GW – 028

Annual DP Report (Part 4 of 16)

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	ww	/T to POTW GPM	
3/27/15	57	41	98	141120	0.0	0
3/28/15	59	41	101	145440	0.0	0
3/29/15	58	42	101	144000	0.0	0
3/30/15	58	42	96	138240	2.4	3456
3/31/15	56	42	96	138240	3.0	4320
4/1/15	57	40	90	139680	3.0	4320
4/1/13	57	40	97	139680	2.8	3960
4/2/15	59	40	99	142560	2.6	3787.2
4/3/13	61	39	100	144000	1.5	2160
4/4/13	63	38	100	145440	2.9	4176
4/6/15	63	38	101	145440	2.8	4032
4/0/15	63	38	101	145440	2.8	4032
4/8/15	62	37	99	142560	2.7	3888
4/8/15	61	36	99 97	139680	2.7	3168
4/10/15	60	36	96	138240	0.0	0
4/10/15	59	36	95	136800	0.0	0
4/11/15	60	39	99	142560	0.0	0
4/12/15	61	39	99	142300	0.0	0
4/13/13	54	34	88	126720	0.0	0
4/14/15	54	34	91	131040	0.0	0
4/16/15	45	31	76	109440	1.6	2304
4/10/15	45 71	5	76	109440	0.5	720
4/18/15	37	30	67	96480	1.4	2016
4/18/15	37	30 41	76	109440	1.4	1584
4/19/15	45	41	86	123840	2.8	4032
4/20/13	43 40	41	81	116640	2.6	3744
4/22/15	38	39	77	110880	1.0	1440
4/23/15	33	35	68	97920	2.8	4032
4/23/13	39	35	74	106560	3.0	4320
4/24/15	43	35	74 78	112320	0.5	720
4/26/15	43	35	75	108000	0.0	0
4/20/15	33	35	68	97920	0.0	0
4/28/15	60	35	95	136800	0.0	0
4/29/15	60	35	95 95	136800	0.0	0
4/30/15	60	35	95 95	136800	0.0	0
4/30/15	60	35	90	130000	0.0	0

Cooling Tower	Y-11	Y-1	Total	ww	T to PC	WT	
Blowdown to City	GPM	GPM	GPM		GPM		
5/1/15	60	35	95	136800	0.0		0
5/2/15	60	35	95	136800	1.6		2304
5/3/15	60	35	95	136800	0.6		864
5/4/15	60	35	95	136800	0.0		0
5/5/15	60	35	95	136800	0.5		720
5/6/15	60	35	95	136800	1.7		2448
5/7/15	60	36	96	138240	0.0		0
5/8/15	60	36	96	138240	0.0		0
5/9/15	60	35	95	136800	0.0		0
5/10/15	61	36	97	139680	0.0		0
5/11/15	61	36	97	139680	0.0		0
5/12/15	61	36	97	139680	0.0		0
5/13/15	60	36	96	138240	0.0		0
5/14/15	60	36	96	138240	1.1		1584
5/15/15	59	36	95	136800	2.8		4032
5/16/15	59	35	94	135360	2.8		4032
5/17/15	60	36	96	138240	0.9		1296
5/18/15	52	36	88	126720	1.0		1440
5/19/15	40	36	76	109440	0.0	Y-11 Flow	0
5/20/15	7	36	43	61920	0.0		0
5/21/15	0	37	37	53280	2.4		3456
5/22/15	34	37	71	102240	2.1		3024
5/23/15	48	37	85	122400	0.9		1296
5/24/15	48	38	86	123840	1.0		1440
5/25/15	56	37	93	133920	2.9		4176
5/26/15	66	37	103	148320	0.0		0
5/27/15	72	37	109	156960	0.0		0
5/28/15	64	36	100	144000	2.6		3744
5/29/15	63	36	99	142560	5.4		7776
5/30/15	57	36	93	133920	0.9		1296
5/31/15	62	36	98	141120	1.4		2016
6/1/15	64	36	100	144000	1.9	Y-11 Flow	2736
6/2/15	61	35	96	138240	1.4		2016
6/3/15	54	39	93	133920	0.9		1296
6/4/15	56	39	95	136800	1.4		2016

Cooling Tower	Y-11	Y-1	Total	ww	T to POTW	
Blowdown to City	GPM	GPM	GPM	4 4 4 0 0 0	GPM	4470
6/5/15	62	38	100	144000	2.9	4176
6/6/15	60	37	97	139680	2.0	2880
6/7/15	60	37	97	139680	0.0	0
6/8/15	59	38	97	139680	0.0	0
6/9/15	59	37	96	138240	0.0	0
6/10/15	58	37	95	136800	0.0	0
6/11/15	57	36	93	133920	1.5	2160
6/12/15	59	36	95	136800	0.3	432
6/13/15	61	37	98	141120	0.0	0
6/14/15	60	38	98	141120	0.0	0
6/15/15	61	36	97	139680	0.0	0
6/16/15	61	34	95	136800	0.0	0
6/17/15	61	36	97	139680	0.0	0
6/18/15	60	36	96	138240	0.0	0
6/19/15	60	26	86	123840	0.0	0
6/20/15	58	22	80	115200	0.0	0
6/21/15	57	21	78	112320	0.1	144
6/22/15	62	25	87	125280	0.0	0
6/23/15	64	31	95	136800	0.0	0
6/24/15	64	31	95	136800	0.0	0
6/25/15	64	30	94	135360	0.0	0
6/26/15	64	29	93	133920	0.0	0
6/27/15	64	29	93	133920	0.0	0
6/28/15	65	29	94	135360	0.0	0
6/29/15	63	31	94	135360	0.0	0
6/30/15	60	30	90	129600	0.0	0
7/1/15	27	37	64	92160	0.0	0
7/2/15	0	38	38	54720	0.0	0
7/3/15	0	40	40	57600	0.0	0
7/4/15	0	38	38	54720	0.0	0
7/5/15	0	39	39	56160	0.0	0
7/6/15	0	40	40	57600	0.0	0
7/7/15	34	30	64	92160	0.0	0
7/8/15	63	25	88	126720	0.0	0
7/9/15	63	23	86	123840	2.5	3600

Cooling Tower	Y-11	Y-1	Total	ww	T to POTW	
Blowdown to City	GPM	GPM	GPM		GPM	
7/10/15	63	23	86	123840	1.3	1872
7/11/15	63	23	86	123840	0.8	1152
7/12/15	64	21	85	122400	0.0	0
7/13/15	64	29	93	133920	0.0	0
7/14/15	63	19	82	118080	0.0	0
7/15/15	64	17	81	116640	0.0	0
7/16/15	62	18	80	115200	0.0	0
7/17/15	62	25	87	125280	0.0	0
7/18/15	60	28	88	126720	0.0	0
7/19/15	58	37	95	136800	0.0	0
7/20/15	54	43	97	139680	0.0	0
7/21/15	41	26	67	96480	0.0	0
7/22/15	38	24	62	89280	0.0	0
7/23/15	41	22	63	90720	0.0	0
7/24/15	26	16	42	60480	0.0	0
7/25/15	14	12	26	37440	0.0	0
7/26/15	8	10	18	25920	0.0	0
7/27/15	8	11	19	27360	0.0	0
7/28/15	37	19	56	80640	0.0	0
7/29/15	61	28	89	128160	0.0	0
7/30/15	61	29	90	129600	0.0	0
7/31/15	56	43	99	142560	0.0	0
8/1/15	55	42	97	139680	0.0	0
8/2/15	55	42	97	139680	0.0	0
8/3/15	54	42	96	138240	0.0	0
8/4/15	52	41	93	133920	0.0	0
8/5/15	50	40	90	129600	0.0	0
8/6/15	48	39	87	125280	0.0	0
8/7/15	47	38	85	122400	0.0	0
8/8/15	52	41	93	133920	0.0	0
8/9/15	55	43	98	141120	0.0	0
8/10/15	55	43	98	141120	0.0	0
8/11/15	54	43	97	139680	0.0	0
8/12/15	55	43	98	141120	0.0	0
8/13/15	55	43	98	141120	0.0	0

Cooling Tower	Y-11	Y-1 GPM	Total GPM	ww	/T to POTW GPM	
Blowdown to City	GPM			111100		9
8/14/15	55	43	98	141120	0.0	0
8/15/15	55	43	98	141120	0.0	0
8/16/15	56	43	99	142560	0.0	0
8/17/15	55	43	98	141120	0.0	0
8/18/15	55	43	98	141120	0.0	0
8/19/15	55	43	98	141120	0.0	0
8/20/15	55	43	98	141120	0.0	0
8/21/15	55	44	99	142560	0.0	0
8/22/15	55	45	100	144000	0.6	864
8/23/15	55	44	99	142560	0.0	0
8/24/15	54	43	97	139680	0.0	0
8/25/15	55	43	98	141120	0.0	0
8/26/15	56	42	98	141120	0.0	0
8/27/15	55	42	97	139680	0.0	0
8/28/15	55	43	98	141120	0.0	0
8/29/15	56	42	98	141120	0.0	0
8/30/15	57	43	100	144000	0.0	0
8/31/15	56	43	99	142560	0.0	0
9/1/15	56	42	98	141120	0.0	0
9/2/15	56	42	98	141120	1.8	2592
9/3/15	56	42	98	141120	0.0	0
9/4/15	56	42	98	141393.3161	0.0	0
9/5/15	56	42	98	141620.2682	0.0	0
9/6/15	57	42	99	142613.5423	0.0	0
9/7/15	57	43	99	143206.6358	0.0	0
9/8/15	56	42	99	142111.9499	0.0	0
9/9/15	56	42	98	141551.256	0.0	0
9/10/15	56	42	98	141265.5211	0.0	0
9/11/15	56	42	98	141163.6897	0.0	0
9/12/15	56	42	98	141265.6903	0.0	0
9/13/15	57	42	98	141682.2969	1.6	2304
9/14/15	57	42	99	142282.2787	1.1	1584
9/15/15	56	42	99	141869.7148	0.0	0
9/16/15	56	42	98	141533.0226	0.0	0
9/17/15	57	42	99	142370.4564	0.0	0

Cooling Tower	Y-11	Y-1	Total	WW	/T to POTW	
Blowdown to City	GPM	GPM	GPM		GPM	
9/18/15	57	43	100	143943.4109	0.0	0
9/19/15	53	42	95	137515.3985	0.0	0
9/20/15	44	36	80	115211.6975	0.0	0
9/21/15	42	34	76	109440	0.0	0
9/22/15	51	40	91	131040	0.0	0
9/23/15	56	44	100	144000	0.0	0
9/24/15	55	43	98	141120	0.0	0
9/25/15	55	43	98	141120	0.0	0
9/26/15	56	42	98	141120	0.0	0
9/27/15	56	42	98	141120	0.0	0
9/28/15	56	42	98	141120	0.0	0
9/29/15	54	43	97	139680	0.0	0
9/30/15	54	44	98	141120	0.0	0
10/1/15	54	44	98	141120	0.0	0
10/2/15	54	43	97	140363.2712	0.0	0
10/3/15	53	43	96	138426.0321	0.0	0
10/4/15	51	41	92	132024.7653	0.0	0
10/5/15	52	39	91	131446.3963	0.0	0
10/6/15	51	40	91	131348.7678	0.0	0
10/7/15	51	40	91	131633.2613	0.0	0
10/8/15	51	40	91	130935.6563	0.0	0
10/9/15	52	40	92	132984.3366	0.0	0
10/10/15	53	37	90	129526.1364	1.1	1584
10/11/15	54	37	91	130574.2186	2.6	3744
10/12/15	54	36	90	129600	2.9	4176
10/13/15	54	34	88	126720	1.3	1872
10/14/15	52	33	85	122400	0.0	0
10/15/15	51	32	83	119520	1.1	1584
10/16/15	50	26	76	109440	1.4	2016
10/17/15	56	28	84	120960	0.0	0
10/18/15	59	30	89	128160	2.9	4176
10/19/15	59	30	89	128160	3.0	4320
10/20/15	59	28	87	125280	3.0	4320
10/21/15	59	27	86	123840	1.1	1584
10/22/15	59	26	85	122400	1.1	1584

Cooling Tower	Y-11	Y-1	Total	ww	T to PC	ЭТW	
Blowdown to City	GPM	GPM	GPM	400400	GPM		4470
10/23/15	59	26	85	122400	2.9		4176
10/24/15	59	27	86	123840	3.0		4320
10/25/15	60	27	87	125280	1.4		2016
10/26/15	59	27	86	123840	2.9		4176
10/27/15	59	27	86	123840	2.6		3744
10/28/15	60	27	87	125280	2.1		3024
10/29/15	60	25	85	122400	1.8		2592
10/30/15	60	25	85	122400	2.1		3024
10/31/15	61	25	86	123840	0.0		0
11/1/15	61	25	86	123840	0.0		0
11/2/15	60	25	85	122400	0.1		144
11/3/15	60	25	85	122400	2.9		4176
11/4/15	60	24	84	120960	2.8		4032
11/5/15	59	23	82	118080	2.1		3024
11/6/15	60	23	83	119520	1.3		1872
11/7/15	59	23	82	118080	2.9		4176
11/8/15	59	24	83	119520	2.9		4176
11/9/15	60	24	84	120960	1.1		1584
11/10/15	59	32	91	131040	2.9		4176
11/11/15	59	16	75	108000	0.8	Y1 blowdov	1152
11/12/15	59	13	72	103680	0.0		0
11/13/15	59	15	74	106560	2.9		4176
11/14/15	59	10	69	99360	2.9		4176
11/15/15	59	26	85	122400	2.9		4176
11/16/15	58	5	63	90720	2.9		4176
11/17/15	59	-3	56	80640	3.0		4320
11/18/15	58	13	71	102240	3.0		4320
11/19/15	58	5	63	90720	2.4		3456
11/20/15	58	15	73	105120	0.6		864
11/21/15	58	-3	55	79200	2.9		4176
11/22/15	57	16	73	105120	1.5		2160
11/23/15	61	28	89	128160	2.0		2880
11/24/15	58	26	84	120960	3.0		4320
11/25/15	55	18	73	105120	2.9		4176
11/26/15	53	35	88	126720	1.9		2736
	2.7.						

Cooling Tower	Y-11	Y-1	Total	ww	T to POTW	
Blowdown to City	GPM	GPM	GPM	70.440	GPM	
11/27/15	54	-3	51	73440	0.0	0
11/28/15	55	-3	52	74880	2.0	2880
11/29/15	55	-3	52	74880	0.3	432
11/30/15	54	-2	52	74880	0.0	0
12/1/15	54	-2	52	74880	0.0	0
12/2/15	52	17	69	99360	2.5	3600
12/3/15	52	29	81	116640	2.9	4176
12/4/15	50	34	84	120960	3.0	4320
12/5/15	51	9	60	86400	1.3	1872
12/6/15	52	37	89	128160	2.6	3744
12/7/15	51	24	75	108000	1.8	2592
12/8/15	51	28	79	113760	2.1	3024
12/9/15	51	36	87	125280	2.1	3024
12/10/15	51	49	100	144000	1.6	2304
12/11/15	51	62	113	162720	3.0	4320
12/12/15	47	48	95	136800	3.0	4320
12/13/15	50	13	63	90720	3.0	4320
12/14/15	53	47	100	144000	3.0	4320
12/15/15	49	22	71	102240	0.4	576
12/16/15	49	17	66	95040	0.0	0
12/17/15	45	7	52	74880	0.0	0
12/18/15	35	15	50	72000	1.4	2016
12/19/15	31	12	43	61920	2.9	4176
12/20/15	23	3	26	37440	2.9	4176
12/21/15	36	21	57	82080	2.9	4176
12/22/15	55	45	100	144000	2.9	4176
12/23/15	51	56	107	154080	2.3	3312
12/24/15	43	65	108	155520	0.0	0
12/25/15	55	65	120	172800	1.5	2160
12/26/15	36	48	84	120960	2.9	4176
12/27/15	31	-3	28	40320	2.3	3312
12/28/15	25	2	27	38880	0.0	0
12/29/15	18	20	38	54720	0.0	0
12/30/15	15	14	29	41760	2.6	3744
12/31/15	19	1	20	28800	3.0	4320

Cooling Tower	Y-11	Y-1	Total	WWT to POTW
Blowdown to City	GPM	GPM	GPM	GPM
1/1/16	18	-3	15	2.8
1/2/16	37	-3	34	1.5
1/3/16	48	-3	45	0.0
1/4/16	57	19	76	0.0
1/5/16	51	33	84	0.6 Y1 blowdown meter repaired.
1/6/16	51	32	83	2.0
1/7/16	53	32	85	0.0
1/8/16	52	30	82	0.0
1/9/16	57	26	83	2.3
1/10/16	56	23	79	0.5
1/11/16	57	23	80	0.0
1/12/16	54	22	76	0.0
1/13/16	55	22	77	0.0
1/14/16	56	22	78	0.0
1/15/16	53	21	74	0.0
1/16/16	57	20	77	0.3
1/17/16	56	20	76	0.0
1/18/16	58	19	77	0.0
1/19/16	56	19	75	0.0
1/20/16	54	16	70	0.0
1/21/16	56	16	72	0.0
1/22/16	56	15	71	0.0
1/23/16	57	15	72	0.0
1/24/16	51	15	66	0.0
1/25/16	55	14	69	0.0
1/26/16	55	14	69	0.0
1/27/16	56	13	69	0.0
1/28/16	57	12	69	0.0
1/29/16	52	12	64	0.0
1/30/16	60	11	71	0.0
1/31/16	53	10	63	0.0

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to GP		
2/1/16 2/2/16 2/3/16	31 0 0	13 20	44 20	0. 0.	W	-11 blocked in due to leak on FFC OH ater coolers @ 12 noon on 2/1/2016.
			total gal	40,568,659		617,443
			total bbl	965,920		14,701

B.3 RO Reject Discharge Volumes

STATE OF NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION COMMISSION OIL CONSERVATION DIVISION

IN THE MATTER OF Navajo Refining Company, L.L.C.

No. WQA-OCD-CO-2015-002

AGREED COMPLIANCE ORDER

Pursuant to the New Mexico Water Quality Act, NMSA 1978, Section 74-6-1 through 74-6-17, as amended ("Act"), and the regulations promulgated under the Act, the Oil Conservation Commission and the Oil Conservation Division of the Energy, Minerals and Natural Resources Department of the State of New Mexico (together "OCD") issue this Agreed Compliance Order, including Exhibit A attached hereto (together, the "Order") to Navajo Refining Company L.L.C. ("Navajo"), directing compliance with the Act, the Water Quality Control Commission ("WQCC") Regulations and permits issued under the Act.

I. <u>FINDINGS AND DETERMINATIONS</u>

1. The Oil Conservation Commission is a "constituent agency" under the Act and is charged with administration and enforcement of the Act and regulations promulgated in accordance with the Act. NMSA 1978, Section 74-6-3(K). The Oil Conservation Division of the Energy, Minerals, and Natural Resources Department has concurrent authority with the Oil Conservation Commission. NMSA 1978, Section 70-2-6(B).

2. Navajo is a limited liability company doing business in New Mexico. Navajo is an active entity with a principal address of 501 East Main Street, Artesia, New Mexico 88210.

Navajo owns and operates a petroleum refinery located at 501 East Main Street,
 Artesia, New Mexico ("Facility").

4. The WQCC has adopted regulations, pursuant to the Act, requiring permits for the discharge of fluids directly or indirectly into groundwater. Section 20.6.2.3106 NMAC. For

groundwater discharges at oil and gas operations, including refineries, the WQCC has delegated administration and enforcement of those regulations to OCD.

5. Pursuant to the Act and the WQCC Regulations, on August 22, 2012, OCD issued Discharge Permit GW-028 to Navajo for the discharge of reverse osmosis ("RO") reject fluid to the surface at two farms located at the Facility. The permit included a 10,000 barrel per day discharge limit based on historic discharges from existing RO units.

6. In 2011, Navajo installed a temporary RO unit to serve as a back-up for and to supplement the capacity of the two existing permanent RO units operating at the Facility (the "third temporary RO unit"). Navajo did not obtain a groundwater discharge permit modification at the time the third temporary RO unit was installed.

7. On March 13, 2015, Navajo orally notified OCD that, as a result of the installation of the third temporary RO unit in 2011, Navajo had, on an average annual basis, been discharging RO reject fluid in excess of the 10,000 barrel per day discharge limit in Discharge Permit GW-028.

8. On March 27, 2015, Navajo representatives met with OCD to provide further information regarding discharges of RO reject fluid from the third temporary RO unit and the steps Navajo is taking to address these discharges.

 Based on the disclosures made by Navajo, OCD has determined that Navajo has committed the following violations:

- a. submission of inaccurate Annual Discharge Permit Reports pursuant to Condition 2.F. of Discharge Permit GW-028;
- b. exceeding the RO discharge volume limit in Condition 4.A. of Discharge
 Permit GW-028;

 c. failing to collect semi-annual samples of discharges from the third temporary RO unit pursuant to Condition 4.B. of Discharge Permit GW-028.

10. On April 10, 2015, Navajo submitted revised annual reports for 2012, 2013 and 2014 which added the daily discharge data for the third temporary RO unit.

11. Operation of all three RO units is critical to the continued operation of the Facility. As a result, operational changes cannot be relied upon to reduce discharge volumes. Navajo is taking prompt action to address the violation and is preparing an application to modify Discharge Permit GW-028 to authorize Navajo to discharge a quantity of RO reject fluid that is consistent with Navajo's current and intended future use of the Facility. Navajo is also evaluating options—such as underground injection—that may eliminate or significantly reduce surface discharges as a primary means of disposing of RO reject fluid.

12. There is no known or anticipated damage or injury to public health or the environment resulting from the discharges identified above, since the discharges take place solely on land owned by Navajo and, moreover, Navajo's groundwater monitoring system has not confirmed any human health or environmental risks that may be attributed to the discharge of RO reject fluid in excess of permitted amounts.

II. <u>CONCLUSIONS</u>

1. OCD has jurisdiction over the parties and subject matter in this proceeding.

2. Navajo is a person as defined by NMSA 1978, Section 74-6-2.I.

3. Based on the facts presented above, the lack of known or anticipated damage or injury to public health or the environment, the commitments made herein by Navajo, the company's history of compliance with OCD permits prior to the events described above, the lack of future anticipated damage or injury resulting from compliance with this Order, the importance

of the RO units to the ongoing operation of the Facility, and other relevant considerations, OCD has determined that Navajo need not be ordered to cease discharging RO reject fluid during the period of this Order. However, this Paragraph shall not apply in the event: (A) new information not known by OCD at the time of this Order causes OCD to believe that Navajo will not be able to return to compliance pursuant to this Order; or (B) OCD determines that continued discharge of RO reject fluid in excess of 10,000 barrels per day presents an imminent and substantial endangerment of human health and the environment; or (C) Navajo fails to diligently pursue the development and implementation of a remedy to reduce RO reject fluid discharges as provided in Exhibit A to this Order.

III. ORDER

1. Compliance Schedule

a. Navajo shall take the actions and meet the schedule set forth in Exhibit A to this Order.

b. Except where otherwise modified or extended pursuant to Section IV, Paragraph 1, Navajo's obligation to comply with this Order shall be deferred only to the extent and only for the duration that the failure in compliance is caused by "force majeure." For purposes of this Order, "force majeure" is defined as an event or set of circumstances which are beyond Navajo's control and could not have been prevented by Navajo's reasonable action or due diligence, including any delay in required approvals, issuance of any necessary permits or similar items. "Force majeure" shall not apply to any failure in compliance due to increased costs or Navajo's financial inability to carry out this Order. Navajo shall promptly notify OCD of any force majeure event that has resulted in or will result in the inability of Navajo to comply with any obligation under this Order and shall provide OCD with a schedule for completing the obligations.

c. All reports, notifications and other submittals required under this Order shall be sent to OCD at the following address:

Oil Conservation Division New Mexico Energy, Minerals & Natural Resources Department 1220 South St. Francis Drive Santa Fe, NM 87505 Re: WQA-OCD-CO-2015-002 email: jim.griswold@state.nm.us carlj.chavez@state.nm.us

All such submittals shall be made electronically. Written amendment to this Order is not required for a change in the e-mail addresses specified above, and any such change in addresses may be made by e-mail.

2. Civil Penalties

a. Subject to the terms of this paragraph, Navajo will pay a penalty of \$456,000 (four hundred and fifty-six thousand dollars) to resolve all of the alleged violations set forth in this Order, including all exceedances of the 10,000 barrel per day discharge limit from August 22, 2012, until the effective date of this Order. Payment of \$381,000 shall be remitted to OCD no later than 30 days after the effective date of this Order. Payment of \$75,000 shall be remitted to OCD no later than 60 days after the effective date of this Order unless Navajo has timely complied with discharge permit modification application requirement in Paragraph 1 of Exhibit A. If Navajo timely submits the \$381,000 payment and complies with the requirement in Paragraph 1 of Exhibit A, the total penalty under this paragraph shall be reduced by \$75,000. Payment must be made to "State of New Mexico – General Fund" and shall be sent to the following address:

Director, Oil Conservation Division New Mexico Energy, Minerals & Natural Resources Department 1220 South St. Francis Drive Santa Fe, NM 87505 Re: WQA-OCD-CO-2015-002

b. Navajo shall pay stipulated penalties in the amounts set forth below if the following violations of this Order occur.

i. For each exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:

- \$1,000 per daily violation for each daily violation prior to Navajo submitting a discharge permit modification application,
- \$100 per daily violation if the daily volume is between 10,000 and 15,000 barrels, and \$500 if the daily volume exceeds
 15,000 barrels, for each daily violation after Navajo submits a discharge permit modification application and prior to OCD approving or denying the application.

ii. For the failure to timely conduct sampling as required in ExhibitA: \$2,000 per day.

iii. For the failure to timely submit any report or notification as required in Exhibit A: \$1,000 per day.

iv. For failure to record the daily discharge flow from the permanent and the temporary RO units: \$1,000 per violation.

A calculation of stipulated penalties shall be made by Navajo and included in each monthly report submitted to OCD under this Order, and payment shall be due within 30 days after each monthly report submittal. Should OCD object to a given penalty calculation, OCD shall notify Navajo within five (5) business days after receipt of the monthly report, and Navajo shall make payment within ten (10) days after resolution of any such dispute. Any overpayment by Navajo shall be credited to further amounts due to OCD. Payments shall be by corporate check, certified

check, or other guaranteed negotiable instrument made payable to the "State of New Mexico -

General Fund", and shall be sent to the following address:

Director, Oil Conservation Division New Mexico Energy, Minerals & Natural Resources Department 1220 South St. Francis Drive Santa Fe, NM 87505 Re: WQA-OCD-CO-2015-002

IV. OTHER TERMS AND CONDITIONS

1. Termination, Modification and Extension

a. Navajo and OCD have the right to modify or terminate this Order by written instrument signed by both parties.

b. This Order will terminate on the effective date of the discharge permit modification Navajo obtains pursuant to Exhibit A. If Navajo fails to obtain a discharge permit modification increasing the discharge volume limit, this Order shall continue until Navajo removes the third temporary RO unit or completes other water management projects to reduce the total volume of RO reject water that is discharged to the land below 10,000 barrels per day.

c. OCD may grant an extension of any deadline to perform any activity required pursuant to this Order. Navajo shall submit all requests for an extension of a deadline in writing to OCD. The request shall propose a new deadline for the activity and shall include the basis for the request. OCD shall respond in writing by approving, approving in part or denying the request as soon as possible, but no later than fifteen (15) days after receipt. If OCD approves in part or denies the request, the response shall specify the reasons for OCD's actions.

2. By signing this Order, Navajo expressly:

a. acknowledges the authority of OCD to render the above Findings And Determinations, Conclusions, and Order;

b. agrees to comply with the Order;

c. waives any right, pursuant to the Act or otherwise, to a hearing either prior or subsequent to the entry of this Order or to an appeal from this Order; and

d. agrees that if it fails to comply with this Order, the Order may be enforced by suit or otherwise to the same extent and with the same effect as a final Order entered after notice and hearing in accordance with all terms of the Act.

3. Nothing in this Order relieves Navajo of its liability should its operations fail to adequately investigate and remediate contamination that poses a threat to ground water, surface water, human health, or the environment. In addition, nothing in this Order relieves Navajo of its responsibility for compliance with any federal, state, or local laws and/or regulations, including all other obligations under the Permit.

4. This Order may be executed in any number of counterparts (whether by facsimile, PDF, or original), each of which will be deemed to be an original and all of which together will constitute the same instrument.

5. This Order shall become effective on the date it is approved and signed by the Chair of the Oil Conservation Commission and the Director of the Oil Conservation Division.

Done at Santa Fe, New Mexico this 27 th day of April, 2015.

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION COMMISSION OIL CONSERVATION DIVISION

By:

Name: David Catanach

Title: Chair, Oil Conservation Commission Director, Oil Conservation Division

ACCEPTANCE

Navajo Refining Company, L.L.C. hereby accepts the foregoing Amendment, and agrees to all of the terms and provisions as set forth in the Amendment,

Navajo Refining Company, L.L.C.

By: <u>ROBERT</u> K.O'BRIEN Name: <u>Mabert K.O'Brien</u>

Title:	Vice President and Refinery Manager
Date:	4/24/2015

STATE OF NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION COMMISSION OIL CONSERVATION DIVISION

IN THE MATTER OF Navajo Refining Company, L.L.C.

No. WQA-OCD-CO-2015-002

Exhibit A to Agreed Compliance Order

Remedy Selection

1. No later than 30 days from the date of this Order, Navajo shall submit to OCD an application for a discharge permit modification to increase the discharge volume to account for the discharge of RO reject fluid from Navajo's operation of the third temporary RO unit. Navajo recognizes that the discharge permit modification is subject to the public notice and participation requirements of the WQCC Regulations. OCD shall review and act on the permit modification application expeditiously and shall not unreasonably delay or extend final agency action on the application.

2. Navajo has been working on a project to enhance its water management system and reduce the total volume of RO reject fluid that is discharged pursuant to the groundwater discharge permit. Options currently under consideration by Navajo include installation of a third permanent RO unit to replace the temporary RO unit as well as the installation of a secondary RO unit to reduce the total volume of RO reject fluid produced at the Facility. Navajo is also evaluating options for the underground injection of RO reject fluid. In addition, Navajo is conducting a study of background groundwater concentrations of key chemical constituents of the RO reject fluid discharged under Navajo's groundwater discharge permit in order to determine whether concentrations of those chemical constituents in the RO reject fluid exceed background levels. During the term of the Order, Navajo shall provide OCD with updates on

any new developments related to the treatment and disposal of RO reject fluid at the Facility in the monthly reports required under Paragraph 5 below.

Sampling and Analysis Requirements

3. Within five days of the date of this Order, Navajo shall sample the discharge from the third temporary RO unit and submit the sample for analysis. Navajo shall provide OCD by email the final results of this sample within three business days after Navajo's receipt of the data for that sample. During the term of this Order, Navajo shall sample the discharges from a) the two permanent RO units and b) the third temporary RO unit each month on or around the first business day of each month beginning with June 1, 2015. If the effluent streams from the two permanent RO units are combined prior to actual discharge to the land, they may be sampled as a combined stream. The results of the monthly samples shall be submitted with the next monthly report. The sampling and analysis shall be conducted in accordance with the schedule and conditions set forth in Section 4.B. of Discharge Permit GW-028.

4. The Permittee shall monitor and record discharge flows on a daily basis for each RO unit individually and for all RO units together.

Reporting During the Term of the Order

1

5. Beginning May 15, 2015, for the month of April 2015, Navajo shall provide OCD with monthly reports detailing the actions taken by Navajo during that calendar month under Order. The monthly reports shall be due the fifteenth day of the following month and shall include the following:

a. The daily discharge flow measurements required pursuant to Paragraph 4, above;

b. The results of the monthly discharge sample results; and

c. The calculation of stipulated penalties, if any, required under Section III, Paragraph 2 of the Order.



May 15, 2015

Submitted electronically via email to jim.griswold@state.nm.us and carlj.chavez@state.nm.us

Oil Conservation Division New Mexico Energy, Minerals & Natural Resources Department 1220 South St. Francis Drive Santa Fe, NM 87505

RE: WQA-OCD-CO-2015-002 Monthly Report – April 2015 Reporting Period

Dear Sirs:

In accordance with Paragraph 5 of Exhibit A to Agreed Compliance Order No. WQA-OCD-CO-2015-002, dated April 27, 2015 (the Order), the Navajo Refining Company, L.L.C. (Navajo), Artesia, New Mexico Refinery hereby submits this monthly report to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's May 2015 monthly report under the Order.

Specifically, this report covers the April 2015 reporting period and includes the following data and information as required by Exhibit A, Paragraph 2 and Paragraph 5.a - c:

- Daily discharge flow measurements for each reverse osmosis (RO) unit individually and for all RO units together.
- Results of the monthly discharge sample results.
- Calculation of stipulated penalties, if any, required under Section III, Paragraph 2 of the Order.
- Updates on any new developments related to the treatment and disposal of RO reject fluid at the facility.

A discussion of each topic is provided below and the associated data is provided in Attachments 1 through 3.

Daily RO Reject Fluid Discharge Flow Measurements

Flow rate for the RO reject fluid is monitored for the two permanent RO units and the temporary RO unit on a daily basis. Daily discharge volumes are provided in Attachment 1.

Navajo Refining Company, L.L.C. 501 East Main • Artesia, NM 88210 (575) 748-3311 • <u>http://www.hollyfrontier.com</u> OCD May 15, 2015 Page 2 of 8

Monthly Discharge Sample Results

Navajo collected a sample of the RO reject fluid discharge from both the permanent RO units (combined discharge) and the temporary RO unit on April 14, 2015. The analytical lab report for these samples is provided in Attachment 2.

Stipulated Penalties

Exhibit A, Paragraph 1 of the Order requires Navajo to submit the GW-028 discharge permit modification request by May 27, 2015. Navajo plans to submit this request shortly. Paragraph III.2.b.i.1 of the Order governs the calculation of stipulated penalties for exceedances of GW-028's daily RO reject fluid discharge volume limit prior to submittal of the permit modification request. Hence, this provision of the Order is applicable, and stipulated penalties are \$1,000 per day for each daily RO reject fluid discharge volume limit exceedance in April.

As indicated in Paragraph III.2.a of the Order, Navajo's initial penalty payment of \$381,000 covers penalties for all exceedances of the daily discharge limit for the time period from August 22, 2012 to the date of the Order, April 27, 2015. Therefore, stipulated penalties were calculated for the remaining days in April (*i.e.*, April 28 through 30).

Navajo has calculated a penalty of \$2,000 for these days. The daily discharge volume exceeded the 10,000 bbls/day limit on April 28 and April 30. Calculations conducted in accordance with Paragraph III.2.b.i - iv of the Agreed Compliance Order are provided in Attachment 3.

Updates Regarding Treatment and Disposal of RO Reject Fluid

As described in the Order, Navajo is working to enhance its water management system and reduce the total volume of RO reject fluid that is discharged pursuant to its groundwater discharge permit. Options under consideration include the installation of a third permanent RO unit to replace the temporary RO unit and the installation of a secondary RO unit to reduce the total volume of RO reject fluid produced. Navajo is also evaluating options for the underground injection of RO reject fluid. In addition, Navajo is conducting a study of background groundwater concentrations of key chemical constituents of the RO reject fluid discharged under its groundwater discharge permit to determine whether concentrations of these constituents exceed background levels.

Navajo is working diligently to complete the application for the OCD Class II Order for a new injection well. Submittal of an amended application, to include the public notice documentation, is anticipated shortly. This well is anticipated for use in disposal of RO reject water once constructed.

OCD has notified Navajo that the application for a Discharge Permit for this new injection well (WDW-4) is administratively complete. Accordingly, Navajo is in the process of completing the public notice process as required by 20.6.2.3108B New Mexico Administrative Code (NMAC).

Navajo Refining Company, L.L.C. 501 East Main • Artesia, NM 88210 (575) 748-3311 • <u>http://www.hollyfrontier.com</u> OCD May 15, 2015 Page 3 of 8

Navajo will update OCD on any new developments related to its treatment and disposal of RO reject fluid in the monthly reports required under the Order.

Navajo is committed to proactively meeting the requirements of the Order and working cooperatively with OCD. If you have any questions or comments, please contact me at 575-746-5487.

Sincerely,

Scott M. Denton Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates Attachment 2: Analytical Lab Report Attachment 3: Stipulated Penalty Calculation

cc. HFC: D. McWatters, R. O'Brien, M. Holder OCD: A. Marks, B. Brancard Attachment 1 Daily Discharge Flow Rates

	Pi	ermanent RO U	Inits		Tempora	Daily Discharge Volume	
	Metered	Data	Reject	bined RO Discharge culated)	Total RO Reject Discharge	Total RO Reject Discharge	
	GPM	GPM	GPM	BBLS/DAY	GPM	BBLS/DAY	BBLS
	SOUTH	NORTH					
4/1/2015	117.9	84.0	201.9	6924	65	2223	9147
4/2/2015	116.7	104.4	221.1	7579	67	2282	9861
4/3/2015	114.7	100.9	215.5	7389	70	2383	9772
4/4/2015	114.5	104.1	218.6	7497	69	2370	9867
4/5/2015	115.0	104.1	219.2	7514	70	2402	9916
4/6/2015	115.7	105.8	221.6	7597	73	2500	10097
4/7/2015	115.8	102.7	218.5	7491	78	2668	10159
4/8/2015	123.5	103.4	227.0	7782	66	2266	10048
4/9/2015	125.3	101.5	226.8	7776	67	2297	10073
4/10/2015	125.6	103.4	229.0	7850	79	2706	10556
4/11/2015	151.7	113.1	264.8	9078	66	2273	11351
4/12/2015	198.1	108.8	306.9	10521	62	2119	12640
4/13/2015	137	106	243	8337	62	2134	10471
4/14/2015	134	109	242	8309	54	1845	10154
4/15/2015	129	109	239	8180	60	2065	10245
4/16/2015	133	103	236	8099	59	2030	10129
4/17/2015	138	110	248	8499	76	2598	11097
4/18/2015	131	106	237	8132	127	4369	12501
4/19/2015	123	103	226	7744	129	4412	12156
4/20/2015	126	110	236	8097	130	4441	12538
4/21/2015	123	103	226	7744	130	4471	12215
4/22/2015	137	111	248	8518	58	1996	10514
4/23/2015	138	103	241	8256	125	4289	12545
4/24/2015	122	110	232	7943	136	4662	12605
4/25/2015	124	110	234	8010	135	4629	12639
4/26/2015	120	106	226	7762	139	4763	12525
4/27/2015	126	106	232	7956	140	4814	12770
4/28/2015	123	107	230	7895	142	4883	12778
4/29/2015	122	102	224	7695	60	2063	9758
4/30/2015	124	102	226	7752	79	2706	10458

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

Attachment 2 Analytical Lab Report



ANALYTICAL REPORT April 16, 2015



ARCADIS US - TX

Sample Delivery Group: Samples Received: Project Number: Description:

L759281 04/15/2015 TX000836.0008.15009 Reject

Report To:

Project Manager 2929 Briarpark Dr., Suite 300 Houston, TX 77042

Entire Report Reviewed By:

Pamela a. Langford Pam Langford

Pam Langford Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

¹ Cp: Cover Page	1
² Tc: Table of Contents	2
³ Ss: Sample Summary	3
⁴ Cn: Case Narrative	4
⁵ Sr: Sample Results	5
REGULAR UNIT SOUTH FIELD RD REJECT L759281-01	5
TEMPORARY UNIT SOUTH FIELD RD REJECT L759281-02	9
⁶ Qc: Quality Control Summary	13
Gravimetric Analysis by Method 2540 C-2011	13
Wet Chemistry by Method 353.2	14
Wet Chemistry by Method 9012B	15
Wet Chemistry by Method 9056MOD	16
Mercury by Method 7470A	18
Metals (ICPMS) by Method 6020	20
Volatile Organic Compounds (GC) by Method 8015D/GRO	22
Volatile Organic Compounds (GC/MS) by Method 8260B	23
Semi-Volatile Organic Compounds (GC) by Method 8015	28
Polychlorinated Biphenyls (GC) by Method 8082	29
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	30
⁷ GI: Glossary of Terms	35
⁸ Al: Accreditations & Locations	36
⁹ Sc: Chain of Custody	37



*

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

Received date/time

04/15/15 09:00

Collected date/time

04/14/15 13:15

Sc

REGULAR UNIT SOUTH FIELD RD REJECT	L759281-01 GW		Collected by Scott Ude	Collected date/time 04/14/15 13:30	Received date/time 04/15/15 09:00	¹ C
Method	Batch	Dilution	Preparation	Analysis	Analysis Analyst	L
			date/time	date/time		² T
Gravimetric Analysis by Method 2540 C-2011	WG782480	1	04/16/15 17:17	04/17/15 15:25	MF	1.1
Mercury by Method 7470A	WG782318	1	04/20/15 15:24	04/21/15 09:32	ESC	3
Mercury by Method 7470A	WG784623	1	04/25/15 15:21	04/27/15 08:39	ESC	ٌS
Metals (ICPMS) by Method 6020	WG783437	10	04/21/15 20:13	04/23/15 13:38	JD	-
Metals (ICPMS) by Method 6020	WG783437	5	04/21/15 20:13	04/23/15 12:53	DL	⁴ C
Polychlorinated Biphenyls (GC) by Method 8082	WG782838	1	04/17/15 15:34	04/20/15 10:42	EGR	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG782361	1	04/16/15 16:08	04/17/15 05:02	ADF	5
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG782361	1	04/16/15 16:08	04/17/15 17:00	KMF	S
Semi-Volatile Organic Compounds (GC) by Method 8015	WG782628	1	04/16/15 08:43	04/16/15 17:17	JNS	
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG782393	1	04/16/15 21:05	04/16/15 21:05	MCB	⁶ G
Volatile Organic Compounds (GC/MS) by Method 8260B	WG782439	1	04/18/15 02:24	04/18/15 02:24	KLO	
Wet Chemistry by Method 353.2	WG783651	1	04/24/15 12:35	04/24/15 12:35	JAL	7
Wet Chemistry by Method 9012B	WG783058	1	04/18/15 12:19	04/21/15 09:48	MCG	G
Wet Chemistry by Method 9056MOD	WG782493	1	04/20/15 19:21	04/20/15 19:21	NJM	
Wet Chemistry by Method 9056MOD	WG782493	50	04/20/15 22:25	04/20/15 22:25	MUM	⁸ A

Collected by

Scott Ude

TEMPORARY UNIT SOUTH FIELD RD REJECT L759281-02 GW

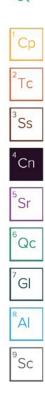
Method Analysis Analyst Batch Dilution Preparation Analysis date/time date/time 04/16/15 17:17 04/17/15 15:28 MF Gravimetric Analysis by Method 2540 C-2011 WG782480 1 Mercury by Method 7470A WG782318 1 04/20/15 15:24 04/21/15 09:45 ESC Mercury by Method 7470A WG784623 1 04/25/15 15:21 04/27/15 08:42 ESC Metals (ICPMS) by Method 6020 WG783437 10 04/21/15 20:13 04/23/15 13:41 JD Metals (ICPMS) by Method 6020 WG783437 5 04/21/15 20:13 04/23/15 13:02 JD Polychlorinated Biphenyls (GC) by Method 8082 EGR WG782838 1 04/17/15 15:34 04/20/15 10:55 Semi Volatile Organic Compounds (GC/MS) by Method 8270C WG782361 1 04/16/15 16:08 04/17/15 05:25 ADF Semi Volatile Organic Compounds (GC/MS) by Method 8270C WG782361 1 04/16/15 16:08 04/17/15 17:17 KMF Semi-Volatile Organic Compounds (GC) by Method 8015 WG782628 1 04/16/15 08:43 04/16/15 17:34 JNS Volatile Organic Compounds (GC) by Method 8015D/GRO MCB WG782393 1 04/16/15 21:27 04/16/15 21:27 KLO Volatile Organic Compounds (GC/MS) by Method 8260B WG782439 1 04/18/15 02:46 04/18/15 02:46 Wet Chemistry by Method 353.2 WG783651 1 04/24/15 12:39 04/24/15 12:39 JAL Wet Chemistry by Method 9012B WG783058 1 04/18/15 12:19 04/21/15 09:49 MCG Wet Chemistry by Method 9056MOD WG782493 1 04/20/15 19:36 04/20/15 19:36 NJM WG782493 50 04/20/15 22:40 Wet Chemistry by Method 9056MOD 04/20/15 22:40 NJM

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Pamela a. Langford Pam Langford

Pam Langford Technical Service Representative



REGULAR UNIT SOUTH FIELD RD REJECT

SAMPLE RESULTS - 01 1759281

ONE LAB. NATIONWIDE.

⁷GI

Gravimetric Analysis by Method 2540 C-2011

								 1
	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l	ug/l		date / time		
Dissolved Solids	2950000		2800	10000	1	04/17/2015 15:25	WG782480	² TC

Wet Chemistry by Method 353.2

Analyte	ug/l		ug/l	ug/l		date / time		
Dissolved Solids	2950000		2800	10000	1	04/17/2015 15:25	WG782480	² Tc
Wet Chemistry	by Method 3	53.2						3
	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	 Ss
Analyte	ug/l		ug/l	ug/l		date / time		4
Nitrate-Nitrite	2140		20.0	100	1	04/24/2015 12:35	WG783651	Cn
Wet Chemistry	by Method 9	012B						⁵Sr
	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	

Wet Chemistry by Method 9012B

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l	ug/l		date / time	A	
Cyanide	U		1.80	5.00	1	04/21/2015 09:48	WG783058	

Wet Chemistry by Method 9056MOD

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l	ug/l		date / time		
Chloride	52900		52.0	1000	1	04/20/2015 19:21	WG782493	
Fluoride	3610		9.90	100	1	04/20/2015 19:21	WG782493	
Sulfate	1530000		3900	250000	50	04/20/2015 22:25	WG782493	

Mercury by Method 7470A

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l	ug/l		date / time	
Mercury	U		0.0490	0.200	1	04/27/2015 08:39	WG784623
Mercury, Dissolved	U		0.0490	0.200	1	04/21/2015 09:32	WG782318

Metals (ICPMS) by Method 6020

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l	ug/l		date / time	
Aluminum,Dissolved	16.6	J	10.0	500	5	04/23/2015 12:53	WG783437
Arsenic, Dissolved	U		1.20	10.0	5	04/23/2015 12:53	<u>WG783437</u>
Barium, Dissolved	69.6		1.80	25.0	5	04/23/2015 12:53	WG783437
Boron,Dissolved	116		7.50	100	5	04/23/2015 12:53	WG783437
Cadmium,Dissolved	U		0.800	5.00	5	04/23/2015 12:53	WG783437
Calcium, Dissolved	685000		460	10000	10	04/23/2015 13:38	WG783437
Chromium, Dissolved	U		2.70	10.0	5	04/23/2015 12:53	WG783437
Copper, Dissolved	88.7	<u>J6 O1</u>	2.60	25.0	5	04/23/2015 12:53	WG783437
Cobalt,Dissolved	U		1.30	10.0	5	04/23/2015 12:53	WG783437
Iron,Dissolved	U		75.0	500	5	04/23/2015 12:53	WG783437
Lead,Dissolved	U		1.20	10.0	5	04/23/2015 12:53	WG783437
Manganese, Dissolved	2.44	J	1.20	25.0	5	04/23/2015 12:53	WG783437
Molybdenum,Dissolved	12.1	J	0.700	25.0	5	04/23/2015 12:53	WG783437
Nickel, Dissolved	17.5		1.80	10.0	5	04/23/2015 12:53	WG783437
Potassium,Dissolved	5480		180	5000	5	04/23/2015 12:53	WG783437
Selenium,Dissolved	8.08	J	1.90	10.0	5	04/23/2015 12:53	WG783437
Silver,Dissolved	U		1.60	10.0	5	04/23/2015 12:53	WG783437
Sodium,Dissolved	60000	V	550	5000	5	04/23/2015 12:53	WG783437
Uranium, Dissolved	5.46	J	1.60	50.0	5	04/23/2015 12:53	WG783437
Zinc,Dissolved	16.1	J	13.0	125	5	04/23/2015 12:53	WG783437

Volatile Organic Compounds (GC) by Method 8015D/GRO

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/I	ug/l		date / time		
TPH (GC/FID) Low Fraction	U		31.0	100	1	04/16/2015 21:05	<u>WG782393</u>	
ACC	COUNT:			PROJECT:		SDG:	DATE/TIME:	PAGE:
ARCAE	DIS US - TX		TXC	00836.0008.1500	19	L759281	04/16/15 14:08	5 of 42

SAMPLE RESULTS - 01 L759281

ONE LAB. NATIONWIDE.

Volatile Organic Compounds (GC) by Method 8015D/GRO

1		Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	Ср	
ļ	Analyte	ug/l		ug/l	ug/l		date / time			_
	(S) a,a,a-Trifluorotoluene(FID)	91.3			62.0-128		04/16/2015 21:05	<u>WG782393</u>	² Tc	
									100000	

Volatile Organic Compounds (GC/MS) by Method 8260B

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l	ug/l		date / time		
cetone	U		10.0	50.0	1	04/18/2015 02:24	WG782439	
enzene	U		0.330	1.00	1	04/18/2015 02:24	<u>WG782439</u>	
romodichloromethane	U		0.380	1.00	1	04/18/2015 02:24	WG782439	
romoform	U	J3	0.470	1.00	1	04/18/2015 02:24	WG782439	
romomethane	U		0.870	5.00	1	04/18/2015 02:24	WG782439	
-Butylbenzene	0.438	J	0.360	1.00	1	04/18/2015 02:24	WG782439	
ec-Butylbenzene	U	_	0.360	1.00	1	04/18/2015 02:24	WG782439	
Carbon disulfide	U		0.280	1.00	1	04/18/2015 02:24	WG782439	
arbon tetrachloride	U		0.380	1.00	1	04/18/2015 02:24	WG782439	
hlorobenzene	U		0.350	1.00	1	04/18/2015 02:24	WG782439	
hlorodibromomethane	U		0.330	1.00	1	04/18/2015 02:24	WG782439	
hloroethane	U		0.450	5.00	1	04/18/2015 02:24	WG782439	
hloroform	U		0.320	5.00	1	04/18/2015 02:24	WG782439	
hloromethane	U		0.280	2.50	1	04/18/2015 02:24	WG782439	
2-Dibromoethane	U	<u>J3</u>	0.380	1.00	1	04/18/2015 02:24	WG782439	
1-Dichloroethane	U		0.260	1.00	1	04/18/2015 02:24	WG782439	
2-Dichloroethane	U		0.360	1.00	1	04/18/2015 02:24	WG782439	
-Dichloroethene	U		0.400	1.00	1	04/18/2015 02:24	WG782439	
s-1,2-Dichloroethene	U		0.260	1.00	1	04/18/2015 02:24	WG782439	
ans-1,2-Dichloroethene	U		0.400	1.00	1	04/18/2015 02:24	WG782439	
2-Dichloropropane	U		0.310	1.00	1	04/18/2015 02:24	WG782439	
s-1,3-Dichloropropene	U		0.420	1.00	1	04/18/2015 02:24	WG782439	
ans-1,3-Dichloropropene	U		0.420	1.00	1	04/18/2015 02:24	WG782439	
hylbenzene	U		0.380	1.00	1	04/18/2015 02:24	WG782439	
ppropylbenzene	U		0.330	1.00	1	04/18/2015 02:24	WG782439	
Isopropyltoluene	U		0.350	1.00	1	04/18/2015 02:24	WG782439	
Butanone (MEK)	U		3.90	10.0	1	04/18/2015 02:24	WG782439	
Hexanone	U		3.80	10.0	1	04/18/2015 02:24	WG782439 WG782439	
	U					04/18/2015 02:24		
ethylene Chloride			1.00	5.00	1		WG782439	
Methyl-2-pentanone (MIBK)	U		2.10	10.0	1	04/18/2015 02:24	WG782439	
ethyl tert-butyl ether	U		0.370	1.00	1	04/18/2015 02:24	WG782439	
aphthalene	U		1.00	5.00	1	04/18/2015 02:24	WG782439	
Propylbenzene	U	12	0.350	1.00	1	04/18/2015 02:24	WG782439	
yrene	U	<u>J3</u>	0.310	1.00	1	04/18/2015 02:24	WG782439	
,1,2-Tetrachloroethane	U		0.380	1.00	1	04/18/2015 02:24	WG782439	
1,2,2-Tetrachloroethane	U		0.130	1.00	1	04/18/2015 02:24	WG782439	
etrachloroethene	U		0.370	1.00	1	04/18/2015 02:24	WG782439	
pluene	U		0.780	5.00	1	04/18/2015 02:24	WG782439	
1,1-Trichloroethane	U		0.319	1.00	1	04/18/2015 02:24	WG782439	
1,2-Trichloroethane	U		0.380	1.00	1	04/18/2015 02:24	WG782439	
ichloroethene	U		0.400	1.00	1	04/18/2015 02:24	WG782439	
2,4-Trimethylbenzene	U		0.370	1.00	1	04/18/2015 02:24	WG782439	
3,5-Trimethylbenzene	U		0.390	1.00	1	04/18/2015 02:24	WG782439	
nyl chloride	U		0.260	1.00	1	04/18/2015 02:24	WG782439	
Xylene	U		0.340	1.00	1	04/18/2015 02:24	WG782439	
&p-Xylene	U		0.720	1.00	1	04/18/2015 02:24	WG782439	
ylenes, Total	U		1.10	3.00	1	04/18/2015 02:24	WG782439	
(S) Toluene-d8	102			88.5-111		04/18/2015 02:24	WG782439	
(S) Dibromofluoromethane	94.8			78.3-121		04/18/2015 02:24	WG782439	
(S) 4-Bromofluorobenzene	104			71.0-126		04/18/2015 02:24	WG782439	

ACCOUNT: ARCADIS US - TX

PROJECT: TX000836.0008.15009

SDG: L759281

SAMPLE RESULTS - 01

ONE LAB. NATIONWIDE.



	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l	ug/l		date / time		
C10-C28 Diesel Range	U		22.0	100	1	04/16/2015 17:17	WG782628	² TC
C28-C40 Oil Range	U		12.0	100	1	04/16/2015 17:17	WG782628	1C
(S) o-Terphenyl	115			50.0-150		04/16/2015 17:17	WG782628	³ Ss

Polychlorinated Biphenyls (GC) by Method 8082

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	Cn
Analyte	ug/l		ug/l	ug/l		date / time		
PCB 1016	U		0.100	0.500	1	04/20/2015 10:42	WG782838	⁵ Sr
PCB 1221	U		0.0730	0.500	1	04/20/2015 10:42	WG782838	
PCB 1232	U		0.0420	0.500	1	04/20/2015 10:42	WG782838	6
PCB 1242	U		0.0470	0.500	1	04/20/2015 10:42	WG782838	Qc
PCB 1248	U		0.0860	0.500	1	04/20/2015 10:42	WG782838	
PCB 1254	U		0.0470	0.500	1	04/20/2015 10:42	WG782838	⁷ Gl
PCB 1260	U		0.120	0.500	1	04/20/2015 10:42	WG782838	OI
(S) Decachlorobiphenyl	85.1			10.0-156		04/20/2015 10:42	WG782838	8
(S) Tetrachloro-m-xylene	82.3			13.9-137		04/20/2015 10:42	WG782838	AI

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

	Result Qualifier	MDL	RDL	Dilution	Analysis	Batch	
Analyte	ug/l	ug/l	ug/l		date / time		
Acenaphthene	U	0.320	1.00	1	04/17/2015 05:02	<u>WG782361</u>	
Acenaphthylene	U	0.310	1.00	1	04/17/2015 05:02	WG782361	
Acetophenone	U	2.70	10.0	1	04/17/2015 05:02	WG782361	
Anthracene	U	0.290	1.00	1	04/17/2015 05:02	WG782361	
Atrazine	U	1.50	10.0	1	04/17/2015 05:02	WG782361	
Benzaldehyde	U	1.40	10.0	1	04/17/2015 05:02	WG782361	
Benzo(a)anthracene	U	0.110	1.00	1	04/17/2015 05:02	WG782361	
Benzo(b)fluoranthene	U	0.0900	1.00	1	04/17/2015 05:02	WG782361	
Benzo(k)fluoranthene	U	0.360	1.00	1	04/17/2015 05:02	WG782361	
Benzo(g,h,i)perylene	U	0.160	1.00	1	04/17/2015 05:02	WG782361	
Benzo(a)pyrene	U	0.340	1.00	1	04/17/2015 05:02	WG782361	
Bis(2-chlorethoxy)methane	U	0.330	10.0	1	04/17/2015 05:02	WG782361	
Bis(2-chloroisopropyl)ether	U	0.440	10.0	1	04/17/2015 05:02	WG782361	
Biphenyl	U	0.210	10.0	1	04/17/2015 05:02	WG782361	
Bis(2-chloroethyl)ether	U	1.60	10.0	1	04/17/2015 05:02	WG782361	
4-Bromophenyl-phenylether	U	0.340	10.0	1	04/17/2015 05:02	WG782361	
2-Chloronaphthalene	U	0.330	1.00	1	04/17/2015 05:02	WG782361	
4-Chlorophenyl-phenylether	U	0.300	10.0	1	04/17/2015 05:02	WG782361	
Chrysene	U	0.330	1.00	1	04/17/2015 05:02	WG782361	
Caprolactam	0.894 <u>J</u>	0.580	10.0	1	04/17/2015 05:02	WG782361	
Carbazole	U	0.160	10.0	1	04/17/2015 05:02	WG782361	
Dibenz(a,h)anthracene	U	0.280	1.00	1	04/17/2015 05:02	WG782361	
3,3-Dichlorobenzidine	U	2.00	10.0	1	04/17/2015 05:02	WG782361	
2,4-Dinitrotoluene	U	1.60	10.0	1	04/17/2015 05:02	WG782361	
2,6-Dinitrotoluene	U	0.280	10.0	1	04/17/2015 05:02	WG782361	
Fluoranthene	U	0.310	1.00	1	04/17/2015 05:02	WG782361	
Fluorene	U	0.320	1.00	1	04/17/2015 05:02	WG782361	
Hexachlorobenzene	U	0.340	1.00	1	04/17/2015 05:02	WG782361	
Hexachloro-1,3-butadiene	U	0.330	10.0	1	04/17/2015 05:02	WG782361	
Hexachlorocyclopentadiene	U	2.30	10.0	1	04/17/2015 05:02	WG782361	
Hexachloroethane	U	0.360	10.0	1	04/17/2015 05:02	WG782361	
Indeno(1,2,3-cd)pyrene	U	0.280	1.00	1	04/17/2015 05:02	WG782361	
Isophorone	U	0.270	10.0	1	04/17/2015 05:02	WG782361	
Naphthalene	U	0.370	1.00	1	04/17/2015 05:02	WG782361	
Nitrobenzene	U	0.370	10.0	1	04/17/2015 05:02	WG782361	
100	OUNT:		PROJECT:		SDG:	DATE/TIME:	PA
ACC	00111.		I NOJECT:		500.	DATE/TIME.	1-74

ARCADIS US - TX

PROJECT: TX000836.0008.15009 SDG: L759281 DATE/TIME: 04/16/15 14:08 PAGE: 7 of 42

Sc

SAMPLE RESULTS - 01

*

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l	ug/l		date / time	90 PS	
n-Nitrosodiphenylamine	U		0.300	10.0	1	04/17/2015 05:02	WG782361	
n-Nitrosodi-n-propylamine	U		0.400	10.0	1	04/17/2015 05:02	WG782361	
Phenanthrene	U		0.370	1.00	1	04/17/2015 05:02	WG782361	
Benzylbutyl phthalate	U		0.280	3.00	1	04/17/2015 05:02	WG782361	
Bis(2-Ethylhexyl)phthalate	2.59	J	0.710	3.00	1	04/17/2015 05:02	WG782361	
Di-n-butyl phthalate	2.33	J	0.270	3.00	1	04/17/2015 05:02	WG782361	
Diethyl phthalate	U		0.280	3.00	1	04/17/2015 05:02	<u>WG782361</u>	
Dimethyl phthalate	0.343	J	0.280	3.00	1	04/17/2015 05:02	WG782361	
Di-n-octyl phthalate	0.447	J	0.280	3.00	1	04/17/2015 05:02	<u>WG782361</u>	
Pyrene	U		0.330	1.00	1	04/17/2015 05:02	WG782361	
l-Methylnaphthalene	U		0.220	1.00	1	04/17/2015 05:02	WG782361	
4-Chloroaniline	U		0.380	10.0	1	04/17/2015 05:02	WG782361	
4-Chloro-3-methylphenol	U		0.260	10.0	1	04/17/2015 05:02	WG782361	
2-Chlorophenol	U		0.280	10.0	1	04/17/2015 05:02	WG782361	
Dibenzofuran	U		0.340	10.0	1	04/17/2015 05:02	WG782361	
2,4-Dichlorophenol	U		0.280	10.0	1	04/17/2015 05:02	WG782361	
2,4-Dimethylphenol	U		0.620	10.0	1	04/17/2015 05:02	WG782361	
1,6-Dinitro-2-methylphenol	U		2.60	10.0	1	04/17/2015 05:02	WG782361	
2,4-Dinitrophenol	U		3.20	10.0	1	04/17/2015 05:02	WG782361	
2-Methylnaphthalene	U		0.310	1.00	1	04/17/2015 05:02	WG782361	
2-Methylphenol	U		0.310	10.0	1	04/17/2015 05:02	<u>WG782361</u>	
3&4-Methyl Phenol	U		0.270	10.0	1	04/17/2015 05:02	WG782361	
2-Nitroaniline	U		1.90	10.0	1	04/17/2015 05:02	<u>WG782361</u>	
3-Nitroaniline	U		0.310	10.0	1	04/17/2015 05:02	WG782361	
1-Nitroaniline	U		0.350	10.0	1	04/17/2015 05:02	WG782361	
2-Nitrophenol	U		0.320	10.0	1	04/17/2015 05:02	WG782361	
1-Nitrophenol	U		2.00	10.0	1	04/17/2015 05:02	<u>WG782361</u>	
Pentachlorophenol	U		0.310	1.00	1	04/17/2015 05:02	WG782361	
Phenol	U		0.330	10.0	1	04/17/2015 05:02	WG782361	
2,4,6-Trichlorophenol	U		0.300	10.0	1	04/17/2015 05:02	WG782361	
2,4,5-Trichlorophenol	U		0.240	10.0	1	04/17/2015 05:02	WG782361	
1,3,5-Trinitrobenzene	U		1.30	10.0	1	04/17/2015 17:00	<u>WG782361</u>	
(S) 2-Fluorophenol	57.6			10.0-77.9		04/17/2015 05:02	WG782361	
(S) Phenol-d5	44.0			5.00-70.1		04/17/2015 05:02	WG782361	
(S) Nitrobenzene-d5	74.1			21.8-123		04/17/2015 05:02	WG782361	
(S) 2-Fluorobiphenyl	81.3			29.5-131		04/17/2015 05:02	WG782361	
(S) 2,4,6-Tribromophenol	75.0			11.2-130		04/17/2015 05:02	WG782361	
(S) p-Terphenyl-d14	77.5			29.3-137		04/17/2015 05:02	WG782361	

SDG: L759281 TEMPORARY UNIT SOUTH FIELD RD REJECT

SAMPLE RESULTS - 02 1759281

ONE LAB. NATIONWIDE.

Gravimetric Analysis by Method 2540 C-2011

								 1
	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l	ug/l		date / time		
Dissolved Solids	3590000		2800	10000	1	04/17/2015 15:28	WG782480	^{2}TC

Wet Chemistry by Method 353.2

					2011 1 4 40 40 40 K			
Analyte	ug/l		ug/l	ug/l		date / time		
Dissolved Solids	3590000		2800	10000	1	04/17/2015 15:28	WG782480	² Tc
Wet Chemistry	[,] by Method 3	353.2						3
	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	Šs
Analyte	ug/l		ug/l	ug/l		date / time		4
Nitrate-Nitrite	2470		20.0	100	1	04/24/2015 12:39	<u>WG783651</u>	Cr
Wet Chemistry	[,] by Method S	€012B						⁵Sr
	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l	ug/l		date / time		⁶ Q
Cyanide	U		1.80	5.00	1	04/21/2015 09:49	WG783058	

Wet Chemistry by Method 9012B

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch		
Analyte	ug/l		ug/l	ug/l		date / time		6	Qc
Cyanide	U		1.80	5.00	1	04/21/2015 09:49	WG783058		ac
Wet Chemistry by Method 9056MOD								7	GI

Wet Chemistry by Method 9056MOD

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	 8
Analyte	ug/l		ug/l	ug/l		date / time		A
Chloride	58900		52.0	1000	1	04/20/2015 19:36	WG782493	
Fluoride	3880		9.90	100	1	04/20/2015 19:36	WG782493	°SC
Sulfate	1830000		3900	250000	50	04/20/2015 22:40	WG782493	50

Mercury by Method 7470A

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Analyte	ug/l		ug/l	ug/l		date / time	
Mercury	U		0.0490	0.200	1	04/27/2015 08:42	<u>WG784623</u>
Mercury, Dissolved	U		0.0490	0.200	1	04/21/2015 09:45	WG782318

Metals (ICPMS) by Method 6020

Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
ug/l		ug/l	ug/l		date / time	
10.9	J	10.0	500	5	04/23/2015 13:02	<u>WG783437</u>
1.52	J	1.20	10.0	5	04/23/2015 13:02	WG783437
72.2		1.80	25.0	5	04/23/2015 13:02	WG783437
123		7.50	100	5	04/23/2015 13:02	WG783437
U		0.800	5.00	5	04/23/2015 13:02	WG783437
806000		460	10000	10	04/23/2015 13:41	WG783437
U		2.70	10.0	5	04/23/2015 13:02	WG783437
U		2.60	25.0	5	04/23/2015 13:02	WG783437
U		1.30	10.0	5	04/23/2015 13:02	WG783437
U		75.0	500	5	04/23/2015 13:02	WG783437
U		1.20	10.0	5	04/23/2015 13:02	WG783437
5.10	J	1.20	25.0	5	04/23/2015 13:02	WG783437
13.0	J	0.700	25.0	5	04/23/2015 13:02	WG783437
U		1.80	10.0	5	04/23/2015 13:02	WG783437
6600		180	5000	5	04/23/2015 13:02	WG783437
8.82	J	1.90	10.0	5	04/23/2015 13:02	WG783437
U		1.60	10.0	5	04/23/2015 13:02	WG783437
70300		550	5000	5	04/23/2015 13:02	WG783437
6.09	J	1.60	50.0	5	04/23/2015 13:02	WG783437
U		13.0	125	5	04/23/2015 13:02	WG783437
	ug/l 10.9 1.52 72.2 123 U 806000 U U U U U U U U U U U U U U U U U	ug/l 10.9 J 1.52 J 72.2 J 123 J 0 J 806000 J 0 J	ug/l ug/l 10.9 J 10.0 1.52 J 120 72.2 1.80 123 7.50 U 0.800 806000 460 U 2.70 U 2.60 U 1.30 U 75.0 U 1.20 5.10 J 1.20 5.10 J 0.700 U 1.80 6600 U 1.80 1.80 6600 1.80 1.80 0 J 1.20 13.0 J 0.700 U 1.80 1.80 6600 180 1.80 8.82 J 1.90 U 1.60 550 6.09 J 1.60	ug/l ug/l ug/l ug/l 10.9 J 10.0 500 1.52 J 1.20 10.0 72.2 1.80 25.0 123 7.50 100 U 0.800 5.00 806000 460 10000 U 2.70 10.0 U 2.60 25.0 U 2.60 25.0 U 2.60 25.0 U 1.30 10.0 U 2.60 25.0 U 1.20 10.0 U 1.20 500 U 1.20 10.0 5.10 J 0.700 25.0 U 1.80 10.0 5.10 J 0.00 25.0 U 1.80 10.0 1.0 6600 1.80 5000 1.0 U 1.60 10.0 1.0 0.00 5.50	ug/lug/lug/lug/l 10.9 \downarrow 10.0 500 5 1.52 \downarrow 1.20 10.0 5 72.2 1.80 25.0 5 123 7.50 100 5 U 0.800 5.00 5 U 0.800 5.00 5 U 2.70 10.00 5 U 2.60 25.0 5 U 2.60 25.0 5 U 1.30 10.0 5 U 1.20 10.0 5 U 1.20 10.0 5 U 1.20 10.0 5 U 1.20 25.0 5 U 1.20 25.0 5 U 1.80 10.0 5 13.0 \downarrow 1.80 10.0 5 U 1.80 10.0 5 U 1.60 10.0 5 U 1.60 10.0 5 U 1.60 50.00 5	ug/l ug/l ug/l date / time 10.9 J 10.0 500 5 04/23/2015 13:02 1.52 J 1.20 10.0 5 04/23/2015 13:02 72.2 1.80 25.0 5 04/23/2015 13:02 123 7.50 100 5 04/23/2015 13:02 U 0.800 5.00 5 04/23/2015 13:02 U 2.70 10.0 5 04/23/2015 13:02 806000 4600 10000 10 04/23/2015 13:02 U 2.70 10.0 5 04/23/2015 13:02 U 2.60 25.0 5 04/23/2015 13:02 U 1.30 10.0 5 04/23/2015 13:02 U 1.20 10.0 5 04/23/2015 13:02 U 1.20 10.0 5 04/23/2015 13:02 13.0 J 0.700 25.0 5 04/23/2015 13:02 U 1.80 10.0 5

Volatile Organic Compounds (GC) by Method 8015D/GRO

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l	ug/l		date / time		
TPH (GC/FID) Low Fraction	U		31.0	100	1	04/16/2015 21:27	WG782393	
	COUNT: DIS US - TX		ТХС	PROJECT: 000836.0008.15009)	SDG: L 759281	DATE/TIME: 04/16/15 14:08	PAGE: 9 of 42

SAMPLE RESULTS - 02 L759281

ONE LAB. NATIONWIDE.

Volatile Organic Compounds (GC) by Method 8015D/GRO

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	Ср
Analyte	ug/l		ug/l	ug/l		date / time		
(S) a,a,a-Trifluorotoluene(F	FID) 91.1			62.0-128		04/16/2015 21:27	WG782393	² Tc

Volatile Organic Compounds (GC/MS) by Method 8260B

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l	ug/l		date / time		
cetone	U		10.0	50.0	1	04/18/2015 02:46	WG782439	
enzene	U		0.330	1.00	1	04/18/2015 02:46	WG782439	
romodichloromethane	U		0.380	1.00	1	04/18/2015 02:46	WG782439	
romoform	U		0.470	1.00	1	04/18/2015 02:46	WG782439	
romomethane	U		0.870	5.00	1	04/18/2015 02:46	WG782439	
Butylbenzene	U		0.360	1.00	1	04/18/2015 02:46	WG782439	
ec-Butylbenzene	U		0.360	1.00	1	04/18/2015 02:46	WG782439	
arbon disulfide	U		0.280	1.00	1	04/18/2015 02:46	WG782439	
arbon tetrachloride	U		0.380	1.00	1	04/18/2015 02:46	WG782439	
nlorobenzene	U		0.350	1.00	1	04/18/2015 02:46	WG782439	
nlorodibromomethane	U		0.330	1.00	1	04/18/2015 02:46	WG782439	
loroethane	U		0.450	5.00	1	04/18/2015 02:46	WG782439	
loroform	U		0.320	5.00	1	04/18/2015 02:46	WG782439	
loromethane	U		0.280	2.50	1	04/18/2015 02:46	WG782439	
2-Dibromoethane	U		0.380	1.00	1	04/18/2015 02:46	WG782439	
-Dichloroethane	U		0.260	1.00	1	04/18/2015 02:46	WG782439	
2-Dichloroethane	U		0.360	1.00	1	04/18/2015 02:46	WG782439	
-Dichloroethene	U		0.400	1.00	1	04/18/2015 02:46	WG782439	
-1,2-Dichloroethene	U		0.260	1.00	1	04/18/2015 02:46	WG782439	
ans-1,2-Dichloroethene	U		0.400	1.00	1	04/18/2015 02:46	WG782439	
-Dichloropropane	U		0.310	1.00	1	04/18/2015 02:46	WG782439	
s-1,3-Dichloropropene	U		0.420	1.00	1	04/18/2015 02:46	WG782439	
ans-1,3-Dichloropropene	U		0.420	1.00	1	04/18/2015 02:46	WG782439	
hylbenzene	U		0.380	1.00	1	04/18/2015 02:46	WG782439	
propylbenzene	U		0.330	1.00	1	04/18/2015 02:46	WG782439	
Isopropyltoluene	U		0.350	1.00	1	04/18/2015 02:46	WG782439	
Butanone (MEK)	U		3.90	10.0	1	04/18/2015 02:46	WG782439	
Hexanone	U		3.80	10.0	1	04/18/2015 02:46	WG782439 WG782439	
ethylene Chloride	U		1.00	5.00	1	04/18/2015 02:46	WG782439 WG782439	
,							Manager and a second	
Methyl-2-pentanone (MIBK)	U		2.10	10.0	1	04/18/2015 02:46 04/18/2015 02:46	WG782439	
ethyl tert-butyl ether	U		0.370	1.00	1		WG782439	
aphthalene	U		1.00	5.00	1	04/18/2015 02:46	WG782439	
Propylbenzene	U		0.350	1.00	1	04/18/2015 02:46	WG782439	
yrene	U		0.310	1.00	1	04/18/2015 02:46	WG782439	
,1,2-Tetrachloroethane	U		0.380	1.00	1	04/18/2015 02:46	WG782439	
,2,2-Tetrachloroethane	U		0.130	1.00	1	04/18/2015 02:46	WG782439	
trachloroethene	U		0.370	1.00	1	04/18/2015 02:46	WG782439	
bluene	U		0.780	5.00	1	04/18/2015 02:46	WG782439	
I,1-Trichloroethane	U		0.319	1.00	1	04/18/2015 02:46	WG782439	
,2-Trichloroethane	U		0.380	1.00	1	04/18/2015 02:46	<u>WG782439</u>	
ichloroethene	U		0.400	1.00	1	04/18/2015 02:46	WG782439	
,4-Trimethylbenzene	U		0.370	1.00	1	04/18/2015 02:46	WG782439	
5-Trimethylbenzene	U		0.390	1.00	1	04/18/2015 02:46	WG782439	
ıyl chloride	U		0.260	1.00	1	04/18/2015 02:46	WG782439	
Xylene	U		0.340	1.00	1	04/18/2015 02:46	WG782439	
&p-Xylene	U		0.720	1.00	1	04/18/2015 02:46	WG782439	
lenes, Total	U		1.10	3.00	1	04/18/2015 02:46	WG782439	
(S) Toluene-d8	103			88.5-111		04/18/2015 02:46	WG782439	
(S) Dibromofluoromethane	93.2			78.3-121		04/18/2015 02:46	WG782439	
(S) 4-Bromofluorobenzene	106			71.0-126		04/18/2015 02:46	WG782439	

ACCOUNT: ARCADIS US - TX

PROJECT: TX000836.0008.15009

SDG: L759281

SAMPLE RESULTS - 02

ONE LAB. NATIONWIDE.

*

Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	Cp
Analyte	ug/l		ug/l	ug/l		date / time		
C10-C28 Diesel Range	U		22.0	100	1	04/16/2015 17:34	WG782628	² TC
C28-C40 Oil Range	U		12.0	100	1	04/16/2015 17:34	WG782628	TC
(S) o-Terphenyl	116			50.0-150		04/16/2015 17:34	WG782628	³ Ss

Polychlorinated Biphenyls (GC) by Method 8082

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	Cn
Analyte	ug/l		ug/l	ug/l		date / time		
PCB 1016	U		0.100	0.500	1	04/20/2015 10:55	WG782838	⁵Sr
PCB 1221	U		0.0730	0.500	1	04/20/2015 10:55	WG782838	
PCB 1232	U		0.0420	0.500	1	04/20/2015 10:55	WG782838	6
PCB 1242	U		0.0470	0.500	1	04/20/2015 10:55	WG782838	Qc
PCB 1248	U		0.0860	0.500	1	04/20/2015 10:55	WG782838	
PCB 1254	U		0.0470	0.500	1	04/20/2015 10:55	WG782838	⁷ Gl
PCB 1260	U		0.120	0.500	1	04/20/2015 10:55	WG782838	01
(S) Decachlorobiphenyl	85.8			10.0-156		04/20/2015 10:55	WG782838	8
(S) Tetrachloro-m-xylene	85.6			13.9-137		04/20/2015 10:55	WG782838	AI

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

	Result Qualifier	MDL	RDL	Dilution	Analysis	Batch	
Analyte	ug/l	ug/l	ug/l		date / time		
Acenaphthene	U	0.320	1.00	1	04/17/2015 05:25	<u>WG782361</u>	
Acenaphthylene	U	0.310	1.00	1	04/17/2015 05:25	<u>WG782361</u>	
Acetophenone	U	2.70	10.0	1	04/17/2015 05:25	<u>WG782361</u>	
Anthracene	U	0.290	1.00	1	04/17/2015 05:25	<u>WG782361</u>	
Atrazine	U	1.50	10.0	1	04/17/2015 05:25	<u>WG782361</u>	
Benzaldehyde	U	1.40	10.0	1	04/17/2015 05:25	<u>WG782361</u>	
Benzo(a)anthracene	U	0.110	1.00	1	04/17/2015 05:25	<u>WG782361</u>	
Benzo(b)fluoranthene	U	0.0900	1.00	1	04/17/2015 05:25	<u>WG782361</u>	
Benzo(k)fluoranthene	U	0.360	1.00	1	04/17/2015 05:25	<u>WG782361</u>	
Benzo(g,h,i)perylene	U	0.160	1.00	1	04/17/2015 05:25	WG782361	
Benzo(a)pyrene	U	0.340	1.00	1	04/17/2015 05:25	WG782361	
Bis(2-chlorethoxy)methane	U	0.330	10.0	1	04/17/2015 05:25	WG782361	
Bis(2-chloroisopropyl)ether	U	0.440	10.0	1	04/17/2015 05:25	WG782361	
Biphenyl	U	0.210	10.0	1	04/17/2015 05:25	WG782361	
Bis(2-chloroethyl)ether	U	1.60	10.0	1	04/17/2015 05:25	WG782361	
4-Bromophenyl-phenylether	U	0.340	10.0	1	04/17/2015 05:25	WG782361	
2-Chloronaphthalene	U	0.330	1.00	1	04/17/2015 05:25	WG782361	
4-Chlorophenyl-phenylether	U	0.300	10.0	1	04/17/2015 05:25	WG782361	
Chrysene	U	0.330	1.00	1	04/17/2015 05:25	WG782361	
Caprolactam	U	0.580	10.0	1	04/17/2015 05:25	WG782361	
Carbazole	U	0.160	10.0	1	04/17/2015 05:25	WG782361	
Dibenz(a,h)anthracene	U	0.280	1.00	1	04/17/2015 05:25	<u>WG782361</u>	
3,3-Dichlorobenzidine	U	2.00	10.0	1	04/17/2015 05:25	WG782361	
2,4-Dinitrotoluene	U	1.60	10.0	1	04/17/2015 05:25	WG782361	
2,6-Dinitrotoluene	U	0.280	10.0	1	04/17/2015 05:25	WG782361	
Fluoranthene	U	0.310	1.00	1	04/17/2015 05:25	WG782361	
Fluorene	U	0.320	1.00	1	04/17/2015 05:25	WG782361	
Hexachlorobenzene	U	0.340	1.00	1	04/17/2015 05:25	WG782361	
Hexachloro-1,3-butadiene	U	0.330	10.0	1	04/17/2015 05:25	WG782361	
Hexachlorocyclopentadiene	U	2.30	10.0	1	04/17/2015 05:25	WG782361	
Hexachloroethane	U	0.360	10.0	1	04/17/2015 05:25	WG782361	
Indeno(1,2,3-cd)pyrene	U	0.280	1.00	1	04/17/2015 05:25	WG782361	
Isophorone	U	0.270	10.0	1	04/17/2015 05:25	WG782361	
Naphthalene	U	0.370	1.00	1	04/17/2015 05:25	WG782361	
Nitrobenzene	U	0.370	10.0	1	04/17/2015 05:25	WG782361	
100	OUNT:		PROJECT:		SDG:	DATE/TIME:	PA
ACC	.0011.		I ROJECT.		500.	DATE/TIME.	PA

ARCADIS US - TX

PROJECT: TX000836.0008.15009

SAMPLE RESULTS - 02

*

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch	
Analyte	ug/l		ug/l	ug/l		date / time		
n-Nitrosodiphenylamine	U		0.300	10.0	1	04/17/2015 05:25	WG782361	
n-Nitrosodi-n-propylamine	U		0.400	10.0	1	04/17/2015 05:25	WG782361	
Phenanthrene	U		0.370	1.00	1	04/17/2015 05:25	WG782361	
Benzylbutyl phthalate	U		0.280	3.00	1	04/17/2015 05:25	WG782361	
Bis(2-Ethylhexyl)phthalate	1.60	J	0.710	3.00	1	04/17/2015 05:25	WG782361	
Di-n-butyl phthalate	1.19	J	0.270	3.00	1	04/17/2015 05:25	WG782361	
Diethyl phthalate	U		0.280	3.00	1	04/17/2015 05:25	<u>WG782361</u>	
Dimethyl phthalate	U		0.280	3.00	1	04/17/2015 05:25	WG782361	
Di-n-octyl phthalate	0.484	J	0.280	3.00	1	04/17/2015 05:25	<u>WG782361</u>	
Pyrene	U		0.330	1.00	1	04/17/2015 05:25	WG782361	
1-Methylnaphthalene	U		0.220	1.00	1	04/17/2015 05:25	WG782361	
4-Chloroaniline	U		0.380	10.0	1	04/17/2015 05:25	WG782361	
4-Chloro-3-methylphenol	U		0.260	10.0	1	04/17/2015 05:25	WG782361	
2-Chlorophenol	U		0.280	10.0	1	04/17/2015 05:25	WG782361	
Dibenzofuran	U		0.340	10.0	1	04/17/2015 05:25	WG782361	
2,4-Dichlorophenol	U		0.280	10.0	1	04/17/2015 05:25	WG782361	
2,4-Dimethylphenol	U		0.620	10.0	1	04/17/2015 05:25	WG782361	
l,6-Dinitro-2-methylphenol	U		2.60	10.0	1	04/17/2015 05:25	WG782361	
2,4-Dinitrophenol	U		3.20	10.0	1	04/17/2015 05:25	WG782361	
2-Methylnaphthalene	U		0.310	1.00	1	04/17/2015 05:25	WG782361	
2-Methylphenol	U		0.310	10.0	1	04/17/2015 05:25	<u>WG782361</u>	
3&4-Methyl Phenol	U		0.270	10.0	1	04/17/2015 05:25	<u>WG782361</u>	
2-Nitroaniline	U		1.90	10.0	1	04/17/2015 05:25	<u>WG782361</u>	
8-Nitroaniline	U		0.310	10.0	1	04/17/2015 05:25	WG782361	
l-Nitroaniline	U		0.350	10.0	1	04/17/2015 05:25	WG782361	
2-Nitrophenol	U		0.320	10.0	1	04/17/2015 05:25	WG782361	
I-Nitrophenol	U		2.00	10.0	1	04/17/2015 05:25	<u>WG782361</u>	
Pentachlorophenol	U		0.310	1.00	1	04/17/2015 05:25	WG782361	
Phenol	U		0.330	10.0	1	04/17/2015 05:25	WG782361	
2,4,6-Trichlorophenol	U		0.300	10.0	1	04/17/2015 05:25	WG782361	
2,4,5-Trichlorophenol	U		0.240	10.0	1	04/17/2015 05:25	WG782361	
1,3,5-Trinitrobenzene	U		1.30	10.0	1	04/17/2015 17:17	WG782361	
(S) 2-Fluorophenol	58.6			10.0-77.9		04/17/2015 05:25	WG782361	
(S) Phenol-d5	42.8			5.00-70.1		04/17/2015 05:25	WG782361	
(S) Nitrobenzene-d5	74.8			21.8-123		04/17/2015 05:25	WG782361	
(S) 2-Fluorobiphenyl	91.3			29.5-131		04/17/2015 05:25	WG782361	
(S) 2,4,6-Tribromophenol	78.5			11.2-130		04/17/2015 05:25	WG782361	
(S) p-Terphenyl-d14	78.1			29.3-137		04/17/2015 05:25	WG782361	

SDG: L759281

-	
()	
\sim	
0	
\sim	
00	
~~	
_	
<u>_</u>	
~	
\sim	
1 1	
00	
\sim	
15	
(1)	
1	
\sim	
-	
>	
-	
-	

9 P С. ğ Ss S σ A DUP Qualifier DUP RPD Limits Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD) 96 96 പ DUP RPD MB RDL 0.703 10.0 l/gm 200 MB MDL Dilution L759238-01 Original Sample (OS) • Duplicate (DUP) 2.82 mg/l , MB Qual fier Original Result DUP Result 428 mg/l Gravimetric Analysis by Method 2540 C-2011 **MB Result** (LCS) 04/17/15 15:29 • (LCSD) 04/17/15 15:29 (OS) 04/17/15 15:24 • (DUP) 04/17/15 15:24 425 l/gm l/gm Method Blank (MB) (MB) 04/17/15 15:30 **Dissolved Solids Dissolved Solids** Analyte Analyte

tec. Limits LCS Qualifier LCSD Qualifier RPD RPD Limits	%	85.0-115 0.234 5
LCSD Rec. Re	%	96.8 85
LCS Rec.	%	97.0
LCSD Result	mg/l	8520
LCS Result	mg/l	8540
Spike Amount	l/gm	8800
	Analyte	Dissolved Solids

Sc

WG783651 Wet Chemistry by Method 353.2	353.2			QUALITY		CONTROL S ^{L759281-01,02}	SUMMARY	×			ONE LAB.	ONE LAB. NATIONWIDE.	*
Method Blank (MB)													
(MB) 04/24/15 12:26													2 C
Analyte	mg/l		mb mur mg/l	שום אטר mg/l									² Tc
Nitrate-Nitrite	D		0.0197	0.100									3 Cc
L759360-01 Original Sample (OS) • Duplicate (DUP)	ample (OS) •	Duplicate	(DUP)										00 10
(OS) 04/24/15 12:56 • (DUP) 04/24/15 12:57	24/15 12:57												5
Analyte	Uriginal Kesult DUP Kesult mg/l	mg/l	Dilution	00P KPD %		DUP KPD LIMITS							Sr
Nitrate-Nitrite	0.61	0.61	-	0.00	20	0							(g
L759184-01 Original Sample (OS) • Duplicate (DUP)	imple (OS) •	Duplicate (DUP)										ςΩ Σ
(OS) 04/24/15 12:33 • (DUP) 04/24/15 12:34	24/15 12:34												G
	Original Result DUP Result	DUP Result	Dilution	P RPD	DUP Qualifier DI	DUP RPD Limits							
Analyte	l/gm	mg/l		%	³⁶								A
Nitrate-Nitrite ND ND 1 0.00 20 Laboratory Control Sample (LCS) • Laboratory Control Sample Dunlicate (LCSD)	ND mole (LCS) -	ND I aboratory	1 Control S		20 blicate (LCSD)								⁹ Sc
(LCS) 04/24/15 12:29 • (LCSD) 04/24/15 12:30	14/24/15 12:30				-								
Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	t LCS Rec. %	c. LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %			
Nitrate-Nitrite	5.00	4.95	5.03	0.66	101	90.0-110			1.60	20			
L759281-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)	smple (OS) •	Matrix Spik	e (MS) • M	atrix Spike	: Duplicate ((DSD)							
(OS) 04/24/15 12:35 • (MS) 04/24/15 12:36 • (MSD) 04/24/15 12:38	4/15 12:36 • (MSD	0) 04/24/15 12:3							<u>-</u>				
Analyte	pike Amount mg/l	spike Amount Uriginal Kesuit mg/l mg/l	ms kesuit mg/l	mg/l	UIT MD KeC.	Mou kec.	DIIUTION	Kec. Limits MS	Mo qualifier	MSU Qualifier	кри % қр	KPU LIMITS	
Nitrate-Nitrite	5.00	2.14	7.36	7.39	105	106	-	00-0-010			0.407 20		
ACCOUNT: ARCADIS US - TX	NNT: US - TX		ТX	PROJECT: TX000836.0008.15009	5009	Γ	SDG: L759281		DATE/TIME: 04/16/15 14:08	TIME: 5 14:08		PAGE: 14 of 42	

	9012B
00	Method
ŝ	by
WG7830	Wet Chemistry

9 С ğ Sc P SS Ś σ A DUP RPD Limits DUP RPD Limits 20 20 Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD) 96 96 DUP Qualifier DUP Qualifier DUP RPD 0.00500 DUP RPD MB RDL 0.00 0.00 mg/l % % 0.00180 MB MDL L759459-02 Original Sample (OS) • Duplicate (DUP) Dilution Dilution L759253-01 Original Sample (OS) • Duplicate (DUP) mg/l , *~* MB Qualifier Original Result DUP Result Original Result DUP Result mg/l mg/l Q Q **MB Result** (OS) 04/21/15 09:58 • (DUP) 04/21/15 09:59 (OS) 04/21/15 09:38 • (DUP) 04/21/15 09:39 l/gm I/bm l/bm QN g Method Blank (MB) (MB) 04/21/15 09:31 Cyanide Cyanide Cyanide Analyte Analyte Analyte

ng/l 0.109

0.100

Cyanide

Analyte

l/gm

RPD Limits

RPD %

LCSD Qualifier

LCS Qualifier

Rec. Limits

LCSD Rec.

LCS Rec.

LCSD Result

Spike Amount LCS Result

(LCS) 04/21/15 09:34 • (LCSD) 04/21/15 09:35

%

90.0-110

%

109

0.105

%

l/gm

20 %

3.74

L759253-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 04/21/15 09:41 • (MS) 04/21/15 09:42 • (MSD) 04/21/15 09:43	09:42 • (MSI	D) 04/21/15 09:43										
	Spike Amoun	Spike Amount Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	l/gm	mg/l	mg/l	mg/l	%	%		%			%	%
Cyanide	0.200	0.000200	0.179	0.183	89.5	91.5	-	90.0-110	9		2.21	20

PAGE: 15 of 42

DATE/TIME: 04/16/15 14:08

ACCOUNT: ARCADIS US - TX

PROJECT: TX000836.0008.15009

SDG: L759281

	Method 9056MOD
60	by I
WG7824	Wet Chemistry

Method Blank (MB)

Method Blank (MB)					2
(MB) 04/20/15 12:27					<u>}</u>
	MB Result	MB Qualifier	MB MDL	MB RDL	2
Analyte	l/bm		mg/l	mg/l	Tc
Chloride	D		0.0519	1.00	
Fluoride	C		0.0099	0.100	Sc
Sulfate	N		0.0774	5.00)
					4 C
					j

L759295-01 Original Sample (OS) • Duplicate (DUP)

(OS) 04/20/15 13:44 • (DUP) 04/20/15 13:59

(OS) 04/20/15 13:44 • (DUP) 04/20/15 13:59	0/15 13:59						Sr
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits	
Analyte	l/gm	mg/l		%		28	
Chloride		7.83	~	0		20	ר ל
Fluoride	0.591	0.590	-	0		20	-
Sulfate	22.8	22.9	-	0		20	Ū

Sc

A

L759156-01 Original Sample (OS) • Duplicate (DUP)

(OS) 04/20/15 20:07 • (DUP) 04/20/15 20:22	Original Result DUP Result Dilution DUP RPD DUP Qualifier DUP RPD Lim
(OS) 04/20/15 20:	

	Original Res	ult DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		96
de	2.96	3.04	۲	с		20
⁻ luoride	0.234	0.234	٦	0		20
a	13.5	13.6	۲	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

	5 N N N N N N N N N N N N N N N N N N N		2	1						
(LCS) 04/20/15 12:42 • (LCSD) 04/20/15 12:57	4/20/15 12:57									
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	l/gm	mg/l	mg/l	%	%	%			%	%
Chloride	40.0	40.1	39.9	100	100	90-110			Ļ	20
Fluoride	8.00	8.10	8.02	101	100	90-110			-	20
Sulfate	40.0	40.1	39.7	100	66	90-110			1	20

L759081-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 04/20/15 16:18 • (MS) 04/20/15 16:33 • (MSD) 04/20/15 16:48	/15 16:33 • (MSI	D) 04/20/15 16:48										
	Spike Amoun	Spike Amount Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	l/gm	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	50.0	1.09	49.8	51.8	97	101	-	80-120			4	20

16 of 42 PAGE:

DATE/TIME: 04/16/15 14:08

SDG: L759281

TX000836.0008.15009 PROJECT:

ARCADIS US - TX ACCOUNT:

	9056MOD
m	y Method
/G78249	et Chemistry by
\leq	₩.

L759081-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 04/20/15 16:18 • (MS) 04/20/15 16:33 • (MSD) 04/20/15 16:48

RPD Limits	%	20	20	
er RPD	%	m	7	
MSD Qualifier				
MS Qualifier				
Rec. Limits	%	80-120	80-120	
Dilution		-	-	
MSD Rec.	%	97	95	
MS Rec.	%	93	92	
MSD Result	mg/l	6.61	101	
MS Result	mg/l	6.42	0.66	
nt Original Result	mg/l mg/l mg/l	1.76	53.2	
Spike Amou	l/ɓɯ	5.00	50.0	
	Analyte	Fluoride	Sulfate	

¹ Cp Tc	⁵ ⁵ ⁵ ⁵	⁶ Gc	⁸ Al ⁹ Sc

DATE/TIME: 04/16/15 14:08

SDG: L759281

PROJECT: TX000836.0008.15009

ACCOUNT: ARCADIS US - TX

	VULVL
	Г
00	NA other d
-	-
3	2
2	
00	P
ЮΝ	MOVORA
>	1
\leq	-
_	1

9 С ğ P SS S A σ **RPD** Limits % 20 RPD % ~ MSD Qualifier **RPD** Limits 20 % RPD MS Qualifier ~ ო LCSD Qualifier Rec. Limits 75-125 % LCS Qualifier Dilution ~ MSD Rec. Rec. Limits 80-120 104 % L759281-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD) % Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD) MS Rec. LCSD Rec. 105 % 104 % LCS Rec. **MSD** Result 0.00311 0.000200 l/gm 102 20 MB RDL mg/l LCSD Result 0.00313 0.000049 **MS Result** 0.00315 MB MDL mg/l mg/l mg/l (OS) 04/21/15 09:32 • (MS) 04/21/15 09:35 • (MSD) 04/21/15 09:43 Spike Amount Original Result MB Qualifier Spike Amount LCS Result 0.00305 l/bm l/gm QN 0.00300 0.00300 (LCS) 04/21/15 09:27 • (LCSD) 04/21/15 09:30 **MB Result** l/gm l/gm l/bm Mercury by Method /4/0A Method Blank (MB) (MB) 04/21/15 09:24 Mercury, Dissolved Mercury, Dissolved Mercury, Dissolved Analyte Analyte Analyte

Sc

PROJECT: TX000836.0008.15009

ARCADIS US - TX

ACCOUNT:

SDG: L759281

DATE/TIME: 04/16/15 14:08

PAGE: 18 of 42

	VULVL
3	
2	hodto M
9	10
46	
00	P
U	;
МG	MOTOTOM
~	2

9 С ğ P SS S A σ **RPD** Limits % 20 RPD % м MSD Qualifier **RPD** Limits 20 % RPD MS Qualifier ~ ო LCSD Qualifier Rec. Limits 75-125 % LCS Qualifier Dilution ~ MSD Rec. Rec. Limits 80-120 94 L760902-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD) % % Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD) MS Rec. LCSD Rec. % 97 96 % LCS Rec. **MSD** Result 0.00282 0.000200 mg/l 66 20 MB RDL mg/l LCSD Result 0.00287 0.000049 0.00290 **MS Result** MB MDL mg/l mg/l mg/l (OS) 04/27/15 08:33 • (MS) 04/27/15 08:35 • (MSD) 04/27/15 08:37 Spike Amount Original Result MB Qualifier Spike Amount LCS Result 0.00297 l/bm mg/l QN 0.00300 (LCS) 04/27/15 08:28 • (LCSD) 04/27/15 08:30 0.00300 **MB Result** l/gm l/gm I/bm Mercury by Method 7470A Method Blank (MB) (MB) 04/27/15 08:26 Mercury Mercury Mercury Analyte Analyte Analyte

Sc

ACCOUNT: ARCADIS US - TX

PROJECT: TX000836.0008.15009

SDG: L759281

DATE/TIME: 04/16/15 14:08

PAGE: 19 of 42

Method Blank (MB)

INIELITOU DIALIK (INIE)					5
(MB) 04/23/15 12:47					3
	MB Result	MB Qualifier	MB MDL	MB RDL	2
Analyte	l/gm		mg/l	l/gm	Tc
Aluminum, Dissolved	0.00723		0.002	0.100	
Arsenic, Dissolved	D		0.00025	0.00200	3 Sc
Barium, Dissolved	D		0.00036	0.00500	2
Boron, Dissolved	D		0.0015	0.0200	4
Cadmium, Dissolved	D		0.00016	0.00100	ы С
Calcium, Dissolved	0.119		0.046	1.00][
Chromium, Dissolved	D		0.00054	0.00200	Sr.
Copper, Dissolved	D		0.00052	0.00500	j
Cobalt, Dissolved	С		0.00026	0.00200	9
Iron, Dissolved	D		0.015	0.100	ğ
Lead, Dissolved	D		0.00024	0.00200	
Manganese, Dissolved	0.000705		0.00025	0.00500	⁷ G
Molybdenum,Dissolved	D		0.00014	0.00500	5
Nickel, Dissolved	0.000423		0.00035	0.00200	80
Potassium, Dissolved	0.164		0.037	1.00	A
Selenium, Dissolved	D		0.00038	0.00200	
Silver, Dissolved	D		0.00031	0.00200	°SC
Sodium, Dissolved	D		0.11	1.00)
Uranium, Dissolved	D		0.00033	0.0100	
Zinc,Dissolved			0.00256	0.0250	

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

00100

(LCS) 04/23/15 12:49 • (LCSD) 04/23/15 12:51	1/23/15 12:51										
	Spike Amount LCS Result	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	
Analyte	mg/l	mg/l	mg/l	26	%	%			%	%	
Aluminum, Dissolved	5.00	4.91	4.95	98	66	80-120			1	20	
Arsenic, Dissolved	0.0500	0.0548	0.0532	110	106	80-120			ю	20	
Barium, Dissolved	0.0500	0.0479	0.0499	96	100	80-120			4	20	
Boron, Dissolved	0.0500	0.0449	0.0493	06	66	80-120			6	20	
Cadmium, Dissolved	0.0500	0.0528	0.0515	106	103	80-120			ю	20	
Calcium, Dissolved	5.00	5.03	4.89	101	98	80-120			ю	20	
Chromium, Dissolved	0.0500	0.0494	0.0484	66	97	80-120			2	20	
Copper, Dissolved	0.0500	0.0522	0.0505	104	101	80-120			т	20	
Cobalt, Dissolved	0.0500	0.0509	0.0499	102	100	80-120			2	20	
Iron,Dissolved	5.00	4.81	4.68	96	94	80-120			ю	20	
Lead, Dissolved	0.0500	0.0503	0.0505	101	101	80-120			0	20	
Manganese, Dissolved	0.0500	0.0493	0.0488	66	98	80-120			-	20	
ACCOUNT: ARCADIS US - TX	NT: S - TX		PF TX00083	PROJECT: TX000836.0008.15009		C.	SDG: L759281		DATE/TIME: 04/16/15 14:08	ME: 4:08	PAGE: 20 of 42

6020
Method
by
(ICPMS)
Metals

9

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 04/23/15 12:49 • (LCSD) 04/23/15 12:51

	2	Tc		3 Sc	2	4	ű		Sr	ō
	ts									
	RPD Limits	%	20	20	20	20	20	20	20	20
	RPD	%	-	4	2	4	2	2	0	ъ
	LCSD Qualifier									
	LCS Qualifier									
	Rec. Limits	%	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	LCSD Rec.	%	66	97	104	107	105	105	98	94
	LCS Rec.	%	100	101	102	103	106	103	98	66
	LCSD Result	l/bm	0.0494	0.0486	5.20	0.0536	0.0524	5.24	0.0490	0.0472
	LCS Result	l/gm	0.0499	0.0506	5.12	0.0513	0.0532	5.15	0.0489	0.0495
10.2101021	Spike Amount	mg/l mg/l	0.0500	0.0500	5.00	0.0500	0.0500	5.00	0.0500	0.0500
(Analyte	Molybdenum, Dissolved	Nickel, Dissolved	Potassium, Dissolved	Selenium, Dissolved	Silver, Dissolved	Sodium, Dissolved	Uranium, Dissolved	Zinc, Dissolved

L759281-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

ő

±						
mg/l mg/l mg/l mg/l um.Dissolved 1.00 0.0166 5.42 .Dissolved 0.0100 0.0166 5.42 .Dissolved 0.0100 0.0696 0.125 Dissolved 0.0100 0.0696 0.125 Dissolved 0.0100 0.0169 0.158 Jissolved 0.0100 0.166 0.158 m.Dissolved 0.0100 0.0166 0.0563 m.Dissolved 1.00 685 706 um.Dissolved 0.0100 ND 0.0516 um.Dissolved 0.0100 ND 0.0516 Jissolved 0.0100 ND 0.0516 Dissolved 0.0100 0.0887 0.0516 Inssolved 0.0010 0.00124 0.0538 Issolved 0.0100 0.0121 0.0560 Dissolved 0.0100 0.0175 0.0560 Insolved 0.0100 0.0023 0.0560 Insolved 0.0100		MS Rec. MSD Rec.	Dilution Re	Rec. Limits MS Qualifier	MSD Qualifier RPD	RPD Limits
1 1.00 0.0166 5.42 0.0100 0.00104 0.0603 0.0100 0.0166 5.42 0.0100 0.0166 5.42 0.0100 0.0166 0.125 0.0100 0.116 0.158 0.0100 0.116 0.158 1.00 685 706 0.0100 ND 0.0516 0.0100 ND 0.0516 0.0100 ND 0.0516 0.0100 ND 0.0544 1.00 5.48 10.9 1.00 5.48 10.9 1.00 0.0581 5.34 0.0100 0.0581 5.34 0.0100 0.0581 5.34 0.0100 0.00244 0.0560 0.0100 0.00233 0.0560 0.0100 0.0175 0.0560 0.0100 0.00203 0.0560 0.0100 0.00233 0.0560 0.0000 0.00506 0.050		%	%		%	%
0.0100 0.00104 0.0603 0.0100 0.0696 0.125 0.0100 0.0166 0.158 0.0100 0.116 0.158 0.0100 0.0166 0.0563 1.00 685 706 0.0100 0.0887 0.0516 0.0100 0.0887 0.0516 0.0100 0.0887 0.0516 0.0100 0.0887 0.0516 0.0100 0.0887 0.0516 0.0100 0.0887 0.0516 0.0100 0.0887 0.0544 0.0100 0.0581 5.34 1.00 5.48 10.9 ed 0.0100 0.0581 0.0100 0.0581 5.34 wed 0.0100 0.0581 0.0100 0.0581 5.34 0.0100 0.0581 5.34 0.0100 0.0581 5.34 0.0100 0.0121 0.0560 0.0100 0.0121 0.0560 0.0100 0.0175 0.0560 1.00 0.00233 0.0560 1.00 0.00233 0.0560 1.00 0.00243 0.0560	5.42 5.65	108 113	5 75	75-125	4	20
0.0100 0.0696 0.125 0.0100 0.116 0.158 0.0100 0.116 0.158 1.00 685 706 1.00 685 706 0.0100 0.0887 0.0516 0.0100 ND 0.0516 0.0100 ND 0.0516 0.0100 ND 0.0516 0.0100 ND 0.0516 0.0100 0.0887 0.0516 0.0100 ND 0.0544 1.00 5.48 10.9 1.00 5.48 10.9 1.00 0.0581 5.34 0.0100 0.00124 0.0538 ed 0.0100 0.0121 0.0541 ved 0.0100 0.0175 0.0560 0.0100 0.0175 0.0560 0.0100 0.00273 0.0560 0.00100 0.00233 0.0560	0.0603 0.0628	119 124	5 75	75-125	4	20
0.0100 0.116 0.158 1.00 0.00136 0.0563 1.00 685 706 0.0100 0.00136 0.0516 1.00 685 706 0.0100 ND 0.0516 0.0100 ND 0.0516 0.0100 ND 0.0570 0.0100 ND 0.0570 0.0100 ND 0.0570 0.0100 ND 0.0570 0.0100 0.0887 0.0570 0.0100 ND 0.0570 0.0100 0.0581 5.34 0.0100 0.00124 0.0538 ed 0.0100 0.00244 0.0541 ved 0.0100 0.0121 0.0670 0.0100 0.0121 0.0560 0.0560 1.00 0.00233 0.0560 0.0560 1.00 0.000233 0.0560 0.0560	0.125 0.121	111 102	5 75	75-125	4	20
1 0.0100 0.000186 0.0563 100 685 706 100 685 706 0.0100 ND 0.0516 0.0100 ND 0.0570 0.0100 ND 0.0570 0.0100 0.0887 0.0570 0.0100 0.0887 0.0570 0.0100 0.0887 0.0570 0.0100 0.0887 0.0570 0.0100 0.0581 5.34 0.0100 0.0581 5.34 0.0100 0.0581 5.34 0.0100 0.0581 5.34 0.0100 0.00124 0.0538 ed 0.0121 0.0560 0.0100 0.0175 0.0560 0.0100 0.00273 0.0560 1.00 0.000273 0.0560	0.158 0.173	85 113	5 75	75-125	œ	20
1.00 685 706 0.0100 ND 0.0516 0.0100 ND 0.0570 0.0100 ND 0.0570 0.0100 ND 0.0570 0.0100 ND 0.0570 0.0100 0.0887 0.0570 0.0100 0.0887 0.0574 1.00 5.48 10.9 1.00 5.48 10.9 1.00 5.48 10.9 1.00 0.0581 5.34 0.0100 0.0581 5.34 0.0100 0.00124 0.0538 ed 0.0100 0.00244 0.0541 ved 0.0121 0.0670 0.0670 0.0100 0.0175 0.0560 0.0560 0.0100 0.00273 0.0560 0.0560 0.0000 0.00546 0.0560 0.0560	0.0563 0.0596	112 119	5 75	75-125	9	20
d 0.0100 ND 0.0516 0.0100 0.0887 0.0570 0.0100 0.0887 0.0570 0.0100 0.0887 0.0570 0.0100 ND 0.0544 1.00 5.48 10.9 1.00 5.48 10.9 1.00 5.48 10.9 0.0100 0.0581 5.34 0.0100 0.0581 5.34 0.0100 0.0581 5.34 0.0100 0.0244 0.0538 ed 0.0100 0.00124 0.0541 wed 0.0100 0.0175 0.0560 0.0100 0.0175 0.0560 0.0100 0.00808 0.0560 1.00 60.0 67.5 0.0000 0.00546 0.0569			5 75	75-125 👱	ю >I	20
0.0100 0.0887 0.0570 0.0100 ND 0.0544 0.0100 ND 0.0544 1.00 5.48 10.9 1.00 5.48 10.9 1.00 0.0581 5.34 0.0100 0.0581 5.34 0.0100 0.00124 0.0538 ed 0.0100 0.00124 0.0541 ved 0.0100 0.0121 0.0540 0.0100 0.0126 0.0560 0.0560 0.0100 0.0175 0.0560 0.0560 0.0100 0.00203 0.0560 0.0560 1.00 60.0 60.0 67.5	0.0516 0.0540	103 108	5 75	75-125	Ð	20
0.0100 ND 0.0544 1.00 5.48 10.9 1.00 5.48 10.9 1.00 5.48 10.9 1.00 0.0581 5.34 0.0100 0.0581 5.34 0.0100 0.00124 0.0538 ed 0.0100 0.00244 0.0541 ved 0.0100 0.0121 0.0670 0.0100 0.0125 0.0560 0.0100 0.00808 0.0630 0.0100 0.00808 0.0569 1.00 60.0 67.5 0.0000 0.00546 0.0569	0.0570 0.0586		5 75	75-125 <u>J6</u>	<u>J6</u>	20
d 1.00 5.48 10.9 1.00 0.0581 5.34 0.0100 0.0581 5.34 ed 0.0100 0.00124 0.0538 ed 0.0100 0.00244 0.0541 ved 0.0100 0.0121 0.0670 0.0100 0.0121 0.0670 0.0560 0.0100 0.0175 0.0560 0.0560 0.0100 0.00233 0.0560 0.0560 1.00 60.0 67.5 0.0569	0.0544 0.0569		5 75	75-125	Ð	20
1.00 0.0581 5.34 0.0100 0.00124 0.0538 ed 0.0100 0.00244 0.0538 ved 0.0100 0.00244 0.0541 void 0.0121 0.0670 0.0570 0.0100 0.0175 0.0560 0.0560 0.0100 0.0175 0.0560 0.0560 1.00 0.000273 0.0569 0.0569 1.00 60.0 60.0 67.5		109 114	5 75	75-125	2	20
0.0100 0.00124 0.0538 ed 0.0100 0.00244 0.0541 wed 0.0100 0.0121 0.0541 vol 0.0100 0.0175 0.0560 0.0100 0.0175 0.0560 0.0100 0.0175 0.0560 0.0100 0.00808 0.0560 1.00 0.000273 0.0569 1.00 60.0 67.5	5.34 5.54		5 75	75-125	4	20
ed 0.0100 0.00244 0.0541 ved 0.0100 0.0121 0.0570 0.0100 0.0175 0.0560 0.0100 0.00808 0.0630 0.0100 0.000273 0.0569 1.00 60.0 67.5	0.0538 0.0545		5 75	75-125	~	20
ved 0.0100 0.0121 0.0670 0.0100 0.0175 0.0560 0.0100 0.00808 0.0630 0.0100 0.000273 0.0569 1.00 60.0 67.5	0.0541 0.0579	103 111	5 75	75-125	7	20
0.0100 0.0175 0.0560 0.0100 0.00808 0.0630 0.0100 0.000273 0.0569 1.00 60.0 67.5	0.0670 0.0689		5 75	75-125	ю	20
0.0100 0.00808 0.0630 0.0100 0.000273 0.0569 1.00 60.0 67.5 0.0100 0.00546 0.0568	0.0560 0.0577	77 80	5 75	75-125	ю	20
0.0100 0.000273 0.0569 1.00 60.0 67.5 0.0100 0.00546 0.0588	0.0630 0.0661	110 116	5 75	75-125	Ð	20
1.00 60.0 67.5 0.000 0.00546 0.0588	0.0569 0.0586		5 75	75-125	с	20
	67.5 68.7	151 175	5 75	75-125 🗸	2	20
	0.0598 0.0614	109 112	5 75	75-125	ω	20
Zinc,Dissolved 0.0100 0.0161 0.0728 0.077	0.0728 0.0720	114 112	5 75	75-125	~	20

SDG: L759281

DATE/TIME: 04/16/15 14:08

PAGE: 21 of 42

(Y)
(5	2
(۷)
(1	1
¢	χ	С
٢	-	-
(ľ)
A	2	>
-	2	>

QUALITY CONTROL SUMMARY Volatile Organic Compounds (GC) by Method 8015D/GRO

cb

⁴ Cn

Ū

Method Blank (MB)

MRI 04/16/15 13:14

41.01 /01/101 /101/101 /01/101					
	MB Result	MB Qualifier	MB MDL	MB RDL	2
Analyte	mg/l		mg/l	mg/l	L L
TPH (GC/FID) Low Fraction	n		0.0314	0.100	
(S) a,a,a-Trifluorotoluene(FID)	91.1			62.0-128	SS
					1

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 04/16/15 10:57 • (LCSD) 04/16/15 11:19

											ŝ
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	Ś
Analyte	mg/l mg/l	mg/l	mg/l	%	%	%			%	%	
TPH (GC/FID) Low Fraction	5.50	5.02	5.13	91.3	93.2	67.0-132			2.00	20	°
(S) a,a,a-Trifluorotoluene(FID)				98.0	98.3	62.0-128					ר ז

L757731-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 04/16/15 13:53 • (MS) 04/16/15 12:08 • (MSD) 04/16/15 12:30	3/15 12:08 • (M	1SD) 04/16/15 12:30											8 Al
	Spike Amo	Spike Amount Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits	
Analyte	l/gm	mg/l	mg/l	mg/l	%	%		%			%	%	6
TPH (GC/FID) Low Fraction	5.50	DN	5.13	5.44	93.3	98.9	-	50.0-143			5.84	20	N N
(S) a,a,a-Trifluorotoluene(FID)					98.5	98.9		62.0-128					

WG782439 Volatile Organic Compounds (GC/MS)		by Method 8260B	OB	QUALITY CONTROL SUMMARY
Method Blank (MB)				
(MB) 04/17/15 22:36				
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Acetone	Ъ		0.0100	0.0500
Benzene			0.000331	0.00100
Dromodichloromothono	=			

*

ONE LAB. NATIONWIDE.

Method Blank (MB)						U -
(MB) 04/17/15 22:36 MB Decuit	+ MR Oual flor					3
Analyte mg/l	-	mg/l	l/bm			Tc
Acetone U		0.0100	0.0500			
		0.000331	0.00100			Ss
Bromodichloromethane		0.000380	0.00100			
Bromoform U		0.000469	0.00100			4
Bromomethane		0.000866	0.00500			Cu
	33	0.000361	0.00100][
sec-Butylbenzene U		0.000365	0.00100			Sr
Carbon disulfide U		0.000275	0.00100			ō
Carbon tetrachloride U		0.000379	0.00100			9
Chlorobenzene		0.000348	0.00100			ğ
Chlorodibromomethane		0.000327	0.00100			
Chloroethane U		0.000453	0.00500			7GI
Chloroform		0.000324	0.00500			5
Chloromethane U		0.000276	0.00250			00
1,2-Dibromoethane		0.000381	0.00100			A
1,1-Dichloroethane U		0.000259	0.00100			
1,2-Dichloroethane U		0.000361	0.00100			
1,1-Dichloroethene U		0.000398	0.00100)
		0.000260	0.00100			
ene		0.000396	0.00100			
		0.000306	0.00100			
		0.000418	0.00100			
oropropene		0.000419	0.00100			
0		0.000384	0.00100			
2-Hexanone U		0.00382	0.0100			
		0.000326	0.00100			
		0.000350	0.00100			
		0.00393	0.0100			
		0.00100	0.00500			
(MIBK)		0.00214	0.0100			
Methyl tert-butyl ether U		0.000367	0.00100			
Naphthalene U		0.00100	0.00500			
n-Propylbenzene U		0.000349	0.00100			
Styrene U		0.000307	0.00100			
1,1,1,2-Tetrachloroethane U		0.000385	0.00100			
1,1,2,2-Tetrachloroethane U		0.000130	0.00100			
Tetrachloroethene		0.000372	0.00100			
Toluene U		0.000780	0.00500			
1,1,1-Trichloroethane		0.000319	0.00100			
ACCOUNT:			PROJECT:	SDG:	DATE/TIME:	PAGE:
ARCADIS US - TX		τ.	TX000836.0008.15009	L759281	04/16/15 14:08	23 of 42

0	π
0	43
C	V
1	2
(ס
VI	3

Volatile Organic Compounds (GC/MS) by Method 8260B

Method Blank (MB)

					5
(MB) 04/17/15 22:36					3
	MB Result	MB Qualifier	MB MDL	MB RDL	2
Analyte	mg/l		mg/l	mg/l	Tc
1,1,2-Trichloroethane	Л		0.000383	0.00100	
Trichloroethene	С		0.000398	0.00100	Sc
1,2,4-Trimethylbenzene			0.000373	0.00100	2
1,3,5-Trimethylbenzene			0.000387	0.00100	4
Vinyl chloride	D		0.000259	0.00100	ű
Xylenes, Total	D		0.00106	0.00300	
o-Xylene	D		0.000341	0.00100	5 Sr
m&p-Xylenes			0.000719	0.00200	5
(S) Toluene-d8	103			88.5-111	6
(S) Dibromofluoromethane	97.4			78.3-121	ğ
(S) 4-Bromofluorobenzene	102			71.0-126	
					GI

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

Sc

A

11 CS) 04/17/15 21-07 . 11 CSD1 04/17/15 21-20

(LCS) 04/17/15 21:07 • (LCSD) 04/17/15 21:29	7/15 21:29										
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%	
Acetone	0.125	0.116	0.114	92.5	91.0	35.6-163			1.60	23.9	
Benzene	0.0250	0.0222	0.0246	88.7	98.4	74.8-121			10.3	20	
Bromodichloromethane	0.0250	0.0223	0.0246	89.3	98.3	75.1-116			9.62	20	
Bromoform	0.0250	0.0232	0.0247	93.0	98.6	67.5-130			5.87	20	
Bromomethane	0.0250	0.0242	0.0274	96.9	109	49.9-162			12.2	20	
n-Butylbenzene	0.0250	0.0242	0.0263	97.0	105	76.2-126			7.95	20	
sec-Butylbenzene	0.0250	0.0237	0.0261	95.0	105	74.4-127			9.58	20	
Carbon disulfide	0.0250	0.0232	0.0258	92.9	103	64.6-140			10.5	20	
Carbon tetrachloride	0.0250	0.0196	0.0224	78.2	89.7	70.2-123			13.7	20	
Chlorobenzene	0.0250	0.0236	0.0261	94.6	104	78.1-119			9.95	20	
Chlorodibromomethane	0.0250	0.0223	0.0240	89.3	96.0	74.0-121			7.20	20	
Chloroethane	0.0250	0.0223	0.0249	89.1	99.7	61.7-135			11.2	20	
Chloroform	0.0250	0.0222	0.0244	88.8	97.6	76.0-121			9.46	20	
Chloromethane	0.0250	0.0219	0.0240	87.5	95.9	61.5-129			9.19	20	
1,2-Dibromoethane	0.0250	0.0229	0.0243	91.7	97.1	76.6-121			5.71	20	
1,1-Dichloroethane	0.0250	0.0230	0.0255	91.8	102	70.7-126			10.5	20	
1,2-Dichloroethane	0.0250	0.0219	0.0230	87.4	92.0	68.8-124			5.13	20	
1,1-Dichloroethene	0.0250	0.0236	0.0267	94.3	107	67.8-129			12.6	20	
cis-1,2-Dichloroethene	0.0250	0.0227	0.0248	90.8	99.2	76.0-119			8.85	20	
trans-1,2-Dichloroethene	0.0250	0.0235	0.0259	94.2	104	72.6-121			9.57	20	
1,2-Dichloropropane	0.0250	0.0231	0.0252	92.4	101	76.5-119			8.62	20	
ACCOUNT: ARCADIS US - TX	: Ц		PR(TX00083	PROJECT: TX300836.0008.15009			SDG: L759281		DATE/TIME: 04/16/15 14:08	ME: 4:08	PAGE: 24 of 42

Volatile Organic Compounds (GC/MS) by Method 8260B WG782439

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

Sale Anone LSS beam												
mgl mgl <th></th> <th>spike Amount</th> <th></th> <th>LCSD Result</th> <th>LCS Rec.</th> <th>LCSD Rec.</th> <th></th> <th>LCS Qualifier</th> <th>LCSD Qualifier</th> <th>RPD</th> <th>RPD Limits</th> <th>0</th>		spike Amount		LCSD Result	LCS Rec.	LCSD Rec.		LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	0
Inderogenee 0.0250 0.0243 90.2 97.4 78.2-120 7.67 Definitionponee 0.0250 0.0228 84.6 910 7.81-223 7.82 Definitionpone 0.0250 0.0226 0.0236 9.03 85.644 1.73 Definitionpone 0.0250 0.0236 0.0266 9.03 7.43-123 1.73 Definition 0.125 0.0260 0.0236 9.03 9.03 7.43-13 1.73 Definition 0.0250 0.0236 0.0240 8.93 9.53 7.43-13 1.73 Definition 0.0250 0.0239 9.04 9.16 7.43-13 1.73 Definition 0.0250 0.0239 9.03 9.16 7.43-13 1.73 Definition 0.0250 0.0239 9.03 9.16 7.43-13 1.73 Definition 0.0250 0.0239 9.16 9.10 7.43-13 1.73 Definition 0.0250 0.0239 9.10 <td< th=""><th></th><th>l/gr</th><th>mg/l</th><th>mg/l</th><th>%</th><th>%</th><th>%</th><th></th><th></th><th>%</th><th>%</th><th>Tc</th></td<>		l/gr	mg/l	mg/l	%	%	%			%	%	Tc
Dichloropene 0.0250 0.0212 0.0239 0.0230 0.0239 0.0230 0.0239 0.0230 0.0239 0.0230 0.0239 0.0230 0.0239 0.0230 0.0236 0.0339 0.0330 0.0330 0.0330 0.0430 0.0230 0.0236 0.0330 0.0230 0.0233 0.0330 0.0230 0.0233 0.0330 0		0.0250	0.0225	0.0243	90.2	97.4	78.2-120			7.67	20	
Zere 00250 00239 00260 00239 00260 00239 00260 00239 00260 00239 00260 00339 00260 00336 00360 00336 00360 00336 00360 00336 00360 00336 00360 00336 00360 00336 00360 00336 00360 00336 00360		0.0250	0.0212	0.0228	84.6	91.0	74.3-123			7.23	20	3 Sc
one 0125 0116 0113 0236 056-144 308 bberzene 00250 00236 00265 056-144 308 bberzene 00250 00236 0560 166 786-132 11 brenzene 00250 00235 00246 89.9 95.9 703-120 11 brenzene 00250 00236 00240 89.9 95.9 703-120 11 brenzene 00250 00216 00236 00240 89.9 95.0 17.2426 13 c-bulk ether 00250 00234 00236 00244 93.6 10.724 13 brenzene 00250 00234 00236 00236 10.22 12.242 13 brenzene 00250 00234 00236 00236 10.23 13.242 13 brenzene 00250 00234 00236 10.23 10.242 13 brenzene 00250 00234 0232		0.0250	0.0239	0.0269	95.6	108	78.8-122			11.8	20	}
Ibernization 0.0256 0.0235 0.0265 0.0265 0.0266 <th0.0266< th=""> <th0.0< td=""><td></td><td>0.125</td><td>0.116</td><td>0.113</td><td>92.9</td><td>0.06</td><td>65.6-144</td><td></td><td></td><td>3.08</td><td>20</td><td>4</td></th0.0<></th0.0266<>		0.125	0.116	0.113	92.9	0.06	65.6-144			3.08	20	4
pyloluene 0.0250 0.0236 0.0236 0.0236 0.0236 0.0249 0.023 0.0249 0.0244 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.024		0.0250	0.0237	0.0265	95.0	106	78.6-132			11.1	20	ű
me (ME() 0.125 0.103 0.104 8.2 8.36 5.0-449 1.1 a chloide 0.0250 0.0225 0.0240 89.9 95.9 7.03-120 6.45 2-pentanone (MBK) 0.125 0.0216 0.0227 89.9 95.9 7.05-133 1.3 2-pentanone (MBK) 0.125 0.0216 90.2 97.3 7.1-246 1.3 artholyther 0.0250 0.0236 0.0234 90.0 97.0 97.3 1.3 benzene 0.0250 0.0240 0.0263 95.9 10.7 7.2-126 9.3 benzene 0.0250 0.0240 0.0240 90.2 10.3 1.4 benzene 0.0250 0.0240 90.2 1.7 1.2 1.3 benzene 0.0250 0.0240 0.0243 96.9 1.7 1.2 1.3 benzene 0.0250 0.0242 92.9 1.7 1.2 1.2 1.1 benzene 0.0250 </td <td></td> <td>0.0250</td> <td>0.0236</td> <td>0.0263</td> <td>94.3</td> <td>105</td> <td>74.0-131</td> <td></td> <td></td> <td>10.9</td> <td>20</td> <td></td>		0.0250	0.0236	0.0263	94.3	105	74.0-131			10.9	20	
chloride 0.0250 0.0215 0.0216 0.0250 0.0213 0.114 0.16 0.14 0.16 0.14 0.16 0.14 0.16 0.14 0.16 0.14 0.16 0.14 0.16 0.14 0.16 0.14 0.16 0.14 0.16 0.14 0.16 0.14 0.16 0.14 0.05 0.05 0.025 0.025 0.025 0.025 0.025 0.025 0.025 0.025 0.025 0.025 0.025 0.026 0.025		0.125	0.103	0.104	82.2	83.6	55.0-149			1.71	20	5 Sr
-2-pentranone (MBG) 0.125 0.14 0.16 914 92.6 705-133 131 re-buryterter 0.0250 0.0218 0.023 90.02 95.7 684-128 4.03 ereburyterter 0.0250 0.0236 0.0236 0.0236 93.6 72-126 4.03 berzere 0.0250 0.0240 0.0264 93.6 0.03 72-126 9.0 berzere 0.0250 0.0244 0.0263 93.6 0.3 74-244 9.0 tract/loroethare 0.0250 0.0234 0.0247 93.6 101 72-122 9.1 tract/loroethare 0.0250 0.0234 0.0247 9.0 111 72-142 9.1 stract/loroethare 0.0250 0.0234 0.0247 9.0 111 72-142 9.1 utorethare 0.0250 0.0234 9.1 72-142 9.1 111 utorethare 0.0250 0.0234 9.1 72-142 9.1 111		0.0250	0.0225	0.0240	89.9	95.9	70.3-120			6.45	20	5
artburylether 0.0250 0.0218 0.0221 87.4 9.10 71.216 4.03 lene 0.0250 0.0236 0.0239 900 95.7 68.4728 6.7 benzene 0.0250 0.0236 0.0263 90.03 95.3 6.4-126 9.1 benzene 0.0250 0.0240 97.6 95.8 105 8.2-122 9.3 benzene 0.0250 0.0241 0.0263 95.0 17.4 9.4 9.4 brothere 0.0250 0.0247 0.0278 99.0 11 7.2-124 9.4 brothere 0.0250 0.0247 0.0278 91.0 11 7.2-126 118 brothere 0.0250 0.0212 92.0 111 7.2-126 118 brothere 0.0250 0.0224 91.6 101 7.2-126 118 brothere 0.0250 0.0224 91.6 103 7.3-133 117 brothere 0.0250		0.125	0.114	0.116	91.4	92.6	70.5-133			1.31	20	9
lene 0.0250 0.0235 0.0236 0.0236 0.0236 0.0236 0.0250 0.0236 0.0264 946 075 58.4-128 0.0 benzene 0.0250 0.0236 0.0264 946 075 78.2-122 0.0 trachloroethane 0.0250 0.0234 0.0263 93.6 03 74.2-124 93.0 trachloroethane 0.0250 0.0234 0.0273 93.0 111 72.4-124 93.0 trachloroethane 0.0250 0.0237 0.0273 93.0 111 72.4-124 93.0 foroethane 0.0250 0.0237 0.0273 93.0 111 72.4-124 93.0 horoethane 0.0250 0.0237 0.0273 93.4 103 73.2-123 93.6 horoethane 0.0250 0.0237 0.0242 92.9 111 73.4-124 93.6 horoethane 0.0250 0.0237 0.0242 92.9 177.7-118 113 otide <td></td> <td>0.0250</td> <td>0.0218</td> <td>0.0227</td> <td>87.4</td> <td>91.0</td> <td>71.2-126</td> <td></td> <td></td> <td>4.03</td> <td>20</td> <td>ğ</td>		0.0250	0.0218	0.0227	87.4	91.0	71.2-126			4.03	20	ğ
Denzene 0.0250 0.0236 0.0264 946 165 78.2-122 0.03 trachloroethane 0.0250 0.0240 0.0263 95.8 105 80.4-126 9.30 trachloroethane 0.0250 0.0244 0.0257 93.6 103 7.4.2-124 9.30 trachloroethane 0.0250 0.0247 0.0276 9.0247 9.0271 9.14 9.14 protethane 0.0250 0.0247 0.0278 99.0 111 7.2.146 8.23 oroothane 0.0250 0.0247 0.0278 99.0 111 7.2.146 8.23 dovoethane 0.0250 0.0242 0.0256 9.0247 103 7.7.148 8.23 dovoethane 0.0250 0.0243 9.14 103 7.7.148 113 dovoethane 0.0250 0.0243 9.14 103 7.7.148 113 dovoethane 0.0250 0.0243 9.14 103 7.7.148 113		0.0250	0.0225	0.0239	0.06	95.7	68.4-128			6.17	20	
0.0250 0.0240 0.0263 95.8 105 80.4126 9.30 trachloroethane 0.0250 0.0244 0.0257 93.6 103 74.2124 9.14 strachloroethane 0.0250 0.0244 0.0257 93.6 103 74.2124 9.14 strachloroethane 0.0250 0.0247 0.0254 9.0 111 72.6-126 9.14 strachloroethane 0.0250 0.0247 0.0252 92.7 101 72.6-126 8.2 otoethane 0.0250 0.0242 0.0253 90.0 111 72.6-126 11 horoethane 0.0250 0.0242 9.2 101 73.2-123 117 horoethane 0.0250 0.0242 9.2 101 73.2-123 117 horoethane 0.0250 0.0244 0.0243 9.10 177-118 117 horoethane 0.0250 0.0243 9.4 103 75.6-126 117 horoethane 0.0250 <td></td> <td>0.0250</td> <td>0.0236</td> <td>0.0264</td> <td>94.6</td> <td>105</td> <td>78.2-122</td> <td></td> <td></td> <td>10.9</td> <td>20</td> <td>2 U</td>		0.0250	0.0236	0.0264	94.6	105	78.2-122			10.9	20	2 U
0.0250 0.0234 0.0257 93.6 103 74.2-124 914 0.0250 0.0224 0.0240 89.7 95.9 70.7-122 664 0.0250 0.0247 0.0278 99.0 111 72.6-126 113 0.0250 0.0232 0.0258 91.6 103 73.2-123 117 0.0250 0.0232 0.0258 91.6 103 73.2-123 117 0.0250 0.0232 0.0242 92.9 96.7 77.7-18 117 0.0250 0.0233 0.0243 91.4 103 73.2-123 117 0.0250 0.0240 0.0273 91.4 103 75.0-123 113 0.0250 0.0240 0.0251 91.4 103 75.0-123 103 0.0250 0.0240 0.0251 91.4 103 75.0-123 103 0.0250 0.0240 0.0253 94.9 104 75.6-124 104 0.0250 0.0237<		0.0250	0.0240	0.0263	95.8	105	80.4-126			9.30	20	5
0.0250 0.0224 0.0240 89.7 95.9 70.7-122 6.64 0.0250 0.0247 0.0278 99.0 11 72.6-126 118 0.0250 0.0247 0.0252 92.7 101 73.7-166 8.22 0.0250 0.0229 0.0228 91.6 103 73.2-133 117 0.0250 0.0232 0.0242 92.9 96.7 77.7-18 8.23 0.0250 0.0233 0.0242 92.9 96.7 77.7-18 3.3 0.0250 0.0233 0.0242 94.9 103 75.0-123 10.3 0.0250 0.0233 0.0251 96.0 104 75.6-124 10.3 0.0250 0.0237 0.0251 94.9 103 75.0-123 10.2 0.0250 0.0237 0.0263 94.9 104 75.6-124 9.42 0.0750 0.0237 0.0263 94.9 104 75.6-123 10.2 0.0250		0.0250	0.0234	0.0257	93.6	103	74.2-124			9.14	20	00
rotethene 0.0250 0.0247 0.0278 99.0 11 7.5.6.126 118 notethane 0.0250 0.0232 0.0252 92.7 101 79.7.116 8.22 orotethane 0.0250 0.0232 0.0258 91.6 103 73.2.123 117 orotethane 0.0250 0.0232 0.0242 92.9 96.7 77.7.18 3.98 orotethane 0.0250 0.0233 0.0243 97.4 109 73.2.123 17.3 orotethane 0.0250 0.0233 0.0243 97.4 109 77.7.18 3.98 othylbenzene 0.0250 0.0243 0.0251 94.9 103 75.0.123 9.4 othylbenzene 0.0250 0.0241 0.0251 96.0 101 77.7.18 9.4 othylbenzene 0.0250 0.0242 94.9 103 75.0.123 9.4 othylbenzene 0.0250 0.0251 96.0 106 77.7.1 9.4 </td <td></td> <td>0.0250</td> <td>0.0224</td> <td>0.0240</td> <td>89.7</td> <td>95.9</td> <td>70.7-122</td> <td></td> <td></td> <td>6.64</td> <td>20</td> <td>A</td>		0.0250	0.0224	0.0240	89.7	95.9	70.7-122			6.64	20	A
0.0250 0.0232 0.0252 9.2 101 79.746 8.22 oroethane 0.0250 0.0232 0.0258 91.6 103 73.2423 117 loroethane 0.0250 0.0232 0.0242 92.9 96.7 77.748 113 otroethane 0.0250 0.0232 0.0242 92.9 96.7 77.748 113 ethylbenzene 0.0250 0.0233 0.0258 93.4 103 75.0423 93.8 ethylbenzene 0.0250 0.0237 0.0258 93.4 103 75.6424 94.3 otade 0.0250 0.0247 94.9 104 75.6424 94.3 otade 0.0250 0.0247 94.9 104 75.6424 94.3 otade 0.0250 0.0247 94.9 106 77.418 94.3 otade 0.0250 0.0247 94.9 106 75.6424 94.3 otade 0.0250 0.0243 0.0253 <td></td> <td>0.0250</td> <td>0.0247</td> <td>0.0278</td> <td>0.66</td> <td>111</td> <td>72.6-126</td> <td></td> <td></td> <td>11.8</td> <td>20</td> <td></td>		0.0250	0.0247	0.0278	0.66	111	72.6-126			11.8	20	
oroethane 0.0250 0.0229 0.0258 9.16 103 7.3.2.123 11.7 Incoethane 0.0250 0.0232 0.0242 92.9 96.7 7.7.118 3.98 Introventane 0.0250 0.0233 0.0258 93.4 109 7.7.118 11.3 ethylbenzene 0.0250 0.0233 0.0258 93.4 103 7.5.0-123 11.3 ethylbenzene 0.0250 0.0233 0.0261 94.9 103 7.5.0-123 10.3 ethylbenzene 0.0250 0.0233 0.0267 94.9 104 7.5.6-124 10.3 fold 0.0250 0.0233 0.0267 94.9 104 7.5.6-124 10.3 fold 0.0250 0.0247 0.0267 95.0 107 7.5.6-124 10.3 fold 0.0250 0.0233 0.0267 96.0 107 7.5.6-124 10.3 fold 0.0250 0.0233 0.0253 95.9 105 7		0.0250	0.0232	0.0252	92.7	101	79.7-116			8.22	20	ر در و
Incretation 0.0250 0.0232 0.0242 92.9 96.7 77.7-118 3.38 ethere 0.0250 0.0244 0.0273 97.4 109 77.7-118 1.3 ethylbenzene 0.0250 0.0233 0.0258 93.4 103 75.0-123 1.3 ethylbenzene 0.0250 0.0237 0.0261 94.9 104 75.0-123 10.2 othylbenzene 0.0250 0.0237 0.0267 94.9 104 75.0-123 9.42 othol 0.0250 0.0237 0.0267 94.9 104 75.0-123 9.42 othol 0.0250 0.0237 0.0267 96.0 107 65.9-128 9.42 othol 0.0250 0.0263 94.9 105 77.6-122 10.3 othol 0.0250 0.0263 94.9 105 77.6-122 10.4 othol 0.0250 0.0263 94.9 105 77.6-122 10.4 othol		0.0250	0.0229	0.0258	91.6	103	73.2-123			11.7	20)
ethene 0.0250 0.0244 0.0273 97.4 109 77.7 - 118 113 ethylbenzene 0.0250 0.0233 0.0258 93.4 103 75.0 - 123 102 ethylbenzene 0.0250 0.0237 0.0261 94.9 104 75.6 - 124 9.42 otel 0.0250 0.0240 0.0267 96.0 107 65.9 - 128 9.42 otel 0.0750 0.0795 95.6 106 78.7 - 121 10.8 otel 0.0750 0.0795 95.6 106 78.7 - 121 10.4 otel 0.0750 0.0737 0.0253 94.9 105 77.6 - 122 10.4 new 0.0500 0.0480 0.0532 95.9 78.711 10.4 new 0.0500 0.0480 0.0532 95.4 78.717 10.4 new 0.0500 0.0480 0.052 106 77.6		0.0250	0.0232	0.0242	92.9	96.7	77.7-118			3.98	20	
ethylbenzene 0.0250 0.0233 0.0258 93.4 103 75.0-123 102 ethylbenzene 0.0250 0.0237 0.0261 94.9 104 75.6-124 9.42 ethylbenzene 0.0250 0.0240 0.0261 94.9 104 75.6-124 9.42 otide 0.0250 0.0247 0.0267 96.0 107 65.9-128 9.42 otide 0.0750 0.0717 0.0795 95.6 106 78.7-121 10.4 otide 0.0250 0.0717 0.0795 94.9 105 77.6-122 10.4 ones 0.0500 0.0480 0.0532 94.9 106 78.8-11 10.4 no-d8 77.6-122 77.6-122 77.6-122 10.4 10.4 no-d8 77.6 70.9 78.8-11 10.4 10.4 no-d8 77.6-126 77.6-122 10.4 10.4 10.4 no-d8 77.6-126 78.8-11 10.4		0.0250	0.0244	0.0273	97.4	109	77.7-118			11.3	20	
ethylbenzene 0.0250 0.0237 0.0261 94.9 104 $75.6.124$ 9.42 vide 0.0250 0.0240 0.0267 96.0 107 $65.9.128$ 10.8 Total 0.0750 0.0747 0.0267 96.0 107 $65.9.128$ 10.8 Total 0.0750 0.0795 95.6 106 $73.7.121$ 10.4 0.0250 0.0237 94.9 105 $77.6.122$ 10.4 nes 0.0500 0.0480 0.0532 95.9 106 $78.4.12$ 10.4 ned 0.05500 0.0480 0.0532 95.9 106 $78.4.12$ 10.4 ned 0.05500 0.0480 0.0532 95.9 106 $78.4.12$ 10.4 ned 0.05500 0.0480 0.0532 95.9 $78.4.12$ 10.4 ned ned ned 102 102 102 104 <		0.0250	0.0233	0.0258	93.4	103	75.0-123			10.2	20	
vide 0.0250 0.0240 0.0267 96.0 107 65.9128 10.8 Total 0.0750 0.0717 0.0795 95.6 106 73.7-121 10.4 Total 0.0750 0.0717 0.0795 95.6 106 73.7-121 10.4 new 0.0250 0.0283 94.9 105 77.6-122 10.4 nev 0.0500 0.0480 0.0532 95.9 106 78.4-11 10.4 nev 0.0500 0.0480 0.0532 95.9 106 78.8-121 10.4 nev 0.0500 0.0480 0.0532 95.4 78.3-121 10.4 noluoromethane 102 103 103 88.5-111 10.4 noluorobenzene 102 103 103 10.4 10.4		0.0250	0.0237	0.0261	94.9	104	75.6-124			9.42	20	
Total 0.0750 0.0717 0.0795 95.6 106 78.7-121 10.4 new 0.0250 0.0237 0.0263 94.9 105 77.6-122 10.2 new 0.0500 0.0280 0.0532 94.9 105 77.6-122 10.2 nevd 0.0500 0.0480 0.0532 95.9 106 78.8-121 10.4 nevd 102 103 88.5-111 10.4 10.4 nofluoromethane 102 103 88.5-11 10.4 10.4 nofluorobenzene 102 103 88.5-11 10.4 10.4		0.0250	0.0240	0.0267	96.0	107	65.9-128			10.8	20	
0.0250 0.0263 94.9 105 77.6-122 10.2 new 0.0500 0.0480 0.0532 95.9 106 78.8-121 10.4 ne-dB 102 103 88.5-111 10.4 10.4 moluoromethane 102 103 88.5-111 10.4 moluorobenzene 102 103 88.5-111 10.4		0.0750	0.0717	0.0795	95.6	106	78.7-121			10.4	20	
0.0500 0.0480 0.0532 95.9 106 78.8-121 10.4 3 102 103 88.5-111 86.5-111 10.4 oromethane 95.8 95.4 78.3-121 10.4 orobenzene 102 101 71.0-126 101		0.0250	0.0237	0.0263	94.9	105	77.6-122			10.2	20	
102 103 sromethane 95.8 95.4 srobenzene 102 101		0.0500	0.0480	0.0532	95.9	106	78.8-121			10.4	20	
95.8 95.4 102 101	(S) Toluene-d8				102	103	88.5-111					
102 101	(S) Dibromofluoromethane				95.8	95.4	78.3-121					
	(S) 4-Bromofluorobenzene				102	101	71.0-126					

L759281-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 04/18/15 02:24 • (MS) 04/17/15 22:58 • (MSD) 04/17/15 23:20

	%			
MS Qualifier		0	33	1
Dilution Rec. Lin	%	1 10.0-13	1 54.3-15	1 63.9-1.
	%			
	mg/l %			
MS Result	mg/l	0.0782		
spike Amount Original Result	mg/l	0.00244	ND	QN
Spike Ar	mg/l	0.125	0.0250	
	Analyte	Acetone	Benzene	Bromodichloromethane

ARCADIS US - TX ACCOUNT:

TX000836.0008.15009 PROJECT:

PAGE: 25 of 42

DATE/TIME: 04/16/15 14:08

SDG: L759281

	by Method 8260B
	(GC/MS) b
6	Compounds
8243	Organic
WG7	Volatile

L759281-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

L733281-01 Offgirlal Satriple (OS) • Matrix Spike (MIS) • Matrix Spike Duplicate (MISU)	58 • (MSD) 04/17/1	5 23-20		Idna ayıde									С_
Spik	Spike Amount Original Result		MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits	c
Analyte mg/l	l/gm			mg/l	%	%		%			%	%	Tc
Bromoform 0.03	0.0250 ND	0.0190	06	0.0235	75.9	93.9	Ļ	59.5-134		сг Г	21.3	20.5	
Bromomethane 0.0	0.0250 ND		0.0209	0.0244	83.8	97.7	1	41.7-155			15.3	21.9	SS
n-Butylbenzene 0.0	0.0250 0.000438	38 0.0182	82	0.0220	70.9	86.2	+	62.7-140			19.1	20.3	
sec-Butylbenzene 0.03	0.0250 ND	0.0189	89	0.0223	75.5	89.2	-	62.2-136			16.7	20.3	4
Carbon disulfide 0.0	0.0250 ND	0.0188	88	0.0217	75.3	86.8	+	43.3-149			14.2	20.3	5 C
Carbon tetrachloride 0.03	0.0250 ND	0.0164	64	0.0185	65.6	74.0	1	55.7-134			12.0	20	
Chlorobenzene 0.03	0.0250 ND	0.0196	96	0.0237	78.4	94.9	-	67.0-125			19.0	20	Sr
Chlorodibromomethane 0.03	0.0250 ND	0.0189	89	0.0231	75.4	92.5	Ļ	64.3-125			20.4	20.8	5
Chloroethane 0.03	0.0250 ND	0.0192	92	0.0213	76.7	85.2	+	51.5-136			10.5	40	9
Chloroform 0.0	0.0250 ND	0.0194	94	0.0223	<i>T.TT</i>	89.2	1	63.0-129			13.7	20	ğ
Chloromethane 0.03	0.0250 ND	0.0184	84	0.0211	73.4	84.3	Ļ	42.4-135			13.8	20	
1,2-Dibromoethane 0.03	0.0250 ND	0.0187	87	0.0233	74.9	93.1	Ļ	67.1-125		сг С	21.6	20	رم ال
1,1-Dichloroethane 0.03	0.0250 ND	0.0197	197	0.0228	78.8	91.4	-	58.5-132			14.8	20	5
1,2-Dichloroethane 0.0	0.0250 ND	0.0188	88	0.0219	75.4	87.5	1	60.0-126			14.9	20	00
1,1-Dichloroethene 0.0	0.0250 ND	0.0196	96	0.0227	78.6	90.7	1	51.1-140			14.4	20.2	A
cis-1,2-Dichloroethene 0.0	0.0250 ND	0.0193	93	0.0223	77.3	89.3	1	59.2-129			14.4	20	
trans-1,2-Dichloroethene 0.0	0.0250 ND	0.0196	96	0.0226	78.3	90.6	-	56.5-129			14.6	20	°SC
	0.0250 ND	0.0199	66	0.0231	79.7	92.6	1	64.2-123			14.9	20)
	0.0250 ND	0.0195	95	0.0228	78.1	91.3	1	66.4-125			15.6	20	
oropropene	0.0250 ND	0.0175	175	0.0208	69.8	83.4	1	64.1-128			17.7	20	
¢,	0.0250 ND	0.0200	200	0.0235	80.0	94.1	1	61.4-133			16.2	20	
2-Hexanone 0.125	55 ND	0.0862	362	0.104	0.69	83.2	1	43.3-137			18.7	25.5	
Isopropylbenzene 0.0	0.0250 ND	0.0192	92	0.0228	76.7	91.2	-	66.8-141			17.4	20	
p-lsopropyltoluene 0.03	0.0250 ND	0.0187	87	0.0223	74.6	89.2	1	63.2-139			17.9	20.4	
2-Butanone (MEK) 0.125		0.0774	774	0.0909	61.9	72.7	1	22.4-138			16.0	27	
Methylene Chloride 0.0	0.0250 ND	0.0193	63	0.0225	77.4	89.9	1	58.1-122			15.0	20	
4-Methyl-2-pentanone (MIBK) 0.125	25 ND	6060.0	606	0.106	72.7	85.1	1	60.8-140			15.7	25.1	
utyl ether		0.0191	91	0.0224	76.2	89.8	-	57.7-134			16.4	20	
	0.0250 0.000609	09 0.0170	170	0.0219	65.5	85.2	1	58.0-135			25.4	25.5	
n-Propylbenzene 0.03	0.0250 ND	0.0189	89	0.0227	75.7	6.06	1	65.9-131			18.2	20	
Styrene 0.03	0.0250 ND	0.0198	86	0.0244	79.3	97.5	1	66.8-133		ег Г	20.5	20	
1,1,1,2-Tetrachloroethane 0.0	0.0250 ND	0.0201	201	0.0239	80.3	95.8	1	64.0-128			17.6	20	
1,1,2,2-Tetrachloroethane 0.0	0.0250 ND	0.0192	92	0.0230	77.0	91.9	1	56.0-132			17.6	22.2	
roethene	0.0250 ND	0.0204	204	0.0237	81.6	94.8	1	53.0-139			14.9	20	
Toluene 0.03	0.0250 ND	0.0193	93	0.0226	77.3	90.2	-	61.4-130			15.5	20	
1,1,1-Trichloroethane 0.03	0.0250 ND	0.0192	92	0.0217	76.8	87.0	1	58.7-134			12.5	20	
1,1,2-Trichloroethane 0.0	0.0250 ND	0.0195	95	0.0230	78.0	92.1	1	66.3-125			16.6	20	
Trichloroethene 0.03	0.0250 ND	0.0202	202	0.0228	80.7	91.4	1	44.1-149			12.4	20	
1,2,4-Trimethylbenzene 0.0:	0.0250 ND	0.0189	89	0.0230	75.6	92.1	1	57.4-137			19.7	20	
ACCOUNT:			d	PROJECT:		IS	SDG:		DATE/TIME:	TIME:		PAGE	
ARCADIS US - TX			800CXT	TX000836.0008.15009		L75	L759281		04/16/15 14:08	14:08		26 of 42	
						1				>			

WG782439

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

cb

Tc

L759281-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 04/18/15 02:24 • (MS) 04/17/15 22:58 • (MSD) 04/17/15 23:20

	Spike Amoun	It Uriginal Result	MS Kesult	MSD Result	MS Kec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualitier	ки	KPD LIMITS	N
Analyte	l/bm	mg/l mg/l	mg/l	l/bm	%	%		%				%	
1,3,5-Trimethylbenzene	0.0250	DN	0.0193	0.0231	77.3	92.4	-	63.6-132			17.7	20.5	
Vinyl chloride	0.0250	DN	0.0198	0.0224	79.4	89.7	-	47.8-137				20	3
Xylenes, Total	0.0750	DN	0.0595	0.0708	79.4	94.4	.	63.3-131				20	
o-Xylene	0.0250	DN	0.0198	0.0238	79.1	95.1	-	63.3-130				20	4
m&p-Xylenes	0.0500	ND	0.0398	0.0470	79.5	94.0	-	61.7-133				20	
(S) Toluene-d8					103	103		88.5-111					
(S) Dibromofluoromethane					95.3	95.7		78.3-121					ທີ
(S) 4-Bromofluorobenzene					102	103		71.0-126					

00
2
9
2
00
-
0
\leq

Semi-Volatile Organic Compounds (GC) by Method 8015

QUALITY CONTROL SUMMARY

9

P

C

Ss

50.0-150 MB RDL 0.100 0.100 mg/l 0.0222 MB MDL 0.0118 mg/l MB Qualifier MB Result l/gm U 112 Method Blank (MB) C10-C28 Diesel Range C28-C40 Oil Range (MB) 04/16/15 16:25 (S) o-Terphenyl Analyte

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

I	-
I	
I	Ľ
I	i
I	10.
I	L
I	Ļ
I	
I	1961
I	5
I	VO
I	C
I	
I	ć
I	ū
I	
I	C
I	=
I	
I	
I	C
I	5
I	i
I	2
I	1
I	ME 46.
I	2
I	14CI
I	5
I	5
I	0
1	2
1	100
1	00
1	
1	5

											-
(LCS) 04/16/15 16:42 • (LCSD) 04/16/15 16:59	1/16/15 16:59										Sr.
	Spike Amount LCS Result	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	
Analyte	l/gm	mg/l	l/gm	%	%	%			%	%	°°°
C10-C28 Diesel Range	1.50	1.33	1.34	88.9	89.6	70.0-130			0.780	20	27
(S) o-Terphenyl				60.0	65.9	50.0-150					
											G

Sc

A

WG782838

Polychlorinated Biphenyls (GC) by Method 8082

QUALITY CONTROL SUMMARY

9

P

SS

Ч

ğ

Ū

A

S

Method Blank (MB)

100 AV				
(MB) 04/20/15 10:05				
	MB Result	MB Qual fier	MB MDL	MB RDL
Analyte	l/ɓm		mg/l	l/gm
PCB 1260	D		0.000120	0.000500
PCB 1016	C		0.000100	0.000500
PCB 1221	D		0.0000730	0.000500
PCB 1232	D		0.0000420	0.000500
PCB 1242	N		0.0000470	0.000500
PCB 1248	C		0.0000860	0.000500
PCB 1254	D		0.0000470	0.000500
(S) Decachlorobiphenyl	71.2			10.0-156
(S) Tetrachloro-m-xylene	79.7			13.9-137

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 04/20/15 10:17 • (LCSD) 04/20/15 10:30

	Spike Amount LCS Result	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	
Analyte	l/gm	mg/l	mg/l	%		%			%	%	-
PCB 1260	0.00250	0.00243	0.00238	97.0	95.1	47.7-149			2.00	28.8	
PCB 1016	0.00250	0.00214	0.00213	85.7		24.7-128			0.460	34.9	-
(S) Decachlorobiphenyl				91.8		10.0-156					_
(S) Tetrachloro-m-xylene				80.3		13.9-137					

Sc