Table 31
Stream Water Quality
Tearing Run

Location ID	Name	Beginning Sample Date	Ending Sample Date	Flow	Averge pH	Number of pH Samples	Number of Al Samples	Average Al	Number of Iron Samples	Average Iron	Number of Mn Samples	Average Mn	Number of Sulfate Samples	Average Sulfate	Number of Acidity Samples	Average Acidity	Total Average
TR-038	Spring along Tearing Run	6/1/2002	6/1/2002	10.00	4.32	1	1	2.25	1	24.40	1	1.87	1	653.00	1	32.40	142.78
TR-039	Spring along Tearing Run	6/1/2002	6/1/2002	25.00	6.80	1	1	0.98	1	1.65	1	1.02	1	690.00	1	1.00	138.93
TR-020	Tearing Run	6/1/2002	6/1/2002	3.00	3.29	1	1	1.86	1	0.29	1	5.05	1	398.00	1	20.00	85.04
TR-046	Tearing Run	5/25/1999	5/13/2004	5955.69	3.96	24	24	4.79	24	6.17	24	3.04	24	318.83	16	49.58	76.48
TR-025	Tearing Run	6/1/2002	6/1/2002	2.00	5.79	1	1	0.10	1	25.80	1	2.21	1	300.00	1	27.20	71.06
TR-043	Tearing Run	6/1/2002	6/1/2002	5.00	4.10	1	1	3.41	1	0.25	1	1.36	1	315.00	1	24.00	68.80
TR-042	Spring along Tearing Run	6/1/2002	6/1/2002	3.00	6.71	1	1	0.65	1	4.14	1	1.39	1	320.00	1	1.00	65.44
TR-044	Mouth of Unnamed Tearing Trib	6/1/2002	6/1/2002	150.00	6.59	1	1	0.10	1	0.05	1	0.12	1	320.00	1	1.00	64.25
TR-041	Spring along Tearing Run	6/1/2002	6/1/2002	10.00	7.64	1	1	0.33	1	0.32	1	0.64	1	243.00	1	1.00	49.06
TR-056	Tearing Run above Snyder Mines	6/27/2003	5/13/2004	1138.53	5.66	12	12	0.52	12	0.55	12	0.44	12	132.13	12	62.68	39.26
TR-063	Brush Valley No. 3	5/20/1997	9/8/1997		4.65	2	2	1.76	2	0.61	2	1.66	2	161.90	2	16.00	36.38
TR-045	Un-named trib. To Tearing Run	6/1/2002	6/1/2002	94.00	3.80	1	1	3.17	1	0.46	1	1.48	1	120.00	1	26.00	30.22
TR-028	Un-named trib. To Tearing Run	6/1/2002	6/1/2002	99.00	6.48	1	1	0.38	1	1.61	1	0.49	1	142.00	1	1.00	29.10
TR-061	Brush Valley No. 3	5/20/1997	4/12/2000		6.47	3	3	0.25	3	0.63	3	25.36	3	85.57			27.95
TR-057	Tearing Run	2/27/1990	7/8/1998	337.14	5.20	37	2	0.64	37	1.75	37	0.61	37	110.01	36	12.79	25.16
TR-054	Tearing Run above discharge	6/27/2003	5/13/2004	427.22	6.73	12	12	0.14	12	1.20	12	0.18	12	113.24	12	4.15	23.78
TR-064	Brush Valley No. 3	5/20/1997	4/12/2000		6.07	3	3	0.25	3	0.15	3	0.10	3	98.30	1	7.40	21.24
TR-062	Brush Valley No. 3	11/4/1996	4/12/2000		6.15	4	4	0.64	4	0.52	4	0.23	4	93.40	3	2.40	19.44
TR-078	Tearing Run	5/14/1993	4/4/2002	13.85	6.67	12	3	0.24	12	1.99	12	0.75	12	47.76	8	7.05	11.56
TR-026	Spring along Tearing Run	6/1/2002	6/1/2002	30.00	6.50	1	1	0.10	1	0.10	1	0.23	1	44.00	1	1.00	9.09
TR-058	Tearing Run	2/27/1990	4/12/2000	16.99	4.84	27	3	0.25	27	0.23	27	0.27	27	27.36	23	9.33	7.49

Table 32
Discharge Water Quality Rankings
Tearing Run

Location ID	Name	Beginning Sample Date	Ending Sample Date	Flow	Average pH	Number of pH Samples	pH Rank	Number of Al Samples	Average Al	Al Rank Factor	Al Rank	Number of Iron Samples	Average Iron	Iron Rank Factor	Iron Rank	Number of Mn Samples	Average Mn	Mn Rank Factor	Mn Rank	Number of Sulfate Samples	Average Sulfate	Sulfate Rank Factor	Sulfate Rank	Number of Acidity Samples	Average Acidity	Acidity Rank Factor	Acidity Rank	FINAL AVERAGE RANK
TR-005	Waterman Mine discharge	6/27/2003	5/13/2004	282.76	2.54	12	2	12	72.91	72.91	1	12	116.04	116.04	1	12	3.62	3.62	7	12	1279.53	1279.53	1	12	896.50	896.50	1	2.17
TR-031	Discharge Sample	6/1/2002	6/1/2002	60.00	2.47	1	1	1	84.10	42.05	2	1	112.00	56.00	2	1	4.59	2.30	12	1	1455.00	727.5	2	1	866.00	433.00	2	3.50
TR-048	Snyder No. 1 Mine #1	6/1/2002	5/13/2004	128.00	2.95	12	4	12	16.11	16.11	4	12	3.22	3.22	10	12	4.64	4.64	4	12	709.46	709.46	3	12	189.83	189.83	3	4.67
TR-040	Discharge Sample	6/1/2002	6/1/2002	50.00	2.97	1	5	1	33.20	16.60	3	1	2.19	1.10	16	1	13.40	6.70	2	1	1123.00	561.5	4	1	204.00	102.00	5	5.83
TR-019	Seep	5/10/1994	9/15/1997	29.07	3.41	15	10	14	7.97	7.97	6	15	1.74	1.74	12	15	7.01	7.01	1	15	526.13	526.13	5	15	101.67	101.67	6	6.67
TR-052	Graceton No. 3	6/27/2003	5/13/2004	1361.89	4.31	12	17	12	9.77	9.77	5	12	23.47	23.47	4	12	2.92	2.92	9	12	439.91	439.91	7	12	109.70	109.70	4	7.67
TR-033	Discharge Sample	6/1/2002	6/1/2002	188.00	2.82	1	3	1	13.20	6.60	7	1	5.60	2.80	11	1	1.82	0.91	23	1	348.00	174	17	1	154.00	77.00	8	11.50
TR-021	Discharge Sample	6/1/2002	6/1/2002	30.00	3.60	1	12	1	11.20	5.60	9	1	0.13	0.07	22	1	10.00	5.00	3	1	750.00	375	9	1	61.00	30.50	16	11.83
TR-055	Tearing Run discharge	6/27/2003	5/13/2004	290.50	3.40	12	8	12	0.33	0.33	23	12	16.21	16.21	5	12	1.67	1.67	15	12	289.13	289.13	11	12	76.39	76.39	9	11.83
TR-037	Discharge Sample	6/1/2002	6/1/2002	35.00	3.41	1	11	1	9.94	4.97	10	1	1.73	0.87	18	1	6.40	3.20	8	1	500.00	250	13	1	83.60	41.80	12	12.00
TR-049	Snyder No. 1 Mine #2	6/27/2003	5/13/2004	521.64	4.55	12	19	12	4.67	4.67	11	12	11.05	11.05	6	12	1.19	1.19	19	12	473.30	473.30	6	12	43.85	43.85	11	12.00
TR-014	Deep Mine Discharge	2/27/1990	4/12/2000	13.10	3.18	43	6	41	5.62	5.62	8	43	1.46	1.46	14	43	1.03	1.03	22	43	168.71	168.71	18	43	99.76	99.76	7	12.50
TR-036	Discharge Sample	6/1/2002	6/1/2002	50.00	3.27	1	7	1	8.36	4.18	12	1	1.52	0.76	20	1	5.24	2.62	10	1	522.00	261	12	1	73.60	36.80	15	12.67
TR-034	Discharge Sample	6/1/2002	6/1/2002		3.97	1	14	1	6.29	3.15	14	1	0.08	0.04	24	1	7.30	3.65	6	1	810.00	405	8	1	44.80	22.40	19	14.17
TR-016	Seep	2/27/1990	4/12/2000	10.47	3.95	104	13	102	3.14	3.14	16	104	0.97	0.97	17	104	2.27	2.27	13	104	226.25	226.25	15	104	41.38	41.38	13	14.50
TR-022	Discharge Sample	6/1/2002	6/1/2002	10.00	4.38	1	18	1	7.42	3.71	13	1	0.10	0.05	23	1	8.50	4.25	5	1	688.00	344	10	1	35.00	17.50	20	14.83
TR-017	Deep Mine Discharge	8/7/1990	1/12/2000	2.45	4.04	88	15	88	3.14	3.14	15	88	0.36	0.36	21	88	1.91	1.91	14	88	147.91	147.91	19	88	38.45	38.45	14	16.33
TR-029	Discharge Sample	6/1/2002	6/1/2002	40.00	5.21	1	21	1	0.32	0.16	25	1	52.30	26.15	3	1	2.32	1.16	20	1	260.00	130	21	1	93.00	46.50	10	16.67
TR-023	Treated Discharge	6/1/2002	6/1/2002	150.00	4.69	1	20	1	4.29	2.15	17	1	14.40	7.20	8	1	1.28	0.64	24	1	485.00	242.5	14	1	32.00	16.00	21	17.33
TR-030	Discharge Sample	6/1/2002	6/1/2002	20.00	3.40	1	9	1	1.22	0.61	21	1	3.05	1.53	13	1	2.54	1.27	18	1	200.00	100	25	1	46.00	23.00	18	17.33
TR-015	Deep Mine Discharge	2/27/1990	1/12/2000	13.26	5.35	86	22	84	1.54	1.54	18	86	0.84	0.84	19	86	2.31	2.31	11	86	142.20	142.20	20	85	30.38	30.38	17	17.83
TR-032	Discharge Sample	6/1/2002	6/1/2002	400.00	5.37	1	23	1	2.09	1.05	20	1	16.40	8.20	7	1	2.79	1.40	16	1	257.00	128.5	22	1	28.40	14.20	22	18.33
TR-035	Discharge Sample	6/1/2002	6/1/2002	5.00	4.14	1	16	1	2.88	1.44	19	1	0.07	0.04	25	1	2.56	1.28	17	1	355.00	177.5	16	1	23.20	11.60	23	19.33
TR-027	Discharge Sample	6/1/2002	6/1/2002	5.00	6.49	1	25	1	0.40	0.20	24	1	8.10	4.05	9	1	2.26	1.13	21	1	220.00	110	23	1	1.00	0.50	25	21.17
TR-002	Drift Mine	6/27/2003	5/13/2004	690.53	6.31	11	24	11	0.36	0.36	22	11	1.36	1.36	15	11	0.44	0.44	25	11	109.28	109.28	24	11	4.82	4.82	24	22.33

Table 33
Discharge Loading Rankings
Tearing Run

Location ID	Name	Beginning Sample Date	Ending Sample Date	Average Flow	Number of Al Loading Samples	Average Al Loading	AL Loading Rank Factor	AL Loading Rank	Number of Iron Loading Samples	Average Iron Loading	Iron Loading Rank Factor	Iron Loading Rank	Number of Mn Loading Samples	Average Mn Loading	Mn Loading Rank Factor	Mn Loading Rank	Number of Sulfate Loading Samples	Average Sulfate Loading	Sulfate Loading Rank Factor	Sulfate Loading Rank	Number of Acidity Loading Samples	Average Acidity Loading	Acidity Loading Rank Factor	Acidity Loading Rank	FINAL LOADING AVG RANK	FINAL WATER QUALITY AVG RANK	FINAL AVG RANK	FINAL RANK
TR-005	Waterman Mine discharge	6/27/2003	5/13/2004	282.76	12	244.13	244.13	1	12	377.98	377.98	1	12	12.55	12.55	2	12	4231.64	4231.64	2	12	2943.76	2943.76	1	1.40	2.17	2.48	1
TR-052	Graceton No.3	6/27/2003	5/13/2004	1361.89	12	160.47	160.47	2	12	369.00	369.00	2	12	47.05	47.05	1	12	7021.68	7021.68	1	12	1781.58	1781.58	2	1.60	7.67	5.43	2
TR-048	Snyder No. 1 Mine #1	6/1/2002	5/13/2004	128.00	10	29.89	29.89	4	10	6.82	6.82	10	10	7.75	7.75	4	10	1277.71	1277.71	4	10	377.60	377.60	3	5.00	4.67	7.33	3
TR-031	Discharge Sample	6/1/2002	6/1/2002	60.00	1	60.55	30.28	3	1	80.64	40.32	5	1	3.30	1.65	12	1	1047.60	523.80	8	1	623.52	311.76	4	6.40	3.50	8.15	4
TR-049	Snyder No. 1 Mine #2	6/27/2003	5/13/2004	521.64	12	28.93	28.93	5	12	70.36	70.36	3	12	8.18	8.18	3	12	2874.29	2874.29	3	12	246.05	246.05	5	3.80	12.00	9.80	5
TR-040	Discharge Sample	6/1/2002	6/1/2002	50.00	1	19.92	9.96	7	1	1.31	0.66	12	1	8.04	4.02	7	1	673.80	336.90	11	1	122.40	61.20	9	9.20	5.83	12.12	6
TR-055	Tearing Run discharge	6/27/2003	5/13/2004	290.50	12	0.75	0.75	16	12	52.26	52.26	4	12	5.48	5.48	6	12	943.75	943.75	5	12	221.89	221.89	6	7.40	11.83	13.32	7
TR-019	Seep	5/10/1994	9/15/1997	29.07	14	2.54	2.54	11	15	0.52	0.52	13	15	2.05	2.05	9	15	163.10	163.10	12	15	29.92	29.92	11	11.20	6.67	14.53	8
TR-033	Discharge Sample	6/1/2002	6/1/2002	188.00	1	29.78	14.89	6	1	12.63	6.32	11	1	4.11	2.05	10	1	785.09	392.54	10	1	347.42	173.71	7	8.80	11.50	14.55	9
TR-032	Discharge Sample	6/1/2002	6/1/2002	400.00	1	10.03	5.02	8	1	78.72	39.36	6	1	13.39	6.70	5	1	1233.60	616.80	7	1	136.32	68.16	8	6.80	18.33	15.97	10
TR-023	Treated Discharge	6/1/2002	6/1/2002	150.00	1	7.72	3.86	9	1	25.92	12.96	7	1	2.30	1.15	15	1	873.00	436.50	9	1	57.60	28.80	12	10.40	17.33	19.07	11
TR-034	Discharge Sample	6/1/2002	6/1/2002																						12.00	14.17	19.08	12
TR-036	Discharge Sample	6/1/2002	6/1/2002	50.00	1	5.02	2.51	12	1	0.91	0.46	14	1	3.14	1.57	13	1	313.20	156.60	13	1	44.16	22.08	14	13.20	12.67	19.53	13
TR-002	Drift Mine	6/27/2003	5/13/2004	690.53	11	3.66	3.66	10	11	11.53	11.53	9	11	3.55	3.55	8	11	848.01	848.01	6	11	41.40	41.40	10	8.60	22.33	19.77	14
TR-037	Discharge Sample	6/1/2002	6/1/2002	35.00	1	4.17	2.09	13	1	0.73	0.36	16	1	2.69	1.34	14	1	210.00	105.00	15	1	35.11	17.56	16	14.80	12.00	20.80	15
TR-021	Discharge Sample	6/1/2002	6/1/2002	30.00	1	4.03	2.02	14	1	0.05	0.02	21	1	3.60	1.80	11	1	270.00	135.00	14	1	21.96	10.98	18	15.60	11.83	21.52	16
TR-014	Deep Mine Discharge	2/27/1990	4/12/2000	13.10	41	1.15	1.15	15	43	0.25	0.25	17	43	0.21	0.21	21	43	34.95	34.95	18	43	20.33	20.33	15	17.20	12.50	23.45	17
TR-029	Discharge Sample	6/1/2002	6/1/2002	40.00	1	0.15	0.08	23	1	25.10	12.55	8	1	1.11	0.56	16	1	124.80	62.40	16	1	44.64	22.32	13	15.20	16.67	23.53	18
TR-022	Discharge Sample	6/1/2002	6/1/2002	10.00	1	0.89	0.45	18	1	0.01	0.01	22	1	1.02	0.51	17	1	82.56	41.28	17	1	4.20	2.10	21	19.00	14.83	26.42	19
TR-015	Deep Mine Discharge	2/27/1990	1/12/2000	13.26	82	0.57	0.57	17	84	0.21	0.21	19	84	0.32	0.32	18	84	27.28	27.28	19	83	11.27	11.27	17	18.00	17.83	26.92	20
TR-016	Seep	2/27/1990	4/12/2000	10.47	100	0.39	0.39	19	102	0.11	0.11	20	102	0.27	0.27	20	102	26.00	26.00	20	102	5.26	5.26	20	19.80	14.50	27.05	21
TR-030	Discharge Sample	6/1/2002	6/1/2002	20.00	1	0.29	0.15	20	1	0.73	0.37	15	1	0.61	0.30	19	1	48.00	24.00	21	1	11.04	5.52	19	18.80	17.33	27.47	22
TR-017	Deep Mine Discharge	8/7/1990	1/12/2000	2.45	88	0.09	0.09	21	88	0.01	0.01	23	88	0.06	0.06	24	88	4.57	4.57	24	88	1.07	1.07	22	22.80	16.33	30.97	23
TR-035	Discharge Sample	6/1/2002	6/1/2002	5.00	1	0.17	0.09	22	1	0.00	0.00	24	1	0.15	0.08	22	1	21.30	10.65	22	1	1.39	0.70	23	22.60	19.33	32.27	24
TR-027	Discharge Sample	6/1/2002	6/1/2002	5.00	1	0.02	0.01	24	1	0.49	0.24	18	1	0.14	0.07	23	1	13.20	6.60	23	1	0.06	0.03	24	22.40	21.17	32.98	25

Table 34
Tearing Run
Prioritized Sites and General Recommendations

Assessed Rank	Loading Rank	Water Quality Rank	Site Designation/Name	Subwatershed	Principal Problem's	Range of Flows (gpm)	Source Reduction	Aerobic Wetlands	Anaerobic Wetlands	Oxic LS Channel	Anoxic LS Trench	Vertical Flow Reactor	Active Treatment	Comments
1	1	1	TR-005 Waterman Mine discharge BCWA Assessment IUP - TR5	Tearing Run	High flow; Very high Al (73 mg/l), SO4; High Fe (116 mg/l), Acidity; Moderate Mn; Very low pH <2.60.	110-771						X	X	Moderately high Al concentration precludes use of wetlands or oxic/anoxic LS systems; insufficient information to evaluate source reduction; high flows may require use of multiple cells or possible occasional bypass
2	2	6	TR-052 Graceton No. 3 BCWA Assessment IUP - TR8	Tearing Run	Very high flow; Moderate Al (9.7 mg/l), Fe (24 mg/l), Mn, SO4; Low Acidity; Moderate pH < 4.40.	478-2287						X	X	Extremely high flows may make passive treatment problematic; if possible, Al and pH values preclude use of wetlands or oxic/anoxic LS systems; insufficient information to evaluate source reduction
5	3	10	TR-049 Snyder No. 1 Mine #2 BCWA Assessment IUP - TR6	Tearing Run	High flow; Moderate Fe (11 mg/l), SO4; Low Al (4.7 mg/l) Mn, Acidity; Moderate pH < 4.60.	5-1695		X	X			X		Marginal Al value makes this a site that could possibly use multiple passive treatment techniques, possibly a small vertical drain or SRB, followed by a wetland to capture the moderate volume of iron; however, high peak flows may be problematic
7	7	8	TR-055 Tearing Run discharge (Sipos Porperty) BCWA Assessment IUP - TR3	Tearing Run	High flow; Moderate FE (16 mg/l), SO4; Very low AL (<1 mg/l); Low MN, Acidity; Low pH < 3.40.	43-1178		X	X	X	X			Low Al value makes this a site that could possibly use multiple passive treatment techniques, possibly an oxic or anoxic LS system, followed by a wetland to capture the moderate volume of iron; however, high peak flows may be problematic
8	12	5	TR-019 Seep 32950103 SW23	Tearing Run	Low flow; Moderate AL (8 mg/l), SO4; Very low FE (1.7 mg/l); High MN; Low Acidity; Moderate pH < 3.50.	5-101						X	X	Moderately high Al concentration precludes use of wetlands or oxic/anoxic LS systems; insufficient information to evaluate source reduction
14	8	25	TR-002 Drift Mine BCWA Assessment IUP - TR1	Tearing Run	High flow; Very low Al (<1 mg/l), FE (1.3 mg/l), Acidity; Low MN, SO4; High pH > 6.00.	108-1225		X	X	X	X			Low Al value makes this a site that could possibly use multiple passive treatment techniques, possibly an oxic or anoxic LS system, followed by a wetland to capture the moderate volume of iron; however, high peak flows may be problematic