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From: Mark Reynolds <mreynolds@etv.net>
To: Steve Christensen <stevechristensen@utah.gov>
Date: 12/15/2006 2:38:50 PM
Subject: Bear Lease Addition

Steve,

Here are the changes to those pages that we talked about on the phone today.

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Table 7-16 Surface Water Sampling

	Baseline Monitoring	Operational Monitoring	Post-mining Monitoring
Type of Sampling Site	Surface Water Bodies.	Surface Water Bodies.	Surface Water Bodies.
Field Measurements and Parameters (Table 7.1-7)	Performed during water level/flow measurements.	Performed during water level/flow measurements.	Performed during water level/flow measurements.
Sample Frequency	Quarterly for lakes, reservoirs and impoundments (water level and quality); monthly flow measurements and quarterly water quality measurements (one sample at low flow and high flow each) for perennial streams. Monthly flow and water quality measurements during period of flow for intermittent streams. Sampling for ephemeral streams determined at pre-design conference.	Quarterly for lakes, reservoirs and impoundments (water level and quality); monthly flow measurements and quarterly water quality measurements (one sample at low flow and high flow each) for perennial streams. Monthly flow and water quality measurements during period of flow for intermittent streams. Sampling for ephemeral streams determined at pre-design conference.	Two per annum for perennial streams (high & low flow); two per annum during snowmelt and rainfall for intermittent streams.
Sampling Duration	~~Two~~ Three years (~~one complete year of data before submission of PAP~~Prior to mining in the area).	Every year until two years after surface reclamation activities have ceased. Sites will be monitored 4 times a year.	Every year until termination of bonding.
Type of Data Collected and Reported	Flow and/or water levels and water quality.	Flow and/or water levels and water quality.	Flow and/or water levels and water quality per operational parameters.
Comments	All field measurements should be performed concurrently with water level/flow measurements.	All field measurements should be performed concurrently with water level/flow measurements.	All field measurements should be performed concurrently with water level/flow measurements.
Additional Comments		For every fifth year preceding re-permitting, one sample at low flow and high flow each should be taken for baseline water quality parameters. The construction monitoring program will be conducted on a site-specific basis in addition to the operational monitoring.	

Table 7-12 Ground Water Sampling

	Baseline Monitoring	Operational Monitoring	Post-mining Monitoring
Type of Sampling site	Springs, In-Mine Flows, Boreholes, Observation Wells	Springs, In-Mine Flows, Boreholes, Observation Wells	Springs, Observation Wells, Mine discharge points
Field Measurements and Parameters (Table 7.1-7)	Water levels and/or flow and water quality	Water levels and/or flow and water quality	Water levels and/or flow and water quality
Sample Frequency Each site	Quarterly Adequate to describe seasonal variation. Monthly, recommended for more accurate description of seasonal variation.	Quarterly samples springs and wells; In-mine flows at initial interception, quarterly after 1st 30 days until diminished. From sumps and/or mine discharge points quarterly or as required by UPDES.	Quarterly based on potential impact; or once per annum (spring sampling at low flow).
Sampling Duration	Three ~~Two~~ years (~~one complete year of data before submission of PAP~~ Prior to mining in the area).	Every year until two years after surface reclamation activities have ceased. Sites will be monitored 4 times a year.	Until termination of bonding.
Type of Data Collected and Reported	Wells and Boreholes: Water quality, water level of flow logs, collar elevation; ground elevations ; screened interval; formation where completed; depth. Springs: Water quality, location, and flow.	Wells and boreholes: Water quality, water level or flow. Springs: Flow and water quality with one sample taken at low flow.	Wells and Boreholes: Water quality, water level or flow. Springs: Flow, water quality with one sample taken at low flow. Phase I: Whether pollution of surface and subsurface water is occurring, the probability of future occurrence, and estimated cost of abatement. Phase II: After revegetation has been established and contributing suspended solids to streamflow or runoff outside the permit area is not excess of the requirements set by UCA 40-10-17(j) of the Act and by R645-301-751. Phase III: Until reclamation requirements of the Act and the permit are fully met.
Comments	Springs and seeps should be measured from source at high and low flow periods.	During the year preceding re-permitting. Springs, one water quality sample at low flow for baseline parameters. Other sites, one sample for baseline parameter.	

Table 7-14 Water Monitoring Matrix: Operational Phase of Mining

Location	Jan	Feb	Mar	Apr	May	June	July	Aug[3]	Sept	Oct	Nov	Dec
Streams												
BC-1 (Upper Bear Creek)		oper			oper	field	field	oper.	field	oper		
BC-2 (Lower Bear Creek)		oper			oper	field	field	oper.	field	oper		
BC-3 (Lower Rt Fork Bear Creek)		oper			oper	field	field	oper.	field	oper		
BC-4 (Upper Rt Fk. Bear Creek)		oper			oper.	field	field	oper.	field	oper		
CK-1 (Upper Cedar Creek)		oper			oper.	field	field	oper.	field	oper		
CK-2 (Lower Cedar Creek)		oper			oper.	field	field	oper.	field	oper		
MH-1 (Lower McCadden Hollow Creek)					field [5]		field	field		field		
MH-2 (Upper McCadden Hollow Creek)					field [5]		field	field		field		
FC-1 (Lower Left Fork Fish Creek)[7]					field [5]		field	field		field		
FC-2 (Lower Right Fork Fish Creek)[7]					field [5]		field	field		field		
FC-3 (Right Fork Fish Creek Property Line)[7]					field [5]		field	field		field		
FC-4 (Upper Right Fork Fish Creek)[7]					field [5]		field	field		field		
FC-5 (Mud Spring)[7]					field [5]		field	field		field		
FC-6 (Upper Left Fork Fish Creek)[7]					field [5]		field	field		field		
FC-7 (Water Right Upper LF FC)					field [5]		field	field		field		
FC-8 (Water Right Upper LF FC)					field [5]		field	field		field		
Springs												
SBC-3 (Creek Well)		oper			oper			oper.		oper		
SBC-4 (Big Bear Springs) [4]		oper			oper			oper.		oper		
SBC-5 (Birch Spring) [4]		oper			oper.			oper.		oper		
SBC-9A (Hiawatha Seam)		oper			oper			oper		oper		
SBC-12 (16-7-13-1)					field [5]		field	field		field		
SBC-14 (WHR-6)		oper			oper.			oper.		oper		
SBC-15 (WHR-5)					field [5]		field	field		field		
SBC-16 (WHR-4)[6,7]					field [5]		field	field		field		
SBC-16A [7]					field [5]		field	field		field		
SBC-16B [7]					field [5]		field	field		field		
SBC-17 (16-7-24-4)		oper			oper.			oper.		oper		
SBC-18 (WHR-2) [7]					field [5]		field	field		field		
SBC-20 (16-8-16-4)[7]					field [5]		field	field		field		
SBC-21 (16-8-18-1)[7]					field [5]		field	field		field		
SBC-22 (Stockwater Trough)					field [5]		field	field		field		
SBC-23 ((FBC-12)					field [5]		field	field		field		
SCC-1 (16-8-20-1					field [5]		field	field		field		
SCC-2 (16-8-15-5)[7]					field [5]		field	field		field		
SCC-3 (Mohrland Portal)					field [5]		field	field		field		
SCC-5 (16-8-7-3)					field [5]		field	field		field		
SMH-1 (FBC-6)					field [5]		field	field		field		
SMH-2 (FBC-5)					field [5]		field	field		field		
SMH-3 (FBC-13)					field [5]		field	field		field		
SMH-4 (FBC-4)					field [5]		field	field		field		
SMH-5 (Stockwater Trough)					field [5]		field	field		field		
Wells												
SDH-2 (Well, Sec. 11, T16S, R7E)					level [5]		level	level	level	level		
SDH-3 (Well, Sec. 10, T16S, R7E)					level [5]		level	level	level	level		
MW-114 (Well, Sec 18, T16S, R8E)					level [5]		level	level	level	level		
MW-117 (Well, Sec 12, T16S, R8E)					level [5]		level	level	level	level		

Notes:
1. See Tables 7-13 and 7-17 for listing of water quality monitoring parameters.
2. oper. = operational base = baseline
3. Baseline parameters taken in August of year 5 prior to each permit renewal.
4. SBC-4 and SBC-5 shall also be tested for oil and grease.
5. First sample to be taken in May or June, when Gentry Mountain is accessible.
6. A comment will be made regarding the level of the pond feeding the spring
7. Weekly monitoring to begin one month prior to mining in area and continue until one month after. Monthly monitoring will then be done for an additional six months.

Table 7-14A Surface Water Monitoring Matrix: Baseline Collection

Site Name	Site Description	Baseline Monitoring Start Date
BC-1	Upper Bear Creek	September 2, 1980
BC-2	Lower Bear Creek	September 2, 1980
BC-3	Lower Right Fork Bear Creek	January 5, 1987
BC-4	Upper Right Fork Bear Creek	February 29, 2000
CK-1	Upper Cedar Creek	June 9, 1994
CK-2	Lower Cedar Creek	June 9, 1994
MH-1	Lower McCadden Hallow Creek	July 31, 1991
MH-2	Upper McCadden Hallow Creek	May, 2007
FC-1	Lower Left Fork Fish Creek	June 9, 1994
FC-2	Lower Right Fork fish Creek	July 31, 1991
FC-3	Right Fork Fish Creek Property	May, 2007
FC-4	Upper Right Fork Fish Creek	May, 2007
FC-5	Right Fork Fish Creek Below Mud	May, 2007
FC-6	Upper Left Fork Fish Creek	May, 2007
FC-7	Water Right Upper LF Fish Creek	May, 2007
FC-8	Water Right Upper LF Fish Creek	May, 2007

Notes:
1. See Tables 7-13 and 7-17 for listing of water quality monitoring parameters.
2. See Table 7-14 for specific months that the sites will be monitored in.

Table 7-14B Ground Water Monitoring Matrix: Baseline Collection

Site Name	Site Description	Baseline Monitoring Start Date
SBC-3	Bear Creek Well	January 5, 1987
SBC-4	Big Bear Spring	January 5, 1987
SBC-5	Birch Spring	July 24, 1986
SBC-9A	Bear Canyon #1 Mine Portal	September 25, 2002
SBC-12	16-7-16-1	June 8, 1994
SBC-14	WHR-6	October 26, 1993
SBC-15	WHR-5	October 27, 1992
SBC-16	WHR-4	March 22, 1993
SBC-16A		May, 2007
SBC-16B		May, 2007
SBC-17	16-7-24-4	May 22, 2000
SBC-18	WHR-2	March 22, 1993
SBC-20	16-8-16-4	June 8, 1994
SBC-21	16-8-18-1	June 8, 1994
SBC-22	Stock Watering Trough	May, 2007
SBC-23	FBC-12	March 22, 1993
SCC-1	16-8-20-1	June 8, 1994
SCC-1	16-8-15-5	June 8, 1994
SCC-3	Mohrland Portal	January 19, 1979
SCC-5	16-8-7-3	June 8, 1994
SMH-1	FBC-6	October 13, 1992
SMH-2	FBC-5	October 13, 1992
SMH-3	FBC-13	August 29, 1993
SMH-4	FBC-4	October 13, 1992
SMH-5	Stock Watering Trough	May, 2007

Notes:
1. See Tables 7-13 and 7-17 for listing of water quality monitoring parameters.
2. See Table 7-14 for specific months that the sites will be monitored in.