04616.11 (190-20372-4)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Merit Laboratories
Project/Site: S04616 - Methane

Job ID: 190-20372-1

Client Sample ID: 04616.07 — Lab Sample ID: 190-20372-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Methane	1700		1.0		ug/L	1		RSK-175	Total/NA

Client Sample ID: 04616.08 — Lab Sample ID: 190-20372-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Methane	2000		1.0		ug/L	1		RSK-175	Total/NA

Client Sample ID: 04616.09 — Lab Sample ID: 190-20372-3

No Detections.

Client Sample ID: 04616.11 — Lab Sample ID: 190-20372-4

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: 04616.07

Lab Sample ID: 190-20372-1

Date Collected: 07/16/19 14:00

Matrix: Water

Date Received: 07/18/19 15:38

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	**1700**		1.0		ug/L			07/30/19 13:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*83*		*60 - 140*		*07/30/19 13:30*	*1*

Client Sample ID: 04616.08

Lab Sample ID: 190-20372-2

Date Collected: 07/16/19 14:40

Matrix: Water

Date Received: 07/18/19 15:38

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	**2000**		1.0		ug/L			07/30/19 13:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*81*		*60 - 140*		*07/30/19 13:48*	*1*

Client Sample ID: 04616.09

Lab Sample ID: 190-20372-3

Date Collected: 07/16/19 15:00

Matrix: Water

Date Received: 07/18/19 15:38

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<1.0		1.0		ug/L			07/30/19 14:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*82*		*60 - 140*		*07/30/19 14:06*	*1*

Client Sample ID: 04616.11

Lab Sample ID: 190-20372-4

Date Collected: 07/16/19 15:20

Matrix: Water

Date Received: 07/18/19 15:38

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<1.0		1.0		ug/L			07/30/19 14:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*86*		*60 - 140*		*07/30/19 14:24*	*1*

Default Detection Limits

Client: Merit Laboratories
Project/Site: S04616 - Methane

Job ID: 190-20372-1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	RL		Units
Methane	1.0	0.17	ug/L

Surrogate Summary

Client: Merit Laboratories
Project/Site: S04616 - Methane

Job ID: 190-20372-1

Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFE2 (60-140)
190-20372-1	04616.07	83
190-20372-2	04616.08	81
190-20372-3	04616.09	82
190-20372-4	04616.11	86
LCS 240-393558/4	Lab Control Sample	84
MB 240-393558/3	Method Blank	85

Surrogate Legend

TFE = 1,1,1-Trifluoroethane

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-393558/3
Matrix: Water
Analysis Batch: 393558

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<1.0		1.0		ug/L			07/30/19 12:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*85*		*60 - 140*		*07/30/19 12:37*	*1*

Lab Sample ID: LCS 240-393558/4
Matrix: Water
Analysis Batch: 393558

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			474	472		ug/L		100	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*84*		*60 - 140*

QC Association Summary

Client: Merit Laboratories
Project/Site: S04616 - Methane

Job ID: 190-20372-1

GC VOA

Analysis Batch: 393558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-20372-1	04616.07	Total/NA	Water	RSK-175	
190-20372-2	04616.08	Total/NA	Water	RSK-175	
190-20372-3	04616.09	Total/NA	Water	RSK-175	
190-20372-4	04616.11	Total/NA	Water	RSK-175	
MB 240-393558/3	Method Blank	Total/NA	Water	RSK-175	
LCS 240-393558/4	Lab Control Sample	Total/NA	Water	RSK-175	

Lab Chronicle

Client: Merit Laboratories
Project/Site: S04616 - Methane

Job ID: 190-20372-1

Client Sample ID: 04616.07
Date Collected: 07/16/19 14:00
Date Received: 07/18/19 15:38

Lab Sample ID: 190-20372-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	393558	07/30/19 13:30	BPM	TAL CAN

Client Sample ID: 04616.08
Date Collected: 07/16/19 14:40
Date Received: 07/18/19 15:38

Lab Sample ID: 190-20372-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	393558	07/30/19 13:48	BPM	TAL CAN

Client Sample ID: 04616.09
Date Collected: 07/16/19 15:00
Date Received: 07/18/19 15:38

Lab Sample ID: 190-20372-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	393558	07/30/19 14:06	BPM	TAL CAN

Client Sample ID: 04616.11
Date Collected: 07/16/19 15:20
Date Received: 07/18/19 15:38

Lab Sample ID: 190-20372-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	393558	07/30/19 14:24	BPM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: Merit Laboratories
Project/Site: S04616 - Methane

Job ID: 190-20372-1

Laboratory: Eurofins TestAmerica, Michigan

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Michigan	State		0057	05-05-20
Michigan	State Program	5	57	05-05-20

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State		2927	02-23-20
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-20
Florida	NELAP		E87225	06-30-20
Illinois	NELAP	5	200004	07-31-19 *
Illinois	NELAP		004498	07-31-19
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kansas	NELAP		E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-21
Nevada	State		OH00048	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-20
New Jersey	NELAP		OH001	06-30-20
New York	NELAP	2	10975	03-31-20
New York	NELAP		10975	03-31-20
Ohio VAP	State Program	5	CL0024	06-05-21
Oregon	NELAP	10	4062	02-23-20
Oregon	NELAP		4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Pennsylvania	NELAP		68-00340	08-31-19
Texas	NELAP	6	T104704517-18-10	08-31-19 *
Texas	NELAP		T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Virginia	NELAP		010101	09-14-19
Washington	State		C971	01-12-20
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State		210	12-31-19
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Merit Laboratories
Project/Site: S04616 - Methane

Job ID: 190-20372-1

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN

Protocol References:

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: Merit Laboratories
Project/Site: S04616 - Methane

Job ID: 190-20372-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
190-20372-1	04616.07	Water	07/16/19 14:00	07/18/19 15:38	
190-20372-2	04616.08	Water	07/16/19 14:40	07/18/19 15:38	
190-20372-3	04616.09	Water	07/16/19 15:00	07/18/19 15:38	
190-20372-4	04616.11	Water	07/16/19 15:20	07/18/19 15:38	

GC VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Instrument ID: ZPID Analysis Batch Number: 373146

Lab Sample ID: STD 240-373146/3 IC Client Sample ID:

Date Analyzed: 03/25/19 14:32 Lab File ID: Z0325003.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	1.18	Incomplete Integration	matthewsb	03/26/19 07:47
Ethylene	1.88	Incomplete Integration	matthewsb	03/26/19 07:47
Acetylene	2.00	Incomplete Integration	matthewsb	03/26/19 07:52
Ethane	2.20	Incomplete Integration	matthewsb	03/26/19 07:47
Propane	4.55	Incomplete Integration	matthewsb	03/26/19 07:47

Lab Sample ID: STD 240-373146/4 IC Client Sample ID:

Date Analyzed: 03/25/19 14:49 Lab File ID: Z0325004.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Acetylene	2.00	Incomplete Integration	matthewsb	03/26/19 07:48
Propane	4.55	Incomplete Integration	matthewsb	03/26/19 07:48

Lab Sample ID: STD 240-373146/5 IC Client Sample ID:

Date Analyzed: 03/25/19 15:06 Lab File ID: Z0325005.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Propane	4.55	Incomplete Integration	matthewsb	03/26/19 07:48

Lab Sample ID: STD 240-373146/6 IC Client Sample ID:

Date Analyzed: 03/25/19 15:23 Lab File ID: Z0325006.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Propane	4.55	Incomplete Integration	matthewsb	03/26/19 07:48

GC VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Instrument ID: ZPID Analysis Batch Number: 373146

Lab Sample ID: STD 240-373146/7 IC Client Sample ID:

Date Analyzed: 03/25/19 15:40 Lab File ID: Z0325007.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Propane	4.54	Split Peak	matthewsb	03/26/19 07:49

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
MEEP LCS_00036	08/01/19	07/18/19	DIWATER, Lot 1	43 mL	MEEP_00014	4 mL	Methane	474.419 ug/L
.MEEP_00014	08/08/19	LGC, Lot 1012668			(Purchased Reagent)		Methane	5.1 mg/L
SAICALSURR_00015	07/13/20	SynQuest Laboratories, Inc., Lot 469800			(Purchased Reagent)		1,1,1-Trifluoroethane	11190 ug/L
SARSK2ndSourc_00001	12/26/22	Matheson Trigas, Lot 109-84-03769-E2			(Purchased Reagent)		Methane	6558 ug/L
SARSKHighCal_00006	02/08/23	Airgas, Lot CBJ-510-1			(Purchased Reagent)		Acetylene	10657 ug/L
							Ethane	12338 ug/L
							Ethylene	11518 ug/L
							Methane	6558 ug/L
							Propane	18077 ug/L
SARSKLOWCAL_00013	03/13/22	AirGas, Lot 160-401444112-1			(Purchased Reagent)		Acetylene	1087 ug/L
							Ethane	1252 ug/L
							Ethylene	1176 ug/L
							Methane	667 ug/L
							Propane	1835 ug/L
SARSKSURR_00012	05/22/19	Matheson Trigas, Lot 9302603973			(Purchased Reagent)		1,1,1-Trifluoroethane	11190 ug/L
SARSKSURR_00013	05/22/20	Matheson Trigas, Lot 9302603973			(Purchased Reagent)		1,1,1-Trifluoroethane	11190 ug/L

Reagent

MEEP_00014

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ISO 17034 Accredited
Reference Material Producer
Cert. No. 3031.02

Date manufactured: 17-Apr-2019
Original issue date: 17-Apr-2019

Certificate of Analysis

Date Received: _____
Page 1 of 2 Rev

Catalog No.	Lot No.	Storage	Solvent	Expiration Date	Description
VHG-MEEP-5-40	1012668	2°C - 8°C	Water	8-Aug-2019	Certified Reference Materials for Dissolved Gas Analysis: Methane, Ethane, Ethene, and Propane, 5 mg/L (Nom.) Laboratory Control Sample (LCS), 40 ml

Certified Values

Analytical concentration is based on gravimetric and volumetric preparation of this CRM. This CRM is certified by gas chromatography (GC). The uncertainty value is calculated for a 95% confidence interval with a *k* value of 2.

Compound	CAS No.	Purity (%)	Neat Material Lot No.	Concentration, mg/L
methane	74-82-8	99.97	2457.152.1P	5.10 +/-.35
ethene	74-85-1	99	2459.152.1P	4.41 +/-.28
ethane (C2)	74-84-0	99	2458.152.1P	5.08 +/-.28
n-propane	74-98-6	100	4643.1.1P	5.02 +/-.38

Intended Uses

This Certified Reference material (CRM) is intended for use as a laboratory control sample (LCS); but can be used as a calibration standard. Appropriate techniques for measurement include chromatographic instrumentation with appropriate detection systems; such as gas chromatography (GC/FID and GC/MS) or other techniques suitable for these analytes and matrix.

This CRM is intended to be used at the time of analysis by aliquot collection using the lined rubber septum vial. It is not recommend that the CRM be stored or left open for an extended period of time after cap removal.

It may be used for various EN, ISO, EPA, and ASTM methods.

Method of Preparation

All weights are traceable through N. I. S. T. test method 822/264157-00.

Packaging and Storage

The solution should be stored according to the following storage requirements: 2 °C - 8 °C, unopened non-pierced septum. If uncapped, the expiration is determined by user specification.

Glassware Calibration

Volumetric glassware required for the manufacture or certification of this CRM were Class A grade and calibrated using NIST calibrated weights.

Weights and Balance Calibration

Weights used to perform daily checks on balances are calibrated annually within a calibration laboratory recognized by NIST as Echelon I. Balances are checked daily in accordance to in house procedures. Balances are calibrated annually by an ISO/IEC 17025:2005 and ISO 17034:2016 accredited metrology service.

Catalog No.: VHG-MEEP-5-40 **Lot No.:** 1012668 **Expiration Date:** 15-Aug-2019

Homogeneity

Random replicate samples of the final packaged CRM have been analyzed to prove homogeneity in accordance with internal procedures. This is consistent with the intended use of this CRM. The homogeneity of this product has been confirmed by procedures consistent with ISO/IEC guide 17025:2005 and ISO 17034:2016

Hazardous Information

Refer to MSDS

Calculation of Uncertainty

The following equations are used to calculate the value of the expanded uncertainty: $U=ku_c$: U=Expanded Uncertainty, k= the coverage factor at the 95% confidence level, k=2, u_c = the combined uncertainty $u_c = \sqrt{\sum u_i^2}$ where u_i are the individual uncertainty components for characterization, transportation, homogeneity, and shelf life.

Expiration Information

The expiration of this product is based on rigorous testing of short term and long term factors utilizing conditions stated in the Packaging and Storage section of this document.

Accreditation

This CRM was manufactured by an ISO 17025:2005 chemical testing lab (Certificate number 3031.01) and ISO 17034:2016 Reference Material Producer (RMP) Certificate number 3031.02 accredited by The American Association of Laboratory Accreditation (A2LA).

Manufactured By:	Certified By:	Released By:
Kengkaj Sukcharoenphon, Ph.D.	Daniel Biggerstaff, Ph.D.	HuiChen Stavros, Ph.D.
Research Chemist	**Technical Director**	**Quality Control Manager**

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Date manufactured: 17-Apr-2019
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Certificate of Analysis

Date Received: _____
Page 1 of 2 Rev

Catalog No.	Lot No.	Storage	Solvent	Expiration Date	Description
VHG-MEEP-5-40	1012668	2°C - 8°C	Water	8-Aug-2019	Certified Reference Materials for Dissolved Gas Analysis: Methane, Ethane, Ethene, and Propane, 5 mg/L (Nom.) Laboratory Control Sample (LCS), 40 ml

Certified Values

Analytical concentration is based on gravimetric and volumetric preparation of this CRM. This CRM is certified by gas chromatography (GC). The uncertainty value is calculated for a 95% confidence interval with a *k* value of 2.

Compound	CAS No.	Purity (%)	Neat Material Lot No.	Concentration, mg/L
methane	74-82-8	99.97	2457.152.1P	5.10 +/-.35
ethene	74-85-1	99	2459.152.1P	4.41 +/-.28
ethane (C2)	74-84-0	99	2458.152.1P	5.08 +/-.28
n-propane	74-98-6	100	4643.1.1P	5.02 +/-.38

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Glassware Calibration

Volumetric glassware required for the manufacture or certification of this CRM were Class A grade and calibrated using NIST calibrated weights.

Weights and Balance Calibration

Weights used to perform daily checks on balances are calibrated annually within a calibration laboratory recognized by NIST as Echelon I. Balances are checked daily in accordance to in house procedures. Balances are calibrated annually by an ISO/IEC 17025:2005 and ISO 17034:2016 accredited metrology service.

Certificate of Analysis

Catalog No.: VHG-MEEP-5-40 **Lot No.:** 1012668 **Expiration Date:** 15-Aug-2019

Homogeneity

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Manufactured By:	Certified By:	Released By:
Kengkaj Sukcharoenphon, Ph.D.	Daniel Biggerstaff, Ph.D.	HuiChen Stavros, Ph.D.
Research Chemist	**Technical Director**	**Quality Control Manager**

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Catalog No.	Lot No.	Storage	Solvent	Expiration Date	Description
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Certified Values

Analytical concentration is based on gravimetric and volumetric preparation of this CRM. This CRM is certified by gas chromatography (GC). The uncertainty value is calculated for a 95% confidence interval with a *k* value of 2.

Compound	CAS No.	Purity (%)	Neat Material Lot No.	Concentration, mg/L
methane	74-82-8	99.97	2457.152.1P	5.10 +/-.35
ethene	74-85-1	99	2459.152.1P	4.41 +/-.28
ethane (C2)	74-84-0	99	2458.152.1P	5.08 +/-.28
n-propane	74-98-6	100	4643.1.1P	5.02 +/-.38

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This Certified Reference material (CRM) is intended for use as a laboratory control sample (LCS); but can be used as a calibration standard. Appropriate techniques for measurement include chromatographic instrumentation with appropriate detection systems; such as gas chromatography (GC/FID and GC/MS) or other techniques suitable for these analytes and matrix.

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Method of Preparation

All weights are traceable through N. I. S. T. test method 822/264157-00.

Packaging and Storage

The solution should be stored according to the following storage requirements: 2 °C - 8 °C, unopened non-pierced septum. If uncapped, the expiration is determined by user specification.

Glassware Calibration

Volumetric glassware required for the manufacture or certification of this CRM were Class A grade and calibrated using NIST calibrated weights.

Weights and Balance Calibration

Weights used to perform daily checks on balances are calibrated annually within a calibration laboratory recognized by NIST as Echelon I. Balances are checked daily in accordance to in house procedures. Balances are calibrated annually by an ISO/IEC 17025:2005 and ISO 17034:2016 accredited metrology service.

Catalog No.: VHG-MEEP-5-40 **Lot No.:** 1012668 **Expiration Date:** 15-Aug-2019

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Research Chemist	**Technical Director**	**Quality Control Manager**

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Catalog No.	Lot No.	Storage	Solvent	Expiration Date	Description
VHG-MEEP-5-40	1012668	2°C - 8°C	Water	8-Aug-2019	Certified Reference Materials for Dissolved Gas Analysis: Methane, Ethane, Ethene, and Propane, 5 mg/L (Nom.) Laboratory Control Sample (LCS), 40 ml

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ethene	74-85-1	99	2459.152.1P	4.41 +/-.28
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n-propane	74-98-6	100	4643.1.1P	5.02 +/-.38

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It may be used for various EN, ISO, EPA, and ASTM methods.

Method of Preparation

All weights are traceable through N. I. S. T. test method 822/264157-00.

Packaging and Storage

The solution should be stored according to the following storage requirements: 2 °C - 8 °C, unopened non-pierced septum. If uncapped, the expiration is determined by user specification.

Glassware Calibration

Volumetric glassware required for the manufacture or certification of this CRM were Class A grade and calibrated using NIST calibrated weights.

Weights and Balance Calibration

Weights used to perform daily checks on balances are calibrated annually within a calibration laboratory recognized by NIST as Echelon I. Balances are checked daily in accordance to in house procedures. Balances are calibrated annually by an ISO/IEC 17025:2005 and ISO 17034:2016 accredited metrology service.

Catalog No.: VHG-MEEP-5-40 **Lot No.:** 1012668 **Expiration Date:** 15-Aug-2019

Homogeneity

Random replicate samples of the final packaged CRM have been analyzed to prove homogeneity in accordance with internal procedures. This is consistent with the intended use of this CRM. The homogeneity of this product has been confirmed by procedures consistent with ISO/IEC guide 17025:2005 and ISO 17034:2016

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Research Chemist	**Technical Director**	**Quality Control Manager**

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Date manufactured: 17-Apr-2019
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Certificate of Analysis

Date Received: _____
Page 1 of 2 Rev

Catalog No.	Lot No.	Storage	Solvent	Expiration Date	Description
VHG-MEEP-5-40	1012668	2°C - 8°C	Water	8-Aug-2019	Certified Reference Materials for Dissolved Gas Analysis: Methane, Ethane, Ethene, and Propane, 5 mg/L (Nom.) Laboratory Control Sample (LCS), 40 ml

Certified Values

Analytical concentration is based on gravimetric and volumetric preparation of this CRM. This CRM is certified by gas chromatography (GC). The uncertainty value is calculated for a 95% confidence interval with a *k* value of 2.

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Intended Uses

This Certified Reference material (CRM) is intended for use as a laboratory control sample (LCS); but can be used as a calibration standard. Appropriate techniques for measurement include chromatographic instrumentation with appropriate detection systems; such as gas chromatography (GC/FID and GC/MS) or other techniques suitable for these analytes and matrix.

This CRM is intended to be used at the time of analysis by aliquot collection using the lined rubber septum vial. It is not recommend that the CRM be stored or left open for an extended period of time after cap removal.

It may be used for various EN, ISO, EPA, and ASTM methods.

Method of Preparation

All weights are traceable through N. I. S. T. test method 822/264157-00.

Packaging and Storage

The solution should be stored according to the following storage requirements: 2 °C - 8 °C, unopened non-pierced septum. If uncapped, the expiration is determined by user specification.

Glassware Calibration

Volumetric glassware required for the manufacture or certification of this CRM were Class A grade and calibrated using NIST calibrated weights.

Weights and Balance Calibration

Weights used to perform daily checks on balances are calibrated annually within a calibration laboratory recognized by NIST as Echelon I. Balances are checked daily in accordance to in house procedures. Balances are calibrated annually by an ISO/IEC 17025:2005 and ISO 17034:2016 accredited metrology service.

Certificate of Analysis

Catalog No.: VHG-MEEP-5-40 **Lot No.:** 1012668 **Expiration Date:** 15-Aug-2019

Homogeneity

Random replicate samples of the final packaged CRM have been analyzed to prove homogeneity in accordance with internal procedures. This is consistent with the intended use of this CRM. The homogeneity of this product has been confirmed by procedures consistent with ISO/IEC guide 17025:2005 and ISO 17034:2016

Hazardous Information

Refer to MSDS

Calculation of Uncertainty

The following equations are used to calculate the value of the expanded uncertainty: $U=ku_c$: U=Expanded Uncertainty, k= the coverage factor at the 95% confidence level, k=2, u_c = the combined uncertainty $u_c = \sqrt{\sum u_i^2}$ where u_i are the individual uncertainty components for characterization, transportation, homogeneity, and shelf life.

Expiration Information

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Accreditation

This CRM was manufactured by an ISO 17025:2005 chemical testing lab (Certificate number 3031.01) and ISO 17034:2016 Reference Material Producer (RMP) Certificate number 3031.02 accredited by The American Association of Laboratory Accreditation (A2LA).

Manufactured By:	Certified By:	Released By:
Kengkaj Sukcharoenphon, Ph.D.	Daniel Biggerstaff, Ph.D.	HuiChen Stavros, Ph.D.
Research Chemist	**Technical Director**	**Quality Control Manager**

Reagent

SARSK2ndSourc_00001

RCVD 1/22/19

MATHESON TRI-GAS INC
1650 Enterprise Pkwy
Twinsburg, OH 44087
1-215-648-4000

CERTIFICATE OF ANALYSIS

Severn Trent Lab
4101 SHUFFEL DR
NORTH CANTON, OH 44720

Ref Po# 3015289

---

17 LITER DISPOSABLE

LOT NUMBER: 109-84-03769-E2

COMPONENT	CONCENTRATION	
ethane	0.991	%
propane	1.007	%
ethylene	1.009	%
acetylene	0.998	%
methane	1.007	%
helium	BAL	

ITEM NUMBER: GMT2690244TB

CGA: 600

PSIG: 240

FILL DATE: 12/25/18

EXPIRATION DATE: 12/26/22

Above are the results of the analysis you requested, as reported by our laboratory. Results are in mole percent, unless otherwise indicated. Mixture accuracy is ± 2%. NIST traceable by weights or gaseous standards.

Judith M Zadravec

Judy Zadravec, Chemist

1/14/2019

DATE

Reagent

SARSKHighCal_00006

Airgas

CERTIFICATE OF ANALYSIS

Customer:	Airgas Specialty Gases	**Cylinder Size:**	0.6 Cu. Ft.
PO Number:	5800098394	**Cylinder Volume:**	17 Liter
Part Number:	X06HE95CP170000 / 17L-510	**Cylinder Pressure:**	240 psig
Lot Number:	CBJ-510-1	**Valve Outlet:**	CGA 600
Analysis Date:	02/08/2019	**Blend Tolerance:**	+/-5%

Use Before: 02/08/2023

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration (Mole %)	Analytical Uncertainty
Acetylene	1% vol.	0.998% vol.	+/- 2%
Ethylene	1% vol.	1.009% vol.	+/- 2%
Ethane	1% vol.	0.991% vol.	+/- 2%
Methane	1% vol.	1.007% vol.	+/- 2%
Propane	1% vol.	1.007% vol.	+/- 2%
Helium	Balance	Balance	

NIST Weight Certificate Number(s): S1106, MS001, MS002, A031

The calibration gas prepared by Airgas is considered a certified standard. It is prepared by gravimetric, or partial pressure techniques. The calibration standard provided is prepared by weights traceable to the National Institute of Standards and Technology (NIST) or by using NIST Standard Reference Materials where available.

Analyst:

Reagent

SARSKLOWCAL_00013

Scott

RCVD 3/22/19

Airgas Specialty Gases
Airgas USA, LLC
6141 Easton Road
Bldg 1
Plumsteadville, PA 18949
Airgas.com

4080707
ID: SARSKLOWCAL_00013
Exp: 03/13/22 Prpd: BPM
1000 PPM VARIOUS ANALYTES

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED STANDARD-SPEC

Customer:	TESTAMERICA ANALYTICAL TESTING		
Part Number:	X06HE99CP170003	Reference Number:	160-401444112-1
Cylinder Number:	ST0000194219	Cylinder Volume:	1.2 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	240 PSIG
Analysis Date:	Mar 13, 2019	Valve Outlet:	600
Lot Number:	160-401444112-1		

Expiration Date: Mar 13, 2022

Product composition verified by direct comparison to calibration standards traceable to N.I.S.T. weights and/or N.I.S.T. Gas Mixture reference materials.

ANALYTICAL RESULTS

Component	Req Conc	Actual Concentration (Mole %)	Analytical Uncertainty
ACETYLENE	1000 PPM	1020 PPM	+/- 5%
ETHANE	1000 PPM	1015 PPM	+/- 5%
ETHYLENE	1000 PPM	1021 PPM	+/- 5%
METHANE	1000 PPM	1017 PPM	+/- 5%
PROPANE	1000 PPM	1015 PPM	+/- 5%
HELIUM	Balance		

Permanent Notes:-NA-

Approved for Release

Reagent

SARSKSURR_00012

MATHESON
ask. . .The Gas Professionals™

Analysis Report

To: MATHESON VALLEY
151 S OLIVE ST
ELYRIA, OH 44036

MTG Customer No: 131676

Manufacturing Location
1700 SCEPTER ROAD
WAVERLY, TN 37185

Product: Multi-Component Mixture

Grade: CERTIFIED
MTG Part No: G2683694

Cylinder Size: 1L
Valve: CGA 350 BR

Contents:
Net: 237 ft³; 6.72 m³

Pressure: 2000 psig @ 70°F; 13891 kPa @ 21°C

CYLINDER NUMBER(S)
AX047506

	Requested Concentration	Certified Concentration	Units	Blend Tolerance	Certified Accuracy
1,1,1-Trifluoroethane	0.325	0.325	%	±2%	±2%
Helium	Balance	Balance			

TRACEABILITY

COMMENTS

Lot No: 9303607373
Fill Date: 11/05/2013
Expiration Date: 11/05/2016

Analysis Date: 11/07/2013

Unless otherwise indicated, Matheson Tri-Gas terms and conditions govern the product data contained herein. This document was issued electronically and data validated by electronic signature. For further information visit www.matheson-trigas.com.

Ashley Ellis - Analyst — 11/07/2013 (Date)

Ashley Ellis - QA Approval — 11/07/2013 (Date)

Method RSK-175

Dissolved Gases (GC) by Method RSK_175

FORM II
GC VOA SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): HP-PLOT/Q ID: 0.53(mm)

Client Sample ID	Lab Sample ID	TFE1 #
04616.07	190-20372-1	83
04616.08	190-20372-2	81
04616.09	190-20372-3	82
04616.11	190-20372-4	86
	MB 240-393558/3	85
	LCS 240-393558/4	84

	QC LIMITS
TFE = 1,1,1-Trifluoroethane	60-140

Column to be used to flag recovery values

FORM II RSK-175

FORM III
GC VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Matrix: Water Level: Low Lab File ID: Z0730004.D

Lab ID: LCS 240-393558/4 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Methane	474	472	100	80-120	

Column to be used to flag recovery and RPD values

FORM III RSK-175

FORM IV
GC VOA METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Lab Sample ID: MB 240-393558/3

Matrix: Water Date Extracted:

Lab File ID:(1) Z0730003.D Lab File ID:(2)

Date Analyzed:(1) 07/30/2019 12:37 Date Analyzed:(2)

Instrument ID:(1) ZPID Instrument ID:(2)

GC Column:(1) HP-PLOT/Q ID: 0.53(mm) GC Column:(2) ID:

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
	LCS 240-393558/4	07/30/2019 12:55	
04616.07	190-20372-1	07/30/2019 13:30	
04616.08	190-20372-2	07/30/2019 13:48	
04616.09	190-20372-3	07/30/2019 14:06	
04616.11	190-20372-4	07/30/2019 14:24	

FORM VIII
GC VOA ANALYTICAL SEQUENCE

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Sample No.: CCVRT 240-393558/2 Date Analyzed: 07/30/2019 12:20

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm)

Lab File ID (Standard): Z0730002.D Heated Purge: (Y/N) N

Calibration ID: 49918

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, STANDARDS, MS/MSDs AND LCSs IS GIVEN BELOW:

				TFE		
				RT #		
CONTINUING CALIBRATION SURROGATE				3.35		
UPPER LIMIT				3.40		
LOWER LIMIT				3.30		
LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	LAB FILE ID			
CCVRT 240-393558/2		07/30/2019 12:20	Z0730002.D	3.35		
MB 240-393558/3		07/30/2019 12:37	Z0730003.D	3.35		
LCS 240-393558/4		07/30/2019 12:55	Z0730004.D	3.35		
190-20372-1	04616.07	07/30/2019 13:30	Z0730006.D	3.35		
190-20372-2	04616.08	07/30/2019 13:48	Z0730007.D	3.35		
190-20372-3	04616.09	07/30/2019 14:06	Z0730008.D	3.35		
190-20372-4	04616.11	07/30/2019 14:24	Z0730009.D	3.35		
CCV 240-393558/18		07/30/2019 17:04	Z0730018.D	3.35		

TFE = 1,1,1-Trifluoroethane

TFE RT Limit = ± 0.05 minutes of surrogate RT

Column used to flag values outside QC limits

FORM VIII RSK-175

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Client Sample ID: 04616.07 Lab Sample ID: 190-20372-1

Matrix: Water Lab File ID: Z0730006.D

Analysis Method: RSK-175 Date Collected: 07/16/2019 14:00

Sample wt/vol: 23(mL) Date Analyzed: 07/30/2019 13:30

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393558 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	1700		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	83		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730006.D
Lims ID: 190-20372-B-1
Client ID: 04616.07
Sample Type: Client
Inject. Date: 30-Jul-2019 13:30:30 ALS Bottle#: 6 Worklist Smp#: 6
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-006
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:38:50 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/l	Flags
	1 Methane					
	1.186	1.188	-0.002	10893126	1696.6	
$	5 1,1,1-Trifluoroethane					
	3.351	3.353	-0.002	25142150	8035.2	

Reagents:

SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

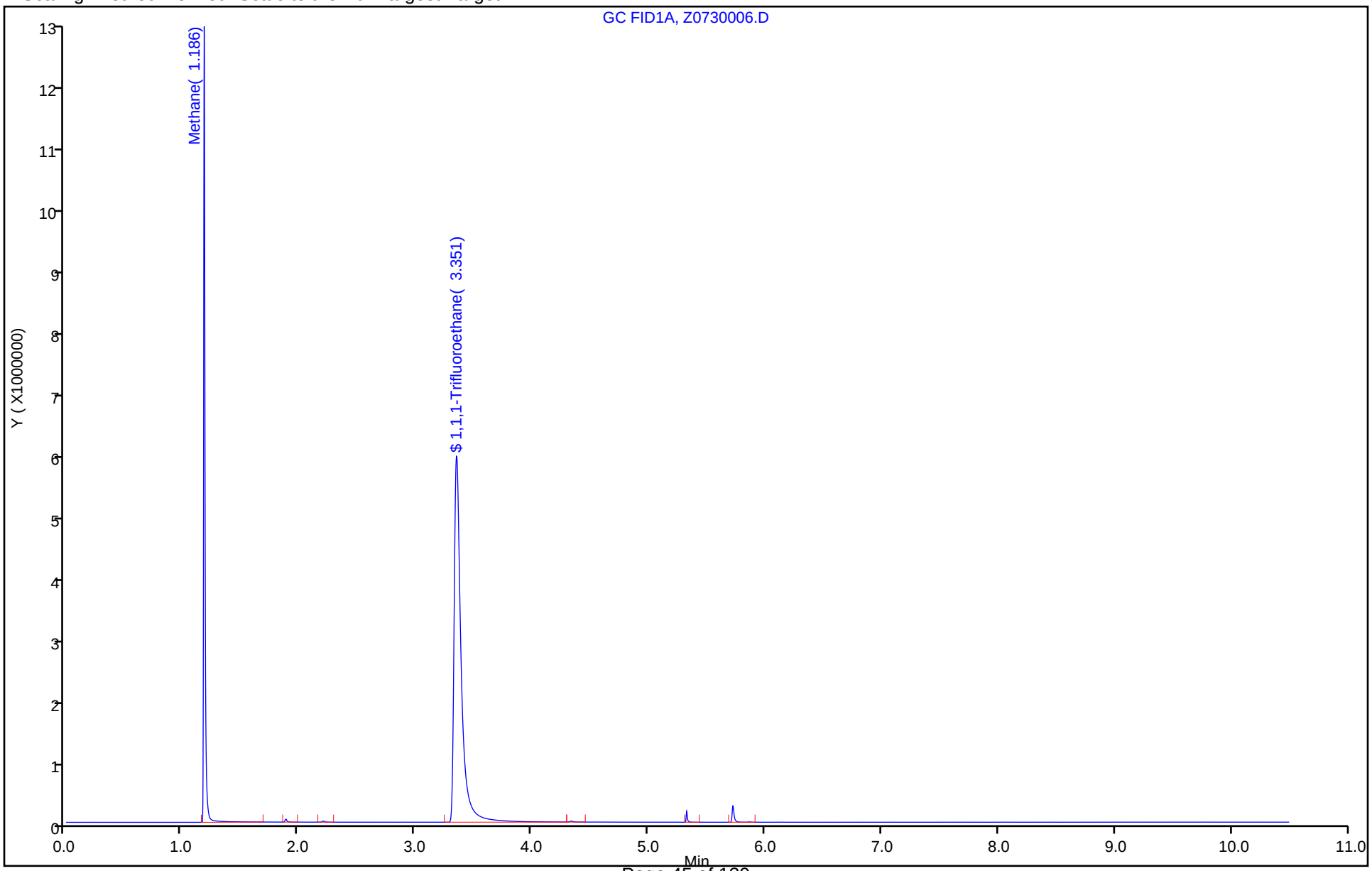
Report Date: 31-Jul-2019 07:38:54 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730006.D

Injection Date:	30-Jul-2019 13:30:30	Instrument ID:	ZPID	Operator ID:	
Lims ID:	190-20372-B-1	Lab Sample ID:	240-20372-1	Worklist Smp#:	6
Client ID:	04616.07				
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	6
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730006.D
Lims ID: 190-20372-B-1
Client ID: 04616.07
Sample Type: Client
Inject. Date: 30-Jul-2019 13:30:30 ALS Bottle#: 6 Worklist Smp#: 6
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-006
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:38:50 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	8035.2	82.58

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Client Sample ID: 04616.08 Lab Sample ID: 190-20372-2

Matrix: Water Lab File ID: Z0730007.D

Analysis Method: RSK-175 Date Collected: 07/16/2019 14:40

Sample wt/vol: 23(mL) Date Analyzed: 07/30/2019 13:48

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393558 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	2000		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	81		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730007.D
Lims ID: 190-20372-A-2
Client ID: 04616.08
Sample Type: Client
Inject. Date: 30-Jul-2019 13:48:22 ALS Bottle#: 7 Worklist Smp#: 7
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-007
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:38:50 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/l	Flags
1	Methane					
	1.187	1.188	-0.001	12821115	1996.9	
$	5 1,1,1-Trifluoroethane					
	3.352	3.353	-0.001	24539852	7842.7	

Reagents:

SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

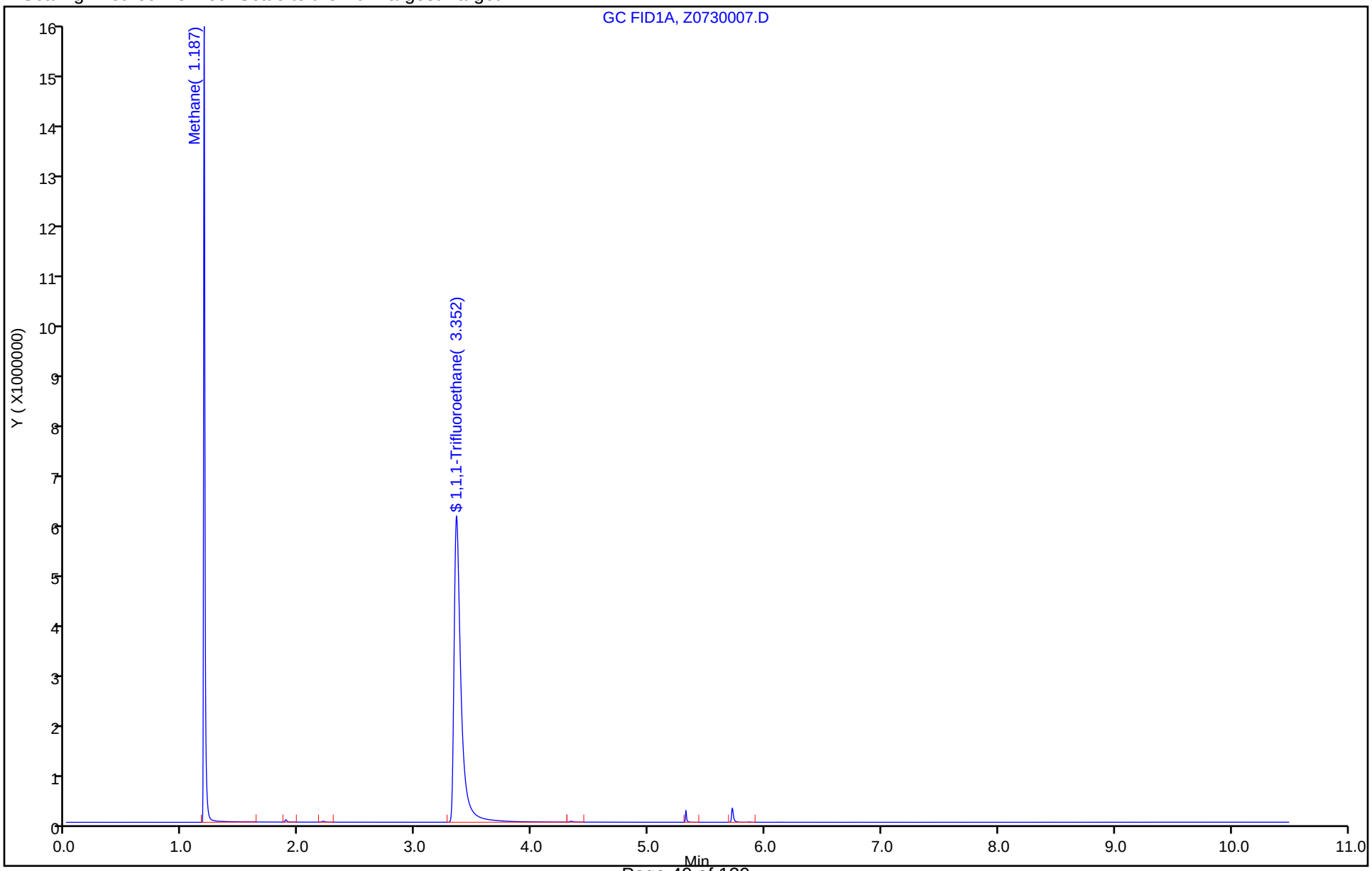
Report Date: 31-Jul-2019 07:38:54 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730007.D

Injection Date:	30-Jul-2019 13:48:22	Instrument ID:	ZPID	Operator ID:	
Lims ID:	190-20372-A-2	Lab Sample ID:	240-20372-2	Worklist Smp#:	7
Client ID:	04616.08				
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730007.D
Lims ID: 190-20372-A-2
Client ID: 04616.08
Sample Type: Client
Inject. Date: 30-Jul-2019 13:48:22 ALS Bottle#: 7 Worklist Smp#: 7
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-007
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:38:50 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	7842.7	80.60

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Client Sample ID: 04616.09 Lab Sample ID: 190-20372-3

Matrix: Water Lab File ID: Z0730008.D

Analysis Method: RSK-175 Date Collected: 07/16/2019 15:00

Sample wt/vol: 23(mL) Date Analyzed: 07/30/2019 14:06

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393558 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	<1.0		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	82		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730008.D
Lims ID: 190-20372-A-3
Client ID: 04616.09
Sample Type: Client
Inject. Date: 30-Jul-2019 14:06:33 ALS Bottle#: 8 Worklist Smp#: 8
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-008
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:38:50 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/l	Flags
1 Methane					
1.188				ND	
$ 5 1,1,1-Trifluoroethane					
3.352	3.353	-0.001	25100944	8022.0	

Reagents:

SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

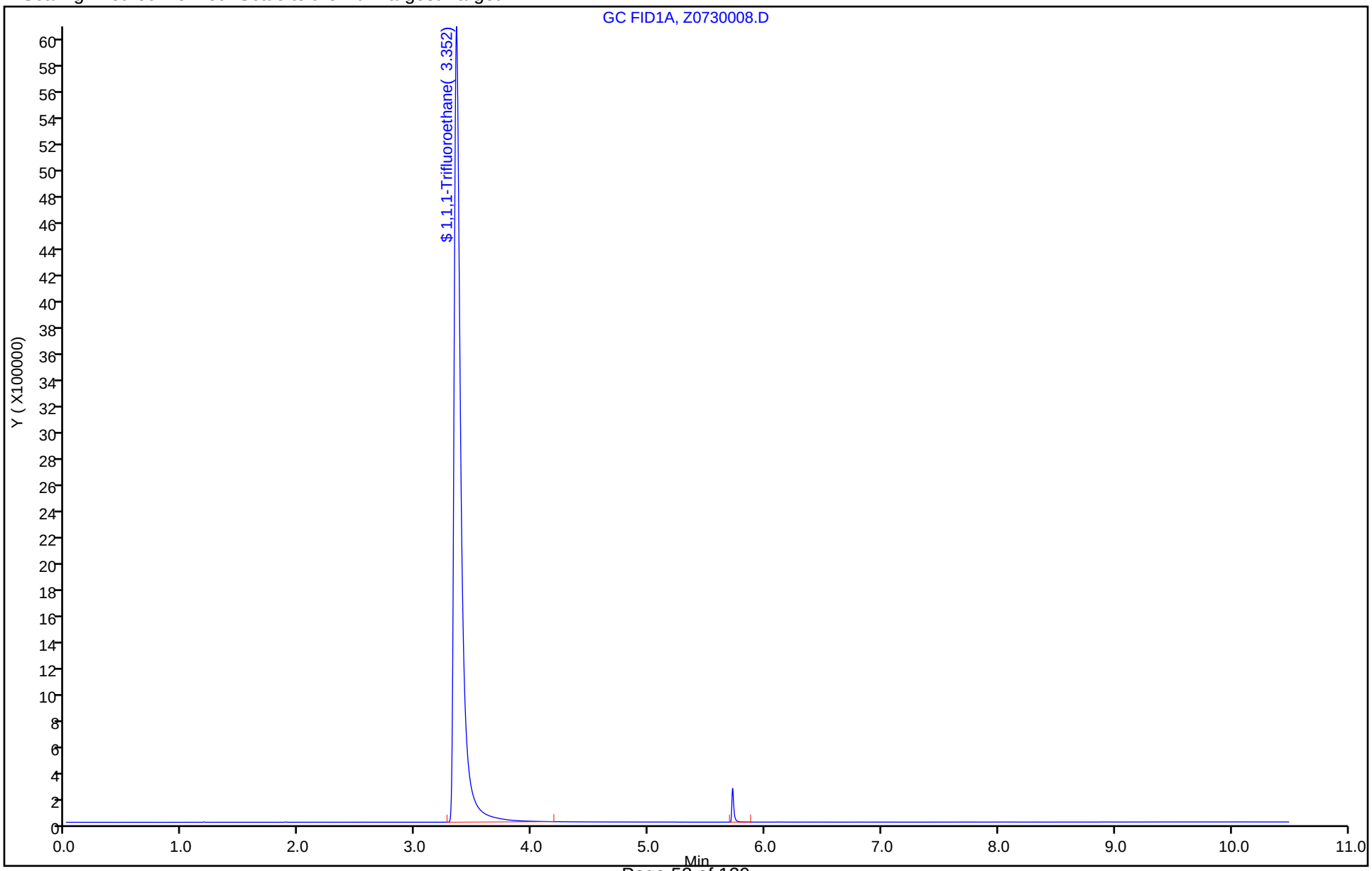
Report Date: 31-Jul-2019 07:38:55 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730008.D

Injection Date:	30-Jul-2019 14:06:33	Instrument ID:	ZPID	Operator ID:	
Lims ID:	190-20372-A-3	Lab Sample ID:	240-20372-3	Worklist Smp#:	8
Client ID:	04616.09				
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	8
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730008.D
Lims ID: 190-20372-A-3
Client ID: 04616.09
Sample Type: Client
Inject. Date: 30-Jul-2019 14:06:33 ALS Bottle#: 8 Worklist Smp#: 8
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-008
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:38:50 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	8022.0	82.44

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Client Sample ID: 04616.11 Lab Sample ID: 190-20372-4

Matrix: Water Lab File ID: Z0730009.D

Analysis Method: RSK-175 Date Collected: 07/16/2019 15:20

Sample wt/vol: 23(mL) Date Analyzed: 07/30/2019 14:24

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393558 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	<1.0		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	86		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730009.D
Lims ID: 190-20372-C-4
Client ID: 04616.11
Sample Type: Client
Inject. Date: 30-Jul-2019 14:24:15 ALS Bottle#: 9 Worklist Smp#: 9
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-009
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:38:50 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/l	Flags
1 Methane					
1.188			ND		
$ 5 1,1,1-Trifluoroethane					
3.351	3.353	-0.002	26066067	8330.4	

Reagents:

SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

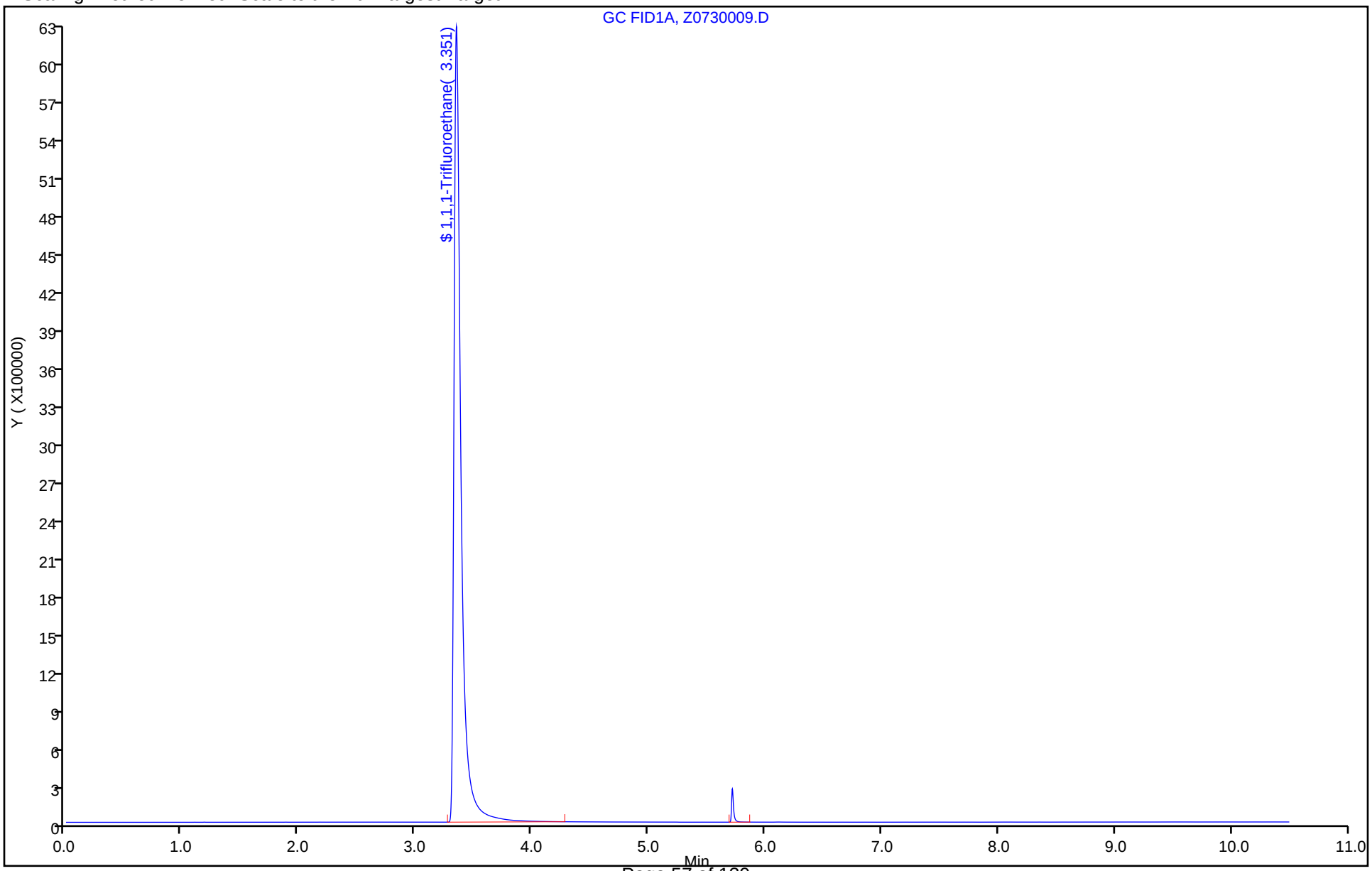
Report Date: 31-Jul-2019 07:38:56 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730009.D

Injection Date:	30-Jul-2019 14:24:15	Instrument ID:	ZPID	Operator ID:	
Lims ID:	190-20372-C-4	Lab Sample ID:	240-20372-4	Worklist Smp#:	9
Client ID:	04616.11				
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	9
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730009.D
Lims ID: 190-20372-C-4
Client ID: 04616.11
Sample Type: Client
Inject. Date: 30-Jul-2019 14:24:15 ALS Bottle#: 9 Worklist Smp#: 9
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-009
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:38:50 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	8330.4	85.61

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1 Analy Batch No.: 373146

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/25/2019 14:32 Calibration End Date: 03/25/2019 15:57 Calibration ID: 49917

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-373146/3	Z0325003.D
Level 2	STD 240-373146/4	Z0325004.D
Level 3	STD 240-373146/5	Z0325005.D
Level 4	STD 240-373146/6	Z0325006.D
Level 5	STD 240-373146/7	Z0325007.D
Level 6	STD 240-373146/8	Z0325008.D

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6					RT WINDOW	AVG RT
Methane	1.182	1.182	1.182	1.181	1.181	1.179					1.129 - 1.229	1.181
Ethylene	1.881	1.880	1.880	1.880	1.878	1.873					1.823 - 1.923	1.879
Acetylene	1.996	1.995	1.993	1.993	1.993	+++++					1.939 - 2.039	1.994
Ethane	2.202	2.202	2.200	2.200	2.199	2.191					1.991 - 2.391	2.199
Propane	4.549	4.548	4.548	4.546	4.543	4.519					4.469 - 4.569	4.542

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1 Analy Batch No.: 373146

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/25/2019 14:32 Calibration End Date: 03/25/2019 15:57 Calibration ID: 49917

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-373146/3	Z0325003.D
Level 2	STD 240-373146/4	Z0325004.D
Level 3	STD 240-373146/5	Z0325005.D
Level 4	STD 240-373146/6	Z0325006.D
Level 5	STD 240-373146/7	Z0325007.D
Level 6	STD 240-373146/8	Z0325008.D

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3	LVL 4		B	M1	M2								
Methane	6779.3 5971.4	6638.4 6357.3	6547.8	6228.5	Ave		6420.43964				4.6		20.0			
Ethylene	5472.3 6503.0	6489.6 6851.4	6599.4	6237.9	Ave		6358.92133				7.5		20.0			
Acetylene	2456.6 3914.5	2993.1 +++++	3464.1	3746.4	Ave		3314.91689				17.9		30.0			
Ethane	5599.4 7050.0	6661.7 7426.5	6819.1	6522.4	Ave		6679.85645				9.2		20.0			
Propane	5750.6 7980.4	7063.7 8394.9	7233.7	6983.7	Ave		7234.51455				12.7		20.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1 Analy Batch No.: 373146

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/25/2019 14:32 Calibration End Date: 03/25/2019 15:57 Calibration ID: 49917

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-373146/3	Z0325003.D
Level 2	STD 240-373146/4	Z0325004.D
Level 3	STD 240-373146/5	Z0325005.D
Level 4	STD 240-373146/6	Z0325006.D
Level 5	STD 240-373146/7	Z0325007.D
Level 6	STD 240-373146/8	Z0325008.D

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
		LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Methane	Ave	1966 27189706	13476	66460	632192	2553930	0.290 4277	2.03	10.2	102	428
Ethylene	Ave	2798 51465960	23227	118101	1116304	4884888	0.511 7512	3.58	17.9	179	751
Acetylene	Ave	1161 +++++	9902	57300	619698	2720642	0.473 +++++	3.31	16.5	165	695
Ethane	Ave	3048 59757636	25384	129919	1242663	5672810	0.544 8047	3.81	19.1	191	805
Propane	Ave	4588 98970444	39449	201994	1950136	9408395	0.798 11789	5.58	27.9	279	1179

Curve Type Legend:

Ave = Average

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325003.D
Lims ID: STD 1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 25-Mar-2019 14:32:27 ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-003
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub18

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:28 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

First Level Reviewer: matthewsb Date: 26-Mar-2019 07:48:00

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1 Methane						Ma
1.182	1.179	0.003	1966	0.2900	0.3062	Ma
2 Ethylene						Ma
1.881	1.873	0.008	2798	0.5113	0.4400	Ma
3 Acetylene						Ma
1.996	1.989	0.007	1161	0.4726	0.3502	M
4 Ethane						Ma
2.202	2.191	0.011	3048	0.5443	0.4563	Ma
6 Propane						Ma
4.549	4.519	0.030	4588	0.7978	0.6342	Ma

QC Flag Legend

Review Flags
M - Manually Integrated
a - User Assigned ID

Reagents:

SARSKLOWCAL_00013 Amount Added: 10.00 Units: uL

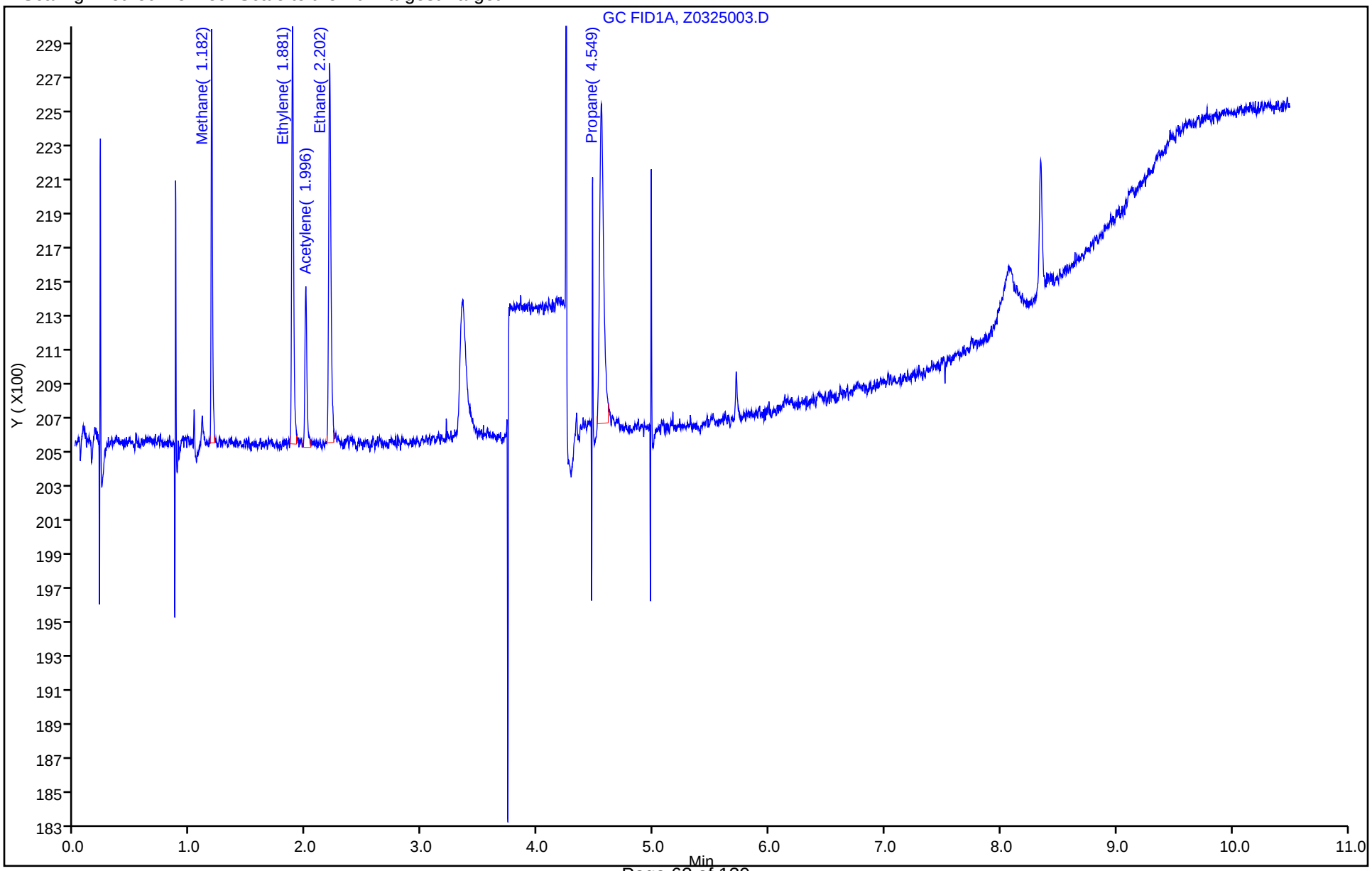
Report Date: 26-Mar-2019 07:54:28 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325003.D

Injection Date:	25-Mar-2019 14:32:27	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD 1			Worklist Smp#:	3
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	3
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

TestAmerica Canton

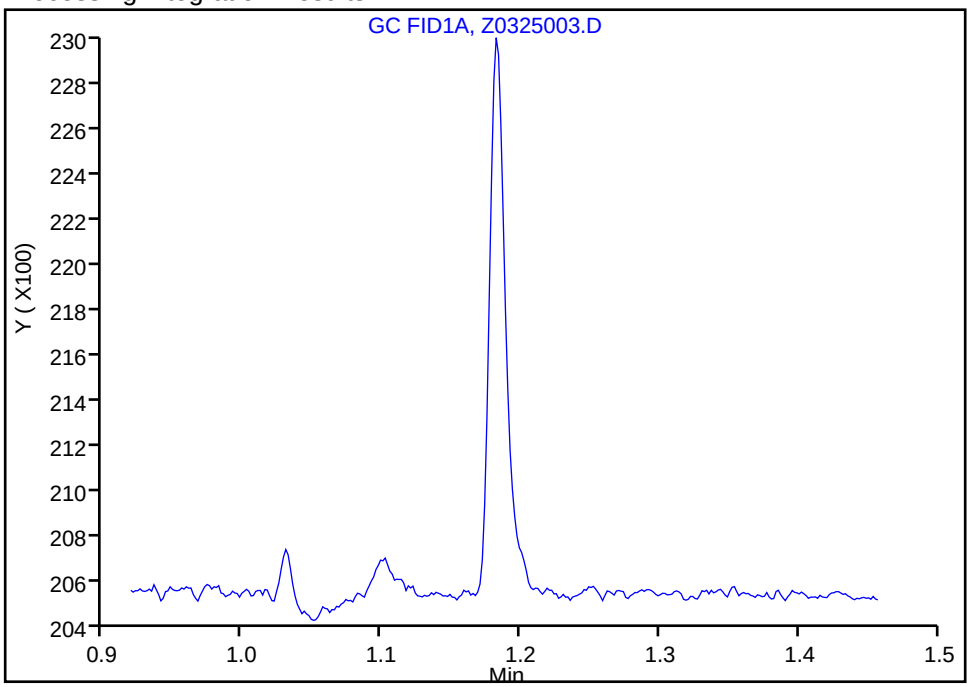
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325003.D
Injection Date: 25-Mar-2019 14:32:27 Instrument ID: ZPID
Lims ID: STD 1
Client ID:
Operator ID: ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

1 Methane, CAS: 74-82-8

Signal: 1

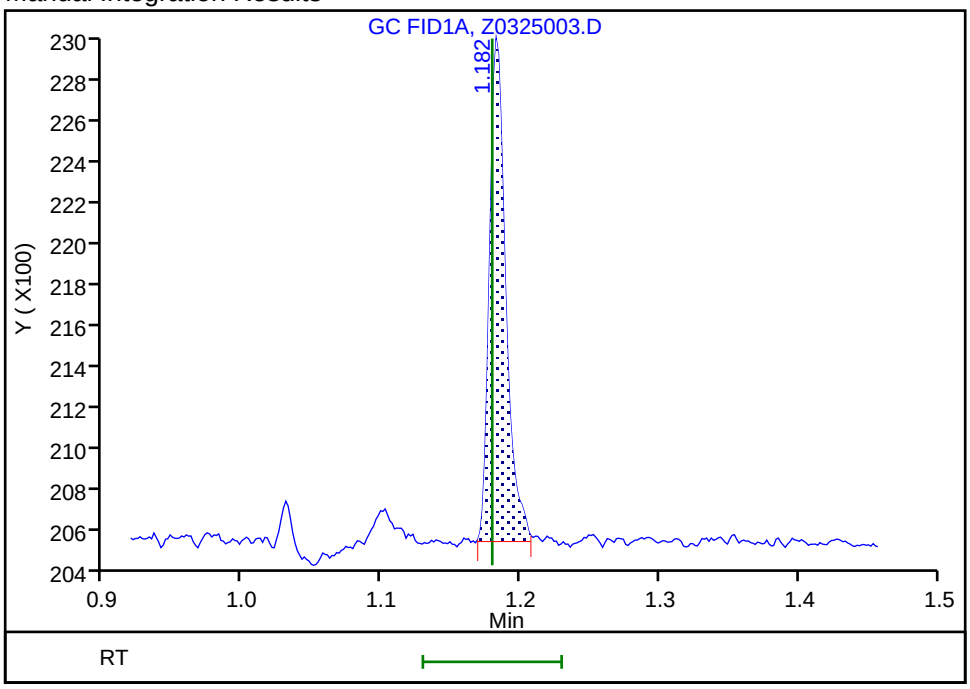
Not Detected
Expected RT: 1.18

Processing Integration Results



Manual Integration Results

RT: 1.18
Area: 1966
Amount: 0.306210
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:47:24
Audit Action: Manually Integrated/Assigned Compound ID Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Canton

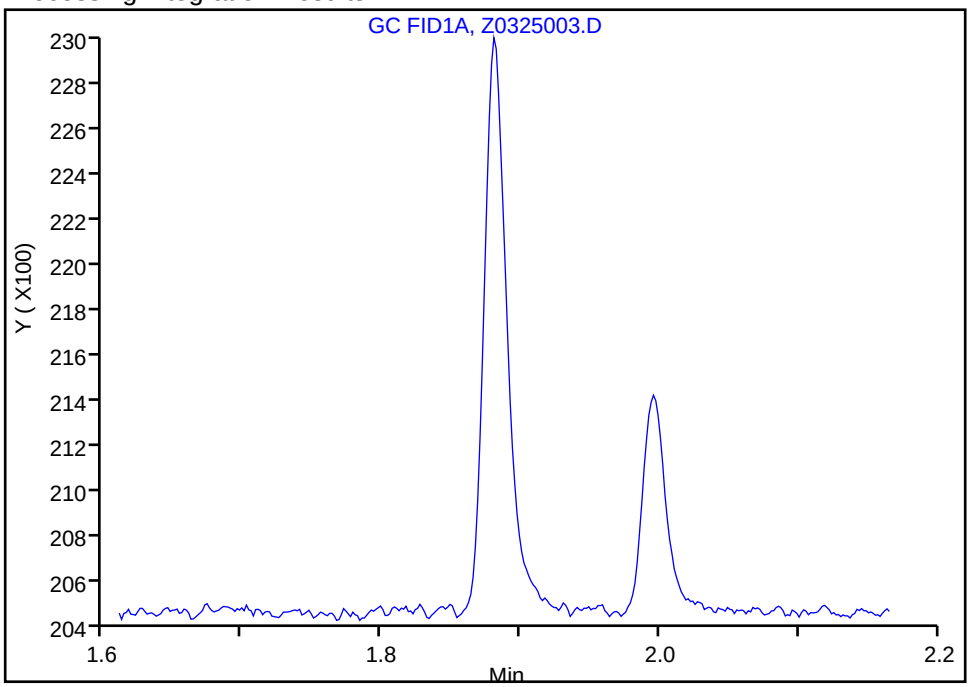
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325003.D
Injection Date: 25-Mar-2019 14:32:27 Instrument ID: ZPID
Lims ID: STD 1
Client ID:
Operator ID: ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

2 Ethylene, CAS: 74-85-1

Signal: 1

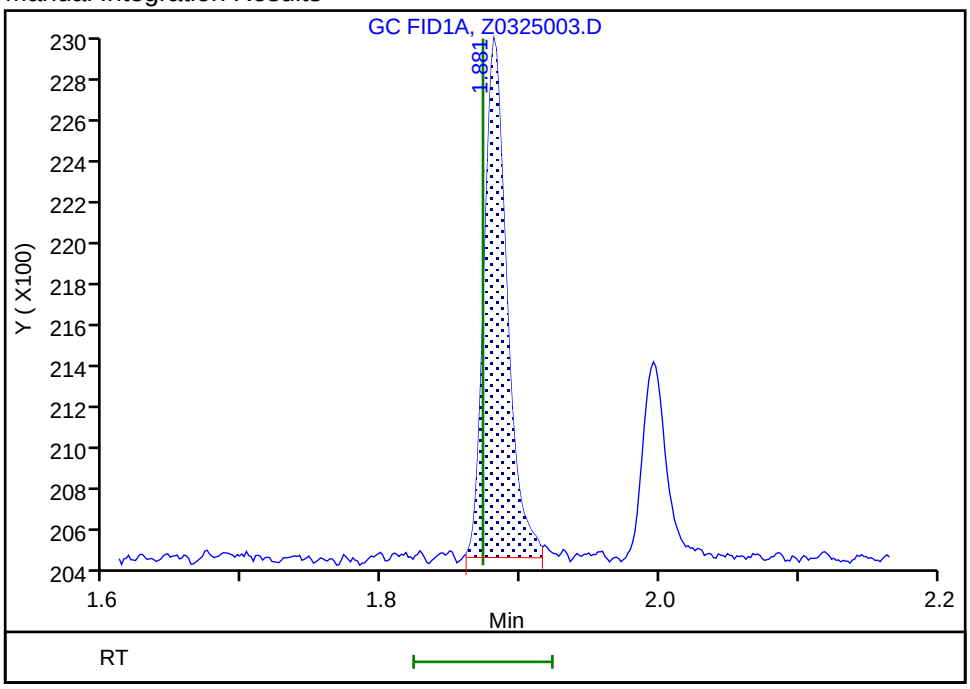
Not Detected
Expected RT: 1.87

Processing Integration Results



Manual Integration Results

RT: 1.88
Area: 2798
Amount: 0.440012
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:47:32
Audit Action: Manually Integrated/Assigned Compound ID Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Canton

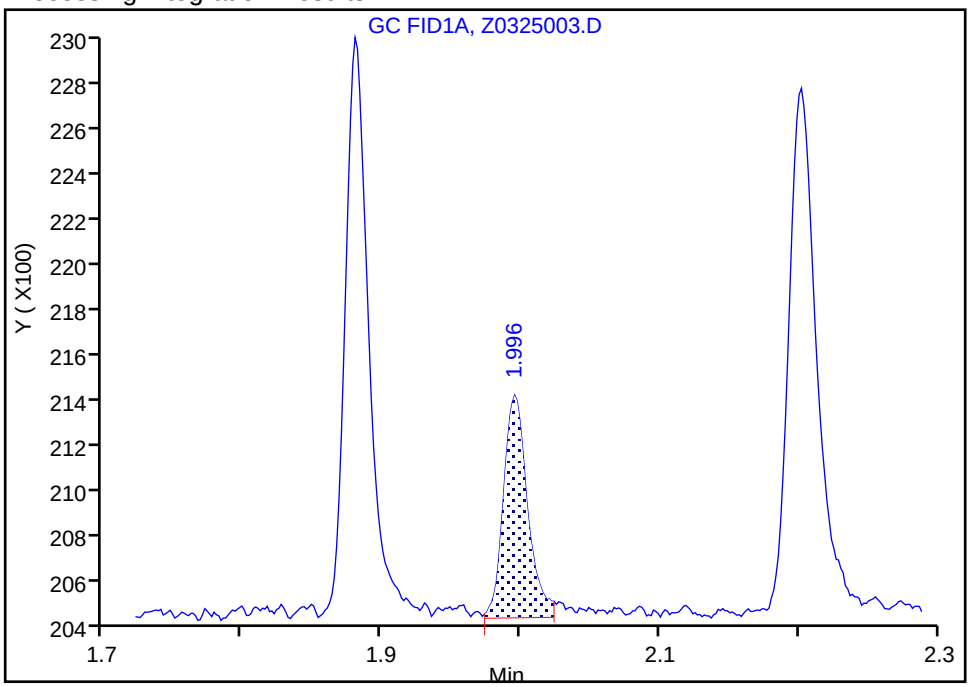
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325003.D
Injection Date: 25-Mar-2019 14:32:27 Instrument ID: ZPID
Lims ID: STD 1
Client ID:
Operator ID: ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

3 Acetylene, CAS: 74-86-2

Signal: 1

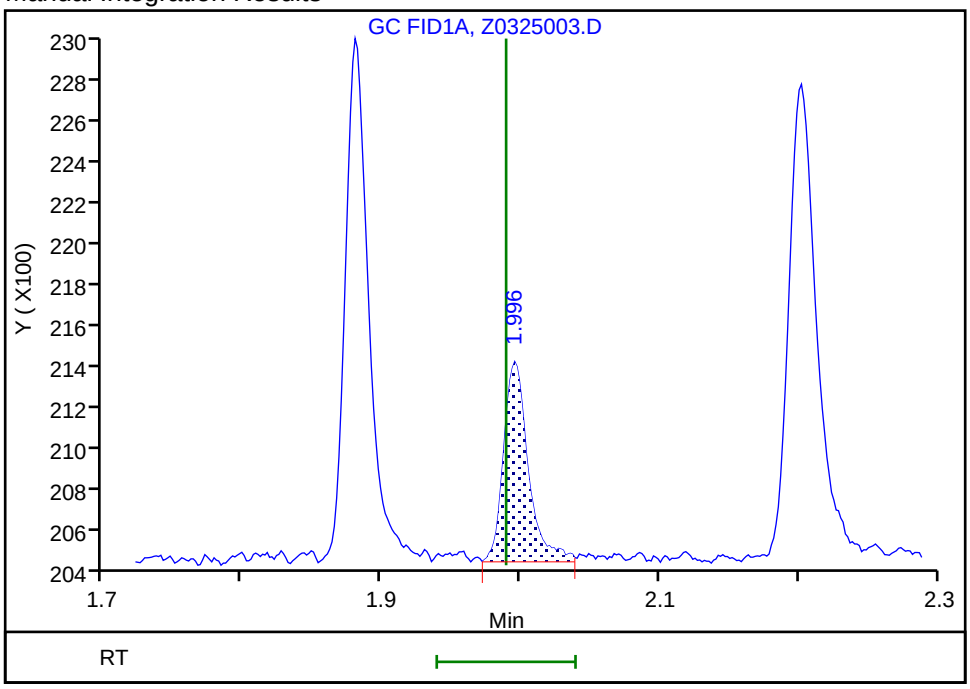
Processing Integration Results

RT: 2.00
Area: 1134
Amount: 0.326116
Amount Units: ug/l



Manual Integration Results

RT: 2.00
Area: 1161
Amount: 0.350235
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:52:30
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Canton

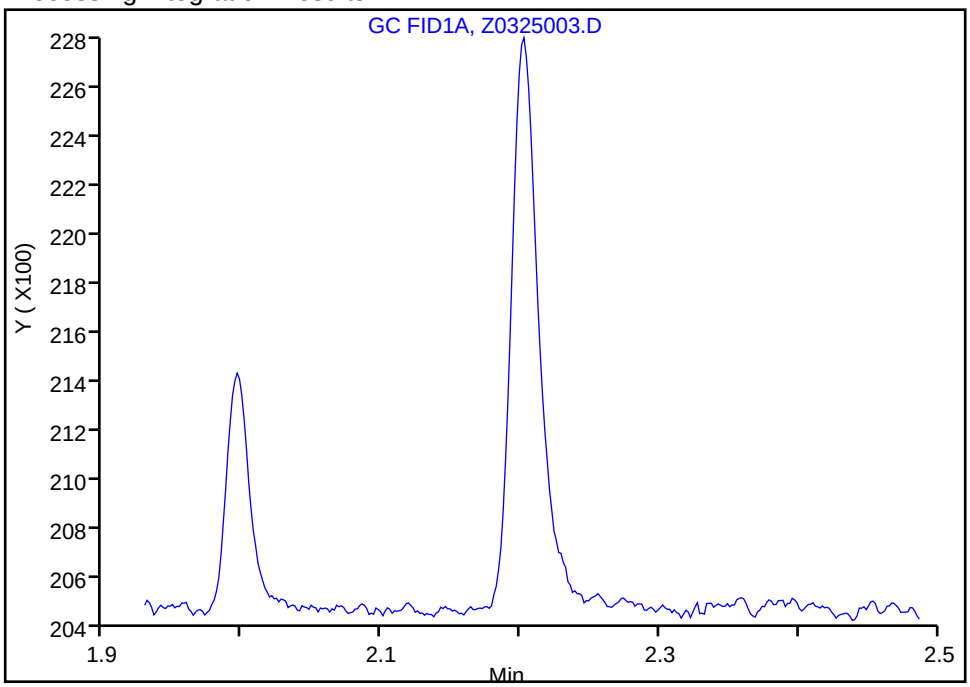
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325003.D
Injection Date: 25-Mar-2019 14:32:27 Instrument ID: ZPID
Lims ID: STD 1
Client ID:
Operator ID: ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

4 Ethane, CAS: 74-84-0

Signal: 1

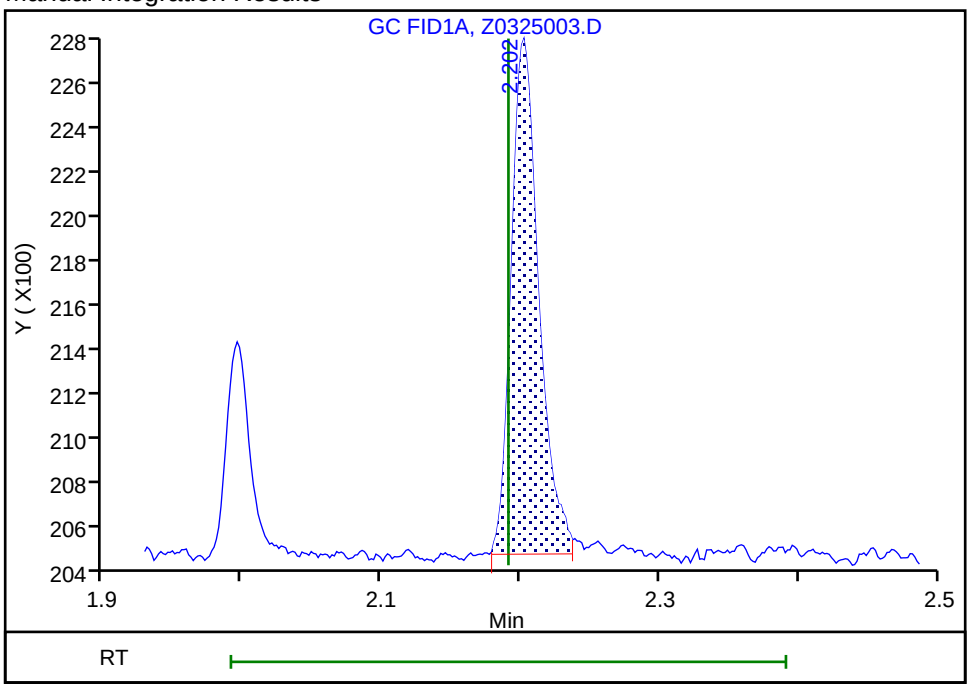
Not Detected
Expected RT: 2.19

Processing Integration Results



Manual Integration Results

RT: 2.20
Area: 3048
Amount: 0.456297
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:47:51
Audit Action: Manually Integrated/Assigned Compound ID Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Canton

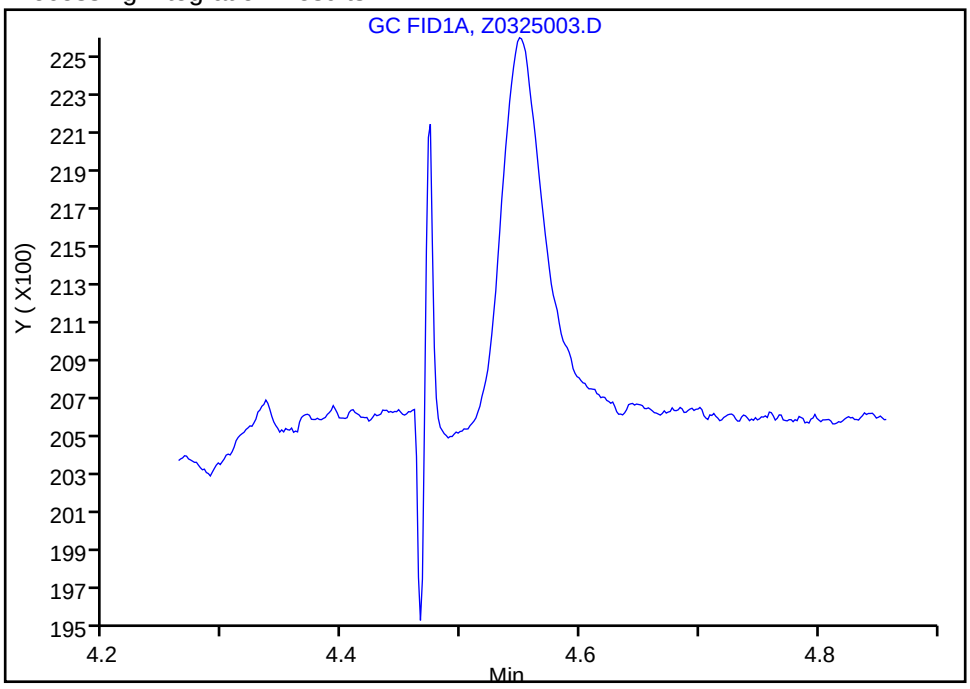
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325003.D
Injection Date: 25-Mar-2019 14:32:27 Instrument ID: ZPID
Lims ID: STD 1
Client ID:
Operator ID: ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

6 Propane, CAS: 74-98-6

Signal: 1

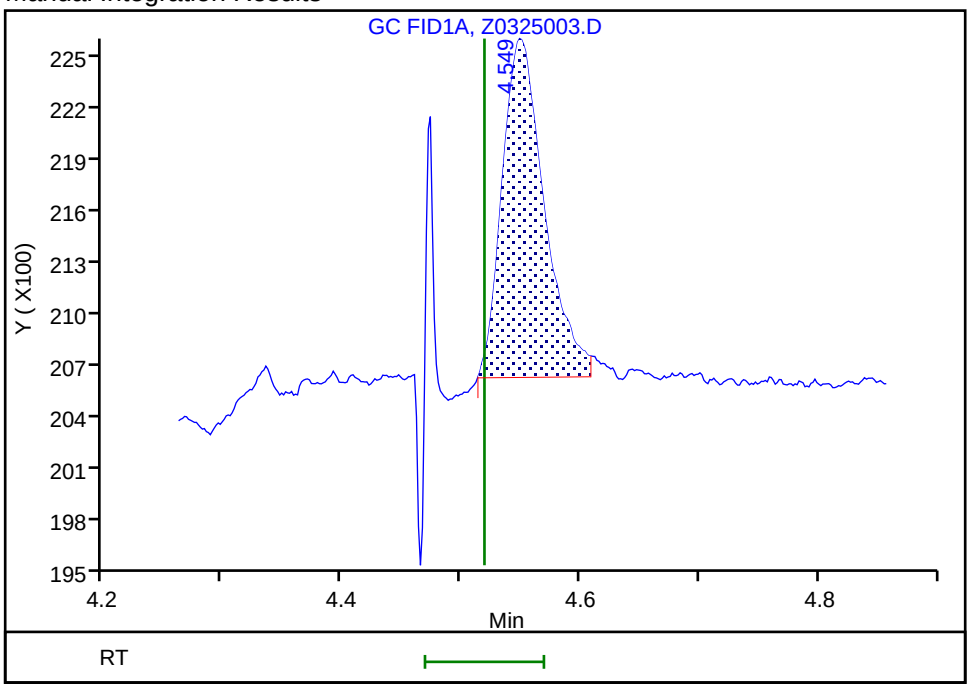
Not Detected
Expected RT: 4.52

Processing Integration Results



Manual Integration Results

RT: 4.55
Area: 4588
Amount: 0.634182
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:47:58
Audit Action: Manually Integrated/Assigned Compound ID Audit Reason: Incomplete Integration

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325004.D
Lims ID: STD 2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 25-Mar-2019 14:49:29 ALS Bottle#: 4 Worklist Smp#: 4
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-004
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub18

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:29 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

First Level Reviewer: matthewsb Date: 26-Mar-2019 07:48:29

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1 Methane						
1.182	1.179	0.003	13476	2.03	2.10	
2 Ethylene						
1.880	1.873	0.007	23227	3.58	3.65	
3 Acetylene						Ma
1.995	1.989	0.006	9902	3.31	2.99	Ma
4 Ethane						
2.202	2.191	0.011	25384	3.81	3.80	
6 Propane						M
4.548	4.519	0.029	39449	5.58	5.45	M

QC Flag Legend

Review Flags
M - Manually Integrated
a - User Assigned ID

Reagents:

SARSKLOWCAL_00013 Amount Added: 70.00 Units: uL

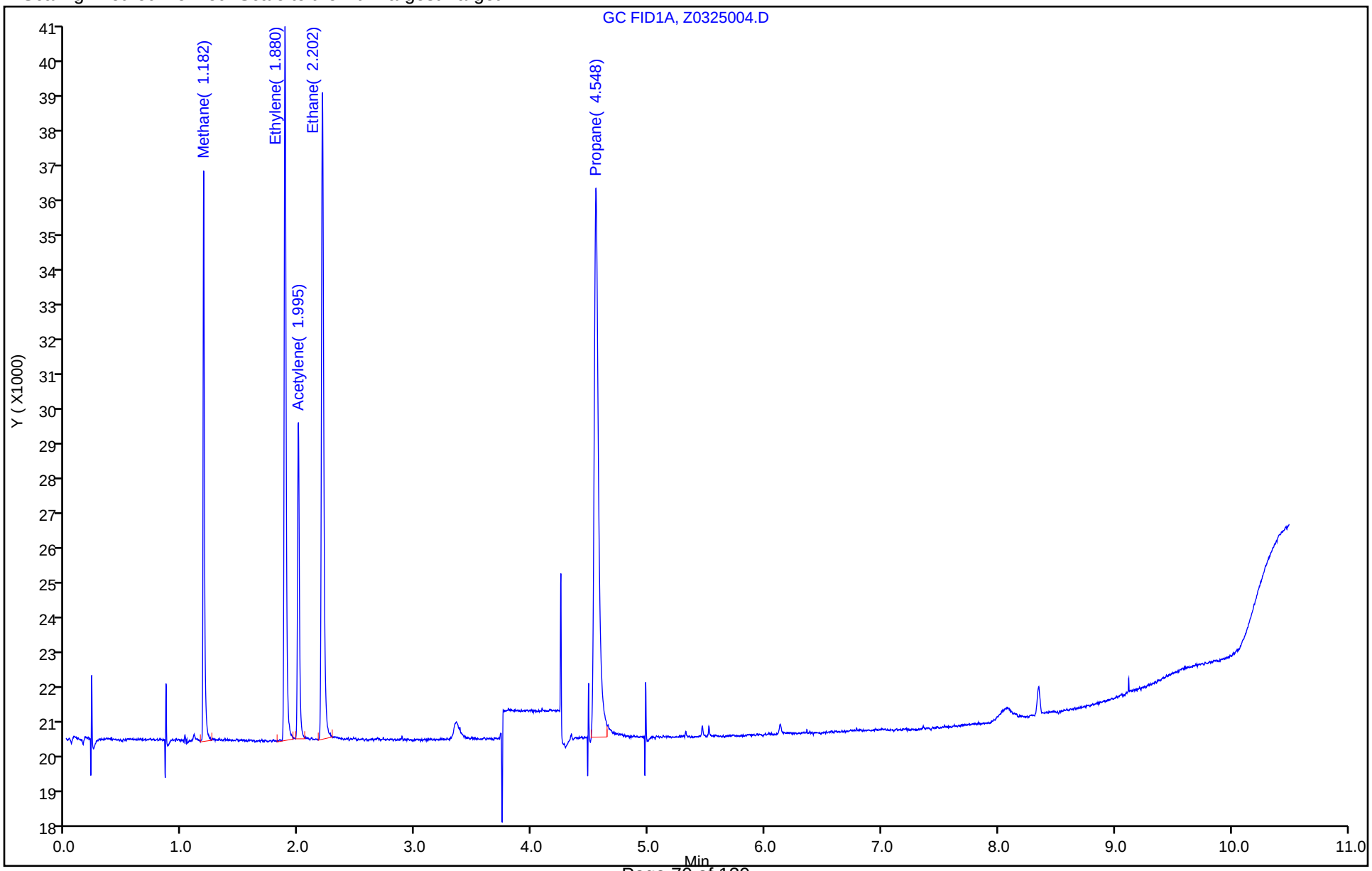
Report Date: 26-Mar-2019 07:54:29 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325004.D

Injection Date:	25-Mar-2019 14:49:29	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD 2			Worklist Smp#:	4
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	4
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

TestAmerica Canton

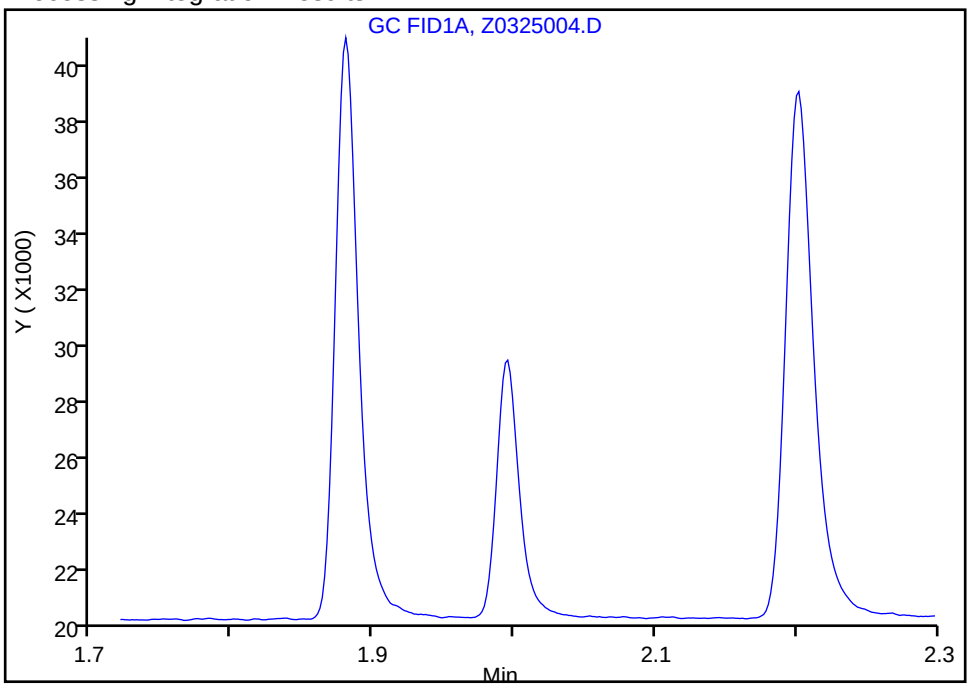
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325004.D
Injection Date: 25-Mar-2019 14:49:29 Instrument ID: ZPID
Lims ID: STD 2
Client ID:
Operator ID: ALS Bottle#: 4 Worklist Smp#: 4
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

3 Acetylene, CAS: 74-86-2

Signal: 1

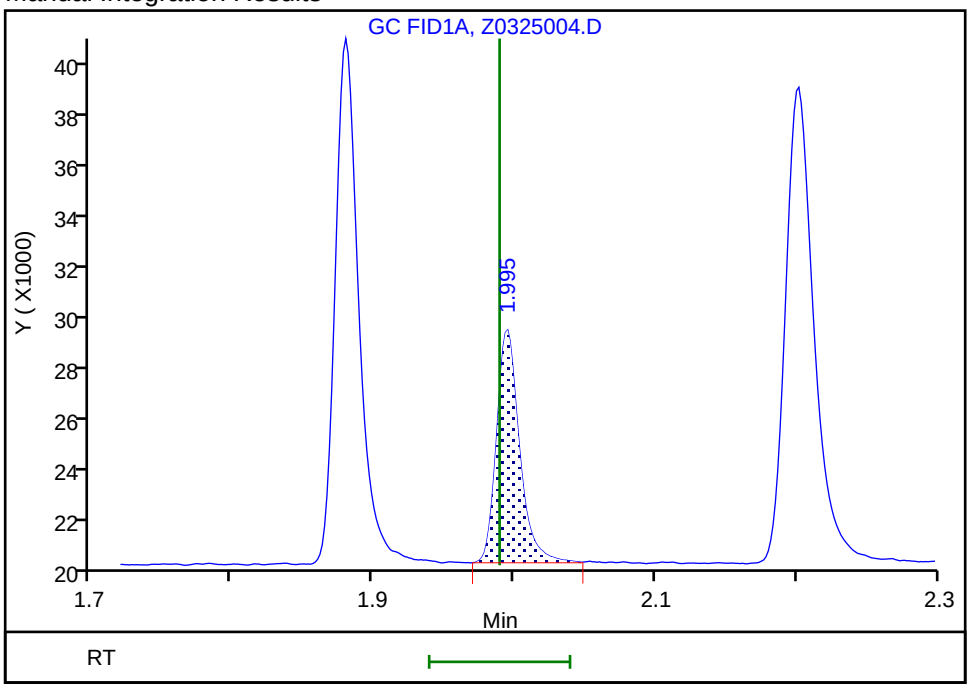
Not Detected
Expected RT: 1.99

Processing Integration Results



Manual Integration Results

RT: 2.00
Area: 9902
Amount: 2.987104
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:48:27
Audit Action: Manually Integrated/Assigned Compound ID Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Canton

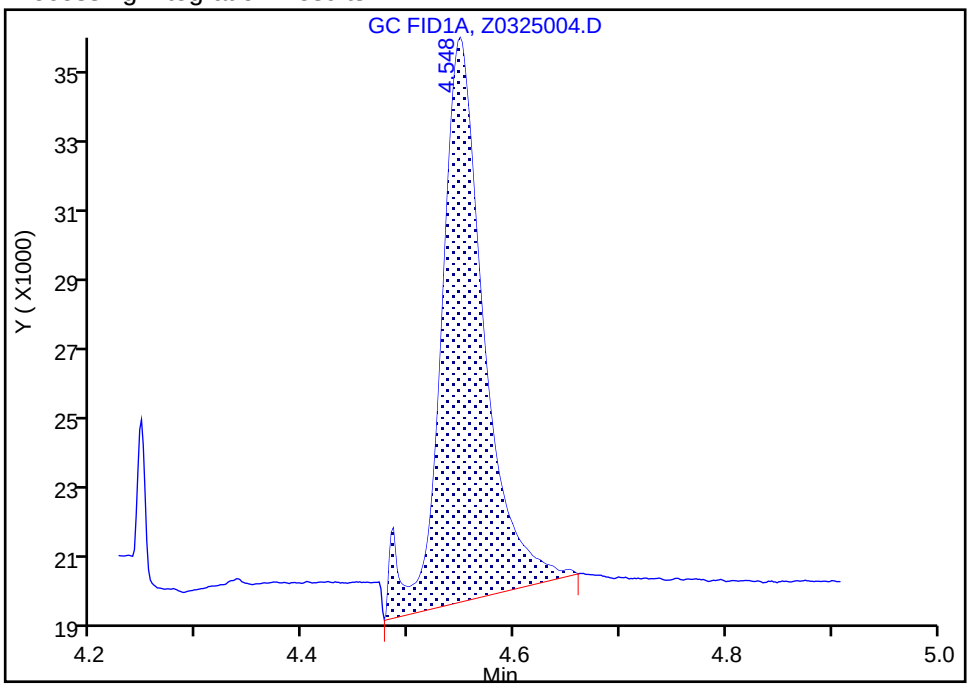
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325004.D
Injection Date: 25-Mar-2019 14:49:29 Instrument ID: ZPID
Lims ID: STD 2
Client ID:
Operator ID: ALS Bottle#: 4 Worklist Smp#: 4
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

6 Propane, CAS: 74-98-6

Signal: 1

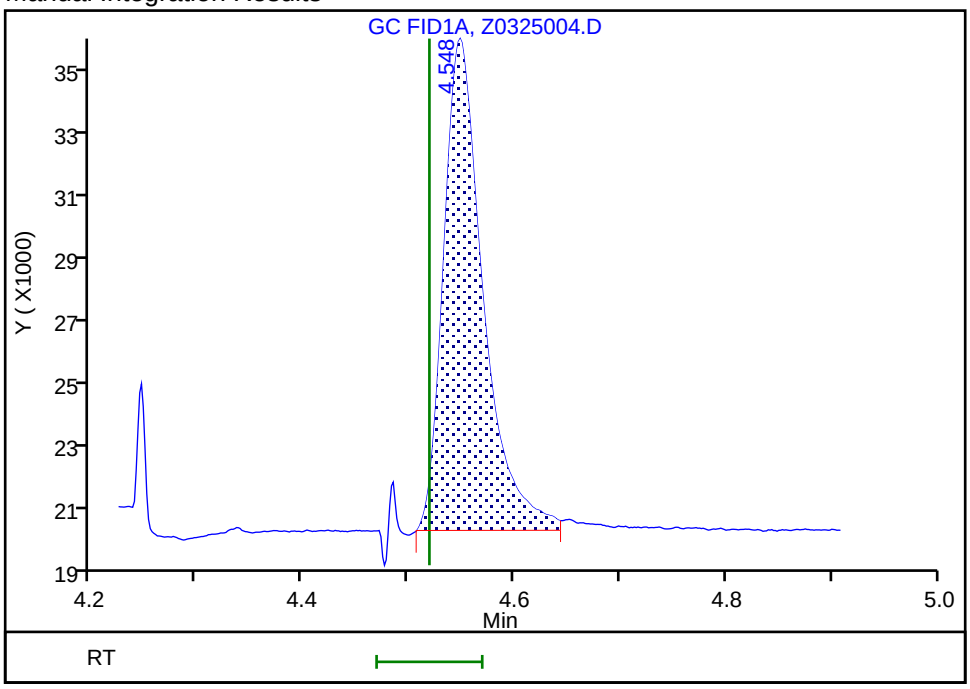
Processing Integration Results

RT: 4.55
Area: 44723
Amount: 6.005193
Amount Units: ug/l



Manual Integration Results

RT: 4.55
Area: 39449
Amount: 5.452888
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:48:14
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325005.D
Lims ID: STD 3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 25-Mar-2019 15:06:32 ALS Bottle#: 5 Worklist Smp#: 5
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-005
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub18

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:30 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

First Level Reviewer: matthewsb Date: 26-Mar-2019 07:48:45

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1 Methane						
1.182	1.182	0.000	66460	10.2	10.4	
2 Ethylene						
1.880	1.880	0.000	118101	17.9	18.6	
3 Acetylene						
1.993	1.993	0.000	57300	16.5	17.3	
4 Ethane						
2.200	2.200	0.000	129919	19.1	19.4	
6 Propane						M
4.548	4.548	0.000	201994	27.9	27.9	M

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

SARSKLOWCAL_00013 Amount Added: 350.00 Units: uL

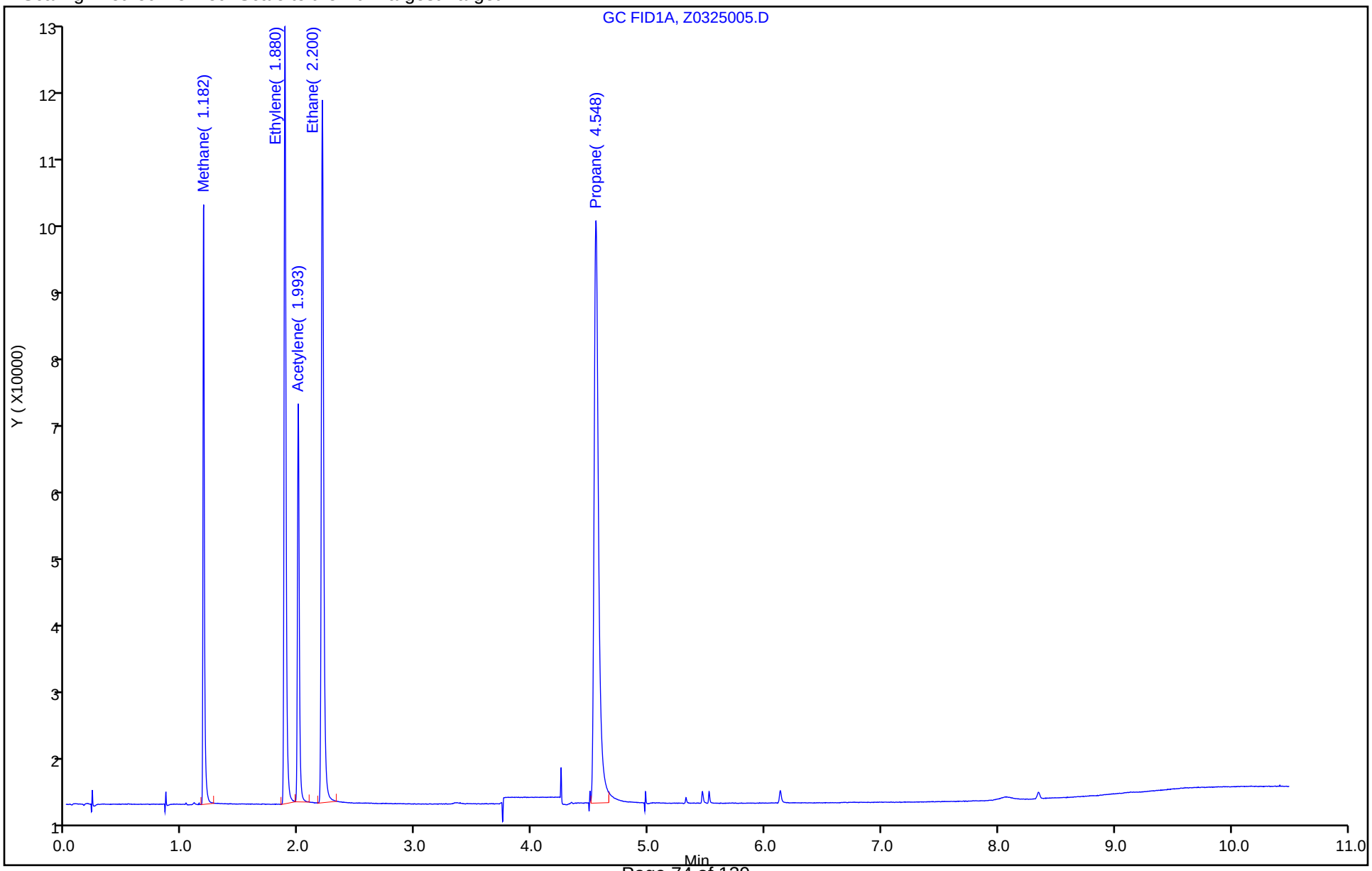
Report Date: 26-Mar-2019 07:54:30 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325005.D

Injection Date:	25-Mar-2019 15:06:32	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD 3			Worklist Smp#:	5
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	5
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

TestAmerica Canton

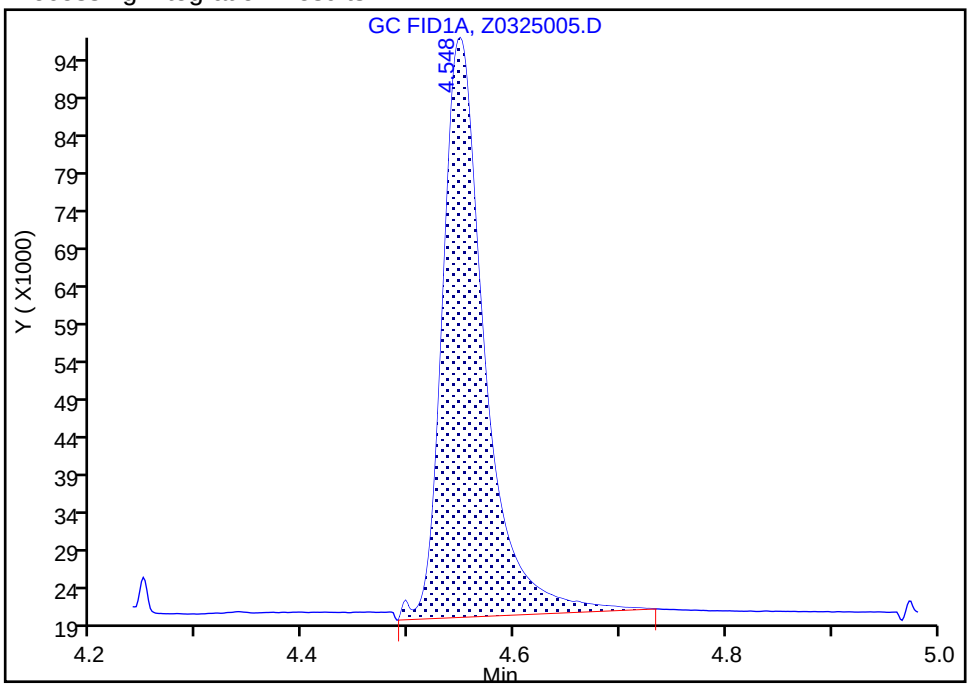
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325005.D
Injection Date: 25-Mar-2019 15:06:32 Instrument ID: ZPID
Lims ID: STD 3
Client ID:
Operator ID: ALS Bottle#: 5 Worklist Smp#: 5
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

6 Propane, CAS: 74-98-6

Signal: 1

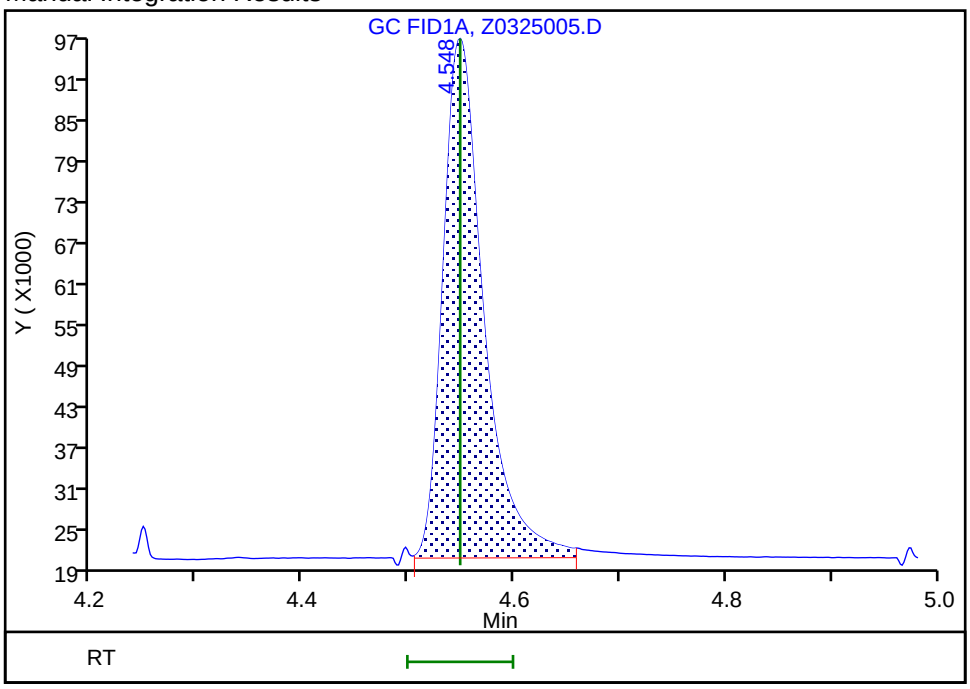
Processing Integration Results

RT: 4.55
Area: 210425
Amount: 28.864903
Amount Units: ug/l



Manual Integration Results

RT: 4.55
Area: 201994
Amount: 27.920878
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:48:43
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325006.D
Lims ID: STD 4
Client ID:
Sample Type: IC Calib Level: 4
Inject. Date: 25-Mar-2019 15:23:39 ALS Bottle#: 6 Worklist Smp#: 6
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-006
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub18

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:30 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

First Level Reviewer: matthewsb Date: 26-Mar-2019 07:48:59

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1 Methane						
1.181	1.182	-0.001	632192	101.5	98.5	
2 Ethylene						
1.880	1.880	0.000	1116304	179.0	175.5	
3 Acetylene						
1.993	1.993	0.000	619698	165.4	186.9	
4 Ethane						
2.200	2.200	0.000	1242663	190.5	186.0	
6 Propane						M
4.546	4.548	-0.002	1950136	279.2	269.6	M

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

SARSKLOWCAL_00013 Amount Added: 3.50 Units: mL

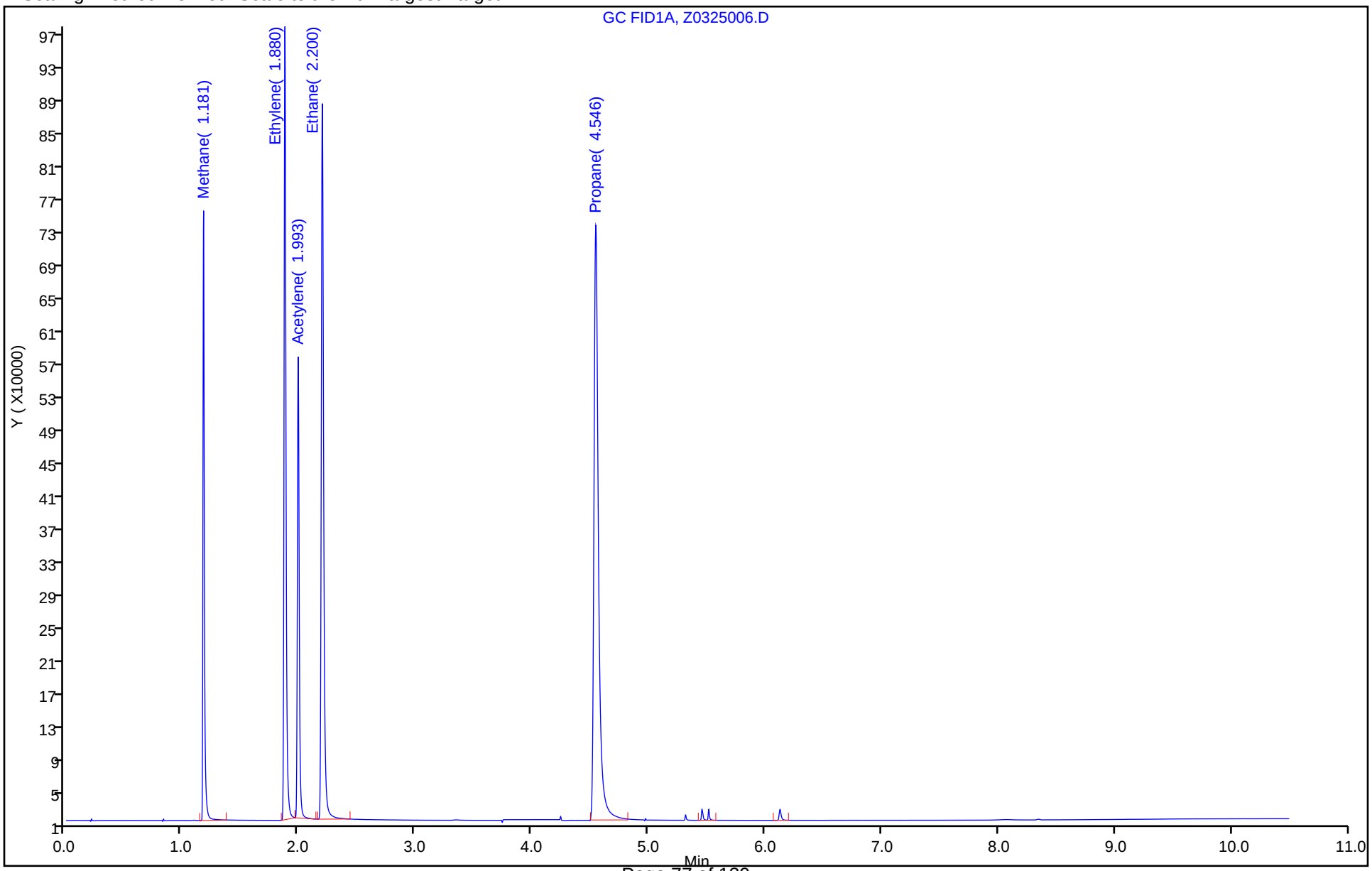
Report Date: 26-Mar-2019 07:54:30 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325006.D

Injection Date:	25-Mar-2019 15:23:39	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD 4			Worklist Smp#:	6
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	6
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

TestAmerica Canton

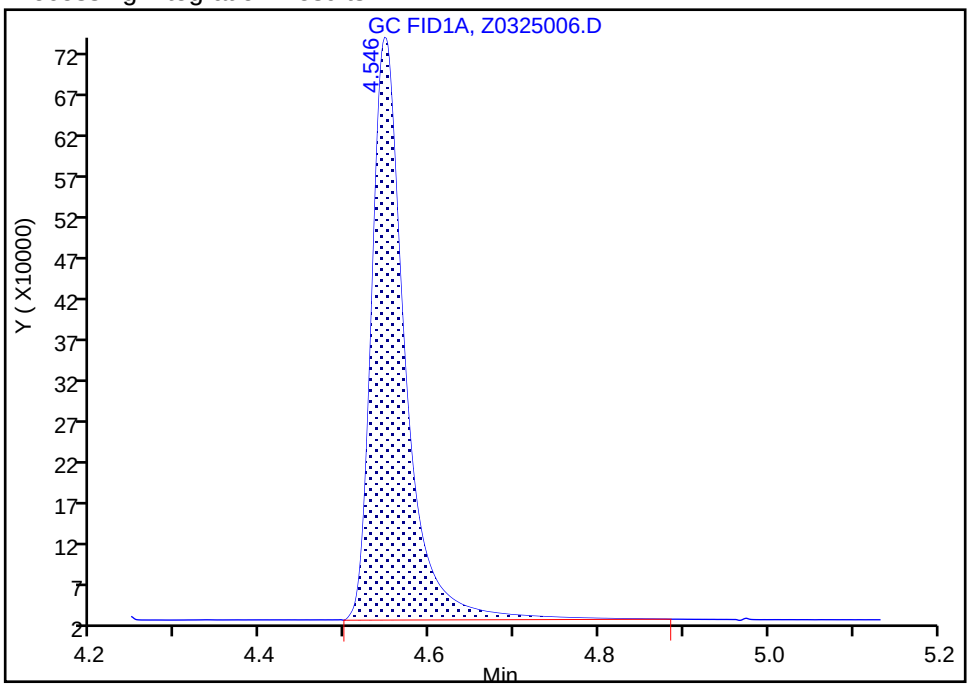
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325006.D
Injection Date: 25-Mar-2019 15:23:39 Instrument ID: ZPID
Lims ID: STD 4
Client ID:
Operator ID: ALS Bottle#: 6 Worklist Smp#: 6
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

6 Propane, CAS: 74-98-6

Signal: 1

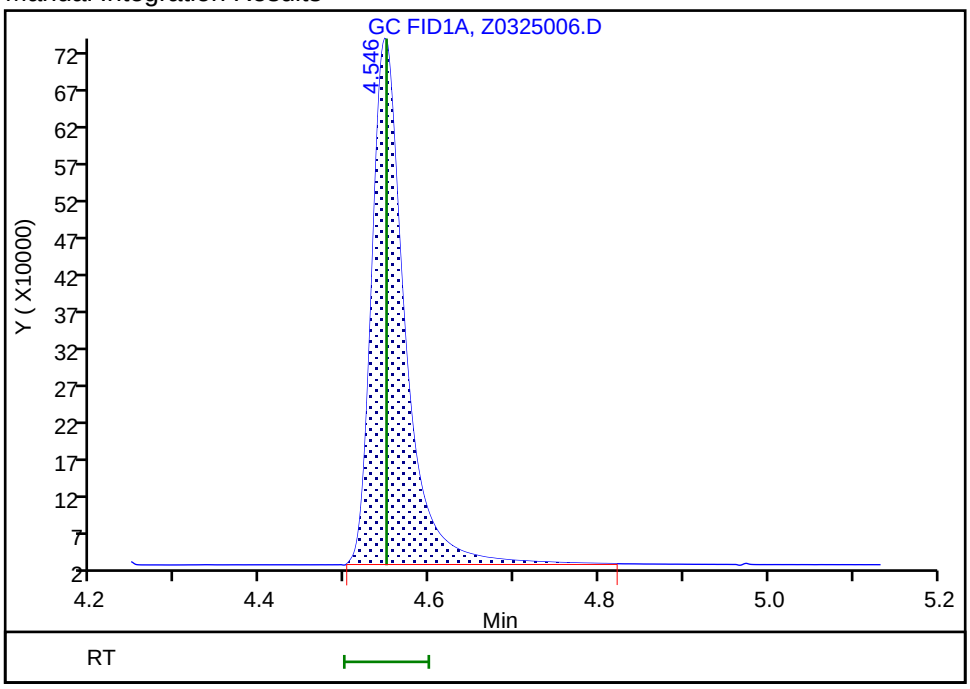
Processing Integration Results

RT: 4.55
Area: 1957668
Amount: 270.4083
Amount Units: ug/l



Manual Integration Results

RT: 4.55
Area: 1950136
Amount: 269.5600
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:48:57
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325007.D
Lims ID: STD 5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 25-Mar-2019 15:40:45 ALS Bottle#: 7 Worklist Smp#: 7
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-007
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub18

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:31 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

First Level Reviewer: matthewsb Date: 26-Mar-2019 07:49:15

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1 Methane						
1.181	1.182	-0.001	2553930	427.7	397.8	
2 Ethylene						
1.878	1.880	-0.002	4884888	751.2	768.2	
3 Acetylene						
1.993	1.993	0.000	2720642	695.0	820.7	
4 Ethane						
2.199	2.200	-0.001	5672810	804.7	849.2	
6 Propane						M
4.543	4.548	-0.005	9408395	1178.9	1300.5	M

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

SARSKHighCal_00006 Amount Added: 1.50 Units: mL

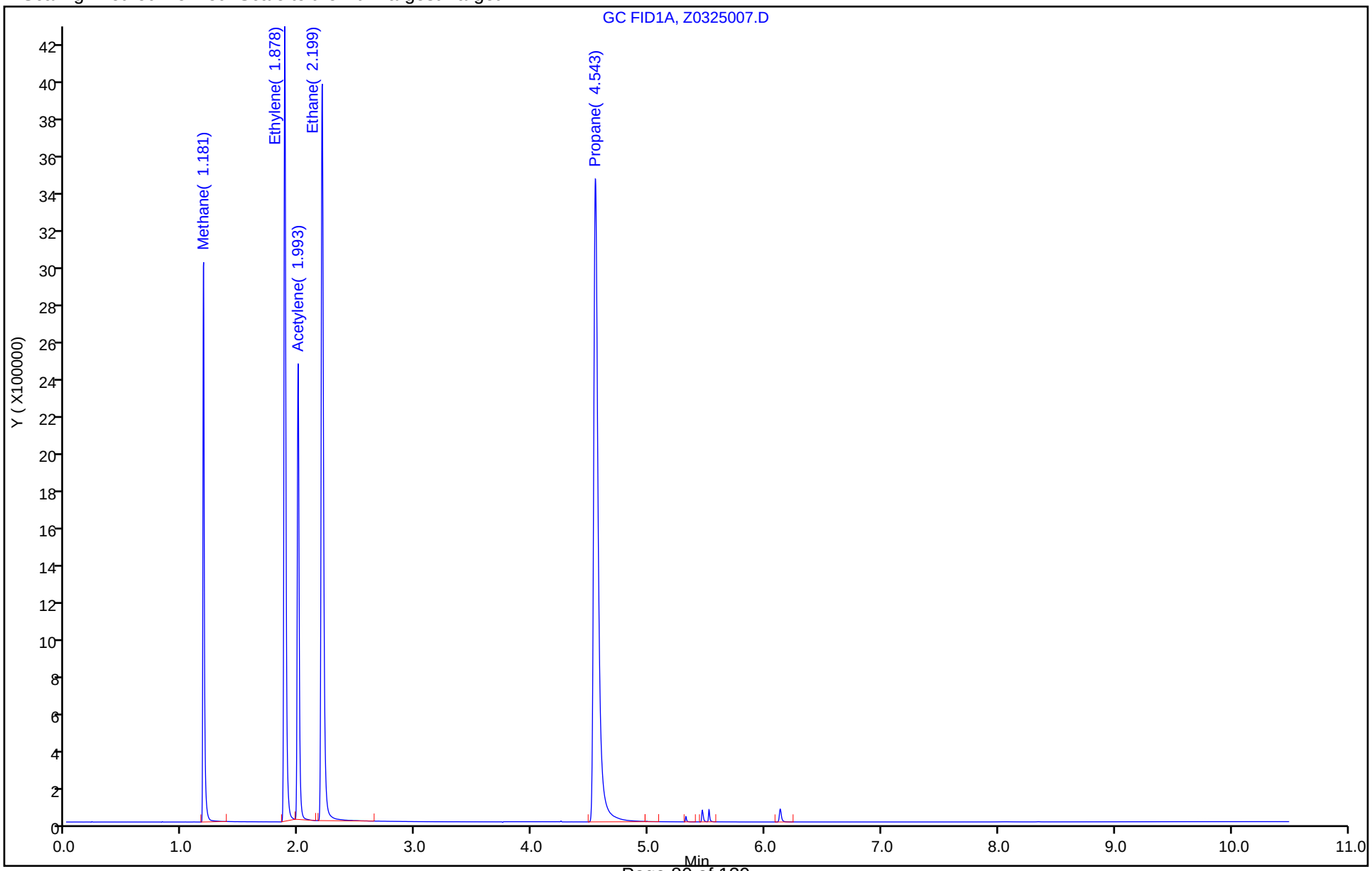
Report Date: 26-Mar-2019 07:54:31 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325007.D

Injection Date:	25-Mar-2019 15:40:45	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD 5			Worklist Smp#:	7
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

TestAmerica Canton

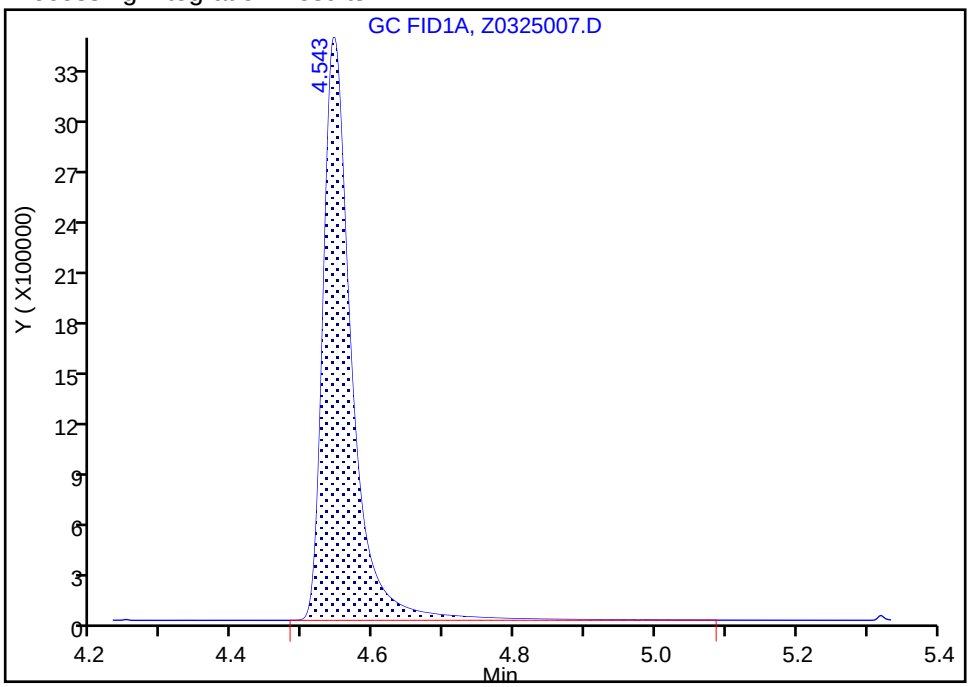
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325007.D
Injection Date: 25-Mar-2019 15:40:45 Instrument ID: ZPID
Lims ID: STD 5
Client ID:
Operator ID: ALS Bottle#: 7 Worklist Smp#: 7
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

6 Propane, CAS: 74-98-6

Signal: 1

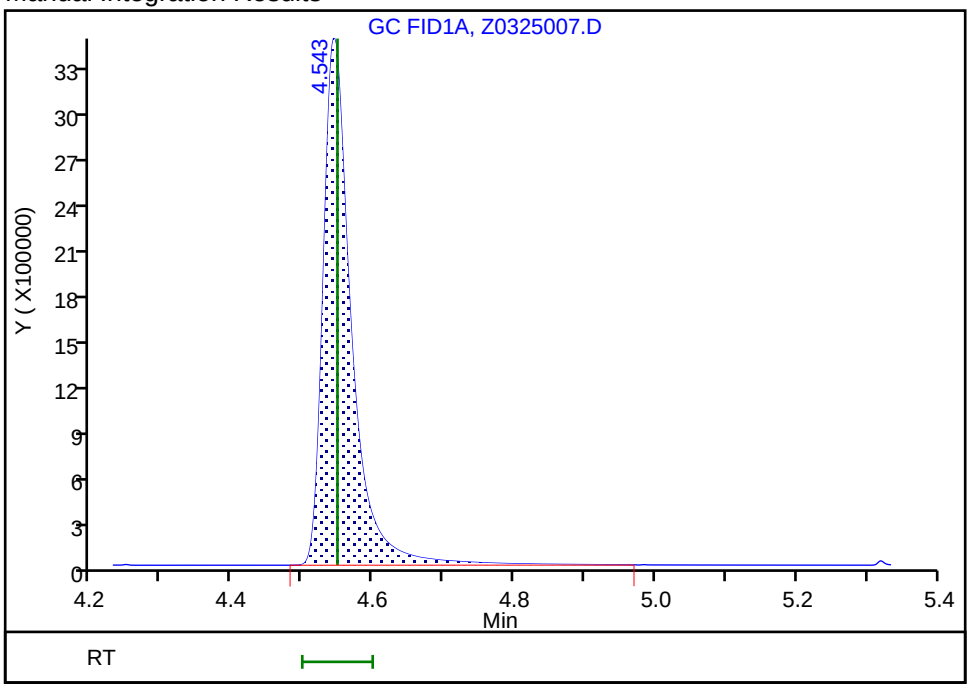
Processing Integration Results

RT: 4.54
Area: 9413090
Amount: 1301.0170
Amount Units: ug/l



Manual Integration Results

RT: 4.54
Area: 9408395
Amount: 1300.4874
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:49:11
Audit Action: Split an Integrated Peak Audit Reason: Split Peak

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325008.D
Lims ID: STD 6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 25-Mar-2019 15:57:51 ALS Bottle#: 8 Worklist Smp#: 8
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-008
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub18

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:31 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

First Level Reviewer: matthewsb Date: 26-Mar-2019 07:50:50

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1 Methane						
1.179	1.179	0.000	27189706	4277.0	4234.9	
2 Ethylene						
1.873	1.873	0.000	51465960	7511.7	8093.5	
3 Acetylene						
1.989	1.989	0.000	30207799	6950.2	9112.7	
4 Ethane						
2.191	2.191	0.000	59757636	8046.5	8945.9	
6 Propane						
4.519	4.519	0.000	98970444	11789	13680	

Reagents:

SARSKHighCal_00006 Amount Added: 15.00 Units: mL

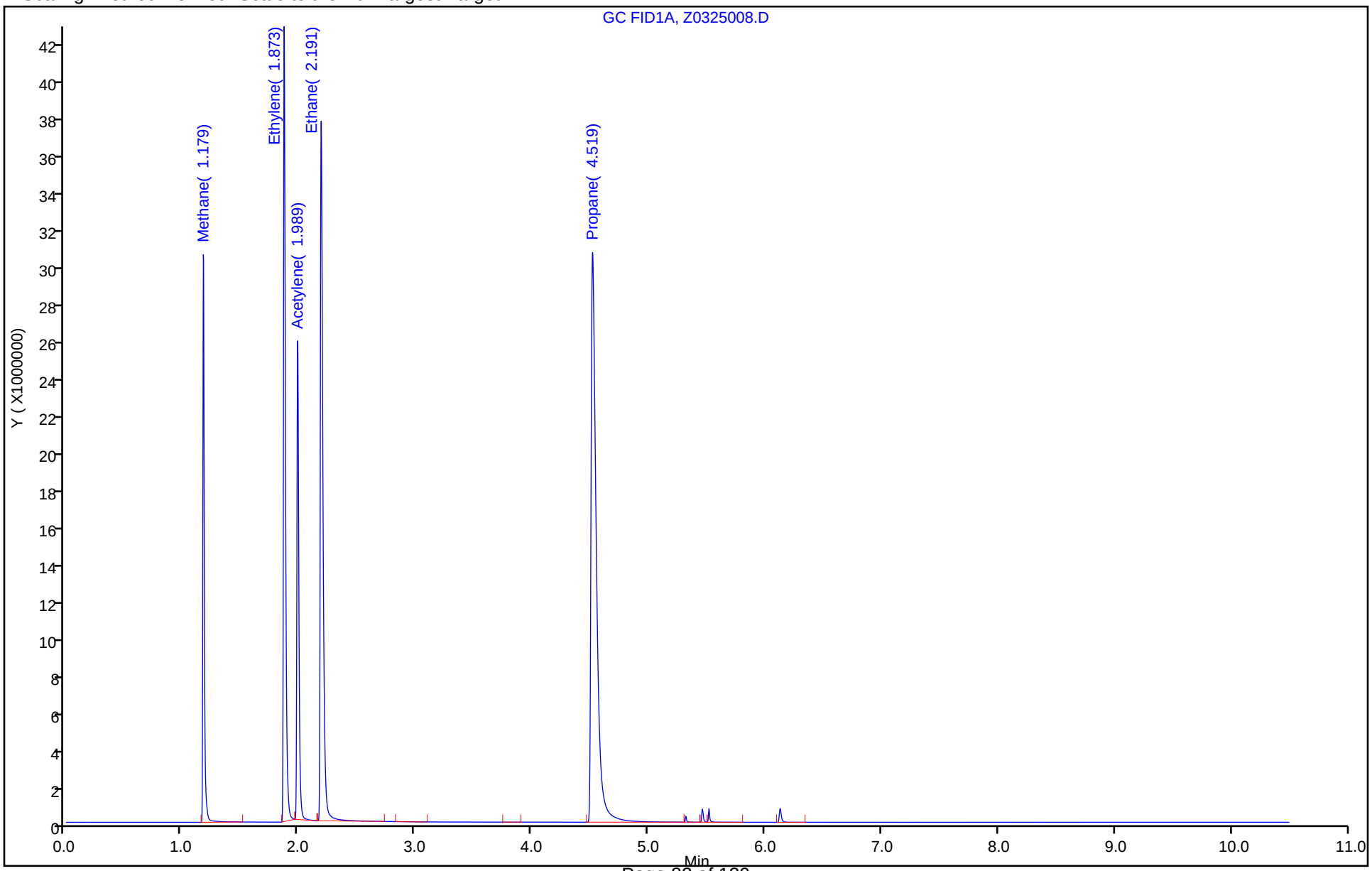
Report Date: 26-Mar-2019 07:54:31 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325008.D

Injection Date:	25-Mar-2019 15:57:51	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD 6			Worklist Smp#:	8
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	8
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1 Analy Batch No.: 373146

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/25/2019 16:14 Calibration End Date: 03/25/2019 17:40 Calibration ID: 49918

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD1 240-373146/9	Z0325009.D
Level 2	STD2 240-373146/10	Z0325010.D
Level 3	STD3 240-373146/11	Z0325011.D
Level 4	STD4 240-373146/12	Z0325012.D
Level 5	STD5 240-373146/13	Z0325013.D
Level 6	STD6 240-373146/14	Z0325014.D

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6					RT WINDOW	AVG RT
1,1,1-Trifluoroethane	3.348	3.347	3.347	3.344	3.342	3.340					3.240 - 3.440	3.345

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1 Analy Batch No.: 373146

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/25/2019 16:14 Calibration End Date: 03/25/2019 17:40 Calibration ID: 49918

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD1 240-373146/9	Z0325009.D
Level 2	STD2 240-373146/10	Z0325010.D
Level 3	STD3 240-373146/11	Z0325011.D
Level 4	STD4 240-373146/12	Z0325012.D
Level 5	STD5 240-373146/13	Z0325013.D
Level 6	STD6 240-373146/14	Z0325014.D

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3	LVL 4		B	M1	M2								
1,1,1-Trifluoroethane	3316.6 3025.3	3329.2 3015.1	2984.2	3103.7	Ave		3129.01094				5.0		30.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1 Analy Batch No.: 373146

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/25/2019 16:14 Calibration End Date: 03/25/2019 17:40 Calibration ID: 49918

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD1 240-373146/9	Z0325009.D
Level 2	STD2 240-373146/10	Z0325010.D
Level 3	STD3 240-373146/11	Z0325011.D
Level 4	STD4 240-373146/12	Z0325012.D
Level 5	STD5 240-373146/13	Z0325013.D
Level 6	STD6 240-373146/14	Z0325014.D

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
		LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
1,1,1-Trifluoroethane	Ave	645431 29338129	1133825	5081580	10570180	22077771	195 9730	341	1703	3406	7298

Curve Type Legend:
Ave = Average

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325009.D
Lims ID: STD1 Surr
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 25-Mar-2019 16:14:57 ALS Bottle#: 9 Worklist Smp#: 9
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-009
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub20

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:32 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

First Level Reviewer: matthewsb Date: 26-Mar-2019 07:53:09

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
$ 5 1,1,1-Trifluoroethane						
3.348	3.340	0.008	645431	194.6	206.3	

Reagents:

SAICALSURR_00015 Amount Added: 400.00 Units: uL

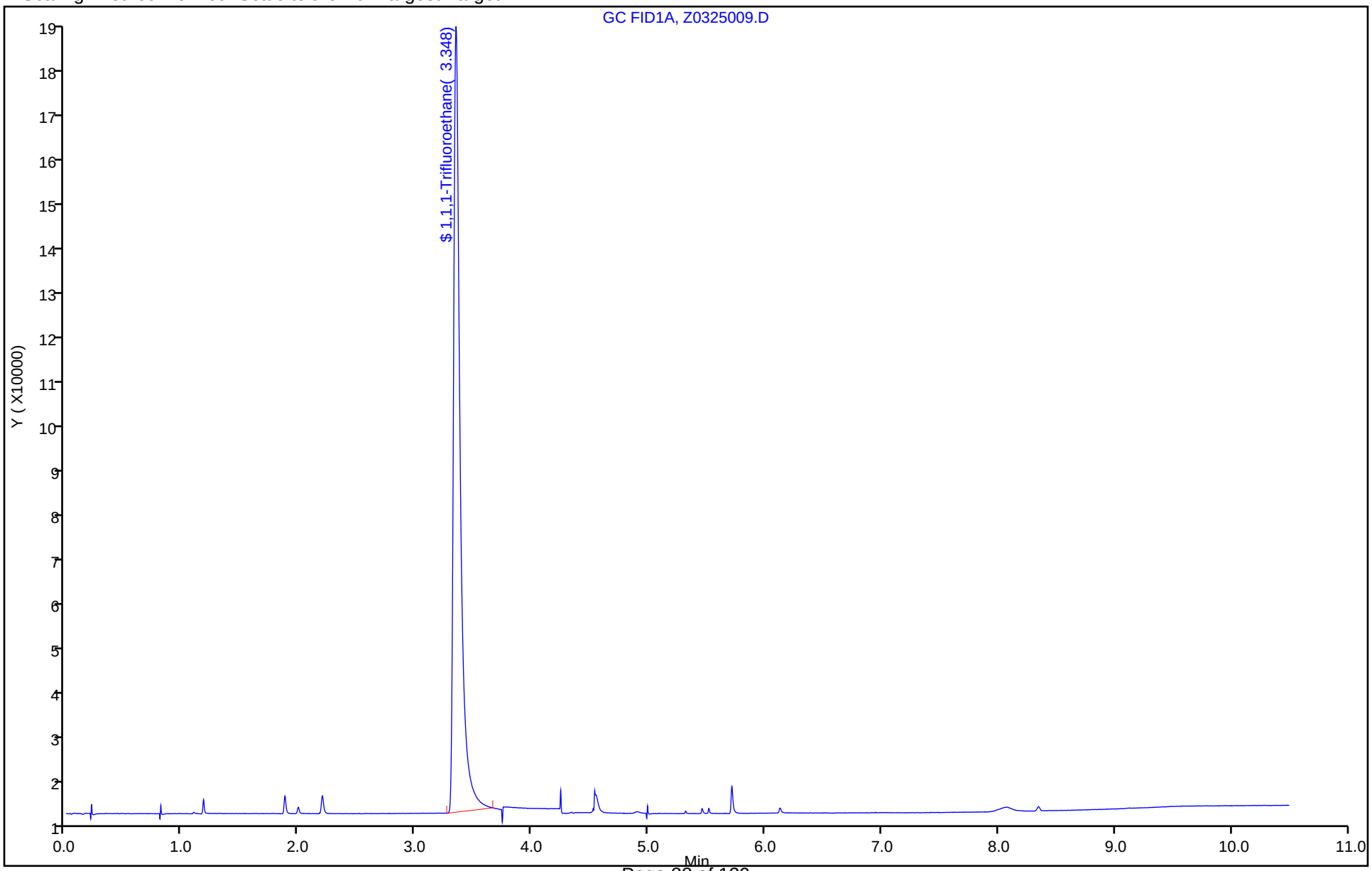
Report Date: 26-Mar-2019 07:54:32 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325009.D

Injection Date:	25-Mar-2019 16:14:57	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD1 Surr			Worklist Smp#:	9
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	9
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325010.D
Lims ID: STD2 Surr
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 25-Mar-2019 16:32:04 ALS Bottle#: 10 Worklist Smp#: 10
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-010
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub20

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:32 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
$ 5 1,1,1-Trifluoroethane						
3.347	3.340	0.007	1133825	340.6	362.4	

Reagents:

SAICALSURR_00015 Amount Added: 700.00 Units: uL

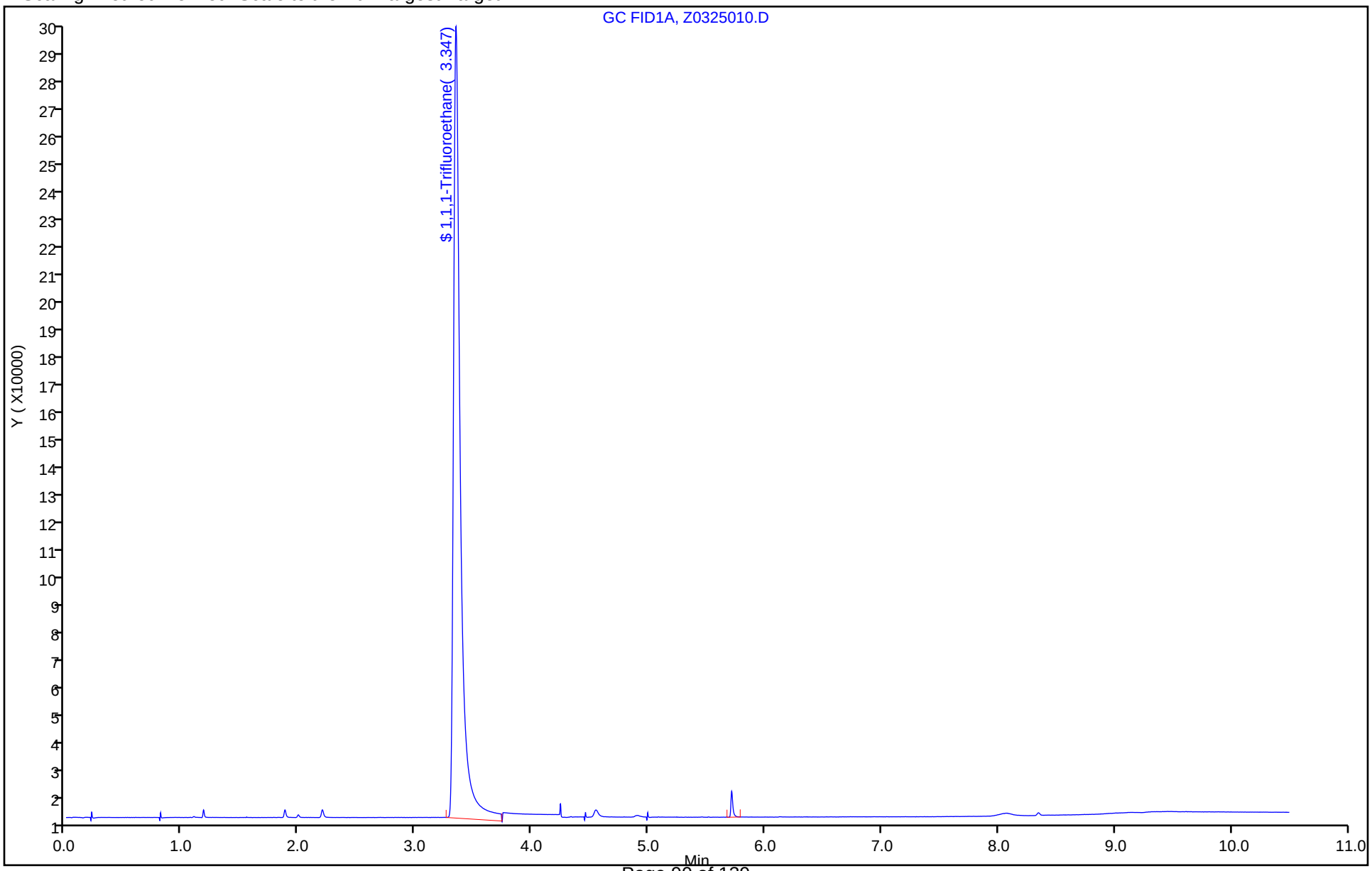
Report Date: 26-Mar-2019 07:54:32 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325010.D

Injection Date:	25-Mar-2019 16:32:04	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD2 Surr			Worklist Smp#:	10
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	10
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325011.D
Lims ID: STD3 Surr
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 25-Mar-2019 16:49:11 ALS Bottle#: 11 Worklist Smp#: 11
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-011
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub20

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:33 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
$ 5 1,1,1-Trifluoroethane						
3.347	3.347	0.000	5081580	1702.8	1624.0	

Reagents:

SAICALSURR_00015 Amount Added: 3.50 Units: mL

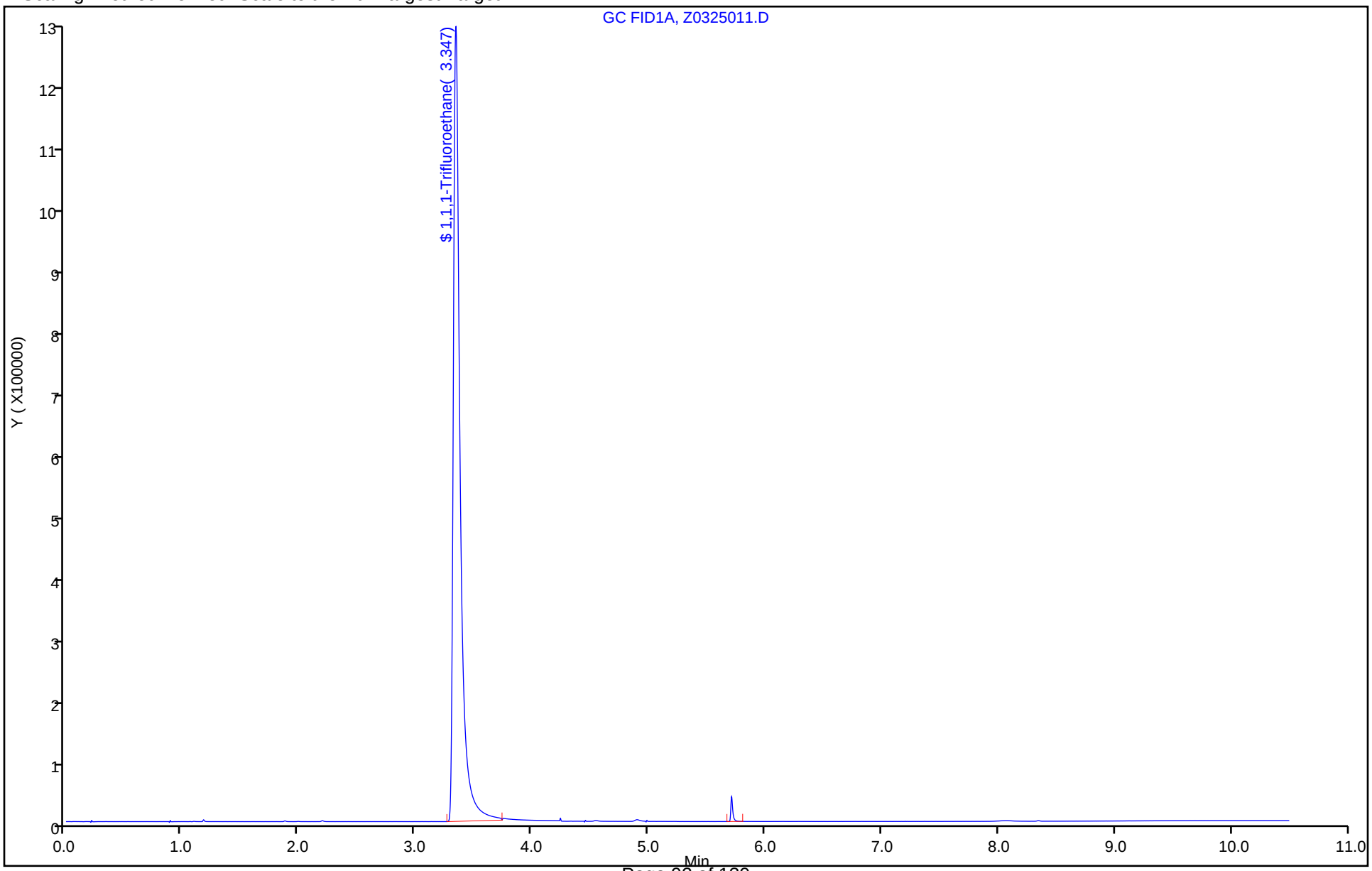
Report Date: 26-Mar-2019 07:54:33 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325011.D

Injection Date:	25-Mar-2019 16:49:11	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD3 Surr			Worklist Smp#:	11
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	11
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325012.D
Lims ID: STD4 Surr
Client ID:
Sample Type: IC Calib Level: 4
Inject. Date: 25-Mar-2019 17:06:17 ALS Bottle#: 12 Worklist Smp#: 12
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-012
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub20

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:33 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
$ 5 1,1,1-Trifluoroethane						
3.344	3.347	-0.003	10570180	3405.7	3378.1	

Reagents:

SAICALSURR_00015 Amount Added: 7.00 Units: mL

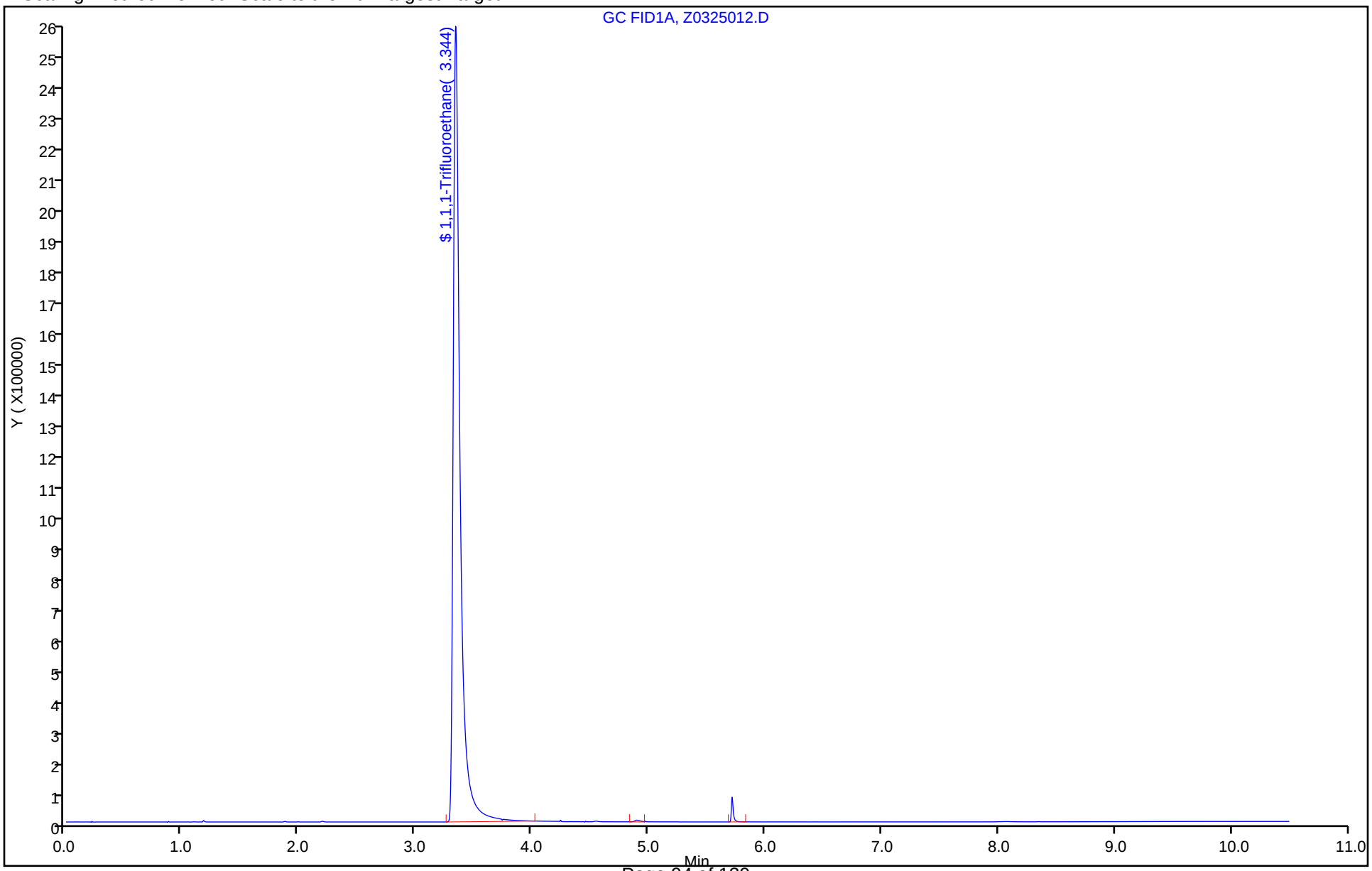
Report Date: 26-Mar-2019 07:54:34 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325012.D

Injection Date:	25-Mar-2019 17:06:17	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD4 Surr			Worklist Smp#:	12
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	12
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325013.D
Lims ID: STD5 Surr
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 25-Mar-2019 17:23:22 ALS Bottle#: 13 Worklist Smp#: 13
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-013
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub20

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:34 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
$ 5 1,1,1-Trifluoroethane						
3.342	3.347	-0.005	22077771	7297.8	7055.8	

Reagents:

SAICALSURR_00015 Amount Added: 15.00 Units: mL

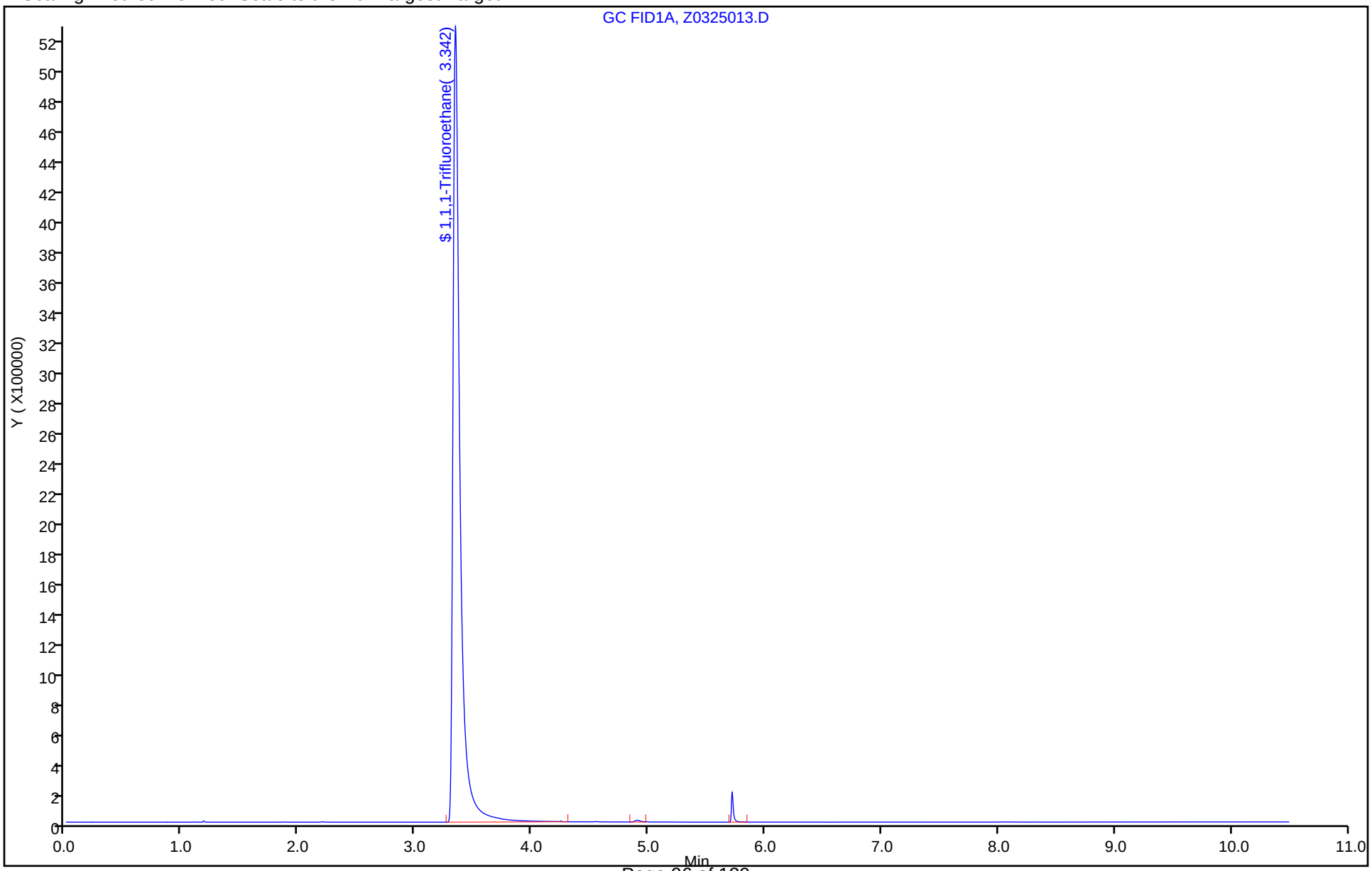
Report Date: 26-Mar-2019 07:54:34 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325013.D

Injection Date:	25-Mar-2019 17:23:22	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD5 Surr			Worklist Smp#:	13
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	13
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D
Lims ID: STD6 Surr
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 25-Mar-2019 17:40:28 ALS Bottle#: 14 Worklist Smp#: 14
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-014
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub20

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:34 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
$ 5 1,1,1-Trifluoroethane						
3.340	3.340	0.000	29338129	9730.4	9376.2	

Reagents:

SAICALSURR_00015 Amount Added: 20.00 Units: mL

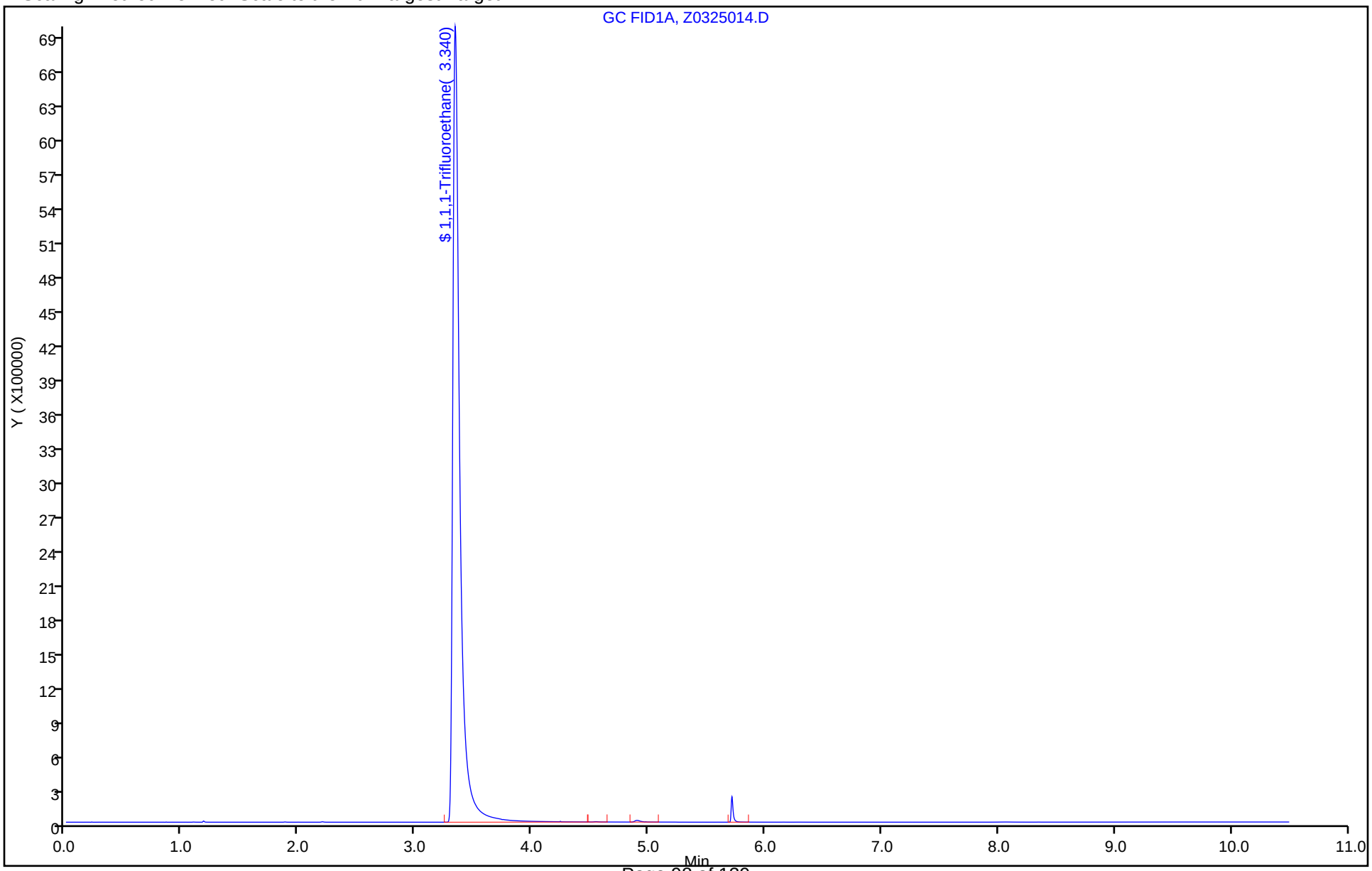
Report Date: 26-Mar-2019 07:54:35 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Injection Date:	25-Mar-2019 17:40:28	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD6 Surr			Worklist Smp#:	14
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	14
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Lab Sample ID: ICV 240-373146/15 Calibration Date: 03/25/2019 17:57

Instrument ID: ZPID Calib Start Date: 03/25/2019 14:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 15:57

Lab File ID: Z0325015.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methane	Ave	6420	6298		280	285	-1.9	20.0
Ethylene	Ave	6359	5713		450	501	-10.2	20.0
Acetylene	Ave	3315	3660		512	463	10.4	30.0
Ethane	Ave	6680	5886		473	536	-11.9	20.0
Propane	Ave	7235	6037		656	786	-16.5	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Lab Sample ID: ICV 240-373146/15 Calibration Date: 03/25/2019 17:57

Instrument ID: ZPID Calib Start Date: 03/25/2019 14:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 15:57

Lab File ID: Z0325015.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.18	1.13	1.23
Ethylene	1.88	1.82	1.92
Acetylene	1.99	1.94	2.04
Ethane	2.20	1.99	2.39
Propane	4.55	4.47	4.57

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325015.D
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 25-Mar-2019 17:57:33 ALS Bottle#: 15 Worklist Smp#: 15
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-015
Operator ID: Instrument ID: ZPID
Sublist:

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:34 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1	Methane						
	1.180	1.179	0.001	1795857	285.1	279.7	
2	Ethylene						
	1.878	1.873	0.005	2860749	500.8	449.9	
3	Acetylene						
	1.993	1.989	0.004	1695677	463.3	511.5	
4	Ethane						
	2.200	2.191	0.009	3157388	536.4	472.7	
$	5 1,1,1-Trifluoroethane						
	3.342	3.347	-0.005	23382861	9243.9	7472.9	
6	Propane						
	4.545	4.519	0.026	4745007	786.0	655.9	

Reagents:

SARSKSURR_00012 Amount Added: 19.00 Units: mL
SARSK2ndSourc_00001 Amount Added: 1.00 Units: mL

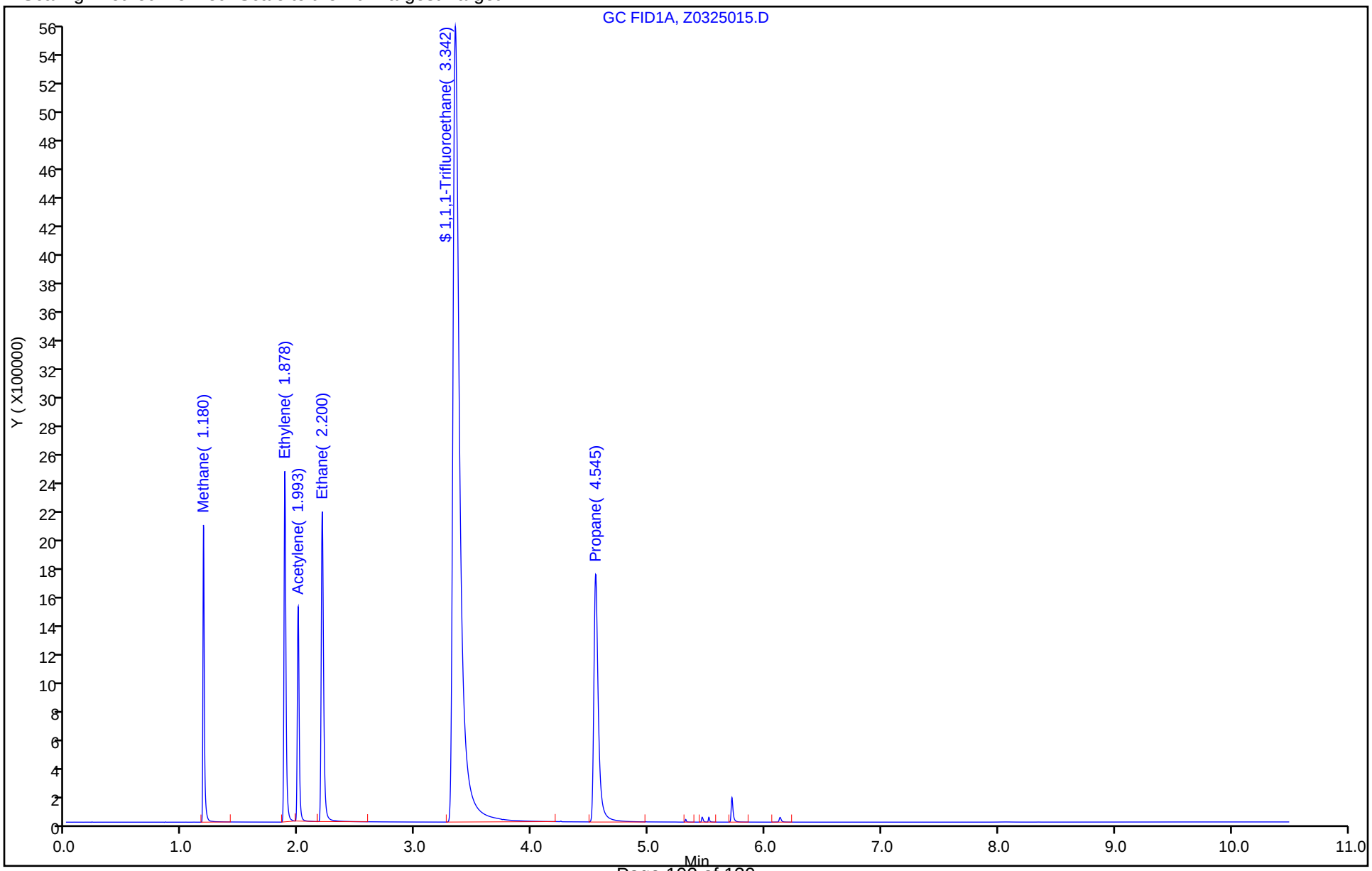
Report Date: 26-Mar-2019 07:54:35 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325015.D

Injection Date:	25-Mar-2019 17:57:33	Instrument ID:	ZPID	Operator ID:	
Lims ID:	ICV			Worklist Smp#:	15
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	15
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Lab Sample ID: ICV 240-373146/15 Calibration Date: 03/25/2019 17:57

Instrument ID: ZPID Calib Start Date: 03/25/2019 16:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 17:40

Lab File ID: Z0325015.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,1-Trifluoroethane	Ave	3129	2530		7470	9240	-19.2	30.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Lab Sample ID: ICV 240-373146/15 Calibration Date: 03/25/2019 17:57

Instrument ID: ZPID Calib Start Date: 03/25/2019 16:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 17:40

Lab File ID: Z0325015.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
1,1,1-Trifluoroethane	3.34	3.25	3.45

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325015.D
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 25-Mar-2019 17:57:33 ALS Bottle#: 15 Worklist Smp#: 15
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-015
Operator ID: Instrument ID: ZPID
Sublist:

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:34 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1	Methane						
	1.180	1.179	0.001	1795857	285.1	279.7	
2	Ethylene						
	1.878	1.873	0.005	2860749	500.8	449.9	
3	Acetylene						
	1.993	1.989	0.004	1695677	463.3	511.5	
4	Ethane						
	2.200	2.191	0.009	3157388	536.4	472.7	
$	5 1,1,1-Trifluoroethane						
	3.342	3.347	-0.005	23382861	9243.9	7472.9	
6	Propane						
	4.545	4.519	0.026	4745007	786.0	655.9	

Reagents:

SARSKSURR_00012 Amount Added: 19.00 Units: mL
SARSK2ndSourc_00001 Amount Added: 1.00 Units: mL

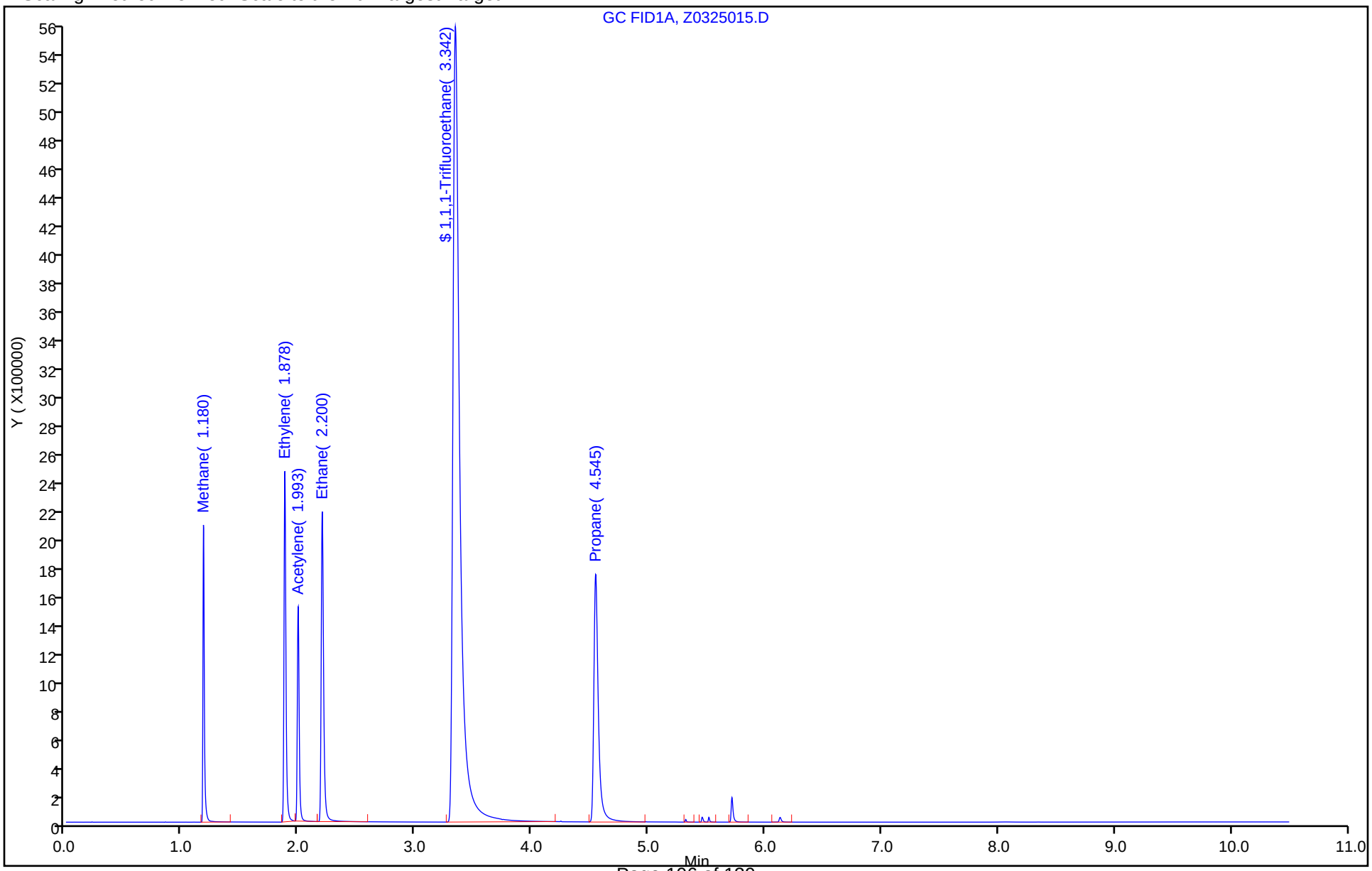
Report Date: 26-Mar-2019 07:54:35 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325015.D

Injection Date:	25-Mar-2019 17:57:33	Instrument ID:	ZPID	Operator ID:	
Lims ID:	ICV			Worklist Smp#:	15
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	15
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Lab Sample ID: CCVRT 240-393558/2 Calibration Date: 07/30/2019 12:20

Instrument ID: ZPID Calib Start Date: 03/25/2019 14:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 15:57

Lab File ID: Z0730002.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methane	Ave	6420	6153		273	285	-4.2	20.0
Ethylene	Ave	6359	6485		511	501	2.0	20.0
Acetylene	Ave	3315	4022		562	463	21.3	30.0
Ethane	Ave	6680	7009		563	536	4.9	20.0
Propane	Ave	7235	7949		864	786	9.9	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Lab Sample ID: CCVRT 240-393558/2 Calibration Date: 07/30/2019 12:20

Instrument ID: ZPID Calib Start Date: 03/25/2019 14:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 15:57

Lab File ID: Z0730002.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.19	1.14	1.24
Ethylene	1.89	1.84	1.94
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.01	2.41
Propane	4.56	4.51	4.61

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730002.D
Lims ID: CCVRT
Client ID:
Sample Type: CCVRT
Inject. Date: 30-Jul-2019 12:20:00 ALS Bottle#: 2 Worklist Smp#: 2
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-002
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub17

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:38:50 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1	Methane						
	1.188	1.188	0.000	1754395	285.1	273.3	
2	Ethylene						
	1.888	1.888	0.000	3247627	500.8	510.7	
3	Acetylene						
	2.001	2.001	0.000	1863492	463.3	562.2	
4	Ethane						
	2.210	2.210	0.000	3760059	536.4	562.9	
$	5 1,1,1-Trifluoroethane						
	3.353	3.353	0.000	23072568	9243.9	7373.8	
6	Propane						
	4.556	4.556	0.000	6247401	786.0	863.6	

Reagents:

SARSKSURR_00013 Amount Added: 19.00 Units: mL
SARSKHighCal_00006 Amount Added: 1.00 Units: mL

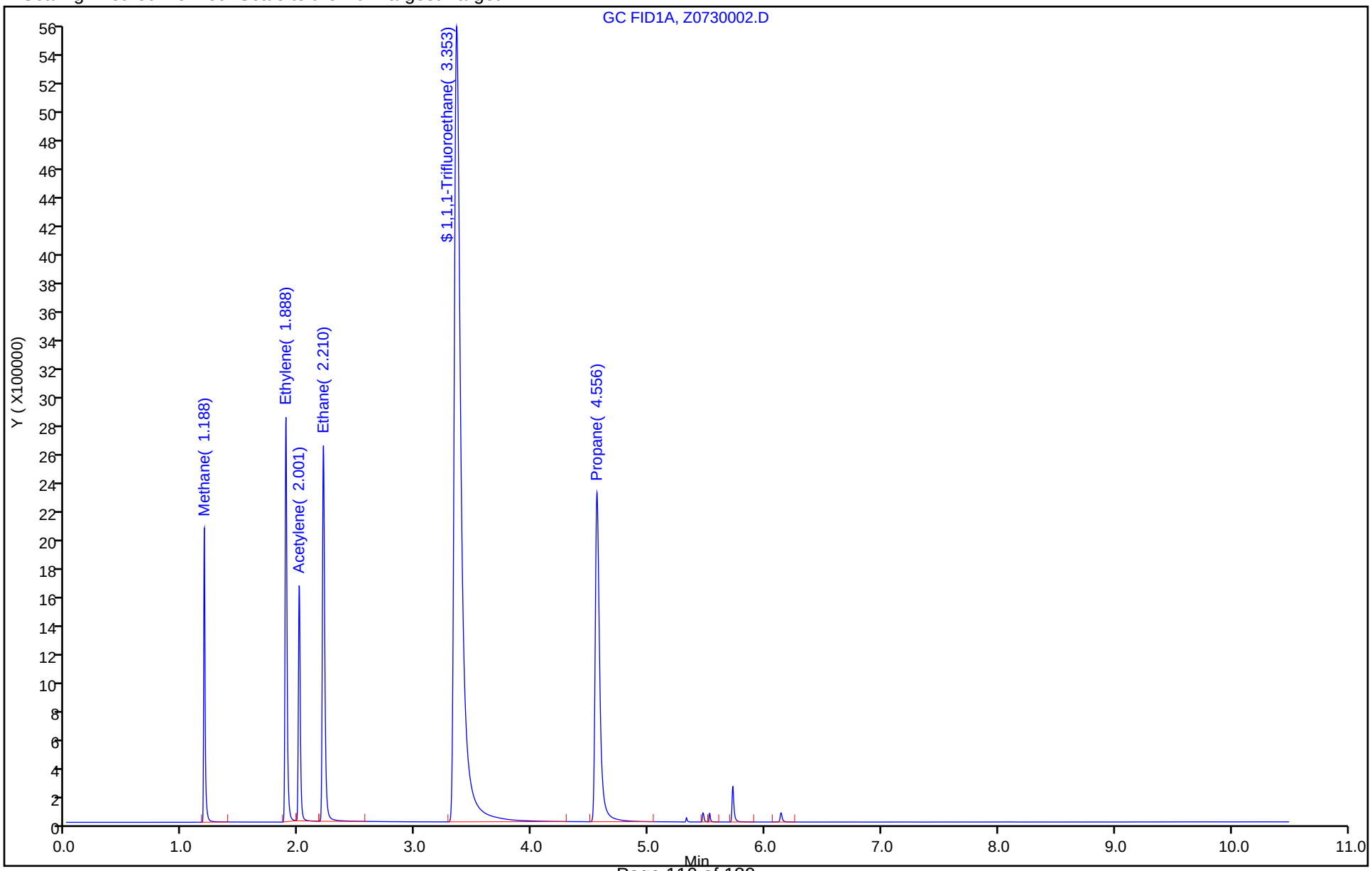
Report Date: 31-Jul-2019 07:38:51 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730002.D

Injection Date:	30-Jul-2019 12:20:00	Instrument ID:	ZPID	Operator ID:	
Lims ID:	CCVRT			Worklist Smp#:	2
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	2
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Lab Sample ID: CCVRT 240-393558/2 Calibration Date: 07/30/2019 12:20

Instrument ID: ZPID Calib Start Date: 03/25/2019 16:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 17:40

Lab File ID: Z0730002.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,1-Trifluoroethane	Ave	3129	2496		7370	9240	-20.2*	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Lab Sample ID: CCVRT 240-393558/2 Calibration Date: 07/30/2019 12:20

Instrument ID: ZPID Calib Start Date: 03/25/2019 16:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 17:40

Lab File ID: Z0730002.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
1,1,1-Trifluoroethane	3.35	3.25	3.45

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730002.D
Lims ID: CCVRT
Client ID:
Sample Type: CCVRT
Inject. Date: 30-Jul-2019 12:20:00 ALS Bottle#: 2 Worklist Smp#: 2
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-002
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub17

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:38:50 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1	Methane						
	1.188	1.188	0.000	1754395	285.1	273.3	
2	Ethylene						
	1.888	1.888	0.000	3247627	500.8	510.7	
3	Acetylene						
	2.001	2.001	0.000	1863492	463.3	562.2	
4	Ethane						
	2.210	2.210	0.000	3760059	536.4	562.9	
$	5 1,1,1-Trifluoroethane						
	3.353	3.353	0.000	23072568	9243.9	7373.8	
6	Propane						
	4.556	4.556	0.000	6247401	786.0	863.6	

Reagents:

SARSKSURR_00013 Amount Added: 19.00 Units: mL
SARSKHighCal_00006 Amount Added: 1.00 Units: mL

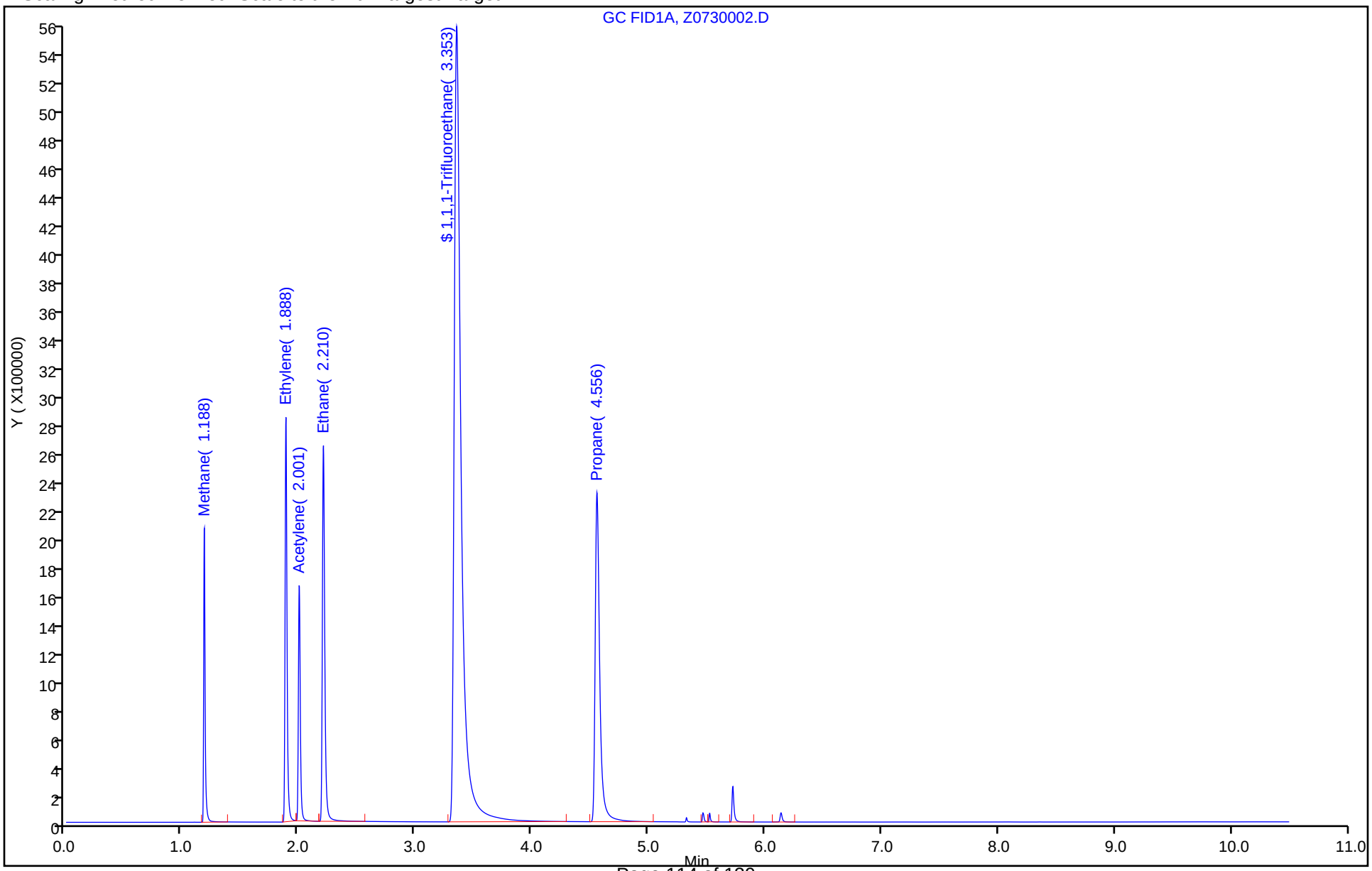
Report Date: 31-Jul-2019 07:38:51 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730002.D

Injection Date:	30-Jul-2019 12:20:00	Instrument ID:	ZPID	Operator ID:	
Lims ID:	CCVRT			Worklist Smp#:	2
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	2
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Lab Sample ID: CCV 240-393558/18 Calibration Date: 07/30/2019 17:04

Instrument ID: ZPID Calib Start Date: 03/25/2019 14:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 15:57

Lab File ID: Z0730018.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methane	Ave	6420	5959		265	285	-7.2	20.0
Ethylene	Ave	6359	6341		499	501	-0.3	20.0
Acetylene	Ave	3315	4197		587	463	26.6	30.0
Ethane	Ave	6680	6798		546	536	1.8	20.0
Propane	Ave	7235	7686		835	786	6.2	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Lab Sample ID: CCV 240-393558/18 Calibration Date: 07/30/2019 17:04

Instrument ID: ZPID Calib Start Date: 03/25/2019 14:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 15:57

Lab File ID: Z0730018.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.19	1.14	1.24
Ethylene	1.89	1.84	1.94
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.01	2.41
Propane	4.56	4.51	4.61

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730018.D
Lims ID: CCV
Client ID:
Sample Type: CCV
Inject. Date: 30-Jul-2019 17:04:30 ALS Bottle#: 18 Worklist Smp#: 18
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-018
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub17

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:39:00 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
	1 Methane						
	1.187	1.188	-0.001	1698989	285.1	264.6	
	2 Ethylene						
	1.887	1.888	-0.001	3175657	500.8	499.4	
	3 Acetylene						
	2.000	2.001	-0.001	1944784	463.3	586.7	
	4 Ethane						
	2.209	2.210	-0.001	3646774	536.4	545.9	
$	5 1,1,1-Trifluoroethane						
	3.352	3.353	-0.001	24609634	9243.9	7865.0	
	6 Propane						
	4.557	4.556	0.001	6040788	786.0	835.0	

Reagents:

SARSKSURR_00013 Amount Added: 19.00 Units: mL
SARSKHighCal_00006 Amount Added: 1.00 Units: mL

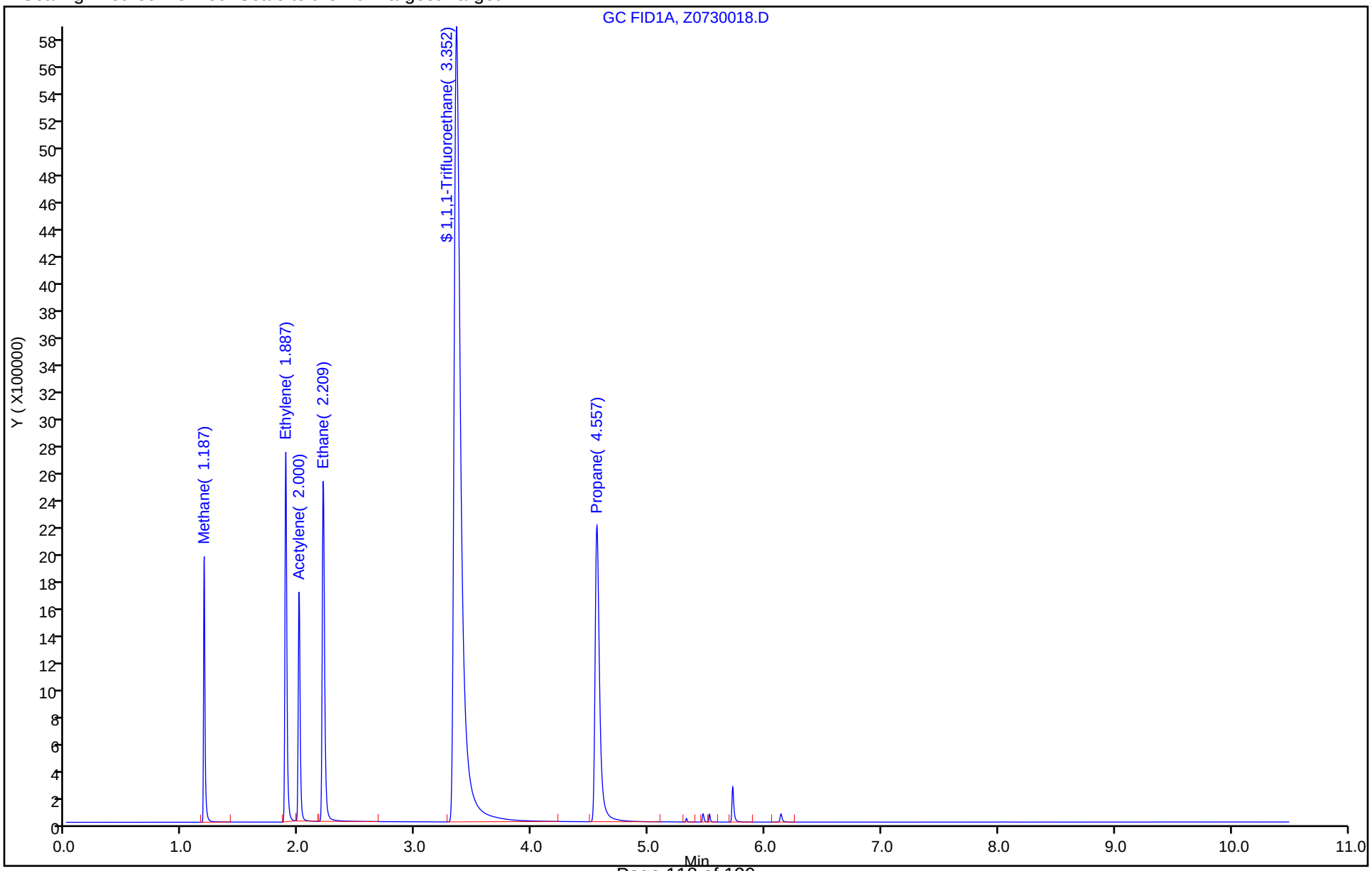
Report Date: 31-Jul-2019 07:39:00 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730018.D

Injection Date:	30-Jul-2019 17:04:30	Instrument ID:	ZPID	Operator ID:	
Lims ID:	CCV			Worklist Smp#:	18
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	18
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Lab Sample ID: CCV 240-393558/18 Calibration Date: 07/30/2019 17:04

Instrument ID: ZPID Calib Start Date: 03/25/2019 16:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 17:40

Lab File ID: Z0730018.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,1-Trifluoroethane	Ave	3129	2662		7860	9240	-14.9	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Lab Sample ID: CCV 240-393558/18 Calibration Date: 07/30/2019 17:04

Instrument ID: ZPID Calib Start Date: 03/25/2019 16:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 17:40

Lab File ID: Z0730018.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
1,1,1-Trifluoroethane	3.35	3.25	3.45

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730018.D
Lims ID: CCV
Client ID:
Sample Type: CCV
Inject. Date: 30-Jul-2019 17:04:30 ALS Bottle#: 18 Worklist Smp#: 18
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-018
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub17

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:39:00 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
	1 Methane						
	1.187	1.188	-0.001	1698989	285.1	264.6	
	2 Ethylene						
	1.887	1.888	-0.001	3175657	500.8	499.4	
	3 Acetylene						
	2.000	2.001	-0.001	1944784	463.3	586.7	
	4 Ethane						
	2.209	2.210	-0.001	3646774	536.4	545.9	
$	5 1,1,1-Trifluoroethane						
	3.352	3.353	-0.001	24609634	9243.9	7865.0	
	6 Propane						
	4.557	4.556	0.001	6040788	786.0	835.0	

Reagents:

SARSKSURR_00013 Amount Added: 19.00 Units: mL
SARSKHighCal_00006 Amount Added: 1.00 Units: mL

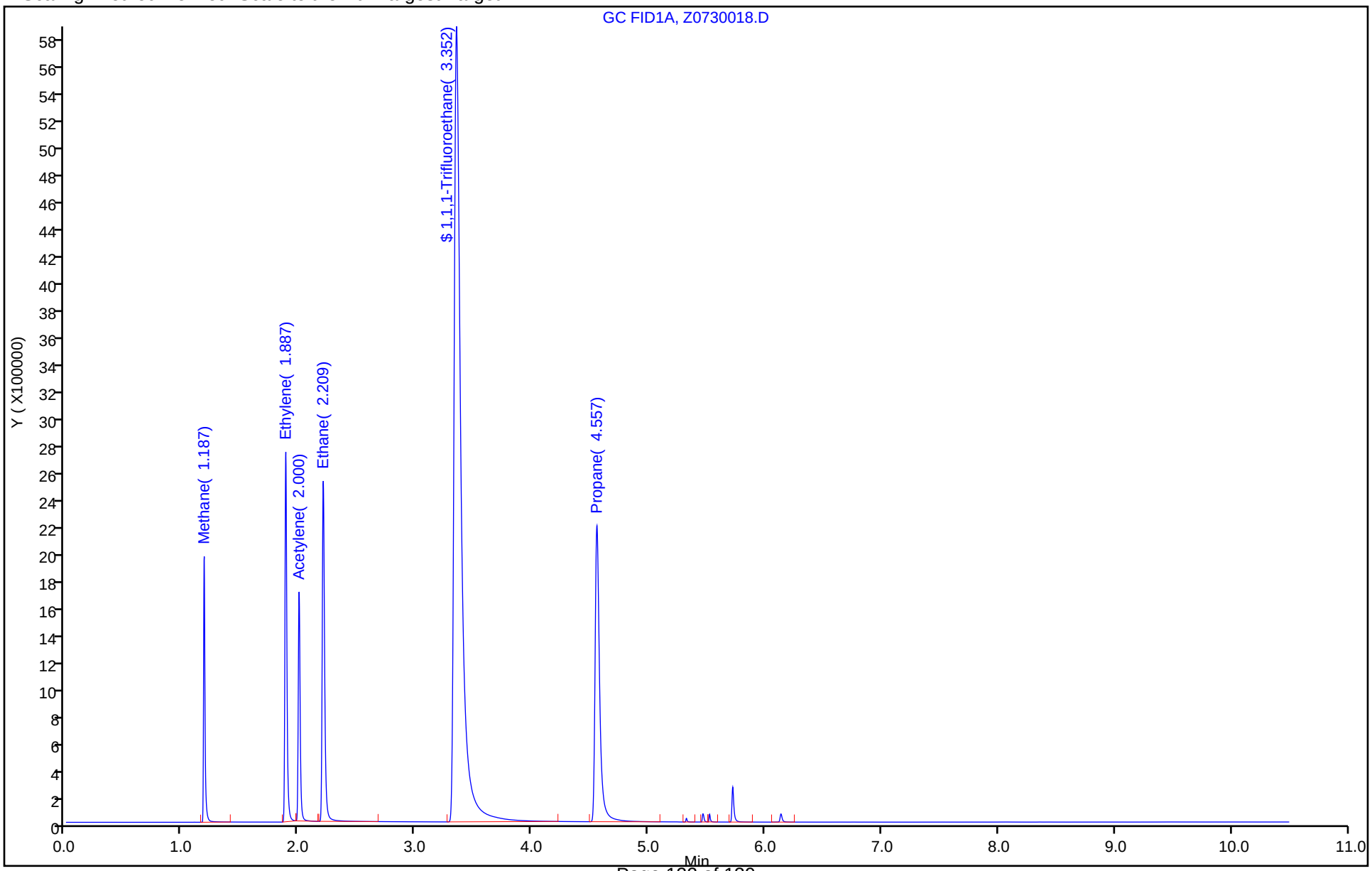
Report Date: 31-Jul-2019 07:39:00 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730018.D

Injection Date:	30-Jul-2019 17:04:30	Instrument ID:	ZPID	Operator ID:	
Lims ID:	CCV			Worklist Smp#:	18
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	18
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Client Sample ID: Lab Sample ID: MB 240-393558/3

Matrix: Water Lab File ID: Z0730003.D

Analysis Method: RSK-175 Date Collected:

Sample wt/vol: 23(mL) Date Analyzed: 07/30/2019 12:37

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393558 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	<1.0		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	85		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730003.D
Lims ID: MB
Client ID:
Sample Type: MB
Inject. Date: 30-Jul-2019 12:37:29 ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-003
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:38:50 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1	Methane						
	1.188					ND	
2	Ethylene						
	1.888					ND	
3	Acetylene						
	2.001					ND	
4	Ethane						
	2.210					ND	
$ 5	1,1,1-Trifluoroethane						
	3.352	3.353	-0.001	25963183	9730.4	8297.6	
6	Propane						
	4.556					ND	

Reagents:

SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

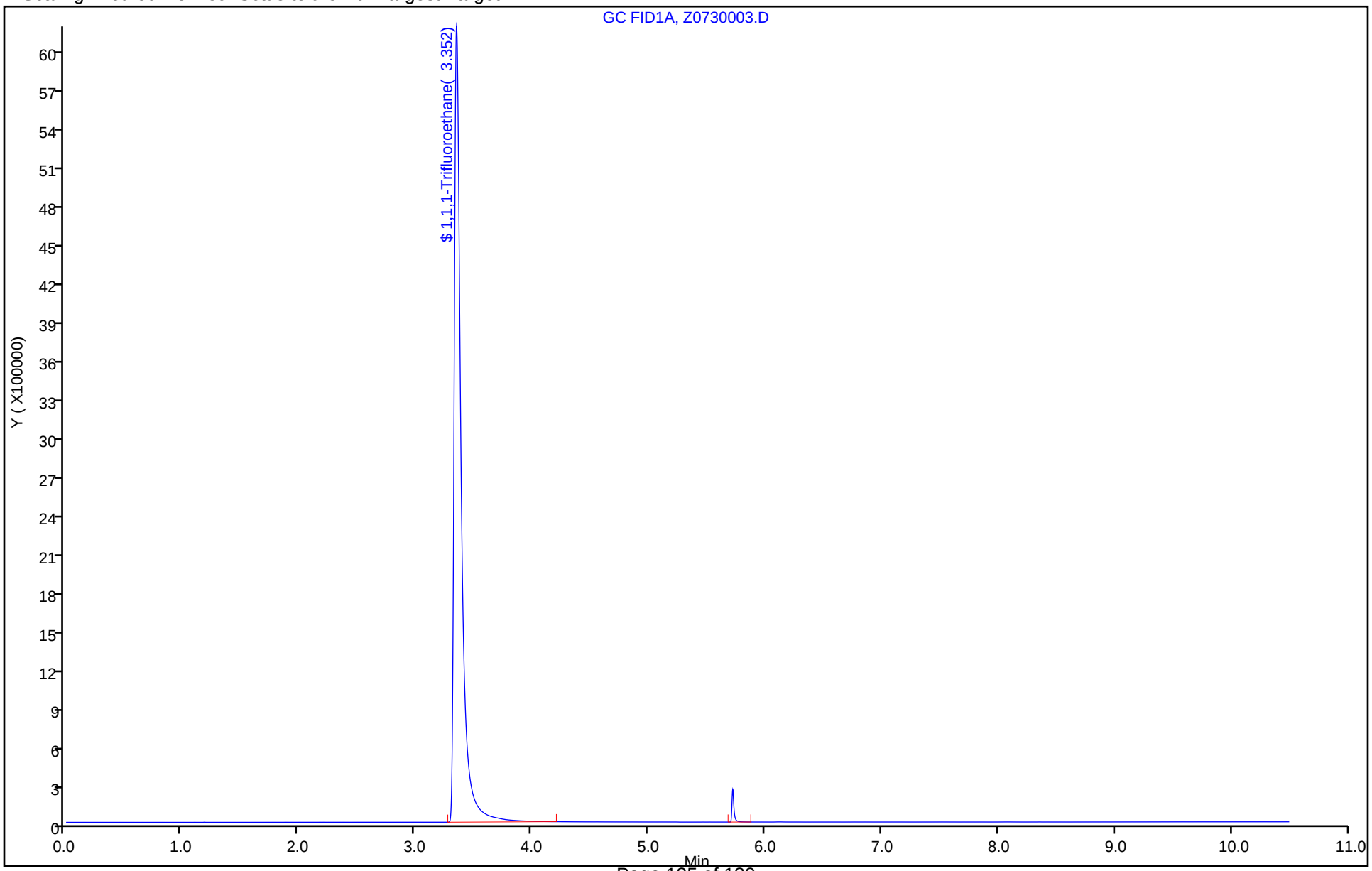
Report Date: 31-Jul-2019 07:38:52 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730003.D

Injection Date:	30-Jul-2019 12:37:29	Instrument ID:	ZPID	Operator ID:	
Lims ID:	MB			Worklist Smp#:	3
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	3
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730003.D
Lims ID: MB
Client ID:
Sample Type: MB
Inject. Date: 30-Jul-2019 12:37:29 ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-003
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:38:50 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	8297.6	85.27

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Client Sample ID: Lab Sample ID: LCS 240-393558/4

Matrix: Water Lab File ID: Z0730004.D

Analysis Method: RSK-175 Date Collected:

Sample wt/vol: 23(mL) Date Analyzed: 07/30/2019 12:55

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393558 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	472		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	84		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730004.D
Lims ID: LCS
Client ID:
Sample Type: LCS
Inject. Date: 30-Jul-2019 12:55:04 ALS Bottle#: 4 Worklist Smp#: 4
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-004
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:38:50 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
	1 Methane						
	1.187	1.188	-0.001	3033471	474.4	472.5	
	2 Ethylene						
	1.887	1.888	-0.001	2568505	410.2	403.9	
	4 Ethane						
	2.209	2.210	-0.001	2916572	472.6	436.6	
$	5 1,1,1-Trifluoroethane						
	3.352	3.353	-0.001	25455585	9730.4	8135.3	
	6 Propane						
	4.559	4.556	0.003	3065007	467.0	423.7	

Reagents:

MEEP LCS_00036 Amount Added: 23.00 Units: mL
SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

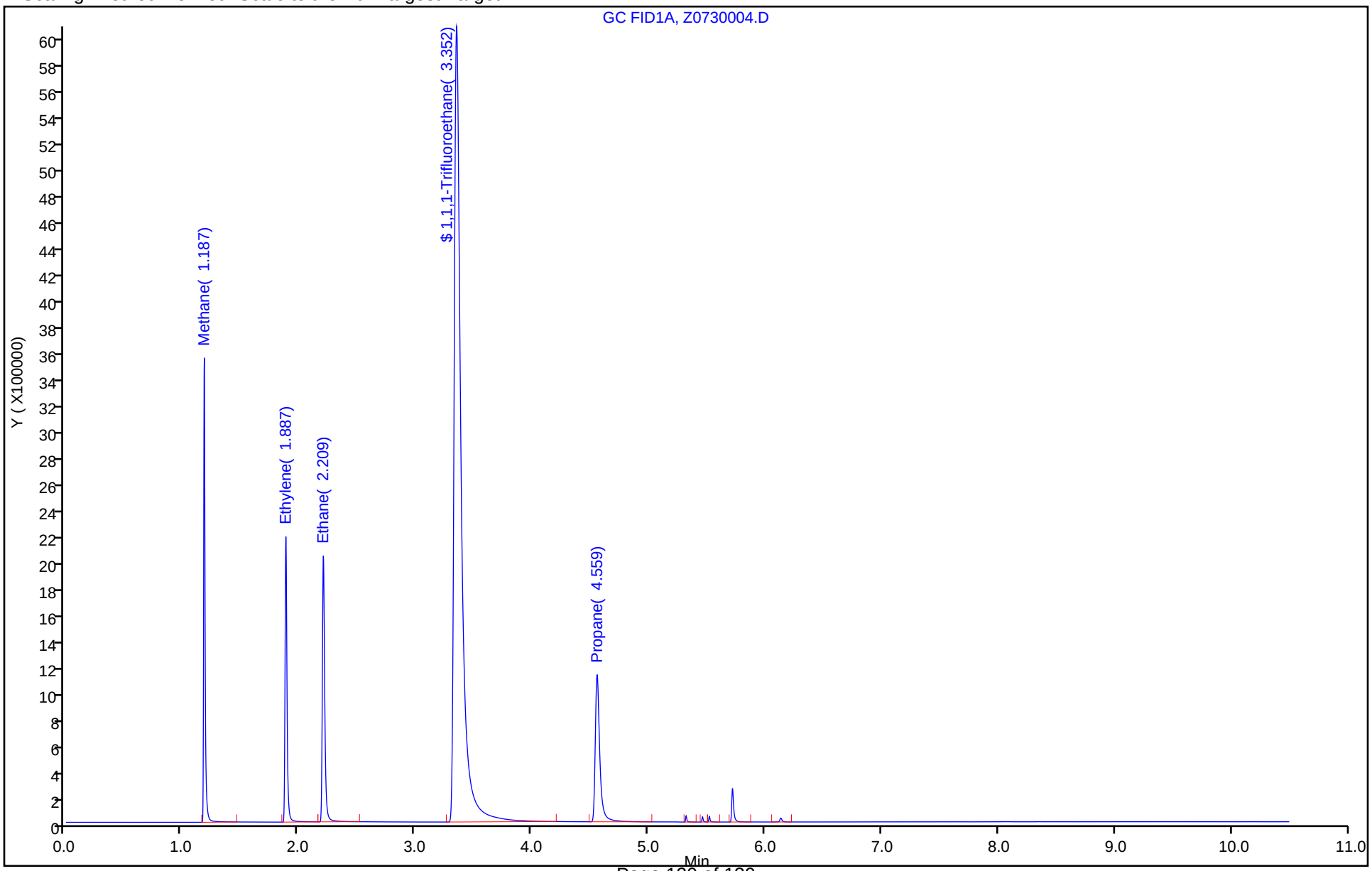
Report Date: 31-Jul-2019 07:38:53 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730004.D

Injection Date:	30-Jul-2019 12:55:04	Instrument ID:	ZPID	Operator ID:	
Lims ID:	LCS			Worklist Smp#:	4
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	4
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\Z0730004.D
Lims ID: LCS
Client ID:
Sample Type: LCS
Inject. Date: 30-Jul-2019 12:55:04 ALS Bottle#: 4 Worklist Smp#: 4
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089609-004
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190730-89609.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 31-Jul-2019 07:38:50 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0307

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	8135.3	83.61

GC VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Instrument ID: ZPID Start Date: 03/25/2019 14:32

Analysis Batch Number: 373146 End Date: 03/25/2019 17:57

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD 240-373146/3 IC		03/25/2019 14:32	1	Z0325003.D	HP-PLOT/Q 0.53(mm)
STD 240-373146/4 IC		03/25/2019 14:49	1	Z0325004.D	HP-PLOT/Q 0.53(mm)
STD 240-373146/5 IC		03/25/2019 15:06	1	Z0325005.D	HP-PLOT/Q 0.53(mm)
STD 240-373146/6 IC		03/25/2019 15:23	1	Z0325006.D	HP-PLOT/Q 0.53(mm)
STD 240-373146/7 IC		03/25/2019 15:40	1	Z0325007.D	HP-PLOT/Q 0.53(mm)
STD 240-373146/8 IC		03/25/2019 15:57	1	Z0325008.D	HP-PLOT/Q 0.53(mm)
STD1 240-373146/9 IC		03/25/2019 16:14	1	Z0325009.D	HP-PLOT/Q 0.53(mm)
STD2 240-373146/10 IC		03/25/2019 16:32	1	Z0325010.D	HP-PLOT/Q 0.53(mm)
STD3 240-373146/11 IC		03/25/2019 16:49	1	Z0325011.D	HP-PLOT/Q 0.53(mm)
STD4 240-373146/12 IC		03/25/2019 17:06	1	Z0325012.D	HP-PLOT/Q 0.53(mm)
STD5 240-373146/13 IC		03/25/2019 17:23	1	Z0325013.D	HP-PLOT/Q 0.53(mm)
STD6 240-373146/14 IC		03/25/2019 17:40	1	Z0325014.D	HP-PLOT/Q 0.53(mm)
ICV 240-373146/15		03/25/2019 17:57	1	Z0325015.D	HP-PLOT/Q 0.53(mm)

GC VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Instrument ID: ZPID Start Date: 07/30/2019 12:20

Analysis Batch Number: 393558 End Date: 07/30/2019 20:02

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVRT 240-393558/2		07/30/2019 12:20	1	Z0730002.D	HP-PLOT/Q 0.53(mm)
MB 240-393558/3		07/30/2019 12:37	1	Z0730003.D	HP-PLOT/Q 0.53(mm)
LCS 240-393558/4		07/30/2019 12:55	1	Z0730004.D	HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 13:12	1		HP-PLOT/Q 0.53(mm)
190-20372-1		07/30/2019 13:30	1	Z0730006.D	HP-PLOT/Q 0.53(mm)
190-20372-2		07/30/2019 13:48	1	Z0730007.D	HP-PLOT/Q 0.53(mm)
190-20372-3		07/30/2019 14:06	1	Z0730008.D	HP-PLOT/Q 0.53(mm)
190-20372-4		07/30/2019 14:24	1	Z0730009.D	HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 14:42	10		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 14:59	10		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 15:17	10		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 15:35	10		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 15:53	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 16:10	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 16:28	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 16:46	1		HP-PLOT/Q 0.53(mm)
CCV 240-393558/18		07/30/2019 17:04	1	Z0730018.D	HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 17:22	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 17:40	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 17:57	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 18:15	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 18:33	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 18:51	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 19:09	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 19:27	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/30/2019 19:44	1		HP-PLOT/Q 0.53(mm)
CCV 240-393558/28		07/30/2019 20:02	1		HP-PLOT/Q 0.53(mm)

GC VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20372-1

SDG No.:

Batch Number: 393558 Batch Start Date: 07/30/19 12:20 Batch Analyst: Matthews, Brandon

Batch Method: RSK-175 Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	MEEP LCS 00036	SARSKHighCal 00006	SARSKSURR 00013
CCVRT 240-393558/2		RSK-175		23 mL	23 mL	7 SU		1 mL	19 mL
MB 240-393558/3		RSK-175		23 mL	23 mL	7 SU			20 mL
LCS 240-393558/4		RSK-175		23 mL	23 mL	7 SU	23 mL		20 mL
190-20372-B-1	04616.07	RSK-175	T	23 mL	23 mL	<2 SU			20 mL
190-20372-A-2	04616.08	RSK-175	T	23 mL	23 mL	<2 SU			20 mL
190-20372-A-3	04616.09	RSK-175	T	23 mL	23 mL	<2 SU			20 mL
190-20372-C-4	04616.11	RSK-175	T	23 mL	23 mL	<2 SU			20 mL
CCV 240-393558/18		RSK-175		23 mL	23 mL	<2 SU		1 mL	19 mL

Batch Notes	
pH Paper ID	4218627

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Subcontract Data

Shipping and Receiving Documents

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: John Laverty
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: 517-332-4034 P.O. NO.:
E-MAIL ADDRESS: johnlaverty@meritlabs.com QUOTE NO.:

INVOICE TO

☒ SAME
CONTACT NAME: Julie Teague
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S04616 SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☒ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Methane
	7/16/19	1400	04616.07	L	3	3							✓
	7/16/19	1440	04616.08	L	3	3							✓
	7/16/19	1500	04616.09	L	2	2							✓
	7/16/19	1520	04616.11	L	3	3							✓

190-20372 Chain of Custody

** Subcontracted to
Test America

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☐ Sampler	DATE 7/18/19	TIME 1425	RELINQUISHED BY: SIGNATURE/ORGANIZATION
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE 7/18/19	TIME 1425	RECEIVED BY: SIGNATURE/ORGANIZATION
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE 7/18/19	TIME 1538	SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE 7-18-19	TIME 1538	SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

TestAmerica

Cooler/Sample Receipt

(AFTER HOURS receipt- complete gray areas. Place cooler in walk-in; place this form in Receiving in-box. Date/Time rec'd _____ Initials _____)

❑ MSDS or Known Hazard Information Supplied by Client
❑ Bottle stickers applied ❑ ELEMENT comment entered ❑ MSDS COC scanned/emailed to EH&S
❑ Discrepancies
❑ Short Hold
❑ Rush ❑24hr ❑2day ❑3day ❑5day ❑other _____

Client ID Merit Labs
Work Order # 190-20312
Receipt evaluation performed by - Initials AMY Date 7/18/19 Time 16:11

Method of Shipment:
☑ Walk-In Client ❑ TestAmerica Field/Courier
❑ Other Client/3rd Party Courier _____
❑ Fed Ex Tracking # _____
❑ UPS Tracking # _____
❑ Other _____

Shipping Container Type:
❑ Cooler ❑ Box
☒ None ❑ Other _____

Packing Materials:
❑ Plastic Bags ❑ Foam
☒ Bubble Wrap ❑ Paper
❑ Packing Peanuts ❑ None
❑ Other _____

Custody Seals Intact:
❑ Yes ❑ No
☒ N/A (not used or required)

Cooling Materials:
❑ Ice (solid) ❑ Ice (Melted)
❑ Blue Ice ☒ None
❑ Other _____

Bacteriological Samples	Temp (°C) Corrected	Frozen	Received within 2 hours	Sample Flagged
		yes no	yes no	yes no

❑ Check if Additional Sheets Required

Receipt Temperatures

Thermometer ID	Observed (°C)	Corrected (°C)	Temp Blank	Sample Temp	Received on same day sampled?	Acceptable?*	Cooler ID	Note Affected Samples if temperature not acceptable
140252483			❑	❑	❑Yes ❑No	❑Yes ❑No		
140252496			❑	❑	❑Yes ❑No	❑Yes ❑No		
CP313201	14.2	14.3	❑	☒	❑Yes ☒No	❑Yes ❑No		TCH

* Receipt temperatures are considered acceptable if the samples are received on the same day they were collected & show signs that the cooling process has started. Temperature acceptance for most tests is ≤6.0°C, but not frozen. For additional information, please refer to SOP DT-SCA-004 *Sample Receipt and Login, Attachment 2 – Holding Times, Preservation and Container Requirements*

Receipt Questions**	Y	N	n/a	"No" answers require additional comment
COC present & TA receipt signature, date, & time properly documented?	✓			
Containers & labels in good condition? *(unbroken, not leaking, appropriately filled, labels legible & attached)*	✓			
Appropriate containers used & adequate volume provided?	✓			Preserved Bottles Checked with pH Strips* Yes No
Number of sample containers match COC?	✓			
Samples received within hold time?	✓			
Samples submitted for GRO and Volatiles analyses (8260, 624, 524) received without headspace?	✓			only small bubbles
Was a Trip Blank received with VOA samples?		✓		
Were the samples free of any questionable physical conformities? For example, field duplicates or multiple bottles of the same sample do not significantly vary in appearance (color, proportion of solids, etc.)	✓			
Were the COC, bottle labels and all other items free of all other discrepancies or issues that would need to be addressed with the Project Manager and/or Client?	✓			

** May not be applicable if samples are not for compliance testing

* Excludes FOG, Volatiles, TOC Vials

Client Contact Record
Contact via: ❑ Phone ❑ Email ❑ Other _____ Person Contacted: _____ Date/Time: _____
❑ Discrepancy allowance agreement is on record in the client project file
Discussion/Resolution:

Any additional documentation and clarification from client must be noted in the narrative and/or scanned into the COC directory.

7/18/19
Reviewed by PM Signature Date

1.6/1.7

Eurofins TestAmerica, Michigan
10448 Citation Drive Suite 200
Brighton, MI 48116
Phone: 810-229-2763 Fax: 810-229-0000

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schafer, Sue	Carrier Tracking No(s):	COC No: 190-23808.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: sue.schafer@testamericainc.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 190-20372-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 7/31/2019			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: S04616 - Methane	Project #: 19001249			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ (MOD) MEE Only	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
04616.07 (190-20372-1)	7/16/19	14:00 Eastern		Water			X	3	
04616.08 (190-20372-2)	7/16/19	14:40 Eastern		Water			X	3	
04616.09 (190-20372-3)	7/16/19	15:00 Eastern		Water			X	2	
04616.11 (190-20372-4)	7/16/19	15:20 Eastern		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	7-18-19 1621	ETA		7/19/19 840	TR
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____
Canton Facility

Client TA Michigan Site Name _____ Cooler unpacked by: DSD

Cooler Received on 7/19/19 Opened on 7/19/19

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF +0.1 °C) Observed Cooler Temp. 1.6 °C Corrected Cooler Temp. 1.7 °C
   IR GUN #36 (CF +0.6°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	No
8. Could all bottle labels be reconciled with the COC?	Yes	No
9. Were correct bottle(s) used for the test(s) indicated?	Yes	No
10. Sufficient quantity received to perform indicated analyses?	Yes	No
11. Are these work share samples?	Yes	No
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# **HC984738**
13. Were VOAs on the COC?	Yes	No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
16. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Analytical Laboratory Report

Report ID: S04673.01(01)
Generated on 08/01/2019

Report to

Attention: Rodney Abke
Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S04673.01-S04673.12
Project: RACER Flint West #12990
Collected Date(s): 07/17/2019
Submitted Date/Time: 07/17/2019 16:34
Sampled by: Unknown
P.O. #: 795930

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
N/A	Not Applicable
RSK-175	RSK-175
SM3500-Cr B	Standard Method 3500 Cr B 2011
SM5310C	Standard Method 5310C 2011
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Sample Summary (12 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S04673.01	MW-102S	Liquid	07/17/19 09:20
S04673.02	MW-111S	Liquid	07/17/19 11:20
S04673.03	MW-103S	Liquid	07/17/19 10:28
S04673.04	MW-108S	Liquid	07/17/19 12:10
S04673.05	MW-110S	Liquid	07/17/19 12:43
S04673.06	MW-113S	Liquid	07/17/19 13:26
S04673.07	MW-109S	Liquid	07/17/19 14:00
S04673.08	MW-114S	Liquid	07/17/19 14:45
S04673.09	Dupe 2	Liquid	07/17/19 00:01
S04673.10	Equipment Blank	Liquid	07/17/19 15:10
S04673.11	Field Blank	Liquid	07/17/19 00:01
S04673.12	Trip Blank	Liquid	07/17/19 00:01

Analytical Laboratory Report

Lab Sample ID: S04673.01
Sample Tag: MW-102S
Collected Date/Time: 07/17/2019 09:20
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	5.0	IR
1	125ml Plastic	HNO3	Yes	5.0	IR
3	40ml Glass	HCL	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/31/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/18/19 09:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/18/19 09:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 07/23/19 13:21, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.006	0.005	0.0000950	mg/L	5	7440-47-3	
Copper	0.000742	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	0.05	0.02	0.00192	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese	0.00317	0.005	0.000515	mg/L	5	7439-96-5	b
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.00247	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 07/23/19 13:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000577	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.005	0.005	0.0000950	mg/L	5	7440-47-3	f
Copper, Dissolved	0.000579	0.005	0.000375	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.02	0.02	0.00192	mg/L	5	7439-89-6	f
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Manganese, Dissolved	0.001145	0.005	0.000515	mg/L	5	7439-96-5	bf
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.008	0.005	0.000730	mg/L	5	7440-66-6	f

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04673.01 (continued)
Sample Tag: MW-102S

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 15:03, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	

Lab Sample ID: S04673.01 (continued)
Sample Tag: MW-102S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 15:03, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S04673.02
Sample Tag: MW-111S
Collected Date/Time: 07/17/2019 11:20
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	5.0	IR
1	125ml Plastic	HNO3	Yes	5.0	IR
6	40ml Glass	HCL	Yes	5.0	IR
2	40ml Glass	H2SO4	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/31/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/18/19 10:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/18/19 09:40, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Method: SM5310C, Run Date: 07/22/19 15:58, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	11.7	1	0.414	mg/L	1		

Metals

Method: E200.8, Run Date: 07/23/19 13:23, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000942	0.002	0.000255	mg/L	5	7440-38-2	b
Chromium	0.006	0.005	0.0000950	mg/L	5	7440-47-3	
Copper	0.000938	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	0.16	0.02	0.00192	mg/L	5	7439-89-6	
Lead	0.000214	0.003	0.000190	mg/L	5	7439-92-1	b
Manganese	0.012	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.00330	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 07/23/19 13:24, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000535	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.005	0.005	0.0000950	mg/L	5	7440-47-3	f
Copper, Dissolved	0.000752	0.005	0.000375	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.00938	0.02	0.00192	mg/L	5	7439-89-6	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04673.02 (continued)
Sample Tag: MW-111S

Method: E200.8, Run Date: 07/23/19 13:24, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese, Dissolved	0.003915	0.005	0.000515	mg/L	5	7439-96-5	bf
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.005	0.005	0.000730	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 15:22, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	0.82	1	0.21	ug/L	1	156-59-2	J
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	10	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	

b-Value detected less than reporting limit, but greater than MDL f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S04673.02 (continued)
Sample Tag: MW-111S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 15:22, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Organics

Method: RSK-175, Run Date: 07/31/19 15:09, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	Not detected	1.0	0.17	ug/L	1	74-82-8	O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S04673.03
Sample Tag: MW-103S
Collected Date/Time: 07/17/2019 10:28
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	5.0	IR
1	125ml Plastic	HNO3	Yes	5.0	IR
3	40ml Glass	HCL	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/31/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/18/19 10:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/18/19 09:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Metals

Method: E200.8, Run Date: 07/23/19 13:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.039	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000382	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.000775	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	11.1	0.02	0.00192	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese	0.388	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.00104	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 07/23/19 13:29, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.007	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000246	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	Not detected	0.005	0.000375	mg/L	5	7440-50-8	f
Iron, Dissolved	0.0140	0.02	0.00192	mg/L	5	7439-89-6	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Manganese, Dissolved	0.378	0.005	0.000515	mg/L	5	7439-96-5	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.00405	0.005	0.000730	mg/L	5	7440-66-6	bf

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04673.03 (continued)
Sample Tag: MW-103S

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 15:41, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	4.1	50	4.0	ug/L	1	67-64-1	JB
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	0.26	1	0.11	ug/L	1	71-43-2	J
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	0.47	1	0.16	ug/L	1	108-90-7	J
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S04673.03 (continued)
Sample Tag: MW-103S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 15:41, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Lab Sample ID: S04673.04
Sample Tag: MW-108S
Collected Date/Time: 07/17/2019 12:10
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	5.0	IR
1	125ml Plastic	HNO3	Yes	5.0	IR
3	40ml Glass	HCL	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/31/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/18/19 10:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/18/19 10:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 07/23/19 13:37, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000328	0.002	0.000255	mg/L	5	7440-38-2	b
Chromium	0.000575	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.000975	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	0.02	0.02	0.00192	mg/L	5	7439-89-6	
Lead	0.000370	0.003	0.000190	mg/L	5	7439-92-1	b
Manganese	0.057	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.005	0.005	0.000730	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 07/23/19 13:39, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000483	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.000326	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.000545	0.005	0.000375	mg/L	5	7440-50-8	bf
Iron, Dissolved	Not detected	0.02	0.00192	mg/L	5	7439-89-6	f
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Manganese, Dissolved	0.004357	0.005	0.000515	mg/L	5	7439-96-5	bf
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.00113	0.005	0.000730	mg/L	5	7440-66-6	bf

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04673.04 (continued)
Sample Tag: MW-108S

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 16:00, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	0.18	5	0.16	ug/L	1	75-09-2	J
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	1	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	2	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S04673.04 (continued)
Sample Tag: MW-108S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 16:00, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Lab Sample ID: S04673.05
Sample Tag: MW-110S
Collected Date/Time: 07/17/2019 12:43
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	5.0	IR
1	125ml Plastic	HNO3	Yes	5.0	IR
3	40ml Glass	HCL	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/31/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/18/19 11:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/18/19 10:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Metals

Method: E200.8, Run Date: 07/23/19 13:40, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.00172	0.002	0.000255	mg/L	5	7440-38-2	b
Chromium	0.001283	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.000543	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	8.19	0.02	0.00192	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese	2.44	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.00237	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 07/23/19 13:43, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000295	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.000406	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.000497	0.005	0.000375	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.10	0.02	0.00192	mg/L	5	7439-89-6	f
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Manganese, Dissolved	2.40	0.005	0.000515	mg/L	5	7439-96-5	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.005	0.005	0.000730	mg/L	5	7440-66-6	f

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04673.05 (continued)
Sample Tag: MW-110S

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 16:19, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	0.19	5	0.16	ug/L	1	75-09-2	J
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S04673.05 (continued)
Sample Tag: MW-110S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 16:19, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S04673.06
Sample Tag: MW-113S
Collected Date/Time: 07/17/2019 13:26
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	5.0	IR
1	125ml Plastic	HNO3	Yes	5.0	IR
6	40ml Glass	HCL	Yes	5.0	IR
2	40ml Glass	H2SO4	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/31/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/18/19 11:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/18/19 10:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Method: SM5310C, Run Date: 07/22/19 16:21, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	6.7	1	0.414	mg/L	1		

Metals

Method: E200.8, Run Date: 07/23/19 13:46, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.005	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.001634	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.001144	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	8.30	0.02	0.00192	mg/L	5	7439-89-6	
Lead	0.000195	0.003	0.000190	mg/L	5	7439-92-1	b
Manganese	0.091	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.006	0.005	0.000730	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 07/23/19 13:49, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.00138	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.001132	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.001465	0.005	0.000375	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.15	0.02	0.00192	mg/L	5	7439-89-6	f
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04673.06 (continued)
Sample Tag: MW-113S

Method: E200.8, Run Date: 07/23/19 13:49, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese, Dissolved	0.079	0.005	0.000515	mg/L	5	7439-96-5	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.006	0.005	0.000730	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 16:38, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	0.78	1	0.24	ug/L	1	75-01-4	J
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	1	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	12	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	

f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S04673.06 (continued)
Sample Tag: MW-113S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 16:38, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Organics

Method: RSK-175, Run Date: 07/31/19 15:27, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	2.8	1.0	0.17	ug/L	1	74-82-8	O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S04673.07
Sample Tag: MW-109S
Collected Date/Time: 07/17/2019 14:00
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	5.0	IR
1	125ml Plastic	HNO3	Yes	5.0	IR
6	40ml Glass	HCL	Yes	5.0	IR
2	40ml Glass	H2SO4	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/31/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/18/19 11:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/18/19 10:25, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Method: SM5310C, Run Date: 07/22/19 16:43, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	6.2	1	0.414	mg/L	1		

Metals

Method: E200.8, Run Date: 07/23/19 13:50, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.073	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.002927	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.000774	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	15.3	0.02	0.00192	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese	0.618	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.00443	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 07/23/19 13:54, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.010	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000265	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	Not detected	0.005	0.000375	mg/L	5	7440-50-8	f
Iron, Dissolved	0.0136	0.02	0.00192	mg/L	5	7439-89-6	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04673.07 (continued)
Sample Tag: MW-109S

Method: E200.8, Run Date: 07/23/19 13:54, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese, Dissolved	0.571	0.005	0.000515	mg/L	5	7439-96-5	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.00192	0.005	0.000730	mg/L	5	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 16:57, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	7	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	0.82	1	0.27	ug/L	1	75-35-4	J
Methylene chloride	0.19	5	0.16	ug/L	1	75-09-2	J
trans-1,2-Dichloroethene	0.42	1	0.14	ug/L	1	156-60-5	J
1,1-Dichloroethane	1	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	9	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	11	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	

f-Filtered and preserved in lab
b-Value detected less than reporting limit, but greater than MDL
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S04673.07 (continued)
Sample Tag: MW-109S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 16:57, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Organics

Method: RSK-175, Run Date: 07/31/19 15:44, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	50	1.0	0.17	ug/L	1	74-82-8	O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S04673.08
Sample Tag: MW-114S
Collected Date/Time: 07/17/2019 14:45
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	5.0	IR
1	125ml Plastic	HNO3	Yes	5.0	IR
6	40ml Glass	HCL	Yes	5.0	IR
2	40ml Glass	H2SO4	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/31/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/18/19 11:25, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/18/19 10:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Method: SM5310C, Run Date: 07/22/19 17:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	6.4	1	0.414	mg/L	1		

Metals

Method: E200.8, Run Date: 07/23/19 13:56, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.101	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000371	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.001317	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	7.48	0.02	0.00192	mg/L	5	7439-89-6	
Lead	0.000385	0.003	0.000190	mg/L	5	7439-92-1	b
Manganese	0.821	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.012	0.005	0.000730	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 07/23/19 14:00, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.016	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000171	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.000879	0.005	0.000375	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.0147	0.02	0.00192	mg/L	5	7439-89-6	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04673.08 (continued)
Sample Tag: MW-114S

Method: E200.8, Run Date: 07/23/19 14:00, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese, Dissolved	0.781	0.005	0.000515	mg/L	5	7439-96-5	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.013	0.005	0.000730	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/31/19 19:45, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	50	1.4	ug/L	5	60-29-7	Y
Acetone	48	250	20	ug/L	5	67-64-1	JYB
Methyl iodide	Not detected	5	1.2	ug/L	5	74-88-4	Y
Carbon disulfide	Not detected	30	0.63	ug/L	5	75-15-0	Y
tert-Methyl butyl ether (MTBE)	Not detected	30	1.2	ug/L	5	1634-04-4	Y
Acrylonitrile	Not detected	10	1.9	ug/L	5	107-13-1	Y
2-Butanone (MEK)	17	130	16	ug/L	5	78-93-3	JY
Dichlorodifluoromethane	Not detected	30	2.9	ug/L	5	75-71-8	Y
Chloromethane	Not detected	30	0.98	ug/L	5	74-87-3	Y
Vinyl chloride	8	5	1.2	ug/L	5	75-01-4	Y
Bromomethane	Not detected	30	0.92	ug/L	5	74-83-9	Y
Chloroethane	Not detected	30	1.1	ug/L	5	75-00-3	Y
Trichlorofluoromethane	Not detected	5	1.4	ug/L	5	75-69-4	Y
1,1-Dichloroethene	Not detected	5	1.3	ug/L	5	75-35-4	Y
Methylene chloride	2.50	30	0.81	ug/L	5	75-09-2	JYB
trans-1,2-Dichloroethene	1.35	5	0.72	ug/L	5	156-60-5	JY
1,1-Dichloroethane	2.50	5	0.73	ug/L	5	75-34-3	JY
cis-1,2-Dichloroethene	244	5	1.1	ug/L	5	156-59-2	Y
Tetrahydrofuran*	9.3	450	6.0	ug/L	5	109-99-9	JYB
Chloroform	Not detected	5	0.75	ug/L	5	67-66-3	Y
Bromochloromethane	Not detected	5	1.8	ug/L	5	74-97-5	Y
1,1,1-Trichloroethane	1.7	5	1.4	ug/L	5	71-55-6	JY
4-Methyl-2-pentanone (MIBK)	Not detected	250	1.8	ug/L	5	108-10-1	Y
2-Hexanone	2.05	250	0.94	ug/L	5	591-78-6	JY
Carbon tetrachloride	Not detected	5	0.94	ug/L	5	56-23-5	Y
Benzene	Not detected	5	0.56	ug/L	5	71-43-2	Y
1,2-Dichloroethane	Not detected	5	0.86	ug/L	5	107-06-2	Y
Trichloroethene	179	5	1.5	ug/L	5	79-01-6	Y
1,2-Dichloropropane	Not detected	5	0.91	ug/L	5	78-87-5	Y
Bromodichloromethane	Not detected	5	0.96	ug/L	5	75-27-4	Y
Dibromomethane	Not detected	30	2.2	ug/L	5	74-95-3	Y
cis-1,3-Dichloropropene	Not detected	5	0.84	ug/L	5	10061-01-5	Y
Toluene	Not detected	5	0.83	ug/L	5	108-88-3	Y
trans-1,3-Dichloropropene	Not detected	5	1.0	ug/L	5	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	5	1.7	ug/L	5	79-00-5	Y
Tetrachloroethene	Not detected	5	0.67	ug/L	5	127-18-4	Y
trans-1,4-Dichloro-2-butene	Not detected	5	1.3	ug/L	5	110-57-6	Y
Dibromochloromethane	Not detected	30	1.00	ug/L	5	124-48-1	Y
1,2-Dibromoethane	Not detected	5	0.61	ug/L	5	106-93-4	Y
Chlorobenzene	Not detected	5	0.78	ug/L	5	108-90-7	Y

f-Filtered and preserved in lab

Y-Elevated reporting limit due to high target concentration

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S04673.08 (continued)
Sample Tag: MW-114S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/31/19 19:45, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1,1,2-Tetrachloroethane	Not detected	5	1.1	ug/L	5	630-20-6	Y
Ethylbenzene	Not detected	5	0.51	ug/L	5	100-41-4	Y
p,m-Xylene*	Not detected	10	2.1	ug/L	5		Y
o-Xylene	Not detected	5	0.79	ug/L	5	95-47-6	Y
Styrene	Not detected	5	0.64	ug/L	5	100-42-5	Y
Isopropylbenzene	Not detected	30	0.58	ug/L	5	98-82-8	Y
Bromoform	Not detected	5	1.8	ug/L	5	75-25-2	Y
1,1,2,2-Tetrachloroethane	Not detected	5	1.3	ug/L	5	79-34-5	Y
1,2,3-Trichloropropane	Not detected	5	2.7	ug/L	5	96-18-4	Y
n-Propylbenzene	Not detected	5	0.58	ug/L	5	103-65-1	Y
Bromobenzene	Not detected	5	0.75	ug/L	5	108-86-1	Y
1,3,5-Trimethylbenzene	Not detected	5	0.92	ug/L	5	108-67-8	Y
tert-Butylbenzene	Not detected	5	0.71	ug/L	5	98-06-6	Y
1,2,4-Trimethylbenzene	Not detected	5	0.81	ug/L	5	95-63-6	Y
sec-Butylbenzene	Not detected	5	0.82	ug/L	5	135-98-8	Y
p-Isopropyltoluene	Not detected	30	0.94	ug/L	5	99-87-6	Y
1,3-Dichlorobenzene	Not detected	5	1.0	ug/L	5	541-73-1	Y
1,4-Dichlorobenzene	Not detected	5	0.90	ug/L	5	106-46-7	Y
1,2-Dichlorobenzene	Not detected	5	0.67	ug/L	5	95-50-1	Y
1,2,3-Trimethylbenzene	Not detected	5	0.70	ug/L	5	526-73-8	Y
n-Butylbenzene	Not detected	5	0.87	ug/L	5	104-51-8	Y
Hexachloroethane	Not detected	30	1.7	ug/L	5	67-72-1	Y
1,2-Dibromo-3-chloropropane	Not detected	30	2.4	ug/L	5	96-12-8	Y
1,2,4-Trichlorobenzene	Not detected	30	1.2	ug/L	5	120-82-1	Y
1,2,3-Trichlorobenzene	Not detected	30	1.2	ug/L	5	87-61-6	Y
Naphthalene	Not detected	30	0.90	ug/L	5	91-20-3	Y
2-Methylnaphthalene	Not detected	30	1.0	ug/L	5	91-57-6	Y

Organics

Method: RSK-175, Run Date: 07/31/19 16:02, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	200	1.0	0.17	ug/L	1	74-82-8	O

Y-Elevated reporting limit due to high target concentration
O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S04673.09
Sample Tag: Dupe 2
Collected Date/Time: 07/17/2019 00:01
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	5.0	IR
1	125ml Plastic	HNO3	Yes	5.0	IR
6	40ml Glass	HCL	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/31/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/18/19 11:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/18/19 10:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Method: SM5310C, Run Date: 07/22/19 17:28, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	5.1	1	0.414	mg/L	1		

Metals

Method: E200.8, Run Date: 07/23/19 14:11, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.095	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000369	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.001541	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	6.88	0.02	0.00192	mg/L	5	7439-89-6	
Lead	0.000615	0.003	0.000190	mg/L	5	7439-92-1	b
Manganese	0.802	0.005	0.000515	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.010	0.005	0.000730	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 07/23/19 14:14, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.018	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000329	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.000707	0.005	0.000375	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.0151	0.02	0.00192	mg/L	5	7439-89-6	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Manganese, Dissolved	0.751	0.005	0.000515	mg/L	5	7439-96-5	f

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04673.09 (continued)
Sample Tag: Dupe 2

Method: E200.8, Run Date: 07/23/19 14:14, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.00437	0.005	0.000730	mg/L	5	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/31/19 20:05, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	50	1.4	ug/L	5	60-29-7	Y
Acetone	51	250	20	ug/L	5	67-64-1	JYB
Methyl iodide	Not detected	5	1.2	ug/L	5	74-88-4	Y
Carbon disulfide	Not detected	30	0.63	ug/L	5	75-15-0	Y
tert-Methyl butyl ether (MTBE)	Not detected	30	1.2	ug/L	5	1634-04-4	Y
Acrylonitrile	Not detected	10	1.9	ug/L	5	107-13-1	Y
2-Butanone (MEK)	18	130	16	ug/L	5	78-93-3	JY
Dichlorodifluoromethane	Not detected	30	2.9	ug/L	5	75-71-8	Y
Chloromethane	Not detected	30	0.98	ug/L	5	74-87-3	Y
Vinyl chloride	8	5	1.2	ug/L	5	75-01-4	Y
Bromomethane	Not detected	30	0.92	ug/L	5	74-83-9	Y
Chloroethane	Not detected	30	1.1	ug/L	5	75-00-3	Y
Trichlorofluoromethane	Not detected	5	1.4	ug/L	5	75-69-4	Y
1,1-Dichloroethene	Not detected	5	1.3	ug/L	5	75-35-4	Y
Methylene chloride	2.50	30	0.81	ug/L	5	75-09-2	JYB
trans-1,2-Dichloroethene	1.45	5	0.72	ug/L	5	156-60-5	JY
1,1-Dichloroethane	2.55	5	0.73	ug/L	5	75-34-3	JY
cis-1,2-Dichloroethene	244	5	1.1	ug/L	5	156-59-2	Y
Tetrahydrofuran*	9.8	450	6.0	ug/L	5	109-99-9	JYB
Chloroform	Not detected	5	0.75	ug/L	5	67-66-3	Y
Bromochloromethane	Not detected	5	1.8	ug/L	5	74-97-5	Y
1,1,1-Trichloroethane	1.5	5	1.4	ug/L	5	71-55-6	JY
4-Methyl-2-pentanone (MIBK)	Not detected	250	1.8	ug/L	5	108-10-1	Y
2-Hexanone	1.65	250	0.94	ug/L	5	591-78-6	JY
Carbon tetrachloride	Not detected	5	0.94	ug/L	5	56-23-5	Y
Benzene	Not detected	5	0.56	ug/L	5	71-43-2	Y
1,2-Dichloroethane	Not detected	5	0.86	ug/L	5	107-06-2	Y
Trichloroethene	169	5	1.5	ug/L	5	79-01-6	Y
1,2-Dichloropropane	Not detected	5	0.91	ug/L	5	78-87-5	Y
Bromodichloromethane	Not detected	5	0.96	ug/L	5	75-27-4	Y
Dibromomethane	Not detected	30	2.2	ug/L	5	74-95-3	Y
cis-1,3-Dichloropropene	Not detected	5	0.84	ug/L	5	10061-01-5	Y
Toluene	Not detected	5	0.83	ug/L	5	108-88-3	Y
trans-1,3-Dichloropropene	Not detected	5	1.0	ug/L	5	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	5	1.7	ug/L	5	79-00-5	Y
Tetrachloroethene	Not detected	5	0.67	ug/L	5	127-18-4	Y
trans-1,4-Dichloro-2-butene	Not detected	5	1.3	ug/L	5	110-57-6	Y
Dibromochloromethane	Not detected	30	1.00	ug/L	5	124-48-1	Y
1,2-Dibromoethane	Not detected	5	0.61	ug/L	5	106-93-4	Y
Chlorobenzene	Not detected	5	0.78	ug/L	5	108-90-7	Y

f-Filtered and preserved in lab
b-Value detected less than reporting limit, but greater than MDL
Y-Elevated reporting limit due to high target concentration
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S04673.09 (continued)
Sample Tag: Dupe 2

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/31/19 20:05, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1,1,2-Tetrachloroethane	Not detected	5	1.1	ug/L	5	630-20-6	Y
Ethylbenzene	Not detected	5	0.51	ug/L	5	100-41-4	Y
p,m-Xylene*	Not detected	10	2.1	ug/L	5		Y
o-Xylene	Not detected	5	0.79	ug/L	5	95-47-6	Y
Styrene	Not detected	5	0.64	ug/L	5	100-42-5	Y
Isopropylbenzene	Not detected	30	0.58	ug/L	5	98-82-8	Y
Bromoform	Not detected	5	1.8	ug/L	5	75-25-2	Y
1,1,2,2-Tetrachloroethane	Not detected	5	1.3	ug/L	5	79-34-5	Y
1,2,3-Trichloropropane	Not detected	5	2.7	ug/L	5	96-18-4	Y
n-Propylbenzene	Not detected	5	0.58	ug/L	5	103-65-1	Y
Bromobenzene	Not detected	5	0.75	ug/L	5	108-86-1	Y
1,3,5-Trimethylbenzene	Not detected	5	0.92	ug/L	5	108-67-8	Y
tert-Butylbenzene	Not detected	5	0.71	ug/L	5	98-06-6	Y
1,2,4-Trimethylbenzene	Not detected	5	0.81	ug/L	5	95-63-6	Y
sec-Butylbenzene	Not detected	5	0.82	ug/L	5	135-98-8	Y
p-Isopropyltoluene	Not detected	30	0.94	ug/L	5	99-87-6	Y
1,3-Dichlorobenzene	Not detected	5	1.0	ug/L	5	541-73-1	Y
1,4-Dichlorobenzene	Not detected	5	0.90	ug/L	5	106-46-7	Y
1,2-Dichlorobenzene	Not detected	5	0.67	ug/L	5	95-50-1	Y
1,2,3-Trimethylbenzene	Not detected	5	0.70	ug/L	5	526-73-8	Y
n-Butylbenzene	Not detected	5	0.87	ug/L	5	104-51-8	Y
Hexachloroethane	Not detected	30	1.7	ug/L	5	67-72-1	Y
1,2-Dibromo-3-chloropropane	Not detected	30	2.4	ug/L	5	96-12-8	Y
1,2,4-Trichlorobenzene	Not detected	30	1.2	ug/L	5	120-82-1	Y
1,2,3-Trichlorobenzene	Not detected	30	1.2	ug/L	5	87-61-6	Y
Naphthalene	Not detected	30	0.90	ug/L	5	91-20-3	Y
2-Methylnaphthalene	Not detected	30	1.0	ug/L	5	91-57-6	Y

Organics

Method: RSK-175, Run Date: 07/31/19 16:37, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	220	1.0	0.17	ug/L	1	74-82-8	O

Y-Elevated reporting limit due to high target concentration
O-Analysis performed by outside laboratory. See attached report.

Analytical Laboratory Report

Lab Sample ID: S04673.10
Sample Tag: Equipment Blank
Collected Date/Time: 07/17/2019 15:10
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	5.0	IR
1	125ml Plastic	HNO3	Yes	5.0	IR
6	40ml Glass	HCL	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/31/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/18/19 11:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/18/19 10:40, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 07/23/19 12:16, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000102	mg/L	2	7440-38-2	
Chromium	0.000184	0.005	0.0000380	mg/L	2	7440-47-3	b
Copper	0.000230	0.005	0.000150	mg/L	2	7440-50-8	b
Iron	0.00163	0.02	0.000768	mg/L	2	7439-89-6	b
Lead	0.000076	0.003	0.0000760	mg/L	2	7439-92-1	b
Manganese	0.000232	0.005	0.000206	mg/L	2	7439-96-5	b
Selenium	Not detected	0.005	0.000838	mg/L	2	7782-49-2	
Zinc	0.00126	0.005	0.000292	mg/L	2	7440-66-6	b

Method: E200.8, Run Date: 07/23/19 12:17, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000102	mg/L	2	7440-38-2	f
Chromium, Dissolved	0.000078	0.005	0.0000380	mg/L	2	7440-47-3	bf
Copper, Dissolved	0.000157	0.005	0.000150	mg/L	2	7440-50-8	bf
Iron, Dissolved	0.00209	0.02	0.000768	mg/L	2	7439-89-6	bf
Lead, Dissolved	Not detected	0.003	0.0000760	mg/L	2	7439-92-1	f
Manganese, Dissolved	Not detected	0.005	0.000206	mg/L	2	7439-96-5	f
Selenium, Dissolved	Not detected	0.005	0.000838	mg/L	2	7782-49-2	f
Zinc, Dissolved	0.00323	0.005	0.000292	mg/L	2	7440-66-6	bf

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S04673.10 (continued)
Sample Tag: Equipment Blank

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 13:47, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	5.9	50	4.0	ug/L	1	67-64-1	JB
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	0.20	5	0.13	ug/L	1	75-15-0	J
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	2.34	5	0.16	ug/L	1	75-09-2	J
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S04673.10 (continued)
Sample Tag: Equipment Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 13:47, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	0.26	5	0.21	ug/L	1	91-57-6	JB

Organics

Method: RSK-175, Run Date: 07/31/19 16:54, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	Not detected	1.0	0.17	ug/L	1	74-82-8	O

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank
O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S04673.11
Sample Tag: Field Blank
Collected Date/Time: 07/17/2019 00:01
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
6	40ml Glass	HCL	Yes	5.0	IR
1	125ml Plastic	HNO3	Yes	5.0	IR
1	125ml Plastic	None	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/31/19 12:00	JML	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	
Metal Digestion	Completed	SW3015A	07/23/19 11:00	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 07/18/19 11:40, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 07/18/19 10:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Method: SM5310C, Run Date: 07/22/19 17:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	1.1	1	0.414	mg/L	1		

Metals

Method: E200.8, Run Date: 07/23/19 12:18, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000102	mg/L	2	7440-38-2	f
Arsenic	Not detected	0.002	0.000102	mg/L	2	7440-38-2	
Chromium, Dissolved	0.001827	0.005	0.0000380	mg/L	2	7440-47-3	bf
Chromium	0.001791	0.005	0.0000380	mg/L	2	7440-47-3	b
Copper, Dissolved	Not detected	0.005	0.000150	mg/L	2	7440-50-8	f
Copper	Not detected	0.005	0.000150	mg/L	2	7440-50-8	
Iron, Dissolved	0.00242	0.02	0.000768	mg/L	2	7439-89-6	bf
Iron	Not detected	0.02	0.000768	mg/L	2	7439-89-6	
Lead, Dissolved	Not detected	0.003	0.0000760	mg/L	2	7439-92-1	f
Lead	Not detected	0.003	0.0000760	mg/L	2	7439-92-1	
Manganese, Dissolved	Not detected	0.005	0.000206	mg/L	2	7439-96-5	f
Manganese	Not detected	0.005	0.000206	mg/L	2	7439-96-5	
Selenium, Dissolved	Not detected	0.005	0.000838	mg/L	2	7782-49-2	f
Selenium	Not detected	0.005	0.000838	mg/L	2	7782-49-2	
Zinc, Dissolved	0.00261	0.005	0.000292	mg/L	2	7440-66-6	bf
Zinc	Not detected	0.005	0.000292	mg/L	2	7440-66-6	

c-Filtered in lab
f-Filtered and preserved in lab
b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S04673.11 (continued)
Sample Tag: Field Blank

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 14:06, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	0.16	5	0.13	ug/L	1	75-15-0	J
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S04673.11 (continued)
Sample Tag: Field Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 14:06, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	0.22	5	0.21	ug/L	1	91-57-6	JB

Organics

Method: RSK-175, Run Date: 07/31/19 17:12, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	Not detected	1.0	0.17	ug/L	1	74-82-8	O

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank
O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S04673.12
Sample Tag: Trip Blank
Collected Date/Time: 07/17/2019 00:01
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/31/19 12:00	JML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 14:25, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	Not detected	50	4.0	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	1.2	90	1.2	ug/L	1	109-99-9	JB
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S04673.12 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 07/30/19 14:25, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Merit Laboratories Login Checklist

Lab Set ID: S04673
Client: APPLIED (Applied Ecosystems)
Project: RACER Flint West #12990
Submitted: 07/17/2019 16:34 Login User: SRS

Attention: Rodney Abke
Address: Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[X] Yes	[ ] No	[ ] N/A	Did any samples need to be preserved in the lab?	Dissolved metals to be filtered and preserved in-lab
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[X] Yes	[ ] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S04673 Initials: SRS

Client: APPLIED (Applied Ecosystems)

Project: RACER Flint West #12990

Submitted: 07/17/2019 16:34 Login User:

Attention: Rodney Abke
Address: Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Lab ID	125 ml Plastic HNO_3	250 ml Plastic HNO_3	1 L Plastic HNO_3	250 ml Plastic H_2SO_4	125 ml Amber H_2SO_4	32 oz Glass HCl	125 ml Plastic NaOH	125 ml Amber $PbCO_3$ NaOH	pH					Notes
									<2	>12	other	ml add	new pH	
S04673.01	X								X					
S04673.02	X								X					
S04673.03	X								X					
S04673.04	X								X					
S04673.05	X								X					
S04673.06	X								X					
S04673.07	X								X					
S04673.08	X								X					
S04673.09	X								X					
S04673.10	X								X					

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Rodney Abke
COMPANY: Applied EcoSystems
ADDRESS: G-4300 South Saginaw Street
CITY: Burton STATE: MI ZIP CODE: 48529
PHONE NO.: 810-715-2525 FAX NO.: 810-715-2526 P.O. NO.: PO795930
E-MAIL ADDRESS: rabke@appliedecosystems.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Monica Wallingford ☐SAME
COMPANY: Revitalizing Auto Communities Environmental Response (RACER) Trust
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: 313.486.2978 E-MAIL ADDRESS: mwallingford@racertrust.org

PROJECT NO./NAME: RACER Flint West #12990 SAMPLER(S) - PLEASE PRINT/SIGN NAME

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER _____

DELIVERABLES REQUIRED ☒STD ☐LEVEL II ☐LEVEL III ☐LEVEL IV ☐EDD ☐OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☐NPDES
Project Locations: ☐Detroit ☐New York ☐Other _____
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	Metals, dissolved*	Metals, Total*	Total Organic Carbon	Methane	PFAS/PFOS	
04673.01	7-17	9:20	MW-102S		8		3	1				4	X	X	X			X	* - Metals list incldues:
	~~7-17~~	~~10:20~~			~~13~~		~~6~~	~~12~~				~~4~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	Ar, Cr-total, CR-Hex, Cu
.02	7-17	11:20	MW-111S		13		6	1	2			4	X	X	X	X	X	X	Pb, Se, Zn, Fe, Mn
.03	7-17	10:23	MW-103S		8		3	1				4	X	X	X			X	
.04	7-17	12:10	MW-108S		8		3	1				4	X	X	X			X	
.05	7-17	12:43	MW-110S		8		3	1				4	X	X	X			X	
.06	7-17	13:26	MW-113S		13		6	1	2			4	X	X	X	X	X	X	
.07	7-17	14:00	MW-109S		13		6	1	2			4	X	X	X	X	X	X	
.08	7-17	14:45	MW-114S		13		6	1	2			4	X	X	X	X	X	X	
.09	7-17	—	Dup 2		13		6	1	2			4	X	X	X	X	X	X	
.10	7-17	15:10	Equipment Blank		11		6	1				4	X	X	X		X	X	
.11	7-17	—	Field Blank		~~8~~		2					2	X					X	

(P+C) 04674
.01 .02 .03 .04 .05 .06 .07 .08 .09 .10 .11

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐Sampler	DATE	TIME
		7/17	3:40
RECEIVED BY: SIGNATURE/ORGANIZATION		7/17/19	16:34
RELINQUISHED BY: SIGNATURE/ORGANIZATION		7/17/19	16:34
RECEIVED BY: SIGNATURE/ORGANIZATION		7/17/19	16:34

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME

SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS

NOTES: TEMP. ON ARRIVAL 50

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Merit Laboratories, Inc.

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www.meritlabs.com

C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Rodney Abke
COMPANY: Applied EcoSystems
ADDRESS: G-4300 South Saginaw Street
CITY: Burton STATE: MI ZIP CODE: 48529
PHONE NO.: 810-715-2525 FAX NO.: 810-715-2526 P.O. NO.: PO795930
E-MAIL ADDRESS: rabke@appliedecosystems.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Monica Wallingford ☐ SAME
COMPANY: Revitalizing Auto Communities Environmental Response (RACER) Trust
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: 313.486.2978 E-MAIL ADDRESS: mwallingford@racertrust.org

PROJECT NO./NAME: RACER Flint West #12990
SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☒ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	Metals, dissolved*	Metals, Total*	Total Organic Carbon	Methane	PFAS/PFOS
04673.12	7-17		Trip Blank		4		2					2	X					X

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other _____

Special Instructions

04674.12

* - Metals list incldues:
Ar, Cr-total, CR-Hex, Cu
Pb, Se, Zn, Fe, Mn

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☑ Sampler	DATE 7/17	TIME 3:40
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 7/17/19	TIME 15:40
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 7/17/19	TIME 16:34
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 7/17/19	TIME 1634

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	NOTES: TEMP. ON ARRIVAL 5.0
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

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ANALYTICAL REPORT

Job Number: 190-20371-1

Job Description: S04673 - Methane

For:
Merit Laboratories
2680 E Lansing Drive
East Lansing, MI 48823

Attention: John Laverty

Approved for release.
Sue Schafer
Project Manager II
8/1/2019 12:31 PM

Sue Schafer, Project Manager II
4101 Shuffel Street NW, North Canton, OH, 44720
(810)229-2763
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08/01/2019

cc: Barbara Ball

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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Merit Laboratories
Project/Site: S04673 - Methane

Job ID: 190-20371-1

Client Sample ID: S04673.02 — Lab Sample ID: 190-20371-1

No Detections.

Client Sample ID: S04673.06 — Lab Sample ID: 190-20371-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Methane	2.8		1.0		ug/L	1		RSK-175	Total/NA

Client Sample ID: S04673.07 — Lab Sample ID: 190-20371-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Methane	50		1.0		ug/L	1		RSK-175	Total/NA

Client Sample ID: S04673.08 — Lab Sample ID: 190-20371-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Methane	200		1.0		ug/L	1		RSK-175	Total/NA

Client Sample ID: S04673.09 — Lab Sample ID: 190-20371-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Methane	220		1.0		ug/L	1		RSK-175	Total/NA

Client Sample ID: S04673.10 — Lab Sample ID: 190-20371-6

No Detections.

Client Sample ID: S04673.11 — Lab Sample ID: 190-20371-7

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: S04673.02
Lab Sample ID: 190-20371-1
Date Collected: 07/17/19 11:20
Matrix: Water
Date Received: 07/18/19 15:38

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<1.0		1.0		ug/L			07/31/19 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*83*		*60 - 140*		*07/31/19 15:09*	*1*

Client Sample ID: S04673.06
Lab Sample ID: 190-20371-2
Date Collected: 07/17/19 13:26
Matrix: Water
Date Received: 07/18/19 15:38

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	**2.8**		1.0		ug/L			07/31/19 15:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*80*		*60 - 140*		*07/31/19 15:27*	*1*

Client Sample ID: S04673.07
Lab Sample ID: 190-20371-3
Date Collected: 07/17/19 14:00
Matrix: Water
Date Received: 07/18/19 15:38

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	**50**		1.0		ug/L			07/31/19 15:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*80*		*60 - 140*		*07/31/19 15:44*	*1*

Client Sample ID: S04673.08
Lab Sample ID: 190-20371-4
Date Collected: 07/17/19 14:45
Matrix: Water
Date Received: 07/18/19 15:38

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	**200**		1.0		ug/L			07/31/19 16:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*82*		*60 - 140*		*07/31/19 16:02*	*1*

Client Sample ID: S04673.09
Lab Sample ID: 190-20371-5
Date Collected: 07/17/19 00:01
Matrix: Water
Date Received: 07/18/19 15:38

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	**220**		1.0		ug/L			07/31/19 16:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*79*		*60 - 140*		*07/31/19 16:37*	*1*

Client Sample ID: S04673.10

Lab Sample ID: 190-20371-6

Date Collected: 07/17/19 15:10

Matrix: Water

Date Received: 07/18/19 15:38

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<1.0		1.0		ug/L			07/31/19 16:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*83*		*60 - 140*		*07/31/19 16:54*	*1*

Client Sample ID: S04673.11

Lab Sample ID: 190-20371-7

Date Collected: 07/17/19 00:01

Matrix: Water

Date Received: 07/18/19 15:38

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<1.0		1.0		ug/L			07/31/19 17:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*82*		*60 - 140*		*07/31/19 17:12*	*1*

Default Detection Limits

Client: Merit Laboratories
Project/Site: S04673 - Methane

Job ID: 190-20371-1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	RL		Units
Methane	1.0	0.17	ug/L

Surrogate Summary

Client: Merit Laboratories
Project/Site: S04673 - Methane

Job ID: 190-20371-1

Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFE2 (60-140)
190-20371-1	S04673.02	83
190-20371-2	S04673.06	80
190-20371-3	S04673.07	80
190-20371-4	S04673.08	82
190-20371-5	S04673.09	79
190-20371-6	S04673.10	83
190-20371-7	S04673.11	82
LCS 240-393758/4	Lab Control Sample	85
LCSD 240-393758/5	Lab Control Sample Dup	85
MB 240-393758/3	Method Blank	86

Surrogate Legend

TFE = 1,1,1-Trifluoroethane

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-393758/3
Matrix: Water
Analysis Batch: 393758

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<1.0		1.0		ug/L			07/31/19 11:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*86*		*60 - 140*		*07/31/19 11:57*	*1*

Lab Sample ID: LCS 240-393758/4
Matrix: Water
Analysis Batch: 393758

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			474	473		ug/L		100	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*85*		*60 - 140*

Lab Sample ID: LCSD 240-393758/5
Matrix: Water
Analysis Batch: 393758

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane			474	484		ug/L		102	80 - 120	2	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,1,1-Trifluoroethane	*85*		*60 - 140*

QC Association Summary

Client: Merit Laboratories
Project/Site: S04673 - Methane

Job ID: 190-20371-1

GC VOA

Analysis Batch: 393758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-20371-1	S04673.02	Total/NA	Water	RSK-175	
190-20371-2	S04673.06	Total/NA	Water	RSK-175	
190-20371-3	S04673.07	Total/NA	Water	RSK-175	
190-20371-4	S04673.08	Total/NA	Water	RSK-175	
190-20371-5	S04673.09	Total/NA	Water	RSK-175	
190-20371-6	S04673.10	Total/NA	Water	RSK-175	
190-20371-7	S04673.11	Total/NA	Water	RSK-175	
MB 240-393758/3	Method Blank	Total/NA	Water	RSK-175	
LCS 240-393758/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 240-393758/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Lab Chronicle

Client: Merit Laboratories
Project/Site: S04673 - Methane

Job ID: 190-20371-1

Client Sample ID: S04673.02
Date Collected: 07/17/19 11:20
Date Received: 07/18/19 15:38

Lab Sample ID: 190-20371-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	393758	07/31/19 15:09	BPM	TAL CAN

Client Sample ID: S04673.06
Date Collected: 07/17/19 13:26
Date Received: 07/18/19 15:38

Lab Sample ID: 190-20371-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	393758	07/31/19 15:27	BPM	TAL CAN

Client Sample ID: S04673.07
Date Collected: 07/17/19 14:00
Date Received: 07/18/19 15:38

Lab Sample ID: 190-20371-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	393758	07/31/19 15:44	BPM	TAL CAN

Client Sample ID: S04673.08
Date Collected: 07/17/19 14:45
Date Received: 07/18/19 15:38

Lab Sample ID: 190-20371-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	393758	07/31/19 16:02	BPM	TAL CAN

Client Sample ID: S04673.09
Date Collected: 07/17/19 00:01
Date Received: 07/18/19 15:38

Lab Sample ID: 190-20371-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	393758	07/31/19 16:37	BPM	TAL CAN

Client Sample ID: S04673.10
Date Collected: 07/17/19 15:10
Date Received: 07/18/19 15:38

Lab Sample ID: 190-20371-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	393758	07/31/19 16:54	BPM	TAL CAN

Client Sample ID: S04673.11
Date Collected: 07/17/19 00:01
Date Received: 07/18/19 15:38

Lab Sample ID: 190-20371-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	393758	07/31/19 17:12	BPM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: Merit Laboratories
Project/Site: S04673 - Methane

Job ID: 190-20371-1

Laboratory: Eurofins TestAmerica, Michigan

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Michigan	State		0057	05-05-20
Michigan	State Program	5	57	05-05-20

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State		2927	02-23-20
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-20
Florida	NELAP		E87225	06-30-20
Illinois	NELAP	5	200004	07-31-19 *
Illinois	NELAP		004498	07-31-19
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kansas	NELAP		E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-21
Nevada	State		OH00048	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-20
New Jersey	NELAP		OH001	06-30-20
New York	NELAP	2	10975	03-31-20
New York	NELAP		10975	03-31-20
Ohio VAP	State Program	5	CL0024	06-05-21
Oregon	NELAP	10	4062	02-23-20
Oregon	NELAP		4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Pennsylvania	NELAP		68-00340	08-31-19
Texas	NELAP	6	T104704517-18-10	08-31-19 *
Texas	NELAP		T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Virginia	NELAP		010101	09-14-19
Washington	State		C971	01-12-20
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State		210	12-31-19
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Merit Laboratories
Project/Site: S04673 - Methane

Job ID: 190-20371-1

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN

Protocol References:

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: Merit Laboratories
Project/Site: S04673 - Methane

Job ID: 190-20371-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
190-20371-1	S04673.02	Water	07/17/19 11:20	07/18/19 15:38	
190-20371-2	S04673.06	Water	07/17/19 13:26	07/18/19 15:38	
190-20371-3	S04673.07	Water	07/17/19 14:00	07/18/19 15:38	
190-20371-4	S04673.08	Water	07/17/19 14:45	07/18/19 15:38	
190-20371-5	S04673.09	Water	07/17/19 00:01	07/18/19 15:38	
190-20371-6	S04673.10	Water	07/17/19 15:10	07/18/19 15:38	
190-20371-7	S04673.11	Water	07/17/19 00:01	07/18/19 15:38	

GC VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Instrument ID: ZPID Analysis Batch Number: 373146

Lab Sample ID: STD 240-373146/3 IC Client Sample ID:

Date Analyzed: 03/25/19 14:32 Lab File ID: Z0325003.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	1.18	Incomplete Integration	matthewsb	03/26/19 07:47
Ethylene	1.88	Incomplete Integration	matthewsb	03/26/19 07:47
Acetylene	2.00	Incomplete Integration	matthewsb	03/26/19 07:52
Ethane	2.20	Incomplete Integration	matthewsb	03/26/19 07:47
Propane	4.55	Incomplete Integration	matthewsb	03/26/19 07:47

Lab Sample ID: STD 240-373146/4 IC Client Sample ID:

Date Analyzed: 03/25/19 14:49 Lab File ID: Z0325004.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Acetylene	2.00	Incomplete Integration	matthewsb	03/26/19 07:48
Propane	4.55	Incomplete Integration	matthewsb	03/26/19 07:48

Lab Sample ID: STD 240-373146/5 IC Client Sample ID:

Date Analyzed: 03/25/19 15:06 Lab File ID: Z0325005.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Propane	4.55	Incomplete Integration	matthewsb	03/26/19 07:48

Lab Sample ID: STD 240-373146/6 IC Client Sample ID:

Date Analyzed: 03/25/19 15:23 Lab File ID: Z0325006.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Propane	4.55	Incomplete Integration	matthewsb	03/26/19 07:48

GC VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Instrument ID: ZPID Analysis Batch Number: 373146

Lab Sample ID: STD 240-373146/7 IC Client Sample ID:

Date Analyzed: 03/25/19 15:40 Lab File ID: Z0325007.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Propane	4.54	Split Peak	matthewsb	03/26/19 07:49

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
MEEP LCS_00036	08/01/19	07/18/19	DIWATER, Lot 1	43 mL	MEEP_00014	4 mL	Methane	474.419 ug/L
.MEEP_00014	08/08/19		LGC, Lot 1012668		(Purchased Reagent)		Methane	5.1 mg/L
MEEP LCS_00037	08/08/19	07/31/19	DIWATER, Lot 1	43 mL	MEEP_00014	4 mL	Methane	474.419 ug/L
.MEEP_00014	08/08/19		LGC, Lot 1012668		(Purchased Reagent)		Methane	5.1 mg/L
SAICALSURR_00015	07/13/20		SynQuest Laboratories, Inc., Lot 469800		(Purchased Reagent)		1,1,1-Trifluoroethane	11190 ug/L
SARSK2ndSourc_00001	12/26/22		Matheson Trigas, Lot 109-84-03769-E2		(Purchased Reagent)		Methane	6558 ug/L
SARSKHighCal_00006	02/08/23		Airgas, Lot CBJ-510-1		(Purchased Reagent)		Acetylene	10657 ug/L
							Ethane	12338 ug/L
							Ethylene	11518 ug/L
							Methane	6558 ug/L
							Propane	18077 ug/L
SARSKLOWCAL_00013	03/13/22		AirGas, Lot 160-401444112-1		(Purchased Reagent)		Acetylene	1087 ug/L
							Ethane	1252 ug/L
							Ethylene	1176 ug/L
							Methane	667 ug/L
							Propane	1835 ug/L
SARSKSURR_00012	05/22/19		Matheson Trigas, Lot 9302603973		(Purchased Reagent)		1,1,1-Trifluoroethane	11190 ug/L
SARSKSURR_00013	05/22/20		Matheson Trigas, Lot 9302603973		(Purchased Reagent)		1,1,1-Trifluoroethane	11190 ug/L

Reagent

MEEP_00014

VHG Labs, Inc [A LGC Standards Company]
276 Abby Road | Manchester, NH 03103 | USA
Tel:+1-603-206-0759 | Fax: 1-603-622-5180
www.lgcstandards.com

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Cert. No. 3031.02

Date manufactured: 17-Apr-2019
Original issue date: 17-Apr-2019

Certificate of Analysis

Date Received: _____
Page 1 of 2 Rev

Catalog No.	Lot No.	Storage	Solvent	Expiration Date	Description
VHG-MEEP-5-40	1012668	2°C - 8°C	Water	8-Aug-2019	Certified Reference Materials for Dissolved Gas Analysis: Methane, Ethane, Ethene, and Propane, 5 mg/L (Nom.) Laboratory Control Sample (LCS), 40 ml

Certified Values

Analytical concentration is based on gravimetric and volumetric preparation of this CRM. This CRM is certified by gas chromatography (GC). The uncertainty value is calculated for a 95% confidence interval with a *k* value of 2.

Compound	CAS No.	Purity (%)	Neat Material Lot No.	Concentration, mg/L
methane	74-82-8	99.97	2457.152.1P	5.10 +/-.35
ethene	74-85-1	99	2459.152.1P	4.41 +/-.28
ethane (C2)	74-84-0	99	2458.152.1P	5.08 +/-.28
n-propane	74-98-6	100	4643.1.1P	5.02 +/-.38

Intended Uses

This Certified Reference material (CRM) is intended for use as a laboratory control sample (LCS); but can be used as a calibration standard. Appropriate techniques for measurement include chromatographic instrumentation with appropriate detection systems; such as gas chromatography (GC/FID and GC/MS) or other techniques suitable for these analytes and matrix.

This CRM is intended to be used at the time of analysis by aliquot collection using the lined rubber septum vial. It is not recommend that the CRM be stored or left open for an extended period of time after cap removal.

It may be used for various EN, ISO, EPA, and ASTM methods.

Method of Preparation

All weights are traceable through N. I. S. T. test method 822/264157-00.

Packaging and Storage

The solution should be stored according to the following storage requirements: 2 °C - 8 °C, unopened non-pierced septum. If uncapped, the expiration is determined by user specification.

Glassware Calibration

Volumetric glassware required for the manufacture or certification of this CRM were Class A grade and calibrated using NIST calibrated weights.

Weights and Balance Calibration

Weights used to perform daily checks on balances are calibrated annually within a calibration laboratory recognized by NIST as Echelon I. Balances are checked daily in accordance to in house procedures. Balances are calibrated annually by an ISO/IEC 17025:2005 and ISO 17034:2016 accredited metrology service.

Certificate of Analysis

Catalog No.: VHG-MEEP-5-40 **Lot No.:** 1012668 **Expiration Date:** 15-Aug-2019

Homogeneity

Random replicate samples of the final packaged CRM have been analyzed to prove homogeneity in accordance with internal procedures. This is consistent with the intended use of this CRM. The homogeneity of this product has been confirmed by procedures consistent with ISO/IEC guide 17025:2005 and ISO 17034:2016

Hazardous Information

Refer to MSDS

Calculation of Uncertainty

The following equations are used to calculate the value of the expanded uncertainty: $U=ku_c$: U=Expanded Uncertainty, k= the coverage factor at the 95% confidence level, k=2, u_c = the combined uncertainty $u_c = \sqrt{\sum u_i^2}$ where u_i are the individual uncertainty components for characterization, transportation, homogeneity, and shelf life.

Expiration Information

The expiration of this product is based on rigorous testing of short term and long term factors utilizing conditions stated in the Packaging and Storage section of this document.

Accreditation

This CRM was manufactured by an ISO 17025:2005 chemical testing lab (Certificate number 3031.01) and ISO 17034:2016 Reference Material Producer (RMP) Certificate number 3031.02 accredited by The American Association of Laboratory Accreditation (A2LA).

Manufactured By:	Certified By:	Released By:
Kengkaj Sukcharoenphon, Ph.D.	Daniel Biggerstaff, Ph.D.	HuiChen Stavros, Ph.D.
Research Chemist	**Technical Director**	**Quality Control Manager**

VHG Labs, Inc [A LGC Standards Company]
276 Abby Road | Manchester, NH 03103 | USA
Tel:+1-603-206-0759 | Fax: 1-603-622-5180
www.lgcstandards.com

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Cert. No. 3031.02

Date manufactured: 17-Apr-2019
Original issue date: 17-Apr-2019

Certificate of Analysis

Date Received: _____
Page 1 of 2 Rev

Catalog No.	Lot No.	Storage	Solvent	Expiration Date	Description
VHG-MEEP-5-40	1012668	2°C - 8°C	Water	8-Aug-2019	Certified Reference Materials for Dissolved Gas Analysis: Methane, Ethane, Ethene, and Propane, 5 mg/L (Nom.) Laboratory Control Sample (LCS), 40 ml

Certified Values

Analytical concentration is based on gravimetric and volumetric preparation of this CRM. This CRM is certified by gas chromatography (GC). The uncertainty value is calculated for a 95% confidence interval with a *k* value of 2.

Compound	CAS No.	Purity (%)	Neat Material Lot No.	Concentration, mg/L
methane	74-82-8	99.97	2457.152.1P	5.10 +/-.35
ethene	74-85-1	99	2459.152.1P	4.41 +/-.28
ethane (C2)	74-84-0	99	2458.152.1P	5.08 +/-.28
n-propane	74-98-6	100	4643.1.1P	5.02 +/-.38

Intended Uses

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It may be used for various EN, ISO, EPA, and ASTM methods.

Method of Preparation

All weights are traceable through N. I. S. T. test method 822/264157-00.

Packaging and Storage

The solution should be stored according to the following storage requirements: 2 °C - 8 °C, unopened non-pierced septum. If uncapped, the expiration is determined by user specification.

Glassware Calibration

Volumetric glassware required for the manufacture or certification of this CRM were Class A grade and calibrated using NIST calibrated weights.

Weights and Balance Calibration

Weights used to perform daily checks on balances are calibrated annually within a calibration laboratory recognized by NIST as Echelon I. Balances are checked daily in accordance to in house procedures. Balances are calibrated annually by an ISO/IEC 17025:2005 and ISO 17034:2016 accredited metrology service.

Certificate of Analysis

Catalog No.: VHG-MEEP-5-40 **Lot No.:** 1012668 **Expiration Date:** 15-Aug-2019

Homogeneity

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Manufactured By:	Certified By:	Released By:
Kengkaj Sukcharoenphon, Ph.D.	Daniel Biggerstaff, Ph.D.	HuiChen Stavros, Ph.D.
Research Chemist	**Technical Director**	**Quality Control Manager**

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Certified Values

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ethane (C2)	74-84-0	99	2458.152.1P	5.08 +/-.28
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Method of Preparation

All weights are traceable through N. I. S. T. test method 822/264157-00.

Packaging and Storage

The solution should be stored according to the following storage requirements: 2 °C - 8 °C, unopened non-pierced septum. If uncapped, the expiration is determined by user specification.

Glassware Calibration

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Weights and Balance Calibration

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Research Chemist	**Technical Director**	**Quality Control Manager**

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Weights and Balance Calibration

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Research Chemist	**Technical Director**	**Quality Control Manager**

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Glassware Calibration

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Weights and Balance Calibration

Weights used to perform daily checks on balances are calibrated annually within a calibration laboratory recognized by NIST as Echelon I. Balances are checked daily in accordance to in house procedures. Balances are calibrated annually by an ISO/IEC 17025:2005 and ISO 17034:2016 accredited metrology service.

Catalog No.: VHG-MEEP-5-40 **Lot No.:** 1012668 **Expiration Date:** 15-Aug-2019

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This CRM was manufactured by an ISO 17025:2005 chemical testing lab (Certificate number 3031.01) and ISO 17034:2016 Reference Material Producer (RMP) Certificate number 3031.02 accredited by The American Association of Laboratory Accreditation (A2LA).

Manufactured By:	Certified By:	Released By:
Kengkaj Sukcharoenphon, Ph.D.	Daniel Biggerstaff, Ph.D.	HuiChen Stavros, Ph.D.
Research Chemist	**Technical Director**	**Quality Control Manager**

Reagent

SARSK2ndSourc_00001

RCVD 1/22/19

MATHESON TRI-GAS INC
1650 Enterprise Pkwy
Twinsburg, OH 44087
1-215-648-4000

CERTIFICATE OF ANALYSIS

Severn Trent Lab
4101 SHUFFEL DR
NORTH CANTON, OH 44720

Ref Po# 3015289

17 LITER DISPOSABLE

LOT NUMBER: 109-84-03769-E2

COMPONENT	CONCENTRATION	
ethane	0.991	%
propane	1.007	%
ethylene	1.009	%
acetylene	0.998	%
methane	1.007	%
helium	BAL	

ITEM NUMBER: GMT2690244TB

CGA: 600

PSIG: 240

FILL DATE: 12/25/18

EXPIRATION DATE: 12/26/22

Above are the results of the analysis you requested, as reported by our laboratory. Results are in mole percent, unless otherwise indicated. Mixture accuracy is ± 2%. NIST traceable by weights or gaseous standards.

Judith M Zadravec — 1/14/2019

Judy Zadravec, Chemist — DATE

Reagent

SARSKHighCal_00006

Airgas

CERTIFICATE OF ANALYSIS

Customer:	Airgas Specialty Gases	**Cylinder Size:**	0.6 Cu. Ft.
PO Number:	5800098394	**Cylinder Volume:**	17 Liter
Part Number:	X06HE95CP170000 / 17L-510	**Cylinder Pressure:**	240 psig
Lot Number:	CBJ-510-1	**Valve Outlet:**	CGA 600
Analysis Date:	02/08/2019	**Blend Tolerance:**	+/-5%

Use Before: 02/08/2023

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration (Mole %)	Analytical Uncertainty
Acetylene	1% vol.	0.998% vol.	+/- 2%
Ethylene	1% vol.	1.009% vol.	+/- 2%
Ethane	1% vol.	0.991% vol.	+/- 2%
Methane	1% vol.	1.007% vol.	+/- 2%
Propane	1% vol.	1.007% vol.	+/- 2%
Helium	Balance	Balance	

NIST Weight Certificate Number(s): S1106, MS001, MS002, A031

The calibration gas prepared by Airgas is considered a certified standard. It is prepared by gravimetric, or partial pressure techniques. The calibration standard provided is prepared by weights traceable to the National Institute of Standards and Technology (NIST) or by using NIST Standard Reference Materials where available.

Analyst:

Reagent

SARSKLOWCAL_00013

Scott

RCVD 3/22/19

Airgas Specialty Gases
Airgas USA, LLC
6141 Easton Road
Bldg 1
Plumsteadville, PA 18949
Airgas.com

4080707
ID: SARSKLOWCAL_00013
Exp: 03/13/22 Prpd: BPM
1000 PPM VARIOUS ANALYTES

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED STANDARD-SPEC

Customer:	TESTAMERICA ANALYTICAL TESTING		
Part Number:	X06HE99CP170003	Reference Number:	160-401444112-1
Cylinder Number:	ST0000194219	Cylinder Volume:	1.2 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	240 PSIG
Analysis Date:	Mar 13, 2019	Valve Outlet:	600
Lot Number:	160-401444112-1		

Expiration Date: Mar 13, 2022

Product composition verified by direct comparison to calibration standards traceable to N.I.S.T. weights and/or N.I.S.T. Gas Mixture reference materials.

ANALYTICAL RESULTS

Component	Req Conc	Actual Concentration (Mole %)	Analytical Uncertainty
ACETYLENE	1000 PPM	1020 PPM	+/- 5%
ETHANE	1000 PPM	1015 PPM	+/- 5%
ETHYLENE	1000 PPM	1021 PPM	+/- 5%
METHANE	1000 PPM	1017 PPM	+/- 5%
PROPANE	1000 PPM	1015 PPM	+/- 5%
HELIUM	Balance		

Permanent Notes:-NA-

Approved for Release

Reagent

SARSKSURR_00012

MATHESON
ask. . .The Gas Professionals™

Analysis Report

To: MATHESON VALLEY
151 S OLIVE ST
ELYRIA, OH 44036

MTG Customer No: 131676

Manufacturing Location
1700 SCEPTER ROAD
WAVERLY, TN 37185

Product: Multi-Component Mixture

Grade: CERTIFIED
MTG Part No: G2683694

Cylinder Size: 1L
Valve: CGA 350 BR

Contents:
Net: 237 ft³; 6.72 m³

Pressure: 2000 psig @ 70°F; 13891 kPa @ 21°C

CYLINDER NUMBER(S)
AX047506

	Requested Concentration	Certified Concentration	Units	Blend Tolerance	Certified Accuracy
1,1,1-Trifluoroethane	0.325	0.325	%	±2%	±2%
Helium	Balance	Balance			

TRACEABILITY

COMMENTS

Lot No: 9303607373
Fill Date: 11/05/2013
Expiration Date: 11/05/2016

Analysis Date: 11/07/2013

Unless otherwise indicated, Matheson Tri-Gas terms and conditions govern the product data contained herein. This document was issued electronically and data validated by electronic signature. For further information visit www.matheson-trigas.com.

Ashley A Ellis — 11/07/2013
Ashley Ellis - Analyst — Date

Ashley A Ellis — 11/07/2013
Ashley Ellis - QA Approval — Date

Method RSK-175

Dissolved Gases (GC) by Method RSK_175

FORM II
GC VOA SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): HP-PLOT/Q ID: 0.53(mm)

Client Sample ID	Lab Sample ID	TFE1 #
S04673.02	190-20371-1	83
S04673.06	190-20371-2	80
S04673.07	190-20371-3	80
S04673.08	190-20371-4	82
S04673.09	190-20371-5	79
S04673.10	190-20371-6	83
S04673.11	190-20371-7	82
	MB 240-393758/3	86
	LCS 240-393758/4	85
	LCSD 240-393758/5	85

	QC LIMITS
TFE = 1,1,1-Trifluoroethane	60-140

Column to be used to flag recovery values

FORM II RSK-175

FORM III
GC VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Matrix: Water Level: Low Lab File ID: Z0731004.D

Lab ID: LCS 240-393758/4 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Methane	474	473	100	80-120	

Column to be used to flag recovery and RPD values

FORM III RSK-175

FORM III
GC VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Matrix: Water Level: Low Lab File ID: Z0731005.D

Lab ID: LCSD 240-393758/5 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Methane	474	484	102	2	35	80-120	

Column to be used to flag recovery and RPD values

FORM III RSK-175

FORM IV
GC VOA METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: MB 240-393758/3

Matrix: Water Date Extracted:

Lab File ID:(1) Z0731003.D Lab File ID:(2)

Date Analyzed:(1) 07/31/2019 11:57 Date Analyzed:(2)

Instrument ID:(1) ZPID Instrument ID:(2)

GC Column:(1) HP-PLOT/Q ID: 0.53(mm) GC Column:(2) ID:

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
	LCS 240-393758/4	07/31/2019 12:14	
	LCSD 240-393758/5	07/31/2019 12:32	
S04673.02	190-20371-1	07/31/2019 15:09	
S04673.06	190-20371-2	07/31/2019 15:27	
S04673.07	190-20371-3	07/31/2019 15:44	
S04673.08	190-20371-4	07/31/2019 16:02	
S04673.09	190-20371-5	07/31/2019 16:37	
S04673.10	190-20371-6	07/31/2019 16:54	
S04673.11	190-20371-7	07/31/2019 17:12	

FORM VIII
GC VOA ANALYTICAL SEQUENCE

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Sample No.: CCVRT 240-393758/2 Date Analyzed: 07/31/2019 11:39

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm)

Lab File ID (Standard): Z0731002.D Heated Purge: (Y/N) N

Calibration ID: 49918

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, STANDARDS, MS/MSDs AND LCSs IS GIVEN BELOW:

				TFE		
				RT #		
CONTINUING CALIBRATION SURROGATE				3.35		
UPPER LIMIT				3.40		
LOWER LIMIT				3.30		
LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	LAB FILE ID			
CCVRT 240-393758/2		07/31/2019 11:39	Z0731002.D	3.35		
MB 240-393758/3		07/31/2019 11:57	Z0731003.D	3.35		
LCS 240-393758/4		07/31/2019 12:14	Z0731004.D	3.35		
LCSD 240-393758/5		07/31/2019 12:32	Z0731005.D	3.35		
190-20371-1	S04673.02	07/31/2019 15:09	Z0731014.D	3.35		
190-20371-2	S04673.06	07/31/2019 15:27	Z0731015.D	3.35		
190-20371-3	S04673.07	07/31/2019 15:44	Z0731016.D	3.35		
190-20371-4	S04673.08	07/31/2019 16:02	Z0731017.D	3.35		
CCV 240-393758/18		07/31/2019 16:19	Z0731018.D	3.35		
190-20371-5	S04673.09	07/31/2019 16:37	Z0731019.D	3.35		
190-20371-6	S04673.10	07/31/2019 16:54	Z0731020.D	3.35		
190-20371-7	S04673.11	07/31/2019 17:12	Z0731021.D	3.35		
CCV 240-393758/29		07/31/2019 19:32	Z0731029.D	3.35		

TFE = 1,1,1-Trifluoroethane

TFE RT Limit = ± 0.05 minutes of surrogate RT

Column used to flag values outside QC limits

FORM VIII RSK-175

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Client Sample ID: S04673.02 Lab Sample ID: 190-20371-1

Matrix: Water Lab File ID: Z0731014.D

Analysis Method: RSK-175 Date Collected: 07/17/2019 11:20

Sample wt/vol: 23(mL) Date Analyzed: 07/31/2019 15:09

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393758 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	<1.0		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	83		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731014.D
Lims ID: 190-20371-A-1
Client ID: S04673.02
Sample Type: Client
Inject. Date: 31-Jul-2019 15:09:33 ALS Bottle#: 14 Worklist Smp#: 14
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-014
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/l	Flags
1	Methane					
	1.185				ND	
$ 5	1,1,1-Trifluoroethane					
	3.352	3.350	0.002	25328806	8094.8	

Reagents:

SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

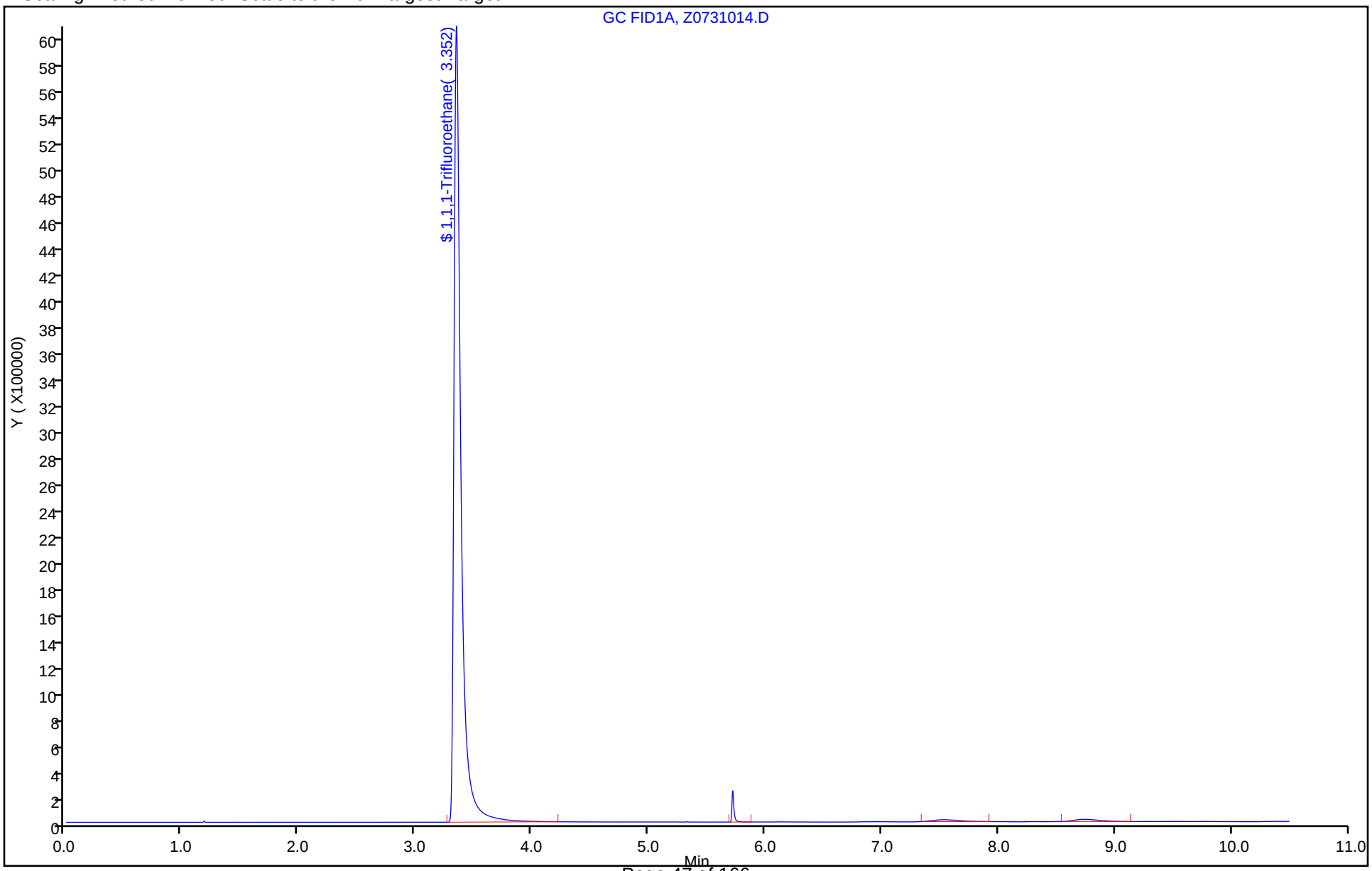
Report Date: 01-Aug-2019 07:49:29 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731014.D

Injection Date:	31-Jul-2019 15:09:33	Instrument ID:	ZPID	Operator ID:	
Lims ID:	190-20371-A-1	Lab Sample ID:	240-20371-1	Worklist Smp#:	14
Client ID:	S04673.02				
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	14
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731014.D
Lims ID: 190-20371-A-1
Client ID: S04673.02
Sample Type: Client
Inject. Date: 31-Jul-2019 15:09:33 ALS Bottle#: 14 Worklist Smp#: 14
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-014
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	8094.8	83.19

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Client Sample ID: S04673.06 Lab Sample ID: 190-20371-2

Matrix: Water Lab File ID: Z0731015.D

Analysis Method: RSK-175 Date Collected: 07/17/2019 13:26

Sample wt/vol: 23(mL) Date Analyzed: 07/31/2019 15:27

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393758 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	2.8		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	80		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731015.D
Lims ID: 190-20371-C-2
Client ID: S04673.06
Sample Type: Client
Inject. Date: 31-Jul-2019 15:27:05 ALS Bottle#: 15 Worklist Smp#: 15
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-015
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/l	Flags
1	Methane					
	1.186	1.185	0.001	17727	2.76	
$ 5	1,1,1-Trifluoroethane					
	3.351	3.350	0.001	24424161	7805.7	

Reagents:

SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

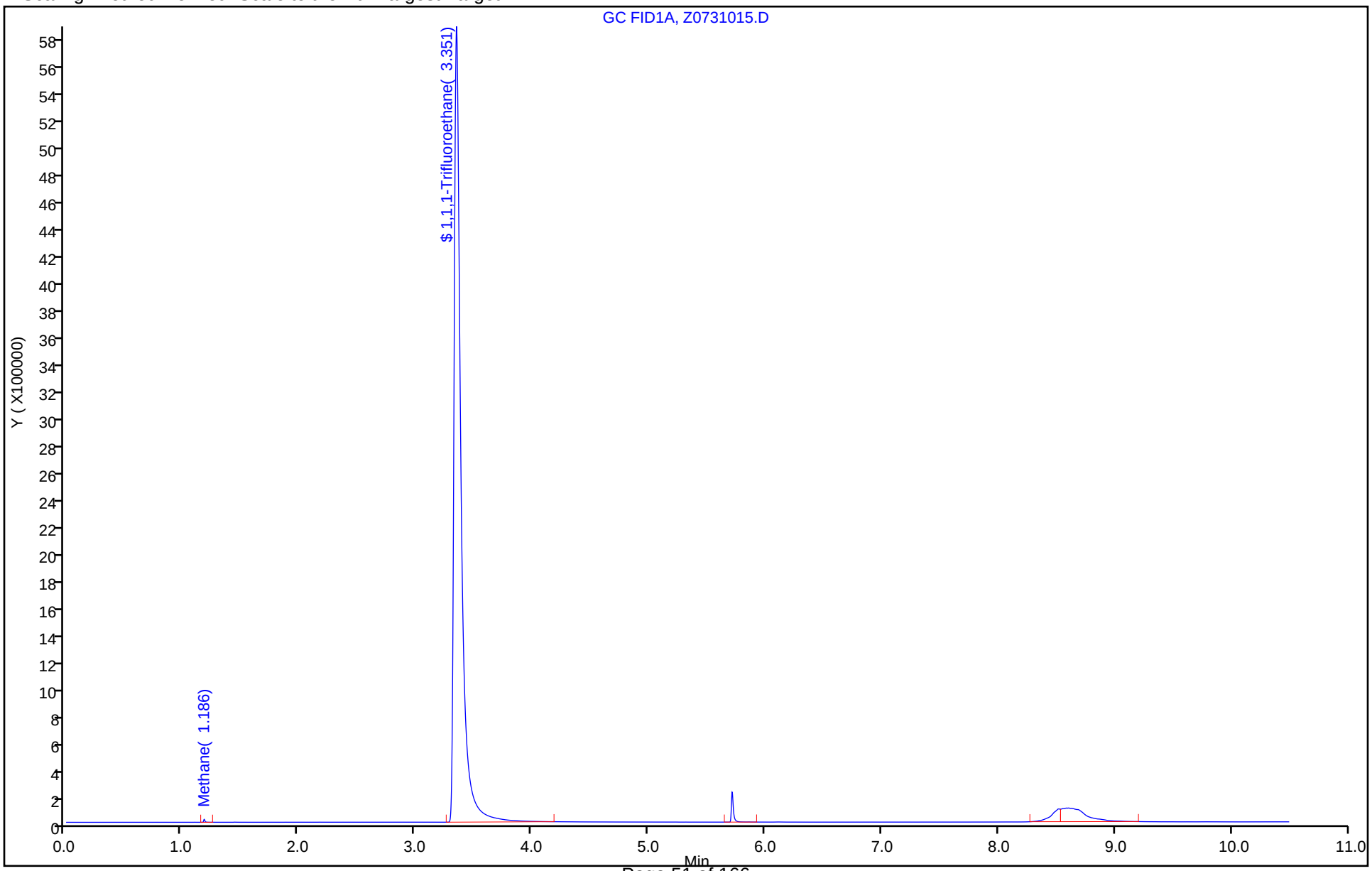
Report Date: 01-Aug-2019 07:49:30 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731015.D

Injection Date:	31-Jul-2019 15:27:05	Instrument ID:	ZPID	Operator ID:	
Lims ID:	190-20371-C-2	Lab Sample ID:	240-20371-2	Worklist Smp#:	15
Client ID:	S04673.06				
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	15
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731015.D
Lims ID: 190-20371-C-2
Client ID: S04673.06
Sample Type: Client
Inject. Date: 31-Jul-2019 15:27:05 ALS Bottle#: 15 Worklist Smp#: 15
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-015
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	7805.7	80.22

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Client Sample ID: S04673.07 Lab Sample ID: 190-20371-3

Matrix: Water Lab File ID: Z0731016.D

Analysis Method: RSK-175 Date Collected: 07/17/2019 14:00

Sample wt/vol: 23(mL) Date Analyzed: 07/31/2019 15:44

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393758 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	50		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	80		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731016.D
Lims ID: 190-20371-B-3
Client ID: S04673.07
Sample Type: Client
Inject. Date: 31-Jul-2019 15:44:39 ALS Bottle#: 16 Worklist Smp#: 16
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-016
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/l	Flags
1	Methane					
	1.186	1.185	0.001	319448	49.8	
$ 5	1,1,1-Trifluoroethane					
	3.351	3.350	0.001	24507051	7832.2	

Reagents:

SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

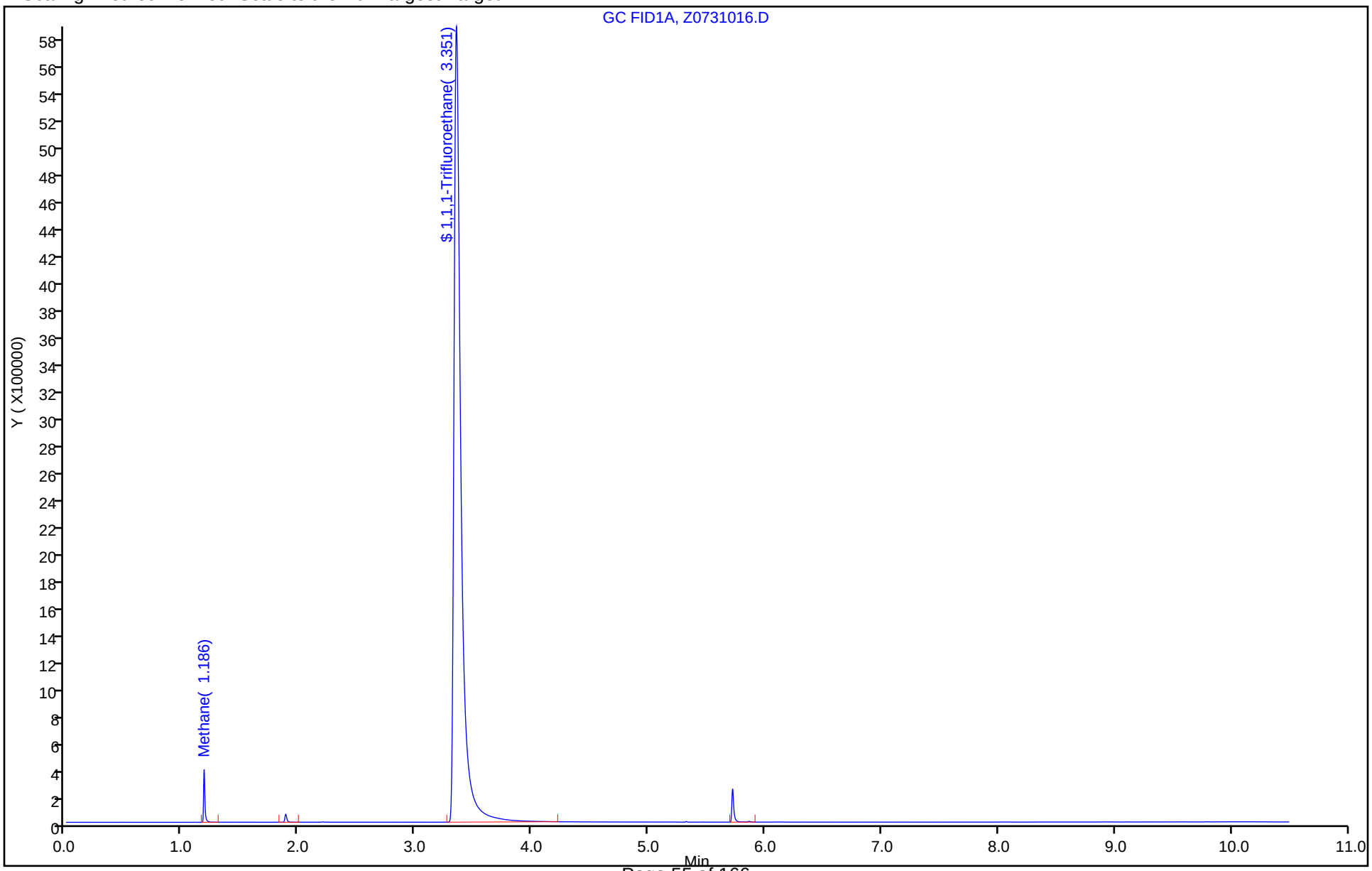
Report Date: 01-Aug-2019 07:49:31 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731016.D

Injection Date:	31-Jul-2019 15:44:39	Instrument ID:	ZPID	Operator ID:	
Lims ID:	190-20371-B-3	Lab Sample ID:	240-20371-3	Worklist Smp#:	16
Client ID:	S04673.07				
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	16
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731016.D
Lims ID: 190-20371-B-3
Client ID: S04673.07
Sample Type: Client
Inject. Date: 31-Jul-2019 15:44:39 ALS Bottle#: 16 Worklist Smp#: 16
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-016
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	7832.2	80.49

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Client Sample ID: S04673.08 Lab Sample ID: 190-20371-4

Matrix: Water Lab File ID: Z0731017.D

Analysis Method: RSK-175 Date Collected: 07/17/2019 14:45

Sample wt/vol: 23(mL) Date Analyzed: 07/31/2019 16:02

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393758 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	200		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	82		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731017.D
Lims ID: 190-20371-A-4
Client ID: S04673.08
Sample Type: Client
Inject. Date: 31-Jul-2019 16:02:12 ALS Bottle#: 17 Worklist Smp#: 17
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-017
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/l	Flags
1	Methane					
	1.187	1.185	0.002	1293618	201.5	
$ 5	1,1,1-Trifluoroethane					
	3.352	3.350	0.002	25112668	8025.8	

Reagents:

SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

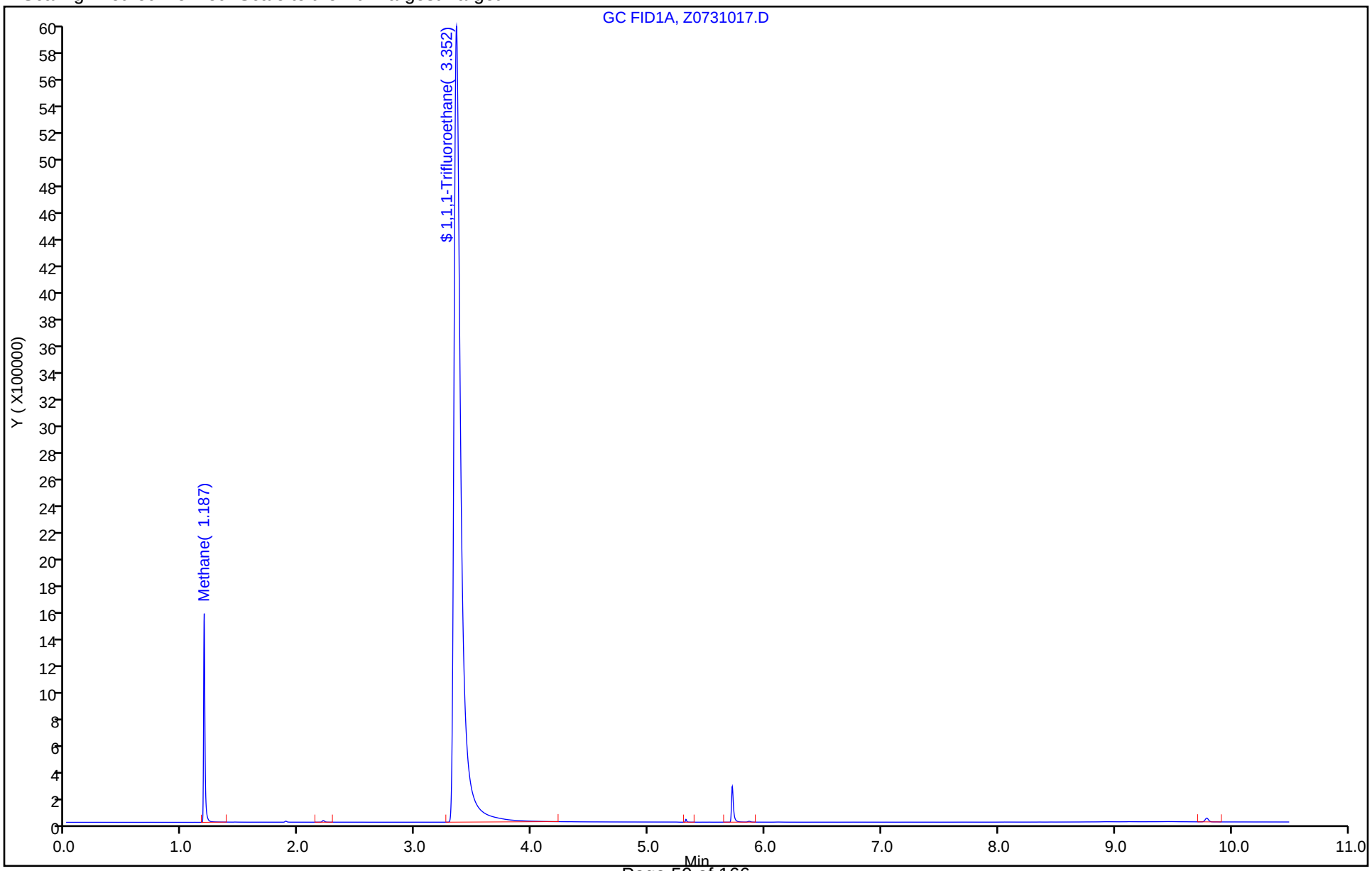
Report Date: 01-Aug-2019 07:49:31 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731017.D

Injection Date:	31-Jul-2019 16:02:12	Instrument ID:	ZPID	Operator ID:	
Lims ID:	190-20371-A-4	Lab Sample ID:	240-20371-4	Worklist Smp#:	17
Client ID:	S04673.08				
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	17
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731017.D
Lims ID: 190-20371-A-4
Client ID: S04673.08
Sample Type: Client
Inject. Date: 31-Jul-2019 16:02:12 ALS Bottle#: 17 Worklist Smp#: 17
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-017
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	8025.8	82.48

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Client Sample ID: S04673.09 Lab Sample ID: 190-20371-5

Matrix: Water Lab File ID: Z0731019.D

Analysis Method: RSK-175 Date Collected: 07/17/2019 00:01

Sample wt/vol: 23(mL) Date Analyzed: 07/31/2019 16:37

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393758 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	220		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	79		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731019.D
Lims ID: 190-20371-C-5
Client ID: S04673.09
Sample Type: Client
Inject. Date: 31-Jul-2019 16:37:15 ALS Bottle#: 19 Worklist Smp#: 19
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-019
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:32 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/l	Flags
1	Methane					
	1.187	1.185	0.002	1420071	221.2	
$ 5	1,1,1-Trifluoroethane					
	3.352	3.350	0.002	24075866	7694.4	

Reagents:

SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

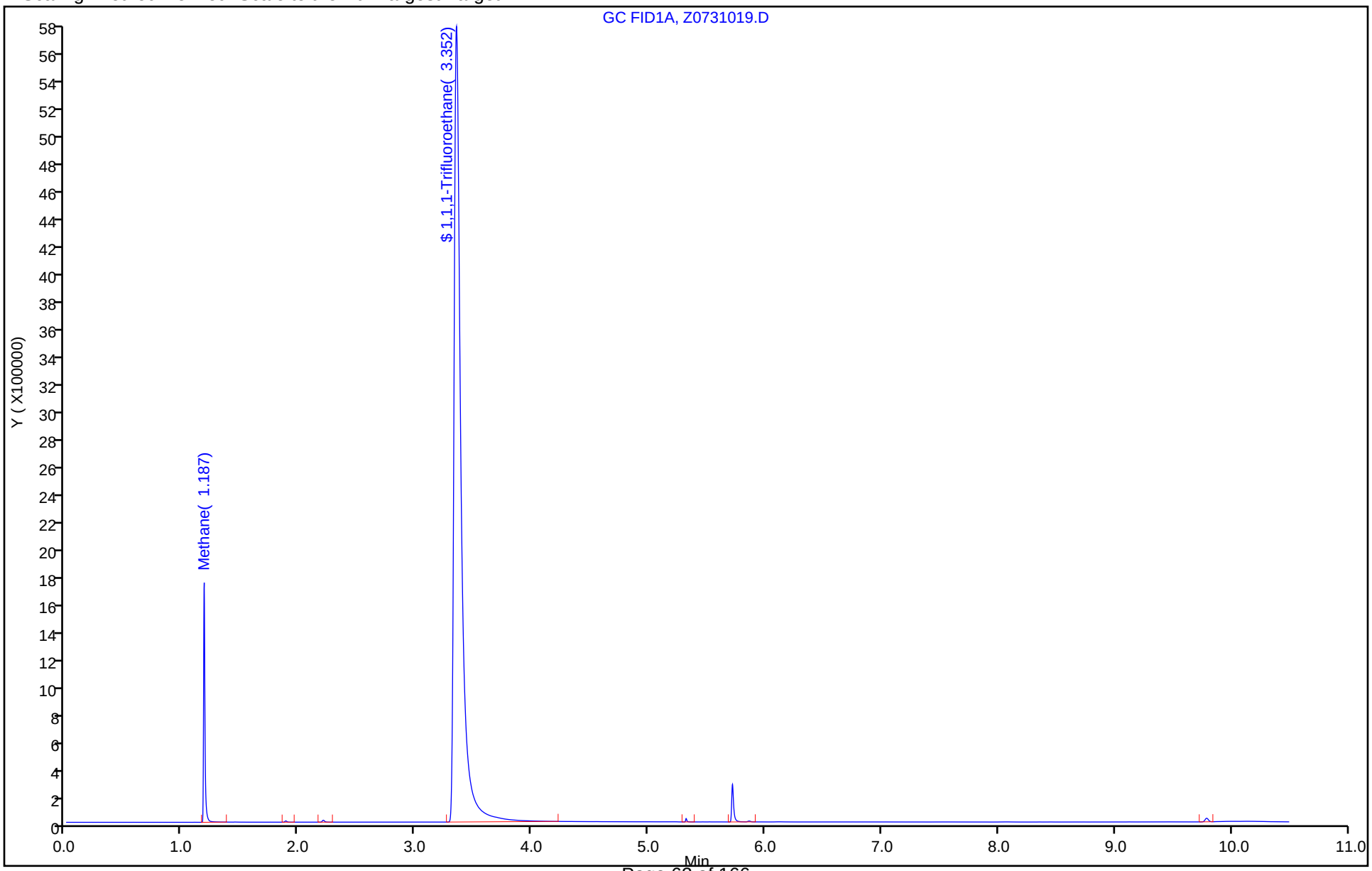
Report Date: 01-Aug-2019 07:49:33 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731019.D

Injection Date:	31-Jul-2019 16:37:15	Instrument ID:	ZPID	Operator ID:	
Lims ID:	190-20371-C-5	Lab Sample ID:	240-20371-5	Worklist Smp#:	19
Client ID:	S04673.09				
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	19
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731019.D
Lims ID: 190-20371-C-5
Client ID: S04673.09
Sample Type: Client
Inject. Date: 31-Jul-2019 16:37:15 ALS Bottle#: 19 Worklist Smp#: 19
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-019
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:32 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	7694.4	79.08

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Client Sample ID: S04673.10 Lab Sample ID: 190-20371-6

Matrix: Water Lab File ID: Z0731020.D

Analysis Method: RSK-175 Date Collected: 07/17/2019 15:10

Sample wt/vol: 23(mL) Date Analyzed: 07/31/2019 16:54

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393758 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	<1.0		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	83		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731020.D
Lims ID: 190-20371-C-6
Client ID: S04673.10
Sample Type: Client
Inject. Date: 31-Jul-2019 16:54:48 ALS Bottle#: 20 Worklist Smp#: 20
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-020
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:32 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/l	Flags
1	Methane					
	1.185				ND	
$ 5	1,1,1-Trifluoroethane					
	3.352	3.350	0.002	25291366	8082.9	

Reagents:

SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

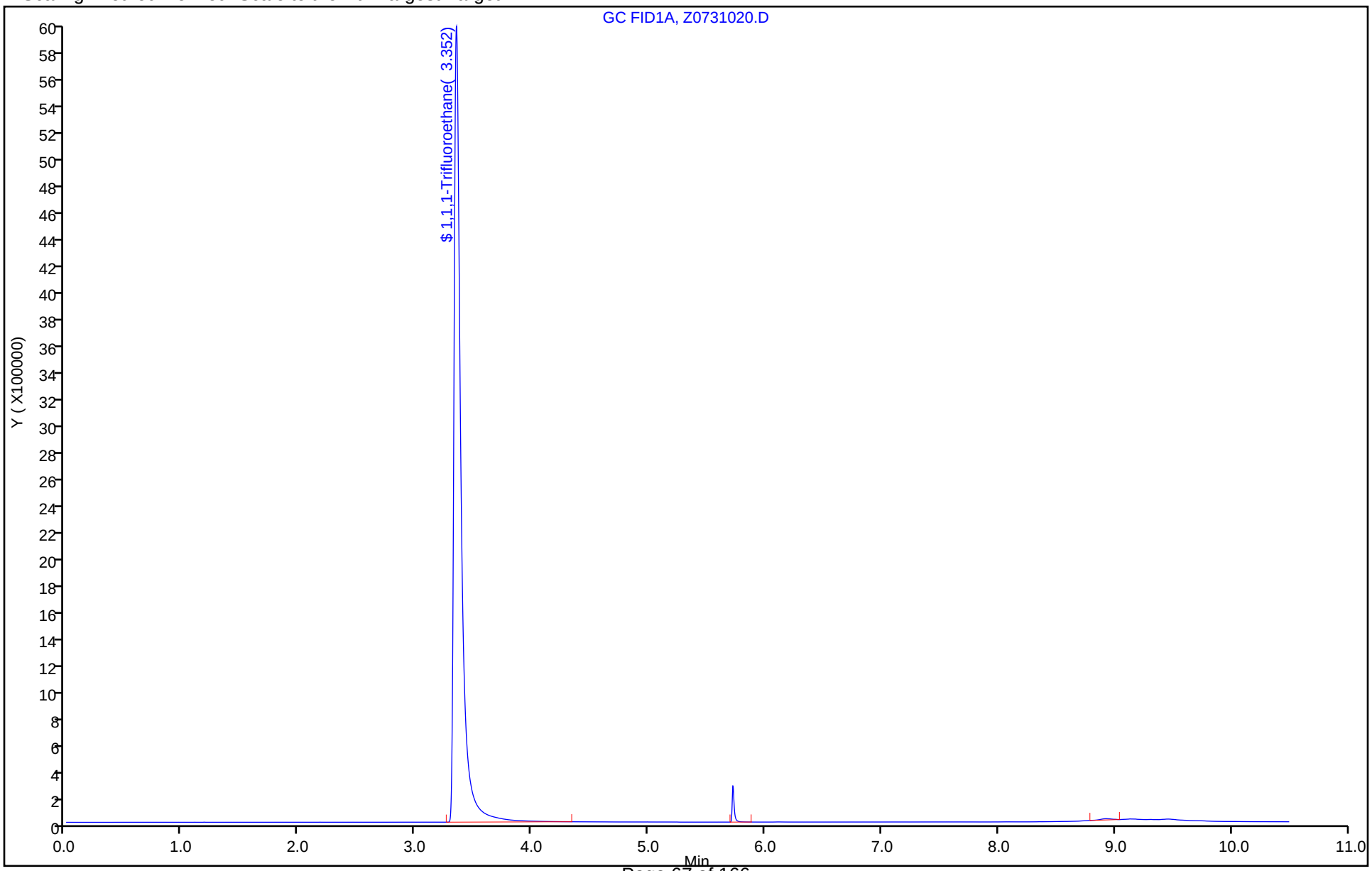
Report Date: 01-Aug-2019 07:49:33 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731020.D

Injection Date:	31-Jul-2019 16:54:48	Instrument ID:	ZPID	Operator ID:	
Lims ID:	190-20371-C-6	Lab Sample ID:	240-20371-6	Worklist Smp#:	20
Client ID:	S04673.10				
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	20
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731020.D
Lims ID: 190-20371-C-6
Client ID: S04673.10
Sample Type: Client
Inject. Date: 31-Jul-2019 16:54:48 ALS Bottle#: 20 Worklist Smp#: 20
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-020
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:32 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	8082.9	83.07

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Client Sample ID: S04673.11 Lab Sample ID: 190-20371-7

Matrix: Water Lab File ID: Z0731021.D

Analysis Method: RSK-175 Date Collected: 07/17/2019 00:01

Sample wt/vol: 23(mL) Date Analyzed: 07/31/2019 17:12

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393758 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	<1.0		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	82		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731021.D
Lims ID: 190-20371-C-7
Client ID: S04673.11
Sample Type: Client
Inject. Date: 31-Jul-2019 17:12:22 ALS Bottle#: 21 Worklist Smp#: 21
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-021
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:32 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/l	Flags
1	Methane					
	1.185				ND	
$ 5	1,1,1-Trifluoroethane					
	3.351	3.350	0.001	24916371	7963.0	

Reagents:

SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

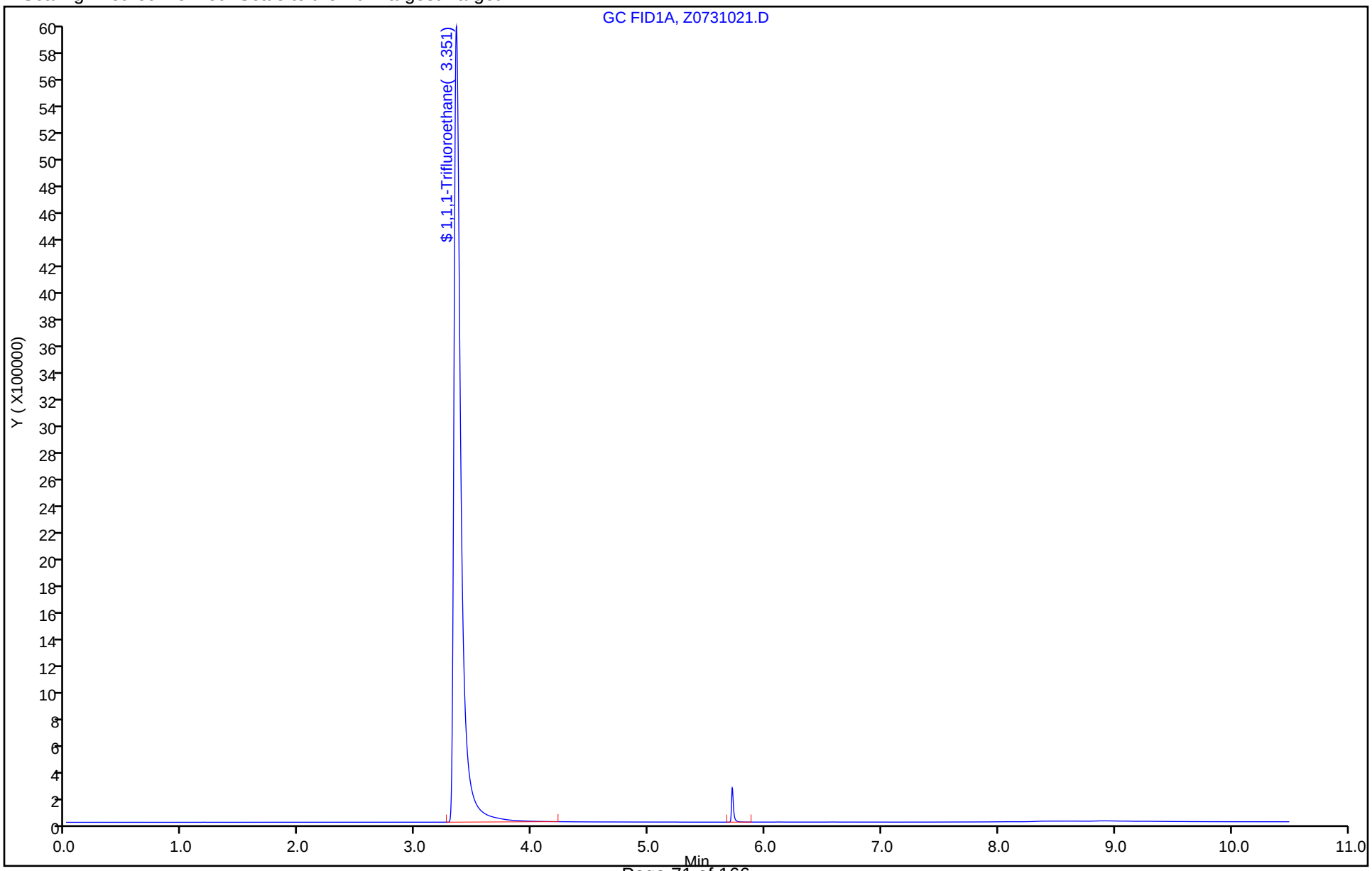
Report Date: 01-Aug-2019 07:49:34 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731021.D

Injection Date:	31-Jul-2019 17:12:22	Instrument ID:	ZPID	Operator ID:	
Lims ID:	190-20371-C-7	Lab Sample ID:	240-20371-7	Worklist Smp#:	21
Client ID:	S04673.11				
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	21
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731021.D
Lims ID: 190-20371-C-7
Client ID: S04673.11
Sample Type: Client
Inject. Date: 31-Jul-2019 17:12:22 ALS Bottle#: 21 Worklist Smp#: 21
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-021
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:32 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	7963.0	81.84

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1 Analy Batch No.: 373146

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/25/2019 14:32 Calibration End Date: 03/25/2019 15:57 Calibration ID: 49917

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-373146/3	Z0325003.D
Level 2	STD 240-373146/4	Z0325004.D
Level 3	STD 240-373146/5	Z0325005.D
Level 4	STD 240-373146/6	Z0325006.D
Level 5	STD 240-373146/7	Z0325007.D
Level 6	STD 240-373146/8	Z0325008.D

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6					RT WINDOW	AVG RT
Methane	1.182	1.182	1.182	1.181	1.181	1.179					1.129 - 1.229	1.181
Ethylene	1.881	1.880	1.880	1.880	1.878	1.873					1.823 - 1.923	1.879
Acetylene	1.996	1.995	1.993	1.993	1.993	+++++					1.939 - 2.039	1.994
Ethane	2.202	2.202	2.200	2.200	2.199	2.191					1.991 - 2.391	2.199
Propane	4.549	4.548	4.548	4.546	4.543	4.519					4.469 - 4.569	4.542

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1 Analy Batch No.: 373146

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/25/2019 14:32 Calibration End Date: 03/25/2019 15:57 Calibration ID: 49917

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-373146/3	Z0325003.D
Level 2	STD 240-373146/4	Z0325004.D
Level 3	STD 240-373146/5	Z0325005.D
Level 4	STD 240-373146/6	Z0325006.D
Level 5	STD 240-373146/7	Z0325007.D
Level 6	STD 240-373146/8	Z0325008.D

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3	LVL 4		B	M1	M2								
Methane	6779.3 5971.4	6638.4 6357.3	6547.8	6228.5	Ave		6420.43964				4.6		20.0			
Ethylene	5472.3 6503.0	6489.6 6851.4	6599.4	6237.9	Ave		6358.92133				7.5		20.0			
Acetylene	2456.6 3914.5	2993.1 +++++	3464.1	3746.4	Ave		3314.91689				17.9		30.0			
Ethane	5599.4 7050.0	6661.7 7426.5	6819.1	6522.4	Ave		6679.85645				9.2		20.0			
Propane	5750.6 7980.4	7063.7 8394.9	7233.7	6983.7	Ave		7234.51455				12.7		20.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1 Analy Batch No.: 373146

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/25/2019 14:32 Calibration End Date: 03/25/2019 15:57 Calibration ID: 49917

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-373146/3	Z0325003.D
Level 2	STD 240-373146/4	Z0325004.D
Level 3	STD 240-373146/5	Z0325005.D
Level 4	STD 240-373146/6	Z0325006.D
Level 5	STD 240-373146/7	Z0325007.D
Level 6	STD 240-373146/8	Z0325008.D

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
		LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Methane	Ave	1966 27189706	13476	66460	632192	2553930	0.290 4277	2.03	10.2	102	428
Ethylene	Ave	2798 51465960	23227	118101	1116304	4884888	0.511 7512	3.58	17.9	179	751
Acetylene	Ave	1161 +++++	9902	57300	619698	2720642	0.473 +++++	3.31	16.5	165	695
Ethane	Ave	3048 59757636	25384	129919	1242663	5672810	0.544 8047	3.81	19.1	191	805
Propane	Ave	4588 98970444	39449	201994	1950136	9408395	0.798 11789	5.58	27.9	279	1179

Curve Type Legend:

Ave = Average

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325003.D
Lims ID: STD 1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 25-Mar-2019 14:32:27 ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-003
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub18

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:28 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

First Level Reviewer: matthewsb Date: 26-Mar-2019 07:48:00

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1 Methane						Ma
1.182	1.179	0.003	1966	0.2900	0.3062	Ma
2 Ethylene						Ma
1.881	1.873	0.008	2798	0.5113	0.4400	Ma
3 Acetylene						Ma
1.996	1.989	0.007	1161	0.4726	0.3502	M
4 Ethane						Ma
2.202	2.191	0.011	3048	0.5443	0.4563	Ma
6 Propane						Ma
4.549	4.519	0.030	4588	0.7978	0.6342	Ma

QC Flag Legend

Review Flags
M - Manually Integrated
a - User Assigned ID

Reagents:

SARSKLOWCAL_00013 Amount Added: 10.00 Units: uL

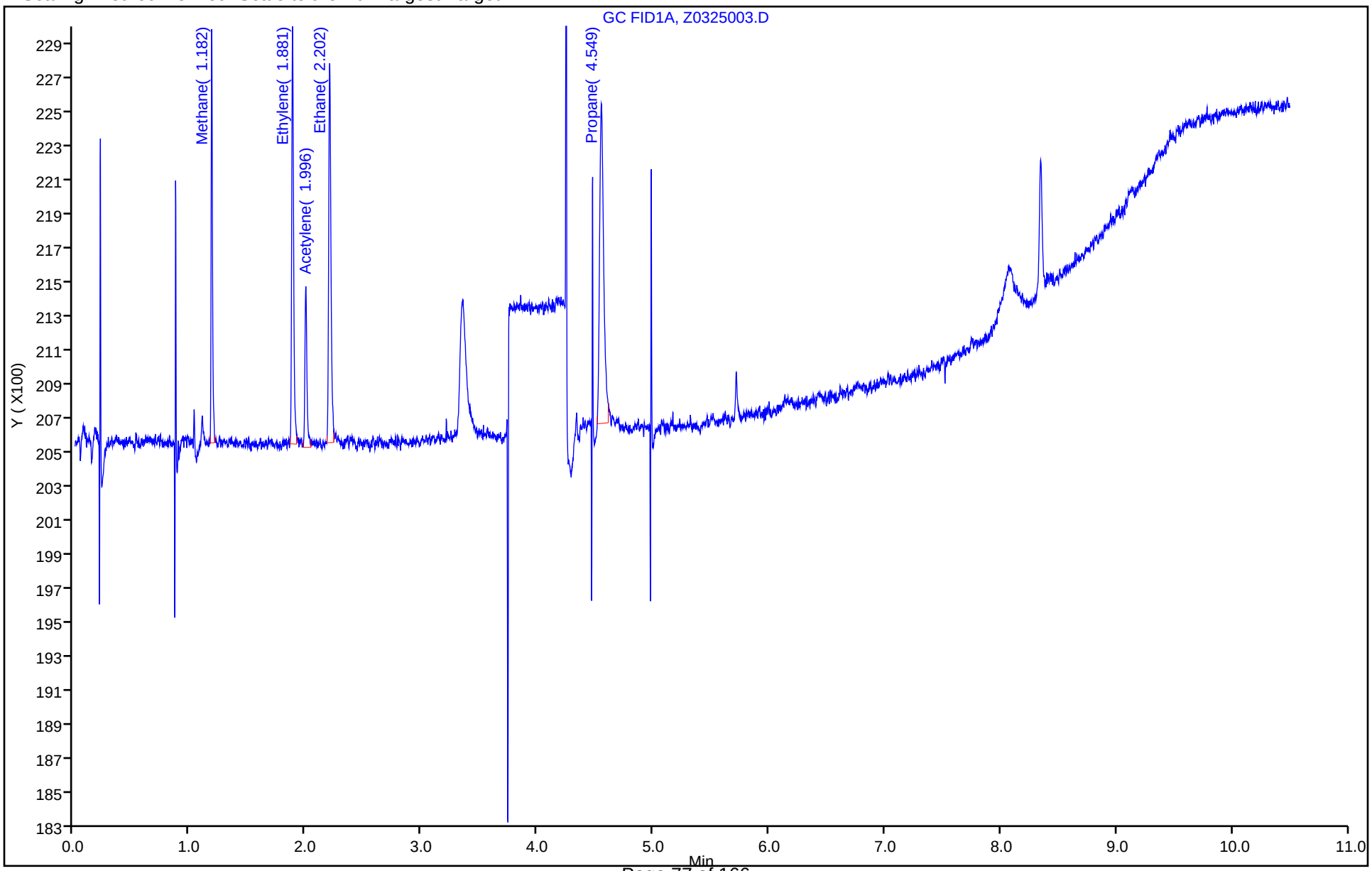
Report Date: 26-Mar-2019 07:54:28 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325003.D

Injection Date:	25-Mar-2019 14:32:27	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD 1			Worklist Smp#:	3
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	3
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

TestAmerica Canton

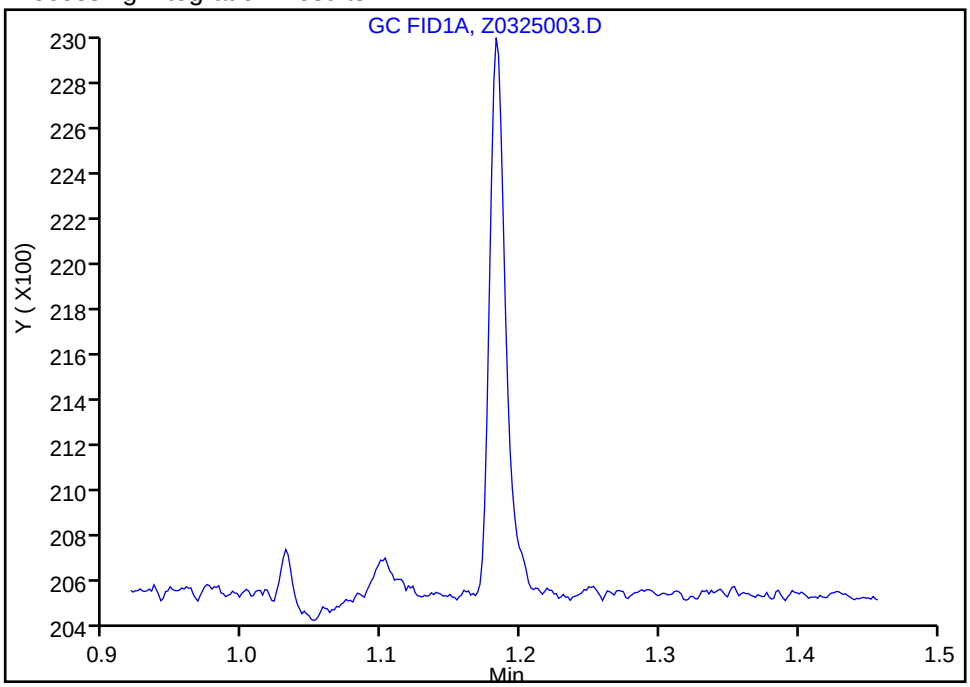
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325003.D
Injection Date: 25-Mar-2019 14:32:27 Instrument ID: ZPID
Lims ID: STD 1
Client ID:
Operator ID: ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

1 Methane, CAS: 74-82-8

Signal: 1

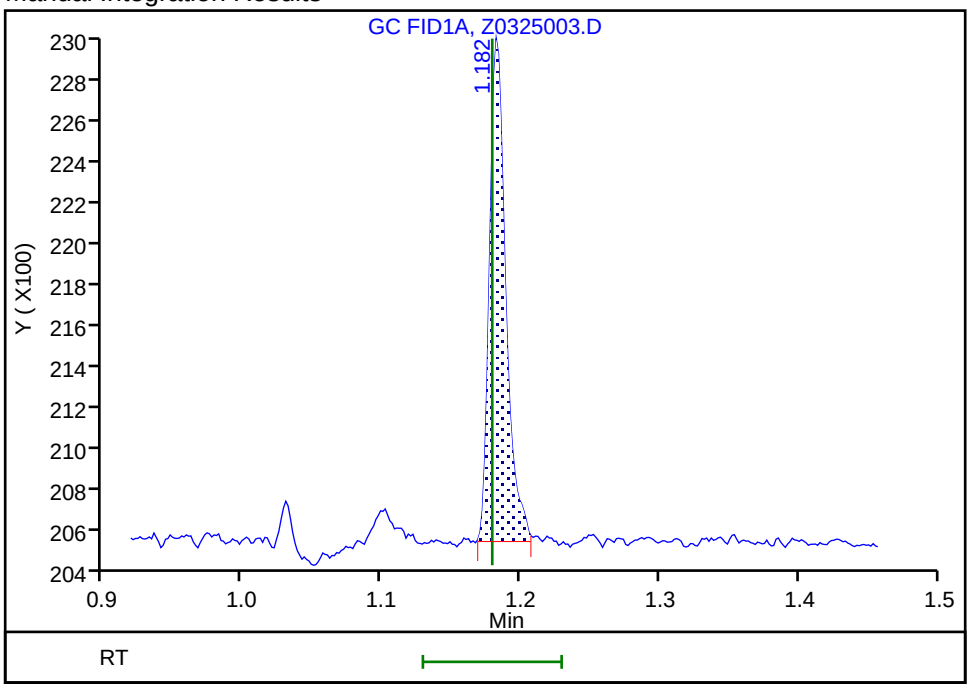
Not Detected
Expected RT: 1.18

Processing Integration Results



Manual Integration Results

RT: 1.18
Area: 1966
Amount: 0.306210
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:47:24
Audit Action: Manually Integrated/Assigned Compound ID Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Canton

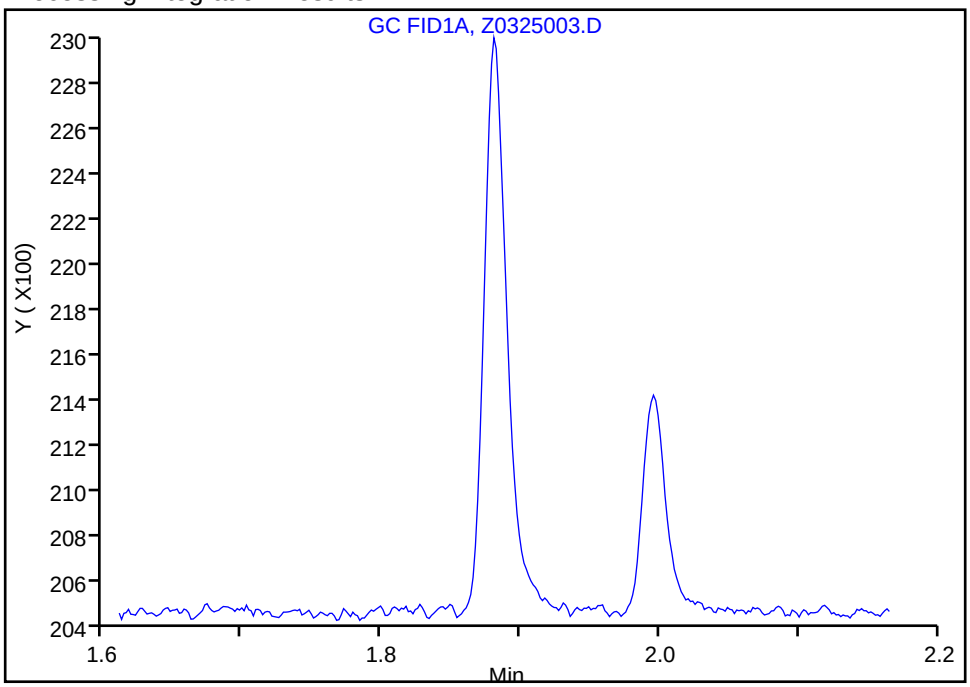
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325003.D
Injection Date: 25-Mar-2019 14:32:27 Instrument ID: ZPID
Lims ID: STD 1
Client ID:
Operator ID: ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

2 Ethylene, CAS: 74-85-1

Signal: 1

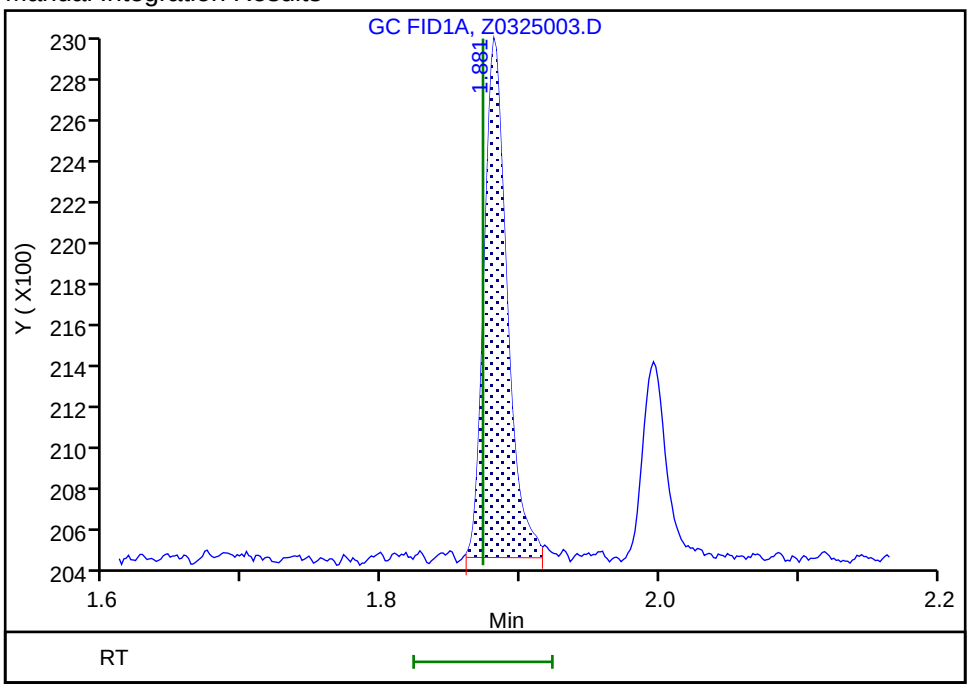
Not Detected
Expected RT: 1.87

Processing Integration Results



Manual Integration Results

RT: 1.88
Area: 2798
Amount: 0.440012
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:47:32
Audit Action: Manually Integrated/Assigned Compound ID Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Canton

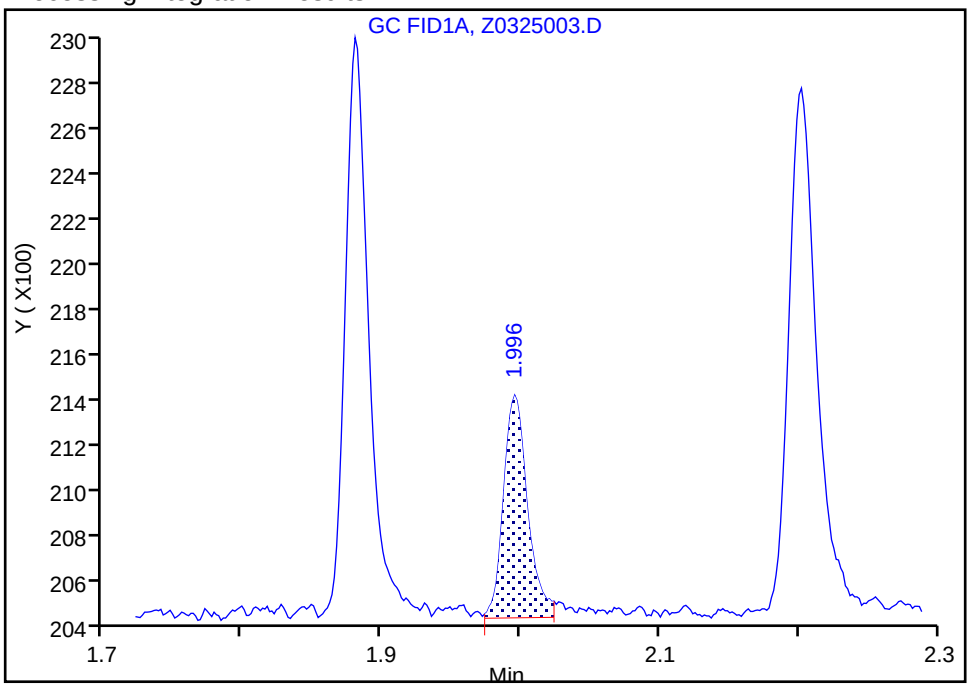
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325003.D
Injection Date: 25-Mar-2019 14:32:27 Instrument ID: ZPID
Lims ID: STD 1
Client ID:
Operator ID: ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

3 Acetylene, CAS: 74-86-2

Signal: 1

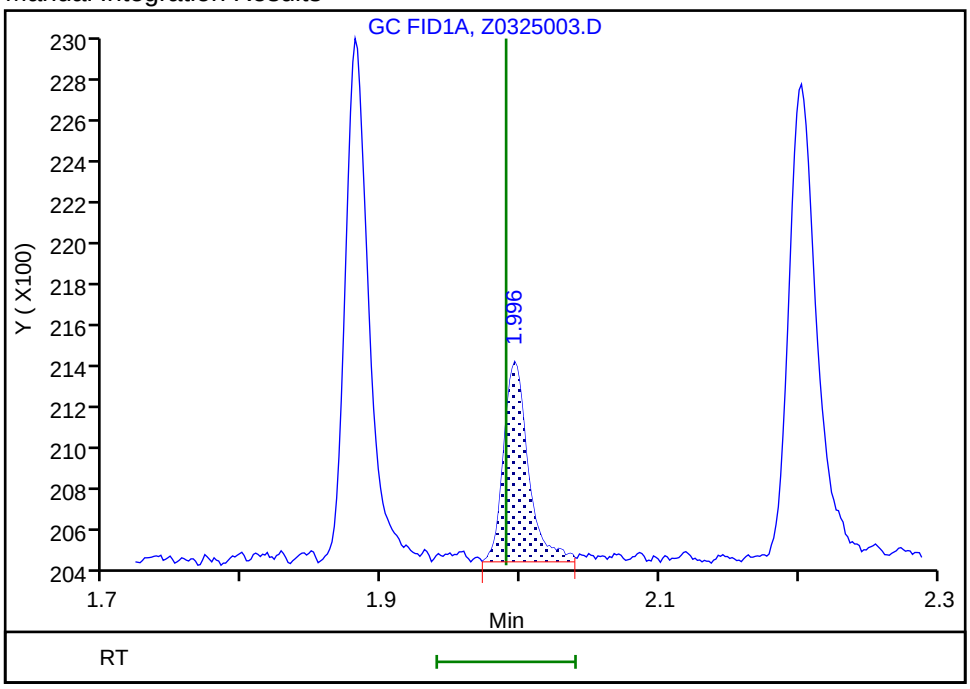
Processing Integration Results

RT: 2.00
Area: 1134
Amount: 0.326116
Amount Units: ug/l



Manual Integration Results

RT: 2.00
Area: 1161
Amount: 0.350235
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:52:30
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Canton

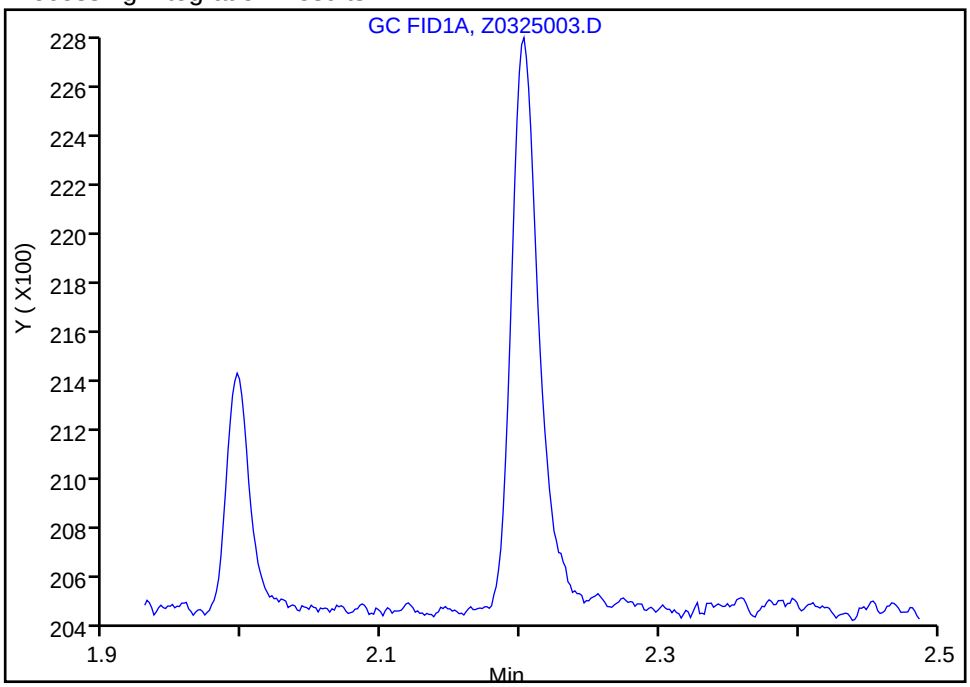
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325003.D
Injection Date: 25-Mar-2019 14:32:27 Instrument ID: ZPID
Lims ID: STD 1
Client ID:
Operator ID: ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

4 Ethane, CAS: 74-84-0

Signal: 1

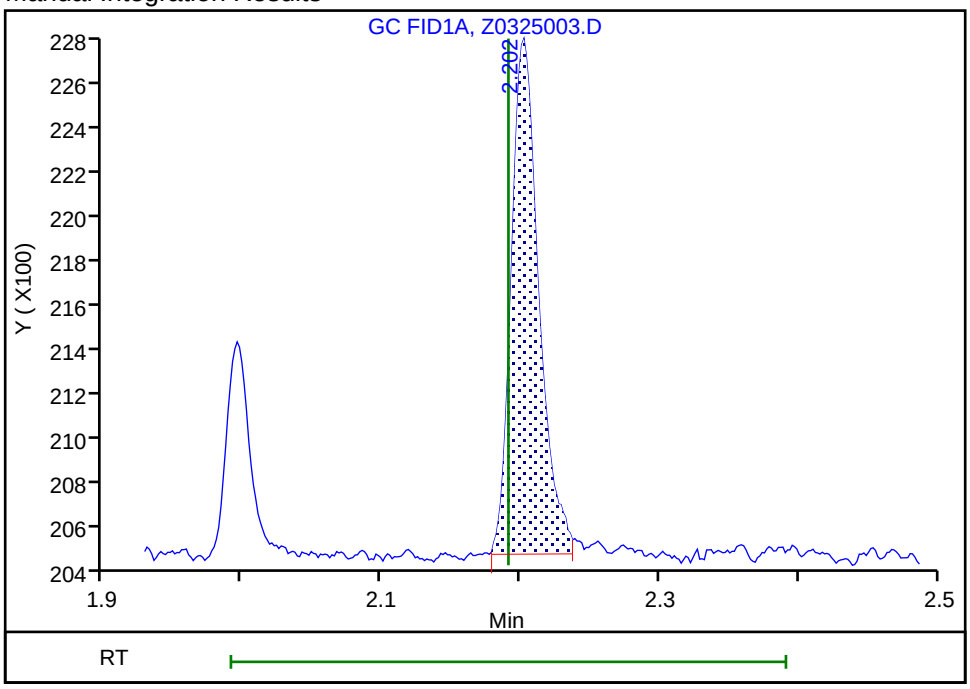
Not Detected
Expected RT: 2.19

Processing Integration Results



Manual Integration Results

RT: 2.20
Area: 3048
Amount: 0.456297
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:47:51
Audit Action: Manually Integrated/Assigned Compound ID Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Canton

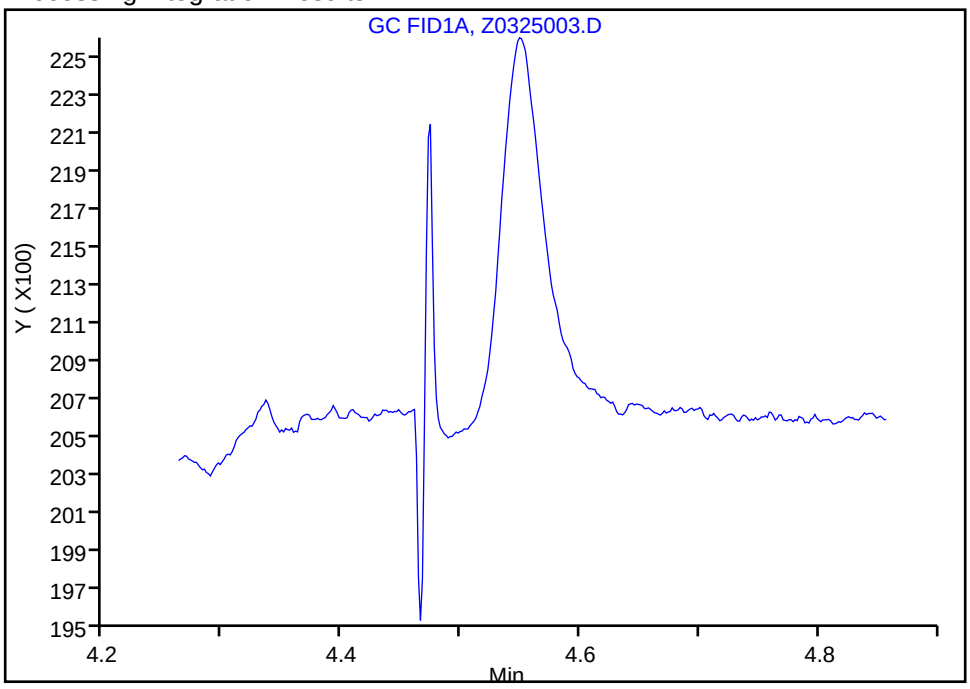
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325003.D
Injection Date: 25-Mar-2019 14:32:27 Instrument ID: ZPID
Lims ID: STD 1
Client ID:
Operator ID: ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

6 Propane, CAS: 74-98-6

Signal: 1

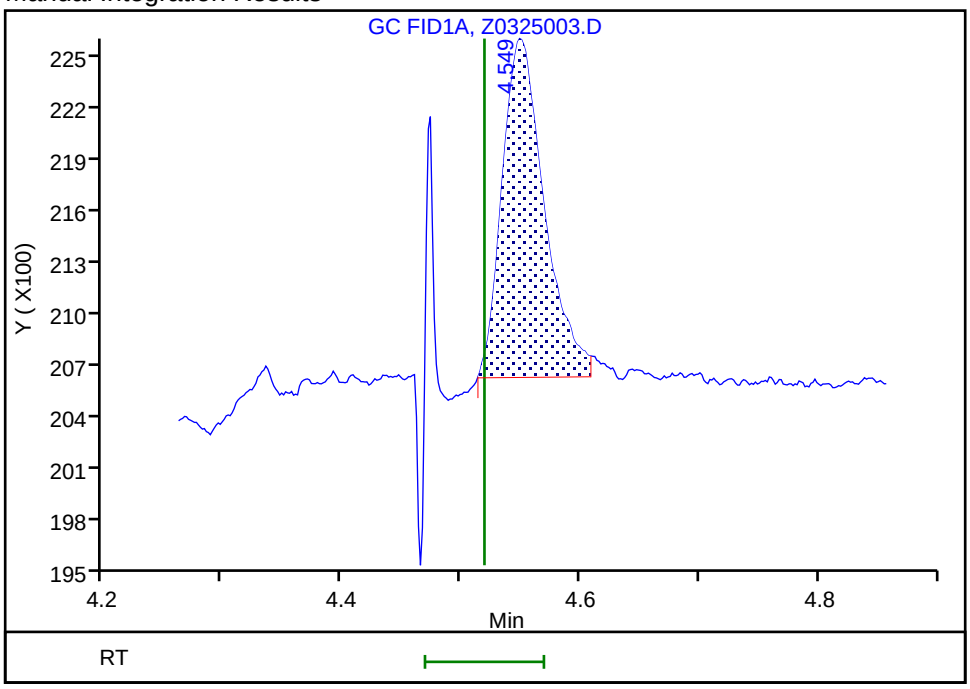
Not Detected
Expected RT: 4.52

Processing Integration Results



Manual Integration Results

RT: 4.55
Area: 4588
Amount: 0.634182
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:47:58
Audit Action: Manually Integrated/Assigned Compound ID Audit Reason: Incomplete Integration

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325004.D
Lims ID: STD 2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 25-Mar-2019 14:49:29 ALS Bottle#: 4 Worklist Smp#: 4
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-004
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub18

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:29 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

First Level Reviewer: matthewsb Date: 26-Mar-2019 07:48:29

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1 Methane						
1.182	1.179	0.003	13476	2.03	2.10	
2 Ethylene						
1.880	1.873	0.007	23227	3.58	3.65	
3 Acetylene						Ma
1.995	1.989	0.006	9902	3.31	2.99	Ma
4 Ethane						
2.202	2.191	0.011	25384	3.81	3.80	
6 Propane						M
4.548	4.519	0.029	39449	5.58	5.45	M

QC Flag Legend

Review Flags
M - Manually Integrated
a - User Assigned ID

Reagents:

SARSKLOWCAL_00013 Amount Added: 70.00 Units: uL

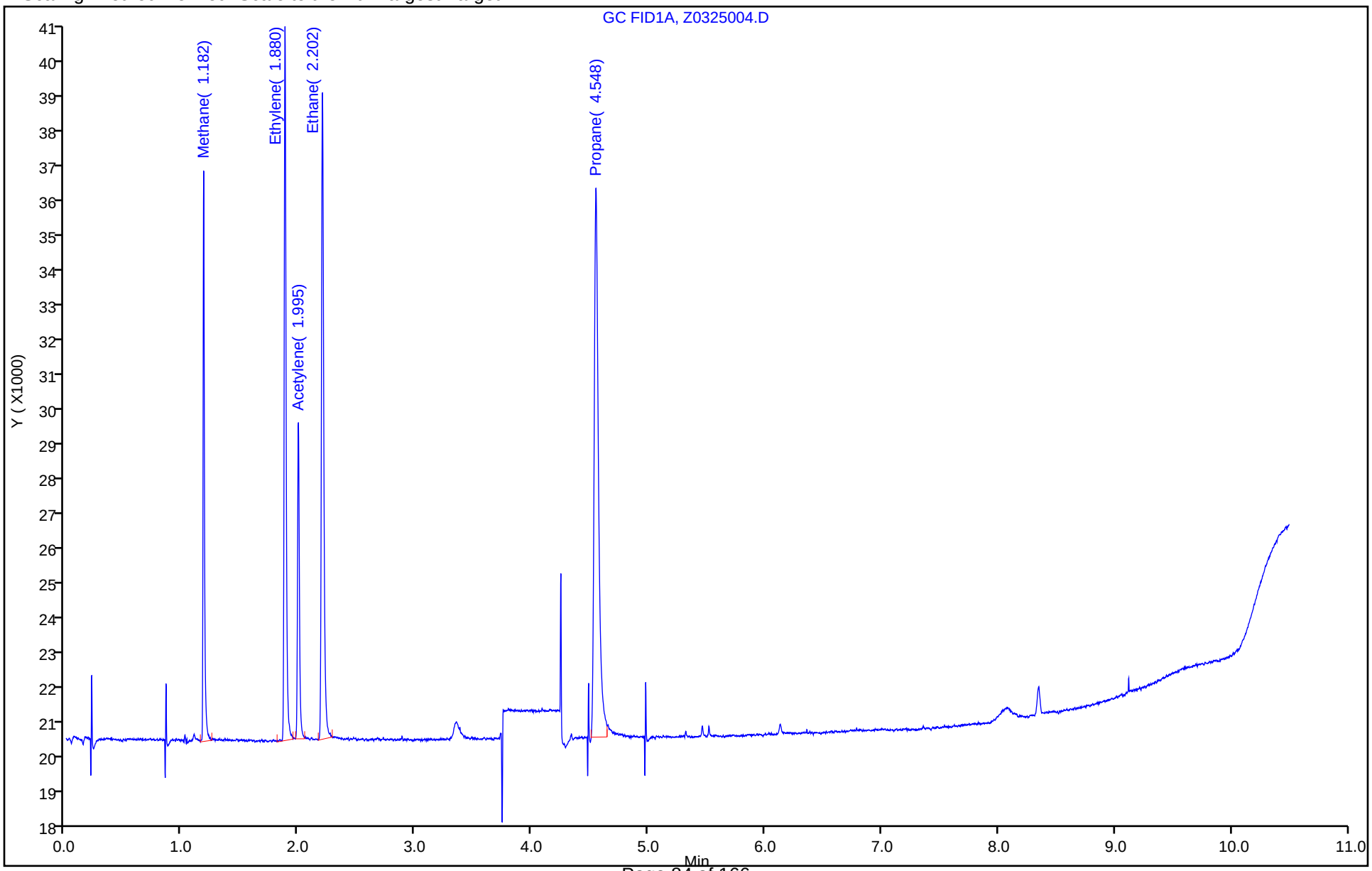
Report Date: 26-Mar-2019 07:54:29 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325004.D

Injection Date:	25-Mar-2019 14:49:29	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD 2			Worklist Smp#:	4
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	4
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

TestAmerica Canton

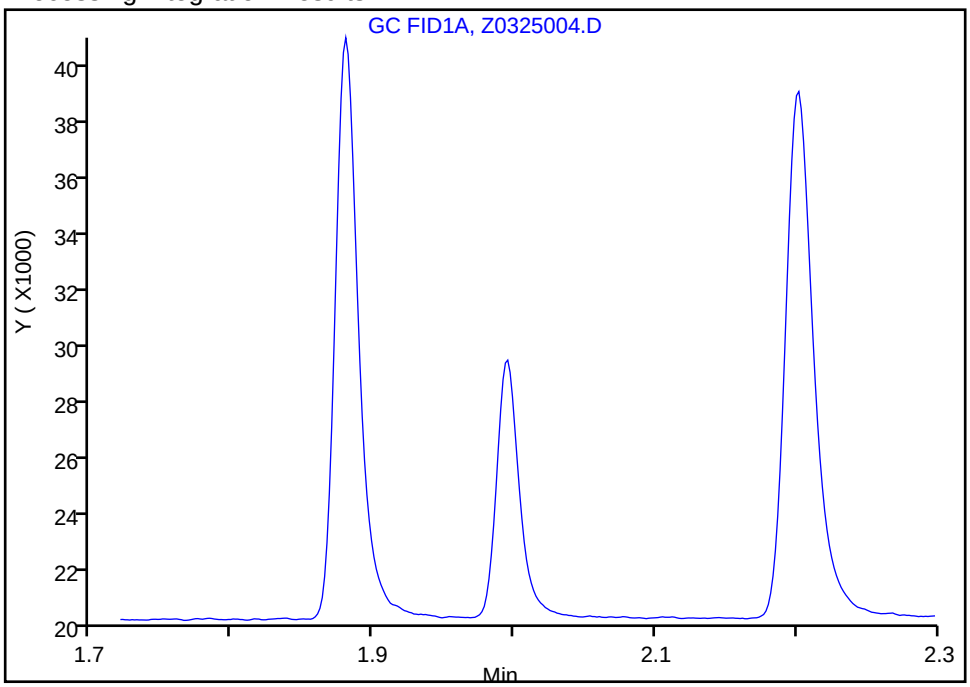
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325004.D
Injection Date: 25-Mar-2019 14:49:29 Instrument ID: ZPID
Lims ID: STD 2
Client ID:
Operator ID: ALS Bottle#: 4 Worklist Smp#: 4
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

3 Acetylene, CAS: 74-86-2

Signal: 1

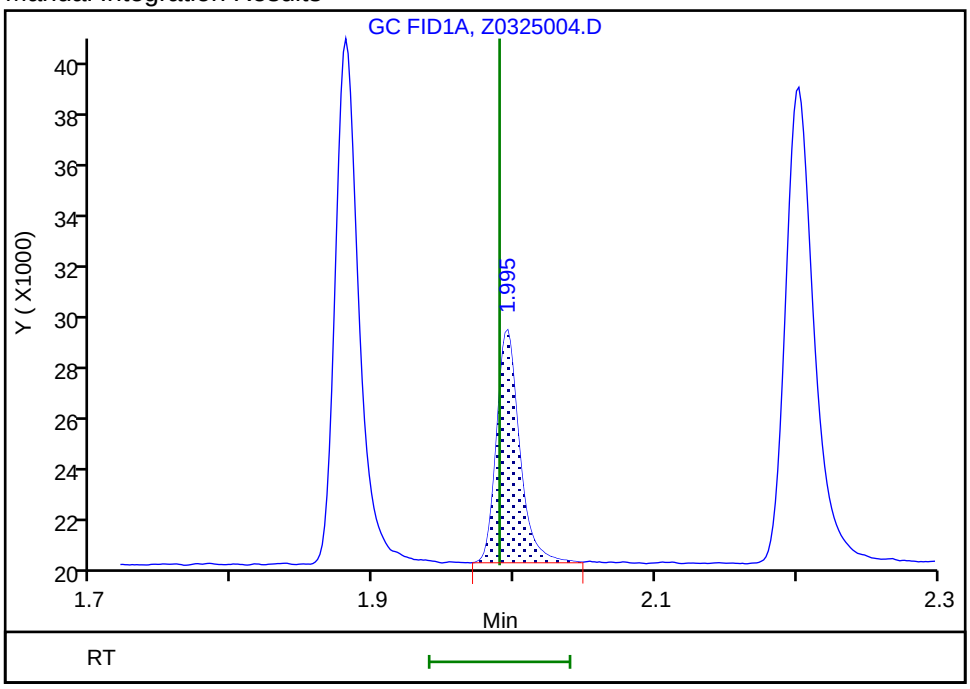
Not Detected
Expected RT: 1.99

Processing Integration Results



Manual Integration Results

RT: 2.00
Area: 9902
Amount: 2.987104
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:48:27
Audit Action: Manually Integrated/Assigned Compound ID Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Canton

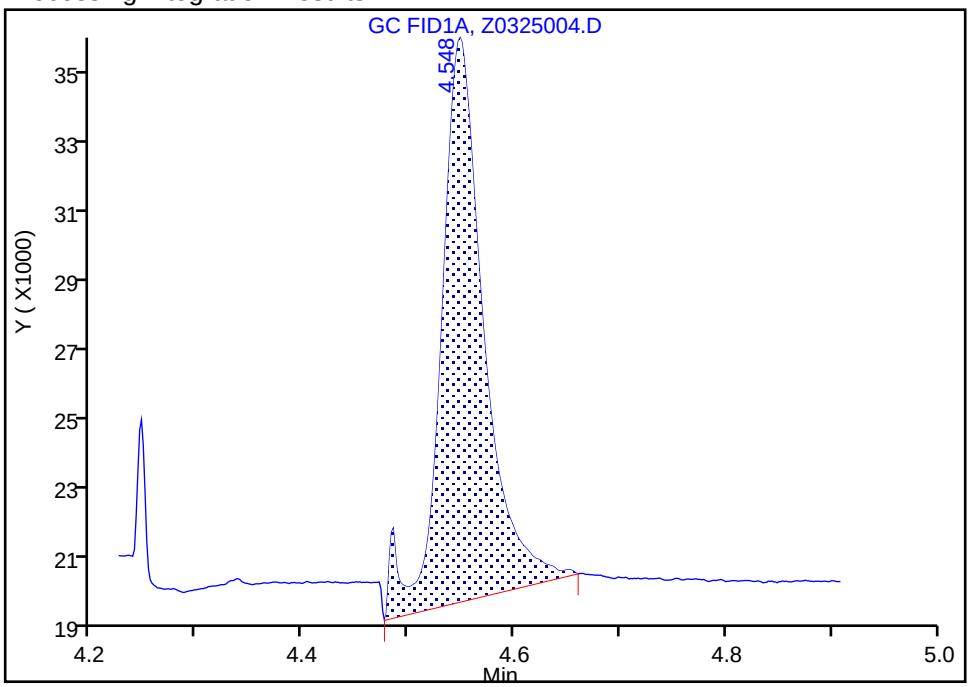
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325004.D
Injection Date: 25-Mar-2019 14:49:29 Instrument ID: ZPID
Lims ID: STD 2
Client ID:
Operator ID: ALS Bottle#: 4 Worklist Smp#: 4
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

6 Propane, CAS: 74-98-6

Signal: 1

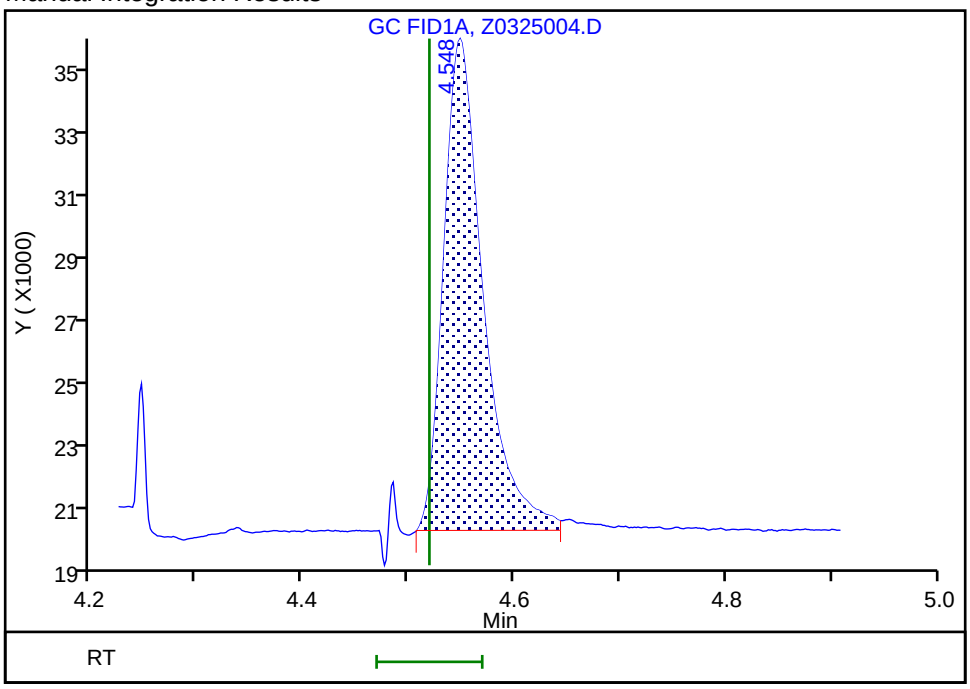
Processing Integration Results

RT: 4.55
Area: 44723
Amount: 6.005193
Amount Units: ug/l



Manual Integration Results

RT: 4.55
Area: 39449
Amount: 5.452888
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:48:14
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325005.D
Lims ID: STD 3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 25-Mar-2019 15:06:32 ALS Bottle#: 5 Worklist Smp#: 5
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-005
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub18

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:30 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

First Level Reviewer: matthewsb Date: 26-Mar-2019 07:48:45

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1 Methane						
1.182	1.182	0.000	66460	10.2	10.4	
2 Ethylene						
1.880	1.880	0.000	118101	17.9	18.6	
3 Acetylene						
1.993	1.993	0.000	57300	16.5	17.3	
4 Ethane						
2.200	2.200	0.000	129919	19.1	19.4	
6 Propane						M
4.548	4.548	0.000	201994	27.9	27.9	M

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

SARSKLOWCAL_00013 Amount Added: 350.00 Units: uL

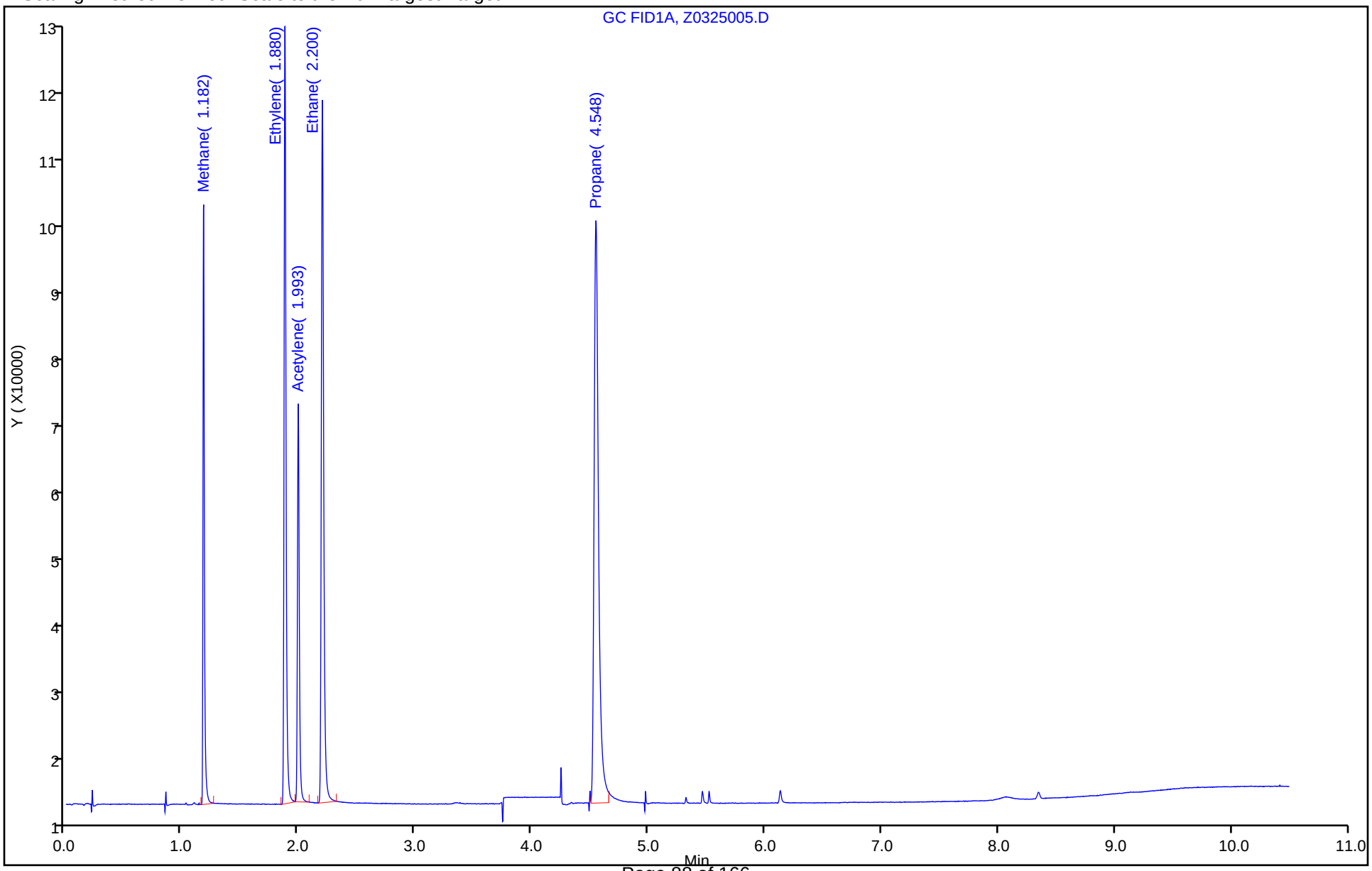
Report Date: 26-Mar-2019 07:54:30 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325005.D

Injection Date:	25-Mar-2019 15:06:32	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD 3			Worklist Smp#:	5
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	5
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

TestAmerica Canton

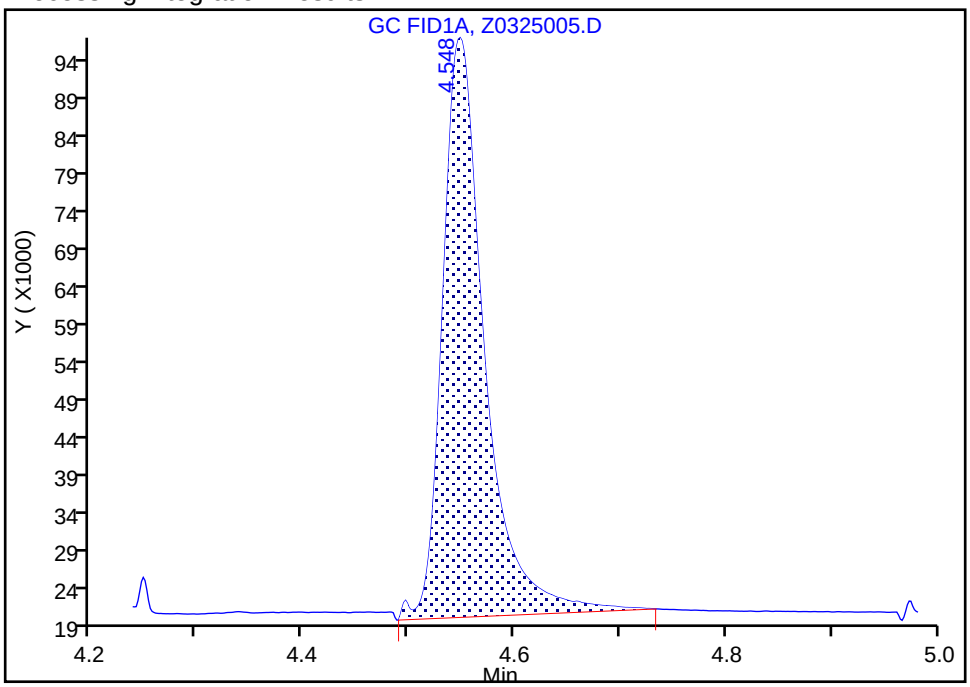
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325005.D
Injection Date: 25-Mar-2019 15:06:32 Instrument ID: ZPID
Lims ID: STD 3
Client ID:
Operator ID: ALS Bottle#: 5 Worklist Smp#: 5
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

6 Propane, CAS: 74-98-6

Signal: 1

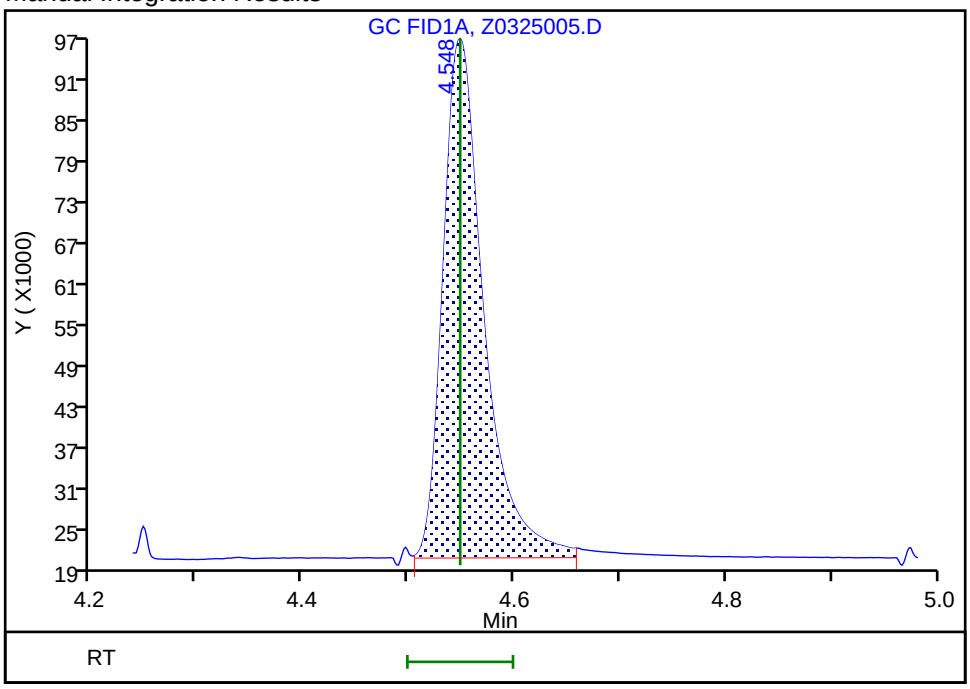
Processing Integration Results

RT: 4.55
Area: 210425
Amount: 28.864903
Amount Units: ug/l



Manual Integration Results

RT: 4.55
Area: 201994
Amount: 27.920878
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:48:43
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325006.D
Lims ID: STD 4
Client ID:
Sample Type: IC Calib Level: 4
Inject. Date: 25-Mar-2019 15:23:39 ALS Bottle#: 6 Worklist Smp#: 6
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-006
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub18

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:30 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

First Level Reviewer: matthewsb Date: 26-Mar-2019 07:48:59

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1 Methane						
1.181	1.182	-0.001	632192	101.5	98.5	
2 Ethylene						
1.880	1.880	0.000	1116304	179.0	175.5	
3 Acetylene						
1.993	1.993	0.000	619698	165.4	186.9	
4 Ethane						
2.200	2.200	0.000	1242663	190.5	186.0	
6 Propane						M
4.546	4.548	-0.002	1950136	279.2	269.6	M

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

SARSKLOWCAL_00013 Amount Added: 3.50 Units: mL

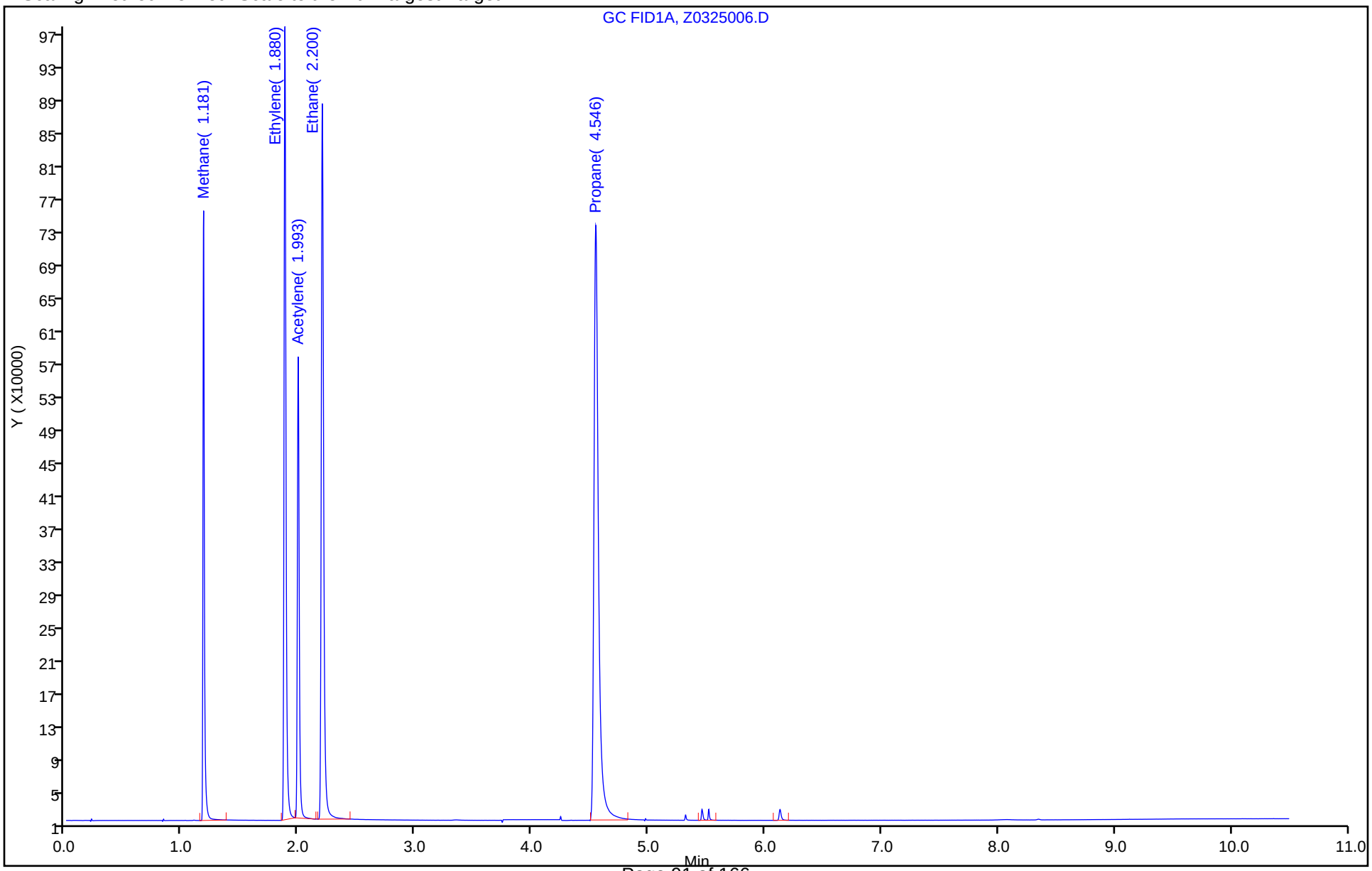
Report Date: 26-Mar-2019 07:54:30 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325006.D

Injection Date:	25-Mar-2019 15:23:39	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD 4			Worklist Smp#:	6
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	6
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

TestAmerica Canton

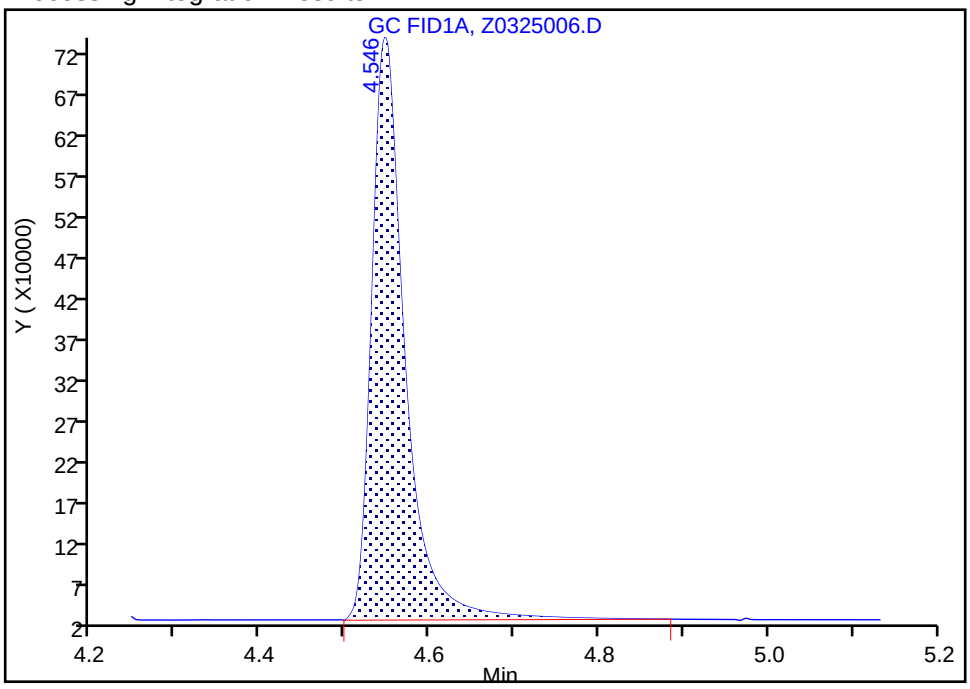
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325006.D
Injection Date: 25-Mar-2019 15:23:39 Instrument ID: ZPID
Lims ID: STD 4
Client ID:
Operator ID: ALS Bottle#: 6 Worklist Smp#: 6
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

6 Propane, CAS: 74-98-6

Signal: 1

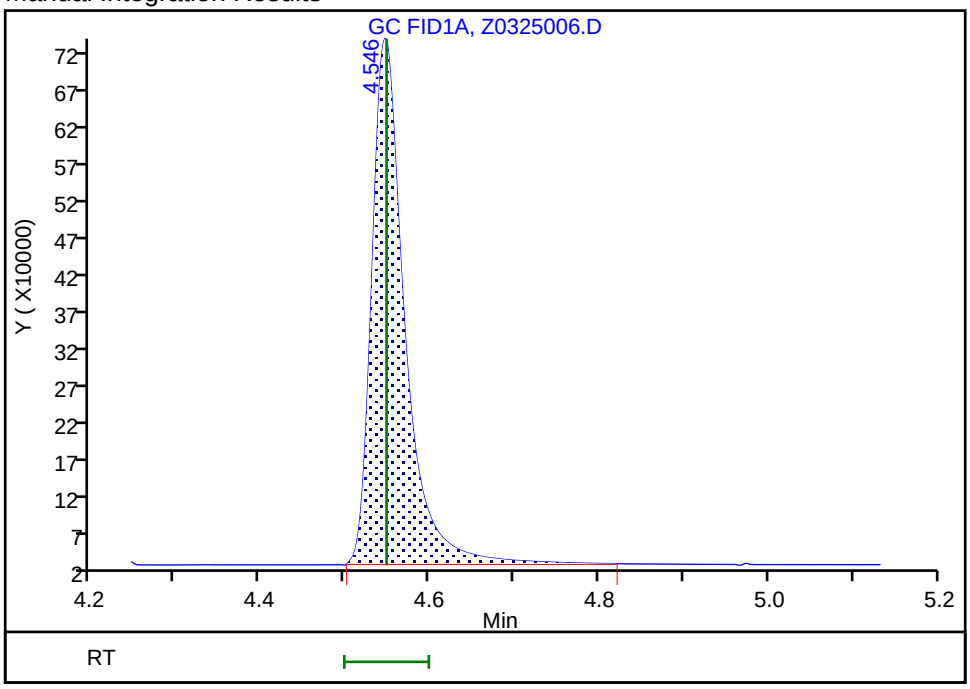
Processing Integration Results

RT: 4.55
Area: 1957668
Amount: 270.4083
Amount Units: ug/l



Manual Integration Results

RT: 4.55
Area: 1950136
Amount: 269.5600
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:48:57
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325007.D
Lims ID: STD 5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 25-Mar-2019 15:40:45 ALS Bottle#: 7 Worklist Smp#: 7
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-007
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub18

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:31 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

First Level Reviewer: matthewsb Date: 26-Mar-2019 07:49:15

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1 Methane						
1.181	1.182	-0.001	2553930	427.7	397.8	
2 Ethylene						
1.878	1.880	-0.002	4884888	751.2	768.2	
3 Acetylene						
1.993	1.993	0.000	2720642	695.0	820.7	
4 Ethane						
2.199	2.200	-0.001	5672810	804.7	849.2	
6 Propane						M
4.543	4.548	-0.005	9408395	1178.9	1300.5	M

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

SARSKHighCal_00006 Amount Added: 1.50 Units: mL

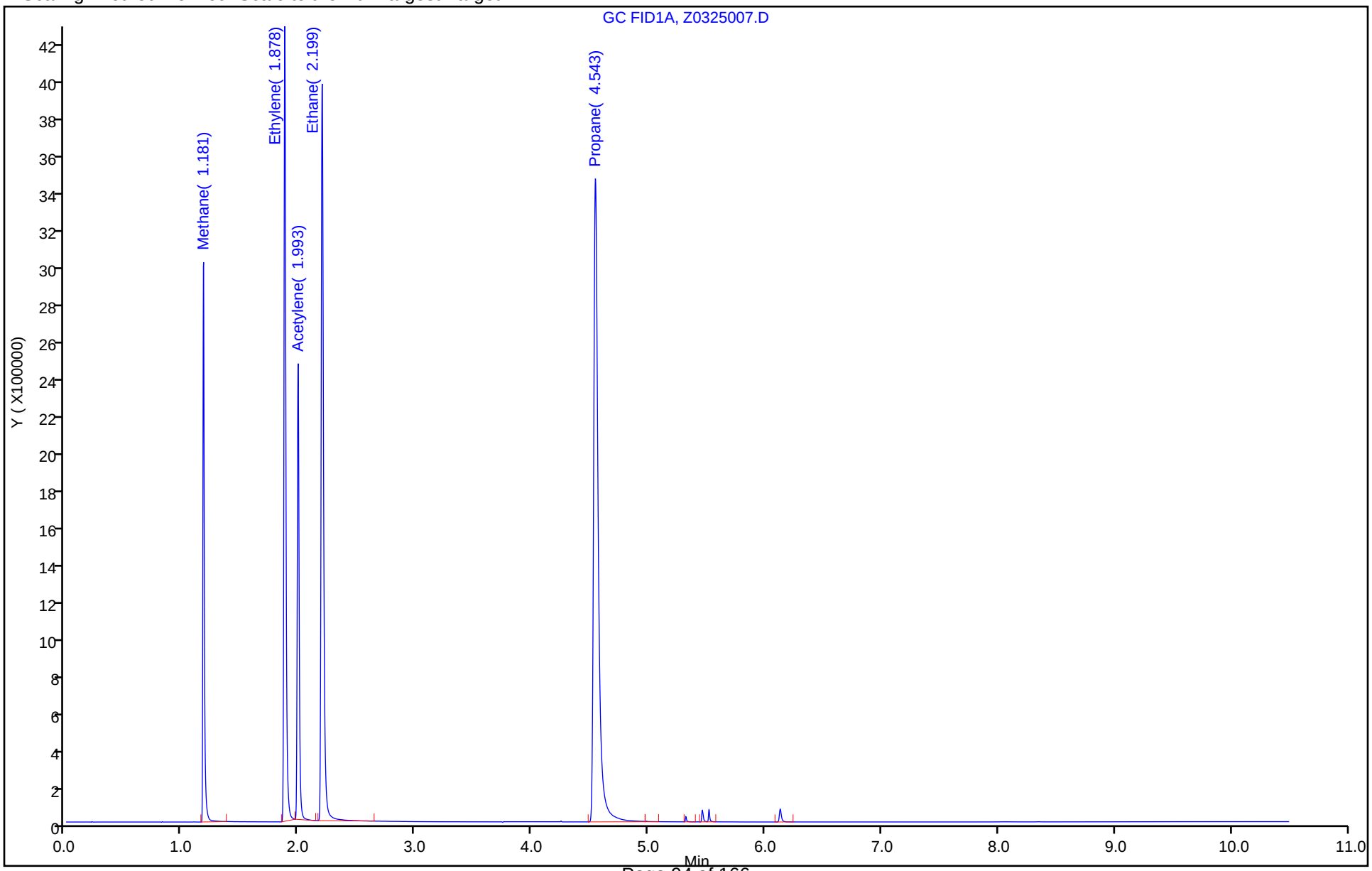
Report Date: 26-Mar-2019 07:54:31 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325007.D

Injection Date:	25-Mar-2019 15:40:45	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD 5			Worklist Smp#:	7
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

TestAmerica Canton

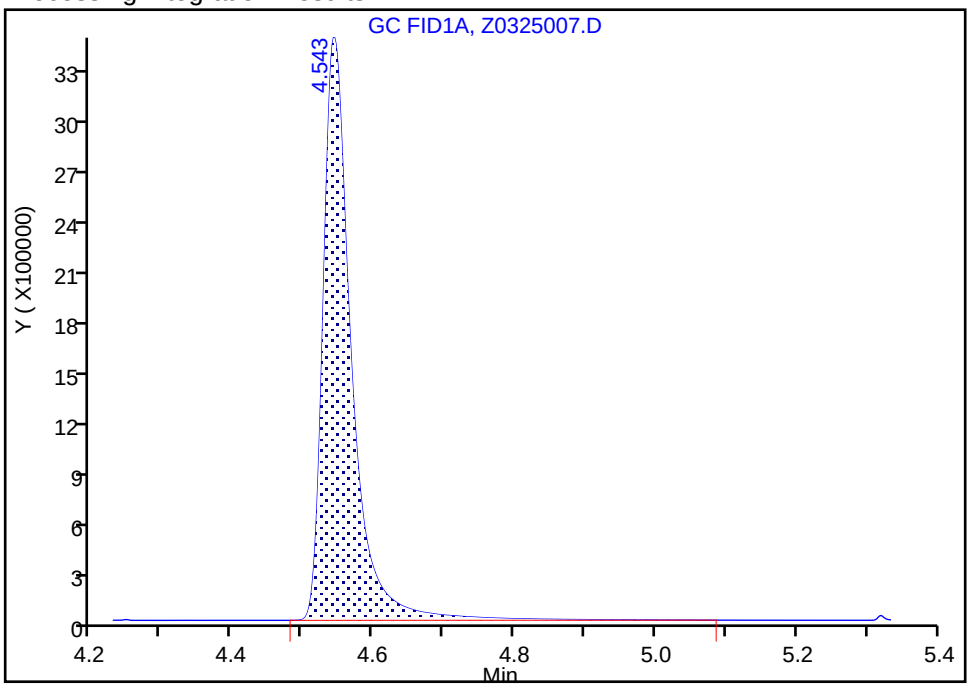
Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325007.D
Injection Date: 25-Mar-2019 15:40:45 Instrument ID: ZPID
Lims ID: STD 5
Client ID:
Operator ID: ALS Bottle#: 7 Worklist Smp#: 7
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Method: RSK175 Limit Group: GCV RSK 175 ICAL
Column: Detector GC FID1A

6 Propane, CAS: 74-98-6

Signal: 1

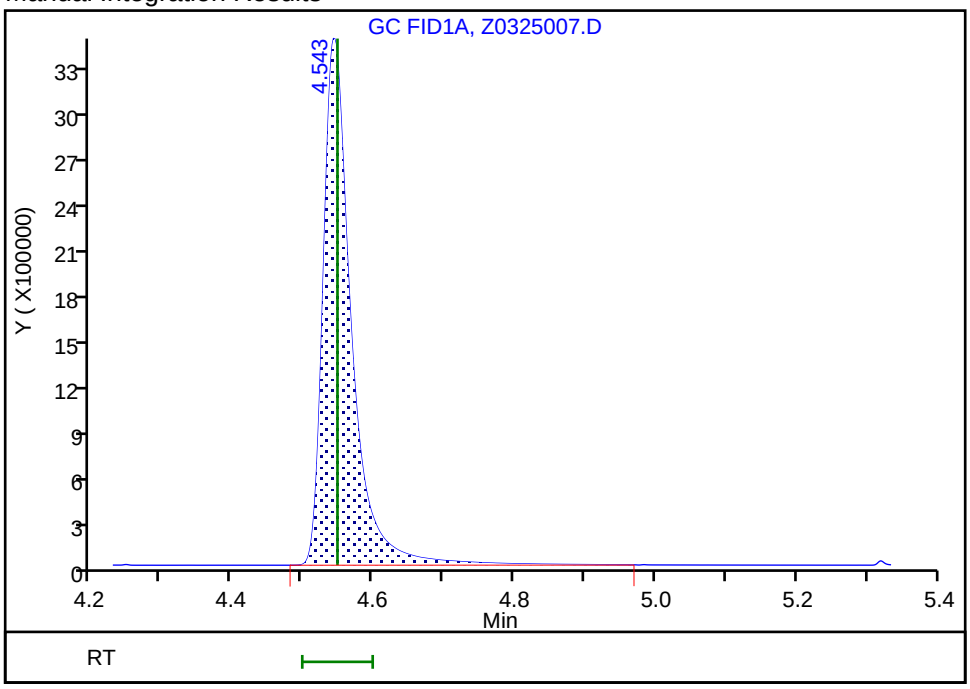
Processing Integration Results

RT: 4.54
Area: 9413090
Amount: 1301.0170
Amount Units: ug/l



Manual Integration Results

RT: 4.54
Area: 9408395
Amount: 1300.4874
Amount Units: ug/l



Reviewer: matthewsb, 26-Mar-2019 07:49:11
Audit Action: Split an Integrated Peak Audit Reason: Split Peak

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325008.D
Lims ID: STD 6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 25-Mar-2019 15:57:51 ALS Bottle#: 8 Worklist Smp#: 8
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-008
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub18

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:31 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

First Level Reviewer: matthewsb Date: 26-Mar-2019 07:50:50

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1 Methane						
1.179	1.179	0.000	27189706	4277.0	4234.9	
2 Ethylene						
1.873	1.873	0.000	51465960	7511.7	8093.5	
3 Acetylene						
1.989	1.989	0.000	30207799	6950.2	9112.7	
4 Ethane						
2.191	2.191	0.000	59757636	8046.5	8945.9	
6 Propane						
4.519	4.519	0.000	98970444	11789	13680	

Reagents:

SARSKHighCal_00006 Amount Added: 15.00 Units: mL

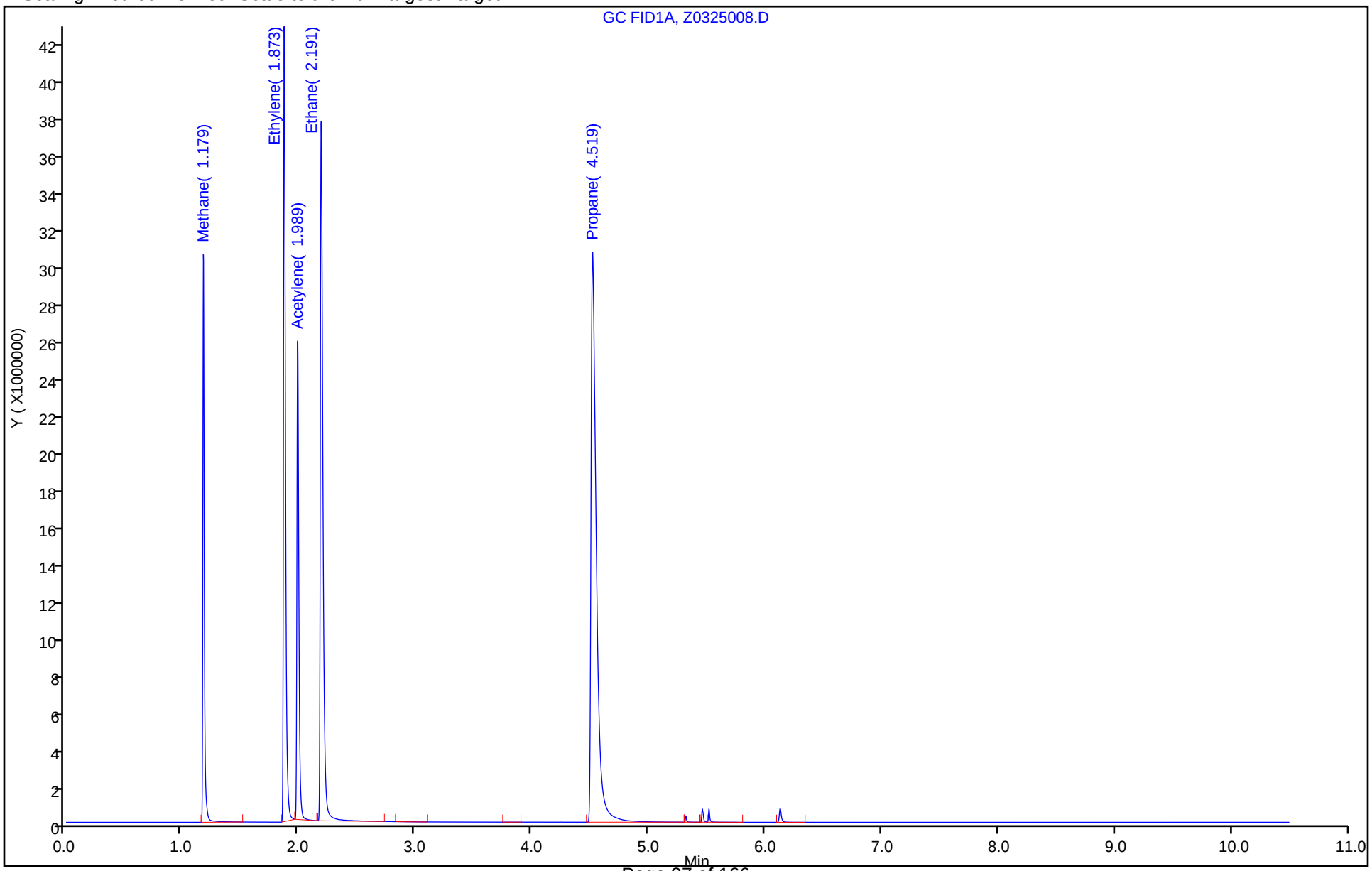
Report Date: 26-Mar-2019 07:54:31 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325008.D

Injection Date:	25-Mar-2019 15:57:51	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD 6			Worklist Smp#:	8
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	8
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1 Analy Batch No.: 373146

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/25/2019 16:14 Calibration End Date: 03/25/2019 17:40 Calibration ID: 49918

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD1 240-373146/9	Z0325009.D
Level 2	STD2 240-373146/10	Z0325010.D
Level 3	STD3 240-373146/11	Z0325011.D
Level 4	STD4 240-373146/12	Z0325012.D
Level 5	STD5 240-373146/13	Z0325013.D
Level 6	STD6 240-373146/14	Z0325014.D

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6					RT WINDOW	AVG RT
1,1,1-Trifluoroethane	3.348	3.347	3.347	3.344	3.342	3.340					3.240 - 3.440	3.345

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1 Analy Batch No.: 373146

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/25/2019 16:14 Calibration End Date: 03/25/2019 17:40 Calibration ID: 49918

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD1 240-373146/9	Z0325009.D
Level 2	STD2 240-373146/10	Z0325010.D
Level 3	STD3 240-373146/11	Z0325011.D
Level 4	STD4 240-373146/12	Z0325012.D
Level 5	STD5 240-373146/13	Z0325013.D
Level 6	STD6 240-373146/14	Z0325014.D

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3	LVL 4		B	M1	M2								
1,1,1-Trifluoroethane	3316.6 3025.3	3329.2 3015.1	2984.2	3103.7	Ave		3129.01094				5.0		30.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1 Analy Batch No.: 373146

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/25/2019 16:14 Calibration End Date: 03/25/2019 17:40 Calibration ID: 49918

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD1 240-373146/9	Z0325009.D
Level 2	STD2 240-373146/10	Z0325010.D
Level 3	STD3 240-373146/11	Z0325011.D
Level 4	STD4 240-373146/12	Z0325012.D
Level 5	STD5 240-373146/13	Z0325013.D
Level 6	STD6 240-373146/14	Z0325014.D

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
		LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
1,1,1-Trifluoroethane	Ave	645431 29338129	1133825	5081580	10570180	22077771	195 9730	341	1703	3406	7298

Curve Type Legend:
Ave = Average

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325009.D
Lims ID: STD1 Surr
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 25-Mar-2019 16:14:57 ALS Bottle#: 9 Worklist Smp#: 9
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-009
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub20

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:32 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

First Level Reviewer: matthewsb Date: 26-Mar-2019 07:53:09

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
$ 5 1,1,1-Trifluoroethane						
3.348	3.340	0.008	645431	194.6	206.3	

Reagents:

SAICALSURR_00015 Amount Added: 400.00 Units: uL

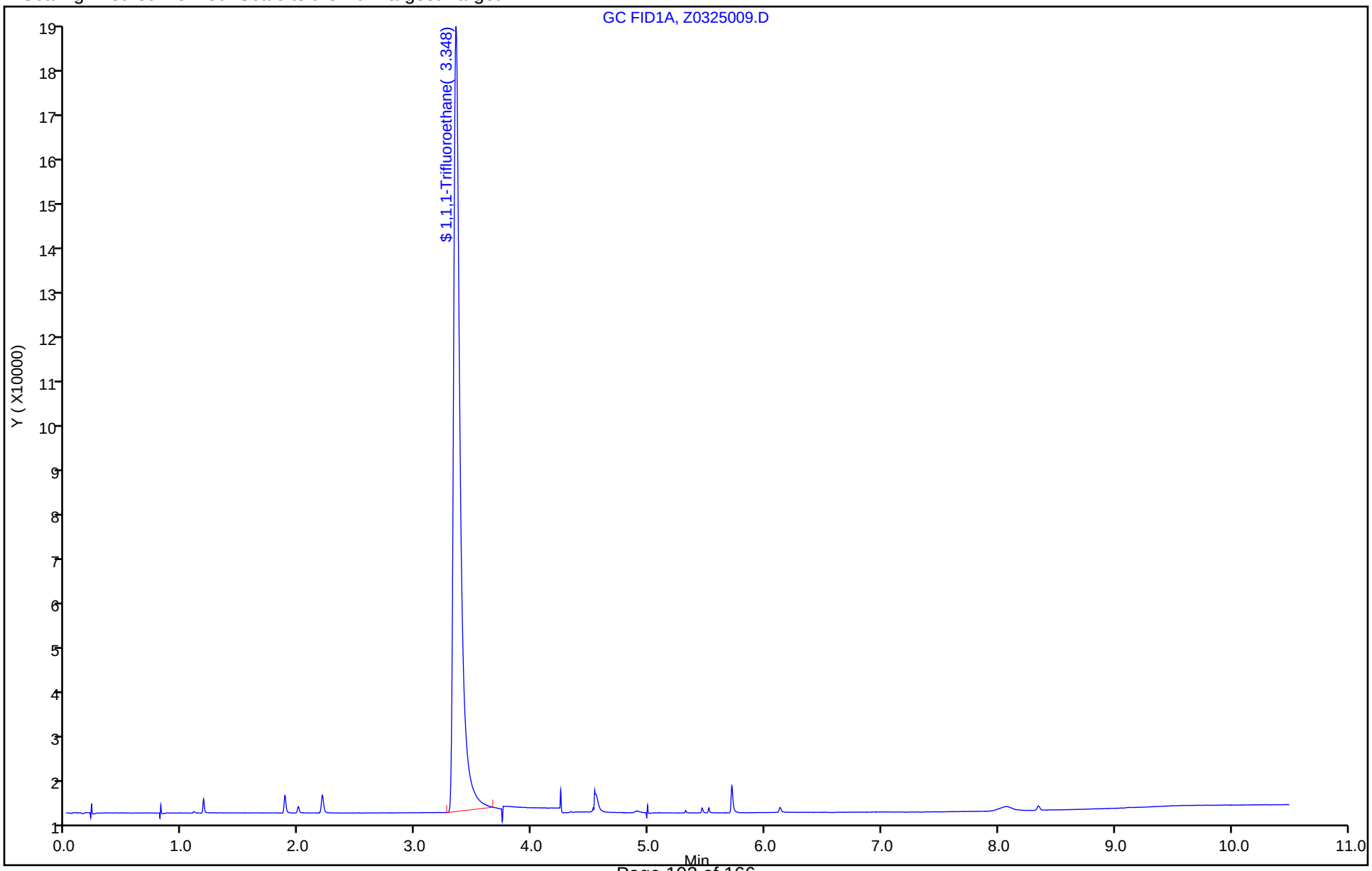
Report Date: 26-Mar-2019 07:54:32 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325009.D

Injection Date:	25-Mar-2019 16:14:57	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD1 Surr			Worklist Smp#:	9
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	9
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325010.D
Lims ID: STD2 Surr
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 25-Mar-2019 16:32:04 ALS Bottle#: 10 Worklist Smp#: 10
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-010
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub20

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:32 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
$ 5 1,1,1-Trifluoroethane						
3.347	3.340	0.007	1133825	340.6	362.4	

Reagents:

SAICALSURR_00015 Amount Added: 700.00 Units: uL

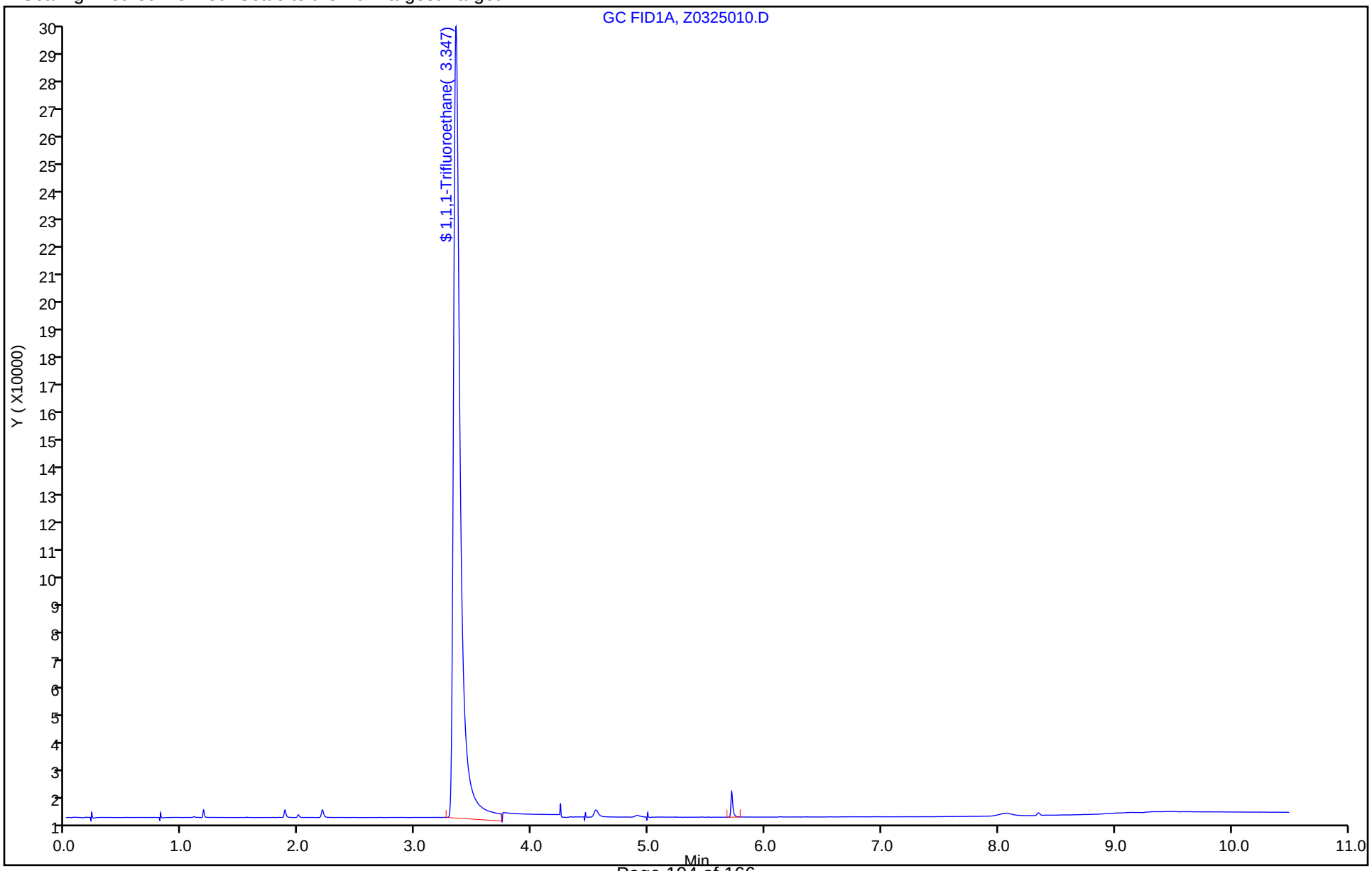
Report Date: 26-Mar-2019 07:54:32 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325010.D

Injection Date:	25-Mar-2019 16:32:04	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD2 Surr			Worklist Smp#:	10
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	10
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325011.D
Lims ID: STD3 Surr
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 25-Mar-2019 16:49:11 ALS Bottle#: 11 Worklist Smp#: 11
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-011
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub20

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:33 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
$ 5 1,1,1-Trifluoroethane						
3.347	3.347	0.000	5081580	1702.8	1624.0	

Reagents:

SAICALSURR_00015 Amount Added: 3.50 Units: mL

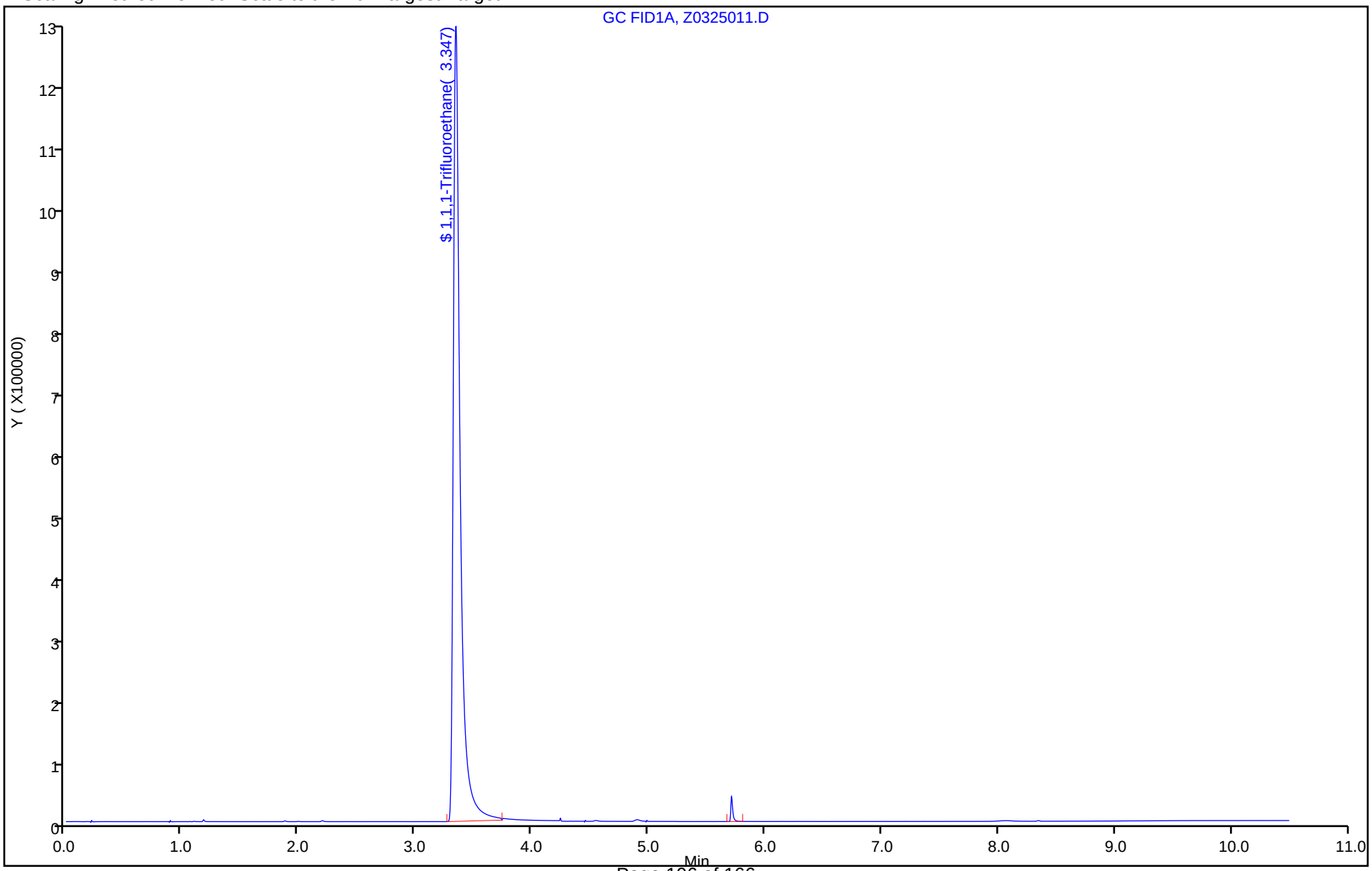
Report Date: 26-Mar-2019 07:54:33 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325011.D

Injection Date:	25-Mar-2019 16:49:11	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD3 Surr			Worklist Smp#:	11
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	11
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325012.D
Lims ID: STD4 Surr
Client ID:
Sample Type: IC Calib Level: 4
Inject. Date: 25-Mar-2019 17:06:17 ALS Bottle#: 12 Worklist Smp#: 12
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-012
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub20

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:33 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
$ 5 1,1,1-Trifluoroethane						
3.344	3.347	-0.003	10570180	3405.7	3378.1	

Reagents:

SAICALSURR_00015 Amount Added: 7.00 Units: mL

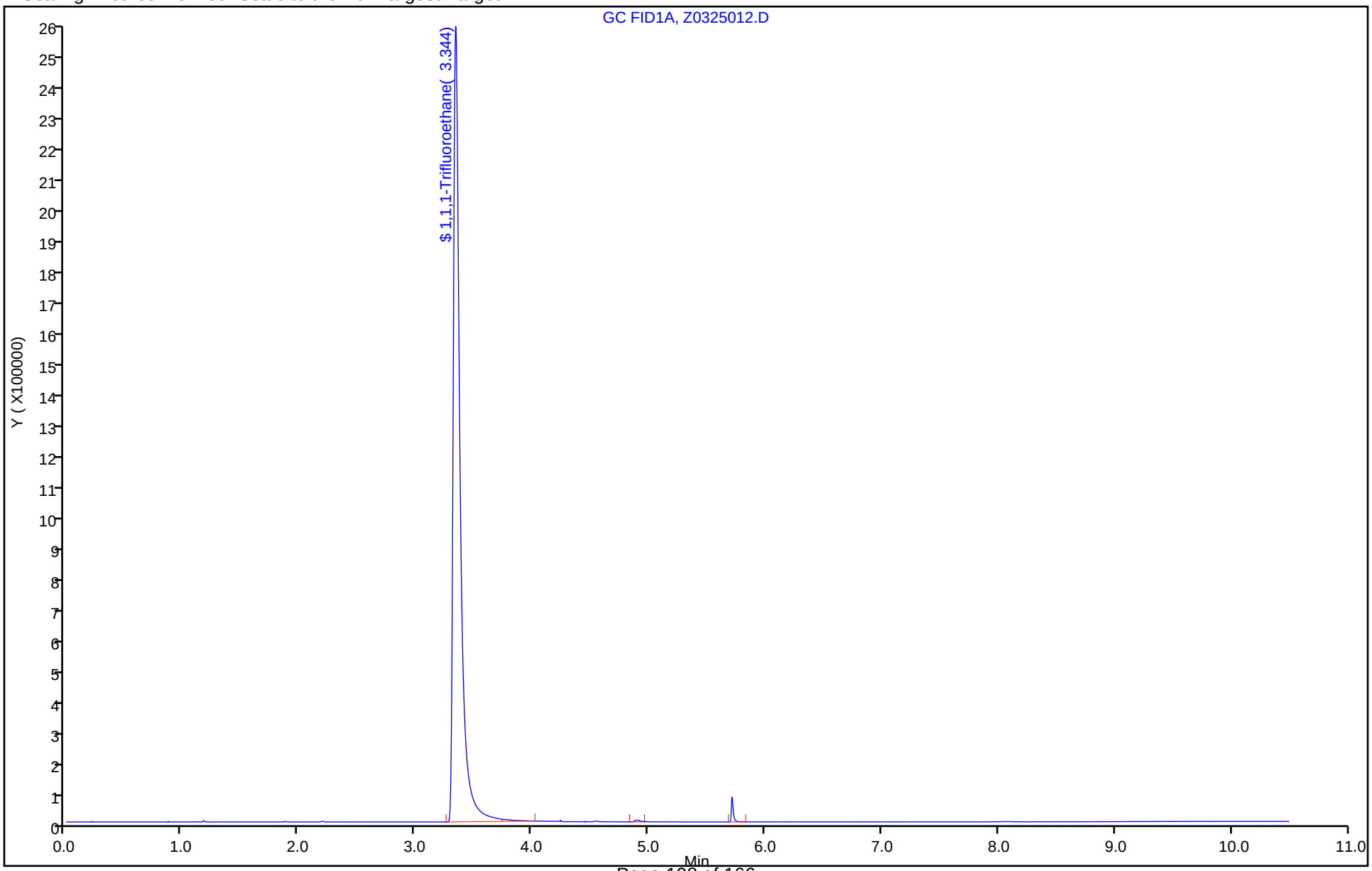
Report Date: 26-Mar-2019 07:54:34 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325012.D

Injection Date:	25-Mar-2019 17:06:17	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD4 Surr			Worklist Smp#:	12
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	12
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325013.D
Lims ID: STD5 Surr
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 25-Mar-2019 17:23:22 ALS Bottle#: 13 Worklist Smp#: 13
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-013
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub20

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:34 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
$ 5 1,1,1-Trifluoroethane						
3.342	3.347	-0.005	22077771	7297.8	7055.8	

Reagents:

SAICALSURR_00015 Amount Added: 15.00 Units: mL

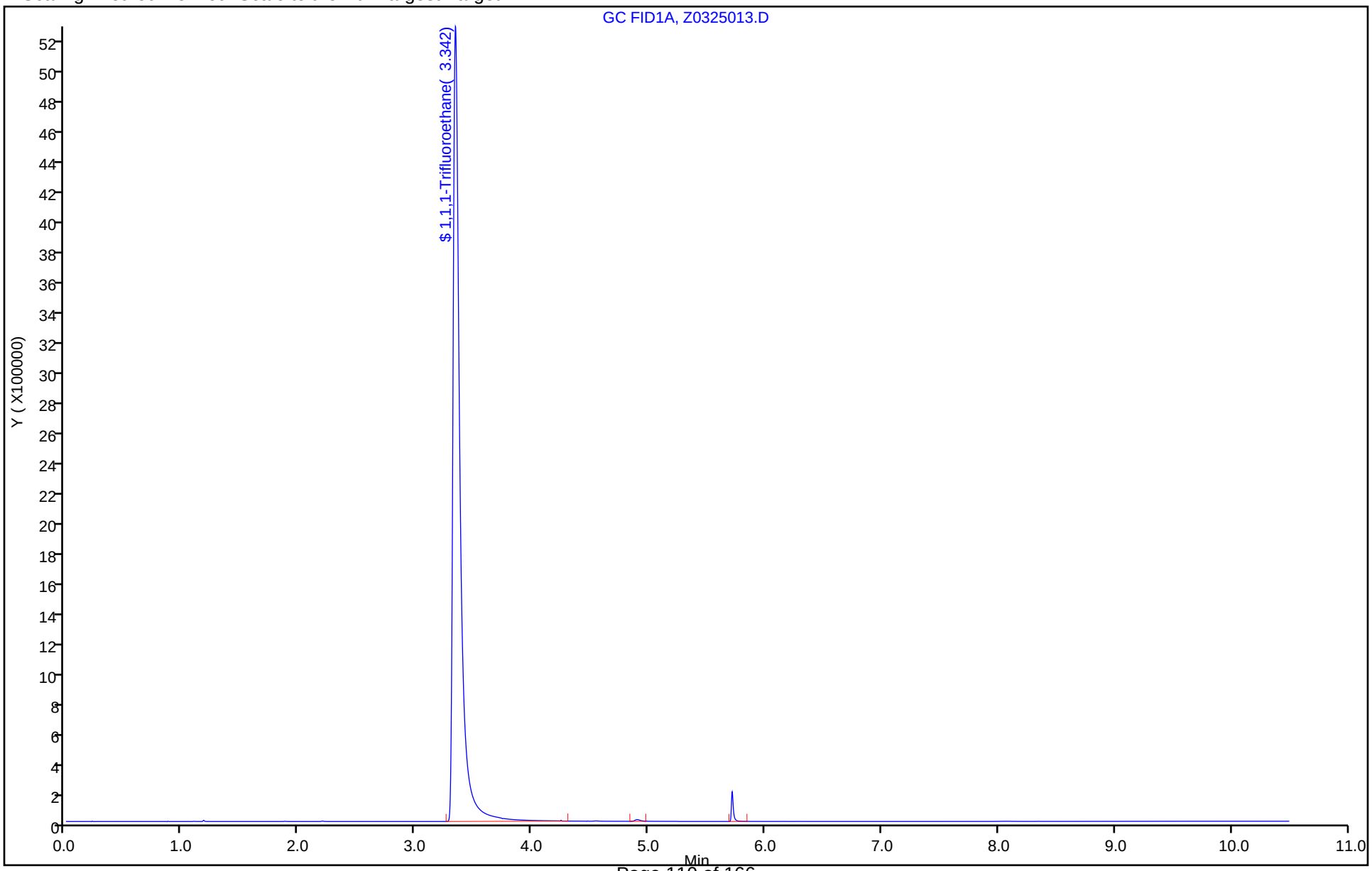
Report Date: 26-Mar-2019 07:54:34 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325013.D

Injection Date:	25-Mar-2019 17:23:22	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD5 Surr			Worklist Smp#:	13
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	13
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D
Lims ID: STD6 Surr
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 25-Mar-2019 17:40:28 ALS Bottle#: 14 Worklist Smp#: 14
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-014
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub20

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:34 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
$ 5 1,1,1-Trifluoroethane						
3.340	3.340	0.000	29338129	9730.4	9376.2	

Reagents:

SAICALSURR_00015 Amount Added: 20.00 Units: mL

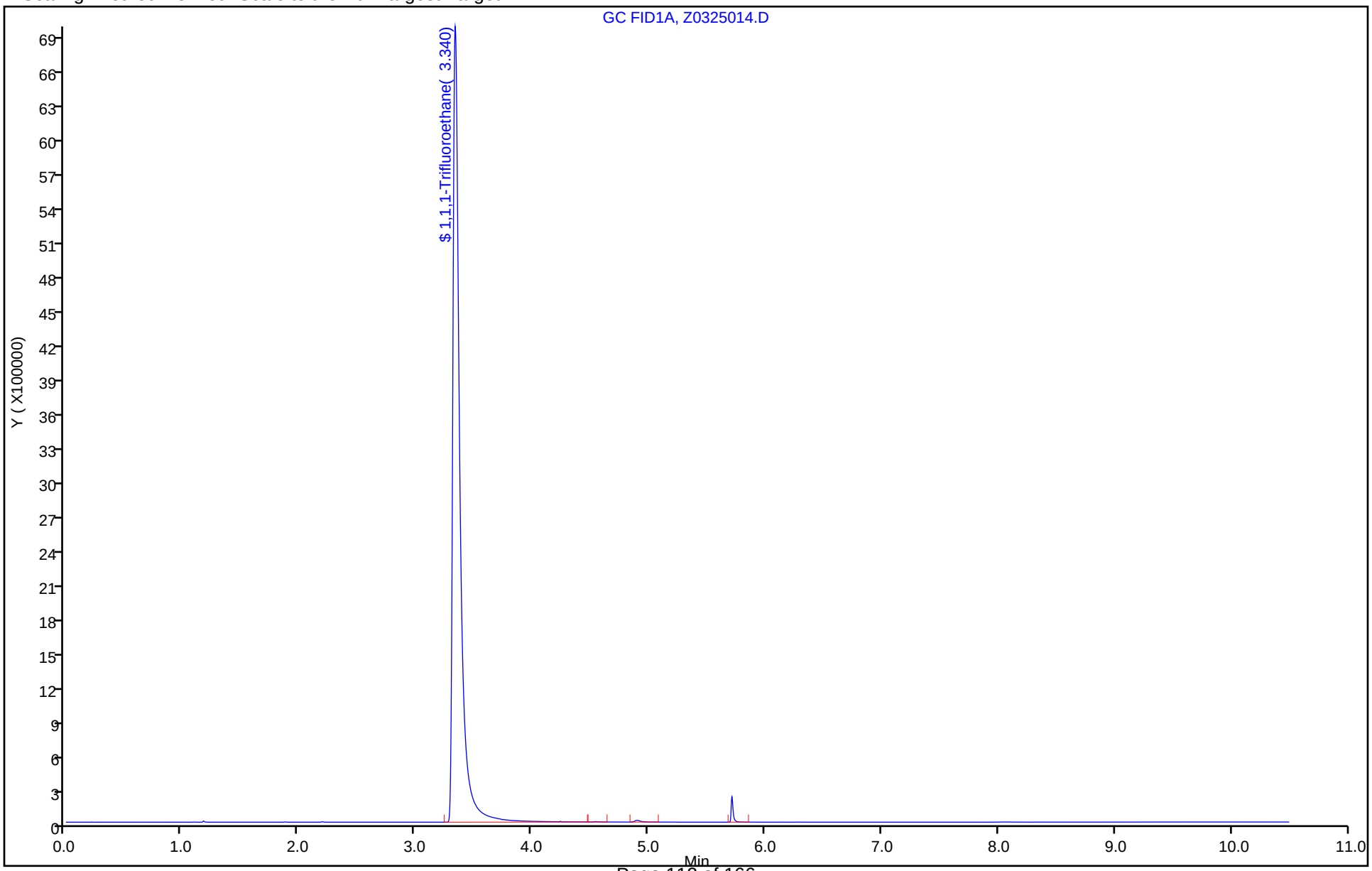
Report Date: 26-Mar-2019 07:54:35 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Injection Date:	25-Mar-2019 17:40:28	Instrument ID:	ZPID	Operator ID:	
Lims ID:	STD6 Surr			Worklist Smp#:	14
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	14
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: ICV 240-373146/15 Calibration Date: 03/25/2019 17:57

Instrument ID: ZPID Calib Start Date: 03/25/2019 14:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 15:57

Lab File ID: Z0325015.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methane	Ave	6420	6298		280	285	-1.9	20.0
Ethylene	Ave	6359	5713		450	501	-10.2	20.0
Acetylene	Ave	3315	3660		512	463	10.4	30.0
Ethane	Ave	6680	5886		473	536	-11.9	20.0
Propane	Ave	7235	6037		656	786	-16.5	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: ICV 240-373146/15 Calibration Date: 03/25/2019 17:57

Instrument ID: ZPID Calib Start Date: 03/25/2019 14:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 15:57

Lab File ID: Z0325015.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.18	1.13	1.23
Ethylene	1.88	1.82	1.92
Acetylene	1.99	1.94	2.04
Ethane	2.20	1.99	2.39
Propane	4.55	4.47	4.57

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325015.D
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 25-Mar-2019 17:57:33 ALS Bottle#: 15 Worklist Smp#: 15
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-015
Operator ID: Instrument ID: ZPID
Sublist:

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:34 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1	Methane						
	1.180	1.179	0.001	1795857	285.1	279.7	
2	Ethylene						
	1.878	1.873	0.005	2860749	500.8	449.9	
3	Acetylene						
	1.993	1.989	0.004	1695677	463.3	511.5	
4	Ethane						
	2.200	2.191	0.009	3157388	536.4	472.7	
$	5 1,1,1-Trifluoroethane						
	3.342	3.347	-0.005	23382861	9243.9	7472.9	
6	Propane						
	4.545	4.519	0.026	4745007	786.0	655.9	

Reagents:

SARSKSURR_00012 Amount Added: 19.00 Units: mL
SARSK2ndSourc_00001 Amount Added: 1.00 Units: mL

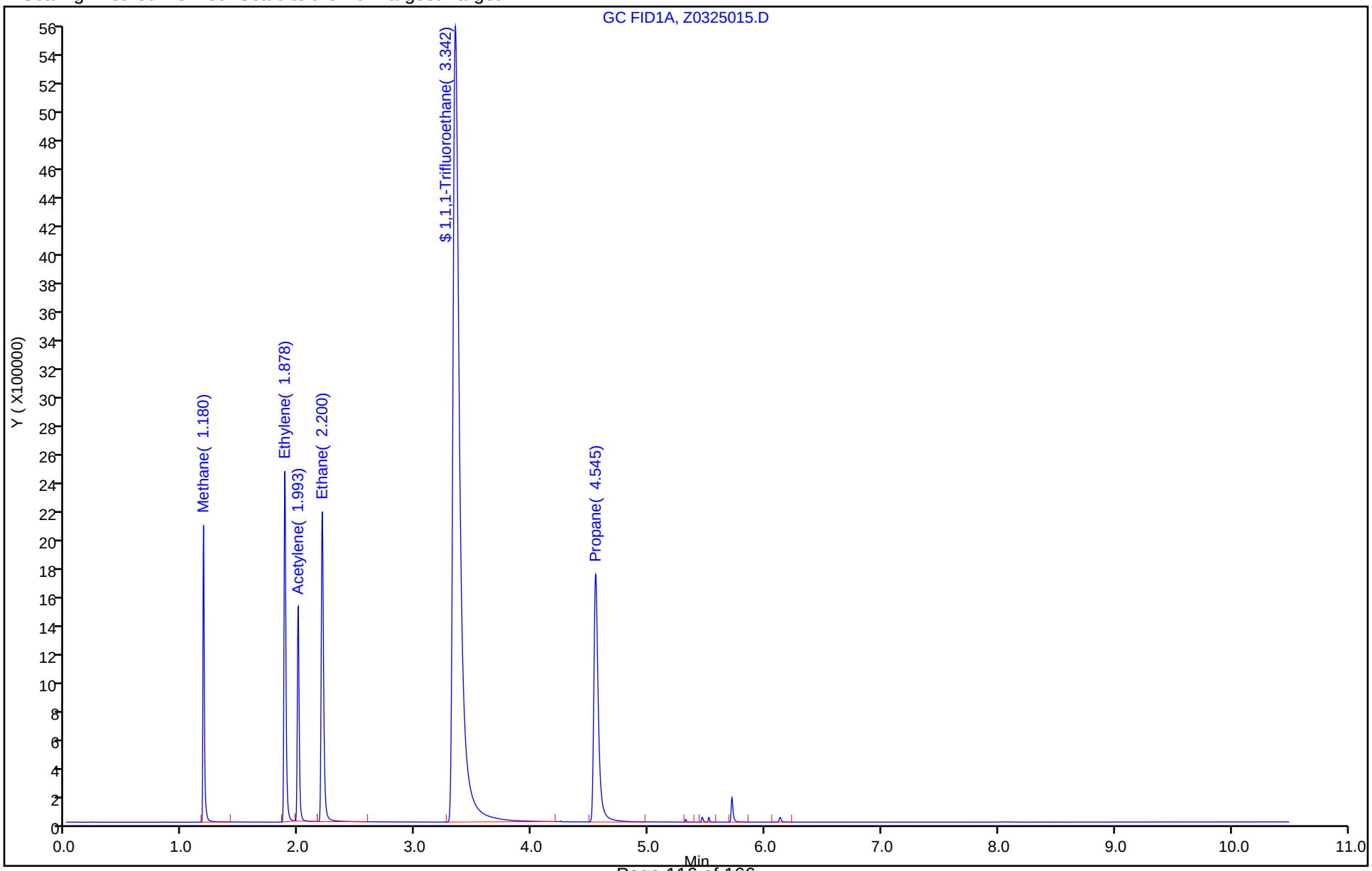
Report Date: 26-Mar-2019 07:54:35 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325015.D

Injection Date:	25-Mar-2019 17:57:33	Instrument ID:	ZPID	Operator ID:	
Lims ID:	ICV			Worklist Smp#:	15
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	15
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: ICV 240-373146/15 Calibration Date: 03/25/2019 17:57

Instrument ID: ZPID Calib Start Date: 03/25/2019 16:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 17:40

Lab File ID: Z0325015.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,1-Trifluoroethane	Ave	3129	2530		7470	9240	-19.2	30.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: ICV 240-373146/15 Calibration Date: 03/25/2019 17:57

Instrument ID: ZPID Calib Start Date: 03/25/2019 16:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 17:40

Lab File ID: Z0325015.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
1,1,1-Trifluoroethane	3.34	3.25	3.45

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325015.D
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 25-Mar-2019 17:57:33 ALS Bottle#: 15 Worklist Smp#: 15
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0085484-015
Operator ID: Instrument ID: ZPID
Sublist:

Method: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 26-Mar-2019 07:54:34 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0325

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1	Methane						
	1.180	1.179	0.001	1795857	285.1	279.7	
2	Ethylene						
	1.878	1.873	0.005	2860749	500.8	449.9	
3	Acetylene						
	1.993	1.989	0.004	1695677	463.3	511.5	
4	Ethane						
	2.200	2.191	0.009	3157388	536.4	472.7	
$	5 1,1,1-Trifluoroethane						
	3.342	3.347	-0.005	23382861	9243.9	7472.9	
6	Propane						
	4.545	4.519	0.026	4745007	786.0	655.9	

Reagents:

SARSKSURR_00012 Amount Added: 19.00 Units: mL
SARSK2ndSourc_00001 Amount Added: 1.00 Units: mL

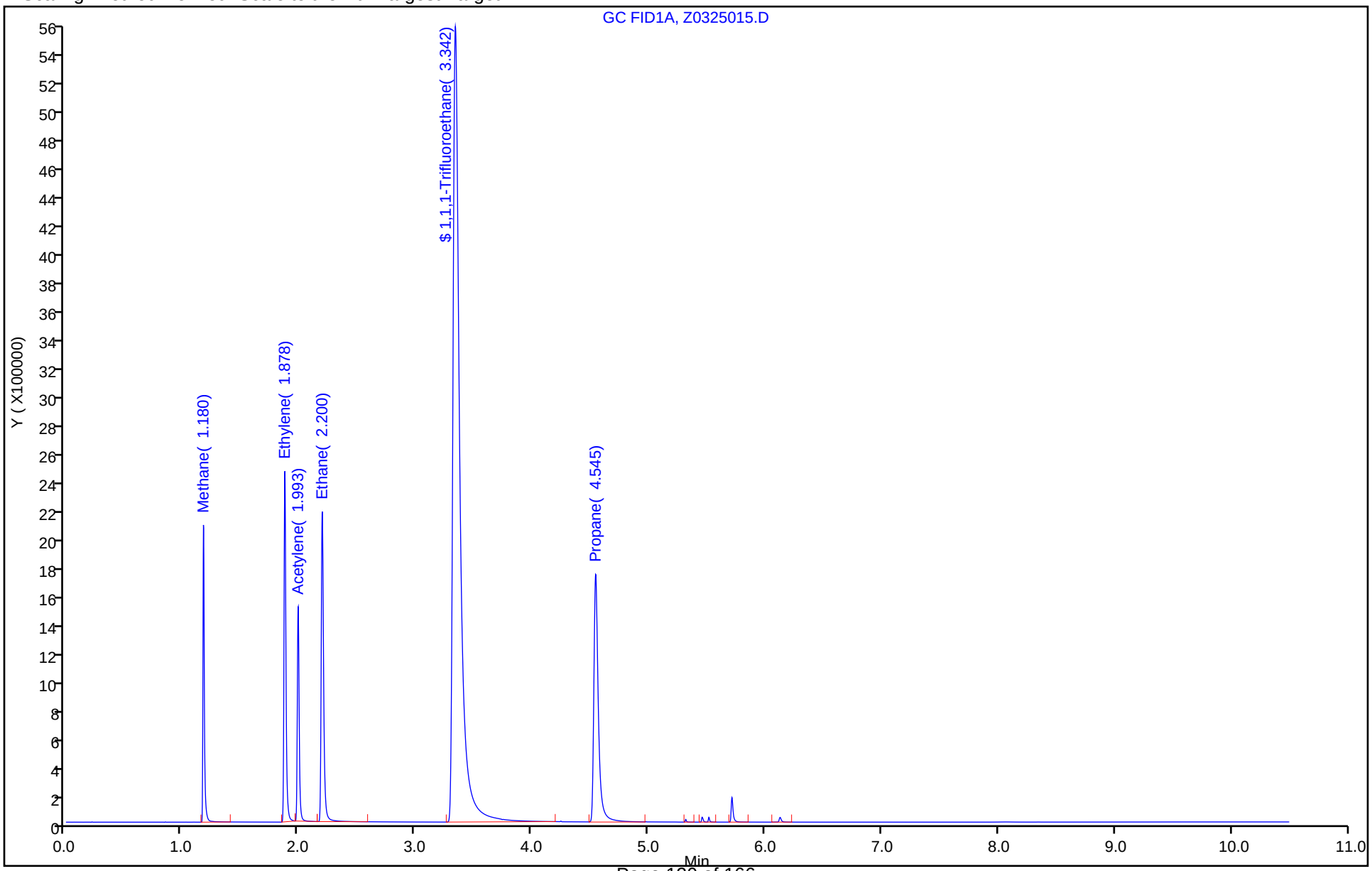
Report Date: 26-Mar-2019 07:54:35 Chrom Revision: 2.3 24-Mar-2019 20:11:04

TestAmerica Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325015.D

Injection Date:	25-Mar-2019 17:57:33	Instrument ID:	ZPID	Operator ID:	
Lims ID:	ICV			Worklist Smp#:	15
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	15
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: CCVRT 240-393758/2 Calibration Date: 07/31/2019 11:39

Instrument ID: ZPID Calib Start Date: 03/25/2019 14:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 15:57

Lab File ID: Z0731002.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methane	Ave	6420	5882		261	285	-8.4	20.0
Ethylene	Ave	6359	6299		496	501	-0.9	20.0
Acetylene	Ave	3315	4083		571	463	23.2	30.0
Ethane	Ave	6680	6745		542	536	1.0	20.0
Propane	Ave	7235	7645		831	786	5.7	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: CCVRT 240-393758/2 Calibration Date: 07/31/2019 11:39

Instrument ID: ZPID Calib Start Date: 03/25/2019 14:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 15:57

Lab File ID: Z0731002.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.19	1.14	1.24
Ethylene	1.89	1.84	1.94
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.01	2.41
Propane	4.56	4.51	4.61

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731002.D
Lims ID: CCVRT
Client ID:
Sample Type: CCVRT
Inject. Date: 31-Jul-2019 11:39:53 ALS Bottle#: 2 Worklist Smp#: 2
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-002
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub17

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1	Methane						
	1.188	1.188	0.000	1677217	285.1	261.2	
2	Ethylene						
	1.888	1.888	0.000	3154376	500.8	496.1	
3	Acetylene						
	2.003	2.003	0.000	1891991	463.3	570.8	
4	Ethane						
	2.210	2.210	0.000	3618310	536.4	541.7	
$	5 1,1,1-Trifluoroethane						
	3.353	3.353	0.000	24157004	9243.9	7720.3	
6	Propane						
	4.558	4.558	0.000	6008398	786.0	830.5	

Reagents:

SARSKSURR_00013 Amount Added: 19.00 Units: mL
SARSKHighCal_00006 Amount Added: 1.00 Units: mL

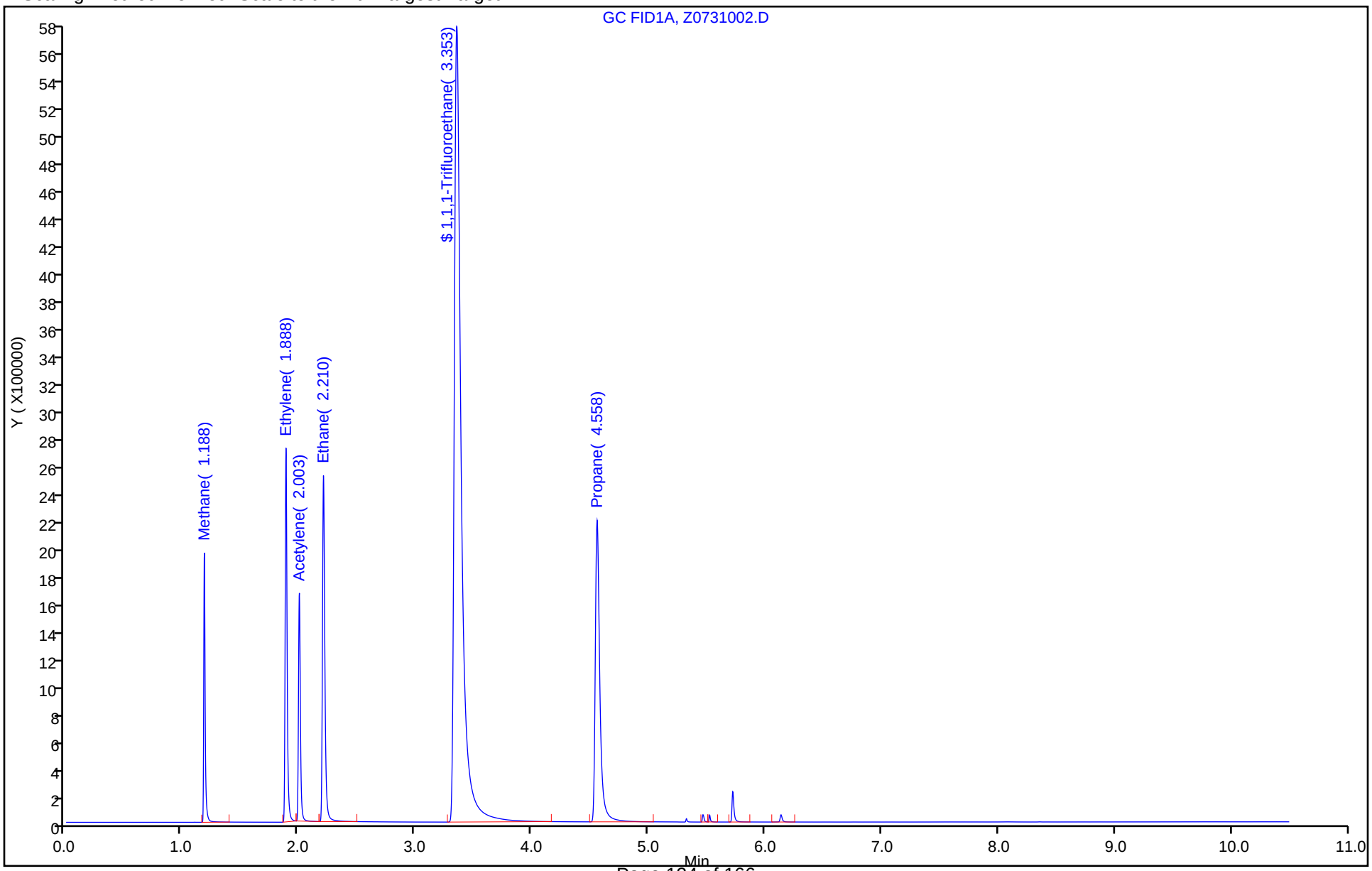
Report Date: 01-Aug-2019 07:49:21 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731002.D

Injection Date:	31-Jul-2019 11:39:53	Instrument ID:	ZPID	Operator ID:	
Lims ID:	CCVRT			Worklist Smp#:	2
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	2
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: CCVRT 240-393758/2 Calibration Date: 07/31/2019 11:39

Instrument ID: ZPID Calib Start Date: 03/25/2019 16:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 17:40

Lab File ID: Z0731002.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,1-Trifluoroethane	Ave	3129	2613		7720	9240	-16.5	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: CCVRT 240-393758/2 Calibration Date: 07/31/2019 11:39

Instrument ID: ZPID Calib Start Date: 03/25/2019 16:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 17:40

Lab File ID: Z0731002.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
1,1,1-Trifluoroethane	3.35	3.25	3.45

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731002.D
Lims ID: CCVRT
Client ID:
Sample Type: CCVRT
Inject. Date: 31-Jul-2019 11:39:53 ALS Bottle#: 2 Worklist Smp#: 2
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-002
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub17

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1	Methane						
	1.188	1.188	0.000	1677217	285.1	261.2	
2	Ethylene						
	1.888	1.888	0.000	3154376	500.8	496.1	
3	Acetylene						
	2.003	2.003	0.000	1891991	463.3	570.8	
4	Ethane						
	2.210	2.210	0.000	3618310	536.4	541.7	
$	5 1,1,1-Trifluoroethane						
	3.353	3.353	0.000	24157004	9243.9	7720.3	
6	Propane						
	4.558	4.558	0.000	6008398	786.0	830.5	

Reagents:

SARSKSURR_00013 Amount Added: 19.00 Units: mL
SARSKHighCal_00006 Amount Added: 1.00 Units: mL

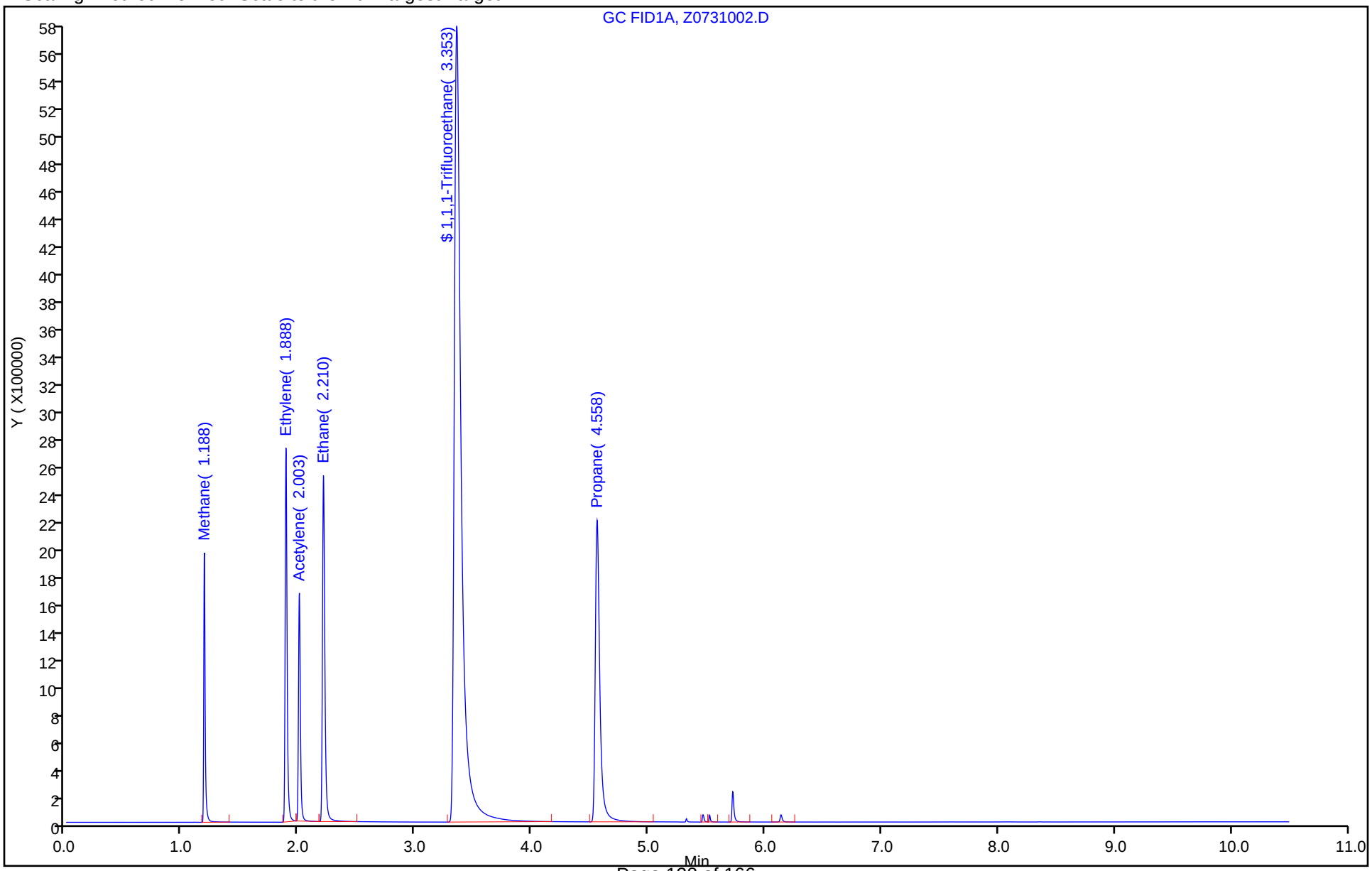
Report Date: 01-Aug-2019 07:49:21 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731002.D

Injection Date:	31-Jul-2019 11:39:53	Instrument ID:	ZPID	Operator ID:	
Lims ID:	CCVRT			Worklist Smp#:	2
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	2
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: CCV 240-393758/18 Calibration Date: 07/31/2019 16:19

Instrument ID: ZPID Calib Start Date: 03/25/2019 14:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 15:57

Lab File ID: Z0731018.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methane	Ave	6420	5912		263	285	-7.9	20.0
Ethylene	Ave	6359	6331		499	501	-0.4	20.0
Acetylene	Ave	3315	4122		576	463	24.3	30.0
Ethane	Ave	6680	6808		547	536	1.9	20.0
Propane	Ave	7235	7720		839	786	6.7	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: CCV 240-393758/18 Calibration Date: 07/31/2019 16:19

Instrument ID: ZPID Calib Start Date: 03/25/2019 14:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 15:57

Lab File ID: Z0731018.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.19	1.14	1.24
Ethylene	1.89	1.84	1.94
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.01	2.41
Propane	4.56	4.51	4.61

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731018.D
Lims ID: CCV
Client ID:
Sample Type: CCV
Inject. Date: 31-Jul-2019 16:19:43 ALS Bottle#: 18 Worklist Smp#: 18
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-018
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub17

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:32 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
	1 Methane						
	1.186	1.185	0.001	1685592	285.1	262.5	
	2 Ethylene						
	1.886	1.887	-0.001	3170599	500.8	498.6	
	3 Acetylene						
	2.001	2.000	0.001	1909911	463.3	576.2	
	4 Ethane						
	2.207	2.207	0.000	3652179	536.4	546.7	
$	5 1,1,1-Trifluoroethane						
	3.351	3.350	0.001	24357085	9243.9	7784.3	
	6 Propane						
	4.556	4.555	0.001	6067916	786.0	838.7	

Reagents:

SARSKSURR_00013 Amount Added: 19.00 Units: mL
SARSKHighCal_00006 Amount Added: 1.00 Units: mL

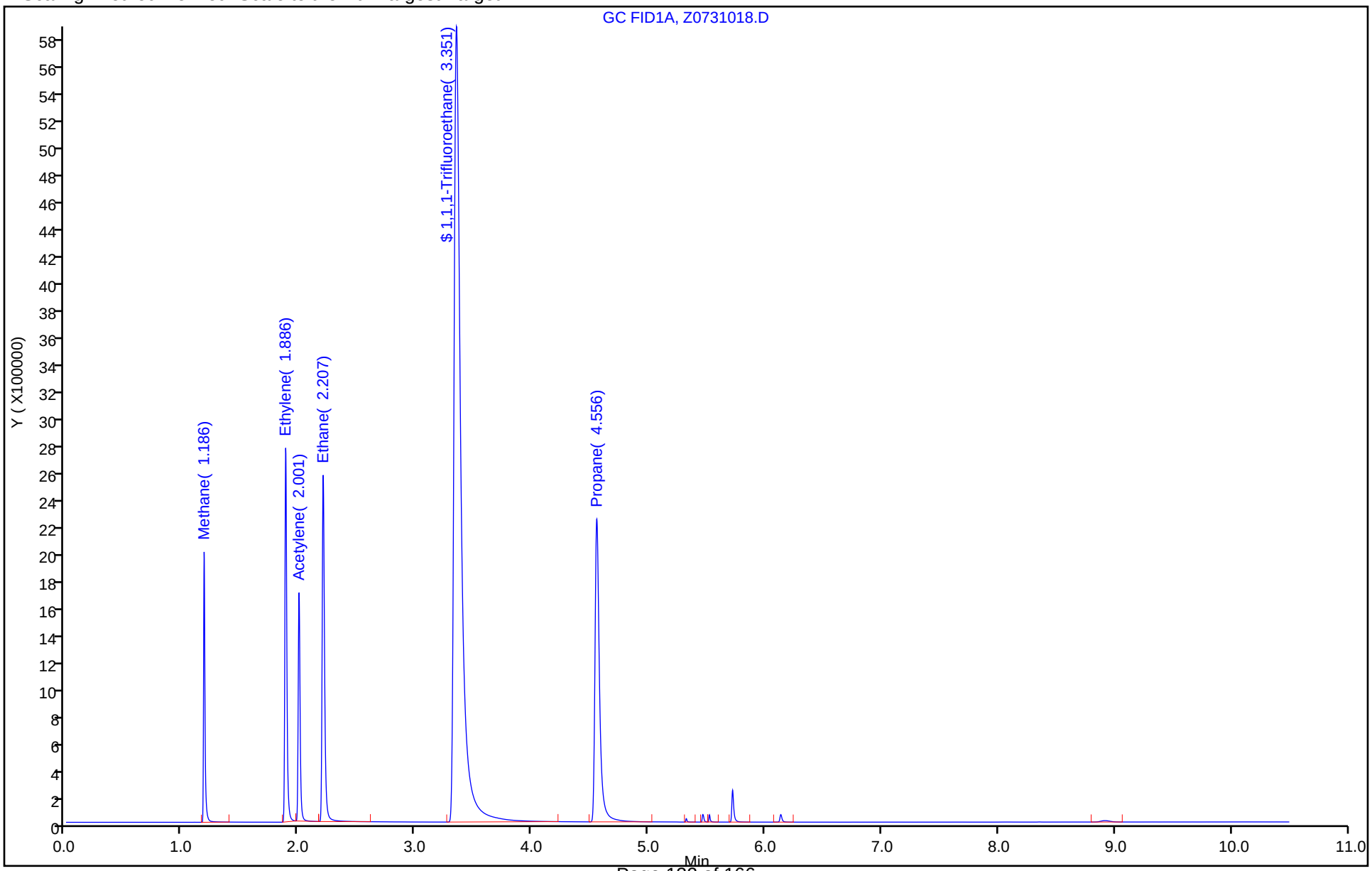
Report Date: 01-Aug-2019 07:49:32 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731018.D

Injection Date:	31-Jul-2019 16:19:43	Instrument ID:	ZPID	Operator ID:	
Lims ID:	CCV			Worklist Smp#:	18
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	18
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: CCV 240-393758/18 Calibration Date: 07/31/2019 16:19

Instrument ID: ZPID Calib Start Date: 03/25/2019 16:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 17:40

Lab File ID: Z0731018.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,1-Trifluoroethane	Ave	3129	2635		7780	9240	-15.8	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: CCV 240-393758/18 Calibration Date: 07/31/2019 16:19

Instrument ID: ZPID Calib Start Date: 03/25/2019 16:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 17:40

Lab File ID: Z0731018.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
1,1,1-Trifluoroethane	3.35	3.25	3.45

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731018.D
Lims ID: CCV
Client ID:
Sample Type: CCV
Inject. Date: 31-Jul-2019 16:19:43 ALS Bottle#: 18 Worklist Smp#: 18
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-018
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub17

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:32 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
	1 Methane						
	1.186	1.185	0.001	1685592	285.1	262.5	
	2 Ethylene						
	1.886	1.887	-0.001	3170599	500.8	498.6	
	3 Acetylene						
	2.001	2.000	0.001	1909911	463.3	576.2	
	4 Ethane						
	2.207	2.207	0.000	3652179	536.4	546.7	
$	5 1,1,1-Trifluoroethane						
	3.351	3.350	0.001	24357085	9243.9	7784.3	
	6 Propane						
	4.556	4.555	0.001	6067916	786.0	838.7	

Reagents:

SARSKSURR_00013 Amount Added: 19.00 Units: mL
SARSKHighCal_00006 Amount Added: 1.00 Units: mL

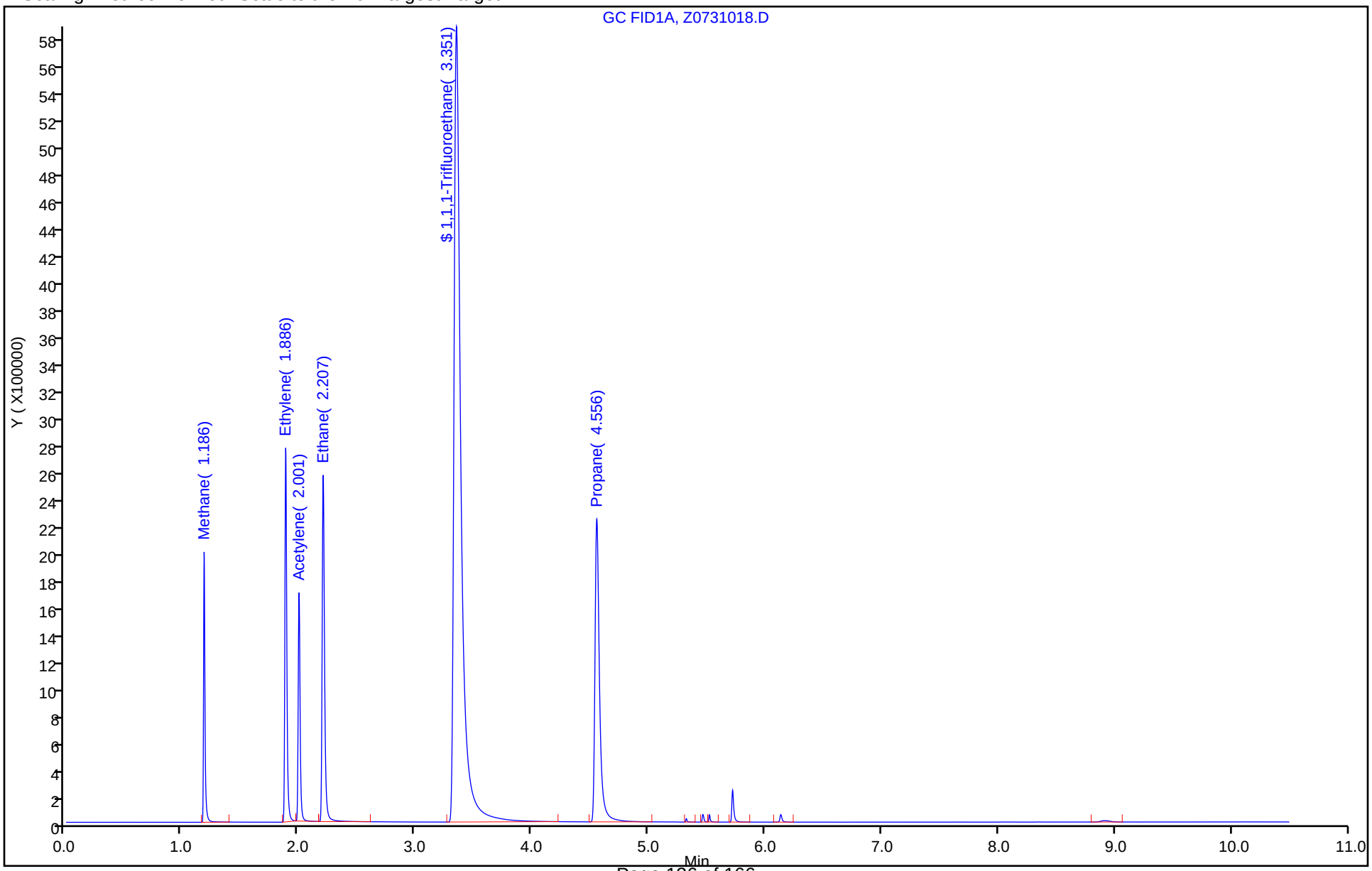
Report Date: 01-Aug-2019 07:49:32 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731018.D

Injection Date:	31-Jul-2019 16:19:43	Instrument ID:	ZPID	Operator ID:	
Lims ID:	CCV			Worklist Smp#:	18
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	18
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: CCV 240-393758/29 Calibration Date: 07/31/2019 19:32

Instrument ID: ZPID Calib Start Date: 03/25/2019 14:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 15:57

Lab File ID: Z0731029.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methane	Ave	6420	5904		262	285	-8.0	20.0
Ethylene	Ave	6359	6320		498	501	-0.6	20.0
Acetylene	Ave	3315	4089		571	463	23.3	30.0
Ethane	Ave	6680	6816		547	536	2.0	20.0
Propane	Ave	7235	7736		840	786	6.9	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: CCV 240-393758/29 Calibration Date: 07/31/2019 19:32

Instrument ID: ZPID Calib Start Date: 03/25/2019 14:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 15:57

Lab File ID: Z0731029.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.19	1.14	1.24
Ethylene	1.89	1.84	1.94
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.01	2.41
Propane	4.56	4.51	4.61

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731029.D
Lims ID: CCV
Client ID:
Sample Type: CCV
Inject. Date: 31-Jul-2019 19:32:51 ALS Bottle#: 29 Worklist Smp#: 29
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-029
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub17

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:39 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1	Methane						
	1.186	1.185	0.001	1683393	285.1	262.2	
2	Ethylene						
	1.886	1.887	-0.001	3164738	500.8	497.7	
3	Acetylene						
	2.000	2.000	0.000	1894400	463.3	571.5	
4	Ethane						
	2.208	2.207	0.001	3656118	536.4	547.3	
$ 5	1,1,1-Trifluoroethane						
	3.350	3.350	0.000	24260440	9243.9	7753.4	
6	Propane						
	4.555	4.555	0.000	6080066	786.0	840.4	

Reagents:

SARSKSURR_00013 Amount Added: 19.00 Units: mL
SARSKHighCal_00006 Amount Added: 1.00 Units: mL

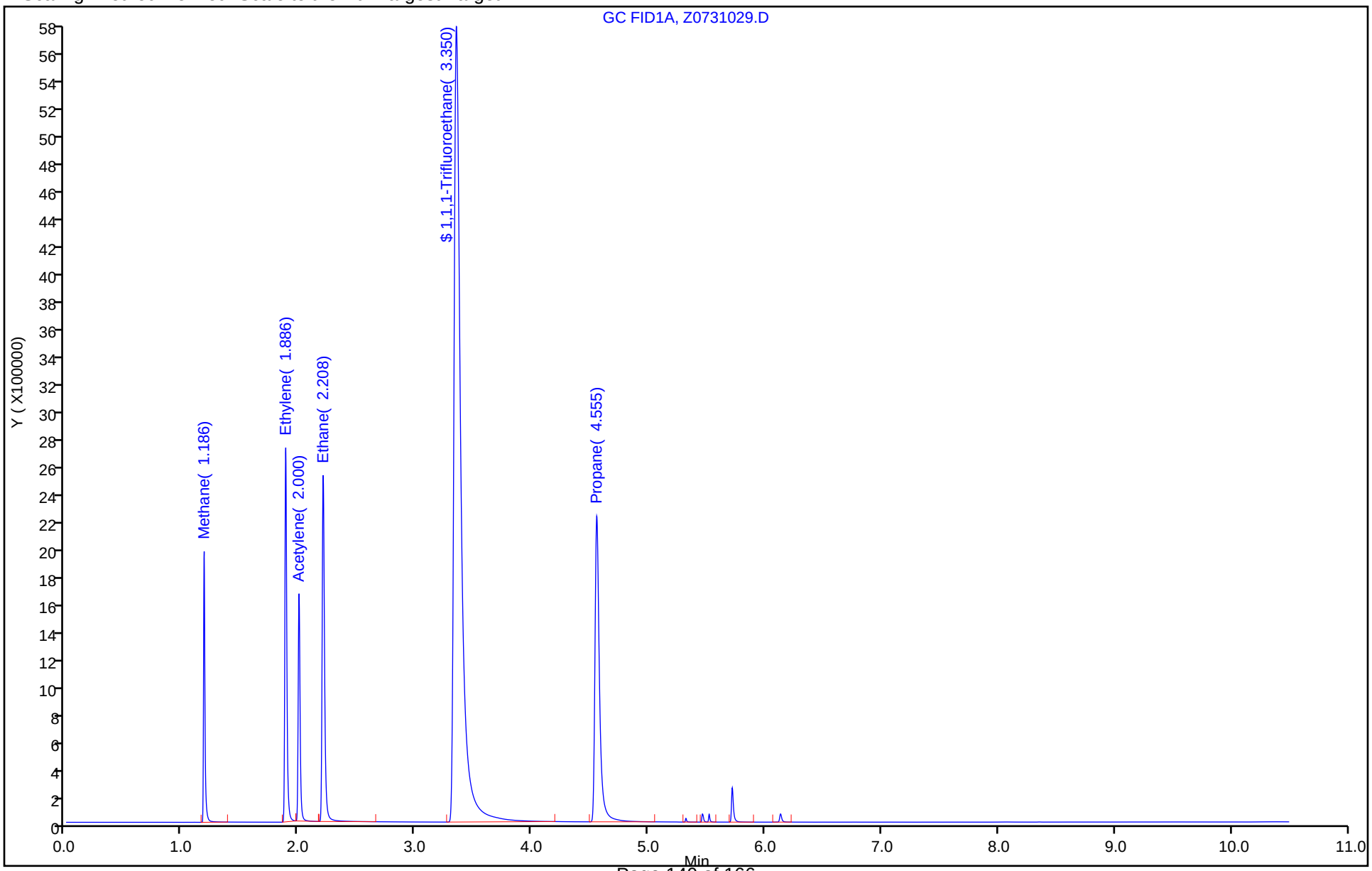
Report Date: 01-Aug-2019 07:49:39 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731029.D

Injection Date:	31-Jul-2019 19:32:51	Instrument ID:	ZPID	Operator ID:	
Lims ID:	CCV			Worklist Smp#:	29
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	29
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: CCV 240-393758/29 Calibration Date: 07/31/2019 19:32

Instrument ID: ZPID Calib Start Date: 03/25/2019 16:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 17:40

Lab File ID: Z0731029.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,1-Trifluoroethane	Ave	3129	2624		7750	9240	-16.1	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Lab Sample ID: CCV 240-393758/29 Calibration Date: 07/31/2019 19:32

Instrument ID: ZPID Calib Start Date: 03/25/2019 16:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 03/25/2019 17:40

Lab File ID: Z0731029.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
1,1,1-Trifluoroethane	3.35	3.25	3.45

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731029.D
Lims ID: CCV
Client ID:
Sample Type: CCV
Inject. Date: 31-Jul-2019 19:32:51 ALS Bottle#: 29 Worklist Smp#: 29
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-029
Operator ID: Instrument ID: ZPID
Sublist: chrom-RSK175*sub17

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:39 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
	1 Methane						
	1.186	1.185	0.001	1683393	285.1	262.2	
	2 Ethylene						
	1.886	1.887	-0.001	3164738	500.8	497.7	
	3 Acetylene						
	2.000	2.000	0.000	1894400	463.3	571.5	
	4 Ethane						
	2.208	2.207	0.001	3656118	536.4	547.3	
$	5 1,1,1-Trifluoroethane						
	3.350	3.350	0.000	24260440	9243.9	7753.4	
	6 Propane						
	4.555	4.555	0.000	6080066	786.0	840.4	

Reagents:

SARSKSURR_00013 Amount Added: 19.00 Units: mL
SARSKHighCal_00006 Amount Added: 1.00 Units: mL

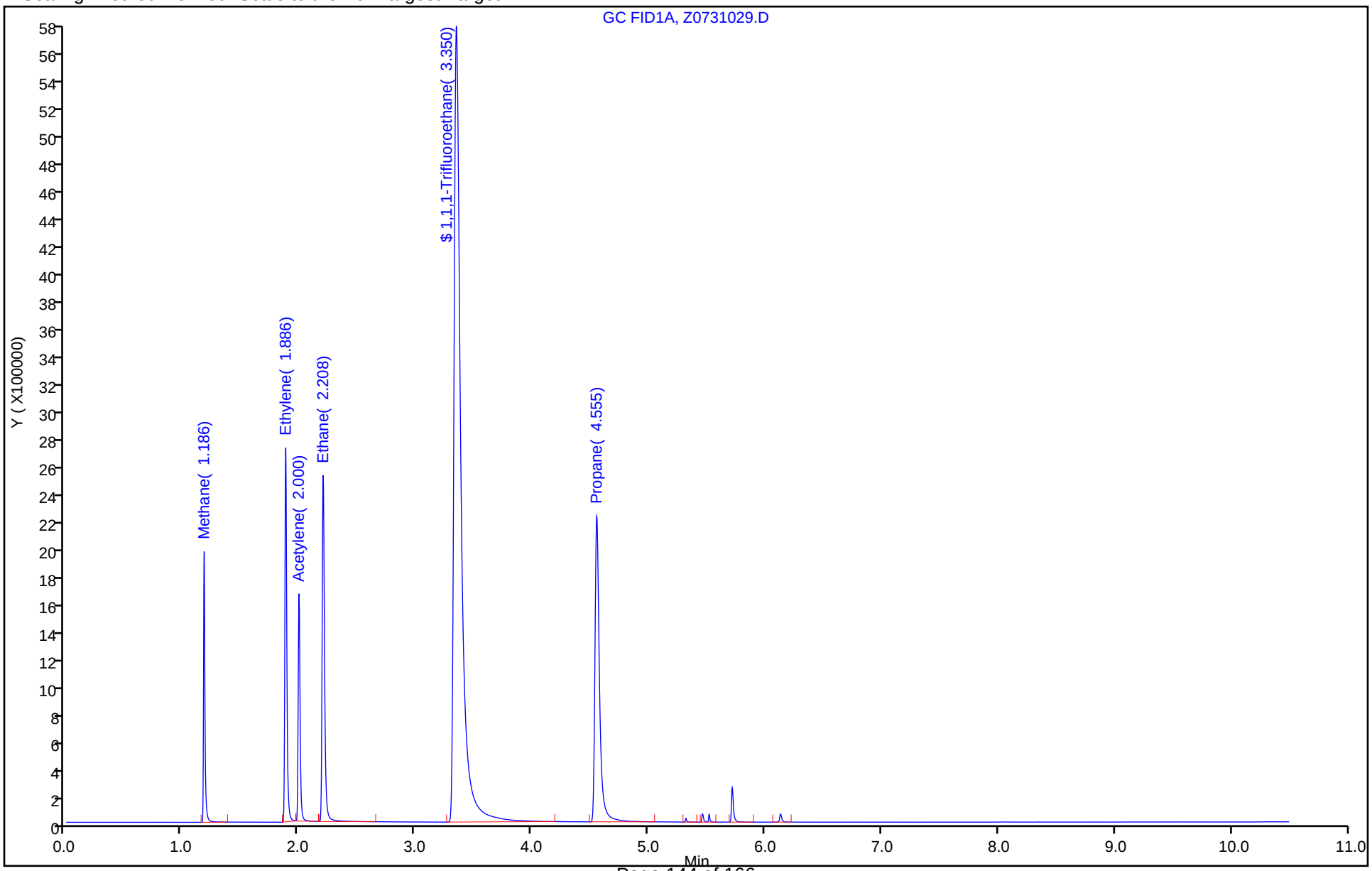
Report Date: 01-Aug-2019 07:49:39 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731029.D

Injection Date:	31-Jul-2019 19:32:51	Instrument ID:	ZPID	Operator ID:	
Lims ID:	CCV			Worklist Smp#:	29
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	29
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Client Sample ID: Lab Sample ID: MB 240-393758/3

Matrix: Water Lab File ID: Z0731003.D

Analysis Method: RSK-175 Date Collected:

Sample wt/vol: 23(mL) Date Analyzed: 07/31/2019 11:57

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393758 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	<1.0		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	86		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731003.D
Lims ID: MB
Client ID:
Sample Type: MB
Inject. Date: 31-Jul-2019 11:57:23 ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-003
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1	Methane						
	1.185					ND	
2	Ethylene						
	1.887					ND	
3	Acetylene						
	2.000					ND	
4	Ethane						
	2.207					ND	
$ 5	1,1,1-Trifluoroethane						
	3.353	3.350	0.003	26270730	9730.4	8395.9	
6	Propane						
	4.555					ND	

Reagents:

SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

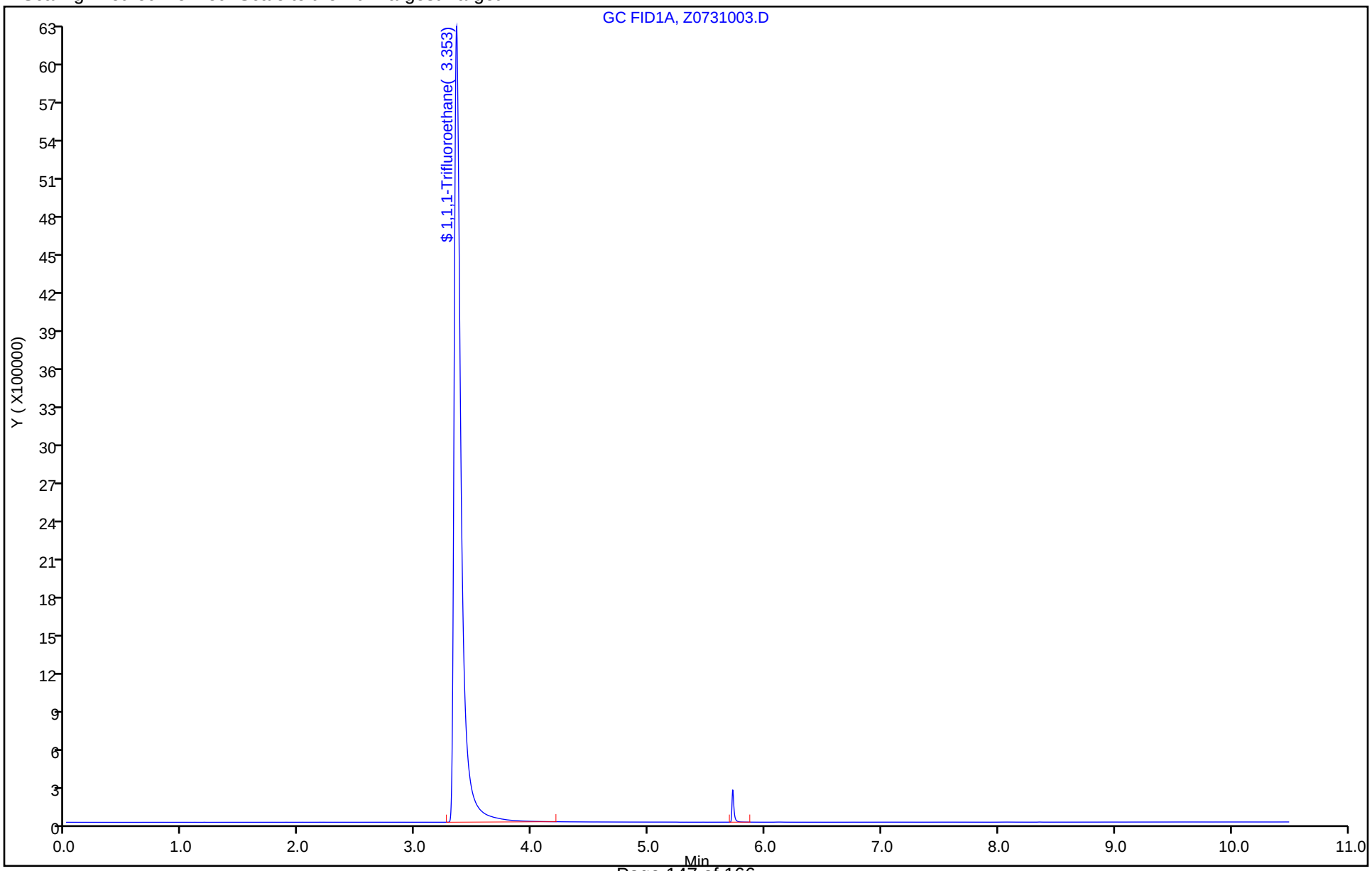
Report Date: 01-Aug-2019 07:49:21 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731003.D

Injection Date:	31-Jul-2019 11:57:23	Instrument ID:	ZPID	Operator ID:	
Lims ID:	MB			Worklist Smp#:	3
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	3
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731003.D
Lims ID: MB
Client ID:
Sample Type: MB
Inject. Date: 31-Jul-2019 11:57:23 ALS Bottle#: 3 Worklist Smp#: 3
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-003
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	8395.9	86.28

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Client Sample ID: Lab Sample ID: LCS 240-393758/4

Matrix: Water Lab File ID: Z0731004.D

Analysis Method: RSK-175 Date Collected:

Sample wt/vol: 23(mL) Date Analyzed: 07/31/2019 12:14

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393758 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	473		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	85		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731004.D
Lims ID: LCS
Client ID:
Sample Type: LCS
Inject. Date: 31-Jul-2019 12:14:47 ALS Bottle#: 4 Worklist Smp#: 4
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-004
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1	Methane						
	1.186	1.185	0.001	3034520	474.4	472.6	
2	Ethylene						
	1.886	1.887	-0.001	2575523	410.2	405.0	
4	Ethane						
	2.208	2.207	0.001	2921140	472.6	437.3	
$	5 1,1,1-Trifluoroethane						
	3.351	3.350	0.001	25944840	9730.4	8291.7	
6	Propane						
	4.558	4.555	0.003	3053538	467.0	422.1	

Reagents:

MEEP LCS_00036 Amount Added: 23.00 Units: mL
SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

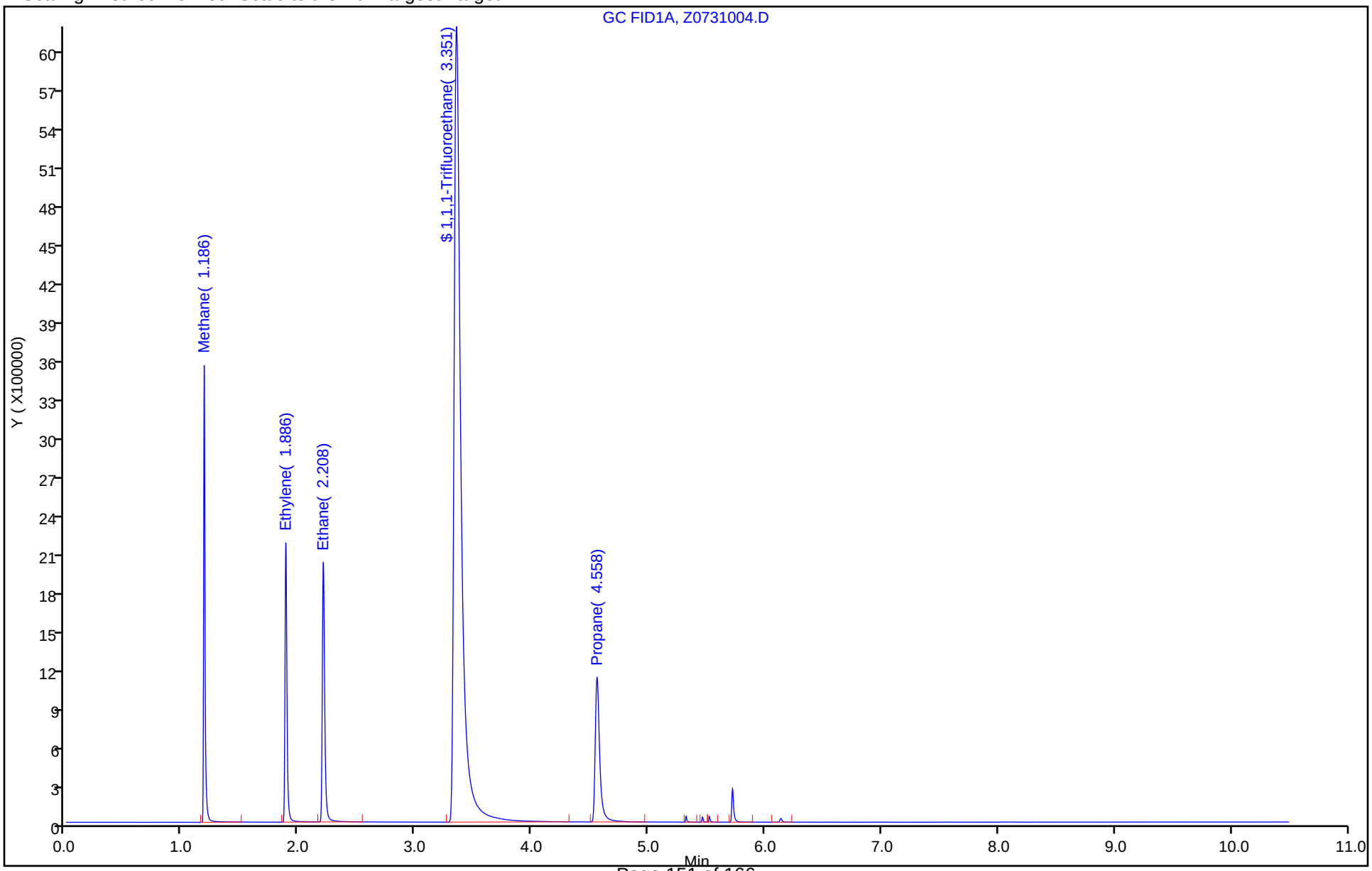
Report Date: 01-Aug-2019 07:49:22 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731004.D

Injection Date:	31-Jul-2019 12:14:47	Instrument ID:	ZPID	Operator ID:	
Lims ID:	LCS			Worklist Smp#:	4
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	4
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731004.D
Lims ID: LCS
Client ID:
Sample Type: LCS
Inject. Date: 31-Jul-2019 12:14:47 ALS Bottle#: 4 Worklist Smp#: 4
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-004
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	8291.7	85.21

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Client Sample ID: Lab Sample ID: LCSD 240-393758/5

Matrix: Water Lab File ID: Z0731005.D

Analysis Method: RSK-175 Date Collected:

Sample wt/vol: 23(mL) Date Analyzed: 07/31/2019 12:32

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 393758 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	484		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	85		60-140

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731005.D
Lims ID: LCSD
Client ID:
Sample Type: LCSD
Inject. Date: 31-Jul-2019 12:32:12 ALS Bottle#: 5 Worklist Smp#: 5
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-005
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
1	Methane						
	1.187	1.185	0.002	3107846	474.4	484.1	
2	Ethylene						
	1.887	1.887	0.000	2613591	410.2	411.0	
4	Ethane						
	2.208	2.207	0.001	3013149	472.6	451.1	
$	5 1,1,1-Trifluoroethane						
	3.352	3.350	0.002	25784080	9730.4	8240.3	
6	Propane						
	4.557	4.555	0.002	3153803	467.0	435.9	

Reagents:

MEEP LCS_00037 Amount Added: 23.00 Units: mL
SARSKSURR_00013 Amount Added: 20.00 Units: mL Run Reagent

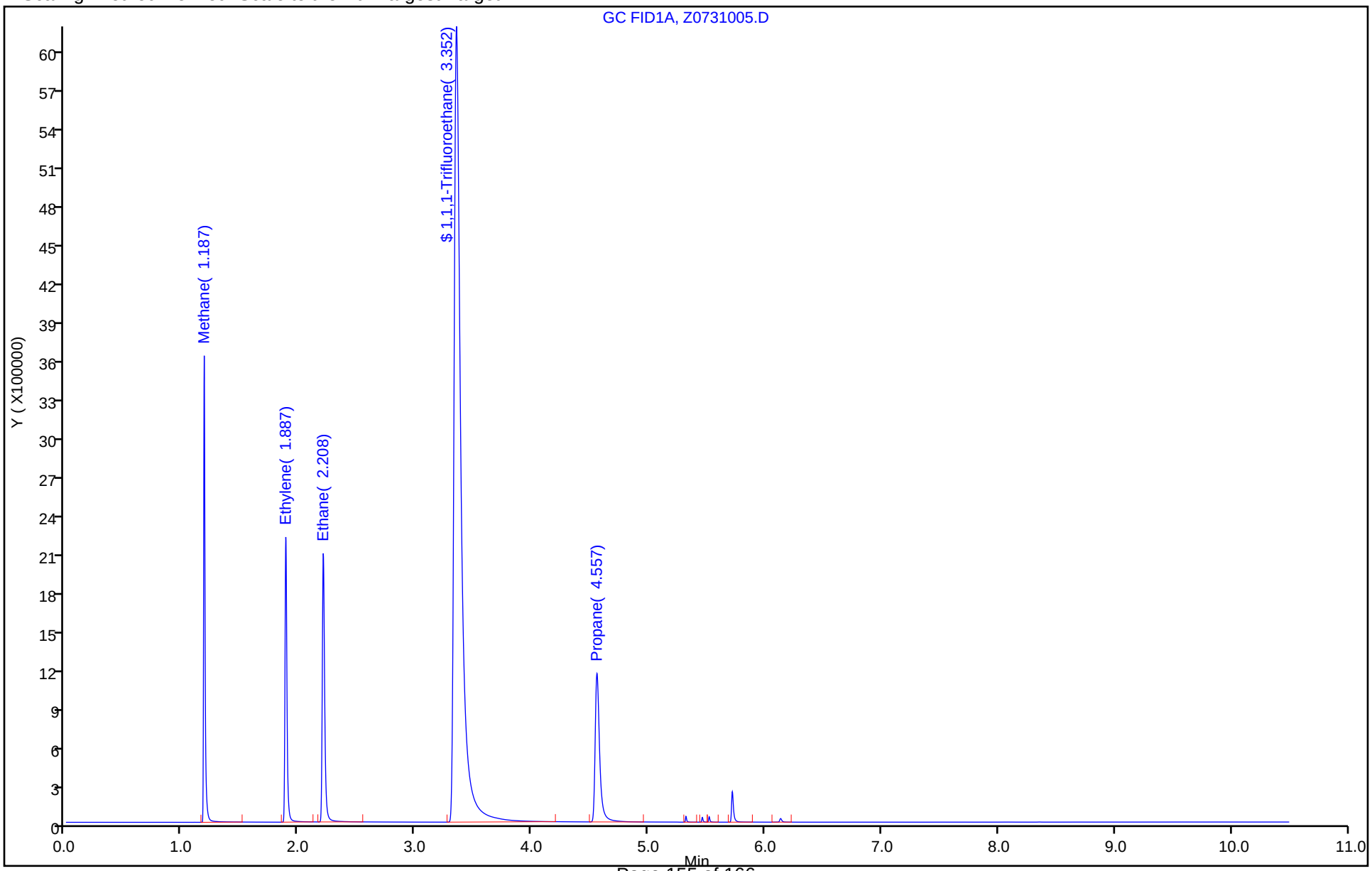
Report Date: 01-Aug-2019 07:49:23 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731005.D

Injection Date:	31-Jul-2019 12:32:12	Instrument ID:	ZPID	Operator ID:	
Lims ID:	LCSD			Worklist Smp#:	5
Client ID:					
Purge Vol:	1.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	5
Method:	RSK175	Limit Group:	GCV RSK 175 ICAL		

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\Z0731005.D
Lims ID: LCSD
Client ID:
Sample Type: LCSD
Inject. Date: 31-Jul-2019 12:32:12 ALS Bottle#: 5 Worklist Smp#: 5
Purge Vol: 1.000 mL Dil. Factor: 1.0000
Sample Info: 240-0089659-005
Operator ID: Instrument ID: ZPID

Method: \\chromna\Canton\ChromData\ZPID\20190731-89659.b\RSK175.m
Limit Group: GCV RSK 175 ICAL
Last Update: 01-Aug-2019 07:49:21 Calib Date: 25-Mar-2019 17:40:28
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Canton\ChromData\ZPID\20190325-85484.b\Z0325014.D

Column 1 : Det: GC FID1A
Process Host: CTX0321

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 1,1,1-Trifluoroethane	9730.4	8240.3	84.69

GC VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Instrument ID: ZPID Start Date: 03/25/2019 14:32

Analysis Batch Number: 373146 End Date: 03/25/2019 17:57

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD 240-373146/3 IC		03/25/2019 14:32	1	Z0325003.D	HP-PLOT/Q 0.53(mm)
STD 240-373146/4 IC		03/25/2019 14:49	1	Z0325004.D	HP-PLOT/Q 0.53(mm)
STD 240-373146/5 IC		03/25/2019 15:06	1	Z0325005.D	HP-PLOT/Q 0.53(mm)
STD 240-373146/6 IC		03/25/2019 15:23	1	Z0325006.D	HP-PLOT/Q 0.53(mm)
STD 240-373146/7 IC		03/25/2019 15:40	1	Z0325007.D	HP-PLOT/Q 0.53(mm)
STD 240-373146/8 IC		03/25/2019 15:57	1	Z0325008.D	HP-PLOT/Q 0.53(mm)
STD1 240-373146/9 IC		03/25/2019 16:14	1	Z0325009.D	HP-PLOT/Q 0.53(mm)
STD2 240-373146/10 IC		03/25/2019 16:32	1	Z0325010.D	HP-PLOT/Q 0.53(mm)
STD3 240-373146/11 IC		03/25/2019 16:49	1	Z0325011.D	HP-PLOT/Q 0.53(mm)
STD4 240-373146/12 IC		03/25/2019 17:06	1	Z0325012.D	HP-PLOT/Q 0.53(mm)
STD5 240-373146/13 IC		03/25/2019 17:23	1	Z0325013.D	HP-PLOT/Q 0.53(mm)
STD6 240-373146/14 IC		03/25/2019 17:40	1	Z0325014.D	HP-PLOT/Q 0.53(mm)
ICV 240-373146/15		03/25/2019 17:57	1	Z0325015.D	HP-PLOT/Q 0.53(mm)

RSK-175

GC VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Instrument ID: ZPID Start Date: 07/31/2019 11:39

Analysis Batch Number: 393758 End Date: 07/31/2019 19:32

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVRT 240-393758/2		07/31/2019 11:39	1	Z0731002.D	HP-PLOT/Q 0.53(mm)
MB 240-393758/3		07/31/2019 11:57	1	Z0731003.D	HP-PLOT/Q 0.53(mm)
LCS 240-393758/4		07/31/2019 12:14	1	Z0731004.D	HP-PLOT/Q 0.53(mm)
LCSD 240-393758/5		07/31/2019 12:32	1	Z0731005.D	HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 12:49	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 13:07	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 13:24	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 13:41	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 13:59	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 14:16	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 14:34	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 14:51	1		HP-PLOT/Q 0.53(mm)
190-20371-1		07/31/2019 15:09	1	Z0731014.D	HP-PLOT/Q 0.53(mm)
190-20371-2		07/31/2019 15:27	1	Z0731015.D	HP-PLOT/Q 0.53(mm)
190-20371-3		07/31/2019 15:44	1	Z0731016.D	HP-PLOT/Q 0.53(mm)
190-20371-4		07/31/2019 16:02	1	Z0731017.D	HP-PLOT/Q 0.53(mm)
CCV 240-393758/18		07/31/2019 16:19	1	Z0731018.D	HP-PLOT/Q 0.53(mm)
190-20371-5		07/31/2019 16:37	1	Z0731019.D	HP-PLOT/Q 0.53(mm)
190-20371-6		07/31/2019 16:54	1	Z0731020.D	HP-PLOT/Q 0.53(mm)
190-20371-7		07/31/2019 17:12	1	Z0731021.D	HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 17:29	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 17:47	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 18:05	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 18:22	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 18:40	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 18:57	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/31/2019 19:15	1		HP-PLOT/Q 0.53(mm)
CCV 240-393758/29		07/31/2019 19:32	1	Z0731029.D	HP-PLOT/Q 0.53(mm)

GC VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Batch Number: 393758 Batch Start Date: 07/31/19 11:39 Batch Analyst: Matthews, Brandon

Batch Method: RSK-175 Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	MEEP LCS 00036	MEEP LCS 00037	SARSKHighCal 00006
CCVRT 240-393758/2		RSK-175		23 mL	23 mL	7 SU			1 mL
MB 240-393758/3		RSK-175		23 mL	23 mL	7 SU			
LCS 240-393758/4		RSK-175		23 mL	23 mL	7 SU	23 mL		
LCSD 240-393758/5		RSK-175		23 mL	23 mL	7 SU		23 mL	
190-20371-A-1	S04673.02	RSK-175	T	23 mL	23 mL	<2 SU			
190-20371-C-2	S04673.06	RSK-175	T	23 mL	23 mL	<2 SU			
190-20371-B-3	S04673.07	RSK-175	T	23 mL	23 mL	<2 SU			
190-20371-A-4	S04673.08	RSK-175	T	23 mL	23 mL	<2 SU			
CCV 240-393758/18		RSK-175		23 mL	23 mL	7 SU			1 mL
190-20371-C-5	S04673.09	RSK-175	T	23 mL	23 mL	<2 SU			
190-20371-C-6	S04673.10	RSK-175	T	23 mL	23 mL	<2 SU			
190-20371-C-7	S04673.11	RSK-175	T	23 mL	23 mL	<2 SU			
CCV 240-393758/29		RSK-175		23 mL	23 mL	7 SU			1 mL

Lab Sample ID	Client Sample ID	Method Chain	Basis	SARSKSURR 00013					
CCVRT 240-393758/2		RSK-175		19 mL					
MB 240-393758/3		RSK-175		20 mL					
LCS 240-393758/4		RSK-175		20 mL					
LCSD 240-393758/5		RSK-175		20 mL					
190-20371-A-1	S04673.02	RSK-175	T	20 mL					
190-20371-C-2	S04673.06	RSK-175	T	20 mL					
190-20371-B-3	S04673.07	RSK-175	T	20 mL					
190-20371-A-4	S04673.08	RSK-175	T	20 mL					
CCV 240-393758/18		RSK-175		19 mL					
190-20371-C-5	S04673.09	RSK-175	T	20 mL					
190-20371-C-6	S04673.10	RSK-175	T	20 mL					

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 190-20371-1

SDG No.:

Batch Number: 393758 Batch Start Date: 07/31/19 11:39 Batch Analyst: Matthews, Brandon

Batch Method: RSK-175 Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	SARSKSURR 00013					
190-20371-C-7	S04673.11	RSK-175	T	20 mL					
CCV 240-393758/29		RSK-175		19 mL					

Batch Notes	
pH Paper ID	4218627

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Subcontract Data

Shipping and Receiving Documents

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: John Laverty
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: 517-332-4034 P.O. NO.:
E-MAIL ADDRESS: johnlaverty@meritlabs.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague ☒ SAME
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S04673 SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☒ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Methane
	7/17/19	1120	S04673.02	L	3	3							✓
	7/17/19	1326	S04673.06	L	3	3							✓
	7/17/19	1400	S04673.07	L	3	3							✓
	7/17/19	1445	S04673.08	L	3	3							✓
	7/17/19	0001	S04673.09	L	3	3							✓
	7/17/19	1510	S04673.10	L	3	3							✓
	7/17/19	0001	S04673.11	L	3	3							✓

190-20371 Chain of Custody

** Subcontracted to Test America

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☐ Sampler	M Gilbert	DATE 7/18/19	TIME 1425
RECEIVED BY: SIGNATURE/ORGANIZATION	B Brouwer	DATE 7/18/19	TIME 1425
RELINQUISHED BY: SIGNATURE/ORGANIZATION	B Brouwer	DATE 7/18/19	TIME 1538
RECEIVED BY: SIGNATURE/ORGANIZATION	ZH	DATE 7-18-19	TIME 1538

RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS

NOTES: TEMP. ON ARRIVAL

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

TestAmerica

Cooler/Sample Receipt

(AFTER HOURS receipt- complete gray areas. Place cooler in walk-in, place this form in Receiving in-box. Date/Time rec'd _____ Initials _____)

❑ MSDS or Known Hazard Information Supplied by Client
❑ Bottle stickers applied ❑ ELEMENT comment entered ❑ MSDS/COC scanned/emailed to EH&S
❑ Discrepancies
❑ Short Hold
❑ Rush ❑24hr ❑2day ❑3day ❑5day ❑other _____

Client ID Merit Labs
Work Order # 190-20391
Receipt evaluation performed by - Initials AMY Date 7/18/19 Time 16:00

Method of Shipment:
☒ Walk-In Client ❑ TestAmerica Field/Courier
❑ Other Client/3rd Party Courier _____
❑ Fed Ex Tracking # _____
❑ UPS Tracking # _____
❑ Other _____

Shipping Container Type:
❑ Cooler ❑ Box
☒ None ❑ Other _____

Packing Materials:
❑ Plastic Bags ❑ Foam
☒ Bubble Wrap ❑ Paper
❑ Packing Peanuts ❑ None
❑ Other _____

Custody Seals Intact:
❑ Yes ❑ No
☒ N/A (not used or required)

Cooling Materials:
❑ Ice (solid) ❑ Ice (Melted)
❑ Blue Ice ☒ None
❑ Other _____

Bacteriological Samples: Temp (°C) Corrected yes no | Frozen yes no | Received within 2 hours yes no | Sample Flagged yes no

❑ Check if Additional Sheets Required

Receipt Temperatures

Thermometer ID	Observed (°C)	Corrected (°C)	Temp Blank	Sample Temp	Received on same day sampled?	Acceptable?*	Cooler ID	Note Affected Samples if temperature not acceptable
140252483			❑	❑	❑Yes ❑No	❑Yes ❑No		
140252496			❑	❑	❑Yes ❑No	❑Yes ❑No		
CP313207	10.5	10.6	❑	☒	❑Yes ☒No	❑Yes ❑No		TLH

* Receipt temperatures are considered acceptable if the samples are received on the same day they were collected & show signs that the cooling process has started. Temperature acceptance for most tests is ≤6.0°C, but not frozen. For additional information, please refer to SOP DT-SCA-004 *Sample Receipt and Login, Attachment 2 – Holding Times, Preservation and Container Requirements*

Receipt Questions**	Y	N	n/a	"No" answers require additional comment
COC present & TA receipt signature, date, & time properly documented?	✓			
Containers & labels in good condition? *(unbroken, not leaking, appropriately filled, labels legible & attached)*	✓			
Appropriate containers used & adequate volume provided?	✓			Preserved Bottles Checked with pH Strips* Yes No
Number of sample containers match COC?	✓			
Samples received within hold time?	✓			
Samples submitted for GRO and Volatiles analyses (8260, 624, 524) received without headspace?	✓			only small bubbles
Was a Trip Blank received with VOA samples?		✓		
Were the samples free of any questionable physical conformities? For example, field duplicates or multiple bottles of the same sample do not significantly vary in appearance (color, proportion of solids, etc.)	✓			
Were the COC, bottle labels, and all other items free of all other discrepancies or issues that would need to be addressed with the Project Manager and/or Client?	✓			

** May not be applicable if samples are not for compliance testing

* Excludes FOG, Volatiles, TOC Vials

Client Contact Record
Contact via: ❑ Phone ❑ Email ❑ Other _____ Person Contacted: _____ Date/Time: _____
❑ Discrepancy allowance agreement is on record in the client project file
Discussion/Resolution:

Any additional documentation and clarification from client must be noted in the narrative and/or scanned into the COC directory

Reviewed by PM Signature 7/18/19 Date

Eurofins TestAmerica, Michigan
10448 Citation Drive Suite 200
Brighton, MI 48116
Phone: 810-229-2763 Fax: 810-229-0000

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schafer, Sue	Carrier Tracking No(s):	COC No: 190-23807.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: sue.schafer@testamericainc.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 190-20371-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 7/31/2019			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: S04673 - Methane	Project #: 19001249			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ (MOD) MEE Only	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
S04673.02 (190-20371-1)	7/17/19	11:20 Eastern		Water			X	3	
S04673.06 (190-20371-2)	7/17/19	13:26 Eastern		Water			X	3	
S04673.07 (190-20371-3)	7/17/19	14:00 Eastern		Water			X	3	
S04673.08 (190-20371-4)	7/17/19	14:45 Eastern		Water			X	3	
S04673.09 (190-20371-5)	7/17/19	00:01 Eastern		Water			X	3	
S04673.10 (190-20371-6)	7/17/19	15:10 Eastern		Water			X	3	
S04673.11 (190-20371-7)	7/17/19	00:01 Eastern		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	7-18-19 1621	ETA	[signature]	7/19/19 840	TAL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____

Canton Facility

Client TA Michigan Site Name _____ Cooler unpacked by: DSD

Cooler Received on 7/19/19 Opened on 7/19/19

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN# IR-8 (CF **+0.1** °C) Observed Cooler Temp. 1.6 °C Corrected Cooler Temp. 1.7 °C

IR GUN #36 (CF **+0.6**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	No
8. Could all bottle labels be reconciled with the COC?	Yes	No
9. Were correct bottle(s) used for the test(s) indicated?	Yes	No
10. Sufficient quantity received to perform indicated analyses?	Yes	No
11. Are these work share samples?	Yes	No
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# **HC984738**
13. Were VOAs on the COC?	Yes	No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
16. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Analytical Laboratory Report

Report ID: S04674.01(01)
Generated on 08/07/2019

Report to

Attention: Rodney Abke
Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S04674.01-S04674.12
Project: RACER Flint West #12990
Collected Date(s): 07/17/2019
Submitted Date/Time: 07/17/2019 16:34
Sampled by: Unknown
P.O. #: 795930

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
ASTMD7979-17M	ASTM Method D7979 - 17 Modified (Isotopic Dilution)

Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	474511-07-4
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7

Analytical Laboratory Report

Sample Summary (12 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S04674.01	MW-102S	Liquid	07/17/19 09:20
S04674.02	MW-111S	Liquid	07/17/19 11:20
S04674.03	MW-103S	Liquid	07/17/19 10:28
S04674.04	MW-108S	Liquid	07/17/19 12:10
S04674.05	MW-110S	Liquid	07/17/19 12:43
S04674.06	MW-113S	Liquid	07/17/19 13:26
S04674.07	MW-109S	Liquid	07/17/19 14:00
S04674.08	MW-114S	Liquid	07/17/19 14:45
S04674.09	Dupe 2	Liquid	07/17/19 00:01
S04674.10	Equipment Blank	Liquid	07/17/19 15:10
S04674.11	Field Blank	Liquid	07/17/19 00:01
S04674.12	Trip Blank	Liquid	07/17/19 00:01

Analytical Laboratory Report

Lab Sample ID: S04674.01
Sample Tag: MW-102S
Collected Date/Time: 07/17/2019 09:20
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.0	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 08/06/19 22:01, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19	5.0	ng/L	1.94	375-22-4	
PFPeA*	Not detected	9.7	4.7	ng/L	1.94	2706-90-3	
4:2 FTSA*	Not detected	9.7	1.6	ng/L	1.94	757124-72-4	
PFHxA*	Not detected	9.7	1.4	ng/L	1.94	307-24-4	
PFBS*	Not detected	9.7	1.6	ng/L	1.94	375-73-5	
PFHpA*	Not detected	9.7	2.1	ng/L	1.94	375-85-9	
PFPeS*	Not detected	9.7	3.1	ng/L	1.94	2706-91-4	
6:2 FTSA*	Not detected	9.7	2.9	ng/L	1.94	27619-97-2	
PFOA*	Not detected	9.7	1.2	ng/L	1.94	335-67-1	
PFHxS*	Not detected	9.7	2.3	ng/L	1.94	355-46-4	
PFHxS-LN*	Not detected	9.7	2.3	ng/L	1.94	355-46-4-LN	
PFHxS-BR*	Not detected	9.7	2.3	ng/L	1.94	355-46-4-BR	
PFNA*	Not detected	9.7	1.2	ng/L	1.94	375-95-1	
8:2 FTSA*	Not detected	9.7	3.9	ng/L	1.94	39108-34-4	
PFHpS*	Not detected	9.7	5.4	ng/L	1.94	375-92-8	
PFDA*	Not detected	9.7	5.0	ng/L	1.94	335-76-2	
N-MeFOSAA*	Not detected	9.7	3.5	ng/L	1.94	2355-31-9	
EtFOSAA*	Not detected	9.7	3.9	ng/L	1.94	2991-50-6	
PFOS*	11	9.7	3.9	ng/L	1.94	1763-23-1	
PFOS-LN*	Not detected	9.7	3.9	ng/L	1.94	1763-23-1-LN	
PFOS-BR*	Not detected	9.7	3.9	ng/L	1.94	1763-23-1-BR	
PFUnDA*	Not detected	9.7	0.97	ng/L	1.94	2058-94-8	
PFNS*	Not detected	9.7	3.7	ng/L	1.94	474511-07-4	
PFDoDA*	Not detected	9.7	1.7	ng/L	1.94	307-55-1	
PFDS*	Not detected	9.7	1.7	ng/L	1.94	335-77-3	
PFTrDA*	Not detected	9.7	1.9	ng/L	1.94	72629-94-8	
FOSA*	Not detected	9.7	2.3	ng/L	1.94	754-91-6	
PFTeDA*	Not detected	9.7	2.9	ng/L	1.94	376-06-7	

Analytical Laboratory Report

Lab Sample ID: S04674.02
Sample Tag: MW-111S
Collected Date/Time: 07/17/2019 11:20
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.0	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 08/06/19 22:40, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19	5.0	ng/L	1.91	375-22-4	
PFPeA*	Not detected	9.6	4.6	ng/L	1.91	2706-90-3	
4:2 FTSA*	Not detected	9.6	1.5	ng/L	1.91	757124-72-4	
PFHxA*	Not detected	9.6	1.3	ng/L	1.91	307-24-4	
PFBS*	Not detected	9.6	1.5	ng/L	1.91	375-73-5	
PFHpA*	Not detected	9.6	2.1	ng/L	1.91	375-85-9	
PFPeS*	Not detected	9.6	3.1	ng/L	1.91	2706-91-4	
6:2 FTSA*	Not detected	9.6	2.9	ng/L	1.91	27619-97-2	
PFOA*	Not detected	9.6	1.1	ng/L	1.91	335-67-1	
PFHxS*	Not detected	9.6	2.3	ng/L	1.91	355-46-4	
PFHxS-LN*	Not detected	9.6	2.3	ng/L	1.91	355-46-4-LN	
PFHxS-BR*	Not detected	9.6	2.3	ng/L	1.91	355-46-4-BR	
PFNA*	Not detected	9.6	1.1	ng/L	1.91	375-95-1	
8:2 FTSA*	Not detected	9.6	3.8	ng/L	1.91	39108-34-4	
PFHpS*	Not detected	9.6	5.3	ng/L	1.91	375-92-8	
PFDA*	Not detected	9.6	5.0	ng/L	1.91	335-76-2	
N-MeFOSAA*	Not detected	9.6	3.4	ng/L	1.91	2355-31-9	
EtFOSAA*	Not detected	9.6	3.8	ng/L	1.91	2991-50-6	
PFOS*	36	9.6	3.8	ng/L	1.91	1763-23-1	
PFOS-LN*	16	9.6	3.8	ng/L	1.91	1763-23-1-LN	
PFOS-BR*	21	9.6	3.8	ng/L	1.91	1763-23-1-BR	
PFUnDA*	Not detected	9.6	0.96	ng/L	1.91	2058-94-8	
PFNS*	Not detected	9.6	3.6	ng/L	1.91	474511-07-4	
PFDoDA*	Not detected	9.6	1.7	ng/L	1.91	307-55-1	
PFDS*	Not detected	9.6	1.7	ng/L	1.91	335-77-3	
PFTrDA*	Not detected	9.6	1.9	ng/L	1.91	72629-94-8	
FOSA*	Not detected	9.6	2.3	ng/L	1.91	754-91-6	
PFTeDA*	Not detected	9.6	2.9	ng/L	1.91	376-06-7	

Analytical Laboratory Report

Lab Sample ID: S04674.03
Sample Tag: MW-103S
Collected Date/Time: 07/17/2019 10:28
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.0	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 08/06/19 23:19, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19	4.9	ng/L	1.88	375-22-4	
PFPeA*	Not detected	9.4	4.5	ng/L	1.88	2706-90-3	
4:2 FTSA*	Not detected	9.4	1.5	ng/L	1.88	757124-72-4	
PFHxA*	Not detected	9.4	1.3	ng/L	1.88	307-24-4	
PFBS*	Not detected	9.4	1.5	ng/L	1.88	375-73-5	
PFHpA*	Not detected	9.4	2.1	ng/L	1.88	375-85-9	
PFPeS*	Not detected	9.4	3.0	ng/L	1.88	2706-91-4	
6:2 FTSA*	Not detected	9.4	2.8	ng/L	1.88	27619-97-2	
PFOA*	Not detected	9.4	1.1	ng/L	1.88	335-67-1	
PFHxS*	Not detected	9.4	2.3	ng/L	1.88	355-46-4	
PFHxS-LN*	Not detected	9.4	2.3	ng/L	1.88	355-46-4-LN	
PFHxS-BR*	Not detected	9.4	2.3	ng/L	1.88	355-46-4-BR	
PFNA*	Not detected	9.4	1.1	ng/L	1.88	375-95-1	
8:2 FTSA*	Not detected	9.4	3.8	ng/L	1.88	39108-34-4	
PFHpS*	Not detected	9.4	5.3	ng/L	1.88	375-92-8	
PFDA*	Not detected	9.4	4.9	ng/L	1.88	335-76-2	
N-MeFOSAA*	Not detected	9.4	3.4	ng/L	1.88	2355-31-9	
EtFOSAA*	Not detected	9.4	3.8	ng/L	1.88	2991-50-6	
PFOS*	93	9.4	3.8	ng/L	1.88	1763-23-1	
PFOS-LN*	44	9.4	3.8	ng/L	1.88	1763-23-1-LN	
PFOS-BR*	48	9.4	3.8	ng/L	1.88	1763-23-1-BR	
PFUnDA*	Not detected	9.4	0.94	ng/L	1.88	2058-94-8	
PFNS*	Not detected	9.4	3.6	ng/L	1.88	474511-07-4	
PFDoDA*	Not detected	9.4	1.7	ng/L	1.88	307-55-1	
PFDS*	Not detected	9.4	1.7	ng/L	1.88	335-77-3	
PFTrDA*	Not detected	9.4	1.9	ng/L	1.88	72629-94-8	
FOSA*	Not detected	9.4	2.3	ng/L	1.88	754-91-6	
PFTeDA*	Not detected	9.4	2.8	ng/L	1.88	376-06-7	

Lab Sample ID: S04674.04
Sample Tag: MW-108S
Collected Date/Time: 07/17/2019 12:10
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.0	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 08/06/19 23:39, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19	5.0	ng/L	1.94	375-22-4	
PFPeA*	Not detected	9.7	4.7	ng/L	1.94	2706-90-3	
4:2 FTSA*	Not detected	9.7	1.6	ng/L	1.94	757124-72-4	
PFHxA*	Not detected	9.7	1.4	ng/L	1.94	307-24-4	
PFBS*	Not detected	9.7	1.6	ng/L	1.94	375-73-5	
PFHpA*	Not detected	9.7	2.1	ng/L	1.94	375-85-9	
PFPeS*	Not detected	9.7	3.1	ng/L	1.94	2706-91-4	
6:2 FTSA*	Not detected	9.7	2.9	ng/L	1.94	27619-97-2	
PFOA*	Not detected	9.7	1.2	ng/L	1.94	335-67-1	
PFHxS*	Not detected	9.7	2.3	ng/L	1.94	355-46-4	
PFHxS-LN*	Not detected	9.7	2.3	ng/L	1.94	355-46-4-LN	
PFHxS-BR*	Not detected	9.7	2.3	ng/L	1.94	355-46-4-BR	
PFNA*	Not detected	9.7	1.2	ng/L	1.94	375-95-1	
8:2 FTSA*	Not detected	9.7	3.9	ng/L	1.94	39108-34-4	
PFHpS*	Not detected	9.7	5.4	ng/L	1.94	375-92-8	
PFDA*	Not detected	9.7	5.0	ng/L	1.94	335-76-2	
N-MeFOSAA*	Not detected	9.7	3.5	ng/L	1.94	2355-31-9	
EtFOSAA*	Not detected	9.7	3.9	ng/L	1.94	2991-50-6	
PFOS*	11	9.7	3.9	ng/L	1.94	1763-23-1	
PFOS-LN*	Not detected	9.7	3.9	ng/L	1.94	1763-23-1-LN	
PFOS-BR*	Not detected	9.7	3.9	ng/L	1.94	1763-23-1-BR	
PFUnDA*	Not detected	9.7	0.97	ng/L	1.94	2058-94-8	
PFNS*	Not detected	9.7	3.7	ng/L	1.94	474511-07-4	
PFDoDA*	Not detected	9.7	1.7	ng/L	1.94	307-55-1	
PFDS*	Not detected	9.7	1.7	ng/L	1.94	335-77-3	
PFTrDA*	Not detected	9.7	1.9	ng/L	1.94	72629-94-8	
FOSA*	Not detected	9.7	2.3	ng/L	1.94	754-91-6	
PFTeDA*	Not detected	9.7	2.9	ng/L	1.94	376-06-7	

Lab Sample ID: S04674.05
Sample Tag: MW-110S
Collected Date/Time: 07/17/2019 12:43
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.0	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 08/06/19 23:58, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	20	19	5.0	ng/L	1.91	375-22-4	
PFPeA*	Not detected	9.6	4.6	ng/L	1.91	2706-90-3	
4:2 FTSA*	Not detected	9.6	1.5	ng/L	1.91	757124-72-4	
PFHxA*	Not detected	9.6	1.3	ng/L	1.91	307-24-4	
PFBS*	Not detected	9.6	1.5	ng/L	1.91	375-73-5	
PFHpA*	Not detected	9.6	2.1	ng/L	1.91	375-85-9	
PFPeS*	Not detected	9.6	3.1	ng/L	1.91	2706-91-4	
6:2 FTSA*	Not detected	9.6	2.9	ng/L	1.91	27619-97-2	
PFOA*	Not detected	9.6	1.1	ng/L	1.91	335-67-1	
PFHxS*	Not detected	9.6	2.3	ng/L	1.91	355-46-4	
PFHxS-LN*	Not detected	9.6	2.3	ng/L	1.91	355-46-4-LN	
PFHxS-BR*	Not detected	9.6	2.3	ng/L	1.91	355-46-4-BR	
PFNA*	Not detected	9.6	1.1	ng/L	1.91	375-95-1	
8:2 FTSA*	Not detected	9.6	3.8	ng/L	1.91	39108-34-4	
PFHpS*	Not detected	9.6	5.3	ng/L	1.91	375-92-8	
PFDA*	Not detected	9.6	5.0	ng/L	1.91	335-76-2	
N-MeFOSAA*	Not detected	9.6	3.4	ng/L	1.91	2355-31-9	
EtFOSAA*	Not detected	9.6	3.8	ng/L	1.91	2991-50-6	
PFOS*	Not detected	9.6	3.8	ng/L	1.91	1763-23-1	
PFOS-LN*	Not detected	9.6	3.8	ng/L	1.91	1763-23-1-LN	
PFOS-BR*	Not detected	9.6	3.8	ng/L	1.91	1763-23-1-BR	
PFUnDA*	Not detected	9.6	0.96	ng/L	1.91	2058-94-8	
PFNS*	Not detected	9.6	3.6	ng/L	1.91	474511-07-4	
PFDoDA*	Not detected	9.6	1.7	ng/L	1.91	307-55-1	
PFDS*	Not detected	9.6	1.7	ng/L	1.91	335-77-3	
PFTrDA*	Not detected	9.6	1.9	ng/L	1.91	72629-94-8	
FOSA*	Not detected	9.6	2.3	ng/L	1.91	754-91-6	
PFTeDA*	Not detected	9.6	2.9	ng/L	1.91	376-06-7	

Lab Sample ID: S04674.06
Sample Tag: MW-113S
Collected Date/Time: 07/17/2019 13:26
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.0	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 08/07/19 00:18, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19	4.9	ng/L	1.89	375-22-4	
PFPeA*	Not detected	9.5	4.5	ng/L	1.89	2706-90-3	
4:2 FTSA*	Not detected	9.5	1.5	ng/L	1.89	757124-72-4	
PFHxA*	Not detected	9.5	1.3	ng/L	1.89	307-24-4	
PFBS*	Not detected	9.5	1.5	ng/L	1.89	375-73-5	
PFHpA*	Not detected	9.5	2.1	ng/L	1.89	375-85-9	
PFPeS*	Not detected	9.5	3.0	ng/L	1.89	2706-91-4	
6:2 FTSA*	Not detected	9.5	2.8	ng/L	1.89	27619-97-2	
PFOA*	Not detected	9.5	1.1	ng/L	1.89	335-67-1	
PFHxS*	Not detected	9.5	2.3	ng/L	1.89	355-46-4	
PFHxS-LN*	Not detected	9.5	2.3	ng/L	1.89	355-46-4-LN	
PFHxS-BR*	Not detected	9.5	2.3	ng/L	1.89	355-46-4-BR	
PFNA*	Not detected	9.5	1.1	ng/L	1.89	375-95-1	
8:2 FTSA*	Not detected	9.5	3.8	ng/L	1.89	39108-34-4	
PFHpS*	Not detected	9.5	5.3	ng/L	1.89	375-92-8	
PFDA*	Not detected	9.5	4.9	ng/L	1.89	335-76-2	
N-MeFOSAA*	Not detected	9.5	3.4	ng/L	1.89	2355-31-9	
EtFOSAA*	Not detected	9.5	3.8	ng/L	1.89	2991-50-6	
PFOS*	20	9.5	3.8	ng/L	1.89	1763-23-1	
PFOS-LN*	Not detected	9.5	3.8	ng/L	1.89	1763-23-1-LN	
PFOS-BR*	16	9.5	3.8	ng/L	1.89	1763-23-1-BR	
PFUnDA*	Not detected	9.5	0.95	ng/L	1.89	2058-94-8	
PFNS*	Not detected	9.5	3.6	ng/L	1.89	474511-07-4	
PFDoDA*	Not detected	9.5	1.7	ng/L	1.89	307-55-1	
PFDS*	Not detected	9.5	1.7	ng/L	1.89	335-77-3	
PFTrDA*	Not detected	9.5	1.9	ng/L	1.89	72629-94-8	
FOSA*	Not detected	9.5	2.3	ng/L	1.89	754-91-6	
PFTeDA*	Not detected	9.5	2.8	ng/L	1.89	376-06-7	

Lab Sample ID: S04674.07
Sample Tag: MW-109S
Collected Date/Time: 07/17/2019 14:00
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.0	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 08/07/19 00:37, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19	5.0	ng/L	1.93	375-22-4	
PFPeA*	Not detected	9.7	4.6	ng/L	1.93	2706-90-3	
4:2 FTSA*	Not detected	9.7	1.5	ng/L	1.93	757124-72-4	
PFHxA*	Not detected	9.7	1.4	ng/L	1.93	307-24-4	
PFBS*	Not detected	9.7	1.5	ng/L	1.93	375-73-5	
PFHpA*	Not detected	9.7	2.1	ng/L	1.93	375-85-9	
PFPeS*	Not detected	9.7	3.1	ng/L	1.93	2706-91-4	
6:2 FTSA*	Not detected	9.7	2.9	ng/L	1.93	27619-97-2	
PFOA*	Not detected	9.7	1.2	ng/L	1.93	335-67-1	
PFHxS*	Not detected	9.7	2.3	ng/L	1.93	355-46-4	
PFHxS-LN*	Not detected	9.7	2.3	ng/L	1.93	355-46-4-LN	
PFHxS-BR*	Not detected	9.7	2.3	ng/L	1.93	355-46-4-BR	
PFNA*	Not detected	9.7	1.2	ng/L	1.93	375-95-1	
8:2 FTSA*	Not detected	9.7	3.9	ng/L	1.93	39108-34-4	
PFHpS*	Not detected	9.7	5.4	ng/L	1.93	375-92-8	
PFDA*	Not detected	9.7	5.0	ng/L	1.93	335-76-2	
N-MeFOSAA*	Not detected	9.7	3.5	ng/L	1.93	2355-31-9	
EtFOSAA*	Not detected	9.7	3.9	ng/L	1.93	2991-50-6	
PFOS*	28	9.7	3.9	ng/L	1.93	1763-23-1	
PFOS-LN*	12	9.7	3.9	ng/L	1.93	1763-23-1-LN	
PFOS-BR*	16	9.7	3.9	ng/L	1.93	1763-23-1-BR	
PFUnDA*	Not detected	9.7	0.97	ng/L	1.93	2058-94-8	
PFNS*	Not detected	9.7	3.7	ng/L	1.93	474511-07-4	
PFDoDA*	Not detected	9.7	1.7	ng/L	1.93	307-55-1	
PFDS*	Not detected	9.7	1.7	ng/L	1.93	335-77-3	
PFTrDA*	Not detected	9.7	1.9	ng/L	1.93	72629-94-8	
FOSA*	Not detected	9.7	2.3	ng/L	1.93	754-91-6	
PFTeDA*	Not detected	9.7	2.9	ng/L	1.93	376-06-7	

Lab Sample ID: S04674.08
Sample Tag: MW-114S
Collected Date/Time: 07/17/2019 14:45
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.0	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 08/07/19 00:57, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19	4.9	ng/L	1.89	375-22-4	
PFPeA*	Not detected	9.5	4.5	ng/L	1.89	2706-90-3	
4:2 FTSA*	Not detected	9.5	1.5	ng/L	1.89	757124-72-4	
PFHxA*	Not detected	9.5	1.3	ng/L	1.89	307-24-4	
PFBS*	Not detected	9.5	1.5	ng/L	1.89	375-73-5	
PFHpA*	Not detected	9.5	2.1	ng/L	1.89	375-85-9	
PFPeS*	Not detected	9.5	3.0	ng/L	1.89	2706-91-4	
6:2 FTSA*	Not detected	9.5	2.8	ng/L	1.89	27619-97-2	
PFOA*	Not detected	9.5	1.1	ng/L	1.89	335-67-1	
PFHxS*	Not detected	9.5	2.3	ng/L	1.89	355-46-4	
PFHxS-LN*	Not detected	9.5	2.3	ng/L	1.89	355-46-4-LN	
PFHxS-BR*	Not detected	9.5	2.3	ng/L	1.89	355-46-4-BR	
PFNA*	Not detected	9.5	1.1	ng/L	1.89	375-95-1	
8:2 FTSA*	Not detected	9.5	3.8	ng/L	1.89	39108-34-4	
PFHpS*	Not detected	9.5	5.3	ng/L	1.89	375-92-8	
PFDA*	Not detected	9.5	4.9	ng/L	1.89	335-76-2	
N-MeFOSAA*	Not detected	9.5	3.4	ng/L	1.89	2355-31-9	
EtFOSAA*	Not detected	9.5	3.8	ng/L	1.89	2991-50-6	
PFOS*	31	9.5	3.8	ng/L	1.89	1763-23-1	
PFOS-LN*	17	9.5	3.8	ng/L	1.89	1763-23-1-LN	
PFOS-BR*	15	9.5	3.8	ng/L	1.89	1763-23-1-BR	
PFUnDA*	Not detected	9.5	0.95	ng/L	1.89	2058-94-8	
PFNS*	Not detected	9.5	3.6	ng/L	1.89	474511-07-4	
PFDoDA*	Not detected	9.5	1.7	ng/L	1.89	307-55-1	
PFDS*	Not detected	9.5	1.7	ng/L	1.89	335-77-3	
PFTrDA*	Not detected	9.5	1.9	ng/L	1.89	72629-94-8	
FOSA*	Not detected	9.5	2.3	ng/L	1.89	754-91-6	
PFTeDA*	Not detected	9.5	2.8	ng/L	1.89	376-06-7	

Lab Sample ID: S04674.09
Sample Tag: Dupe 2
Collected Date/Time: 07/17/2019 00:01
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.0	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 08/07/19 01:16, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19	4.9	ng/L	1.89	375-22-4	
PFPeA*	Not detected	9.5	4.5	ng/L	1.89	2706-90-3	
4:2 FTSA*	Not detected	9.5	1.5	ng/L	1.89	757124-72-4	
PFHxA*	Not detected	9.5	1.3	ng/L	1.89	307-24-4	
PFBS*	Not detected	9.5	1.5	ng/L	1.89	375-73-5	
PFHpA*	Not detected	9.5	2.1	ng/L	1.89	375-85-9	
PFPeS*	Not detected	9.5	3.0	ng/L	1.89	2706-91-4	
6:2 FTSA*	Not detected	9.5	2.8	ng/L	1.89	27619-97-2	
PFOA*	Not detected	9.5	1.1	ng/L	1.89	335-67-1	
PFHxS*	Not detected	9.5	2.3	ng/L	1.89	355-46-4	
PFHxS-LN*	Not detected	9.5	2.3	ng/L	1.89	355-46-4-LN	
PFHxS-BR*	Not detected	9.5	2.3	ng/L	1.89	355-46-4-BR	
PFNA*	Not detected	9.5	1.1	ng/L	1.89	375-95-1	
8:2 FTSA*	Not detected	9.5	3.8	ng/L	1.89	39108-34-4	
PFHpS*	Not detected	9.5	5.3	ng/L	1.89	375-92-8	
PFDA*	Not detected	9.5	4.9	ng/L	1.89	335-76-2	
N-MeFOSAA*	Not detected	9.5	3.4	ng/L	1.89	2355-31-9	
EtFOSAA*	Not detected	9.5	3.8	ng/L	1.89	2991-50-6	
PFOS*	32	9.5	3.8	ng/L	1.89	1763-23-1	
PFOS-LN*	16	9.5	3.8	ng/L	1.89	1763-23-1-LN	
PFOS-BR*	16	9.5	3.8	ng/L	1.89	1763-23-1-BR	
PFUnDA*	Not detected	9.5	0.95	ng/L	1.89	2058-94-8	
PFNS*	Not detected	9.5	3.6	ng/L	1.89	474511-07-4	
PFDoDA*	Not detected	9.5	1.7	ng/L	1.89	307-55-1	
PFDS*	Not detected	9.5	1.7	ng/L	1.89	335-77-3	
PFTrDA*	Not detected	9.5	1.9	ng/L	1.89	72629-94-8	
FOSA*	Not detected	9.5	2.3	ng/L	1.89	754-91-6	
PFTeDA*	Not detected	9.5	2.8	ng/L	1.89	376-06-7	

Lab Sample ID: S04674.10
Sample Tag: Equipment Blank
Collected Date/Time: 07/17/2019 15:10
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.0	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 08/07/19 01:36, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19	4.9	ng/L	1.88	375-22-4	
PFPeA*	Not detected	9.4	4.5	ng/L	1.88	2706-90-3	
4:2 FTSA*	Not detected	9.4	1.5	ng/L	1.88	757124-72-4	
PFHxA*	Not detected	9.4	1.3	ng/L	1.88	307-24-4	
PFBS*	Not detected	9.4	1.5	ng/L	1.88	375-73-5	
PFHpA*	Not detected	9.4	2.1	ng/L	1.88	375-85-9	
PFPeS*	Not detected	9.4	3.0	ng/L	1.88	2706-91-4	
6:2 FTSA*	Not detected	9.4	2.8	ng/L	1.88	27619-97-2	
PFOA*	Not detected	9.4	1.1	ng/L	1.88	335-67-1	
PFHxS*	Not detected	9.4	2.3	ng/L	1.88	355-46-4	
PFHxS-LN*	Not detected	9.4	2.3	ng/L	1.88	355-46-4-LN	
PFHxS-BR*	Not detected	9.4	2.3	ng/L	1.88	355-46-4-BR	
PFNA*	Not detected	9.4	1.1	ng/L	1.88	375-95-1	
8:2 FTSA*	Not detected	9.4	3.8	ng/L	1.88	39108-34-4	
PFHpS*	Not detected	9.4	5.3	ng/L	1.88	375-92-8	
PFDA*	Not detected	9.4	4.9	ng/L	1.88	335-76-2	
N-MeFOSAA*	Not detected	9.4	3.4	ng/L	1.88	2355-31-9	
EtFOSAA*	Not detected	9.4	3.8	ng/L	1.88	2991-50-6	
PFOS*	Not detected	9.4	3.8	ng/L	1.88	1763-23-1	
PFOS-LN*	Not detected	9.4	3.8	ng/L	1.88	1763-23-1-LN	
PFOS-BR*	Not detected	9.4	3.8	ng/L	1.88	1763-23-1-BR	
PFUnDA*	Not detected	9.4	0.94	ng/L	1.88	2058-94-8	
PFNS*	Not detected	9.4	3.6	ng/L	1.88	474511-07-4	
PFDoDA*	Not detected	9.4	1.7	ng/L	1.88	307-55-1	
PFDS*	Not detected	9.4	1.7	ng/L	1.88	335-77-3	
PFTrDA*	Not detected	9.4	1.9	ng/L	1.88	72629-94-8	
FOSA*	Not detected	9.4	2.3	ng/L	1.88	754-91-6	
PFTeDA*	Not detected	9.4	2.8	ng/L	1.88	376-06-7	

Lab Sample ID: S04674.11
Sample Tag: Field Blank
Collected Date/Time: 07/17/2019 00:01
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	15ml Centrifuge Tube	None	Yes	5.0	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 08/07/19 01:55, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	20	5.2	ng/L	2	375-22-4	
PFPeA*	Not detected	10	4.8	ng/L	2	2706-90-3	
4:2 FTSA*	Not detected	10	1.6	ng/L	2	757124-72-4	
PFHxA*	Not detected	10	1.4	ng/L	2	307-24-4	
PFBS*	Not detected	10	1.6	ng/L	2	375-73-5	
PFHpA*	Not detected	10	2.2	ng/L	2	375-85-9	
PFPeS*	Not detected	10	3.2	ng/L	2	2706-91-4	
6:2 FTSA*	Not detected	10	3.0	ng/L	2	27619-97-2	
PFOA*	Not detected	10	1.2	ng/L	2	335-67-1	
PFHxS*	Not detected	10	2.4	ng/L	2	355-46-4	
PFHxS-LN*	Not detected	10	2.4	ng/L	2	355-46-4-LN	
PFHxS-BR*	Not detected	10	2.4	ng/L	2	355-46-4-BR	
PFNA*	Not detected	10	1.2	ng/L	2	375-95-1	
8:2 FTSA*	Not detected	10	4.0	ng/L	2	39108-34-4	
PFHpS*	Not detected	10	5.6	ng/L	2	375-92-8	
PFDA*	Not detected	10	5.2	ng/L	2	335-76-2	
N-MeFOSAA*	Not detected	10	3.6	ng/L	2	2355-31-9	
EtFOSAA*	Not detected	10	4.0	ng/L	2	2991-50-6	
PFOS*	Not detected	10	4.0	ng/L	2	1763-23-1	
PFOS-LN*	Not detected	10	4.0	ng/L	2	1763-23-1-LN	
PFOS-BR*	Not detected	10	4.0	ng/L	2	1763-23-1-BR	
PFUnDA*	Not detected	10	1.0	ng/L	2	2058-94-8	
PFNS*	Not detected	10	3.8	ng/L	2	474511-07-4	
PFDoDA*	Not detected	10	1.8	ng/L	2	307-55-1	
PFDS*	Not detected	10	1.8	ng/L	2	335-77-3	
PFTrDA*	Not detected	10	2.0	ng/L	2	72629-94-8	
FOSA*	Not detected	10	2.4	ng/L	2	754-91-6	
PFTeDA*	Not detected	10	3.0	ng/L	2	376-06-7	

Analytical Laboratory Report

Lab Sample ID: S04674.12
Sample Tag: Trip Blank
Collected Date/Time: 07/17/2019 00:01
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.0	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 08/07/19 02:15, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19	4.8	ng/L	1.85	375-22-4	
PFPeA*	Not detected	9.3	4.4	ng/L	1.85	2706-90-3	
4:2 FTSA*	Not detected	9.3	1.5	ng/L	1.85	757124-72-4	
PFHxA*	Not detected	9.3	1.3	ng/L	1.85	307-24-4	
PFBS*	Not detected	9.3	1.5	ng/L	1.85	375-73-5	
PFHpA*	Not detected	9.3	2.0	ng/L	1.85	375-85-9	
PFPeS*	Not detected	9.3	3.0	ng/L	1.85	2706-91-4	
6:2 FTSA*	Not detected	9.3	2.8	ng/L	1.85	27619-97-2	
PFOA*	Not detected	9.3	1.1	ng/L	1.85	335-67-1	
PFHxS*	Not detected	9.3	2.2	ng/L	1.85	355-46-4	
PFHxS-LN*	Not detected	9.3	2.2	ng/L	1.85	355-46-4-LN	
PFHxS-BR*	Not detected	9.3	2.2	ng/L	1.85	355-46-4-BR	
PFNA*	Not detected	9.3	1.1	ng/L	1.85	375-95-1	
8:2 FTSA*	Not detected	9.3	3.7	ng/L	1.85	39108-34-4	
PFHpS*	Not detected	9.3	5.2	ng/L	1.85	375-92-8	
PFDA*	Not detected	9.3	4.8	ng/L	1.85	335-76-2	
N-MeFOSAA*	Not detected	9.3	3.3	ng/L	1.85	2355-31-9	
EtFOSAA*	Not detected	9.3	3.7	ng/L	1.85	2991-50-6	
PFOS*	Not detected	9.3	3.7	ng/L	1.85	1763-23-1	
PFOS-LN*	Not detected	9.3	3.7	ng/L	1.85	1763-23-1-LN	
PFOS-BR*	Not detected	9.3	3.7	ng/L	1.85	1763-23-1-BR	
PFUnDA*	Not detected	9.3	0.93	ng/L	1.85	2058-94-8	
PFNS*	Not detected	9.3	3.5	ng/L	1.85	474511-07-4	
PFDoDA*	Not detected	9.3	1.7	ng/L	1.85	307-55-1	
PFDS*	Not detected	9.3	1.7	ng/L	1.85	335-77-3	
PFTrDA*	Not detected	9.3	1.9	ng/L	1.85	72629-94-8	
FOSA*	Not detected	9.3	2.2	ng/L	1.85	754-91-6	
PFTeDA*	Not detected	9.3	2.8	ng/L	1.85	376-06-7	

Merit Laboratories Login Checklist

Lab Set ID: S04674
Client: APPLIED (Applied Ecosystems)
Project: RACER Flint West #12990
Submitted: 07/17/2019 16:34 Login User: SRS

Attention: Rodney Abke
Address: Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[ ] Yes	[ ] No	[X] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Rodney Abke
COMPANY: Applied EcoSystems
ADDRESS: G-4300 South Saginaw Street
CITY: Burton | STATE: MI | ZIP CODE: 48529
PHONE NO.: 810-715-2525 | FAX NO.: 810-715-2526 | P.O. NO.: PO795930
E-MAIL ADDRESS: rabke@appliedecosystems.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: Monica Wallingford ☐SAME
COMPANY: Revitalizing Auto Communities Environmental Response (RACER) Trust
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: 313.486.2978 | E-MAIL ADDRESS: mwallingford@racertrust.org

PROJECT NO./NAME: RACER Flint West #12990 | SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER _____

DELIVERABLES REQUIRED ☒STD ☐LEVEL II ☐LEVEL III ☐LEVEL IV ☐EDD ☐OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☐NPDES
Project Locations: ☐Detroit ☐New York ☐Other _____
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	Metals, dissolved*	Metals, Total*	Total Organic Carbon	Methane	PFAS/PFOS	
046673.01	7-17	9:20	MW-102S		8		3	1				4	X	X	X			X	.01
	~~7-17~~	~~10:20~~			~~13~~		~~6~~	~~1~~ ~~2~~				~~4~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	
.02	7-17	11:20	MW-111S		13		6	1	2			4	X	X	X	X	X	X	.02
.03	7-17	10:23	MW-103S		8		3	1				4	X	X	X			X	.03
.04	7-17	12:10	MW-108S		8		3	1				4	X	X	X			X	.04
.05	7-17	12:43	MW-110S		8		3	1				4	X	X	X			X	.05
.06	7-17	13:26	MW-113S		13		6	1	2			4	X	X	X	X	X	X	.06
.07	7-17	14:00	MW-109S		13		6	1	2			4	X	X	X	X	X	X	.07
.08	7-17	14:45	MW-114S		13		6	1	2			4	X	X	X	X	X	X	.08
.09	7-17	—	Dup 2		13		6	1	2			4	X	X	X	X	X	X	.09
.10	7-17	15:10	Equipment Blank		11		6	1				4	X	X	X		X	X	.10
.11	7-17	—	Field Blank		2		2					2	X					X	.11

(PFC) 046674

* - Metals list incldues: Ar, Cr-total, CR-Hex, Cu, Pb, Se, Zn, Fe, Mn

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☐Sampler	DATE 7/17	TIME 3:40	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE 7/17/19	TIME 15:34	
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE 7/17/19	TIME 16:34	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE 7/17/19	TIME 1634	

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	NOTES: TEMP. ON ARRIVAL 50
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
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C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

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INVOICE TO

CONTACT NAME: Monica Wallingford ☐ SAME
COMPANY: Revitalizing Auto Communities Environmental Response (RACER) Trust
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: 313.486.2978 | E-MAIL ADDRESS: mwallingford@racertrust.org

PROJECT NO./NAME: RACER Flint West #12990
SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☒ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	Metals, dissolved*	Metals, Total*	Total Organic Carbon	Methane	PFAS/PFOS
04673.12	7-17		Trip Blank		4		2					2	X					X

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other _____

Special Instructions

* - Metals list incldues:
Ar, Cr-total, CR-Hex, Cu
Pb, Se, Zn, Fe, Mn

04673 .12

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☑ Sampler	DATE 7/17	TIME 3:40
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 7/17/19	TIME 15:40
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 7/17/19	TIME 16:34
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 7/17/19	TIME 1034

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES: TEMP. ON ARRIVAL 5.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

TABLE 3
SOIL ANALYTICAL DATA (Metals and Detected VOCs)
RACER - Flint West #12990

				Sample ID:	SB-122	SB-123	SB124-4	SB124-10	SB124-21	SB125-4	SB125-13	SB125-19	SB126-4	SB126-11	SB126-15	SB127-4	SB127-8	SB127-15	SB127-20	SB128-3	SB128-7	SB128-10
				Date Collected:	4/30/2013	4/30/2013	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14
				Depth:	15-16	5-6	4	10	21	4	13	19	4	11	15	4	8	15	20	3	7	10
ANALYTE (ug/kg)	**DW**	GSI																				
Arsenic	5,800	5,800	D&G=B			1,130	1,100	1,830	570	1,440	1,410	1,300	1,250	1,180	410	1,630	2,060	1,780	500	1,550	1,150
Chromium	18,000	18,000	D&G=B			1,220	1,460	3,350	2,050	3,260	4,240	1,220	2,920	2,870	1,980	2,560	4,540	610	1,460	2,860	5,890
Copper	5,800,000	120,000	GX			1,700	2,300	8,200	7,400	6,100	11,400	3,400	3,100	5,600	1,600	3,000	5,800	1,200	3,900	5,600	5,300
Lead	700,000	5,000,000	GX			2,510	3,120	7,580	13,800	5,100	8,590	2,280	3,790	5,470	4,710	5,740	7,330	950	6,250	11,400	6,950
Selenium	4,000	410	G=B					210			210			160							
Zinc	2,400,000	2,600,000	G=B			4,600	5,100	19,000	11,400	12,200	20,800	5,900	8,600	14,700	3,700	10,300	20,300	2,400	6,000	13,200	9,900
ANALYTE (ug/kg)	**DW**	GSI																				
2 Butanone (MEK)	260,000	44,000				45	71	56		165	79	82	150	75	46	66	148	126	44	123	127
Acetone	15,000	NC																			
Vinyl Chloride	40	260									23										
1,1-Dichloroethene	140	2,600																			
trans-1,2-Dichloroethene	2,000	30,000																			
1,1-Dichloroethane	18,000	15,000																			
Methylene chloride	5	1,500		**100**	**18**																
cis-1,2-Dichloroethene	1,400	12,000		**1,600**				58			350										
Tetrahydrofuran	1,900	220,000				170	190	190	150	180	180	140	190	210	190	190	170	190	150	150	140
Chloroform	1,600	7,000									16										
1,1,1-Trichloroethane	4,000	1,800									11										
Benzene	100	4,000																			
Trichloroethene	100	4,000		**14,400**	41			**1,420**			**3,650**										
Tetrachloroethene	100	1,200			18																
Toluene	16,000	5,400				11															
Ethylbenzene	1,500	360																			
Total Xylenes	5,600	820			39																
Isopropylbenzene	91,000	3,200			65															16	
n-Propylbenzene	1,600	NC																			
1,2 -Dichlorobenzene	14,000	280																		21	
1,2,4-Trimethylbenzene	2,100	570			37																
1,2,3-Trimethylbenzene	NC	NC			42.1															13.5	
1,3,5-Trimethylbenzene	72	45			29																
p-isopropyltoluene	NC	NC			93																
1,2,3-Trichlorobenzene	NC	NC																			
Naphthalene	35,000	730			210	10.8			14.4	17		13.7			12.9		14.3			345.7	46.9
2-Methylnaphthalene	57,000	4,200			345	10.2			14	39		13	19				30		10	820	46

NOTES:

	Blank cells indicate no detectable c
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated
NC	Insufficient data to develop criterion
GX	Interface Criteria - calculated based on 257ppm total hardness

TABLE 3
SOIL ANALYTICAL DATA (Metals and Detected VOCs)
RACER - Flint West #12990

			Sample ID:	SB129-4	SB129-8	SB129-18	SB130-4	SB130-10	SB130-18	SB131-4	SB131-10	SB131-18	SB132-12	SB132-15	SB133-17	SB133-19	SB133-20	SB134-18	SB134-20	SB135-19	SB135-21
			Date Collected:	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	7/10/14	7/10/14	7/10/14	7/10/14	7/10/14	12/22/14	12/22/14	12/22/14	12/22/14
			Depth:	4	8	18	4	10	18	4	10	18	12	15	17	19	20	18	20	19	21
ANALYTE (ug/kg)	**DW**	GSI																			
Arsenic	5,800	5,800	D&G=B	2,790	1,740	1,460	3,580	1,700	1,980	1,630	1,300	2,080						380	1,690	1,900	2,080
Chromium	18,000	18,000	D&G=B	2,550	4,080	4,730	3,090	1,150	2,770	1,640	2,800	2,620									
Copper	5,800,000	120,000	GX	13,000	3,600	7,200	17,700	1,700	9,800	8,500	3,100	7,900						4,500	3,000	4,000	3,900
Lead	700,000	5,000,000	GX	104,000	6,100	7,420	123,000	2,110	6,510	36,400	4,740	6,020						5,690	3,380	2,850	2,890
Selenium	4,000	410	G=B	130		150	140														
Zinc	2,400,000	2,600,000	G=B	21,300	13,100	19,200	51,800	5,800	18,000	16,800	13,600	18,600						5,900	19,500	17,500	15,300
ANALYTE (ug/kg)	**DW**	GSI																			
2 Butanone (MEK)	260,000	44,000		40	53	82	69	68	70	79	65	164									
Acetone	15,000	NC																			
Vinyl Chloride	40	260							**73**			**90**	**180**	**89**	**46**					14	
1,1-Dichloroethene	140	2,600							34			18									
trans-1,2-Dichloroethene	2,000	30,000							100			62			18					11	
1,1-Dichloroethane	18,000	15,000							69			35			13						
Methylene chloride	5	1,500																			
cis-1,2-Dichloroethene	1,400	12,000				300			**6,380**			**2,820**	**2,200**	1,200	**1,990**	530	270		120	1,100	800
Tetrahydrofuran	1,900	220,000		150	180	180	180	170	160	150	180	160	1,500	300	150	160	117				
Chloroform	1,600	7,000																			
1,1,1-Trichloroethane	4,000	1,800				33.40									25	35	18				8.7
Benzene	100	4,000							36												
Trichloroethene	100	4,000				**6,170**			**6,080**	28		**12,160**	**29,500**	**13,700**	**11,680**	**10,860**	**7,520**		**2,040**	**7,890**	**6,540**
Tetrachloroethene	100	1,200														17					
Toluene	16,000	5,400		13		19	31			45								70			
Ethylbenzene	1,500	360					15											16			
Total Xylenes	5,600	820		21			92			91								85			
Isopropylbenzene	91,000	3,200					13														
n-Propylbenzene	1,600	NC					16											14			
1,2 -Dichlorobenzene	14,000	280																			
1,2,4-Trimethylbenzene	2,100	570		14			24			22											
1,2,3-Trimethylbenzene	NC	NC					13.4			11.8											
1,3,5-Trimethylbenzene	72	45																			
p-isopropyltoluene	NC	NC																			
1,2,3-Trichlorobenzene	NC	NC																			
Naphthalene	35,000	730		39.5	12.5		51.5			100.3								36.6			
2-Methylnaphthalene	57,000	4,200		43			54.1			71.8					15	12	9.2	29			

NOTES:

	Blank cells indicate no detectable c
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated
NC	Insufficient data to develop criterion
GX	Interface Criteria - calculated based on 257ppm total hardness

TABLE 3
SOIL ANALYTICAL DATA (Metals and Detected VOCs)
RACER - Flint West #12990

				Sample ID:	SB136-19	SB136-21	SB137-18	SB137-20.5	SB138-15	SB138-18	SB139-16	DUP-1	SB139-18	SB140-16	SB140-19	SB141-16	SB141-18	SB141-19
				Date Collected:	12/22/14	12/22/14	12/22/14	12/22/14	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019
				Depth:	19	21	18	20.5	15	18	16	(SB139-16)	18	16	19	16	18	19
ANALYTE (ug/kg)	**DW**	GSI																
Arsenic	5,800	5,800	D&G=B	1,870	3,350	1,660	3,040											
Chromium	18,000	18,000	D&G=B															
Copper	5,800,000	120,000	GX	4,600	4,300	4,200	4,500											
Lead	700,000	5,000,000	GX	3,060	3,740	2,810	3,240											
Selenium	4,000	410	G=B															
Zinc	2,400,000	2,600,000	G=B	13,600	18,800	13,500	27,300											
ANALYTE (ug/kg)	**DW**	GSI																
2 Butanone (MEK)	260,000	44,000												2,300				
Acetone	15,000	NC											430					360
Vinyl Chloride	40	260					**56**						**42**					
1,1-Dichloroethene	140	2,600											63					
trans-1,2-Dichloroethene	2,000	30,000				14			13				200					
1,1-Dichloroethane	18,000	15,000											90					
Methylene chloride	5	1,500						**22**	**25.7**	**230**	**210**	**32**	**260**	**30**	**27**	**25**	**26**	
cis-1,2-Dichloroethene	1,400	12,000		340	450	670	290	470	550	**1,800**	1000	**8,850**	**3,500**	150	15	**2,900**	860	
Tetrahydrofuran	1,900	220,000						174	121	1,800	1750	180	1,800	155	161	170	155	
Chloroform	1,600	7,000																
1,1,1-Trichloroethane	4,000	1,800		12.5		20.5			7.4					14.8				
Benzene	100	4,000										20						
Trichloroethene	100	4,000		**8,760**	**9,390**	**4,250**		**2,880**	**2,300**	**21,000**	**16,300**	**3,440**	**13,100**	**2,870**	**180**	**6,150**	**3,370**	
Tetrachloroethene	100	1,200												11.9				
Toluene	16,000	5,400																
Ethylbenzene	1,500	360																
Total Xylenes	5,600	820																
Isopropylbenzene	91,000	3,200																
n-Propylbenzene	1,600	NC																
1,2 -Dichlorobenzene	14,000	280								136								
1,2,4-Trimethylbenzene	2,100	570																
1,2,3-Trimethylbenzene	NC	NC																
1,3,5-Trimethylbenzene	72	45																
p-isopropyltoluene	NC	NC																
1,2,3-Trichlorobenzene	NC	NC												130				
Naphthalene	35,000	730																
2-Methylnaphthalene	57,000	4,200																

NOTES:

	Blank cells indicate no detectable c
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated
NC	Insufficient data to develop criterion
GX	Interface Criteria - calculated based on 257ppm total hardness

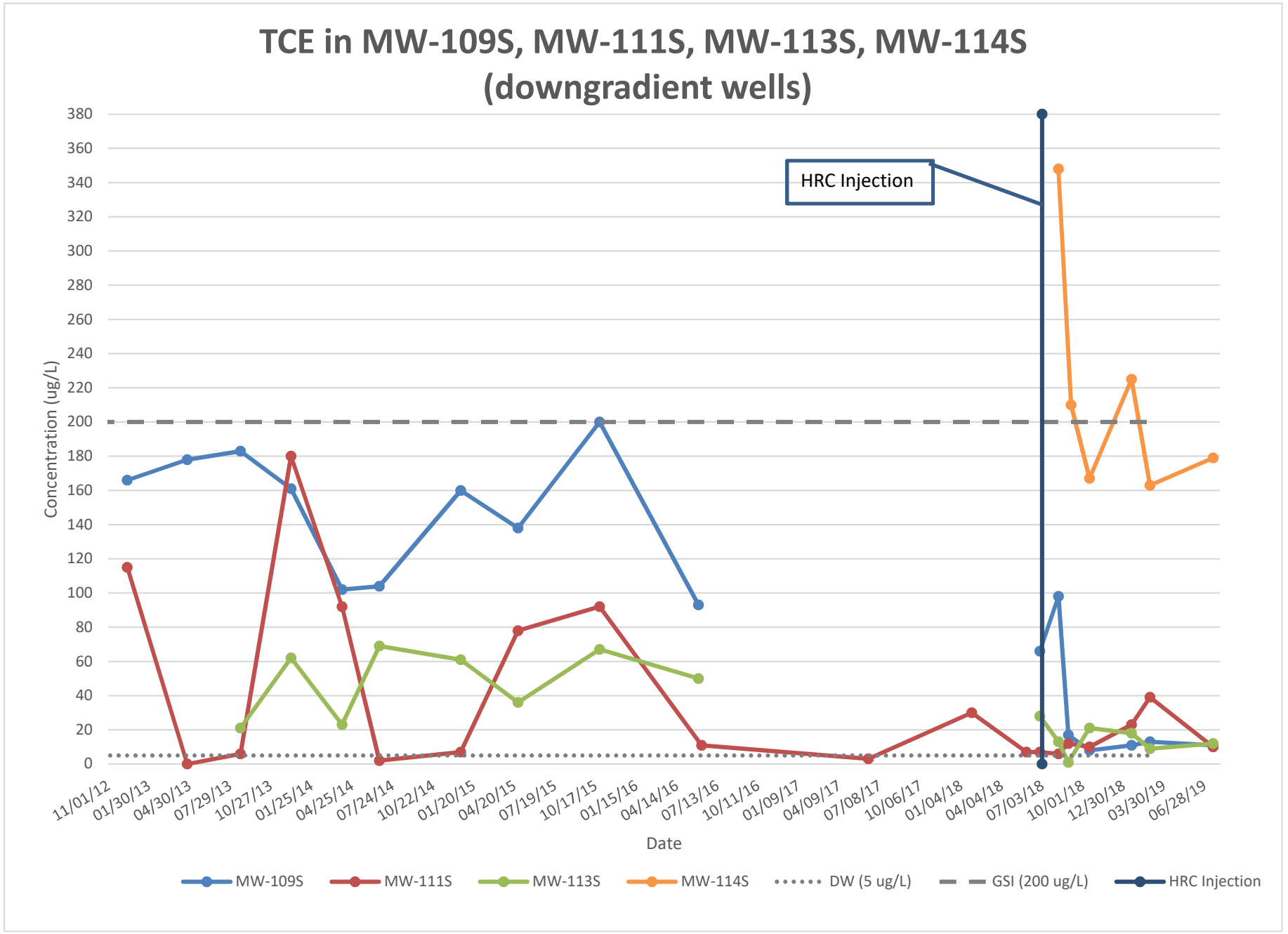
Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services

Table 2
Pre and Post HRC Injection Analytical Results and Natural Attenuation Parameters
Racer Flint West #12990, Flint, Michigan

Michigan Department of Environmental Quality Risk Based Screening Levels						Vinyl Chloride	Chloroethane	1,1-Dichloroethylene (1,1-DCE)	trans-1,2-Dichloroethylene (trans-1,2,-DCE)	1,1-Dichloroethane (1,1-DCA)	cis-1,2-Dichloroethylene (cis-1,2-DCE)	1,1,1-Trichloroethane	1,2-Dichloroethane (1,2-DCA)	Trichloroethylene (TCE)	Tetrachloroethylene (PCE)	Arsenic (Dissolved)	Arsenic	Chromium, VI (Dissolved)	Chromium, VI	Chromium, Total (Dissolved)	Chromium, Total	Copper (Dissolved)	Copper	Iron (Dissolved)	Iron	Lead (Dissolved)	Lead	Manganese (Dissolved)	Manganese	Selenium (Dissolved)	Selenium	Zinc (Dissolved)	Zinc	Total Organic Carbon	Methane	pH (from water quality meter)	Dissolved oxygen (mg/L) (from water quality meter)	Conductivity (mS/cmc) (from water quality meter)	Oxygen Reduction Potential (mV) (from water quality meter)
Drinking Water - Res						**2**	**430**	**7**	**100**	**880**	**70**	**200**	**5**	**5**	**5**	**10**	**10**	**100**	**100**	**100**	**100**	**1,000**	**1,000**	**300**	**300**	**4**	**4**	**50**	**50**	**50**	**50**	**2,400**	**2,400**	**NA**	**ID**	**NA**	**NA**	**NA**	**NA**
Groundwater Surface Water Interface						*13*	*1,100*	*130*	*1,500*	*740*	*620*	*89*	*360*	*200*	*60*	*10*	*10*	*160*	*160*	*11*	*11*	*20*	*20*	*NA*	*NA*	*44*	*44*	*4,500*	*4,500*	*5*	*5*	*260*	*260*	*NA*	*ID*	*NA*	*NA*	*NA*	*NA*
Sample Location	**TOC (feet)**	**DT NAPL (feet)**	**DTW (feet)**	**GW Elev (feet)**	**Sample Date**																																		
MW-109S	714.62			--	06/01/16	***15***	<5	3	1	1	35	0.31	<1	**93**	<1	0.65	5	<10	<10	1.17	3.38	6	8	NA	NA	0.325	3	NA	NA	<5	<5	*730*	10	NA	NA	8.95	0.55	0.053	-51.70
MW-109S	714.62	ND	11.21	703.41	**06/28/18**	**7**	<5	4	0.54	2	33	<1	<1	**66**	<1	0.538	0.396	NA	NA	<5	<5	0.483	1.36	30	40	<3	0.111	**807**	**817**	<3	<5	<5	2.67	4,100	70	7.19	0.99	0.775	-99.1
SI: 9-14' bgs	714.62	ND	12.84	701.78	**08/08/18**	***14***	<5	5	0.79	2	43	0.41	<1	**98**	0.19	1.179	0.572	<10	<10	<5	0.151	1.203	1.07	30	80	0.063	0.074	**1,010**	**1,040**	<5	<5	5	2.62	5,700	90	7.11	1.06	0.785	-42.9
Dist to IP: 51'	714.62	ND	10.69	703.93	**09/05/18**	***42***	<5	2	0.7	1	68	1	<1	**17**	<1	4	5	<10	<10	<5	<5	1	1	NA	NA	<3	<3	NA	NA	4	1	3	5	NA	NA	NA	NA	NA	NA
	714.62	ND	11.57	703.05	**10/16/18**	***26***	<0.34	0.74	0.62	1	42	<0.28	<0.30	**8**	<0.20	***21***	***28***	<10	<20	0.245	0.418	0.474	0.907	**9,710**	**14,500**	<0.055	0.074	**453**	**459**	<2.51	<2.51	4	2	24,100	200	7.54	3.62	NA	-165.3
	714.62	ND	12.01	702.61	**01/17/19**	**3**	<0.34	0.37	0.36	0.82	6	<0.28	<0.16	**11**	<0.20	5	***32***	<10	<20	0.258	0.161	<0.375	<0.375	150	**18,300**	<0.19	<0.19	**314**	**325**	<2.09	<2.09	2	2	5,500	450	7.38	1.08	0.715	32.3
	714.62	ND	11.71	702.91	**02/28/19**	**5**	<0.34	0.60	0.41	0.97	9	<0.28	<0.16	**13**	<0.20	2	***39***	<10	<10	0.246	0.600	<0.375	0.381	NA	NA	<0.375	0.206	NA	NA	<2.09	<2.09	3	2	NA	NA	7.77	0.57	0.807	-127.1
	714.62	ND	11.14	703.48	**07/17/19**	**7**	<5	0.82	0.42	1	9	<1	<1	**11**	<1	10	***73***	0.265	2.927	<0.01	<0.02	<0.005	0.774	13.6	**15,300**	<0.003	<0.003	**571**	**618**	<0.005	<0.005	1.92	4.43	6.2	50	7.73	1.03	0.779	-105.8
MW-111S	719.53			--	06/08/16	<1	<5	<1	<1	<1	<1	<1	<1	**11**	<1	0.55	1	<10	<10	3.33	4.36	1.25	1.38	NA	NA	0.094	0.5	NA	NA	<5	<5	49	2.95	NA	NA	7.47	2.79	0.053	-131.3
SI: 9-14' bgs	719.53			--	06/13/17	<1	<5	<1	<1	<1	<1	<1	<1	3	<1	1.37	1.45	<10	<10	2.69	7	1.34	1.38	NA	NA	0.208	0.956	NA	NA	<5	<5	1.72	2.54	NA	NA	NA	NA	NA	NA
	719.53			--	01/28/18	<1	<5	0.31	0.16	2	51	<1	<1	**30**	<1	4	10	<10	<10	*37*	*68*	3.403	7	NA	NA	2.084	**6**	NA	NA	1	1	7	12	NA	NA	NA	NA	NA	NA
	719.53	ND	12.81	706.72	05/29/18	<1	<5	<1	<1	<1	<1	<1	<1	**7**	<1	<2	<2	<10	<10	4.13	4.17	0.611	2.42	NA	NA	<3	0.067	NA	NA	<5	<5	15	6	NA	NA	6.97	4.97	0.820	-20.5
MW-111S	719.53	ND	13.14	706.39	**06/28/18**	<1	<5	<1	<1	<1	<1	<1	<1	**7**	<1	<2	<2	NA	NA	5	5	0.911	<5	12.7	9.71	<3	<3	1.847	0.877	<5	<5	2.42	7	9,900	<1	7.18	2.86	0.810	-120.7
SI: 9-14' bgs	719.53	ND	14.01	705.52	**08/08/18**	<1	<5	<1	<1	<1	0.95	<1	<1	**6**	<1	4	9	<10	<10	1.11	2.754	0.527	0.674	**850**	**2,830**	0.103	0.192	**321**	**385**	<5	<5	6	3.67	19,000	<1	7.09	1.12	0.847	-47.3
Dist to IP: 0'	719.53	ND	13.28	706.25	**08/30/18**	<1	<5	<1	<1	<1	0.27	5	<1	**12**	<1	<2	<2	<10	<10	4	5	1	1	NA	NA	<3	<3	NA	NA	5	2	6	2	NA	NA	7.52	0.97	0.796	8.1
	719.53	ND	13.48	706.05	**10/16/18**	<0.24	<0.21	<0.27	<0.14	0.19	4	<0.27	<0.17	**10**	<0.13	<0.385	<0.385	<4	<4	6	7	0.872	0.631	15	20	<0.055	<0.055	11	11	<2.51	<1.38	<1.38	<1.38	7,000	1,400	7.04	3.73	NA	93
	719.53	ND	14.29	705.24	**01/17/19**	<0.31	<0.34	<0.27	<0.20	0.47	9	<0.28	<0.16	**23**	<0.20	0.338	0.808	<4	<4	5	5	0.767	0.752	30	80	<0.19	<0.19	1.28	12	<2.09	<2.09	1.84	<0.73	6,300	280	6.99	2.68	0.726	186.1
	719.53	ND	14.01	705.52	**02/28/19**	<0.31	<0.34	<0.27	<0.27	0.76	13	<0.28	<0.16	**39**	<0.2	0.317	0.759	<4	<4	5	5	1.320	0.691	NA	NA	<0.19	<0.19	NA	NA	<2.09	<2.09	7.00	1	NA	NA	6.60	2.43	0.781	-4.9
	719.53	ND	12.88	706.65	**07/17/19**	<1	<5	<1	<1	<1	0.82	<1	<1	**10**	<1	0.535	0.942	5	6	<0.01	<0.01	0.752	0.938	9	160	<0.003	0.214	3.92	12	<0.005	<0.005	5	3.300	11.7	<1.0	6.73	1.78	0.838	-42.6
MW-112S	720.00			--	05/11/16	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	3	<10	<10	<5	*77*	<5	7	NA	NA	<3	2	NA	NA	<5	<5	<5	12	NA	NA	8.03	4.60	0.053	-76.1
SI: 15-20' bgs	720.00			--	06/13/17	**10**	1.59	1	0.39	1	4	<1	<1	**10**	<1	***82***	***126***	<10	<20	0.34	0.37	<5	<5	NA	NA	0.064	0.083	NA	NA	<5	<5	2.22	4.07	NA	NA	NA	NA	NA	NA
	720.00	ND	16.50	703.50	01/28/18	2	<5	<1	<1	0.7	3	<1	<1	2	<1	***100***	***129***	<10	<20	1.22	1.54	0.547	1.333	NA	NA	<3	<3	NA	NA	1	<5	2.48	6	NA	NA	NA	NA	NA	NA
MW-112S	720.00	ND	14.50	705.50	05/29/18	**9**	<5	1	0.25	1	3	<1	<1	**13**	<1	***23***	***60***	<1	<1	0.431	0.296	<5	<5	NA	NA	<3	0.062	NA	NA	<5	<5	8	4.76	NA	NA	7.05	1.05	0.709	-65.7
SI: 15-20' bgs	720.00	ND	14.72	705.28	**06/28/18**	**8**	0.62	1	0.21	0.92	2	<1	<1	**7**	<1	***29***	***52***	NA	NA	0.499	0.38	<5	<5	**2,320**	**5,150**	0.083	0.181	**263**	**258**	<5	<5	3.49	<5	22,000	1,600	7.39	0.60	0.672	-116.6
Dist to IP: 83'	720.00	ND	15.58	704.42	**08/14/18**	1	<5	<1	<1	0.57	0.82	<1	<1	1	<1	***78***	***104***	<1	<5	0.411	0.37	0.453	<5	**4,730**	**6,490**	0.097	0.084	**185**	**191**	<5	<5	5	2.05	36,000	1,300	7.33	1.35	0.725	17.1
(up gradient)	720.00	ND	14.75	705.25	**09/05/18**	**5**	<5	0.66	<1	0.63	2	<1	<1	**7**	<1	***52***	***104***	<10	<20	<5	<5	<5	<5	NA	NA	<3	<3	NA	NA	1	3	2	4	NA	NA	NA	NA	NA	NA
	720.00	ND	15.10	704.90	**10/16/18**	**3**	<0.21	0.78	0.17	0.71	2	<0.27	<0.17	**8**	<0.13	***39***	***75***	<10	<10	0.480	0.94	<0.29	<0.29	**3,380**	**5,670**	0.069	0.109	**233**	**250**	<2.51	<2.51	4.49	2	35,100	<0.17	7.23	0.77	NA	-87.7
	720.00	ND	16.63	703.37	**01/17/19**	**4**	<0.34	0.99	0.23	1	6	<0.28	<0.16	**11**	<0.20	***26***	***83***	<0.01	<0.01	0.351	0.206	<0.375	<0.375	**850**	**6,940**	<0.19	<0.19	**608**	**588**	<2.09	<2.09	4.61	<0.73	17,700	770	7.17	0.32	0.632	99.6
	720.00	ND	16.20	703.80	**02/28/19**	2	<0.34	0.41	<0.2	1	2	<0.28	1	3	<0.20	***35***	***102***	<10	<10	0.357	0.507	<0.375	<0.375	NA	NA	<0.19	<0.19	NA	NA	<2.09	<2.09	0.43	0.77	NA	NA	7.67	6.21	0.730	-104.1
	720.00	ND	14.43	705.57	**07/16/19**	**7**	<5	1	0.29	0.85	3	<1	<1	**9**	<1	***15***	***68***	1	0	<0.01	<0.02	1.826	0.458	170	**5,750**	0.263	0.274	**258**	**263**	<0.005	<0.005	20.000	2.000	26.1	1,700	8.13	11.20	0.698	-109.7
MW-113S	714.00			--	05/11/16	<1	<5	<1	<1	<1	<1	<1	<1	0.26	<1	<2	<2	<10	<10	<5	3	<5	3	NA	NA	<3	<3	NA	NA	<5	<5	<5	7	NA	NA	7.91	5.20	0.052	-59.1
SI: 8-13' bgs	714.00			--	06/01/16	<1	<5	<1	<1	3	30	0.3	<1	**50**	<1	2.08	9	<10	<10	1.73	4.86	0.73	<5	NA	NA	0.16	<3	NA	NA	<5	<5	*317*	<5	NA	NA	9.24	0.76	0.054	-190.1
MW-113S	714.00	ND	12.37	701.63	**06/28/18**	<1	<5	<1	<1	0.31	4	<1	<1	**28**	<1	3	6	NA	NA	1.97	4.5	<5	6	**1,220**	**2,290**	<3	<3	**55**	**58**	<5	<5	<5	<5	4,800	19	7.05	0.67	0.918	-108.6
SI: 8-13' bgs	714.00	ND	12.75	701.25	**08/08/18**	0.39	<5	<1	<1	<1	6	<1	<1	**13**	<1	6	***13***	<10	<10	1.209	5	<5	0.524	**790**	**3,830**	0.061	0.207	**108**	**100**	<5	<5	<5	6	7,500	19	6.93	1.06	0.831	-55.7
Dist to IP: 64'	714.00	ND	11.78	702.22	**08/30/18**	<1	<5	<1	<1	<1	<1	<1	<1	1	<1	<2	<2	<10	<10	1	1	1	1	NA	NA	<3	<3	NA	NA	<5	3	5	5	NA	NA	7.27	1.19	0.920	30.2
	714.00	ND	12.73	701.27	**10/16/18**	1	<0.21	<0.27	<0.14	<0.15	8	<0.27	<0.17	**21**	<0.13	6	7	<10	<10	*21*	*23*	0.29	0.876	**1,500**	**2,170**	<0.055	<0.055	**97**	**96**	<2.51	<2.51	2	<0.138	8,400	260	6.93	3.95	NA	-215.2
	714.00	ND	13.11	700.89	**01/17/19**	2	<0.34	<0.27	<0.20	<0.20	7	<0.28	<0.16	**18**	<0.20	10	***210***	<4	<4	3.35	7	<0.375	0.413	**830**	**4,070**	<0.19	0.259	**185**	**387**	<2.09	<2.09	1.68	1.29	5,400	<0.17	6.91	0.45	0.897	139.6
	714.00	ND	12.82	701.18	**02/28/19**	1	<0.34	<0.27	<0.20	<0.20	2	<0.28	<0.16	**9**	<0.20	1	***13***	<10	<10	1.61	*13*	1.340	3.060	NA	NA	1.340	1.140	NA	NA	<2.09	<2.09	8.00	13.00	NA	NA	7.03	2.45	0.998	-45.4
	714.00	ND	12.31	701.69	**07/17/19**	0.78	<5	<1	<1	<1	1	<1	<1	**12**	<1	1.38	5	1	2	<0.01	<0.02	1.465	1.144	150	**8,300**	<0.003	0.195	**79**	**91**	<0.005	<0.005	6	6	6.7	2.8	6.98	0.34	0.923	-60.0
MW-114S		ND	9.05	-9.05	**08/08/18**	**9**	<30	<5	<5	3.1	**113**	2.3	<5	***348***	<5	0.418	<2	0.106	0.105	***102***	***102***	1.116	1.457	<20	20	<3	0.169	**225**	**288**	<5	<5	6	6	4,400	190	7.27	0.78	0.834	-36.3
SI: 7-12' bgs		ND	7.95	-7.95	**09/05/18**	**9.5**	<50	<10	<10	3.6	**490**	<10	<10	***210***	<10	1	2	<10	6	7	9	2	3	NA	NA	<3	<3	NA	NA	1	3	4	3	NA	NA	NA	NA	NA	NA
Dist to IP: 61'		ND	8.78	-8.78	**10/16/18**	**7**	<1.7	<1.3	1.9	2.5	**166**	<1.4	<0.78	**167**	<1	***16***	***23***	<4	<4	0.751	0.975	2.661	2.911	**460**	**620**	0.061	0.094	**1,990**	**2,060**	<2.51	<2.51	2.37	8	5,900	190	7.23	3.58	NA	-76.4
		ND	9.20	-9.20	**01/17/19**	**10**	<1.7	<1.3	1.7	3.1	**292**	1.7	<1	***225***	<1	***43***	***77***	<10	<10	0.309	0.114	0.973	1.740	**1,540**	**5,810**	<0.19	<0.19	**960**	**993**	<2.09	<2.09	3.28	1.27	9,700	280	7.26	0.17	0.762	55.1
		ND	8.92	-8.92	**02/28/19**	**12**	<1.7	<1.3	1.9	3.2	**295**	<1.4	<0.78	**162**	<1	***28***	***86***	<20	<20	0.172	0.258	0.823	1.920	NA	NA	<0.19	0.191	NA	NA	<2.09	<2.09	3.98	3.98	NA	NA	7.94	0.61	0.828	-134.5
		ND	8.36	-8.36	**07/17/19**	**8**	<30	<5	1.35	2.5	**244**	1.7	<5	**179**	<1	***16***	***101***	0.171	0.371	<0.01	<0.02	0.879	1.317	15	**7,480**	<0.003	0.385	**781**	**821**	<0.005	<0.005	13	12	6.4	200	7.52	0.39	0.824	-94.8

Results in micrograms per liter (ug/L) except where otherwise noted.
See laboratory report for additional volatile organic compound analyzed.
Dist to IP = Distance to nearest HRC injection point.

APPENDIX C: TCE GRAPH


TCE in MW-109S, MW-111S, MW-113S, MW-114S
(downgradient wells)
Concentration (ug/L)
380
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
HRC Injection
11/01/12
01/30/13
04/30/13
07/29/13
10/27/13
01/25/14
04/25/14
07/24/14
10/22/14
01/20/15
04/20/15
07/19/15
10/17/15
01/15/16
04/14/16
07/13/16
10/11/16
01/09/17
04/09/17
07/08/17
10/06/17
01/04/18
04/04/18
07/03/18
10/01/18
12/30/18
03/30/19
06/28/19
Date
MW-109S
MW-111S
MW-113S
MW-114S
DW (5 ug/L)
GSI (200 ug/L)
HRC Injection