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Analysis of the Transport and Fate of Metals Released from the Gold King Mine in the Animas and San Juan Rivers

Annex to Appendix B

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Annex to Appendix B. Surface Water Modeling Using WASP

Contents

WASP Segments

Table R-1. WASP hydraulic input parameters for each simulated stream segment. Segments 1-229 are surface water and 230-458 are surface benthic layers.

WASP hydraulic input parameters for each simulated stream segment. Segments 1-229 are surface water and 230-458 are surface benthic layers.										
Segment	Volume [m^3]	Velocity Multiplier	Velocity Exponent	Depth Multiplier	Depth Exponent	Length [m]	Width [m]	Minimum Depth [m]	Slope	Bottom Roughness
1	13722	0.00	0.428	2.847	0.347	1633	5.90	0.001	0.014	0.295
2	1255	0.00	0.487	1.410	0.320	1263	1.41	0.001	0.033	0.33
3	13722	0.00	0.428	2.847	0.347	1633	5.90	0.001	0.014	0.295
4	13722	0.00	0.337	2.847	0.174	1633	5.90	0.001	0.014	0.5
5	13722	0.00	0.337	2.847	0.174	1633	5.90	0.001	0.014	0.5
6	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
7	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
8	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
9	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
10	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
11	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
12	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
13	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
14	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
15	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
16	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
17	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
18	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
19	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
20	17507	0.00	0.337	2.911	0.174	1966	6.12	0.001	0.015	0.5
21	17507	0.00	0.367	2.911	0.484	1966	6.12	0.001	0.015	0.31
22	17507	0.00	0.367	2.911	0.484	1966	6.12	0.001	0.015	0.31
23	17507	0.00	0.367	2.911	0.484	1966	6.12	0.001	0.015	0.31
24	17507	0.00	0.367	2.911	0.484	1966	6.12	0.001	0.015	0.31
25	17507	0.00	0.367	2.911	0.484	1966	6.12	0.001	0.015	0.31
26	17507	0.00	0.367	2.911	0.484	1966	6.12	0.001	0.015	0.31
27	17507	0.00	0.367	2.911	0.484	1966	6.12	0.001	0.015	0.31
28	17507	0.00	0.367	2.911	0.484	1966	6.12	0.001	0.015	0.31
29	17507	0.00	0.367	2.911	0.484	1966	6.12	0.001	0.015	0.31
30	17507	0.00	0.367	2.911	0.484	1966	6.12	0.001	0.015	0.31
31	16392	0.00	0.367	2.963	0.484	1508	7.34	0.001	0.006	0.31
32	42298	0.00	0.367	3.800	0.484	1838	12.11	0.001	0.003	0.31
33	42298	0.00	0.367	3.800	0.484	1838	12.11	0.001	0.003	0.31
34	42298	0.00	0.367	3.800	0.484	1838	12.11	0.001	0.003	0.31
35	42298	0.00	0.367	3.800	0.484	1838	12.11	0.001	0.003	0.31
36	42298	0.00	0.367	3.800	0.484	1838	12.11	0.001	0.003	0.31
37	42298	0.00	0.367	3.800	0.484	1838	12.11	0.001	0.003	0.31
38	42298	0.00	0.367	3.800	0.484	1838	12.11	0.001	0.003	0.31
39	42298	0.00	0.367	3.800	0.484	1838	12.11	0.001	0.003	0.31
40	42298	0.00	0.367	3.800	0.484	1838	12.11	0.001	0.003	0.31
41	42298	0.00	0.367	3.800	0.484	1838	12.11	0.001	0.003	0.31
42	42298	0.00	0.367	3.800	0.484	1838	12.11	0.001	0.003	0.31
43	42298	0.00	0.367	3.800	0.484	1838	12.11	0.001	0.003	0.31
44	42298	0.00	0.367	3.800	0.484	1838	12.11	0.001	0.003	0.31
45	42298	0.00	0.367	3.800	0.484	1838	12.11	0.001	0.003	0.31
46	42298	0.00	0.418	3.800	0.438	1838	12.11	0.001	0.003	0.15
47	42298	0.00	0.418	3.800	0.438	1838	12.11	0.001	0.003	0.15
48	42298	0.00	0.418	3.800	0.438	1838	12.11	0.001	0.003	0.15
49	42298	0.00	0.418	3.800	0.438	1838	12.11	0.001	0.003	0.15
50	42298	0.00	0.418	3.800	0.438	1838	12.11	0.001	0.003	0.15
51	42298	0.00	0.418	3.800	0.438	1838	12.11	0.001	0.003	0.15
52	42298	0.00	0.418	3.800	0.438	1838	12.11	0.001	0.003	0.15
53	42298	0.00	0.418	3.800	0.438	1838	12.11	0.001	0.003	0.15
54	58217	0.00	0.418	4.034	0.438	2675	10.79	0.001	0.004	0.15
55	58217	0.00	0.418	4.034	0.438	2675	10.79	0.001	0.004	0.15

WASP hydraulic input parameters for each simulated stream segment. Segments 1-229 are surface water and 230-458 are surface benthic layers.

Segment	Volume [m³]	Velocity Multiplier	Velocity Exponent	Depth Multiplier	Depth Exponent	Length [m]	Width [m]	Minimum Depth [m]	Slope	Bottom Roughness
56	57802	0.00	0.418	4.061	0.438	2546	11.18	0.001	0.005	0.15
57	57802	0.00	0.418	4.061	0.438	2546	11.18	0.001	0.005	0.15
58	34431	0.00	0.418	4.085	0.438	1518	11.10	0.001	0.003	0.15
59	59498	0.00	0.418	4.100	0.438	2714	10.69	0.001	0.004	0.15
60	59498	0.00	0.418	4.100	0.438	2714	10.69	0.001	0.004	0.15
61	59908	0.00	0.418	4.389	0.438	2201	12.40	0.001	0.003	0.15
62	59908	0.00	0.484	4.389	0.397	2201	12.40	0.001	0.003	0.26
63	59908	0.00	0.484	4.389	0.397	2201	12.40	0.001	0.003	0.26
64	51332	0.00	0.484	4.415	0.397	1891	12.30	0.001	0.003	0.26
65	51332	0.00	0.484	4.415	0.397	1891	12.30	0.001	0.003	0.26
66	51332	0.00	0.484	4.415	0.397	1891	12.30	0.001	0.003	0.26
67	59853	0.00	0.484	4.423	0.397	2072	13.06	0.001	0.002	0.26
68	59853	0.00	0.484	4.423	0.397	2072	13.06	0.001	0.002	0.26
69	59853	0.00	0.484	4.423	0.397	2072	13.06	0.001	0.002	0.26
70	68241	0.00	0.484	4.487	0.397	2592	11.73	0.001	0.004	0.26
71	68241	0.00	0.484	4.487	0.397	2592	11.73	0.001	0.004	0.26
72	46376	0.00	0.484	4.510	0.397	1721	11.95	0.001	0.003	0.26
73	49813	0.00	0.484	4.462	0.397	1881	11.87	0.001	0.004	0.26
74	49813	0.00	0.484	4.462	0.397	1881	11.87	0.001	0.004	0.26
75	49813	0.00	0.484	4.462	0.397	1881	11.87	0.001	0.004	0.26
76	49813	0.00	0.484	4.462	0.397	1881	11.87	0.001	0.004	0.26
77	49813	0.00	0.484	4.462	0.397	1881	11.87	0.001	0.004	0.26
78	49813	0.00	0.484	4.462	0.397	1881	11.87	0.001	0.004	0.26
79	49813	0.00	0.484	4.462	0.397	1881	11.87	0.001	0.004	0.26
80	40732	0.00	0.484	3.983	0.397	1874	10.91	0.001	0.004	0.26
81	40732	0.00	0.573	3.983	0.288	1874	10.91	0.001	0.004	0.33
82	40732	0.00	0.573	3.983	0.288	1874	10.91	0.001	0.004	0.33
83	40732	0.00	0.573	3.983	0.288	1874	10.91	0.001	0.004	0.33
84	40732	0.00	0.573	3.983	0.288	1874	10.91	0.001	0.004	0.33
85	40732	0.00	0.573	3.983	0.288	1874	10.91	0.001	0.004	0.33
86	40732	0.00	0.573	3.983	0.288	1874	10.91	0.001	0.004	0.33
87	40732	0.00	0.573	3.983	0.288	1874	10.91	0.001	0.004	0.33
88	43903	0.00	0.573	4.020	0.288	2068	10.56	0.001	0.005	0.33
89	43903	0.00	0.573	4.020	0.288	2068	10.56	0.001	0.005	0.33
90	43903	0.00	0.573	4.020	0.288	2068	10.56	0.001	0.005	0.33
91	43903	0.00	0.573	4.020	0.288	2068	10.56	0.001	0.005	0.33
92	43903	0.00	0.501	4.020	0.329	2068	10.56	0.001	0.005	0.37
93	96512	0.00	0.454	6.075	0.456	2871	11.07	0.001	0.002	0.152
94	96512	0.00	0.454	6.075	0.456	2871	11.07	0.001	0.002	0.152
95	96512	0.00	0.454	6.075	0.456	2871	11.07	0.001	0.002	0.152
96	96512	0.00	0.454	6.075	0.456	2871	11.07	0.001	0.002	0.152
97	96512	0.00	0.454	6.075	0.456	2871	11.07	0.001	0.002	0.152
98	96512	0.00	0.454	6.075	0.456	2871	11.07	0.001	0.002	0.152
99	96512	0.00	0.454	6.075	0.456	2871	11.07	0.001	0.002	0.152
100	32246	0.00	0.454	4.699	0.456	2096	6.55	0.001	0.002	0.152
101	32246	0.00	0.454	4.699	0.456	2096	6.55	0.001	0.002	0.152
102	32246	0.00	0.454	4.699	0.456	2614	6.55	0.001	0.002	0.152
103	63450	0.00	0.454	5.929	0.456	2870	9.10	0.001	0.002	0.152
104	63450	0.00	0.454	5.929	0.456	2352	9.10	0.001	0.002	0.152
105	63450	0.00	0.454	5.929	0.456	2352	9.10	0.001	0.002	0.152
106	63450	0.00	0.454	5.929	0.456	2352	9.10	0.001	0.002	0.152
107	63450	0.00	0.454	5.929	0.456	2352	9.10	0.001	0.002	0.152
108	63450	0.00	0.454	5.929	0.456	2352	9.10	0.001	0.002	0.152
109	63450	0.00	0.454	5.929	0.456	2352	9.10	0.001	0.002	0.152
110	63450	0.00	0.454	5.929	0.456	2352	9.10	0.001	0.002	0.152
111	92872	0.00	0.454	6.900	0.456	2352	10.98	0.001	0.003	0.152
112	89619	0.00	0.454	6.900	0.456	1791	14.50	0.001	0.002	0.152
113	23856	0.00	0.454	4.191	0.456	1472	7.73	0.001	0.009	0.152
114	23856	0.00	0.454	4.191	0.456	1472	7.73	0.001	0.009	0.152
115	5909	0.00	0.454	2.640	0.456	922	4.86	0.001	0.003	0.152
116	5909	0.00	0.454	2.640	0.456	922	4.86	0.001	0.003	0.152
117	5909	0.00	0.454	2.640	0.456	922	4.86	0.001	0.003	0.152
118	60968	0.00	0.454	6.273	0.456	1866	10.42	0.001	0.003	0.152

WASP hydraulic input parameters for each simulated stream segment. Segments 1-229 are surface water and 230-458 are surface benthic layers.

Segment	Volume [m³]	Velocity Multiplier	Velocity Exponent	Depth Multiplier	Depth Exponent	Length [m]	Width [m]	Minimum Depth [m]	Slope	Bottom Roughness
119	60968	0.00	0.454	6.273	0.456	1866	10.42	0.001	0.003	0.152
120	60968	0.00	0.454	6.273	0.456	1866	10.42	0.001	0.003	0.152
121	186786	0.00	0.414	7.463	0.462	2265	22.10	0.001	0.001	0.18
122	142097	0.00	0.414	6.927	0.462	2842	14.44	0.001	0.003	0.18
123	142097	0.00	0.414	6.927	0.462	2842	14.44	0.001	0.003	0.18
124	142097	0.00	0.414	6.927	0.462	2842	14.44	0.001	0.003	0.18
125	142097	0.00	0.414	6.927	0.462	2842	14.44	0.001	0.003	0.18
126	142097	0.00	0.414	6.927	0.462	2842	14.44	0.001	0.003	0.18
127	142097	0.00	0.414	6.927	0.462	2842	14.44	0.001	0.003	0.18
128	109451	0.00	0.414	6.220	0.462	2174	12.95	0.001	0.002	0.18
129	109451	0.00	0.414	6.220	0.462	2717	12.95	0.001	0.002	0.18
130	109451	0.00	0.414	6.220	0.462	2717	12.95	0.001	0.002	0.18
131	109451	0.00	0.414	6.220	0.462	2717	12.95	0.001	0.002	0.18
132	109451	0.00	0.414	6.220	0.462	2717	12.95	0.001	0.002	0.18
133	109451	0.00	0.414	6.220	0.462	2717	12.95	0.001	0.002	0.18
134	109451	0.00	0.414	6.220	0.462	2717	12.95	0.001	0.002	0.18
135	109451	0.00	0.414	6.220	0.462	2717	12.95	0.001	0.002	0.18
136	109451	0.00	0.414	6.220	0.462	3524	12.95	0.001	0.002	0.18
137	148546	0.00	0.414	7.024	0.462	3174	13.33	0.001	0.002	0.18
138	148546	0.00	0.414	7.024	0.462	3174	13.33	0.001	0.002	0.18
139	126260	0.00	0.414	6.950	0.462	2649	13.72	0.001	0.005	0.18
140	126260	0.00	0.462	6.950	0.403	2649	13.72	0.001	0.005	0.36
141	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
142	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
143	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
144	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
145	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
146	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
147	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
148	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
149	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
150	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
151	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
152	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
153	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
154	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
155	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
156	134648	0.00	0.462	7.654	0.403	2826	12.45	0.001	0.002	0.36
157	125842	0.00	0.462	7.759	0.403	1844	17.59	0.001	0.001	0.36
158	125842	0.00	0.462	7.759	0.403	1844	17.59	0.001	0.001	0.36
159	168416	0.00	0.462	9.114	0.403	2583	14.31	0.001	0.002	0.36
160	168416	0.00	0.496	9.114	0.204	2583	14.31	0.001	0.002	0.58
161	168416	0.00	0.496	9.114	0.204	2583	14.31	0.001	0.002	0.58
162	168416	0.00	0.496	9.114	0.204	2583	14.31	0.001	0.002	0.58
163	168416	0.00	0.496	9.114	0.204	2583	14.31	0.001	0.002	0.58
164	168416	0.00	0.496	9.114	0.204	2583	14.31	0.001	0.002	0.58
165	168416	0.00	0.496	9.114	0.204	2583	14.31	0.001	0.002	0.58
166	168416	0.00	0.496	9.114	0.204	2583	14.31	0.001	0.002	0.58
167	168416	0.00	0.496	9.114	0.204	2583	14.31	0.001	0.002	0.58
168	168416	0.00	0.496	9.114	0.204	2583	14.31	0.001	0.002	0.58
169	168416	0.00	0.496	9.114	0.204	2583	14.31	0.001	0.002	0.58
170	168416	0.00	0.496	9.114	0.204	2583	14.31	0.001	0.002	0.58
171	200204	0.00	0.496	9.170	0.204	2941	14.85	0.001	0.001	0.58
172	200204	0.00	0.496	9.170	0.204	2941	14.85	0.001	0.001	0.58
173	159234	0.00	0.496	9.316	0.204	2307	14.82	0.001	0.001	0.58
174	159234	0.00	0.496	9.316	0.204	2307	14.82	0.001	0.001	0.58
175	159234	0.00	0.496	9.316	0.204	2307	14.82	0.001	0.001	0.58
176	159234	0.00	0.496	9.316	0.204	2307	14.82	0.001	0.001	0.58
177	212312	0.00	0.496	9.316	0.204	3076	14.82	0.001	0.001	0.58
178	212312	0.00	0.496	9.316	0.204	3076	14.82	0.001	0.001	0.58
179	207303	0.00	0.496	8.872	0.204	3581	13.05	0.001	0.001	0.58
180	207303	0.00	0.496	8.872	0.204	3581	13.05	0.001	0.001	0.58
181	207303	0.00	0.496	8.872	0.204	3581	13.05	0.001	0.001	0.58

WASP hydraulic input parameters for each simulated stream segment. Segments 1-229 are surface water and 230-458 are surface benthic layers.

Segment	Volume [m³]	Velocity Multiplier	Velocity Exponent	Depth Multiplier	Depth Exponent	Length [m]	Width [m]	Minimum Depth [m]	Slope	Bottom Roughness
182	207303	0.00	0.496	8.872	0.204	3581	13.05	0.001	0.001	0.58
183	207303	0.00	0.496	8.872	0.204	3581	13.05	0.001	0.001	0.58
184	207303	0.00	0.496	8.872	0.204	3581	13.05	0.001	0.001	0.58
185	207303	0.00	0.496	8.872	0.204	3581	13.05	0.001	0.001	0.58
186	207303	0.00	0.496	8.872	0.204	3581	13.05	0.001	0.001	0.58
187	207303	0.00	0.496	8.872	0.204	3581	13.05	0.001	0.001	0.58
188	207303	0.00	0.496	8.872	0.204	3581	13.05	0.001	0.001	0.58
189	207303	0.00	0.496	8.872	0.204	3581	13.05	0.001	0.001	0.58
190	207303	0.00	0.496	8.872	0.204	3581	13.05	0.001	0.001	0.58
191	268127	0.00	0.496	10.283	0.204	3686	14.15	0.001	0.002	0.58
192	268127	0.00	0.496	10.283	0.204	3686	14.15	0.001	0.002	0.58
193	268127	0.00	0.496	10.283	0.204	3686	14.15	0.001	0.002	0.58
194	268127	0.00	0.496	10.283	0.204	3686	14.15	0.001	0.002	0.58
195	268127	0.00	0.496	10.283	0.204	3686	14.15	0.001	0.002	0.58
196	268127	0.00	0.496	10.283	0.204	3686	14.15	0.001	0.002	0.58
197	268127	0.00	0.496	10.283	0.204	3686	14.15	0.001	0.002	0.58
198	268127	0.00	0.496	10.283	0.204	3686	14.15	0.001	0.002	0.58
199	268127	0.00	0.448	10.283	0.414	3686	14.15	0.001	0.002	0.21
200	268127	0.00	0.448	10.283	0.414	3686	14.15	0.001	0.002	0.21
201	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
202	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
203	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
204	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
205	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
206	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
207	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
208	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
209	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
210	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
211	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
212	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
213	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
214	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
215	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
216	246405	0.00	0.448	10.300	0.414	3169	15.10	0.001	0.002	0.21
217	337951	0.00	0.448	10.300	0.414	4655	14.10	0.001	0.002	0.21
218	255474	0.00	0.448	10.300	0.414	3020	16.43	0.001	0.001	0.21
219	255474	0.00	0.448	10.300	0.414	3020	16.43	0.001	0.001	0.21
220	207017	0.00	0.448	10.400	0.414	2590	15.37	0.001	0.003	0.21
221	249734	0.00	0.448	10.400	0.414	2858	16.80	0.001	0.000	0.21
222	302456	0.00	0.448	10.400	0.414	2783	20.90	0.001	0.000	0.21
223	245131	0.00	0.448	10.400	0.414	2263	20.83	0.001	0.000	0.21
224	183115	0.00	0.448	10.400	0.414	1693	20.80	0.001	0.000	0.21
225	183115	0.00	0.448	10.400	0.414	1693	20.80	0.001	0.000	0.21
226	175760	0.00	0.448	10.400	0.414	1625	20.80	0.001	0.000	0.21
227	175760	0.00	0.448	10.400	0.414	1625	20.80	0.001	0.000	0.21
228	175760	0.00	0.448	10.400	0.414	1625	20.80	0.001	0.000	0.21
229	175760	0.00	0.448	10.400	0.414	1625	20.80	0.001	0.000	0.21
230	13722	0.00	0.000	0.050	0.000	1633	5.90	0.001	0.000	0
231	1255	0.00	0.000	0.050	0.000	1263	1.41	0.001	0.000	0
232	13722	0.00	0.000	0.050	0.000	1633	5.90	0.001	0.000	0
233	13722	0.00	0.000	0.050	0.000	1633	5.90	0.001	0.000	0
234	13722	0.00	0.000	0.050	0.000	1633	5.90	0.001	0.000	0
235	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
236	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
237	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
238	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
239	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
240	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
241	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
242	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
243	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
244	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0

WASP hydraulic input parameters for each simulated stream segment. Segments 1-229 are surface water and 230-458 are surface benthic layers.

Segment	Volume [m³]	Velocity Multiplier	Velocity Exponent	Depth Multiplier	Depth Exponent	Length [m]	Width [m]	Minimum Depth [m]	Slope	Bottom Roughness
245	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
246	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
247	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
248	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
249	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
250	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
251	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
252	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
253	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
254	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
255	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
256	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
257	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
258	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
259	17507	0.00	0.000	0.050	0.000	1966	6.12	0.001	0.000	0
260	16392	0.00	0.000	0.050	0.000	1508	7.34	0.001	0.000	0
261	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
262	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
263	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
264	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
265	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
266	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
267	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
268	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
269	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
270	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
271	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
272	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
273	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
274	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
275	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
276	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
277	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
278	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
279	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
280	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
281	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
282	42298	0.00	0.000	0.050	0.000	1838	12.11	0.001	0.000	0
283	58217	0.00	0.000	0.050	0.000	2675	10.79	0.001	0.000	0
284	58217	0.00	0.000	0.050	0.000	2675	10.79	0.001	0.000	0
285	57802	0.00	0.000	0.050	0.000	2546	11.18	0.001	0.000	0
286	57802	0.00	0.000	0.050	0.000	2546	11.18	0.001	0.000	0
287	34431	0.00	0.000	0.050	0.000	1518	11.10	0.001	0.000	0
288	59498	0.00	0.000	0.050	0.000	2714	10.69	0.001	0.000	0
289	59498	0.00	0.000	0.050	0.000	2714	10.69	0.001	0.000	0
290	59908	0.00	0.000	0.050	0.000	2201	12.40	0.001	0.000	0
291	59908	0.00	0.000	0.050	0.000	2201	12.40	0.001	0.000	0
292	59908	0.00	0.000	0.050	0.000	2201	12.40	0.001	0.000	0
293	51332	0.00	0.000	0.050	0.000	1891	12.30	0.001	0.000	0
294	51332	0.00	0.000	0.050	0.000	1891	12.30	0.001	0.000	0
295	51332	0.00	0.000	0.050	0.000	1891	12.30	0.001	0.000	0
296	59853	0.00	0.000	0.050	0.000	2072	13.06	0.001	0.000	0
297	59853	0.00	0.000	0.050	0.000	2072	13.06	0.001	0.000	0
298	59853	0.00	0.000	0.050	0.000	2072	13.06	0.001	0.000	0
299	68241	0.00	0.000	0.050	0.000	2592	11.73	0.001	0.000	0
300	68241	0.00	0.000	0.050	0.000	2592	11.73	0.001	0.000	0
301	46376	0.00	0.000	0.050	0.000	1721	11.95	0.001	0.000	0
302	49813	0.00	0.000	0.050	0.000	1881	11.87	0.001	0.000	0
303	49813	0.00	0.000	0.050	0.000	1881	11.87	0.001	0.000	0
304	49813	0.00	0.000	0.050	0.000	1881	11.87	0.001	0.000	0
305	49813	0.00	0.000	0.050	0.000	1881	11.87	0.001	0.000	0
306	49813	0.00	0.000	0.050	0.000	1881	11.87	0.001	0.000	0
307	49813	0.00	0.000	0.050	0.000	1881	11.87	0.001	0.000	0

WASP hydraulic input parameters for each simulated stream segment. Segments 1-229 are surface water and 230-458 are surface benthic layers.

Segment	Volume [m³]	Velocity Multiplier	Velocity Exponent	Depth Multiplier	Depth Exponent	Length [m]	Width [m]	Minimum Depth [m]	Slope	Bottom Roughness
308	49813	0.00	0.000	0.050	0.000	1881	11.87	0.001	0.000	0
309	40732	0.00	0.000	0.050	0.000	1874	10.91	0.001	0.000	0
310	40732	0.00	0.000	0.050	0.000	1874	10.91	0.001	0.000	0
311	40732	0.00	0.000	0.050	0.000	1874	10.91	0.001	0.000	0
312	40732	0.00	0.000	0.050	0.000	1874	10.91	0.001	0.000	0
313	40732	0.00	0.000	0.050	0.000	1874	10.91	0.001	0.000	0
314	40732	0.00	0.000	0.050	0.000	1874	10.91	0.001	0.000	0
315	40732	0.00	0.000	0.050	0.000	1874	10.91	0.001	0.000	0
316	40732	0.00	0.000	0.050	0.000	1874	10.91	0.001	0.000	0
317	43903	0.00	0.000	0.050	0.000	2068	10.56	0.001	0.000	0
318	43903	0.00	0.000	0.050	0.000	2068	10.56	0.001	0.000	0
319	43903	0.00	0.000	0.050	0.000	2068	10.56	0.001	0.000	0
320	43903	0.00	0.000	0.050	0.000	2068	10.56	0.001	0.000	0
321	43903	0.00	0.000	0.050	0.000	2068	10.56	0.001	0.000	0
322	96512	0.00	0.000	0.050	0.000	2871	11.07	0.001	0.000	0
323	96512	0.00	0.000	0.050	0.000	2871	11.07	0.001	0.000	0
324	96512	0.00	0.000	0.050	0.000	2871	11.07	0.001	0.000	0
325	96512	0.00	0.000	0.050	0.000	2871	11.07	0.001	0.000	0
326	96512	0.00	0.000	0.050	0.000	2871	11.07	0.001	0.000	0
327	96512	0.00	0.000	0.050	0.000	2871	11.07	0.001	0.000	0
328	96512	0.00	0.000	0.050	0.000	2871	11.07	0.001	0.000	0
329	32246	0.00	0.000	0.050	0.000	2096	6.55	0.001	0.000	0
330	32246	0.00	0.000	0.050	0.000	2096	6.55	0.001	0.000	0
331	32246	0.00	0.000	0.050	0.000	2614	6.55	0.001	0.000	0
332	63450	0.00	0.000	0.050	0.000	2870	9.10	0.001	0.000	0
333	63450	0.00	0.000	0.050	0.000	2352	9.10	0.001	0.000	0
334	63450	0.00	0.000	0.050	0.000	2352	9.10	0.001	0.000	0
335	63450	0.00	0.000	0.050	0.000	2352	9.10	0.001	0.000	0
336	63450	0.00	0.000	0.050	0.000	2352	9.10	0.001	0.000	0
337	63450	0.00	0.000	0.050	0.000	2352	9.10	0.001	0.000	0
338	63450	0.00	0.000	0.050	0.000	2352	9.10	0.001	0.000	0
339	63450	0.00	0.000	0.050	0.000	2352	9.10	0.001	0.000	0
340	92872	0.00	0.000	0.050	0.000	2352	10.98	0.001	0.000	0
341	89619	0.00	0.000	0.050	0.000	1791	14.50	0.001	0.000	0
342	23856	0.00	0.000	0.050	0.000	1472	7.73	0.001	0.000	0
343	23856	0.00	0.000	0.050	0.000	1472	7.73	0.001	0.000	0
344	5909	0.00	0.000	0.050	0.000	922	4.86	0.001	0.000	0
345	5909	0.00	0.000	0.050	0.000	922	4.86	0.001	0.000	0
346	5909	0.00	0.000	0.050	0.000	922	4.86	0.001	0.000	0
347	60968	0.00	0.000	0.050	0.000	1866	10.42	0.001	0.000	0
348	60968	0.00	0.000	0.050	0.000	1866	10.42	0.001	0.000	0
349	60968	0.00	0.000	0.050	0.000	1866	10.42	0.001	0.000	0
350	186786	0.00	0.000	0.050	0.000	2265	22.10	0.001	0.000	0
351	142097	0.00	0.000	0.050	0.000	2842	14.44	0.001	0.000	0
352	142097	0.00	0.000	0.050	0.000	2842	14.44	0.001	0.000	0
353	142097	0.00	0.000	0.050	0.000	2842	14.44	0.001	0.000	0
354	142097	0.00	0.000	0.050	0.000	2842	14.44	0.001	0.000	0
355	142097	0.00	0.000	0.050	0.000	2842	14.44	0.001	0.000	0
356	142097	0.00	0.000	0.050	0.000	2842	14.44	0.001	0.000	0
357	109451	0.00	0.000	0.050	0.000	2174	12.95	0.001	0.000	0
358	109451	0.00	0.000	0.050	0.000	2717	12.95	0.001	0.000	0
359	109451	0.00	0.000	0.050	0.000	2717	12.95	0.001	0.000	0
360	109451	0.00	0.000	0.050	0.000	2717	12.95	0.001	0.000	0
361	109451	0.00	0.000	0.050	0.000	2717	12.95	0.001	0.000	0
362	109451	0.00	0.000	0.050	0.000	2717	12.95	0.001	0.000	0
363	109451	0.00	0.000	0.050	0.000	2717	12.95	0.001	0.000	0
364	109451	0.00	0.000	0.050	0.000	2717	12.95	0.001	0.000	0
365	109451	0.00	0.000	0.050	0.000	3524	12.95	0.001	0.000	0
366	148546	0.00	0.000	0.050	0.000	3174	13.33	0.001	0.000	0
367	148546	0.00	0.000	0.050	0.000	3174	13.33	0.001	0.000	0
368	126260	0.00	0.000	0.050	0.000	2649	13.72	0.001	0.000	0
369	126260	0.00	0.000	0.050	0.000	2649	13.72	0.001	0.000	0
370	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0

WASP hydraulic input parameters for each simulated stream segment. Segments 1-229 are surface water and 230-458 are surface benthic layers.

Segment	Volume [m³]	Velocity Multiplier	Velocity Exponent	Depth Multiplier	Depth Exponent	Length [m]	Width [m]	Minimum Depth [m]	Slope	Bottom Roughness
371	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
372	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
373	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
374	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
375	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
376	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
377	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
378	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
379	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
380	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
381	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
382	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
383	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
384	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
385	134648	0.00	0.000	0.050	0.000	2826	12.45	0.001	0.000	0
386	125842	0.00	0.000	0.050	0.000	1844	17.59	0.001	0.000	0
387	125842	0.00	0.000	0.050	0.000	1844	17.59	0.001	0.000	0
388	168416	0.00	0.000	0.050	0.000	2583	14.31	0.001	0.000	0
389	168416	0.00	0.000	0.050	0.000	2583	14.31	0.001	0.000	0
390	168416	0.00	0.000	0.050	0.000	2583	14.31	0.001	0.000	0
391	168416	0.00	0.000	0.050	0.000	2583	14.31	0.001	0.000	0
392	168416	0.00	0.000	0.050	0.000	2583	14.31	0.001	0.000	0
393	168416	0.00	0.000	0.050	0.000	2583	14.31	0.001	0.000	0
394	168416	0.00	0.000	0.050	0.000	2583	14.31	0.001	0.000	0
395	168416	0.00	0.000	0.050	0.000	2583	14.31	0.001	0.000	0
396	168416	0.00	0.000	0.050	0.000	2583	14.31	0.001	0.000	0
397	168416	0.00	0.000	0.050	0.000	2583	14.31	0.001	0.000	0
398	168416	0.00	0.000	0.050	0.000	2583	14.31	0.001	0.000	0
399	168416	0.00	0.000	0.050	0.000	2583	14.31	0.001	0.000	0
400	200204	0.00	0.000	0.050	0.000	2941	14.85	0.001	0.000	0
401	200204	0.00	0.000	0.050	0.000	2941	14.85	0.001	0.000	0
402	159234	0.00	0.000	0.050	0.000	2307	14.82	0.001	0.000	0
403	159234	0.00	0.000	0.050	0.000	2307	14.82	0.001	0.000	0
404	159234	0.00	0.000	0.050	0.000	2307	14.82	0.001	0.000	0
405	159234	0.00	0.000	0.050	0.000	2307	14.82	0.001	0.000	0
406	212312	0.00	0.000	0.050	0.000	3076	14.82	0.001	0.000	0
407	212312	0.00	0.000	0.050	0.000	3076	14.82	0.001	0.000	0
408	207303	0.00	0.000	0.050	0.000	3581	13.05	0.001	0.000	0
409	207303	0.00	0.000	0.050	0.000	3581	13.05	0.001	0.000	0
410	207303	0.00	0.000	0.050	0.000	3581	13.05	0.001	0.000	0
411	207303	0.00	0.000	0.050	0.000	3581	13.05	0.001	0.000	0
412	207303	0.00	0.000	0.050	0.000	3581	13.05	0.001	0.000	0
413	207303	0.00	0.000	0.050	0.000	3581	13.05	0.001	0.000	0
414	207303	0.00	0.000	0.050	0.000	3581	13.05	0.001	0.000	0
415	207303	0.00	0.000	0.050	0.000	3581	13.05	0.001	0.000	0
416	207303	0.00	0.000	0.050	0.000	3581	13.05	0.001	0.000	0
417	207303	0.00	0.000	0.050	0.000	3581	13.05	0.001	0.000	0
418	207303	0.00	0.000	0.050	0.000	3581	13.05	0.001	0.000	0
419	207303	0.00	0.000	0.050	0.000	3581	13.05	0.001	0.000	0
420	268127	0.00	0.000	0.050	0.000	3686	14.15	0.001	0.000	0
421	268127	0.00	0.000	0.050	0.000	3686	14.15	0.001	0.000	0
422	268127	0.00	0.000	0.050	0.000	3686	14.15	0.001	0.000	0
423	268127	0.00	0.000	0.050	0.000	3686	14.15	0.001	0.000	0
424	268127	0.00	0.000	0.050	0.000	3686	14.15	0.001	0.000	0
425	268127	0.00	0.000	0.050	0.000	3686	14.15	0.001	0.000	0
426	268127	0.00	0.000	0.050	0.000	3686	14.15	0.001	0.000	0
427	268127	0.00	0.000	0.050	0.000	3686	14.15	0.001	0.000	0
428	268127	0.00	0.000	0.050	0.000	3686	14.15	0.001	0.000	0
429	268127	0.00	0.000	0.050	0.000	3686	14.15	0.001	0.000	0
430	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
431	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
432	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
433	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0

WASP hydraulic input parameters for each simulated stream segment. Segments 1-229 are surface water and 230-458 are surface benthic layers.

Segment	Volume [m³]	Velocity Multiplier	Velocity Exponent	Depth Multiplier	Depth Exponent	Length [m]	Width [m]	Minimum Depth [m]	Slope	Bottom Roughness
434	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
435	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
436	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
437	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
438	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
439	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
440	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
441	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
442	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
443	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
444	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
445	246405	0.00	0.000	0.050	0.000	3169	15.10	0.001	0.000	0
446	337951	0.00	0.000	0.050	0.000	4655	14.10	0.001	0.000	0
447	255474	0.00	0.000	0.050	0.000	3020	16.43	0.001	0.000	0
448	255474	0.00	0.000	0.050	0.000	3020	16.43	0.001	0.000	0
449	207017	0.00	0.000	0.050	0.000	2590	15.37	0.001	0.000	0
450	249734	0.00	0.000	0.050	0.000	2858	16.80	0.001	0.000	0
451	302456	0.00	0.000	0.050	0.000	2783	20.90	0.001	0.000	0
452	245131	0.00	0.000	0.050	0.000	2263	20.83	0.001	0.000	0
453	183115	0.00	0.000	0.050	0.000	1693	20.80	0.001	0.000	0
454	183115	0.00	0.000	0.050	0.000	1693	20.80	0.001	0.000	0
455	175760	0.00	0.000	0.050	0.000	1625	20.80	0.001	0.000	0
456	175760	0.00	0.000	0.050	0.000	1625	20.80	0.001	0.000	0
457	175760	0.00	0.000	0.050	0.000	1625	20.80	0.001	0.000	0
458	175760	0.00	0.000	0.050	0.000	1625	20.80	0.001	0.000	0

Settling

Table R-2a. Settling velocities for each WASP segment using the centroid method. From/To columns show the connections between water column and surface benthic segments. Settling velocities were calculated based on empirical model peak concentration losses over distance. The centroid method applies the settling velocity of a site to half the distance of the site above and below it.

Settling velocities for each WASP segment using the centroid method. From/To columns show the connections between water column and surface benthic segments. Settling velocities were calculated based on empirical model peak concentration losses over distance. The centroid method applies the settling velocity of a site to half the distance of the site above and below it.							
Centroid Method							
River Distance [km]	From	To	Length [m]	Width [m]	Area [m^2]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]
	1	230	1633	5.9	9635	0	0
12.7	2	231	1263	1.41	1781	0	0
14.4	3	232	1633	5.9	9635	1.85	17841
16.0	4	233	1633	5.9	9635	1.85	17841
17.6	5	234	1633	5.9	9635	1.85	17841
19.6	6	235	1966	6.12	12032	1.85	22280
21.6	7	236	1966	6.12	12032	1.85	22280
23.5	8	237	1966	6.12	12032	1.85	22280
25.5	9	238	1966	6.12	12032	1.85	22280
27.5	10	239	1966	6.12	12032	1.85	22280
29.4	11	240	1966	6.12	12032	1.85	22280
31.4	12	241	1966	6.12	12032	1.85	22280
33.4	13	242	1966	6.12	12032	1.85	22280
35.3	14	243	1966	6.12	12032	1.85	22280
37.3	15	244	1966	6.12	12032	1.85	22280
39.3	16	245	1966	6.12	12032	1.85	22280
41.2	17	246	1966	6.12	12032	2.97	35758
43.2	18	247	1966	6.12	12032	2.97	35758
45.2	19	248	1966	6.12	12032	2.97	35758
47.1	20	249	1966	6.12	12032	2.97	35758
49.1	21	250	1966	6.12	12032	2.97	35758
51.1	22	251	1966	6.12	12032	2.97	35758
53.0	23	252	1966	6.12	12032	2.97	35758
55.0	24	253	1966	6.12	12032	2.97	35758
57.0	25	254	1966	6.12	12032	2.97	35758
58.9	26	255	1966	6.12	12032	2.97	35758
60.9	27	256	1966	6.12	12032	2.97	35758
62.9	28	257	1966	6.12	12032	2.97	35758
64.8	29	258	1966	6.12	12032	2.97	35758
66.8	30	259	1966	6.12	12032	2.97	35758
68.3	31	260	1508	7.34	11069	2.97	32896
70.1	32	261	1838	12.11	22258	2.97	66150
72.0	33	262	1838	12.11	22258	2.97	66150

Settling velocities for each WASP segment using the centroid method. From/To columns show the connections between water column and surface benthic segments. Settling velocities were calculated based on empirical model peak concentration losses over distance. The centroid method applies the settling velocity of a site to half the distance of the site above and below it.

Centroid Method							
River Distance [km]	From	To	Length [m]	Width [m]	Area [m^2]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]
73.8	34	263	1838	12.11	22258	2.97	66150
75.6	35	264	1838	12.11	22258	2.97	66150
77.5	36	265	1838	12.11	22258	2.97	66150
79.3	37	266	1838	12.11	22258	2.97	66150
81.2	38	267	1838	12.11	22258	2.12	47186
83.0	39	268	1838	12.11	22258	2.12	47186
84.8	40	269	1838	12.11	22258	2.12	47186
86.7	41	270	1838	12.11	22258	2.12	47186
88.5	42	271	1838	12.11	22258	2.12	47186
90.3	43	272	1838	12.11	22258	2.12	47186
92.2	44	273	1838	12.11	22258	2.12	47186
94.0	45	274	1838	12.11	22258	2.12	47186
95.9	46	275	1838	12.11	22258	2.12	47186
97.7	47	276	1838	12.11	22258	2.12	47186
99.5	48	277	1838	12.11	22258	2.12	47186
101.4	49	278	1838	12.11	22258	2.12	47186
103.2	50	279	1838	12.11	22258	2.12	47186
105.1	51	280	1838	12.11	22258	2.12	47186
106.9	52	281	1838	12.11	22258	2.12	47186
108.7	53	282	1838	12.11	22258	2.12	47186
111.4	54	283	2675	10.79	28863	2.12	61188
114.1	55	284	2675	10.79	28863	0.38	10928
116.6	56	285	2546	11.18	28464	0.38	10777
119.2	57	286	2546	11.18	28464	0.38	10777
120.7	58	287	1518	11.1	16850	0.38	6380
123.4	59	288	2714	10.69	29013	0.38	10985
126.1	60	289	2714	10.69	29013	0.38	10985
128.3	61	290	2201	12.4	27292	0.38	10333
130.5	62	291	2201	12.4	27292	0.38	10333
132.7	63	292	2201	12.4	27292	0.38	10333
134.6	64	293	1891	12.3	23259	0.38	8806
136.5	65	294	1891	12.3	23259	0.38	8806
138.4	66	295	1891	12.3	23259	0.38	8806
140.5	67	296	2072	13.06	27060	0.38	10245
142.5	68	297	2072	13.06	27060	0.38	10245
144.6	69	298	2072	13.06	27060	0.38	10245
147.2	70	299	2592	11.73	30404	0.38	11511
149.8	71	300	2592	11.73	30404	0.38	11511
151.5	72	301	1721	11.95	20566	1.40	28726
153.4	73	302	1881	11.87	22327	1.40	31186

Settling velocities for each WASP segment using the centroid method. From/To columns show the connections between water column and surface benthic segments. Settling velocities were calculated based on empirical model peak concentration losses over distance. The centroid method applies the settling velocity of a site to half the distance of the site above and below it.

Centroid Method							
River Distance [km]	From	To	Length [m]	Width [m]	Area [m^2]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]
155.3	74	303	1881	11.87	22327	1.40	31186
157.2	75	304	1881	11.87	22327	1.40	31186
159.0	76	305	1881	11.87	22327	1.40	31186
160.9	77	306	1881	11.87	22327	1.40	31186
162.8	78	307	1881	11.87	22327	1.40	31186
164.7	79	308	1881	11.87	22327	1.40	31186
166.6	80	309	1874	10.91	20445	1.40	28557
168.4	81	310	1874	10.91	20445	1.40	28557
170.3	82	311	1874	10.91	20445	1.40	28557
172.2	83	312	1874	10.91	20445	1.40	28557
174.1	84	313	1874	10.91	20445	1.40	28557
175.9	85	314	1874	10.91	20445	1.40	28557
177.8	86	315	1874	10.91	20445	1.26	25753
179.7	87	316	1874	10.91	20445	1.26	25753
181.7	88	317	2068	10.56	21838	1.26	27507
183.8	89	318	2068	10.56	21838	1.26	27507
185.9	90	319	2068	10.56	21838	1.26	27507
187.9	91	320	2068	10.56	21838	1.26	27507
190.0	92	321	2068	10.56	21838	1.26	27507
	93	322	2871	11.07	31782	0.00	0
	94	323	2871	11.07	31782	0.00	0
	95	324	2871	11.07	31782	0.00	0
	96	325	2871	11.07	31782	0.00	0
	97	326	2871	11.07	31782	0.00	0
	98	327	2871	11.07	31782	0.00	0
	99	328	2871	11.07	31782	0.00	0
	100	329	2096	6.55	13729	0.00	0
	101	330	2096	6.55	13729	0.00	0
	102	331	2614	6.55	17122	0.00	0
	103	332	2870	9.1	26117	0.00	0
	104	333	2352	9.1	21403	0.00	0
	105	334	2352	9.1	21403	0.00	0
	106	335	2352	9.1	21403	0.00	0
	107	336	2352	9.1	21403	0.00	0
	108	337	2352	9.1	21403	0.00	0
	109	338	2352	9.1	21403	0.00	0
	110	339	2352	9.1	21403	0.00	0
	111	340	2352	10.98	25825	0.00	0
	112	341	1791	14.5	25970	0.00	0
	113	342	1472	7.73	11379	0.00	0

Settling velocities for each WASP segment using the centroid method. From/To columns show the connections between water column and surface benthic segments. Settling velocities were calculated based on empirical model peak concentration losses over distance. The centroid method applies the settling velocity of a site to half the distance of the site above and below it.

Centroid Method

River Distance [km]	From	To	Length [m]	Width [m]	Area [m^2]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]
	114	343	1472	7.73	11379	0.00	0
	115	344	922	4.86	4481	0.00	0
	116	345	922	4.86	4481	0.00	0
	117	346	922	4.86	4481	0.00	0
	118	347	1866	10.42	19444	0.00	0
	119	348	1866	10.42	19444	0.00	0
	120	349	1866	10.42	19444	0.00	0
192.3	121	350	2265	22.1	50057	0.08	4005
195.1	122	351	2842	14.44	41038	0.08	3283
198.0	123	352	2842	14.44	41038	0.08	3283
200.8	124	353	2842	14.44	41038	0.08	3283
203.6	125	354	2842	14.44	41038	0.08	3283
206.5	126	355	2842	14.44	41038	0.08	3283
209.3	127	356	2842	14.44	41038	0.08	3283
211.5	128	357	2174	12.95	28153	0.08	2252
214.2	129	358	2717	12.95	35185	0.08	2815
216.9	130	359	2717	12.95	35185	0.08	2815
219.7	131	360	2717	12.95	35185	0.08	2815
222.4	132	361	2717	12.95	35185	0.08	2815
225.1	133	362	2717	12.95	35185	0.08	2815
227.8	134	363	2717	12.95	35185	0.08	2815
230.5	135	364	2717	12.95	35185	0.08	2815
234.0	136	365	3524	12.95	45636	0.08	3651
237.2	137	366	3174	13.33	42309	0.08	3385
240.4	138	367	3174	13.33	42309	0.08	3385
243.0	139	368	2649	13.72	36344	0.08	2908
245.7	140	369	2649	13.72	36344	0.08	2908
248.5	141	370	2826	12.45	35184	0.08	2815
251.3	142	371	2826	12.45	35184	0.08	2815
254.2	143	372	2826	12.45	35184	0.08	2815
257.0	144	373	2826	12.45	35184	0.08	2815
259.8	145	374	2826	12.45	35184	0.08	2815
262.7	146	375	2826	12.45	35184	0.08	2815
265.5	147	376	2826	12.45	35184	0.08	2815
268.3	148	377	2826	12.45	35184	0.08	2815
271.1	149	378	2826	12.45	35184	0.08	2815
274.0	150	379	2826	12.45	35184	0.08	2815
276.8	151	380	2826	12.45	35184	0.08	2815
279.6	152	381	2826	12.45	35184	0.08	2815
282.4	153	382	2826	12.45	35184	0.08	2815

Settling velocities for each WASP segment using the centroid method. From/To columns show the connections between water column and surface benthic segments. Settling velocities were calculated based on empirical model peak concentration losses over distance. The centroid method applies the settling velocity of a site to half the distance of the site above and below it.

Centroid Method							
River Distance [km]	From	To	Length [m]	Width [m]	Area [m^2]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]
285.3	154	383	2826	12.45	35184	0.08	2815
288.1	155	384	2826	12.45	35184	0.08	2815
290.9	156	385	2826	12.45	35184	0.08	2815
292.8	157	386	1844	17.59	32436	0.08	2595
294.6	158	387	1844	17.59	32436	0.08	2595
297.2	159	388	2583	14.31	36963	0.08	2957
299.8	160	389	2583	14.31	36963	0.08	2957
302.3	161	390	2583	14.31	36963	0.08	2957
304.9	162	391	2583	14.31	36963	0.08	2957
307.5	163	392	2583	14.31	36963	0.08	2957
310.1	164	393	2583	14.31	36963	0.08	2957
312.7	165	394	2583	14.31	36963	0.08	2957
315.3	166	395	2583	14.31	36963	0.08	2957
317.8	167	396	2583	14.31	36963	0.08	2957
320.4	168	397	2583	14.31	36963	0.08	2957
323.0	169	398	2583	14.31	36963	0.08	2957
325.6	170	399	2583	14.31	36963	0.08	2957
328.5	171	400	2941	14.85	43674	0.08	3494
331.5	172	401	2941	14.85	43674	0.08	3494
333.8	173	402	2307	14.82	34190	0.08	2735
336.1	174	403	2307	14.82	34190	0.08	2735
338.4	175	404	2307	14.82	34190	0.08	2735
340.7	176	405	2307	14.82	34190	0.08	2735
343.8	177	406	3076	14.82	45586	0.08	3647
346.9	178	407	3076	14.82	45586	0.08	3647
350.4	179	408	3581	13.05	46732	0.08	3739
354.0	180	409	3581	13.05	46732	0.08	3739
357.6	181	410	3581	13.05	46732	0.08	3739
361.2	182	411	3581	13.05	46732	0.08	3739
364.8	183	412	3581	13.05	46732	0.08	3739
368.3	184	413	3581	13.05	46732	0.08	3739
371.9	185	414	3581	13.05	46732	0.08	3739
375.5	186	415	3581	13.05	46732	0.08	3739
379.1	187	416	3581	13.05	46732	0.08	3739
382.7	188	417	3581	13.05	46732	0.08	3739
386.2	189	418	3581	13.05	46732	0.08	3739
389.8	190	419	3581	13.05	46732	0.08	3739
393.5	191	420	3686	14.15	52157	0.08	4173
397.2	192	421	3686	14.15	52157	0.08	4173
400.9	193	422	3686	14.15	52157	0.08	4173

Settling velocities for each WASP segment using the centroid method. From/To columns show the connections between water column and surface benthic segments. Settling velocities were calculated based on empirical model peak concentration losses over distance. The centroid method applies the settling velocity of a site to half the distance of the site above and below it.

Centroid Method							
River Distance [km]	From	To	Length [m]	Width [m]	Area [m^2]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]
404.6	194	423	3686	14.15	52157	0.08	4173
408.3	195	424	3686	14.15	52157	0.08	4173
411.9	196	425	3686	14.15	52157	0.08	4173
415.6	197	426	3686	14.15	52157	0.08	4173
419.3	198	427	3686	14.15	52157	0.08	4173
423.0	199	428	3686	14.15	52157	0.08	4173
426.7	200	429	3686	14.15	52157	0.08	4173
429.9	201	430	3169	15.1	47852	0.08	3828
433.0	202	431	3169	15.1	47852	0.08	3828
436.2	203	432	3169	15.1	47852	0.08	3828
439.4	204	433	3169	15.1	47852	0.08	3828
442.5	205	434	3169	15.1	47852	0.08	3828
445.7	206	435	3169	15.1	47852	0.08	3828
448.9	207	436	3169	15.1	47852	0.08	3828
452.0	208	437	3169	15.1	47852	0.08	3828
455.2	209	438	3169	15.1	47852	0.08	3828
458.4	210	439	3169	15.1	47852	0.08	3828
461.5	211	440	3169	15.1	47852	0.08	3828
464.7	212	441	3169	15.1	47852	0.08	3828
467.9	213	442	3169	15.1	47852	0.08	3828
471.1	214	443	3169	15.1	47852	0.08	3828
474.2	215	444	3169	15.1	47852	0.08	3828
477.4	216	445	3169	15.1	47852	0.08	3828
482.0	217	446	4655	14.1	65636	0.08	5251
485.1	218	447	3020	16.43	49619	0.08	3969
488.1	219	448	3020	16.43	49619	0.08	3969
490.7	220	449	2590	15.37	39808	0.08	3185
493.5	221	450	2858	16.8	48014	0.08	3841
496.3	222	451	2783	20.9	58165	0.08	4653
498.6	223	452	2263	20.83	47138	0.08	3771
500.3	224	453	1693	20.8	35214	0.08	2817
502.0	225	454	1693	20.8	35214	0.08	2817
503.6	226	455	1625	20.8	33800	0.08	2704
505.2	227	456	1625	20.8	33800	0.08	2704
506.8	228	457	1625	20.8	33800	0.08	2704
508.5	229	458	1625	20.8	33800	0.08	2704

Settling Sensitivity

Table R-3b. Settling velocities for each WASP segment using the bottom up and top down methods. Settling velocities were calculated based on empirical model peak concentration losses over distance. The bottom up method applies the settling velocity of a site to the site location and all the segments up to the site above it. The top down method applies the settling velocity of a site to the site location and all the segments down to the site below it.

Settling velocities for each WASP segment using the bottom up and top down methods. Settling velocities were calculated based on empirical model peak concentration losses over distance. The bottom up method applies the settling velocity of a site to the site location and all the segments up to the site above it. The top down method applies the settling velocity of a site to the site location and all the segments down to the site below it.

	Bottom Up Method		Top Down Method	
River Distance [km]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]
	0	0	0	0
12.7	0	0	0	0
14.4	1.85	17841	1.85	17841
16.0	1.85	17841	1.85	17841
17.6	2.97	28634	1.85	17841
19.6	2.97	35758	1.85	22280
21.6	2.97	35758	1.85	22280
23.5	2.97	35758	1.85	22280
25.5	2.97	35758	1.85	22280
27.5	2.97	35758	1.85	22280
29.4	2.97	35758	1.85	22280
31.4	2.97	35758	1.85	22280
33.4	2.97	35758	1.85	22280
35.3	2.97	35758	1.85	22280
37.3	2.97	35758	1.85	22280
39.3	2.97	35758	1.85	22280
41.2	2.97	35758	1.85	22280
43.2	2.97	35758	1.85	22280
45.2	2.97	35758	1.85	22280
47.1	2.97	35758	1.85	22280
49.1	2.97	35758	1.85	22280
51.1	2.97	35758	1.85	22280
53.0	2.97	35758	1.85	22280
55.0	2.97	35758	1.85	22280
57.0	2.97	35758	1.85	22280
58.9	2.97	35758	1.85	22280
60.9	2.97	35758	1.85	22280
62.9	2.97	35758	1.85	22280
64.8	2.97	35758	2.97	35758
66.8	2.12	25507	2.97	35758
68.3	2.12	23465	2.97	32896

Settling velocities for each WASP segment using the bottom up and top down methods. Settling velocities were calculated based on empirical model peak concentration losses over distance. The bottom up method applies the settling velocity of a site to the site location and all the segments up to the site above it. The top down method applies the settling velocity of a site to the site location and all the segments down to the site below it.

	Bottom Up Method		Top Down Method	
River Distance [km]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]
70.1	2.12	47186	2.97	66150
72.0	2.12	47186	2.97	66150
73.8	2.12	47186	2.97	66150
75.6	2.12	47186	2.97	66150
77.5	2.12	47186	2.97	66150
79.3	2.12	47186	2.97	66150
81.2	2.12	47186	2.97	66150
83.0	2.12	47186	2.97	66150
84.8	2.12	47186	2.97	66150
86.7	2.12	47186	2.97	66150
88.5	2.12	47186	2.97	66150
90.3	2.12	47186	2.97	66150
92.2	2.12	47186	2.97	66150
94.0	2.12	47186	2.12	47186
95.9	0.38	8427	2.12	47186
97.7	0.38	8427	2.12	47186
99.5	0.38	8427	2.12	47186
101.4	0.38	8427	2.12	47186
103.2	0.38	8427	2.12	47186
105.1	0.38	8427	2.12	47186
106.9	0.38	8427	2.12	47186
108.7	0.38	8427	2.12	47186
111.4	0.38	10928	2.12	61188
114.1	0.38	10928	2.12	61188
116.6	0.38	10777	2.12	60342
119.2	0.38	10777	2.12	60342
120.7	0.38	6380	2.12	35720
123.4	0.38	10985	2.12	61505
126.1	0.38	10985	2.12	61505
128.3	0.38	10333	2.12	57858
130.5	0.38	10333	2.12	57858
132.7	0.38	10333	0.38	10333
134.6	1.40	32488	0.38	8806
136.5	1.40	32488	0.38	8806
138.4	1.40	32488	0.38	8806
140.5	1.40	37797	0.38	10245
142.5	1.40	37797	0.38	10245
144.6	1.40	37797	0.38	10245
147.2	1.40	42467	0.38	11511
149.8	1.40	42467	0.38	11511

Settling velocities for each WASP segment using the bottom up and top down methods. Settling velocities were calculated based on empirical model peak concentration losses over distance. The bottom up method applies the settling velocity of a site to the site location and all the segments up to the site above it. The top down method applies the settling velocity of a site to the site location and all the segments down to the site below it.

	Bottom Up Method		Top Down Method	
River Distance [km]	Settling Velocity [m/d]	Settling Rate of Segment [m³/d]	Settling Velocity [m/d]	Settling Rate of Segment [m³/d]
151.5	1.40	28726	0.38	7786
153.4	1.40	31186	0.38	8453
155.3	1.40	31186	0.38	8453
157.2	1.40	31186	0.38	8453
159.0	1.40	31186	0.38	8453
160.9	1.40	31186	0.38	8453
162.8	1.40	31186	0.38	8453
164.7	1.40	31186	1.40	31186
166.6	1.26	25753	1.40	28557
168.4	1.26	25753	1.40	28557
170.3	1.26	25753	1.40	28557
172.2	1.26	25753	1.40	28557
174.1	1.26	25753	1.40	28557
175.9	1.26	25753	1.40	28557
177.8	1.26	25753	1.40	28557
179.7	1.26	25753	1.40	28557
181.7	1.26	27507	1.40	30502
183.8	1.26	27507	1.40	30502
185.9	1.26	27507	1.40	30502
187.9	1.26	27507	1.40	30502
190.0	1.26	27507	1.26	27507
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0

Settling velocities for each WASP segment using the bottom up and top down methods. Settling velocities were calculated based on empirical model peak concentration losses over distance. The bottom up method applies the settling velocity of a site to the site location and all the segments up to the site above it. The top down method applies the settling velocity of a site to the site location and all the segments down to the site below it.

	Bottom Up Method		Top Down Method	
River Distance [km]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.00	0	0.00	0
	0.08	4005	0.08	4005
	0.08	3283	0.08	3283
	0.08	3283	0.08	3283
	0.08	3283	0.08	3283
	0.08	3283	0.08	3283
	0.08	3283	0.08	3283
	0.08	3283	0.08	3283
	0.08	2252	0.08	2252
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	3651	0.08	3651
	0.08	3385	0.08	3385
	0.08	3385	0.08	3385
	0.08	2908	0.08	2908
	0.08	2908	0.08	2908
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815

Settling velocities for each WASP segment using the bottom up and top down methods. Settling velocities were calculated based on empirical model peak concentration losses over distance. The bottom up method applies the settling velocity of a site to the site location and all the segments up to the site above it. The top down method applies the settling velocity of a site to the site location and all the segments down to the site below it.

	Bottom Up Method		Top Down Method	
River Distance [km]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2815	0.08	2815
	0.08	2595	0.08	2595
	0.08	2595	0.08	2595
	0.08	2957	0.08	2957
	0.08	2957	0.08	2957
	0.08	2957	0.08	2957
	0.08	2957	0.08	2957
	0.08	2957	0.08	2957
	0.08	2957	0.08	2957
	0.08	2957	0.08	2957
	0.08	2957	0.08	2957
	0.08	2957	0.08	2957
	0.08	2957	0.08	2957
	0.08	2957	0.08	2957
	0.08	2957	0.08	2957
	0.08	2957	0.08	2957
	0.08	3494	0.08	3494
	0.08	3494	0.08	3494
	0.08	2735	0.08	2735
	0.08	2735	0.08	2735
	0.08	2735	0.08	2735
	0.08	2735	0.08	2735
	0.08	3647	0.08	3647
	0.08	3647	0.08	3647
	0.08	3739	0.08	3739
	0.08	3739	0.08	3739
	0.08	3739	0.08	3739
	0.08	3739	0.08	3739
	0.08	3739	0.08	3739
	0.08	3739	0.08	3739
	0.08	3739	0.08	3739
	0.08	3739	0.08	3739
	0.08	3739	0.08	3739
	0.08	3739	0.08	3739
	0.08	3739	0.08	3739
	0.08	3739	0.08	3739
	0.08	4173	0.08	4173

Settling velocities for each WASP segment using the bottom up and top down methods. Settling velocities were calculated based on empirical model peak concentration losses over distance. The bottom up method applies the settling velocity of a site to the site location and all the segments up to the site above it. The top down method applies the settling velocity of a site to the site location and all the segments down to the site below it.

	Bottom Up Method		Top Down Method	
River Distance [km]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]	Settling Velocity [m/d]	Settling Rate of Segment [m^3/d]
	0.08	4173	0.08	4173
	0.08	4173	0.08	4173
	0.08	4173	0.08	4173
	0.08	4173	0.08	4173
	0.08	4173	0.08	4173
	0.08	4173	0.08	4173
	0.08	4173	0.08	4173
	0.08	4173	0.08	4173
	0.08	4173	0.08	4173
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	3828	0.08	3828
	0.08	5251	0.08	5251
	0.08	3969	0.08	3969
	0.08	3969	0.08	3969
	0.08	3185	0.08	3185
	0.08	3841	0.08	3841
	0.08	4653	0.08	4653
	0.08	3771	0.08	3771
	0.08	2817	0.08	2817
	0.08	2817	0.08	2817
	0.08	2704	0.08	2704
	0.08	2704	0.08	2704
	0.08	2704	0.08	2704
	0.08	2704	0.08	2704

Dispersion

Table R-4. Dispersion parameters for the GKM model. Area is the width and length of the segment. Distance is half of the distance between the midpoints of the water column and surface benthic segments. The dispersion coefficient is constant for all segment pairs.

Dispersion parameters for the GKM model. Area is the width and length of the segment. Distance is half of the distance between the midpoints of the water column and surface benthic segments. The dispersion coefficient is constant for all segment pairs.			
Segment	Area [m^2]	Distance [m]	Dispersion [m^2/s]
1	9639.60	1.448	0.0001
2	1780.83	0.730	0.0001
3	9639.60	1.448	0.0001
4	9639.60	1.448	0.0001
5	9639.60	1.448	0.0001
6	12027.99	1.481	0.0001
7	12027.99	1.481	0.0001
8	12027.99	1.481	0.0001
9	12027.99	1.481	0.0001
10	12027.99	1.481	0.0001
11	12027.99	1.481	0.0001
12	12027.99	1.481	0.0001
13	12027.99	1.481	0.0001
14	12027.99	1.481	0.0001
15	12027.99	1.481	0.0001
16	12027.99	1.481	0.0001
17	12027.99	1.481	0.0001
18	12027.99	1.481	0.0001
19	12027.99	1.481	0.0001
20	12027.99	1.481	0.0001
21	12027.99	1.481	0.0001
22	12027.99	1.481	0.0001
23	12027.99	1.481	0.0001
24	12027.99	1.481	0.0001
25	12027.99	1.481	0.0001
26	12027.99	1.481	0.0001
27	12027.99	1.481	0.0001
28	12027.99	1.481	0.0001
29	12027.99	1.481	0.0001
30	12027.99	1.481	0.0001
31	11064.20	1.507	0.0001
32	22261.86	1.925	0.0001
33	22261.86	1.925	0.0001
34	22261.86	1.925	0.0001
35	22261.86	1.925	0.0001

Dispersion parameters for the GKM model. Area is the width and length of the segment. Distance is half of the distance between the midpoints of the water column and surface benthic segments. The dispersion coefficient is constant for all segment pairs.

Segment	Area [m^2]	Distance [m]	Dispersion [m^2/s]
36	22261.86	1.925	0.0001
37	22261.86	1.925	0.0001
38	22261.86	1.925	0.0001
39	22261.86	1.925	0.0001
40	22261.86	1.925	0.0001
41	22261.86	1.925	0.0001
42	22261.86	1.925	0.0001
43	22261.86	1.925	0.0001
44	22261.86	1.925	0.0001
45	22261.86	1.925	0.0001
46	22261.86	1.925	0.0001
47	22261.86	1.925	0.0001
48	22261.86	1.925	0.0001
49	22261.86	1.925	0.0001
50	22261.86	1.925	0.0001
51	22261.86	1.925	0.0001
52	22261.86	1.925	0.0001
53	22261.86	1.925	0.0001
54	28863.25	2.042	0.0001
55	28863.25	2.042	0.0001
56	28466.83	2.055	0.0001
57	28466.83	2.055	0.0001
58	16857.39	2.068	0.0001
59	29023.52	2.075	0.0001
60	29023.52	2.075	0.0001
61	27299.00	2.219	0.0001
62	27299.00	2.219	0.0001
63	27299.00	2.219	0.0001
64	23253.63	2.232	0.0001
65	23253.63	2.232	0.0001
66	23253.63	2.232	0.0001
67	27064.46	2.236	0.0001
68	27064.46	2.236	0.0001
69	27064.46	2.236	0.0001
70	30417.12	2.268	0.0001
71	30417.12	2.268	0.0001
72	20565.95	2.280	0.0001
73	22327.47	2.256	0.0001
74	22327.47	2.256	0.0001
75	22327.47	2.256	0.0001
76	22327.47	2.256	0.0001

Dispersion parameters for the GKM model. Area is the width and length of the segment. Distance is half of the distance between the midpoints of the water column and surface benthic segments. The dispersion coefficient is constant for all segment pairs.

Segment	Area [m^2]	Distance [m]	Dispersion [m^2/s]
77	22327.47	2.256	0.0001
78	22327.47	2.256	0.0001
79	22327.47	2.256	0.0001
80	20452.84	2.017	0.0001
81	20452.84	2.017	0.0001
82	20452.84	2.017	0.0001
83	20452.84	2.017	0.0001
84	20452.84	2.017	0.0001
85	20452.84	2.017	0.0001
86	20452.84	2.017	0.0001
87	20452.84	2.017	0.0001
88	21842.22	2.035	0.0001
89	21842.22	2.035	0.0001
90	21842.22	2.035	0.0001
91	21842.22	2.035	0.0001
92	21842.22	2.035	0.0001
93	31773.36	3.062	0.0001
94	31773.36	3.062	0.0001
95	31773.36	3.062	0.0001
96	31773.36	3.062	0.0001
97	31773.36	3.062	0.0001
98	31773.36	3.062	0.0001
99	31773.36	3.062	0.0001
100	13724.61	2.374	0.0001
101	13724.61	2.374	0.0001
102	17116.47	2.374	0.0001
103	26117.00	2.989	0.0001
104	21403.20	2.989	0.0001
105	21403.20	2.989	0.0001
106	21403.20	2.989	0.0001
107	21403.20	2.989	0.0001
108	21403.20	2.989	0.0001
109	21403.20	2.989	0.0001
110	21403.20	2.989	0.0001
111	25832.02	3.475	0.0001
112	25976.66	3.475	0.0001
113	11384.45	2.120	0.0001
114	11384.45	2.120	0.0001
115	4476.31	1.345	0.0001
116	4476.31	1.345	0.0001
117	4476.31	1.345	0.0001

Dispersion parameters for the GKM model. Area is the width and length of the segment. Distance is half of the distance between the midpoints of the water column and surface benthic segments. The dispersion coefficient is constant for all segment pairs.

Segment	Area [m^2]	Distance [m]	Dispersion [m^2/s]
118	19438.12	3.161	0.0001
119	19438.12	3.161	0.0001
120	19438.12	3.161	0.0001
121	50056.50	3.756	0.0001
122	41027.11	3.489	0.0001
123	41027.11	3.489	0.0001
124	41027.11	3.489	0.0001
125	41027.11	3.489	0.0001
126	41027.11	3.489	0.0001
127	41027.11	3.489	0.0001
128	28159.82	3.135	0.0001
129	35193.30	3.135	0.0001
130	35193.30	3.135	0.0001
131	35193.30	3.135	0.0001
132	35193.30	3.135	0.0001
133	35193.30	3.135	0.0001
134	35193.30	3.135	0.0001
135	35193.30	3.135	0.0001
136	45646.37	3.135	0.0001
137	42296.72	3.537	0.0001
138	42296.72	3.537	0.0001
139	36333.68	3.500	0.0001
140	36333.68	3.500	0.0001
141	35183.70	3.852	0.0001
142	35183.70	3.852	0.0001
143	35183.70	3.852	0.0001
144	35183.70	3.852	0.0001
145	35183.70	3.852	0.0001
146	35183.70	3.852	0.0001
147	35183.70	3.852	0.0001
148	35183.70	3.852	0.0001
149	35183.70	3.852	0.0001
150	35183.70	3.852	0.0001
151	35183.70	3.852	0.0001
152	35183.70	3.852	0.0001
153	35183.70	3.852	0.0001
154	35183.70	3.852	0.0001
155	35183.70	3.852	0.0001
156	35183.70	3.852	0.0001
157	32437.80	3.904	0.0001
158	32437.80	3.904	0.0001

Dispersion parameters for the GKM model. Area is the width and length of the segment. Distance is half of the distance between the midpoints of the water column and surface benthic segments. The dispersion coefficient is constant for all segment pairs.

Segment	Area [m^2]	Distance [m]	Dispersion [m^2/s]
159	36957.56	4.582	0.0001
160	36957.56	4.582	0.0001
161	36957.56	4.582	0.0001
162	36957.56	4.582	0.0001
163	36957.56	4.582	0.0001
164	36957.56	4.582	0.0001
165	36957.56	4.582	0.0001
166	36957.56	4.582	0.0001
167	36957.56	4.582	0.0001
168	36957.56	4.582	0.0001
169	36957.56	4.582	0.0001
170	36957.56	4.582	0.0001
171	43665.03	4.610	0.0001
172	43665.03	4.610	0.0001
173	34185.13	4.683	0.0001
174	34185.13	4.683	0.0001
175	34185.13	4.683	0.0001
176	34185.13	4.683	0.0001
177	45580.17	4.683	0.0001
178	45580.17	4.683	0.0001
179	46732.05	4.461	0.0001
180	46732.05	4.461	0.0001
181	46732.05	4.461	0.0001
182	46732.05	4.461	0.0001
183	46732.05	4.461	0.0001
184	46732.05	4.461	0.0001
185	46732.05	4.461	0.0001
186	46732.05	4.461	0.0001
187	46732.05	4.461	0.0001
188	46732.05	4.461	0.0001
189	46732.05	4.461	0.0001
190	46732.05	4.461	0.0001
191	52149.53	5.166	0.0001
192	52149.53	5.166	0.0001
193	52149.53	5.166	0.0001
194	52149.53	5.166	0.0001
195	52149.53	5.166	0.0001
196	52149.53	5.166	0.0001
197	52149.53	5.166	0.0001
198	52149.53	5.166	0.0001
199	52149.53	5.166	0.0001

Dispersion parameters for the GKM model. Area is the width and length of the segment. Distance is half of the distance between the midpoints of the water column and surface benthic segments. The dispersion coefficient is constant for all segment pairs.

Segment	Area [m^2]	Distance [m]	Dispersion [m^2/s]
200	52149.53	5.166	0.0001
201	47845.56	5.175	0.0001
202	47845.56	5.175	0.0001
203	47845.56	5.175	0.0001
204	47845.56	5.175	0.0001
205	47845.56	5.175	0.0001
206	47845.56	5.175	0.0001
207	47845.56	5.175	0.0001
208	47845.56	5.175	0.0001
209	47845.56	5.175	0.0001
210	47845.56	5.175	0.0001
211	47845.56	5.175	0.0001
212	47845.56	5.175	0.0001
213	47845.56	5.175	0.0001
214	47845.56	5.175	0.0001
215	47845.56	5.175	0.0001
216	47845.56	5.175	0.0001
217	65621.54	5.175	0.0001
218	49606.52	5.175	0.0001
219	49606.52	5.175	0.0001
220	39810.89	5.225	0.0001
221	48025.83	5.225	0.0001
222	58164.70	5.225	0.0001
223	47140.55	5.225	0.0001
224	35214.40	5.225	0.0001
225	35214.40	5.225	0.0001
226	33800.00	5.225	0.0001
227	33800.00	5.225	0.0001
228	33800.00	5.225	0.0001
229	33800.00	5.225	0.0001

Inflows

Velocity Calibration

The following tables are inputs to the WASP model simulated from 1/1/2011 – 12/31/2011 at USGS gage stations along system. Inputs are based on observed daily data from each gage in cubic meters per second.

Table R-5. Flow inputs for the velocity calibration model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages.

Flow inputs for the velocity calibration model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on daily data. Units are cms.

Date	Animas River	Cement Creek	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
1/1/2011	0.71	0.34	0.85	2.01	2.94	-1.22	0.37	1.44	1.44	-1.47	13.96
1/2/2011	0.74	0.34	0.82	0.93	3.40	-2.44	0.34	1.64	2.01	-0.28	13.90
1/3/2011	0.74	0.34	0.82	1.39	0.93	1.08	0.37	2.94	0.08	-2.46	13.88
1/4/2011	0.74	0.34	0.82	1.36	1.98	0.40	0.59	1.42	1.36	-3.11	13.96
1/5/2011	0.74	0.34	0.82	1.05	2.27	1.81	0.91	0.62	2.01	-2.12	13.99
1/6/2011	0.74	0.34	0.79	1.19	1.61	1.64	0.74	0.51	4.28	-3.14	13.99
1/7/2011	0.76	0.34	0.79	1.22	1.64	1.13	0.59	-0.06	4.28	-1.64	13.99
1/8/2011	0.76	0.34	0.79	1.42	1.61	1.42	0.51	0.68	3.26	-0.96	13.99
1/9/2011	0.76	0.34	0.79	1.53	1.70	1.84	0.99	1.67	2.24	-0.31	13.96
1/10/2011	0.76	0.34	0.79	0.96	2.49	1.33	1.08	2.04	1.02	1.59	14.05
1/11/2011	0.76	0.34	0.79	0.65	1.84	1.08	0.31	0.65	4.05	0.62	14.13
1/12/2011	0.74	0.34	0.76	1.42	0.71	1.50	0.34	1.13	1.78	0.31	14.13
1/13/2011	0.76	0.34	0.76	1.42	1.73	1.44	0.28	1.33	1.67	2.04	14.13
1/14/2011	0.76	0.34	0.79	1.36	1.78	1.70	1.05	1.64	-0.54	1.47	14.13
1/15/2011	0.74	0.34	0.79	1.39	1.81	1.76	0.76	2.18	-1.27	0.99	14.13
1/16/2011	0.74	0.34	0.76	1.47	1.67	1.93	0.76	1.98	-1.39	-0.08	14.16
1/17/2011	0.74	0.34	0.74	1.61	1.67	1.93	0.79	2.41	-1.93	-0.08	14.30
1/18/2011	0.74	0.34	0.79	1.56	1.90	2.01	0.76	2.58	-2.04	-0.31	14.27
1/19/2011	0.74	0.37	0.74	1.53	1.90	2.21	1.10	3.00	-1.93	-0.51	14.27
1/20/2011	0.74	0.37	0.71	1.22	2.15	2.07	0.79	2.27	-1.27	0.08	14.22
1/21/2011	0.74	0.37	0.59	1.53	1.61	2.15	0.48	2.29	-1.39	-0.03	14.19
1/22/2011	0.68	0.37	0.74	1.44	1.76	1.93	0.54	2.66	-1.98	-0.06	14.19
1/23/2011	0.71	0.37	0.71	1.25	1.93	2.01	0.48	2.63	-2.21	-0.25	14.33
1/24/2011	0.71	0.37	0.71	1.08	1.78	2.24	0.25	2.86	-2.04	-0.45	14.30
1/25/2011	0.71	0.37	0.71	1.22	1.44	1.90	0.40	2.38	-1.73	0.17	14.30
1/26/2011	0.71	0.37	0.68	1.39	1.44	1.61	0.34	1.56	-0.82	0.03	14.27
1/27/2011	0.71	0.37	0.68	1.42	1.59	1.61	0.14	2.83	-1.73	-0.65	14.30
1/28/2011	0.71	0.37	0.68	1.53	1.47	1.90	0.25	0.96	-0.76	0.71	14.33
1/29/2011	0.68	0.37	0.71	1.53	1.59	1.87	0.20	1.73	-1.39	-0.59	14.30
1/30/2011	0.68	0.37	0.71	1.61	1.53	1.87	0.25	1.64	-0.59	0.20	14.30

Flow inputs for the velocity calibration model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on daily data. Units are cms.

Date	Animas River	Cement Creek	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
1/31/2011	0.74	0.37	0.71	1.56	1.61	1.84	0.31	1.93	-0.20	-0.25	14.30
2/1/2011	0.71	0.37	0.74	1.47	1.59	1.90	0.25	1.76	0.54	0.37	14.30
2/2/2011	0.71	0.37	0.71	1.30	1.70	0.48	0.57	0.85	2.07	-0.42	14.30
2/3/2011	0.71	0.37	0.71	1.42	1.42	-0.79	0.54	0.03	2.49	-0.93	14.30
2/4/2011	0.71	0.37	0.68	1.53	1.39	-1.05	0.25	2.07	0.79	-1.02	14.36
2/5/2011	0.68	0.37	0.68	1.30	1.87	0.99	0.54	1.13	1.64	-2.21	14.33
2/6/2011	0.62	0.37	0.62	1.50	1.36	3.48	0.08	1.39	0.08	-0.85	14.27
2/7/2011	0.62	0.37	0.62	1.47	1.53	1.84	1.56	1.47	0.08	0.03	14.27
2/8/2011	0.62	0.37	0.62	1.44	1.78	1.93	1.19	1.47	-1.59	0.34	14.30
2/9/2011	0.62	0.37	0.65	1.25	1.76	1.13	0.40	1.05	-1.05	0.59	14.27
2/10/2011	0.62	0.37	0.65	1.19	1.67	0.57	0.88	0.08	-0.54	0.62	14.24
2/11/2011	0.62	0.34	0.65	1.27	1.50	0.51	0.91	0.62	-1.05	0.65	14.30
2/12/2011	0.62	0.34	0.65	1.36	1.56	0.93	0.59	0.59	-1.39	0.20	14.44
2/13/2011	0.65	0.34	0.62	1.44	1.61	1.10	0.45	1.13	-1.81	-0.28	14.44
2/14/2011	0.65	0.34	0.62	1.42	1.93	1.13	0.25	1.53	-1.87	-0.08	14.38
2/15/2011	0.62	0.34	0.65	1.50	1.95	0.93	0.28	1.93	-1.67	-0.06	14.27
2/16/2011	0.59	0.34	0.62	1.59	2.04	1.16	-0.08	1.84	-1.16	0.03	14.22
2/17/2011	0.57	0.34	0.59	1.44	2.29	1.22	-0.08	1.87	-0.96	0.37	14.07
2/18/2011	0.54	0.34	0.57	1.50	2.21	1.25	-0.06	1.76	-0.42	-0.20	13.99
2/19/2011	0.54	0.34	0.62	1.30	2.38	1.19	-0.06	2.29	-0.17	0.40	14.07
2/20/2011	0.57	0.34	0.59	1.22	2.27	1.81	-0.31	3.62	-1.08	-0.37	13.85
2/21/2011	0.57	0.34	0.59	1.25	2.15	1.05	0.25	1.78	3.03	0.93	13.34
2/22/2011	0.57	0.34	0.59	1.22	2.27	1.05	0.06	0.82	0.76	0.79	14.10
2/23/2011	0.57	0.34	0.59	1.25	2.21	1.05	0.11	1.08	0.54	0.54	13.99
2/24/2011	0.57	0.34	0.57	1.30	2.75	0.68	-0.11	1.13	-0.20	0.54	13.99
2/25/2011	0.59	0.34	0.57	1.30	3.06	1.30	-0.76	1.27	-0.85	0.31	13.99
2/26/2011	0.59	0.34	0.54	1.25	3.14	1.25	-0.68	1.30	-0.23	0.03	14.02
2/27/2011	0.54	0.34	0.59	1.22	3.06	1.27	-0.62	1.19	0.20	0.31	14.05
2/28/2011	0.54	0.34	0.51	1.33	2.83	1.33	-0.57	0.88	0.17	0.42	14.13
3/1/2011	0.48	0.34	0.51	1.36	2.78	0.79	-0.03	1.67	0.06	-0.31	14.10
3/2/2011	0.51	0.34	0.51	1.61	2.83	1.08	-0.59	1.16	0.08	0.25	14.13
3/3/2011	0.54	0.34	0.51	1.56	3.06	1.42	-0.93	1.42	-0.48	-0.14	14.10
3/4/2011	0.54	0.34	0.51	1.59	3.03	1.42	-0.88	1.36	0.17	-0.45	14.13
3/5/2011	0.51	0.34	0.51	1.39	3.31	1.42	-0.93	0.28	0.23	0.76	14.10
3/6/2011	0.51	0.34	0.51	1.61	2.97	1.19	-0.65	0.68	0.37	-0.54	14.10
3/7/2011	0.54	0.34	0.51	1.56	3.37	1.73	-1.16	1.08	-0.68	0.03	14.38
3/8/2011	0.51	0.34	0.54	1.53	3.43	2.32	-1.19	2.18	1.13	-1.10	14.27
3/9/2011	0.51	0.34	0.51	1.44	3.28	1.93	-0.93	0.62	1.02	0.91	14.24
3/10/2011	0.51	0.34	0.57	1.50	3.09	1.47	-0.79	0.79	0.82	-0.23	14.22
3/11/2011	0.57	0.34	0.57	1.76	2.97	1.44	-1.02	0.79	1.67	0.00	14.16
3/12/2011	0.59	0.34	0.59	2.01	3.06	1.64	-1.33	0.91	1.47	0.03	14.13

Flow inputs for the velocity calibration model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on daily data. Units are cms.

Date	Animas River	Cement Creek	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
3/13/2011	0.62	0.34	0.62	2.21	3.11	2.01	-1.36	0.76	1.56	0.11	14.10
3/14/2011	0.65	0.34	0.62	2.29	3.37	2.27	-1.59	0.68	1.42	0.40	13.99
3/15/2011	0.65	0.34	0.62	2.46	3.51	2.55	-1.59	0.79	0.08	0.59	14.02
3/16/2011	0.68	0.34	0.65	2.58	3.54	2.94	-1.50	-0.37	1.19	0.25	14.02
3/17/2011	0.74	0.34	0.65	3.31	3.40	2.18	-1.22	-1.87	3.09	0.11	14.07
3/18/2011	0.68	0.34	0.71	3.09	4.33	-1.25	-0.37	-2.04	3.96	0.82	14.10
3/19/2011	0.68	0.34	0.68	3.03	4.45	-3.00	0.00	-1.70	3.65	1.42	14.02
3/20/2011	0.65	0.34	0.68	2.86	4.67	-3.26	0.11	-1.61	2.75	1.08	13.96
3/21/2011	0.65	0.34	0.68	2.66	4.59	-4.05	0.91	-2.21	3.20	0.68	13.96
3/22/2011	0.65	0.34	0.65	2.52	4.50	-3.43	0.45	-1.33	3.31	-0.23	14.05
3/23/2011	0.62	0.34	0.76	2.15	4.25	-2.66	0.31	-1.10	2.58	0.54	13.99
3/24/2011	0.62	0.34	0.68	2.41	3.77	-2.92	0.85	0.23	0.20	0.37	13.99
3/25/2011	0.59	0.34	0.71	2.29	3.88	-1.93	0.14	0.08	-0.06	0.08	13.99
3/26/2011	0.59	0.34	0.68	2.18	3.94	-2.07	0.37	0.00	0.45	-0.40	14.05
3/27/2011	0.59	0.34	0.85	2.12	3.82	-1.90	0.25	-0.31	0.11	0.25	14.10
3/28/2011	0.59	0.34	0.79	2.10	3.79	-1.98	0.31	-0.20	-0.11	0.25	14.10
3/29/2011	0.62	0.34	0.79	2.12	3.71	-2.29	0.08	-0.25	0.85	-0.82	14.07
3/30/2011	0.68	0.37	0.79	2.29	3.60	-2.38	-0.17	-0.14	-0.96	0.99	14.02
3/31/2011	0.85	0.48	0.96	2.86	3.17	-2.49	-0.54	-0.28	-0.42	-0.82	14.10
4/1/2011	1.10	0.71	1.30	4.53	3.48	-2.18	-2.94	-1.19	-1.53	0.88	14.07
4/2/2011	1.33	0.93	1.70	5.89	5.13	-3.26	-4.73	-1.33	-1.90	-0.42	14.05
4/3/2011	1.39	0.91	1.81	7.59	7.82	-1.10	-7.16	-2.07	-2.52	-0.17	14.07
4/4/2011	1.16	0.62	1.53	5.18	10.02	-1.98	-2.55	-3.62	0.11	-1.22	14.02
4/5/2011	1.22	0.62	1.53	4.81	8.44	-0.08	-3.34	-3.74	1.16	4.79	14.02
4/6/2011	1.30	0.76	1.87	6.71	7.96	0.79	-3.03	-4.11	-2.38	0.28	14.13
4/7/2011	1.22	0.62	1.70	5.83	9.12	2.80	-1.87	-3.57	-2.58	0.59	14.27
4/8/2011	1.10	0.54	1.56	4.98	8.72	-0.54	-0.51	-3.57	0.28	4.25	14.16
4/9/2011	1.05	0.48	1.39	4.36	8.21	-7.45	-1.02	-2.72	2.38	4.62	14.10
4/10/2011	1.02	0.45	1.30	3.71	8.07	-7.67	-1.36	-2.66	1.50	2.01	14.13
4/11/2011	0.99	0.45	1.22	3.40	7.82	-7.79	-1.70	-3.99	2.12	1.98	14.13
4/12/2011	1.08	0.48	1.33	3.57	7.25	-7.53	-2.04	-3.40	-0.54	3.37	14.13
4/13/2011	1.16	0.54	1.47	3.54	6.97	-7.14	-1.61	-4.02	-1.33	2.80	14.10
4/14/2011	1.25	0.59	1.59	4.16	6.99	-8.38	-0.68	-4.33	-0.82	1.78	14.07
4/15/2011	1.16	0.51	1.47	4.02	7.79	-8.04	-1.27	-6.63	-1.36	1.90	16.57
4/16/2011	1.22	0.54	1.53	4.53	7.05	-8.78	-0.82	-3.14	-4.93	1.56	17.90
4/17/2011	1.53	0.71	1.98	6.48	6.68	-10.08	-2.27	-3.06	-4.19	3.40	17.90
4/18/2011	1.98	1.05	2.46	9.06	8.55	-9.03	-6.68	-3.68	-5.10	3.40	17.84
4/19/2011	2.29	1.10	2.69	11.04	11.47	-6.29	-7.90	-5.10	-7.93	1.30	17.92
4/20/2011	2.12	0.82	2.52	8.86	12.74	-3.91	-7.31	-3.79	-4.42	1.67	15.18
4/21/2011	2.18	0.82	2.52	8.83	11.10	-6.57	-6.03	-4.90	-0.96	6.06	13.88
4/22/2011	2.15	0.85	2.46	8.52	11.84	-6.26	-6.97	-4.93	-3.17	4.05	13.82

Flow inputs for the velocity calibration model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on daily data. Units are cms.

Date	Animas River	Cement Creek	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
4/23/2011	2.01	0.88	2.44	7.93	12.03	-6.63	-6.23	-4.90	-2.86	3.85	13.88
4/24/2011	1.95	0.74	2.27	7.65	12.23	-5.38	-6.00	-3.77	-5.13	3.48	14.22
4/25/2011	1.84	0.65	2.10	7.11	12.52	-5.49	-4.79	-1.73	-2.61	1.81	14.22
4/26/2011	1.81	0.59	2.04	7.59	11.81	-6.74	-5.61	-1.30	0.62	6.37	14.02
4/27/2011	1.64	0.54	1.87	6.29	11.07	-5.89	-4.16	-4.76	2.66	4.93	13.96
4/28/2011	1.56	0.54	1.87	5.97	10.73	-7.42	-4.96	-6.65	4.22	6.29	13.93
4/29/2011	1.64	0.57	2.01	6.40	10.73	-8.47	-5.72	-7.25	3.17	5.01	13.90
4/30/2011	1.53	0.54	1.90	5.92	11.47	-7.53	-6.12	-7.56	2.10	3.77	13.88
5/1/2011	1.44	0.51	1.70	5.24	11.30	-7.36	-5.97	-7.70	2.27	3.43	13.88
5/2/2011	1.36	0.48	1.61	4.64	10.73	-7.65	-4.96	-7.99	1.67	4.05	13.93
5/3/2011	1.30	0.48	1.53	4.28	10.22	-8.18	-4.22	-8.30	1.64	4.39	13.90
5/4/2011	1.36	0.54	1.64	4.22	9.06	-8.75	-3.65	-8.86	1.70	4.11	13.88
5/5/2011	1.53	0.71	1.95	5.07	8.10	-8.72	-4.59	-11.38	1.39	3.34	16.03
5/6/2011	1.93	1.10	2.41	6.99	8.13	-8.58	-6.65	-12.40	0.00	2.04	18.46
5/7/2011	2.72	1.50	3.54	10.34	8.10	-7.84	-10.68	-8.95	-2.27	1.39	18.49
5/8/2011	4.08	2.10	5.07	14.13	12.29	-7.65	-14.24	-6.43	-7.93	-0.54	18.49
5/9/2011	4.70	2.21	5.10	15.91	19.94	-8.21	-13.59	0.93	-12.74	-2.55	15.49
5/10/2011	3.65	1.42	3.34	11.95	20.70	-3.96	-11.13	-4.50	-3.96	2.83	14.13
5/11/2011	3.23	1.10	3.00	10.62	16.31	-4.25	-11.13	-5.07	-3.43	8.24	14.30
5/12/2011	2.83	0.93	2.89	8.98	14.10	-3.71	-9.91	-6.71	-2.07	5.21	14.27
5/13/2011	2.72	0.96	2.83	8.86	12.09	-4.79	-9.85	-9.12	1.64	4.05	14.27
5/14/2011	3.20	1.25	3.20	11.38	11.84	-6.94	-11.67	-9.49	1.56	3.74	14.27
5/15/2011	3.91	1.90	3.88	13.93	14.05	-6.23	-14.38	-7.79	-3.48	0.62	14.27
5/16/2011	5.35	2.61	6.43	18.18	18.97	-7.93	-17.50	-4.11	-10.99	-0.08	14.27
5/17/2011	5.78	2.32	6.85	18.46	25.77	-4.81	-12.18	-2.10	-13.88	-2.55	14.27
5/18/2011	4.90	1.53	4.90	13.79	25.85	-4.25	-9.06	-8.72	3.68	-0.28	14.38
5/19/2011	4.13	1.22	3.79	11.86	22.88	-1.70	-10.19	-5.95	-2.27	3.40	14.44
5/20/2011	3.54	0.99	3.34	10.48	19.03	1.13	-10.87	-3.43	-1.13	4.25	14.47
5/21/2011	3.20	0.88	3.26	9.85	16.23	1.42	-10.82	-3.40	-2.55	6.51	14.44
5/22/2011	3.11	0.88	3.31	10.53	15.86	-2.27	-10.05	-5.13	-1.42	6.80	14.44
5/23/2011	3.51	1.19	3.45	12.52	18.12	-5.66	-12.29	-6.97	-1.98	6.51	14.41
5/24/2011	3.62	1.22	3.45	12.63	21.83	-5.38	-12.86	-6.71	-7.36	3.96	14.36
5/25/2011	3.40	1.22	2.27	12.29	21.61	-4.25	-11.16	-5.64	-5.66	3.11	14.41
5/26/2011	3.94	1.70	1.42	14.78	19.79	-5.38	-12.88	-6.26	-2.27	7.36	14.33
5/27/2011	5.69	2.80	2.27	18.41	20.67	-7.93	-14.41	-6.94	-7.08	5.10	14.30
5/28/2011	9.37	4.79	7.05	24.38	20.39	-9.34	-13.31	-4.98	-16.14	1.70	14.33
5/29/2011	13.73	6.82	13.71	30.58	28.88	-12.46	-7.36	-4.13	-9.34	-7.65	14.33
5/30/2011	13.31	5.61	16.20	26.62	43.89	-13.88	4.53	-6.14	6.80	-13.88	14.36
5/31/2011	9.94	4.11	11.75	19.79	34.55	-8.50	5.66	-9.77	18.41	1.13	14.30
6/1/2011	12.69	5.52	14.07	23.22	26.05	-11.33	-2.55	-7.79	5.10	3.96	14.30
6/2/2011	16.08	6.80	15.35	29.45	28.03	-10.76	-1.70	2.15	-9.34	-6.80	14.27

Flow inputs for the velocity calibration model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on daily data. Units are cms.

Date	Animas River	Cement Creek	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
6/3/2011	15.83	6.74	16.23	29.45	32.00	-7.93	1.42	-0.99	0.57	-8.21	14.30
6/4/2011	16.40	7.08	16.45	30.02	28.32	-6.80	1.70	-3.40	4.81	-5.38	14.16
6/5/2011	21.38	7.76	16.74	41.06	26.62	-9.34	0.00	-9.03	0.28	-8.50	14.13
6/6/2011	25.29	9.23	18.72	47.57	29.45	-14.44	5.95	-21.24	-17.84	-7.08	37.94
6/7/2011	24.58	9.68	25.20	43.61	41.91	-18.97	13.88	1.13	-56.63	-8.50	71.36
6/8/2011	22.91	9.60	23.56	37.66	38.51	-18.41	17.27	-12.46	-36.53	-2.27	113.83
6/9/2011	22.85	8.81	22.99	35.68	34.55	-14.72	9.63	-18.12	-15.57	-10.19	151.21
6/10/2011	23.93	9.32	18.86	39.36	31.43	-13.88	7.93	-18.69	2.27	7.65	148.10
6/11/2011	25.03	9.20	21.27	38.23	29.45	-12.18	5.10	-16.99	-0.28	7.08	146.96
6/12/2011	24.15	8.75	19.48	42.76	27.75	-8.21	3.68	-23.50	7.08	2.83	146.68
6/13/2011	22.48	8.27	18.52	35.68	27.47	0.00	3.68	-23.50	14.44	2.55	146.96
6/14/2011	22.91	7.99	20.93	34.55	19.82	2.55	-1.42	-20.39	13.59	7.08	146.96
6/15/2011	24.89	8.69	19.94	38.23	19.26	-2.27	-0.57	-1.98	13.31	3.68	123.74
6/16/2011	25.85	9.83	20.67	45.02	16.71	-8.21	-1.42	4.81	-4.81	28.32	81.84
6/17/2011	24.13	8.78	18.07	45.59	29.17	-9.06	0.28	18.12	-25.20	19.82	47.29
6/18/2011	19.96	7.02	14.36	38.51	22.09	-3.68	1.42	17.33	-4.81	21.80	13.82
6/19/2011	18.97	6.48	17.58	33.98	23.50	-5.95	-2.83	4.56	-4.81	2.27	13.28
6/20/2011	14.61	4.76	12.91	29.73	22.94	-4.81	0.28	7.99	-2.83	5.38	13.25
6/21/2011	12.57	3.91	9.66	28.52	16.71	-6.51	-1.13	0.88	2.55	5.38	13.28
6/22/2011	15.43	4.93	11.07	33.13	12.46	-9.63	-5.95	-3.91	-4.81	3.40	13.25
6/23/2011	19.60	6.46	15.29	33.98	11.61	-9.06	-6.23	-0.20	-9.34	-4.81	13.22
6/24/2011	21.44	7.19	16.68	35.40	15.86	-7.08	-5.95	3.26	-12.74	-5.38	13.17
6/25/2011	20.36	6.82	18.12	32.28	18.97	-6.51	-3.96	4.67	-9.06	-5.66	13.17
6/26/2011	19.45	6.14	18.01	32.56	13.88	-6.80	-2.83	4.64	-7.08	-3.68	13.20
6/27/2011	18.07	5.47	17.24	32.00	10.48	-7.65	-2.83	3.57	-5.66	-2.83	13.14
6/28/2011	17.78	4.90	18.38	29.73	8.78	-8.21	-4.81	2.29	-6.23	-3.11	13.28
6/29/2011	18.41	5.30	17.92	30.02	6.23	-3.40	-5.66	4.22	-9.63	-4.81	13.34
6/30/2011	19.82	5.55	19.65	31.43	6.80	0.00	-5.95	7.28	-12.46	-9.06	13.39
7/1/2011	17.27	4.56	14.41	29.73	10.48	2.83	-2.83	8.18	-8.50	-5.10	13.34
7/2/2011	16.34	3.91	13.73	25.20	6.51	3.11	-3.40	4.50	-4.81	0.00	13.34
7/3/2011	15.66	3.43	11.78	24.35	6.23	3.11	-4.81	0.99	-5.38	-3.40	13.45
7/4/2011	14.24	3.06	7.19	24.49	5.95	3.68	-5.38	-1.25	-4.53	-3.68	13.42
7/5/2011	13.99	3.34	11.84	19.26	3.40	2.55	-6.51	-5.21	-4.81	-2.27	13.42
7/6/2011	13.54	3.14	14.47	16.71	3.96	1.98	-7.36	-6.34	-5.38	-3.11	13.42
7/7/2011	13.22	2.86	13.08	15.86	5.38	2.55	-7.65	-6.34	-6.80	-1.98	13.42
7/8/2011	13.39	2.69	13.08	13.88	4.53	2.55	-7.65	-7.79	-6.51	-1.70	13.45
7/9/2011	14.19	2.92	15.74	15.01	1.98	2.55	-8.50	-6.91	-7.65	-2.27	13.42
7/10/2011	14.13	2.78	14.24	16.99	3.40	2.83	-7.36	-3.82	-8.50	-3.40	13.45
7/11/2011	13.59	2.78	13.37	15.01	3.96	2.83	-6.51	-4.16	-5.66	0.00	13.51
7/12/2011	13.39	2.80	13.82	17.56	5.66	3.96	-8.21	3.48	-10.76	-1.13	13.51
7/13/2011	12.35	2.55	12.03	13.85	8.21	4.81	-4.81	1.56	-5.95	0.57	13.45

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Date	Animas River	Cement Creek	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
7/14/2011	10.93	2.35	10.87	10.96	7.36	4.25	-5.66	-2.32	-1.70	-0.85	13.37
7/15/2011	9.63	2.12	9.29	8.69	7.65	4.25	-6.51	-4.33	-0.85	1.13	13.39
7/16/2011	8.81	1.93	7.96	8.18	6.82	3.40	-7.08	-5.44	-3.11	1.13	13.37
7/17/2011	8.72	1.90	8.92	6.26	5.64	3.40	-7.33	-5.78	-4.53	1.13	13.42
7/18/2011	9.66	2.04	13.05	3.85	3.96	2.55	-7.76	-5.66	-6.51	0.85	13.31
7/19/2011	10.11	1.93	13.90	3.79	4.81	3.40	-7.93	-5.18	-7.65	-1.70	13.39
7/20/2011	9.15	1.61	10.25	4.56	6.14	3.68	-7.73	-5.10	-5.66	0.28	13.31
7/21/2011	8.01	1.44	5.92	7.45	5.49	3.40	-7.70	-5.58	-4.53	1.70	13.34
7/22/2011	7.19	1.27	3.20	8.44	5.21	2.38	-6.68	-6.23	-5.04	2.63	13.34
7/23/2011	6.48	1.16	3.06	7.56	4.13	1.64	-5.89	-7.62	-4.02	2.72	13.28
7/24/2011	6.12	1.08	2.86	6.97	3.91	1.02	-5.86	-8.16	-2.78	2.69	13.28
7/25/2011	6.03	1.13	3.57	7.22	1.95	0.51	-5.49	-7.84	-3.43	2.80	13.51
7/26/2011	6.26	1.19	4.79	11.27	0.57	-0.76	-7.96	-6.34	-4.19	1.70	13.42
7/27/2011	6.23	1.10	3.99	12.66	1.98	0.76	-7.65	20.73	0.00	-7.65	13.45
7/28/2011	5.78	1.02	3.40	8.52	3.79	1.36	-5.10	-5.61	27.75	-6.23	13.39
7/29/2011	5.44	0.93	3.14	6.97	3.34	0.42	-5.07	-6.60	16.28	17.27	13.34
7/30/2011	5.41	0.91	3.26	8.13	1.70	-0.20	-6.00	-8.58	1.61	5.07	13.37
7/31/2011	4.96	0.82	3.40	8.72	4.16	0.00	-6.85	-8.21	-1.95	5.13	13.37
8/1/2011	4.98	0.85	3.14	7.99	3.23	0.91	-4.98	-6.97	-3.65	2.27	13.45
8/2/2011	4.98	0.91	2.75	7.99	3.34	1.59	-6.06	-1.27	-5.66	1.30	13.45
8/3/2011	5.01	0.88	2.55	8.89	3.60	1.13	-5.61	-6.99	-2.94	4.87	13.37
8/4/2011	5.04	0.91	2.32	8.55	3.71	1.10	-5.30	-7.50	-2.38	3.88	13.37
8/5/2011	4.59	0.79	2.35	7.70	4.33	1.19	-5.86	-7.82	-2.01	4.11	13.37
8/6/2011	4.02	0.74	2.41	6.51	3.77	1.30	-5.18	-8.55	-2.46	2.24	13.31
8/7/2011	3.57	0.71	2.27	5.83	2.86	0.82	-5.01	-8.89	-1.78	1.61	13.34
8/8/2011	3.11	0.68	2.24	5.35	2.58	0.40	-4.39	-9.60	-1.53	1.87	13.22
8/9/2011	2.83	0.65	2.18	4.84	2.44	0.42	-4.98	-14.13	-2.24	1.78	18.86
8/10/2011	2.72	0.65	2.04	4.53	2.07	0.25	-5.61	-7.16	-8.04	-1.98	21.95
8/11/2011	2.61	0.62	2.04	4.93	0.88	0.14	-4.93	-6.99	-3.94	0.68	21.89
8/12/2011	2.49	0.62	1.98	5.27	1.42	-0.28	-5.55	-4.28	-5.72	0.65	21.89
8/13/2011	2.35	0.59	1.90	4.45	1.76	0.31	-5.15	-8.21	-3.79	2.04	21.86
8/14/2011	2.29	0.59	1.87	4.62	0.68	0.06	-4.42	-8.13	-3.51	0.31	21.95
8/15/2011	2.21	0.59	1.76	4.28	1.19	0.23	-4.73	-9.63	-4.22	1.81	23.87
8/16/2011	2.10	0.59	1.78	3.85	1.30	0.45	-4.45	-5.13	-9.34	-0.03	24.72
8/17/2011	2.07	0.57	1.73	3.77	1.13	-0.08	-4.05	-6.12	-5.18	0.85	23.50
8/18/2011	1.98	0.57	1.67	3.51	1.05	0.11	-3.94	-6.82	-7.96	2.66	24.55
8/19/2011	1.93	0.59	1.70	3.34	0.85	0.03	-3.74	-5.78	-7.84	1.95	24.55
8/20/2011	1.95	0.59	1.95	3.20	0.34	0.68	-4.22	-5.38	-6.91	1.30	24.58
8/21/2011	1.87	0.57	2.04	3.43	0.08	0.57	-3.51	-4.42	-6.74	1.33	24.66
8/22/2011	1.93	0.65	1.95	3.11	0.42	0.65	-3.71	-5.44	-5.24	1.53	24.64
8/23/2011	1.81	0.57	1.78	3.11	0.48	0.45	-3.17	-5.13	-6.09	1.64	24.58

Flow inputs for the velocity calibration model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on daily data. Units are cms.

Date	Animas River	Cement Creek	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
8/24/2011	1.73	0.57	1.73	3.14	0.34	0.31	-3.37	-5.21	-6.03	1.76	24.52
8/25/2011	1.70	0.57	1.67	3.20	0.40	0.74	-3.79	-2.27	-9.20	0.85	24.47
8/26/2011	1.70	0.57	1.70	3.51	0.08	0.45	-3.68	-4.30	-3.43	-0.42	24.58
8/27/2011	1.64	0.54	1.70	3.65	0.06	0.54	-3.91	-2.66	-8.30	3.40	24.58
8/28/2011	1.64	0.57	1.81	3.20	0.71	0.79	-4.22	-3.40	-5.86	0.28	24.61
8/29/2011	1.73	0.57	2.07	3.88	0.28	1.44	-4.81	-3.74	-1.87	-0.91	24.58
8/30/2011	1.64	0.54	1.90	4.16	0.62	1.27	-5.01	-4.45	-1.50	1.67	24.49
8/31/2011	1.61	0.54	1.81	3.62	1.10	1.78	-5.13	-3.37	-3.03	1.13	23.19
9/1/2011	1.59	0.51	1.78	3.88	0.59	1.81	-4.73	-5.01	-2.94	1.36	22.14
9/2/2011	1.47	0.51	1.61	3.48	1.50	2.04	-5.15	-4.73	-4.93	1.36	22.14
9/3/2011	1.42	0.51	1.53	3.17	1.30	2.04	-4.67	-4.22	-5.61	2.94	22.03
9/4/2011	1.36	0.51	1.44	3.03	0.99	1.84	-4.19	-4.45	-4.19	1.93	22.09
9/5/2011	1.33	0.48	1.42	2.86	1.05	1.84	-4.30	-4.84	-5.32	1.90	22.09
9/6/2011	1.33	0.51	1.42	2.83	1.08	1.90	-4.36	-4.62	-3.96	0.37	22.12
9/7/2011	1.36	0.51	1.36	3.00	1.02	2.12	-4.70	-2.41	-7.14	1.59	22.12
9/8/2011	1.27	0.48	1.33	2.75	1.02	2.07	-4.30	-4.76	-3.26	0.40	22.09
9/9/2011	1.25	0.48	1.30	2.72	0.74	1.95	-4.16	-3.43	-4.33	0.71	22.14
9/10/2011	1.25	0.48	1.27	2.66	0.65	2.18	-3.99	-0.85	-3.31	-1.42	22.29
9/11/2011	1.22	0.48	1.27	2.61	0.48	2.21	-3.77	4.25	5.10	4.53	22.23
9/12/2011	1.27	0.54	1.39	2.66	0.14	1.76	-3.51	0.91	13.20	5.10	22.29
9/13/2011	1.22	0.51	1.27	2.63	0.57	1.76	-3.71	-1.93	0.20	7.73	22.26
9/14/2011	1.33	0.54	1.42	2.72	0.34	2.86	-4.30	7.62	-11.41	2.63	20.76
9/15/2011	1.56	0.62	1.70	3.79	-0.08	4.22	-5.92	14.78	-6.51	5.10	17.75
9/16/2011	1.61	0.57	1.84	4.73	-0.28	5.30	-6.57	23.39	18.12	-6.80	18.86
9/17/2011	2.01	0.76	2.41	5.66	-1.50	5.10	-6.06	19.79	2.27	3.11	18.94
9/18/2011	1.95	0.62	2.38	6.85	0.68	4.79	-7.28	8.98	0.85	5.66	18.89
9/19/2011	1.81	0.59	2.38	6.17	0.74	6.09	-5.04	-0.08	0.57	3.40	18.86
9/20/2011	1.76	0.57	2.29	5.38	0.54	5.30	-5.07	0.31	1.13	3.40	17.27
9/21/2011	1.70	0.54	2.15	4.76	0.54	4.33	-4.98	3.45	-1.95	5.21	13.28
9/22/2011	1.64	0.54	1.98	4.25	0.31	3.54	-4.45	-0.74	-2.52	3.88	13.14
9/23/2011	1.59	0.51	1.84	3.91	0.37	2.80	-4.30	-2.92	-2.24	3.26	13.31
9/24/2011	1.53	0.51	1.73	3.48	0.57	2.49	-4.02	-3.68	-2.58	2.52	13.31
9/25/2011	1.47	0.51	1.64	3.23	0.54	1.95	-3.45	-4.22	-2.41	2.07	13.34
9/26/2011	1.42	0.51	1.56	3.23	0.37	1.59	-3.37	-5.18	-2.94	2.44	14.64
9/27/2011	1.39	0.51	1.50	3.09	0.48	1.42	-3.43	-4.39	-8.13	2.38	17.92
9/28/2011	1.33	0.51	1.42	2.97	0.57	1.02	-3.00	-4.30	-6.12	0.31	18.69
9/29/2011	1.33	0.51	1.39	2.78	0.68	0.79	-2.92	-4.39	-7.48	1.93	20.50
9/30/2011	1.30	0.51	1.42	2.72	0.25	0.51	-2.21	-3.96	-7.14	1.10	20.53
10/1/2011	1.27	0.48	1.42	2.63	0.34	-0.08	-1.84	-4.36	-6.63	1.47	20.67
10/2/2011	1.22	0.48	1.39	2.55	0.40	-0.31	-1.67	-4.59	-6.43	1.59	20.67
10/3/2011	1.22	0.48	1.33	2.63	0.17	-0.25	-1.61	-4.56	-5.80	1.08	20.73

Flow inputs for the velocity calibration model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on daily data. Units are cms.

Date	Animas River	Cement Creek	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
10/4/2011	1.39	0.59	1.67	2.75	0.06	1.19	-2.97	-2.49	-6.31	4.33	20.90
10/5/2011	1.44	0.57	1.78	3.85	0.54	2.21	-3.14	7.08	1.42	-3.11	18.94
10/6/2011	1.64	0.59	2.10	5.75	0.37	3.14	-3.94	0.48	14.78	17.84	16.54
10/7/2011	1.50	0.59	1.87	4.67	3.62	5.47	-4.42	2.89	8.50	9.34	14.87
10/8/2011	1.59	0.59	1.84	4.42	2.38	4.02	-2.89	2.66	2.55	3.40	14.84
10/9/2011	1.44	0.57	1.70	4.28	2.15	3.57	-2.58	1.13	1.47	2.27	14.84
10/10/2011	1.39	0.57	1.64	3.88	2.04	3.20	-2.32	0.28	-1.61	3.99	14.84
10/11/2011	1.44	0.59	1.67	4.13	1.36	2.58	-2.21	-1.05	-2.12	3.03	14.81
10/12/2011	1.42	0.59	1.73	4.19	1.59	2.35	-2.44	-1.95	-2.24	3.34	14.75
10/13/2011	1.39	0.59	1.70	4.28	1.64	1.84	-2.27	-2.32	-2.58	2.75	14.78
10/14/2011	1.44	0.59	1.76	4.56	1.50	1.73	-2.55	-1.78	-4.28	2.80	14.81
10/15/2011	1.44	0.59	1.81	4.79	1.64	1.73	-2.97	-1.47	-5.55	2.10	14.84
10/16/2011	1.47	0.59	1.84	4.96	1.61	1.73	-3.03	0.00	-6.57	1.36	14.87
10/17/2011	1.50	0.59	1.90	4.84	1.76	2.07	-3.20	-0.42	-5.55	1.98	14.92
10/18/2011	1.42	0.54	1.73	4.50	2.29	2.35	-2.86	-0.20	-6.88	1.67	14.95
10/19/2011	1.33	0.54	1.61	4.22	1.95	1.87	-2.27	2.38	-8.75	1.39	14.98
10/20/2011	1.30	0.51	1.59	3.99	1.87	2.01	-2.75	-1.02	-1.73	1.39	15.04
10/21/2011	1.22	0.51	1.50	3.82	1.87	1.84	-2.15	-0.82	-5.18	3.31	15.01
10/22/2011	1.19	0.51	1.47	3.68	1.95	1.61	-2.18	-1.13	-5.52	1.95	15.01
10/23/2011	1.16	0.51	1.42	3.54	1.98	1.50	-1.98	-1.50	-4.93	1.78	15.04
10/24/2011	1.13	0.51	1.39	3.40	1.93	1.25	-1.87	-1.70	-4.47	1.59	15.06
10/25/2011	1.22	0.51	1.47	3.45	1.50	1.10	-1.87	-1.36	-4.13	1.64	15.18
10/26/2011	1.25	0.54	1.56	3.91	1.98	3.74	-2.38	2.52	-7.31	24.86	15.35
10/27/2011	1.22	0.54	1.42	3.51	2.92	4.19	-1.70	5.01	-1.13	4.53	15.21
10/28/2011	1.13	0.51	1.30	3.62	2.78	3.11	-1.10	2.52	1.42	1.98	15.23
10/29/2011	1.10	0.51	1.27	3.57	2.29	2.69	-0.45	1.30	1.13	0.85	15.23
10/30/2011	1.10	0.51	1.27	3.40	2.55	2.32	-0.85	0.79	-1.22	0.68	15.23
10/31/2011	1.08	0.51	1.27	3.34	2.52	2.24	-0.48	3.37	-4.02	-0.65	15.23
11/1/2011	1.08	0.48	1.30	3.23	2.49	2.04	-0.23	7.11	-3.62	-0.51	12.37
11/2/2011	1.10	0.48	1.27	3.14	2.63	2.12	-0.31	1.53	0.93	1.98	9.51
11/3/2011	1.05	0.48	1.13	2.83	2.89	2.21	-0.06	0.93	-1.56	0.06	9.60
11/4/2011	1.05	0.48	1.16	3.11	2.24	1.73	0.28	0.82	-1.30	0.08	9.94
11/5/2011	1.08	0.51	1.27	3.00	2.72	2.75	-0.65	1.30	-2.07	0.28	10.00
11/6/2011	1.05	0.48	1.19	2.97	2.97	3.00	-0.23	1.67	-1.90	-0.51	9.85
11/7/2011	1.05	0.48	1.19	2.94	2.86	2.55	-0.23	1.30	-1.59	0.74	10.00
11/8/2011	1.08	0.48	1.08	2.83	2.83	2.61	-0.17	4.96	-3.96	-0.34	9.85
11/9/2011	0.99	0.48	0.88	2.69	2.94	2.27	0.03	3.43	-0.91	0.14	9.85
11/10/2011	0.91	0.48	1.02	2.55	2.72	1.84	0.28	2.10	0.62	-0.20	9.91
11/11/2011	0.85	0.48	1.13	3.06	2.24	1.76	0.08	1.73	0.08	-0.03	9.94
11/12/2011	0.88	0.48	1.22	2.86	2.46	1.78	0.14	1.67	-0.59	0.31	9.91
11/13/2011	0.88	0.48	1.22	2.80	2.49	2.04	0.14	2.86	-1.05	-0.23	9.97

Flow inputs for the velocity calibration model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on daily data. Units are cms.

Date	Animas River	Cement Creek	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
11/14/2011	0.88	0.48	1.13	2.83	2.58	2.10	0.23	3.17	0.88	-0.99	9.85
11/15/2011	0.88	0.48	1.10	2.66	2.58	2.01	0.45	1.59	1.73	0.91	9.85
11/16/2011	0.85	0.45	1.08	2.72	2.55	1.61	0.37	1.33	1.81	0.28	9.85
11/17/2011	0.82	0.45	1.05	2.72	2.38	1.73	0.48	0.93	1.13	0.71	9.77
11/18/2011	0.82	0.42	1.16	2.63	2.18	1.70	0.25	0.85	0.14	1.08	9.77
11/19/2011	0.82	0.42	1.16	2.61	2.10	1.87	0.31	0.65	-0.03	0.51	9.83
11/20/2011	0.79	0.42	1.13	2.52	2.18	1.67	0.57	0.99	-0.34	0.34	9.77
11/21/2011	0.79	0.42	1.16	2.55	2.15	1.47	0.45	0.93	-0.51	1.05	9.80
11/22/2011	0.79	0.42	1.13	2.49	2.21	1.42	0.54	0.91	-1.39	0.93	9.77
11/23/2011	0.79	0.42	1.05	2.44	2.21	1.25	0.59	0.74	-1.50	0.96	9.77
11/24/2011	0.74	0.42	1.16	2.41	2.04	1.02	0.68	0.62	-1.44	0.85	9.77
11/25/2011	0.79	0.42	1.10	2.58	1.95	0.99	0.65	1.50	-2.44	0.62	9.85
11/26/2011	0.76	0.42	1.08	2.49	2.07	1.16	0.71	0.85	-0.85	0.20	9.71
11/27/2011	0.79	0.42	1.08	2.24	2.04	0.85	0.85	0.31	0.51	-0.11	9.71
11/28/2011	0.76	0.42	0.96	2.38	2.07	0.71	0.71	0.31	0.17	0.68	9.68
11/29/2011	0.74	0.42	0.93	2.38	2.18	0.91	0.82	0.62	-1.02	0.23	9.68
11/30/2011	0.74	0.40	0.91	2.21	2.27	0.91	0.91	0.74	-1.05	0.48	9.63
12/1/2011	0.74	0.42	0.82	2.27	2.15	0.76	1.02	-1.78	-0.48	-0.23	12.71
12/2/2011	0.71	0.42	0.82	2.38	2.10	0.93	0.82	3.74	-3.85	-1.22	13.85
12/3/2011	0.71	0.42	0.82	2.38	2.12	0.88	0.88	3.77	-1.98	-0.93	13.88
12/4/2011	0.71	0.42	0.79	2.29	2.15	0.85	0.93	3.74	-1.59	-0.23	13.76
12/5/2011	0.71	0.42	0.79	2.10	2.27	0.57	0.99	3.43	-1.56	0.17	13.68
12/6/2011	0.71	0.42	0.79	1.93	2.04	0.88	1.10	3.26	-2.35	0.40	13.65
12/7/2011	0.71	0.42	0.79	1.84	1.78	0.62	1.13	3.03	-1.59	-0.20	13.62
12/8/2011	0.71	0.42	0.79	1.93	1.73	0.76	1.13	3.11	-2.15	0.71	13.62
12/9/2011	0.71	0.42	0.79	1.95	1.70	1.13	0.91	3.00	-2.01	0.28	13.59
12/10/2011	0.71	0.40	0.79	1.98	1.42	1.67	0.65	3.03	-2.01	0.71	13.51
12/11/2011	0.71	0.40	0.79	1.81	1.56	1.47	0.57	3.00	-1.39	0.08	13.54
12/12/2011	0.71	0.40	0.76	1.84	1.56	1.25	0.65	2.92	-1.27	-0.06	13.51
12/13/2011	0.71	0.42	0.74	2.52	1.36	1.27	0.65	4.28	-3.26	0.14	13.54
12/14/2011	0.71	0.42	0.74	2.07	2.49	1.84	0.11	4.98	-2.78	-0.25	13.45
12/15/2011	0.71	0.40	0.76	1.90	2.04	2.29	0.31	4.11	-3.06	0.54	13.42
12/16/2011	0.71	0.40	0.76	1.25	2.04	1.70	0.65	4.11	-2.63	0.37	13.37
12/17/2011	0.71	0.40	0.74	1.25	1.98	1.39	0.51	3.71	-1.87	-0.11	13.31
12/18/2011	0.71	0.40	0.74	1.67	1.73	1.39	0.42	4.13	-2.21	-0.08	13.34
12/19/2011	0.71	0.42	0.71	1.84	2.04	1.64	0.08	4.39	-2.83	0.28	13.34
12/20/2011	0.71	0.40	0.74	1.81	2.29	1.93	-0.03	4.90	-2.92	-0.20	13.34
12/21/2011	0.71	0.40	0.74	1.90	1.90	1.90	0.37	4.76	-2.38	-0.11	13.31
12/22/2011	0.71	0.40	0.74	1.44	1.81	1.47	0.93	4.39	-1.98	0.00	13.28
12/23/2011	0.71	0.40	0.74	1.25	2.01	1.19	0.62	3.94	-1.44	0.14	13.25
12/24/2011	0.71	0.42	0.71	1.19	1.59	1.59	0.28	3.26	-1.10	-0.11	13.31

Flow inputs for the velocity calibration model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on daily data. Units are cms.

Date	Animas River	Cement Creek	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
12/25/2011	0.71	0.42	0.71	1.47	1.44	1.36	0.17	2.86	-0.17	-0.65	13.31
12/26/2011	0.71	0.42	0.71	1.47	1.76	1.25	0.37	3.23	-0.23	0.28	13.28
12/27/2011	0.71	0.42	0.71	1.53	1.78	1.59	0.28	3.48	-1.02	0.62	13.28
12/28/2011	0.71	0.42	0.71	1.47	1.78	1.67	0.28	4.13	-2.63	-0.08	13.25
12/29/2011	0.71	0.42	0.71	1.47	1.84	1.64	0.28	4.50	-1.81	-0.03	13.20
12/30/2011	0.71	0.45	0.68	1.47	2.07	1.53	0.31	4.56	-3.03	-0.06	13.03
12/31/2011	0.71	0.42	0.71	1.47	1.98	1.59	0.51	4.36	-3.51	0.48	13.00

GKM Release

The following are inputs to GKM Model simulated from 3/16/2015 – 11/16/2015 at USGS gage stations along system. Inputs are based on observed daily data from each gage. From 9/11/2015 – 11/16/2015 observed data from the previous year (2014) was used. At the time we modeled this scenario there was no data available and we wanted to continue the time series beyond the current date. The Cement Creek boundary is the only streamflow input with at different time series. At the Cement Creek USGS gage on the day of the spill, 8/5/2015, 15 minute data is used to give better resolution to the plume time series as well as to capture the increase in volume at the station.

Table R-6. Flow inputs for the GKM model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages.

Flow inputs for the GKM model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Units are cms.

Date	Time	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
3/16/2015	0:00	0.82	1.19	1.36	5.04	2.52	1.08	-0.28	3.48	-2.44	-0.34	9.66
3/17/2015	0:00	0.96	1.42	1.59	6.63	3.65	0.93	-0.42	3.00	-2.46	-0.62	9.37
3/18/2015	0:00	0.96	1.61	1.70	8.33	5.38	1.19	-0.65	4.16	-3.91	-1.53	9.34
3/19/2015	0:00	0.79	1.50	1.47	7.53	7.93	2.52	-0.71	4.36	-3.96	-2.38	9.37
3/20/2015	0:00	0.74	1.42	1.39	6.20	7.16	3.45	-0.06	4.08	-2.83	-1.42	9.34
3/21/2015	0:00	0.79	1.44	1.47	6.00	5.69	2.89	0.00	3.88	-1.42	-0.57	9.40
3/22/2015	0:00	0.88	1.59	1.50	6.26	5.47	2.55	-0.48	2.94	-0.57	-0.34	9.32
3/23/2015	0:00	0.91	1.70	1.53	6.91	5.41	2.35	-0.71	3.17	-1.64	-0.23	9.12
3/24/2015	0:00	0.85	1.70	1.53	6.80	5.97	2.58	-0.54	2.38	0.28	-0.57	8.50
3/25/2015	0:00	0.76	1.61	1.47	6.37	5.95	2.89	-0.40	1.42	0.20	0.34	8.50
3/26/2015	0:00	0.71	1.50	1.39	5.95	5.75	3.03	-0.54	0.62	1.05	0.37	8.47
3/27/2015	0:00	0.79	1.59	1.47	6.26	5.10	2.83	-0.79	0.25	1.39	0.68	8.47
3/28/2015	0:00	1.02	1.84	1.64	7.56	4.50	2.72	-1.50	0.00	0.54	0.79	8.52
3/29/2015	0:00	1.22	2.21	1.90	9.23	5.13	2.75	-2.29	0.85	-1.08	-0.28	8.50
3/30/2015	0:00	1.30	2.46	2.15	10.14	6.63	2.83	-2.66	1.36	-1.98	-0.93	8.27
3/31/2015	0:00	1.27	2.61	2.18	10.31	7.82	2.94	-2.58	0.51	-1.13	-0.28	7.90
4/1/2015	0:00	1.19	2.63	2.07	9.63	8.61	2.21	-2.10	-3.17	2.55	0.57	8.01
4/2/2015	0:00	1.05	2.44	1.93	8.86	8.81	1.90	-1.44	-4.76	3.09	1.42	8.01
4/3/2015	0:00	0.96	2.24	1.78	8.61	7.22	2.35	-1.22	-4.22	2.32	0.85	8.01
4/4/2015	0:00	0.93	2.12	1.76	7.93	6.46	2.18	-1.27	-3.17	2.86	0.93	7.99
4/5/2015	0:00	0.93	2.10	1.78	7.53	6.06	1.93	-1.70	-2.78	1.56	2.10	8.04
4/6/2015	0:00	0.99	2.15	1.84	7.76	5.41	1.70	-2.21	-2.46	1.25	1.47	7.84
4/7/2015	0:00	0.99	2.15	1.84	7.82	5.47	1.36	-2.61	-2.32	0.31	1.84	7.53
4/8/2015	0:00	0.96	2.12	1.84	7.65	5.47	1.44	-2.49	-2.58	-0.54	1.50	7.59
4/9/2015	0:00	0.91	2.01	1.76	7.28	5.35	1.50	-2.58	-2.41	-0.51	1.25	7.53
4/10/2015	0:00	0.91	1.98	1.78	7.14	5.10	1.05	-2.92	-2.32	-0.51	1.59	7.59
4/11/2015	0:00	0.91	1.98	1.78	7.02	4.79	1.08	-3.11	-2.66	-0.14	1.67	7.56

Flow inputs for the GKM model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Units are cms.

Date	Time	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
4/12/2015	0:00	0.91	1.95	1.76	6.68	4.42	1.27	-3.28	-3.26	-1.13	2.38	7.59
4/13/2015	0:00	1.02	2.07	1.84	6.97	3.79	0.88	-3.62	-2.72	-1.33	0.93	7.33
4/14/2015	0:00	1.16	2.29	2.01	8.01	3.26	0.40	-4.59	-3.94	-1.76	1.50	8.30
4/15/2015	0:00	1.16	2.46	2.04	8.55	4.53	0.14	-5.55	-4.79	-2.61	0.68	9.03
4/16/2015	0:00	1.02	2.27	1.87	7.70	5.07	1.05	-4.56	-4.42	-1.61	-1.02	8.92
4/17/2015	0:00	0.91	2.21	1.76	6.88	5.07	0.93	-4.22	-4.30	-1.25	2.38	9.26
4/18/2015	0:00	0.82	2.04	1.61	6.26	4.76	1.44	-3.82	-3.99	-1.39	2.61	10.28
4/19/2015	0:00	0.76	1.95	1.56	5.89	4.39	1.10	-4.11	-3.45	-0.54	4.33	10.19
4/20/2015	0:00	0.71	1.90	1.56	5.58	4.19	0.85	-4.56	-3.51	-0.88	4.36	10.11
4/21/2015	0:00	0.68	1.78	1.42	5.13	3.94	0.88	-4.33	-3.71	-1.25	3.51	10.14
4/22/2015	0:00	0.68	1.73	1.27	5.07	3.31	0.34	-4.50	-4.11	-0.20	2.21	10.79
4/23/2015	0:00	0.65	1.70	1.30	4.93	3.17	0.17	-4.73	-4.08	-2.15	3.06	11.52
4/24/2015	0:00	0.62	1.70	1.33	4.93	2.92	-0.28	-4.50	-4.50	-4.28	2.92	12.57
4/25/2015	0:00	0.62	1.70	1.30	4.96	3.26	0.03	-5.21	-3.85	-5.18	2.69	13.42
4/26/2015	0:00	0.59	1.70	1.36	4.98	3.77	0.48	-5.47	-2.89	-3.79	1.19	13.20
4/27/2015	0:00	0.65	1.67	1.33	4.96	3.60	0.62	-4.81	-2.35	-2.44	0.42	13.03
4/28/2015	0:00	0.68	1.78	1.56	5.55	2.97	-0.20	-5.07	-3.68	1.56	1.61	14.61
4/29/2015	0:00	0.82	2.01	1.78	6.03	3.03	-0.34	-5.86	-2.52	-0.71	-0.17	16.23
4/30/2015	0:00	1.05	2.55	2.38	7.87	2.61	-1.13	-6.71	-2.80	-0.37	0.42	16.00
5/1/2015	0:00	1.30	3.23	3.40	8.58	4.13	-1.05	-7.67	-4.62	0.96	1.67	15.91
5/2/2015	0:00	1.36	3.77	3.74	10.56	6.74	-1.81	-7.90	-6.60	-1.61	2.83	15.94
5/3/2015	0:00	1.33	3.77	3.54	10.31	9.09	-0.93	-5.44	-8.89	-0.23	1.30	15.89
5/4/2015	0:00	1.39	3.91	3.65	10.56	9.37	-1.84	-4.84	-3.03	-0.11	4.22	12.20
5/5/2015	0:00	1.59	4.59	3.77	11.44	9.20	-2.44	-4.25	-3.31	1.59	5.55	8.58
5/6/2015	0:00	1.76	4.73	3.99	12.54	11.81	-1.98	-3.68	-3.54	-1.78	3.77	8.69
5/7/2015	0:00	1.76	4.56	3.99	12.71	14.64	-0.85	-0.28	-4.73	-4.53	2.83	8.69
5/8/2015	0:00	1.61	4.53	3.91	12.03	14.16	-0.57	0.28	-6.29	-3.11	5.10	8.83
5/9/2015	0:00	1.44	4.47	3.68	11.84	13.96	-0.85	0.28	-2.41	-5.66	4.81	8.92
5/10/2015	0:00	1.30	4.08	3.48	10.70	13.56	-0.57	-0.57	-1.73	-4.25	3.68	8.81
5/11/2015	0:00	1.30	3.71	3.40	10.39	12.63	-0.85	-1.42	-2.69	-3.40	4.25	8.95
5/12/2015	0:00	1.36	3.74	3.57	10.70	12.35	-1.42	-3.37	-4.45	-2.92	4.90	9.06
5/13/2015	0:00	1.39	3.99	3.77	11.64	13.20	-1.70	-2.27	-3.99	-5.15	2.32	9.06
5/14/2015	0:00	1.42	4.25	3.91	12.66	14.02	-1.42	-1.70	-4.53	-5.32	3.34	9.06
5/15/2015	0:00	1.33	4.22	3.79	12.40	15.06	-0.28	0.00	-3.77	-6.51	2.27	9.15
5/16/2015	0:00	1.25	3.96	3.65	12.57	16.23	1.42	1.42	-3.71	-9.06	0.85	9.09
5/17/2015	0:00	1.30	3.71	3.62	12.40	15.49	1.42	1.13	-8.89	-5.10	5.66	9.17
5/18/2015	0:00	1.39	3.85	3.91	13.85	16.65	0.28	-0.28	-10.65	-6.51	3.68	9.23
5/19/2015	0:00	1.56	4.70	4.11	18.24	22.09	1.13	0.28	-2.18	-14.44	0.28	9.26
5/20/2015	0:00	1.50	4.62	3.96	16.48	30.92	3.68	3.40	3.82	-11.61	6.23	9.20
5/21/2015	0:00	1.50	4.64	4.05	15.38	27.67	3.40	3.68	0.65	-5.38	14.16	9.26
5/22/2015	0:00	1.47	4.84	4.19	16.96	26.90	2.83	1.70	-1.44	-8.21	15.57	9.09

Flow inputs for the GKM model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Units are cms.

Date	Time	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
5/23/2015	0:00	1.47	5.04	4.11	18.26	27.47	2.55	1.70	-0.62	-9.91	12.74	9.12
5/24/2015	0:00	1.42	4.87	3.91	16.57	26.48	3.68	2.83	0.40	-6.51	11.33	9.23
5/25/2015	0:00	1.39	4.73	3.88	15.06	25.91	4.25	2.27	-0.88	-6.23	12.74	9.09
5/26/2015	0:00	1.33	4.50	3.85	14.98	23.19	4.81	1.98	-2.92	-4.53	11.33	9.15
5/27/2015	0:00	1.36	4.64	3.99	14.27	21.61	3.96	1.42	-7.50	-3.68	3.96	9.20
5/28/2015	0:00	1.56	4.90	4.30	15.63	22.03	1.98	0.85	-7.42	-4.81	4.53	9.12
5/29/2015	0:00	2.07	5.38	4.81	17.75	21.80	1.70	0.57	-4.90	-7.36	2.55	9.15
5/30/2015	0:00	2.78	6.65	5.69	22.54	21.24	1.42	-0.28	-1.53	-10.48	1.98	9.17
5/31/2015	0:00	3.51	9.26	7.90	26.62	23.22	0.57	-1.13	2.21	-11.89	1.70	9.12
6/1/2015	0:00	4.30	13.31	13.82	29.17	21.24	0.57	-2.83	-1.19	-8.78	1.70	9.12
6/2/2015	0:00	5.13	18.80	14.87	38.51	25.49	-0.85	-6.51	-5.01	-9.91	-0.85	8.98
6/3/2015	0:00	5.30	21.46	14.02	43.89	31.43	0.00	-5.10	-8.58	-14.44	2.55	8.86
6/4/2015	0:00	5.04	19.20	15.12	40.21	32.56	3.68	-3.96	-9.60	-15.57	11.33	8.75
6/5/2015	0:00	4.81	17.30	15.83	36.53	34.26	5.95	-4.53	-8.86	-14.72	9.34	8.86
6/6/2015	0:00	5.75	17.30	18.01	49.27	29.17	7.93	-9.63	-7.76	-18.41	12.46	9.17
6/7/2015	0:00	5.27	16.31	16.65	50.69	45.02	23.50	-5.66	-3.40	-41.91	16.14	9.06
6/8/2015	0:00	5.21	17.39	15.91	40.78	32.85	21.24	0.00	-6.14	-20.95	32.85	9.26
6/9/2015	0:00	5.55	20.30	15.21	43.89	31.15	16.14	-7.65	-11.84	-16.71	20.95	9.00
6/10/2015	0:00	7.33	24.83	23.62	58.62	11.89	23.79	-7.36	-1.25	-36.81	24.64	9.17
6/11/2015	0:00	7.19	17.22	36.47	69.66	43.61	29.45	-9.91	-2.94	-47.01	17.84	10.31
6/12/2015	0:00	5.80	17.87	18.80	55.50	49.27	29.73	7.93	-9.85	6.23	12.18	9.57
6/13/2015	0:00	5.41	19.62	13.48	50.40	38.23	20.95	9.06	-1.25	-28.60	50.69	10.02
6/14/2015	0:00	5.58	17.84	14.53	46.72	30.30	11.33	3.11	6.99	-10.48	42.76	9.71
6/15/2015	0:00	5.66	18.01	19.37	51.82	28.60	6.80	2.55	-11.38	-11.33	28.32	10.25
6/16/2015	0:00	5.64	19.23	20.44	50.69	21.52	11.33	3.68	-12.20	-16.14	28.32	11.64
6/17/2015	0:00	6.37	15.63	30.67	60.31	22.37	13.88	0.28	-6.48	-32.56	22.09	11.86
6/18/2015	0:00	6.06	12.91	30.02	60.03	29.73	17.27	6.80	-6.85	-37.38	28.60	11.38
6/19/2015	0:00	5.41	13.05	25.43	54.93	27.75	13.88	7.36	-7.96	-25.20	32.85	11.36
6/20/2015	0:00	5.27	13.28	24.21	56.63	22.94	10.48	2.55	-12.52	-17.84	24.64	11.38
6/21/2015	0:00	5.10	12.35	26.73	52.67	19.54	13.88	3.40	-9.46	-19.82	18.97	11.44
6/22/2015	0:00	4.84	12.01	27.04	50.69	16.99	13.59	2.55	-10.79	-14.44	16.71	11.36
6/23/2015	0:00	4.30	12.35	25.54	44.17	18.97	15.01	0.00	-11.47	-9.06	15.01	11.47
6/24/2015	0:00	3.82	14.53	22.71	34.55	18.12	11.61	1.70	-10.73	1.70	11.61	11.58
6/25/2015	0:00	3.65	13.96	23.73	28.32	13.59	6.51	2.55	-6.34	7.93	5.95	10.87
6/26/2015	0:00	3.71	14.78	24.83	29.73	9.63	5.95	0.57	-6.06	6.51	-2.27	10.02
6/27/2015	0:00	3.57	15.09	23.81	27.47	9.63	6.23	1.98	-7.25	1.70	4.53	10.08
6/28/2015	0:00	3.40	14.41	22.40	24.35	11.89	5.95	3.68	-6.74	-1.70	10.19	10.14
6/29/2015	0:00	3.26	14.27	22.68	22.37	9.34	1.98	5.10	-5.44	-3.40	14.44	10.25
6/30/2015	0:00	3.17	13.68	22.23	22.37	9.06	1.13	5.10	-5.44	-4.25	10.48	10.25
7/1/2015	0:00	3.00	13.62	21.04	20.95	8.50	1.13	5.10	-5.24	-1.98	9.63	10.34
7/2/2015	0:00	2.80	12.26	22.03	18.12	6.80	0.57	5.95	-3.00	-3.11	7.08	10.08

Flow inputs for the GKM model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Units are cms.

Date	Time	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
7/3/2015	0:00	2.44	10.34	21.21	17.84	9.34	0.85	5.95	-1.08	-3.68	6.23	10.14
7/4/2015	0:00	2.07	7.87	18.66	15.29	10.76	1.98	6.80	-1.81	-0.28	13.31	12.29
7/5/2015	0:00	1.93	7.31	15.63	12.23	10.76	2.27	6.80	6.63	-2.27	7.65	10.36
7/6/2015	0:00	1.81	6.99	14.16	12.15	7.36	2.27	5.95	-5.47	3.40	17.56	10.28
7/7/2015	0:00	1.73	7.08	13.48	12.26	6.51	3.96	9.06	-7.79	0.28	11.89	10.90
7/8/2015	0:00	1.90	8.83	16.68	14.78	3.96	3.96	5.10	8.35	0.85	15.86	10.34
7/9/2015	0:00	1.73	8.16	14.78	15.55	8.21	2.83	5.95	4.87	-3.11	24.07	10.42
7/10/2015	0:00	1.59	7.62	12.49	15.69	9.63	3.11	7.36	0.20	1.70	15.86	10.56
7/11/2015	0:00	1.44	7.45	11.21	13.59	8.78	3.40	6.23	0.06	7.93	11.61	10.42
7/12/2015	0:00	1.44	7.99	11.02	13.25	6.51	1.98	3.96	-0.31	3.68	6.80	10.51
7/13/2015	0:00	1.47	8.38	11.72	16.93	9.06	1.13	1.13	5.95	6.23	16.42	10.48
7/14/2015	0:00	1.39	8.72	10.42	16.57	7.93	3.96	1.13	-7.19	13.59	11.33	10.59
7/15/2015	0:00	1.30	8.04	8.81	17.24	10.19	3.40	0.28	-3.60	3.11	5.38	10.68
7/16/2015	0:00	1.22	7.19	8.21	15.09	9.91	3.40	0.85	-4.30	1.98	1.98	10.82
7/17/2015	0:00	1.19	6.71	7.67	12.49	9.03	2.55	-0.28	-7.08	-0.28	-1.70	10.76
7/18/2015	0:00	1.25	6.37	7.70	10.76	8.18	1.70	-1.13	-7.31	-2.27	-1.13	10.42
7/19/2015	0:00	1.16	6.06	7.28	10.53	8.38	0.85	-1.70	-6.85	-4.25	-0.28	10.53
7/20/2015	0:00	1.10	5.64	6.74	9.12	8.27	1.13	-1.98	-7.11	-3.96	1.70	10.51
7/21/2015	0:00	1.05	5.55	7.02	8.92	6.91	0.00	-3.03	-7.82	-3.99	3.14	10.56
7/22/2015	0:00	1.02	5.07	6.40	8.24	6.97	0.17	-3.28	-8.38	-4.16	2.07	10.56
7/23/2015	0:00	0.96	4.59	5.95	6.63	7.05	0.06	-3.00	-9.94	-3.96	2.07	12.57
7/24/2015	0:00	0.93	4.39	5.78	6.00	5.89	0.31	-3.65	-8.16	-7.90	1.78	14.81
7/25/2015	0:00	0.88	4.11	5.44	5.64	5.55	0.57	-3.88	-10.14	-7.19	1.81	17.95
7/26/2015	0:00	0.85	3.94	5.24	5.47	4.22	0.71	-4.13	-7.02	-8.04	0.71	19.17
7/27/2015	0:00	0.82	3.65	3.03	6.65	4.45	0.96	-4.39	-7.02	-5.15	1.87	18.80
7/28/2015	0:00	0.79	3.51	3.03	6.29	3.62	0.96	-4.64	-7.11	-4.28	3.14	18.69
7/29/2015	0:00	0.76	3.26	3.00	5.75	3.06	0.94	-4.51	-5.87	-5.72	4.00	18.66
7/30/2015	0:00	0.74	3.03	2.94	5.21	2.29	1.13	-4.82	-4.44	-7.34	3.43	18.77
7/31/2015	0:00	0.88	3.20	2.97	4.62	1.73	1.81	-5.13	-0.99	-3.06	-0.99	18.92
8/1/2015	0:00	0.85	3.57	3.34	7.67	-0.23	1.22	-6.09	7.22	15.86	-5.95	19.03
8/2/2015	0:00	0.85	3.74	3.11	7.67	1.47	1.67	-4.64	-7.42	18.01	8.50	18.86
8/3/2015	0:00	0.93	4.67	3.11	13.68	-1.13	1.42	-6.77	28.91	15.86	-5.95	18.94
8/4/2015	0:00	0.79	3.91	3.09	9.49	4.90	1.19	-2.12	-16.82	43.92	10.19	18.66
8/5/2015	0:00	0.74	3.43	2.89	7.36	3.77	1.25	-2.72	-11.16	77.56	15.29	18.55
8/5/2015	0:15	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	0:30	0.71	-	-	-	-	-	-	-	-	-	-
8/5/2015	0:45	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	1:00	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	1:15	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	1:30	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	1:45	0.68	-	-	-	-	-	-	-	-	-	-

Flow inputs for the GKM model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Units are cms.

Date	Time	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
8/5/2015	2:00	0.79	-	-	-	-	-	-	-	-	-	-
8/5/2015	2:15	0.79	-	-	-	-	-	-	-	-	-	-
8/5/2015	2:30	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	2:45	0.71	-	-	-	-	-	-	-	-	-	-
8/5/2015	3:00	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	3:15	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	3:30	0.79	-	-	-	-	-	-	-	-	-	-
8/5/2015	3:45	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	4:00	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	4:15	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	4:30	0.68	-	-	-	-	-	-	-	-	-	-
8/5/2015	4:45	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	5:00	0.71	-	-	-	-	-	-	-	-	-	-
8/5/2015	5:15	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	5:30	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	5:45	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	6:00	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	6:15	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	6:30	0.79	-	-	-	-	-	-	-	-	-	-
8/5/2015	6:45	0.71	-	-	-	-	-	-	-	-	-	-
8/5/2015	7:00	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	7:15	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	7:30	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	7:45	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	8:00	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	8:15	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	8:30	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	8:45	0.71	-	-	-	-	-	-	-	-	-	-
8/5/2015	9:00	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	9:15	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	9:30	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	9:45	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	10:00	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	10:15	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	10:30	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	10:45	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	11:00	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	11:15	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	11:30	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	11:45	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	12:00	0.74	-	-	-	-	-	-	-	-	-	-

Flow inputs for the GKM model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Units are cms.

Date	Time	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
8/5/2015	12:15	0.71	-	-	-	-	-	-	-	-	-	-
8/5/2015	12:30	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	12:45	3.40	-	-	-	-	-	-	-	-	-	-
8/5/2015	13:00	2.41	-	-	-	-	-	-	-	-	-	-
8/5/2015	13:15	1.90	-	-	-	-	-	-	-	-	-	-
8/5/2015	13:30	1.90	-	-	-	-	-	-	-	-	-	-
8/5/2015	13:45	1.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	14:00	1.73	-	-	-	-	-	-	-	-	-	-
8/5/2015	14:15	1.22	-	-	-	-	-	-	-	-	-	-
8/5/2015	14:30	1.08	-	-	-	-	-	-	-	-	-	-
8/5/2015	14:45	1.10	-	-	-	-	-	-	-	-	-	-
8/5/2015	15:00	1.08	-	-	-	-	-	-	-	-	-	-
8/5/2015	15:15	1.08	-	-	-	-	-	-	-	-	-	-
8/5/2015	15:30	1.02	-	-	-	-	-	-	-	-	-	-
8/5/2015	15:45	0.96	-	-	-	-	-	-	-	-	-	-
8/5/2015	16:00	0.96	-	-	-	-	-	-	-	-	-	-
8/5/2015	16:15	0.93	-	-	-	-	-	-	-	-	-	-
8/5/2015	16:30	0.88	-	-	-	-	-	-	-	-	-	-
8/5/2015	16:45	0.93	-	-	-	-	-	-	-	-	-	-
8/5/2015	17:00	0.85	-	-	-	-	-	-	-	-	-	-
8/5/2015	17:15	0.85	-	-	-	-	-	-	-	-	-	-
8/5/2015	17:30	0.85	-	-	-	-	-	-	-	-	-	-
8/5/2015	17:45	0.82	-	-	-	-	-	-	-	-	-	-
8/5/2015	18:00	0.82	-	-	-	-	-	-	-	-	-	-
8/5/2015	18:15	0.85	-	-	-	-	-	-	-	-	-	-
8/5/2015	18:30	0.82	-	-	-	-	-	-	-	-	-	-
8/5/2015	18:45	0.79	-	-	-	-	-	-	-	-	-	-
8/5/2015	19:00	0.82	-	-	-	-	-	-	-	-	-	-
8/5/2015	19:15	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	19:30	0.82	-	-	-	-	-	-	-	-	-	-
8/5/2015	19:45	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	20:00	0.79	-	-	-	-	-	-	-	-	-	-
8/5/2015	20:15	0.79	-	-	-	-	-	-	-	-	-	-
8/5/2015	20:30	0.79	-	-	-	-	-	-	-	-	-	-
8/5/2015	20:45	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	21:00	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	21:15	0.79	-	-	-	-	-	-	-	-	-	-
8/5/2015	21:30	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	21:45	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	22:00	0.74	-	-	-	-	-	-	-	-	-	-
8/5/2015	22:15	0.76	-	-	-	-	-	-	-	-	-	-

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Date	Time	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
8/5/2015	22:30	0.79	-	-	-	-	-	-	-	-	-	-
8/5/2015	22:45	0.76	-	-	-	-	-	-	-	-	-	-
8/5/2015	23:00	0.79	-	-	-	-	-	-	-	-	-	-
8/5/2015	23:15	0.79	-	-	-	-	-	-	-	-	-	-
8/5/2015	23:30	0.79	-	-	-	-	-	-	-	-	-	-
8/5/2015	23:45	0.79	-	-	-	-	-	-	-	-	-	-
8/6/2015	0:00	0.82	3.09	2.86	6.34	4.25	1.87	-0.88	-1.10	2.83	11.61	18.55
8/7/2015	0:00	0.79	3.06	2.80	5.66	5.01	2.52	3.26	-14.36	5.95	-3.11	28.60
8/8/2015	0:00	0.79	3.31	2.75	7.59	3.65	3.00	2.32	-16.54	19.54	-0.28	37.10
8/9/2015	0:00	0.71	2.86	2.72	6.00	5.97	2.61	3.99	-15.97	27.47	-8.78	36.53
8/10/2015	0:00	0.71	2.66	2.66	5.15	5.18	2.44	3.23	-9.68	35.11	-11.61	27.10
8/11/2015	0:00	0.71	2.58	2.63	4.98	4.62	2.52	2.72	-9.03	19.82	0.00	17.36
8/12/2015	0:00	0.71	2.66	2.83	5.64	3.51	2.72	2.55	-1.36	9.63	-5.66	17.33
8/13/2015	0:00	0.65	2.46	2.69	5.01	4.30	2.72	2.75	-1.67	16.99	-9.34	17.10
8/14/2015	0:00	0.65	2.32	2.58	4.59	3.68	2.49	2.46	2.97	1.70	-3.40	16.93
8/15/2015	0:00	0.65	2.18	2.52	4.13	2.55	1.95	-0.59	4.16	-2.27	1.13	16.96
8/16/2015	0:00	0.62	2.12	2.46	3.94	1.53	2.04	-3.71	2.63	-5.55	2.18	16.85
8/17/2015	0:00	0.62	2.10	2.38	3.79	1.30	1.73	-5.78	0.88	-4.22	1.22	16.79
8/18/2015	0:00	0.62	1.98	2.27	3.79	1.44	1.42	-6.94	-0.40	-3.23	1.59	16.74
8/19/2015	0:00	0.59	1.87	2.04	3.28	2.12	1.33	-6.85	-0.54	-3.68	1.08	16.65
8/20/2015	0:00	0.59	1.81	1.87	3.14	1.53	0.96	-6.43	-2.12	-1.98	0.76	16.68
8/21/2015	0:00	0.59	1.76	1.81	2.94	1.25	0.85	-6.51	-3.57	-1.73	1.53	16.82
8/22/2015	0:00	0.59	1.76	1.76	3.00	0.93	0.74	-6.37	-2.83	-2.41	1.13	16.96
8/23/2015	0:00	0.59	1.73	1.73	3.06	0.62	0.51	-6.03	-2.52	-2.75	0.99	17.08
8/24/2015	0:00	0.57	1.64	1.67	3.00	0.68	0.45	-5.97	-2.32	-2.86	0.88	17.13
8/25/2015	0:00	0.59	1.67	1.64	2.66	0.82	0.34	-6.20	-2.27	-3.28	1.36	17.19
8/26/2015	0:00	0.59	1.73	1.78	3.23	0.45	1.16	6.00	-4.53	-9.88	0.34	17.67
8/27/2015	0:00	0.59	1.84	1.98	4.11	0.25	1.73	2.12	3.99	19.54	-10.48	17.70
8/28/2015	0:00	0.57	1.64	1.81	3.82	1.08	2.55	-0.25	-4.64	15.69	3.68	17.22
8/29/2015	0:00	0.57	1.56	1.64	3.40	0.93	2.15	-1.16	-5.58	7.25	2.49	17.27
8/30/2015	0:00	0.57	1.53	1.67	3.14	0.93	2.04	-2.58	-3.82	1.84	2.55	17.24
8/31/2015	0:00	0.57	1.56	1.64	3.31	0.79	1.87	-3.79	-2.55	-0.42	2.41	17.27
9/1/2015	0:00	0.54	1.50	1.59	3.09	0.93	1.87	-4.76	-2.75	-1.22	2.63	17.33
9/2/2015	0:00	0.57	1.50	1.59	3.03	0.59	1.59	-5.10	-2.66	-2.66	2.07	17.33
9/3/2015	0:00	0.57	1.50	1.61	3.26	0.45	1.19	-5.44	-0.85	-5.52	3.54	17.47
9/4/2015	0:00	0.59	1.59	1.64	3.11	0.79	1.33	-5.55	0.74	-7.50	1.64	17.50
9/5/2015	0:00	0.68	1.93	2.58	6.03	-1.78	5.97	-6.31	3.03	-9.32	-2.04	18.26
9/6/2015	0:00	0.62	1.81	2.83	7.36	1.10	7.05	0.20	-0.42	9.91	-8.50	17.33
9/7/2015	0:00	0.57	1.70	2.38	5.69	2.44	4.98	-2.12	8.01	-4.25	-0.57	17.27
9/8/2015	0:00	0.57	1.61	2.04	4.93	2.01	4.30	-3.17	15.80	-16.14	2.27	17.33
9/9/2015	0:00	0.54	1.56	1.84	4.30	1.87	3.71	-3.62	10.19	-12.12	2.41	17.30

Flow inputs for the GKM model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Units are cms.

Date	Time	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
9/10/2015	0:00	0.51	1.50	1.67	3.91	1.95	3.40	-4.28	11.75	-14.44	2.15	17.33
9/11/2015	0:00	0.65	3.17	3.34	7.56	5.49	5.18	-4.81	3.09	-7.93	-1.13	16.25
9/12/2015	0:00	0.62	2.72	2.69	5.86	3.65	2.92	-4.67	7.93	-10.79	7.67	15.32
9/13/2015	0:00	0.59	2.46	2.24	4.98	3.26	2.07	-4.64	3.26	-8.69	3.03	15.21
9/14/2015	0:00	0.57	2.27	2.07	4.45	2.97	1.81	-4.39	-1.30	-4.70	1.64	15.18
9/15/2015	0:00	0.54	2.10	1.98	4.02	2.55	1.08	-3.74	-3.54	-2.80	1.81	15.15
9/16/2015	0:00	0.54	1.95	1.84	3.77	2.21	1.33	-4.11	-2.78	-3.54	2.61	13.59
9/17/2015	0:00	0.54	1.87	1.76	3.60	2.18	1.05	-3.62	-2.38	-5.41	3.06	13.05
9/18/2015	0:00	0.51	1.78	1.70	3.54	2.15	0.91	-3.03	-3.96	-5.78	2.46	13.82
9/19/2015	0:00	0.51	1.67	1.61	3.31	2.12	0.28	-3.23	-3.17	-4.67	1.87	13.85
9/20/2015	0:00	0.51	1.61	1.56	3.17	1.90	0.03	-3.09	-3.60	-4.73	2.61	13.88
9/21/2015	0:00	0.91	2.80	2.80	10.79	-3.71	8.24	-7.28	-8.78	-7.05	2.38	13.93
9/22/2015	0:00	1.22	4.30	4.84	26.45	-3.11	-1.98	-8.75	-18.60	-0.14	-2.61	13.99
9/23/2015	0:00	0.76	3.68	3.99	19.77	13.71	6.51	-1.13	-17.61	5.66	-6.23	14.22
9/24/2015	0:00	0.68	3.06	3.34	12.88	7.14	2.07	0.57	-11.95	7.93	15.01	14.22
9/25/2015	0:00	0.65	2.75	2.92	9.88	4.84	0.96	0.08	-11.92	3.82	10.19	11.64
9/26/2015	0:00	0.65	2.58	2.38	8.61	3.94	-0.11	0.51	-11.67	1.64	7.16	10.39
9/27/2015	0:00	0.65	2.58	2.52	7.36	3.31	-0.85	0.51	-8.78	-0.76	5.58	9.80
9/28/2015	0:00	1.61	5.72	3.17	18.66	-6.51	1.36	7.14	-6.14	18.12	10.48	10.11
9/29/2015	0:00	1.78	7.50	3.74	32.28	14.16	7.65	-4.81	13.71	16.14	27.75	11.50
9/30/2015	0:00	1.42	6.43	3.54	23.73	15.86	4.81	6.80	22.51	20.67	27.18	9.20
10/1/2015	0:00	1.33	5.97	3.26	19.17	11.04	0.00	6.23	7.56	18.41	15.29	9.15
10/2/2015	0:00	1.19	5.38	3.11	16.00	10.56	-1.13	4.81	0.51	1.42	11.89	9.12
10/3/2015	0:00	1.10	4.96	2.97	13.79	9.17	-2.55	4.25	-3.74	0.00	9.06	9.12
10/4/2015	0:00	1.05	4.76	2.97	12.57	7.82	-2.75	3.88	-4.30	-0.85	7.08	9.12
10/5/2015	0:00	0.99	4.62	2.86	11.44	7.11	-2.83	3.43	-4.90	-2.27	6.51	9.15
10/6/2015	0:00	0.93	4.42	2.72	10.28	6.34	-2.69	3.77	-5.61	-4.81	8.21	9.29
10/7/2015	0:00	0.88	4.13	2.66	9.12	5.78	-2.69	3.71	-6.23	-6.12	5.83	10.00
10/8/2015	0:00	0.85	3.88	2.61	8.16	5.32	-2.78	3.54	-3.40	-6.00	5.72	10.00
10/9/2015	0:00	0.96	4.08	2.75	8.61	3.77	-2.78	3.99	-3.40	-5.72	2.04	10.05
10/10/2015	0:00	0.99	4.22	2.78	10.48	5.35	-3.00	3.14	-7.79	2.83	7.65	10.34
10/11/2015	0:00	0.96	4.05	2.80	11.07	6.34	-3.57	3.43	-6.94	-1.70	6.80	10.34
10/12/2015	0:00	0.91	3.91	2.66	10.05	5.89	-2.66	4.36	-8.04	-0.57	5.66	10.31
10/13/2015	0:00	0.88	3.68	2.63	8.95	6.12	-3.00	3.99	-8.01	0.28	6.80	10.28
10/14/2015	0:00	0.85	3.54	2.58	8.55	5.64	-3.11	3.62	-7.65	-2.10	5.49	10.25
10/15/2015	0:00	0.82	3.48	2.49	8.13	5.10	-2.72	3.88	-7.16	-3.51	5.41	10.17
10/16/2015	0:00	0.79	3.31	2.44	7.48	4.79	-2.63	3.79	-5.47	-4.98	5.38	10.14
10/17/2015	0:00	0.76	3.14	2.32	6.85	4.67	-2.72	3.57	-5.55	-2.75	4.28	10.17
10/18/2015	0:00	0.74	3.00	2.32	6.23	4.53	-2.66	3.62	-4.67	-2.32	4.70	10.11
10/19/2015	0:00	0.74	2.92	2.24	5.83	4.42	-1.84	2.55	-4.96	-1.98	4.73	10.19
10/20/2015	0:00	0.71	2.86	2.24	5.61	4.11	-1.61	4.08	-4.05	-3.82	2.18	10.17

Flow inputs for the GKM model based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Units are cms.

Date	Time	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
10/21/2015	0:00	0.74	2.83	2.29	5.49	3.60	-2.21	3.28	-5.58	-0.62	5.89	10.00
10/22/2015	0:00	0.71	2.78	2.24	5.86	3.91	-2.58	2.72	-4.62	-1.73	4.36	9.88
10/23/2015	0:00	0.68	2.58	2.12	5.24	4.16	-2.27	3.00	-4.36	-3.65	4.16	9.83
10/24/2015	0:00	0.65	2.44	2.01	4.90	3.94	-2.21	2.69	-4.28	-3.99	4.16	9.80
10/25/2015	0:00	0.62	2.29	1.95	4.70	3.68	-2.04	2.61	-3.88	-4.19	3.51	9.80
10/26/2015	0:00	0.62	2.24	1.87	4.50	3.57	-2.01	2.41	-3.37	-4.67	3.48	9.80
10/27/2015	0:00	0.62	2.15	1.76	4.30	3.62	-1.84	1.95	-1.30	-4.45	2.92	9.80
10/28/2015	0:00	0.57	1.95	1.61	4.02	4.16	-1.93	1.98	-0.68	-4.50	1.87	9.77
10/29/2015	0:00	0.57	1.81	1.59	3.91	3.65	-1.61	1.90	-0.79	-3.74	1.67	9.77
10/30/2015	0:00	0.57	1.78	1.56	3.77	3.40	-1.56	1.70	-0.96	-3.17	1.22	9.74
10/31/2015	0:00	0.57	1.76	1.53	3.62	3.37	-1.22	1.70	-0.68	-1.61	0.23	9.77
11/1/2015	0:00	0.57	1.78	1.59	3.68	3.09	-0.93	2.27	0.08	-0.96	-0.06	9.83
11/2/2015	0:00	0.59	1.87	1.64	4.02	2.72	0.20	3.65	-0.96	-1.19	0.85	9.83
11/3/2015	0:00	0.57	1.81	1.53	3.85	3.54	-0.25	3.51	-1.39	2.32	0.11	9.85
11/4/2015	0:00	0.54	1.53	1.42	3.51	3.57	-0.45	3.34	-0.20	1.87	2.41	9.83
11/5/2015	0:00	0.57	1.53	1.33	3.54	2.89	-0.62	2.78	0.06	0.48	2.21	9.80
11/6/2015	0:00	0.57	1.53	1.39	3.62	2.80	-0.68	2.27	0.00	-0.40	0.85	9.80
11/7/2015	0:00	0.54	1.53	1.42	3.54	2.80	-0.51	2.41	-0.03	-0.96	1.30	9.77
11/8/2015	0:00	0.54	1.50	1.33	3.45	2.83	-0.45	2.21	-0.11	-1.19	1.36	9.77
11/9/2015	0:00	0.51	1.44	1.33	3.31	2.78	-0.45	2.18	0.40	-1.05	0.57	9.77
11/10/2015	0:00	0.51	1.44	1.30	3.28	2.63	-0.45	2.15	0.54	-0.40	0.51	9.80
11/11/2015	0:00	0.51	1.36	1.22	3.03	2.92	-0.40	2.41	0.42	-0.34	0.91	9.80
11/12/2015	0:00	0.51	1.36	1.27	3.09	2.58	-0.40	2.12	0.91	-2.63	1.67	9.80
11/13/2015	0:00	0.51	1.39	1.25	2.97	2.69	-0.37	2.21	0.57	-2.92	0.45	9.85
11/14/2015	0:00	0.54	1.36	1.30	3.20	2.58	-0.28	1.90	0.62	-2.92	0.99	9.91
11/15/2015	0:00	0.51	1.30	1.33	3.11	3.17	-0.06	2.49	1.10	-1.50	-0.25	9.91
11/16/2015	0:00	0.48	1.25	1.10	2.75	3.62	-0.25	2.52	0.57	0.71	1.36	9.88

Snowmelt

Table R-7. Flow inputs for the Snowmelt Scenario based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on hourly data.

Flow inputs for the Snowmelt Scenario based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on hourly data. Units are cms.

Date	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
11/16/2015	0.48	1.25	1.10	2.75	3.62	-0.25	2.52	0.57	0.71	1.36	9.88
11/17/2015	0.37	1.05	1.13	1.95	2.35	0.99	1.02	2.35	-0.11	-1.08	13.76
11/18/2015	0.37	1.08	1.10	1.84	2.18	1.05	1.08	2.94	-0.48	-0.42	13.62
11/19/2015	0.37	1.05	1.10	1.84	1.78	1.13	1.27	3.17	-0.88	-0.48	13.59
11/20/2015	0.37	0.99	1.10	1.87	1.78	1.25	1.10	2.07	0.06	-0.08	13.62
11/21/2015	0.37	1.02	1.13	1.87	1.73	1.39	1.05	2.18	-0.20	-0.08	13.68
11/22/2015	0.37	1.08	1.05	1.93	1.93	1.53	1.05	1.84	0.31	-0.76	13.65
11/23/2015	0.37	1.08	1.05	1.90	1.53	1.27	1.22	2.89	-0.45	-0.06	13.68
11/24/2015	0.37	1.27	1.08	1.67	1.90	0.93	0.93	2.86	-1.13	-0.14	13.68
11/25/2015	0.37	1.02	1.05	1.95	1.84	1.02	0.93	2.52	-0.74	-1.05	13.71
11/26/2015	0.37	0.79	0.93	2.32	1.50	1.10	0.57	2.61	0.34	-1.08	13.79
11/27/2015	0.37	0.85	0.96	2.18	1.59	1.27	0.37	2.55	0.48	-0.14	13.76
11/28/2015	0.37	0.88	1.02	2.04	1.61	1.47	0.68	1.98	0.99	-1.08	13.82
11/29/2015	0.37	0.96	1.02	1.73	1.73	1.36	1.13	1.67	0.99	-0.20	13.82
11/30/2015	0.37	0.74	0.96	1.59	1.78	1.61	0.25	1.73	0.14	-0.08	13.76
12/1/2015	0.37	0.65	0.85	2.49	0.68	1.39	0.34	1.42	0.17	-0.31	13.82
12/2/2015	0.37	0.79	0.88	2.32	2.01	0.68	0.17	-0.20	0.93	0.08	13.82
12/3/2015	0.37	0.91	0.91	2.18	1.84	1.59	0.76	1.25	-0.45	-0.93	13.76
12/4/2015	0.37	0.88	0.82	2.27	2.10	1.19	0.82	1.02	0.48	0.31	13.79
12/5/2015	0.37	0.82	0.85	2.15	1.87	1.30	1.10	1.76	-0.51	0.08	13.71
12/6/2015	0.37	0.76	0.91	2.24	1.59	0.42	1.70	1.95	-0.48	0.28	13.62
12/7/2015	0.37	0.76	0.88	2.27	1.67	-0.31	0.68	0.62	1.10	0.42	13.68
12/8/2015	0.37	0.76	0.79	2.07	1.87	-0.68	0.79	0.34	0.74	0.45	13.59
12/9/2015	0.37	0.76	0.88	2.35	1.27	-0.54	0.71	-0.11	1.13	0.06	13.65
12/10/2015	0.37	0.74	0.82	2.07	1.95	-0.68	0.65	0.25	0.91	0.37	13.76
12/11/2015	0.37	0.74	0.79	1.95	2.01	-0.45	0.79	0.68	0.31	0.00	13.82
12/12/2015	0.34	0.74	0.82	2.04	1.64	-0.42	0.76	0.99	0.45	0.28	13.56
12/13/2015	0.34	0.74	0.82	2.04	1.59	-0.65	0.62	0.11	1.95	-0.54	13.73
12/14/2015	0.34	0.74	0.79	2.01	1.76	-0.65	0.51	0.28	2.35	0.37	13.82
12/15/2015	0.34	0.74	0.74	1.98	1.84	-0.59	0.57	1.59	0.85	-0.31	13.76
12/16/2015	0.34	0.71	0.76	1.98	2.01	-0.54	0.57	1.44	0.91	0.20	13.88
12/17/2015	0.34	0.71	0.76	2.04	1.98	-0.23	0.71	1.95	1.02	-0.74	13.90
12/18/2015	0.34	0.74	0.76	2.04	2.01	0.20	0.45	2.61	1.13	-0.31	13.99
12/19/2015	0.34	0.74	0.82	2.07	1.78	1.36	0.96	2.83	0.93	0.14	13.93

Flow inputs for the Snowmelt Scenario based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on hourly data. Units are cms.

Date	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
12/20/2015	0.34	0.74	0.85	1.93	2.04	1.13	0.99	2.94	1.02	-0.42	13.79
12/21/2015	0.34	0.74	0.82	2.24	2.41	0.54	0.96	2.75	0.74	0.25	13.85
12/22/2015	0.34	0.74	0.82	2.18	2.55	2.10	1.67	4.90	-1.27	-0.57	13.88
12/23/2015	0.34	0.74	0.65	2.32	2.80	2.63	1.02	4.70	0.00	0.00	14.07
12/24/2015	0.34	0.71	0.82	2.01	2.69	2.44	1.61	4.13	-0.20	0.00	13.96
12/25/2015	0.34	0.74	0.79	1.67	2.72	1.78	1.42	2.97	-0.11	1.81	13.96
12/26/2015	0.34	0.74	0.79	1.67	2.18	1.25	1.27	2.24	-0.51	0.85	13.96
12/27/2015	0.34	0.71	0.82	1.76	2.12	0.93	1.27	2.18	-1.02	0.59	13.85
12/28/2015	0.34	0.71	0.79	1.78	2.24	0.82	1.10	2.29	-0.54	-0.48	13.82
12/29/2015	0.34	0.74	0.76	1.78	2.24	1.08	1.22	2.49	-1.08	-0.45	14.16
12/30/2015	0.34	0.74	0.76	1.93	2.07	1.44	1.13	3.34	-0.82	-0.51	13.99
12/31/2015	0.34	0.71	0.82	2.38	1.87	0.28	-0.20	1.84	1.50	-0.23	13.96
1/1/2016	0.34	0.71	0.85	2.01	2.94	-1.22	0.37	1.44	1.44	-1.47	13.96
1/2/2016	0.34	0.74	0.82	0.93	3.40	-2.44	0.34	1.64	2.01	-0.28	13.90
1/3/2016	0.34	0.74	0.82	1.39	0.93	1.08	0.37	2.94	0.08	-2.46	13.88
1/4/2016	0.34	0.74	0.82	1.36	1.98	0.40	0.59	1.42	1.36	-3.11	13.96
1/5/2016	0.34	0.74	0.82	1.05	2.27	1.81	0.91	0.62	2.01	-2.12	13.99
1/6/2016	0.34	0.74	0.79	1.19	1.61	1.64	0.74	0.51	4.28	-3.14	13.99
1/7/2016	0.34	0.76	0.79	1.22	1.64	1.13	0.59	-0.06	4.28	-1.64	13.99
1/8/2016	0.34	0.76	0.79	1.42	1.61	1.42	0.51	0.68	3.26	-0.96	13.99
1/9/2016	0.34	0.76	0.79	1.53	1.70	1.84	0.99	1.67	2.24	-0.31	13.96
1/10/2016	0.34	0.76	0.79	0.96	2.49	1.33	1.08	2.04	1.02	1.59	14.05
1/11/2016	0.34	0.76	0.79	0.65	1.84	1.08	0.31	0.65	4.05	0.62	14.13
1/12/2016	0.34	0.74	0.76	1.42	0.71	1.50	0.34	1.13	1.78	0.31	14.13
1/13/2016	0.34	0.76	0.76	1.42	1.73	1.44	0.28	1.33	1.67	2.04	14.13
1/14/2016	0.34	0.76	0.79	1.36	1.78	1.70	1.05	1.64	-0.54	1.47	14.13
1/15/2016	0.34	0.74	0.79	1.39	1.81	1.76	0.76	2.18	-1.27	0.99	14.13
1/16/2016	0.34	0.74	0.76	1.47	1.67	1.93	0.76	1.98	-1.39	-0.08	14.16
1/17/2016	0.34	0.74	0.74	1.61	1.67	1.93	0.79	2.41	-1.93	-0.08	14.30
1/18/2016	0.34	0.74	0.79	1.56	1.90	2.01	0.76	2.58	-2.04	-0.31	14.27
1/19/2016	0.37	0.74	0.74	1.53	1.90	2.21	1.10	3.00	-1.93	-0.51	14.27
1/20/2016	0.37	0.74	0.71	1.22	2.15	2.07	0.79	2.27	-1.27	0.08	14.22
1/21/2016	0.37	0.74	0.59	1.53	1.61	2.15	0.48	2.29	-1.39	-0.03	14.19
1/22/2016	0.37	0.68	0.74	1.44	1.76	1.93	0.54	2.66	-1.98	-0.06	14.19
1/23/2016	0.37	0.71	0.71	1.25	1.93	2.01	0.48	2.63	-2.21	-0.25	14.33
1/24/2016	0.37	0.71	0.71	1.08	1.78	2.24	0.25	2.86	-2.04	-0.45	14.30
1/25/2016	0.37	0.71	0.71	1.22	1.44	1.90	0.40	2.38	-1.73	0.17	14.30
1/26/2016	0.37	0.71	0.68	1.39	1.44	1.61	0.34	1.56	-0.82	0.03	14.27
1/27/2016	0.37	0.71	0.68	1.42	1.59	1.61	0.14	2.83	-1.73	-0.65	14.30
1/28/2016	0.37	0.71	0.68	1.53	1.47	1.90	0.25	0.96	-0.76	0.71	14.33
1/29/2016	0.37	0.68	0.71	1.53	1.59	1.87	0.20	1.73	-1.39	-0.59	14.30

Flow inputs for the Snowmelt Scenario based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on hourly data. Units are cms.

Date	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
1/30/2016	0.37	0.68	0.71	1.61	1.53	1.87	0.25	1.64	-0.59	0.20	14.30
1/31/2016	0.37	0.74	0.71	1.56	1.61	1.84	0.31	1.93	-0.20	-0.25	14.30
2/1/2016	0.37	0.71	0.74	1.47	1.59	1.90	0.25	1.76	0.54	0.37	14.30
2/2/2016	0.37	0.71	0.71	1.30	1.70	0.48	0.57	0.85	2.07	-0.42	14.30
2/3/2016	0.37	0.71	0.71	1.42	1.42	-0.79	0.54	0.03	2.49	-0.93	14.30
2/4/2016	0.37	0.71	0.68	1.53	1.39	-1.05	0.25	2.07	0.79	-1.02	14.36
2/5/2016	0.37	0.68	0.68	1.30	1.87	0.99	0.54	1.13	1.64	-2.21	14.33
2/6/2016	0.37	0.62	0.62	1.50	1.36	3.48	0.08	1.39	0.08	-0.85	14.27
2/7/2016	0.37	0.62	0.62	1.47	1.53	1.84	1.56	1.47	0.08	0.03	14.27
2/8/2016	0.37	0.62	0.62	1.44	1.78	1.93	1.19	1.47	-1.59	0.34	14.30
2/9/2016	0.37	0.62	0.65	1.25	1.76	1.13	0.40	1.05	-1.05	0.59	14.27
2/10/2016	0.37	0.62	0.65	1.19	1.67	0.57	0.88	0.08	-0.54	0.62	14.24
2/11/2016	0.34	0.62	0.65	1.27	1.50	0.51	0.91	0.62	-1.05	0.65	14.30
2/12/2016	0.34	0.62	0.65	1.36	1.56	0.93	0.59	0.59	-1.39	0.20	14.44
2/13/2016	0.34	0.65	0.62	1.44	1.61	1.10	0.45	1.13	-1.81	-0.28	14.44
2/14/2016	0.34	0.65	0.62	1.42	1.93	1.13	0.25	1.53	-1.87	-0.08	14.38
2/15/2016	0.34	0.62	0.65	1.50	1.95	0.93	0.28	1.93	-1.67	-0.06	14.27
2/16/2016	0.34	0.59	0.62	1.59	2.04	1.16	-0.08	1.84	-1.16	0.03	14.22
2/17/2016	0.34	0.57	0.59	1.44	2.29	1.22	-0.08	1.87	-0.96	0.37	14.07
2/18/2016	0.34	0.54	0.57	1.50	2.21	1.25	-0.06	1.76	-0.42	-0.20	13.99
2/19/2016	0.34	0.54	0.62	1.30	2.38	1.19	-0.06	2.29	-0.17	0.40	14.07
2/20/2016	0.34	0.57	0.59	1.22	2.27	1.81	-0.31	3.62	-1.08	-0.37	13.85
2/21/2016	0.34	0.57	0.59	1.25	2.15	1.05	0.25	1.78	3.03	0.93	13.34
2/22/2016	0.34	0.57	0.59	1.22	2.27	1.05	0.06	0.82	0.76	0.79	14.10
2/23/2016	0.34	0.57	0.59	1.25	2.21	1.05	0.11	1.08	0.54	0.54	13.99
2/24/2016	0.34	0.57	0.57	1.30	2.75	0.68	-0.11	1.13	-0.20	0.54	13.99
2/25/2016	0.34	0.59	0.57	1.30	3.06	1.30	-0.76	1.27	-0.85	0.31	13.99
2/26/2016	0.34	0.59	0.54	1.25	3.14	1.25	-0.68	1.30	-0.23	0.03	14.02
2/27/2016	0.34	0.54	0.59	1.22	3.06	1.27	-0.62	1.19	0.20	0.31	14.05
2/28/2016	0.34	0.54	0.51	1.33	2.83	1.33	-0.57	0.88	0.17	0.42	14.13
3/1/2016	0.34	0.48	0.51	1.36	2.78	0.79	-0.03	1.67	0.06	-0.31	14.10
3/2/2016	0.34	0.51	0.51	1.61	2.83	1.08	-0.59	1.16	0.08	0.25	14.13
3/3/2016	0.34	0.54	0.51	1.56	3.06	1.42	-0.93	1.42	-0.48	-0.14	14.10
3/4/2016	0.34	0.54	0.51	1.59	3.03	1.42	-0.88	1.36	0.17	-0.45	14.13
3/5/2016	0.34	0.51	0.51	1.39	3.31	1.42	-0.93	0.28	0.23	0.76	14.10
3/6/2016	0.34	0.51	0.51	1.61	2.97	1.19	-0.65	0.68	0.37	-0.54	14.10
3/7/2016	0.34	0.54	0.51	1.56	3.37	1.73	-1.16	1.08	-0.68	0.03	14.38
3/8/2016	0.34	0.51	0.54	1.53	3.43	2.32	-1.19	2.18	1.13	-1.10	14.27
3/9/2016	0.34	0.51	0.51	1.44	3.28	1.93	-0.93	0.62	1.02	0.91	14.24
3/10/2016	0.34	0.51	0.57	1.50	3.09	1.47	-0.79	0.79	0.82	-0.23	14.22
3/11/2016	0.34	0.57	0.57	1.76	2.97	1.44	-1.02	0.79	1.67	0.00	14.16

Flow inputs for the Snowmelt Scenario based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on hourly data. Units are cms.

Date	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
3/12/2016	0.34	0.59	0.59	2.01	3.06	1.64	-1.33	0.91	1.47	0.03	14.13
3/13/2016	0.34	0.62	0.62	2.21	3.11	2.01	-1.36	0.76	1.56	0.11	14.10
3/14/2016	0.34	0.65	0.62	2.29	3.37	2.27	-1.59	0.68	1.42	0.40	13.99
3/15/2016	0.34	0.65	0.62	2.46	3.51	2.55	-1.59	0.79	0.08	0.59	14.02
3/16/2016	0.34	0.68	0.65	2.58	3.54	2.94	-1.50	-0.37	1.19	0.25	14.02
3/17/2016	0.34	0.74	0.65	3.31	3.40	2.18	-1.22	-1.87	3.09	0.11	14.07
3/18/2016	0.34	0.68	0.71	3.09	4.33	-1.25	-0.37	-2.04	3.96	0.82	14.10
3/19/2016	0.34	0.68	0.68	3.03	4.45	-3.00	0.00	-1.70	3.65	1.42	14.02
3/20/2016	0.34	0.65	0.68	2.86	4.67	-3.26	0.11	-1.61	2.75	1.08	13.96
3/21/2016	0.34	0.65	0.68	2.66	4.59	-4.05	0.91	-2.21	3.20	0.68	13.96
3/22/2016	0.34	0.65	0.65	2.52	4.50	-3.43	0.45	-1.33	3.31	-0.23	14.05
3/23/2016	0.34	0.62	0.76	2.15	4.25	-2.66	0.31	-1.10	2.58	0.54	13.99
3/24/2016	0.34	0.62	0.68	2.41	3.77	-2.92	0.85	0.23	0.20	0.37	13.99
3/25/2016	0.34	0.59	0.71	2.29	3.88	-1.93	0.14	0.08	-0.06	0.08	13.99
3/26/2016	0.34	0.59	0.68	2.18	3.94	-2.07	0.37	0.00	0.45	-0.40	14.05
3/27/2016	0.34	0.59	0.85	2.12	3.82	-1.90	0.25	-0.31	0.11	0.25	14.10
3/28/2016	0.34	0.59	0.79	2.10	3.79	-1.98	0.31	-0.20	-0.11	0.25	14.10
3/29/2016	0.34	0.62	0.79	2.12	3.71	-2.29	0.08	-0.25	0.85	-0.82	14.07
3/30/2016	0.37	0.68	0.79	2.29	3.60	-2.38	-0.17	-0.14	-0.96	0.99	14.02
3/31/2016	0.48	0.85	0.96	2.86	3.17	-2.49	-0.54	-0.28	-0.42	-0.82	14.10
4/1/2016	0.71	1.10	1.30	4.53	3.48	-2.18	-2.94	-1.19	-1.53	0.88	14.07
4/2/2016	0.93	1.33	1.70	5.89	5.13	-3.26	-4.73	-1.33	-1.90	-0.42	14.05
4/3/2016	0.91	1.39	1.81	7.59	7.82	-1.10	-7.16	-2.07	-2.52	-0.17	14.07
4/4/2016	0.62	1.16	1.53	5.18	10.02	-1.98	-2.55	-3.62	0.11	-1.22	14.02
4/5/2016	0.62	1.22	1.53	4.81	8.44	-0.08	-3.34	-3.74	1.16	4.79	14.02
4/6/2016	0.76	1.30	1.87	6.71	7.96	0.79	-3.03	-4.11	-2.38	0.28	14.13
4/7/2016	0.62	1.22	1.70	5.83	9.12	2.80	-1.87	-3.57	-2.58	0.59	14.27
4/8/2016	0.54	1.10	1.56	4.98	8.72	-0.54	-0.51	-3.57	0.28	4.25	14.16
4/9/2016	0.48	1.05	1.39	4.36	8.21	-7.45	-1.02	-2.72	2.38	4.62	14.10
4/10/2016	0.45	1.02	1.30	3.71	8.07	-7.67	-1.36	-2.66	1.50	2.01	14.13
4/11/2016	0.45	0.99	1.22	3.40	7.82	-7.79	-1.70	-3.99	2.12	1.98	14.13
4/12/2016	0.48	1.08	1.33	3.57	7.25	-7.53	-2.04	-3.40	-0.54	3.37	14.13
4/13/2016	0.54	1.16	1.47	3.54	6.97	-7.14	-1.61	-4.02	-1.33	2.80	14.10
4/14/2016	0.59	1.25	1.59	4.16	6.99	-8.38	-0.68	-4.33	-0.82	1.78	14.07
4/15/2016	0.51	1.16	1.47	4.02	7.79	-8.04	-1.27	-6.63	-1.36	1.90	16.57
4/16/2016	0.54	1.22	1.53	4.53	7.05	-8.78	-0.82	-3.14	-4.93	1.56	17.90
4/17/2016	0.71	1.53	1.98	6.48	6.68	-10.08	-2.27	-3.06	-4.19	3.40	17.90
4/18/2016	1.05	1.98	2.46	9.06	8.55	-9.03	-6.68	-3.68	-5.10	3.40	17.84
4/19/2016	1.10	2.29	2.69	11.04	11.47	-6.29	-7.90	-5.10	-7.93	1.30	17.92
4/20/2016	0.82	2.12	2.52	8.86	12.74	-3.91	-7.31	-3.79	-4.42	1.67	15.18
4/21/2016	0.82	2.18	2.52	8.83	11.10	-6.57	-6.03	-4.90	-0.96	6.06	13.88

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Date	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
4/22/2016	0.85	2.15	2.46	8.52	11.84	-6.26	-6.97	-4.93	-3.17	4.05	13.82
4/23/2016	0.88	2.01	2.44	7.93	12.03	-6.63	-6.23	-4.90	-2.86	3.85	13.88
4/24/2016	0.74	1.95	2.27	7.65	12.23	-5.38	-6.00	-3.77	-5.13	3.48	14.22
4/25/2016	0.65	1.84	2.10	7.11	12.52	-5.49	-4.79	-1.73	-2.61	1.81	14.22
4/26/2016	0.59	1.81	2.04	7.59	11.81	-6.74	-5.61	-1.30	0.62	6.37	14.02
4/27/2016	0.54	1.64	1.87	6.29	11.07	-5.89	-4.16	-4.76	2.66	4.93	13.96
4/28/2016	0.54	1.56	1.87	5.97	10.73	-7.42	-4.96	-6.65	4.22	6.29	13.93
4/29/2016	0.57	1.64	2.01	6.40	10.73	-8.47	-5.72	-7.25	3.17	5.01	13.90
4/30/2016	0.54	1.53	1.90	5.92	11.47	-7.53	-6.12	-7.56	2.10	3.77	13.88
5/1/2016	0.51	1.44	1.70	5.24	11.30	-7.36	-5.97	-7.70	2.27	3.43	13.88
5/2/2016	0.48	1.36	1.61	4.64	10.73	-7.65	-4.96	-7.99	1.67	4.05	13.93
5/3/2016	0.48	1.30	1.53	4.28	10.22	-8.18	-4.22	-8.30	1.64	4.39	13.90
5/4/2016	0.54	1.36	1.64	4.22	9.06	-8.75	-3.65	-8.86	1.70	4.11	13.88
5/5/2016	0.71	1.53	1.95	5.07	8.10	-8.72	-4.59	-11.38	1.39	3.34	16.03
5/6/2016	1.10	1.93	2.41	6.99	8.13	-8.58	-6.65	-12.40	0.00	2.04	18.46
5/7/2016	1.50	2.72	3.54	10.34	8.10	-7.84	-10.68	-8.95	-2.27	1.39	18.49
5/8/2016	2.10	4.08	5.07	14.13	12.29	-7.65	-14.24	-6.43	-7.93	-0.54	18.49
5/9/2016	2.21	4.70	5.10	15.91	19.94	-8.21	-13.59	0.93	-12.74	-2.55	15.49
5/10/2016	1.42	3.65	3.34	11.95	20.70	-3.96	-11.13	-4.50	-3.96	2.83	14.13
5/11/2016	1.10	3.23	3.00	10.62	16.31	-4.25	-11.13	-5.07	-3.43	8.24	14.30
5/12/2016	0.93	2.83	2.89	8.98	14.10	-3.71	-9.91	-6.71	-2.07	5.21	14.27
5/13/2016	0.96	2.72	2.83	8.86	12.09	-4.79	-9.85	-9.12	1.64	4.05	14.27
5/14/2016	1.25	3.20	3.20	11.38	11.84	-6.94	-11.67	-9.49	1.56	3.74	14.27
5/15/2016	1.90	3.91	3.88	13.93	14.05	-6.23	-14.38	-7.79	-3.48	0.62	14.27
5/16/2016	2.61	5.35	6.43	18.18	18.97	-7.93	-17.50	-4.11	-10.99	-0.08	14.27
5/17/2016	2.32	5.78	6.85	18.46	25.77	-4.81	-12.18	-2.10	-13.88	-2.55	14.27
5/18/2016	1.53	4.90	4.90	13.79	25.85	-4.25	-9.06	-8.72	3.68	-0.28	14.38
5/19/2016	1.22	4.13	3.79	11.86	22.88	-1.70	-10.19	-5.95	-2.27	3.40	14.44
5/20/2016	0.99	3.54	3.34	10.48	19.03	1.13	-10.87	-3.43	-1.13	4.25	14.47
5/21/2016	0.88	3.20	3.26	9.85	16.23	1.42	-10.82	-3.40	-2.55	6.51	14.44
5/22/2016	0.88	3.11	3.31	10.53	15.86	-2.27	-10.05	-5.13	-1.42	6.80	14.44
5/23/2016	1.19	3.51	3.45	12.52	18.12	-5.66	-12.29	-6.97	-1.98	6.51	14.41
5/24/2016	1.22	3.62	3.45	12.63	21.83	-5.38	-12.86	-6.71	-7.36	3.96	14.36
5/25/2016	1.22	3.40	2.27	12.29	21.61	-4.25	-11.16	-5.64	-5.66	3.11	14.41
5/26/2016	1.70	3.94	1.42	14.78	19.79	-5.38	-12.88	-6.26	-2.27	7.36	14.33
5/27/2016	2.80	5.69	2.27	18.41	20.67	-7.93	-14.41	-6.94	-7.08	5.10	14.30
5/28/2016	4.79	9.37	7.05	24.38	20.39	-9.34	-13.31	-4.98	-16.14	1.70	14.33
5/29/2016	6.82	13.73	13.71	30.58	28.88	-12.46	-7.36	-4.13	-9.34	-7.65	14.33
5/30/2016	5.61	13.31	16.20	26.62	43.89	-13.88	4.53	-6.14	6.80	-13.88	14.36
5/31/2016	4.11	9.94	11.75	19.79	34.55	-8.50	5.66	-9.77	18.41	1.13	14.30
6/1/2016	5.52	12.69	14.07	23.22	26.05	-11.33	-2.55	-7.79	5.10	3.96	14.30

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Date	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
6/2/2016	6.80	16.08	15.35	29.45	28.03	-10.76	-1.70	2.15	-9.34	-6.80	14.27
6/3/2016	6.74	15.83	16.23	29.45	32.00	-7.93	1.42	-0.99	0.57	-8.21	14.30
6/4/2016	7.08	16.40	16.45	30.02	28.32	-6.80	1.70	-3.40	4.81	-5.38	14.16
6/5/2016	7.76	21.38	16.74	41.06	26.62	-9.34	0.00	-9.03	0.28	-8.50	14.13
6/6/2016	9.23	25.29	18.72	47.57	29.45	-14.44	5.95	-21.24	-17.84	-7.08	37.94
6/7/2016	9.68	24.58	25.20	43.61	41.91	-18.97	13.88	1.13	-56.63	-8.50	71.36
6/8/2016	9.60	22.91	23.56	37.66	38.51	-18.41	17.27	-12.46	-36.53	-2.27	113.83
6/9/2016	8.81	22.85	22.99	35.68	34.55	-14.72	9.63	-18.12	-15.57	-10.19	151.21
6/10/2016	9.32	23.93	18.86	39.36	31.43	-13.88	7.93	-18.69	2.27	7.65	148.10
6/11/2016	9.20	25.03	21.27	38.23	29.45	-12.18	5.10	-16.99	-0.28	7.08	146.96
6/12/2016	8.75	24.15	19.48	42.76	27.75	-8.21	3.68	-23.50	7.08	2.83	146.68
6/13/2016	8.27	22.48	18.52	35.68	27.47	0.00	3.68	-23.50	14.44	2.55	146.96
6/14/2016	7.99	22.91	20.93	34.55	19.82	2.55	-1.42	-20.39	13.59	7.08	146.96
6/15/2016	8.69	24.89	19.94	38.23	19.26	-2.27	-0.57	-1.98	13.31	3.68	123.74
6/16/2016	9.83	25.85	20.67	45.02	16.71	-8.21	-1.42	4.81	-4.81	28.32	81.84
6/17/2016	8.78	24.13	18.07	45.59	29.17	-9.06	0.28	18.12	-25.20	19.82	47.29
6/18/2016	7.02	19.96	14.36	38.51	22.09	-3.68	1.42	17.33	-4.81	21.80	13.82
6/19/2016	6.48	18.97	17.58	33.98	23.50	-5.95	-2.83	4.56	-4.81	2.27	13.28
6/20/2016	4.76	14.61	12.91	29.73	22.94	-4.81	0.28	7.99	-2.83	5.38	13.25
6/21/2016	3.91	12.57	9.66	28.52	16.71	-6.51	-1.13	0.88	2.55	5.38	13.28
6/22/2016	4.93	15.43	11.07	33.13	12.46	-9.63	-5.95	-3.91	-4.81	3.40	13.25
6/23/2016	6.46	19.60	15.29	33.98	11.61	-9.06	-6.23	-0.20	-9.34	-4.81	13.22
6/24/2016	7.19	21.44	16.68	35.40	15.86	-7.08	-5.95	3.26	-12.74	-5.38	13.17
6/25/2016	6.82	20.36	18.12	32.28	18.97	-6.51	-3.96	4.67	-9.06	-5.66	13.17
6/26/2016	6.14	19.45	18.01	32.56	13.88	-6.80	-2.83	4.64	-7.08	-3.68	13.20
6/27/2016	5.47	18.07	17.24	32.00	10.48	-7.65	-2.83	3.57	-5.66	-2.83	13.14
6/28/2016	4.90	17.78	18.38	29.73	8.78	-8.21	-4.81	2.29	-6.23	-3.11	13.28
6/29/2016	5.30	18.41	17.92	30.02	6.23	-3.40	-5.66	4.22	-9.63	-4.81	13.34
6/30/2016	5.55	19.82	19.65	31.43	6.80	0.00	-5.95	7.28	-12.46	-9.06	13.39
7/1/2016	4.56	17.27	14.41	29.73	10.48	2.83	-2.83	8.18	-8.50	-5.10	13.34
7/2/2016	3.91	16.34	13.73	25.20	6.51	3.11	-3.40	4.50	-4.81	0.00	13.34
7/3/2016	3.43	15.66	11.78	24.35	6.23	3.11	-4.81	0.99	-5.38	-3.40	13.45
7/4/2016	3.06	14.24	7.19	24.49	5.95	3.68	-5.38	-1.25	-4.53	-3.68	13.42
7/5/2016	3.34	13.99	11.84	19.26	3.40	2.55	-6.51	-5.21	-4.81	-2.27	13.42
7/6/2016	3.14	13.54	14.47	16.71	3.96	1.98	-7.36	-6.34	-5.38	-3.11	13.42
7/7/2016	2.86	13.22	13.08	15.86	5.38	2.55	-7.65	-6.34	-6.80	-1.98	13.42
7/8/2016	2.69	13.39	13.08	13.88	4.53	2.55	-7.65	-7.79	-6.51	-1.70	13.45
7/9/2016	2.92	14.19	15.74	15.01	1.98	2.55	-8.50	-6.91	-7.65	-2.27	13.42
7/10/2016	2.78	14.13	14.24	16.99	3.40	2.83	-7.36	-3.82	-8.50	-3.40	13.45
7/11/2016	2.78	13.59	13.37	15.01	3.96	2.83	-6.51	-4.16	-5.66	0.00	13.51
7/12/2016	2.80	13.39	13.82	17.56	5.66	3.96	-8.21	3.48	-10.76	-1.13	13.51

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Date	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
7/13/2016	2.55	12.35	12.03	13.85	8.21	4.81	-4.81	1.56	-5.95	0.57	13.45
7/14/2016	2.35	10.93	10.87	10.96	7.36	4.25	-5.66	-2.32	-1.70	-0.85	13.37
7/15/2016	2.12	9.63	9.29	8.69	7.65	4.25	-6.51	-4.33	-0.85	1.13	13.39
7/16/2016	1.93	8.81	7.96	8.18	6.82	3.40	-7.08	-5.44	-3.11	1.13	13.37
7/17/2016	1.90	8.72	8.92	6.26	5.64	3.40	-7.33	-5.78	-4.53	1.13	13.42
7/18/2016	2.04	9.66	13.05	3.85	3.96	2.55	-7.76	-5.66	-6.51	0.85	13.31
7/19/2016	1.93	10.11	13.90	3.79	4.81	3.40	-7.93	-5.18	-7.65	-1.70	13.39
7/20/2016	1.61	9.15	10.25	4.56	6.14	3.68	-7.73	-5.10	-5.66	0.28	13.31
7/21/2016	1.44	8.01	5.92	7.45	5.49	3.40	-7.70	-5.58	-4.53	1.70	13.34
7/22/2016	1.27	7.19	3.20	8.44	5.21	2.38	-6.68	-6.23	-5.04	2.63	13.34
7/23/2016	1.16	6.48	3.06	7.56	4.13	1.64	-5.89	-7.62	-4.02	2.72	13.28
7/24/2016	1.08	6.12	2.86	6.97	3.91	1.02	-5.86	-8.16	-2.78	2.69	13.28
7/25/2016	1.13	6.03	3.57	7.22	1.95	0.51	-5.49	-7.84	-3.43	2.80	13.51
7/26/2016	1.19	6.26	4.79	11.27	0.57	-0.76	-7.96	-6.34	-4.19	1.70	13.42
7/27/2016	1.10	6.23	3.99	12.66	1.98	0.76	-7.65	20.73	0.00	-7.65	13.45
7/28/2016	1.02	5.78	3.40	8.52	3.79	1.36	-5.10	-5.61	27.75	-6.23	13.39
7/29/2016	0.93	5.44	3.14	6.97	3.34	0.42	-5.07	-6.60	16.28	17.27	13.34
7/30/2016	0.91	5.41	3.26	8.13	1.70	-0.20	-6.00	-8.58	1.61	5.07	13.37
7/31/2016	0.82	4.96	3.40	8.72	4.16	0.00	-6.85	-8.21	-1.95	5.13	13.37
8/1/2016	0.85	4.98	3.14	7.99	3.23	0.91	-4.98	-6.97	-3.65	2.27	13.45
8/2/2016	0.91	4.98	2.75	7.99	3.34	1.59	-6.06	-1.27	-5.66	1.30	13.45
8/3/2016	0.88	5.01	2.55	8.89	3.60	1.13	-5.61	-6.99	-2.94	4.87	13.37
8/4/2016	0.91	5.04	2.32	8.55	3.71	1.10	-5.30	-7.50	-2.38	3.88	13.37
8/5/2016	0.79	4.59	2.35	7.70	4.33	1.19	-5.86	-7.82	-2.01	4.11	13.37
8/6/2016	0.74	4.02	2.41	6.51	3.77	1.30	-5.18	-8.55	-2.46	2.24	13.31
8/7/2016	0.71	3.57	2.27	5.83	2.86	0.82	-5.01	-8.89	-1.78	1.61	13.34
8/8/2016	0.68	3.11	2.24	5.35	2.58	0.40	-4.39	-9.60	-1.53	1.87	13.22
8/9/2016	0.65	2.83	2.18	4.84	2.44	0.42	-4.98	-14.13	-2.24	1.78	18.86
8/10/2016	0.65	2.72	2.04	4.53	2.07	0.25	-5.61	-7.16	-8.04	-1.98	21.95
8/11/2016	0.62	2.61	2.04	4.93	0.88	0.14	-4.93	-6.99	-3.94	0.68	21.89
8/12/2016	0.62	2.49	1.98	5.27	1.42	-0.28	-5.55	-4.28	-5.72	0.65	21.89
8/13/2016	0.59	2.35	1.90	4.45	1.76	0.31	-5.15	-8.21	-3.79	2.04	21.86
8/14/2016	0.59	2.29	1.87	4.62	0.68	0.06	-4.42	-8.13	-3.51	0.31	21.95
8/15/2016	0.59	2.21	1.76	4.28	1.19	0.23	-4.73	-9.63	-4.22	1.81	23.87
8/16/2016	0.59	2.10	1.78	3.85	1.30	0.45	-4.45	-5.13	-9.34	-0.03	24.72
8/17/2016	0.57	2.07	1.73	3.77	1.13	-0.08	-4.05	-6.12	-5.18	0.85	23.50
8/18/2016	0.57	1.98	1.67	3.51	1.05	0.11	-3.94	-6.82	-7.96	2.66	24.55
8/19/2016	0.59	1.93	1.70	3.34	0.85	0.03	-3.74	-5.78	-7.84	1.95	24.55
8/20/2016	0.59	1.95	1.95	3.20	0.34	0.68	-4.22	-5.38	-6.91	1.30	24.58
8/21/2016	0.57	1.87	2.04	3.43	0.08	0.57	-3.51	-4.42	-6.74	1.33	24.66
8/22/2016	0.65	1.93	1.95	3.11	0.42	0.65	-3.71	-5.44	-5.24	1.53	24.64

Flow inputs for the Snowmelt Scenario based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on hourly data. Units are cms.

Date	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
8/23/2016	0.57	1.81	1.78	3.11	0.48	0.45	-3.17	-5.13	-6.09	1.64	24.58
8/24/2016	0.57	1.73	1.73	3.14	0.34	0.31	-3.37	-5.21	-6.03	1.76	24.52
8/25/2016	0.57	1.70	1.67	3.20	0.40	0.74	-3.79	-2.27	-9.20	0.85	24.47
8/26/2016	0.57	1.70	1.70	3.51	0.08	0.45	-3.68	-4.30	-3.43	-0.42	24.58
8/27/2016	0.54	1.64	1.70	3.65	0.06	0.54	-3.91	-2.66	-8.30	3.40	24.58
8/28/2016	0.57	1.64	1.81	3.20	0.71	0.79	-4.22	-3.40	-5.86	0.28	24.61
8/29/2016	0.57	1.73	2.07	3.88	0.28	1.44	-4.81	-3.74	-1.87	-0.91	24.58
8/30/2016	0.54	1.64	1.90	4.16	0.62	1.27	-5.01	-4.45	-1.50	1.67	24.49
8/31/2016	0.54	1.61	1.81	3.62	1.10	1.78	-5.13	-3.37	-3.03	1.13	23.19
9/1/2016	0.51	1.59	1.78	3.88	0.59	1.81	-4.73	-5.01	-2.94	1.36	22.14
9/2/2016	0.51	1.47	1.61	3.48	1.50	2.04	-5.15	-4.73	-4.93	1.36	22.14
9/3/2016	0.51	1.42	1.53	3.17	1.30	2.04	-4.67	-4.22	-5.61	2.94	22.03
9/4/2016	0.51	1.36	1.44	3.03	0.99	1.84	-4.19	-4.45	-4.19	1.93	22.09
9/5/2016	0.48	1.33	1.42	2.86	1.05	1.84	-4.30	-4.84	-5.32	1.90	22.09
9/6/2016	0.51	1.33	1.42	2.83	1.08	1.90	-4.36	-4.62	-3.96	0.37	22.12
9/7/2016	0.51	1.36	1.36	3.00	1.02	2.12	-4.70	-2.41	-7.14	1.59	22.12
9/8/2016	0.48	1.27	1.33	2.75	1.02	2.07	-4.30	-4.76	-3.26	0.40	22.09
9/9/2016	0.48	1.25	1.30	2.72	0.74	1.95	-4.16	-3.43	-4.33	0.71	22.14
9/10/2016	0.48	1.25	1.27	2.66	0.65	2.18	-3.99	-0.85	-3.31	-1.42	22.29
9/11/2016	0.48	1.22	1.27	2.61	0.48	2.21	-3.77	4.25	5.10	4.53	22.23
9/12/2016	0.54	1.27	1.39	2.66	0.14	1.76	-3.51	0.91	13.20	5.10	22.29
9/13/2016	0.51	1.22	1.27	2.63	0.57	1.76	-3.71	-1.93	0.20	7.73	22.26
9/14/2016	0.54	1.33	1.42	2.72	0.34	2.86	-4.30	7.62	-11.41	2.63	20.76
9/15/2016	0.62	1.56	1.70	3.79	-0.08	4.22	-5.92	14.78	-6.51	5.10	17.75
9/16/2016	0.57	1.61	1.84	4.73	-0.28	5.30	-6.57	23.39	18.12	-6.80	18.86
9/17/2016	0.76	2.01	2.41	5.66	-1.50	5.10	-6.06	19.79	2.27	3.11	18.94
9/18/2016	0.62	1.95	2.38	6.85	0.68	4.79	-7.28	8.98	0.85	5.66	18.89
9/19/2016	0.59	1.81	2.38	6.17	0.74	6.09	-5.04	-0.08	0.57	3.40	18.86
9/20/2016	0.57	1.76	2.29	5.38	0.54	5.30	-5.07	0.31	1.13	3.40	17.27
9/21/2016	0.54	1.70	2.15	4.76	0.54	4.33	-4.98	3.45	-1.95	5.21	13.28
9/22/2016	0.54	1.64	1.98	4.25	0.31	3.54	-4.45	-0.74	-2.52	3.88	13.14
9/23/2016	0.51	1.59	1.84	3.91	0.37	2.80	-4.30	-2.92	-2.24	3.26	13.31
9/24/2016	0.51	1.53	1.73	3.48	0.57	2.49	-4.02	-3.68	-2.58	2.52	13.31
9/25/2016	0.51	1.47	1.64	3.23	0.54	1.95	-3.45	-4.22	-2.41	2.07	13.34
9/26/2016	0.51	1.42	1.56	3.23	0.37	1.59	-3.37	-5.18	-2.94	2.44	14.64
9/27/2016	0.51	1.39	1.50	3.09	0.48	1.42	-3.43	-4.39	-8.13	2.38	17.92
9/28/2016	0.51	1.33	1.42	2.97	0.57	1.02	-3.00	-4.30	-6.12	0.31	18.69
9/29/2016	0.51	1.33	1.39	2.78	0.68	0.79	-2.92	-4.39	-7.48	1.93	20.50
9/30/2016	0.51	1.30	1.42	2.72	0.25	0.51	-2.21	-3.96	-7.14	1.10	20.53
10/1/2016	0.48	1.27	1.42	2.63	0.34	-0.08	-1.84	-4.36	-6.63	1.47	20.67
10/2/2016	0.48	1.22	1.39	2.55	0.40	-0.31	-1.67	-4.59	-6.43	1.59	20.67

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Date	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
10/3/2016	0.48	1.22	1.33	2.63	0.17	-0.25	-1.61	-4.56	-5.80	1.08	20.73
10/4/2016	0.59	1.39	1.67	2.75	0.06	1.19	-2.97	-2.49	-6.31	4.33	20.90
10/5/2016	0.57	1.44	1.78	3.85	0.54	2.21	-3.14	7.08	1.42	-3.11	18.94
10/6/2016	0.59	1.64	2.10	5.75	0.37	3.14	-3.94	0.48	14.78	17.84	16.54
10/7/2016	0.59	1.50	1.87	4.67	3.62	5.47	-4.42	2.89	8.50	9.34	14.87
10/8/2016	0.59	1.59	1.84	4.42	2.38	4.02	-2.89	2.66	2.55	3.40	14.84
10/9/2016	0.57	1.44	1.70	4.28	2.15	3.57	-2.58	1.13	1.47	2.27	14.84
10/10/2016	0.57	1.39	1.64	3.88	2.04	3.20	-2.32	0.28	-1.61	3.99	14.84
10/11/2016	0.59	1.44	1.67	4.13	1.36	2.58	-2.21	-1.05	-2.12	3.03	14.81
10/12/2016	0.59	1.42	1.73	4.19	1.59	2.35	-2.44	-1.95	-2.24	3.34	14.75
10/13/2016	0.59	1.39	1.70	4.28	1.64	1.84	-2.27	-2.32	-2.58	2.75	14.78
10/14/2016	0.59	1.44	1.76	4.56	1.50	1.73	-2.55	-1.78	-4.28	2.80	14.81
10/15/2016	0.59	1.44	1.81	4.79	1.64	1.73	-2.97	-1.47	-5.55	2.10	14.84
10/16/2016	0.59	1.47	1.84	4.96	1.61	1.73	-3.03	0.00	-6.57	1.36	14.87
10/17/2016	0.59	1.50	1.90	4.84	1.76	2.07	-3.20	-0.42	-5.55	1.98	14.92
10/18/2016	0.54	1.42	1.73	4.50	2.29	2.35	-2.86	-0.20	-6.88	1.67	14.95
10/19/2016	0.54	1.33	1.61	4.22	1.95	1.87	-2.27	2.38	-8.75	1.39	14.98
10/20/2016	0.51	1.30	1.59	3.99	1.87	2.01	-2.75	-1.02	-1.73	1.39	15.04
10/21/2016	0.51	1.22	1.50	3.82	1.87	1.84	-2.15	-0.82	-5.18	3.31	15.01
10/22/2016	0.51	1.19	1.47	3.68	1.95	1.61	-2.18	-1.13	-5.52	1.95	15.01
10/23/2016	0.51	1.16	1.42	3.54	1.98	1.50	-1.98	-1.50	-4.93	1.78	15.04
10/24/2016	0.51	1.13	1.39	3.40	1.93	1.25	-1.87	-1.70	-4.47	1.59	15.06
10/25/2016	0.51	1.22	1.47	3.45	1.50	1.10	-1.87	-1.36	-4.13	1.64	15.18
10/26/2016	0.54	1.25	1.56	3.91	1.98	3.74	-2.38	2.52	-7.31	24.86	15.35
10/27/2016	0.54	1.22	1.42	3.51	2.92	4.19	-1.70	5.01	-1.13	4.53	15.21
10/28/2016	0.51	1.13	1.30	3.62	2.78	3.11	-1.10	2.52	1.42	1.98	15.23
10/29/2016	0.51	1.10	1.27	3.57	2.29	2.69	-0.45	1.30	1.13	0.85	15.23
10/30/2016	0.51	1.10	1.27	3.40	2.55	2.32	-0.85	0.79	-1.22	0.68	15.23
10/31/2016	0.51	1.08	1.27	3.34	2.52	2.24	-0.48	3.37	-4.02	-0.65	15.23
11/1/2016	0.48	1.08	1.30	3.23	2.49	2.04	-0.23	7.11	-3.62	-0.51	12.37
11/2/2016	0.48	1.10	1.27	3.14	2.63	2.12	-0.31	1.53	0.93	1.98	9.51
11/3/2016	0.48	1.05	1.13	2.83	2.89	2.21	-0.06	0.93	-1.56	0.06	9.60
11/4/2016	0.48	1.05	1.16	3.11	2.24	1.73	0.28	0.82	-1.30	0.08	9.94
11/5/2016	0.51	1.08	1.27	3.00	2.72	2.75	-0.65	1.30	-2.07	0.28	10.00
11/6/2016	0.48	1.05	1.19	2.97	2.97	3.00	-0.23	1.67	-1.90	-0.51	9.85
11/7/2016	0.48	1.05	1.19	2.94	2.86	2.55	-0.23	1.30	-1.59	0.74	10.00
11/8/2016	0.48	1.08	1.08	2.83	2.83	2.61	-0.17	4.96	-3.96	-0.34	9.85
11/9/2016	0.48	0.99	0.88	2.69	2.94	2.27	0.03	3.43	-0.91	0.14	9.85
11/10/2016	0.48	0.91	1.02	2.55	2.72	1.84	0.28	2.10	0.62	-0.20	9.91
11/11/2016	0.48	0.85	1.13	3.06	2.24	1.76	0.08	1.73	0.08	-0.03	9.94
11/12/2016	0.48	0.88	1.22	2.86	2.46	1.78	0.14	1.67	-0.59	0.31	9.91

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Date	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
11/13/2016	0.48	0.88	1.22	2.80	2.49	2.04	0.14	2.86	-1.05	-0.23	9.97
11/14/2016	0.48	0.88	1.13	2.83	2.58	2.10	0.23	3.17	0.88	-0.99	9.85
11/15/2016	0.48	0.88	1.10	2.66	2.58	2.01	0.45	1.59	1.73	0.91	9.85
11/16/2016	0.45	0.85	1.08	2.72	2.55	1.61	0.37	1.33	1.81	0.28	9.85
11/17/2016	0.45	0.82	1.05	2.72	2.38	1.73	0.48	0.93	1.13	0.71	9.77
11/18/2016	0.42	0.82	1.16	2.63	2.18	1.70	0.25	0.85	0.14	1.08	9.77
11/19/2016	0.42	0.82	1.16	2.61	2.10	1.87	0.31	0.65	-0.03	0.51	9.83
11/20/2016	0.42	0.79	1.13	2.52	2.18	1.67	0.57	0.99	-0.34	0.34	9.77
11/21/2016	0.42	0.79	1.16	2.55	2.15	1.47	0.45	0.93	-0.51	1.05	9.80
11/22/2016	0.42	0.79	1.13	2.49	2.21	1.42	0.54	0.91	-1.39	0.93	9.77
11/23/2016	0.42	0.79	1.05	2.44	2.21	1.25	0.59	0.74	-1.50	0.96	9.77
11/24/2016	0.42	0.74	1.16	2.41	2.04	1.02	0.68	0.62	-1.44	0.85	9.77
11/25/2016	0.42	0.79	1.10	2.58	1.95	0.99	0.65	1.50	-2.44	0.62	9.85
11/26/2016	0.42	0.76	1.08	2.49	2.07	1.16	0.71	0.85	-0.85	0.20	9.71
11/27/2016	0.42	0.79	1.08	2.24	2.04	0.85	0.85	0.31	0.51	-0.11	9.71
11/28/2016	0.42	0.76	0.96	2.38	2.07	0.71	0.71	0.31	0.17	0.68	9.68
11/29/2016	0.42	0.74	0.93	2.38	2.18	0.91	0.82	0.62	-1.02	0.23	9.68
11/30/2016	0.40	0.74	0.91	2.21	2.27	0.91	0.91	0.74	-1.05	0.48	9.63
12/1/2016	0.42	0.74	0.82	2.27	2.15	0.76	1.02	-1.78	-0.48	-0.23	12.71
12/2/2016	0.42	0.71	0.82	2.38	2.10	0.93	0.82	3.74	-3.85	-1.22	13.85
12/3/2016	0.42	0.71	0.82	2.38	2.12	0.88	0.88	3.77	-1.98	-0.93	13.88
12/4/2016	0.42	0.71	0.79	2.29	2.15	0.85	0.93	3.74	-1.59	-0.23	13.76
12/5/2016	0.42	0.71	0.79	2.10	2.27	0.57	0.99	3.43	-1.56	0.17	13.68
12/6/2016	0.42	0.71	0.79	1.93	2.04	0.88	1.10	3.26	-2.35	0.40	13.65
12/7/2016	0.42	0.71	0.79	1.84	1.78	0.62	1.13	3.03	-1.59	-0.20	13.62
12/8/2016	0.42	0.71	0.79	1.93	1.73	0.76	1.13	3.11	-2.15	0.71	13.62
12/9/2016	0.42	0.71	0.79	1.95	1.70	1.13	0.91	3.00	-2.01	0.28	13.59
12/10/2016	0.40	0.71	0.79	1.98	1.42	1.67	0.65	3.03	-2.01	0.71	13.51
12/11/2016	0.40	0.71	0.79	1.81	1.56	1.47	0.57	3.00	-1.39	0.08	13.54
12/12/2016	0.40	0.71	0.76	1.84	1.56	1.25	0.65	2.92	-1.27	-0.06	13.51
12/13/2016	0.42	0.71	0.74	2.52	1.36	1.27	0.65	4.28	-3.26	0.14	13.54
12/14/2016	0.42	0.71	0.74	2.07	2.49	1.84	0.11	4.98	-2.78	-0.25	13.45
12/15/2016	0.40	0.71	0.76	1.90	2.04	2.29	0.31	4.11	-3.06	0.54	13.42
12/16/2016	0.40	0.71	0.76	1.25	2.04	1.70	0.65	4.11	-2.63	0.37	13.37
12/17/2016	0.40	0.71	0.74	1.25	1.98	1.39	0.51	3.71	-1.87	-0.11	13.31
12/18/2016	0.40	0.71	0.74	1.67	1.73	1.39	0.42	4.13	-2.21	-0.08	13.34
12/19/2016	0.42	0.71	0.71	1.84	2.04	1.64	0.08	4.39	-2.83	0.28	13.34
12/20/2016	0.40	0.71	0.74	1.81	2.29	1.93	-0.03	4.90	-2.92	-0.20	13.34
12/21/2016	0.40	0.71	0.74	1.90	1.90	1.90	0.37	4.76	-2.38	-0.11	13.31
12/22/2016	0.40	0.71	0.74	1.44	1.81	1.47	0.93	4.39	-1.98	0.00	13.28
12/23/2016	0.40	0.71	0.74	1.25	2.01	1.19	0.62	3.94	-1.44	0.14	13.25

Flow inputs for the Snowmelt Scenario based on USGS gage data. Residual flows between gages were calculated and input into the model incrementally. Inputs were broken up evenly between gages resulting in two to four increments depending on the distance between gages. Flows are based on hourly data. Units are cms.

Date	Cement Creek	Animas River	Animas below Silverton	Animas above Tacoma	Animas at Durango	Animas near Cedar Hill	Animas below Aztec	San Juan at Farmington	San Juan at Shiprock	San Juan at Four Corners	San Juan River
12/24/2016	0.42	0.71	0.71	1.19	1.59	1.59	0.28	3.26	-1.10	-0.11	13.31
12/25/2016	0.42	0.71	0.71	1.47	1.44	1.36	0.17	2.86	-0.17	-0.65	13.31
12/26/2016	0.42	0.71	0.71	1.47	1.76	1.25	0.37	3.23	-0.23	0.28	13.28
12/27/2016	0.42	0.71	0.71	1.53	1.78	1.59	0.28	3.48	-1.02	0.62	13.28
12/28/2016	0.42	0.71	0.71	1.47	1.78	1.67	0.28	4.13	-2.63	-0.08	13.25
12/29/2016	0.42	0.71	0.71	1.47	1.84	1.64	0.28	4.50	-1.81	-0.03	13.20
12/30/2016	0.45	0.71	0.68	1.47	2.07	1.53	0.31	4.56	-3.03	-0.06	13.03
12/31/2016	0.42	0.71	0.71	1.47	1.98	1.59	0.51	4.36	-3.51	0.48	13.00

GKM Plume Concentration

Table R-8. GKM plume boundary condition inputs for WASP segment 2. Time series represents the plume concentrations at USGS gage 09358550 (Cement Creek at Silverton, CO) calculated by the empirical model in 15 minute increments.

GKM plume boundary condition inputs for WASP segment 2. Time series represents the plume concentrations at USGS gage 09358550 (Cement Creek at Silverton, CO) calculated by the empirical model in 15 minute increments.		
Date	Time	Concentration [mg/l]
1/1/2000	0:00	0
8/5/2015	12:29	0
8/5/2015	12:30	30
8/5/2015	12:45	39683
8/5/2015	13:00	28108
8/5/2015	13:15	22155
8/5/2015	13:30	22155
8/5/2015	13:45	20502
8/5/2015	14:00	20171
8/5/2015	14:15	14218
8/5/2015	14:30	12564
8/5/2015	14:45	12895
8/5/2015	15:00	12564
8/5/2015	15:15	12564
8/5/2015	15:30	11903
8/5/2015	15:45	11242
8/5/2015	16:00	11242
8/5/2015	16:15	10510
8/5/2015	16:30	9778
8/5/2015	16:45	9047
8/5/2015	17:00	8315
8/5/2015	17:15	7583
8/5/2015	17:30	6852
8/5/2015	17:45	6120
8/5/2015	18:00	5388
8/5/2015	18:15	4657
8/5/2015	18:30	3925
8/5/2015	18:45	3193
8/5/2015	19:00	2462
8/5/2015	19:15	1730
8/5/2015	19:30	998
8/5/2015	19:45	950
8/5/2015	20:00	902
8/5/2015	20:15	853

GKM plume boundary condition inputs for WASP segment 2. Time series represents the plume concentrations at USGS gage 09358550 (Cement Creek at Silverton, CO) calculated by the empirical model in 15 minute increments.

Date	Time	Concentration [mg/l]
8/5/2015	20:30	805
8/5/2015	20:45	757
8/5/2015	21:00	709
8/5/2015	21:15	660
8/5/2015	21:30	612
8/5/2015	21:45	564
8/5/2015	22:00	516
8/5/2015	22:15	467
8/5/2015	22:30	419
8/5/2015	22:45	371
8/5/2015	23:00	323
8/5/2015	23:15	317
8/5/2015	23:30	311
8/5/2015	23:45	305
8/6/2015	0:00	299
8/6/2015	0:15	293
8/6/2015	0:30	287
8/6/2015	0:45	282
8/6/2015	1:00	276
8/6/2015	1:15	270
8/6/2015	1:30	264
8/6/2015	1:45	258
8/6/2015	2:00	252
8/6/2015	2:15	247
8/6/2015	2:30	241
8/6/2015	2:45	235
8/6/2015	3:00	229
8/6/2015	3:15	223
8/6/2015	3:30	217
8/6/2015	3:45	211
8/6/2015	4:00	206
8/6/2015	4:15	200
8/6/2015	4:30	194
8/6/2015	4:45	188
8/6/2015	5:00	182
8/6/2015	5:15	176
8/6/2015	5:30	171
8/6/2015	5:45	165
8/6/2015	6:00	159
8/6/2015	6:15	166
8/6/2015	6:30	172

GKM plume boundary condition inputs for WASP segment 2. Time series represents the plume concentrations at USGS gage 09358550 (Cement Creek at Silverton, CO) calculated by the empirical model in 15 minute increments.

Date	Time	Concentration [mg/l]
8/6/2015	6:45	179
8/6/2015	7:00	186
8/6/2015	7:15	192
8/6/2015	7:30	199
8/6/2015	7:45	206
8/6/2015	8:00	213
8/6/2015	8:15	219
8/6/2015	8:30	226
8/6/2015	8:45	233
8/6/2015	9:00	240
8/6/2015	9:15	246
8/6/2015	9:30	253
8/6/2015	9:45	260
8/6/2015	10:00	266
8/6/2015	10:15	273
8/6/2015	10:30	280
8/6/2015	10:45	287
8/6/2015	11:00	293
8/6/2015	11:15	300
8/6/2015	11:30	307
8/6/2015	11:45	313
8/6/2015	12:00	320
8/6/2015	12:15	327
8/6/2015	12:30	334
8/6/2015	12:45	340
8/6/2015	13:00	347
8/6/2015	13:15	354
8/6/2015	13:30	361
8/6/2015	13:45	367
8/6/2015	14:00	374
8/6/2015	14:01	0
4/27/2016	0:00	0

San Juan Background Concentration

Table R-9. Background concentrations of total particulate metals in the San Juan upstream of the Animas. Concentrations were calculated from the empirical model and input into the GKM model above the confluence of the Animas and San Juan (segments 93, 118, 122).

Background concentrations of total particulate metals in the San Juan upstream of the Animas. Concentrations were calculated from the empirical model and input into the GKM model above the confluence of the Animas and San Juan (segments 93, 118, 122).		
Date	Time	Concentration [mg/l]
3/16/2015	0:00	25.00
8/7/2015	0:00	25.00
8/8/2015	0:01	154.55
8/9/2015	0:00	95.08
8/10/2015	0:00	40.45
8/11/2015	0:00	307.25
8/12/2015	0:00	109.34
8/13/2015	0:00	7.13
8/14/2015	0:00	35.36
8/15/2015	0:00	35.43
8/16/2015	0:00	0.00
8/17/2015	0:00	21.09
8/18/2015	0:00	26.31
8/19/2015	0:00	28.79
8/20/2015	0:00	13.92
8/21/2015	0:00	22.57
8/22/2015	0:00	14.28
8/23/2015	0:00	15.11
8/24/2015	0:00	20.32
8/25/2015	0:00	20.71
8/26/2015	0:00	7.96
8/27/2015	0:00	92.47
8/28/2015	0:00	828.28
8/30/2015	0:00	29.12
8/31/2015	0:00	21.95
9/1/2015	0:00	8.39
9/2/2015	0:00	18.33
9/3/2015	0:00	25.00
3/31/2016	0:00	25.00

Flow Partitioning

Partition Coefficients

Table R-10. Partition coefficients for arsenic, copper, lead, and zinc. K_d was calculated using regression models to fit empirically-estimated peak concentration data for each metal.

Partition coefficients for arsenic, copper, lead, and zinc. K_d was calculated using regression models to fit empirically-estimated peak concentration data for each metal.					
Segment	River Distance [km]	As k_d	Cu k_d	Pb k_d	Zn k_d
1	-	-	-	-	-
2	12.7	23061	88	30861	0.014
3	14.4	27768	138	43273	0.034
4	16.0	32774	206	58505	0.075
5	17.6	38064	296	76813	0.154
6	19.6	44792	438	103287	0.334
7	21.6	51895	626	135007	0.673
8	23.5	59357	867	172390	1.28
9	25.5	67163	1169	215848	2.30
10	27.5	75301	1542	265783	3.97
11	29.4	83760	1996	322594	6.59
12	31.4	92530	2540	386672	10.60
13	33.4	101602	3186	458405	16.5
14	35.3	110967	3944	538174	25.2
15	37.3	120618	4827	626358	37.5
16	39.3	130547	5846	723329	54.6
17	41.2	140749	7015	829458	78.2
18	43.2	151217	8346	945110	110.1
19	45.2	161946	9852	1070648	153
20	47.1	172930	11549	1206431	209
21	49.1	184164	13451	1352816	282
22	51.1	195643	15572	1510156	376
23	53.0	207364	17928	1678801	496
24	55.0	219322	20534	1859099	648
25	57.0	231513	23408	2051395	838
26	58.9	243934	26566	2256033	1075
27	60.9	256580	30025	2473353	1368
28	62.9	269449	33803	2703692	1728
29	64.8	282537	37917	2947388	2166
30	66.8	295841	42386	3204774	2697
31	68.3	306191	46066	3411685	3177
32	70.1	318973	50861	3675246	3861
33	72.0	331937	56013	3951553	4668
34	73.8	345081	61536	4240874	5617
35	75.6	358403	67447	4543473	6728

Partition coefficients for arsenic, copper, lead, and zinc. K_d was calculated using regression models to fit empirically-estimated peak concentration data for each metal.

Segment	River Distance [km]	As k_d	Cu k_d	Pb k_d	Zn k_d
36	77.5	371901	73763	4859616	8024
37	79.3	385574	80502	5189566	9531
38	81.2	399418	87681	5533585	11276
39	83.0	413432	95318	5891933	13290
40	84.8	427616	103430	6264871	15608
41	86.7	441966	112036	6652657	18267
42	88.5	456481	121155	7055549	21309
43	90.3	471160	130806	7473802	24778
44	92.2	486001	141008	7907673	28725
45	94.0	501003	151780	8357415	33203
46	95.9	516164	163142	8823282	38272
47	97.7	531483	175115	9305526	43997
48	99.5	546958	187718	9804398	50446
49	101.4	562589	200973	10320150	57696
50	103.2	578373	214900	10853029	65828
51	105.1	594309	229520	11403286	74933
52	106.9	610397	244856	11971168	85105
53	108.7	626635	260928	12556921	96449
54	111.4	650533	285682	13441857	115283
55	114.1	674743	312111	14365924	137213
56	116.6	698073	338887	15282462	161342
57	119.2	721678	367307	16235774	189052
58	120.7	735883	385060	16821931	207456
59	123.4	761521	418353	17903485	244235
60	126.1	787465	453706	19028763	286516
61	128.3	808728	483943	19973979	325308
62	130.5	830189	515629	20948868	368556
63	132.7	851846	548807	21953837	416683
64	134.6	870608	578537	22841593	462273
65	136.5	889514	609429	23752108	512110
66	138.4	908561	641512	24685640	566521
67	140.5	929593	678065	25735255	631805
68	142.5	950794	716121	26813144	703488
69	144.6	972161	755716	27919642	782090
70	147.2	999125	807476	29344619	891008
71	149.8	1026346	861784	30815536	1012788
72	151.5	1044561	899288	31817872	1101362
73	153.4	1064598	941630	32937108	1205749
74	155.3	1084768	985414	34081351	1318573
75	157.2	1105070	1030669	35250847	1440403
76	159.0	1125504	1077426	36445841	1571835
77	160.9	1146069	1125718	37666577	1713500

Partition coefficients for arsenic, copper, lead, and zinc. K_d was calculated using regression models to fit empirically-estimated peak concentration data for each metal.

Segment	River Distance [km]	As k_d	Cu k_d	Pb k_d	Zn k_d
78	162.8	1166764	1175574	38913299	1866060
79	164.7	1187589	1227028	40186250	2030213
80	166.6	1208464	1279910	41480789	2206012
81	168.4	1229467	1334441	42801843	2394807
82	170.3	1250596	1390654	44149651	2597399
83	172.2	1271851	1448580	45524452	2814627
84	174.1	1293231	1508252	46926483	3047371
85	175.9	1314736	1569704	48355983	3296554
86	177.8	1336365	1632968	49813187	3563145
87	179.7	1358117	1698079	51298333	3848156
88	181.7	1382264	1772113	52969937	4185326
89	183.8	1406559	1848482	54676171	4547715
90	185.9	1431003	1927233	56417350	4936892
91	187.9	1455594	2008411	58193790	5354507
92	190.0	1480331	2092063	60005804	5802289
93	-	0.0	0.0	0.0	0.0
94	-	0.0	0.0	0.0	0.0
95	-	0.0	0.0	0.0	0.0
96	-	0.0	0.0	0.0	0.0
97	-	0.0	0.0	0.0	0.0
98	-	0.0	0.0	0.0	0.0
99	-	0.0	0.0	0.0	0.0
100	-	0.0	0.0	0.0	0.0
101	-	0.0	0.0	0.0	0.0
102	-	0.0	0.0	0.0	0.0
103	-	0.0	0.0	0.0	0.0
104	-	0.0	0.0	0.0	0.0
105	-	0.0	0.0	0.0	0.0
106	-	0.0	0.0	0.0	0.0
107	-	0.0	0.0	0.0	0.0
108	-	0.0	0.0	0.0	0.0
109	-	0.0	0.0	0.0	0.0
110	-	0.0	0.0	0.0	0.0
111	-	0.0	0.0	0.0	0.0
112	-	0.0	0.0	0.0	0.0
113	-	0.0	0.0	0.0	0.0
114	-	0.0	0.0	0.0	0.0
115	-	0.0	0.0	0.0	0.0
116	-	0.0	0.0	0.0	0.0
117	-	0.0	0.0	0.0	0.0
118	-	0.0	0.0	0.0	0.0
119	-	0.0	0.0	0.0	0.0

Partition coefficients for arsenic, copper, lead, and zinc. K_d was calculated using regression models to fit empirically-estimated peak concentration data for each metal.

Segment	River Distance [km]	As k_d	Cu k_d	Pb k_d	Zn k_d
120	-	0.0	0.0	0.0	0.0
121	192.3	1507593	2186580	62031623	6329495
122	195.1	1507593	2186580	62031623	6329495
123	198.0	1507593	2186580	62031623	6329495
124	200.8	1507593	2186580	62031623	6329495
125	203.6	1507593	2186580	62031623	6329495
126	206.5	1507593	2186580	62031623	6329495
127	209.3	1507593	2186580	62031623	6329495
128	211.5	1507593	2186580	62031623	6329495
129	214.2	1507593	2186580	62031623	6329495
130	216.9	1507593	2186580	62031623	6329495
131	219.7	1507593	2186580	62031623	6329495
132	222.4	1507593	2186580	62031623	6329495
133	225.1	1507593	2186580	62031623	6329495
134	227.8	1507593	2186580	62031623	6329495
135	230.5	1507593	2186580	62031623	6329495
136	234.0	1507593	2186580	62031623	6329495
137	237.2	1507593	2186580	62031623	6329495
138	240.4	1507593	2186580	62031623	6329495
139	243.0	1507593	2186580	62031623	6329495
140	245.7	1507593	2186580	62031623	6329495
141	248.5	1507593	2186580	62031623	6329495
142	251.3	1507593	2186580	62031623	6329495
143	254.2	1507593	2186580	62031623	6329495
144	257.0	1507593	2186580	62031623	6329495
145	259.8	1507593	2186580	62031623	6329495
146	262.7	1507593	2186580	62031623	6329495
147	265.5	1507593	2186580	62031623	6329495
148	268.3	1507593	2186580	62031623	6329495
149	271.1	1507593	2186580	62031623	6329495
150	274.0	1507593	2186580	62031623	6329495
151	276.8	1507593	2186580	62031623	6329495
152	279.6	1507593	2186580	62031623	6329495
153	282.4	1507593	2186580	62031623	6329495
154	285.3	1507593	2186580	62031623	6329495
155	288.1	1507593	2186580	62031623	6329495
156	290.9	1507593	2186580	62031623	6329495
157	292.8	1507593	2186580	62031623	6329495
158	294.6	1507593	2186580	62031623	6329495
159	297.2	1507593	2186580	62031623	6329495
160	299.8	1507593	2186580	62031623	6329495
161	302.3	1507593	2186580	62031623	6329495

Partition coefficients for arsenic, copper, lead, and zinc. K_d was calculated using regression models to fit empirically-estimated peak concentration data for each metal.

Segment	River Distance [km]	As k_d	Cu k_d	Pb k_d	Zn k_d
162	304.9	1507593	2186580	62031623	6329495
163	307.5	1507593	2186580	62031623	6329495
164	310.1	1507593	2186580	62031623	6329495
165	312.7	1507593	2186580	62031623	6329495
166	315.3	1507593	2186580	62031623	6329495
167	317.8	1507593	2186580	62031623	6329495
168	320.4	1507593	2186580	62031623	6329495
169	323.0	1507593	2186580	62031623	6329495
170	325.6	1507593	2186580	62031623	6329495
171	328.5	1507593	2186580	62031623	6329495
172	331.5	1507593	2186580	62031623	6329495
173	333.8	1507593	2186580	62031623	6329495
174	336.1	1507593	2186580	62031623	6329495
175	338.4	1507593	2186580	62031623	6329495
176	340.7	1507593	2186580	62031623	6329495
177	343.8	1507593	2186580	62031623	6329495
178	346.9	1507593	2186580	62031623	6329495
179	350.4	1507593	2186580	62031623	6329495
180	354.0	1507593	2186580	62031623	6329495
181	357.6	1507593	2186580	62031623	6329495
182	361.2	1507593	2186580	62031623	6329495
183	364.8	1507593	2186580	62031623	6329495
184	368.3	1507593	2186580	62031623	6329495
185	371.9	1507593	2186580	62031623	6329495
186	375.5	1507593	2186580	62031623	6329495
187	379.1	1507593	2186580	62031623	6329495
188	382.7	1507593	2186580	62031623	6329495
189	386.2	1507593	2186580	62031623	6329495
190	389.8	1507593	2186580	62031623	6329495
191	393.5	1507593	2186580	62031623	6329495
192	397.2	1507593	2186580	62031623	6329495
193	400.9	1507593	2186580	62031623	6329495
194	404.6	1507593	2186580	62031623	6329495
195	408.3	1507593	2186580	62031623	6329495
196	411.9	1507593	2186580	62031623	6329495
197	415.6	1507593	2186580	62031623	6329495
198	419.3	1507593	2186580	62031623	6329495
199	423.0	1507593	2186580	62031623	6329495
200	426.7	1507593	2186580	62031623	6329495
201	429.9	1507593	2186580	62031623	6329495
202	433.0	1507593	2186580	62031623	6329495
203	436.2	1507593	2186580	62031623	6329495

Partition coefficients for arsenic, copper, lead, and zinc. K_d was calculated using regression models to fit empirically-estimated peak concentration data for each metal.

Segment	River Distance [km]	As k_d	Cu k_d	Pb k_d	Zn k_d
204	439.4	1507593	2186580	62031623	6329495
205	442.5	1507593	2186580	62031623	6329495
206	445.7	1507593	2186580	62031623	6329495
207	448.9	1507593	2186580	62031623	6329495
208	452.0	1507593	2186580	62031623	6329495
209	455.2	1507593	2186580	62031623	6329495
210	458.4	1507593	2186580	62031623	6329495
211	461.5	1507593	2186580	62031623	6329495
212	464.7	1507593	2186580	62031623	6329495
213	467.9	1507593	2186580	62031623	6329495
214	471.1	1507593	2186580	62031623	6329495
215	474.2	1507593	2186580	62031623	6329495
216	477.4	1507593	2186580	62031623	6329495
217	482.0	1507593	2186580	62031623	6329495
218	485.1	1507593	2186580	62031623	6329495
219	488.1	1507593	2186580	62031623	6329495
220	490.7	1507593	2186580	62031623	6329495
221	493.5	1507593	2186580	62031623	6329495
222	496.3	1507593	2186580	62031623	6329495
223	498.6	1507593	2186580	62031623	6329495
224	500.3	1507593	2186580	62031623	6329495
225	502.0	1507593	2186580	62031623	6329495
226	503.6	1507593	2186580	62031623	6329495
227	505.2	1507593	2186580	62031623	6329495
228	506.8	1507593	2186580	62031623	6329495
229	508.5	1507593	2186580	62031623	6329495

Boundary Conditions for Metals

Table R-11. Input concentrations of total individual metals and total metals - Xx (i.e., As) for the four individual metals modeled (arsenic, copper, lead, and zinc). Dissolved concentrations are calculated in the model using K_d values.

Input concentrations of total individual metals and total metals - Xx (i.e., As) for the four individual metals modeled (arsenic, copper, lead, and zinc). Dissolved concentrations are calculated in the model using K_d values.									
Metal		As		Cu		Pb		Zn	
Date	Time	Total As [µg/l]	Total Metals-As [mg/l]	Total Cu [µg/l]	Total Metals-Cu [mg/l]	Total Pb [µg/l]	Total Metals-Pb [mg/l]	Total Zn [µg/l]	Total Metals-Zn [mg/l]
1/1/2000	0:00	0	0	0	0	0	0	0	0
8/5/2015	12:29	0	0	0	0	0	0	0	0
8/5/2015	12:30	5	30	400	30	25	30	3000	27
8/5/2015	12:45	29052	39654	129551	39553	631870	39051	155320	39528
8/5/2015	13:00	20578	28087	91763	28016	447562	27660	110015	27998
8/5/2015	13:15	16220	22139	72329	22083	352776	21802	86716	22068
8/5/2015	13:30	16220	22139	72329	22083	352776	21802	86716	22068
8/5/2015	13:45	15009	20487	66931	20435	326446	20175	80244	20421
8/5/2015	14:00	14767	20156	65851	20105	321180	19850	78949	20092
8/5/2015	14:15	10409	14208	46417	14172	226393	13992	55650	14162
8/5/2015	14:30	9198	12555	41019	12523	200064	12364	49178	12515
8/5/2015	14:45	9441	12886	42098	12853	205330	12690	50472	12845
8/5/2015	15:00	9198	12555	41019	12523	200064	12364	49178	12515
8/5/2015	15:15	9198	12555	41019	12523	200064	12364	49178	12515
8/5/2015	15:30	8714	11894	38859	11864	189532	11714	46589	11856
8/5/2015	15:45	8230	11233	36700	11205	179000	11063	44000	11198
8/5/2015	16:00	8230	11233	36700	11205	179000	11063	44000	11198
8/5/2015	16:15	7694	10502	34337	10476	166752	10343	41433	10469
8/5/2015	16:30	7159	9771	31974	9746	154504	9624	38866	9739
8/5/2015	16:45	6623	9040	29611	9017	142256	8904	36299	9010
8/5/2015	17:00	6088	8309	27249	8288	130009	8185	33731	8281
8/5/2015	17:15	5552	7578	24886	7558	117761	7466	31164	7552
8/5/2015	17:30	5017	6847	22523	6829	105513	6746	28597	6823
8/5/2015	17:45	4481	6115	20160	6100	93265	6027	26030	6094
8/5/2015	18:00	3945	5384	17797	5370	81017	5307	23463	5365
8/5/2015	18:15	3410	4653	15434	4641	68769	4588	20896	4636
8/5/2015	18:30	2874	3922	13071	3912	56521	3868	18329	3907
8/5/2015	18:45	2339	3191	10709	3183	44274	3149	15761	3177
8/5/2015	19:00	1803	2460	8346	2453	32026	2430	13194	2448
8/5/2015	19:15	1268	1729	5983	1724	19778	1710	10627	1719
8/5/2015	19:30	732	997	3620	995	7530	991	8060	990
8/5/2015	19:45	694	949	3467	946	7136	943	7870	942
8/5/2015	20:00	656	901	3314	898	6741	895	7680	894
8/5/2015	20:15	619	853	3161	850	6347	847	7490	846

Input concentrations of total individual metals and total metals - Xx (i.e., As) for the four individual metals modeled (arsenic, copper, lead, and zinc). Dissolved concentrations are calculated in the model using K_d values.

Metal		As		Cu		Pb		Zn	
Date	Time	Total As [µg/l]	Total Metals-As [mg/l]	Total Cu [µg/l]	Total Metals-Cu [mg/l]	Total Pb [µg/l]	Total Metals-Pb [mg/l]	Total Zn [µg/l]	Total Metals-Zn [mg/l]
8/5/2015	20:30	581	805	3009	802	5953	799	7300	798
8/5/2015	20:45	543	756	2856	754	5559	751	7110	750
8/5/2015	21:00	505	708	2703	706	5164	703	6920	702
8/5/2015	21:15	468	660	2550	658	4770	656	6730	654
8/5/2015	21:30	430	612	2397	610	4376	608	6540	606
8/5/2015	21:45	392	563	2244	562	3981	560	6350	558
8/5/2015	22:00	354	515	2091	513	3587	512	6160	509
8/5/2015	22:15	316	467	1939	465	3193	464	5970	461
8/5/2015	22:30	279	419	1786	417	2799	416	5780	413
8/5/2015	22:45	241	371	1633	369	2404	368	5590	365
8/5/2015	23:00	203	322	1480	321	2010	321	5400	317
8/5/2015	23:15	199	316	1460	315	1957	315	5356	311
8/5/2015	23:30	196	311	1439	309	1905	309	5311	306
8/5/2015	23:45	192	305	1419	304	1852	303	5267	300
8/6/2015	0:00	188	299	1398	298	1799	297	5223	294
8/6/2015	0:15	184	293	1378	292	1747	292	5179	288
8/6/2015	0:30	181	287	1358	286	1694	286	5134	282
8/6/2015	0:45	177	281	1337	280	1642	280	5090	277
8/6/2015	1:00	173	276	1317	274	1589	274	5046	271
8/6/2015	1:15	169	270	1296	269	1536	268	5001	265
8/6/2015	1:30	166	264	1276	263	1484	263	4957	259
8/6/2015	1:45	162	258	1256	257	1431	257	4913	253
8/6/2015	2:00	158	252	1235	251	1378	251	4869	248
8/6/2015	2:15	154	246	1215	245	1326	245	4824	242
8/6/2015	2:30	151	241	1195	240	1273	239	4780	236
8/6/2015	2:45	147	235	1174	234	1220	234	4736	230
8/6/2015	3:00	143	229	1154	228	1168	228	4691	224
8/6/2015	3:15	140	223	1133	222	1115	222	4647	219
8/6/2015	3:30	136	217	1113	216	1062	216	4603	213
8/6/2015	3:45	132	211	1093	210	1010	210	4559	207
8/6/2015	4:00	128	205	1072	205	957	205	4514	201
8/6/2015	4:15	125	200	1052	199	904	199	4470	195
8/6/2015	4:30	121	194	1031	193	852	193	4426	190
8/6/2015	4:45	117	188	1011	187	799	187	4381	184
8/6/2015	5:00	113	182	991	181	747	181	4337	178
8/6/2015	5:15	110	176	970	175	694	176	4293	172
8/6/2015	5:30	106	170	950	170	641	170	4249	166
8/6/2015	5:45	102	165	929	164	589	164	4204	161
8/6/2015	6:00	99	159	909	158	536	158	4160	155
8/6/2015	6:15	99	165	912	165	566	165	4181	161

Input concentrations of total individual metals and total metals - Xx (i.e., As) for the four individual metals modeled (arsenic, copper, lead, and zinc). Dissolved concentrations are calculated in the model using K_d values.

Metal		As		Cu		Pb		Zn	
Date	Time	Total As [µg/l]	Total Metals-As [mg/l]	Total Cu [µg/l]	Total Metals-Cu [mg/l]	Total Pb [µg/l]	Total Metals-Pb [mg/l]	Total Zn [µg/l]	Total Metals-Zn [mg/l]
8/6/2015	6:30	99	172	914	171	597	172	4202	168
8/6/2015	6:45	99	179	917	178	627	178	4223	175
8/6/2015	7:00	99	186	920	185	658	185	4244	182
8/6/2015	7:15	99	192	923	192	688	192	4265	188
8/6/2015	7:30	99	199	925	198	719	198	4286	195
8/6/2015	7:45	99	206	928	205	749	205	4307	202
8/6/2015	8:00	99	213	931	212	780	212	4328	208
8/6/2015	8:15	99	219	933	218	810	219	4348	215
8/6/2015	8:30	99	226	936	225	840	225	4369	222
8/6/2015	8:45	99	233	939	232	871	232	4390	228
8/6/2015	9:00	99	239	942	239	901	239	4411	235
8/6/2015	9:15	99	246	944	245	932	245	4432	242
8/6/2015	9:30	99	253	947	252	962	252	4453	249
8/6/2015	9:45	99	260	950	259	993	259	4474	255
8/6/2015	10:00	99	266	953	265	1023	265	4495	262
8/6/2015	10:15	99	273	955	272	1053	272	4516	269
8/6/2015	10:30	99	280	958	279	1084	279	4537	275
8/6/2015	10:45	99	286	961	286	1114	285	4558	282
8/6/2015	11:00	99	293	963	292	1145	292	4579	289
8/6/2015	11:15	99	300	966	299	1175	299	4600	295
8/6/2015	11:30	99	307	969	306	1206	306	4621	302
8/6/2015	11:45	100	313	972	312	1236	312	4642	309
8/6/2015	12:00	100	320	974	319	1267	319	4662	316
8/6/2015	12:15	100	327	977	326	1297	326	4683	322
8/6/2015	12:30	100	334	980	333	1327	332	4704	329
8/6/2015	12:45	100	340	982	339	1358	339	4725	336
8/6/2015	13:00	100	347	985	346	1388	346	4746	342
8/6/2015	13:15	100	354	988	353	1419	352	4767	349
8/6/2015	13:30	100	360	991	360	1449	359	4788	356
8/6/2015	13:45	100	367	993	366	1480	366	4809	362
8/6/2015	14:00	100	374	996	373	1510	372	4830	369
8/6/2015	14:01	0	0	0	0	0	0	0	0
1/1/2020	0:00	0	0	0	0	0	0	0	0

Initial Metal Concentrations for Snowmelt Scenario

Table R-12. Initial concentrations of total individual metals and total metals - Xx (i.e., As) for total metals, arsenic, copper, lead, and zinc in the snowmelt scenario. Inputs are from sediment concentrations on the last time step in the GKM release scenario. Dissolved concentrations are calculated in the model using K_d values.

Initial concentrations of total individual metals and total metals - Xx (i.e., As) for total metals, arsenic, copper, lead, and zinc in the snowmelt scenario. Inputs are from sediment concentrations on the last time step in the GKM release scenario. Dissolved concentrations are calculated in the model using K_d values.

Metal	As		Cu		Pb		Zn		Total Metals-Cations
Segment	Total As [µg/l]	Total Metals-As [mg/l]	Total Cu [µg/l]	Total Metals-Cu [mg/l]	Total Pb [µg/l]	Total Metals-Pb [mg/l]	Total Zn [µg/l]	Total Metals-Zn [mg/l]	Total Metals [mg/l]
230	0.00E+00	0.00E+00	0.00E+00	9.98E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
231	0.00E+00	0.00E+00	0.00E+00	9.97E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
232	1.07E+00	1.51E+03	1.84E+00	1.50E+03	2.29E+01	1.48E+03	9.95E-04	1.50E+03	1.51E+03
233	7.98E-01	1.13E+03	1.40E+00	1.12E+03	1.72E+01	1.11E+03	1.10E-03	1.12E+03	1.13E+03
234	6.29E-01	8.89E+02	1.15E+00	8.87E+02	1.36E+01	8.76E+02	1.32E-03	8.86E+02	8.90E+02
235	4.90E-01	6.94E+02	9.54E-01	6.92E+02	1.06E+01	6.83E+02	1.68E-03	6.91E+02	6.94E+02
236	4.80E-01	6.77E+02	1.09E+00	6.76E+02	1.04E+01	6.68E+02	3.08E-03	6.75E+02	6.78E+02
237	4.69E-01	6.61E+02	1.21E+00	6.59E+02	1.01E+01	6.51E+02	5.40E-03	6.59E+02	6.62E+02
238	4.58E-01	6.45E+02	1.31E+00	6.43E+02	9.90E+00	6.35E+02	8.98E-03	6.42E+02	6.45E+02
239	4.48E-01	6.28E+02	1.39E+00	6.27E+02	9.66E+00	6.19E+02	1.44E-02	6.26E+02	6.29E+02
240	3.69E-01	5.19E+02	1.17E+00	5.17E+02	7.98E+00	5.11E+02	1.61E-02	5.17E+02	5.19E+02
241	3.61E-01	5.07E+02	1.23E+00	5.06E+02	7.81E+00	5.00E+02	2.43E-02	5.05E+02	5.08E+02
242	3.06E-01	4.31E+02	1.06E+00	4.29E+02	6.63E+00	4.24E+02	2.70E-02	4.29E+02	4.31E+02
243	3.01E-01	4.22E+02	1.10E+00	4.21E+02	6.50E+00	4.16E+02	3.91E-02	4.21E+02	4.22E+02
244	2.95E-01	4.14E+02	1.13E+00	4.13E+02	6.38E+00	4.08E+02	5.52E-02	4.12E+02	4.14E+02
245	2.90E-01	4.06E+02	1.16E+00	4.05E+02	6.26E+00	4.00E+02	7.61E-02	4.04E+02	4.06E+02
246	4.51E-01	6.30E+02	1.87E+00	6.29E+02	9.73E+00	6.21E+02	1.63E-01	6.28E+02	6.31E+02
247	4.37E-01	6.10E+02	1.86E+00	6.08E+02	9.41E+00	6.01E+02	2.14E-01	6.07E+02	6.10E+02
248	4.23E-01	5.90E+02	1.85E+00	5.88E+02	9.11E+00	5.81E+02	2.75E-01	5.88E+02	5.90E+02
249	4.10E-01	5.70E+02	1.84E+00	5.69E+02	8.82E+00	5.62E+02	3.46E-01	5.68E+02	5.71E+02
250	3.51E-01	4.89E+02	1.58E+00	4.88E+02	7.56E+00	4.82E+02	3.43E-01	4.87E+02	4.90E+02
251	3.15E-01	4.40E+02	1.44E+00	4.38E+02	6.79E+00	4.33E+02	3.65E-01	4.38E+02	4.40E+02
252	3.07E-01	4.28E+02	1.43E+00	4.27E+02	6.61E+00	4.21E+02	4.45E-01	4.26E+02	4.28E+02
253	2.99E-01	4.16E+02	1.42E+00	4.15E+02	6.44E+00	4.10E+02	5.33E-01	4.15E+02	4.16E+02
254	2.91E-01	4.05E+02	1.40E+00	4.04E+02	6.26E+00	3.99E+02	6.28E-01	4.03E+02	4.05E+02
255	2.83E-01	3.94E+02	1.39E+00	3.93E+02	6.09E+00	3.88E+02	7.29E-01	3.92E+02	3.94E+02
256	2.76E-01	3.83E+02	1.37E+00	3.82E+02	5.93E+00	3.77E+02	8.35E-01	3.82E+02	3.83E+02
257	2.69E-01	3.72E+02	1.35E+00	3.72E+02	5.77E+00	3.67E+02	9.42E-01	3.71E+02	3.73E+02
258	2.62E-01	3.62E+02	1.33E+00	3.61E+02	5.61E+00	3.57E+02	1.05E+00	3.61E+02	3.63E+02
259	2.36E-01	3.27E+02	1.20E+00	3.26E+02	5.06E+00	3.22E+02	1.02E+00	3.26E+02	3.27E+02
260	2.26E-01	3.14E+02	1.16E+00	3.13E+02	4.86E+00	3.09E+02	1.07E+00	3.13E+02	3.14E+02
261	1.68E-01	2.33E+02	8.72E-01	2.32E+02	3.61E+00	2.30E+02	8.69E-01	2.32E+02	2.33E+02
262	1.61E-01	2.22E+02	8.38E-01	2.22E+02	3.44E+00	2.19E+02	9.00E-01	2.21E+02	2.22E+02

Initial concentrations of total individual metals and total metals - Xx (i.e., As) for total metals, arsenic, copper, lead, and zinc in the snowmelt scenario. Inputs are from sediment concentrations on the last time step in the GKM release scenario. Dissolved concentrations are calculated in the model using K_d values.

Metal	As		Cu		Pb		Zn		Total Metals-Cations
Segment	Total As [µg/l]	Total Metals-As [mg/l]	Total Cu [µg/l]	Total Metals-Cu [mg/l]	Total Pb [µg/l]	Total Metals-Pb [mg/l]	Total Zn [µg/l]	Total Metals-Zn [mg/l]	Total Metals [mg/l]
263	1.53E-01	2.12E+02	8.06E-01	2.11E+02	3.28E+00	2.09E+02	9.27E-01	2.11E+02	2.12E+02
264	1.46E-01	2.02E+02	7.74E-01	2.01E+02	3.13E+00	1.99E+02	9.51E-01	2.01E+02	2.02E+02
265	1.39E-01	1.92E+02	7.44E-01	1.92E+02	2.98E+00	1.90E+02	9.71E-01	1.92E+02	1.93E+02
266	1.33E-01	1.83E+02	7.15E-01	1.83E+02	2.84E+00	1.81E+02	9.87E-01	1.83E+02	1.84E+02
267	8.50E-02	1.18E+02	4.58E-01	1.17E+02	1.82E+00	1.16E+02	6.52E-01	1.17E+02	1.18E+02
268	8.24E-02	1.14E+02	4.47E-01	1.14E+02	1.77E+00	1.12E+02	6.70E-01	1.13E+02	1.14E+02
269	7.98E-02	1.10E+02	4.36E-01	1.10E+02	1.71E+00	1.09E+02	6.85E-01	1.10E+02	1.10E+02
270	7.73E-02	1.07E+02	4.25E-01	1.07E+02	1.66E+00	1.05E+02	6.99E-01	1.06E+02	1.07E+02
271	7.50E-02	1.03E+02	4.15E-01	1.03E+02	1.60E+00	1.02E+02	7.10E-01	1.03E+02	1.04E+02
272	7.26E-02	1.00E+02	4.05E-01	9.99E+01	1.55E+00	9.87E+01	7.19E-01	9.98E+01	1.00E+02
273	7.04E-02	9.70E+01	3.94E-01	9.68E+01	1.51E+00	9.56E+01	7.26E-01	9.67E+01	9.71E+01
274	6.82E-02	9.40E+01	3.84E-01	9.37E+01	1.46E+00	9.26E+01	7.31E-01	9.36E+01	9.40E+01
275	6.17E-02	8.51E+01	3.48E-01	8.49E+01	1.32E+00	8.38E+01	6.75E-01	8.48E+01	8.52E+01
276	5.78E-02	7.97E+01	3.27E-01	7.95E+01	1.24E+00	7.85E+01	6.49E-01	7.94E+01	7.98E+01
277	5.62E-02	7.74E+01	3.20E-01	7.72E+01	1.20E+00	7.63E+01	6.53E-01	7.71E+01	7.75E+01
278	5.46E-02	7.52E+01	3.13E-01	7.50E+01	1.17E+00	7.41E+01	6.55E-01	7.49E+01	7.53E+01
279	5.31E-02	7.30E+01	3.06E-01	7.29E+01	1.13E+00	7.20E+01	6.55E-01	7.28E+01	7.31E+01
280	5.16E-02	7.09E+01	2.99E-01	7.08E+01	1.10E+00	6.99E+01	6.54E-01	7.07E+01	7.10E+01
281	4.84E-02	6.65E+01	2.81E-01	6.64E+01	1.03E+00	6.56E+01	6.25E-01	6.63E+01	6.66E+01
282	4.71E-02	6.47E+01	2.74E-01	6.45E+01	1.00E+00	6.37E+01	6.22E-01	6.45E+01	6.47E+01
283	4.28E-02	5.88E+01	2.51E-01	5.86E+01	9.13E-01	5.79E+01	5.84E-01	5.86E+01	5.88E+01
284	7.61E-03	1.04E+01	4.49E-02	1.04E+01	1.62E-01	1.03E+01	1.07E-01	1.04E+01	1.04E+01
285	7.52E-03	1.03E+01	4.46E-02	1.03E+01	1.60E-01	1.01E+01	1.08E-01	1.03E+01	1.03E+01
286	7.21E-03	9.88E+00	4.30E-02	9.85E+00	1.53E-01	9.73E+00	1.06E-01	9.84E+00	9.88E+00
287	7.15E-03	9.78E+00	4.27E-02	9.76E+00	1.52E-01	9.64E+00	1.06E-01	9.75E+00	9.79E+00
288	7.09E-03	9.69E+00	4.25E-02	9.66E+00	1.51E-01	9.54E+00	1.07E-01	9.65E+00	9.69E+00
289	7.05E-03	9.63E+00	4.25E-02	9.60E+00	1.50E-01	9.49E+00	1.08E-01	9.59E+00	9.63E+00
290	6.55E-03	8.94E+00	3.97E-02	8.92E+00	1.39E-01	8.81E+00	1.02E-01	8.91E+00	8.95E+00
291	6.29E-03	8.59E+00	3.81E-02	8.56E+00	1.33E-01	8.46E+00	9.88E-02	8.56E+00	8.59E+00
292	6.05E-03	8.26E+00	3.68E-02	8.24E+00	1.28E-01	8.14E+00	9.59E-02	8.23E+00	8.27E+00
293	6.00E-03	8.18E+00	3.65E-02	8.16E+00	1.27E-01	8.06E+00	9.59E-02	8.15E+00	8.19E+00
294	5.97E-03	8.15E+00	3.65E-02	8.12E+00	1.27E-01	8.03E+00	9.63E-02	8.12E+00	8.15E+00
295	5.95E-03	8.11E+00	3.64E-02	8.09E+00	1.26E-01	7.99E+00	9.67E-02	8.08E+00	8.11E+00
296	5.91E-03	8.05E+00	3.63E-02	8.03E+00	1.25E-01	7.93E+00	9.67E-02	8.02E+00	8.05E+00
297	5.88E-03	8.01E+00	3.62E-02	7.99E+00	1.25E-01	7.89E+00	9.70E-02	7.98E+00	8.01E+00
298	5.67E-03	7.72E+00	3.49E-02	7.70E+00	1.20E-01	7.61E+00	9.39E-02	7.69E+00	7.73E+00
299	5.56E-03	7.57E+00	3.43E-02	7.55E+00	1.18E-01	7.46E+00	9.28E-02	7.54E+00	7.57E+00
300	5.53E-03	7.52E+00	3.42E-02	7.50E+00	1.17E-01	7.41E+00	9.30E-02	7.50E+00	7.53E+00
301	2.00E-02	2.72E+01	1.24E-01	2.71E+01	4.23E-01	2.68E+01	3.38E-01	2.71E+01	2.72E+01

Initial concentrations of total individual metals and total metals - Xx (i.e., As) for total metals, arsenic, copper, lead, and zinc in the snowmelt scenario. Inputs are from sediment concentrations on the last time step in the GKM release scenario. Dissolved concentrations are calculated in the model using K_d values.

Metal	As		Cu		Pb		Zn		Total Metals-Cations
Segment	Total As [µg/l]	Total Metals-As [mg/l]	Total Cu [µg/l]	Total Metals-Cu [mg/l]	Total Pb [µg/l]	Total Metals-Pb [mg/l]	Total Zn [µg/l]	Total Metals-Zn [mg/l]	Total Metals [mg/l]
302	1.99E-02	2.71E+01	1.24E-01	2.70E+01	4.21E-01	2.67E+01	3.37E-01	2.70E+01	2.71E+01
303	1.96E-02	2.66E+01	1.22E-01	2.65E+01	4.14E-01	2.62E+01	3.33E-01	2.65E+01	2.66E+01
304	1.93E-02	2.62E+01	1.20E-01	2.61E+01	4.07E-01	2.58E+01	3.29E-01	2.61E+01	2.62E+01
305	1.90E-02	2.57E+01	1.18E-01	2.57E+01	4.01E-01	2.54E+01	3.25E-01	2.57E+01	2.58E+01
306	1.87E-02	2.53E+01	1.17E-01	2.53E+01	3.94E-01	2.50E+01	3.21E-01	2.52E+01	2.53E+01
307	1.84E-02	2.49E+01	1.15E-01	2.48E+01	3.88E-01	2.45E+01	3.17E-01	2.48E+01	2.49E+01
308	1.81E-02	2.45E+01	1.13E-01	2.44E+01	3.81E-01	2.41E+01	3.13E-01	2.44E+01	2.45E+01
309	2.00E-02	2.70E+01	1.25E-01	2.70E+01	4.21E-01	2.66E+01	3.46E-01	2.69E+01	2.70E+01
310	1.91E-02	2.58E+01	1.19E-01	2.57E+01	4.02E-01	2.54E+01	3.30E-01	2.57E+01	2.58E+01
311	1.88E-02	2.54E+01	1.18E-01	2.54E+01	3.96E-01	2.50E+01	3.26E-01	2.53E+01	2.54E+01
312	1.85E-02	2.50E+01	1.16E-01	2.50E+01	3.90E-01	2.47E+01	3.22E-01	2.50E+01	2.51E+01
313	1.83E-02	2.47E+01	1.15E-01	2.46E+01	3.84E-01	2.43E+01	3.18E-01	2.46E+01	2.47E+01
314	1.80E-02	2.43E+01	1.13E-01	2.42E+01	3.79E-01	2.40E+01	3.14E-01	2.42E+01	2.43E+01
315	1.60E-02	2.16E+01	1.01E-01	2.16E+01	3.37E-01	2.13E+01	2.80E-01	2.16E+01	2.16E+01
316	1.58E-02	2.13E+01	9.97E-02	2.13E+01	3.32E-01	2.10E+01	2.77E-01	2.13E+01	2.14E+01
317	1.55E-02	2.08E+01	9.75E-02	2.08E+01	3.25E-01	2.05E+01	2.71E-01	2.08E+01	2.09E+01
318	1.52E-02	2.05E+01	9.63E-02	2.05E+01	3.20E-01	2.02E+01	2.68E-01	2.05E+01	2.06E+01
319	1.50E-02	2.02E+01	9.50E-02	2.02E+01	3.15E-01	1.99E+01	2.65E-01	2.02E+01	2.03E+01
320	1.48E-02	2.00E+01	9.38E-02	1.99E+01	3.11E-01	1.97E+01	2.62E-01	1.99E+01	2.00E+01
321	1.46E-02	1.97E+01	9.26E-02	1.96E+01	3.06E-01	1.94E+01	2.58E-01	1.96E+01	1.97E+01
322	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
323	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
324	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
325	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
326	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
327	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
328	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
329	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
330	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
331	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
332	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
333	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
334	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
335	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
336	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
337	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
338	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
339	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
340	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24

Initial concentrations of total individual metals and total metals - Xx (i.e., As) for total metals, arsenic, copper, lead, and zinc in the snowmelt scenario. Inputs are from sediment concentrations on the last time step in the GKM release scenario. Dissolved concentrations are calculated in the model using K_d values.

Metal	As		Cu		Pb		Zn		Total Metals-Cations
Segment	Total As [µg/l]	Total Metals-As [mg/l]	Total Cu [µg/l]	Total Metals-Cu [mg/l]	Total Pb [µg/l]	Total Metals-Pb [mg/l]	Total Zn [µg/l]	Total Metals-Zn [mg/l]	Total Metals [mg/l]
341	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
342	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
343	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
344	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
345	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
346	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
347	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
348	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
349	0.00E+00	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.76E-27	1.00E-24	1.00E-24
350	2.50E-04	6.18E+01	1.59E-03	6.18E+01	5.06E-03	6.18E+01	4.38E-03	6.18E+01	3.23E-01
351	2.69E-04	6.69E+01	1.71E-03	6.69E+01	5.44E-03	6.69E+01	4.71E-03	6.69E+01	3.47E-01
352	2.68E-04	6.68E+01	1.71E-03	6.68E+01	5.43E-03	6.68E+01	4.70E-03	6.68E+01	3.46E-01
353	2.68E-04	6.67E+01	1.70E-03	6.67E+01	5.42E-03	6.67E+01	4.69E-03	6.67E+01	3.46E-01
354	2.67E-04	6.66E+01	1.70E-03	6.66E+01	5.41E-03	6.66E+01	4.68E-03	6.66E+01	3.45E-01
355	2.67E-04	6.65E+01	1.70E-03	6.65E+01	5.39E-03	6.65E+01	4.67E-03	6.65E+01	3.44E-01
356	2.66E-04	6.64E+01	1.69E-03	6.64E+01	5.38E-03	6.64E+01	4.66E-03	6.64E+01	3.43E-01
357	2.37E-04	5.91E+01	1.51E-03	5.91E+01	4.79E-03	5.91E+01	4.15E-03	5.91E+01	3.05E-01
358	2.95E-04	7.38E+01	1.88E-03	7.38E+01	5.97E-03	7.38E+01	5.17E-03	7.38E+01	3.81E-01
359	2.95E-04	7.37E+01	1.87E-03	7.37E+01	5.96E-03	7.37E+01	5.17E-03	7.37E+01	3.80E-01
360	2.26E-04	6.90E+01	1.44E-03	6.90E+01	4.60E-03	6.90E+01	3.94E-03	6.90E+01	2.93E-01
361	2.26E-04	6.89E+01	1.43E-03	6.89E+01	4.59E-03	6.89E+01	3.93E-03	6.89E+01	2.92E-01
362	2.25E-04	6.88E+01	1.43E-03	6.88E+01	4.57E-03	6.88E+01	3.93E-03	6.88E+01	2.91E-01
363	2.25E-04	6.88E+01	1.43E-03	6.88E+01	4.56E-03	6.88E+01	3.92E-03	6.88E+01	2.91E-01
364	2.24E-04	6.87E+01	1.42E-03	6.87E+01	4.55E-03	6.87E+01	3.91E-03	6.87E+01	2.90E-01
365	2.90E-04	8.90E+01	1.84E-03	8.90E+01	5.89E-03	8.90E+01	5.06E-03	8.90E+01	3.75E-01
366	1.98E-04	6.07E+01	1.25E-03	6.07E+01	4.01E-03	6.07E+01	3.45E-03	6.07E+01	2.56E-01
367	1.97E-04	6.06E+01	1.25E-03	6.06E+01	4.00E-03	6.06E+01	3.44E-03	6.06E+01	2.55E-01
368	1.99E-04	6.12E+01	1.26E-03	6.12E+01	4.04E-03	6.12E+01	3.47E-03	6.12E+01	2.57E-01
369	1.59E-04	5.86E+01	1.01E-03	5.86E+01	3.24E-03	5.86E+01	2.77E-03	5.86E+01	2.06E-01
370	1.44E-04	5.32E+01	9.13E-04	5.32E+01	2.94E-03	5.32E+01	2.51E-03	5.32E+01	1.87E-01
371	1.43E-04	5.31E+01	9.11E-04	5.31E+01	2.93E-03	5.31E+01	2.50E-03	5.31E+01	1.86E-01
372	1.43E-04	5.31E+01	9.08E-04	5.31E+01	2.92E-03	5.31E+01	2.50E-03	5.31E+01	1.85E-01
373	1.43E-04	5.31E+01	9.05E-04	5.31E+01	2.91E-03	5.31E+01	2.49E-03	5.31E+01	1.85E-01
374	1.42E-04	5.30E+01	9.03E-04	5.30E+01	2.90E-03	5.30E+01	2.48E-03	5.30E+01	1.84E-01
375	1.42E-04	5.30E+01	9.00E-04	5.30E+01	2.89E-03	5.30E+01	2.48E-03	5.30E+01	1.84E-01
376	1.41E-04	5.29E+01	8.98E-04	5.29E+01	2.88E-03	5.29E+01	2.47E-03	5.29E+01	1.83E-01
377	1.41E-04	5.29E+01	8.95E-04	5.29E+01	2.87E-03	5.29E+01	2.46E-03	5.29E+01	1.83E-01
378	1.40E-04	5.29E+01	8.92E-04	5.29E+01	2.86E-03	5.28E+01	2.46E-03	5.29E+01	1.82E-01
379	1.40E-04	5.06E+01	8.90E-04	5.06E+01	2.85E-03	5.06E+01	2.45E-03	5.06E+01	1.81E-01

Initial concentrations of total individual metals and total metals - Xx (i.e., As) for total metals, arsenic, copper, lead, and zinc in the snowmelt scenario. Inputs are from sediment concentrations on the last time step in the GKM release scenario. Dissolved concentrations are calculated in the model using K_d values.

Metal	As		Cu		Pb		Zn		Total Metals-Cations
Segment	Total As [µg/l]	Total Metals-As [mg/l]	Total Cu [µg/l]	Total Metals-Cu [mg/l]	Total Pb [µg/l]	Total Metals-Pb [mg/l]	Total Zn [µg/l]	Total Metals-Zn [mg/l]	Total Metals [mg/l]
380	1.39E-04	5.06E+01	8.87E-04	5.06E+01	2.84E-03	5.06E+01	2.45E-03	5.06E+01	1.81E-01
381	1.39E-04	5.06E+01	8.85E-04	5.06E+01	2.83E-03	5.05E+01	2.44E-03	5.05E+01	1.80E-01
382	1.39E-04	5.05E+01	8.82E-04	5.05E+01	2.83E-03	5.05E+01	2.43E-03	5.05E+01	1.80E-01
383	1.38E-04	5.05E+01	8.80E-04	5.05E+01	2.82E-03	5.05E+01	2.43E-03	5.05E+01	1.79E-01
384	1.38E-04	5.04E+01	8.78E-04	5.04E+01	2.81E-03	5.04E+01	2.42E-03	5.04E+01	1.79E-01
385	1.37E-04	5.04E+01	8.75E-04	5.04E+01	2.80E-03	5.04E+01	2.42E-03	5.04E+01	1.78E-01
386	1.35E-04	4.96E+01	8.61E-04	4.96E+01	2.76E-03	4.96E+01	2.38E-03	4.96E+01	1.75E-01
387	1.35E-04	4.96E+01	8.59E-04	4.96E+01	2.75E-03	4.96E+01	2.37E-03	4.96E+01	1.75E-01
388	1.15E-04	4.22E+01	7.30E-04	4.22E+01	2.33E-03	4.22E+01	2.02E-03	4.22E+01	1.49E-01
389	1.14E-04	4.05E+01	7.28E-04	4.05E+01	2.33E-03	4.05E+01	2.01E-03	4.05E+01	1.48E-01
390	1.14E-04	4.05E+01	7.26E-04	4.05E+01	2.32E-03	4.04E+01	2.01E-03	4.05E+01	1.48E-01
391	1.13E-04	4.04E+01	7.24E-04	4.04E+01	2.31E-03	4.04E+01	2.00E-03	4.04E+01	1.47E-01
392	1.13E-04	4.04E+01	7.22E-04	4.04E+01	2.30E-03	4.04E+01	2.00E-03	4.04E+01	1.47E-01
393	1.13E-04	4.03E+01	7.20E-04	4.03E+01	2.30E-03	4.03E+01	1.99E-03	4.03E+01	1.46E-01
394	1.12E-04	4.03E+01	7.18E-04	4.03E+01	2.29E-03	4.03E+01	1.99E-03	4.03E+01	1.46E-01
395	1.12E-04	4.02E+01	7.16E-04	4.02E+01	2.28E-03	4.02E+01	1.98E-03	4.02E+01	1.45E-01
396	1.12E-04	4.02E+01	7.14E-04	4.02E+01	2.27E-03	4.02E+01	1.98E-03	4.02E+01	1.45E-01
397	1.11E-04	4.01E+01	7.12E-04	4.01E+01	2.27E-03	4.01E+01	1.97E-03	4.01E+01	1.44E-01
398	1.11E-04	4.01E+01	7.10E-04	4.01E+01	2.26E-03	4.01E+01	1.97E-03	4.01E+01	1.44E-01
399	1.11E-04	4.00E+01	7.08E-04	4.00E+01	2.25E-03	4.00E+01	1.97E-03	4.00E+01	1.44E-01
400	1.10E-04	3.97E+01	7.01E-04	3.97E+01	2.23E-03	3.97E+01	1.95E-03	3.97E+01	1.42E-01
401	1.09E-04	3.97E+01	6.99E-04	3.97E+01	2.22E-03	3.97E+01	1.94E-03	3.97E+01	1.42E-01
402	1.07E-04	3.90E+01	6.86E-04	3.90E+01	2.18E-03	3.90E+01	1.91E-03	3.90E+01	1.39E-01
403	1.07E-04	3.89E+01	6.84E-04	3.89E+01	2.17E-03	3.89E+01	1.90E-03	3.89E+01	1.38E-01
404	1.06E-04	3.89E+01	6.82E-04	3.89E+01	2.17E-03	3.89E+01	1.90E-03	3.89E+01	1.38E-01
405	1.06E-04	3.89E+01	6.81E-04	3.89E+01	2.16E-03	3.89E+01	1.90E-03	3.89E+01	1.38E-01
406	1.06E-04	3.88E+01	6.79E-04	3.88E+01	2.15E-03	3.88E+01	1.89E-03	3.88E+01	1.37E-01
407	1.05E-04	3.88E+01	6.77E-04	3.88E+01	2.14E-03	3.88E+01	1.89E-03	3.88E+01	1.37E-01
408	1.10E-04	4.06E+01	7.08E-04	4.06E+01	2.24E-03	4.06E+01	1.98E-03	4.06E+01	1.43E-01
409	1.10E-04	4.06E+01	7.06E-04	4.06E+01	2.23E-03	4.06E+01	1.98E-03	4.06E+01	1.42E-01
410	1.09E-04	4.05E+01	7.04E-04	4.05E+01	2.22E-03	4.05E+01	1.97E-03	4.05E+01	1.42E-01
411	1.09E-04	4.05E+01	7.03E-04	4.05E+01	2.22E-03	4.05E+01	1.97E-03	4.05E+01	1.41E-01
412	1.09E-04	4.04E+01	7.01E-04	4.04E+01	2.21E-03	4.04E+01	1.97E-03	4.04E+01	1.41E-01
413	1.08E-04	4.04E+01	7.00E-04	4.04E+01	2.20E-03	4.04E+01	1.97E-03	4.04E+01	1.41E-01
414	1.08E-04	4.04E+01	6.98E-04	4.04E+01	2.20E-03	4.04E+01	1.96E-03	4.04E+01	1.40E-01
415	1.08E-04	4.03E+01	6.97E-04	4.03E+01	2.19E-03	4.03E+01	1.96E-03	4.03E+01	1.40E-01
416	1.08E-04	4.03E+01	6.96E-04	4.03E+01	2.18E-03	4.03E+01	1.96E-03	4.03E+01	1.40E-01
417	1.07E-04	4.02E+01	6.96E-04	4.02E+01	2.18E-03	4.02E+01	1.96E-03	4.02E+01	1.39E-01
418	1.07E-04	4.02E+01	6.95E-04	4.02E+01	2.18E-03	4.02E+01	1.96E-03	4.02E+01	1.39E-01

Initial concentrations of total individual metals and total metals - Xx (i.e., As) for total metals, arsenic, copper, lead, and zinc in the snowmelt scenario. Inputs are from sediment concentrations on the last time step in the GKM release scenario. Dissolved concentrations are calculated in the model using K_d values.

Metal	As		Cu		Pb		Zn		Total Metals-Cations
Segment	Total As [µg/l]	Total Metals-As [mg/l]	Total Cu [µg/l]	Total Metals-Cu [mg/l]	Total Pb [µg/l]	Total Metals-Pb [mg/l]	Total Zn [µg/l]	Total Metals-Zn [mg/l]	Total Metals [mg/l]
419	1.07E-04	4.01E+01	6.95E-04	4.01E+01	2.17E-03	4.01E+01	1.97E-03	4.01E+01	1.39E-01
420	9.24E-05	3.46E+01	5.99E-04	3.46E+01	1.87E-03	3.46E+01	1.70E-03	3.46E+01	1.20E-01
421	9.23E-05	3.46E+01	5.99E-04	3.46E+01	1.87E-03	3.45E+01	1.70E-03	3.46E+01	1.20E-01
422	9.22E-05	3.45E+01	5.99E-04	3.45E+01	1.87E-03	3.45E+01	1.70E-03	3.45E+01	1.19E-01
423	9.22E-05	3.45E+01	5.99E-04	3.45E+01	1.87E-03	3.45E+01	1.70E-03	3.45E+01	1.19E-01
424	9.22E-05	3.44E+01	6.00E-04	3.44E+01	1.87E-03	3.44E+01	1.70E-03	3.44E+01	1.19E-01
425	9.22E-05	3.44E+01	6.00E-04	3.44E+01	1.87E-03	3.44E+01	1.71E-03	3.44E+01	1.19E-01
426	9.22E-05	3.44E+01	6.01E-04	3.44E+01	1.87E-03	3.43E+01	1.71E-03	3.43E+01	1.19E-01
427	9.23E-05	3.43E+01	6.01E-04	3.43E+01	1.87E-03	3.43E+01	1.71E-03	3.43E+01	1.19E-01
428	9.23E-05	3.43E+01	6.02E-04	3.43E+01	1.87E-03	3.43E+01	1.72E-03	3.43E+01	1.19E-01
429	9.23E-05	3.42E+01	6.02E-04	3.42E+01	1.87E-03	3.42E+01	1.72E-03	3.42E+01	1.19E-01
430	9.22E-05	3.41E+01	6.02E-04	3.41E+01	1.86E-03	3.41E+01	1.72E-03	3.41E+01	1.19E-01
431	9.22E-05	3.41E+01	6.02E-04	3.41E+01	1.87E-03	3.41E+01	1.72E-03	3.41E+01	1.19E-01
432	9.23E-05	3.40E+01	6.03E-04	3.40E+01	1.87E-03	3.40E+01	1.72E-03	3.40E+01	1.19E-01
433	9.24E-05	3.40E+01	6.04E-04	3.40E+01	1.87E-03	3.40E+01	1.73E-03	3.40E+01	1.20E-01
434	9.24E-05	3.39E+01	6.04E-04	3.39E+01	1.87E-03	3.39E+01	1.73E-03	3.39E+01	1.20E-01
435	9.25E-05	3.39E+01	6.05E-04	3.39E+01	1.87E-03	3.39E+01	1.73E-03	3.39E+01	1.20E-01
436	9.26E-05	3.39E+01	6.06E-04	3.39E+01	1.87E-03	3.39E+01	1.74E-03	3.39E+01	1.20E-01
437	9.27E-05	3.38E+01	6.07E-04	3.38E+01	1.87E-03	3.38E+01	1.74E-03	3.38E+01	1.20E-01
438	9.28E-05	3.38E+01	6.08E-04	3.38E+01	1.88E-03	3.38E+01	1.74E-03	3.38E+01	1.20E-01
439	9.29E-05	3.37E+01	6.09E-04	3.37E+01	1.88E-03	3.37E+01	1.75E-03	3.37E+01	1.20E-01
440	9.31E-05	3.37E+01	6.10E-04	3.37E+01	1.88E-03	3.37E+01	1.75E-03	3.37E+01	1.20E-01
441	9.32E-05	3.37E+01	6.11E-04	3.37E+01	1.88E-03	3.37E+01	1.75E-03	3.37E+01	1.21E-01
442	9.33E-05	3.36E+01	6.12E-04	3.36E+01	1.88E-03	3.36E+01	1.76E-03	3.36E+01	1.21E-01
443	9.35E-05	3.36E+01	6.13E-04	3.36E+01	1.89E-03	3.36E+01	1.76E-03	3.36E+01	1.21E-01
444	9.36E-05	3.35E+01	6.14E-04	3.35E+01	1.89E-03	3.35E+01	1.76E-03	3.35E+01	1.21E-01
445	9.38E-05	3.35E+01	6.15E-04	3.35E+01	1.89E-03	3.35E+01	1.77E-03	3.35E+01	1.21E-01
446	9.41E-05	3.35E+01	6.17E-04	3.35E+01	1.90E-03	3.35E+01	1.77E-03	3.35E+01	1.22E-01
447	9.43E-05	3.34E+01	6.19E-04	3.34E+01	1.90E-03	3.34E+01	1.78E-03	3.34E+01	1.22E-01
448	9.45E-05	3.34E+01	6.20E-04	3.34E+01	1.91E-03	3.34E+01	1.79E-03	3.34E+01	1.22E-01
449	9.37E-05	3.30E+01	6.15E-04	3.30E+01	1.89E-03	3.30E+01	1.77E-03	3.30E+01	1.21E-01
450	9.40E-05	3.30E+01	6.17E-04	3.30E+01	1.90E-03	3.30E+01	1.78E-03	3.30E+01	1.22E-01
451	9.46E-05	3.30E+01	6.21E-04	3.30E+01	1.91E-03	3.30E+01	1.79E-03	3.30E+01	1.22E-01
452	9.51E-05	3.29E+01	6.25E-04	3.29E+01	1.92E-03	3.29E+01	1.80E-03	3.29E+01	1.23E-01
453	9.57E-05	3.29E+01	6.29E-04	3.29E+01	1.93E-03	3.29E+01	1.81E-03	3.29E+01	1.24E-01
454	9.62E-05	3.29E+01	6.33E-04	3.29E+01	1.94E-03	3.29E+01	1.83E-03	3.29E+01	1.25E-01
455	9.70E-05	3.29E+01	6.38E-04	3.29E+01	1.96E-03	3.29E+01	1.84E-03	3.29E+01	1.25E-01
456	9.77E-05	3.29E+01	6.42E-04	3.29E+01	1.97E-03	3.29E+01	1.85E-03	3.29E+01	1.26E-01
457	9.84E-05	3.30E+01	6.47E-04	3.29E+01	1.99E-03	3.29E+01	1.87E-03	3.29E+01	1.27E-01

Initial concentrations of total individual metals and total metals - Xx (i.e., As) for total metals, arsenic, copper, lead, and zinc in the snowmelt scenario. Inputs are from sediment concentrations on the last time step in the GKM release scenario. Dissolved concentrations are calculated in the model using K_d values.

Metal	As		Cu		Pb		Zn		Total Metals-Cations
Segment	Total As [µg/l]	Total Metals-As [mg/l]	Total Cu [µg/l]	Total Metals-Cu [mg/l]	Total Pb [µg/l]	Total Metals-Pb [mg/l]	Total Zn [µg/l]	Total Metals-Zn [mg/l]	Total Metals [mg/l]
458	9.92E-05	3.30E+01	6.52E-04	3.30E+01	2.00E-03	3.30E+01	1.88E-03	3.30E+01	1.28E-01

Total Resuspension Volumes

Table R-13. Water column and surface benthic segment volumes of GKM Model for low, medium, and high flows.

Water column and surface benthic segment volumes of GKM Model for low, medium, and high flows.					
Water Column Volume [m^3]				Sediment (Static Bed Volume) [m^3]	
Segment	3/13/11	5/18/11	6/13/11	Segment	3/13/11
1	3374	11875	27408	230	13722
2	1162	2903	6086	231	1255
3	4352	14244	32743	232	13722
4	6003	24823	61606	233	13722
5	6929	29430	70669	234	13722
6	10030	42064	95135	235	17507
7	10016	42162	95186	236	17507
8	10003	42259	95236	237	17507
9	9990	42356	95287	238	17507
10	9976	42452	95338	239	17507
11	11579	48791	105421	240	17507
12	11562	48894	105479	241	17507
13	13056	54844	115098	242	17507
14	13035	54951	115162	243	17507
15	13015	55057	115225	244	17507
16	12994	55160	115288	245	17507
17	12974	55260	115351	246	17507
18	12953	55358	115414	247	17507
19	12931	55453	115476	248	17507
20	12910	55544	115539	249	17507
21	13528	54056	106802	250	17507
22	15309	60878	111837	251	17507
23	15291	60930	111880	252	17507
24	15273	60982	111924	253	17507
25	15255	61033	111966	254	17507
26	15237	61082	112009	255	17507
27	15218	61130	112051	256	17507
28	15200	61177	112093	257	17507
29	15181	61223	112135	258	17507
30	16856	67591	117032	259	17507
31	18640	74870	129613	260	16392
32	33527	135080	233777	261	42298
33	33455	135199	233925	262	42298
34	33382	135308	234069	263	42298
35	33308	135406	234207	264	42298
36	33233	135493	234340	265	42298
37	33158	135567	234469	266	42298

Water column and surface benthic segment volumes of GKM Model for low, medium, and high flows.

Water Column Volume [m^3]				Sediment (Static Bed Volume) [m^3]	
Segment	3/13/11	5/18/11	6/13/11	Segment	3/13/11
38	36304	147552	244032	267	42298
39	36232	147581	244150	268	42298
40	36160	147600	244264	269	42298
41	36087	147608	244375	270	42298
42	36014	147606	244482	271	42298
43	35941	147593	244586	272	42298
44	35868	147570	244687	273	42298
45	35794	147537	244784	274	42298
46	22075	80620	124095	275	42298
47	22952	79673	123346	276	42298
48	22930	79657	123357	277	42298
49	22909	79641	123368	278	42298
50	22887	79623	123379	279	42298
51	22866	79605	123390	280	42298
52	23718	78640	122628	281	42298
53	23694	78617	122630	282	42298
54	29700	98627	153909	283	58217
55	29663	98585	153912	284	58217
56	26775	89049	139082	285	57802
57	27714	87928	138201	286	57802
58	19211	60981	95876	287	34431
59	30062	95490	150205	288	59498
60	30024	95435	150194	289	59498
61	27730	88195	138868	290	59908
62	37163	99551	149758	291	59908
63	36289	96769	150347	292	59908
64	30487	81328	126427	293	51332
65	30456	81274	126413	294	51332
66	30425	81217	126399	295	51332
67	38622	103132	160630	296	59853
68	38574	103034	160606	297	59853
69	37616	99922	161231	298	59853
70	37995	100923	163029	299	68241
71	37951	100789	163005	300	68241
72	26533	70455	114041	301	46376
73	27741	73649	119320	302	49813
74	27719	73571	119306	303	49813
75	27697	73492	119292	304	49813
76	27677	73411	119278	305	49813
77	27657	73328	119264	306	49813
78	27637	73242	119249	307	49813

Water column and surface benthic segment volumes of GKM Model for low, medium, and high flows.

Water Column Volume [m^3]				Sediment (Static Bed Volume) [m^3]	
Segment	3/13/11	5/18/11	6/13/11	Segment	3/13/11
79	27619	73155	119235	308	49813
80	25932	68652	112011	309	40732
81	24324	54137	83682	310	40732
82	24315	54095	83678	311	40732
83	24306	54052	83673	312	40732
84	24298	54008	83668	313	40732
85	24290	53963	83663	314	40732
86	24282	53918	83658	315	40732
87	24275	53872	83654	316	40732
88	25835	57301	89054	317	43903
89	25828	57247	89049	318	43903
90	25821	57192	89043	319	43903
91	25815	57136	89038	320	43903
92	30690	77530	130454	321	43903
121	95008	161494	400189	350	186786
122	79413	132212	327894	351	142097
123	79413	131913	327869	352	142097
124	79414	131600	327845	353	142097
125	79416	131274	327821	354	142097
126	79419	130933	327796	355	142097
127	79422	130577	327771	356	142097
128	64432	105685	265882	357	109451
129	80530	131684	332265	358	109451
130	80535	131266	332239	359	109451
131	82176	124654	336128	360	109451
132	82182	123960	336074	361	109451
133	82189	123235	336019	362	109451
134	82195	122480	335965	363	109451
135	82203	121695	335909	364	109451
136	106633	156457	435587	365	109451
137	97395	141685	397718	366	148546
138	97409	140447	397639	367	148546
139	65771	94245	268423	368	126260
140	88847	113803	320741	369	126260
141	122534	154704	442161	370	134648
142	122556	152419	442045	371	134648
143	122580	150075	441931	372	134648
144	122605	147677	441819	373	134648
145	122632	145234	441708	374	134648
146	122661	142758	441599	375	134648
147	122692	140264	441492	376	134648

Water column and surface benthic segment volumes of GKM Model for low, medium, and high flows.

Water Column Volume [m^3]				Sediment (Static Bed Volume) [m^3]	
Segment	3/13/11	5/18/11	6/13/11	Segment	3/13/11
148	122724	137763	441386	377	134648
149	122759	135258	441282	378	134648
150	122879	130164	442480	379	134648
151	122914	127542	442387	380	134648
152	122952	124917	442294	381	134648
153	122991	122297	442203	382	134648
154	123033	119694	442113	383	134648
155	123077	117121	442023	384	134648
156	123123	114592	441935	385	134648
157	104607	95531	375288	386	125843
158	104643	93772	375226	387	125843
159	118519	103977	424736	388	168416
160	113960	96286	377384	389	168416
161	113997	94501	377334	390	168416
162	114034	92788	377286	391	168416
163	114072	91168	377237	392	168416
164	114110	89661	377189	393	168416
165	114148	88286	377142	394	168416
166	114186	87054	377096	395	168416
167	114223	85971	377050	396	168416
168	114261	85037	377006	397	168416
169	114297	84246	376962	398	168416
170	114333	83588	376919	399	168416
171	157102	113877	517622	400	200204
172	157164	113215	517546	401	200204
173	114795	82411	377880	402	159234
174	114825	82236	377842	403	159234
175	114854	82137	377805	404	159234
176	114881	82105	377770	405	159234
177	153219	109555	503632	406	212312
178	153259	109756	503573	407	212312
179	176425	126733	579468	408	207303
180	176462	127280	579397	409	207303
181	176492	127933	579328	410	207303
182	176513	128671	579263	411	207303
183	176526	129482	579200	412	207303
184	176531	130352	579141	413	207303
185	176527	131273	579085	414	207303
186	176516	132235	579031	415	207303
187	176496	133233	578981	416	207303
188	176470	134261	578933	417	207303

Water column and surface benthic segment volumes of GKM Model for low, medium, and high flows.

Water Column Volume [m^3]				Sediment (Static Bed Volume) [m^3]	
Segment	3/13/11	5/18/11	6/13/11	Segment	3/13/11
189	176437	135314	578888	418	207303
190	176398	136389	578847	419	207303
191	160463	124999	526640	420	268127
192	160425	125915	526610	421	268127
193	160384	126840	526582	422	268127
194	160342	127774	526557	423	268127
195	160300	128715	526534	424	268127
196	160257	129662	526514	425	268127
197	160216	130615	526495	426	268127
198	160176	131572	526478	427	268127
199	123242	100069	453773	428	268127
200	123217	100732	453762	429	268127
201	109365	89946	402807	430	246405
202	109350	90471	402800	431	246405
203	109336	90998	402793	432	246405
204	109325	91527	402786	433	246405
205	109316	92057	402780	434	246405
206	109311	92589	402774	435	246405
207	109308	93122	402768	436	246405
208	109309	93656	402763	437	246405
209	109313	94190	402758	438	246405
210	109321	94726	402753	439	246405
211	109333	95262	402748	440	246405
212	109349	95798	402743	441	246405
213	109369	96335	402739	442	246405
214	109393	96871	402735	443	246405
215	109421	97408	402731	444	246405
216	109454	97944	402728	445	246405
217	145164	130781	533869	446	337951
218	123496	111889	453974	447	255474
219	123557	112568	453973	448	255474
220	78311	71594	287633	449	207017
221	164541	151503	603884	450	249734
222	215251	199991	789095	451	302456
223	219684	205930	804322	452	245131
224	206417	195058	754784	453	183115
225	206705	196858	754826	454	183115
226	234930	225657	856551	455	175760
227	235321	227907	856626	456	175760
228	235709	230119	856709	457	175760
229	236082	232290	856800	458	175760