

Antero Resources Pro Water System 7/27/2010 Spill: Robinson A Pad to River Ranch A Pad Pipeline Segment

	Parameter	Diesel Range Organics	Gasoline Range Organics	Benzene	Ethylbenzene	m,p-Xylene	o-Xylene	Toluene	Xylenes, Total	Chloride
Sample Location	Date Sampled	(mg/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(mg/L)
Groundwater Seep 1	07/28/2010	4.1	2200	310	30	220	30	170	250	120
	07/29/2010			630	180	2500	460	1700	2900	140
	07/30/2010			1600	180	2800	560	4100	3400	170
	08/02/2010			340	43	350	32	200	390	140
	08/03/2010			280	6.3	280	42	120	320	140
	08/04/2010			390	50	640	54	320	720	150
	08/05/2010			350	61	280	71	130	310	150
	08/06/2010			300	42	230	23	120	260	140
	08/09/2010			650	89	2800	490	1500	3300	160
	08/17/2010			320	42	210	13	50	220	160
	08/21/2010			85	27	160	14	54	170	160
	08/27/2010			370	42	320	55	210	380	160
	08/28/2010			92	47	400	58	210	460	160
	08/29/2010			430	110	360	190	160	410	170
	08/31/2010			330	53	400	46	160	450	170
09/03/2010			110	24	160	7.1	5.3	170	160	
09/11/2010			64	15	61	1.1	1.7	62	170	
Groundwater Seep 2										
	07/28/2010		3800	850	22	430	120	750	550	160
	07/29/2010	NS		NS	NS	NS	NS	NS	NS	NS
	07/30/2010			NS	NS	NS	NS	NS	NS	NS
	08/02/2010			700	20	340	72	130	390	170
	08/03/2010			660	<1.0	510	92	69	600	170
	08/04/2010			910	24	420	63	99	480	170
	08/05/2010			500	18	250	38	36	270	180
	08/06/2010			870	260	3800	800	1200	4700	160
	08/09/2010			1500	840	1300	2100	6600	16000	170
	08/17/2010			850	110	1300	270	1000	1600	190
	08/21/2010			1500	190	2200	390	2800	2600	610
	08/27/2010			1500	190	2800	620	3200	3400	180
	08/28/2010			1800	160	2300	460	3400	2800	180
	08/29/2010			1200	110	1900	370	1700	2200	180
08/31/2010			1200	37	1100	180	880	1200	190	
09/03/2010			400	12	280	38	81	320	190	
09/11/2010			480	36	310	20	40	330	180	
Groundwater Seep 3										
	07/28/2010		<200	10	4.2	3.5	<1.0	<1.0	3.5	170
	07/29/2010			12	3.8	2.8	<1.0	<1.0	<3.0	180
	07/30/2010			14	6.5	15	1.8	2	17	180
	08/02/2010			17	7.1	7.5	<1.0	1.2	7.5	180
	08/03/2010			15	5.3	5.8	<1.0	2.4	6.1	190
	08/04/2010			21	6.8	7.5	<1.0	4.1	8.4	190
	08/05/2010			20	6.9	7.1	<1.0	4.1	8	190
	08/06/2010			24	7.7	9.6	1.2	7.5	11	170
	08/09/2010			28	5.9	11	2	17	13	170
	08/17/2010			60	8.9	33	7.2	28	41	190
	08/21/2010			49	8.1	39	4.8	10	44	190
	08/27/2010			91	9.5	47	3.2	5.8	50	180
	08/28/2010			85	9.5	49	3.7	7.4	53	190
	08/29/2010			78	9	44	2.9	5.5	47	190
08/31/2010			82	11	47	2.3	8.9	50	190	
09/03/2010			55	8.1	31	1.7	4.2	32	190	
09/11/2010			38	7.3	17	<1.0	<1.0	17	190	
Seep 4	08/03/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	200
	08/04/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	200
	08/05/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	200
	08/06/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	08/09/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	08/21/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	190
	08/27/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	190
	09/11/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
Seep 5	08/03/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	110
	08/04/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	150
	08/05/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	140
	08/06/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	120
	08/09/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	120
	08/21/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	150
	09/11/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	160
Seep 6	08/03/2010			<1.0	<1.0	<1.0	<1.0	<3.0	160	
Produced Water Seep	07/27/2010	53	26,000	920	500	7200	1500	5800	8600	160
DG1										
	07/27/2010	83.4	<200	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	07/28/2010		<200	6.9	<1.0	8	2	6.8	10	170
	07/29/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	07/30/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	07/31/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	08/02/2010									180
	08/03/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	08/04/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	230
	08/05/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	08/06/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	160
08/09/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	160	

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Sample Location	Parameter Date Sampled	Diesel Range Organics (mg/L)	Gasoline Range Organics (ug/L)	Benzene (ug/L)	Ethylbenzene (ug/L)	m,p-Xylene (ug/L)	o-Xylene (ug/L)	Toluene (ug/L)	Xylenes, Total (ug/L)	Chloride (mg/L)
	08/21/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	08/27/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	170
	08/28/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	170
	08/29/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	170
	08/31/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	170
	09/03/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	190
	09/11/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	170
DG2	07/30/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	120
	07/31/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	130
	08/02/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	130
	08/04/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	130
	08/05/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	130
	08/06/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	120
	08/09/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	120
	08/21/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	140
	09/11/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	140
	07/27/2010	<0.10	<200	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
Pond 1	07/28/2010		<200	2.2	<1.0	2.1	<1.0	1.3	<3.0	180
	07/29/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	07/30/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	170
	07/31/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	08/02/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	08/04/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	08/05/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	08/06/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	08/09/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	160
	08/21/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	09/11/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	170
	07/27/2010	<0.10	<200	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	190
Pond 2	07/28/2010		<200	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	07/30/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	07/31/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	08/02/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	08/04/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	08/05/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	190
	08/06/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	170
	08/09/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	170
	08/21/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	190
	09/11/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	180
	07/30/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	160
	08/03/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	160
Pond 3 (Outlet Pond)	08/04/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	150
	08/05/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	160
	08/06/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	140
	08/09/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	140
	08/17/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	160
	08/21/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	160
	08/27/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	150
	08/28/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	160
	08/29/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	160
	08/31/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	160
	09/03/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	160
	09/11/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	170
Check Dam	08/27/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	190
	08/28/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	190
	08/29/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	190
	08/31/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	190
	09/03/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	190
Sprinkler	09/11/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	190
	07/31/2010			<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	130
MCL for drinking water				5	700	10	10	1000	10	250
West Field North Soil	07/30/2010	39 mg/kg	<2,800 ug/kg	<24 ug/kg	<17 ug/kg	<22 ug/kg	<17 ug/kg	<16 ug/kg	<39 ug/kg	
West Field South (soil)	07/30/2010	48 mg/kg	<2,800 ug/kg	<24 ug/kg	<17 ug/kg	<22 ug/kg	<17 ug/kg	<16 ug/kg	<39 ug/kg	
S.W. Field 1 (soil)	07/30/2010	25 mg/kg	<2,700 ug/kg	<23 ug/kg	<16 ug/kg	<21 ug/kg	<17 ug/kg	<16 ug/kg	<38 ug/kg	
S.W. Field 2 (soil)	07/30/2010	95 mg/kg	<2,700 ug/kg	<23 ug/kg	<16 ug/kg	<21 ug/kg	<17 ug/kg	<16 ug/kg	<38 ug/kg	
South Field (soil)	07/30/2010	140 mg/kg	<2600 ug/kg	<22 ug/kg	<15 ug/kg	<20 ug/kg	<16 ug/kg	<15 ug/kg	<35 ug/kg	
Water Line Trench (soil)	08/05/2010	8700 mg/kg	580 mg/kg	0.120 mg/kg	0.580 mg/kg	57.0 mg/kg	11.0 mg/kg	2.4 mg/kg	68.0 mg/kg	26
Table 910-1 Standards (soil)		500 mg/kg	500 mg/kg	0.17 mg/kg	100 mg/kg				175 mg/kg	

*MCL: Maximum Contaminate Level

*NS: Not Sampled

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	Parameter	Total Dissolved	Calcium	Iron (mg/L)	Magnesium	Manganese	Potassium	Sodium (mg/L)	Bromide	Chloride	Fluoride	Nitrate	Nitrite	Sulfate	Nitrate-
Sample Location	Date Sampled	Solids (mg/L)	(mg/L)		(mg/L)	(mg/L)	(mg/L)		(mg/L)	(mg/l)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	Nitrite
Seep 1	08/21/2010		85	1.7	32	0.95	4.8	180	0.26	160	0.51	0.028	<0.020	170	0.028
	08/27/2010		81	0.32	29	0.94	4.8	180	0.24	160	0.53	<0.020	<0.020	190	<0.020
	08/28/2010		92	<0.80	35	1.1	5.9	200	0.26	160	0.51	<0.020	<0.020	190	<0.020
	08/29/2010		92	0.83	34	1.1	5.4	190	0.23	170	0.62	<0.020	<0.020	190	<0.020
	08/31/2010		88	<0.80	32	0.76	6.2	180	0.26	170	0.51	<0.020	<0.020	190	<0.020
	09/03/2010		86	<0.80	31	0.71	4.6	160	0.26	160	0.46	<0.020	<0.020	200	<0.020
	09/11/2010	930	90	<0.80	33	0.97	5.4	180	0.18	170	0.43	<0.020	<0.020	220	<0.020
Seep 3	08/27/2010		100	0.29	39	1.2	5.6	250	0.26	180	0.51	<0.020	<0.020	310	<0.020
Outlet Pond (Pond 3)															
	08/21/2010		77	<0.80	40	0.046	5	200	0.18	160	0.46	<0.020	<0.020	300	<0.020
	08/27/2010		61	<0.80	27	0.026	4.3	160	0.16	150	0.38	<0.020	<0.020	220	<0.020
	08/28/2010		73	<0.80	36	<0.025	5.1	190	0.19	160	0.49	<0.020	<0.020	280	<0.020
	08/29/2010		28	<0.80	31	<0.025	4.7	170	0.18	150	0.46	<0.020	<0.020	220	<0.020
	08/31/2010		69	<0.80	30	0.015	5.6	160	0.14	160	0.45	<0.020	<0.020	250	<0.020
	09/03/2010		70	<0.80	33	<0.005	4.4	170	0.15	160	0.42	<0.020	<0.020	260	<0.020
	09/11/2010	920	70	<0.80	33	<0.005	5.4	180	0.2	170	0.44	<0.020	<0.020	280	<0.020