Michigan Refining Division

Marathon Petroleum Company LP

1300 South Fort Street
Detroit, MI 48217
Tel: 313.843.9100

VIA FEDERAL EXPRESS

June 13, 2016

Mr. Jorge Acevedo
Michigan Department of Environmental Quality
Air Quality Division
3058 W. Grand Boulevard
Suite 2300
Detroit, MI 48202

RE: Marathon Petroleum Company LP – Detroit Refinery
Response to 05/20/16 Violation Notice Regarding Refinery Odor Conditions

Dear Mr. Acevedo:

This letter is in response to a Violation Notice (VN) issued on May 20, 2016 regarding nuisance odors at Marathon Petroleum Company LP's (MPC) Michigan Refining Division. In the VN, Michigan Department of Environmental Quality, Air Quality Division, alleged that the following violations occurred May 11-13, 2016:

Process Description	Rule/Permit Condition Violated	Comments
Process associated with oil refining at 1300 South Fort Street.	General Condition 12(b) of ROP No. MI-ROP-A9831-2012b, Section 1 Michigan Administrative Rule 901 (R 336.1901)	Detection of odors beyond the facility's property line, attributable to the facility, of sufficient intensity and duration so as to constitute an unreasonable interference with the comfortable enjoyment of life and property.

Date the Event Occurred: The alleged violation occurred during the period of May 11-13, 2016. The alleged violations are not on-going.

Explanation of the Causes and Duration of the Event:

On May 10, 2016 at approximately 2:00 P.M., refinery employees reported the presence of abnormal odors at the refinery wastewater treatment plant. MPC received notice of off-site

odors from the Melvindale Police Department at approximately 8:00 P.M. on May 10, and received a similar notice from MDEQ on May 11 and 12.

MPC has determined that the odors were emanating from the aeration basin in the membrane biological reactor (MBR) portion of the refinery's wastewater treatment plant (WWTP) and that the odors were caused by settled water discharged from Tank 27 to the WWTP. Tank 27 is a charge tank for the Kerosene Hydrotreater (KHT). Tank 27 receives hydrocarbon from the Disulfide Oil Coalescer in the Merox unit which is then processed in the (KHT). The material drawn from the coalsescer may contain disulfide oil, mercaptans, and sodium hydroxide carry-over. During the day shift on May 10, according to refinery procedures, aqueous material was drained from the bottom of Tank 27 to a controlled sewer line to be processed in the WWTP. Water is drained in this method from Tank 27 about once a week. At present, MPC's investigation indicates that in this particular instance, the settled water contained a greater amount of disulfides and spent caustic than is typical.

Summary of the Actions Taken: On May 11 2016, in response to complaints, operators stopped draining material from Tank 27 and reduced the wastewater processing and discharge rates at the WWTP. A hydrogen sulfide (H2S) scavenger was added to the inlet of the API separator and to the MBR aeration basin through the evening of May 11, 2016 and early morning of May 12, 2016. To prevent further off-site odor concerns, no wastewater was discharged to the Great Lakes Water Authority's (GLWA) sewer system between 7:30 A.M. on May 11, 2016 and 2:30 P.M. on May 12, 2016.

MPC monitored the air at four sewer openings near the refinery each day between May 11 and May 13, 2016 at locations specified in our wastewater discharge Permit Addendum #2 issued by GLWA. Results are shown in the table below:

5/11/2016	SL #1		N. Bound Fort		Fort and Pleasant		Liebold and Pleasant	
	1' Above Sewer	Sewer Headspace	1' Above Sewer	Sewer Headspace	1' Above Sewer	Sewer Headspace	1' Above Sewer	Sewer Headspace
Time	15:30	15:42	16:22	16:28	16:44	16:46	16:34	16:38
Benzene (ppm)	0.1	--	0.1	--	0.1	--	0.1	--
VOC (ppm)	0.5	--	0	--	0	--	0	--
H2S (ppm)	0	--	0	--	0	--	0	--
LEL (%)	0	0	0	0	0	0	0	0
O2 (%)	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9

5/12/2016	SL #1		N. Bound Fort		Fort and Pleasant		Liebold and Pleasant	
	1' Above Sewer	Sewer Headspace	1' Above Sewer	Sewer Headspace	1' Above Sewer	Sewer Headspace	1' Above Sewer	Sewer Headspace
Time	17:38	17:40	18:02	18:04	18:16	18:18	18:08	18:10
Benzene (ppm)	0	--	0	--	0	--	0	--
VOC (ppm)	0	--	0	--	0	--	0	--
H2S (ppm)	0	--	0	--	0	--	0	--
LEL (%)	0	0	0	0	0	0	0	0
O2 (%)	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9

5/13/2016	SL #1		N. Bound Fort		Fort and Pleasant		Liebold and Pleasant	
	1' Above Sewer	Sewer Headspace	1' Above Sewer	Sewer Headspace	1' Above Sewer	Sewer Headspace	1' Above Sewer	Sewer Headspace
Time	10:36	10:38	10:58	11:02	11:12	11:15	11:06	11:09
Benzene (ppm)	0	--	0	--	0	--	0	--
VOC (ppm)	0	--	0	--	0	--	0	--
H2S (ppm)	0	--	0	--	0	--	0	--
LEL (%)	0	0	0	0	0	0	0	0
O2 (%)	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9

At the request of MDEQ, MPC conducted ambient air samples at four sampling locations. A summary of the sample results for those samples is included as "Attachment A". The monitoring results are generally consistent with levels historically observed at the MPC ambient air monitoring stations; for reference, April 2016 PAMS organic speciation data are included as Attachment B.

Steps Taken to Prevent a Reoccurrence: MPC immediately initiated an investigation into the root cause of this incident. The investigation is scheduled for completion by July 15, 2016. In addition, to prevent any recurrence of odors, the settled water from Tank 27 is being held in tankage rather than treated in the refinery WWTP. MPC is currently evaluating treatment and/or disposal options for this material.

Malfunction Abatement Plan: To date, MPC's investigation has not identified any equipment failure or malfunction that was a contributing factor to this event. As mentioned above, however, MPC's investigation is still ongoing. Because no malfunction or equipment failure has been identified, MPC is unable, at present, to prepare a Malfunction Abatement Plan that would address this event. Upon the completion of the investigation, MPC will assess the extent to which preventing recurrence of this type of event will be aided by a Malfunction Abatement Plan and submit these findings to MDEQ.

MPC appreciates this opportunity to respond to the VN. If you would like further information please do not hesitate to contact Ian Ladomer at 313-297-6336.

Sincerely,

Marathon Petroleum Company LP
By: MPC Investment LLC, its General Partner

Mr. David Roland, Deputy Assistant Secretary

Cc: Ms. LaReina Wheeler, City of Detroit BSEED
Ms. Lynn Fiedler, DEQ – Via email
Ms. Teresa Seidel, DEQ – Via email
Ms. Heidi Hollenbach, DEQ – Via email
Mr. Thomas Hess, DEQ – Via email
Ms. Wilhemina McLemore, DEQ – Via email
Mr. Jeffrey Korniski, DEQ – Via email

Attachment A. May 13, 2016 Summa Canister Sampling

Client Sample ID		NORTH HAMPTON	SHEAFER FENCE	FORT ST. BRIDGE	PLEASANT & LABOLD
Date Collected		05/13/2016	05/13/2016	05/13/2016	05/13/2016
Analyte	Units	Result	Result	Result	Result
ACETONE	ppb	63	<1.25	8.11	1.3
ALLYL CHLORIDE	ppb	<0.2	<0.2	<0.2	<0.2
BENZENE	ppb	0.51	0.33	0.303	0.25
BENZYL CHLORIDE	ppb	<0.2	<0.2	<0.2	<0.2
BROMODICHLOROMETHANE	ppb	<0.2	<0.2	<0.2	<0.2
BROMOFORM	ppb	<0.6	<0.6	<0.6	<0.6
BROMOMETHANE	ppb	<0.2	<0.2	<0.2	<0.2
1,3-BUTADIENE	ppb	<2	<2	<2	<2
CARBON DISULFIDE	ppb	<0.2	<0.2	<0.2	<0.2
CARBON TETRACHLORIDE	ppb	<0.2	<0.2	<0.2	<0.2
CHLOROBENZENE	ppb	<0.2	<0.2	<0.2	<0.2
CHLOROETHANE	ppb	<0.2	<0.2	<0.2	<0.2
CHLOROFORM	ppb	<0.2	<0.2	<0.2	<0.2
CHLOROMETHANE	ppb	0.634	0.628	0.63	0.612
2-CHLOROTOLUENE	ppb	<0.2	<0.2	<0.2	<0.2
CYCLOHEXANE	ppb	1.44	<0.2	<0.2	<0.2
CHLORODIBROMOMETHANE	ppb	<0.2	<0.2	<0.2	<0.2
1,2-DIBROMOETHANE	ppb	<0.2	<0.2	<0.2	<0.2
1,2-DICHLOROBENZENE	ppb	<0.2	<0.2	<0.2	<0.2
1,3-DICHLOROBENZENE	ppb	<0.2	<0.2	<0.2	<0.2
1,4-DICHLOROBENZENE	ppb	<0.2	<0.2	<0.2	<0.2
1,2-DICHLOROETHANE	ppb	<0.2	<0.2	<0.2	<0.2
1,1-DICHLOROETHANE	ppb	<0.2	<0.2	<0.2	<0.2
1,1-DICHLOROETHENE	ppb	<0.2	<0.2	<0.2	<0.2
CIS-1,2-DICHLOROETHENE	ppb	<0.2	<0.2	<0.2	<0.2
TRANS-1,2-DICHLOROETHENE	ppb	<0.2	<0.2	<0.2	<0.2
1,2-DICHLOROPROPANE	ppb	<0.2	<0.2	<0.2	<0.2
CIS-1,3-DICHLOROPROPENE	ppb	<0.2	<0.2	<0.2	<0.2
TRANS-1,3-DICHLOROPROPENE	ppb	<0.2	<0.2	<0.2	<0.2
1,4-DIOXANE	ppb	<0.2	<0.2	<0.2	<0.2
ETHANOL	ppb	19.3	3.7	8.24	3.28
ETHYLBENZENE	ppb	0.267	<0.2	<0.2	<0.2
4-ETHYLTOLUENE	ppb	0.283	<0.2	<0.2	<0.2
TRICHLOROFLUOROMETHANE	ppb	0.225	0.227	0.23	0.234
DICHLORODIFLUOROMETHANE	ppb	0.386	0.384	0.384	0.386
1,1,2-TRICHLOROTRIFLUOROETHANE	ppb	<0.2	<0.2	<0.2	<0.2
1,2-DICHLOROTETRAFLUOROETHANE	ppb	<0.2	<0.2	<0.2	<0.2
HEPTANE	ppb	0.965	<0.2	0.336	<0.2
HEXACHLORO-1,3-BUTADIENE	ppb	<0.63	<0.63	<0.63	<0.63
N-HEXANE	ppb	2.14	0.279	0.635	0.242
ISOPROPYLBENZENE	ppb	<0.2	<0.2	<0.2	<0.2
METHYLENE CHLORIDE	ppb	<0.2	<0.2	<0.2	<0.2
METHYL BUTYL KETONE	ppb	<1.25	<1.25	1.61	<1.25
2-BUTANONE (MEK)	ppb	11.8	<1.25	2.7	<1.25
4-METHYL-2-PENTANONE (MIBK)	ppb	<1.25	<1.25	<1.25	<1.25
METHYL METHACRYLATE	ppb	<0.2	<0.2	<0.2	<0.2
METHYL TERT-BUTYL ETHER	ppb	<0.2	<0.2	<0.2	<0.2
NAPHTHALENE	ppb	<0.63	<0.63	<0.63	<0.63
2-PROPANOL	ppb	1.27	<1.25	<1.25	<1.25
PROPENE	ppb	12.8	<0.4	2.23	1.25
STYRENE	ppb	<0.2	<0.2	<0.2	<0.2
1,1,2,2-TETRACHLOROETHANE	ppb	<0.2	<0.2	<0.2	<0.2
TETRACHLOROETHENE	ppb	<0.2	<0.2	<0.2	<0.2
TETRAHYDROFURAN	ppb	<0.2	<0.2	<0.2	<0.2
TOLUENE	ppb	0.904	0.359	0.494	0.264
1,2,4-TRICHLOROBENZENE	ppb	<0.63	<0.63	<0.63	<0.63
1,1,1-TRICHLOROETHANE	ppb	<0.2	<0.2	<0.2	<0.2
1,1,2-TRICHLOROETHANE	ppb	<0.2	<0.2	<0.2	<0.2
TRICHLOROETHENE	ppb	<0.2	<0.2	<0.2	<0.2
1,2,4-TRIMETHYLBENZENE	ppb	0.277	<0.2	<0.2	<0.2
1,3,5-TRIMETHYLBENZENE	ppb	<0.2	<0.2	<0.2	<0.2
2,2,4-TRIMETHYLPENTANE	ppb	9.81	<0.2	0.205	<0.2
VINYL CHLORIDE	ppb	<0.2	<0.2	<0.2	<0.2
VINYL BROMIDE	ppb	<0.2	<0.2	<0.2	<0.2
VINYL ACETATE	ppb	<0.2	<0.2	<0.2	<0.2
M&P-XYLENE	ppb	0.987	<0.4	<0.4	<0.4
O-XYLENE	ppb	0.306	<0.2	<0.2	<0.2
1,4-BROMOFLUOROBENZENE	% Rec	94.5	93.8	95.2	94.8

Attachment B. April 2016 PAMS Data

Client ID	MTMS	1-North	2A-West	4-East	MTMS	1-North	2A-West	4-East	MTMS	1-North	2A-West	4-East
AAC ID	160557-89305	160557-89303	160557-89304	160557-89302	160557-89308	160557-89307	160557-89309	160557-89306	160623-89579	160623-89576	160623-89578	160623-89577
Date Sampled	04/06/2016	04/06/2016	04/06/2016	04/06/2016	04/12/2016	04/12/2016	04/12/2016	04/12/2016	04/18/2016	04/18/2016	04/18/2016	04/18/2016
Date Analyzed	04/25/2016	04/25/2016	04/25/2016	04/25/2016	04/25/2016	04/25/2016	04/25/2016	04/25/2016	05/09/2016	05/09/2016	05/09/2016	05/09/2016
Can Dilution Factor	1.68	1.63	1.62	1.68	1.68	1.75	1.60	1.67	1.53	1.62	1.58	1.62
UNITS : PPB (v/v)	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorodifluoromethane	0.47	0.29	0.28	0.29	0.29	0.42	0.34	0.42	0.55	0.67	0.63	0.65
Propene	0.47	0.93	1.07	0.44	0.54	0.56	0.43	0.67	1.63	1.27	1.36	1.67
Dichlorodifluoromethane	0.45	0.47	0.44	0.44	0.44	0.44	0.45	0.50	0.52	0.49	0.52	0.53
Chloromethane	0.76	0.70	0.68	0.69	0.71	0.70	0.70	0.75	0.84	0.73	0.84	0.68
Dichlorotetrafluoroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Vinyl Chloride	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,3-Butadiene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	0.14	<SQL	0.13	0.13
Bromomethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Chloroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	0.18	<SQL	<SQL	<SQL
Dichlorofluoromethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Ethanol	<SQL	0.65	2.38	0.20	<SQL	4.92	<SQL	4.39	10.8	11.5	11.0	12.5
Vinyl Bromide	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Acrolein	0.32	0.49	0.83	0.24	0.27	1.03	0.69	0.52	0.60	0.44	3.19	1.26
Acetone	4.34	8.83	9.03	4.54	4.46	10.7	5.41	10.9	10.4	11.1	13.7	11.0
Trichlorofluoromethane	0.22	0.24	0.19	0.22	0.24	0.21	0.24	0.25	0.29	0.31	0.33	0.31
2-Propanol (IPA)	<SQL	0.29	0.37	<SQL	<SQL	0.58	<SQL	1.30	1.38	2.47	1.26	2.40
Acrylonitrile	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,1-Dichloroethene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Methylene Chloride (DCM)	0.30	0.24	0.26	0.24	0.27	0.26	0.24	0.25	0.32	0.23	0.24	0.31
Tert Butanol (TBA)	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Allyl Chloride	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Carbon Disulfide	0.32	0.13	0.36	0.30	<SQL	0.28	0.29	0.13	3.67	0.26	0.16	<SQL
Trichlorotrifluoroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
trans-1,2-Dichloroethene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,1-Dichloroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Methyl Tert Butyl Ether (MTBE)	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Vinyl Acetate	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
2-Butanone (MEK)	0.45	0.89	0.87	0.37	0.50	1.07	0.62	1.15	1.15	1.58	1.25	1.30
cis-1,2-Dichloroethene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Hexane	0.17	0.33	0.24	0.27	0.30	0.16	0.13	0.13	0.95	0.83	0.93	1.31
Chloroform	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Ethyl Acetate	<SQL	0.26	0.18	0.12	<SQL	0.18	<SQL	0.10	0.29	0.37	0.43	0.34
Tetrahydrofuran	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,2-Dichloroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,1,1-Trichloroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Benzene	0.22	0.28	0.26	0.32	0.20	0.21	0.22	0.22	0.66	0.57	0.76	0.78
Carbon Tetrachloride	<SQL	0.08	0.08	0.08	<SQL	<SQL	0.10	<SQL	0.09	0.08	0.09	0.08
Cyclohexane	<SQL	<SQL	0.08	<SQL	0.07	<SQL	<SQL	<SQL	0.18	0.18	0.21	0.23
1,2-Dichloropropane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Bromodichloromethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,4-Dioxane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Trichloroethene (TCE)	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
2,2,4-Trimethylpentane	<SQL	0.23	0.15	0.27	0.05	<SQL	0.05	<SQL	0.23	0.15	0.19	0.29
Methyl Methacrylate	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Heptane	<SQL	0.08	0.10	0.12	<SQL	<SQL	<SQL	<SQL	0.23	0.10	0.28	0.29
cis-1,3-Dichloropropene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
4-Methyl-2-pentanone (MIBK)	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
trans-1,3-Dichloropropene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,1,2-Trichloroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Toluene	0.20	0.67	0.37	3.04	0.30	0.33	0.30	2.69	1.00	0.99	1.12	3.78
2-Hexanone (MBK)	<SQL	0.10	<SQL	<SQL	<SQL	<SQL	<SQL	0.25	<SQL	<SQL	<SQL	<SQL
Dibromochloromethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,2-Dibromoethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Tetrachloroethene (PCE)	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	0.11	<SQL
Chlorobenzene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Ethylbenzene	<SQL	0.07	<SQL	0.07	<SQL	<SQL	<SQL	<SQL	0.08	0.06	0.06	0.10
m & p-Xylenes	<SQL	0.41	0.16	0.24	0.17	0.14	<SQL	<SQL	0.20	0.16	0.14	0.28
Bromoform	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Styrene	<SQL	0.11	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,1,2,2-Tetrachloroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
o-Xylene	<SQL	0.13	0.06	0.07	<SQL	<SQL	<SQL	<SQL	0.06	<SQL	<SQL	0.08
Isopropylbenzene (Cumene)	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
2-Chlorotoluene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
4-Ethyltoluene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,3,5-Trimethylbenzene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,2,4-Trimethylbenzene	<SQL	0.11	0.06	0.10	0.07	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Benzyl Chloride (a-Chlorotoluene)	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,3-Dichlorobenzene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,4-Dichlorobenzene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,2-Dichlorobenzene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,2,4-Trichlorobenzene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Naphthalene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Hexachlorobutadiene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
BFB-Surrogate Std. % Recovery	97%	99%	96%	96%	96%	98%	96%	97%	97%	98%	97%	95%

Client ID	MTMS	1-North	2A-West	4-East	MTMS	1-North	2A-West	4-East
AAC ID	160623-89580	160623-89583	160623-89581	160623-89582	160694-89945	160694-89947	160694-89948	160694-89946
Date Sampled	04/24/2016	04/24/2016	04/24/2016	04/24/2016	04/30/2016	04/30/2016	04/30/2016	04/30/2016
Date Analyzed	05/09/2016	05/09/2016	05/09/2016	05/09/2016	05/27/2016	05/27/2016	05/27/2016	05/27/2016
Can Dilution Factor	1.69	1.64	1.60	2.78	1.39	1.62	1.64	1.56
UNITS : PPB (v/v)	Result	Result	Result	Result	Result	Result	Result	Result
Chlorodifluoromethane	0.34	0.23	0.22	0.36	0.31	0.34	0.31	0.39
Propene	0.98	0.64	1.11	0.89	0.63	0.86	1.96	0.75
Dichlorodifluoromethane	0.49	0.47	0.50	0.53	0.47	0.50	0.53	0.52
Chloromethane	0.91	0.83	0.82	1.31	0.82	0.78	0.84	0.95
Dichlorotetrafluoroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Vinyl Chloride	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,3-Butadiene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Bromomethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Chloroethane	0.17	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Dichlorofluoromethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Ethanol	5.30	2.47	4.25	<SQL	<SQL	4.04	11.7	8.84
Vinyl Bromide	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Acrolein	0.85	<SQL	0.85	1.59	0.38	0.86	1.33	1.91
Acetone	13.9	4.11	9.70	12.7	4.12	8.91	12.4	9.28
Trichlorofluoromethane	0.27	0.25	0.24	0.25	0.21	0.23	0.30	0.23
2-Propanol (IPA)	0.63	0.36	0.51	<SQL	<SQL	0.52	1.43	1.28
Acrylonitrile	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,1-Dichloroethene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Methylene Chloride (DCM)	0.27	0.25	0.22	0.45	0.26	0.28	0.39	0.27
Tert Butanol (TBA)	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	0.25	<SQL
Allyl Chloride	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Carbon Disulfide	0.74	0.16	0.26	0.39	0.14	0.19	0.56	0.19
Trichlorotrifluoroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
trans-1,2-Dichloroethene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,1-Dichloroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Methyl Tert Butyl Ether (MTBE)	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Vinyl Acetate	<SQL	<SQL	<SQL	<SQL	<SQL	0.52	0.59	<SQL
2-Butanone (MEK)	1.17	0.36	0.55	1.14	0.43	1.31	2.15	1.09
cis-1,2-Dichloroethene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Hexane	0.24	0.34	0.27	0.53	0.28	0.31	0.53	0.23
Chloroform	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Ethyl Acetate	<SQL	0.13	0.18	0.28	<SQL	0.26	0.21	0.14
Tetrahydrofuran	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,2-Dichloroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,1,1-Trichloroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Benzene	0.17	0.13	0.18	0.56	0.29	0.26	0.30	0.28
Carbon Tetrachloride	<SQL	<SQL	<SQL	<SQL	0.11	0.08	0.10	0.08
Cyclohexane	0.15	0.13	0.10	0.17	0.13	0.11	0.12	0.09
1,2-Dichloropropane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Bromodichloromethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,4-Dioxane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Trichloroethene (TCE)	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
2,2,4-Trimethylpentane	<SQL	0.05	0.08	0.11	0.08	0.06	0.15	0.08
Methyl Methacrylate	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Heptane	<SQL	<SQL	<SQL	0.14	0.11	<SQL	0.15	<SQL
cis-1,3-Dichloropropene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
4-Methyl-2-pentanone (MIBK)	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
trans-1,3-Dichloropropene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,1,2-Trichloroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Toluene	<SQL	0.31	0.24	5.74	0.42	0.47	0.66	1.84
2-Hexanone (MBK)	<SQL	<SQL	<SQL	<SQL	<SQL	0.11	0.25	<SQL
Dibromochloromethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,2-Dibromoethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Tetrachloroethene (PCE)	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Chlorobenzene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Ethylbenzene	<SQL	<SQL	<SQL	<SQL	0.10	0.08	0.07	0.06
m & p-Xylenes	<SQL	<SQL	<SQL	<SQL	0.17	0.16	<SQL	0.17
Bromoform	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Styrene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,1,2,2-Tetrachloroethane	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
o-Xylene	<SQL	<SQL	<SQL	<SQL	0.07	<SQL	<SQL	0.06
Isopropylbenzene (Cumene)	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
2-Chlorotoluene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
4-Ethyltoluene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	0.05
1,3,5-Trimethylbenzene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,2,4-Trimethylbenzene	<SQL	<SQL	<SQL	<SQL	0.06	0.06	<SQL	<SQL
Benzyl Chloride (a-Chlorotoluene)	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,3-Dichlorobenzene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,4-Dichlorobenzene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	0.14
1,2-Dichlorobenzene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
1,2,4-Trichlorobenzene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Naphthalene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
Hexachlorobutadiene	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL	<SQL
BFB-Surrogate Std. % Recovery	94%	94%	95%	98%	98%	98%	97%	100%