OGMCOAL - SUFCO North Water Springs Data

From: April Abate
To: Daron Haddock; dharber@fs.fed.us; OGMCOAL@utah.gov
Date: 4/15/2010 11:28 AM
Subject: SUFCO North Water Springs Data
Attachments: 0033.pdf; Pines Tract Spring and Stream sample locations.pdf; Pines Tract Spring and Stream Data.xls; 0045.pdf; April Abate.vcf

Hi Dale,

I left you a voice message about sending the attached information along to you. My apologies for not sending this your way sooner.

I've included the most up-to-date spring and stream data for the area of concern up through September 2009. The spring data from the Pines Tract samples 105, 310, 311 do not showing any indications of flow recovery. On top of that, stream sample 106 in the same vicinity is also showing no flow data as of June 2008.

I did speak to Leland Roberts from SUFCO today about the status of the well drilling program. Apparently, they just received the reports from their consultant - and the results were not encouraging. The wells did not yield the production rates that they were hoping for in order to supply the wildlife and livestock. They are currently in the process of hashing out another plan to tap into an existing spring near the East Fork/Main Fork of Box Canyon (Leland did not know if the spring had a name or not), but apparently, this particular spring yields 20-30 GPM. Ideally, they would pipe water from this spring using a solar pump to the riparian area where the cattle graze. He emphasized that this plan is still tentative and SUFCO is evaluating its feasibility.

DOGM still has a "Material Damage" finding hanging out there that has never been enforced because we have been waiting for the company to propose a viable solution. I think both of our agencies have to start preparing for the real possibility that these plans might not be able to accomplish the restoration of the habitat like we had hoped. We will have to consider what actions to take, if any. I have been waiting to see how these possible solutions play out before we go forward with any type of enforcement action. I would like to stay in close communication with your agency about how to move forward with this issue.

I am planning to give this update at the Water Rights Subcommittee on Monday April 19th. I wanted to give you the heads up first, in case you would like to discuss it with me prior to the meeting. I am here all day today, we are off tomorrow, and you can reach me by phone on Monday before the meeting if you'd like to have some further discussion.

Thanks Dale. I'll look forward to hearing from you!

April

April A. Abate
Environmental Scientist II
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1594 W. North Temple, Suite 1210
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0033

Inspection Report

State of Utah

Department of Natural Resources

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas & Mining

JOHN R. BAZA
Division Director

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

Representatives Present During the Inspection:	
	Ingrid Wieser Environmental Scientist II
OGM	Daron R. Haddock Environmental Manager
USFS	Tom Lloyd Ferron-Price District Geologist
USFS	Dale Harber Forest Geologist
Other	Marc Stillson Regional Engineer
Company	Mike Davis
Other	Erik Petersen
OGM	Priscilla Burton Environmental Scientist III
Company	Chris D. Hansen Environmental Manager

Permit Number:	C0410002
Inspection Type:	TECHNICAL
Inspection Date:	Monday, October 19, 2009
Start Date/Time:	10/19/2009 10:00:00 AM
End Date/Time:	10/19/2009 3:30:00 PM
Last Inspection:	Tuesday, October 13, 2009

Inspector: ,,

Weather: Sunny (windy) 65 F

InspectionID Report Number: 2164

Accepted by: jhelfric
10/29/2009

Permitee: **CANYON FUEL COMPANY LLC**
Operator: **CANYON FUEL COMPANY LLC**
Site: **SUFCO MINE**
Address: **397 S 800 W, SALINA UT 84654**
County: **SEVIER**
Permit Type: **PERMANENT COAL PROGRAM**
Permit Status: **ACTIVE**

Current Acreages

25,292.43	Total Permitted
48.43	Total Disturbed
	Phase I
	Phase II
	Phase III

Mineral Ownership

- [x] Federal
- [x] State
- [ ] County
- [ ] Fee
- [ ] Other

Types of Operations

- [x] Underground
- [ ] Surface
- [ ] Loadout
- [ ] Processing
- [ ] Reprocessing

Report summary and status for pending enforcement actions, permit conditions, Division Orders, and amendments:

Representatives from DOGM, USFS, DWRi, Emery Stock Growers Association., SUFCO mine, Canyon Fuel Co., LLC and Peterson Hydrologic Consulting met to evaluate conditions at two spring sites on the Manti LaSal: North Water Springs and Joes Mill, both of which lost surface water seepage due to subsidence from underground mining. The mine proposes to install wells into bedrock below the level of the drained alluvial aquifer and pump water to the surface to provide water for livestock and wildlife. The excess will be used to recreate the riparian area at the spring. In addition to those persons listed above, John Wytannis, Acting District Ranger, John Heeley, and Lance Sudweeks from the Manti LaSal Nat Forest; Morris Sorenson and Russ Jensen from the Emery Stock Growers Association; and Leland Roberts from SUFCO were present.

Inspector's Signature: Ingrid Wieser **Date** Wednesday, October 21, 2009

Inspector ID Number:

Note: This inspection report does not constitute an affidavit of compliance with the regulatory program of the Division of Oil, Gas and Mining.

1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, UT 84114-5801
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REVIEW OF PERMIT, PERFORMANCE STANDARDS PERMIT CONDITION REQUIREMENTS

1. *Substantiate the elements on this inspection by checking the appropriate performance standard.*
   a. *For COMPLETE inspections provide narrative justification for any elements not fully inspected unless element is not appropriate to the site, in which case check Not Applicable.*
   b. *For PARTIAL inspections check only the elements evaluated.*
2. *Document any noncompliance situation by reference the NOV issued at the appropriate performance standard listed below.*
3. *Reference any narratives written in conjunction with this inspection at the appropriate performace standard listed below.*
4. *Provide a brief status report for all pending enforcement actions, permit conditions, Divison Orders, and amendments.*

	Evaluated	Not Applicable	Comment	Enforcement
1. Permits, Change, Transfer, Renewal, Sale	☑	☐	☑	☐
2. Signs and Markers	☐	☐	☐	☐
3. Topsoil	☐	☐	☐	☐
4.a Hydrologic Balance: Diversions	☐	☐	☐	☐
4.b Hydrologic Balance: Sediment Ponds and Impoundments	☐	☐	☐	☐
4.c Hydrologic Balance: Other Sediment Control Measures	☐	☐	☐	☐
4.d Hydrologic Balance: Water Monitoring	☑	☐	☑	☐
4.e Hydrologic Balance: Effluent Limitations	☐	☐	☐	☐
5. Explosives	☐	☐	☐	☐
6. Disposal of Excess Spoil, Fills, Benches	☐	☐	☐	☐
7. Coal Mine Waste, Refuse Piles, Impoundments	☐	☐	☐	☐
8. Noncoal Waste	☐	☐	☐	☐
9. Protection of Fish, Wildlife and Related Environmental Issues	☑	☐	☑	☐
10. Slides and Other Damage	☐	☐	☐	☐
11. Contemporaneous Reclamation	☐	☐	☐	☐
12. Backfilling And Grading	☐	☐	☐	☐
13. Revegetation	☐	☐	☐	☐
14. Subsidence Control	☑	☐	☑	☐
15. Cessation of Operations	☐	☐	☐	☐
16.a Roads: Construction, Maintenance, Surfacing	☐	☐	☐	☐
16.b Roads: Drainage Controls	☐	☐	☐	☐
17. Other Transportation Facilities	☐	☐	☐	☐
18. Support Facilities, Utility Installations	☐	☐	☐	☐
19. AVS Check	☐	☐	☐	☐
20. Air Quality Permit	☐	☐	☐	☐
21. Bonding and Insurance	☐	☐	☐	☐
22. Other	☐	☐	☐	☐

1. Permits, Change, Transfer, Renewal, Sale

North Water spring is a developed spring located in the East Fork of the East Fork of Box Canyon above panel 5L of SUFCO's Pines Tract. North Water spring was undermined in 2005. Joe's Mill Pond is a manmade structure developed to capture flow from an adjacent spring. In 2006 the springs went dry and the Division made a Finding of Material Damage (Outgoing/0013.pdf). In accordance with the finding of material damage, SUFCO provided a plan for mitigation (MRP, App. 7-22). Piezometers established that the water level in the alluvium had lowered to a depth of 20 ft below the surface. Several strategies to recapture the water in the lowered water table of the alluvium were attempted (a grout curtain; collection in perforated pipe; and pumping from a down canyon spring to the troughs), but none was sucessful in restoring the springs. An exploratory drilling program was undertaken to evaluate the availability of water from the Castle Gate Sandstone, the bedrock below the alluvium (App. 7-22, updated 2009).

During this field meeting Canyon Fuel Co., LLC explained the results of the 2009 drilling program and their proposal to develop water supply wells in the Castlegate Sandstone to pump water to the troughs and pond.

4.d Hydrologic Balance: Water Monitoring

Plate 7-3 shows the location of springs. North Water Spring and Joes Mill Pond were historically used by cattle. Both springs were overlooked in the 1981 inventory filed with the DWRi. The USFS will file dilligence claims with DWRi for both springs to secure the water rights.

North Water Spring (Pines 105) has been monitored by SUFCO and data is available in the Division's water database. Plate 7-3 shows this spring as part of a perennial stream reach that is monitored.

9. Protection of Fish, Wildlife and Related Environmental Issues

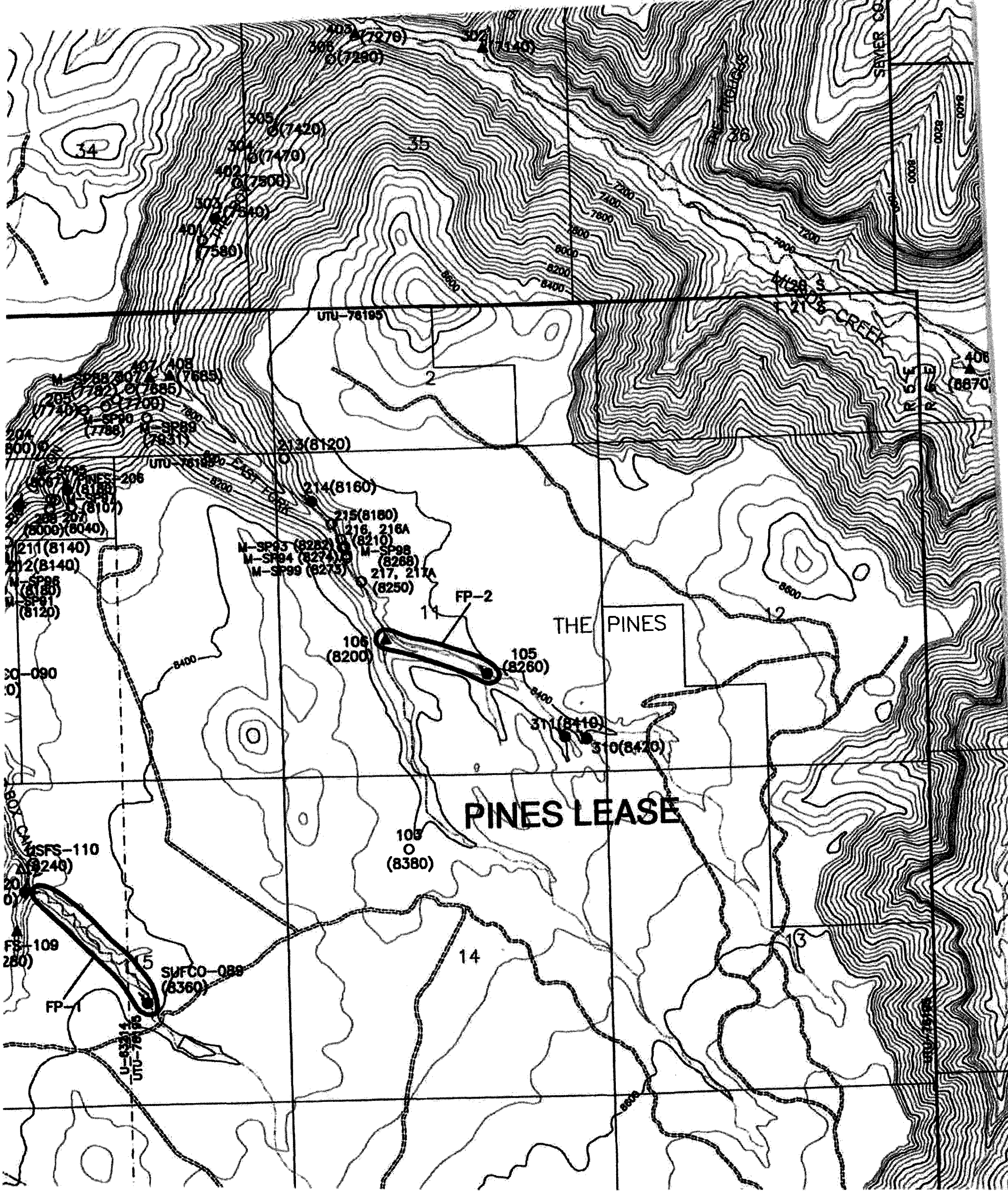
In 2000 Emery Stock Growers, installed troughs on a ridge above the North Water canyon (elevation 8,422 ft.). They installed a water line and solar pump from the North Water spring (elevation 8,327 ft.) to bring the water up to the troughs. Flow at the troughs was measured at 5-7 gpm. The cattle stay an average of 15 days/year in this location, according to Morris Sorenson.

Recent (2009) slug tests and re-evaluation of previous piezometric data have lead the investigators to conclude that the alluvial sand beds are discontinuous, and intermittent with (less permeable) organic layers providing a patchwork of water in the alluvium. Investigators concluded that the most productive means of resupplying water to the alluvium is from a deeper source. Canyon Fuel Co. recently drilled two exploratory wells 143 ft to 150 ft. below the surface, into bedrock and found an aquifer, 55 ft below the elevation of the North Horn spring (see App. 7-22 for locations of wells and other details of the drilling program). As a result of this exploratory drilling, Canyon Fuel Co., LLC. proposes to complete a water supply well near each spring site and to install solar panels or wind mills to pump approximately 5 gpm from the bedrock aquifer (below the alluvium) up to the surface to fill the water troughs and the pond. Overflow will be returned to North Water Canyon. An amendment to the Mining and Reclamation Plan will be forthcoming.

According to the USFS, the ground surface has lowered considerably since installation of the 2006 piezometers due to the drying of the organic soils. Since highly organic soils (peat) become hydrophobic and do not rewet easily, the USFS is hopeful that these organic layers may act as an aquitard to keep the water at the surface when it is replaced by pumping. Leland Roberts, SUFCO Mine, confirmed that the piezometers do illustrate the effects of draining the alluvium due to the movement of the outer, black pipe (installed within the alluvium which has lowered) against the stationary, inner, white pipe (installed on bedrock which has not moved). The elevation of the piezometer in the vicinity of northwater spring was lowered 1.8 ft. between 2006 - 2008.

14. Subsidence Control

In addition to the North Water and Joes Mill pond springs, subsidence created surface water losses in a stream section of the East Fork of Box Canyon (Pines Tract). (No determination of material damage was made on the East Fork of Box Cyn loss.) Stipulation #17 of the federal lease requires that impacted water sources be replaced. SUFCO and the Emery Stock Growers Association and the USFS are cooperatively working towards a common goal of water replacement. The Stock Growers request that they continue to be included in the dialogue between agencies and the mine operation.



403 (7270)
306 (7280)
302 (7140)
34
35
36
305 (7420)
304 (7470)
402 (7500)
303 (7540)
401 (7580)
UTU-78195
2
407, 408 (7685)
213(8120)
214(8160)
215(8180)
216, 216A (8210)
M-SP93 (8282)
M-SP94 (8274)
M-SP99 (8275)
M-SP98 (8268)
217, 217A (8250)
FP-2
11
12
THE PINES
106 (8200)
105 (8260)
311 (8410)
310(8420)
PINES LEASE
(8380)
USFS-110 (8240)
FP-1
SUFCO-088 (8360)
14
13
CREEK

SITE NAME	SITE DESCRIPTION	DATE	Wat. Temp Deg. C	F-D.O. mg/l	Flow GPM	O/G mg/l
PINES 105	Spring in Castlegate Formation	9/20/2009			0	
PINES 105	Spring in Castlegate Formation	6/12/2009			0	
PINES 105	Spring in Castlegate Formation	10/8/2008			0	
PINES 105	Spring in Castlegate Formation	9/12/2008			0	
PINES 105	Spring in Castlegate Formation	6/20/2008			0	
PINES 105	Spring in Castlegate Formation	10/4/2007			0	
PINES 105	Spring in Castlegate Formation	8/13/2007			0	
PINES 105	Spring in Castlegate Formation	4/27/2007			0	
PINES 105	Spring in Castlegate Formation	11/20/2006			0	
PINES 105	Spring in Castlegate Formation	8/1/2006			0	
PINES 105	Spring in Castlegate Formation	5/26/2006			0	
PINES 105	Spring in Castlegate Formation	12/21/2005	5.2		9.32	
PINES 105	Spring in Castlegate Formation	9/29/2005	5.5		9.62	
PINES 105	Spring in Castlegate Formation	6/27/2005	5.6		5.88	
PINES 310	Castlegate Sandstone	9/20/2009			0	
PINES 310	Castlegate Sandstone	6/12/2009			0	
PINES 310	Castlegate Sandstone	11/8/2008			0	
PINES 310	Castlegate Sandstone	9/12/2008			0	
PINES 310	Castlegate Sandstone	6/20/2008			0	
PINES 310	Castlegate Sandstone	10/4/2007			0	
PINES 310	Castlegate Sandstone	9/24/2007			0	
PINES 310	Castlegate Sandstone	7/19/2007			0	
PINES 310	Castlegate Sandstone	4/27/2007			0	
PINES 310	Castlegate Sandstone	9/1/2006	6.9		3.25	
PINES 310	Castlegate Sandstone	8/24/2006	7		3.68	
PINES 310	Castlegate Sandstone	8/16/2006	6.9		3.77	
PINES 310	Castlegate Sandstone	8/4/2006	6.7		5.36	
PINES 310	Castlegate Sandstone	7/11/2006	6.2		4.31	
PINES 310	Castlegate Sandstone	5/26/2006	5.1		4.56	
PINES 311	Castlegate Sandstone	9/20/2009			0	
PINES 311	Castlegate Sandstone	6/12/2009			0	
PINES 311	Castlegate Sandstone	11/8/2008			0	
PINES 311	Castlegate Sandstone	9/12/2008			0	
PINES 311	Castlegate Sandstone	6/20/2008			0	
PINES 311	Castlegate Sandstone	10/4/2007			0	
PINES 311	Castlegate Sandstone	9/24/2007			0	
PINES 311	Castlegate Sandstone	7/19/2007			0	
PINES 311	Castlegate Sandstone	4/27/2007			0	
PINES 311	Castlegate Sandstone	9/1/2006	7.3		0.11	
PINES 311	Castlegate Sandstone	8/24/2006	7		0.38	
PINES 311	Castlegate Sandstone	8/16/2006	7		0.3	
PINES 311	Castlegate Sandstone	8/4/2006	6.7		0.36	
PINES 311	Castlegate Sandstone	7/11/2006	5.5		0.49	
PINES 311	Castlegate Sandstone	5/26/2006	4.3		1.26	
PINES 106	Upper East Fork Box Canyon	9/18/2009			0	
PINES 106	Upper East Fork Box Canyon	6/12/2009			0	
PINES 106	Upper East Fork Box Canyon	10/31/2008			0	

PINES 106	Upper East Fork Box Canyon	9/5/2008			0	
PINES 106	Upper East Fork Box Canyon	6/13/2008	10.6	6.34	0.1	< 5.
PINES 106	Upper East Fork Box Canyon	11/6/2007	1.6	7.93	0.21	< 2.
PINES 106	Upper East Fork Box Canyon	9/10/2007	10.3	7.68	0.74	< 2.
PINES 106	Upper East Fork Box Canyon	6/24/2007	11.4	7.02	1.15	< 2.
PINES 106	Upper East Fork Box Canyon	10/31/2006	3.6	8.75	1.85	< 2.
PINES 106	Upper East Fork Box Canyon	8/4/2006	12.7	3.62	0.05	< 2.
PINES 106	Upper East Fork Box Canyon	5/19/2006	10.6	7.24	0.1	< 2.
PINES 106	Upper East Fork Box Canyon	10/27/2005	6.8	5.98	0.33	< 2.
PINES 106	Upper East Fork Box Canyon	8/30/2005	9.7	7.5	0.6	< 2.
PINES 106	Upper East Fork Box Canyon	6/27/2005	10.1	6.05	0.06	< 2.

D-Fe	D-Mn	Bicarb	Bcrb CaCO	T-Alk	T-Fe	T-Mn	Cat-Ani	T-Cats
mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	PC DIFF.	meq/l

< .03	0.014		157	157	3.68	0.055	4.4	6.7
< .03	0.037	205	168	168	0.28	0.071	1.1	6.2
< .03	0.037	201	165	165	< .05	0.043	1.7	6.2
< .03	< .002	205	168	168	1.37	0.079	2.5	6.2
< .03	0.031	199	163	163	0.83	0.057	1.6	5.5
< .03	0.174	206	169	169	1.69	0.281	2.1	5.3
< .03	< .002	189	155	155	0.35	0.043	2.5	4.9
< .03	0.003	193	158	158	0.11	0.03	0.2	4.6
< .03	< .002	196	161	161	0.73	0.049	2.2	4.8
< .03	< .002	200	164	164	0.14	0.013	0.8	4.8

T-Anis	D-Ca	D-Mg	T-Hardns	TDS	Cond(FLD)	F-pH	Carb	Carb CaCO
meq/l	mg/l	mg/l	mg/l	mg/l	umhos/cm	pH units	mg/l	mg/l
					187	7.96		
					177	7.59		
					194	7.27		
					176	6.9		
					175	6.7		
					176	7.1		
					180	6.9		
					187	7.2		
					192	7.7		
					196	7.07		
					200	6.89		
					192	7.09		
					201	7.46		
					208	7.5		
					226	7.71		

6.1	77.91	28.69	313	395	458	6.95		< 5.
6.1	72.09	26.59	290	354	401	7.56	< 5.	< 5.
6	72.7	26	289	396	520	7.84	< 5.	< 5.
5.9	73.1	26.2	290	372	531	8.03	< 5.	< 5.
5.3	63.81	22.71	253	346	475	7.41	< 5.	< 5.
5.1	61.88	22.3	246	307	468	7.42	< 5.	< 5.
4.7	55.9	20.9	226	302	451	7.98	< 5.	< 5.
4.6	50.6	19.5	207	284	386	7.8	< 5.	< 5.
4.6	54.9	19.2	216	258	373	8.07	< 5.	< 5.
4.7	53.5	19.8	215	285	405	7.72	< 5.	< 5.

D-Na	D-K	SO4	Cl			
mg/l	mg/l	mg/l	mg/l	COMMENTS		
				Verified Value		
				Monitor Pt Dry	310 Lower Dry	310 Upper 0.37 gpm
				Monitor Pt Dry	310 Lower Dry	310 Upper 0.44 gpm
				Monitor Pt Dry	310 Lower Dry	310 Upper 0.51 gpm
				Monitor Pt Dry	310 Lower Dry	310 Upper 0.42 gpm
				Monitor Pt Dry	310 Lower Dry	310 Upper 0.496 gpm
				Monitor Pt Dry	310 Lower Dry	310 Upper 0.48 gpm
				Monitor Pt Dry	310 Lower Dry	310 Upper 0.48 gpm
				Monitor Pt Dry	310 Lower Dry	310 Upper 0.33gpm
				Monitor Pt Dry	310 Lower Dry	310 Upper 1.74 gpm

9.15	1.41	131	9			
9.28	1.36	119	9			
9.13	1.13	117	9			
8.66	1.11	110	9			
9.52	1.06	87	9			
8.7	1.34	71	9			
8.85	1.96	65	9			
10	1.36	56	9			
9.81	1.26	50	11			
11.5	1.16	53	13			

0045

Outgoing
C0410002
OK

From: Ingrid Wieser
To: OGMCOAL
Date: 11/16/2009 5:16 PM
Subject: Fwd: Northwater Springs Inspection
Place: OGMCOAL
Attachments: Comments to Ingrid Wieser.doc

Hi- Please scan this attachment as comments to inspection report# 2164 for SUFCO. Thanks!

>>> Ingrid Wieser 11/16/2009 5:14 PM >>>
All-
Please see the attached DOGM inspection report # 2164 and comments from Leland Roberts regarding the SUFCO site visit to Northwater springs on October 19th.

Leland- Thank you for providing the clarifications.

Ingrid Wieser

>>> "Roberts, Leland" <LRoberts@archcoal.com> 11/13/2009 2:28 PM >>>
Ingrid,

Sufco would like to address some items in the trip report that you sent out. Please find attached a list of items that we would like to clarify or comment on. Please feel free to contact me with any questions that you might have.

Thank you,
Leland

Leland Roberts
Environmental Engineer
CFC, Sufco Mine
(435) 286-4483

<<Comments to Ingrid Wieser.doc>>

1. Permits, Change, Transfer, Renewal, Sale

5th Sentence that starts with, "In accordance" Sufco submitted a letter to Mr. John R. Baza, Division Director Division of Oil, Gas and Mining and Mr. Jerry D. Olds, P.E. Utah State Engineer Utah Division of Water Rights on November 14, 2006 challenging the findings of material damage.

6th sentence that starts with "Piezometers established" the water level has lowered in depth between 2 and 20 feet below the surface.

7th Sentence that starts with "Several strategies" Sufco proposed or attempted the mentioned items on a pilot scale to evaluate their potential for restoring the surface flow of the springs.

8th Sentence that starts with "An exploratory" Castlegate is one word.

4.d Hydrologic Balance: Water Monitoring

2nd paragraph, Plate 7-3 does not show Pines 105 or 310/311 as part of a perennial stream reach. It is not a perennial stream but a wet spring discharge area.

9. Protection of Fish, Wildlife and Related Environmental Issues

2nd paragraph 3rd sentence that starts with "Canyon Fuel Co." Sufco drilled 5 wells in 2009 with completed depths of 168 to 228 feet below the surface. Water levels in the wells are approximately 150 feet below the surface. The aquifer is approximately 55 feet below the elevation of the Pines 105 spring.

2nd paragraph 4th sentence that starts with "As a result" Sufco is proposing to complete wells near the spring sites, Pines 105, Joes Mill Pond, and the 310/311 area, not at each of the exploratory wells drilled.

3rd paragraph, Sufco would like to note that subsurface soils are not yet dry. This is demonstrated by the presence of water in many of the piezometers as well as vegetation (willows) that has been documented within the area that has been excluded from grazing at Pines 105.

3rd paragraph 3rd sentence that starts with "Leland Roberts" The white Pipe (piezometer) initially moved as one with the bedrock that was subsided, on average the piezometers have moved approximately .6 feet since installation. The black pipe (casing) has moved in addition to subsidence, approximately .46 feet, for a total average elevation change of 1.06 feet. This demonstrates that some of the soils in the area are no longer saturated causing them to collapse. This is due both to climatic conditions (drought) as well as the loss of surface flow in Pines 105 and 310/311 area.

14. Subsidence Control

Sufco is unclear as to the location of the surface water losses that this section refers to. Loss of surface flow in the main stem of the East Fork of Box Canyon was repaired by the summer of 2007. Hydrologic monitoring demonstrates that surface flows have returned to pre-mining conditions.