ATTACHMENT II-G

SURFACE WATER HYDROLOGY

(880-X-8E-.06(1))

SURFACE WATER HYDROLOGY (880-X-8E-.06(1))

General Description of Surface Water Hydrology

The proposed Bull Gap surface mine permit site is located in the Locust Fork Basin and is drained by Hale Creek, Bunch Creek and unnamed tributaries of Locust Fork immediately east of Bunch Creek. Immediate surface runoff drains into Hale Creek along the southwest side of the Blount Mountain escarpment and into Bunch Creek along the southeast drainage of Raccoon Mountain. Hale Creek was formed where a hinge fault occurred during the formation of the unnamed upthrust fault that formed the Murphree Valley Anticline and impaired the protective cap rock above the Pottsville to allow erosional actions on the softer shales and limestones. Bunch Creek was formed from several unnamed tributaries that flow from old surface mine spoils to the northwest and at least three (3) unnamed tributaries flowing from watersheds due north of Blount County Road #28. Stream flows vary with rainfall with low flows historically in the summer months and high flows historically during January/February. The site is bounded on the northwest by the 100' setback from Hale Creek and consists of steep contours with unnamed tributaries from Straight Mountain on the northwest and from drainage from old un-reclaimed surface coal mine spoils and abandoned underground mine discharge on the southeast. As stated previously in the geology section, the site of the Bull Gap Mine has been completely encircled by either spoils from area surface mining and/or contour mining. These spoils have been placed downslope along Hale Creek and along the upper reaches of Bunch Creek. In some locations surface mined spoils have completely blocked the flow of Hale Creek and created impoundments along the stream channel. These mine spoils have disrupted all flows from unnamed tributaries that historically conveyed discharge from both Raccoon Mountain and Altoona Mountain. At

present surface water flow is discharged from three (3) points along the perimeter of the mined areas of Raccoon Mountain. An unnamed tributary conveys flow from old spoils in the head of Bull Gap Hollow to the northwest where it intersects Hale Creek at Maynor Gap and hence through Straight Mountain. From Maynor Gap, Hale Creek flows due southwest and crosses Alabama State Route 132 at Possum Trot Road flowing for approximately two (2) miles due west to intersect Yellow Branch to become Hoods Creek. Hoods Creek is the upper reach of the Calvert Prong of the Little Warrior River. Bunch Creek forms in the SW1/4 of SW1/4, Section 19, Township 12 South, Range 3 East and flows due east for approximately two (2) miles to intersect Locust Fork. Two (2) unnamed tributaries flow southeast from the Raccoon Mountain escarpment into Bunch Creek prior to its confluence with Locust Fork and two (2) additional unnamed tributaries flow likewise southeast to intersect directly with Locust Fork.

The USGS Hydrologic Unit Code and SCS Sub-watershed Number for the immediate drainage area of this proposed mine is 03160111-010 as defined by the USDA Soil Conservation Service. Surface water flowing into and from the proposed permit area will be severely constrained and flow initially from three (3) main sediment basins with an additional eight (8) basins to be constructed as the open cuts and highwalls are reclaimed as dictated by the mining plan for this permit. A total of eleven (11) sediment control structures are proposed to control exit flows from this facility (See NPDES Permit Map for basins identification and location.) There are no perennial streams or springs located within the proposed permit boundary.

Prior to any mining disturbance, sediment basins will be constructed in the corresponding sub-watersheds to contain and treat all surface water flows before being discharged into state waters.

The Alabama Department of Environmental Management designation of streams within the surrounding area are as follows: Hale Creek - Fish and Wildlife and Bunch Creek - Fish and Wildlife.

Four (4) surface water monitoring stations, designated SW-1 (downstream), SW-2 (upstream), SW-4 (upstream) and SW-5 (downstream) have been established to monitor baseline surface water quality, and quantity.

NOTE: SW-3 monitoring station was established downstream on Locust Fork during the initial sampling sequence on March 18, 2009 but after the December 7, 2011 recommendations of the participants at the Interagency Coordination meeting this site was removed from the surface water lineup. Due to the size of the upstream watersheds, the volume of flow was too great to give meaningful results due to dilution factors. SW-3 results are included up to the time it was abandoned as general background baseline information.

Performance monitoring for this proposed mine site will be characterized by data taken from SW-1, the downstream monitoring site on Hale Creek, and SW-5, the downstream monitoring site on Bunch Creek. Both sites will be used in the water quality projections. The upstream surface water monitoring stations (SW-2 & SW-4) will be monitored for baseline data. See Hydro-Geo Map for the location of the surface water monitoring stations.

Surface-Water Bodies

Other than the previously described intermittent and wet weather streams as previously described there are no other naturally formed surface-water bodies. The proposed sediment basins on this site will be temporary and will be removed in the reclamation process.

In addition to Basin 002E, which will be used as an approved sediment basin after engineering and construction upgrades, there are twelve (12) ponds/impoundments that have been formed by past mining and reclamation operations. Ponds P-1, P-2, P-3 and P-4 have formed from drainage to low points in existing un-reclaimed pre-law mine cuts in Increment No. 1. In periods of high precipitation and groundwater levels, Ponds P-1, P-2 and P-3 drain along the circumference of the existing open cut and highwall into Increment No.2 before exiting due south from the main permit boundary in the SE¼ of SE¼ of Section 18, Township 12 South, Range 3 East. From this point drainage flows into P-12 (just off-site) which flows directly into Basin 002E. Drainage from Pond P-4 flows due north/northeast to exit the permit boundary after treatment by Basin 003P. Ponds P-5 and P-6 flow from reclaimed mine spoils due west from P-6 (in Increment No.2) then due north into and from P-5 (in Increment No.1) and then into P-7 (also in Increment No. 1). Drainage from P-7 flows northeast to exit the permit boundary after treatment by Basin 001P. Pond P-8 is stratigraphically the lowest point on the permit boundary and was formed by drainage from the old underground mining works in the Underwood coal seam. Due to water quality problems, there are no plans to impact this pond and drainage from the underground works by the proposed mining operations. A diversion berm is scheduled to be constructed along with sediment basin 005AP to convey and treat drainage from proposed mining operations on the Upper Bynum and Lower Bynum seams in Increment No. 3. This sediment basin and drainage berm will convey flow to the northeast in Increment No. 5 to be treated by proposed

sediment basin 005P before discharge to the mine site. Pond P-9 has been formed by drainage accumulation in low points in the old open pits from pre-law mining. Drainage from P-9 now flows to P-8 but with the construction of basin 005AP and the diversion berm, the flow direction will be reversed and drainage will be conveyed to basin 005P for treatment and discharge from the proposed mining area. All existing ponds with the exception of ponds P-8 and P-12 will be filled in during the mining process.

To document the base line water quality of the existing water impoundments, samples have been taken and analyzed for Basin 002E, P-1, P-4, P-7, P-8, P-9, P-10 and P-11. Due to several ponds being in series, only the downstream pond has been sampled and is considered to be the most representative of the composite water quality of these ponds. The ponds previously referenced have also been sampled on August 18, 2011 and January 21, 2012 to reflect some seasonal variation from a generally dry month to the beginning of the wet season.

POND SAMPLE DATA

Sample Date: August 18, 2011

SAMPLE ID	POND	pH s.u.	SpC u-mhos/cm	Fe Mg/l	Mn Mg/l	SO4 Mg/l	ACID Mg/l	ALKA Mg/l
IMPS #1	P-1	6.76	370	0.15	0.20	90	5	30
IMPS #2	P-4	6.27	460	0.14	0.33	120	7	26
IMPS #3	002E	7.27	410	0.17	0.42	80	9	33
IMPS #4	P-7	6.77	460	0.14	0.29	120	6	21
IMPS #5	P-8	NO SAMPLE TAKEN						
IMPS #6	P-9	6.76	370	0.15	0.22	90	5	26
IMPS #7	P-10	6.92	370	0.16	0.21	110	6	24
IMPS #8	P-11	7.10	395	0.15	0.41	120	7	31

POND SAMPLE DATA

Sample Date: January 12, 2012

SAMPLE ID	POND	pH s.u.	SpC u-mhos/cm	Fe Mg/l	Mn Mg/l	SO4 Mg/l	ACID Mg/l	ALKA Mg/l
IMPS #1	P-1	7.63	990	0.04	0.40	320	12	40
IMPS #2	P-4	7.54	704	0.05	0.42	240	16	43
IMPS #3	002E	6.92	314	0.19	0.69	188	19	52
IMPS #4	P-7	7.62	870	0.06	0.36	330	9	22
IMPS #5	P-8	5.82	319	0.20	0.63	128	11	32
IMPS #6	P-9	6.76	695	0.12	0.35	220	13	46
IMPS #7	P-10	6.36	725	0.09	0.42	270	15	27
IMPS #8	P-11	7.05	590	0.08	0.54	355	17	30

Surface Water Uses

The known uses of surface water on Hale Creek, Bunch Creek and/or any unnamed tributaries and wet-weather streams at this site are considered fish and wildlife.

Surface Water Quality

See attached Surface Water Baseline Analyses. Samples taken from surface water monitoring stations SW-1, SW-2, SW-3, SW-4 and SW-5 indicate the water is of good quality. Samples have been taken over adequate monthly intervals to identify seasonal flow characteristics.

Surface Water Quantity

Stream Flow (overland flow) water quantity in cubic feet per second (cfs) is determined at each sampling interval of baseline data. Flow rate measurement of surface water samples were performed in accordance with ASTM D3858-95 (Reapproved 2008) pages 1-9, "Standard Test Method for Open-Channel Flow Measurement of Water by Velocity-Area Method" and utilizing a "FP211 Flow Probe" digital water velocity meter.

Surface Water Sampling and Analytical Methods

All surface water samples were collected by the grab method and analyzed by TASK Engineering Management Inc. Flow rates were determined as outline in the previous "Surface Water Quantity" section. Flow velocity, pH and Specific Conductivity of all samples were measured in the field at the time said samples were taken. Samples are immediately stored in new, clean plastic sample bottles. After all field measurements are completed, the time, date, mine identification and surface monitoring site identification are recorded on the sample bottle and on a chain of custody form to maintain documentation and sample integrity. Samples are then deposited in a field cooler with ice to refrigerate to near 4°C for delivery to the TASK Engineering Management Inc. offices for further chemical testing.

See following for description and documentation of methodology of analyses:

1) Analysis of pH was a direct reading and performed in accordance with the standard operating procedures of the Hach Company's sensION1 Portable pH meter.

2) Analysis of Conductivity, SpC, was a direct reading and performed in accordance with the standard operating procedures of the Hach Company's DR3 Spectrophotometer which is equipped with a conductivity meter.

3) Analysis of Total Iron, Fe, was utilizing a Hach DR/890 Colorimeter and performed in accordance with the Hach DR/820-DR/850-DR/890 Datalogging Colorimeter Handbook, "FerroVer Method", pp.227 through 233 (USEPA approved).

4) Analysis of Total Manganese, Mn, was performed in accordance with the Hach DR/820-DR/850-DR/890 Datalogging Colorimeter Handbook, "Periodate Oxidation Method", pp.253 through 261 (USEPA approved).

5) Analysis of Sulfate, SO_4, was performed in accordance with the Hach DR/820-DR/850-DR/890 Datalogging Colorimeter Handbook, "SulfaVer 4 Method", pp.539 through 545 (USEPA approved).

6) Analysis of Acidity was performed by digital titration in accordance with the Hach Water Analysis Handbook , "Methyl Orange Method" pp.2-3 through 2-5.

7) Analysis of Alkalinity was performed by digital titration in accordance with the Hach Water Analysis Handbook, "Titration Method" pp.2-9 through 2-12.

8) Analysis of Suspended solids was performed by gravimetric methods and/or Photometric methods as required.

NOTE: Any chemical analyses parameters outside the ability of TASK Engineering Management Inc. will be sent to ESC Lab Sciences for processing. Samples not analyzed by TASK Engineering Management Inc. will be so noted by correspondence to the Regulatory Authority.

Precipitation Modeling

No modeling and/or simulation methods are employed at this time.

Surface Water Monitoring Station Location(s)

For locations of surface water monitoring stations, see Hydro-Geo Map.

Results of Surface Water Sampling and Analytical Data for Each Sample

See attached Surface Water Baseline Tables. All surface water samples were analyzed for Quantity of Flow, pH, Conductivity, Total Suspended Solids, Total Iron, Total Manganese, Sulfates, Acidity, and Alkalinity.

SURFACE WATER BASELINE ANALYSIS

SAMPLE I.D.: SW-1
MONITORING SOURCE: HALE CREEK
DRAINAGE AREA: 2.480 SQ. MI.
LOCATION FROM MINE: DOWNSTREAM

DATE	DISH. cfs	pH s.u.	SpC u-mhos/cm	TSS Mg/l	Fe Mg/l	Mn Mg/l	SO4 Mg/l	ACID Mg/l	ALKA Mg/l
03/18/09	25.21	7.27	410	7	0.17	0.40	80	5	21
04/22/09	19.77	7.11	380	8	0.12	0.33	125	7	19
05/19/09	37.55	7.10	425	10	0.14	0.29	135	8	22
06/24/09	10.63	7.22	367	9	0.15	0.34	90	6	15
07/23/09	48.74	7.09	425	14	0.21	0.35	135	7	25
08/22/09	50.78	7.25	395	7	0.16	0.42	120	7	22
09/29/09	55.79	7.24	425	9	0.17	0.38	95	5	19
10/21/09	20.45	7.16	300	5	0.18	0.22	137.5	6	17
11/25/09	21.58	7.21	355	11	0.19	0.31	175	8	31
12/22/09	22.67	7.23	420	12	0.23	0.42	195	11	28
01/27/10	26.72	7.26	405	8	0.19	0.41	105	8	25
02/24/10	20.57	7.18	380	6	0.22	0.38	95	7	28
03/23/10	33.14	7.32	325	7	0.21	0.36	70	5	24
04/21/10	9.95	7.14	320	5	0.25	0.44	175	10	28
05/26/10	28.65	7.33	390	8	0.18	0.44	155	11	41
06/23/10	7.27	7.26	320	7	0.22	0.39	136	6	24
07/23/10	4.38	7.25	275	5	0.18	0.46	90	7	29
08/25/10	11.36	7.23	405	7	0.19	0.41	95	9	28
09/22/10	6.55	7.11	310	3	0.20	0.25	75	5	21
10/20/10	4.21	7.06	250	2	0.22	0.41	105	6	27
11/22/10	12.58	7.18	355	5	0.19	0.32	85	6	24
12/21/10	11.89	7.25	345	4	0.22	0.43	145	7	31
01/26/11	27.56	7.23	395	6	0.16	0.39	75	5	21
02/23/11	8.36	7.23	405	8	0.19	0.42	90	6	25
03/25/11	24.77	7.31	420	10	0.26	0.47	110	8	32
04/24/11	19.33	7.27	357	8	0.24	0.38	145	6	31
05/25/11	10.95	7.22	270	5	0.21	0.41	105	7	29
06/19/11	5.50	7.42	605	4	0.23	0.90	221	6	27

SURFACE WATER BASELINE ANALYSIS

SAMPLE I.D.: SW-2
MONITORING SOURCE: HALE CREEK
DRAINAGE AREA: 0.200 SQ. MI.
LOCATION FROM MINE: UPSTREAM

DATE	DISH. cfs	pH s.u.	SpC u-mhos/cm	TSS Mg/l	Fe Mg/l	Mn Mg/l	SO4 Mg/l	ACID Mg/l	ALKA Mg/l
03/18/09	3.16	6.44	90	8	0.76	1.80	19	12	29
04/22/09	1.84	6.22	110	9	0.64	1.45	35	14	37
05/19/09	3.77	7.13	175	12	0.84	1.74	20	9	29
06/24/09	2.45	6.36	105	5	0.69	1.56	38	11	36
07/23/09	4.11	7.35	180	14	0.74	1.90	20	15	41
08/22/09	3.04	6.21	120	7	0.71	1.55	45	15	37
09/29/09	3.56	6.19	220	15	0.77	1.91	30	11	30
10/21/09	2.21	7.14	290	5	0.83	1.30	61	4	15
11/25/09	2.04	6.23	135	6	0.85	1.28	36	12	37
12/22/09	2.78	6.28	140	4	0.79	1.74	39	14	43
01/27/10	2.62	6.35	105	5	0.66	1.55	46	9	27
02/24/10	2.45	6.45	90	9	0.78	1.35	84	8	29
03/23/10	3.02	6.78	110	10	0.69	1.59	67	14	33
04/21/10	0.65	6.11	105	4	0.68	1.66	78	15	44
05/26/10	2.59	7.19	185	16	0.89	1.83	45	7	36
06/23/10	0.45	6.10	85	3	1.05	2.04	35	12	38
07/23/10	0.28	6.03	75	2	1.08	2.11	28	14	34
08/25/10	2.06	6.21	95	4	0.92	1.79	33	9	28
09/22/10	0.33	5.86	60	3	1.13	2.24	27	16	42
10/20/10	0.21	5.96	45	4	1.26	2.27	39	19	47
11/22/10	1.54	6.06	85	5	0.88	1.74	48	10	35
12/21/10	0.76	6.16	110	9	0.74	1.78	41	11	32
01/26/11	0.88	6.27	130	7	0.78	1.61	48	13	38
02/23/11	1.11	6.63	175	6	0.43	1.20	75	13	36
03/25/11	3.38	6.55	98	10	0.29	1.70	36	11	32
04/24/11	2.79	6.68	120	7	0.41	1.74	45	9	30
05/25/11	0.27	6.08	95	3	0.44	1.77	42	12	36
06/19/11	0.10	6.76	614	12	1.33	4.70	186	8	28

SURFACE WATER BASELINE ANALYSIS

SAMPLE I.D.: SW-3
MONITORING SOURCE: LOCUST FORK RIVER
DRAINAGE AREA: 16.079 SQ. MI.
LOCATION FROM MINE: DOWNSTREAM

DATE	DISH. cfs	pH s.u.	SpC u-mhos/cm	TSS Mg/l	Fe Mg/l	Mn Mg/l	SO4 Mg/l	ACID Mg/l	ALKA Mg/l
03/18/09	53.20	7.14	65	12	0.65	0.26	125	12	38
04/22/09	43.55	6.95	55	10	0.58	0.19	97	10	29
05/19/09	55.77	6.53	75	15	0.79	0.15	117	11	35
06/24/09	45.45	6.31	60	8	0.45	0.23	129	9	28
07/23/09	49.77	6.28	60	16	0.85	0.12	142	8	29
08/22/09	50.56	6.78	65	15	0.93	0.21	127	8	26
09/29/09	64.37	6.81	55	9	0.75	0.24	145	12	32
10/21/09	89.46	7.25	40	8	1.05	0.33	169	18	42
11/25/09	53.49	7.02	55	6	0.74	0.27	135	17	44
12/22/09	48.22	6.56	65	11	0.66	0.25	129	13	24
01/27/10	42.44	6.43	70	14	0.59	0.21	124	12	35
02/24/10	43.68	6.51	75	12	0.62	0.30	118	10	27
03/23/10	60.58	7.01	50	17	0.76	0.15	124	14	39
04/21/10	39.73	6.22	45	5	0.62	0.25	85	9	24
05/26/10	50.77	6.89	35	11	0.71	0.18	110	16	35
06/23/10	25.44	6.05	90	5	0.44	0.31	55	12	41
07/23/10	22.68	6.11	85	4	0.46	0.29	51	10	27
08/25/10	14.73	5.91	110	3	0.41	0.44	33	6	27
09/22/10	19.55	6.05	90	2	0.55	0.38	48	5	29
10/20/10	10.33	5.89	125	2	0.46	0.36	26	5	30
11/22/10	26.16	6.41	90	6	0.49	0.25	38	13	35

SURFACE WATER BASELINE DATA

SAMPLE I.D.: SW-4
MONITORING SOURCE: BUNCH CREEK
DRAINAGE AREA: 0.232 SQ. MI.
LOCATION FROM MINE: UPSTREAM

DATE	DISH. cfs	pH s.u.	SpC u-mhos/cm	TSS Mg/l	Fe Mg/l	Mn Mg/l	SO4 Mg/l	ACID Mg/l	ALKA Mg/l
03/18/09	1.22	6.77	460	5	0.14	0.25	120	8	24
04/22/09	0.94	6.55	490	5	0.25	0.21	105	7	26
05/19/09	2.01	6.34	515	7	0.33	0.26	114	6	27
06/24/09	1.45	7.12	235	6	0.18	0.22	124	12	35
07/23/09	1.97	6.21	445	9	0.26	0.34	90	7	25
08/22/09	1.85	7.42	505	12	0.15	0.22	125	14	36
09/29/09	1.55	7.21	485	10	0.22	0.31	130	12	29
10/21/09	1.86	7.42	508	4	0.12	0.25	160	17	32
11/25/09	1.05	6.31	510	5	0.21	0.41	140	8	24
12/22/09	1.11	6.38	155	7	0.34	0.38	86	7	21
01/27/10	1.36	6.76	235	8	0.19	0.26	104	12	36
02/24/10	1.17	6.27	325	5	0.20	0.31	96	8	28
03/23/10	1.84	7.04	420	11	0.31	0.24	126	14	41
04/21/10	0.85	6.04	245	3	0.40	0.38	75	5	21
05/26/10	1.34	7.02	495	12	0.11	0.26	110	11	36
06/23/10	0.75	6.11	155	5	0.24	0.31	94	8	23
07/23/10	0.55	6.41	235	4	0.18	0.26	136	9	31
08/25/10	0.78	6.55	175	4	0.22	0.15	66	7	25
09/22/10	0.42	6.31	220	2	0.27	0.22	124	13	34
10/20/10	0.38	6.21	300	2	0.35	0.31	75	12	36
11/22/10	0.67	6.45	235	4	0.26	0.38	134	9	24
12/21/10	0.72	6.24	325	2	0.16	0.35	115	14	32
01/26/11	1.48	7.04	455	10	0.35	0.21	133	15	40
02/23/11	0.97	6.80	607	7	0.45	1.30	130	12	24
03/25/11	2.26	6.69	148	15	0.27	0.40	57	13	28
04/24/11	1.76	7.03	139	7	0.27	0.37	147	14	39
05/25/11	0.41	6.76	121	5	0.31	0.21	129	10	34
06/19/11	1.37	7.28	692	29	0.16	1.3	223	15	27

SURFACE WATER BASELINE DATA

SAMPLE I.D.: SW-5
MONITORING SOURCE: BUNCH CREEK
DRAINAGE AREA: 2.135 SQ. MI.
LOCATION FROM MINE: DOWNSTREAM

DATE	DISH. cfs	pH s.u.	SpC u-mhos/cm	TSS Mg/l	Fe Mg/l	Mn Mg/l	SO4 Mg/l	ACID Mg/l	ALKA Mg/l
03/18/09	11.39	5.35	305	6	0.09	0.60	70	21	45
10/21/09	12.65	7.25	100	1	0.33	0.20	26	14	42
12/21/10	2.04	6.35	149	3	0.28	0.59	78	9	26
01/26/11	1.77	6.56	214	11	0.29	0.45	123	10	32
02/23/11	0.98	6.44	213	5	0.22	0.31	68	8	19
03/25/11	12.44	6.78	246	7	0.24	1.03	60	15	44
04/24/11	11.79	6.69	148	15	0.37	0.41	57	12	34
05/25/11	2.33	7.15	235	5	0.33	0.47	68	15	42
06/17/11	*	*	*	*	*	*	*	*	*

*SW#5 6/17/11 BEAVER DAM CONSTRUCTED - NO FLOW - DID NOT SAMPLE

SEASONAL BASELINE DATA

SAMPLE I.D.: SW-1
MONITORING SOURCE: HALE CREEK
DRAINAGE AREA: 2.480 SQ. MI.
LOCATION FROM MINE: DOWNSTREAM

SEASON	DISH. cfs	pH s.u.	SpC u-mhos/cm	TSS Mg/l	Fe Mg/l	Mn Mg/l	SO4 Mg/l	ACID Mg/l	ALKA Mg/l
SUMMER	29.60	7.19	372.50	7.50	0.19	0.38	101.67	6.67	24.00
FALL	15.56	7.18	337.50	6.50	0.21	0.35	140.42	7.33	26.33
WINTER	23.76	7.25	391.43	7.43	0.20	0.40	89.29	6.29	25.14
SPRING	16.62	7.22	381.56	7.11	0.19	0.44	143.00	7.44	26.22
AVERAGE	21.39	7.21	370.75	7.13	0.20	0.39	118.59	6.93	25.42

SAMPLE I.D.: SW-2
MONITORING SOURCE: HALE CREEK
DRAINAGE AREA: 0.200 SQ. MI.
LOCATION FROM MINE: UPSTREAM

SEASON	DISH. cfs	pH s.u.	SpC u-mhos/cm	TSS Mg/l	Fe Mg/l	Mn Mg/l	SO4 Mg/l	ACID Mg/l	ALKA Mg/l
SUMMER	2.23	6.15	125.00	7.50	0.89	1.92	30.50	13.33	35.33
FALL	1.59	6.19	134.17	5.50	0.89	1.69	44.00	11.67	34.83
WINTER	2.37	6.47	114.00	7.86	0.63	1.54	53.57	11.43	32.00
SPRING	1.66	6.36	177.11	7.89	0.77	2.05	58.22	10.78	34.89
AVERAGE	1.96	6.27	137.57	7.19	0.80	1.80	46.57	11.80	34.26

SEASONAL BASELINE DATA

SAMPLE I.D.: SW-3
MONITORING SOURCE: LOCUST FORK RIVER
DRAINAGE AREA: 16.079 SQ. MI.
LOCATION FROM MINE: DOWNSTREAM

SEASON	DISH. cfs	pH s.u.	SpC u-mhos/cm	TSS Mg/l	Fe Mg/l	Mn Mg/l	SO4 Mg/l	ACID Mg/l	ALKA Mg/l
SUMMER	36.94	6.20	77.50	8.17	0.66	0.28	91.00	8.17	28.33
FALL	45.53	6.38	75.00	6.60	0.68	0.29	99.40	13.20	35.00
WINTER	49.98	6.67	65.00	13.75	0.66	0.23	122.75	12.00	34.75
SPRING	43.45	6.38	60.00	9.00	0.60	0.22	98.83	11.17	32.00
AVERAGE	43.98	6.38	69.38	9.38	0.65	0.26	103.00	11.13	32.52

SAMPLE I.D.: SW-4
MONITORING SOURCE: BUNCH CREEK
DRAINAGE AREA: 0.232 SQ. MI.
LOCATION FROM MINE: UPSTREAM

SEASON	DISH. cfs	pH s.u.	SpC u-mhos/cm	TSS Mg/l	Fe Mg/l	Mn Mg/l	SO4 Mg/l	ACID Mg/l	ALKA Mg/l
SUMMER	1.19	6.50	344.17	6.83	0.22	0.25	111.83	10.33	30.00
FALL	0.97	6.38	338.83	4.00	0.24	0.35	118.33	11.17	28.17
WINTER	1.47	6.69	378.57	8.71	0.27	0.42	109.43	11.71	31.57
SPRING	1.21	6.49	343.00	8.78	0.25	0.39	124.56	9.78	29.78
AVERAGE	1.21	6.50	351.14	7.08	0.24	0.35	116.04	10.75	29.88

SEASONAL BASELINE DATA

SAMPLE I.D.: SW-5
MONITORING SOURCE: BUNCH CREEK
DRAINAGE AREA: 2.135 SQ. MI.
LOCATION FROM MINE: DOWNSTREAM

SEASON	DISH. cfs	pH s.u.	SpC u-mhos/cm	TSS Mg/l	Fe Mg/l	Mn Mg/l	SO4 Mg/l	ACID Mg/l	ALKA Mg/l
SUMMER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FALL	7.35	6.60	124.50	2.00	0.31	0.40	52.00	11.50	34.00
WINTER	6.65	5.88	244.50	7.25	0.21	0.60	80.25	13.50	35.00
SPRING	7.06	6.86	191.50	10.00	0.35	0.44	62.50	13.50	38.00
AVERAGE	7.02	6.24	186.83	6.42	0.29	0.48	64.92	12.83	35.67