

# **Transmittal**

Date:	February 27, 2019	Reference No.: 11	119022	
То:	Louise Bardy Washington Department of Ecology 3190 160th Avenue Southeast Bellevue, Washington 98008 5452			
Subject:	2018 Annual Groundwater Monitoring Report			
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1	2018 Annual Groundwater Monitoring Report		RPT-3	
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Remarks:				
Copy to:	Richard Wright, Jacksons Food Stores	- B.	DK.	
Complete	d by: Brian Peters [Please Print]	Signed:	Istof	

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2018 Annual Groundwater Monitoring Report

Jacksons Food Store No. 600-5030 3316 172nd Street Northeast Arlington, Washington

**Jacksons Food Stores** 









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## 1. Introduction

GHD Services, Inc. (GHD) prepared this report on behalf of Jackson's Food Stores. This annual report includes all groundwater monitoring data collected in 2018.

### 1.1 Site Information

Site Address 3316 172<sup>nd</sup> Street Northeast, Arlington

Site Use Jacksons Food Store No. 600-5030

GHD Project Manager Brian Peters

Lead Agency Washington State Department of Ecology

Agency Case No. 8894437

VCP No. NW2031

# 2. Site Activities and Findings

### 2.1 Current Activities

GHD gauged and sampled wells according to the established monitoring program during 2018.

GHD prepared a vicinity map (Figure 1) and groundwater contour and chemical concentration maps (Figure 2). GHD prepared Table 1 summarizing groundwater monitoring data and laboratory analytical results. Field forms and the laboratory analytical reports are included as Appendices A and B, respectively.

## 2.2 Findings

Quarter/Date 4<sup>th</sup> December 12, 2018

Groundwater Flow Direction Estimated to the southeast

Hydraulic Gradient 0.0007 foot/foot

Depth to Water 5.90 to 7.92 feet below top of well casing

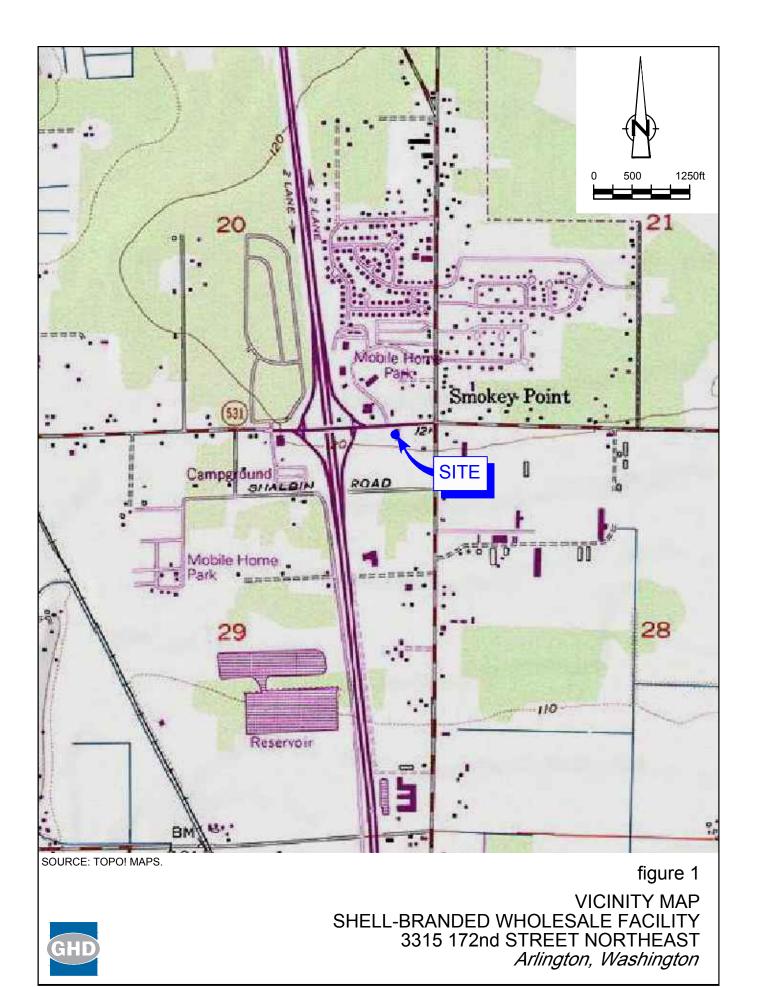
All of Which is Respectfully Submitted,

**GHD** 

Emily Blakeway

Brian Peters, LG

**Figures** 



11119022-18.01(003)GN-SO002 FEB 4, 2019

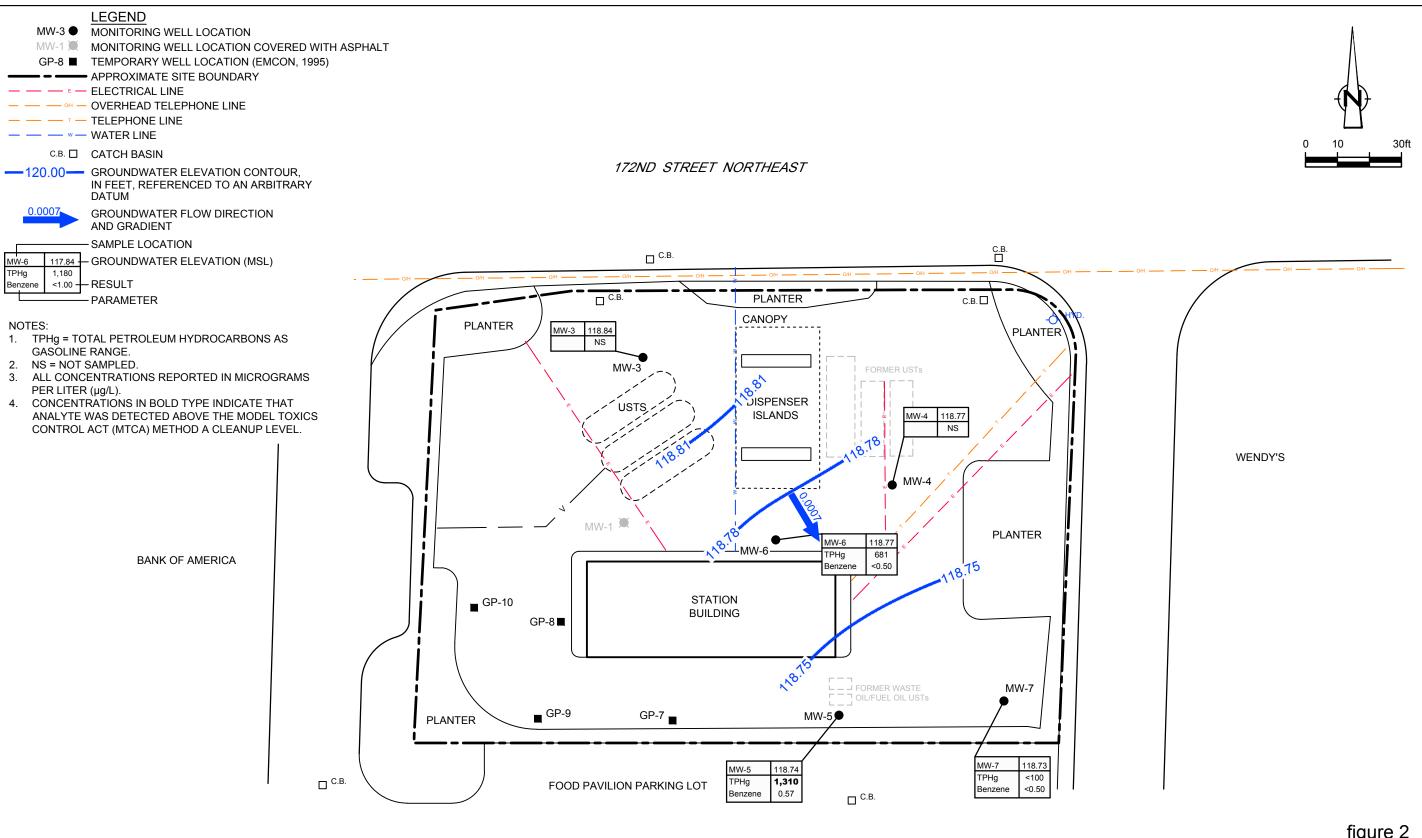


figure 2

GROUNDWATER CONTOUR AND CHEMICAL CONCENTRATION MAP **DECEMBER 12, 2018** JACKSON'S FOOD STORE NO. 600 Arlington, Washington





					н	DROCARBO	vs			PRIMAR	Y VOCs					OXYGENA	TES		Lead
Sample ID	Date	TOC	DTW	<b>GWE</b>	TPHg	TPHd	ТРНо	В	Т	E	X	EDB	EDC	MTBE	TBA	DIPE	ETBE	TAME	Total
Mode	Toxics Control	Act Method A	A Cleanup Le	vels	800 ug/L	500 ug/L	500 ug/L	5 ug/L	1000 ug/L	700 ug/L	1000 ug/L	0.01 ug/L	5 ug/L	20 ug/L	NE ug/L	NE ug/L	NE ug/L	NE ug/L	15 ug/L
MW-1	08/09/90	100	7.83	92.17				<50	<50	<50	<50								
MW-1	05/09/91	100	5.52	94.48	<1,000			23	<1	<1	<1								
MW-1	06/12/91	100	6.25	93.75				14	<1	<1	1								
MW-1	10/02/91	100	8.74	91.26	<1,000			29	10	<1	4								<1
MW-1	03/31/92	100	7.02	92.98	ND			61	<0.5	<0.5	<1			<2.5					1.1
MW-1	09/01/92	100	9.63	90.37	140			4	<0.5	<0.5	<1								
MW-1	04/01/93	99.54	8.30	91.24	130			2.2	0.57	<0.5	17								<2.0
MW-1	09/01/93	99.54	9.52	90.02	89			24	<0.5	<0.5	3.6								
MW-1	04/18/94	99.54	7.41	92.13	<50			<0.5	<0.5	<0.5	<0.5								<2.4 c
MW-1	10/10/94	99.54	11.02	88.52	2,900			1,500	530	1.9	440								
MW-1	01/09/95	99.54	7.96	91.58	<50			0.76	0.61	<0.5	2.2								
MW-1	04/10/95	99.54	6.91	92.63	<50			2.8	<0.5	<0.5	<1								
MW-1	08/18/95	99.54	8.71	90.83	<50			<0.5	<0.5	<0.5	<1.0								
MW-1	11/29/95	99.54	7.32	92.22	<50			<0.5	<0.5	<0.5	<1								
MW-1	02/12/96				ND			ND	ND	ND	ND								
MW-1	05/13/96				ND			ND	ND	ND	ND								
MW-1	05/20/97					U	nable to locat	te - Covered	with aspha	lt									
MW-3	08/09/90	98.32	6.05	92.27				<50	<50	<50	<50								
MW-3	05/09/91	98.32	3.78	94.54	<1,000			<1	<1	<1	<1								
MW-3	06/12/91	98.32	4.50	93.82				<1	<1	<1	<1								
MW-3	10/02/91	98.32	4.01	94.31	<1,000			<1	<1	<1	<1								<1
MW-3	03/31/92	98.32	5.33	92.99	<50			<0.5	<0.5	<0.5	<1								1.2
MW-3	09/01/92	98.32	7.97	90.35	<50			<0.5	<0.5	<0.5	<1								
MW-3	04/01/93	97.99	6.70	91.29	<50			0.53	2.5	ND	3.2								<2.0
MW-3	09/01/93	97.99	7.90	90.09	<50			<0.5	<0.5	<0.5	<1								
MW-3	04/18/94	97.99	5.78	92.21	<50			<0.5	<0.5	<0.5	<1								4.4
MW-3	10/10/94	97.99	9.37	88.62	<50			<0.5	<0.5	<0.5	<1								
MW-3	01/09/95	97.99	6.35	91.64	<50														
MW-3	04/10/95	97.99	5.32	92.67				<0.5	<0.5	<0.5	<1								
MW-3	08/18/95	97.99	7.08	90.91	<50														
MW-3	05/13/96	97.99	5.78	92.21				ND	ND	ND	ND								
MW-3	05/20/97	97.99	4.51	93.48	<50			<0.5	<0.5	<0.5	<1.0			<2					
MW-3	05/21/98	97.99	5.14	92.85	<50			<0.5	<0.5	0.67	1.98			<5					
MW-3	02/23/99	97.99	5.38	92.61															
MW-3	07/08/99	97.99	5.86	92.13															

					н	YDROCARBO	vs			PRIMAR	Y VOCs					OXYGENA1	ES		Lead
Sample ID	Date	TOC	DTW	GWE	TPHg	TPHd	ТРНо	В	Т	Ε	X	EDB	EDC	MTBE	TBA	DIPE	ETBE	TAME	Total
Model	Toxics Control	Act Method A	A Cleanup Le	vels	800 ug/L	500 ug/L	500 ug/L	5 ug/L	1000 ug/L	700 ug/L	1000 ug/L	0.01 ug/L	5 ug/L	20 ug/L	NE ug/L	NE ug/L	NE ug/L	NE ug/L	15 ug/L
MW-3	03/15/00	97.99	5.28	92.71															
MW-3	07/07/00	97.99	6.65	91.34															
MW-3	01/23/01	97.99	6.30	91.69															
MW-3	07/19/01	97.99	6.18	91.81															
MW-3	02/27/02	97.99	4.70	93.29	<50			<0.5	<0.5	<0.5	<1.00								
MW-3	07/12/02	97.99	6.08	91.91															
MW-3	01/09/03	97.99	7.19	90.80															
MW-3	07/15/03	97.99	6.94	91.05															
MW-3	01/19/04	97.99	6.02	91.97															
MW-3	07/01/04	97.99	6.70	91.29															
MW-3	01/05/05	97.99	5.73	92.26															
MW-3	07/08/05	97.99	6.26	91.73															
MW-3	01/05/06	97.99	5.94	92.05															
MW-3	01/25/07	97.99	4.52	93.47															
MW-3	07/06/07	97.99	6.16	91.83															
MW-3	01/07/08	97.99	5.23	92.76															
MW-3	07/08/08	97.99	6.18	91.81															
MW-3	01/19/09	97.99	4.40	93.59															
MW-3	04/06/09	124.74	4.72	120.02															
MW-3	07/16/09	124.74	6.42	118.32				<0.5	<1	<1	<1			<1	<10	<2	<2	<2	1.38
MW-3	10/07/09	124.74	7.75	116.99															
MW-3	01/18/10	124.74	4.16	120.58															
MW-3	07/27/10	124.74	5.82	118.92															
MW-3	10/07/10	124.74	6.61	118.13															
MW-3	04/08/11	124.74	3.33	121.41															
MW-3	07/28/11	124.74	5.37	119.37															
MW-3	10/13/11	124.74	6.88	117.86															
MW-3	02/09/12	124.74	4.88	119.86															
MW-3	04/30/12	124.74	3.81	120.93															
MW-3	07/20/12	124.74	4.96	119.78															
MW-3	10/01/12	124.74	6.71	118.03															
MW-3	01/09/13	124.74	3.44	121.30															
MW-3	04/09/13	124.74	4.22	120.52															
MW-3	07/22/13	124.74	6.00	118.74															
MW-3	10/17/13	124.74	6.76	117.98															
MW-3	01/27/14	124.74	6.44	118.30															

					н	YDROCARBOI	NS			PRIMAR	Y VOCs					OXYGENA	TES		Lead
Sample ID	Date	TOC	DTW	GWE	TPHg	TPHd	ТРНо	В	T	E	X	EDB	EDC	MTBE	TBA	DIPE	ETBE	TAME	Total
Mode	l Toxics Control	Act Method A	A Cleanup Le	vels	800	500	500	5	1000	700	1000	0.01	5	20	NE	NE	NE	NE	15
					ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-3	04/11/14	124.74	5.86	118.88															
MW-3	07/09/14	124.74	5.84	118.90															
MW-3	10/02/14	124.74	6.72	118.02															
MW-3	01/05/15	124.74	4.02	120.72															
MW-3	04/14/15	124.74	7.85	116.89															
MW-3	07/08/15	124.74	6.79	117.95															
MW-3	02/18/16	124.74	3.32	121.42															
MW-3	05/12/16	124.74	5.03	119.71															
MW-3	09/16/16	124.74	7.30	117.44															
MW-3	12/12/16	124.74	4.03	120.71															
MW-3	03/14/17	124.74	3.55	121.19															
MW-3	06/07/17	124.74	5.03	119.71															
MW-3	12/12/18	124.74	5.90	118.84															
MW-4	08/09/90	99.53	7.32	92.21				<50	<50	<50	<50								
MW-4	05/09/91	99.53	5.00	94.53	<1,000			<1	<1	<1	<1								
MW-4	06/12/91	99.53	5.74	93.79				<1	1	<1	1								
MW-4	10/02/91	99.53	8.22	91.31	<1,000			<1	<1	<1	<1								<1
MW-4	03/31/92	99.53	6.53	93.00	ND			<0.5	<0.5	<0.5	<1								<1
MW-4	09/01/92	99.53	9.16	90.37	<50			<0.5	<0.5	<0.5	<1								
MW-4	04/01/93	99.12	7.90	91.22	ND			<0.5	<0.5	<0.5	<1								<2
MW-4	09/01/93	99.12	8.09	91.03	ND			<0.5	<0.5	<0.5	<1								
MW-4	04/18/94	99.12	6.97	92.15	<50			<0.5	<0.5	<0.5	<1								<2.4 c
MW-4	10/10/94	99.12	10.56	88.56	<50			<0.5	<0.5	<0.5	<1								
MW-4	01/09/95	99.12	7.52	91.60	<50														
MW-4	04/10/95	99.12	6.46	92.66				<0.5	<0.5	<0.5	<1								
MW-4	08/18/95	99.12	8.26	90.86	<50														
MW-4	05/13/96	99.12	6.97	92.15				ND	ND	ND	ND								
MW-4	05/20/97	99.12	5.64	93.48	<50			<0.5	<0.5	<0.5	<1								
MW-4	05/21/98	99.12	6.29	92.83	<50			<0.5	<0.5	<0.5	<1			<5					
MW-4	02/23/99	99.12	6.55	92.57															
MW-4	07/08/99	99.12	7.01	92.11															
MW-4	03/15/00	99.12	6.43	92.69															
MW-4	07/07/00	99.12	7.80	91.32															
MW-4	01/23/01	99.12	7.44	91.68															
MW-4	07/19/01	99.12	7.36	91.76															

					н	YDROCARBOI	vs			PRIMAR	Y VOCs					OXYGENA1	ES		Lead
Sample ID	Date	тос	DTW	GWE	TPHg	TPHd	ТРНо	В	T	Ε	Х	EDB	EDC	MTBE	TBA	DIPE	ETBE	TAME	Total
Mode	el Toxics Control	Act Method A	A Cleanup Le	evels	800 ug/L	500 ug/L	500 ug/L	5 ug/L	1000 ug/L	700 ug/L	1000 ug/L	0.01 ug/L	5 ug/L	20 ug/L	NE ug/L	NE ug/L	NE ug/L	NE ug/L	15 ug/L
MW-4	02/27/02	99.12	5.88	93.24															
MW-4	07/12/02	99.12	7.21	91.91															
MW-4	01/09/03	99.12	8.33	90.79															
MW-4	07/15/03	99.12	8.09	91.03															
MW-4	01/19/04	99.12	7.18	91.94															
MW-4	07/01/04	99.12	7.83	91.29															
MW-4	01/05/05	99.12	6.93	92.19															
MW-4	07/08/05	99.12	7.44	91.68															
MW-4	01/05/06	99.12	7.07	92.05															
MW-4	01/25/07	99.12	5.67	93.45															
MW-4	07/06/07	99.12	7.38	91.74	<50			<0.5	<0.5	<0.5	<3			<5	<50	<1	<1	<1	
MW-4	01/07/08	99.12	6.46	92.66	<50			<0.5	<0.5	<0.5	<3								
MW-4	07/08/08	99.12	7.41	91.71	<50			<1	<1	<1	<1			<1	<5	<1	<1	<1	
MW-4	01/19/09	99.12	5.52	93.60	<100			<0.5	<1	<1	<1								
MW-4	04/06/09	125.87	5.87	120.00	<100			<0.5	<1	<1	<1								
MW-4	07/16/09	125.87	7.61	118.26				<0.5	<1	<1	<1	<0.01	<0.5	<1	<10	<2	<2	<2	<1
MW-4	10/07/09	125.87	8.97	116.90	<100			<0.5	<1	<1	<1								<1
MW-4	01/18/10	125.87	5.33	120.54	<100			<0.50	<1.0	<1.0	<1.0								
MW-4	04/06/10	125.87	6.16	119.71	<100			<0.50	<1.0	<1.0	<1.0								
MW-4	07/27/10	125.87	6.99	118.88	<100			<0.50	<1.0	<1.0	<1.0			<1.0	<10	<2.0	<2.0	<2.0	
MW-4	10/07/10	125.87	7.75	118.12	<100			<0.50	<1.0	<1.0	<1.0			<1.0	<10	<2.0	<2.0	<2.0	
MW-4	04/08/11	125.87	4.45	121.42															
MW-4	07/28/11	125.87	6.61	119.26															
MW-4	10/13/11	125.87	8.03	117.84															
MW-4	02/09/12	125.87	6.08	119.79															
MW-4	04/30/12	125.87	5.08	120.79															
MW-4	07/20/12	125.87	5.98	119.89															
MW-4	10/01/12	125.87	7.94	117.93															
MW-4	01/09/13	125.87	4.28	121.59															
MW-4	04/09/13	125.87	5.41	120.46															
MW-4	07/22/13	125.87	7.21	118.66															
MW-4	10/17/13	125.87	8.01	117.86															
MW-4	01/27/14	125.87	7.83	118.04															
MW-4	04/11/14	125.87	6.88	118.99															
MW-4	07/09/14	125.87	7.01	118.86															
MW-4	10/02/14	125.87	7.91	117.96															

					н	YDROCARBOI	vs			PRIMAR	Y VOCs					OXYGENAT	ES		Lead
Sample ID	Date	TOC	DTW	GWE	TPHg	TPHd	ТРНо	В	T	E	X	EDB	EDC	MTBE	TBA	DIPE	ETBE	TAME	Total
Mode	l Toxics Control	Act Method A	A Cleanup Le	vels	800 ug/L	500 ug/L	500 ug/L	5 ug/L	1000 ug/L	700 ug/L	1000 ug/L	0.01 ug/L	5 ug/L	20 ug/L	NE ug/L	NE ug/L	NE ug/L	NE ug/L	15 ug/L
MW-4	01/05/15	125.87	5.76	120.11															
MW-4	04/14/15	125.87	6.22	119.65															
MW-4	07/08/15	125.87	7.98	117.89															
MW-4	02/18/16	125.87	4.54	121.33															
MW-4	05/12/16	125.87	6.28	119.59															
MW-4	09/16/16	125.87	8.48	117.39															
MW-4	12/12/16	125.87	5.20	120.67															
MW-4	03/14/17	125.87	4.82	121.05															
MW-4	06/07/17	125.87	5.22	120.65															
MW-4	12/12/18	125.87	7.10	118.77															
MW-5	08/09/90	100.37	8.33	92.04	<1,000			<1	<1	<1	<1								
MW-5	05/09/91	100.37	6.01	94.36	<1,000			14	<1	<1	3 ј								
MW-5	06/12/91	100.37	6.60	93.77	<1,000			<1	<1	<1	<1								
MW-5	10/02/91	100.37	9.21	91.16	<1,000			<1	<1	<1	<1								<1
MW-5	03/31/92	100.37	7.51	92.86	<50	<1,000 d	<1,000 d	23	<0.5	<0.5	0.92								1.7
MW-5	09/01/92	100.37	10.08	90.29	57			30	<0.5	<0.5	4.7								
MW-5	04/01/93	99.92	8.76	91.16	70			1.7	<0.5	<0.5	<1								<2
MW-5	09/01/93	99.92	10.00	89.92	ND			<0.5	<0.5	<0.5	<1								
MW-5	04/18/94	99.92	7.85	92.07	190			220	0.89	14	2.7								<2.4 c
MW-5	08/01/94	99.92	10.11	89.81	190			0.67	<0.5	<0.5	<1								
MW-5	10/10/94	99.92	11.47	88.45	<50			<0.5	<0.5	<0.5	<1								
MW-5	01/09/95	99.92	8.43	91.49	ND			13	<0.5	<0.5	3								
MW-5	04/10/95	99.92	7.38	92.54	ND			45	<0.5	<0.5	<1.0								
MW-5	08/18/95	99.92	9.19	90.73	ND			<0.5	<0.5	<0.5	<1.0								
MW-5	11/29/95	99.92	7.81	92.11	<50			20	<0.5	<0.5	0.31								
MW-5	02/12/96				ND			200	ND	1	42								
MW-5	05/13/96				280			15	ND	ND	ND								
MW-5	05/20/97	99.92	6.68	93.24	ND			2.1	<0.5	<0.5	<0.5			<2					
MW-5	05/21/98	99.92	7.30	92.62	487			28.1	<0.5	5.53	50.9			<5					
MW-5	02/23/99	99.92	7.57	92.35	399			7.11	<0.5	7.41	50.5			<5					
MW-5	07/08/99	99.92	7.97	91.95	<50			<0.5	<0.5	<0.5	<1								
MW-5	03/15/00	99.92	7.34	92.58	<50			<0.5	<0.5	<0.5	<1								
MW-5	07/07/00	99.92	8.75	91.17	<50			<0.5	<0.5	<0.5	<1								
MW-5	01/23/01	99.92	8.34	91.58	<50			<0.5	<0.5	<0.5	<1								
MW-5	07/19/01	99.92	8.28	91.64	<50			<0.5	<0.5	<0.5	<1								

					н	YDROCARBO	NS			PRIMAR	Y VOCs					OXYGENA1	TES		Lead
Sample ID	Date	TOC	DTW	GWE	TPHg	TPHd	ТРНо	В	Т	Ε	X	EDB	EDC	MTBE	TBA	DIPE	ETBE	TAME	Total
Model	Toxics Control	Act Method A	A Cleanup Le	vels	800 ug/L	500 ug/L	500 ug/L	5 ug/L	1000 ug/L	700 ug/L	1000 ug/L	0.01 ug/L	5 ug/L	20 ug/L	NE ug/L	NE ug/L	NE ug/L	NE ug/L	15 ug/L
MW-5	02/27/02	99.92	6.80	93.12	135			4.77	<0.5	2	23.4								
MW-5	07/12/02	99.92	8.15	91.77	<250			<1	<1	<1	<1								
MW-5	01/09/03	99.92	9.25	90.67	<250			<1	<1	<1	<1								
MW-5	07/15/03	99.92	9.02	90.90	<250			<1	<1	<1	<1								
MW-5	01/19/04	99.92	8.08	91.84															
MW-5	07/01/04	99.92	8.78	91.14															
MW-5	01/05/05	99.92	7.84	92.08															
MW-5	07/08/05	99.92	8.38	91.54															
MW-5	01/05/06	99.92	7.98	91.94															
MW-5	01/25/07	99.92	6.60	93.32	<50			<0.5	<0.5	<0.5	<3								
MW-5	07/06/07	99.92	8.42	91.50	<50			<0.5	<0.5	<0.5	<3			<5.00	<50	<1	<1	<1	
MW-5	01/07/08	99.92	7.49	92.43	5,340			6.92	7.78	10.1	80.7								
MW-5	07/08/08	99.92	8.28	91.64	<1			<1	<1	<1	<1			<1	<5	<1	<1	<1	
MW-5	01/19/09	99.92	6.40	93.52	<100			<0.5	<1	<1	<1								
MW-5	04/06/09	126.66	6.80	119.86	310			6	1.3	32	34								
MW-5*	07/16/09	126.66	8.54	118.12	<100			<0.5	<0.5	<0.5	0.42	<0.01	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<1
MW-5	10/07/09	126.66	9.91	116.75	<100	<100	<100	1.1	<1	<1	<1								<1
MW-5	01/18/10	126.66	6.24	120.42	220			1.1	<1.0	3.6	24								
MW-5	04/06/10	126.66	7.02	119.64	390	340	<100	10	2.3	64	97								
MW-5	07/27/10	126.66	7.92	118.74	<100	<100	<100	<0.50	<1.0	<1.0	<1.0			<1.0	<10	<2.0	<2.0	<2.0	
MW-5	10/07/10	126.66	8.69	117.97	<100			< 0.50	<1.0	<1.0	<1.0			<1.0	<10	<2.0	<2.0	<2.0	
MW-5	04/08/11	126.66	5.41	121.25	<100			1.26	<1.00	4.42	4.83								
MW-5	07/28/11	126.66	7.56	119.10	<100			<1.00	<1.00	<1.00	<3.00								
MW-5	10/13/11	126.66	8.97	117.69	<100			<1.00	<1.00	<1.00	<3.00			<1.00	<10.0	<1.00	<1.00	<1.00	
MW-5	02/09/12	126.66	6.73	119.93	<100			<1.00	<1.00	<1.00	<3.00								
MW-5	04/30/12	126.66	5.69	120.97	245			<1.00	<1.00	5.21	20.6								
MW-5	07/20/12	126.66	6.90	119.76	<25			<1.0	<1.0	<1.0	<2.0								
MW-5	10/01/12	126.66	8.78	117.88	<100			<1.00	<1.00	<1.00	<3.00			<1.00	<10.0	<2.00	<1.00	<1.00	
MW-5	01/09/13	126.66	5.31	121.35	454			1.43	2.73	11.7	79.5								
MW-5	04/09/13	126.66	6.27	120.39	<100			<1.00	<1.00	<1.00	<3.00								
MW-5	07/22/13	126.66	8.20	118.46	<100			<1.00	<1.00	<1.00	<2.00								
MW-5	10/17/13	126.66	8.83	117.83	<100			<1.00	<1.00	<1.00	<2.00			<1.00	<10.0	<2.00	<1.00	<1.00	
MW-5	01/27/14	126.66	7.51	119.15	<100			<1.00	<1.00	3.33	9.02								
MW-5	04/11/14	126.66	6.46	120.20	125			<1.00	1.38	10.9	13.4								
MW-5	07/09/14	126.66	7.95	118.71	<100			<1.00	<1.00	<1.00	<2.00								
MW-5	10/02/14	126.66	8.84	117.82	<100			<1.00	<1.00	<1.00	<2.00			<1.00	<10.0	<2.00	<1.00	<1.00	
MW-5	01/05/15	126.66	6.08	120.58	307			2.25	<1.00	20.8	23.9								

					Н	DROCARBO	NS			PRIMAR	Y VOCs					OXYGENA1	TES		Lead
Sample ID	Date	TOC	DTW	GWE	TPHg	TPHd	ТРНо	В	Т	Ε	Х	EDB	EDC	MTBE	TBA	DIPE	ETBE	TAME	Total
Model	Toxics Control	Act Method A	A Cleanup Le	vels	800	500	500	5	1000	700	1000	0.01	5	20	NE	NE	NE	NE	15
					ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-5	04/14/15	126.66	7.04	119.62															
MW-5	07/08/15	126.66	8.91	117.75															
MW-5	02/18/16	126.66	5.41	121.25															
MW-5	05/12/16	126.66	7.19	119.47															
MW-5	09/16/16	126.66	9.38	117.28															
MW-5	12/12/16	126.66	6.09	120.57															
MW-5	03/14/17	126.66	5.69	120.97	<250			<0.50	1.1	3.9	23.4								
MW-5	06/07/17	126.66	7.19	119.47	<100			<1.0	<1.0	<1.0	<3.0								
MW-5	12/12/18	126.66	7.92	118.74	1,310			0.57	3.0	63.2	200								
		.20.00			.,			0.0.	0.0	00.2	_00								
MW-6	04/01/93	99.52	8.30	91.22	30,000			1,700	4,600	800	4,300								4.5
MW-6	09/01/93	99.52	9.51	90.01	46,000			3,600	8,400	1,200	6,700								
MW-6	04/18/94	99.52	7.39	92.13	77,000			3,700	11,000	1,900	11,000								2.4
MW-6	08/01/94	99.52	9.61	89.91				5,300	-		-								
					40.000			•	16,000	2,100	12,000								
MW-6	10/10/94	99.52	10.97	88.55	12,000			610	1,300	320	1,500								
MW-6	01/09/95	99.52	7.93	91.59	45,000			1,000	5,300	1,100	7,400								
MW-6	04/10/95	99.52	6.87	92.65	53,000			2,600	8,500	1,100	7,400								
MW-6	08/18/95	99.52	8.69	90.83	55,000			1,600	8,200	1,200	6,900								
MW-6	11/29/95	99.52	7.35	92.17	30,000			490	2,900	700	5,000								
MW-6	02/12/96				30,000			97	4,200	1,100	8,000								
MW-6	05/13/96				51,000			327	1,620	253	1,790								
MW-6	05/20/97	99.52	6.11	93.41	111,000			2,600	13,500	2,030	12,300			<400					
MW-6	05/21/98	99.52	6.74	92.78	104,000			4,100	18,800	2,490	15,200			<2,500					
MW-6	02/23/99	99.52	7.00	92.52	32,000			454	1,920	1,100	5,950								
MW-6	07/08/99	99.52	7.44	92.08	63,300			841	2,890	1,050	7,240								
MW-6	03/15/00	99.52	6.85	92.67	25,300			462	1,470	931	5,710								
MW-6	07/07/00	99.52	8.22	91.30	33,700			972	4,060	1,150	7,210								
MW-6	01/23/01	99.52	7.84	91.68	36,600			285	2,370	1,030	3,880								
MW-6	07/19/01	99.52	7.75	91.77	26,600			507	2,600	957	6,100			<5					
MW-6	02/27/02	99.52	6.27	93.25	20,200			243	806	985	5,120								
MW-6	07/12/02	99.52	7.65	91.87	28,000			190	870	610	-								
					-						4,300 5,400								
MW-6	01/09/03	99.52	8.74	90.78	38,000			190	2,300	880	5,400								
MW-6	07/15/03	99.52	8.51	91.01	50,000			350	4,200	1,200	7,400								
MW-6	01/19/04	99.52	7.59	91.93	31,000			130	1,100	710	4,800								
MW-6 a	07/01/04	99.52	8.28	91.24	32,000			210	2,800	1,100	7,100								
MW-6	01/05/05	99.52	7.35	92.17	21,000			87	1,000	810	5,500								

						Н	DROCARBO	vs			PRIMAR	Y VOCs					OXYGENA1	ES		Lead
Marke   1010-500   1	Sample ID	Date	TOC	DTW	<b>GWE</b>	TPHg	TPHd	ТРНо	В	Т	E	X	EDB	EDC	MTBE	TBA	DIPE	ETBE	TAME	Total
MW-6	Model	Toxics Control	Act Method A	A Cleanup Le	vels															
MN-6	MW-6	07/08/05	99.52	7.88	91.64	27,000			120	1,400	960	6,000								
MW-6	MW-6	01/05/06	99.52	7.48	92.04	17,300			37.8	458	606	3,740								
MM-6	MW-6	01/25/07	99.52	6.09	93.43	18,600			33.2	553	155	3,170								
MW-6	MW-6	07/06/07	99.52	7.87	91.65	<50 b			<0.5 b	<0.5 b	<0.5 b	<3 b			<5	<50	<1.00	<1.00	<1.00	
MW-6	MW-6	10/11/07	99.52	7.31	92.21	<250			81	2,760	1,340	8,690								
MW-6	MW-6	01/07/08	99.52	6.84	92.68	12,600			10.8	134	204	1,710								
MW-8 04/08/09 128.24 8.31 119.93 5,000 - 13 520 220 1,300	MW-6	07/08/08	99.52	7.76	91.76	7,900			19	310	320	1,770			<1	<5	<1	<1	<1	
MW-6	MW-6	01/19/09	99.52	5.89	93.63	3,200			8.6	46	140	710								
MW-6	MW-6	04/06/09	126.24	6.31	119.93	5,000			13	520	220	1,300								
MW-6 01/18/10 126.24 5.70 120.54 3,700 7.2 110 55 630	MW-6	07/16/09	126.24	8.00	118.24	3,500			9	300	81	990	<0.01	<2.5	<5	<50	<10	<10	<10	<1
MW-6 04/06/10 126.24 6.53 119.71 700 - 2.8 120 52 400 - 10.0 11.0 10.0 10.0 11.0 10.0 10.0	MW-6	10/07/09	126.24	9.27	116.97	7,900			13	350	390	2,600								<1
MW-6 07/27/10 126.24 7.40 118.84 2,600 4.8 200 81 740	MW-6	01/18/10	126.24	5.70	120.54	3,700			7.2	110	55	630								
MW-6 04/08/11 126.24 8.84 118.10 2.800 6.9 110 130 620 \$1.0 \$1.0 \$1.0 \$2.0 \$2.0 \$2.0 \$2.0 \$2.0 \$3.0 \$4.0 \$4.0 \$4.0 \$4.0 \$4.0 \$4.0 \$4.0 \$4	MW-6	04/06/10	126.24	6.53	119.71	700			2.8	120	52	400								
MW-6 04/08/11 126.24 4.85 121.39 11,000 20.1 964 528 2,500	MW-6	07/27/10	126.24	7.40	118.84	2,600			4.8	200	81	740			<1.0	<10	<2.0	<2.0	<2.0	
MW-6         07/28/11         126.24         7.01         119.23         10,500	MW-6	10/07/10	126.24	8.14	118.10	2,800			6.9	110	130	620			<1.0	<10	<2.0	<2.0	<2.0	
MW-6 02/09/12 126:24 8.42 117.82 7,200 8.69 482 195 1,260 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 < 1.00 - <1.00 <1.00 - <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <	MW-6	04/08/11	126.24	4.85	121.39	11,000			20.1	964	528	2,500								
MW-6         02/09/12         126.24         6.46         119.78         5,090	MW-6	07/28/11	126.24	7.01	119.23	10,500			10.1	536	497	2,810								
MW-6         04/30/12         126.24         5.21         121.03         2,950	MW-6	10/13/11	126.24	8.42	117.82	7,200			8.69	482	195	1,260			<1.00	<10.0	<1.00	<1.00	<1.00	
MW-6 07/20/12 126.24 6.40 119.84 4,700 < 0 110 77 840	MW-6	02/09/12	126.24	6.46	119.78	5,090			8.25	244	185	891								
MW-6 01/09/13 126.24 8.28 117.96 1,610 3.53 52.3 95.7 473 <1.00 <10.0 <2.00 <1.00 <1.00 MW-6 01/09/13 126.24 4.78 121.46 481 <1.00 6.21 6.19 116	MW-6	04/30/12	126.24	5.21	121.03	2,950			1.13	36.5	15.3	343								
MW-6 01/09/13 126.24 4.78 121.46 481 <1.00 6.21 6.19 116	MW-6	07/20/12	126.24	6.40	119.84	4,700			<20	110	77	840								
MW-6 04/09/13 126.24 5.81 120.43 111 < < < < < < < <	MW-6	10/01/12	126.24	8.28	117.96	1,610			3.53	52.3	95.7	473			<1.00	<10.0	<2.00	<1.00	<1.00	
MW-6 07/22/13 126.24 7.60 118.64 4,840 3.88 136 112 1,170	MW-6	01/09/13	126.24	4.78	121.46	481			<1.00	6.21	6.19	116								
MW-6 10/17/13 126.24 8.31 117.93 4,890 5.00 173 153 937 <1.00 <10.0 <2.00 <1.00 <1.00	MW-6	04/09/13	126.24	5.81	120.43	111			<1.00	<1.00	<1.00	18.1								
MW-6 01/27/14 126.24 6.97 119.27 855 1.06 36.5 1.74 205	MW-6	07/22/13	126.24	7.60	118.64	4,840			3.88	136	112	1,170								
MW-6 04/11/14 126.24 5.98 120.26 5,300 7.00 287 188 1,600	MW-6	10/17/13	126.24	8.31	117.93	4,890			5.00	173	153	937			<1.00	<10.0	<2.00	<1.00	<1.00	
MW-6 07/09/14 126.24 7.39 118.85 <b>6,330</b> 4.40 59.7 247 <b>1,220</b> <	MW-6	01/27/14	126.24	6.97	119.27	855			1.06	36.5	1.74	205								
MW-6 10/02/14 126.24 8.28 117.96 <b>1,970</b> <1.00 152 62.3 447 <1.00 <10.0 <10.0 <2.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 152 62.3 447 <1.00 1.57 27.0 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 1.57 27.0	MW-6	04/11/14	126.24	5.98	120.26	5,300			7.00	287	188	1,600								
MW-6 01/05/15 126.24 5.63 120.61 <100 < <- <- 1.00 5.37 1.57 27.0 < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < < <	MW-6	07/09/14	126.24	7.39	118.85	6,330			4.40	59.7	247	1,220								
MW-6 04/14/15 126.24 6.55 119.69 259 <1.00 5.33 2.67 36.4	MW-6	10/02/14	126.24	8.28	117.96	1,970			<1.00	152	62.3	447			<1.00	<10.0	<2.00	<1.00	<1.00	
MW-6 07/08/15 126.24 8.40 117.84 <b>1,180</b> <1.00 95.7 27.5 295	MW-6	01/05/15	126.24	5.63	120.61	<100			<1.00	5.37	1.57	27.0								
MW-6 02/18/16 126.24 4.89 121.35 472 <1.0 11.3 8.2 53.6	MW-6	04/14/15	126.24	6.55	119.69	259			<1.00	5.33	2.67	36.4								
MW-6 05/12/16 126.24 6.66 119.58 <b>1,100</b> <1.0 10.2 27.7 155	MW-6	07/08/15	126.24	8.40	117.84	1,180			<1.00	95.7	27.5	295								
, , , , , , , , , , , , , , , , , , ,	MW-6	02/18/16	126.24	4.89	121.35	472			<1.0	11.3	8.2	53.6								
MW-6 09/16/16 126.24 8.91 117.33 <b>3,690</b> 2.3 300 177 744	MW-6	05/12/16	126.24	6.66	119.58	1,100			<1.0	10.2	27.7	155								
	MW-6	09/16/16	126.24	8.91	117.33	3,690			2.3	300	177	744								

Table 1 Page 9 of 11

					H	YDROCARBOI	vs			PRIMAR'	Y VOCs					OXYGENA	TES		Lead
Sample ID	Date	TOC	DTW	<b>GWE</b>	TPHg	TPHd	ТРНо	В	Τ	Ε	Х	EDB	EDC	MTBE	TBA	DIPE	ETBE	TAME	Total
Model	Toxics Control	Act Method A	A Cleanup Le	evels	800 ug/L	500 ug/L	500 ug/L	5 ug/L	1000 ug/L	700 ug/L	1000 ug/L	0.01 ug/L	5 ug/L	20 ug/L	NE ug/L	NE ug/L	NE ug/L	NE ug/L	15 ug/L
MW-6	12/12/16	126.24	5.58	120.66	3,130			1.6	89.4	9.4	555								
MW-6	03/14/17	126.24	5.20	121.04	<250			< 0.50	0.60	< 0.50	3.5								
MW-6	06/07/17	126.24	6.64	119.60	2,310			<1.0	20.4	46.3	185								
MW-6	12/12/18	126.24	7.47	118.77	681			<0.50	5.3	9.2	93.0								
MW-7	05/27/09	126.36	7.07	119.29															
MW-7	07/16/09	126.36	8.13	118.23	<100			<0.5	<1	<1	<1			<1	<10	<2	<2	<2	<1
MW-7	10/07/09	126.36	9.51	116.85	<100			<0.5	<1	<1	<1								<1
MW-7	01/18/10	126.36	5.94	120.42	<100			< 0.50	<1.0	<1.0	<1.0								

Table 1 Page 10 of 11

					H	/DROCARBOI	vs			PRIMAR	Y VOCs					OXYGENAT	TES		Lead
Sample ID	Date	TOC	DTW	GWE	TPHg	TPHd	ТРНо	В	T	Ε	Х	EDB	EDC	MTBE	TBA	DIPE	ETBE	TAME	Total
Mode	Toxics Control	Act Method A	Cleanup Le	vels	800	500 ug/L	500 ug/L	5	1000	700	1000	0.01	5 ug/L	20	NE ug/L	NE ug/L	NE	NE ug/l	15
					ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-7	04/06/10	126.36	6.79	119.57	<100			<0.50	<1.0	<1.0	<1.0								
MW-7	07/27/10	126.36	7.61	118.75	<100			<0.50	<1.0	<1.0	<1.0			<1.0	<10	<2.0	<2.0	<2.0	
MW-7	10/07/10	126.36	8.35	118.01	<100			<0.50	<1.0	<1.0	<1.0			<1.0	<10	<2.0	<2.0	<2.0	
MW-7	04/08/11	126.36	5.03	121.33															
MW-7	07/28/11	126.36	7.22	119.14															
MW-7	10/13/11	126.36	8.36	118.00															
MW-7	02/09/12	126.36	6.68	119.68															
MW-7	04/30/12	126.36	5.42	120.94															
MW-7	07/20/12	126.36	6.61	119.75															
MW-7	10/01/12	126.36	8.49	117.87															
MW-7	01/09/13	126.36	4.94	121.42															
MW-7	04/09/13	126.36	6.00	120.36															
MW-7	07/22/13	126.36	7.81	118.55															
MW-7	10/17/13	126.36	8.51	117.85															
MW-7	01/27/14	126.36	6.83	119.53															
MW-7	04/11/14	126.36	5.62	120.74															
MW-7	07/09/14	126.36	7.64	118.72															
MW-7	10/02/14	126.36	8.48	117.88															
MW-7	01/05/15	126.36	5.87	120.49															
MW-7	04/14/15	126.36	6.80	119.56															
MW-7	07/08/15	126.36	8.56	117.80															
MW-7	02/18/16	126.36	5.11	121.25															
MW-7	05/12/16	126.36	6.88	119.48															
MW-7	09/16/16	126.36	9.08	117.28															
MW-7	12/12/16	126.36	5.78	120.58															
MW-7	03/14/17	126.36	5.40	120.96	<250			<0.50	<0.50	<0.50	<1.5								
MW-7	06/07/17	126.36	6.84	119.52	<100			<1.0	<1.0	<1.0	<3.0								
MW-7	12/12/18	126.36	7.63	118.73	<100			<0.50	<0.50	<0.50	<1.5								

Table 1 Page 11 of 11

## Summary of Groundwater Monitoring Data Jackson's Food Store No. 600-5030 3315 172nd Street Northeast Arlington, Washington

					HY	/DROCARBON	IS			PRIMAR	Y VOCs					OXYGENAT	TES		Lead
Sample ID	Date	TOC	DTW	<b>GWE</b>	TPHg	TPHd	TPHo	В	Τ	E	X	EDB	EDC	MTBE	TBA	DIPE	ETBE	TAME	Total
Model T	oxics Control	Act Method A	Cleanup Lev	els	800	500	500	5	1000	700	1000	0.01	5	20	NE	NE	NE	NE	15
					ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L

#### Notes:

DTW = Depth to Water in feet

GWE = Groundwater Elevation in feet relative to arbitrary benchmarks; above mean see level after 04/06/09

TOC = Top of Casing in feet relative to arbitrary benchmark; above mean see level after 04/06/09

All results in micrograms per liter (µg/L) unless otherwise indicated.

TPHg = Total petroleum hydrocarbons as gasoline analyzed by NWTPH-Gx unless otherwised noted.

TPHg<sup>a</sup> = The higher value is based on the assumption that no benzene is present in the groundwater sample. If any detectable amount of benzene is found, use the lower value.

TPHd = Total petroleum hydrocarbons as diesel, analyzed by WTPH-Dx unless otherwised noted.

TPHo = Total petroleum hydrocarbons as oil, analyzed by WTPH-Dx unless otherwised noted.

BTEX = Benzene, toluene, ethylbenzene, and xylenes analyzed by EPA Method 8260B unless otherwise noted.

Xylenes = o-xylene + m,p-xylene

EDB = 1,2-Dibromoethane analyzed by EPA Method 8260B

EDC = 1,2-Dichloroethane analyzed by EPA Method 8260B

MTBE = Methyl tertiary-butyl ether analyzed by EPA Method 8260B

TBA = Tertiary-butanol analyzed by EPA Method 8260B

DIPE = Di-isopropyl ether analyzed by EPA Method 8260B

ETBE = Ethyl tertiary-butyl ether analyzed by EPA Method 8260B

TAME = Tertiary-amyl methyl ether analyzed by EPA Method 8260B

Total lead analyzed by EPA Method 6020

<x = Not detected at laboratory reporting limit x</p>

--- = Not analyzed or not available

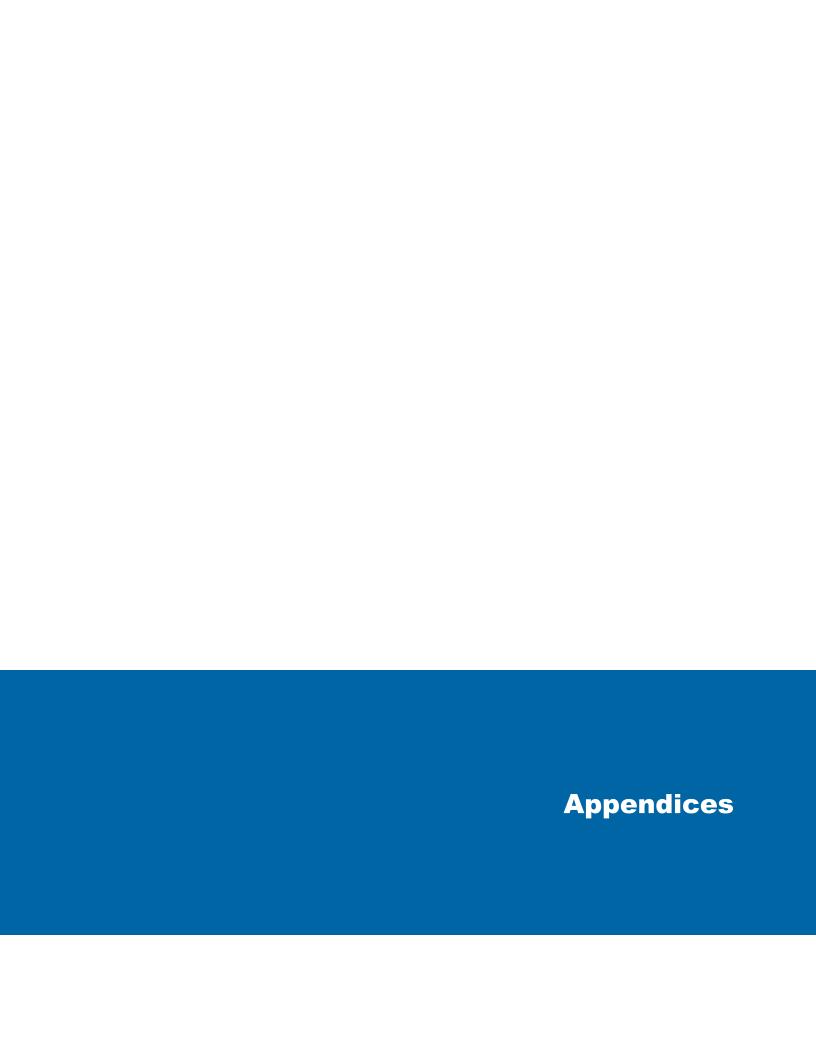
Concentrations in bold type indicate the analyte was detected above MTCA Method A cleanup levels

ND = Not detected at a concentration above laboratory method reporting limit as previously reported by others.

\* = Sample also analyzed for polychlorinated biphenyls (PCBs) by EPA Method 8082, and halogenated volatile organic compounds (HVOCs) by EPA Method 8260B. For those constituents analyzed, none of the concentrations

exceeded the laboratory method detection limits. Please see applicable laboratory report(s) for more information.

- a = Samples received at laboratory at ambient temperature.
- b = Based on historic BTEX and gasoline-range TPH concentrations, sample results appear suspect.
- c = Lead data missing from lab report. <x value calculated from report, as 2.4 µg/L reported as a detection in report, and thus, ND values must be below this value.
- d = Total petroleum oil hydrocarbons run by method WTPH-418.1. See laboratory report for more information.
- j = Compound detected but below reportable limit.
- e = The sample chromatographic pattern for TPH does not match the chromatographic pattern of the specified standard. Quantitation of the unknown hydrocarbon(s) in the sample was based upon specified standard.



Appendix A Field Forms

## WELL GAUGING DATA

Project # 181212 - HP1			D	ate 12/13	2118	Client	GHO		
Site	331 5	1722	S1.	NE,	Arling ton	, wA	***************************************		

		Well		Depth to	Thickness of	Volume of Immiscibles			Survey Point:	
Well ID	Time	Size (in.)	Sheen / Odor	Immiscible Liquid (ft.)	Immiscible	Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	TOB or	Notes
Mw-3	0920	2					5.90	14.16		
mw-n	0927	\$					7.10	14.83	SERVING STATEMENT OF THE SERVING SERVI	
mw-5	0931	n					7.92	14.41	difference of the control of the con	
W~~ 0	0933	فأ					7.47	14.49	es d'appar commontes	
m~-7	0929	ત					7.63	14.60		
				·						
- "										
										,
		٠								
						-				
		·								

# LOW FLOW WELL MONITORING DATA SHEET

		LOWI			1011110			
Project #:	181212-1	1P1		Client: (	ан0			
Sampler:	np			Gauging D	ate: 12/1	2/18		
Well I.D.:	: mw-5			Well Diam	eter (in.) :	2 3	3 6 8	
Total Wel	ll Depth (f	t.): [ ^ .'	1)	Depth to V	Vater (ft.)	: 7.92		
	Free Produ			Thickness	of Free Pr	oduct (fe	et):	
Reference	<del></del>	W	Grade	Flow Cell				
Purge Metho Sampling M		2" Grundfo Dedicated	-		Peristaltic P	-	Bladder Pump Other_	
Start Purge	Гіте: <b>1015</b>		Flow Rate: _	100 mL	min		Pump Depth:	12'
Time	Temp.	pН	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or fall)	Depth to Water (ft.)
1021	11.16	6.00	116	19	2.02	-271	600	8.00
1024	11-27	5.92	116	10	1-05	- 288	900	8-00
1027	11.59	5.91	(17	9	0.96	- 289	1200	8,00
1030	11.58	5.91	117	lo	0.94	-290	1500	8.00
1033	11.51	5.92	117	9	0.90	-293	(800	8. €
					ļ			
Did well	ldewater?	Yes	160		Amount a	l actually e	evacuated: 4	 & L
Sampling	Time: 10	34			Sampling	Date: \	21,2118	
Sample I.	D.: 6w-1111	9072-503	0-12/12/18	- mw.5	Laborato	ry: f	Pare	
Analyzed	for:	TPH-G	BTEX MTE	BE TPH-D		Other:	see (10.c.	
Equipmen	nt Blank I.	D.:	@ Time		Duplicate	i.D.:		

## LOW FLOW WELL MONITORING DATA SHEET

		LOW F.	LOW WE	DE 11101 (X	2 0 2 2 2 2 2 2						
Project #:	181212-	ны		Client:	GHD						
Sampler:	НР			Gauging D	ate: 12/12	118					
Well I.D.:	: mn-6			Well Diameter (in.): 2 3 (4) 6 8							
	ll Depth (f	t.): 14.	41	Depth to W	Vater (ft.)	7.92					
	Free Produ			Thickness of Free Product (feet):							
Reference		PVC	Grade	Flow Cell Type: 451 556							
Keletence											
Purge Metho Sampling M		2" Grundfo Dedicated	-	Peristaltic Pump Bladder Pump New Tubing Other							
Start Purge	Time: 1042		Flow Rate: _	100 ml	min		Pump Depth:	121			
Time	Temp.	рН	Cond. (mS/cm or	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)			
1048	11.73	5.83	85	16	1-85	-274	600	7.96			
1051	11-77	5.81	86	11	1.05	-294	990	7.97			
1059	11.83	5.80	85	10	0.72	- 300	(200	7.97			
1025	11.92	5.79	85	10	0-71	-301	1500	7.97			
1100	11.90	5.79	85	(0	0.66	-302	1800	7.97			
			-								
		,		·							
								<u></u>			
Did well	dewater?	Yes	<b>®</b>		Amount	actually 6	evacuated: 1-	8 L.			
Sampling	g Time:	HOTE	1161		Sampling	g Date: 1	2/12/18				
Sample I	.D.: 6w-111	19022-57	030-12/12/18	- Mw-6	Laborato	ry: Pace	2				
Analyzed		TPH-G	BTEX MT			Other: S	ee (.0,(.				
Equipme	nt Blank I.	D.:	@ Time		Duplicate						

Blaine Tech Services, Inc. 1680 Rogers Ave., San Jose, CA 95112 (408) 573-0555

## LOW FLOW WELL MONITORING DATA SHEET

		LOWE	EU II IIE	ALL IVIOIVE	LOXULTO	******	O	
Project #:	181212-1	101		Client: 6	.HÛ			
Sampler:	MP		£	Gauging D	ate: 12/12	16		
Well I.D.	: m~-7		**************************************	Well Diam	eter (in.)	2 3	4 6 8	
Total We	ll Depth (f	t.): 17	.60	Depth to V	Vater (ft.)	: 7.63		
Depth to	Free Produ	ıct:	-	Thickness	of Free Pr	oduct (fe	eet):	
Reference		PV)	Grade	Flow Cell	Type:	451 53	76	
Purge Metho Sampling M		2" Grundfo	-		Peristaltic P New Tubing	•	Bladder Pump Other_	
Start Purge	Гіте: <u>69</u> 9	3	Flow Rate: _	100 mL	min	<del></del> .	Pump Depth:	12'
Time	Temp.	рН	Cond. (mS/cm or	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or ful)	Depth to Water (ft.)
0949	11.16	6-25	123	55	1-28	-283	600	7.86
0952	11.53	6.17	122	22	1-03	-291	900	7.86
0955	11.66	6.15	122	19	0.98	- 293	1200	7-86
0958	11.73	6.15	121	19	0.97	-293	1200	7-86
[00]	11.80	6.15	121	20	0.96	-294	1800	7-86
						,		
				·				
Did well	ldewater?	Yes	<u> </u>		Amount a	lactually e	evacuated: \	<u> </u> કે પ
Sampling	Time:	002			Sampling			
			030-12/12/1	es _ answ 2	Laborato			
					Laudialo			
Analyzed		TPH-G	BTEX MTI	BE TPH-D	<del>,</del>		tee Co.C.	
Equipmen	nt Blank I.	D.:	Time		Duplicate	e I.D.:		

## CHAIN-OF-CUSTODY / Analytical Request Document

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

www.pacelabs.com			Miles	
Section A Section B Required Client Information: Required Project Information:	ing the Artist Charles of the Community	Section C	Pag	
Company: 6HD Report To: BRTAN, PE	Terse 640.com	Attention:		2302754
Address: 20818 44TH AVELY. STE190 COPY TO: LEFFREY.	CLOUDE GHD.COM	Company Name: GHD	REGULATORY AGENCY	Dan be in this per the big but a Subar San Washington and space of the Subar Barbara and the best before the co
LYNNWOOD, WA 98036	CCOURT OND. COM	Address:	□ NPDES □ GROU	
Email To: BRIAN. PETERS C GHD. COM Purchase Order No.:  Phone: Fax: Project Name:		Pace Quote		
i tolectivatile, 1 1 10		Reference: Pace Project		OTHER
	LINGTON	Manager: JENNIFER GROSS	Site Location ARION	
STANDARD Project Number: 11196	22		262	
Section D Matrix Codes		areada area area area area area area are	Requested Analysis Filtered (Y/N)	
Required Client Information  Matrix Codes  MATRIX / CODE	COLLECTED	Preservatives S N	\N\H	
Required Client Information  MATRIX / CODE  Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL SAMPLE ID  Wine Wine Wine  Water WW Dill SAMPLE ID  Wine Wine  WATRIX / CODE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	S	27/400		
Waste Water WW □ □ □ CC	MPOSITE COMPOSITE LATER END/GRAB			9
Product P Soil/Soild SL 88 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Jos	ω	Orgenate	( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( (
(A-7 0-9 / -)	AT	NER		orine
Sample IDs MUST BE UNIQUE Tissue TS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	EMP	Ved	1 2 2	Ch
# ₩ PLE NX	J-E-J-E	CON 13 13 13 13 13 13 13 13 13 13 13 13 13		qual
MATRIX SAMPLE:	TIME DATE TIME S	# OF CONTAINERS Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCI NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Methanol Other	(3) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	Residual Chlorine (Y/N)
1 Gw-11119022-5030-12/12/18-mw-6 WT 12/12		6 1 1 1		Pace Project No./ Lab I.D.
2 GW-11119022-5030-12/12/18-MW-5 WT 12/12	18 1034 1034		X X	
3 GW-11119022-5030-12/12/18-MW-7 NT 12/12			XXX	
4				
5				
G				
7				
8 (,				
9 '.				
10				
11				
12				
ADDITIONAL COMMENTS RELINQUISHED		TIME ACCEPTED BY / A	FFILIATION DATE TIME	SAMPLE CONDITIONS
Yutrick to B	bainetechoses 12/12/18	(800)		
<u> </u>	SAMPLER NAME AND SIGNATUR	L L		o on (4)
ORIGINAL	PRINT Name of SAMPLER	: Patrick Ho		p in °(  Vived c  (Y/N)  A Coo  (IN)  From the cool of
J J	SIGNATURE of SAMPLER		DATE Signed (MM/DD/YY): 12/12/13	Temp in °C Received on Ice (Y/N) Custody Sealed Cooler (Y/N)

# **WELLHEAD INSPECTION FORM**

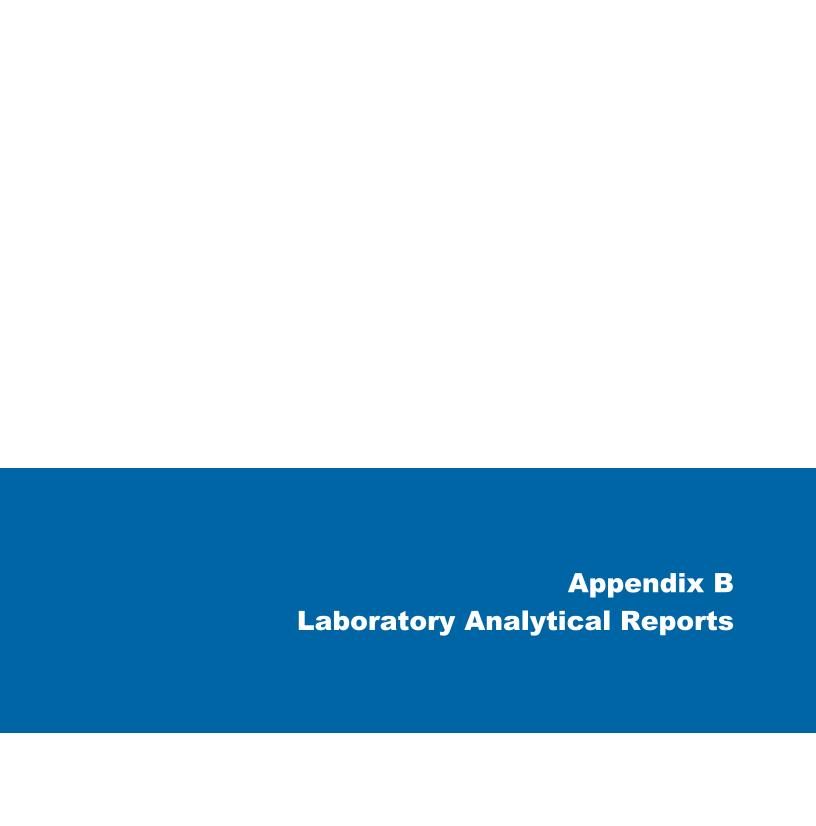
Client: जम्		Si	te:	331	5 1=	72 m	St	. ~	E,	Ar	ling	700	, w	A	Date: 12/12/18	
Job # : 181212 - MP1					Tec	hnic	ian:		HP.						Page of	
				·····				tes de								
	Well Inspected - No Corrective Action Required	Cap non-functional	ock non-functional	Lock missing	Bolts missing (list qty)	<u> </u>		Annular seal incomplete	Apron damaged		ſrip Hazard	Below Grade	Other (explain in notes)	Well Not Inspected (explain in notes)	Notes (list if cap or lick replaced, if there are accissues associated with repairs, if traffic cosis required, if stand pipe damaged, or a	ntrol
Well ID	Well	Сар	Loc		Bolt	Tab	Tab	Ann	Apre	Rim	Trj-	Belc		(ext	specific details not covered by checklis	
mn-3				×		2							A		water builed	
mw - 4					2								×		water bailed	
mn- 6					2										mater bailed	
m~-6				×	-											
m w - 7													۴		water bailed	
100																
					-											
	,															
NOTES:				•												

# **TEST EQUIPMENT CALIBRATION LOG**

PROJECT NAM	ME 6HO @ JF	S Helengton		PROJECT NUMBER 181212-HPI							
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP.	INITIALS				
451 556	·	12112118	рН- Ч 7 10	4.02 7.04 10.06	J.	40'F	~				
			60~1-3900 0KP-242	3915 242	✓		~				
			00-100-/	100-1.	<b>√</b>	**************************************					
,											

# SPH or Purge Water Drum Log

Client: GHD						
Site Address: 3315 172 St.	NE, Arli	reston in	<b>A</b>			
STATUS OF DRUM(S) UPON		and the control of the last of the control of the c		1979 1971 1971		
Date	12/12/18					
Number of drum(s) empty:	Ø					
Number of drum(s) 1/4 full:	Ø					
Number of drum(s) 1/2 full:	Ø					
Number of drum(s) 3/4 full:	Ø					
Number of drum(s) full:	Ø					
Total drum(s) on site:	Ø					
Are the drum(s) properly labeled?	Ma					
Drum ID & Contents:	nla					
If any drum(s) are partially or totally filled, what is the first use date:	nla					
- If you add any SPH to an empty or partiall					ater or DI Wat	ter.
-If drum contains SPH, the drum MUST be		led with the ap	propriate iab	eı.		
-All BTS drums MUST be labeled appropria STATUS OF DRUM(S) UPON		IIDE				2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
Date	12/12/18	JIL		T		
Number of drums empty:	Ø	·				
Number of drum(s) 1/4 full:				<u></u>		
Number of drum(s) 1/2 full:	Ø					
Number of drum(s) 3/4 full:	0%					
Number of drum(s) full:	Ø					
Total drum(s) on site:	1					
Are the drum(s) properly labeled?	ves					
Drum ID & Contents:	Purge Water					
LOCATION OF DRUM(S)	<u> </u>		9.00	1		
Describe location of drum(s): New	- NN-7	<b>\</b>				
Describe location of drain(s). Prem	, M.1.0 - 4-	by du	mater e	en closure		
FINAL STATUS  Number of new drum(s) left on site	T		T	T	T	T
this event	l					
Date of inspection:	12/12/18					
Drum(s) labelled properly:	yes					
Logged by BTS Field Tech:	HP					
Office reviewed by:						







December 31, 2018

Brian Peters GHD Services, Inc. 20818 44th Avenue W Suite 190 Lynnwood, WA 98036

RE: Project: 11119022 JFS Arlington Pace Project No.: 10459036

#### Dear Brian Peters:

Enclosed are the analytical results for sample(s) received by the laboratory on December 15, 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.

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

Sincerely,

Jennifer Gross

jennifer.gross@pacelabs.com (206)957-2426

ENNI GROSS

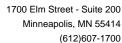
Project Manager

Enclosures

cc: Emily Blakeway, GHD

Jeffrey Cloud, GHD Services Inc.







#### **CERTIFICATIONS**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

**Minnesota Certification IDs** 

1700 Elm Street SE, Minneapolis, MN 55414-2485

A2LA Certification #: 2926.01 Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014 Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 CNMI Saipan Certification #: MP0003 Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8+Wyoming DW Certification #: via MN 027-

053-137

Florida Certification #: E87605 Georgia Certification #: 959

Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062

Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: 03086 Louisiana DW Certification #: MN00064 Maine Certification #: MN00064

Maryland Certification #: 322

Massachusetts Certification #: M-MN064

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Certification #: via MN 027-053-137

Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647

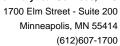
North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon NwTPH Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DW Certification #: 9952 C
West Virginia DEP Certification #: 382

Wyoming UST Certification #: via A2LA 2926.01

Wisconsin Certification #: 999407970



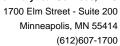


### **SAMPLE SUMMARY**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10459036001	GW-11119022-5030-12/12/18-MW-6	Water	12/12/18 11:01	12/15/18 09:30
10459036002	GW-11119022-5030-12/12/18-MW-5	Water	12/12/18 10:34	12/15/18 09:30
10459036003	GW-11119022-5030-12/12/18-MW-7	Water	12/12/18 10:02	12/15/18 09:30





### **SAMPLE ANALYTE COUNT**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10459036001	GW-11119022-5030-12/12/18-MW-6	NWTPH-Gx	AG1	2	PASI-M
		EPA 8260B	DS2	7	PASI-M
10459036002	GW-11119022-5030-12/12/18-MW-5	NWTPH-Gx	AG1	2	PASI-M
		EPA 8260B	DS2	7	PASI-M
10459036003	GW-11119022-5030-12/12/18-MW-7	NWTPH-Gx	AG1	2	PASI-M
		EPA 8260B	DS2	7	PASI-M





#### **PROJECT NARRATIVE**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

Method: NWTPH-Gx
Description: NWTPH-Gx GCV
Client: GHD Services Inc
Date: December 31, 2018

#### **General Information:**

3 samples were analyzed for NWTPH-Gx. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

#### **Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

#### **Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

#### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

#### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

#### **Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

#### **Duplicate Sample:**

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

#### **Additional Comments:**



1700 Elm Street - Suite 200 Minneapolis, MN 55414 (612)607-1700

#### **PROJECT NARRATIVE**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

Method: EPA 8260B

Description: 8260B MSV Low Level
Client: GHD Services Inc
Date: December 31, 2018

#### **General Information:**

3 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

#### **Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

#### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

#### **Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

#### **Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

#### Surrogates

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

#### **Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 581493

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10459036002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3152523)
  - Ethylbenzene
- MSD (Lab ID: 3152524)
  - Ethylbenzene

#### **Additional Comments:**

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





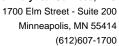
# **ANALYTICAL RESULTS**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

Date: 12/31/2018 07:09 PM

Sample: GW-11119022-5030- 12/12/18-MW-6	Lab ID: 104	59036001	Collected: 12/12/1	8 11:01	Received: 12	2/15/18 09:30 N	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual		
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx									
TPH as Gas	681	ug/L	200	2		12/24/18 16:09	1			
Surrogates a,a,a-Trifluorotoluene (S)	63	%.	50-150	2		12/24/18 16:09	98-08-8			
8260B MSV Low Level	Analytical Meth	od: EPA 826	60B							
Benzene	ND	ug/L	0.50	1		12/18/18 17:17	71-43-2			
Ethylbenzene	9.2	ug/L	0.50	1		12/18/18 17:17	100-41-4			
Toluene	5.3	ug/L	0.50	1		12/18/18 17:17	108-88-3			
Xylene (Total)	93.0	ug/L	1.5	1		12/18/18 17:17	1330-20-7			
Surrogates		_								
1,2-Dichloroethane-d4 (S)	99	%.	75-125	1		12/18/18 17:17	17060-07-0			
Toluene-d8 (S)	103	%.	75-125	1		12/18/18 17:17	2037-26-5			
4-Bromofluorobenzene (S)	100	%.	75-125	1		12/18/18 17:17	460-00-4			





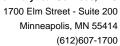
# **ANALYTICAL RESULTS**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

Date: 12/31/2018 07:09 PM

Sample: GW-11119022-5030- 12/12/18-MW-5	Lab ID: 1045	9036002	Collected: 12/12/1	8 10:34	Received: 1	2/15/18 09:30 I	Matrix: Water					
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual				
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx											
TPH as Gas	1310	ug/L	100	1		12/24/18 17:17	•					
Surrogates a,a,a-Trifluorotoluene (S)	64	%.	50-150	1		12/24/18 17:17	' 98-08-8					
8260B MSV Low Level	Analytical Meth	od: EPA 82	60B									
Benzene	0.57	ug/L	0.50	1		12/18/18 12:05	71-43-2					
Ethylbenzene	63.2	ug/L	0.50	1		12/18/18 12:05	100-41-4	M1				
Toluene	3.0	ug/L	0.50	1		12/18/18 12:05	108-88-3					
Xylene (Total)	200	ug/L	1.5	1		12/18/18 12:05	1330-20-7	MS				
Surrogates		•										
1,2-Dichloroethane-d4 (S)	101	%.	75-125	1		12/18/18 12:05	17060-07-0					
Toluene-d8 (S)	102	%.	75-125	1		12/18/18 12:05	2037-26-5					
4-Bromofluorobenzene (S)	100	%.	75-125	1		12/18/18 12:05	460-00-4					





# **ANALYTICAL RESULTS**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

Date: 12/31/2018 07:09 PM

Sample: GW-11119022-5030- 12/12/18-MW-7	Lab ID: 104	59036003	Collected: 12/12/1	8 10:02	Received: 12	2/15/18 09:30 I	Matrix: Water		
Parameters	Results	Results Units Report Limit DF Prepared					CAS No.	Qual	
NWTPH-Gx GCV	Analytical Meth	od: NWTPI	H-Gx						
TPH as Gas	ND	ug/L	100	1		12/22/18 03:36	3		
Surrogates a,a,a-Trifluorotoluene (S)	56	%.	50-150	1		12/22/18 03:36	98-08-8		
8260B MSV Low Level	Analytical Meth	od: EPA 82	60B						
Benzene	ND	ug/L	0.50	1		12/18/18 16:53	3 71-43-2		
Ethylbenzene	ND	ug/L	0.50	1		12/18/18 16:53	3 100-41-4		
Toluene	ND	ug/L	0.50	1		12/18/18 16:53	108-88-3		
Xylene (Total)	ND	ug/L	1.5	1		12/18/18 16:53	1330-20-7		
Surrogates		•							
1,2-Dichloroethane-d4 (S)	98	%.	75-125	1		12/18/18 16:53	17060-07-0		
Toluene-d8 (S)	103	%.	75-125	1		12/18/18 16:53	2037-26-5		
4-Bromofluorobenzene (S)	101	%.	75-125	1		12/18/18 16:53	3 460-00-4		

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#### **QUALITY CONTROL DATA**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

QC Batch: 582255 Analysis Method: NWTPH-Gx QC Batch Method: **NWTPH-Gx** Analysis Description: **NWTPH-Gx Water** 

Associated Lab Samples: 10459036003

METHOD BLANK: 3156150 Matrix: Water

Associated Lab Samples: 10459036003

Blank Reporting Limit Qualifiers Parameter Units Result Analyzed TPH as Gas ug/L ND 12/22/18 02:28 100 a,a,a-Trifluorotoluene (S) 73 50-150 12/22/18 02:28 %.

METHOD BLANK: 3156151 Matrix: Water

%.

Associated Lab Samples: 10459036003

Date: 12/31/2018 07:09 PM

Blank Reporting Parameter Units Result Limit Analyzed Qualifiers TPH as Gas ND 100 12/22/18 02:45 ug/L a,a,a-Trifluorotoluene (S) 65 50-150 12/22/18 02:45 %.

LABORATORY CONTROL SAMPLE & LCSD: 3156152 3156153 LCS Spike LCSD LCS LCSD % Rec Max RPD RPD Qualifiers Parameter Units Conc. Result Result % Rec % Rec Limits TPH as Gas 0 ug/L 1000 957 961 96 96 41-137 20 a,a,a-Trifluorotoluene (S) 64 73 50-150 %.

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3156905 3156906 MS MSD 10459403002 MS MSD MS Spike Spike MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits **RPD** RPD Qual TPH as Gas ug/L ND 1000 1000 1120 1010 112 101 30-145 30 a,a,a-Trifluorotoluene (S) 50-150

71

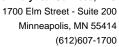
68

SAMPLE DUPLICATE: 3156907 10459834001 Dup Max Parameter Units Result Result **RPD RPD** Qualifiers TPH as Gas ND ND 30 ug/L 47 a,a,a-Trifluorotoluene (S) %. 55 16

SAMPLE DUPLICATE: 3156908 10459403004 Dup Max RPD RPD Qualifiers Parameter Result Result Units TPH as Gas ND ND 30 ug/L

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

Max





# **QUALITY CONTROL DATA**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

Date: 12/31/2018 07:09 PM

SAMPLE DUPLICATE: 3156908 10459403004 Dup

Parameter Units Result Repl RPD Qualifiers

a,a,a-Trifluorotoluene (S) %. 59 58 2

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.





#### **QUALITY CONTROL DATA**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

Date: 12/31/2018 07:09 PM

QC Batch: 582587 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Water

Associated Lab Samples: 10459036001, 10459036002

METHOD BLANK: 3157791 Matrix: Water

Associated Lab Samples: 10459036001, 10459036002

Blank Reporting Limit Qualifiers Parameter Units Result Analyzed TPH as Gas ND 12/24/18 15:35 ug/L 100 a,a,a-Trifluorotoluene (S) 69 50-150 12/24/18 15:35 %.

LABORATORY CONTROL SAMPLE & LCSD: 3157792 3157793 Spike LCS **LCSD** LCS **LCSD** % Rec Max Parameter Units Conc. Result Result % Rec % Rec Limits **RPD RPD** Qualifiers TPH as Gas 1000 1080 99 41-137 9 ug/L 989 108 20 a,a,a-Trifluorotoluene (S) 99 74 50-150 %.

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3157848 3157849 MSD MS 10459403007 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits **RPD** RPD Qual TPH as Gas ug/L 302 1000 1000 1320 1280 101 98 30-145 3 30 a,a,a-Trifluorotoluene (S) %. 89 89 50-150

SAMPLE DUPLICATE: 3157850 10459403008 Dup Max RPD **RPD** Parameter Units Result Result Qualifiers TPH as Gas ND ND 30 Gug/L 71 7 a,a,a-Trifluorotoluene (S) 66 %.

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



#### **QUALITY CONTROL DATA**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

Date: 12/31/2018 07:09 PM

QC Batch: 581493 Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water

Associated Lab Samples: 10459036001, 10459036002, 10459036003

METHOD BLANK: 3152521 Matrix: Water

Associated Lab Samples: 10459036001, 10459036002, 10459036003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	0.50	12/18/18 10:02	
Ethylbenzene	ug/L	ND	0.50	12/18/18 10:02	
Toluene	ug/L	ND	0.50	12/18/18 10:02	
Xylene (Total)	ug/L	ND	1.5	12/18/18 10:02	
1,2-Dichloroethane-d4 (S)	%.	101	75-125	12/18/18 10:02	
4-Bromofluorobenzene (S)	%.	101	75-125	12/18/18 10:02	
Toluene-d8 (S)	%.	97	75-125	12/18/18 10:02	

LABORATORY CONTROL SAMPLE:	3152522					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Benzene	ug/L	20	19.5	97	75-125	
Ethylbenzene	ug/L	20	19.7	99	75-125	
Toluene	ug/L	20	20.3	101	75-125	
Xylene (Total)	ug/L	60	60.1	100	75-125	
1,2-Dichloroethane-d4 (S)	%.			100	75-125	
4-Bromofluorobenzene (S)	%.			100	75-125	
Toluene-d8 (S)	%.			100	75-125	

MATRIX SPIKE & MATRIX SP	IKE DUPLICA	TE: 31525	23		3152524							
	1	0459036002	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Benzene	ug/L	0.57	20	20	20.1	19.9	98	97	74-125	1	30	
Ethylbenzene	ug/L	63.2	20	20	64.3	73.9	5	53	75-125	14	30	M1
Toluene	ug/L	3.0	20	20	23.1	22.7	101	99	74-125	1	30	
Xylene (Total)	ug/L	200	60	60	220	234	33	57	75-125	6	30	ES,MS
1,2-Dichloroethane-d4 (S)	%.						102	101	75-125			
4-Bromofluorobenzene (S)	%.						100	103	75-125			
Toluene-d8 (S)	%.						101	100	75-125			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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#### **QUALIFIERS**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

#### **DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

#### **LABORATORIES**

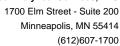
PASI-M Pace Analytical Services - Minneapolis

#### **ANALYTE QUALIFIERS**

Date: 12/31/2018 07:09 PM

- ES The reported result is estimated because one or more of the constituent results are qualified as such.
- G- Early peaks present outside the GRO window.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the

calculated result.





# **METHOD CROSS REFERENCE TABLE**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

ParameterMatrixAnalytical MethodPreparation Method8260B MSV Low LevelWaterSW-846 8260B/5030BN/A





# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: 11119022 JFS Arlington

Pace Project No.: 10459036

Date: 12/31/2018 07:09 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10459036001 10459036002	GW-11119022-5030-12/12/18-MW-6 GW-11119022-5030-12/12/18-MW-5	NWTPH-Gx NWTPH-Gx	582587 582587	_	
10459036003	GW-11119022-5030-12/12/18-MW-7	NWTPH-Gx	582255		
10459036001	GW-11119022-5030-12/12/18-MW-6	EPA 8260B	581493		
10459036002	GW-11119022-5030-12/12/18-MW-5	EPA 8260B	581493		
10459036003	GW-11119022-5030-12/12/18-MW-7	EPA 8260B	581493		



# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

1	·																										_	_
Secti Requ	ion A ired Client Information:	Section Required		ect Info	ormation:					Section C Invoice Information:												Page:   of						
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	Lynnuss III 98036				KE). (	-دمين	<u> </u>	D. COM		Company Name: GHD Address:									REGULATORY AGENCY									
Email	TO: BROW. RETESE GHD.COM	Purchase	Orde	r No.:						Pace	Quote				_				NPDES F GROUND WATER F DRINKING WATER									R
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Reque	ested Due Date/TAT: STANDARD	Project N		<u>جاد</u>		INGTO	<i>M</i>			Manager: JENNIFER GROSS								Site	Locatio	on		2NG						
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	Sample IDs MUST BE UNIQUE Tissue Other	AR TS OT	CODE	TYPE			i		TEMP	ΙĒ	ved	11					ঠ	5	104									
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18	SIGNATURE of SAMPLER:  *Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month 1								-	-						(MM/DE	ignea /YY):	<u> 2/12</u>	118					ag   O	Sea	Samı	j	
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hold, incorrect preservative, out of temp, incorrect containers).

Document Name:

Sample Condition Upon Receipt Form

Document No.: F-MN-L-213-rev.24 Document Revised: 310ct2018 Page 1 of 2

Issuing Authority: Pace Minnesota Quality Office

Sample Condition Client Name: Project #: WO#:10459036 **Upon Receipt** Courier: Due Date: 12/31/18 UPS TUSPS Client Commercial | CLIENT: GHD\_WA SpeeDee Other: Tracking Number: L Optional: Proj. Due Date: **Custody Seal on Cooler/Box Present?** Seals Intact? Yes No Proj. Name: Packing Material: \_\_\_\_\_\_Bubble Bags □None Other:\_ Temp Blank? \to Yes Thermometer ☐ <u>687A9170600254</u> Type of ice: \_\_\_\_\_wet \_\_\_Blue None □Dry Used: G87A9155100842 Cooler Temp Read (°C): 2, 2 Cooler Temp Corrected (°C): 2.2 Biological Tissue Frozen? Yes Temp should be above freezing to 6°C Correction Factor: 1rue Date and Initials of Person Examining Contents: USDA Regulated Soil ( N/A, water sample) Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, Did samples originate from a foreign source (internationally, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐Yes including Hawaii and Puerto Rico)? □No If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork. COMMENTS: Chain of Custody Present? Pes □No Chain of Custody Filled Out? Yes □No 2. Chain of Custody Relinguished? 3. Sampler Name and/or Signature on COC? ₽¶Yes. □No □N/A 4. Samples Arrived within Hold Time? □No Short Hold Time Analysis (<72 hr)? Yes **□**No 6. **Rush Turn Around Time Requested?** Yes JAN0 7. Sufficient Volume? **∠**Yes □No 8. Correct Containers Used? ☐ Yes □No 9. -Pace Containers Used? Tes □No Containers Intact? Yes □No Filtered Volume Received for Dissolved Tests? □Yes □No 11. Note if sediment is visible in the dissolved container Is sufficient information available to reconcile the samples to Yes □No 12. Matrix: All containers needing acid/base preservation have been Positive for Res. 13. ☐HNO₃ ∐H<sub>2</sub>SO₄ checked? □NaOH ☐Yes □No Chlorine? Y N All containers needing preservation are found to be in Sample # compliance with EPA recommendation? (HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub> <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide) ☐ Yes □No **∠**N/A Exceptions: VOA Coliform, TOC/DOC Oil and Grease, Initial when Lot # of added DRO/8015 (water) and Dioxin/PFAS □No completed: preservative: Headspace in VOA Vials (>6mm)? □N/A 14. Trip Blank Present? No Yes □N/A 15. Trip Blank Custody Seals Present? Yes □No N/A Pace Trip Blank Lot # (if purchased): CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No Date/Time: 12/20/18 Person Contacted: Emily Blakeway Comments/Resolution: 8260 should only list BTEX. Project Manager Review: Date: 12/17/18 Note: Whenever there is a discrepancy affecting North Caroling Compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of

Labeled by:



# about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

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