EAST FORK OF BOX CANYON
FLOW MONITORING

DATE	EFB-1		EFB-2		EFB-3		EFB-4		EFB-5		EFB-6 (Pines 106)		EFB-7		EFB-8 Spring 217		EFB-8 Stream		EFB-9		EFB-10		EFB-11 Spring 214	EFB-11 Stream		EFB-11A		EFB-11B	EFB-11C	Pines 408	EFB-12 North	EFB-12 South	EFB-13 North	EFB-13 South	EFB-14	COMMENTS
	Flow (gpm)	Width (ft)	Flow (gpm)	Width (ft)	Flow (gpm)	Width (ft)	Flow (gpm)	Width (ft)	Flow (gpm)	Width (ft)	Flow (gpm)	Width (ft)	Flow (gpm)	Width (ft)	Flow (gpm)	Width (ft)	Flow (gpm)	Width (ft)	Flow (gpm)	Width (ft)	Flow (gpm)	Width (ft)	Flow (gpm)	Flow (gpm)	Width (ft)	Flow (gpm)	Width (ft)	Flow (gpm)	Flow (gpm)	Flow (gpm)	Flow (gpm)	Flow (gpm)	Flow (gpm)	Flow (gpm)	Flow (gpm)	
10/10/2003	0.00	NA	0.00	NA	0.00	5.8	0.59	5.7	0.00	1.5	1.55	4.1	7.23	5.5	0.55	NA	9.68	9.8	10.90	3.1	13.00	5.7	2.58	15.40	6.60						0.41	0.18	0.70	1.57	0.14	Baseline flows and channel measurements
10/17/2003											1.50												2.87							15.70						Sufco 4th quarter water monitoring data
11/10/2003																					18.80	5.7	3.80	25.00												Monitored only sites with potential to be effected by subsidence. All monitored sites covered with ice. Pictures attached.
11/17/2003																					14.50		2.26	18.10												The waterfall monitoring sites and the stream channel widths appeared unchanged. There was approximately 6-8 inches of fresh snow in the canyon and it was snowing moderately during monitoring. Large portions of the stream channel were obscured by ice and/or snow.
11/24/2003																					8.60	Iced over	36.98	49.31	Iced over						0.37	0.16	0.79	1.85	Frozen (0.15 est.)	EP: Reported flow at EFB-10 is only partial flow since entire channel is ice covered. We were able to isolate a portion of the flow. Actual flow would be at least a few gpm more. EFB-11 - Spring 214 was flowing approx. 16 times the previous measured flow rate. Probably not snow melt. EFB-11 stream flow includes Spring 214 flow.
12/1/2003																					11.00		9.10	37.20							0.25	0.14	0.72	1.82	0.14	EP: Stream channel mostly ice-free from about 100 feet above Pines 214 confluence downward to EFB-11. Above this point, stream channel is essentially 100% iced-over to the confluence with the east fork of the East Fork. Below Pines 214, stream was mostly ice-free. There was an approximately 30 foot reach of the stream channel about 100 feet below EFB-11 that was dry. We plugged a few small holes in the stream bottom with native stream sediments. After that, stream flow was reestablished in the 30 foot reach. Stream flow gradually increased downstream in stream channel below the 30-foot reach. Erik walked down-canyon approximately 75 yards and the flow was steadily increasing.
12/8/2003																					Frozen		5.49	24.70		20.00					Frozen	Frozen	0.39	1.64	0.11	EP: EFB-11A is a new monitoring site located several hundred feet downstream of EFB-11. (N 4,317,735 E 471,052 NAD 27 UTM) Stream monitored on a rocky, gravely substrate. May not have captured all of the flow at this site. It was apparent that most of the streamflow observed at EFB-11 had reemerged into the stream channel above EFB-11A. Clear, cold day, temperatures below freezing and 4-5 inches of new snow on ground in canyon.
12/15/2003															Frozen		Frozen		Frozen		10 (est.)		3.97	64.10		42.40					Frozen	Frozen	Frozen	0.09	0.07	Did not observe any significant new tension cracks in the stream channel. It is apparent that there is somewhat less ice cover in the stream channel between EFB-10 and EFB-11 than previously; possibly a result of additional groundwater inflow into the stream in this region. Elsewhere, the stream channel and spring discharge areas are more frozen than last week.
12/22/2003															Frozen		Frozen		Frozen		30 (est.)		1.15	39.70		29.30					Frozen	Frozen	Frozen	0.01	Frozen	EP: Observed some fractures in the stream channel approximately 40 yards below EFB-10. The fractures occur in thin-bedded silty sandstone in the channel bottom. All of the stream flow infiltrated into the fracture system at that point. The stream channel was dry to a point approximately 35 feet below the fracture. At that point the water (apparently all) reemerged into the stream channel. Because this reach of the stream was frozen during previous monitoring events, we could not determine if the fractures and stream infiltration are recent occurrences. The slump between EFB-10 and EFB-11 is essentially unchanged. The slump material is mostly frozen. We did not observe groundwater discharge from the slump material as occurred immediately after the slump occurred. The small pool created by the slump material in the stream channel appears unchanged from the previous monitoring event.
12/29/2003																																				Tried to make it up to the East Fork but the snow on the road in Link Canyon was too deep and it became too unreasonable to proceed.
1/5/2004																																				Tried to make it up to the East Fork but the snow on the road in Link Canyon was too deep and it became too unreasonable to proceed.
1/14/2004													Frozen /snow covered		Frozen /snow covered		Frozen /snow covered		Frozen /snow covered		Inaccessible		Frozen /snow covered	18.40		Inaccessible					Inaccessible	Inaccessible	Inaccessible	Inaccessible	Inaccessible	EP: Accessed area using snowmobiles. Clear, cool day, temperatures below freezing. No snow in past several days, bare spots on road in Link Canyon on south facing slopes, 12-18+ inches of snow in the East Fork canyon bottom. Couldn't access all of the monitoring sites because of the deep snow cover and difficult conditions.
4/6/2004																																				Made it into the East Fork but much of the canyon bottom including the stream channel in many locations was covered with snow and ice (about 2 feet deep in the canyon bottom). Consequently, discharge measurements were not performed.
4/23/2004																																				Tried to make it up to the East Fork but the snow on the road in Link Canyon was too deep from the recent storms.

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4/29/2004											3.10		15.90		0.65		15.40		16.70		18.40		1.32	21.40		10.10		21.20			No flow visible Saturated soil - mostly frozen	No flow visible Saturated soil - mostly frozen	No flow visible Saturated soil - mostly frozen	No flow visible Saturated soil - mostly frozen	No flow visible Saturated soil - mostly frozen	EP: Cold cloudy day, temperatures near freezing, 1 inch of new snow in the canyon fell in last 24 hours. Snow melting during the day. Spring 214 - Spring flow originating near the shelter area appears to flow into the shallow subsurface through subsidence fractures and subsequently re-emerges at the contact with an underlying shale layer just above the confluence with the East Fork channel. There were five segments of the stream channel between EFB-9 and EFB-11A where there was little or no flow in the channel. A flow of 21.2 gpm was measured in the East Fork below the subsided area. This flow is the same as the maximum flow measured upstream in the East Fork of 21.4 gpm at EFB-11. Thus it is apparent that streamflow in the subsided portion of the East Fork is not being routed into the mine or diverted out of the East Fork drainage.
5/13/2004											1.03		7.66		0.58		8.42		7.74		6.80		0.39	13.40		2.69		9.84		14.64	No discharge	No discharge	No discharge	No discharge	No discharge	Sufco water monitoring flow data history (gpm): Pines 106 (EFB-6) min - 0.130, ave - 1.446, max - 3.99; Pines 214 Spring min - 0.295, ave - 2.32, max - 3.21; Pines 408 (Confluence East Fork Box) min - 0.217, ave - 14.88, max - 38.4
5/25/2004											1.21		6.06		0.50		7.02		6.98		9.09		0.18	10.50		2.20		9.05			No discharge	No discharge	No discharge	No discharge	No discharge	
6/9/2004	No Flow		No Flow		No Flow		0.44		No Flow		1.10		4.62		0.46		5.20		5.50		7.76		0.08	8.91		1.29		7.11			No discharge	No discharge	No discharge	No discharge	No discharge	
6/25/2004											0.72		3.83		0.50		4.76		5.64		8.44		0.22	9.38		1.15		6.47	7.69		No discharge	No discharge	No discharge	No discharge	No discharge	EP: Heavy cow activity in canyon. Sediments in stream bottom are disturbed, creek running muddy in locations. Vegetation eaten down in canyon bottom and on hillsides. Soil on hillsides was heavily disturbed in areas. "EFB-11C" New site located near head of alluvial development in lower canyon.