

**Appendix B:
Cross-Section Flood
Routing Variable
Predictions**

Table B-1: Cross-section flood routing variables, Cloud Peak dam breach (station 1013950 to 947320).

Station (ft)	Stream	Reach	Peak Discharge (cfs)	Time to Initial Breach Flow (hr)	Time to Peak Discharge (hr)	Time of Rise (min)	Discharge Left (cfs)	Discharge Right (cfs)	Minimum Channel Elevation (ft)	Water-Surface Elevation (ft)	Maximum Water Depth (ft)	Energy Elevation (ft)
1013950	S. Piney Creek	Cloud to Willow	29,900	0.00	1.2	71	2,870	3,190	9700	9715	15	9722
1013770	S. Piney Creek	Cloud to Willow	29,900	----	----	----	----	1,270	9680	9694	14	9701
1013560	S. Piney Creek	Cloud to Willow	29,900	0.03	1.2	69	----	9,320	9640	9655	15	9660
1013310	S. Piney Creek	Cloud to Willow	29,900	----	----	----	6,200	1,410	9600	9617	17	9622
1012720	S. Piney Creek	Cloud to Willow	29,900	0.08	1.2	67	10,600	963	9560	9573	13	9577
1012120	S. Piney Creek	Cloud to Willow	29,900	----	----	----	----	74	9540	9544	4	9545
1011340	S. Piney Creek	Cloud to Willow	29,400	0.12	1.2	67	4,600	1,280	9520	9536	16	9542
1010260	S. Piney Creek	Cloud to Willow	29,400	----	----	----	1,630	14,800	9480	9492	12	9496
1009320	S. Piney Creek	Cloud to Willow	29,400	0.18	1.3	65	5,880	16,300	9440	9452	12	9456
1008830	S. Piney Creek	Cloud to Willow	29,400	----	----	----	2,200	20,700	9400	9410	10	9411
1007660	S. Piney Creek	Cloud to Willow	28,700	0.22	1.3	64	429	----	9380	9390	10	9390
1006410	S. Piney Creek	Cloud to Willow	28,600	----	----	----	----	----	9380	9387	7	9389
1005060	S. Piney Creek	Cloud to Willow	28,400	0.32	1.4	63	1,980	7,420	9360	9376	16	9381
1004100	S. Piney Creek	Cloud to Willow	28,300	----	----	----	6,220	770	9340	9359	19	9365
1003380	S. Piney Creek	Cloud to Willow	28,300	0.37	1.4	62	5,460	258	9320	9338	18	9344
1002960	S. Piney Creek	Cloud to Willow	28,300	----	----	----	12,600	16	9280	9303	23	9309
1002680	S. Piney Creek	Cloud to Willow	28,300	0.38	1.4	62	2,600	1,850	9240	9260	20	9269
1002260	S. Piney Creek	Cloud to Willow	28,300	----	----	----	3,710	16,100	9200	9211	11	9211
1001550	S. Piney Creek	Cloud to Willow	28,100	0.43	1.5	61	10,300	9,220	9180	9191	11	9191
1000390	S. Piney Creek	Cloud to Willow	27,900	----	----	----	2,030	3,830	9160	9176	16	9182
999870	S. Piney Creek	Cloud to Willow	27,900	0.48	1.5	61	6,180	3,930	9120	9137	17	9144
999490	S. Piney Creek	Cloud to Willow	27,900	----	----	----	3,810	3,140	9080	9094	14	9102
999110	S. Piney Creek	Cloud to Willow	27,900	0.50	1.5	61	204	----	9040	9050	10	9053
998600	S. Piney Creek	Cloud to Willow	27,900	----	----	----	615	15,700	9000	9011	11	9015
997960	S. Piney Creek	Cloud to Willow	27,900	0.53	1.5	60	5,630	5,390	8960	8976	16	8981
997050	S. Piney Creek	Cloud to Willow	27,900	----	----	----	3,540	3,770	8920	8937	17	8943
995780	S. Piney Creek	Cloud to Willow	27,900	0.58	1.6	59	1,770	3,720	8880	8896	16	8901
994650	S. Piney Creek	Cloud to Willow	27,900	----	----	----	1,740	1,750	8840	8857	17	8864
993710	S. Piney Creek	Cloud to Willow	27,900	0.65	1.6	57	5,330	16,300	8800	8810	10	8811
992260	S. Piney Creek	Cloud to Willow	27,800	----	----	----	4,460	13,700	8780	8788	8	8789
991140	S. Piney Creek	Cloud to Willow	27,700	0.80	1.7	53	5,100	9,660	8760	8769	9	8771
990480	S. Piney Creek	Cloud to Willow	27,700	----	----	----	11,700	5	8720	8738	18	8743
990020	S. Piney Creek	Cloud to Willow	27,700	0.82	1.7	53	4,090	767	8680	8700	20	8708
989300	S. Piney Creek	Cloud to Willow	27,700	----	----	----	17,400	4,430	8640	8645	5	8645
983020	S. Piney Creek	Willow to Canyon	132,600	1.4	2.8	86	12,000	1,130	8571	8595	24	8605
981380	S. Piney Creek	Willow to Canyon	130,800	----	----	----	31,700	27,200	8520	8564	44	8576
980320	S. Piney Creek	Willow to Canyon	130,200	1.5	2.9	84	27,100	52,800	8480	8526	46	8536
979640	S. Piney Creek	Willow to Canyon	130,100	----	----	----	35,200	43,600	8440	8480	40	8491
979160	S. Piney Creek	Willow to Canyon	130,100	1.5	2.9	84	14,000	44,000	8400	8442	42	8452
978500	S. Piney Creek	Willow to Canyon	130,000	----	----	----	65,700	10,200	8360	8403	43	8415
977930	S. Piney Creek	Willow to Canyon	129,900	1.5	2.9	82	26,300	64,700	8320	8353	33	8361
977400	S. Piney Creek	Willow to Canyon	129,800	----	----	----	11,100	82,100	8280	8308	28	8314
976980	S. Piney Creek	Willow to Canyon	129,800	1.5	2.9	82	9,390	90,600	8240	8268	28	8274
976400	S. Piney Creek	Willow to Canyon	129,700	----	----	----	30,900	58,800	8200	8229	29	8236
975930	S. Piney Creek	Willow to Canyon	129,600	1.6	2.9	81	46,800	48,500	8160	8190	30	8196
974990	S. Piney Creek	Willow to Canyon	129,500	----	----	----	----	9,690	8120	8142	22	8148
973370	S. Piney Creek	Willow to Canyon	128,900	1.6	2.9	78	4,670	64,000	8080	8109	29	8117
971800	S. Piney Creek	Canyon	127,200	----	----	----	3,950	30,400	8040	8073	33	8084
969820	S. Piney Creek	Canyon	126,300	1.7	3.0	76	27,400	18,700	8000	8042	42	8061
968830	S. Piney Creek	Canyon	126,300	----	----	----	63,500	14,500	7960	7994	34	8004
968050	S. Piney Creek	Canyon	126,100	1.8	3.0	75	9,830	63,600	7920	7964	44	7978
967280	S. Piney Creek	Canyon	126,100	----	----	----	33,200	36,800	7880	7920	40	7932
966485	S. Piney Creek	Canyon	126,000	1.8	3.0	74	7,230	88,600	7840	7867	27	7876
965965	S. Piney Creek	Canyon	126,000	----	----	----	8,130	60,400	7800	7833	33	7843
965115	S. Piney Creek	Canyon	125,900	1.8	3.0	73	57,900	11,600	7760	7798	38	7808
964685	S. Piney Creek	Canyon	125,800	----	----	----	29,700	40,300	7720	7764	44	7779
963105	S. Piney Creek	Canyon	125,800	1.9	3.1	72	61,100	5,480	7640	7677	37	7691
962405	S. Piney Creek	Canyon	125,800	----	----	----	32,100	56,600	7600	7628	28	7635
961765	S. Piney Creek	Canyon	125,700	1.9	3.1	70	85,400	9,880	7560	7591	31	7598
961200	S. Piney Creek	Canyon	125,700	----	----	----	13,100	70,900	7520	7556	36	7563
960550	S. Piney Creek	Canyon	125,600	1.9	3.1	70	40,900	935	7480	7517	37	7530
959540	S. Piney Creek	Canyon	125,600	----	----	----	27,900	62,300	7400	7432	32	7440
959070	S. Piney Creek	Canyon	125,600	1.9	3.1	69	12,200	84,200	7360	7388	28	7396
958515	S. Piney Creek	Canyon	125,500	----	----	----	7,970	79,800	7320	7349	29	7357
957735	S. Piney Creek	Canyon	125,500	2.0	3.1	66	46,900	57,600	7280	7300	20	7306
957285	S. Piney Creek	Canyon	125,500	----	----	----	41,500	68,400	7240	7255	15	7258
956745	S. Piney Creek	Canyon	125,400	2.0	3.1	65	28,600	80,300	7200	7217	17	7221
956235	S. Piney Creek	Canyon	125,300	----	----	----	2,750	93,000	7160	7185	25	7190
955465	S. Piney Creek	Canyon	125,300	2.1	3.1	63	103,000	2,880	7120	7144	24	7148
954695	S. Piney Creek	Canyon	125,200	----	----	----	55,500	48,100	7080	7106	26	7113
954135	S. Piney Creek	Canyon	125,100	2.1	3.1	62	78,600	11,100	7040	7073	33	7081
953195	S. Piney Creek	Canyon	125,100	----	----	----	57,700	25,700	7000	7039	39	7050
952650	S. Piney Creek	Canyon	125,000	2.1	3.1	60	51,200	11,300	6960	6996	36	7009
951480	S. Piney Creek	Canyon	124,900	----	----	----	51,800	31,500	6920	6961	41	6971
950900	S. Piney Creek	Canyon	124,800	2.2	3.2	58	29,500	39,700	6880	6923	43	6936
950300	S. Piney Creek	Canyon	124,800	----	----	----	48,700	15,700	6840	6886	46	6901
949640	S. Piney Creek	Canyon	124,700	2.2	3.2	57	16,200	66,300	6800	6840	40	6851
948980	S. Piney Creek	Canyon	124,700	----	----	----	37,200	27,300	6760	6797	37	6809
948270	S. Piney Creek	Canyon	124,600	2.3	3.2	56	21,300	35,300	6720	6763	43	6777
947320	S. Piney Creek	Canyon	124,600	----	----	----	16,600	62,300	6680	6715	35	6725

Table B-1:

Station (ft)	Energy Slope (ft/ft)	Channel (ft/s)	Velocity		Flow Area (ft ²)	Top Width (ft)	Froude Number		Downstream Reach lengths			Modeling Distances				
			Left (ft/s)	Right (ft/s)			Channel	Section	Left (ft)	Channel (ft)	Right (ft)	Valley (ft)	Distance (miles)	Channel (ft)	Distance (miles)	
1013950	0.1281	23	10	12	1601	192	1.2	1.1	100	180	100	0	0.0	0.0	0.0	0.0
1013770	0.1910	22	----	9	1431	180	1.3	1.3	210	210	210	100	0.0	180	0.0	0.0
1013560	0.1502	20	----	13	1757	237	1.2	1.1	120	250	360	310	0.1	390	0.1	0.1
1013310	0.0831	20	11	8	1831	216	1.0	1.0	370	590	520	550	0.1	640	0.1	0.1
1012720	0.0677	19	8	6	2472	385	1.0	0.8	800	600	505	995	0.2	1,230	0.2	0.2
1012120	0.0203	10	----	2	3013	839	0.9	0.9	730	780	700	1,648	0.3	1,830	0.3	0.3
1011340	0.0384	21	6	6	2124	263	1.0	0.9	1060	1080	890	2,363	0.4	2,610	0.5	0.5
1010260	0.0328	19	5	10	2448	399	1.0	0.9	910	940	900	3,338	0.6	3,690	0.7	0.7
1009320	0.1066	22	14	14	1917	329	1.2	1.1	430	490	510	4,243	0.8	4,630	0.9	0.9
1008830	0.0212	18	9	7	3492	777	1.1	0.7	630	1170	955	4,713	0.9	5,120	1.0	1.0
1007660	0.0004	3	1	----	8967	1079	0.2	0.2	885	1250	885	5,505	1.0	6,290	1.2	1.2
1006410	0.0189	13	----	----	2204	543	0.9	0.9	1320	1350	1380	6,390	1.2	7,540	1.4	1.4
1005060	0.0151	22	4	5	2976	361	1.0	0.6	900	960	1000	7,740	1.5	8,890	1.7	1.7
1004100	0.0280	22	6	5	2086	217	1.0	0.8	730	720	700	8,690	1.6	9,850	1.9	1.9
1003380	0.0798	21	9	5	1698	191	1.0	1.0	470	420	390	9,405	1.8	10,570	2.0	2.0
1002960	0.1477	23	16	4	1438	126	1.0	1.0	330	280	250	9,835	1.9	10,990	2.1	2.1
1002680	0.1170	26	11	10	1358	137	1.2	1.2	280	420	670	10,125	1.9	11,270	2.1	2.1
1002260	0.0362	8	4	5	5133	1126	0.5	0.5	480	710	670	10,600	2.0	11,690	2.2	2.2
1001550	0.0027	7	4	4	6298	1160	0.4	0.3	980	1160	1250	11,175	2.1	12,400	2.3	2.3
1000390	0.0763	21	8	8	1780	218	1.0	1.0	470	520	420	12,290	2.3	13,560	2.6	2.6
999870	0.1169	24	12	11	1632	187	1.1	1.0	420	380	280	12,735	2.4	14,080	2.7	2.7
999490	0.1529	25	11	11	1475	205	1.3	1.2	360	380	490	13,085	2.5	14,460	2.7	2.7
999110	0.0805	14	5	----	1966	433	1.2	1.2	420	510	630	13,510	2.6	14,840	2.8	2.8
998600	0.0518	18	5	15	1832	365	1.1	1.2	560	640	695	14,035	2.7	15,350	2.9	2.9
997960	0.0459	23	7	7	2218	281	1.1	0.8	780	910	830	14,663	2.8	15,990	3.0	3.0
997050	0.0344	23	6	6	2053	246	1.1	0.8	1070	1270	1240	15,468	2.9	16,900	3.2	3.2
995780	0.0345	22	5	6	1996	257	1.1	0.9	1180	1130	920	16,623	3.1	18,170	3.4	3.4
994650	0.0486	23	7	6	1623	192	1.1	1.0	1060	940	850	17,673	3.3	19,300	3.7	3.7
993710	0.0169	17	3	7	4261	947	1.0	0.5	1200	1450	1480	18,628	3.5	20,240	3.8	3.8
992260	0.0171	15	3	7	4096	1107	1.0	0.6	1020	1120	1040	19,968	3.8	21,690	4.1	4.1
991140	0.0237	18	3	4	4873	1261	1.1	0.5	590	660	470	20,998	4.0	22,810	4.3	4.3
990480	0.0771	20	11	2	1908	208	1.0	0.9	400	460	570	21,528	4.1	23,470	4.4	4.4
990020	0.0664	25	9	6	1455	148	1.2	1.1	1800	720	330	22,013	4.2	23,930	4.5	4.5
989300	0.0730	14	5	4	5243	2276	1.1	0.6	392	392	392	23,078	4.4	24,650	4.7	4.7
983020	0.0234	26	6	4	6917	584	1.1	1.0	1570	1640	1350	29,358	5.6	30,930	5.9	5.9
981380	0.0363	36	13	11	6940	354	1.0	0.8	1040	1060	1020	30,818	5.8	32,570	6.2	6.2
980320	0.0655	34	16	18	6015	271	0.9	0.8	660	680	660	31,848	6.0	33,630	6.4	6.4
979640	0.0917	35	19	20	5549	279	1.0	0.9	470	480	400	32,508	6.2	34,310	6.5	6.5
979160	0.0500	32	13	15	6258	297	0.9	0.8	500	660	650	32,943	6.2	34,790	6.6	6.6
978500	0.0809	35	21	15	5411	241	1.0	0.9	510	570	630	33,518	6.3	35,450	6.7	6.7
977930	0.0930	31	17	18	6304	385	1.0	0.9	470	530	520	34,088	6.5	36,020	6.8	6.8
977400	0.0942	28	14	17	6979	501	1.0	0.9	420	420	440	34,583	6.5	36,550	6.9	6.9
976980	0.0804	28	13	16	7447	525	1.0	0.8	480	580	380	35,013	6.6	36,970	7.0	7.0
976400	0.0953	29	16	17	6740	470	1.0	0.9	375	470	440	35,443	6.7	37,550	7.1	7.1
975930	0.0654	30	15	15	7701	512	1.0	0.8	1430	940	550	35,851	6.8	38,020	7.2	7.2
974990	0.0258	21	----	6	7196	653	1.1	1.0	1630	1570	1090	36,841	7.0	38,960	7.4	7.4
973370	0.0260	31	8	9	9706	661	1.0	0.6	1480	1570	1370	38,201	7.2	40,530	7.7	7.7
971800	0.0113	31	5	7	8013	395	1.0	0.6	1730	1980	1800	39,626	7.5	42,100	8.0	8.0
969820	0.0583	43	16	13	5068	258	1.2	1.0	830	990	970	41,391	7.8	44,080	8.3	8.3
968830	0.0225	37	12	9	8286	383	1.2	0.6	750	780	700	42,291	8.0	45,070	8.5	8.5
968050	0.0550	43	12	17	5720	264	1.2	0.8	700	770	800	43,016	8.1	45,850	8.7	8.7
967280	0.0685	38	17	17	5657	286	1.1	0.9	830	795	645	43,766	8.3	46,620	8.8	8.8
966485	0.0883	31	13	21	5854	325	1.1	0.9	400	520	420	44,503	8.4	47,415	9.0	9.0
965965	0.0308	35	9	13	7097	340	1.1	0.7	815	850	815	44,913	8.5	47,935	9.1	9.1
965115	0.0736	34	18	14	5782	307	1.0	0.9	340	430	420	45,728	8.7	48,785	9.2	9.2
964685	0.1130	40	21	22	4609	210	1.1	1.0	730	860	820	46,108	8.7	49,215	9.3	9.3
963105	0.0739	39	17	13	5440	290	1.2	0.9	630	700	600	46,883	8.9	50,075	9.5	9.5
962405	0.0553	31	13	16	7264	435	1.1	0.8	730	640	420	47,498	9.0	50,775	9.6	9.6
961765	0.0432	35	16	11	7180	353	1.2	0.7	585	565	520	48,073	9.1	51,415	9.7	9.7
961200	0.0333	31	10	15	7403	325	0.9	0.6	590	650	630	48,626	9.2	51,980	9.8	9.8
960550	0.1337	32	20	10	4715	255	1.1	1.1	545	610	620	49,236	9.3	52,630	10.0	10.0
959540	0.0922	30	17	22	5675	299	1.0	0.9	450	470	475	49,818	9.4	53,240	10.1	10.1
959070	0.0822	28	14	20	6030	326	1.0	0.9	550	555	405	50,281	9.5	53,710	10.2	10.2
958515	0.0616	32	12	18	6417	343	1.1	0.8	740	780	770	50,758	9.6	54,265	10.3	10.3
957735	0.1062	28	17	17	6778	522	1.2	0.9	400	450	480	51,513	9.8	55,045	10.4	10.4
957285	0.0722	24	12	12	9946	1035	1.1	0.7	600	540	440	51,953	9.8	55,495	10.5	10.5
956745	0.0716	25	13	13	8987	799	1.1	0.7	445	510	470	52,473	9.9	56,035	10.6	10.6
956235	0.0180	32	6	9	11475	635	1.2	0.5	570	770	610	52,931	10.0	56,545	10.7	10.7
955465	0.0416	29	13	8	8728	519	1.1	0.6	705	770	710	53,521	10.1	57,315	10.9	10.9
954695	0.0591	34	16	16	7008	381	1.2	0.7	525	560	525	54,228	10.3	58,085	11.0	11.0
954135	0.0412	32	16	11	7012	322	1.0	0.7	655	940	650	54,753	10.4	58,645	11.1	11.1
953195	0.0867	39	20	18	5435	281	1.1	0.9	580	545	520	55,406	10.5	59,585	11.3	11.3
952650	0.0323	38	14	10	6522	302	1.2	0.7	1060	1170	965	55,956	10.6	60,130	11.4	11.4
951480	0.0659	36	18	17	5940	285	1.0	0.8	470	580	630	56,968	10.8	61,300	11.6	11.6
950900	0.0557	40	16	17	5662	255	1.1	0.8	660	600	560	57,518	10.9	61,880	11.7	11.7
950300	0.0618	41	19	15	5104	211	1.1	0.9	695	660	625	58,128	11.0	62,480	11.8	11.8
949640	0.0672	38	16	20	5428	231	1.1	0.8	550	660	670	58,788	11.1	63,140	12.0	12.0
948980	0.0483	36	16	15	5718	241	1.1	0.8	660	710	630	59,398	11.2	63,800	12.1	12.1
948270	0.0570	39	15	16	5346	244	1.1	0.9	810	950	1000	60,043	11.4	64,510	12.2	12.2
947320	0.0656	35	14	16	6319	358	1.1	0.8	560	580	540	60,948				

Table B-2: Cross-section flood routing variables, Cloud Peak dam breach (station 946740 to 798200).

Station (ft)	Stream	Reach	Peak Discharge (cfs)	Time to Initial Breach Flow (hr)	Time to Peak Discharge (hr)	Time of Rise (min)	Discharge Left (cfs)	Discharge Right (cfs)	Minimum Channel Elevation (ft)	Water-Surface Elevation (ft)	Maximum Water Depth (ft)	Energy Elevation (ft)
946740	S. Piney Creek	Canyon	124,500	2.3	3.2	55	32,400	45,000	6640	6679	39	6689
945960	S. Piney Creek	Canyon	124,400	----	----	----	44,400	21,800	6600	6642	42	6655
945235	S. Piney Creek	Canyon	124,400	2.3	3.2	54	37,700	10,700	6560	6603	43	6618
944525	S. Piney Creek	Canyon	124,300	----	----	----	32,500	38,700	6520	6561	41	6574
943865	S. Piney Creek	Canyon	124,300	2.4	3.2	52	28,000	40,700	6480	6517	37	6528
943305	S. Piney Creek	Canyon	124,200	----	----	----	41,900	12,400	6440	6479	39	6492
942505	S. Piney Creek	Canyon	124,200	2.4	3.2	52	42,700	36,000	6400	6436	36	6446
941730	S. Piney Creek	Canyon	124,100	----	----	----	44,400	27,100	6360	6401	41	6413
941020	S. Piney Creek	Canyon	124,000	2.4	3.3	51	32,800	37,800	6320	6365	45	6380
940370	S. Piney Creek	Canyon	123,900	----	----	----	49,400	14,600	6280	6323	43	6341
939180	S. Piney Creek	Canyon	123,900	2.4	3.3	50	44,900	29,100	6200	6246	46	6259
938550	S. Piney Creek	Canyon	123,900	----	----	----	11,100	30,800	6160	6202	42	6218
937810	S. Piney Creek	Canyon	123,900	2.5	3.3	48	43,000	29,400	6120	6156	36	6168
937090	S. Piney Creek	Canyon	123,800	----	----	----	64,100	11,700	6080	6116	36	6126
936300	S. Piney Creek	Canyon	123,700	2.5	3.3	47	59,300	13,600	6040	6086	46	6099
935420	S. Piney Creek	Canyon	123,700	----	----	----	31,000	36,100	6000	6044	44	6062
934620	S. Piney Creek	Canyon	123,600	2.5	3.3	46	65,100	14,900	5960	5999	39	6009
933710	S. Piney Creek	Canyon	123,500	----	----	----	17,100	52,100	5920	5960	40	5971
932910	S. Piney Creek	Canyon	123,400	2.6	3.3	45	25,400	36,600	5880	5924	44	5940
931810	S. Piney Creek	Canyon	123,300	----	----	----	54,200	29,100	5840	5877	37	5886
930990	S. Piney Creek	Canyon	123,200	2.6	3.3	43	12,300	61,000	5800	5842	42	5854
929950	S. Piney Creek	Canyon	123,000	----	----	----	44,600	21,400	5760	5803	43	5818
928960	S. Piney Creek	Canyon	122,800	2.7	3.4	42	40,100	8,070	5720	5753	33	5761
927840	S. Piney Creek	Canyon	122,500	----	----	----	24,000	26,400	5680	5722	42	5738
927440	S. Piney Creek	Canyon	122,500	2.7	3.4	42	51,400	21,600	5640	5685	45	5701
927100	S. Piney Creek	Canyon	122,500	----	----	----	31,900	15,100	5600	5642	42	5658
926600	S. Piney Creek	Canyon	122,400	2.7	3.4	41	30,300	11,100	5592.19	5626	34	5640
925217	S. Piney Creek	Story	122,200	----	----	----	48,500	33,900	5520	5542	22	5547
923967	S. Piney Creek	Story	121,900	2.8	3.4	39	64,500	37,500	5480	5495	15	5497
923087	S. Piney Creek	Story	121,700	----	----	----	86,300	17,000	5440	5454	14	5455
922032	S. Piney Creek	Story	121,400	2.8	3.5	38	84,200	21,300	5400	5413	13	5414
921142	S. Piney Creek	Story	121,100	----	----	----	81,100	19,400	5360	5375	15	5376
920252	S. Piney Creek	Story	120,600	2.9	3.5	40	82,600	17,600	5320	5334	14	5335
919397	S. Piney Creek	Story	120,200	----	----	----	81,000	20,500	5280	5294	14	5295
918487	S. Piney Creek	Story	119,800	2.9	3.6	42	79,100	20,800	5240	5254	14	5256
917171	S. Piney Creek	Story	119,000	----	----	----	82,700	15,400	5200	5215	15	5216
915892	S. Piney Creek	Story	118,200	3.0	3.7	44	94,400	4,270	5160	5174	14	5176
914752	S. Piney Creek	Story	117,500	----	----	----	85,900	11,500	5120	5134	14	5136
913522	S. Piney Creek	Story	116,900	3.0	3.8	47	92,200	1,510	5080	5095	15	5097
911802	S. Piney Creek	Story	116,100	----	----	----	71,100	26,600	5040	5053	13	5055
910660	S. Piney Creek	Story	115,400	3.1	3.9	48	64,000	30,600	5000	5015	15	5016
908870	S. Piney Creek	Story	113,500	----	----	----	79,900	4,930	4960	4977	17	4980
907490	S. Piney Creek	Story	112,700	3.2	4.0	50	1,100	63,100	4920	4944	24	4950
906370	Piney Creek	Story to I-90	111,500	----	----	----	43,700	4,210	4900	4924	24	4932
905210	Piney Creek	Story to I-90	110,100	3.2	4.1	50	8,340	26,600	4880	4907	27	4917
903460	Piney Creek	Story to I-90	108,600	----	----	----	40,000	9,030	4860	4884	24	4891
901620	Piney Creek	Story to I-90	107,000	3.4	4.2	47	35,100	17,600	4840	4863	23	4869
899510	Piney Creek	Story to I-90	105,700	----	----	----	48,700	7,250	4820	4841	21	4847
898410	Piney Creek	Story to I-90	104,600	3.5	4.2	44	30,300	17,700	4800	4824	24	4830
896510	Piney Creek	Story to I-90	103,000	----	----	----	26,500	13,300	4780	4804	24	4813
895210	Piney Creek	Story to I-90	101,800	3.6	4.3	43	17,400	18,100	4760	4785	25	4794
892800	Piney Creek	Story to I-90	100,500	----	----	----	47,500	10,000	4740	4759	19	4764
891100	Piney Creek	Story to I-90	99,600	3.8	4.4	40	27,900	26,700	4720	4740	20	4745
889260	Piney Creek	Story to I-90	97,800	----	----	----	52,100	5,100	4700	4720	20	4724
887160	Piney Creek	Story to I-90	96,200	3.9	4.5	38	31,700	20,600	4680	4698	18	4704
885960	Piney Creek	Story to I-90	94,800	----	----	----	51,500	1,050	4660	4684	24	4687
882900	Piney Creek	Story to I-90	92,800	4.0	4.7	38	1,500	43,300	4640	4660	20	4666
881875	Piney Creek	Story to I-90	91,900	----	----	----	11,300	37,100	4620	4640	20	4645
880245	Piney Creek	Story to I-90	86,900	4.1	4.8	40	31,800	21,700	4600	4619	19	4622
878440	Piney Creek	Story to I-90	82,000	4.2	5.0	45	16,200	48,700	4580	4614	34	4614
878290	Piney Creek	Story to I-90	I-90 Bridge	----	----	----	----	----	----	----	----	----
878150	Piney Creek	Story to I-90	81,900	4.2	5.0	45	14,400	38,000	4580	4597	17	4601
876550	Piney Creek	Story to I-90	80,500	4.3	5.0	46	6,910	38,400	4560	4579	19	4583
874450	Piney Creek	I-90 to US-14	80,000	4.3	5.1	46	47,100	1,630	4540	4557	17	4560
871580	Piney Creek	I-90 to US-14	79,600	4.4	5.1	43	30,000	23,700	4520	4536	16	4538
868810	Piney Creek	I-90 to US-14	78,800	4.5	5.2	41	2,880	49,300	4500	4516	16	4519
866310	Piney Creek	I-90 to US-14	78,400	4.6	5.2	38	25,300	27,200	4480	4495	15	4498
863145	Piney Creek	I-90 to US-14	77,800	4.7	5.3	36	33,600	20,000	4460	4475	15	4477
855805	Piney Creek	I-90 to US-14	77,100	4.8	5.4	36	36,900	28,400	4440	4450	10	4451
851205	Piney Creek	I-90 to US-14	75,800	4.9	5.5	33	19,100	44,200	4420	4433	13	4433
846730	Piney Creek	I-90 to US-14	73,800	5.1	5.6	28	39,000	11,300	4400	4414	14	4416
841250	Piney Creek	I-90 to US-14	72,400	5.0	5.6	38	29,200	24,100	4380	4395	15	4396
837110	Piney Creek	I-90 to US-14	70,200	5.2	5.8	32	35,400	5,520	4360	4379	19	4382
832420	Piney Creek	I-90 to US-14	69,200	5.5	5.8	21	3,110	39,700	4340	4357	17	4359
826390	Piney Creek	I-90 to US-14	66,600	5.8	6.0	12	7,540	45,700	4320	4333	13	4334
819340	Piney Creek	I-90 to US-14	62,500	5.9	6.1	14	3,110	28,100	4300	4321	21	4323
814180	Piney Creek	US-14 to Clr Crk	----	----	----	----	----	----	----	----	----	----
808520	Piney Creek	US-14 to Clr Crk	42,800	6.1	7.4	76	----	----	4260	----	----	----
803950	Piney Creek	US-14 to Clr Crk	42,200	6.3	7.5	77	27,600	4,480	4240	4250	10	4251
798200	Piney Creek	US-14 to Clr Crk	42,000	6.5	7.7	71	18,400	15,200	4220	4230	10	4231

Table B-2:

Station (ft)	Energy Slope (ft/ft)	Channel (ft/s)	Velocity		Flow Area (ft ²)	Top Width (ft)	Froude Number		Downstream Reach lengths			Modeling Distances			
			Left (ft/s)	Right (ft/s)			Channel	Section	Left (ft)	Channel (ft)	Right (ft)	Valley (ft)	Distance (miles)	Channel (ft)	Distance (miles)
946740	0.0498	36	14	15	6564	334	1.1	0.8	620	780	720	61,498	11.6	66,040	12.5
945960	0.0517	37	16	14	5845	269	1.1	0.8	620	775	780	62,168	11.8	66,820	12.7
945235	0.0578	38	17	13	5128	233	1.1	0.9	790	710	570	62,868	11.9	67,595	12.8
944525	0.0708	40	17	18	5394	260	1.1	0.9	730	660	560	63,548	12.0	68,305	12.9
943865	0.0653	36	16	16	5915	319	1.1	0.9	540	560	540	64,193	12.2	68,965	13.1
943305	0.0566	37	15	13	5647	291	1.1	0.9	760	800	760	64,733	12.3	69,525	13.2
942505	0.0461	37	14	14	6979	383	1.1	0.7	680	775	810	65,493	12.4	70,325	13.3
941730	0.0488	40	15	14	6152	302	1.2	0.8	670	710	695	66,238	12.5	71,100	13.5
941020	0.0587	42	17	17	5365	226	1.1	0.8	620	650	640	66,921	12.7	71,810	13.6
940370	0.1657	41	28	22	3922	179	1.2	1.2	580	520	420	67,551	12.8	72,460	13.7
939180	0.0700	38	19	18	5234	217	1.0	0.9	600	630	560	68,051	12.9	72,980	13.8
938550	0.0628	38	13	17	4834	225	1.1	1.0	770	740	680	68,631	13.0	73,610	13.9
937810	0.0594	38	15	15	6146	337	1.1	0.8	700	720	660	69,356	13.1	74,350	14.1
937090	0.0458	36	14	12	6959	385	1.1	0.7	690	790	580	70,036	13.3	75,070	14.2
936300	0.0459	40	17	13	5850	242	1.1	0.8	730	880	700	70,671	13.4	75,860	14.4
935420	0.0742	46	18	19	4859	217	1.3	1.0	590	800	760	71,386	13.5	76,740	14.5
934620	0.0402	40	14	12	7095	367	1.2	0.7	810	910	800	72,061	13.6	77,540	14.7
933710	0.0406	36	12	14	6678	331	1.0	0.7	840	800	700	72,866	13.8	78,450	14.9
932910	0.0528	43	15	16	5387	242	1.2	0.9	690	1100	1160	73,636	13.9	79,250	15.0
931810	0.0451	37	14	14	7119	384	1.1	0.7	770	820	700	74,561	14.1	80,350	15.2
930990	0.0314	42	11	13	7111	336	1.2	0.7	1040	1040	930	75,296	14.3	81,170	15.4
929950	0.0715	41	19	17	5063	225	1.1	0.9	960	990	1050	76,281	14.4	82,210	15.6
928960	0.0236	30	9	7	7990	490	1.0	0.7	1070	1120	1070	77,286	14.6	83,200	15.8
927840	0.0868	39	19	17	4709	230	1.1	1.0	460	400	320	78,356	14.8	84,320	16.0
927440	0.1491	41	27	22	4098	187	1.2	1.1	255	340	450	78,746	14.9	84,720	16.0
927100	0.0403	40	13	12	5508	259	1.2	0.9	510	500	445	79,098	15.0	85,060	16.1
926600	0.0460	35	16	13	5103	199	1.1	0.8	1341	1388	1365	79,576	15.1	85,560	16.2
925217	0.0522	27	10	13	8784	731	1.1	0.7	946	1250	1151	80,929	15.3	86,948	16.5
923967	0.0480	20	8	8	13789	1888	1.0	0.6	895	880	880	81,977	15.5	88,198	16.7
923087	0.0479	21	6	7	16533	3022	1.1	0.6	860	1055	860	82,865	15.7	89,078	16.9
922032	0.0484	20	6	7	19002	4292	1.0	0.5	870	890	680	83,725	15.9	90,133	17.1
921142	0.0449	21	5	6	19476	4552	1.0	0.5	900	890	930	84,500	16.0	91,023	17.2
920252	0.0571	23	5	6	18857	5075	1.2	0.6	780	855	610	85,415	16.2	91,913	17.4
919397	0.0439	20	5	6	20790	5269	1.0	0.5	990	910	830	86,110	16.3	92,768	17.6
918487	0.0336	21	4	5	22541	5418	1.0	0.5	1050	1370	1300	87,020	16.5	93,678	17.7
917117	0.0348	22	5	5	21587	5086	1.0	0.5	1205	1225	1140	88,195	16.7	95,048	18.0
915892	0.0355	21	4	5	22809	5913	1.0	0.5	1215	1140	1030	89,367	16.9	96,273	18.2
914752	0.0354	21	5	5	21892	5415	1.0	0.5	1140	1230	1080	90,490	17.1	97,413	18.4
913522	0.0276	23	4	5	22123	4845	1.1	0.4	1700	1720	1330	91,600	17.3	98,643	18.7
911802	0.0302	22	5	6	20618	4152	1.1	0.5	1700	1142	930	93,115	17.6	100,363	19.0
910660	0.0176	22	4	5	21441	3193	1.0	0.4	2220	1790	1600	94,430	17.9	101,505	19.2
908870	0.0184	25	6	5	15798	1716	1.1	0.4	1130	1380	990	96,340	18.2	103,295	19.6
907490	0.0180	29	3	7	10793	892	1.1	0.5	799.94	1120.1	1069.96	97,400	18.4	104,675	19.8
906370	0.0127	29	7	3	9937	817	1.1	0.6	1240.08	1159.92	739.92	98,334	18.6	105,795	20.0
905210	0.0155	31	7	5	8926	828	1.1	0.7	1529.85	1750	1330	99,324	18.8	106,955	20.3
903460	0.0124	28	6	4	10341	789	1.1	0.5	1499.98	1840.01	1800.05	100,754	19.1	108,705	20.6
901620	0.0119	27	6	5	11207	871	1.1	0.5	1550.15	2110.01	1659.8	102,404	19.4	110,545	20.9
899510	0.0221	26	7	6	10074	921	1.1	0.6	700.04	1100	900.02	104,009	19.7	112,655	21.3
898410	0.0106	27	6	5	10747	792	1.0	0.5	1700.12	1900	1499.86	104,809	19.9	113,755	21.5
896510	0.0163	30	8	5	8249	671	1.1	0.6	1199.9	1300	1250.08	106,409	20.2	115,655	21.9
895210	0.0124	30	5	5	9296	821	1.1	0.6	1900.22	2409.82	1900.22	107,634	20.4	116,955	22.2
892800	0.0145	26	6	4	12344	1240	1.1	0.5	1199.86	1700	1169.94	109,535	20.7	119,365	22.6
891100	0.0122	25	4	5	13437	1416	1.0	0.4	1470.01	1840.01	1619.86	110,719	21.0	121,065	22.9
889260	0.0102	23	5	3	13606	1363	1.0	0.4	2100	2100	1420.02	112,264	21.3	122,905	23.3
887160	0.0169	28	7	5	10873	1175	1.2	0.5	1000.08	1200	829.92	114,024	21.6	125,005	23.7
885960	0.0056	19	4	1	14427	1140	0.7	0.3	2210.3	3059.71	2029.88	114,939	21.8	126,205	23.9
882900	0.0158	28	5	5	11206	1381	1.2	0.5	1050	1025.01	1519.98	117,060	22.2	129,265	24.5
881875	0.0124	25	4	4	13108	1596	1.0	0.4	1580.04	1629.87	1735.14	118,345	22.4	130,290	24.7
880245	0.0087	20	5	3	15017	1637	0.9	0.3	1474.82	1804.86	2269.95	120,002	22.7	131,919	25.0
878440	0.0004	7	1	2	47035	2356	0.2	0.1	270	290	420	121,874	23.1	133,724	25.3
878290															
878150	0.0123	23	4	4	14490	2010	1.0	0.4	1760	1600	1150.08	122,219	23.1	134,014	25.4
876550	0.0120	24	4	4	13078	1792	1.0	0.4	1670	2100	1830	123,675	23.4	135,614	25.7
874450	0.0097	21	7	4	8961	928	1.0	0.5	1860	2870	1800	125,425	23.8	137,714	26.1
871580	0.0083	19	6	10	9156	1101	0.9	0.5	2660	2770	2480	127,255	24.1	140,584	26.6
868810	0.0072	18	4	7	8870	1152	0.9	0.6	2090	2500	2130	129,825	24.6	143,354	27.2
866310	0.0091	19	9	5	9220	1304	1.0	0.6	2270	3165	2330	131,935	25.0	145,854	27.6
863145	0.0070	18	5	8	10690	1343	0.8	0.5	1600	7340	3970	134,235	25.4	149,019	28.2
855805	0.0069	13	7	7	10040	1956	0.8	0.6	2400	4600	2100	137,020	26.0	156,359	29.6
851205	0.0031	11	6	6	11985	1720	0.6	0.4	3200	4475	3400	139,270	26.4	160,959	30.5
846730	0.0075	18	9	6	7540	1031	0.9	0.6	2520	5480	2140	142,570	27.0	165,434	31.3
841250	0.0040	14	9	6	8775	1126	0.6	0.5	3010	4140	2995	144,900	27.4	170,914	32.4
837110	0.0039	16	9	7	6340	520	0.7	0.6	3320	4690	3350	147,902	28.0	175,054	33.2
832420	0.0053	17	7	8	7179	949	0.8	0.6	3850	6030	4020	151,237	28.6	179,744	34.0
826390	0.0029	11	4	6	10290	1434	0.5	0.4	3800	7050	3690	155,172	29.4	185,774	35.2
819340	0.0036	15	6	5	8538	1565	0.6	0.6	3880	5150	3260	158,917	30.1	192,824	36.5
814180	----	----	----	----	----	----	----	----	2630	5660	3090	162,487	30.8	197,974	37.5
808520	----	----	----	----	----	----	----	----	3800	4570	3460	165,347	31.3	203,634	38.6
803950	0.0057	12	7	4	6040	1286	0.7	0.6	3330	6240	3005	168,977	32.0	208,204	39.4
798200	0.0038	10	5	4	8190	2025	0.6	0.5	3110	6110	2790	172,145	32.6	214,444	40.6

Table B-3: Cross-section flood routing variables, Cloud Peak dam breach (station 792090 to 404000).

Station (ft)	Stream	Reach	Peak Discharge (cfs)	Time to Initial Breach Flow (hr)	Time to Peak Discharge (hr)	Time of Rise (min)	Discharge Left (cfs)	Discharge Right (cfs)	Minimum Channel Elevation (ft)	Water-Surface Elevation (ft)	Maximum Water Depth (ft)	Energy Elevation (ft)
792090	Piney Creek	US-14 to Clr Crk	41,800	6.7	7.8	66	193	33,300	4200	4211	11	4211
787430	Piney Creek	US-14 to Clr Crk	41,600	6.8	7.9	64	18,000	7,760	4180	4194	14	4196
781450	Piney Creek	US-14 to Clr Crk	41,400	7.0	8.0	62	17,900	9,400	4160	4172	12	4174
775380	Piney Creek	US-14 to Clr Crk	41,300	7.2	8.1	56	26,900	2,960	4140	4154	14	4155
768720	Piney Creek	US-14 to Clr Crk	41,000	7.4	8.3	53	5,900	23,200	4120	4135	15	4135
757870	Piney Creek	US-14 to Clr Crk	40,300	7.8	8.6	49	1,690	19,200	4100	4115	15	4117
753010	Piney Creek	US-14 to Clr Crk	40,200	8.0	8.8	48	27,800	2,520	4080	4091	11	4092
748560	Piney Creek	US-14 to Clr Crk	40,000	8.1	8.9	46	4,510	29,600	4060	4069	9	4070
745260	Piney Creek	US-14 to Clr Crk	39,900	8.3	9.0	43	4,850	26,500	4050	4061	11	4061
743345	Clear Creek	Piney to Clearmont	39,200	8.4	9.1	44	32,400	434	4040	4054	14	4054
734820	Clear Creek	Piney to Clearmont	38,600	8.8	9.5	40	2,600	20,600	4020	4037	17	4038
723990	Clear Creek	Piney to Clearmont	37,800	9.2	9.8	35	22,200	10,400	4010	4021	11	4021
714560	Clear Creek	Piney to Clearmont	37,100	9.5	10.0	32	15,400	13,400	4000	4012	12	4012
703360	Clear Creek	Piney to Clearmont	36,300	9.9	10.4	33	28,100	1,380	3980	3990	10	3991
692460	Clear Creek	Piney to Clearmont	35,900	10.3	10.8	27	18,600	9,570	3960	3970	10	3971
683170	Clear Creek	Piney to Clearmont	35,700	10.7	11.0	18	15,500	15,600	3940	3949	9	3949
673440	Clear Creek	Piney to Clearmont	33,800	11.0	11.3	21	11,700	12,800	3920	3934	14	3935
664000	Clear Creek	Piney to Clearmont	32,600	11.2	11.7	29	16,700	2,150	3900	3915	15	3917
655540	Clear Creek	Piney to Clearmont	32,300	11.5	12.0	28	11,000	14,400	3880	3892	12	3893
648390	Clear Creek	Clearmont to Buffalo	31,300	11.8	12.3	30	18,800	6,340	3870	3882	12	3882
642100	Clear Creek	Clearmont to Buffalo	29,700	12.0	12.6	37	14,900	9,060	3860	3872	12	3873
635440	Clear Creek	Clearmont to Buffalo	29,100	12.3	12.9	38	15,900	3,280	3850	3863	13	3864
627800	Clear Creek	Clearmont to Buffalo	29,000	12.6	13.2	34	10,300	12,200	3840	3848	8	3849
622090	Clear Creek	Clearmont to Buffalo	27,900	12.8	13.3	30	76	25,000	3820	3831	11	3831
613940	Clear Creek	Clearmont to Buffalo	26,800	13.0	13.7	42	22,800	28	3800	3812	12	3813
609595	Clear Creek	Clearmont to Buffalo	26,400	13.2	14.1	53	2,800	12,300	3790	3805	15	3806
599735	Clear Creek	Clearmont to Buffalo	26,100	13.6	14.3	44	4,680	12,200	3780	3792	12	3792
592795	Clear Creek	Clearmont to Buffalo	25,800	13.8	14.5	41	603	15,500	3760	3774	14	3775
585895	Clear Creek	Clearmont to Buffalo	25,300	14.1	14.8	43	2,990	13,000	3750	3765	15	3765
578235	Clear Creek	Clearmont to Buffalo	22,600	14.3	15.0	42	19,500	86	3740	3751	11	3751
572085	Clear Creek	Clearmont to Buffalo	21,200	14.6	15.9	78	2,970	4,230	3730	3748	18	3749
571985	Clear Creek	Clearmont to Buffalo	US 14/16 Bridge									
571885	Clear Creek	Clearmont to Buffalo	20,400	14.6	15.9	78	2,090	2,800	3730	3741	11	3746
564235	Clear Creek	Clearmont to Buffalo	20,000	14.9	16.7	107	6,610	----	3720	3737	17	3739
564135	Clear Creek	Clearmont to Buffalo	Railroad Bridge									
564035	Clear Creek	Clearmont to Buffalo	20,000	14.9	16.7	107	2,830	----	3720	3729	9	3741
557705	Clear Creek	Clearmont to Buffalo	20,000	15.2	16.9	100	131	15,000	3710	3719	9	3720
551135	Clear Creek	Clearmont to Buffalo	20,000	15.5	17.0	91	183	15,900	3700	3710	10	3710
544485	Clear Creek	Clearmont to Buffalo	19,900	15.8	17.3	88	11,400	5,060	3690	3699	9	3699
536935	Clear Creek	Clearmont to Buffalo	19,800	16.2	17.6	87	12,600	72	3680	3692	12	3692
531680	Clear Creek	Clearmont to Buffalo	19,800	16.4	17.9	86	11,500	28	3670	3682	12	3683
526380	Clear Creek	Clearmont to Buffalo	19,700	16.7	18.1	84	4,010	7,810	3660	3672	12	3673
513980	Clear Creek	Clearmont to Buffalo	19,600	17.3	18.6	82	16,300	132	3640	3649	9	3649
503680	Clear Creek	Clearmont to Buffalo	19,400	17.8	19.0	72	12,000	212	3620	3633	13	3634
494780	Clear Creek	Clearmont to Buffalo	19,000	18.3	19.4	69	11,500	1,410	3610	3624	14	3624
488080	Clear Creek	Clearmont to Buffalo	18,600	18.5	20.0	85	6,620	920	3600	3617	17	3618
477480	Clear Creek	Clearmont to Buffalo	18,300	19.0	20.4	89	5,480	1,920	3590	3605	15	3606
468670	Clear Creek	Clearmont to Buffalo	18,200	19.3	20.8	88	800	8,490	3580	3594	14	3594
461270	Clear Creek	Clearmont to Buffalo	18,000	19.7	21.2	91	854	9,810	3570	3582	12	3583
455150	Clear Creek	Clearmont to Buffalo	17,900	20.0	21.4	88	566	11,700	3560	3571	11	3572
449150	Clear Creek	Buffalo to Powder	17,700	20.3	21.8	91	9,930	1,040	3550	3564	14	3564
442750	Clear Creek	Buffalo to Powder	17,300	20.6	22.2	95	7,200	1,780	3540	3555	15	3556
432650	Clear Creek	Buffalo to Powder	16,900	21.0	22.8	103	2,360	3,180	3530	3545	15	3546
424650	Clear Creek	Buffalo to Powder	16,800	21.4	23.1	102	6,100	5,750	3520	3531	11	3531
416770	Clear Creek	Buffalo to Powder	16,300	21.8	23.5	100	547	10,300	3510	3522	12	3522
409970	Clear Creek	Buffalo to Powder	16,000	22.2	24.1	110	2,250	2,320	3500	3516	16	3517
404000	Clear Creek	Buffalo to Powder	15,900	22.5	24.3	107	2,320	3,720	3490	3505	15	3506

Table B-3:

Station (ft)	Energy Slope (ft/ft)	Channel (ft/s)	Velocity		Flow Area (ft ²)	Top Width (ft)	Froude Number		Downstream Reach lengths			Modeling Distances			
			Left (ft/s)	Right (ft/s)			Channel	Section	Left (ft)	Channel (ft)	Right (ft)	Valley (ft)	Distance (miles)	Channel (ft)	Distance (miles)
792090	0.0030	9	4	6	7025	1086	0.5	0.4	3930	4660	3480	175,095	33.2	220,554	41.8
787430	0.0053	14	8	3	5749	985	0.7	0.5	3560	5980	3570	178,800	33.9	225,214	42.7
781450	0.0073	15	9	3	6121	1287	0.8	0.6	3200	6070	2860	182,365	34.5	231,194	43.8
775380	0.0048	10	5	3	7677	834	0.5	0.3	5200	6660	5400	185,395	35.1	237,264	44.9
768720	0.0025	10	6	3	10192	1744	0.5	0.3	6460	10850	6470	190,695	36.1	243,924	46.2
757870	0.0067	16	7	5	5023	1245	0.8	0.7	3450	4860	3620	197,160	37.3	254,774	48.3
753010	0.0053	12	5	3	7661	1382	0.7	0.4	2420	4450	3940	200,695	38.0	259,634	49.2
748560	0.0034	8	3	4	9535	2736	0.5	0.4	2010	3300	2930	203,875	38.6	264,084	50.0
745260	0.0038	10	4	5	6895	1394	0.6	0.5	1680	1915	2140	206,345	39.1	267,384	50.6
743345	0.0009	6	3	2	11316	1571	0.3	0.2	5340	8525	5890	208,255	39.4	269,299	51.0
734820	0.0021	9	4	3	8547	1824	0.4	0.4	5530	10830	5040	213,870	40.5	277,824	52.6
723990	0.0014	6	4	4	10007	1693	0.4	0.3	4170	9430	3760	219,155	41.5	288,654	54.7
714560	0.0022	9	4	5	7399	1200	0.5	0.4	7830	11200	7720	223,120	42.3	298,084	56.5
703360	0.0030	9	3	3	9415	2912	0.5	0.4	5210	10900	6930	230,895	43.7	309,284	58.6
692460	0.0045	11	4	5	7670	2514	0.6	0.5	4420	9290	4300	236,965	44.9	320,184	60.6
683170	0.0029	8	3	3	9675	2985	0.5	0.4	3600	9730	4870	241,325	45.7	329,474	62.4
673440	0.0018	9	5	5	6152	754	0.4	0.3	7990	9440	6500	245,560	46.5	339,204	64.2
664000	0.0029	12	7	5	3964	414	0.5	0.5	6750	8460	7000	252,805	47.9	348,644	66.0
655540	0.0018	8	4	4	6931	1070	0.4	0.3	4130	7150	4940	259,680	49.2	357,104	67.6
648390	0.0017	7	3	3	8936	2080	0.4	0.3	4460	6290	4700	264,215	50.0	364,254	69.0
642100	0.0011	6	3	4	8094	1264	0.3	0.3	4690	6660	4390	268,795	50.9	370,544	70.2
635440	0.0026	10	4	5	5334	942	0.5	0.4	4000	7640	4550	273,335	51.8	377,204	71.4
627800	0.0070	11	4	4	6937	3841	0.7	0.6	1580	5710	1610	277,610	52.6	384,844	72.9
622090	0.0004	3	1	2	13994	2415	0.2	0.2	4660	8150	5330	279,205	52.9	390,554	74.0
613940	0.0005	4	2	1	10162	1451	0.2	0.2	4780	4345	3870	284,200	53.8	398,704	75.5
609595	0.0023	10	3	5	4764	866	0.5	0.4	4390	9860	4310	288,525	54.6	403,049	76.3
599735	0.0037	11	4	4	4993	1292	0.6	0.5	4470	6940	4420	292,875	55.5	412,909	78.2
592795	0.0020	9	4	4	4782	695	0.4	0.4	5290	6900	4450	297,320	56.3	419,849	79.5
585895	0.0017	8	3	5	4863	736	0.4	0.4	4030	7660	4880	302,190	57.2	426,749	80.8
578235	0.0006	4	2	1	10167	1937	0.2	0.2	3680	6150	4290	306,645	58.1	434,409	82.3
572085	0.0019	10	7	7	2381	1515	0.5	0.4	200	200	200	310,630	58.8	440,559	83.4
571985															
571885	0.0150	20	11	11	1221	709	1.1	1.1	3200	7650	3450	310,830	58.9	440,759	83.5
564235	0.0023	11	7		2130	2274	0.5	0.5	200	200	200	314,155	59.5	448,409	84.9
564135															
564035	0.0421	30	12		814	1839	1.9	1.9	3570	6330	2960	314,355	59.5	448,609	85.0
557705	0.0023	7	2	4	4953	1170	0.4	0.4	3570	6570	3530	317,620	60.2	454,939	86.2
551135	0.0014	6	2	3	6421	1501	0.3	0.3	3900	6650	3250	321,170	60.8	461,509	87.4
544485	0.0012	5	2	2	7447	1935	0.3	0.2	3390	7550	5820	324,745	61.5	468,159	88.7
536935	0.0021	8	3	3	4918	1227	0.4	0.4	4190	5255	4170	329,350	62.4	475,709	90.1
531680	0.0023	9	4	2	4038	830	0.5	0.4	4190	5300	3450	333,530	63.2	480,964	91.1
526380	0.0021	8	4	3	4307	912	0.4	0.4	10400	12400	9380	337,350	63.9	486,264	92.1
513980	0.0012	5	2	2	7632	2086	0.3	0.2	6310	10300	6480	347,240	65.8	498,664	94.4
503680	0.0014	7	4	3	3900	468	0.4	0.3	5120	8900	6890	353,635	67.0	508,964	96.4
494780	0.0008	6	2	2	7364	1736	0.3	0.2	4740	6700	5160	359,640	68.1	517,864	98.1
488080	0.0013	8	3	4	3495	461	0.4	0.3	7750	10600	7890	364,590	69.1	524,564	99.3
477480	0.0023	10	3	5	3473	862	0.5	0.5	6160	8810	5090	372,410	70.5	535,164	101.4
468670	0.0020	9	4	3	4291	1132	0.4	0.4	5890	7400	5830	378,035	71.6	543,974	103.0
461270	0.0021	8	2	4	3996	880	0.4	0.4	4690	6120	5040	383,895	72.7	551,374	104.4
455150	0.0015	7	3	4	4288	719	0.4	0.3	5130	5990	4760	388,760	73.6	557,494	105.6
449150	0.0011	7	2	3	6975	1940	0.3	0.2	3660	6400	4470	393,705	74.6	563,484	106.7
442750	0.0012	7	3	3	4680	770	0.3	0.3	6650	10100	6770	397,770	75.3	569,884	107.9
432650	0.0022	10	3	3	3218	681	0.5	0.4	5290	8000	6130	404,480	76.6	579,984	109.8
424650	0.0015	6	2	2	5685	1274	0.4	0.3	5570	7880	3530	410,190	77.7	587,984	111.4
416770	0.0011	6	2	2	5657	1080	0.3	0.2	5950	6800	4680	414,740	78.5	595,864	112.9
409970	0.0020	10	3	3	2536	334	0.5	0.4	5110	5970	5070	420,055	79.6	602,664	114.1
404000	0.0016	8	2	3	3372	590	0.4	0.4	0	0	0	425,145	80.5	608,634	115.3