



## Interim Water Treatment Plant at the Bonita Peak Mining District Superfund Site Gladstone, Colorado

Interim Water Treatment Plant Shutdown from March 14-16, 2019

- The data analysis confirms that there were no impacts to downstream drinking water or agricultural users associated with the short-term shutdown of the plant. Impacts to aquatic life, if any, were limited to the Animas River near Silverton.
- Water samples were collected at the confluence of Cement Creek and the Animas River (near CC48), Animas River approximately one mile south of Silverton (near A72), Bakers Bridge, and Rotary Park from March 21.
- A preliminary analysis of the sampling data from March 21 shows a measurable elevation of metals concentrations, particularly copper, at the confluence of Cement Creek and the Animas River, about six miles below Gladstone. Levels of metals were slightly elevated at a location on the Animas River approximately one mile south of Silverton. From that point downstream, very small increases in concentrations of a few metals in the Animas River were detected. The cause of these increases may be the result of the closure of the IWTP, but they may also be related to several other factors such as avalanches into the river, increasing flows and sediments from the 416 fire burn area.
- Samples were analyzed for total and dissolved metals and ions.

Sample Number:	CC48_03/15/2019	CC48-D_03/15/2019		CC48_03/16/2019		CC48_03/17/2019		CC48_03/18/2019		CC48_03/19/2019		CC48_03/20/2019		CC48_03/21/2019	
Sampling Location:	CC48	CC48		CC48		CC48		CC48		CC48		CC48		CC48	
Matrix:	Water	Water		Water		Water		Water		Water		Water		Water	
Date Sampled:	3/15/2019	3/15/2019		3/16/2019		3/17/2019		3/18/2019		3/19/2019		3/20/2019		3/21/2019	
Date Analyzed:	3/19/2019	3/19/2019		3/19/2019		3/19/2019		3/21/2019		3/21/2019		3/21/2019		3/27/2019	
Parameter	Result Units	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aluminum	ug/L	9430		11100		11400		8400		8840		8820		9070	
Aluminum; Dissolved	ug/L	9650		10400		8750		8660		8050		8000		8210	
Antimony	ug/L	2.5	U	2.5 U		2.5 U	U	2.5	U	2.5 U	U	2.5	U	2.5	U
Antimony; Dissolved	ug/L	2.5	U	2.5 U		2.5 U	U	2.5	U	2.5 U	U	2.5	U	2.5	U
Arsenic	ug/L	9.42	JD	11 D		10.6 D	D	6.15	JD	5.94	JD	5.3	JD	5.91	JD
Arsenic; Dissolved	ug/L	2.5	U	2.5 U		2.5 U	U	2.5	U	2.5 U	U	2.5	U	2.5	U
Barium	ug/L	25	U	25 U		46.8 JD	JD	25	U	25 U	U	25	U	25	U
Barium; Dissolved	ug/L	25	U	25 U		25 U	U	25	U	25 U	U	25	U	25	U
Beryllium	ug/L	2	U	2 U		2 U	U	2	U	2 U	U	2	U	2	U
Beryllium; Dissolved	ug/L	2	U	2 U		2 U	U	2	U	2 U	U	2	U	2	U
Cadmium	ug/L	4.37	D	4.82 D		3.97 D	D	2.5	D	2.7 D	D	3.08 D	D	3	D
Cadmium; Dissolved	ug/L	4.39	D	4.69 D		3.8 D	D	2.62	D	2.67 D	D	2.99 D	D	2.93 D	D
Calcium	ug/L	228000		271000		218000		217000		223000		220000		224000	
Calcium; Dissolved	ug/L	229000		242000		214000		219000		221000		223000		224000	
Chloride	mg/L	5	U	5 U		5 U	U	5	U	5 U	U	5	U	5	U
Chromium	ug/L	5	U	5 U		5 U	U	5	U	5 U	U	5	U	5	U
Chromium; Dissolved	ug/L	5	U	5 U		5 U	U	5	U	5 U	U	5	U	5	U
Cobalt	ug/L	30	D	35.9 D		27.9 D	D	26.2	D	27 D	D	29 D	D	28.5 D	D
Cobalt; Dissolved	ug/L	28.5	D	31.4 D		24.1 D	D	23.5	D	27.6 D	D	27.7 D	D	28 D	D
Copper	ug/L	111	D	135 D		119 D	D	31 D	D	30.1 D	D	34.4 D	D	33.2 D	D
Copper; Dissolved	ug/L	100	D	111 D		90.4 D	D	27.6 D	D	29.3 D	D	35.9 D	D	30.9 D	D
Fluoride	mg/L	2.3	D	2.7 D		2 D	D	2.2 D	D	2 D	D	2.2 D	D	2.1 D	D
Hardness	mg/L	622		659		583		595		600		606		608	
Iron	ug/L	23000		27200		25600		18500		19300		17800		21200	
Iron; Dissolved	ug/L	16200		17200		14100		14900		15800		14000		16500	
Lead	ug/L	16.6	D	19.5 D		142 D	D	16.1 D	D	10.8 D	D	12.2 D	D	14.4 D	D
Lead; Dissolved	ug/L	10.4	D	11.4 D		16.8 D	D	9.92 D	D	9.56 D	D	12.3 D	D	11.2 D	D
Magnesium	ug/L	12600		14800		13400		11700		12000		11800		12100	
Magnesium; Dissolved	ug/L	12300		13100		11900		11700		11900		11700		12000	
Manganese	ug/L	5500		6520		5280		4840		4920		4770		4990	
Manganese; Dissolved	ug/L	5440		5740		5020		4790		4780		4670		4850	
Nickel	ug/L	8.4	D	11.3 D		9.12 D	D	6.92 D	D	5.93 D	D	7.01 D	D	6.66 D	D
Nickel; Dissolved	ug/L	7.47	D	7.99 D		6.53 D	D	5.76 D	D	6.12 D	D	6.79 D	D	6.22 D	D
Potassium	ug/L	2130		2540		2750		2000		2090		2080		2130	
Potassium; Dissolved	ug/L	2140		2260		2040		2000		2040		2040		2100	
Selenium	ug/L	5	U	5 U		5 U	U	5	U	5 U	U	5	U	5	U
Selenium; Dissolved	ug/L	5	U	5 U		5 U	U	5	U	5 U	U	5	U	5	U
Silver	ug/L	2.5	U	2.5 U		2.5 U	U	2.5	U	2.5 U	U	2.5	U	2.5	U
Silver; Dissolved	ug/L	2.5	U	2.5 U		2.5 U	U	2.5	U	2.5 U	U	2.5	U	2.5	U
Sodium	ug/L	5380		6370		5230		5020		5230		5150		5270	
Sodium; Dissolved	ug/L	5200		5540		4930		5010		5190		5150		5230	
Sulfate as SO4	mg/L	794	D	730 D		668 D	D	717 D	D	701 D	D	705 D	D	672 D	D
Thallium	ug/L	5	U	5 U		5 U	U	5	U	5 U	U	5	U	5	U
Thallium; Dissolved	ug/L	5	U	5 U		5 U	U	5	U	5 U	U	5	U	5	U
Total Alkalinity	mg CaCO3 / L	5	U	5 U		5 U	U	5	U	5 U	U	5	U	5	U
Vanadium	ug/L	10	U	10 U		10 U	U	10	U	10 U	U	10	U	10	U
Vanadium; Dissolved	ug/L	10	U	10 U		10 U	U	10	U	10 U	U	10	U	10	U
Zinc	ug/L	2510		2980		2420		1970		2010		2050		2020	
Zinc; Dissolved	ug/L	2550		2700		2390		1980		1990		2150		2000	

Sample Number:	A68_03/16/2019	A68_03/17/2019		A68_03/18/2019		A68-D_03/18/2019		A68_03/19/2019		A68_03/20/2019		A68_03/21/2019		A72_03/16/2019	
Sampling Location:	A68	A68		A68		A68		A68		A68		A68		A72	
Matrix:	Water	Water		Water		Water		Water		Water		Water		Water	
Date Sampled:	3/16/2019	3/17/2019		3/18/2019		3/18/2019		3/19/2019		3/20/2019		3/21/2019		3/16/2019	
Date Analyzed:	3/19/2019	3/19/2019		3/21/2019		3/21/2019		3/21/2019		3/21/2019		3/27/2019		3/19/2019	
Parameter	Result Units	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aluminum	ug/L	72.4		129		131		133		108		143		115	
Aluminum; Dissolved	ug/L	24.2	J	36.8	J	33.3	J	26.2	J	38.4	J	31.2	J	34.9	J
Antimony	ug/L	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Antimony; Dissolved	ug/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Arsenic	ug/L	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Arsenic; Dissolved	ug/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Barium	ug/L	25	U	25	U	25	U	25	U	25	U	25	U	28.1	JD
Barium; Dissolved	ug/L	22.3		23		22.6		22.5		23.6		23.7		23.9	
Beryllium	ug/L	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Beryllium; Dissolved	ug/L	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Cadmium	ug/L	0.882	JD	1.11	D	1.43	D	1.56	D	1.48	D	1.74	D	1.38	D
Cadmium; Dissolved	ug/L	1.11		1.4		1.41		1.37		1.41		1.57		1.39	
Calcium	ug/L	65100		68700		71000		71700		73200		75100		73100	
Calcium; Dissolved	ug/L	65200		68100		71700		71300		72600		75300		72800	
Chloride	mg/L	2	U	2	U	2	U	2	U	2	U	2	U	5	U
Chromium	ug/L	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Chromium; Dissolved	ug/L	1.23	J	1.62	J	1.46	J	1.23	J	1.76	J	1.26	J	1	U
Cobalt	ug/L	0.971	JD	1.27	D	1.38	D	1.32	D	1.48	D	1.64	D	1.24	D
Cobalt; Dissolved	ug/L	0.905		1.3		1.28		1.3		1.41		1.58		1.36	
Copper	ug/L	5.1	D	7.87	D	7.56	D	7.57	D	6.95	D	7.9	D	12.5	D
Copper; Dissolved	ug/L	3.56		4.71		3.61		3.82		3.97		4.29		3.8	
Fluoride	mg/L	0.7	D	0.7	D	0.7	D	0.7	D	0.7	D	0.8	D	0.8	JD
Hardness	mg/L	178		186		195		194		198		205		198	
Iron	ug/L	241	J	351		366		370		260		332		252	
Iron; Dissolved	ug/L	100	U	102	J	114	J	104	J	108	J	113	J	100	U
Lead	ug/L	4.83	D	5.42	D	2.78	D	2.78	D	2.39	D	2.55	D	1.93	D
Lead; Dissolved	ug/L	0.119	J	0.1	U	0.182	J	0.1	U	0.214		0.1	U	0.1	U
Magnesium	ug/L	3620		3840		3910		3960		4010		4150		4140	
Magnesium; Dissolved	ug/L	3630		3800		3960		3900		4050		4200		4050	
Manganese	ug/L	1580		2200		2260		2310		2370		2760		2280	
Manganese; Dissolved	ug/L	1510		2140		2230		2220		2290		2720		2300	
Nickel	ug/L	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Nickel; Dissolved	ug/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Potassium	ug/L	516	J	575	J	620	J	545	J	571	J	587	J	580	J
Potassium; Dissolved	ug/L	480	J	482	J	593	J	557	J	589	J	593	J	578	J
Selenium	ug/L	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Selenium; Dissolved	ug/L	1	U	1.06	J	1	U	1	U	1	U	1	U	1	U
Silver	ug/L	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Silver; Dissolved	ug/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Sodium	ug/L	2570		2700		2850		2880		2880		2980		2970	
Sodium; Dissolved	ug/L	2590		2660		2870		2830		2930		3010		2880	
Sulfate as SO4	mg/L	160	D	167	D	169	D	173	D	174	D	184	D	172	D
Thallium	ug/L	5	U	5	U	5	U	5	U	5.82	JD	6.38	JD	5	U
Thallium; Dissolved	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Alkalinity	mg CaCO3 / L	34		33.2		36.3		36.4		36.4		37.5		36.6	
Vanadium	ug/L	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Vanadium; Dissolved	ug/L	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Zinc	ug/L	442		525		548		552		545		626		552	
Zinc; Dissolved	ug/L	431		506		547		533		535		619		558	

Sample Number:	A72_03/17/2019			A72_03/18/2019			A72_03/19/2019			A72_03/20/2019			A72_03/21/2019			Bakers Bridge_03/16/2019			Bakers Bridge_03/17/2019		
Sampling Location:	A72			A72			A72			A72			A72			Bakers Bridge			Bakers Bridge		
Matrix:	Water			Water			Water			Water			Water			Water			Water		
Date Sampled:	3/17/2019			3/18/2019			3/19/2019			3/20/2019			3/21/2019			3/16/2019			3/17/2019		
Date Analyzed:	3/19/2019			3/21/2019			3/21/2019			3/21/2019			3/27/2019			3/19/2019			3/19/2019		
Parameter	Result	Units	Flag	Result	Units	Flag	Result	Units	Flag	Result	Units	Flag	Result	Units	Flag	Result	Units	Flag	Result	Units	Flag
Aluminum	ug/L	3750		3730			3550			3740			3440			604			701		
Aluminum; Dissolved	ug/L	1900		1330			1680			1790			1730			20	U		20	U	
Antimony	ug/L	2.5	U	2.5	U		2.5	U		2.5	U		2.5	U		2.5	U		2.5	U	
Antimony; Dissolved	ug/L	0.5	U	0.5	U		0.5	U		0.5	U		0.5	U		0.5	U		0.5	U	
Arsenic	ug/L	2.5	U	2.5	U		2.5	U		2.5	U		2.5	U		2.5	U		2.5	U	
Arsenic; Dissolved	ug/L	0.5	U	0.5	U		0.5	U		0.5	U		0.5	U		0.556	J		0.544	J	
Barium	ug/L	25	U	25	U		25	U		25	U		25	U		52.5	D		51.5	D	
Barium; Dissolved	ug/L	23.5		21.7			20.9			19.3			21.7			49.4			46.4		
Beryllium	ug/L	2	U	2	U		2	U		2	U		2	U		2	U		2	U	
Beryllium; Dissolved	ug/L	2	U	2	U		2	U		2	U		2	U		2	U		2	U	
Cadmium	ug/L	1.27	D	1.58	D		1.81	D		1.84	D		1.59	D		0.5	U		0.5	U	
Cadmium; Dissolved	ug/L	1.56		1.44			1.6			1.65			1.59			0.255			0.231		
Calcium	ug/L	115000		115000			121000			122000			117000			56100			54600		
Calcium; Dissolved	ug/L	116000		114000			120000			122000			118000			55300			54200		
Chloride	mg/L	5	U	2	U		2	U		2	JD		5	U		3.6	JD		3.8	JD	
Chromium	ug/L	5	U	5	U		5	U		5	U		5	U		5	U		5	U	
Chromium; Dissolved	ug/L	1	U	1	U		1	U		1	U		1	U		4.19			3.66		
Cobalt	ug/L	10.6	D	10.5	D		11.1	D		11.5	D		10.2	D		1.61	D		1.61	D	
Cobalt; Dissolved	ug/L	10.3		10.4			10.7			10.5			10.8			1.42			1.41		
Copper	ug/L	14.5	D	13.9	D		14.6	D		16.9	D		13.7	D		3.29	JD		4.91	JD	
Copper; Dissolved	ug/L	11.6		10.5			12.3			12.7			13.1			1.76			1.88		
Fluoride	mg/L	1	D	0.9	D		0.9	D		1	D		1	D		0.5	D		0.4	D	
Hardness	mg/L	321		314			329			336			326			173			169		
Iron	ug/L	6730		7340			6120			7720			6230			915			1120		
Iron; Dissolved	ug/L	3090		3080			2880			3840			3260			100	U		100	U	
Lead	ug/L	10	D	7.12	D		6.74	D		7.94	D		5.89	D		3.91	D		5.83	D	
Lead; Dissolved	ug/L	2.23		1.73			2.49			1.94			1.9			0.1	U		0.1	U	
Magnesium	ug/L	7500		7340			7700			7640			7510			8300			8180		
Magnesium; Dissolved	ug/L	7520		7270			7510			7700			7400			8470			8280		
Manganese	ug/L	1840		1800			2050			2350			1970			310			322		
Manganese; Dissolved	ug/L	1800		1760			1980			2310			2000			291			294		
Nickel	ug/L	2.5	U	2.5	U		2.5	U		2.5	U		2.5	U		2.5	U		2.5	U	
Nickel; Dissolved	ug/L	0.5	U	0.584	J		0.5	U		0.923	J		0.641	J		0.5	U		0.5	U	
Potassium	ug/L	1010		998	J		1070			1120			1070			1060			1160		
Potassium; Dissolved	ug/L	1010		1000			1040			1160			1050			1030			1070		
Selenium	ug/L	5	U	5	U		5	U		5	U		5	U		5	U		5	U	
Selenium; Dissolved	ug/L	1	U	1	U		1	U		1	U		1	U		1	U		1	U	
Silver	ug/L	2.5	U	2.5	U		2.5	U		2.5	U		2.5	U		2.5	U		2.5	U	
Silver; Dissolved	ug/L	0.5	U	0.5	U		0.5	U		0.5	U		0.5	U		0.5	U		0.5	U	
Sodium	ug/L	4460		4450			4620			4540			4550			3190			3160		
Sodium; Dissolved	ug/L	4500		4420			4530			4570			4450			3250			3250		
Sulfate as SO4	mg/L	347	D	349	D		359	D		378	D		351	D		111	D		110	D	
Thallium	ug/L	5	U	5	U		5	U		5	U		5	U		5	U		5	U	
Thallium; Dissolved	ug/L	1	U	1	U		1	U		1	U		1	U		1	U		1	U	
Total Alkalinity	mg CaCO3 / L	5	U	5	U		5	U		5	U		5	U		69.4			68.3		
Vanadium	ug/L	10	U	10	U		10	U		10	U		10	U		10	U		10	U	
Vanadium; Dissolved	ug/L	2	U	2	U		2	U		2	U		2	U		2	U		2	U	
Zinc	ug/L	710		688			793			866			754			190			157		
Zinc; Dissolved	ug/L	702		688			788			868			781			126			82.4		

Sample Number:	Bakers Bridge_03/18/2019			Bakers Bridge_03/19/2019			Bakers Bridge_03/20/2019			Bakers Bridge_03/21/2019			Animas_RotaryPark_03/16/2019			Animas_RotaryPark_03/17/2019		
Sampling Location:	Bakers Bridge			Bakers Bridge			Bakers Bridge			Bakers Bridge			Animas_RotaryPark			Animas_RotaryPark		
Matrix:	Water			Water			Water			Water			Water			Water		
Date Sampled:	3/18/2019			3/19/2019			3/20/2019			3/21/2019			3/16/2019			3/17/2019		
Date Analyzed:	3/19/2019			3/21/2019			3/21/2019			3/27/2019			3/19/2019			3/19/2019		
Parameter	Result	Units	Flag	Result	Units	Flag	Result	Units	Flag	Result	Units	Flag	Result	Units	Flag	Result	Units	Flag
Aluminum	ug/L	802		658			759			932			851			748		
Aluminum; Dissolved	ug/L	20	U	20	U		20	U		20	U		20	U		20	U	
Antimony	ug/L	2.5	U	2.5	U		2.5	U		2.5	U		2.5	U		2.5	U	
Antimony; Dissolved	ug/L	0.5	U	0.5	U		0.5	U		0.5	U		0.5	U		0.5	U	
Arsenic	ug/L	2.5	U	2.5	U		2.5	U		2.5	U		2.5	U		2.5	U	
Arsenic; Dissolved	ug/L	0.512	J	0.5	U		0.5	U		0.5	U		0.673	J		0.706	J	
Barium	ug/L	50.2	D	44.5	JD		25	U		43.8	JD		80.4	D		55.4	D	
Barium; Dissolved	ug/L	46.9		45.1			42.1			44.5			72.5			62		
Beryllium	ug/L	2	U	2	U		2	U		2	U		2	U		2	U	
Beryllium; Dissolved	ug/L	2	U	2	U		2	U		2	U		2	U		2	U	
Cadmium	ug/L	0.5	U	0.5	U		0.781	JD		0.5	U		0.5	U		0.5	U	
Cadmium; Dissolved	ug/L	0.307		0.334			0.261			0.263			0.1	U		0.1	U	
Calcium	ug/L	55300		57700			56200			56900			87600			80600		
Calcium; Dissolved	ug/L	55500		57000			55700			56600			84500			80000		
Chloride	mg/L	3.4	JD	3.5	JD		3.5	JD		3.5	JD		17.8	D		15.5	D	
Chromium	ug/L	5	U	5	U		5	U		5	U		5	U		5	U	
Chromium; Dissolved	ug/L	2.92		1.76	J		3.11			1.02	J		6.77			6.8		
Cobalt	ug/L	1.89	D	1.9	D		1.11	D		1.88	D		0.831	JD		0.809	JD	
Cobalt; Dissolved	ug/L	1.72		1.84			1.78			1.84			0.47			0.495		
Copper	ug/L	5.79	D	3.39	JD		2.5	U		3.3	JD		3.02	JD		2.5	U	
Copper; Dissolved	ug/L	1.71		1.57			1.75			1.44			1.89			1.06		
Fluoride	mg/L	0.4	D	0.4	D		0.4	D		0.4	D		0.5	JD		0.4	D	
Hardness	mg/L	172		177			174			176			266			252		
Iron	ug/L	1450		970			1160			1620			1030			941		
Iron; Dissolved	ug/L	100	U	100	U		100	U		100	U		100	U		100	U	
Lead	ug/L	5.01	D	1.22	D		0.953	JD		1.8	D		5.43	D		4.86	D	
Lead; Dissolved	ug/L	0.1	U	0.1	U		0.1	U		0.1	U		0.119	J		0.1	U	
Magnesium	ug/L	8020		8290			8180			8240			13800			12500		
Magnesium; Dissolved	ug/L	8210		8370			8390			8370			13300			12600		
Manganese	ug/L	394		386			376			425			382			308		
Manganese; Dissolved	ug/L	356		358			343			404			327			259		
Nickel	ug/L	2.5	U	2.5	U		2.5	U		2.5	U		2.5	U		2.5	U	
Nickel; Dissolved	ug/L	0.5	U	0.5	U		0.5	U		0.5	U		0.5	U		0.5	U	
Potassium	ug/L	1040		1130			1050			1090			2970			2630		
Potassium; Dissolved	ug/L	1020		1030			986	J		979	J		2760			2570		
Selenium	ug/L	5	U	5	U		5	U		5	U		5	U		5	U	
Selenium; Dissolved	ug/L	1	U	1	U		1	U		1	U		1	U		1	U	
Silver	ug/L	2.5	U	2.5	U		2.5	U		2.5	U		2.5	U		2.5	U	
Silver; Dissolved	ug/L	0.5	U	0.5	U		0.5	U		0.5	U		0.5	U		0.5	U	
Sodium	ug/L	3050		3270			3140			3190			16300			14500		
Sodium; Dissolved	ug/L	3090		3290			3210			3200			15300			14300		
Sulfate as SO4	mg/L	114	D	118	D		118	D		117	D		155	D		146	D	
Thallium	ug/L	5	U	5	U		5	U		5	U		5	U		5	U	
Thallium; Dissolved	ug/L	1	U	1	U		1	U		1	U		1	U		1	U	
Total Alkalinity	mg CaCO3 / L	66.4		66.6			67.5			65.1			131			128		
Vanadium	ug/L	10	U	10	U		10	U		10	U		10	U		10	U	
Vanadium; Dissolved	ug/L	2	U	2	U		2	U		2	U		2	U		2	U	
Zinc	ug/L	185		173			166			176			81			54.9		
Zinc; Dissolved	ug/L	114		110			91.1			88.6			35.7			24.6		

Sample Number:		Animas_RotaryPark_03/18/2019		Animas_RotaryPark_03/19/2019		Animas_RotaryPark_03/20/2019		Animas_RotaryPark_03/21/2019	
Sampling Location:		Animas_RotaryPark		Animas_RotaryPark		Animas_RotaryPark		Animas_RotaryPark	
Matrix:		Water		Water		Water		Water	
Date Sampled:		3/18/2019		3/19/2019		3/20/2019		3/21/2019	
Date Analyzed:		3/19/2019		3/21/2019		3/21/2019		3/27/2019	
Parameter	Result Units	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aluminum	ug/L	1080		1930		1120		2050	
Aluminum; Dissolved	ug/L	20	U	20	U	20	U	20	U
Antimony	ug/L	2.5	U	2.5	U	2.5	U	2.5	U
Antimony; Dissolved	ug/L	0.5	U	0.5	U	0.5	U	0.5	U
Arsenic	ug/L	2.5	U	2.5	U	2.5	U	2.5	U
Arsenic; Dissolved	ug/L	0.616	J	0.535	J	0.564	J	0.549	J
Barium	ug/L	71.8	D	83.6	D	74.5	D	88.6	D
Barium; Dissolved	ug/L	65.5		62.7		62.7		69.4	
Beryllium	ug/L	2	U	2	U	2	U	2	U
Beryllium; Dissolved	ug/L	2	U	2	U	2	U	2	U
Cadmium	ug/L	0.5	U	0.5	U	0.5	U	0.5	U
Cadmium; Dissolved	ug/L	0.1	U	0.1	U	0.1	U	0.1	U
Calcium	ug/L	84100		83100		83700		82500	
Calcium; Dissolved	ug/L	80900		79600		81400		79700	
Chloride	mg/L	16.7	D	15.4	D	15.8	D	13.9	D
Chromium	ug/L	5	U	5	U	5	U	5	U
Chromium; Dissolved	ug/L	5.86		2.52		4.25		1.29	J
Cobalt	ug/L	0.825	JD	1.23	D	0.985	JD	1.43	D
Cobalt; Dissolved	ug/L	0.471		0.46		0.481		0.42	
Copper	ug/L	2.85	JD	4.46	JD	3.21	JD	5.92	D
Copper; Dissolved	ug/L	1.19		0.942	J	0.942	J	0.946	J
Fluoride	mg/L	0.6	D	0.5	JD	0.5	JD	0.4	D
Hardness	mg/L	254		249		255		249	
Iron	ug/L	1200		1940		1310		2470	
Iron; Dissolved	ug/L	100	U	100	U	100	U	100	U
Lead	ug/L	5.24	D	4.26	D	3.29	D	5.35	D
Lead; Dissolved	ug/L	0.1	U	0.1	U	0.1	U	0.1	U
Magnesium	ug/L	13300		12800		12800		13000	
Magnesium; Dissolved	ug/L	12700		12300		12500		12100	
Manganese	ug/L	292		333		321		367	
Manganese; Dissolved	ug/L	234		248		253		244	
Nickel	ug/L	2.5	U	2.5	U	2.5	U	2.5	U
Nickel; Dissolved	ug/L	0.5	U	0.5	U	0.5	U	0.5	U
Potassium	ug/L	3030		3120		2820		2980	
Potassium; Dissolved	ug/L	2700		2550		2550		2470	
Selenium	ug/L	5	U	5	U	5	U	5	U
Selenium; Dissolved	ug/L	1	U	1	U	1	U	1	U
Silver	ug/L	2.5	U	2.5	U	2.5	U	2.5	U
Silver; Dissolved	ug/L	0.5	U	0.5	U	0.5	U	0.5	U
Sodium	ug/L	16000		14500		14700		13900	
Sodium; Dissolved	ug/L	14800		14100		14300		13300	
Sulfate as SO4	mg/L	144	D	135	D	141	D	132	D
Thallium	ug/L	5	U	5	U	5	U	5	U
Thallium; Dissolved	ug/L	1	U	1	U	1	U	1	U
Total Alkalinity	mg CaCO3 / L	131		128		128		130	
Vanadium	ug/L	10	U	10	U	10	U	10	U
Vanadium; Dissolved	ug/L	2	U	2	U	2	U	2	U
Zinc	ug/L	55.5		65.4		61.2		79.3	
Zinc; Dissolved	ug/L	23.1		22.8		22.5		21.3	

Location	CC48		CC48		CC48		CC48		CC48		CC48		CC48	
Date	3/15/2019		3/16/2019		3/17/2019		3/18/2019		3/19/2019		3/20/2019		3/21/2019	
Time	16:45		15:40		15:20		12:00		12:00		9:45		14:00	
Parameter	Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result	Unit
Temperature	3.7	C	4.7	C	5.3	C	1.8	C	4.2	C	-0.1	C	3.6	C
Specific Conductivity	1248	us/cm	1225	us/cm	1217	us/cm	1204	us/cm	1188	us/cm	1199	us/cm	1185	us/cm
pH	3.66	S.U.	3.63	S.U.	3.63	S.U.	3.57	S.U.	3.61	S.U.	3.57	S.U.	3.53	S.U.
Flow Rate	11.73	cfs	14.1	cfs	11.1	cfs	9.9	cfs	12	cfs	10.75	cfs	9.62	cfs

Location	A68		A68		A68		A68		A68		A68	
Date	3/16/2019		3/17/2019		3/18/2019		3/19/2019		3/20/2019		3/21/2019	
Time	16:50		16:50		12:40		13:10		10:20		13:40	
Parameter	Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result	Unit
Temperature	0	C	1.2	C	0.1	C	2.5	C	0.1	C	1.6	C
Specific Conductivity	384	us/cm	384	us/cm	406	us/cm	400	us/cm	419	us/cm	403	us/cm
pH	6.88	S.U.	6.92	S.U.	6.91	S.U.	7.09	S.U.	6.56	S.U.	7.2	S.U.

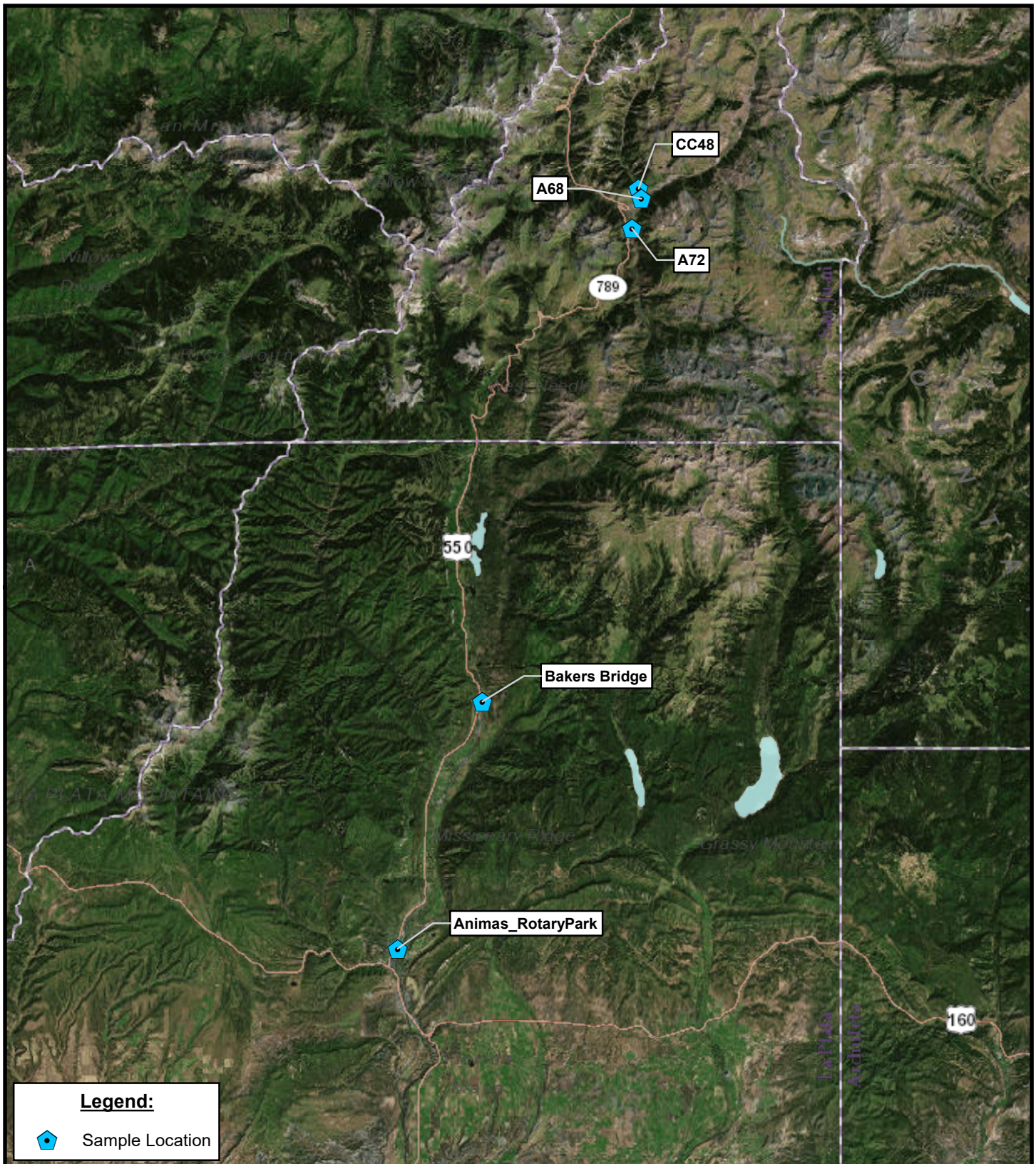
Location	A72		A72		A72		A72		A72		A72	
Date	3/16/2019		3/17/2019		3/18/2019		3/19/2019		3/20/2019		3/21/2019	
Time	18:40		18:00		12:40		14:40		11:30		15:30	
Parameter	Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result	Unit
Temperature	0.9	C	2.1	C	0.1	C	5.6	C	1.2	C	1.1	C
Specific Conductivity	600	us/cm	653	us/cm	406	us/cm	639	us/cm	668	us/cm	639	us/cm
pH	5.78	S.U.	5.45	S.U.	6.91	S.U.	5.43	S.U.	5.41	S.U.	5.44	S.U.

Location	Animas_RotaryPark		Animas_RotaryPark		Animas_RotaryPark		Animas_RotaryPark		Animas_RotaryPark		Animas_RotaryPark	
Date	3/16/2019		3/17/2019		3/18/2019		3/19/2019		3/20/2019		3/21/2019	
Time	16:10		17:20		12:25		10:20		14:10		18:50	
Parameter	Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result	Unit
Temperature	8.3	C	8.1	C	8	C	6.2	C	7.3	C	4.3	C
Specific Conductivity	549	us/cm	534	us/cm	531	us/cm	519	us/cm	526	us/cm	513	us/cm
pH	8	S.U.	8.1	S.U.	8	S.U.	7.9	S.U.	8	S.U.	7.9	S.U.
Flow Rate	236	cfs	245	cfs	270	cfs	275	cfs	286	cfs	313	cfs

Location	Bakers Bridge	
Date	3/20/2019	
Time	13:20	
Parameter	Result	Unit
Temperature	7.53	C
Specific Conductivity	313	us/cm
pH	7.9	S.U.

Bakers Bridge: No monitoring data (on 3/16, 3/17, 3/18, 3/19, and 3/21) due to lack of direct access to water. Sample collected from bridge via bucket, same procedure as Riverwatch.





Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere  
 Projection: Mercator Auxiliary Sphere  
 Datum: WGS 1984

**Source:**  
 Site Boundary: Georeferenced Aerial (Google Earth 2019)  
 Background: ESRI World Imagery (2019)

0 4.5 9 18 Miles



**Prepared for:**  
 U.S. EPA - Region 8

**Contract:** EP-S8-13-01  
**TO/TDD:** 0001/1705-01

**Prepared By:**  
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 START IV  
 Suite 100  
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 Lakewood, CO



**FIGURE 2**  
**SAMPLE LOCATION MAP**  
**SURFACE WATER SAMPLING ANIMAS RIVER**  
**BONITA PEAK WATER CONVEYANCE**  
**AND WATER TREATMENT PLANT**  
**SAN JUAN COUNTY,**  
**COLORADO**

Date: 3/21/2019