

MEMORANDUM

Sampling Dates: August 23, September 2010
 To: *Bear Creek Watershed Association*
 From: Russell N. Clayshulte, Manager
 Re: 2010 Bear Creek Reservoir Summary Data



Table 1 Reservoir Profile 8/23/2010

Site	Time	SC	DO	Temp	pH		
TCIn; 16a	9:32	1.6	7.88	19.6	8.23		
BCIn; 15a	9:52	0.211	7.48	17.9	8.28		
LBCout; 45	10:16	0.258	6.24	22	8.57		
BCReservoir	40a/40c					Secchi m	T Depth m
1m	11:22	0.257	7.63	21.4	8.65	1.4	10.85
2m		0.256	7.74	21.4	8.64		
3m		0.257	7.37	21.3	8.64		
4m		0.255	7.11	21.3	8.63		
5m		0.256	7	21.3	8.61		
6m		0.257	7.04	21.3	8.6		
7m		0.254	6.72	21.2	8.57		
8m		0.255	6.56	21.1	8.52		
9m		0.256	6.12	21	8.44		
10m		0.255	5.43	20.7	8.24		
11m		0.263	3.57	20.6	8.07		

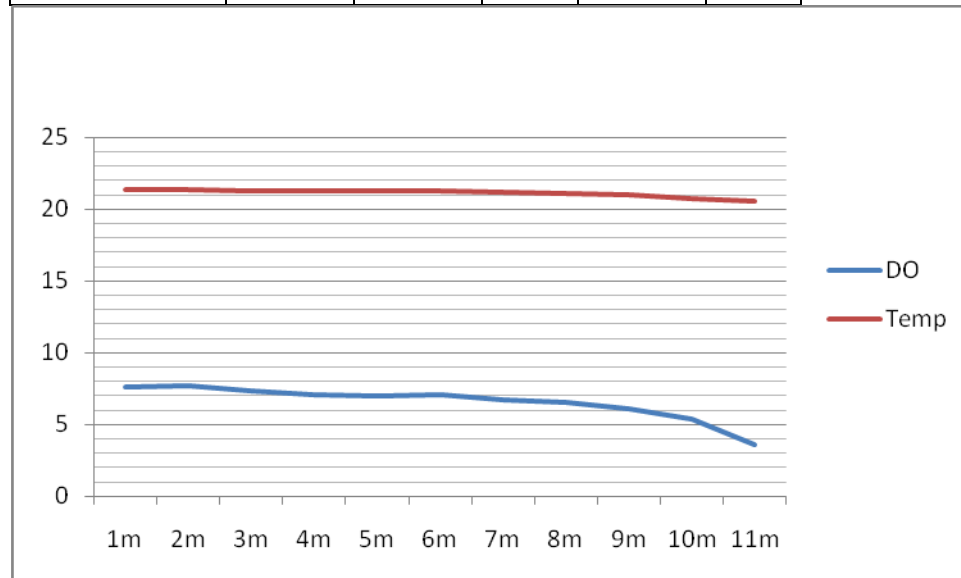


Figure 1 DO and Temperature Profile for 8/23/2010

Table 2 Coyote Gulch Field Data 8/23/10

	Time	SC	DO	Temp	pH	Flow
Upper Coyote	10:43	1.13	6.07	17.7	8.21	0.37 cfs
Lower Coyote	10:50	1.09	7.57	18.4	8.5	0.5 cfs

Table 3 Reservoir profiles 8/23/10

Site 1	Time	SC	DO	Temp	pH	Secchi m	T Depth m
1m	11:41	0.257	7.71	21.7	8.73	1.3	8.4
2m		0.257	7.63	21.5	8.73		
3m		0.257	7.13	21.4	8.71		
4m		0.257	7.26	21.3	8.64		
5m		0.257	6.94	21.3	8.6		
6m		0.258	6.6	21.2	8.53		
7m		0.259	6.3	21	8.47		
8m		0.26	5.3	20.9	8.35		
Site 3	Time	SC	DO	Temp	pH	Secchi m	T Depth m
1m	11:54	0.239	7.41	21.5	8.65	1.5	5
2m		0.257	7.54	21.4	8.65		
3m		0.257	6.98	21.4	8.65		
4m		0.257	7.52	21.4	8.65		
5m		0.256	6.14	21.3	8.59		
Site 4	Time	SC	DO	Temp	pH	Secchi m	T Depth m
1m	12:04	0.257	7.76	21.9	8.3	1.35	4
2m		0.259	8.27	21.8	8.81		
3m		0.27	7.1	21.6	8.74		
Site 5	Time	SC	DO	Temp	pH	Secchi m	T Depth m
1m	12:12	0.258	7.73	21.8	8.81	1.4	6.3
2m		0.257	7.25	21.8	8.81		
3m		0.257	7.54	21.8	8.81		
4m		0.256	7.3	21.6	8.8		
5m		0.256	7.6	21.5	8.8		
6m		0.254	7.03	21.3	8.72		

Table 4 Reservoir Profile 9/7/10

Site	Time	SC	DO	Temp	pH	Secchi m	T Depth m
TCIn	10:13	2.05	8.72	11.3	7.89		
BCIn	10:40	0.219	8.88	11.5	8.5		
LBCout	11:07	0.254	6.17	18.8	9.04		
BCReservoir		40a/40c				Secchi m	T Depth m
1m	12:08	0.257	8.64	20	9.09	1.25	10.6
2m		0.257	8.82	20	9.12		
3m		0.257	8.48	19.9	9.14		
4m		0.257	8.04	19.8	9.1		
5m		0.257	8	19.8	9.09		
6m		0.257	7.78	19.8	9.11		
7m		0.257	7.7	19.8	9.12		
8m		0.257	8	19.7	9.12		
9m		0.257	7.84	19.6	9.12		
10m		0.255	7.71	18.8	9.02		
11m		0.254	5.4	18.7	8.73		

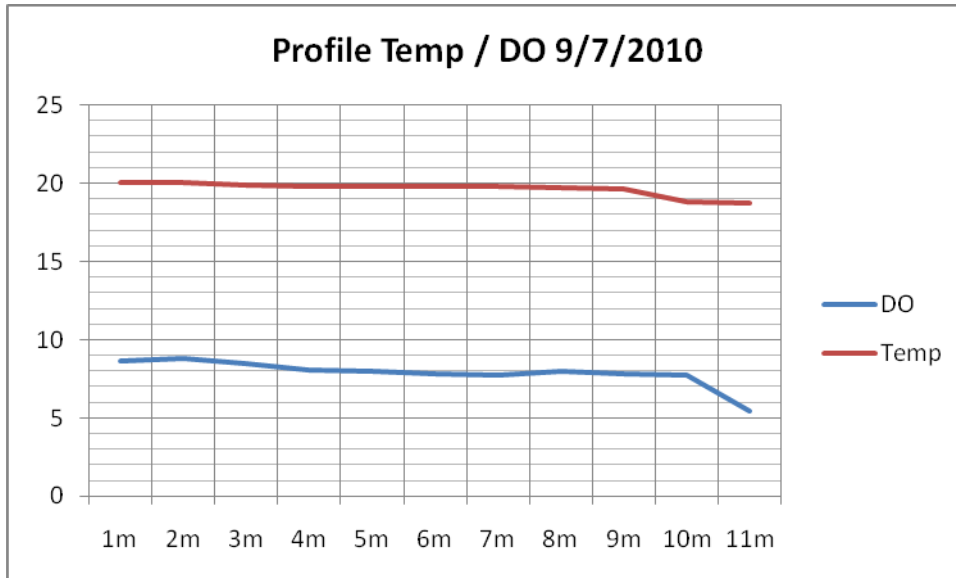


Figure 2 DO and Temperature Profile for 9/7/10

Table 5 Reservoir Profiles 9/7/10

Site 1	Time	SC	DO	Temp	pH	Secchi m	T Depth m
1m	12:24	0.257	9.4	20.1	9.42	1.45	8.6
2m		0.257	8.6	19.9	9.36		
3m		0.258	8	19.8	9.32		
4m		0.258	8.25	19.8	9.3		
5m		0.258	8.15	19.7	9.3		
6m		0.258	8.13	19.6	9.29		
		0.258	7.9	19.6	9.26		
		0.258	7.7	19.6	9.25		
Site 3	Time	SC	DO	Temp	pH	Secchi m	T Depth m
1m	12:37	0.257	9.05	20.1	9.42	1.2	5.2
2m		0.258	8.64	19.9	9.37		
3m		0.258	8.08	19.8	9.33		
4m		0.258	8.2	19.7	9.3		
5m		0.259	7.05	19.6	9.23		
Site 4	Time	SC	DO	Temp	pH	Secchi m	T Depth m
1m	12:44	0.257	9.6	20.7	9.46	1.4	2.85
2m		0.258	9.52	20.3	9.47		
3m		0.26	6.14	20.1	9.42		
Site 5	Time	SC	DO	Temp	pH	Secchi m	T Depth m
1m	12:51	0.257	9.35	20.6	9.42	1.5	6
2m		0.257	9.07	20.7	9.4		
3m		0.257	8.86	19.9	9.39		
4m		0.257	8.56	19.8	9.35		
5m		0.257	8.5	19.7	9.31		
6m		0.255	7.08	19.7	9.2		

Table 6 Reservoir Profile 9/27/2010

Site	Time	SC	DO	Temp	pH		
TCIn; 16a	9:35	2.42	8.41	13	7.63		
BCIn; 15a	10:12	0.219	8.82	12.4	7.99		
LBCout; 45	10:45	0.274	7.21	17.4	8.25		
BCReservoir	40a/40c					Secchi m	T Depth m
1m	12:17	0.268	7.16	18.1	8.36	0.8	10.5
2m		0.268	6.46	17.8	8.35		
3m		0.268	6.65	17.8	8.32		
4m		0.267	6.75	17.7	8.3		
5m		0.267	6.54	17.7	8.29		
6m		0.267	6.45	17.7	8.3		
7m		0.267	6.59	17.6	8.29		
8m		0.267	6.55	17.6	8.29		
9m		0.267	6.08	17.6	8.25		
10m		0.265	5.86	17.7	8.17		

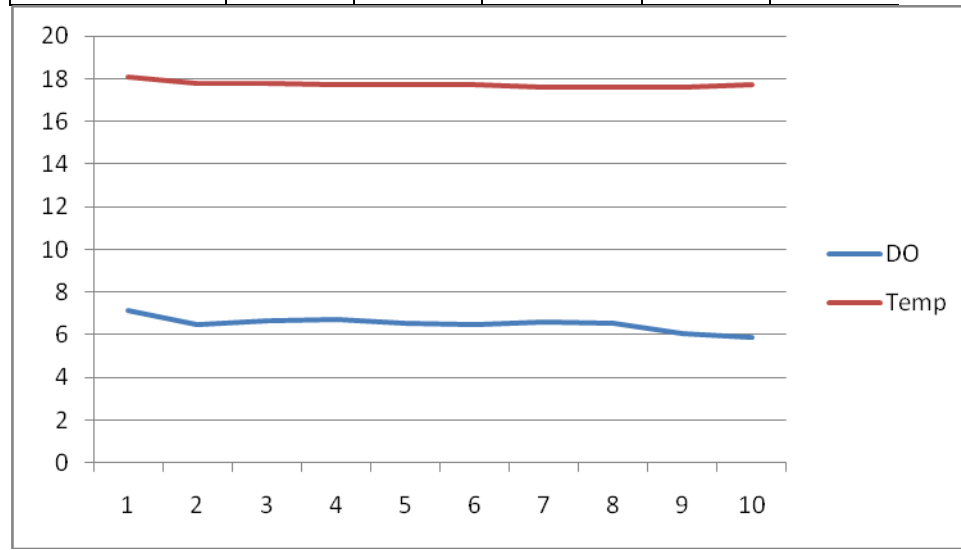


Figure 3 Temperature and DO Profiles 9/27/2010

Table 7 Reservoir Profiles 9/27/2010

Site 41 (1)	Time	SC	DO	Temp	pH	Secchi m	T Depth m
1m	12:32	0.268	6.81	18	8.36	0.95	7.95
2m		0.268	6.61	17.8	8.35		
3m		0.268	6.45	17.8	8.35		
4m		0.268	6.43	17.7	8.34		
5m		0.268	6.36	17.7	8.31		
6m		0.268	6.17	17.7	8.29		
7m		0.269	5.91	17.7	8.22		
8m		0.27	4.95	17.6	8.12		
Site 42 (3)	Time	SC	DO	Temp	pH	Secchi m	T Depth m
1m	12:42	0.268	7.17	18.2	8.43	1	5
2m		0.268	6.49	17.9	8.45		
3m		0.268	6.75	17.8	8.4		
4m		0.268	6.64	17.8	8.4		

5m		0.268	6.17	17.7	8.33		
Site 43 (4)	Time	SC	DO	Temp	pH	Secchi m	T Depth m
1m	12:52	0.268	7.88	18.4	8.62	0.85	3.2
2m		0.268	7.49	18.3	8.59		
3m		0.269	7.45	18.3	8.59		
Site 44 (5)	Time	SC	DO	Temp	pH	Secchi m	T Depth m
1m	1:00	0.267	7.18	18.2	8.53	0.9	6.3
2m		0.267	7.25	18.2	8.56		
3m		0.267	7.08	18.2	8.58		
4m		0.267	7.26	18.1	8.57		
5m		0.267	7.28	18	8.56		
6m		0.265	6.48	17.5	8.51		

Table 8 2010 Flows, cfs

SITE	25-Jan	22-Feb	29-Mar	26-Apr	24-May	29-Jun	13-Jul	26-Jul	8-Aug
Turkey Creek Inflow	3.2	1.8	13.5	164	46	9.2	4.1	2.9	3.6
Bear Creek Inflow	8.7	5.3	35.3	130	140	38.3	22.2	10.6	36.8
Lower Bear Creek	7.8	7.9	58.7	150	148	70.7	24.2	14.9	50

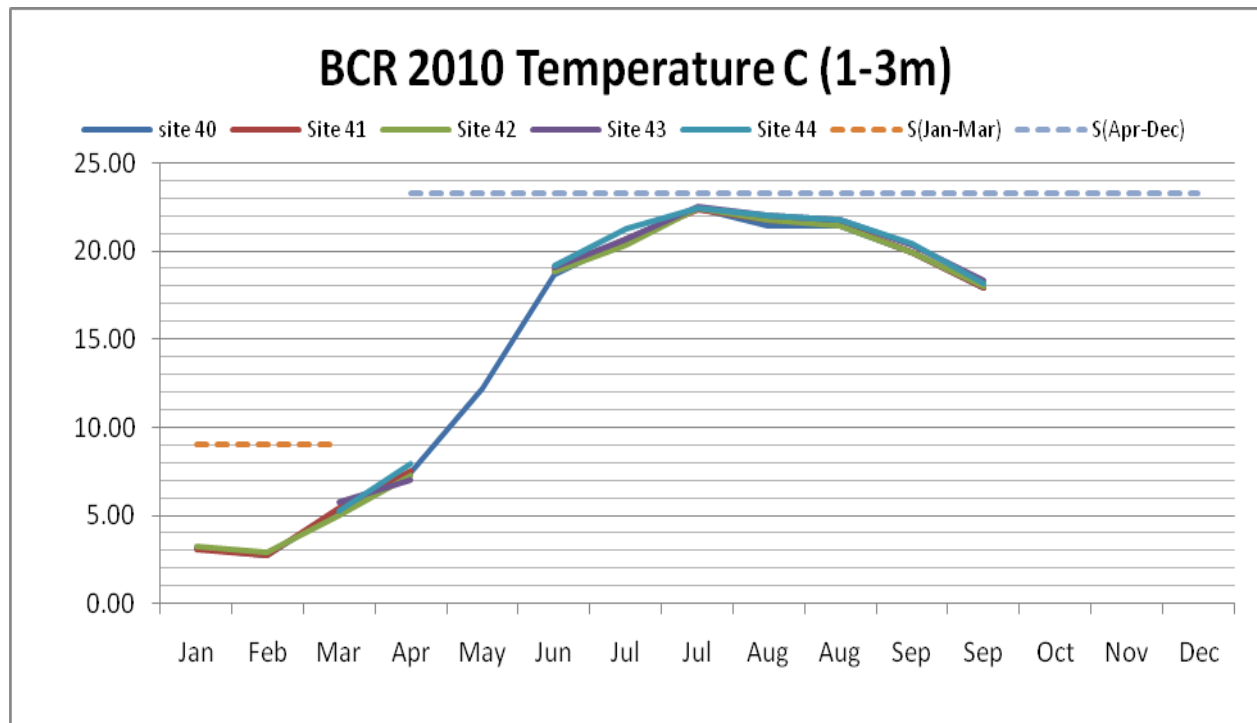


Figure 4 Bear Creek Reservoir Temperature Compliance

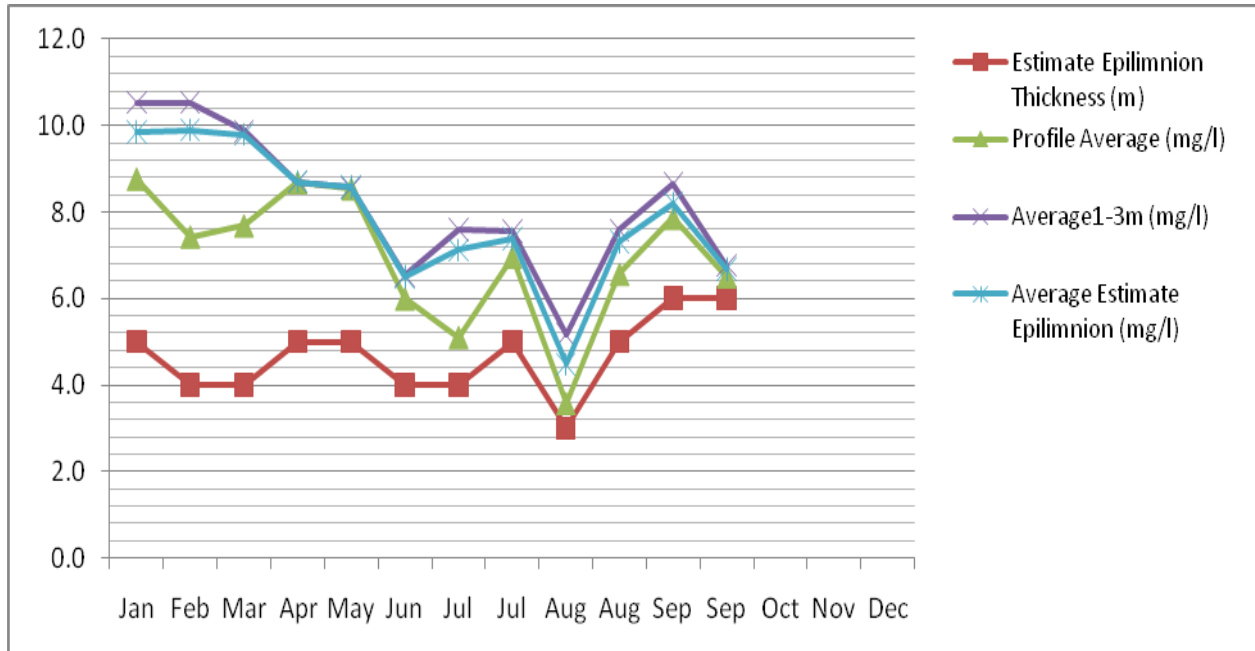


Figure 5 DO Compliance

Table 9 Watershed Flow Measurements

Site ID	Site Location by Stream Segment	Flow cfs		
		7/8/2010	8/5/2010	9/2/2010
Segment 1a				
Site 1a	Above Lost and Found (Singin' River Ranch) complex	39.3	51.4	23.2
Site 3a	Above Evergreen Lake at CDOW Site	49.5	66.4	14.6
Segment 1e				
Site 5	Above EMD WWTP, at CDOW downtown site	62.2	59.4	25.7
Site 8a	Bear Creek Cabins at CDOW Site	63	77.6	24.3
Site 9	O'Fallon Park, west end at CDOW Site	52.4	77.5	27.1
Site 12	Lair o' the Bear Park, at CDOW site	63	76.1	28.3
Site 13a	Below Idledale, Shady Lane at CDOW site	74.1	76.9	38.4
Site 14a	Morrison Park west end of town, at CDOW Site	67.4	75.6	21.9
Segment 3				
Site 25	Vance Creek (Mt. Evans Wilderness drainage)	9.5	10.4	7.9
Segment 5				
Site 35	Cub Creek, Upstream @ Brookforest Inn	6.3	1.13	0.43
Site 50	Cub Creek, Upstream of Cub Creek Park	6	1.61	0.88
Segment 6a				
Site 18	South Turkey Creek Aspen Park Metropolitan District	0.41	0.1	0.01
Segment 6b				
Site 19	North Turkey Creek Flying J Ranch Bridge	1.9	1.2	0.52
Segments 7 and 8				
Site 37	Bear Creek, Mainstem from Lake 1/4 mile downstream (Segment 7)	3.1	17.9	3.87
Site 36	Summit Lake outfall (Mount Evans Wilderness) (Segment 8)	3	7.1	1.02
Site 38	Bear Creek at Bear Tracks, Bridge (Segment 7)	17.6		11.9

Table 10 Watershed Field Measurements

Site	Location	Date	TIME	pH	Temp °C	DO(mg/l)	SC (ms/cm)
Segment 1a							
Site 1a	Above Singin' River Ranch	7/8/2010	10:06	7.99	8.9	11.41	0.044
		8/5/2010	9:45	7.61	10.1	8.97	0.039
		9/2/2010	9:53	7.59	7.7	10.42	0.042
Site 3a	Above Evergreen Lake at CDOW Site	7/8/2010	10:52	8.18	11.4	10.74	0.068
		8/5/2010	10:37	8	13.1	8.59	0.053
		9/2/2010	10:38	7.86	10.7	9.89	0.054
Segment 1d							
Site 4b	Evergreen Lake Profile Station, one meter	7/6/2010		8.25	15.5	9.12	0.072
		8/5/2010	7:40	7.66	15.8	6.02	0.064
		9/2/2010	6:49	7.94	16.2	7.67	0.06
Site 4e	Evergreen Lake Profile Station, four meters	7/6/2010		7.87	14.3	7.47	0.073
		8/5/2010	7:44	7.43	15.2	4.46	0.069
		9/2/2010	6:53	7.15	15.1	2.15	0.067
Segment 1e							
Site 5	Above EMD WWTP, CDOW downtown site	7/8/2010	11:00	8.16	14.8	9.78	0.081
		8/5/2010	10:49	7.57	15.9	7.75	0.069
		9/2/2010	10:53	7.63	15.7	9.49	0.068
Site 8a	Bear Creek Cabins at CDOW Site	7/8/2010		8.13	15.2	9.69	0.091
		8/5/2010	11:38	7.87	16.9	7.86	0.079
		9/2/2010	11:10	8.08	16.1	8.66	0.087
Site 9	O'Fallon Park, west end at CDOW Site	7/8/2010		8.17	15.3	9.54	0.121
		8/5/2010	12:04	7.93	17.7	7.73	0.095
		9/2/2010	11:28	8.36	14.8	9.28	0.117
Site 12	Lair o' the Bear Park, at CDOW site	7/8/2010	12:22	8.39	15.2	9.79	0.146
		8/5/2010	12:27	8.02	18.1	7.48	0.109
		9/2/2010	11:50	8.44	14	9.34	0.144
Site 13a	Below Idledale, Shady Lane at CDOW site	7/8/2010	12:58	8.35	15.2	9.73	0.153
		8/5/2010	12:54	8.04	18.6	7.51	0.11
		9/2/2010	12:13	8.47	13.7	9.63	0.145
Site 14a	Morrison Park west, CDOW Site	7/8/2010	13:35	8.28	15.2	9.84	0.145
		8/5/2010	13:16	8.16	18.6	7.72	0.11
		9/2/2010	12:36	8.29	13.1	9.71	0.142
Segment 3							
Site 25	Vance Creek (Mt. Evans Wilderness drainage)	7/8/2010	9:55	7.91	9.1	11.1	0.063
		8/5/2010	10:01	7.68	11.1	8.52	0.072
		9/2/2010	10:08	7.82	8.9	10.33	0.065
Segment 5							
Site 35	Cub Creek, Upstream @ Brookforest Inn	7/8/2010	17:14	8.17	9.1	10.06	0.078
		8/5/2010	15:27	7.94	13.4	7.71	0.087
		9/1/2010	17:25	7.68	13.5	8.56	0.084
Site 50	Cub Creek, Upstream of Cub Creek Park	7/8/2010	14:21	8.26	12.1	10.08	0.128
		8/5/2010	15:05	8.03	17	7.33	0.15
		9/1/2010	16:57	8.03	17.1	8.01	0.19
Segment 6a							

Site	Location	Date	TIME	pH	Temp °C	DO(mg/l)	SC (ms/cm)
Site 18	South Turkey Creek Aspen Park Metropolitan District	7/8/2010	13:47	8.02	12.9	8.86	0.75
		8/5/2010	14:21	7.69	16.8	6.24	0.99
		9/2/2010	13:12	7.78	11.5	6.84	1.03
Segment 6b							
Site 19	North Turkey Creek Flying J Ranch Bridge	7/8/2010	13:58	8.13	12.9	9.26	0.257
		8/5/2010	14:31	8.03	18.7	6.41	0.424
		9/2/2010	13:17	8.1	12.6	8.61	0.553
Segments 7 and 8							
Site 37	Bear Creek, Mainstem from Lake 1/4 mile downstream (Segment 7)	7/8/2010	14:46	8.04	7.9	7.64	0.02
		8/5/2010	10:54	7.54	9.4	7.54	0.02
		9/1/2010	10:58	7.77	6.6	8.59	0.021
Site 36	Summit Lake outfall (Mount Evans Wilderness) (Segment 8)	7/8/2010	14:21	8.43	7.9	7.46	0.02
		8/5/2010	10:33	8.19	10.1	6.99	0.02
		9/1/2010	10:41	7.6	8.2	8.29	0.021
Site 38	Bear Creek at Bear Tracks, Bridge (Segment 7)	7/8/2010	13:28	6.1	10.38	8.72	0.037
		9/1/2010	13:12	7.62	9	9.55	0.038