HALEY ALDRICH

www.haleyaldrich.com

IN SITU BIOREMEDIATION PROGRAM
JULY THROUGH SEPTEMBER 2018 PROGRESS UPDATE
FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

by
Haley & Aldrich, Inc.
Oakland, California

for
Advanced Micro Devices, Inc.
Austin, Texas

File No. 127819-004
October 2018

HALEY & ALDRICH, INC.
1956 Webster Street
Suite 300
Oakland, CA 94612
510.879.4544

30 October 2018
File No. 127819-004

United States Environmental Protection Agency, Region 9
75 Hawthorne Street (SFD-7-1)
San Francisco, California 94105

Attention: Melanie Morash

Subject: In Situ Bioremediation Program
July through September 2018 Progress Update
Former 901/902 Thompson Place
Sunnyvale, California

Dear Ms. Morash:

Haley & Aldrich, Inc. (Haley & Aldrich) has prepared this In Situ Bioremediation (ISB) Program Progress Update on behalf of Advanced Micro Devices, Inc. (AMD) for the July through September 2018 period (third quarter of 2018; Q3 2018) at the former 901/902 Thompson Place site in Sunnyvale, California (the Site). This update summarizes the status of the ISB program and the results of the Q3 2018 performance monitoring event.

Background

The Site history, hydrogeology, and current environmental conditions are described in greater detail in the "Combined 2017 Annual Groundwater Monitoring Report and Annual In Situ Bioremediation Program Report"[1], and are summarized below.

AMD designed and fabricated semiconductor devices at the Site between 1969 and 1992. The facility was vacated by AMD in 1992 and remained vacant until the property was sold and redeveloped as a self-storage facility in 2007.

The primary chemicals of concern (COCs) detected at the Site at concentrations above cleanup goals are trichloroethene (TCE), cis-1,2-dichloroethene (cDCE), and vinyl chloride (VC). Both cDCE and VC are interim breakdown products of TCE as it degrades to ethene. Ethene can be further transformed to ethane; ethene and ethane are environmentally benign. The primary on-Site source of TCE impacts to

[1] Haley & Aldrich, Inc., 2018. Combined 2017 Annual Groundwater Monitoring Report and Annual In Situ Bioremediation Program Report, Former 901/902 Thompson Place, Sunnyvale, California, 31 January.

groundwater beneath the Site is attributed to leaks from the former acid neutralization system tanks (the tanks were removed in 1983 and 1984)[2].

The Site was added to the National Priorities List in June 1986, and the United States Environmental Protection Agency (EPA) issued a Record of Decision (ROD) on 11 September 1991. The Site was previously regulated under Site Cleanup Requirements Order Number 91-102, issued on 19 June 1991 by the California Regional Water Quality Control Board, San Francisco Bay Region (Water Board). The lead agency role was transferred from the Water Board to the EPA as described in a letter from EPA to AMD, Northrop Grumman, and Philips Semiconductors dated 7 August 2014.

The ROD specifies groundwater extraction and treatment as the remedial alternative to be used for the Site. The groundwater extraction and treatment system began operating in 1983 and continued until December 2002, when it was discontinued with Water Board approval to allow for the ISB pilot test. Based on the success of the pilot test, a full-scale ISB program was initiated in 2005 with Water Board approval.

In 2011, AMD submitted a Focused Feasibility Study[3] (FFS) to the Water Board and EPA to evaluate potential revised cleanup plans. As described in the FFS, the proposed remedy for the Site is ISB with monitored natural attenuation and institutional controls. The EPA reviewed the FFS and provided comments to AMD via the Water Board in June 2013. Haley & Aldrich incorporated the comments and submitted a Revised FFS[4] on behalf of AMD in September 2013.

OVERVIEW OF THE ISB SYSTEM

The ISB system was designed to increase the organic carbon content of the groundwater system, thereby enhancing the anaerobic microbiological activity and promoting the in situ biotransformation of COCs to environmentally benign end-products (primarily chloride, ethene, and ethane). The primary components of the ISB system include:

- **Ex situ COC Removal:** During ISB operation, groundwater pumped from the extraction well(s) in the former source area is treated with granular activated carbon (GAC) to remove COCs before the groundwater is reinjected into the subsurface.
- **Substrate Delivery System:** Substrate delivery is performed by introducing a dissolved organic substrate (a nutrient-enriched 30 percent potassium lactate solution and a 60 percent sodium lactate solution were used in 2018) to the subsurface and distributed by a network of groundwater circulation wells.
- **In situ Destruction of COCs:** In situ treatment processes are promoted by adding substrate to the extracted groundwater using the delivery system described above. The addition of substrate

[2] Arcadis, 2001. Five-Year Report, Advanced Micro Devices, Inc. 901/902 Thompson Place Facility, Sunnyvale, California, 19 June.
[3] AMEC, 2011. Focused Feasibility Study, Former 901/902 Thompson Place, Sunnyvale, California, 18 May.
[4] Haley & Aldrich, Inc., 2013. Revised Focused Feasibility Study, Former 901/902 Thompson Place, Sunnyvale, California, 30 September.

to groundwater containing TCE and cDCE has proven to be an effective in situ remedial strategy at this Site, as demonstrated in the pilot test conducted from 2002 to 2004[5] and in the full-scale ISB system.

Figure 1 shows the layout of the ISB system. Table 1 summarizes the construction details of the ISB program wells.

The ISB system was started in December 2005 and operated until May 2008, when it was determined that sufficient organic carbon was successfully delivered to the subsurface to sustain the passive bioremediation of COCs. Between 2009 and 2011, the ISB system was not operated, but performance monitoring continued to assess the ongoing, passive destruction of COCs. In 2011, performance monitoring results indicated that while intrinsic bioremediation was still occurring, the organic carbon substrate was depleted in some wells, and although COC concentrations were much lower than pre-ISB conditions, they were beginning to trend upwards due to the loss of organic carbon. Since November 2011, additional organic carbon substrate has been delivered to groundwater by operating the ISB system on a periodic basis, coupled with quarterly performance monitoring.

Q3 2018 ISB Progress Update

The following sections describe the tasks completed in Q3 2018 related to the ISB program.

ORGANIC CARBON AMENDMENT AND GROUNDWATER RECIRCULATION

No organic carbon substrate amendment or groundwater circulation occurred during the Q3 2018 reporting period. The latest round of substrate amendment (using sodium lactate) and groundwater circulation was completed in June 2018[6].

QUARTERLY PERFORMANCE MONITORING

A quarterly performance monitoring event was conducted at the Site on 21 August 2018 by Blaine Tech Services, Inc., on behalf of AMD. Water levels were measured in 16 ISB monitoring wells and groundwater samples collected from 12 ISB monitoring wells, as described in Table 2. Groundwater samples were collected using low-flow sampling methods described below. The pump intake was set at the approximate midpoint of the screened intervals. As described in the previous quarterly progress update, the integrity of well 16-D was compromised; this well was not included in the Q3 2018 monitoring event and will be decommissioned in accordance with California well standards in the fourth quarter of 2018 (the EPA approved the decommissioning of well 16-D in an email dated 10 September 2018).

[5] Geomatrix Consultants, Inc., 2004. Enhanced In Situ Bioremediation Pilot Study Program, 901/902 Thompson Place Facility, Sunnyvale, California, 16 September.
[6] Haley & Aldrich, Inc., 2018. In Situ Bioremediation Program April through June 2018 Progress Update, Former 901/902 Thompson Place, Sunnyvale, California, 26 July.

The majority of wells were purged at a rate of approximately 500 milliliters per minute or less using dedicated polytetrafluoroethylene (PTFE; Teflon®)-lined tubing and a bladder pump. However, for the following wells, a peristaltic pump was used to purge the wells prior to sample collection: at wells DW-1 and DW-2, because the well lids are bolted in place and the sounder port is not large enough to insert a bladder pump; and at PMW-2-1 and PMW-2-3, because the small diameter of the well (3/8-inch) does not allow for insertion of a bladder pump. Well X1B was inadvertently purged with a peristaltic pump in Q3 2018 as well, this well will be purged with a bladder pump in future events. For the five sampling points that were purged using a peristaltic pump, samples were subsequently collected using an inertial pump (i.e., check valve tubing pump).

The wells were purged until water quality parameters (including temperature, pH, electrical conductivity, and oxidation-reduction potential) stabilized. Groundwater samples were then collected directly into laboratory-provided sampling vials, labeled, sealed in plastic bags, and placed in an ice-cooled chest pending shipment to the analytical laboratory under standard chain of custody procedures. Purged groundwater was transported to the treatment system at the nearby AMD 915 DeGuigne Drive site, where it was treated with GAC prior to discharging to the storm drain under an existing National Pollutant Discharge Elimination System permit.

Groundwater samples were analyzed by TestAmerica Laboratories, Inc., for chlorinated volatile organic compounds (VOCs) using EPA Method 8260B and total organic carbon (TOC) using Standard Method 5310B. The samples were also analyzed by Pace Analytical Energy Services, LLC, for dissolved hydrocarbon gases (ethene, ethane, and methane) using Method AM20GAX.

Groundwater elevation data are included as Table 3, water quality parameters recorded during purging and sampling are included as Table 4, and laboratory analytical results are included as Table 5. Field sampling data sheets are included in Appendix A, laboratory analytical reports are included as Appendix B, and concentration trend plots are included as Appendix C. The results of the quarterly performance monitoring event on 21 August 2018 are discussed below.

Performance Monitoring Results

The results of the Q3 2018 performance monitoring event indicate the following:

- Groundwater elevations were generally consistent with recent historical elevations measured during the quarter monitoring events.
- The groundwater pH ranged from 6.45 to 7.19, which is within the near neutral pH range favorable for reductive dechlorination of TCE, cDCE and VC. Negative ORP measurements and the presence of methane in many wells also indicate favorable geochemical conditions for reductive dechlorination.
- The total VOC concentration detected in 6 of the 12 performance monitoring wells (16-S, 28-MW, DW-1, PMW-2-1, PMW-2-3, and X1B) in Q3 2018 were lower than the results from the previous quarter (Q2 2018). Other wells, in particular extraction wells X2A and X2B1, recorded higher total VOC concentrations in Q3 2018, although the increases were in the breakdown

products cDCE and VC. Total VOC concentrations in three of the 12 performance monitoring wells (23-D, DW-2, and DW-7) remained approximately the same as the previous quarter (Q2 2018).

- Groundwater samples from 7 of the 12 performance monitoring wells (16-S, 28-MW, DW-1, DW-2, PMW-2-1, X1B, and X2A) were either non-detect for TCE, or had concentrations at or below the cleanup goal of 5 micrograms per liter (µg/L). Five of the 12 samples (16-S, 23-D, 28-MW, DW-1, and DW-2) were either non-detect for cDCE, or reported a concentration at or below the cleanup goal of 6 µg/L. Two wells (23-D and DW-2) were either non-detect for VC, or reported a concentration at or below the cleanup goal of 0.5 µg/L.
- Wells 23-S and 23-D continue to have concentrations of TCE and/or cDCE above the cleanup goal. These wells are likely outside of the influence of the ISB system and appear to be impacted by an off-Site, upgradient source.
- Well chambers PMW-2-1 and PMW-2-3 have concentrations of TCE and/or its breakdown products above cleanup goals. The sampling ports for these multi-level wells are screened in fine-grained depth intervals, and substrate may not be able to be delivered to these locations. However, concentrations of TCE breakdown products, including ethene, and the presence of methane, indicate that natural (i.e., unenhanced) reductive dechlorination is continuing at these locations. Other ISB wells (e.g., DW-7, X2A, X1B, and X2B1) have concentrations of cDCE and/or VC above the cleanup goal coupled with low TOC concentrations, suggesting that additional substrate is required to sustain reductive dechlorination.
- Higher proportions of breakdown products cDCE, VC, and ethene relative to TCE indicate that reductive processes are occurring at many locations. The complete breakdown of TCE to ethene indicates that native microbes are capable of complete dechlorination (i.e., no bioaugmentation is needed).
- Of the 5 wells (16-D, 28-MW, DW-1, DW-2, and X2A) that recorded an increase in TOC in Q2 2018 (following the most recent groundwater amendment and recirculation event), 3 wells (DW-1, DW-2, and X2A) reported a decrease in TOC since then (16-D was not sampled in Q3 2018). This could be the result of organic carbon being consumed during ISB processes, or the natural hydraulic gradient carrying organic carbon-rich groundwater away from the ISB area. The depletion of TOC in groundwater, and the lack of an increase of TOC in some wells, suggests that additional substrate amendment is warranted with a modified recirculation program.
- The non-detect results for DW-1 and DW-2 (Table 5) were rejected because the samples did not meet the preservation requirements (i.e., a pH less than 2). However, the results of other recent monitoring events for these wells indicate that the affected COCs are generally non-detect, or detected at concentrations below the cleanup goal.

Summary

The results of quarterly groundwater monitoring conducted in August 2018 support the conclusion that ISB continues to treat COCs in groundwater. Low organic carbon concentrations may be limiting the dechlorination rate of target COCs in some areas. Additional groundwater circulation and/or substrate

amendment is anticipated to be conducted in 2019; the need for future circulation and amendment will continue to be evaluated based on the results of quarterly ISB performance monitoring events.

Please contact any of the undersigned if you have any questions or need further information.

Sincerely yours,
HALEY & ALDRICH, INC.

Michael Zlotoff, PE
Technical Specialist
CA PE #C80848 (Civil)

Michael Calhoun, PG, CHG
Senior Project Manager
CA PG #8525, CA CHG #976

Peter Bennett, PG, CHG
Principal Hydrogeologist
CA PG #7902, CA CHG #921

Enclosures:

- Table 1 – Existing ISB Well Construction Details
- Table 2 – ISB Monitoring Program
- Table 3 – Water Level Elevations – Third Quarter 2018
- Table 4 – Water Quality Parameters – Third Quarter 2018
- Table 5 – Analytical Results for Groundwater Samples
- Figure 1 – Layout of the In Situ Bioremediation Program
- Appendix A – Field Sampling Data Sheets
- Appendix B – Analytical Laboratory Reports
- Appendix C – Concentration Trend Plots

c: Advanced Micro Devices, Inc.; Attn: Ms. Heather O'Cleirigh

G:\Advanced Micro Devices\1_Former 901-902 Thomspon Place\DELIVERABLES\ISB Reports\2018\3Q 2018\2018_1030_HAI_Q3 2018 ISB Progress Update_F.docx

TABLES

TABLE 1
EXISTING ISB WELL CONSTRUCTION DETAILS [1]
FORMER 901/902 THOMPSON PLACE FACILITY
SUNNYVALE, CALIFORNIA

Well ID	Screen Interval (ft bgs)	Borehole Diameter (inches)	Well Diameter (inches)
A - Zone Wells			
16-S	9 - 16	8	4
X2A	10.0 - 19.9	8.25	2
23-S	9.0 - 16.0	8	4
DW-2	10.0 - 14.0	NA	12
28-MW	10.0 - 16.3	8.25	2
ISB1AR	10.0 - 24.4	8.25	2
ISB2AR	15.1 - 19.6	8.25	2
B1 - Zone Wells			
16-D	31 - 41	8	4
DW-7	35 - 45	NA	6
X1B	25.4 - 30.2	8.25	2
X2B1	26.5 - 36.5	8.25	2
DW-1	32 - 40	NA	12
23-D	40 - 50	8	4
PMW-1-1[2]	26.0 - 27.4	5.5	1.1
PMW-1-2[2]	31.0 - 32.4	5.5	1.1
PMW-1-3[2]	35.9 - 38.5	5.5	1.1
PMW-2-1[2]	26.7 - 28.1	5.5	1.1
PMW-2-2[2]	36.7 - 38.1	5.5	1.1
ISB3BR	25.7 - 43.3	8.25	2
ISB2BR [3]	31.4 - 39.6	8.25	2
B2 - Zone Wells			
DW-8	45 - 65	NA	NA
PMW-2-3[2]	45.5 - 48.2	5.5	1.1
ISB1BR	31.0 - 44.5	8.25	2

Notes:

1. Wells X1B, X2A, X2B1, multi-level wells PMW-1 and PMW-2, ISB1AR, ISB1BR, ISB2AR, ISB2BR, and ISB3BR were installed for use in the ISB program. The remaining ISB program wells were previously installed as part of the ongoing groundwater monitoring activities for the former system for the site.
2. The diameter of each PMW well is 1.1 inches; the diameter of each individual PMW well chamber is approximately 3/8 inch.
3. Well ISB2BR is angled at approximately 30 degrees from vertical running beneath the building. The true depth of the screen interval is 31.4 to 39.6 ft.

Abbreviations:

ft bgs = feet below ground surface
NA = not available

TABLE 2

ISB MONITORING PROGRAM [1]

FORMER 901/902 THOMPSON PLACE FACILITY

SUNNYVALE, CALIFORNIA

Well ID	Water Levels	Sampling
23-S	Quarterly	Quarterly [2]
23-D	Quarterly	Quarterly
DW-1	Quarterly	Quarterly
28-MW	Quarterly	Quarterly
PMW-1-1	Quarterly	--
PMW-1-2	Quarterly	--
PMW-1-3	Quarterly	--
PMW-2-1	Quarterly	Quarterly
PMW-2-2	Quarterly	--
PMW-2-3	Quarterly	Quarterly
DW-2	Quarterly	Quarterly
X2B1	Quarterly	Quarterly
X2A	Quarterly	Quarterly
X1B	Quarterly	Quarterly
16-S	Quarterly	Quarterly
DW-7	Quarterly	Quarterly
16-D	-- [4]	-- [4]
DW-8	--	--
ISB1AR	--	--
ISB1BR	--	--
ISB2AR	--	--
ISB2BR	--	--
ISB3BR	--	--

Notes:

1. ISB = in situ bioremediation.
2. Samples are analyzed for VOCs by EPA Method 8260B, TOC by EPA Method 415.2, and ethene, methane, ethane by AM20GAX.
3. -- = Not included in monitoring plan.
4. Monitoring of well 16-D was discontinued after Q2 2018 because the well integrity was compromised. This well will be decommissioned in Q4 2018.

TABLE 3
WATER LEVEL ELEVATIONS - THIRD QUARTER 2018
FORMER 901/902 THOMPSON PLACE FACILITY
SUNNYVALE, CALIFORNIA

Well Name	Date	Location Coordinates [1]		Screen Interval (feet bgs) [2]	Measuring Point Elevation [3] (feet NAVD88) [4]	Water Level Depth (feet btc) [5]	Water Level Elevation (feet NAVD88) [4]
		Latitude	Longitude				
23-S	8/21/2018	37.38292321	122.0097060	9 - 16	47.03	8.17	38.86
16-S	8/21/2018	37.38302803	122.0094942	9 - 16	47.70	9.72	37.98
DW-2	8/21/2018	37.38290374	122.0095907	10 - 14	46.45	7.94	38.51
28-MW	8/21/2018	37.38294782	122.0095259	10.0 - 16.3	47.42	9.11	38.31
X2A	8/21/2018	37.38298213	122.0096288	10.0 - 19.9	47.08	8.42	38.66
X1B	8/21/2018	37.38297721	122.0095389	25.4 - 30.2	47.18	8.12	39.06
X2B1	8/21/2018	37.38298238	122.0096398	26.5 - 36.5	46.83	7.75	39.08
PMW-1-1	8/21/2018	37.38294193	122.0095380	26.0 - 27.4	47.45	8.60	38.85
PMW-1-2	8/21/2018	37.38294193	122.0095380	31.0 - 32.4	47.45	8.21	39.24
PMW-1-3	8/21/2018	37.38294193	122.0095380	35.9 - 38.5	47.45	8.11	39.34
PMW-2-1	8/21/2018	37.38295602	122.0096339	26.7 - 28.1	47.26	8.04	39.22
PMW-2-2	8/21/2018	37.38295602	122.0096339	36.7 - 38.1	47.26	7.41	39.85
PMW-2-3	8/21/2018	37.38295602	122.0096339	45.5 - 48.2	47.26	6.87	40.39
DW-1	8/21/2018	37.38289028	122.0095901	32 - 40	46.91	7.84	39.07
DW-7	8/21/2018	37.38306080	122.0095395	35 - 45	46.11	6.88	39.23
23-D	8/21/2018	37.38293321	122.0097160	40 - 50	47.04	6.37	40.67

Notes:

1. Well locations were surveyed by Silicon Valley Land Surveying, Inc. (SVLS) on 16 November 2006. Wells were resurveyed by SVLS on 10 to 11 September 2007 after site redevelopment. Horizontal coordinates are referenced to the North American Datum of 1983 (NAD83).
2. feet bgs = feet below ground surface.
3. Top of casing elevations for a subset of wells was altered during repairs made on 7 to 8 August 2007 in response to site redevelopment.
4. feet NAVD88 = feet relative to the North American Vertical Datum of 1988.
5. feet btc = feet below top of well casing.

TABLE 4
WATER QUALITY PARAMETERS - THIRD QUARTER 2018
FORMER 901/902 THOMPSON PLACE FACILITY
SUNNYVALE, CALIFORNIA

Well ID	Date	Temp (°C)	pH	Spec. Cond. (µS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTUs)
23-S	8/21/2018	17.3	6.47	1726	51.6	0.60	9
16-S	8/21/2018	20.2	6.45	2477	-112.2	0.50	9
DW-2	8/21/2018	19.7	6.95	4415	-129.2	0.52	14
28-MW	8/21/2018	19.9	6.54	2774	-98.0	0.51	11
X2A	8/21/2018	18.3	6.61	2693	-70.8	0.80	24
X1B	8/21/2018	18.2	6.77	2840	-14.9	0.72	18
X2B1	8/21/2018	19.2	6.81	2465	135.7	0.52	43
PMW-2-1	8/21/2018	19.6	6.74	2832	-24.6	0.57	45
PMW-2-3	8/21/2018	19.9	6.96	2235	25.4	0.54	28
DW-1	8/21/2018	20.6	6.85	4688	-205.7	0.37	9
DW-7	8/21/2018	18.6	7.19	2439	-1.8	0.41	85
23-D	8/21/2018	18.8	6.89	2322	266.2	0.52	7

Abbreviations:

Temp = temperature
Spec. Cond. = specific conductivity
ORP = oxidation-reduction potential
DO = dissolved oxygen
°C = degrees Celsius
µS/cm = microSiemens per centimeter
mV = millivolts
mg/L = milligrams per liter
NTUs = nephelometric turbidity units

TABLE 5

ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES [1,2]

FORMER 901/902 THOMPSON PLACE FACILITY

SUNNYVALE, CALIFORNIA

		micrograms per liter (µg/L)								micromoles per liter (µM)	%	µg/L	milligrams per liter (mg/L)
Sample ID	Sample Date	TCE EPA 8260B	cDCE EPA 8260B	tDCE EPA 8260B	1,1-DCE EPA 8260B	VC EPA 8260B	Ethene AM20GAX	Ethane AM20GAX	TVOC EPA 8260B	Total Ethenes	Mole Fraction Ethene & Ethane	Methane AM20GAX	TOC EPA 415.2
23-S	08/21/2017	30	66	7.2	0.77	1.5	0.13 J	0.80 J	126	1.0	3.0%	700 J	2.0
	10/10/2017	23	110	8.1	0.63	8.0	0.22 J- [4]	0.91 J-	166	1.6	2.4%	870 J-	2.0
	02/05/2018	40	83	5.2	0.70	9.3	0.99	0.12	157	1.4	2.8%	78	2.3
	06/15/2018	40	48	4.4	< 0.50	0.91	0.088 J	0.11	112	0.87	0.78%	39	1.4
	08/21/2018	43	62	7.7	1.0	0.98	0.040 J	2.7	139	1.16	7.8%	1,300	1.8
23-D	08/21/2017	260 / 240 [5]	3.9 / 3.8	< 2.5 / < 2.5	< 2.5 / < 2.5	< 2.5 / < 2.5	0.061 J	0.017 J	267 / 244	2.0	0.14%	2.0 J	< 1.0 / < 1.0
	10/10/2017	200 J- / 200	2.9 J- / 3.5	< 2.5 J / < 2.5	< 2.5 J / < 2.5	< 2.5 J / < 2.5	0.12	0.010 J	203 / 204	1.6	0.30%	0.42 J	< 1.0 / < 1.0
	02/05/2018	290 / 280	3.6 / 4.3	< 2.5 / < 2.5	< 2.5 / < 2.5	< 2.5 / < 2.5	0.041 J	< 0.10	296 / 284	2.3	0.06%	0.23 J	< 1.0 / < 1.0
	06/15/2018	320 J- / 310	4.1 J- / 3.9	< 2.5 J / < 2.5	< 2.5 J / < 2.5	< 2.5 J / < 2.5	0.037 J	< 0.10	327 / 316	2.5	0.05%	0.32 J	< 1.0 / < 1.0
	08/21/2018	320 J- / 320	< 2.5 R / 4.5 J	< 2.5 J / < 2.5	< 2.5 J / < 2.5	< 2.5 J / < 2.5	0.048 J	0.0070 J	324 / 328	2.5	0.08%	0.29 J	< 1.0 / < 1.0
DW-1	08/21/2017	0.63	0.86	0.98	< 0.50	2.0	2.0 J	37 J	4.5	1.4	96%	12,000 J	3.2
	10/10/2017	0.87 J-	1.7 J-	0.53 J-	< 0.50 J	1.2 J-	0.68 J-	16 J-	4.3	0.61	92%	5,600 J-	4.6
	02/05/2018	< 0.50	< 0.50	1.8	< 0.50	3.0	0.55	49	4.8	1.7	96%	10,000	4.6
	06/15/2018	< 0.50 R [6]	0.77 J-	< 0.50 R	< 0.50 R	5.0 J-	13 J-	12 J-	5.8	0.95	91%	11,000 J-	650
	08/21/2018	< 0.50 R	< 0.50 R	3.5 J-	< 0.50 R	1.1 J-	0.60	36	4.6	1.27	96%	17,000	4.6
28-MW	08/21/2017	< 0.50	4.3	< 0.50	< 0.50	7.4	3.3 J	10 J	28	0.61	73%	16,000 J	4.1
	10/10/2017	< 0.50	1.5	< 0.50	< 0.50	11 J	4.2 J-	12 J-	29	0.74	74%	13,000 J-	3.2
	02/05/2018	< 0.50	3.5	< 0.50	< 0.50	34	2.8	0.79	55	0.71	18%	1,500	2.9
	06/15/2018	1.2 J-	74 J	4.7 J-	< 0.50 R	32 J	42	25	131	3.7	64%	18,000	4.3
	08/21/2018	< 0.50	0.65	< 0.50	< 0.50	8.5	2.7	12	28	0.6	78%	15,000	4.4
PMW-2-1	08/21/2017	< 50	4,900	< 50	< 50	350	94 J	14 J	5,250	60	6.4%	8,200 J	1.4
	10/10/2017	< 50	6,100	< 50	< 50	430	51 J-	17 J-	6,530	72	3.3%	12,000 J-	1.3
	02/05/2018	< 50	6,100	< 50	< 50	540	100	15	6,640	76	5.4%	7,600	1.7
	06/15/2018	< 50	5,200	<50	< 50	330	85	21	5,530	63	6.0%	12,000	1.3
	08/21/2018	< 50	4,600	< 50	< 50	350	120	23	4,950	58	8.7%	12,000	1.5
PMW-2-3	08/21/2017	210	69	< 2.5	< 2.5	10	0.67 J	0.044 J	289	2.5	1.0%	7.1 J	< 1.0
	10/10/2017	76 J-	210 J-	8.5 J-	< 2.5 J	440 J-	87	1.6	735	13	24%	650	< 1.0
	02/05/2018	250	130	4.9	< 2.5	100	13	0.67	488	5.4	9.0%	340	< 1.0
	06/15/2018	240 J-	55 J-	< 2.5 R	< 2.5 J	9.4 J-	1.3	0.062 J	307	2.6	1.9%	14	< 1.0
	08/21/2018	230	53	< 2.5	< 2.5	9.9	1.2	0.046 J	296	2.5	1.8%	9.5	< 1.0
DW-2	08/21/2017	< 0.50	0.60	< 0.50	< 0.50	< 0.50	0.13 J	0.28 J	0.6	0.020	69%	16,000 J	9.1
	10/10/2017	< 0.50 R	0.61 J	0.53 J	< 0.50 R	< 0.50 R	0.11 J-	0.30 J-	1.1	0.026	54%	13,000 J-	19
	02/05/2018	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.033 J	2.2	0.0	0.074	100%	4,600	8.6
	06/15/2018	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.26	0.13	0.0	0.014	100%	11,000	160
	08/21/2018	< 0.50 R	< 0.50 R	< 0.50 R	< 0.50 R	< 0.50 R	0.044 J	0.033 J	0.0	0.003	100%	7,500	27

TABLE 5

ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES [1,2]

FORMER 901/902 THOMPSON PLACE FACILITY

SUNNYVALE, CALIFORNIA

		micrograms per liter (µg/L)								micromoles per liter (µM)	%	µg/L	milligrams per liter (mg/L)
Sample ID	Sample Date	TCE EPA 8260B	cDCE EPA 8260B	tDCE EPA 8260B	1,1-DCE EPA 8260B	VC EPA 8260B	Ethene AM20GAX	Ethane AM20GAX	TVOC EPA 8260B	Total Ethenes	Mole Fraction Ethene & Ethane	Methane AM20GAX	TOC EPA 415.2
X2B1	08/21/2017	13	2,000	12	4.3	130	6.4 J	33 J	2,159	24	5.5%	5,900 J	< 1.0
	10/10/2017	< 25 J	1,400 J-	< 25 J	< 25 J	140 J-	9.4	54	1,540	19	11%	8,500	< 1.0
	02/05/2018	< 25	1,100	< 25	< 25	250	5.8	40	1,350	17	9.1%	5,700	< 1.0
	06/15/2018	88	230	< 5.0	< 5.0	12	1.7	3.2	330	3.4	4.9%	380	< 1.0
	08/21/2018	170	230	< 5.0	< 5.0	25	1.3	4.5	425	4.3	4.6%	390	< 1.0
X2A	08/21/2017	< 0.50	5.7	< 0.50	< 0.50	370	110 J	7.5 J	404	10	41%	6,700 J	5.2
	10/10/2017	< 5.0	7.5	< 5.0	< 5.0	610	78 J-	7.9 J-	648	13	24%	6,500 J-	3.0
	02/05/2018	< 5.0	9.7	< 5.0	< 5.0	770	66	6.6	817	15	17%	4,400	3.2
	06/15/2018	< 5.0 R	85 J-	< 5.0 R	< 5.0 R	320 J-	180	11	432	13	53%	8,800	11
	08/21/2018	< 5.0	85	< 5.0	< 5.0	640	120	12	761	16	30%	8,300	3.3
X1B	08/21/2017	< 10	480	12	< 10	430	10 J	9.2 J	922	13	5.3%	3,900 J	1.0
	10/10/2017	< 10	410	< 10	< 10	340	5.9 J-	4.8 J-	750	10	3.7%	1,100 J-	< 1.0
	02/05/2018	< 10	430	11	< 10	270	2.5	2.7	711	9.0	2.0%	500	< 1.0
	06/15/2018	21 J-	950 J-	20 J-	< 10 R	90 J-	25	12	1,081	13	10%	7,000	< 1.0
	08/21/2018	< 10	360	12	< 10	170	2.8	4.7	542	7	3.8%	1,200	< 1.0
16-S	08/21/2017	< 0.50	2.7	0.66	< 0.50	7.4	2.2 J	4.2 J	29	0.37	59%	8,200 J	5.5
	10/10/2017	< 0.50	1.3	< 0.50	< 0.50	4.8	1.0 J-	2.4 J-	17	0.21	56%	4,900 J-	5.9
	02/05/2018	< 0.50	2.1	< 0.50	< 0.50	19	2.1	6.2	36	0.61	46%	6,500	4.3
	06/15/2018	< 0.50	7.9	2.4	< 0.50	45	12	14	75	1.7	52%	8,900	3.0
	08/21/2018	< 0.50	3.5	0.64	< 0.50	23	2.7	6.3	49	0.7	43%	6,000	4.3
DW-7	08/21/2017	44	140	2.0	0.52	8.4	0.27 J	0.14 J	197	2.0	0.73%	16 J	< 1.0
	10/10/2017	< 0.50	130	1.2	< 0.50	20	0.36	0.38	151	1.7	1.5%	16	< 1.0
	02/05/2018	6.1	140	1.8	0.60	15	0.13	0.16	164	1.8	0.56%	2.7	< 1.0
	06/15/2018	58	160	3.0	0.63	3.3	0.060 J	0.12	227	2.2	0.28%	36	< 1.0
	08/21/2018	70	150	2.2	0.81	5.1	0.064 J	0.12	231	2.2	0.29%	52	< 1.0

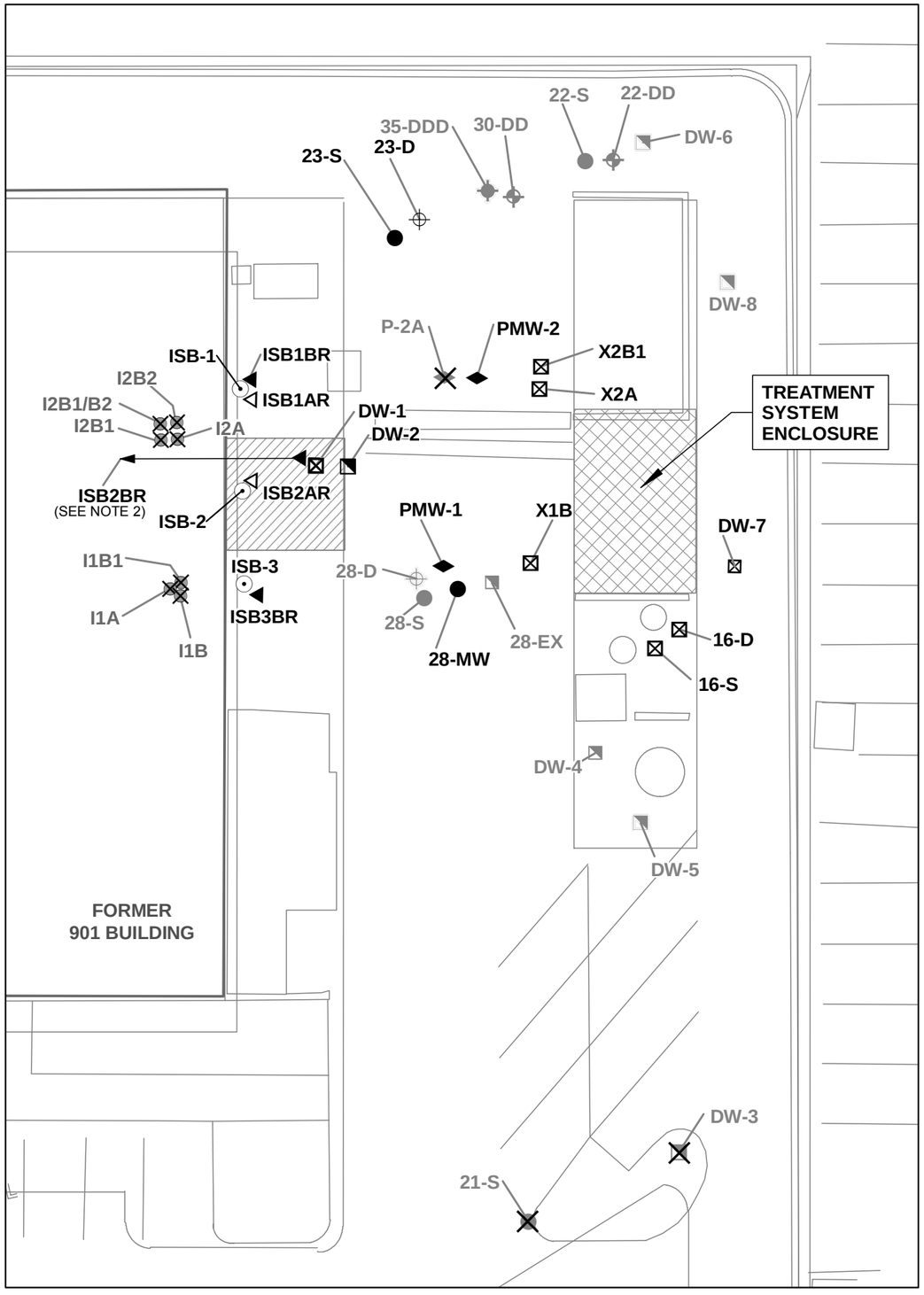
TABLE 5
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES [1,2]
FORMER 901/902 THOMPSON PLACE FACILITY
SUNNYVALE, CALIFORNIA

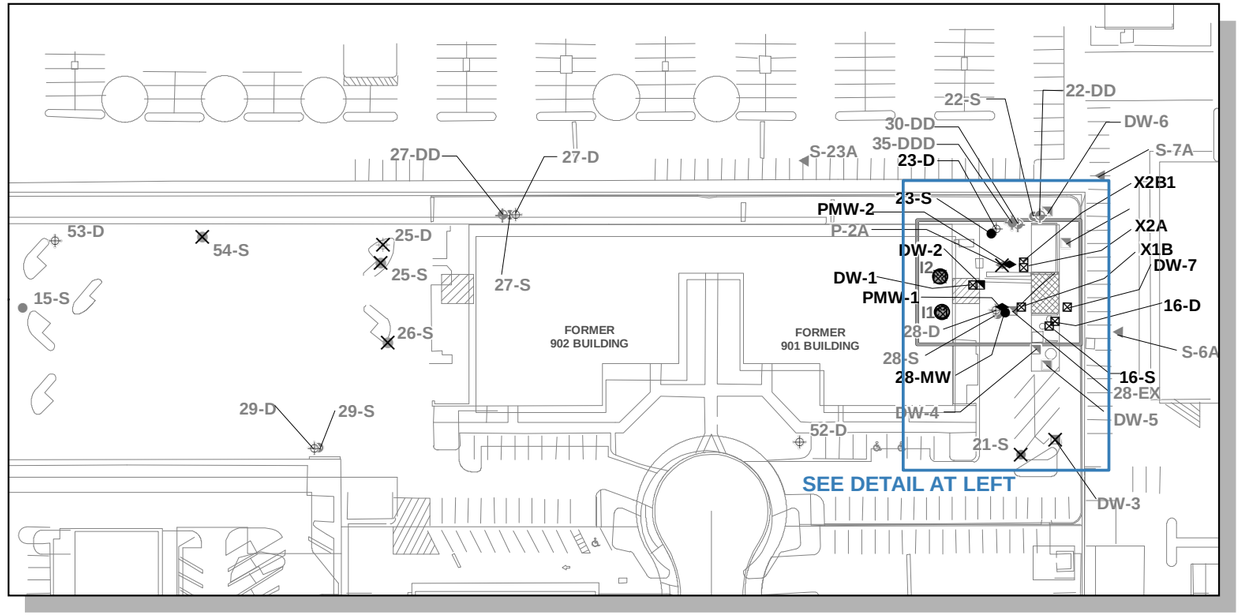
Notes:

1. Samples were collected by Blaine Tech Services, Inc., of San Jose, California, and submitted to TestAmerica Laboratories, Inc., of Pleasanton, California, for VOC and TOC analyses. Ethene, ethane, and methane were analyzed by Pace Analytical Energy Services, LLC, of Pittsburgh, Pennsylvania.
2. For clarity, this table presents the results for TCE and daughter products for the previous year of data; historical analytical results are depicted in the concentration trends provided as Attachment D. For a full list of volatile organic compounds analyzed, please see the laboratory analytical report provided as Attachment C.
3. J = The result is approximate.
4. J- = The result is approximate, and may be biased low.
5. Multiple results indicate primary/duplicate results.
6. R = The result is rejected as unusable.

Abbreviations:
< = compound not detected above indicated laboratory reporting limit
TCE = trichloroethene
cDCE = cis-1,2-dichloroethene
tDCE = trans-1,2-dichloroethene
1,1-DCE = 1,1-dichloroethene
VC = vinyl chloride
TOC = total organic carbon

FIGURES





LEGEND

- EXTRACTION WELL
- A-ZONE MONITORING WELL
- B1-ZONE MONITORING WELL
- B2-ZONE MONITORING WELL
- B3-ZONE MONITORING WELL
- A-ZONE INJECTION WELL
- B-ZONE INJECTION WELL
- DESTROYED WELL
- PERFORMANCE MONITORING WELL (PMW-1, PMW-1, P-2A)
- IN SITU BIOREMEDIATION EXTRACTION WELL
- SOIL BORING AND DEPTH-DISCRETE GROUNDWATER SAMPLING LOCATION
- FORMER BUILDING BOUNDARIES
- FORMER POINT SOURCE LOCATION (NEUTRALIZATION AND STORAGE TANKS)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. INJECTION WELL ISB2BR INSTALLED AT 30° FROM VERTICAL, WITH A BEARING TO THE SOUTH.
3. BASE MAP SOURCE: AMD

N

0 100 200
SCALE IN FEET

HALEY ALDRICH

FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

LAYOUT OF THE IN SITU BIOREMEDIATION PROGRAM

SEPTEMBER 2018

FIGURE 1

APPENDIX A

Field Sampling Data Sheets

WELL GAUGING SHEET

Project # 180821-BK Date 08/21/2018 Client **Haley & Aldrich**

Site: 901 Thompson Place - Sunnyvale, CA Page: **1 OF 1**

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
16-S	0750	4					9.72	16.91	TOC	
23-S	0735	4					8.17	16.33	TOC	
23-D	0731	4					6.37	44.66	TOC	
28-MW	0755	2					9.11	16.57	TOC	
DW-1	0754	12					7.84	~~49.73~~ 38.62	TOC	
DW-2	0749	12					7.94	12.66	TOC	
DW-7	0740	6					6.88	44.38	TOC	
PMW-1-1	0802	1.1					8.60	26.49	TOC	
PMW-1-2	0808	1.1					8.21	32.11	TOC	
PMW-1-3	0806	1.1					8.11	38.90	TOC	
PMW-2-1	0812	1.1					8.04	27.46	TOC	
PMW-2-2	0816	1.1					7.41	37.42	TOC	
PMW-2-3	0818	1.1					6.97	48.17	TOC	
X1B	0800	2					8.12	29.65	TOC	
X2A	0740	2					08.42	20.23	TOC	
X2B1	0743	2					7.75	36.56	TOC	

LOW FLOW WELL MONITORING DATA SHEET

Project #: 180821 - BK1	Client: Haley & Aldrich
Sampler: BK	Start Date: 08/21/18
Well I.D.: DW-2	Well Diameter: 2 3 4 6 8 (12")
Total Well Depth: 12.66	Depth to Water Pre: 7.94 Post: 7.94
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: PVC	Flow Cell Type: YSI PRO PLUS

Purge Method: ~~Bladder Pump~~ PERISTALTIC PUMP

Sampling Method: Dedicated Tubing (Teflon)

Start Purge: 1050 Flow Rate: 200 mL/MIN Pump Depth: 12'

Time	Temp. (°C)	pH	Cond. (µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (mL)	DTW / Observations
1053	19.6	6.97	4346	20	0.61	-108.9	600	7.94/CLEAR ODOR
1056	19.6	6.95	4406	15	0.66	-121.3	1200	7.94/CLEAR ODOR
1059	19.7	6.95	4412	14	0.52	-129.4	1800	7.94/CLEAR ODOR
1102	19.7	6.94	4410	14	0.51	-129.5	2400	7.94/CLEAR ODOR
1105	19.7	6.95	4415	14	0.52	-129.2	3000	7.94/CLEAR ODOR

BLACK PARTICLES

Did well dewater? Yes (No) Amount actually evacuated: 3000 ml

Sampling Time: 1110 Sampling Date: 08/21/18

Sample I.D.: DW-2 Laboratory: **Test America / PACE**

Analyzed for: SEE COC

Blank I.D.: @ Time Duplicate I.D.: @ Time

Analyzed for: SEE COC

LOW FLOW WELL MONITORING DATA SHEET

Project #: 130821-BK1	Client: Haley & Aldrich
Sampler: BK	Start Date: 08/21/2018
Well I.D.: 16-S	Well Diameter: 2 3 (4) 6 8 ___
Total Well Depth: 16.91	Depth to Water Pre: 9.72 Post: 9.77
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC	Flow Cell Type: YSI PRO PLUS

Purge Method: Bladder Pump

Sampling Method: Dedicated Tubing (Teflon)

Start Purge: 1304 Flow Rate: 200 mL/MIN Pump Depth: 13'

Time	Temp. (°C)	pH	Cond. (µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (mL)	DTW / Observations
1307	19.8	6.42	2484	50	0.90	-105.4	600	9.74/CLEAR
1310	19.8	6.43	2480	20	0.78	-107.8	1200	9.74/CLEAR
1313	19.8	6.44	2474	11	0.52	-110.8	1800	9.75/CLEAR
1316	20.1	6.45	2475	10	0.50	-112.1	2400	9.76/CLEAR
1319	20.1	6.45	2476	9	0.51	-112.3	3000	9.76/CLEAR
1322	20.2	6.45	2477	9	0.50	-112.2	3600	9.77/CLEAR

Did well dewater? Yes (No)	Amount actually evacuated: 3600 ml
Sampling Time: 1327	Sampling Date: 08/21/2018
Sample I.D.: 16-S	Laboratory: **Test America / PACE**
Analyzed for: SEE COC	
Blank I.D.: @ Time	Duplicate I.D.: @ Time
Analyzed for: SEE COC	

LOW FLOW WELL MONITORING DATA SHEET

Project #: 180821-BK1	Client: Haley & Aldrich
Sampler: BK	Start Date: 08/21/18
Well I.D.: ~~MW-5~~ 23-S	Well Diameter: 2 3 (4) 6 8 ___
Total Well Depth: 16.33	Depth to Water Pre: 8.17 Post: 8.21
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: PVC	Flow Cell Type: YSI PRO PLUS

Purge Method: Bladder Pump

Sampling Method: Dedicated Tubing (Teflon)

Start Purge: 0849 Flow Rate: 200ml/MIN Pump Depth: 13'

Time	Temp. (°C)	pH	Cond. (µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (mL)	DTW / Observations
0852	17.7	6.23	1738	80	2.95	205.0	600	8.18/CLEAR
0855	17.6	6.33	1749	55	1.82	175.6	1200	8.19/CLEAR
0858	17.5	6.40	1744	22	1.24	131.0	1800	8.19/CLEAR
0901	17.5	6.41	1736	15	0.83	100.1	2400	8.19/CLEAR
0904	17.4	6.43	1735	10	0.71	83.1	3000	8.20/CLEAR
0907	17.4	6.44	1728	10	0.61	71.2	3600	8.20/CLEAR
0910	17.4	6.46	1724	9	0.60	61.5	4200	8.21/CLEAR
0913	17.4	6.46	1724	9	0.59	61.2	4800	8.21/CLEAR
0916	17.3	6.47	1726	9	0.60	61.6	5400	8.21/CLEAR

Did well dewater? Yes (No) Amount actually evacuated: 5400 ml

Sampling Time: 0921 Sampling Date: 08/21/18

Sample I.D.: ~~MW-5~~ 23-S Laboratory: **Test America / PACE**

Analyzed for: SEE COC

Blank I.D.: @ Time Duplicate I.D.: @ Time

Analyzed for: SEE COC

LOW FLOW WELL MONITORING DATA SHEET

Project #: 180821-BK1	Client: Haley & Aldrich
Sampler: BK	Start Date: 08/21/2018
Well I.D.: 28-MW	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth: 16.57	Depth to Water Pre: 9.11 Post: 9.18
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: PVC	Flow Cell Type: YSI Pro Plus

Purge Method: Bladder Pump

Sampling Method: Dedicated Tubing (Teflon)

Start Purge: 1215 Flow Rate: 200mL/MIN Pump Depth: 14.1

Time	Temp. (°C)	pH	Cond. (µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (mL)	DTW / Observations
1218	20.2	6.53	2787	15	0.97	-99.2	600	9.17/CLEAR
1221	19.8	6.53	2783	14	0.81	-101.9	1200	9.17/CLEAR
1224	20.2	6.55	2767	12	0.52	-95.1	1800	9.17/CLEAR
1227	20.0	6.54	2775	11	0.50	-98.2	2400	9.17/CLEAR
1230	19.9	6.54	2774	11	0.51	-98.0	3000	9.18/CLEAR

Did well dewater? Yes (No) Amount actually evacuated: 3000 ml

Sampling Time: 1235 Sampling Date: 08/21/2018

Sample I.D.: 28-MW Laboratory: **Test America / PACE**

Analyzed for: SEE COC

Blank I.D.: @ Time Duplicate I.D.: @ Time

Analyzed for: SEE COC

LOW FLOW WELL MONITORING DATA SHEET

Project #: 180821 - BK1	Client: Haley & Aldrich
Sampler: BK	Start Date: 08/21/18
Well I.D.: X2A	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth: 20.23	Depth to Water Pre: 8.42 Post: 8.40
Depth to Free Product: ____	Thickness of Free Product (feet): ____
Referenced to: PVC	Flow Cell Type: YSI PP-0 Plus

Purge Method: Bladder Pump

Sampling Method: Dedicated Tubing (Teflon)

Start Purge: 0945 Flow Rate: 200 mL/MIN Pump Depth: 15'

Time	Temp. (°C)	pH	Cond. (µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (mL)	DTW / Observations
0948	18.3	6.62	2690	40	1.28	-60.4	600	8.40/CLEAR
0951	18.3	6.61	2697	28	1.02	-67.2	1200	8.40/CLEAR
0954	18.3	6.60	2692	25	0.81	-72.7	1800	8.40/CLEAR
0957	18.3	6.61	2691	23	0.79	-71.2	2400	8.40/CLEAR
1000	18.3	6.61	2693	24	0.80	-70.8	3000	8.40/CLEAR

BLACK PARTICLES

Did well dewater? Yes (No)	Amount actually evacuated: 3000 ml
Sampling Time: 1005	Sampling Date: 08/21/2018
Sample I.D.: X2A	Laboratory: **Test America / PACE**
Analyzed for: SEE COC	
Blank I.D.: @ Time	Duplicate I.D.: @ Time
Analyzed for: SEE COC	

LOW FLOW WELL MONITORING DATA SHEET

Project #: 180821 BK-1	Client: Haley & Aldrich
Sampler: BD	Start Date: 08/21/18
Well I.D.: PMW-2-1	Well Diameter: 2 3 4 6 8 (1) CNT
Total Well Depth: 27.46	Depth to Water Pre: 8.09 Post: 10.79
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: PVC	Flow Cell Type: YSI Pro Plus

Purge Method: Bladder Pump (Peri Pump)

Sampling Method: Dedicated Tubing (Teflon)

Start Purge: 1244 Flow Rate: ~~80~~ 100 mL/min Pump Depth: 27'

Time	Temp. (°C)	pH	Cond. (µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (mL)	DTW / Observations
1247	19.2	7.00	2813	380	0.77	-29.7	300	water level meter doesn't fit well / cloudy / odor / white particles
1250	19.5	6.80	2849	118	0.59	-38.5	600	clear / odor / white particles
1253	19.5	6.77	2852	68	0.56	-35.2	900	Purging clear/odor/white particles
1256	19.5	6.74	2870	49	0.59	-30.0	1200	↓
1259	19.5	6.73	2860	46	0.60	-26.9	1500	
1302	19.6	6.74	2832	45	0.57	-24.6	1800	

Did well dewater? Yes (No) Amount actually evacuated: 1800 ml

Sampling Time: 1307 Sampling Date: 08/21/18

Sample I.D.: PMW-2-1 Laboratory: **Test America / PACE**

Analyzed for: SEE COC

Blank I.D.: @ Time Duplicate I.D.: @ Time

Analyzed for: SEE COC

LOW FLOW WELL MONITORING DATA SHEET

Project #: 180821 BK-1	Client: Haley & Aldrich
Sampler: BD	Start Date: 08/21/18
Well I.D.: PMW-2-3	Well Diameter: 2 3 4 6 8 (1) CMT
Total Well Depth: 48.17	Depth to Water Pre: 6.87 Post: 7.65
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: PVC	Flow Cell Type: YSI Pro Plus

Purge Method: Bladder Pump (Peri Pump)
Sampling Method: Dedicated Tubing (Teflon)

* can't fit water level meter & tubing in well during purge.

Start Purge: 1321 Flow Rate: 100mL/min Pump Depth: 46.5'

Time	Temp. (°C)	pH	Cond. (µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (mL)	DTW / Observations
1324	19.9	7.30	1886	33	1.38	-93.1	300	clear / slight particles / odor
1327	20.2	7.17	2124	27	0.84	-92.3	600	
1330	20.1	7.10	2206	69	0.75	-71.8	900	
1333	19.9	7.04	2229	41	0.64	-39.3	1200	
1336	19.9	6.98	2242	35	0.57	7.5	1500	
1339	19.8	7.01	2238	28	0.55	16.0	1800	
1342	19.9	7.01	2240	27	0.55	20.3	2100	
1345	19.9	6.96	2235	28	0.54	25.4	2400	

Did well dewater? Yes (No) Amount actually evacuated: 2400 ml

Sampling Time: 1350 Sampling Date: 08/21/18

Sample I.D.: PMW-2-3 Laboratory: **Test America / PACE**

Analyzed for: SEE COC

Blank I.D.: @ Time Duplicate I.D.: @ Time

Analyzed for: SEE COC

LOW FLOW WELL MONITORING DATA SHEET

Project #: 180821.BK-1	Client: Haley & Aldrich
Sampler: BD	Start Date: 08/21/18
Well I.D.: X1B	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth: 29.65	Depth to Water Pre: 8.12 Post: 8.36
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: PVC	Flow Cell Type: YSI Pro Plus

Purge Method: Bladder Pump (Peri Pump)

Sampling Method: Dedicated Tubing (Teflon)

Start Purge: 0853 Flow Rate: 200 mL/min Pump Depth: 27'

Time	Temp. (°C)	pH	Cond. (µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (mL)	DTW / Observations
0856	18.4	6.42	3695	229	1.61	20.0	300	8.25 / cloudy / odor
0859	18.2	6.52	3316	28	0.74	-113.9	900	8.29 / clear / odor
0902	18.3	6.99	3085	23	0.81	-58.3	1500	8.32 / clear / odor
0905	18.4	6.85	2911	18	0.69	-15.7	2100	8.33 / clear / odor
0908	18.3	6.80	2873	17	0.76	-17.3	2700	8.34 / clear / odor
0911	18.2	6.77	2840	18	0.72	-14.9	3300	8.36 / clear / odor

Did well dewater? Yes (No)	Amount actually evacuated: 3300 ml
Sampling Time: 0916	Sampling Date: 08/21/18
Sample I.D.: X1B	Laboratory: Test America / PACE
Analyzed for: SEE COC	
Blank I.D.: @ Time	Duplicate I.D.: @ Time
Analyzed for: SEE COC	

LOW FLOW WELL MONITORING DATA SHEET

Project #: 180821 BK-1	Client: Haley & Aldrich
Sampler: BD	Start Date: 08/21/18
Well I.D.: X2B1	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth: 36.56	Depth to Water Pre: 7.75 Post: 8.01
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: PVC	Flow Cell Type: YSI ProPlus

Purge Method: (Bladder Pump)

Sampling Method: (Dedicated Tubing (Teflon))

Start Purge: 1052 Flow Rate: 200 mL/min to 100 mL/min Pump Depth: 31.5'

Time	Temp. (°C)	pH	Cond. (µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (mL)	DTW / Observations
1055	18.9	7.13	2450	99	1.06	246.5	300	7.91 / clear / tan particles
1058	18.9	~~7.00~~ 6.92	2478	94	0.80	237.8	900	8.08 / clear / tan particles
1101	18.9	6.86	2467	43	0.59	211.5	1200	8.09 / clear / tan particles
1104	19.0	6.84	2466	45	0.49	162.5	1500	8.04 / clear / tan particles
1107	19.1	6.83	2464	42	0.48	142.8	1800	8.03 / clear / tan particles
1110	19.2	6.82	2464	45	0.51	138.9	2100	8.01 / clear / tan particles
1113	19.2	6.81	2465	43	0.52	135.7	2400	8.01 / clear / tan particles

Did well dewater? Yes (No) Amount actually evacuated: 2400 ml

Sampling Time: 1118 Sampling Date: 08/21/18

Sample I.D.: X2B1 Laboratory: **Test America / PACE**

Analyzed for: SEE COC

Blank I.D.: @ Time Duplicate I.D.: @ Time

Analyzed for: SEE COC

LOW FLOW WELL MONITORING DATA SHEET

Project #: 180821-BK1	Client: Haley & Aldrich
Sampler: BK	Start Date: 08/21/2018
Well I.D.: DW-1	Well Diameter: 2 3 4 6 8 (12")
Total Well Depth: 38.62	Depth to Water Pre: 7.84 Post:
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: PVC	Flow Cell Type: YSI PRO PLUS

Purge Method: ~~Bladder Pump~~ PERISTALTIC PUMP

Sampling Method: Dedicated Tubing (Teflon)

Start Purge: 1416 Flow Rate: 200ML/MIN Pump Depth: 36'

Time	Temp. (°C)	pH	Cond. (µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (mL)	DTW / Observations
1419	20.6	6.70	4659	12	1.21	-159.1	600	7.84/CLEAR ODOR
1422	20.7	6.82	4662	10	0.72	-175.6	1200	7.84/CLEAR ODOR
1425	20.6	6.85	4672	9	0.56	-186.5	1800	7.84/CLEAR ODOR
1428	20.6	6.86	4678	9	0.44	-200.1	2400	7.84/CLEAR ODOR
1431	20.5	6.86	4691	9	0.35	-205.5	3000	7.84/CLEAR ODOR
1434	20.5	6.85	4689	8	0.36	-206.2	3600	7.84/CLEAR ODOR
1437	20.6	6.85	4688	9	0.37	-205.7	4200	7.84/CLEAR ODOR
	BK							

BLACK PARTICLES

Did well dewater? Yes (No) Amount actually evacuated: 4200 ml

Sampling Time: ~~08/21/BK~~ 1442 Sampling Date: 08/21/2018

Sample I.D.: DW-1 Laboratory: **Test America / PACE**

Analyzed for: SEE COC

Blank I.D.: @ Time Duplicate I.D.: @ Time

Analyzed for: SEE COC

LOW FLOW WELL MONITORING DATA SHEET

Project #: 180891 BK-1	Client: Haley & Aldrich
Sampler: BD	Start Date: 08/21/18
Well I.D.: DW-7	Well Diameter: 2 3 4 (6) 8 ___
Total Well Depth: 44.38	Depth to Water Pre: 6.88 Post: 6.95
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: PVC	Flow Cell Type: YSI Pro Plus

Purge Method: (Bladder Pump)

Sampling Method: (Dedicated Tubing (Teflon))

Start Purge: 0950 Flow Rate: 200mL/min Pump Depth: 40'

Time	Temp. (°C)	pH	Cond. (µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (mL)	DTW / Observations
0953	18.6	7.40	2431	156	1.37	54.3	300	6.77/ clear/ orange particles
0956	18.7	7.24	2466	162	0.71	32.7	900	6.83/ clear/ orange particles
0959	18.7	7.21	2469	134	0.66	15.3	1500	6.88/ clear/ orange particles
1002	18.7	7.17	2457	110	0.52	12.6	2100	6.89/ clear/ orange particles
1005	18.7	7.17	2442	91	0.44	7.4	2700	6.92/ clear/ orange particles
1008	18.7	7.21	2438	90	0.40	3.4	3300	6.94/ clear/ orange particles
1011	18.6	7.19	2439	85	0.41	-1.8	3900	6.95/ clear/ orange particles

Did well dewater? Yes (No) Amount actually evacuated: 3900 ml

Sampling Time: 1016 Sampling Date: 08/21/18

Sample I.D.: DW-7 Laboratory: **Test America / PACE**

Analyzed for: SEE COC

Blank I.D.: @ Time Duplicate I.D.: @ Time

Analyzed for: SEE COC

LOW FLOW WELL MONITORING DATA SHEET

Project #: 180821 BK-1	Client: Haley & Aldrich
Sampler: BD	Start Date: 08/21/18
Well I.D.: 23-D	Well Diameter: ~~2~~ 3 (4) 6 8
Total Well Depth: 44.66	Depth to Water Pre: 6.37 Post: 6.70
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: PVC	Flow Cell Type: YSI Pro Plus

Purge Method: ~~Bladder Pump~~

Sampling Method: Dedicated Tubing (Teflon)

Start Purge: 1157 Flow Rate: 200 mL/min Pump Depth: 45'

Time	Temp. (°C)	pH	Cond. (µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (mL)	DTW / Observations
1200	18.6	7.36	2335	7	1.05	290.6	300	clear / 6.49
1203	18.7	6.95	2330	9	0.74	287.9	900	clear / ~~6.60~~ 6.55
1206	18.6	6.91	2327	9	0.65	281.3	1500	clear / 6.60
1209	18.8	6.89	2337	7	0.56	275.7	2100	clear / 6.63
1212	18.7	6.88	2320	7	0.54	270.0	2700	clear / 6.67
1215	18.8	6.89	2322	7	0.52	266.2	3300	clear / 6.70

Did well dewater? Yes (No) Amount actually evacuated: 3300 ml

Sampling Time: 1220 Sampling Date: 08/21/18

Sample I.D.: 23-D Laboratory: **Test America / PACE**

Analyzed for: SEE COC

Blank I.D.: @ Time Duplicate I.D.: DUP-1 @ Time 1200

Analyzed for: SEE COC

Pace Analytical™ www.pacelabs.com

HALEY ALDRICH

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A — Required Client Information:

Company: Haley & Aldrich, Inc.
Address: 1956 Webster Street, Suite 300, Oakland, CA 94612
Email To: mcalhoun@haleyaldrich.com
Phone: 510-879-4554 Fax:
Requested Due Date/TAT: Standard TAT

Section B — Required Project Information:

Report To: mcalhoun@haleyaldrich.com
Copy To: mzlotoff@haleyaldrich.com
BSA #: 2015-18-Pace
H&A Client Name: Former 901/902 Thompson Place
H&A Project #: 127819-004 SID 3

Section C — Invoice Information:

Attention: ap@haleyaldrich.com
Company Name: Haley & Aldrich
Address: use email address above
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

x PACE - PITT
1700 Elm Street SE - Minneapolis, MN 55414
7726 Moller Road - Indianapolis, IN 46268

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE:

Pace's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement #2015-18-Pace by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Pace Analytical Services, Inc.

Section D — Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Ethene, ethane, and methane (use AM20GAX)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	DW-2	WT	G	08/21/18	1110				3								✓		✓		
2	16-S		G		1327				3								✓		✓		
3	23-S		G		0921				3								✓		✓		
4	28-MW		G		1235				3								✓		✓		
5	X2A		G		1005				3								✓		✓		
6	PMW-2-1		G		1307				3								✓		✓		
7	PMW-2-3		G		1350				3								✓		✓		
8	X1B		G		0916				3								✓		✓		
9	X2B1		G		1118				3								✓		✓		
10	DW-1		G		1442				3								✓		✓		
11	DW-7		G		1016				3								✓		✓		
12	23-D	↓	G	↓	1220				3								✓		✓		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Please use Method AM20GAX instead of RSK-175 for analysis.	BRIAN KEEBLER	08/21/18	1645	CUSTODIAN	08/21/18	1620	
	(BTS)	8/22/18	1430	FedEx			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: BRIAN KEEBLER
SIGNATURE of SAMPLER:
DATE Signed (MM/DD/YY): 8/21/18

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

TestAmerica Pleasanton
1220 Quarry Lane
Pleasanton, CA 94566-4756
phone 925.484.1919 fax 925.600.3002

Chain of Custody Record for Haley & Aldrich, Inc. Blanket Service Agreement #2015-18-TestAmerica

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☐Other:

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2015-18-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc..

Client Contact	H&A Project Manager: Mike Calhoun	H&A Site Contact:	Date:	COC No:
Haley & Aldrich	Tel/Fax: 510-879-4554	Lab Contact: Sarah Arney	Carrier:	1 of 2 COCs
1956 Webster Street, Suite 300	Analysis Turnaround Time			Sampler:
Oakland, CA 94612	☐ CALENDAR DAYS ☑ WORKING DAYS			For Lab Use Only:
510-879-4554 Phone	TAT if different from Below _____			Walk-in Client:
510-879-4579 FAX	☑ 2 weeks			Lab Sampling:
H&A Project Number : 127819	☐ 1 week			
Site: Former 901/902 Thompson Place	☐ 2 days			Job / SDG No.:
H&A P O # 127819-004 SID 3	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	VOCs (modified list) - EPA 8260	TOC - SM5310	Sample Specific Notes:
TB-1	08/21/18	0700			2	N	N	✓		
DW-2		1110			4	N	N	✓	✓	
16-S		1327			4	N	N	✓	✓	
23-S		0921			4	N	N	✓	✓	
28-MW		1235			10	N	Y	✓	✓	MS/MSD
X2A		1005			4	N	N	✓	✓	
PMW-2-1		1307			4	N	N	✓	✓	
PMW-2-3		1350			4	N	N	✓	✓	
X1B		0916			4	N	N	✓	✓	
X2B1		1118			4	N	N	✓	✓	
DW-1		1442			4	N	N	✓	✓	
DW-7	↓	1016			4	N	N	✓	✓	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

PLEASE NOTE: project-specific list of VOCs (8010 list plus Freon 113 and 1,2,4-trichlorobenzene)

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
BRIAN KEBELER	BLAINE TECH	08/21 1615	CUSTODIAN	BLAINE TECH	08/21 1630
Ross McKovich	BLAINE TECH	08/22/18 1135			
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-045, Rev. 1.2, dated 1/8/2016

TestAmerica Pleasanton
1220 Quarry Lane

Pleasanton, CA 94566-4756
phone 925.484.1919 fax 925.600.3002

Chain of Custody Record for
Haley & Aldrich, Inc. Blanket Service Agreement #2015-18-TestAmerica

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2015-18-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc..

Client Contact	H&A Project Manager: Mike Calhoun	H&A Site Contact:	Date:	COC No:
Haley & Aldrich	Tel/Fax: 510-879-4554	Lab Contact: Sarah Arney	Carrier:	2 of 2 COCs
1956 Webster Street, Suite 300	**Analysis Turnaround Time**			Sampler:
Oakland, CA 94612	☐ CALENDAR DAYS ☑ WORKING DAYS			**For Lab Use Only:**
510-879-4554 Phone	TAT if different from Below ______			Walk-in Client:
510-879-4579 FAX	☑ 2 weeks			Lab Sampling:
H&A Project Number : 127819	☐ 1 week			
Site: Former 901/902 Thompson Place	☐ 2 days			Job / SDG No.:
H&A P O # 127819-004 SID 3	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	VOCs (modified list) - EPA 8260	TOC - SM5310	Sample Specific Notes:
23-D	08/21/18	1220		W	4	N	N	✓	✓	
DUP-1	↓	1200		W	4	N	N	✓	✓	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ______ Months

Special Instructions/QC Requirements & Comments:

PLEASE NOTE: project-specific list of VOCs (8010 list plus Freon 113 and 1,2,4-trichlorobenzene)

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: ______ Corr'd: ______ Therm ID No.: ______

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
BRIAN KEESLER (signature)	BLAINE TECH	08/21 1615	(signature) CUSTODIAN	BLAINE TECH	08/21 1620
Relinquished by: ROSS MAKOWSKI (signature)	Company: BLAINE TECH	Date/Time: 08/22/18 1135	Received by: (signature)	Company: TA720	Date/Time: 8/22/18 1135
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

WELLHEAD INSPECTION CHECKLIST

Date: 08/21/2018 Client: **Haley & Aldrich**

Project Name/Site Address: **901 Thompson Place - Sunnyvale, CA**

Job #: 180821-BK1 Technician(s): ~~BK~~ BD

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Debris Removed From Wellbox	Cap Replaced	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)
16-S	X							
23-S	X							
23-D	X							
28-MW							✓	
DW-1	X							
DW-2	X							
DW-7							✓	
PMW-1-1	X							
PMW-1-2	X							
PMW-1-3	X							
PMW-2-1	X							
PMW-2-2	X							
PMW-2-3	X							
X1B							✓	
X2A	X							
X2B1	X			0/2 Bolts/casing too long to bolt lid				

NOTES: X1B 1/2 BROKEN TAB; DW-7 NO CAP; 28-MW 0/2 BOLTS, UNABLE TO CLOSE DUE TO CAP

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME: Haley & Aldrich @ 901 Thompson Place - Sunnyvale, CA					PROJECT NUMBER: 180821BK-1		
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP. (°C)	Standard Lot# / Exp. Date /
YSI Pro Plus	10B100295	0815 08/21/18	pH 7 10 4	7.01 10.03 4.00	✓	22.1	539016 Dec/18 549049 Jan/19 536005 Nov 18
↓	↓	↓	ORP 244 Cond 3900	236.2 3900	✓ ✓	20.8 21.8	051818 07/18/19 558499 5/11/20
↓	↓	↓	DO 100%	105.6%	✓	20.1	—
Hach Turbidimeter 2100Q	13100C088	767 815 08/21/18	NTU - 10 20 100 800	9.78 19.89 99.89 801.7	✓	—	—

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME: Haley & Aldrich @ 901 Thompson Place - Sunnyvale, CA					PROJECT NUMBER: 180821-BK1		
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP. (°C)	Standard Lot# / Exp. Date /
YSI PRO PLUS	16M100926	08/21/18 0710	DO% 100	100	✓	22.8	—
↓	↓	↓	COND. ~~mS/cm~~ uS/cm	3893	✓	24.3	042418/3/30/20
↓	↓	↓	PH 4.00 7.00 10.00	4.00 7.00 10.01	✓	24.5	53605/11/18 53908/12/18 53607/11/18
↓	↓	↓	ORP 233.3	233.3	✓	24.0	051816/07/18/19
HACH 4100 TURBIDIMETER		08/21/18 0720	NTU 0/20/100/800	0/19/100/795	✓	—	—

APPENDIX B

Analytical Laboratory Reports

HALEY ALDRICH

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pleasanton
1220 Quarry Lane
Pleasanton, CA 94566
Tel: (925)484-1919

TestAmerica Job ID: 720-88188-1
Client Project/Site: 901/902 Thompson Place-Advanced Micro

For:
Haley & Aldrich, Inc.
1956 Webster Street
Suite 300
Oakland, California 94612

Attn: Michael Calhoun

Authorized for release by:
9/6/2018 5:06:50 PM
Lee Ann Heathcote, Project Manager II
leeann.heathcote@testamericainc.com

Designee for

Micah Smith, Project Manager II
(916)374-4302
micah.smith@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.

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 ID: 720-88188-1

Laboratory: TestAmerica Pleasanton

Narrative

Job Narrative
720-88188-1

Receipt
The samples were received on 8/22/2018 4:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9º C.

GC/MS VOA
Method(s) 8260B: The following sample was collected in properly preserved vials for analysis of volatile organic compounds (VOCs); however, the pH was outside the required criteria when verified by the laboratory, and corrective action was not possible: DW-2 (720-88188-2)

Method(s) 8260B: The following volatile sample was analyzed with significant headspace in the sample container(s): 23-S (720-88188-4). Significant headspace is defined as a bubble greater than 6mm in diameter.

Method(s) 8260B: The matrix spike/matrix spike duplicate (MS/MSD) recoveries for analytical batch 720-250643 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 8260B: The laboratory control sample (LCS) and/or laboratory control sample duplicate (LCSD) for analytical batch 720-250641 recovered outside control limits for the following analytes: Methylene chloride; 1,1-Dichloroethene; 1,1,2-Trichloro-1,2,2-trifluoroethane; and trans-1,2-Dichloroethene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method(s) 8260B: The following sample was collected in properly preserved vials for analysis of volatile organic compounds (VOCs); however, the pH was outside the required criteria when verified by the laboratory, and corrective action was not possible: DW-1 (720-88188-11).

Method(s) 8260B: The following sample was collected in properly preserved vials for analysis of volatile organic compounds (VOCs); however, the pH was outside the required criteria when verified by the laboratory, and corrective action was not possible: DW-1 (720-88188-11)

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

General Chemistry
Method(s) SM 5310B: The reference method SM5310B requires samples to be preserved to a pH <2. The following samples were received with insufficient preservation at a pH >2: DW-2 (720-88188-2) and DW-1 (720-88188-11). The pH of the samples was adjusted to the appropriate pH <2 using hydrochloric acid 1:1 in the laboratory prior to analysis.

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

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: TB-1 — Lab Sample ID: 720-88188-1

No Detections.

Client Sample ID: DW-2 — Lab Sample ID: 720-88188-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	27		5.0		mg/L	5		SM 5310B	Total/NA

Client Sample ID: 16-S — Lab Sample ID: 720-88188-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	23		0.50		ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	0.64		0.50		ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	3.5		0.50		ug/L	1		8260B	Total/NA
Chlorobenzene	10		0.50		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	1.6		0.50		ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	10		0.50		ug/L	1		8260B	Total/NA
Total Organic Carbon	4.3		1.0		mg/L	1		SM 5310B	Total/NA

Client Sample ID: 23-S — Lab Sample ID: 720-88188-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethene	1.0		0.50		ug/L	1		8260B	Total/NA
Vinyl chloride	0.98		0.50		ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	7.7		0.50		ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	62		0.50		ug/L	1		8260B	Total/NA
Trichloroethene	43		0.50		ug/L	1		8260B	Total/NA
Tetrachloroethene	1.2		0.50		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	0.95		0.50		ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	22		0.50		ug/L	1		8260B	Total/NA
Total Organic Carbon	1.8		1.0		mg/L	1		SM 5310B	Total/NA

Client Sample ID: 28-MW — Lab Sample ID: 720-88188-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	8.5		0.50		ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.65		0.50		ug/L	1		8260B	Total/NA
Chlorobenzene	11		0.50		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	0.64		0.50		ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	7.4		0.50		ug/L	1		8260B	Total/NA
Total Organic Carbon	4.4		1.0		mg/L	1		SM 5310B	Total/NA

Client Sample ID: X2A — Lab Sample ID: 720-88188-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	640		5.0		ug/L	10		8260B	Total/NA
cis-1,2-Dichloroethene	85		5.0		ug/L	10		8260B	Total/NA
Chlorobenzene	15		5.0		ug/L	10		8260B	Total/NA
1,2-Dichlorobenzene	21		5.0		ug/L	10		8260B	Total/NA
Total Organic Carbon	3.3		1.0		mg/L	1		SM 5310B	Total/NA

Client Sample ID: PMW-2-1 — Lab Sample ID: 720-88188-7

This Detection Summary does not include radiochemical test results.

Client Sample ID: PMW-2-1 (Continued) — Lab Sample ID: 720-88188-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	350		50		ug/L	100		8260B	Total/NA
cis-1,2-Dichloroethene	4600		50		ug/L	100		8260B	Total/NA
Total Organic Carbon	1.5		1.0		mg/L	1		SM 5310B	Total/NA

Client Sample ID: PMW-2-3 — Lab Sample ID: 720-88188-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	9.9		2.5		ug/L	5		8260B	Total/NA
cis-1,2-Dichloroethene	53		2.5		ug/L	5		8260B	Total/NA
Trichloroethene	230		2.5		ug/L	5		8260B	Total/NA
1,1,2-Trichloro-1,2,2-trifluoroethane	2.7		2.5		ug/L	5		8260B	Total/NA

Client Sample ID: XIB — Lab Sample ID: 720-88188-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	170		10		ug/L	20		8260B	Total/NA
trans-1,2-Dichloroethene	12		10		ug/L	20		8260B	Total/NA
cis-1,2-Dichloroethene	360		10		ug/L	20		8260B	Total/NA

Client Sample ID: X2B1 — Lab Sample ID: 720-88188-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	25		5.0		ug/L	10		8260B	Total/NA
cis-1,2-Dichloroethene	230		5.0		ug/L	10		8260B	Total/NA
Trichloroethene	170		5.0		ug/L	10		8260B	Total/NA

Client Sample ID: DW-1 — Lab Sample ID: 720-88188-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	1.1		0.50		ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	3.5		0.50		ug/L	1		8260B	Total/NA
Total Organic Carbon	4.6		1.0		mg/L	1		SM 5310B	Total/NA

Client Sample ID: DW-7 — Lab Sample ID: 720-88188-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethene	0.81		0.50		ug/L	1		8260B	Total/NA
1,1-Dichloroethane	0.57		0.50		ug/L	1		8260B	Total/NA
Vinyl chloride	5.1		0.50		ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	2.2		0.50		ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	150		0.50		ug/L	1		8260B	Total/NA
Trichloroethene	70		0.50		ug/L	1		8260B	Total/NA
1,1,2-Trichloro-1,2,2-trifluoroethane	2.0		0.50		ug/L	1		8260B	Total/NA

Client Sample ID: 23-D — Lab Sample ID: 720-88188-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	320		2.5		ug/L	5		8260B	Total/NA
1,1,2-Trichloro-1,2,2-trifluoroethane	3.8		2.5		ug/L	5		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: DUP-1

Lab Sample ID: 720-88188-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	4.5		2.5		ug/L	5		8260B	Total/NA
Trichloroethene	320		2.5		ug/L	5		8260B	Total/NA
1,1,2-Trichloro-1,2,2-trifluoroethane	3.8		2.5		ug/L	5		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: TB-1
Date Collected: 08/21/18 07:00
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50		ug/L			08/30/18 22:10	1
1,1-Dichloroethane	ND		0.50		ug/L			08/30/18 22:10	1
Dichlorodifluoromethane	ND		0.50		ug/L			08/30/18 22:10	1
Vinyl chloride	ND		0.50		ug/L			08/30/18 22:10	1
Chloroethane	ND		1.0		ug/L			08/30/18 22:10	1
Trichlorofluoromethane	ND		1.0		ug/L			08/30/18 22:10	1
Methylene Chloride	ND		5.0		ug/L			08/30/18 22:10	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			08/30/18 22:10	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			08/30/18 22:10	1
Chloroform	ND		1.0		ug/L			08/30/18 22:10	1
1,1,1-Trichloroethane	ND		0.50		ug/L			08/30/18 22:10	1
Carbon tetrachloride	ND		0.50		ug/L			08/30/18 22:10	1
1,2-Dichloroethane	ND		0.50		ug/L			08/30/18 22:10	1
Trichloroethene	ND		0.50		ug/L			08/30/18 22:10	1
1,2-Dichloropropane	ND		0.50		ug/L			08/30/18 22:10	1
Dichlorobromomethane	ND		0.50		ug/L			08/30/18 22:10	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			08/30/18 22:10	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			08/30/18 22:10	1
1,1,2-Trichloroethane	ND		0.50		ug/L			08/30/18 22:10	1
Tetrachloroethene	ND		0.50		ug/L			08/30/18 22:10	1
Chlorodibromomethane	ND		0.50		ug/L			08/30/18 22:10	1
Chlorobenzene	ND		0.50		ug/L			08/30/18 22:10	1
Bromoform	ND		1.0		ug/L			08/30/18 22:10	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			08/30/18 22:10	1
1,3-Dichlorobenzene	ND		0.50		ug/L			08/30/18 22:10	1
1,4-Dichlorobenzene	ND		0.50		ug/L			08/30/18 22:10	1
1,2-Dichlorobenzene	ND		0.50		ug/L			08/30/18 22:10	1
Chloromethane	ND		1.0		ug/L			08/30/18 22:10	1
Bromomethane	ND		1.0		ug/L			08/30/18 22:10	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50		ug/L			08/30/18 22:10	1
EDB	ND		0.50		ug/L			08/30/18 22:10	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			08/30/18 22:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*08/30/18 22:10*	*1*
4-Bromofluorobenzene	*94*		*67 - 130*		*08/30/18 22:10*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*72 - 130*		*08/30/18 22:10*	*1*

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: DW-2
Date Collected: 08/21/18 11:10
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50		ug/L			08/31/18 01:41	1
1,1-Dichloroethane	ND		0.50		ug/L			08/31/18 01:41	1
Dichlorodifluoromethane	ND		0.50		ug/L			08/31/18 01:41	1
Vinyl chloride	ND		0.50		ug/L			08/31/18 01:41	1
Chloroethane	ND		1.0		ug/L			08/31/18 01:41	1
Trichlorofluoromethane	ND		1.0		ug/L			08/31/18 01:41	1
Methylene Chloride	ND		5.0		ug/L			08/31/18 01:41	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			08/31/18 01:41	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			08/31/18 01:41	1
Chloroform	ND		1.0		ug/L			08/31/18 01:41	1
1,1,1-Trichloroethane	ND		0.50		ug/L			08/31/18 01:41	1
Carbon tetrachloride	ND		0.50		ug/L			08/31/18 01:41	1
1,2-Dichloroethane	ND		0.50		ug/L			08/31/18 01:41	1
Trichloroethene	ND		0.50		ug/L			08/31/18 01:41	1
1,2-Dichloropropane	ND		0.50		ug/L			08/31/18 01:41	1
Dichlorobromomethane	ND		0.50		ug/L			08/31/18 01:41	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 01:41	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 01:41	1
1,1,2-Trichloroethane	ND		0.50		ug/L			08/31/18 01:41	1
Tetrachloroethene	ND		0.50		ug/L			08/31/18 01:41	1
Chlorodibromomethane	ND		0.50		ug/L			08/31/18 01:41	1
Chlorobenzene	ND		0.50		ug/L			08/31/18 01:41	1
Bromoform	ND		1.0		ug/L			08/31/18 01:41	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			08/31/18 01:41	1
1,3-Dichlorobenzene	ND		0.50		ug/L			08/31/18 01:41	1
1,4-Dichlorobenzene	ND		0.50		ug/L			08/31/18 01:41	1
1,2-Dichlorobenzene	ND		0.50		ug/L			08/31/18 01:41	1
Chloromethane	ND		1.0		ug/L			08/31/18 01:41	1
Bromomethane	ND		1.0		ug/L			08/31/18 01:41	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50		ug/L			08/31/18 01:41	1
EDB	ND		0.50		ug/L			08/31/18 01:41	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			08/31/18 01:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*08/31/18 01:41*	*1*
4-Bromofluorobenzene	*95*		*67 - 130*		*08/31/18 01:41*	*1*
1,2-Dichloroethane-d4 (Surr)	*107*		*72 - 130*		*08/31/18 01:41*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**27**		5.0		mg/L			09/05/18 10:59	5

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: 16-S
Date Collected: 08/21/18 13:27
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50		ug/L			08/31/18 02:10	1
1,1-Dichloroethane	ND		0.50		ug/L			08/31/18 02:10	1
Dichlorodifluoromethane	ND		0.50		ug/L			08/31/18 02:10	1
Vinyl chloride	**23**		0.50		ug/L			08/31/18 02:10	1
Chloroethane	ND		1.0		ug/L			08/31/18 02:10	1
Trichlorofluoromethane	ND		1.0		ug/L			08/31/18 02:10	1
Methylene Chloride	ND		5.0		ug/L			08/31/18 02:10	1
trans-1,2-Dichloroethene	**0.64**		0.50		ug/L			08/31/18 02:10	1
cis-1,2-Dichloroethene	**3.5**		0.50		ug/L			08/31/18 02:10	1
Chloroform	ND		1.0		ug/L			08/31/18 02:10	1
1,1,1-Trichloroethane	ND		0.50		ug/L			08/31/18 02:10	1
Carbon tetrachloride	ND		0.50		ug/L			08/31/18 02:10	1
1,2-Dichloroethane	ND		0.50		ug/L			08/31/18 02:10	1
Trichloroethene	ND		0.50		ug/L			08/31/18 02:10	1
1,2-Dichloropropane	ND		0.50		ug/L			08/31/18 02:10	1
Dichlorobromomethane	ND		0.50		ug/L			08/31/18 02:10	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 02:10	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 02:10	1
1,1,2-Trichloroethane	ND		0.50		ug/L			08/31/18 02:10	1
Tetrachloroethene	ND		0.50		ug/L			08/31/18 02:10	1
Chlorodibromomethane	ND		0.50		ug/L			08/31/18 02:10	1
Chlorobenzene	**10**		0.50		ug/L			08/31/18 02:10	1
Bromoform	ND		1.0		ug/L			08/31/18 02:10	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			08/31/18 02:10	1
1,3-Dichlorobenzene	ND		0.50		ug/L			08/31/18 02:10	1
1,4-Dichlorobenzene	**1.6**		0.50		ug/L			08/31/18 02:10	1
1,2-Dichlorobenzene	**10**		0.50		ug/L			08/31/18 02:10	1
Chloromethane	ND		1.0		ug/L			08/31/18 02:10	1
Bromomethane	ND		1.0		ug/L			08/31/18 02:10	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50		ug/L			08/31/18 02:10	1
EDB	ND		0.50		ug/L			08/31/18 02:10	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			08/31/18 02:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*08/31/18 02:10*	*1*
4-Bromofluorobenzene	*94*		*67 - 130*		*08/31/18 02:10*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*72 - 130*		*08/31/18 02:10*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**4.3**		1.0		mg/L			09/05/18 08:51	1

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: 23-S
Date Collected: 08/21/18 09:21
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	**1.0**		0.50		ug/L			08/31/18 02:40	1
1,1-Dichloroethane	ND		0.50		ug/L			08/31/18 02:40	1
Dichlorodifluoromethane	ND		0.50		ug/L			08/31/18 02:40	1
Vinyl chloride	**0.98**		0.50		ug/L			08/31/18 02:40	1
Chloroethane	ND		1.0		ug/L			08/31/18 02:40	1
Trichlorofluoromethane	ND		1.0		ug/L			08/31/18 02:40	1
Methylene Chloride	ND		5.0		ug/L			08/31/18 02:40	1
trans-1,2-Dichloroethene	**7.7**		0.50		ug/L			08/31/18 02:40	1
cis-1,2-Dichloroethene	**62**		0.50		ug/L			08/31/18 02:40	1
Chloroform	ND		1.0		ug/L			08/31/18 02:40	1
1,1,1-Trichloroethane	ND		0.50		ug/L			08/31/18 02:40	1
Carbon tetrachloride	ND		0.50		ug/L			08/31/18 02:40	1
1,2-Dichloroethane	ND		0.50		ug/L			08/31/18 02:40	1
Trichloroethene	**43**		0.50		ug/L			08/31/18 02:40	1
1,2-Dichloropropane	ND		0.50		ug/L			08/31/18 02:40	1
Dichlorobromomethane	ND		0.50		ug/L			08/31/18 02:40	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 02:40	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 02:40	1
1,1,2-Trichloroethane	ND		0.50		ug/L			08/31/18 02:40	1
Tetrachloroethene	**1.2**		0.50		ug/L			08/31/18 02:40	1
Chlorodibromomethane	ND		0.50		ug/L			08/31/18 02:40	1
Chlorobenzene	ND		0.50		ug/L			08/31/18 02:40	1
Bromoform	ND		1.0		ug/L			08/31/18 02:40	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			08/31/18 02:40	1
1,3-Dichlorobenzene	ND		0.50		ug/L			08/31/18 02:40	1
1,4-Dichlorobenzene	**0.95**		0.50		ug/L			08/31/18 02:40	1
1,2-Dichlorobenzene	**22**		0.50		ug/L			08/31/18 02:40	1
Chloromethane	ND		1.0		ug/L			08/31/18 02:40	1
Bromomethane	ND		1.0		ug/L			08/31/18 02:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50		ug/L			08/31/18 02:40	1
EDB	ND		0.50		ug/L			08/31/18 02:40	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			08/31/18 02:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*08/31/18 02:40*	*1*
4-Bromofluorobenzene	*93*		*67 - 130*		*08/31/18 02:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*72 - 130*		*08/31/18 02:40*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**1.8**		1.0		mg/L			09/05/18 09:09	1

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: 28-MW
Date Collected: 08/21/18 12:35
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50		ug/L			08/31/18 04:42	1
1,1-Dichloroethane	ND		0.50		ug/L			08/31/18 04:42	1
Dichlorodifluoromethane	ND		0.50		ug/L			08/31/18 04:42	1
Vinyl chloride	**8.5**		0.50		ug/L			08/31/18 04:42	1
Chloroethane	ND		1.0		ug/L			08/31/18 04:42	1
Trichlorofluoromethane	ND		1.0		ug/L			08/31/18 04:42	1
Methylene Chloride	ND		5.0		ug/L			08/31/18 04:42	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			08/31/18 04:42	1
cis-1,2-Dichloroethene	**0.65**		0.50		ug/L			08/31/18 04:42	1
Chloroform	ND		1.0		ug/L			08/31/18 04:42	1
1,1,1-Trichloroethane	ND		0.50		ug/L			08/31/18 04:42	1
Carbon tetrachloride	ND		0.50		ug/L			08/31/18 04:42	1
1,2-Dichloroethane	ND		0.50		ug/L			08/31/18 04:42	1
Trichloroethene	ND		0.50		ug/L			08/31/18 04:42	1
1,2-Dichloropropane	ND		0.50		ug/L			08/31/18 04:42	1
Dichlorobromomethane	ND		0.50		ug/L			08/31/18 04:42	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 04:42	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 04:42	1
1,1,2-Trichloroethane	ND		0.50		ug/L			08/31/18 04:42	1
Tetrachloroethene	ND		0.50		ug/L			08/31/18 04:42	1
Chlorodibromomethane	ND		0.50		ug/L			08/31/18 04:42	1
Chlorobenzene	**11**		0.50		ug/L			08/31/18 04:42	1
Bromoform	ND		1.0		ug/L			08/31/18 04:42	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			08/31/18 04:42	1
1,3-Dichlorobenzene	ND		0.50		ug/L			08/31/18 04:42	1
1,4-Dichlorobenzene	**0.64**		0.50		ug/L			08/31/18 04:42	1
1,2-Dichlorobenzene	**7.4**		0.50		ug/L			08/31/18 04:42	1
Chloromethane	ND		1.0		ug/L			08/31/18 04:42	1
Bromomethane	ND		1.0		ug/L			08/31/18 04:42	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50		ug/L			08/31/18 04:42	1
EDB	ND		0.50		ug/L			08/31/18 04:42	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			08/31/18 04:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*08/31/18 04:42*	*1*
4-Bromofluorobenzene	*96*		*67 - 130*		*08/31/18 04:42*	*1*
1,2-Dichloroethane-d4 (Surr)	*111*		*72 - 130*		*08/31/18 04:42*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**4.4**		1.0		mg/L			09/05/18 10:05	1

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: X2A
Date Collected: 08/21/18 10:05
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		5.0		ug/L			08/31/18 03:10	10
1,1-Dichloroethane	ND		5.0		ug/L			08/31/18 03:10	10
Dichlorodifluoromethane	ND		5.0		ug/L			08/31/18 03:10	10
Vinyl chloride	**640**		5.0		ug/L			08/31/18 03:10	10
Chloroethane	ND		10		ug/L			08/31/18 03:10	10
Trichlorofluoromethane	ND		10		ug/L			08/31/18 03:10	10
Methylene Chloride	ND		50		ug/L			08/31/18 03:10	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/31/18 03:10	10
cis-1,2-Dichloroethene	**85**		5.0		ug/L			08/31/18 03:10	10
Chloroform	ND		10		ug/L			08/31/18 03:10	10
1,1,1-Trichloroethane	ND		5.0		ug/L			08/31/18 03:10	10
Carbon tetrachloride	ND		5.0		ug/L			08/31/18 03:10	10
1,2-Dichloroethane	ND		5.0		ug/L			08/31/18 03:10	10
Trichloroethene	ND		5.0		ug/L			08/31/18 03:10	10
1,2-Dichloropropane	ND		5.0		ug/L			08/31/18 03:10	10
Dichlorobromomethane	ND		5.0		ug/L			08/31/18 03:10	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/31/18 03:10	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/31/18 03:10	10
1,1,2-Trichloroethane	ND		5.0		ug/L			08/31/18 03:10	10
Tetrachloroethene	ND		5.0		ug/L			08/31/18 03:10	10
Chlorodibromomethane	ND		5.0		ug/L			08/31/18 03:10	10
Chlorobenzene	**15**		5.0		ug/L			08/31/18 03:10	10
Bromoform	ND		10		ug/L			08/31/18 03:10	10
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/31/18 03:10	10
1,3-Dichlorobenzene	ND		5.0		ug/L			08/31/18 03:10	10
1,4-Dichlorobenzene	ND		5.0		ug/L			08/31/18 03:10	10
1,2-Dichlorobenzene	**21**		5.0		ug/L			08/31/18 03:10	10
Chloromethane	ND		10		ug/L			08/31/18 03:10	10
Bromomethane	ND		10		ug/L			08/31/18 03:10	10
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0		ug/L			08/31/18 03:10	10
EDB	ND		5.0		ug/L			08/31/18 03:10	10
1,2,4-Trichlorobenzene	ND		10		ug/L			08/31/18 03:10	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*08/31/18 03:10*	*10*
4-Bromofluorobenzene	*95*		*67 - 130*		*08/31/18 03:10*	*10*
1,2-Dichloroethane-d4 (Surr)	*105*		*72 - 130*		*08/31/18 03:10*	*10*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**3.3**		1.0		mg/L			09/05/18 00:45	1

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: PMW-2-1
Date Collected: 08/21/18 13:07
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		50		ug/L			08/31/18 03:41	100
1,1-Dichloroethane	ND		50		ug/L			08/31/18 03:41	100
Dichlorodifluoromethane	ND		50		ug/L			08/31/18 03:41	100
Vinyl chloride	**350**		50		ug/L			08/31/18 03:41	100
Chloroethane	ND		100		ug/L			08/31/18 03:41	100
Trichlorofluoromethane	ND		100		ug/L			08/31/18 03:41	100
Methylene Chloride	ND		500		ug/L			08/31/18 03:41	100
trans-1,2-Dichloroethene	ND		50		ug/L			08/31/18 03:41	100
cis-1,2-Dichloroethene	**4600**		50		ug/L			08/31/18 03:41	100
Chloroform	ND		100		ug/L			08/31/18 03:41	100
1,1,1-Trichloroethane	ND		50		ug/L			08/31/18 03:41	100
Carbon tetrachloride	ND		50		ug/L			08/31/18 03:41	100
1,2-Dichloroethane	ND		50		ug/L			08/31/18 03:41	100
Trichloroethene	ND		50		ug/L			08/31/18 03:41	100
1,2-Dichloropropane	ND		50		ug/L			08/31/18 03:41	100
Dichlorobromomethane	ND		50		ug/L			08/31/18 03:41	100
trans-1,3-Dichloropropene	ND		50		ug/L			08/31/18 03:41	100
cis-1,3-Dichloropropene	ND		50		ug/L			08/31/18 03:41	100
1,1,2-Trichloroethane	ND		50		ug/L			08/31/18 03:41	100
Tetrachloroethene	ND		50		ug/L			08/31/18 03:41	100
Chlorodibromomethane	ND		50		ug/L			08/31/18 03:41	100
Chlorobenzene	ND		50		ug/L			08/31/18 03:41	100
Bromoform	ND		100		ug/L			08/31/18 03:41	100
1,1,2,2-Tetrachloroethane	ND		50		ug/L			08/31/18 03:41	100
1,3-Dichlorobenzene	ND		50		ug/L			08/31/18 03:41	100
1,4-Dichlorobenzene	ND		50		ug/L			08/31/18 03:41	100
1,2-Dichlorobenzene	ND		50		ug/L			08/31/18 03:41	100
Chloromethane	ND		100		ug/L			08/31/18 03:41	100
Bromomethane	ND		100		ug/L			08/31/18 03:41	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		50		ug/L			08/31/18 03:41	100
EDB	ND		50		ug/L			08/31/18 03:41	100
1,2,4-Trichlorobenzene	ND		100		ug/L			08/31/18 03:41	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*08/31/18 03:41*	*100*
4-Bromofluorobenzene	*96*		*67 - 130*		*08/31/18 03:41*	*100*
1,2-Dichloroethane-d4 (Surr)	*106*		*72 - 130*		*08/31/18 03:41*	*100*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**1.5**		1.0		mg/L			09/05/18 01:03	1

Client Sample ID: PMW-2-3

Date Collected: 08/21/18 13:50
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-8

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		2.5		ug/L			08/31/18 04:10	5
1,1-Dichloroethane	ND		2.5		ug/L			08/31/18 04:10	5
Dichlorodifluoromethane	ND		2.5		ug/L			08/31/18 04:10	5
Vinyl chloride	**9.9**		2.5		ug/L			08/31/18 04:10	5
Chloroethane	ND		5.0		ug/L			08/31/18 04:10	5
Trichlorofluoromethane	ND		5.0		ug/L			08/31/18 04:10	5
Methylene Chloride	ND		25		ug/L			08/31/18 04:10	5
trans-1,2-Dichloroethene	ND		2.5		ug/L			08/31/18 04:10	5
cis-1,2-Dichloroethene	**53**		2.5		ug/L			08/31/18 04:10	5
Chloroform	ND		5.0		ug/L			08/31/18 04:10	5
1,1,1-Trichloroethane	ND		2.5		ug/L			08/31/18 04:10	5
Carbon tetrachloride	ND		2.5		ug/L			08/31/18 04:10	5
1,2-Dichloroethane	ND		2.5		ug/L			08/31/18 04:10	5
Trichloroethene	**230**		2.5		ug/L			08/31/18 04:10	5
1,2-Dichloropropane	ND		2.5		ug/L			08/31/18 04:10	5
Dichlorobromomethane	ND		2.5		ug/L			08/31/18 04:10	5
trans-1,3-Dichloropropene	ND		2.5		ug/L			08/31/18 04:10	5
cis-1,3-Dichloropropene	ND		2.5		ug/L			08/31/18 04:10	5
1,1,2-Trichloroethane	ND		2.5		ug/L			08/31/18 04:10	5
Tetrachloroethene	ND		2.5		ug/L			08/31/18 04:10	5
Chlorodibromomethane	ND		2.5		ug/L			08/31/18 04:10	5
Chlorobenzene	ND		2.5		ug/L			08/31/18 04:10	5
Bromoform	ND		5.0		ug/L			08/31/18 04:10	5
1,1,2,2-Tetrachloroethane	ND		2.5		ug/L			08/31/18 04:10	5
1,3-Dichlorobenzene	ND		2.5		ug/L			08/31/18 04:10	5
1,4-Dichlorobenzene	ND		2.5		ug/L			08/31/18 04:10	5
1,2-Dichlorobenzene	ND		2.5		ug/L			08/31/18 04:10	5
Chloromethane	ND		5.0		ug/L			08/31/18 04:10	5
Bromomethane	ND		5.0		ug/L			08/31/18 04:10	5
1,1,2-Trichloro-1,2,2-trifluoroethane	**2.7**		2.5		ug/L			08/31/18 04:10	5
EDB	ND		2.5		ug/L			08/31/18 04:10	5
1,2,4-Trichlorobenzene	ND		5.0		ug/L			08/31/18 04:10	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*08/31/18 04:10*	*5*
4-Bromofluorobenzene	*95*		*67 - 130*		*08/31/18 04:10*	*5*
1,2-Dichloroethane-d4 (Surr)	*111*		*72 - 130*		*08/31/18 04:10*	*5*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			09/05/18 01:21	1

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: XIB

Date Collected: 08/21/18 09:16
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-9

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		10		ug/L			08/31/18 12:46	20
1,1-Dichloroethane	ND		10		ug/L			08/31/18 12:46	20
Dichlorodifluoromethane	ND		10		ug/L			08/31/18 12:46	20
Vinyl chloride	**170**		10		ug/L			08/31/18 12:46	20
Chloroethane	ND		20		ug/L			08/31/18 12:46	20
Trichlorofluoromethane	ND		20		ug/L			08/31/18 12:46	20
Methylene Chloride	ND		100		ug/L			08/31/18 12:46	20
trans-1,2-Dichloroethene	**12**		10		ug/L			08/31/18 12:46	20
cis-1,2-Dichloroethene	**360**		10		ug/L			08/31/18 12:46	20
Chloroform	ND		20		ug/L			08/31/18 12:46	20
1,1,1-Trichloroethane	ND		10		ug/L			08/31/18 12:46	20
Carbon tetrachloride	ND		10		ug/L			08/31/18 12:46	20
1,2-Dichloroethane	ND		10		ug/L			08/31/18 12:46	20
Trichloroethene	ND		10		ug/L			08/31/18 12:46	20
1,2-Dichloropropane	ND		10		ug/L			08/31/18 12:46	20
Dichlorobromomethane	ND		10		ug/L			08/31/18 12:46	20
trans-1,3-Dichloropropene	ND		10		ug/L			08/31/18 12:46	20
cis-1,3-Dichloropropene	ND		10		ug/L			08/31/18 12:46	20
1,1,2-Trichloroethane	ND		10		ug/L			08/31/18 12:46	20
Tetrachloroethene	ND		10		ug/L			08/31/18 12:46	20
Chlorodibromomethane	ND		10		ug/L			08/31/18 12:46	20
Chlorobenzene	ND		10		ug/L			08/31/18 12:46	20
Bromoform	ND		20		ug/L			08/31/18 12:46	20
1,1,2,2-Tetrachloroethane	ND		10		ug/L			08/31/18 12:46	20
1,3-Dichlorobenzene	ND		10		ug/L			08/31/18 12:46	20
1,4-Dichlorobenzene	ND		10		ug/L			08/31/18 12:46	20
1,2-Dichlorobenzene	ND		10		ug/L			08/31/18 12:46	20
Chloromethane	ND		20		ug/L			08/31/18 12:46	20
Bromomethane	ND		20		ug/L			08/31/18 12:46	20
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		10		ug/L			08/31/18 12:46	20
EDB	ND		10		ug/L			08/31/18 12:46	20
1,2,4-Trichlorobenzene	ND		20		ug/L			08/31/18 12:46	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*08/31/18 12:46*	*20*
4-Bromofluorobenzene	*95*		*67 - 130*		*08/31/18 12:46*	*20*
1,2-Dichloroethane-d4 (Surr)	*107*		*72 - 130*		*08/31/18 12:46*	*20*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			09/05/18 01:38	1

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: X2B1
Date Collected: 08/21/18 11:18
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-10
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		5.0		ug/L			08/31/18 12:16	10
1,1-Dichloroethane	ND		5.0		ug/L			08/31/18 12:16	10
Dichlorodifluoromethane	ND		5.0		ug/L			08/31/18 12:16	10
Vinyl chloride	**25**		5.0		ug/L			08/31/18 12:16	10
Chloroethane	ND		10		ug/L			08/31/18 12:16	10
Trichlorofluoromethane	ND		10		ug/L			08/31/18 12:16	10
Methylene Chloride	ND		50		ug/L			08/31/18 12:16	10
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/31/18 12:16	10
cis-1,2-Dichloroethene	**230**		5.0		ug/L			08/31/18 12:16	10
Chloroform	ND		10		ug/L			08/31/18 12:16	10
1,1,1-Trichloroethane	ND		5.0		ug/L			08/31/18 12:16	10
Carbon tetrachloride	ND		5.0		ug/L			08/31/18 12:16	10
1,2-Dichloroethane	ND		5.0		ug/L			08/31/18 12:16	10
Trichloroethene	**170**		5.0		ug/L			08/31/18 12:16	10
1,2-Dichloropropane	ND		5.0		ug/L			08/31/18 12:16	10
Dichlorobromomethane	ND		5.0		ug/L			08/31/18 12:16	10
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/31/18 12:16	10
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/31/18 12:16	10
1,1,2-Trichloroethane	ND		5.0		ug/L			08/31/18 12:16	10
Tetrachloroethene	ND		5.0		ug/L			08/31/18 12:16	10
Chlorodibromomethane	ND		5.0		ug/L			08/31/18 12:16	10
Chlorobenzene	ND		5.0		ug/L			08/31/18 12:16	10
Bromoform	ND		10		ug/L			08/31/18 12:16	10
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/31/18 12:16	10
1,3-Dichlorobenzene	ND		5.0		ug/L			08/31/18 12:16	10
1,4-Dichlorobenzene	ND		5.0		ug/L			08/31/18 12:16	10
1,2-Dichlorobenzene	ND		5.0		ug/L			08/31/18 12:16	10
Chloromethane	ND		10		ug/L			08/31/18 12:16	10
Bromomethane	ND		10		ug/L			08/31/18 12:16	10
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0		ug/L			08/31/18 12:16	10
EDB	ND		5.0		ug/L			08/31/18 12:16	10
1,2,4-Trichlorobenzene	ND		10		ug/L			08/31/18 12:16	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*08/31/18 12:16*	*10*
4-Bromofluorobenzene	*95*		*67 - 130*		*08/31/18 12:16*	*10*
1,2-Dichloroethane-d4 (Surr)	*103*		*72 - 130*		*08/31/18 12:16*	*10*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			09/05/18 01:56	1

Client Sample ID: DW-1

Date Collected: 08/21/18 14:42
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-11

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND	*	0.50		ug/L			08/31/18 12:50	1
1,1-Dichloroethane	ND		0.50		ug/L			08/31/18 12:50	1
Dichlorodifluoromethane	ND		0.50		ug/L			08/31/18 12:50	1
Vinyl chloride	**1.1**		0.50		ug/L			08/31/18 12:50	1
Chloroethane	ND		1.0		ug/L			08/31/18 12:50	1
Trichlorofluoromethane	ND		1.0		ug/L			08/31/18 12:50	1
Methylene Chloride	ND	*	5.0		ug/L			08/31/18 12:50	1
trans-1,2-Dichloroethene	**3.5**		0.50		ug/L			09/04/18 16:57	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			08/31/18 12:50	1
Chloroform	ND		1.0		ug/L			08/31/18 12:50	1
1,1,1-Trichloroethane	ND		0.50		ug/L			08/31/18 12:50	1
Carbon tetrachloride	ND		0.50		ug/L			08/31/18 12:50	1
1,2-Dichloroethane	ND		0.50		ug/L			08/31/18 12:50	1
Trichloroethene	ND		0.50		ug/L			08/31/18 12:50	1
1,2-Dichloropropane	ND		0.50		ug/L			08/31/18 12:50	1
Dichlorobromomethane	ND		0.50		ug/L			08/31/18 12:50	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 12:50	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 12:50	1
1,1,2-Trichloroethane	ND		0.50		ug/L			08/31/18 12:50	1
Tetrachloroethene	ND		0.50		ug/L			08/31/18 12:50	1
Chlorodibromomethane	ND		0.50		ug/L			08/31/18 12:50	1
Chlorobenzene	ND		0.50		ug/L			08/31/18 12:50	1
Bromoform	ND		1.0		ug/L			08/31/18 12:50	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			08/31/18 12:50	1
1,3-Dichlorobenzene	ND		0.50		ug/L			08/31/18 12:50	1
1,4-Dichlorobenzene	ND		0.50		ug/L			08/31/18 12:50	1
1,2-Dichlorobenzene	ND		0.50		ug/L			08/31/18 12:50	1
Chloromethane	ND		1.0		ug/L			08/31/18 12:50	1
Bromomethane	ND		1.0		ug/L			08/31/18 12:50	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	*	0.50		ug/L			08/31/18 12:50	1
EDB	ND		0.50		ug/L			08/31/18 12:50	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			08/31/18 12:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*70 - 130*		*08/31/18 12:50*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*09/04/18 16:57*	*1*
4-Bromofluorobenzene	*96*		*67 - 130*		*08/31/18 12:50*	*1*
4-Bromofluorobenzene	*97*		*67 - 130*		*09/04/18 16:57*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*72 - 130*		*08/31/18 12:50*	*1*
1,2-Dichloroethane-d4 (Surr)	*120*		*72 - 130*		*09/04/18 16:57*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**4.6**		1.0		mg/L			09/05/18 02:14	1

Client Sample ID: DW-7

Date Collected: 08/21/18 10:16
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-12

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	**0.81**		0.50		ug/L			08/31/18 13:16	1
1,1-Dichloroethane	**0.57**		0.50		ug/L			08/31/18 13:16	1
Dichlorodifluoromethane	ND		0.50		ug/L			08/31/18 13:16	1
Vinyl chloride	**5.1**		0.50		ug/L			08/31/18 13:16	1
Chloroethane	ND		1.0		ug/L			08/31/18 13:16	1
Trichlorofluoromethane	ND		1.0		ug/L			08/31/18 13:16	1
Methylene Chloride	ND		5.0		ug/L			08/31/18 13:16	1
trans-1,2-Dichloroethene	**2.2**		0.50		ug/L			08/31/18 13:16	1
cis-1,2-Dichloroethene	**150**		0.50		ug/L			08/31/18 13:16	1
Chloroform	ND		1.0		ug/L			08/31/18 13:16	1
1,1,1-Trichloroethane	ND		0.50		ug/L			08/31/18 13:16	1
Carbon tetrachloride	ND		0.50		ug/L			08/31/18 13:16	1
1,2-Dichloroethane	ND		0.50		ug/L			08/31/18 13:16	1
Trichloroethene	**70**		0.50		ug/L			08/31/18 13:16	1
1,2-Dichloropropane	ND		0.50		ug/L			08/31/18 13:16	1
Dichlorobromomethane	ND		0.50		ug/L			08/31/18 13:16	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 13:16	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 13:16	1
1,1,2-Trichloroethane	ND		0.50		ug/L			08/31/18 13:16	1
Tetrachloroethene	ND		0.50		ug/L			08/31/18 13:16	1
Chlorodibromomethane	ND		0.50		ug/L			08/31/18 13:16	1
Chlorobenzene	ND		0.50		ug/L			08/31/18 13:16	1
Bromoform	ND		1.0		ug/L			08/31/18 13:16	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			08/31/18 13:16	1
1,3-Dichlorobenzene	ND		0.50		ug/L			08/31/18 13:16	1
1,4-Dichlorobenzene	ND		0.50		ug/L			08/31/18 13:16	1
1,2-Dichlorobenzene	ND		0.50		ug/L			08/31/18 13:16	1
Chloromethane	ND		1.0		ug/L			08/31/18 13:16	1
Bromomethane	ND		1.0		ug/L			08/31/18 13:16	1
1,1,2-Trichloro-1,2,2-trifluoroethane	**2.0**		0.50		ug/L			08/31/18 13:16	1
EDB	ND		0.50		ug/L			08/31/18 13:16	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			08/31/18 13:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*08/31/18 13:16*	*1*
4-Bromofluorobenzene	*97*		*67 - 130*		*08/31/18 13:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*72 - 130*		*08/31/18 13:16*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			09/05/18 02:32	1

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: 23-D
Date Collected: 08/21/18 12:20
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-13
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND	*	2.5		ug/L			08/31/18 10:26	5
1,1-Dichloroethane	ND		2.5		ug/L			08/31/18 10:26	5
Dichlorodifluoromethane	ND		2.5		ug/L			08/31/18 10:26	5
Vinyl chloride	ND		2.5		ug/L			08/31/18 10:26	5
Chloroethane	ND		5.0		ug/L			08/31/18 10:26	5
Trichlorofluoromethane	ND		5.0		ug/L			08/31/18 10:26	5
Methylene Chloride	ND	*	25		ug/L			08/31/18 10:26	5
trans-1,2-Dichloroethene	ND	*	2.5		ug/L			08/31/18 10:26	5
cis-1,2-Dichloroethene	ND		2.5		ug/L			08/31/18 10:26	5
Chloroform	ND		5.0		ug/L			08/31/18 10:26	5
1,1,1-Trichloroethane	ND		2.5		ug/L			08/31/18 10:26	5
Carbon tetrachloride	ND		2.5		ug/L			08/31/18 10:26	5
1,2-Dichloroethane	ND		2.5		ug/L			08/31/18 10:26	5
Trichloroethene	**320**		2.5		ug/L			08/31/18 10:26	5
1,2-Dichloropropane	ND		2.5		ug/L			08/31/18 10:26	5
Dichlorobromomethane	ND		2.5		ug/L			08/31/18 10:26	5
trans-1,3-Dichloropropene	ND		2.5		ug/L			08/31/18 10:26	5
cis-1,3-Dichloropropene	ND		2.5		ug/L			08/31/18 10:26	5
1,1,2-Trichloroethane	ND		2.5		ug/L			08/31/18 10:26	5
Tetrachloroethene	ND		2.5		ug/L			08/31/18 10:26	5
Chlorodibromomethane	ND		2.5		ug/L			08/31/18 10:26	5
Chlorobenzene	ND		2.5		ug/L			08/31/18 10:26	5
Bromoform	ND		5.0		ug/L			08/31/18 10:26	5
1,1,2,2-Tetrachloroethane	ND		2.5		ug/L			08/31/18 10:26	5
1,3-Dichlorobenzene	ND		2.5		ug/L			08/31/18 10:26	5
1,4-Dichlorobenzene	ND		2.5		ug/L			08/31/18 10:26	5
1,2-Dichlorobenzene	ND		2.5		ug/L			08/31/18 10:26	5
Chloromethane	ND		5.0		ug/L			08/31/18 10:26	5
Bromomethane	ND		5.0		ug/L			08/31/18 10:26	5
1,1,2-Trichloro-1,2,2-trifluoroethane	**3.8**		2.5		ug/L			09/04/18 17:27	5
EDB	ND		2.5		ug/L			08/31/18 10:26	5
1,2,4-Trichlorobenzene	ND		5.0		ug/L			08/31/18 10:26	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*70 - 130*		*08/31/18 10:26*	*5*
Toluene-d8 (Surr)	*101*		*70 - 130*		*09/04/18 17:27*	*5*
4-Bromofluorobenzene	*95*		*67 - 130*		*08/31/18 10:26*	*5*
4-Bromofluorobenzene	*97*		*67 - 130*		*09/04/18 17:27*	*5*
1,2-Dichloroethane-d4 (Surr)	*91*		*72 - 130*		*08/31/18 10:26*	*5*
1,2-Dichloroethane-d4 (Surr)	*113*		*72 - 130*		*09/04/18 17:27*	*5*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			09/05/18 02:49	1

Client Sample ID: DUP-1
Date Collected: 08/21/18 12:00
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-14
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND	*	2.5		ug/L			08/31/18 10:55	5
1,1-Dichloroethane	ND		2.5		ug/L			08/31/18 10:55	5
Dichlorodifluoromethane	ND		2.5		ug/L			08/31/18 10:55	5
Vinyl chloride	ND		2.5		ug/L			08/31/18 10:55	5
Chloroethane	ND		5.0		ug/L			08/31/18 10:55	5
Trichlorofluoromethane	ND		5.0		ug/L			08/31/18 10:55	5
Methylene Chloride	ND	*	25		ug/L			08/31/18 10:55	5
trans-1,2-Dichloroethene	ND	*	2.5		ug/L			08/31/18 10:55	5
cis-1,2-Dichloroethene	**4.5**		2.5		ug/L			08/31/18 10:55	5
Chloroform	ND		5.0		ug/L			08/31/18 10:55	5
1,1,1-Trichloroethane	ND		2.5		ug/L			08/31/18 10:55	5
Carbon tetrachloride	ND		2.5		ug/L			08/31/18 10:55	5
1,2-Dichloroethane	ND		2.5		ug/L			08/31/18 10:55	5
Trichloroethene	**320**		2.5		ug/L			08/31/18 10:55	5
1,2-Dichloropropane	ND		2.5		ug/L			08/31/18 10:55	5
Dichlorobromomethane	ND		2.5		ug/L			08/31/18 10:55	5
trans-1,3-Dichloropropene	ND		2.5		ug/L			08/31/18 10:55	5
cis-1,3-Dichloropropene	ND		2.5		ug/L			08/31/18 10:55	5
1,1,2-Trichloroethane	ND		2.5		ug/L			08/31/18 10:55	5
Tetrachloroethene	ND		2.5		ug/L			08/31/18 10:55	5
Chlorodibromomethane	ND		2.5		ug/L			08/31/18 10:55	5
Chlorobenzene	ND		2.5		ug/L			08/31/18 10:55	5
Bromoform	ND		5.0		ug/L			08/31/18 10:55	5
1,1,2,2-Tetrachloroethane	ND		2.5		ug/L			08/31/18 10:55	5
1,3-Dichlorobenzene	ND		2.5		ug/L			08/31/18 10:55	5
1,4-Dichlorobenzene	ND		2.5		ug/L			08/31/18 10:55	5
1,2-Dichlorobenzene	ND		2.5		ug/L			08/31/18 10:55	5
Chloromethane	ND		5.0		ug/L			08/31/18 10:55	5
Bromomethane	ND		5.0		ug/L			08/31/18 10:55	5
1,1,2-Trichloro-1,2,2-trifluoroethane	**3.8**		2.5		ug/L			09/04/18 17:57	5
EDB	ND		2.5		ug/L			08/31/18 10:55	5
1,2,4-Trichlorobenzene	ND		5.0		ug/L			08/31/18 10:55	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*08/31/18 10:55*	*5*
Toluene-d8 (Surr)	*101*		*70 - 130*		*09/04/18 17:57*	*5*
4-Bromofluorobenzene	*91*		*67 - 130*		*08/31/18 10:55*	*5*
4-Bromofluorobenzene	*94*		*67 - 130*		*09/04/18 17:57*	*5*
1,2-Dichloroethane-d4 (Surr)	*95*		*72 - 130*		*08/31/18 10:55*	*5*
1,2-Dichloroethane-d4 (Surr)	*112*		*72 - 130*		*09/04/18 17:57*	*5*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			09/05/18 03:06	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		TOL	BFB	DCA
Lab Sample ID	Client Sample ID	(70-130)	(67-130)	(72-130)
720-88188-1	TB-1	100	94	91
720-88188-2	DW-2	100	95	107
720-88188-3	16-S	98	94	102
720-88188-4	23-S	98	93	106
720-88188-5	28-MW	100	96	111
720-88188-5 MS	28-MW	102	98	108
720-88188-5 MSD	28-MW	101	100	106
720-88188-6	X2A	99	95	105
720-88188-7	PMW-2-1	100	96	106
720-88188-8	PMW-2-3	100	95	111
720-88188-9	XIB	99	95	107
720-88188-10	X2B1	99	95	103
720-88188-11	DW-1	94	96	90
720-88188-11	DW-1	101	97	120
720-88188-12	DW-7	100	97	106
720-88188-13	23-D	92	95	91
720-88188-13	23-D	101	97	113
720-88188-14	DUP-1	98	91	95
720-88188-14	DUP-1	101	94	112
LCS 720-250627/5	Lab Control Sample	99	96	92
LCS 720-250641/5	Lab Control Sample	95	99	86
LCS 720-250643/5	Lab Control Sample	100	94	99
LCS 720-250782/5	Lab Control Sample	101	94	97
LCSD 720-250627/6	Lab Control Sample Dup	99	96	92
LCSD 720-250641/6	Lab Control Sample Dup	94	97	89
LCSD 720-250643/6	Lab Control Sample Dup	101	94	94
LCSD 720-250782/6	Lab Control Sample Dup	101	95	95
MB 720-250627/4	Method Blank	99	96	97
MB 720-250641/4	Method Blank	96	96	93
MB 720-250643/4	Method Blank	99	94	97
MB 720-250782/4	Method Blank	100	95	104

Surrogate Legend

TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 720-250627/4
Matrix: Water
Analysis Batch: 250627

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50		ug/L			08/30/18 19:37	1
1,1-Dichloroethane	ND		0.50		ug/L			08/30/18 19:37	1
Dichlorodifluoromethane	ND		0.50		ug/L			08/30/18 19:37	1
Vinyl chloride	ND		0.50		ug/L			08/30/18 19:37	1
Chloroethane	ND		1.0		ug/L			08/30/18 19:37	1
Trichlorofluoromethane	ND		1.0		ug/L			08/30/18 19:37	1
Methylene Chloride	ND		5.0		ug/L			08/30/18 19:37	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			08/30/18 19:37	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			08/30/18 19:37	1
Chloroform	ND		1.0		ug/L			08/30/18 19:37	1
1,1,1-Trichloroethane	ND		0.50		ug/L			08/30/18 19:37	1
Carbon tetrachloride	ND		0.50		ug/L			08/30/18 19:37	1
1,2-Dichloroethane	ND		0.50		ug/L			08/30/18 19:37	1
Trichloroethene	ND		0.50		ug/L			08/30/18 19:37	1
1,2-Dichloropropane	ND		0.50		ug/L			08/30/18 19:37	1
Dichlorobromomethane	ND		0.50		ug/L			08/30/18 19:37	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			08/30/18 19:37	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			08/30/18 19:37	1
1,1,2-Trichloroethane	ND		0.50		ug/L			08/30/18 19:37	1
Tetrachloroethene	ND		0.50		ug/L			08/30/18 19:37	1
Chlorodibromomethane	ND		0.50		ug/L			08/30/18 19:37	1
Chlorobenzene	ND		0.50		ug/L			08/30/18 19:37	1
Bromoform	ND		1.0		ug/L			08/30/18 19:37	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			08/30/18 19:37	1
1,3-Dichlorobenzene	ND		0.50		ug/L			08/30/18 19:37	1
1,4-Dichlorobenzene	ND		0.50		ug/L			08/30/18 19:37	1
1,2-Dichlorobenzene	ND		0.50		ug/L			08/30/18 19:37	1
Chloromethane	ND		1.0		ug/L			08/30/18 19:37	1
Bromomethane	ND		1.0		ug/L			08/30/18 19:37	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50		ug/L			08/30/18 19:37	1
EDB	ND		0.50		ug/L			08/30/18 19:37	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			08/30/18 19:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*08/30/18 19:37*	*1*
4-Bromofluorobenzene	*96*		*67 - 130*		*08/30/18 19:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*72 - 130*		*08/30/18 19:37*	*1*

Lab Sample ID: LCS 720-250627/5
Matrix: Water
Analysis Batch: 250627

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	25.0	27.4		ug/L		109	69 - 119
1,1-Dichloroethane	25.0	23.1		ug/L		92	77 - 119
Dichlorodifluoromethane	25.0	29.5		ug/L		118	21 - 150
Vinyl chloride	25.0	23.4		ug/L		94	58 - 138
Chloroethane	25.0	21.3		ug/L		85	70 - 131

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 720-250627/5
Matrix: Water
Analysis Batch: 250627

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Trichlorofluoromethane	25.0	26.6		ug/L		106	75 - 141
Methylene Chloride	25.0	25.0		ug/L		100	75 - 117
trans-1,2-Dichloroethene	25.0	27.8		ug/L		111	79 - 117
cis-1,2-Dichloroethene	25.0	22.0		ug/L		88	77 - 117
Chloroform	25.0	26.4		ug/L		106	82 - 119
1,1,1-Trichloroethane	25.0	28.8		ug/L		115	74 - 130
Carbon tetrachloride	25.0	29.1		ug/L		116	72 - 142
1,2-Dichloroethane	25.0	23.0		ug/L		92	73 - 122
Trichloroethene	25.0	24.5		ug/L		98	80 - 123
1,2-Dichloropropane	25.0	22.1		ug/L		88	79 - 119
Dichlorobromomethane	25.0	26.4		ug/L		105	81 - 130
trans-1,3-Dichloropropene	25.0	25.3		ug/L		101	76 - 122
cis-1,3-Dichloropropene	25.0	25.6		ug/L		102	82 - 119
1,1,2-Trichloroethane	25.0	23.4		ug/L		94	80 - 117
Tetrachloroethene	25.0	23.5		ug/L		94	81 - 130
Chlorodibromomethane	25.0	27.3		ug/L		109	77 - 133
Chlorobenzene	25.0	25.2		ug/L		101	76 - 116
Bromoform	25.0	22.4		ug/L		90	75 - 127
1,1,2,2-Tetrachloroethane	25.0	22.3		ug/L		89	70 - 115
1,3-Dichlorobenzene	25.0	24.7		ug/L		99	76 - 116
1,4-Dichlorobenzene	25.0	25.3		ug/L		101	76 - 116
1,2-Dichlorobenzene	25.0	24.4		ug/L		98	77 - 117
Chloromethane	25.0	21.1		ug/L		84	49 - 134
Bromomethane	25.0	26.5		ug/L		106	70 - 132
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	29.9		ug/L		120	70 - 133
EDB	25.0	25.1		ug/L		100	80 - 121
1,2,4-Trichlorobenzene	25.0	23.5		ug/L		94	78 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*70 - 130*
4-Bromofluorobenzene	*96*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*92*		*72 - 130*

Lab Sample ID: LCSD 720-250627/6
Matrix: Water
Analysis Batch: 250627

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
1,1-Dichloroethene	25.0	26.6		ug/L		106	69 - 119	3	20
1,1-Dichloroethane	25.0	23.0		ug/L		92	77 - 119	0	20
Dichlorodifluoromethane	25.0	28.8		ug/L		115	21 - 150	2	20
Vinyl chloride	25.0	23.3		ug/L		93	58 - 138	0	20
Chloroethane	25.0	21.1		ug/L		84	70 - 131	1	20
Trichlorofluoromethane	25.0	26.0		ug/L		104	75 - 141	2	20
Methylene Chloride	25.0	24.8		ug/L		99	75 - 117	1	20
trans-1,2-Dichloroethene	25.0	27.9		ug/L		112	79 - 117	0	20
cis-1,2-Dichloroethene	25.0	21.9		ug/L		88	77 - 117	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 720-250627/6
Matrix: Water
Analysis Batch: 250627

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
Chloroform			25.0	26.1		ug/L		105	82 - 119	1	20
1,1,1-Trichloroethane			25.0	28.5		ug/L		114	74 - 130	1	20
Carbon tetrachloride			25.0	28.8		ug/L		115	72 - 142	1	20
1,2-Dichloroethane			25.0	23.1		ug/L		92	73 - 122	0	20
Trichloroethene			25.0	24.9		ug/L		100	80 - 123	2	20
1,2-Dichloropropane			25.0	22.2		ug/L		89	79 - 119	0	20
Dichlorobromomethane			25.0	25.7		ug/L		103	81 - 130	3	20
trans-1,3-Dichloropropene			25.0	25.1		ug/L		100	76 - 122	1	20
cis-1,3-Dichloropropene			25.0	25.6		ug/L		102	82 - 119	0	20
1,1,2-Trichloroethane			25.0	23.3		ug/L		93	80 - 117	0	20
Tetrachloroethene			25.0	23.4		ug/L		93	81 - 130	1	20
Chlorodibromomethane			25.0	27.1		ug/L		108	77 - 133	1	20
Chlorobenzene			25.0	25.4		ug/L		102	76 - 116	1	20
Bromoform			25.0	22.3		ug/L		89	75 - 127	0	20
1,1,2,2-Tetrachloroethane			25.0	22.5		ug/L		90	70 - 115	1	20
1,3-Dichlorobenzene			25.0	24.7		ug/L		99	76 - 116	0	20
1,4-Dichlorobenzene			25.0	25.1		ug/L		100	76 - 116	1	20
1,2-Dichlorobenzene			25.0	24.4		ug/L		98	77 - 117	0	20
Chloromethane			25.0	20.8		ug/L		83	49 - 134	2	20
Bromomethane			25.0	26.0		ug/L		104	70 - 132	2	20
1,1,2-Trichloro-1,2,2-trifluoroethane			25.0	29.6		ug/L		118	70 - 133	1	20
EDB			25.0	24.8		ug/L		99	80 - 121	1	20
1,2,4-Trichlorobenzene			25.0	24.1		ug/L		96	78 - 120	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*70 - 130*
4-Bromofluorobenzene	*96*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*92*		*72 - 130*

Lab Sample ID: 720-88188-5 MS
Matrix: Water
Analysis Batch: 250627

Client Sample ID: 28-MW
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	ND		25.0	18.3		ug/L		73	60 - 140
1,1-Dichloroethane	ND		25.0	19.3		ug/L		76	60 - 140
Dichlorodifluoromethane	ND		25.0	27.7		ug/L		111	38 - 140
Vinyl chloride	8.5		25.0	29.2		ug/L		83	58 - 140
Chloroethane	ND		25.0	20.0		ug/L		78	51 - 140
Trichlorofluoromethane	ND		25.0	25.8		ug/L		103	60 - 140
Methylene Chloride	ND		25.0	19.5		ug/L		78	40 - 140
trans-1,2-Dichloroethene	ND		25.0	21.2		ug/L		85	60 - 140
cis-1,2-Dichloroethene	0.65		25.0	19.8		ug/L		77	60 - 140
Chloroform	ND		25.0	23.6		ug/L		94	60 - 140
1,1,1-Trichloroethane	ND		25.0	24.3		ug/L		97	60 - 140
Carbon tetrachloride	ND		25.0	24.8		ug/L		99	60 - 140
1,2-Dichloroethane	ND		25.0	22.8		ug/L		91	60 - 140

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 720-88188-5 MS
Matrix: Water
Analysis Batch: 250627

Client Sample ID: 28-MW
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Trichloroethene	ND		25.0	20.4		ug/L		81	60 - 140
1,2-Dichloropropane	ND		25.0	19.1		ug/L		76	60 - 140
Dichlorobromomethane	ND		25.0	24.5		ug/L		98	60 - 140
trans-1,3-Dichloropropene	ND		25.0	23.1		ug/L		92	60 - 140
cis-1,3-Dichloropropene	ND		25.0	22.3		ug/L		89	60 - 140
1,1,2-Trichloroethane	ND		25.0	21.9		ug/L		88	60 - 140
Tetrachloroethene	ND		25.0	19.1		ug/L		76	60 - 140
Chlorodibromomethane	ND		25.0	26.8		ug/L		107	60 - 140
Chlorobenzene	11		25.0	31.9		ug/L		84	60 - 140
Bromoform	ND		25.0	20.9		ug/L		84	56 - 140
1,1,2,2-Tetrachloroethane	ND		25.0	20.1		ug/L		80	60 - 140
1,3-Dichlorobenzene	ND		25.0	21.5		ug/L		86	60 - 140
1,4-Dichlorobenzene	0.64		25.0	22.5		ug/L		87	60 - 140
1,2-Dichlorobenzene	7.4		25.0	29.1		ug/L		87	60 - 140
Chloromethane	ND		25.0	19.9		ug/L		80	52 - 140
Bromomethane	ND		25.0	23.7		ug/L		95	23 - 140
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		25.0	19.8		ug/L		79	60 - 140
EDB	ND		25.0	23.0		ug/L		92	60 - 140
1,2,4-Trichlorobenzene	ND		25.0	21.5		ug/L		86	60 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*70 - 130*
4-Bromofluorobenzene	*98*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*108*		*72 - 130*

Lab Sample ID: 720-88188-5 MSD
Matrix: Water
Analysis Batch: 250627

Client Sample ID: 28-MW
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	ND		25.0	16.8		ug/L		67	60 - 140	8	20
1,1-Dichloroethane	ND		25.0	18.8		ug/L		74	60 - 140	3	20
Dichlorodifluoromethane	ND		25.0	27.3		ug/L		109	38 - 140	2	20
Vinyl chloride	8.5		25.0	29.6		ug/L		84	58 - 140	1	20
Chloroethane	ND		25.0	19.8		ug/L		78	51 - 140	1	20
Trichlorofluoromethane	ND		25.0	25.5		ug/L		102	60 - 140	1	20
Methylene Chloride	ND		25.0	18.6		ug/L		75	40 - 140	5	20
trans-1,2-Dichloroethene	ND		25.0	20.2		ug/L		81	60 - 140	5	20
cis-1,2-Dichloroethene	0.65		25.0	19.1		ug/L		74	60 - 140	4	20
Chloroform	ND		25.0	22.8		ug/L		91	60 - 140	3	20
1,1,1-Trichloroethane	ND		25.0	23.9		ug/L		96	60 - 140	2	20
Carbon tetrachloride	ND		25.0	24.2		ug/L		97	60 - 140	2	20
1,2-Dichloroethane	ND		25.0	22.5		ug/L		90	60 - 140	1	20
Trichloroethene	ND		25.0	20.4		ug/L		82	60 - 140	0	20
1,2-Dichloropropane	ND		25.0	18.8		ug/L		75	60 - 140	1	20
Dichlorobromomethane	ND		25.0	24.1		ug/L		96	60 - 140	2	20
trans-1,3-Dichloropropene	ND		25.0	23.3		ug/L		93	60 - 140	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 720-88188-5 MSD
Matrix: Water
Analysis Batch: 250627

Client Sample ID: 28-MW
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
cis-1,3-Dichloropropene	ND		25.0	22.2		ug/L		89	60 - 140	0	20
1,1,2-Trichloroethane	ND		25.0	22.2		ug/L		89	60 - 140	2	20
Tetrachloroethene	ND		25.0	19.2		ug/L		77	60 - 140	0	20
Chlorodibromomethane	ND		25.0	26.7		ug/L		107	60 - 140	0	20
Chlorobenzene	11		25.0	31.7		ug/L		83	60 - 140	1	20
Bromoform	ND		25.0	22.1		ug/L		88	56 - 140	6	20
1,1,2,2-Tetrachloroethane	ND		25.0	20.3		ug/L		81	60 - 140	1	20
1,3-Dichlorobenzene	ND		25.0	21.6		ug/L		87	60 - 140	1	20
1,4-Dichlorobenzene	0.64		25.0	22.6		ug/L		88	60 - 140	1	20
1,2-Dichlorobenzene	7.4		25.0	29.1		ug/L		87	60 - 140	0	20
Chloromethane	ND		25.0	20.2		ug/L		81	52 - 140	1	20
Bromomethane	ND		25.0	23.6		ug/L		95	23 - 140	0	20
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		25.0	18.6		ug/L		74	60 - 140	6	20
EDB	ND		25.0	23.2		ug/L		93	60 - 140	1	20
1,2,4-Trichlorobenzene	ND		25.0	21.7		ug/L		87	60 - 140	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*70 - 130*
4-Bromofluorobenzene	*100*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*106*		*72 - 130*

Lab Sample ID: MB 720-250641/4
Matrix: Water
Analysis Batch: 250641

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50		ug/L			08/31/18 07:32	1
1,1-Dichloroethane	ND		0.50		ug/L			08/31/18 07:32	1
Dichlorodifluoromethane	ND		0.50		ug/L			08/31/18 07:32	1
Vinyl chloride	ND		0.50		ug/L			08/31/18 07:32	1
Chloroethane	ND		1.0		ug/L			08/31/18 07:32	1
Trichlorofluoromethane	ND		1.0		ug/L			08/31/18 07:32	1
Methylene Chloride	ND		5.0		ug/L			08/31/18 07:32	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			08/31/18 07:32	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			08/31/18 07:32	1
Chloroform	ND		1.0		ug/L			08/31/18 07:32	1
1,1,1-Trichloroethane	ND		0.50		ug/L			08/31/18 07:32	1
Carbon tetrachloride	ND		0.50		ug/L			08/31/18 07:32	1
1,2-Dichloroethane	ND		0.50		ug/L			08/31/18 07:32	1
Trichloroethene	ND		0.50		ug/L			08/31/18 07:32	1
1,2-Dichloropropane	ND		0.50		ug/L			08/31/18 07:32	1
Dichlorobromomethane	ND		0.50		ug/L			08/31/18 07:32	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 07:32	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 07:32	1
1,1,2-Trichloroethane	ND		0.50		ug/L			08/31/18 07:32	1
Tetrachloroethene	ND		0.50		ug/L			08/31/18 07:32	1
Chlorodibromomethane	ND		0.50		ug/L			08/31/18 07:32	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 720-250641/4
Matrix: Water
Analysis Batch: 250641

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		0.50		ug/L			08/31/18 07:32	1
Bromoform	ND		1.0		ug/L			08/31/18 07:32	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			08/31/18 07:32	1
1,3-Dichlorobenzene	ND		0.50		ug/L			08/31/18 07:32	1
1,4-Dichlorobenzene	ND		0.50		ug/L			08/31/18 07:32	1
1,2-Dichlorobenzene	ND		0.50		ug/L			08/31/18 07:32	1
Chloromethane	ND		1.0		ug/L			08/31/18 07:32	1
Bromomethane	ND		1.0		ug/L			08/31/18 07:32	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50		ug/L			08/31/18 07:32	1
EDB	ND		0.50		ug/L			08/31/18 07:32	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			08/31/18 07:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*70 - 130*		*08/31/18 07:32*	*1*
4-Bromofluorobenzene	*96*		*67 - 130*		*08/31/18 07:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*72 - 130*		*08/31/18 07:32*	*1*

Lab Sample ID: LCS 720-250641/5
Matrix: Water
Analysis Batch: 250641

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	25.0	33.2	*	ug/L		133	69 - 119
1,1-Dichloroethane	25.0	28.0		ug/L		112	77 - 119
Dichlorodifluoromethane	25.0	14.5		ug/L		58	21 - 150
Vinyl chloride	25.0	21.1		ug/L		84	58 - 138
Chloroethane	25.0	24.2		ug/L		97	70 - 131
Trichlorofluoromethane	25.0	24.1		ug/L		96	75 - 141
Methylene Chloride	25.0	30.0	*	ug/L		120	75 - 117
trans-1,2-Dichloroethene	25.0	32.4	*	ug/L		130	79 - 117
cis-1,2-Dichloroethene	25.0	27.3		ug/L		109	77 - 117
Chloroform	25.0	24.5		ug/L		98	82 - 119
1,1,1-Trichloroethane	25.0	27.9		ug/L		111	74 - 130
Carbon tetrachloride	25.0	27.8		ug/L		111	72 - 142
1,2-Dichloroethane	25.0	23.8		ug/L		95	73 - 122
Trichloroethene	25.0	24.8		ug/L		99	80 - 123
1,2-Dichloropropane	25.0	25.8		ug/L		103	79 - 119
Dichlorobromomethane	25.0	23.7		ug/L		95	81 - 130
trans-1,3-Dichloropropene	25.0	23.8		ug/L		95	76 - 122
cis-1,3-Dichloropropene	25.0	26.3		ug/L		105	82 - 119
1,1,2-Trichloroethane	25.0	24.7		ug/L		99	80 - 117
Tetrachloroethene	25.0	26.9		ug/L		108	81 - 130
Chlorodibromomethane	25.0	24.6		ug/L		98	77 - 133
Chlorobenzene	25.0	24.2		ug/L		97	76 - 116
Bromoform	25.0	23.9		ug/L		95	75 - 127
1,1,2,2-Tetrachloroethane	25.0	21.0		ug/L		84	70 - 115
1,3-Dichlorobenzene	25.0	24.5		ug/L		98	76 - 116
1,4-Dichlorobenzene	25.0	24.3		ug/L		97	76 - 116

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 720-250641/5
Matrix: Water
Analysis Batch: 250641

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichlorobenzene	25.0	24.8		ug/L		99	77 - 117
Chloromethane	25.0	21.9		ug/L		87	49 - 134
Bromomethane	25.0	25.0		ug/L		100	70 - 132
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	35.5	*	ug/L		142	70 - 133
EDB	25.0	23.2		ug/L		93	80 - 121
1,2,4-Trichlorobenzene	25.0	28.2		ug/L		113	78 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*95*		*70 - 130*
4-Bromofluorobenzene	*99*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*86*		*72 - 130*

Lab Sample ID: LCSD 720-250641/6
Matrix: Water
Analysis Batch: 250641

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
1,1-Dichloroethene	25.0	31.5	*	ug/L		126	69 - 119	5	20
1,1-Dichloroethane	25.0	26.9		ug/L		108	77 - 119	4	20
Dichlorodifluoromethane	25.0	13.0		ug/L		52	21 - 150	11	20
Vinyl chloride	25.0	19.3		ug/L		77	58 - 138	9	20
Chloroethane	25.0	21.8		ug/L		87	70 - 131	10	20
Trichlorofluoromethane	25.0	22.3		ug/L		89	75 - 141	8	20
Methylene Chloride	25.0	27.4		ug/L		110	75 - 117	9	20
trans-1,2-Dichloroethene	25.0	31.2	*	ug/L		125	79 - 117	4	20
cis-1,2-Dichloroethene	25.0	26.2		ug/L		105	77 - 117	4	20
Chloroform	25.0	24.0		ug/L		96	82 - 119	2	20
1,1,1-Trichloroethane	25.0	26.0		ug/L		104	74 - 130	7	20
Carbon tetrachloride	25.0	26.2		ug/L		105	72 - 142	6	20
1,2-Dichloroethane	25.0	23.9		ug/L		96	73 - 122	0	20
Trichloroethene	25.0	24.9		ug/L		100	80 - 123	1	20
1,2-Dichloropropane	25.0	25.2		ug/L		101	79 - 119	3	20
Dichlorobromomethane	25.0	23.4		ug/L		93	81 - 130	1	20
trans-1,3-Dichloropropene	25.0	23.3		ug/L		93	76 - 122	2	20
cis-1,3-Dichloropropene	25.0	25.6		ug/L		102	82 - 119	3	20
1,1,2-Trichloroethane	25.0	23.5		ug/L		94	80 - 117	5	20
Tetrachloroethene	25.0	26.0		ug/L		104	81 - 130	3	20
Chlorodibromomethane	25.0	23.9		ug/L		96	77 - 133	3	20
Chlorobenzene	25.0	24.0		ug/L		96	76 - 116	1	20
Bromoform	25.0	23.8		ug/L		95	75 - 127	0	20
1,1,2,2-Tetrachloroethane	25.0	22.1		ug/L		88	70 - 115	5	20
1,3-Dichlorobenzene	25.0	24.5		ug/L		98	76 - 116	0	20
1,4-Dichlorobenzene	25.0	24.7		ug/L		99	76 - 116	2	20
1,2-Dichlorobenzene	25.0	25.4		ug/L		102	77 - 117	2	20
Chloromethane	25.0	19.5		ug/L		78	49 - 134	12	20
Bromomethane	25.0	22.4		ug/L		89	70 - 132	11	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 720-250641/6
Matrix: Water
Analysis Batch: 250641

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
1,1,2-Trichloro-1,2,2-trifluoroethane			25.0	33.2		ug/L		133	70 - 133	7	20
EDB			25.0	23.2		ug/L		93	80 - 121	0	20
1,2,4-Trichlorobenzene			25.0	28.4		ug/L		114	78 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*94*		*70 - 130*
4-Bromofluorobenzene	*97*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*89*		*72 - 130*

Lab Sample ID: MB 720-250643/4
Matrix: Water
Analysis Batch: 250643

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50		ug/L			08/31/18 08:13	1
1,1-Dichloroethane	ND		0.50		ug/L			08/31/18 08:13	1
Dichlorodifluoromethane	ND		0.50		ug/L			08/31/18 08:13	1
Vinyl chloride	ND		0.50		ug/L			08/31/18 08:13	1
Chloroethane	ND		1.0		ug/L			08/31/18 08:13	1
Trichlorofluoromethane	ND		1.0		ug/L			08/31/18 08:13	1
Methylene Chloride	ND		5.0		ug/L			08/31/18 08:13	1
trans-1,2-Dichloroethene	ND		0.50		ug/L			08/31/18 08:13	1
cis-1,2-Dichloroethene	ND		0.50		ug/L			08/31/18 08:13	1
Chloroform	ND		1.0		ug/L			08/31/18 08:13	1
1,1,1-Trichloroethane	ND		0.50		ug/L			08/31/18 08:13	1
Carbon tetrachloride	ND		0.50		ug/L			08/31/18 08:13	1
1,2-Dichloroethane	ND		0.50		ug/L			08/31/18 08:13	1
Trichloroethene	ND		0.50		ug/L			08/31/18 08:13	1
1,2-Dichloropropane	ND		0.50		ug/L			08/31/18 08:13	1
Dichlorobromomethane	ND		0.50		ug/L			08/31/18 08:13	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 08:13	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			08/31/18 08:13	1
1,1,2-Trichloroethane	ND		0.50		ug/L			08/31/18 08:13	1
Tetrachloroethene	ND		0.50		ug/L			08/31/18 08:13	1
Chlorodibromomethane	ND		0.50		ug/L			08/31/18 08:13	1
Chlorobenzene	ND		0.50		ug/L			08/31/18 08:13	1
Bromoform	ND		1.0		ug/L			08/31/18 08:13	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			08/31/18 08:13	1
1,3-Dichlorobenzene	ND		0.50		ug/L			08/31/18 08:13	1
1,4-Dichlorobenzene	ND		0.50		ug/L			08/31/18 08:13	1
1,2-Dichlorobenzene	ND		0.50		ug/L			08/31/18 08:13	1
Chloromethane	ND		1.0		ug/L			08/31/18 08:13	1
Bromomethane	ND		1.0		ug/L			08/31/18 08:13	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50		ug/L			08/31/18 08:13	1
EDB	ND		0.50		ug/L			08/31/18 08:13	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			08/31/18 08:13	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 720-250643/4
Matrix: Water
Analysis Batch: 250643

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		70 - 130		08/31/18 08:13	1
4-Bromofluorobenzene	94		67 - 130		08/31/18 08:13	1
1,2-Dichloroethane-d4 (Surr)	97		72 - 130		08/31/18 08:13	1

Lab Sample ID: LCS 720-250643/5
Matrix: Water
Analysis Batch: 250643

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	25.0	25.4		ug/L		102	69 - 119
1,1-Dichloroethane	25.0	23.0		ug/L		92	77 - 119
Dichlorodifluoromethane	25.0	20.2		ug/L		81	21 - 150
Vinyl chloride	25.0	19.1		ug/L		77	58 - 138
Chloroethane	25.0	18.3		ug/L		73	70 - 131
Trichlorofluoromethane	25.0	24.3		ug/L		97	75 - 141
Methylene Chloride	25.0	23.9		ug/L		96	75 - 117
trans-1,2-Dichloroethene	25.0	26.9		ug/L		108	79 - 117
cis-1,2-Dichloroethene	25.0	22.4		ug/L		90	77 - 117
Chloroform	25.0	26.8		ug/L		107	82 - 119
1,1,1-Trichloroethane	25.0	29.0		ug/L		116	74 - 130
Carbon tetrachloride	25.0	29.7		ug/L		119	72 - 142
1,2-Dichloroethane	25.0	25.0		ug/L		100	73 - 122
Trichloroethene	25.0	24.9		ug/L		99	80 - 123
1,2-Dichloropropane	25.0	22.0		ug/L		88	79 - 119
Dichlorobromomethane	25.0	27.1		ug/L		108	81 - 130
trans-1,3-Dichloropropene	25.0	26.1		ug/L		105	76 - 122
cis-1,3-Dichloropropene	25.0	26.0		ug/L		104	82 - 119
1,1,2-Trichloroethane	25.0	24.2		ug/L		97	80 - 117
Tetrachloroethene	25.0	23.8		ug/L		95	81 - 130
Chlorodibromomethane	25.0	28.6		ug/L		114	77 - 133
Chlorobenzene	25.0	24.9		ug/L		100	76 - 116
Bromoform	25.0	23.3		ug/L		93	75 - 127
1,1,2,2-Tetrachloroethane	25.0	22.6		ug/L		90	70 - 115
1,3-Dichlorobenzene	25.0	24.1		ug/L		97	76 - 116
1,4-Dichlorobenzene	25.0	25.0		ug/L		100	76 - 116
1,2-Dichlorobenzene	25.0	24.2		ug/L		97	77 - 117
Chloromethane	25.0	17.8		ug/L		71	49 - 134
Bromomethane	25.0	22.4		ug/L		90	70 - 132
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	28.3		ug/L		113	70 - 133
EDB	25.0	26.0		ug/L		104	80 - 121
1,2,4-Trichlorobenzene	25.0	24.0		ug/L		96	78 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	100		70 - 130
4-Bromofluorobenzene	94		67 - 130
1,2-Dichloroethane-d4 (Surr)	99		72 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 720-250643/6
Matrix: Water
Analysis Batch: 250643

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
1,1-Dichloroethene			25.0	26.4		ug/L		106	69 - 119	4	20
1,1-Dichloroethane			25.0	23.2		ug/L		93	77 - 119	1	20
Dichlorodifluoromethane			25.0	20.7		ug/L		83	21 - 150	2	20
Vinyl chloride			25.0	20.6		ug/L		83	58 - 138	8	20
Chloroethane			25.0	19.2		ug/L		77	70 - 131	5	20
Trichlorofluoromethane			25.0	24.8		ug/L		99	75 - 141	2	20
Methylene Chloride			25.0	23.9		ug/L		96	75 - 117	0	20
trans-1,2-Dichloroethene			25.0	27.3		ug/L		109	79 - 117	2	20
cis-1,2-Dichloroethene			25.0	21.9		ug/L		87	77 - 117	2	20
Chloroform			25.0	26.4		ug/L		105	82 - 119	2	20
1,1,1-Trichloroethane			25.0	29.4		ug/L		118	74 - 130	1	20
Carbon tetrachloride			25.0	29.9		ug/L		120	72 - 142	1	20
1,2-Dichloroethane			25.0	23.9		ug/L		96	73 - 122	4	20
Trichloroethene			25.0	25.1		ug/L		100	80 - 123	1	20
1,2-Dichloropropane			25.0	21.6		ug/L		87	79 - 119	2	20
Dichlorobromomethane			25.0	26.3		ug/L		105	81 - 130	3	20
trans-1,3-Dichloropropene			25.0	25.3		ug/L		101	76 - 122	3	20
cis-1,3-Dichloropropene			25.0	25.6		ug/L		102	82 - 119	2	20
1,1,2-Trichloroethane			25.0	23.5		ug/L		94	80 - 117	3	20
Tetrachloroethene			25.0	23.7		ug/L		95	81 - 130	0	20
Chlorodibromomethane			25.0	27.0		ug/L		108	77 - 133	6	20
Chlorobenzene			25.0	25.3		ug/L		101	76 - 116	2	20
Bromoform			25.0	22.6		ug/L		90	75 - 127	3	20
1,1,2,2-Tetrachloroethane			25.0	21.7		ug/L		87	70 - 115	4	20
1,3-Dichlorobenzene			25.0	24.6		ug/L		99	76 - 116	2	20
1,4-Dichlorobenzene			25.0	25.4		ug/L		102	76 - 116	2	20
1,2-Dichlorobenzene			25.0	24.4		ug/L		98	77 - 117	1	20
Chloromethane			25.0	18.7		ug/L		75	49 - 134	5	20
Bromomethane			25.0	23.7		ug/L		95	70 - 132	6	20
1,1,2-Trichloro-1,2,2-trifluoroethane			25.0	29.2		ug/L		117	70 - 133	3	20
EDB			25.0	24.7		ug/L		99	80 - 121	5	20
1,2,4-Trichlorobenzene			25.0	24.0		ug/L		96	78 - 120	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*70 - 130*
4-Bromofluorobenzene	*94*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*94*		*72 - 130*

Lab Sample ID: MB 720-250782/4
Matrix: Water
Analysis Batch: 250782

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	ND		0.50		ug/L			09/04/18 10:57	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50		ug/L			09/04/18 10:57	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 720-250782/4
Matrix: Water
Analysis Batch: 250782

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*100*		*70 - 130*		*09/04/18 10:57*	*1*
4-Bromofluorobenzene	*95*		*67 - 130*		*09/04/18 10:57*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*72 - 130*		*09/04/18 10:57*	*1*

Lab Sample ID: LCS 720-250782/5
Matrix: Water
Analysis Batch: 250782

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
trans-1,2-Dichloroethene	25.0	26.6		ug/L		106	79 - 117
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	28.7		ug/L		115	70 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	*101*		*70 - 130*
4-Bromofluorobenzene	*94*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*97*		*72 - 130*

Lab Sample ID: LCSD 720-250782/6
Matrix: Water
Analysis Batch: 250782

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
trans-1,2-Dichloroethene	25.0	26.4		ug/L		106	79 - 117	1	20
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	27.4		ug/L		110	70 - 133	5	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	*101*		*70 - 130*
4-Bromofluorobenzene	*95*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*95*		*72 - 130*

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 440-497385/19
Matrix: Water
Analysis Batch: 497385

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			09/05/18 06:43	1

Lab Sample ID: LCS 440-497385/18
Matrix: Water
Analysis Batch: 497385

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.81		mg/L		98	90 - 110

GC/MS VOA

Analysis Batch: 250627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-88188-1	TB-1	Total/NA	Water	8260B	
720-88188-2	DW-2	Total/NA	Water	8260B	
720-88188-3	16-S	Total/NA	Water	8260B	
720-88188-4	23-S	Total/NA	Water	8260B	
720-88188-5	28-MW	Total/NA	Water	8260B	
720-88188-6	X2A	Total/NA	Water	8260B	
720-88188-7	PMW-2-1	Total/NA	Water	8260B	
720-88188-8	PMW-2-3	Total/NA	Water	8260B	
MB 720-250627/4	Method Blank	Total/NA	Water	8260B	
LCS 720-250627/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 720-250627/6	Lab Control Sample Dup	Total/NA	Water	8260B	
720-88188-5 MS	28-MW	Total/NA	Water	8260B	
720-88188-5 MSD	28-MW	Total/NA	Water	8260B	

Analysis Batch: 250641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-88188-11	DW-1	Total/NA	Water	8260B	
720-88188-13	23-D	Total/NA	Water	8260B	
720-88188-14	DUP-1	Total/NA	Water	8260B	
MB 720-250641/4	Method Blank	Total/NA	Water	8260B	
LCS 720-250641/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 720-250641/6	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 250643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-88188-9	XIB	Total/NA	Water	8260B	
720-88188-10	X2B1	Total/NA	Water	8260B	
720-88188-12	DW-7	Total/NA	Water	8260B	
MB 720-250643/4	Method Blank	Total/NA	Water	8260B	
LCS 720-250643/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 720-250643/6	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 250782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-88188-11	DW-1	Total/NA	Water	8260B	
720-88188-13	23-D	Total/NA	Water	8260B	
720-88188-14	DUP-1	Total/NA	Water	8260B	
MB 720-250782/4	Method Blank	Total/NA	Water	8260B	
LCS 720-250782/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 720-250782/6	Lab Control Sample Dup	Total/NA	Water	8260B	

General Chemistry

Analysis Batch: 497385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-88188-2	DW-2	Total/NA	Water	SM 5310B	
720-88188-3	16-S	Total/NA	Water	SM 5310B	
720-88188-4	23-S	Total/NA	Water	SM 5310B	
720-88188-5	28-MW	Total/NA	Water	SM 5310B	
720-88188-6	X2A	Total/NA	Water	SM 5310B	

General Chemistry (Continued)

Analysis Batch: 497385 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-88188-7	PMW-2-1	Total/NA	Water	SM 5310B	
720-88188-8	PMW-2-3	Total/NA	Water	SM 5310B	
720-88188-9	XIB	Total/NA	Water	SM 5310B	
720-88188-10	X2B1	Total/NA	Water	SM 5310B	
720-88188-11	DW-1	Total/NA	Water	SM 5310B	
720-88188-12	DW-7	Total/NA	Water	SM 5310B	
720-88188-13	23-D	Total/NA	Water	SM 5310B	
720-88188-14	DUP-1	Total/NA	Water	SM 5310B	
MB 440-497385/19	Method Blank	Total/NA	Water	SM 5310B	
LCS 440-497385/18	Lab Control Sample	Total/NA	Water	SM 5310B	

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: TB-1
Date Collected: 08/21/18 07:00
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	250627	08/30/18 22:10	JRM	TAL PLS

Client Sample ID: DW-2
Date Collected: 08/21/18 11:10
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	250627	08/31/18 01:41	JRM	TAL PLS
Total/NA	Analysis	SM 5310B		5	497385	09/05/18 10:59	YZ	TAL IRV

Client Sample ID: 16-S
Date Collected: 08/21/18 13:27
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	250627	08/31/18 02:10	JRM	TAL PLS
Total/NA	Analysis	SM 5310B		1	497385	09/05/18 08:51	YZ	TAL IRV

Client Sample ID: 23-S
Date Collected: 08/21/18 09:21
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	250627	08/31/18 02:40	JRM	TAL PLS
Total/NA	Analysis	SM 5310B		1	497385	09/05/18 09:09	YZ	TAL IRV

Client Sample ID: 28-MW
Date Collected: 08/21/18 12:35
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	250627	08/31/18 04:42	JRM	TAL PLS
Total/NA	Analysis	SM 5310B		1	497385	09/05/18 10:05	YZ	TAL IRV

Client Sample ID: X2A
Date Collected: 08/21/18 10:05
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	250627	08/31/18 03:10	JRM	TAL PLS
Total/NA	Analysis	SM 5310B		1	497385	09/05/18 00:45	YZ	TAL IRV

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: PMW-2-1
Date Collected: 08/21/18 13:07
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	250627	08/31/18 03:41	JRM	TAL PLS
Total/NA	Analysis	SM 5310B		1	497385	09/05/18 01:03	YZ	TAL IRV

Client Sample ID: PMW-2-3
Date Collected: 08/21/18 13:50
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	250627	08/31/18 04:10	JRM	TAL PLS
Total/NA	Analysis	SM 5310B		1	497385	09/05/18 01:21	YZ	TAL IRV

Client Sample ID: XIB
Date Collected: 08/21/18 09:16
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	250643	08/31/18 12:46	AJS	TAL PLS
Total/NA	Analysis	SM 5310B		1	497385	09/05/18 01:38	YZ	TAL IRV

Client Sample ID: X2B1
Date Collected: 08/21/18 11:18
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	250643	08/31/18 12:16	AJS	TAL PLS
Total/NA	Analysis	SM 5310B		1	497385	09/05/18 01:56	YZ	TAL IRV

Client Sample ID: DW-1
Date Collected: 08/21/18 14:42
Date Received: 08/22/18 16:30

Lab Sample ID: 720-88188-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	250782	09/04/18 16:57	JRM	TAL PLS
Total/NA	Analysis	8260B		1	250641	08/31/18 12:50	AJS	TAL PLS
Total/NA	Analysis	SM 5310B		1	497385	09/05/18 02:14	YZ	TAL IRV

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Client Sample ID: DW-7

Lab Sample ID: 720-88188-12

Date Collected: 08/21/18 10:16
Date Received: 08/22/18 16:30

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	250643	08/31/18 13:16	AJS	TAL PLS
Total/NA	Analysis	SM 5310B		1	497385	09/05/18 02:32	YZ	TAL IRV

Client Sample ID: 23-D

Lab Sample ID: 720-88188-13

Date Collected: 08/21/18 12:20
Date Received: 08/22/18 16:30

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	250782	09/04/18 17:27	JRM	TAL PLS
Total/NA	Analysis	8260B		5	250641	08/31/18 10:26	AJS	TAL PLS
Total/NA	Analysis	SM 5310B		1	497385	09/05/18 02:49	YZ	TAL IRV

Client Sample ID: DUP-1

Lab Sample ID: 720-88188-14

Date Collected: 08/21/18 12:00
Date Received: 08/22/18 16:30

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	250782	09/04/18 17:57	JRM	TAL PLS
Total/NA	Analysis	8260B		5	250641	08/31/18 10:55	AJS	TAL PLS
Total/NA	Analysis	SM 5310B		1	497385	09/05/18 03:06	YZ	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL PLS = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Laboratory: TestAmerica Pleasanton

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 Program	9	2496	01-31-20
USDA	Federal		P330-17-00380	12-11-20

Laboratory: TestAmerica Irvine

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
Alaska	State Program	10	CA01531	06-30-19
Arizona	State Program	9	AZ0671	10-14-18 *
California	LA Cty Sanitation Districts	9	10256	06-30-19
California	State Program	9	CA ELAP 2706	06-30-19
Guam	State Program	9	Cert. No. 17-003R	01-23-19
Hawaii	State Program	9	N/A	01-29-19
Kansas	NELAP	7	E-10420	07-31-19
Nevada	State Program	9	CA015312018-1	07-31-19
New Mexico	State Program	6	N/A	01-29-19
Oregon	NELAP	10	4028	01-29-19
USDA	Federal		P330-15-00184	07-09-21
Washington	State Program	10	C900	09-03-18 *

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

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PLS
SM 5310B	Organic Carbon, Total (TOC)	SM	TAL IRV
5030B	Purge and Trap	SW846	TAL PLS

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL PLS = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: 901/902 Thompson Place-Advanced Micro

TestAmerica Job ID: 720-88188-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
720-88188-1	TB-1	Water	08/21/18 07:00	08/22/18 16:30
720-88188-2	DW-2	Water	08/21/18 11:10	08/22/18 16:30
720-88188-3	16-S	Water	08/21/18 13:27	08/22/18 16:30
720-88188-4	23-S	Water	08/21/18 09:21	08/22/18 16:30
720-88188-5	28-MW	Water	08/21/18 12:35	08/22/18 16:30
720-88188-6	X2A	Water	08/21/18 10:05	08/22/18 16:30
720-88188-7	PMW-2-1	Water	08/21/18 13:07	08/22/18 16:30
720-88188-8	PMW-2-3	Water	08/21/18 13:50	08/22/18 16:30
720-88188-9	XIB	Water	08/21/18 09:16	08/22/18 16:30
720-88188-10	X2B1	Water	08/21/18 11:18	08/22/18 16:30
720-88188-11	DW-1	Water	08/21/18 14:42	08/22/18 16:30
720-88188-12	DW-7	Water	08/21/18 10:16	08/22/18 16:30
720-88188-13	23-D	Water	08/21/18 12:20	08/22/18 16:30
720-88188-14	DUP-1	Water	08/21/18 12:00	08/22/18 16:30

TestAmerica Pleasanton
1220 Quarry Lane
Pleasanton, CA 94566-4756
phone 925.484 1919 fax 925.600 3002

720-88188

Chain of Custody Record for Haley & Aldrich, Inc. Blanket Service Agreement #2015-18-TestAmerica

WO# 185056

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

9/6/2018

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☐Other:

TestAmerica Laboratories, Inc.

Testing services under this COC shall be performed in accordance with Blanket Service Agreement #2015-18 between TestAmerica and Haley & Aldrich, Inc. its subsidiaries, affiliates and TestAmerica locations for

Client Contact	H&A Project Manager: Mike Calhoun	H&A Site Contact:	Date:	COC No:
Haley & Aldrich	Tel/Fax: 510-879-4554	Lab Contact: Sarah Arney	Carrier:	1 of 2 COCs
1956 Webster Street, Suite 300	Analysis Turnaround Time			Sampler
Oakland, CA 94612	☐ CALENDAR DAYS ☑ WORKING DAYS			For Lab Use Only:
510-879-4554 Phone	TAT if different from Below			Walk-in Client:
510-879-4579 FAX	☑ 2 weeks			Lab Sampling:
H&A Project Number . 127819	☐ 1 week			
Site Former 901/902 Thompson Place	☐ 2 days			Job / SDG No.
H&A P O # 127819-004 SID 3	☐ 1 day			

720-88188 Chain of Custody

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	VOCs (modified list) - EPA 8260	TOC - SM5310	Sample Specific Notes
1	TD-1	08/21/18	0700			2	N	N	✓		
2	DW-2		1110			4	N	N	✓	✓	
3	16-S		1327			4	N	N	✓	✓	
4	23-S		0921			4	N	N	✓	✓	
5	29-MW		1235			10	N	Y	✓	✓	MS/MSD
6	X2A		1005			4	N	N	✓	✓	
7	PMW-2-1		1307			4	N	N	✓	✓	
8	PMW 2-3		1350			4	N	N	✓	✓	
9	X1B		0916			4	N	N	✓	✓	
10	X2B1		1118			4	N	N	✓	✓	
11	DW-1		1442			4	N	N	✓	✓	
12	DW-7		1016			4	N	N	✓	✓	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ___ Months

Special Instructions/QC Requirements & Comments:

PLEASE NOTE: project-specific list of VOCs (8010 list plus Freon 113 and 1,2,4-trichlorobenzene)

1.9 °C

Custody Seals Intact ☐ Yes ☐ No	Custody Seal No	Cooler Temp. (°C) Obs'd	Corr'd	Therm ID No

Relinquished by: BRIAN KEEFFER (1)	Company: BLAINE TECH	Date/Time: 08/21 1615	Received by: CUSTODIAN (2)	Company: BLAINE TECH	Date/Time: 08/21 1630
Relinquished by: Ross Mikovich (3)	Company: BLAINE TECH	Date/Time: 08/22/18 1135	Received by: (4)	Company: TA720	Date/Time: 8/22/18 1135
Relinquished by: (5)	Company: TA720	Date/Time: 8/22/18 1200	Received in Laboratory by:	Company: Cooper Tech	Date/Time: 8/22/18 1200

REC'D BY: BRIOTA-720 8/22/18 1630 inside

Form No. CA-C-WI-045, Rev. 1.2, dated 1/8/2016

TestAmerica Pleasanton
1220 Quarry Lane
Pleasanton, CA 94566-4756
phone 925 484 1919 fax 925 600 3002

720-88188

Chain of Custody Record for
Haley & Aldrich, Inc. Blanket Service Agreement #2015-18-TestAmerica

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

9/6/2018

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

TestAmerica's services under this COC shall be performed in accordance with the T&Cs within Blanket Service Agreement 2015-18-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories, Inc.

Client Contact	H&A Project Manager: Mike Calhoun	H&A Site Contact:	Date:	COC No
Haley & Aldrich	Tel/Fax: 510-879-4554	Lab Contact: Sarah Arney	Carrier:	2 of 2 COCs
1956 Webster Street, Suite 300	**Analysis Turnaround Time**			Sampler
Oakland, CA 94612	☐ CALENDAR DAYS ☑ WORKING DAYS			**For Lab Use Only:**
510-879-4554 Phone	TAT if different from Below			Walk-in Client:
510-879-4579 FAX	☑ 2 weeks			Lab Sampling:
H&A Project Number 127819	☐ 1 week			
Site Former 901/902 Thompson Place	☐ 2 days			Job / SDG No :
H&A P O # 127819-004 SID 3	☐ 1 day			

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	VOCs (modified list) - EPA 8260	TOC - SM5310	Sample Specific Notes.
13	23-D	08/21/18	1220		W	4	N	N	✓	✓	
14	DUP-1	↓	1200		W	4	N	N	✓	✓	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

PLEASE NOTE: project-specific list of VOCs (8010 list plus Freon 113 and 1,2,4-trichlorobenzene)

Custody Seals Intact ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd ____ Corr'd ____ | Therm ID No.: ____

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
① Brian Keesler [signature]	Blaine Tech	08/21 1615	② Custodian [signature]	Blaine Tech	08/21 1620
③ Ross McKenrick [signature]	Blaine Tech	08/22/18 1135	④ [signature]	TA720	8/22/18 1135
⑤ [signature]	TA	8/22/18 [illegible]	Received in Laboratory by [signature]	Cooper Testing Labs	8/22/18 1222

Rec'd by: ⑥ 1630 [signature] T. Bullock TA-720 8/22/18 1630

Form No. CA-C-WI-045, Rev. 1.2, dated 1/8/2016

TestAmerica Pleasanton
1220 Quarry Lane
Pleasanton, CA 94566
Phone (925) 484-1919 Fax (925) 600-3002

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler	Lab PM: Smith, Micah	Carrier Tracking No(s): 4471985253/5	COC No: 720-39388.1
Client Contact: Shipping/Receiving	Phone	E-Mail: micah.smith@testamericainc.com	State of Origin: California	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc		Accreditations Required (See note):		Job #: 720-88188-1
Address: 17461 Derian Ave, Suite 100,	Due Date Requested: 9/4/2018			Preservation Codes:
City: Irvine	TAT Requested (days):			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)
State, Zip: CA, 92614-5817				
Phone: 949-261-1022(Tel) 949-260-3297(Fax)	PO #:			Other:
Email:	WO #:			
Project Name: 901/902 Thompson Place-Advanced Micro	Project #: 72011792			
Site:	SSOW#:			

Analysis Requested

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)	SM5310B	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
DW-2 (720-88188-2)	8/21/18	11:10 Pacific		Water			X	1	
16-S (720-88188-3)	8/21/18	13:27 Pacific		Water			X	1	
23-S (720-88188-4)	8/21/18	09:21 Pacific		Water			X	1	
28-MW (720-88188-5)	8/21/18	12:35 Pacific		Water			X	1	
X2A (720-88188-6)	8/21/18	10:05 Pacific		Water			X	1	
PMW-2-1 (720-88188-7)	8/21/18	13:07 Pacific		Water			X	1	
PMW-2-3 (720-88188-8)	8/21/18	13:50 Pacific		Water			X	1	
X1B (720-88188-9)	8/21/18	09:16 Pacific		Water			X	1	
X2B1 (720-88188-10)	8/21/18	11:18 Pacific		Water			X	1	

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 compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ 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
	8/23/18 13:24	TA			
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
				8/24/18 0745	TA IRV

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:	IR66 4.5/5.1

Ver. 09/20/2016

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

...ntract Lab)	Sampler	Lab PM: Smith, Micah	Carrier Tracking No(s)	COC No: 720-39388.2
	Phone	E-Mail: micah.smith@testamericainc.com	State of Origin: California	Page: Page 2 of 2
...ica Laboratories, Inc		Accreditations Required (See note)		Job #: 720-88188-1
...ress: 17461 Derian Ave, Suite 100,	Due Date Requested: 9/4/2018			
City: Irvine	TAT Requested (days):			
State, Zip: CA, 92614-5817				
Phone: 949-261-1022(Tel) 949-260-3297(Fax)	PO #			
Email	WO #			
Project Name: 901/902 Thompson Place-Advanced Micro	Project #: 72011792			
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)	SM5310B	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
DW-1 (720-88188-11)	8/21/18	14:42 Pacific		Water			X	1	
DW-7 (720-88188-12)	8/21/18	10:16 Pacific		Water			X	1	
23-D (720-88188-13)	8/21/18	12:20 Pacific		Water			X	1	
DUP-1 (720-88188-14)	8/21/18	12:00 Pacific		Water			X	1	

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.

Possible Hazard Identification

Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ 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: 8/23/18 13:24	Company: TAL	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time: 8/24/18 0945	Company: TA IRV

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.. | Cooler Temperature(s) °C and Other Remarks: IR66 | 4.8/5.1

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 720-88188-1

Login Number: 88188
List Number: 1
Creator: Bullock, Tracy

List Source: TestAmerica Pleasanton

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 720-88188-1

Login Number: 88188
List Number: 2
Creator: Avila, Stephanie 1

List Source: TestAmerica Irvine
List Creation: 08/24/18 11:54 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

August 29, 2018

Mike Calhoun
Haley & Aldrich, Inc.
1956 Webster Street
Suite 300
Oakland, CA 94612

RE: Project: 127819-004 SID 3 Fmr 901/902 T
Pace Project No.: 10444719

Dear Mike Calhoun:
Enclosed are the analytical results for sample(s) received by the laboratory on August 23, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Gross
jennifer.gross@pacelabs.com
(206)957-2426
Project Manager

Enclosures

cc: Vanessa Godard, Haley & Aldrich
Michael Zlotoff, Haley & Aldrich

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 127819-004 SID 3 Fmr 901/902 T
Pace Project No.: 10444719

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10444719001	**DW-2**	Water	08/21/18 11:10	08/23/18 11:00
10444719002	**16-S**	Water	08/21/18 13:27	08/23/18 11:00
10444719003	**23-S**	Water	08/21/18 09:21	08/23/18 11:00
10444719004	**28-MW**	Water	08/21/18 12:35	08/23/18 11:00
10444719005	**X2A**	Water	08/21/18 10:05	08/23/18 11:00
10444719006	**PMW-2-1**	Water	08/21/18 13:07	08/23/18 11:00
10444719007	**PMW-2-3**	Water	08/21/18 13:50	08/23/18 11:00
10444719008	**X1B**	Water	08/21/18 09:16	08/23/18 11:00
10444719009	**X2B1**	Water	08/21/18 11:18	08/23/18 11:00
10444719010	**DW-1**	Water	08/21/18 14:42	08/23/18 11:00
10444719011	**DW-7**	Water	08/21/18 10:16	08/23/18 11:00
10444719012	**23-D**	Water	08/21/18 12:20	08/23/18 11:00

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project:
Pace Project No.:

Method:
Description:
Client:
Date:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical
www.pacelabs.com

ALDRICH

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

27828

Section A	Section B	Section C
Required Client Information:	**Required** Project Information:	Invoice Information:
Company: Haley & Aldrich, Inc.	Report To: mcalhoun@haleyaldrich.com	Attention: ap@haleyaldrich.com
Address: 1956 Webster Street, Suite 300	Copy To: mzlotoff@haleyaldrich.com	Company Name: Haley & Aldrich
Oakland, CA 94612		Address: use email address above
Email To: mcalhoun@haleyaldrich.com	BSA #: 2015-18-Pace	Pace Quote Reference:
Phone: 510-879-4554 Fax:	H&A Client Name: Former 901/902 Thompson Place	Pace Project Manager:
Requested Due Date/TAT: Standard TAT	H&A Project #: 127819-004 SID 3	Pace Profile #:

1700 Elm Street SE - Minneapolis, MN 55414

7726 Moller Road - Indianapolis, IN 46268

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location

STATE: _____

Pace's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement #2015-18-Pace by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Pace Analytical Services, Inc.

Requested Analysis Filtered (Y/N)

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Ethene, ethane, and methane (use AM20GAX)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	DW-2	WT		08/1/18	1110				3								✓		✓	✓	
2	16-S				1327				3								✓		✓	✓	
3	23-S				0921				3								✓		✓	✓	
4	28-MW				1235				3								✓		✓	✓	
5	X2A				1005				3								✓		✓	✓	
6	PMW-2-1				1307				3								✓		✓	✓	
7	PMW-2-3				1350				3								✓		✓	✓	
8	X16				0916				3								✓		✓	✓	
9	X2B1				1118				3								✓		✓	✓	
10	DW-1				1442				3								✓		✓	✓	
11	DW-7				1016				3								✓		✓	✓	
12	23-D	↓		↓	1220				3								✓		✓	✓	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	BRIAN KEESLER B	08/1/18	1655	B CUSTODIAN	08/2/18	1620	
Please use Method AM20GAX instead of RSK-175 for analysis.				FedEx			
				Lesa PAce	8.23.18	1100	2 Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: BRIAN KEESLER

SIGNATURE of SAMPLER: _____ **DATE Signed (MM/DD/YY):** 8/1/18

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

Cooler Receipt Form

Client Name: Haley & Aldrich **Project:** Frm. 901/902 Thompson Place **Lab Work Order:** 27823

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 7730 4132 7076

Custody Seal on Cooler/Box Present: (Yes) No **Seals Intact:** (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 2°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC	✓			
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?	✓			

Comments:_____

Cooler contents examined/received by : CS **Date:** 8.23.18

Project Manager Review : ERG **Date:** 8/23/18

F-PAE-Q-009-rev.01, 3Oct2017

NON-CONFORMANCE FORM

PAES Work Order #: 27828

Date: 8.23.18 Time of Receipt: 11:00 Receiver: LG

Client: Haley & Aldrich

REASON FOR NON-CONFORMANCE:

Headspace presented in the last vial of sample DW-2.

ACTION TAKEN:

Client name: Haley & Aldrich. Date: 8/23/18. Time: 13:42

okay to proceed.

Customer Service Initials: ERG Date: 8/23/18

F-PAE-Q-014-rev.00, 20 Nov2014

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

August 29, 2018

Jennifer Gross
Pace Analytical Services, Inc.
1700 Elm St. SE
Suite 200
Minneapolis, MN 55414

RE: **FRM. 901/902 THOMPSON PLACE**
Pace Workorder: 27828

Dear Jennifer Gross:

Enclosed are the analytical results for sample(s) received by the laboratory on Thursday, August 23, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 08/29/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 23

CERTIFICATE OF ANALYSIS

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

SAMPLE SUMMARY

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Lab ID	Sample ID	Matrix	Date Collected	Date Received
278280001	DW-2	Water	8/21/2018 11:10	8/23/2018 11:00
278280002	16-S	Water	8/21/2018 13:27	8/23/2018 11:00
278280003	23-S	Water	8/21/2018 09:21	8/23/2018 11:00
278280004	28-MW	Water	8/21/2018 12:35	8/23/2018 11:00
278280005	X2A	Water	8/21/2018 10:05	8/23/2018 11:00
278280006	PMW-2-1	Water	8/21/2018 13:07	8/23/2018 11:00
278280007	PMW-2-3	Water	8/21/2018 13:50	8/23/2018 11:00
278280008	X1B	Water	8/21/2018 09:16	8/23/2018 11:00
278280009	X2B1	Water	8/21/2018 11:18	8/23/2018 11:00
278280010	DW-1	Water	8/21/2018 14:42	8/23/2018 11:00
278280011	DW-7	Water	8/21/2018 10:16	8/23/2018 11:00
278280012	23-D	Water	8/21/2018 12:20	8/23/2018 11:00

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

PROJECT SUMMARY

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Workorder Comments

The container pH for samples 27828 (0001-0004, 0006, 0010) were measured as below the expected pH (< 10) for those samples preserved with trisodium phosphate, as assigned to PAES method AM20GAx.

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Lab ID: **278280001** Date Received: 8/23/2018 11:00 Matrix: Water

Sample ID: **DW-2** Date Collected: 8/21/2018 11:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**7500**	ug/l	0.50	0.014	1	8/24/2018 09:12	BW	n
Ethane	**0.033J**	ug/l	0.10	0.0070	1	8/24/2018 09:12	BW	n
Ethene	**0.044J**	ug/l	0.10	0.0050	1	8/24/2018 09:12	BW	n

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Lab ID: **278280002** Date Received: 8/23/2018 11:00 Matrix: Water

Sample ID: **16-S** Date Collected: 8/21/2018 13:27

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**6000**	ug/l	0.50	0.014	1	8/24/2018 09:30	BW	n
Ethane	**6.3**	ug/l	0.10	0.0070	1	8/24/2018 09:30	BW	n
Ethene	**2.7**	ug/l	0.10	0.0050	1	8/24/2018 09:30	BW	n

CERTIFICATE OF ANALYSIS

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Lab ID: **278280003** Date Received: 8/23/2018 11:00 Matrix: Water

Sample ID: **23-S** Date Collected: 8/21/2018 09:21

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**1300**	ug/l	0.50	0.014	1	8/24/2018 09:41	BW	n
Ethane	**2.7**	ug/l	0.10	0.0070	1	8/24/2018 09:41	BW	n
Ethene	**0.040J**	ug/l	0.10	0.0050	1	8/24/2018 09:41	BW	n

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Lab ID: **278280004** Date Received: 8/23/2018 11:00 Matrix: Water

Sample ID: **28-MW** Date Collected: 8/21/2018 12:35

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**15000**	ug/l	0.50	0.014	1	8/24/2018 09:52	BW	n
Ethane	**12**	ug/l	0.10	0.0070	1	8/24/2018 09:52	BW	n
Ethene	**2.7**	ug/l	0.10	0.0050	1	8/24/2018 09:52	BW	n

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Lab ID: **278280005** Date Received: 8/23/2018 11:00 Matrix: Water

Sample ID: **X2A** Date Collected: 8/21/2018 10:05

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**8300**	ug/l	0.50	0.014	1	8/24/2018 10:58	BW	n
Ethane	**12**	ug/l	0.10	0.0070	1	8/24/2018 10:58	BW	n
Ethene	**120**	ug/l	0.10	0.0050	1	8/24/2018 10:58	BW	n

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Lab ID: **278280006** Date Received: 8/23/2018 11:00 Matrix: Water

Sample ID: **PMW-2-1** Date Collected: 8/21/2018 13:07

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**12000**	ug/l	0.50	0.014	1	8/24/2018 11:08	BW	n
Ethane	**23**	ug/l	0.10	0.0070	1	8/24/2018 11:08	BW	n
Ethene	**120**	ug/l	0.10	0.0050	1	8/24/2018 11:08	BW	n

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Lab ID: **278280007** Date Received: 8/23/2018 11:00 Matrix: Water

Sample ID: **PMW-2-3** Date Collected: 8/21/2018 13:50

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**9.5**	ug/l	0.50	0.014	1	8/24/2018 11:18	BW	n
Ethane	**0.046J**	ug/l	0.10	0.0070	1	8/24/2018 11:18	BW	n
Ethene	**1.2**	ug/l	0.10	0.0050	1	8/24/2018 11:18	BW	n

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Lab ID: **278280008** Date Received: 8/23/2018 11:00 Matrix: Water

Sample ID: **X1B** Date Collected: 8/21/2018 09:16

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**1200**	ug/l	0.50	0.014	1	8/24/2018 11:29	BW	n
Ethane	**4.7**	ug/l	0.10	0.0070	1	8/24/2018 11:29	BW	n
Ethene	**2.8**	ug/l	0.10	0.0050	1	8/24/2018 11:29	BW	n

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Lab ID: **278280009** Date Received: 8/23/2018 11:00 Matrix: Water

Sample ID: **X2B1** Date Collected: 8/21/2018 11:18

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**390**	ug/l	0.50	0.014	1	8/24/2018 11:39	BW	n
Ethane	**4.5**	ug/l	0.10	0.0070	1	8/24/2018 11:39	BW	n
Ethene	**1.3**	ug/l	0.10	0.0050	1	8/24/2018 11:39	BW	n

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Lab ID: **278280010** Date Received: 8/23/2018 11:00 Matrix: Water

Sample ID: **DW-1** Date Collected: 8/21/2018 14:42

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**17000**	ug/l	0.50	0.014	1	8/24/2018 11:51	BW	n
Ethane	**36**	ug/l	0.10	0.0070	1	8/24/2018 11:51	BW	n
Ethene	**0.60**	ug/l	0.10	0.0050	1	8/24/2018 11:51	BW	n

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Lab ID: **278280011** Date Received: 8/23/2018 11:00 Matrix: Water

Sample ID: **DW-7** Date Collected: 8/21/2018 10:16

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**52**	ug/l	0.50	0.014	1	8/24/2018 12:00	BW	n
Ethane	**0.12**	ug/l	0.10	0.0070	1	8/24/2018 12:00	BW	n
Ethene	**0.064J**	ug/l	0.10	0.0050	1	8/24/2018 12:00	BW	n

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Lab ID: **278280012** Date Received: 8/23/2018 11:00 Matrix: Water

Sample ID: **23-D** Date Collected: 8/21/2018 12:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**0.29J**	ug/l	0.50	0.014	1	8/24/2018 12:09	BW	n
Ethane	**0.0070J**	ug/l	0.10	0.0070	1	8/24/2018 12:09	BW	n
Ethene	**0.048J**	ug/l	0.10	0.0050	1	8/24/2018 12:09	BW	n

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS QUALIFIERS

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

QUALITY CONTROL DATA

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

QC Batch: DISG/7026 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 278280001, 278280002, 278280003, 278280004, 278280005, 278280006, 278280007, 278280008, 278280009, 278280010, 278280011, 278280012

METHOD BLANK: 57117

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	0.50 U	0.50	n
Ethane	ug/l	0.10 U	0.10	n
Ethene	ug/l	0.10 U	0.10	n

LABORATORY CONTROL SAMPLE & LCSD: 57118 57119

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	670	650	90	87	80-120	2.9	20	n
Ethane	ug/l	38	41	41	109	107	80-120	1.2	20	n
Ethene	ug/l	35	38	38	108	107	80-120	1.6	20	n

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

QUALITY CONTROL DATA QUALIFIERS

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

QUALITY CONTROL PARAMETER QUALIFIERS

n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

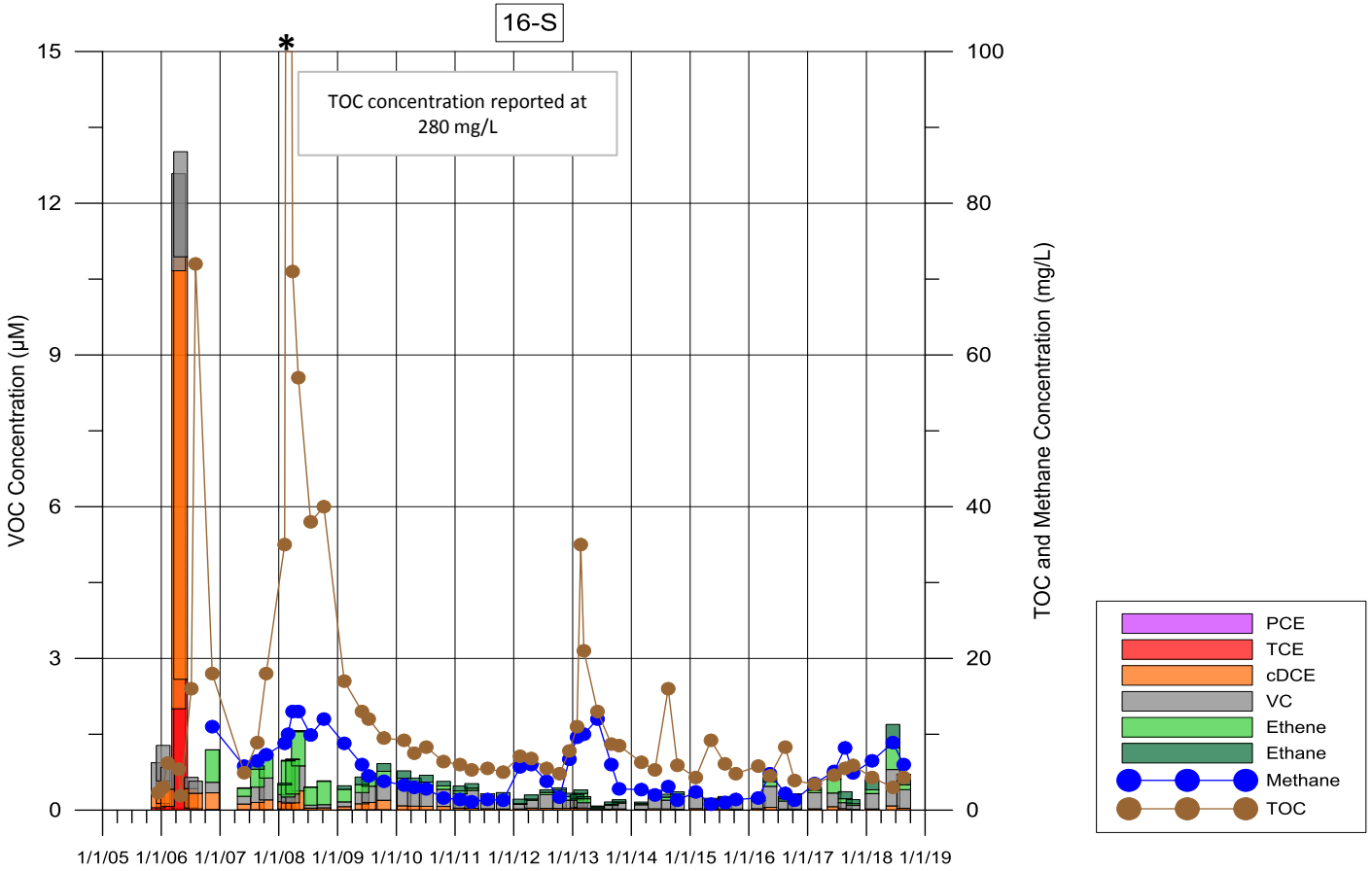
QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 27828 FRM. 901/902 THOMPSON PLACE

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
278280001	DW-2			AM20GAX	DISG/7026
278280002	16-S			AM20GAX	DISG/7026
278280003	23-S			AM20GAX	DISG/7026
278280004	28-MW			AM20GAX	DISG/7026
278280005	X2A			AM20GAX	DISG/7026
278280006	PMW-2-1			AM20GAX	DISG/7026
278280007	PMW-2-3			AM20GAX	DISG/7026
278280008	X1B			AM20GAX	DISG/7026
278280009	X2B1			AM20GAX	DISG/7026
278280010	DW-1			AM20GAX	DISG/7026
278280011	DW-7			AM20GAX	DISG/7026
278280012	23-D			AM20GAX	DISG/7026

APPENDIX C

Concentration Trend Plots



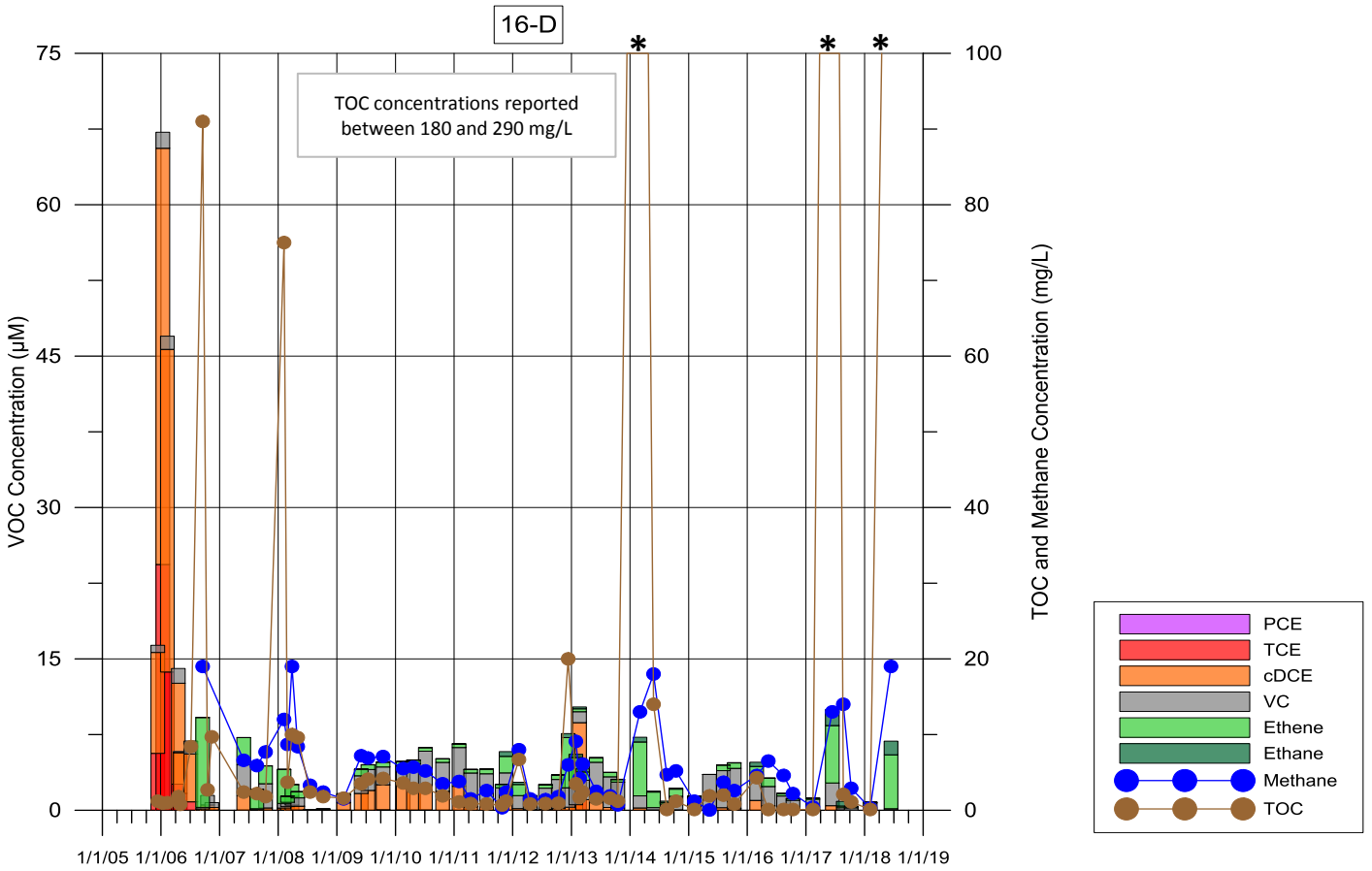
HALEY ALDRICH

ADVANCED MICRO DEVICES, INC.
FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

CONCENTRATION TREND PLOT FOR WELL 16-S

OCTOBER 2018

FIGURE C-1



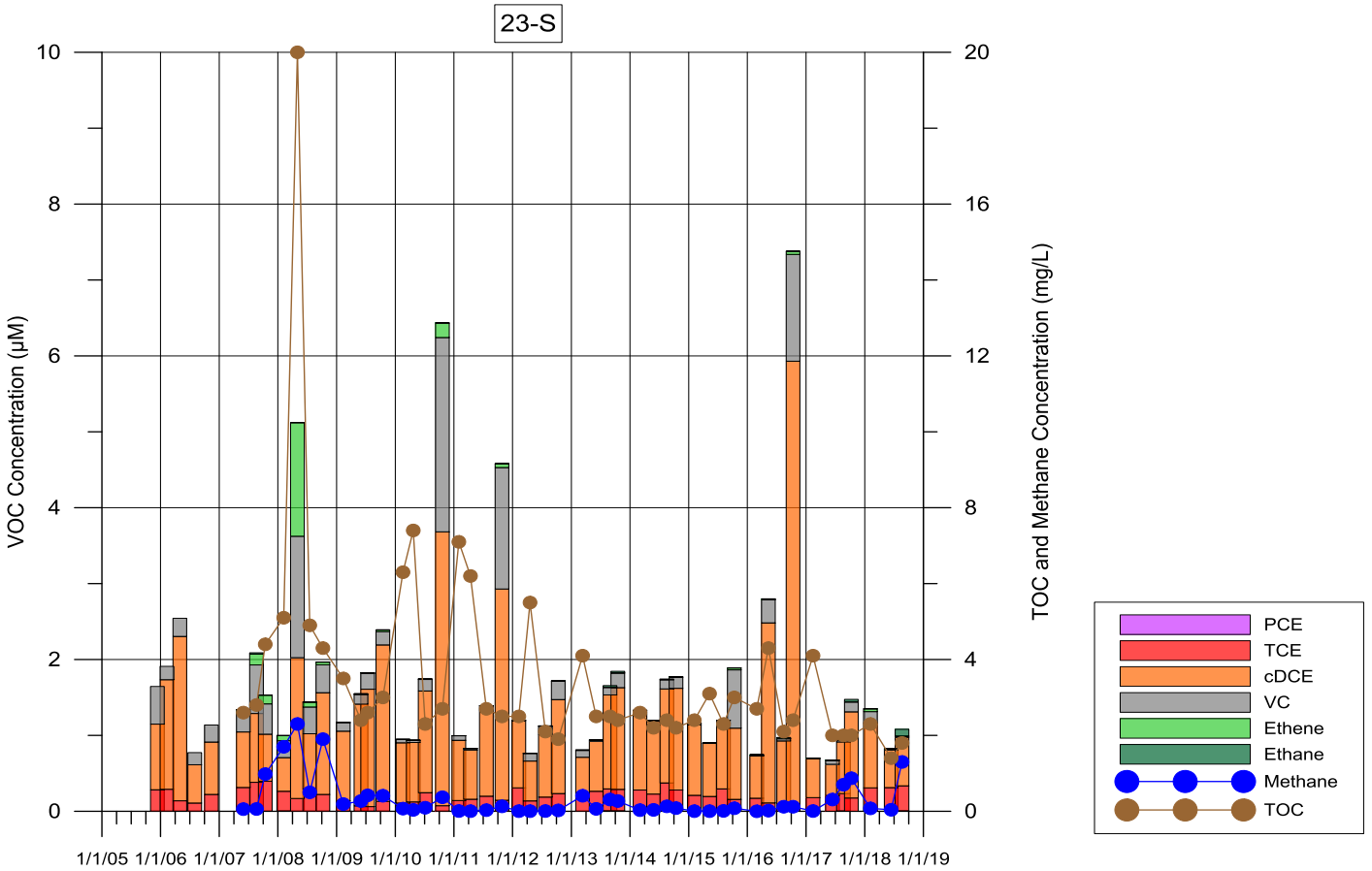
HALEY ALDRICH

ADVANCED MICRO DEVICES, INC.
FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

CONCENTRATION TREND PLOT FOR WELL 16-D

OCTOBER 2018

FIGURE C-2



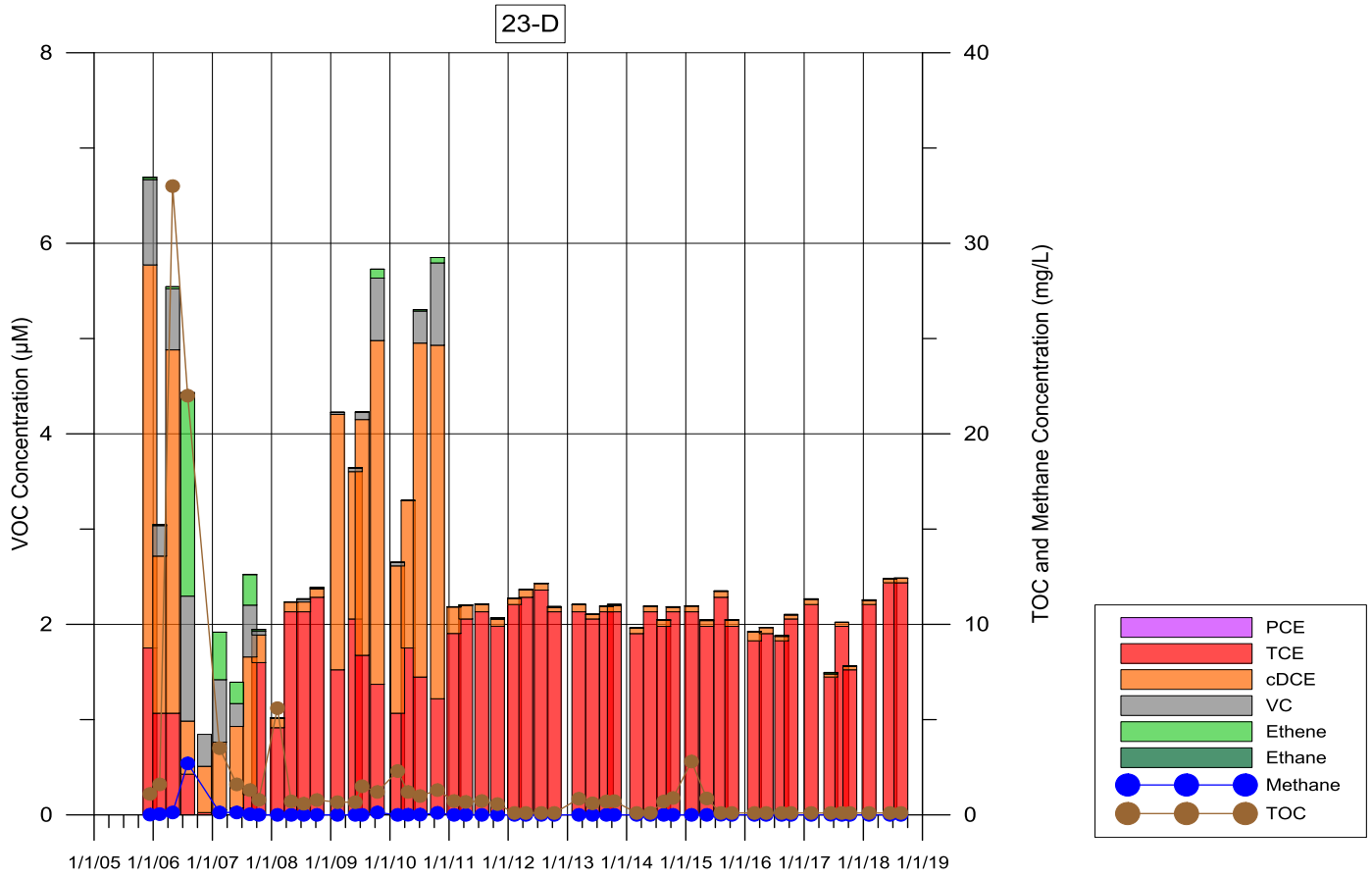
HALEY ALDRICH

ADVANCED MICRO DEVICES, INC.
FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

CONCENTRATION TREND PLOT FOR WELL 23-S

OCTOBER 2018

FIGURE C-3

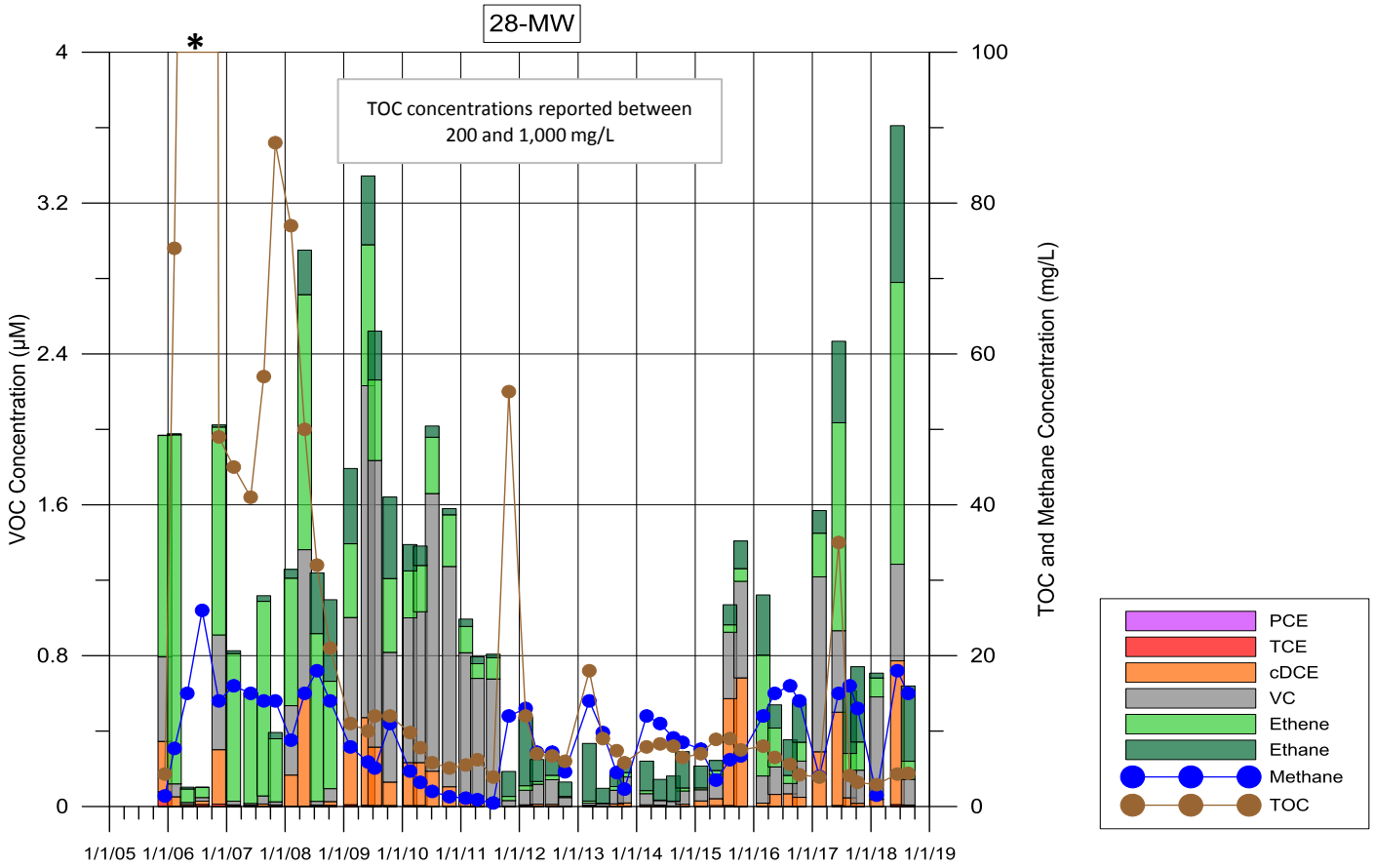


ADVANCED MICRO DEVICES, INC.
FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

CONCENTRATION TREND PLOT FOR WELL 23-D

OCTOBER 2018

FIGURE C-4



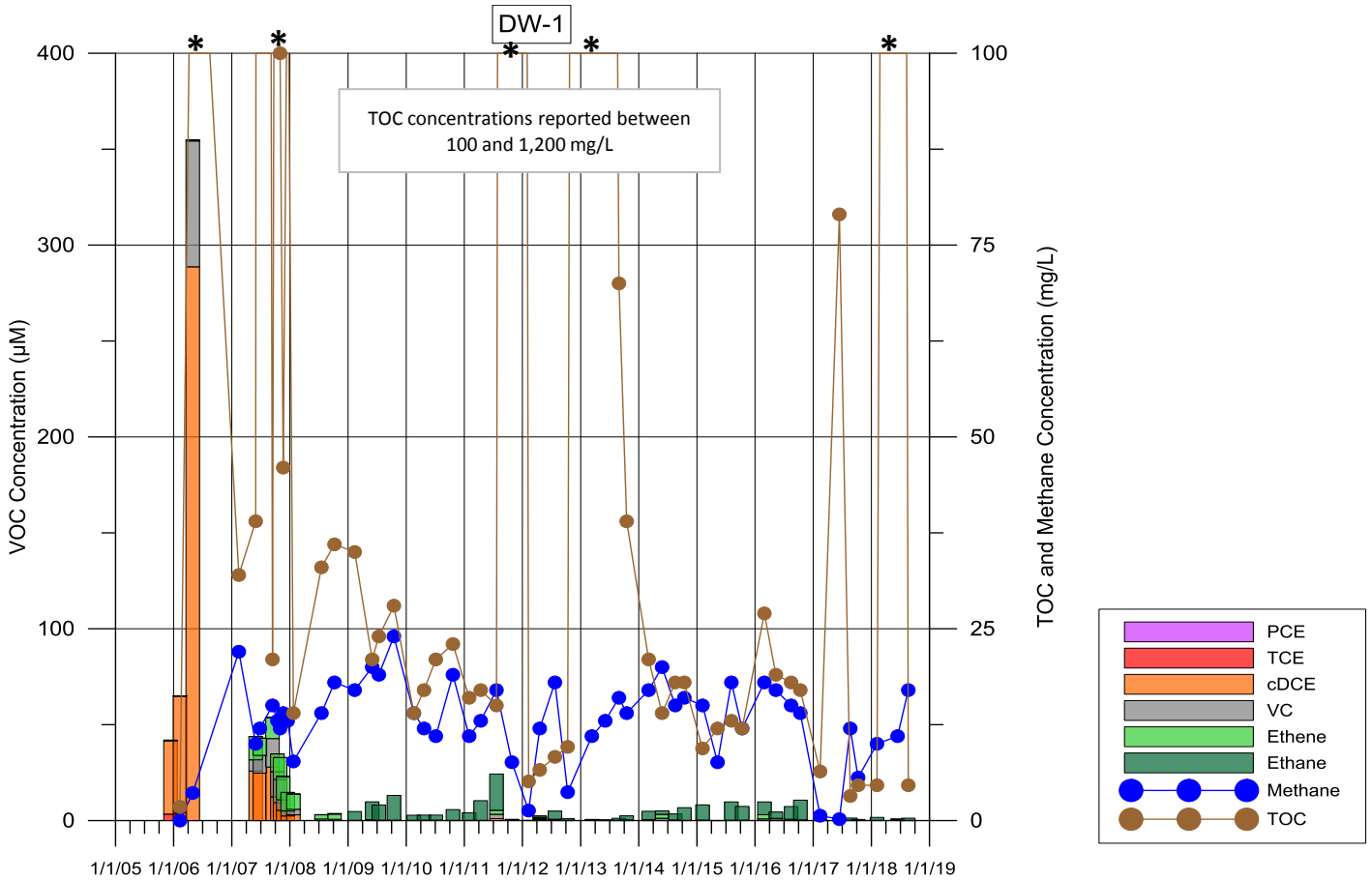
HALEY ALDRICH

ADVANCED MICRO DEVICES, INC.
FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

CONCENTRATION TREND PLOT
FOR WELL 28-MW

OCTOBER 2018

FIGURE C-5

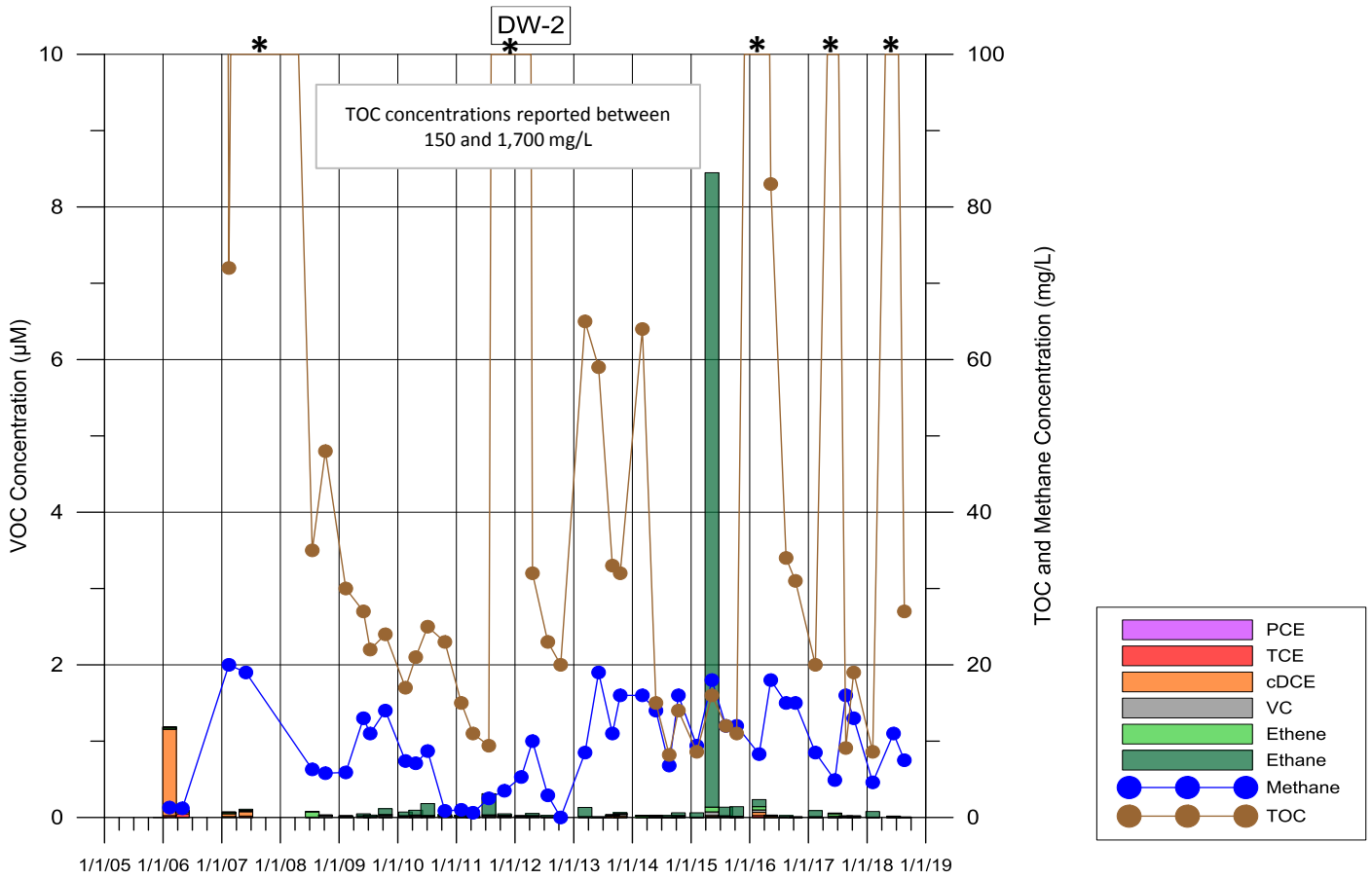


ADVANCED MICRO DEVICES, INC.
FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

CONCENTRATION TREND PLOT FOR WELL DW-1

OCTOBER 2018

FIGURE C-6



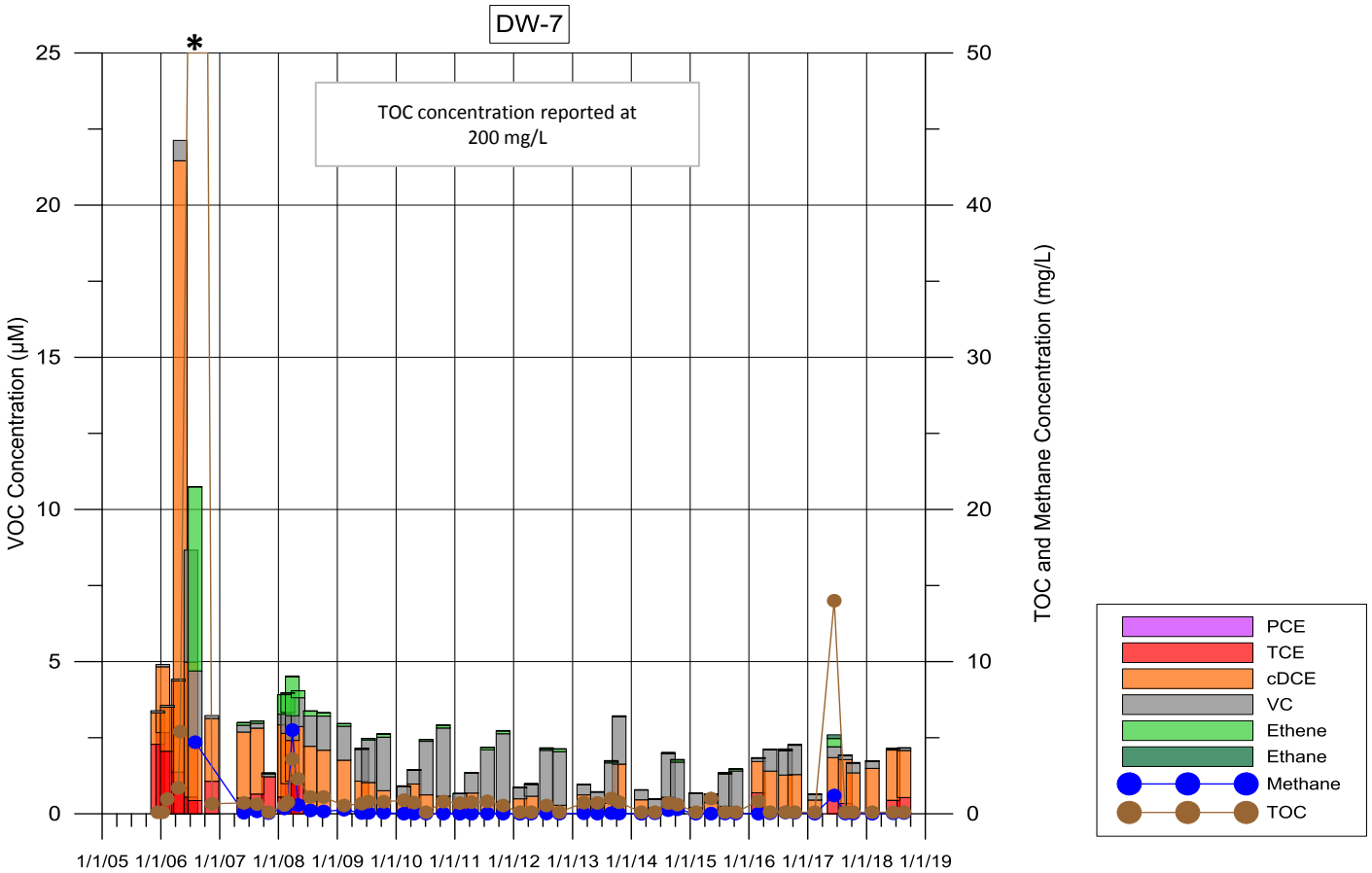
HALEY ALDRICH

ADVANCED MICRO DEVICES, INC.
FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

CONCENTRATION TREND PLOT FOR WELL DW-2

OCTOBER 2018

FIGURE C-7



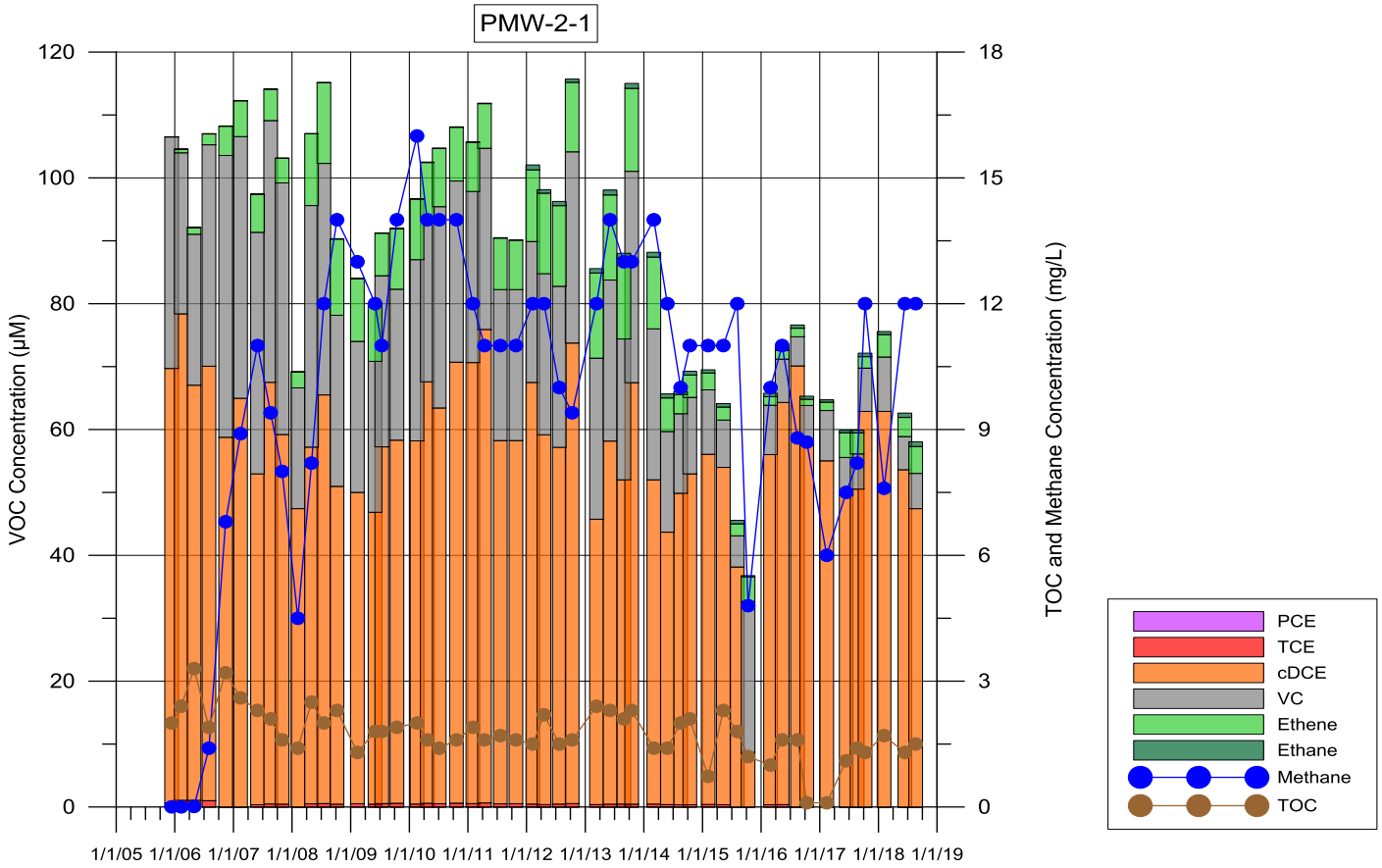
HALEY ALDRICH

ADVANCED MICRO DEVICES, INC.
FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

CONCENTRATION TREND PLOT
FOR WELL DW-7

OCTOBER 2018

FIGURE C-8



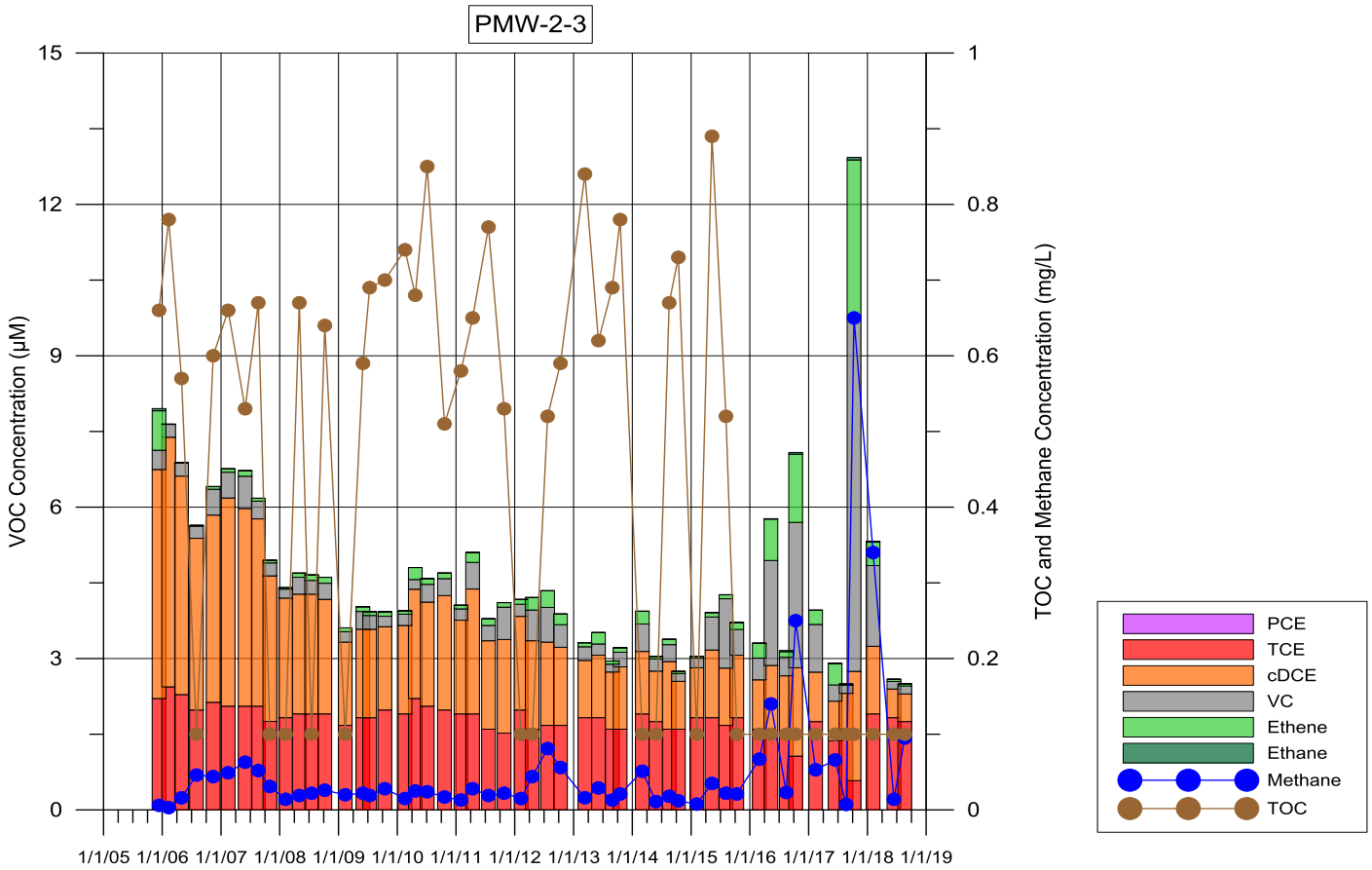
HALEY ALDRICH

ADVANCED MICRO DEVICES, INC.
FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

CONCENTRATION TREND PLOT
FOR WELL PMW-2-1

OCTOBER 2018

FIGURE C-9



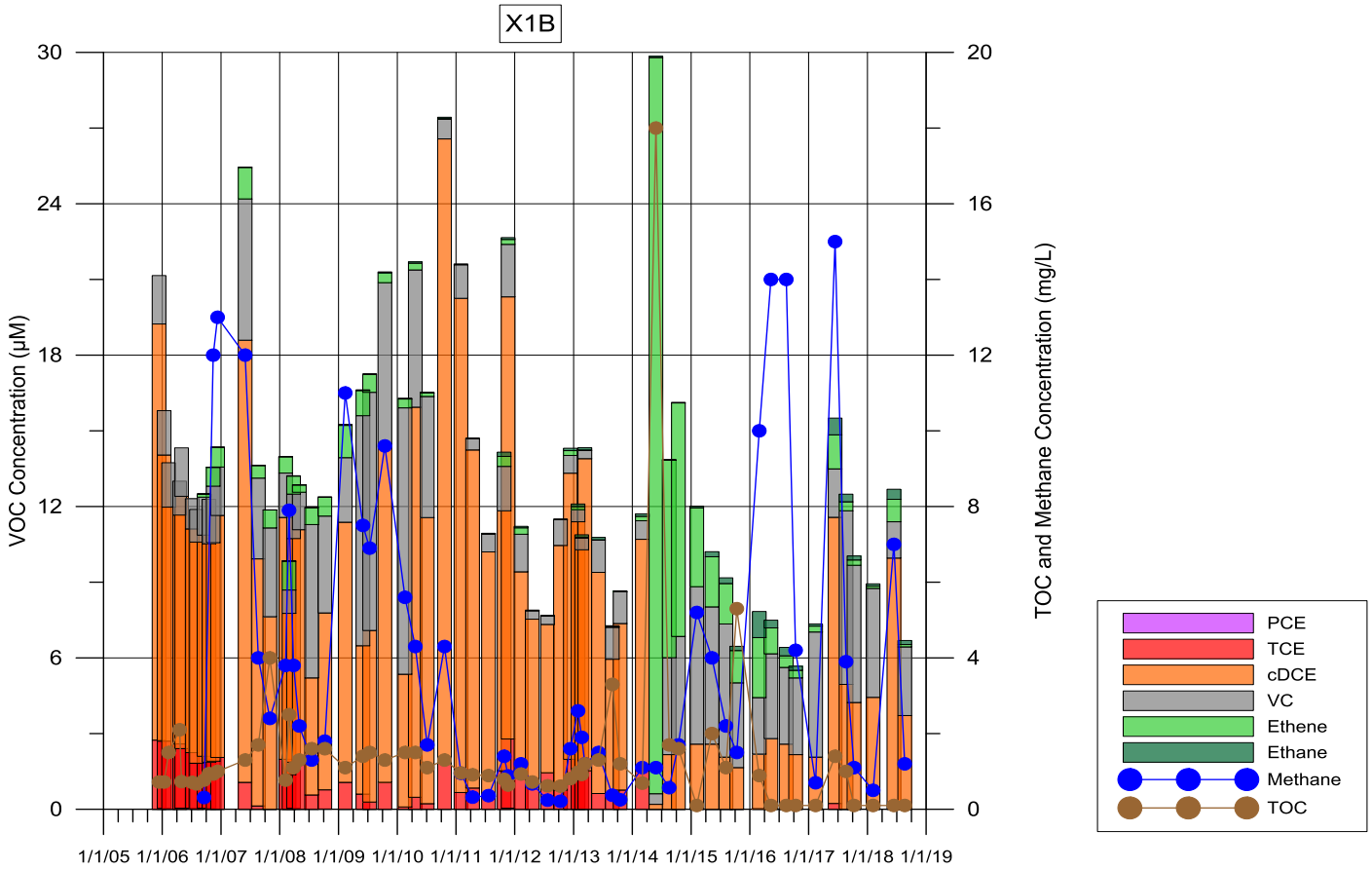
HALEY ALDRICH

ADVANCED MICRO DEVICES, INC.
FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

CONCENTRATION TREND PLOT
FOR WELL PMW-2-3

OCTOBER 2018

FIGURE C-10



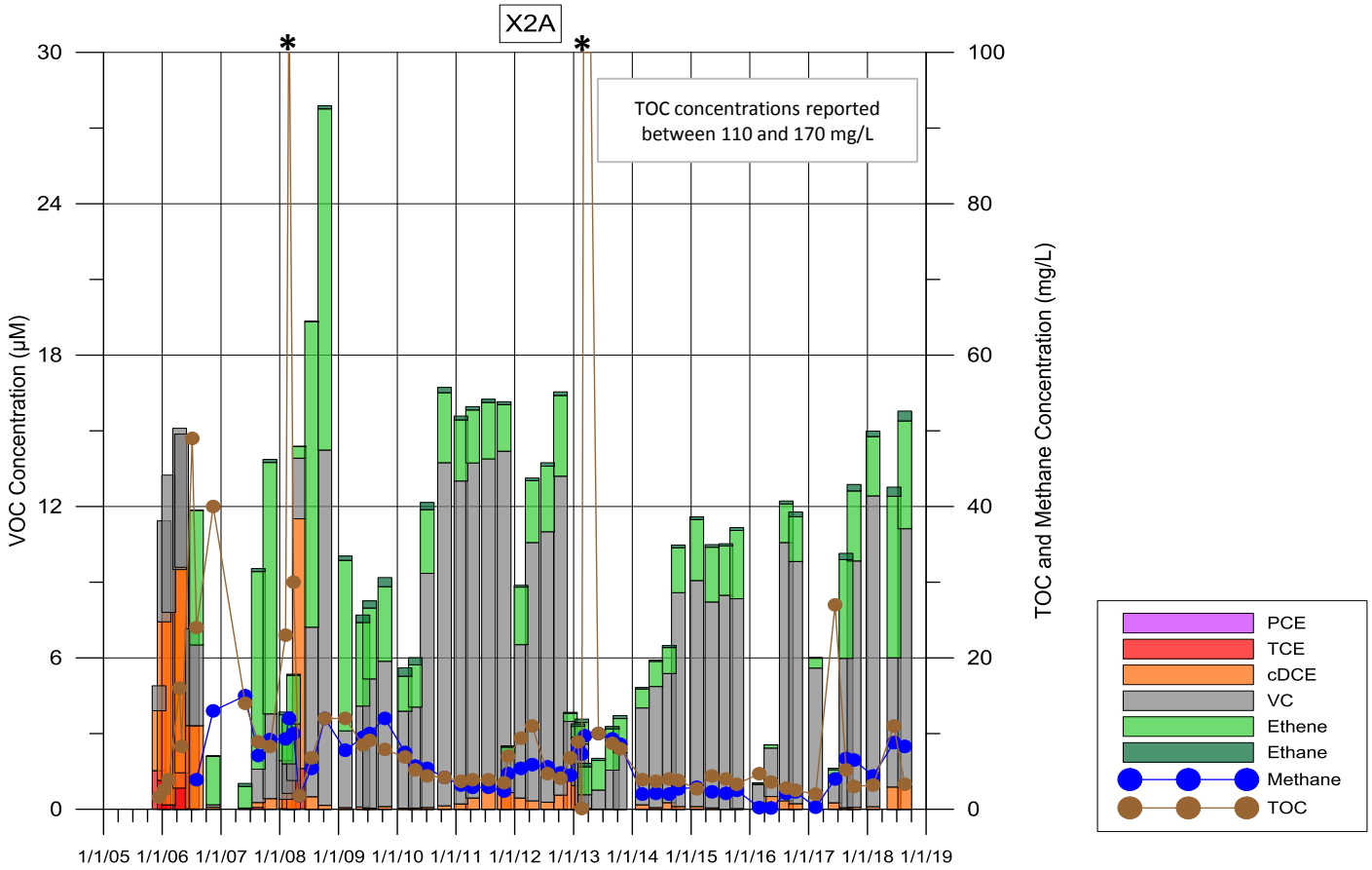
HALEY ALDRICH

ADVANCED MICRO DEVICES, INC.
FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

CONCENTRATION TREND PLOT FOR WELL X1B

OCTOBER 2018

FIGURE C-11



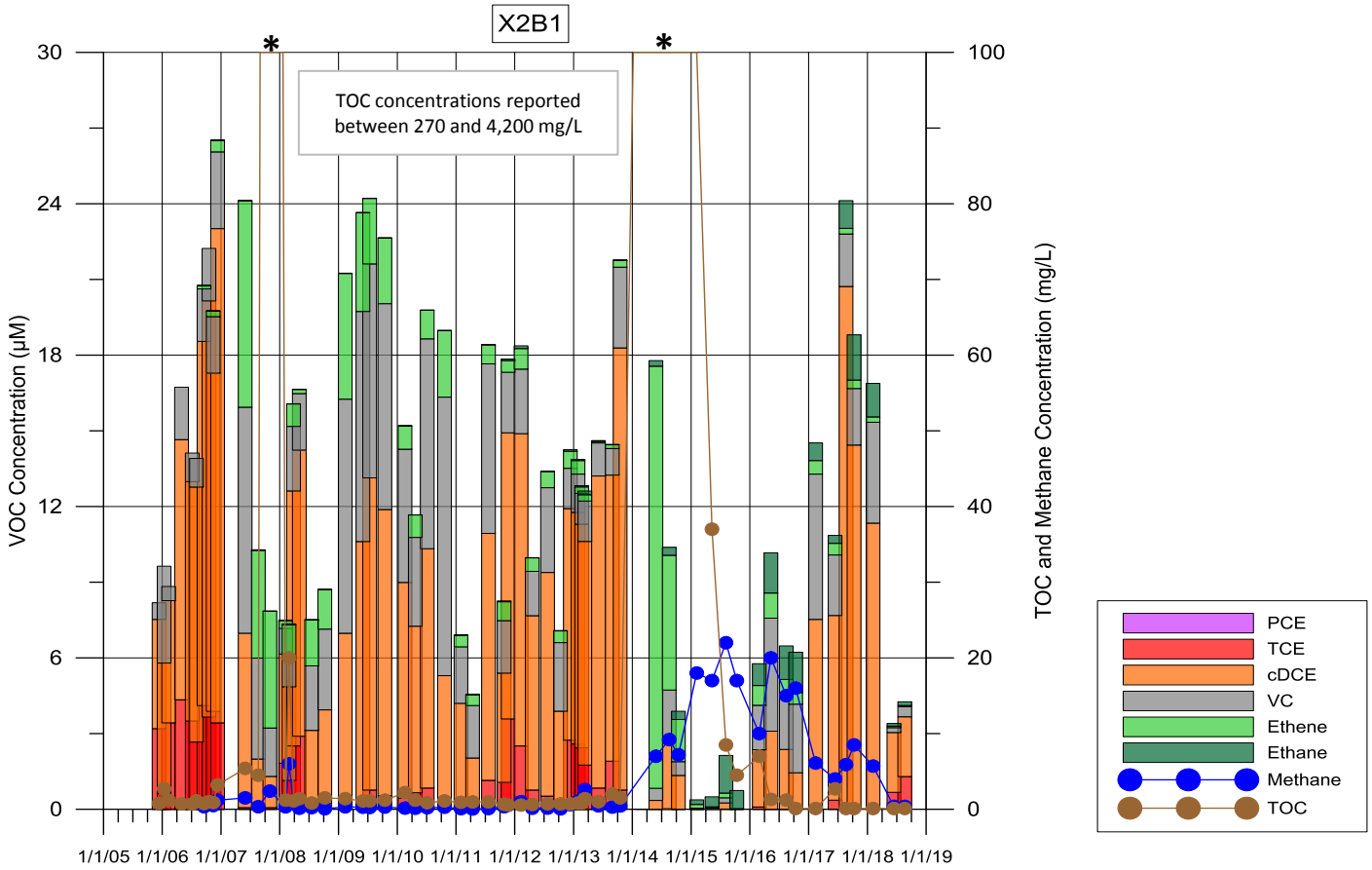
HALEY ALDRICH

ADVANCED MICRO DEVICES, INC.
FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

CONCENTRATION TREND PLOT FOR WELL X2A

OCTOBER 2018

FIGURE C-12



ADVANCED MICRO DEVICES, INC.
FORMER 901/902 THOMPSON PLACE
SUNNYVALE, CALIFORNIA

CONCENTRATION TREND PLOT FOR WELL X2B1

OCTOBER 2018

FIGURE C-13