

0018

outcomes
(0-110007)

From: Wayne Hedberg
To: james kohler; jeff mckenzie; SWRigby@blm.gov
Date: 6/2/2006 3:48:37 PM
Subject: Subsidence Crack Repair - Proposed Scope of Work (SUFCA East Fork of East Fork Box Cyn)

Jeff & Steve,

Pursuant to a call I made to Jeff, I wasn't sure if you had been cc'd on this proposal from SUFCA mine for the recent subsidence crack repairs. Please look over and provide any comments or concerns to us as your earliest convenience. Apologize for the short timeframe, but the cattle will be on the mountain soon....

Please call if you have any questions. We hope to give the go ahead to the operator by next week if possible.

Thanks,

Wayne Hedberg

CC: Pam Grubaugh-Littig; Pete Hess; Steve Fluke

0046

Ken May, General Manager
397 South 800 West
Salina, UT 84654
(435) 286-4400 - Office
(435) 286-4499 - Fax

May 25, 2006

Coal Regulatory Program
Attn.: D. Wayne Hedberg
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

RE: East Fork of the East Fork of Box Canyon F
Proposed Scope of Work

Dear Mr. Hedberg:

As required by the Sulco M&RP, a Scope of Work for
subsidence cracks located on the rim of the East Fork of the East Fork of Box Canyon has been
prepared and is attached to this letter. We recognize the concerns the Manti-LaSal Forest has
expressed regarding the safety issues presented by the open fractures and believe the planned
work will alleviate those concerns.

If you have any questions regarding the information contained in or attached to this letter, please
give Mike Davis a call at (435) 286-4421.

Sincerely,
CANYON FUEL COMPANY, LLC
SULCO Mine

Encl.

cc: DOGM Price Office
Tom Lloyd - Manti-LaSal National Forest
DOGM Correspondence File

Safpub/govt2006/dogm-coor/Subsidence Cover Letter.doc

RECEIVED

DIV. OF OIL, GAS & MINING

**SUBSIDENCE CRACK REPAIR PROJECT
EAST FORK OF THE EAST FORK OF BOX CANYON RIM**

Introduction

Several open subsidence cracks were formed on the North rim of the East Fork of the East Fork of Box Canyon as a result of longwall mining of the 5 Left Pines panel in late 2005 and early 2006. The cracks are located on Manti-LaSal National Forest lands in the SE1/4 of Section 11, and NE1/4 of Section 14, T12S, R5E, S1M. Portions of these cracks are open enough to be considered hazardous to humans and wildlife. Therefore, Canyon Fuel Company, LLC, SUFCO Mine proposes to repair the open cracks using the methods described within this project description.

Methods

The site work will be accomplished using some or all of the following equipment:

- Trackhoe
- Rubber Tired Backhoe
- Pickup Truck with Utility Trailer
- Dump Truck

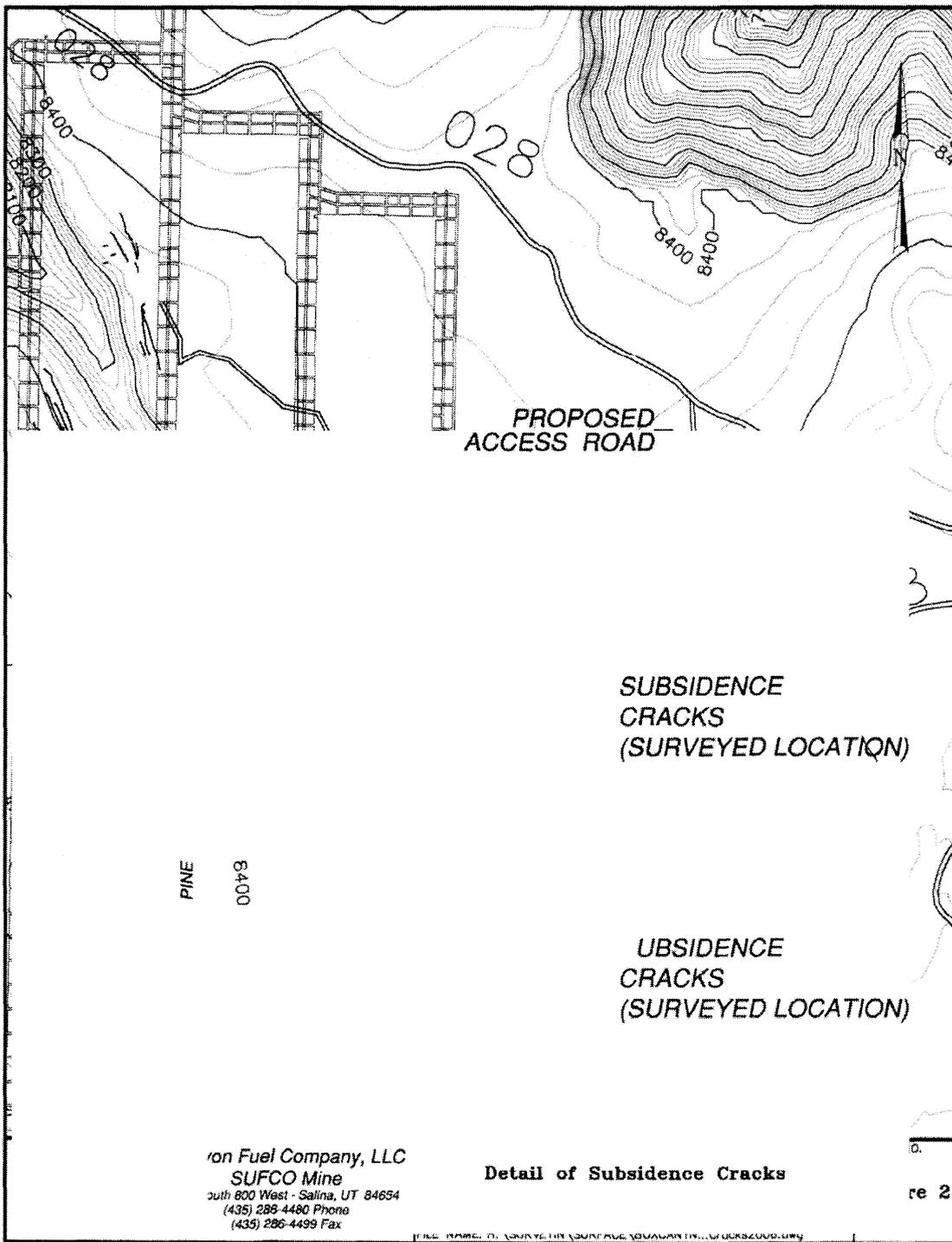
Laborers will be present to operate the equipment and perform other duties as needed. It is anticipated the cracks with large openings will first be partially filled with rock or Omega blocks. The rocks and/or blocks will be used to bridge the opening at the point where the crack becomes too narrow for the rock or blocks to fall farther downward. The rocks used may be, in part, generated by knocking loose rock from the upper edges of the open crack using either the bucket of the track or backhoe or a hydraulic hammer attachment. Rocks, or other available material, will be used to bridge smaller cracks at depth. Once the bridging material is in place, expanding polyurethane foam will be placed on top of the bridge and to within one to two feet of the ground surface. After a suitable time for curing of the polyurethane foam, soils from the area on either side of the cracks will be scraped into the remaining void. The placed soils will be left in a roughened state then seeded using the reclamation seed mix approved for the drill site disturbances that are located in the same general area (01-11-1 and 01-11-2).

Care will be taken to disturb a minimal amount of soils and vegetation within the work area. All spills of equipment fuel or oil, if they occur, will be immediately cleaned up and the contaminated materials disposed of properly. The expanding polyurethane foam will be confined to the subsurface.

Timing

The field work will commence within a few days of receiving approval from the Division to proceed. The work should be completed within two weeks but actual completion time will depend upon weather conditions and the success of the crack bridging activities.

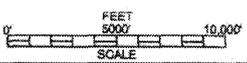
A map of the location of the cracks has been attached to this project description. Access to the site will be on Forest Roads 007, 044, 028, and 307. Use of these roads by Canyon Fuel Company for drilling access has been previously granted under existing Road Use Permit 0410-02-08 (Pines/Muddy). Additional access will be on unimproved non-service four wheel tracks that branch off Forest Road 028 and lead to a solar power pump and cattle water tanks. These tracks will not be improved during the subsidence crack repair process.





- D-06 Proposed 2006 Drillsite
- E-05 Proposed 2006 Drillsite
- ***** Proposed Additional Road Use 2006
- Current Road Use Permit 0410-02-8

MAP 1



ARK LAND COMPANY

**MUDDY EXPLORATION PROJECT
ROAD USE 2006**

DATE	FILE NO.	ISSUE NO.
11/11/05	0410-02-8	1

0045



Canyon Fuel
Company, LLC.
Sufco Mine

A Subsidiary of Arch Western Bituminous Group, LLC.

Ken May, General Manager
397 South 800 West
Salina, UT 84654
(435) 286-4400 - Office
(435) 286-4499 - Fax

May 18, 2006

Coal Regulatory Program
Attn.: Pam Grubaugh-Littig
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

Incoming
C/041/0002

RECEIVED

MAY 22 2006

DIV. OF OIL, GAS & MINING

RE: Pines Tract Temporary 2006 Stock Watering Plan.

Dear Ms. Grubaugh-Littig:

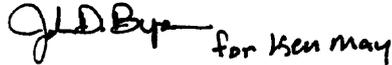
Several subsidence cracks have formed in the East Fork Box Canyon area. Two spring discharge areas have been affected at this time: the North Water spring and Joes Mill Pond spring. These spring areas are located on Manti-LaSal National Forest lands in the SE1/4 of Section 11 and the NE1/4 of Section 14, T12S R5E, SLM. Therefore, Canyon Fuel Company, LLC Sufco Mine will provide water to the water troughs at the North Water spring and place a new temporary water troughs in the general area of Joes Mill Pond for the 2006 stock water season. In the interest of time, water will initially be provided to the North Water springs trough by trucking water to the troughs. While trucking water, Sufco will move the solar panels and piston pump currently in the spring area to a location adjacent to the main stem of the East Fork of Box Canyon Creek. Water to the troughs will then be supplied by the pump located adjacent to the creek. Overflow from the troughs can be directed to the North Water spring area at the bottom of the canyon.

The measured discharge volumes from the North Water spring ranged from 2.61 to 12.00 gpm and 0 to 3 gpm at the Joes Mill Pond spring area. Historic flow data available for these two areas are located on the attached Pines Tract Spring Data sheets. Based on this data, Sufco has determined the water trucking/pumping needs will require an average of 12,000 gallons per day up to a maximum of 21,600 gallons per day of replacement water for stock watering in these two spring areas. This will require an average of 4 loads of water per day up to a maximum of 7 loads per day with a 3,000 gallon 10-wheeler water truck.

Sufco will haul water from the North Fork of Quitcupah Creek where Sufco has been voluntarily hauling stock water during the past few years for the 20 days that the cows are in this area. Sufco proposes to locate water troughs at the locations shown on the attached map as discussed with Russ Jensen of the Emery Cattleman Association. Access to the sites will be on Forest Roads 007, 028, 058 and 044. Additional access will be on unimproved non-service four wheel tracks that branch off Forest Road 028 and lead to the solar power pump and cattle water tanks location at the North Water spring. These tracks will not be improved during the stock watering process.

If you have any questions regarding the information contained in or attached to this letter, please give Mike Davis a call at (435) 286-4421.

Sincerely,
CANYON FUEL COMPANY, LLC
SUFACO Mine



Kenneth E. May
Mine Manager

Encl.

cc: DOGM Price Office
DOGM Correspondence File

Sufpub/gov12006/dogm-coor/Cattle Stock Water Cover Letter.doc



Canyon Fuel Company, LLC
SUFCO Mine
 397 South 800 West - Salina, UT 84654
 (435) 286-4480 Phone
 (435) 286-4499 Fax

East Fork Box Canyon		
Location of Water Troughs		
SCALE: 1" = 3000'	DATE: May 2006	DRAWN BY: K.B.B.
ENGINEER: M.L.D.	CHECKED BY: M.L.D.	
FILE NAME: H:\SURVEYIN\SURFACE\BOXCANYN...Cracks2006.dwg		

SHEET NO.
Figure 1

PINES TRACT SPRING DATA

- A. North Water Spring/Sufco Pines 105
 Located in Section 11, T21S, R5E, SLBM

Water Right Owner:

No Water Right listed for this spring with the Utah Division of Water Rights.

Water Right amount or Beneficial use:

No Water Right - Beneficial use has been for stock watering of cows starting June 16 for 20 days. Solar pump pumps water to water troughs located above the spring area. This cattle allotment is rotated every other year with another allotment by the Forest Service(2006, 2008, etc).

Flow Rate:

1. Baseline & Sufco Pines 105 Spring Flow Data for 06/17/97 to 12/21/05.

	Flow (gpm)	Gallons/day
Average	6.63	9,547
Maximum	12.00	17,280
Minimum	2.61	3,758

2. Emery Water Conservancy District Website Flow Data 2005.

	Flow (gpm)	Gallons/day
Average	4.74	6,826
Maximum	11.87	17,093
Minimum	0.00	0

3. Emery Water Conservancy District Website Flow Data for 06/07/05 to 07/15/05.

	Flow (gpm)	Gallons/day
Average	1.52	2,189
Maximum	7.29	10,498
Minimum	0.00	0

4. North Water Spring Solar Pump Curve Data.

Pump rated at 5.1 gpm at 60 feet of vertical lift in this location.

1. Estimate 4,590 gallons of water pumped per day.
 (Sun light estimated at 15 hours of operation per day (6 am to 9pm))
2. Maximum Pump capacity of 7,344 gallons of water for 24 hour period.

Mining Activity:

This spring was undermined during the week of December 19, 2005.

An inspection of the area was made on April 27, 2006.

The Division and Forest Service were notified and a combined Division, BLM, Forest Service, Cattleman and Sufco inspection of the area was conducted on 5/11/2006.

B. Joes Mill Pond Spring

Located in Section 14, T21S, R5E, SLBM

Water Right Owner:

No Water Right listed for this spring or Joes Mill pond with the Utah Division of Water Rights.

Water Right amount or Beneficial use:

No Water Right - Beneficial use has been for stock watering of cows starting June 16 for 20 days. This cattle allotment is rotated every other year with another allotment by the Forest Service (2006, 2008, etc).

Flow Rate:**Joes Mill Pond Spring**

Flows ranged from no discharge to minor seepage to an est. 2-3 gpm in 2005 from Baseline data and Erik Petersen notes & observations from 06/17/97 to 10/27/05. Maximum flow of 4320 gallons per day at 3 gpm.

Mining Activity:

This spring was undermined during the week of January 30, 2006.

An inspection of the area was made on April 27, 2006.

The Division and Forest Service were notified and a combined Division, BLM, Forest Service, Cattleman and Sufco inspection of the area was conducted on 5/11/2006.

SUFPUB:WATERMON.DAT\WATRQUAL\NorthWaterSpring Flow Data.xls

UTAH COAL MINING WATER QUALITY DATABASE

DISCLAIMER: The Utah Division of Oil, Gas and Mining provides this data access page free of charge. Data cannot always be validated. DOGM assumes no responsibility for the accuracy or use of the data.

To upload EDI files, you must use Internet Explorer version 4.XX or Netscape version 4.XX or later. Database file format and structure information can be found at:
<http://ogm.utah.gov/coal/edi/default.htm>

Flow													
MINE	SITE TYPE	FROM	THRU	SAMPLES									
				#	MEASURABLE			STANDARD DEVIATION					
					#	MINIMUM	AVERAGE	MAXIMUM	STD	-2 STD	-1 STD	+1 STD	+2 STD
SUFCO	PINES 105 Spring	06/01/2000	12/21/2005	18	18	2.940000	5.748076	10.000000	2.14	1.47	3.61	7.89	10.03

Flow BY DATE	
SAMPLE DATE	SUFCO PINES 105 Spring
06/01/2000 17 40	10.000000
08/23/2000 11 10	5.880000
11/16/2000 14 30	7.300000
06/13/2001 14 30	7.890000
08/22/2001 12 45	5.475360
10/01/2001 11 30	3.660000
05/09/2002 14 50	5.520000
09/21/2002 15 00	3.560000
10/09/2002 15 30	5.060000
06/06/2003 15 10	4.890000
08/05/2003 12 45	2.940000
10/17/2003 14 30	4.340000

06/25/2004 17 50	4.560000
08/12/2004 15 20	3.920000
11/02/2004 14 30	3.650000
06/27/2005 16 30	5.880000
09/29/2005 14 30	9.620000
12/21/2005 15 45	9.320000

**NOTE: FOR PASS/FAIL PARAMETERS (P/F), 0=PASS AND 1=FAIL
FOR YES/NO PARAMETERS (Y/N), 0=NO AND 1=YES**

For help, contact Dana Dean (801)538-5320 (danadean@utah.gov)

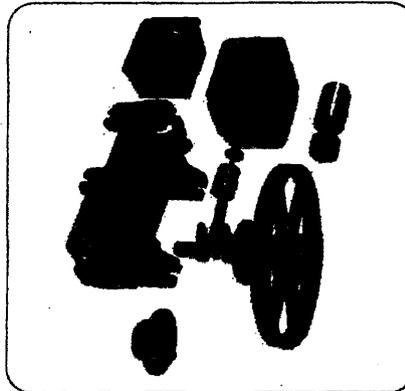
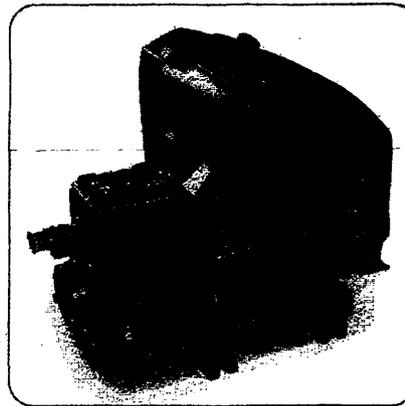
Site	Date	Flow gpm
Pines 105	17-Jun-97	12
Pines 105	28-Jun-97	10
Pines 105	28-Aug-97	2.61
Pines 105	03-Nov-97	10
Pines 105	29-Jun-98	3
Pines 105	16-Sep-98	11.1
Pines 105	04-Nov-98	8.33
Pines 105	22-Jun-99	9.7
Pines 105	25-Aug-99	7.8
Pines 105	27-Oct-99	7.7
Pines 105	23-Aug-00	5.88
Pines 105	13-Jun-01	7.89
Pines 105	22-Aug-01	5.45
Pines 105	01-Oct-01	3.66
PONDS		
Joos Mill Pond	17-Jun-97	
Joos Mill Pond	29-Oct-97	No discharge from seeps noted, 0.5 feet deep x 15x20 foot diameter pond is ~20% full
Joos Mill Pond	23-Aug-00	
Joos Mill Pond Seep	10-Oct-03	Minor seepage, not enough to measure
Joos Mill Pond Seep	09-Jun-04	diffuse seepage
Joos Mill Pond Seep	08-Jul-04	diffuse seepage
Joos Mill Pond Seep	02-Nov-04	Minor seepage, not enough to measure
Joos Mill Pond Seep	16-May-05	2-3 gpm est.
Joos Mill Pond Seep	01-Jun-05	2-3 gpm est.
Joos Mill Pond Seep	15-Jun-05	2-3 gpm est.
Joos Mill Pond Seep	01-Jul-05	1 gpm est.
Joos Mill Pond Seep	15-Jul-05	no flow at surface, damp ground
Joos Mill Pond Seep	30-Aug-05	no flow at surface, saturated soil only
Joos Mill Pond Seep	27-Oct-05	no flow at surface, saturated soil only

Solar pumps surface | Technical data

Conergy Solar Force Piston Pump

Conergy Solar Force Piston Pump draws water from a shallow well, spring, pond, river or tank. It can push water uphill and over long distances for home, village, irrigation or livestock uses. It can use power directly from a photovoltaic array or from storage batteries to fill a storage tank or to pressurize water.

- | **Ultra-Efficient**
 - | Uses less power than any other pump in its range
- | **Economical**
 - | Reduces power system cost by 25-75 % compared to centrifugal or AC pumps
- | **Solar-Direct Application**
 - | Starts pumping in low light conditions
- | **Pressurizing Application**
 - | DC version is most efficient. AC version uses a low-surge permanent magnet motor that greatly reduces starting surge, inverter size, and wire size requirements (when compared to conventional AC pumps).
- | **Rugged and Reliable**
 - | Proven design with a 20-year life expectancy, simple to maintain with common tools (5-10 yr. maintenance interval)
- | **Good Tolerance for Dirt and Dry Run**
- | **Mechanical Drive**
 - | Allows engine or hand-lever backup
- | **Illustrated Instruction Manual**
 - | Makes it easy for anyone to install and service, with no previous experience
- | **Construction**
 - | Cast iron body
 - | Brass cylinder and valve seats
 - | Leather cup piston seals
 - | Neoprene valve seats
 - | Oil-bath crankcase
 - | Gear (timing) belt drive on PV models
 - | Standard V-belt on B models
 - | Pressure relief valve
 - | Permanent Magnet DC Motor
 - | Surge tank included (not in photo)

**Voltages Available**

- | 12, 24, 48 V DC
- | Note: PV-Direct full working voltage is typically 20 % higher than nominal (example: 29 V for a 24 V system)
- | 115 V or 230 V AC, 50-60 Hz

SOLAR PUMPS

Solar pumps surface | Technical data

Conergy Solar Force Piston Pump



CONERGY

Suction Capacity

25 vertical feet (7.6 m) at sea level. Subtract 1 foot for every 1000 ft. elevation (1 m for every 1,000 m). Suction capacity may be further limited by intake pipe friction. Intake piping should be minimum 1" (3010, 3020 models) or minimum 1 1/2" (3040). For best reliability, place the pump as close to the water source as possible.

System Requirements

Solar-Direct Systems: Chart indicates power (w) required at the pump. The rated power of the PV array must exceed this number by 20 % or more. A pump controller (linear current booster) is required for the pump to start and run in varying light conditions. A solar tracker may be used to increase daily yield (40-55 % in summer).

Pressurizing Systems: battery power system, pressure switch, and pressure tank of minimum 60 gallon (230 l) size (captive-air tank, available locally)

Fittings

Intake: 1 1/2" female pipe thread
 Outlet: 1" female pipe thread

Dimensions

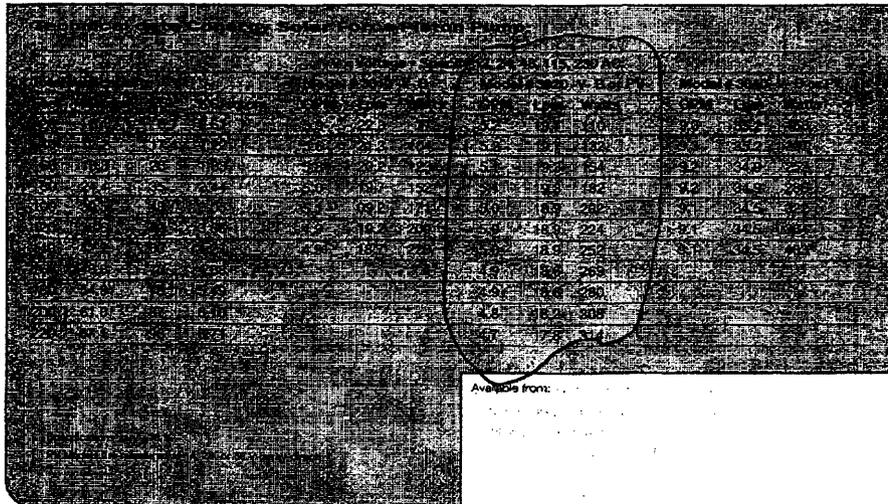
22 x 13 x 16" high (56 x 33 x 41 cm)
 With Surge Tank (not shown in photo), total height 26" (60 cm)
 Weight, max. 80 lbs (36 kg)
 Shipped in 2 or 3 boxes

Warranty

2 years against defects in materials and workmanship

Reading the Chart

Total Lift = vertical Distance from surface of the water source to the pipe outlet or top of storage tank
 Model Designation:
 V=voltage, B=battery model, PV=PV array-direct model



SolarForce-TD-US4-0811

For further information: www.conergy.us
 Subject to technical changes
 2005 © Conergy, Inc.

SOLAR PUMPS

From: Thomas W Lloyd <twlloyd@fs.fed.us>
To: "Wayne Hedberg" <WAYNEHEDBERG@utah.gov>
Date: 6/1/2006 4:07:20 PM
Subject: Re: SUFCO Water Replacement plan - North Water Spring (Pines 105) & Joes Mill Pond spring

For right now the main thing is to get adequate quantities of water for livestock distributed throughout the pines pasture starting on June 12 . I think it is appropriate to have the water haulers coordinate with the Lance Sudweeks and the cattlemen on placement of troughs. This will assure that livestock is watered adequately and that impacts to hauling are minimized.

The FS is not interested in relocating the solar pump and panel at this time until there is a clear vision of where we are going.

The cracks need to be filled right away prior to June 12 and the area need to be made safe for cattle. Iveryone here is in agreement that water should not be done around the solar area to minimize impact to the riparian area.

Tom

"Wayne Hedberg"
 <WAYNEHEDBERG@utah.gov>
 To
 "James Kohler"
 <James_Kohler@blm.gov>, "Steve Falk" <Steve_Falk@blm.gov>, <SWRigby@blm.gov>, "Dale Harber" <dharber@fs.fed.us>, <mnyman@fs.fed.us>, <twlloyd@fs.fed.us>
 cc
 "Mary Ann Wright" <MARYANNWRIGHT@utah.gov>, "Pam Grubaugh-Littig" <PAMGRUBAUGHLITTIG@utah.gov>, "Pete Hess" <PETEHESS@utah.gov>, "Steve Fluke" <STEVEFLUKE@utah.gov>
 Subject
 SUFCO Water Replacement plan - North Water Spring (Pines 105) & Joes Mill Pond spring

Attached is a pdf of SUFCO's recent proposal for temporary replacement of water for the Pines 105 and Joes Mill Pond springs. Please review this plan and provide comments back to this office as soon as possible. It is our understanding that cattle are scheduled to be out on this grazing allotment by mid-June. Accordingly, we will need to route any significant comments that will require more information back to the operator promptly.

Additional Clarification:

At the end of the first paragraph of the proposal, SUFCO states they will move the current solar panel and piston pump to a location adjacent to the East Fork of Box Canyon Creek. Recent discussions with SUFCO personnel indicate that this will not occur.

We have asked the operator to demonstrate that they possess the water right or other appropriate authorization allowing them to pump water from the North Fork of Quitchupah Creek for this proposal. SUFCO has committed to address these preliminary concerns.

If you have any questions, please contact me directly at (801) 538-5286, or Steve Fluke (538-5259), assigned DOGM project lead. Thank you for your assistance and cooperation in this matter.

D. Wayne Hedberg
Permit Supervisor
Division of Oil, Gas & Mining

(See attached file: 0045.pdf)

CC: "Dale Harber" <dharber@fs.fed.us>, "James Kohler" <James_Kohler@blm.gov>, "Mary Ann Wright" <MARYANNWRIGHT@utah.gov>, <mnyman@fs.fed.us>, "Pam Grubaugh-Littig" <PAMGRUBAUGHLITTIG@utah.gov>, "Pete Hess" <PETEHESS@utah.gov>, "Steve Fluke" <STEVEFLUKE@utah.gov>, "Steve Falk" <Steve_Falk@blm.gov>, <SWRigby@blm.gov>

0045



Canyon Fuel
Company, LLC.
Sufco Mine

A Subsidiary of Arch Western Bituminous Group, LLC.

Ken May, General Manager
397 South 800 West
Salina, UT 84654
(435) 286-4400 - Office
(435) 286-4499 - Fax

May 18, 2006

Coal Regulatory Program
Attn.: Pam Grubaugh-Littig
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

Incoming
C/041/0002

RECEIVED

MAY 22 2006

DIV. OF OIL, GAS & MINING

RE: Pines Tract Temporary 2006 Stock Watering Plan.

Dear Ms. Grubaugh-Littig:

Several subsidence cracks have formed in the East Fork Box Canyon area. Two spring discharge areas have been affected at this time: the North Water spring and Joes Mill Pond spring. These spring areas are located on Manti-LaSal National Forest lands in the SE1/4 of Section 11 and the NE1/4 of Section 14, T12S R5E, SLM. Therefore, Canyon Fuel Company, LLC Sufco Mine will provide water to the water troughs at the North Water spring and place a new temporary water troughs in the general area of Joes Mill Pond for the 2006 stock water season. In the interest of time, water will initially be provided to the North Water springs trough by trucking water to the troughs. While trucking water, Sufco will move the solar panels and piston pump currently in the spring area to a location adjacent to the main stem of the East Fork of Box Canyon Creek. Water to the troughs will then be supplied by the pump located adjacent to the creek. Overflow from the troughs can be directed to the North Water spring area at the bottom of the canyon.

The measured discharge volumes from the North Water spring ranged from 2.61 to 12.00 gpm and 0 to 3 gpm at the Joes Mill Pond spring area. Historic flow data available for these two areas are located on the attached Pines Tract Spring Data sheets. Based on this data, Sufco has determined the water trucking/pumping needs will require an average of 12,000 gallons per day up to a maximum of 21,600 gallons per day of replacement water for stock watering in these two spring areas. This will require an average of 4 loads of water per day up to a maximum of 7 loads per day with a 3,000 gallon 10-wheeler water truck.

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If you have any questions regarding the information contained in or attached to this letter, please give Mike Davis a call at (435) 286-4421.

Sincerely,
CANYON FUEL COMPANY, LLC
SUFCO Mine

JLD By for Ken May

Kenneth E. May
Mine Manager

Encl.

cc: DOGM Price Office
DOGM Correspondence File

Sufpub\gov\2006\dogm-coor\Cattle Stock Water Cover Letter.doc

PINES TRACT SPRING DATA

- A. North Water Spring/Sufco Pines 105
 Located in Section 11, T21S, R5E, SLBM

Water Right Owner:

No Water Right listed for this spring with the Utah Division of Water Rights.

Water Right amount or Beneficial use:

No Water Right - Beneficial use has been for stock watering of cows starting June 16 for 20 days. Solar pump pumps water to water troughs located above the spring area. This cattle allotment is rotated every other year with another allotment by the Forest Service(2006, 2008, etc).

Flow Rate:

1. Baseline & Sufco Pines 105 Spring Flow Data for 06/17/97 to 12/21/05.

	Flow (gpm)	Gallons/day
Average	6.63	9,547
Maximum	12.00	17,280
Minimum	2.61	3,758

2. Emery Water Conservancy District Website Flow Data 2005.

	Flow (gpm)	Gallons/day
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3. Emery Water Conservancy District Website Flow Data for 06/07/05 to 07/15/05.

	Flow (gpm)	Gallons/day
Average	1.52	2,189
Maximum	7.29	10,498
Minimum	0.00	0

4. North Water Spring Solar Pump Curve Data.

Pump rated at 5.1 gpm at 60 feet of vertical lift in this location.

1. Estimate 4,590 gallons of water pumped per day.
 (Sun light estimated at 15 hours of operation per day (6 am to 9pm))
2. Maximum Pump capacity of 7,344 gallons of water for 24 hour period.

Mining Activity:

This spring was undermined during the week of December 19, 2005.

An inspection of the area was made on April 27, 2006.

The Division and Forest Service were notified and a combined Division, BLM, Forest Service, Cattleman and Sufco inspection of the area was conducted on 5/11/2006.

B. Joes Mill Pond Spring

Located in Section 14, T21S, R5E, SLBM

Water Right Owner:

No Water Right listed for this spring or Joes Mill pond with the Utah Division of Water Rights.

Water Right amount or Beneficial use:

No Water Right - Beneficial use has been for stock watering of cows starting June 16 for 20 days. This cattle allotment is rotated every other year with another allotment by the Forest Service (2006, 2008, etc).

Flow Rate:**Joes Mill Pond Spring**

Flows ranged from no discharge to minor seepage to an est. 2-3 gpm in 2005 from Baseline data and Erik Petersen notes & observations from 06/17/97 to 10/27/05. Maximum flow of 4320 gallons per day at 3 gpm.

Mining Activity:

This spring was undermined during the week of January 30, 2006.

An inspection of the area was made on April 27, 2006.

The Division and Forest Service were notified and a combined Division, BLM, Forest Service, Cattleman and Sufco inspection of the area was conducted on 5/11/2006.

SUFPUB:WATERMON.DAT\WATRQUAL\NorthWaterSpring Flow Data.xls

UTAH COAL MINING WATER QUALITY DATABASE

DISCLAIMER: The Utah Division of Oil, Gas and Mining provides this data access page free of charge. Data cannot always be validated. DOGM assumes no responsibility for the accuracy or use of the data.

To upload EDI files, you must use Internet Explorer version 4.XX or Netscape version 4.XX or later. Database file format and structure information can be found at:
<http://ogm.utah.gov/coal/edi/default.htm>

Flow													
MINE	SITE TYPE	FROM	THRU	SAMPLES									
				#	MEASURABLE			STANDARD DEVIATION					
					#	MINIMUM	AVERAGE	MAXIMUM	STD	-2 STD	-1 STD	+1 STD	+2 STD
SUFCO	PINES 105 Spring	06/01/2000	12/21/2005	18	18	2.940000	5.748076	10.000000	2.14	1.47	3.61	7.89	10.03

Flow BY DATE	
SAMPLE DATE	SUFCO PINES 105 Spring
06/01/2000 17 40	10.000000
08/23/2000 11 10	5.880000
11/16/2000 14 30	7.300000
06/13/2001 14 30	7.890000
08/22/2001 12 45	5.475360
10/01/2001 11 30	3.660000
05/09/2002 14 50	5.520000
09/21/2002 15 00	3.560000
10/09/2002 15 30	5.060000
06/06/2003 15 10	4.890000
08/05/2003 12 45	2.940000
10/17/2003 14 30	4.340000

06/25/2004 17 50	4.560000
08/12/2004 15 20	3.920000
11/02/2004 14 30	3.650000
06/27/2005 16 30	5.880000
09/29/2005 14 30	9.620000
12/21/2005 15 45	9.320000

**NOTE: FOR PASS/FAIL PARAMETERS (P/F), 0=PASS AND 1=FAIL
FOR YES/NO PARAMETERS (Y/N), 0=NO AND 1=YES**

For help, contact Dana Dean (801)538-5320 (danadean@utah.gov)

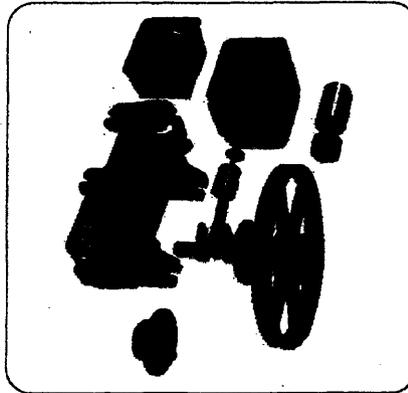
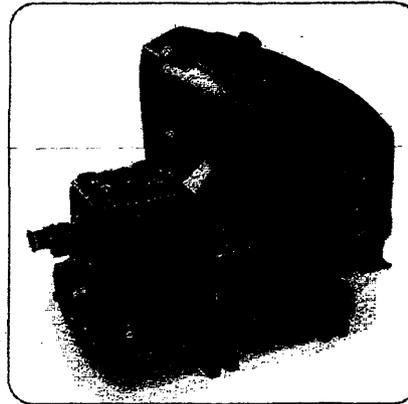
Site	Date	Flow gpm
Pines 105	17-Jun-97	12
Pines 105	28-Jun-97	10
Pines 105	28-Aug-97	2.51
Pines 105	03-Nov-97	10
Pines 105	29-Jun-98	3
Pines 105	16-Sep-98	11.1
Pines 105	04-Nov-98	8.33
Pines 105	22-Jun-99	9.7
Pines 105	25-Aug-99	7.8
Pines 105	27-Oct-99	7.7
Pines 105	23-Aug-00	5.88
Pines 105	13-Jun-01	7.89
Pines 105	22-Aug-01	5.45
Pines 105	01-Oct-01	3.66
PONDS		
Joels Mill Pond	17-Jun-97	
Joels Mill Pond	29-Oct-97	No discharge from seeps noted, 0.5 feet deep x 15x20 foot diameter pond is ~20% full
Joels Mill Pond	23-Aug-00	
Joels Mill Pond Seep	10-Oct-03	Minor seepage, not enough to measure
Joels Mill Pond Seep	09-Jun-04	diffuse seepage
Joels Mill Pond Seep	06-Jul-04	diffuse seepage
Joels Mill Pond Seep	02-Nov-04	Minor seepage, not enough to measure
Joels Mill Pond Seep	16-May-05	2-3 gpm est.
Joels Mill Pond Seep	01-Jun-05	2-3 gpm est.
Joels Mill Pond Seep	15-Jun-05	2-3 gpm est.
Joels Mill Pond Seep	01-Jul-05	1 gpm est.
Joels Mill Pond Seep	15-Jul-05	no flow at surface, damp ground
Joels Mill Pond Seep	30-Aug-05	no flow at surface, saturated soil only
Joels Mill Pond Seep	27-Oct-05	no flow at surface, saturated soil only

Solar pumps surface | Technical data

Conergy Solar Force Piston Pump

Conergy Solar Force Piston Pump draws water from a shallow well, spring, pond, river or tank. It can push water uphill and over long distances for home, village, irrigation or livestock uses. It can use power directly from a photovoltaic array or from storage batteries to fill a storage tank or to pressurize water.

- | **Ultra-Efficient**
 - | Uses less power than any other pump in its range
- | **Economical**
 - | Reduces power system cost by 25-75 % compared to centrifugal or AC pumps
- | **Solar-Direct Application**
 - | Starts pumping in low light conditions
- | **Pressurizing Application**
 - | DC version is most efficient. AC version uses a low-surge permanent magnet motor that greatly reduces starting surge, inverter size, and wire size requirements (when compared to conventional AC pumps).
- | **Rugged and Reliable**
 - | Proven design with a 20-year life expectancy, simple to maintain with common tools (5-10 yr. maintenance interval)
- | **Good Tolerance for Dirt and Dry Rain**
- | **Mechanical Drive**
 - | Allows engine or hand-lever backup
- | **Illustrated Instruction Manual**
 - | Makes it easy for anyone to install and service, with no previous experience
- | **Construction**
 - | Cast iron body
 - | Brass cylinder and valve seats
 - | Leather cup piston seals
 - | Neoprene valve seals
 - | Off-bath crankcase
 - | Gear (timing) belt drive on PV models
 - | Standard V-belt on B models
 - | Pressure relief valve
 - | Permanent Magnet DC Motor
 - | Surge tank included (not in photo)

**Voltages Available**

- | 12, 24, 48 V DC
 - Note: PV-Direct full working voltage is typically 20 % higher than nominal (example: 29 V for a 24 V system)
- | 115 V or 230 V AC, 50-60 Hz

SOLAR PUMPS

Solar pumps surface | Technical data

Conergy Solar Force Piston Pump



CONERGY

Suction Capacity

25 vertical feet (7.6 m) at sea level. Subtract 1 foot for every 1000 ft. elevation (1 m for every 1,000 m). Suction capacity may be further limited by intake pipe friction. Intake piping should be minimum 1" (3010, 3020 models) or minimum 1 1/2" (3040). For best reliability, place the pump as close to the water source as possible.

System Requirements

Solar-Direct Systems: Chart indicates power (w) required at the pump. The rated power of the PV array must exceed this number by 20 % or more. A pump controller (linear current booster) is required for the pump to start and run in varying light conditions. A solar tracker may be used to increase daily yield (40-55 % in summer).

Pressurizing Systems: battery power system, pressure switch, and pressure tank of minimum 60 gallon (230 l) size (captive-air tank, available locally)

Fittings

Intake: 1 1/2" female pipe thread
Outlet: 1" female pipe thread

Dimensions

22 x 13 x 16" high (56 x 33 x 41 cm)
With Surge Tank (not shown in photo) total height 26" (60 cm)
Weight, max. 80 lbs (36 kg)
Shipped in 2 or 3 boxes

Warranty

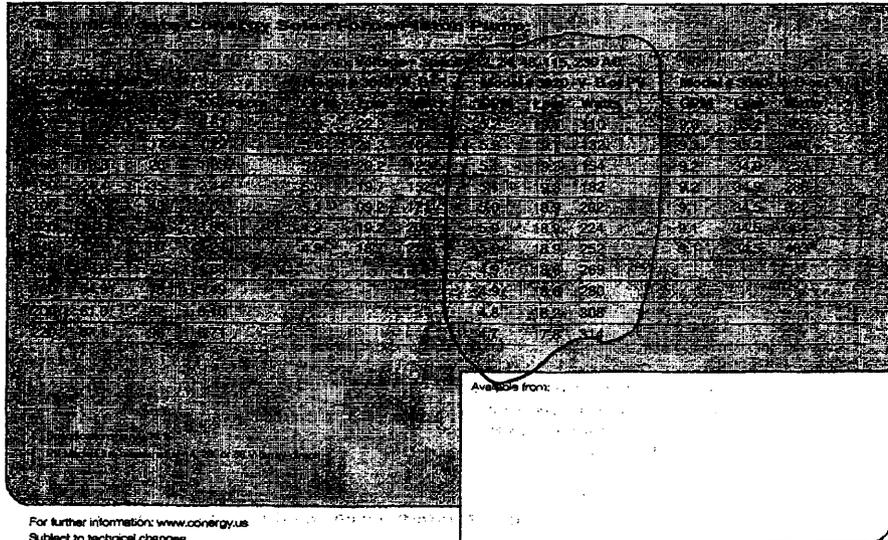
2 years against defects in materials and workmanship

Reading the Chart

Total Lift = vertical Distance from surface of the water source to the pipe outlet or top of storage tank

Model Designation:

V=voltage, B=battery model, PV=PV array-direct model



SolarForce-TD-USA-0311

For further information: www.conergy.us
Subject to technical changes
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SOLAR PUMPS