

Table 1: Permit Limits for Bingham Canyon Mine and Water Collection System Compliance Wells

Well ID	Screen Lithology	Sampling Frequency	Northing (ft)	Easting (ft)	pH	TDS mg/L	SO4 mg/L	Diss. Cd mg/L	Diss. Cu mg/L	Diss. Zn mg/L
BRG287	Bedrock	Semi-annually	14559	16105	6.17-8.5	3219	830	0.001	0.325	1.25
BRG921	Bedrock	Semi-annually	13190	16540	6.5-8.5	2341	926	0.001	0.325	1.25
BRG999	Bedrock	Semi-annually	14479	17043	6.48-8.5	1607	587	0.001	0.325	1.25
ECG1186	Alluvium	Quarterly	9646	18578	6.5-8.5	2002	875	0.001	0.325	1.25
ECG1187	Alluvium	Quarterly	7539	18457	6.5-8.5	1589	169	0.001	0.325	1.25
ECG1188	Alluvium	Quarterly	16105	22493	6.5-8.5	4360	2122	0.003	0.650	2.50
ECG1189	Alluvium	Quarterly	13054	19989	6.5-8.5	763	23	0.001	0.325	1.25
ECG1190	Alluvium	Quarterly	11715	19026	6.5-8.5	1030	70	0.001	0.325	1.25
ECG299	Bedrock	Semi-annually	13807	17474	4.3-8.5	4619	3232	0.020	2.81	3.09
ECG902	Bedrock	Semi-annually	12180	17214	6.5-8.5	1321	338	0.001	0.325	1.25
ECG905	Bedrock	Semi-annually	10839	16434	6.06-8.5	2613	1495	0.001	0.325	1.25
ECG906 ⁽¹¹⁾	Bedrock	Semi-annually	9121	17481	6.5-8.5	4844	2434	0.003	0.650	2.50
ECG907	Bedrock	Semi-annually	7087	17875	6.5-8.5	2004	278	0.001	0.325	1.25
ECG916	Bedrock	Semi-annually	9692	15269	6.5-8.5	862	254	0.001	0.325	1.25
ECG917	Alluvium	Quarterly	6289	18385	6.5-8.5	1422	164	0.001	0.325	1.25
ECG923 ⁽¹²⁾	Bedrock	Semi-annually	4934	17977	6.5-8.5	1187	141	0.001	0.325	1.25
ECG928 ⁽¹²⁾	Bedrock	Semi-annually	5126	18358	TBD	TBD	TBD	TBD	TBD	TBD
ECG924	Bedrock	Semi-annually	661	16870	6.20-8.5	5739	3021	0.004	0.650	2.50
ECG925	Bedrock	Semi-annually	1343	17470	6.39-8.5	3498	1365	0.001	0.325	1.25
ECG931	Bedrock	Semi-annually	-708	16395	6.39-8.5	6004	625	0.005	0.650	2.50
ECG932	Bedrock	Semi-annually	-2325	14914	6.5-8.5	796	164	0.001	0.325	1.25
ECG934	Bedrock	Semi-annually	-4704	14177	6.5-8.5	1157	449	0.001	0.325	1.25
ECG935	Bedrock	Semi-annually	-6210	13555	6.47-8.5	4771	2794	0.003	0.650	2.50
ECG936	Bedrock	Semi-annually	-6303	12389	6.36-8.5	5159	3160	0.003	0.650	2.50
ECG937	Bedrock	Semi-annually	-8174	11378	6.5-8.5	1359	476	0.001	0.325	1.25
ECG938	Bedrock	Semi-annually	-8909	9785	6.5-8.5	1016	266	0.001	0.325	1.25
LTG1191	Alluvium	Quarterly	3749	20548	6.17-8.5	5888	3525	0.096	0.650	23.33
VWK72	Alluvium	Quarterly	13841	18189	6.45-8.5	2060	750	0.008	0.325	1.25
VWP220	Bedrock	Semi-annually	10999	16234	6.5-8.5	2205	1019	0.007	0.325	1.25
VWP225	Bedrock	Semi-annually	11920	16886	6.5-8.5	1117	331	0.010	0.0	1.25
VWP228	Alluvium	Quarterly	-1491	13963	5.5-8.5	11173	7721	0.064	0.650	4.74
VWP244A ⁽¹²⁾	Alluvium	Quarterly	2266	16139	3.2-8.5	31790	24749	0.770	47.2	53.9
VWP244B ⁽¹²⁾	Bedrock	Semi-annually	2278	16124	6.34-8.5	6959	2389	0.009	0.650	2.50
VWP244C ⁽¹²⁾	Bedrock	Semi-annually	2285	16110	6.5-8.5	3876	1235	0.008	0.325	1.25
ECG926 ⁽¹²⁾	Bedrock	Semi-annually	2549	17698	TBD	TBD	TBD	TBD	TBD	TBD
VWP248A	Alluvium	Quarterly	15485	17875	3.47-8.5	13854	9991	0.240	169.6	38.6
VWP248B	Bedrock	Semi-annually	15491	17849	3.96-8.5	6104	4261	0.184	24.7	19.5
VWP272 ⁽¹¹⁾	Bedrock	Semi-annually	3964	16571	6.37-8.5	4193	2144	0.006	0.650	2.50

NOTES:

All units are mg/L; pH standard units

- 1) Compliance limits are based on 1.25 times the background concentration for TDS for class II and III ground water
- 2) For many wells cadmium, copper and zinc were predominantly non detects, compliance limits determined from the ground water quality standard.
- 3) Where the background concentrations is <detection, compliance limits are based on 0.25 times the ground water quality standard for Class II ground water and 0.50 times the ground water quality standard for Class III ground water for cadmium, copper and zinc
- 4) If background value exceeds the ground water quality standard; therefore, the Protection Level equals the background value
- 5) The Compliance Limits for IV ground water are the higher of the ground water quality standard, the mean *1.25 or the mean + 2 std. dev.
- 6) There is not a ground water quality standard for SO4
- 7) Compliance limits for sulfate were calculated as the higher of the mean+2 std. dev. or 1.25 times the mean
- 8) Range of pH values for Compliance Limits are based on the higher and lower limit of 6.5-8.5 and/or mean + and - 2 std. dev.
- 9) Coordinate system in KUCC True North southend map drawn in 1927 State Plane Utah central Zone
- 10) Limits were set using all available data for each individual well through 2008
- 11) New monitoring wells will replace VWP272 and ECG906 if they are required to be moved to accommodate EWRE
- 12) ECG926 will replace VWP244A, B & C and ECG928 will replace ECG923. Until permit limits are established for the replacement wells, the current wells and their limits will remain.

Table 2: Dry Fork Compliance Wells for UGW350010

Well ID	Screen Lithology	Sampling Frequency	Northing (ft)	Easting (ft)	pH	TDS mg/L	SO4 mg/L	Diss. Cd mg/L	Diss. Cu mg/L	Diss. Zn mg/L
COG2806A	Bedrock	Semi-annually	17605	8389						
COG2806B	Bedrock	Semi-annually	17605	8389						
ECG1100A	Bedrock	Semi-annually	16058	12362	6.15-8.5	4148	2581	0.003	0.650	3.01
ECG1100B	Bedrock	Semi-annually	16058	12362	6.5-8.5	391	81	0.001	0.325	1.25
K93	Bedrock	Semi-annually	16021	13562						
ECG2789A	Bedrock	Semi-annually	16041	11495						
ECG2789B	Bedrock	Semi-annually	16041	11495						

NOTES

All units are mg/L; pH standard units

- 1) Compliance limits are based on 1.25 times the background concentration for TDS for class II and III ground water
- 2) For many wells cadmium, copper and zinc were predominantly non detects, compliance limits determined from the ground water quality standard.
- 3) Where the background concentrations is <detection, compliance limits are based on 0.25 times the ground water quality standard for Class II ground water and 0.50 times the ground water quality standard for Class III ground water for cadmium, copper and zinc
- 4) If background value exceeds the ground water quality standard; therefore, the Protection Level equals the background value
- 5) The Compliance Limits for IV ground water are the higher of the ground water quality standard, the mean *1.25 or the mean + 2 std. dev.
- 6) There is not a ground water quality standard for SO4
- 7) Compliance limits for sulfate were calculated as the higher of the mean+2 std. dev. or 1.25 times the mean
- 8) Range of pH values for Compliance Limits are based on the higher and lower limit of 6.5-8.5 and/or mean + and - 2 std. dev.
- 9) Coordinate system in KUC True North southend map drawn in 1927 State Plane Utah central Zone
- 10) Limits were set using all available data for each individual well through 2008
- 11) Permit limits have not been assigned for the five Dry Fork wells (COG2806A&B, ECG2789A&B and K93).
 Permit limits for these wells will be based upon 12 quarterly samples collected after they are re-established.
 The existing wells in these locations will be sampled semi-annually until they are abandoned.

Table 3: Informational Wells for Permit #UGW350010

Well ID	Site Description	Screen Lithology	Sampling Frequency	Northing (ft)	Easting (ft)
ECG2787	Extraction well at the Mouth of Bingham Canyon	Alluvium	Annually	16133	12382
ECG1185	Copperton Channel Extraction Well	Alluvium	Annually	16909	14862
ECG1184	Monitor well at the Mouth of Butterfield Canyon	Alluvium	Annually	-1537	17816
ECG933	Saints Rest Drainage	Alluvium	Annually	-2975	14227
COP2701 (Mid Valley)	Upper Dry Fork Extraction Well	Alluvium	Annually	20135	2199
COG1172 (Picnic Flats)	Second Upper Dry Fork Extraction Well	Alluvium	Annually	20926	952
K83 (Curtis Springs)	Extraction well at the mouth of Bingham Canyon	Alluvium	Annually	16031	14582

Note

1) Coordinate system in KUCC True North southend map drawn in 1927 State Plane Utah central Zone

Table 4: Permit Conditions for Dry Fork Extraction Wells

Well ID & Name	General Location	Permit Condition
Up-gradient (Clean Water Capture)		
COP2701 (Mid-Valley)	300 ft. up-gradient of Dry Fork dump	- Keep surrounding alluvium substantially dewatered
COG1172 (Picnic Flats)	1500 ft. up-gradient of Dry Fork dump	- Applies to both wells
Down-gradient (Alluvial Extraction)		
ECG2787 (Bingham Creek)	900 ft. down-gradient of Bingham Canyon dump	- Target pumping rate is 100 acre-feet/year based on a 3 year rolling average ¹ - Keep alluvium surrounding the well substantially dewatered - Pumping to continue until sulfate concentration <5000 mg/L - If sulfate concentration >5000 mg/L resume pumping
VWK83 (Curtis Springs)	3200 ft. down-gradient of Bingham Canyon dump	- Target pumping rate is 100 acre-feet/year based on a 3 year rolling average ¹ - If alluvial well water level <92 feet then decrease pumping rate to match inflow - Pumping rate may be decreased or stopped to match inflow if it is determined that up-gradient alluvial pumping well(s) are diminishing available alluvial water - Pumping to continue until sulfate concentration <5000 mg/L - If sulfate concentration >5000 mg/L resume pumping
ECG1185 (Copperton Channel)	3500 ft. down-gradient of Bingham Canyon dump	- Pump alluvium at a rate consistent with available inflow of contaminated water - Pumping may cease if the quantity of alluvial water is less than the well can sustain
ECP2562 (Bingham Creek COW)	5600 ft. down-gradient of Bingham Canyon dump	- None specific to Dry Fork plume

Note:

¹ Target pumping rate is 100 acres-feet per year based upon a three year rolling average for both K83 and ECG2787 combined. The pumping rates for ECG2787 may influence available water that can be extracted from the alluvium by K83.

Table 5: Groundwater Discharge Permit #UGW350010 Sample Point Coordinates

Sample ID	KUC True North		Lat-Long DMS		State Plane	
	Northing (ft)	Easting (ft)	Latitude	Longitude	SP83 North (ft)	SP83 East (ft)
ECP2562	15784	16905	40° 33' 37.97"	-112° 5' 57.05"	7,373,491.80	1,473,936.80
ECP2682	15145	13910	40° 33' 31.68"	-112° 6' 35.86"	7,372,875.60	1,470,937.10
MDP2679	14467	13613	40° 33' 24.98"	-112° 6' 39.71"	7,372,199.60	1,470,635.40
ECP2709	12271	16656	40° 33' 3.26"	-112° 6' 0.31"	7,369,981.00	1,473,661.60
ECP2674	11022	16182	40° 32' 50.92"	-112° 6' 6.45"	7,368,735.40	1,473,179.30
ECP2670	9391	15692	40° 32' 34.81"	-112° 6' 12.82"	7,367,108.50	1,472,676.60
ECP2668	9189	15494	40° 32' 32.81"	-112° 6' 15.38"	7,366,907.40	1,472,477.60
ECP2662	8733	15468	40° 32' 28.31"	-112° 6' 15.72"	7,366,452.20	1,472,448.20
ECP1654	7792	16070	40° 32' 19.01"	-112° 6' 7.93"	7,365,507.10	1,473,043.30
ECP2651	7084	16131	40° 32' 12.01"	-112° 6' 7.15"	7,364,798.30	1,473,098.80
ECP2648	5204	16175	40° 31' 53.43"	-112° 6' 6.60"	7,362,917.80	1,473,128.60
ECP2629	4127	16110	40° 31' 42.79"	-112° 6' 7.45"	7,361,841.50	1,473,055.70
ECP2627	3223	15792	40° 31' 33.86"	-112° 6' 11.57"	7,360,940.00	1,472,731.50
ECP2624	2349	15760	40° 31' 25.22"	-112° 6' 12.00"	7,360,065.90	1,472,692.40
ECP2618	915	15607	40° 31' 11.05"	-112° 6' 13.99"	7,358,633.00	1,472,529.00
ECP2616	-1302	12460	40° 30' 49.17"	-112° 6' 54.75"	7,356,440.30	1,469,366.10
ECP2614	-2797	13156	40° 30' 34.39"	-112° 6' 45.75"	7,354,939.90	1,470,050.90
ECP2612	-4318	13304	40° 30' 19.36"	-112° 6' 43.84"	7,353,418.00	1,470,188.00
ECP2606	-5637	13598	40° 30' 6.33"	-112° 6' 40.05"	7,352,097.40	1,470,471.80
ECP2605	-7876	9515	40° 29' 44.22"	-112° 7' 32.91"	7,349,888.20	1,466,372.90
ECP2603	-8670	8481	40° 29' 36.38"	-112° 7' 46.30"	7,349,102.10	1,465,332.90
ECP2601	-9483	6350	40° 29' 28.35"	-112° 8' 13.88"	7,348,304.60	1,463,196.40
ECP2664	8990	16938	40° 32' 30.84"	-112° 5' 56.68"	7,366,698.40	1,473,919.90
UPD010	-10026	10313	40° 29' 22.97"	-112° 7' 22.59"	7,347,732.30	1,467,155.10
BMP2712	-1255	-2563	40° 30' 49.66"	-112° 10' 9.26"	7,356,597.80	1,454,343.90
ECP2689	13680	7595	40° 33' 17.23"	-112° 7' 57.68"	7,371,457.20	1,464,611.80
ECP2631	3569	17231	40° 31' 37.27"	-112° 5' 52.94"	7,361,275.40	1,474,172.40
ECP2710	15715	14960	40° 33' 37.30"	-112° 6' 22.25"	7,373,437.20	1,471,991.40
LWP2632	3736	17773	40° 31' 38.92"	-112° 5' 45.92"	7,361,438.80	1,474,715.50
BRP292	14146	16561	40° 33' 21.79"	-112° 6' 1.52"	7,371,856.80	1,473,580.80
BRP1476	13770	15740	40° 33' 18.08"	-112° 6' 12.16"	7,371,486.90	1,472,757.10
COG1204A	16745	6868	40° 33' 47.52"	-112° 8' 7.09"	7,374,527.50	1,463,907.20
COG1204B	16745	6868	40° 33' 47.52"	-112° 8' 7.09"	7,374,527.50	1,463,907.20
ECG1100A	16058	12362	40° 33' 40.71"	-112° 6' 55.91"	7,373,800.00	1,469,395.90
ECG1100B	16058	12362	40° 33' 40.71"	-112° 6' 55.91"	7,373,800.00	1,469,395.90
K93	16005	13576	40° 33' 40.18"	-112° 6' 40.18"	7,373,738.00	1,470,609.60
ECG2789A	16061	11586	40° 33' 40.74"	-112° 7' 5.96"	7,373,808.40	1,468,620.30
ECG2789B	16061	11586	40° 33' 40.74"	-112° 7' 5.96"	7,373,808.40	1,468,620.30
COG2806A	17604.9	8389.1	40° 33' 56.04"	-112° 7' 47.36"	7,375,371.48	1,465,443.15
COG2806B	17604.9	8389.1	40° 33' 56.04"	-112° 7' 47.36"	7,375,371.48	1,465,443.15
ECG1203	16124	12333	40° 33' 41.36"	-112° 6' 56.28"	7,373,865.90	1,469,367.80
ECG1185	16909	14862	40° 33' 49.10"	-112° 6' 23.51"	7,374,631.90	1,471,902.30
ECG1184	-1537	17816	40° 30' 46.81"	-112° 5' 45.41"	7,356,165.30	1,474,719.80
ECG933	-2975	14227	40° 30' 32.62"	-112° 6' 31.89"	7,354,753.50	1,471,120.20
COP2701	20224	2290	40° 34' 21.90"	-112° 9' 6.40"	7,378,039.60	1,459,355.30
COG1172	20926	952	40° 34' 28.84"	-112° 9' 23.73"	7,378,751.70	1,458,023.10
VWK83	16031	14582	40° 33' 40.43"	-112° 6' 27.14"	7,373,756.50	1,471,616.20
BRG287	14559	16105	40° 33' 25.87"	-112° 6' 7.42"	7,372,272.70	1,473,128.20
BRG921	13190	16540	40° 33' 12.34"	-112° 6' 1.80"	7,370,900.60	1,473,552.80
BRG999	14479	17043	40° 33' 25.08"	-112° 5' 55.27"	7,372,186.50	1,474,065.50
ECG1186	9646	18578	40° 32' 37.31"	-112° 5' 35.43"	7,367,342.20	1,475,564.70
ECG1187	7539	18457	40° 32' 16.49"	-112° 5' 37.02"	7,365,236.10	1,475,428.00
ECG1188	16105	22493	40° 33' 41.10"	-112° 4' 44.64"	7,373,771.80	1,479,527.50

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Sample ID	KUC True North		Lat-Long DMS		Utah State Plane	
	Northing (ft)	Easting (ft)	Latitude	Longitude	SP83 North (ft)	SP83 East (ft)
ECG1189	13054	19989	40° 33' 10.97"	-112° 5' 17.12"	7,370,739.10	1,477,000.60
ECG1190	11715	19026	40° 32' 57.75"	-112° 5' 29.61"	7,369,407.60	1,476,027.70
ECG299	13807	17474	40° 33' 18.43"	-112° 5' 49.69"	7,371,510.70	1,474,491.70
ECG902	12180	17214	40° 33' 2.36"	-112° 5' 53.08"	7,369,886.20	1,474,219.10
ECG905	10839	16434	40° 32' 49.11"	-112° 6' 3.19"	7,368,550.60	1,473,429.70
ECG906	9121	17481	40° 32' 32.13"	-112° 5' 49.65"	7,366,825.30	1,474,463.50
ECG906 Replacement						
ECG907	7087	17875	40° 32' 12.03"	-112° 5' 44.56"	7,364,788.60	1,474,842.90
P225	11920	16886	40° 32' 59.79"	-112° 5' 57.33"	7,369,628.30	1,473,889.30
ECG916	9692	15269	40° 32' 37.78"	-112° 6' 18.30"	7,367,411.90	1,472,255.50
ECG917	6289	18385	40° 32' 4.14"	-112° 5' 37.96"	7,363,986.80	1,475,347.10
ECG923	4934	17977	40° 31' 50.75"	-112° 5' 43.26"	7,362,634.50	1,474,928.90
ECG928	5126	18358	40° 31' 52.89"	-112° 5' 38.44"	7,362,833.88	1,475,299.11
ECG924	661	16870	40° 31' 8.54"	-112° 5' 57.63"	7,358,370.50	1,473,790.70
ECG925	1343	17470	40° 31' 15.27"	-112° 5' 49.86"	7,359,047.50	1,474,395.30
ECG931	-708	16395	40° 30' 55.01"	-112° 6' 3.80"	7,357,004.60	1,473,305.00
ECG932	-2325	14914	40° 30' 39.04"	-112° 6' 22.99"	7,355,398.50	1,471,812.00
ECG934	-4704	14177	40° 30' 15.54"	-112° 6' 32.55"	7,353,025.40	1,471,057.50
ECG935	-6210	13555	40° 30' 0.66"	-112° 6' 40.61"	7,351,523.90	1,470,424.60
ECG936	-6303	12389	40° 29' 59.75"	-112° 6' 55.70"	7,351,439.80	1,469,258.30
ECG937	-8174	11378	40° 29' 41.27"	-112° 7' 8.80"	7,349,576.80	1,468,233.40
ECG938	-8909	9785	40° 29' 34.01"	-112° 7' 29.42"	7,348,853.20	1,466,635.30
LTG1191	3749	20548	40° 31' 39.02"	-112° 5' 9.98"	7,361,430.60	1,477,490.80
K72	13841	18189	40° 33' 18.76"	-112° 5' 40.43"	7,371,539.30	1,475,206.60
P220	10999	16234	40° 32' 50.69"	-112° 6' 5.78"	7,368,711.80	1,473,230.90
P228	-1491	13963	40° 30' 47.29"	-112° 6' 35.29"	7,356,239.80	1,470,867.70
P244A	2266	16139	40° 31' 24.40"	-112° 6' 7.09"	7,359,980.40	1,473,071.00
P244B	2278	16124	40° 31' 24.52"	-112° 6' 7.28"	7,359,992.60	1,473,056.40
P244C	2285	16110	40° 31' 24.59"	-112° 6' 7.46"	7,359,999.80	1,473,042.50
ECG926	2549	17698	40° 31' 27.43"	-112° 5' 46.98"	7,360,261.36	1,474,622.76
P248A	15485	17875	40° 33' 35.01"	-112° 5' 44.48"	7,373,185.80	1,474,905.00
P248B	15491	17849	40° 33' 35.07"	-112° 5' 44.82"	7,373,192.10	1,474,878.80
P272	3964	16571	40° 31' 41.18"	-112° 6' 1.48"	7,361,675.50	1,473,515.60
P272 Replacement						
ECP2786	-7263	5097	40° 29' 50.29"	-112° 8' 30.10"	7,350,533.80	1,461,959.20
ECS2715	-7870	9688	40° 29' 44.28"	-112° 7' 30.67"	7,349,893.10	1,466,546.00
LWS2717	3813	18837	40° 31' 39.67"	-112° 5' 32.14"	7,361,507.60	1,475,780.10
ECS2716	4699	14530	40° 31' 48.45"	-112° 6' 27.90"	7,362,425.00	1,471,480.50
ECS2718	6859	16099	40° 32' 9.79"	-112° 6' 7.57"	7,364,573.90	1,473,064.80
ECG2787	16165	12323	40° 33' 41.76"	-112° 6' 56.41"	7,373,906.50	1,469,358.10