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Incoming
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OK

From: "Davis, Mike" <MDavis@archcoal.com>
To: "ogmcoal@utah.gov" <ogmcoal@utah.gov>
Date: 3/30/2010 5:30 PM
Subject: FW: Sufco Mine 4th Qtr Water Monitoring Data
Attachments: Sufco Water Monitoring 4th Qtr 2009.pdf

From: Davis, Mike
Sent: Tuesday, March 30, 2010 5:19 PM
To: April Abate (aprilabate@utah.gov)
Cc: jimdsmith@utah.gov; Karl Houskeeper (karlhouskeeper@utah.gov); Hansen, Chris; Roberts, Leland; Byars, John
Subject: Sufco Mine 4th Qtr Water Monitoring Data

April,

Sufco Mine 4th Qtr Water Monitoring data is ready for upload on the EDI. Field data sheets are enclosed. New Water Monitoring data points 006A and 006B still need to be set up on the division EDI site, data is included on the field data sheets.

Thanks,
Mike

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PETERSEN HYDROLOGIC, LLC

1 March 2010

Mr. Mike Davis
Canyon Fuel Company, LLC
Sufco Mine
397 South 800 West
Salina, Utah 84526

Dear Mike,

This letter is to inform you that we have successfully completed the 4th quarter 2009 hydrologic monitoring at the SUFCO Mine. All of the regular monitoring sites were accessed and monitored. All water samples requiring chemical analysis have been submitted to SGS Laboratories in Huntington, Utah. The field parameters measured at each of the monitoring sites are listed on the attached sheets

We appreciate the opportunity to provide this service to you. Please feel free to contact me if you have any questions in this regard.

Sincerely,

LICENSED PROFESSIONAL GEOLOGIST
ERIK CARL PETERSEN
No. 5373615-2250
STATE OF UTAH

Erik C. Petersen, P.G.
Principal Hydrogeologist
Utah PG No. 5373615-2250

2695 N. 600 E. LEHI, UTAH 84043 (801) 766-4006

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Station	Date	Time	Flow (gpm)	T (°C)	pH	Cond (µS/cm)	DO (mg/l)	Comments
SUFCO 001	19 Nov 09	15:30	0.72	4.7	7.33	635	---	
SUFCO 006	19 Nov 09	16:30	71	0.3	8.39	612	10.6	Stream is ice covered, had to break considerable ice from Parshall flume to measure flow
SUFCO 006a	19 Nov 09	17:00	72	0.4	8.47	612	10.9	Stream is ice covered, difficult flow measurement
SUFCO 006b	19 Nov 09	18:00	60	0.4	8.45	613	10.8	Stream completely frozen over. Difficult flow measurement.
SUFCO 007	19 Nov 09	18:40	57	0.3	8.39	515	10.6	Stream completely frozen over. Difficult flow measurement.
SUFCO 041	3 Dec 09	14:30	296	0.2	8.63	1,154	10.3	Stream mostly ice-covered
SUFCO 042	3 Dec 09	14:10	1,360	4.2	8.57	865	9.79	
SUFCO 046	3 Dec 09	16:15	26.1	6.1	8.22	888	8.53	
SUFCO 047	3 Dec 09	13:15	35.0	27.8	7.38	754	---	
SUFCO 047A	3 Dec 09	15:50	97.8	7.1	7.69	1,233	7.99	
SUFCO 057A	19 Nov 09	16:00	Dry	---	---	---	---	
SUFCO 089	23 Oct 09	13:30	Dry	---	---	---	---	
SUFCO 090	26 Oct 09	14:30	0.208	0.0	8.23	185	6.67	
GW-13	26 Oct 09	16:50	0.160	2.8	8.06	1,262	---	
GW-20	26 Oct 09	15:30	Dry	---	---	---	---	
GW-21	9 Nov 09	14:45	0.252	5.2	8.09	145	---	
USFS 109	26 Oct 09	15:25	Dry	---	---	---	---	
USFS 110	26 Oct 09	15:20	Dry	---	---	---	---	
FP-1	26 Oct 09	14:35	No perennial flow in tributary	---	---	---	---	
FP-2 (East Fork)	6 Oct 09	13:00	No perennial flow in tributary	---	---	---	---	
Pines 100	9 Nov 09	14:50	0.168	3.9	8.12	272	---	Reported discharge is from spring box overflow. Flow to the roadside trough was 0.12 gpm. However, this flow may include some discharge from the adjacent GW-21 spring.
Pines 105	9 Nov 09	13:00	Dry	---	---	---	---	

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Station	Date	Time	Flow (gpm)	T (°C)	pH	Cond (µS/cm)	DO (mg/l)	Comments
Pines 106	26 Oct 09	19:00	Dry	---	---	---	---	
Pines 206	7 Nov 09	14:30	1.57	7.0	7.68	517	---	
Pines 209	9 Nov 09	15:00	6.10	6.4	7.83	414	---	
Pines 212	9 Nov 09	15:30	3.55	4.1	8.20	308	---	
Pines 214	26 Oct 09	17:30	0.34	0.8	8.27	631	---	Flow measured approximately 40 feet above monitoring point was 0.97 gpm
Pines 218	26 Oct 09	15:00	Dry	---	---	---	---	
Pines 219	26 Oct 09	14:50	0.039	3.2	8.24	23	---	
Pines 302	2 Dec 09	12:30	Dry	---	---	---	---	
Pines 303	26 Oct 09	15:40	Dry (damp soil only)	---	---	---	---	No visible flow at the surface, damp soil only
Pines 403	26 Oct 09	15:00	79.6	1.4	8.63	668	10.4	Melting ice along stream banks
Pines 405	2 Dec 09	13:00	4,040	0.4	8.47	427	10.4	Creek is partially ice-covered
Pines 406b	2 Dec 09	16:00	4,470	0.1	8.26	428	10.9	Creek is partially ice-covered, reported discharge is our measurement, USGS gauge not reporting.
Pines 407	26 Oct 09	16:00	67.4	1.4	8.52	665	10.4	
Pines 408	26 Oct 09	16:15	3.95	1.3	8.26	680	9.90	
Pines 310 upper	9 Nov 09	14:00	0.44	4.8	7.64	154	---	
Pines 310 lower	9 Nov 09	13:45	Dry	---	---	---	---	
Pines 311	9 Nov 09	13:35	Dry	---	---	---	---	
US 79-13	---	---	---	---	---	---	---	Well not part of 4th quarter monitoring plan
US 80-2	19 Nov 09	16:00	W.L. = 173.10 feet	---	---	---	---	
US 80-4	---	---	---	---	---	---	---	Well not part of 4th quarter monitoring plan
US 81-4	19 Nov 09	16:30	W.L. = 946.12 feet	---	---	---	---	
89-18-1	19 Nov 09	14:15	Mined through	---	---	---	---	
89-20-1	19 Nov 09	14:30	Mined through	---	---	---	---	
89-20-2W	19 Nov 09	19:00	W.L. = 147.69 feet	---	---	---	---	
WRDS B-3	3 Dec 09	18:05	Dry	---	---	---	---	
WRDS B-5	3 Dec 09	17:45	W.L. = 48.67 feet	---	---	---	---	Only a few inches of water in bottom of well

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Station	Date	Time	Flow (gpm)	T (°C)	pH	Cond (µS/cm)	DO (mg/l)	Comments
								casing, not enough water to monitor.
WRDS B-6	3 Dec 09	17:30	W.L. = 77.61 feet	8.6	6.79	7,940	---	
WRDS B-8	3 Dec 09	17:10	W.L. = 43.54 feet	8.2	7.23	1,884	---	
WRDS B-9	3 Dec 09	18:00	Dry	---	---	---	---	
Link Portal West	9 Nov 09	13:05	Dry	---	---	---	---	
Link Portal East Lower	9 Nov 09	13:05	Dry	---	---	---	---	
Link 001	9 Nov 09	13:00	Dry	---	---	---	---	
Link 002	9 Nov 09	13:10	Dry	---	---	---	---	
01-8-1	10 Nov 09	15:20	W.L. = 1,786.22 feet	---	---	---	---	
M-SP01	10 Nov 09	16:15	0.49	5.1	7.32	748	---	
M-SP02	10 Nov 09	16:30	No flow	4.9	8.49	676	---	Water in spring box; no outflow to trough or ground surface from box.
M-SP18	10 Nov 09	17:90	0.244	4.5	7.38	1,259	---	Spring flow is bypassing the trough through a broken pipe and running on the ground
M-SP53	10 Nov 09	15:05	0.064	5.5	7.46	682	---	
M-SP08	10 Nov 09	16:20	<0.01	5.9	7.74	698	---	Slow drip from pipe into trough, ice at site
M-SP39	10 Nov 09	17:00	1.90	6.2	7.51	858	---	
M-STR04	10 Nov 09	16:00	Dry	---	---	---	---	
EFB-1	26 Oct 09	19:30	Dry	---	---	---	---	
EFB-2	26 Oct 09	19:25	Dry	---	---	---	---	
EFB-3	26 Oct 09	19:20	Dry	---	---	---	---	
EFB-4	26 Oct 09	19:15	Dry	---	---	---	---	
EFB-5	26 Oct 09	19:10	Dry	---	---	---	---	
EFB-6	26 Oct 09	19:00	Dry	---	---	---	---	
EFB-7	26 Oct 09	18:40	3.90	---	---	---	---	
EFB-8	26 Oct 09	18:10	7.35	---	---	---	---	
EFB-8 Spring	26 Oct 09	18:20	0.56	---	---	---	---	
EFB-9	26 Oct 09	18:00	7.77	---	---	---	---	Flow measured on sandy substrate
EFB-10	26 Oct 09	17:45	9.68	---	---	---	---	

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Station	Date	Time	Flow (gpm)	T (°C)	pH	Cond (µS/cm)	DO (mg/l)	Comments
EFB-11	26 Oct 09	17:20	12.6	---	---	---	---	
EFB-11 spring	26 Oct 09	17:30	0.34	---	---	---	---	Flow measured approximately 40 feet above monitoring point was 0.97 gpm
EFB-11A	26 Oct 09	17:00	9.62	---	---	---	---	Flow measured on loose alluvium substrate
EFB-11B	26 Oct 09	16:30	11.0	---	---	---	---	

Note: All well water levels are reported in feet below the top of the inner well casing unless otherwise noted

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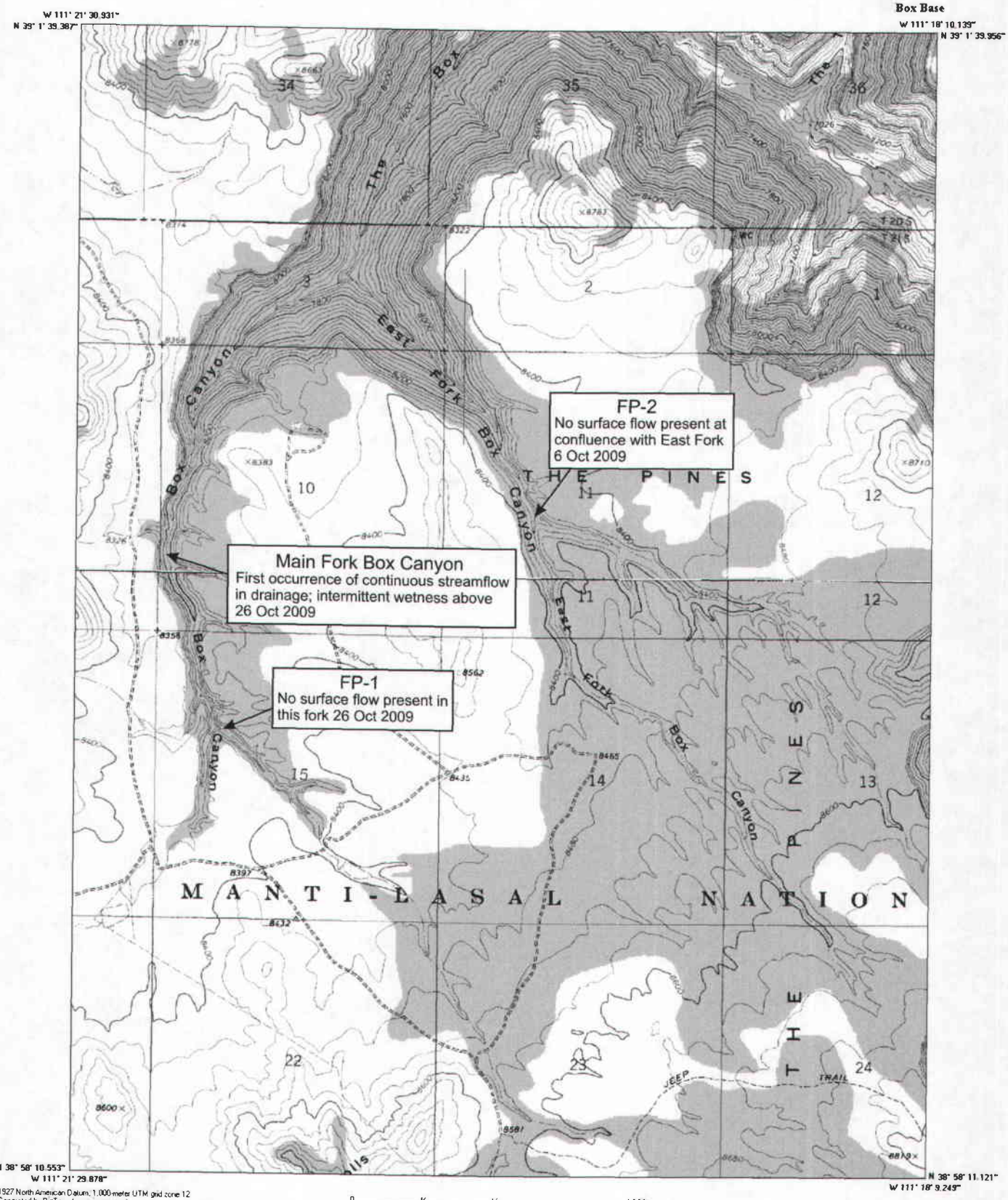

1927 North American Datum; 1,000-meter UTM grid zone 12
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0 ¼ ½ 1 Mile
0 1000 2000 3000 4000 5000 Feet
0 0.5 1 Kilometer