

Document Information Form

Mine Number: CI041/002

File Name: Internal

To: DOGM

From:

Person N/A

Company N/A

Date Sent: MARCH 15, 1983

Explanation:

INSPECTION MEMO TO COAL FILE.

cc:

File in:
CI 041, 002, Internal

Refer to:
 Confidential
 Shelf
 Expandable
Date _____ For additional information

March 15, 1983

Inspection Memo
to Coal File:

RE: Southern Utah Fuel Company
Convulsion Canyon Mine
ACT/041/002
Folder No. 7
Sevier County, Utah

DATE: March 9, 1983
TIME: 11:00 A.M. - 4:00 P.M.
WEATHER: Clear and warm, 50° F
COMPANY OFFICIAL: Mike Davis
STATE OFFICIAL: Ken Wyatt
ENFORCEMENT ACTION: Termination of NOV N83-7-2-1

Compliance with Permanent Performance Standards

771 et al Permits

Letters and approvals from the Division of Oil, Gas and Mining included:

1. A letter from Ron Daniels dated September 14, 1977, granted final approval to mine under the Utah Mined Land Reclamation Act of 1975. In this letter it was stated that the reclamation surety bond needed to be submitted to the federal government for federal land involved.
2. Approval letters from OSM and DOGM to mine leases #U-28207 and U-47080 were observed. In the OSM approval letter, several stipulations were noted, especially: (a) that the roof control and ventilation plans were needed to go with the MRP as they are updated; and, (b) the USGS will be involved in all situations involving recovery or abandonment of the coal resources.
3. A panel orientation modification approval was observed for lease #U-47080 from Jim Smith of the Division dated June 24, 1982.
4. An approval letter was observed from Sue Linner of the Division to begin construction of the sand storage and lump coal storage facilities. In this letter it was stated that the stoker coal storage area had not yet been approved.
5. A letter dated December 14, 1982 from Jim Smith gave final approval for construction of the sand and lump coal storage area.

File in:

- Confidential
- Shelf
- Expandable

Refer to Record No. 0004 Date 3-15-83
In C/ 041, 002, Internal
For additional information

INSPECTION MEMO TO COAL FILE

ACT/041/002

March 15, 1983

Page 2

6. A letter dated January 20, 1983 from Rick Summers of the Division gave approval for construction of the stoker coal storage facility.

Letters of approval and permits from the Utah State Health Department included:

1. A sediment pond construction permit dated December 18, 1979 from Calvin Sudweeks of the Department of Health. This pond was intended to have a 3 acre foot storage volume.
2. The sediment pond construction permit was revised on August 5, 1980 by Calvin Sudweeks. In this letter the pond had been reduced to a 1.62 acre foot capacity. The dike was to have been 30 feet high, keyed to the bedrock with a 12 foot width on top of the embankment.
3. A construction permit for the treatment of mine water underground was observed. This permit allowed construction of a .36 million gallon per day treatment facility. This sump contained 20 million gallons and was approximately 6 feet deep.

U. S. Forest Service approvals and permits included:

1. A special use permit for the microwave reflector tower. This permit allowed disturbance of a 50 by 50 foot area located on the SW 1/4 of the NE 1/4 of section 13, T. 22 S., R. 4 E. This permit was issued July 29, 1975 for .06 acres of land. This special use permit was amended to change the passive reflector system from the two, ten foot dishes to 1 rectangular 10 x 16 foot reflector. This amendment was dated October 20, 1981.
3. A second special use permit for the installation of the water transmission line was issued on November 10, 1977. This permit was amended on August 12, 1982 by increasing the annual fee.
4. A third special use permit was recently issued by David Morin for 9.2 acres of Forest Service land to include part of the sediment pond dam, the access road to the sediment pond, the guard shack and the trash storage area (non-coal waste storage pit). This permit was issued for section 12 T. 22 S., R. 4 E.

The Utah Division of Water Rights had issued a letter dated February 11, 1982 giving SUFCO an extension for submittal of proof of appropriation for water rights application #40776 (95-699). This extension was granted from January 31, 1982 until November 5, 1985 and was signed by Dee Hansen, State Engineer for the Division of Water Rights.

817.11 Signs and Markers

The mine entrance sign, perimeter markers and a topsoil marker are all posted as required. No buffer zone signs are applicable in this situation except at the breakouts along the North Fork of Quitcupah Creek and along the wastewater leachfield/water pump area south of the mine.

817.21 - .25 Topsoil

A small amount of topsoil salvaged during the sediment pond construction is stored just south of the sediment pond embankment at the base of the cliffs. A silt fence is used at the base of the topsoil stockpile to prevent loss of topsoil from direct runoff and erosion. The cliff face serves to protect the topsoil stockpile from overland flow. No new developments have occurred requiring topsoil removal and storage.

817.41 - .52 Hydrologic Balance

At the time of this inspection the channel dug for the interim abatement of NOV N83-7-2-1 was maintained. Disturbed area runoff was effectively being channeled around the piped out road sections (see memo dated March 1, 1983), subsequently this NOV was terminated effective the day the channel was erected. SUFCO will need to maintain this channel until such time that equipment can be brought to the area and properly repair the piped out road section.

Due to the recent snowmelt, SUFCO has been experiencing sloughing and slumping of highwalls and pads. On Sunday March 6, 1983 a large boulder from the adjacent slopes above the tipple area crashed through the tipple foreman's office. This building was being repaired at this time.

Excessive snowmelt has been creating ponding problems on the parking pad south and east of the offices. The southeastern corner of this pad has already slumped due to the saturated conditions. The operator and this inspector discussed methods to alleviate this problem. Possible solutions included:

1. Channeling the undisturbed drainage away from this pad as depicted on the map; Mine #1 site plan, maps I and II of SUFCO's MRP, volume #2;
2. Installing a silt fence on the eastern end of the parking pad to treat pad drainage for sediment removal;
3. The parking area could be elevated and graded to drain to the sediment trap and pond. This would be the most desirable method of control from a hydrology aspect.

In any case the parking pad area needs to have positive drainage to prevent ponding on this pad. The wastewater septic tank is located beneath the pad and every attempt should be made to prevent slumping of the pad in the vicinity of the septic tank. Loss of the septic tank would be disastrous both in an environmental and health aspect.

A conductivity meter was used in conjunction with a thermometer to correct the various conductances of the runoff sources to conductance at 25°C. Conductances were obtained at various points throughout the mine area as snow melt was creating runoff from many sources.

In order to establish a consistent conductance monitoring program for reference and future monitoring, twelve stations have been designated on attachment 1 (conductance monitoring stations map). These points are pertinent in order to assess sources of TDS contamination in the disturbed area runoff. Not all stations will have continual flow but most will flow as long as snowmelt is occurring. Points 8, 10 and 12 will normally have flow. A brief description of each point to be monitored follows:

Conductance Monitoring Stations

1. Upper pad disturbed area drainage as it enters the disturbed area culvert system.
2. Material storage pad drainage as it enters the disturbed area culvert system.
3. Upper pad access road drainage.
4. Lower pad drainage above salt stockpile.
5. Lower pad drainage adjacent to salt stockpile.
6. Lower pad drainage below salt stockpile.
7. Mixed drainage from sites 3 & 6 as it enters the disturbed area culvert system.
8. Sediment trap influent; disturbed area culvert system discharge.
9. Mine access road drainage.
10. Sediment trap effluent; sediment pond influent.
11. Non-coal waste pit and sediment pond access road drainage.
12. Sediment pond discharge; NPDES Point 002.

INSPECTION MEMO TO COAL FILE

ACT/041/002

March 15, 1983

Page 5

Runoff was sampled at each of the above points and corrected for temperature variations. Temperatures of the different runoff sources varied remarkably from 34°F to 66°F. This sheds some new light on the previous monitoring effort (see memo to coal file, dated March 1, 1983) in that temperature was assumed to be constant. From this point on, future monitoring will be corrected for temperature variations in order to properly compare values from the different runoff areas. Table I below summarizes the conductances at the 12 monitoring stations and indicates the temperature and corrected conductances:

TABLE I

SITE	TEMP (°F/°C)	CONDUCTANCE	CORRECTION	CONDUCTANCE @ 25°C
1	34/1.1	275	1.9132	526
2	35/1.7	125	1.8724	234
3	58/14.4	1100	1.2692	1396
4	39/3.9	1125	1.7302	1946
5	51/10.6	6500	1.4050	9133
6	59.5/15.3	13500	1.2410	16754
7	61/16.1	5200	1.2170	6328
8	50/10	2180	1.4290	3115
9	66/18.9	3000	1.1387	3416
10	48/8.9	1710	1.4754	2523
11	37/2.8	380	1.7992	684
12	40/4.4	1520	1.7012	2586

From the above data, it is interesting to follow the path of disturbed area runoff from the northern end of the mine area to the sediment trap on through the sediment pond and discharge. Points 1 and 2 have low conductance values as they enter the disturbed area culverting system. These points reflect typical unsalted disturbed pad areas. Points 3 and 4 are similar in respect to conductivities observed. Both areas could indicate a slight salt increase due to the vicinity of point 4 to the salt stockpile and the application of salt on the road for snow removal purposes in point 3.

As water from point 4 passes the salt stockpile the concentrations of dissolved salts increases almost tenfold (compare point 4 with point 6). Water from point 3 mixes and dilutes the water from points 4, 5 and 6 to produce the water in point 7. Point 7's water then enters the disturbed area culvert system and is further diluted with water from the upper pad areas. This is shown in point 8's values (sediment trap influent from the disturbed area culvert system). From the sediment trap on down to the sediment pond and the final discharge the values remain fairly stable with slight decreases observed between the sediment traps influent (point 8) to its effluent (point 10) and between the sediment pond influent (point 10) to its effluent (point 12). Point 11 contributes some fresh water to the sediment pond possibly diluting point 10 to produce the values in the discharge (point 12).

INSPECTION MEMO TO COAL FILE

ACT/041/002

March 15, 1983

Page 6

It is recommended that inspections this spring monitor the same points for conductance in order to establish trends in the dissolved solids concentrations from various runoff sources. From this preliminary investigation at this time it appears as if the majority of salt contamination is from the salt stockpile area. Some additional salt is picked up in drainage from the mine access road (point 9).

817.52 Surface and Groundwater Monitoring

Water monitoring data was examined for the last quarter, 1982 plus any data available for 1983. This data was available and in compliance for NPDES point 003, the mine water discharge.

Water monitoring for the sediment pond discharge, NPDES point 002, shows TDS exceedances on all sampling dates. Further, on the February 9, 1983 sample #2 TSS, TDS and iron limitations were exceeded.

Eleven samples collected between October 13, 1982 through February 9, 1983 contain TDS values in excess of the 650 mg/l limitations on all dates with an average value of 1,291 mg's/l. This monitoring data is presented in Table II below.

TABLE II

NPDES POINT 002 SEDIMENT POND DISCHARGE					
DATE	pH	TSS*	TDS*	O&G*	Fe*
10-13	7.6	7.0	695	0.4	.098
10-27	7.8	11.0	705	-	1.12
11-10	7.6	9.0	868	1.6	.115
11-24	7.8	11.0	750	-	.09
12-8	7.2	27.0	3050	0.6	.43
12-28	8.4	7.0	1300	-	.54
12-29	8.3	1.0	920	-	.04
01-12	7.9	24.0	795	0.2	.21
01-26	7.6	6.0	3390**	-	.21
02-9 #1	7.3	10.0	896***	-	.28
02-9 #2	7.2	181.0	830	0.8	2.05 (T)

All flows reported
5700 Gal/Day

* Values reported in mg/l

** Na = 910 Cl = 1035

*** Na = 195 Cl = 360

After reviewing the above data it is interesting to note the Na and Cl portion of the TDS values. The NaCl portion of the TDS was approximately 57.4% and 61.9% on January 26 and February 9, 1983 respectively. Therefore

INSPECTION MEMO TO COAL FILE
ACT/041/002
March 15, 1983
Page 7

approximately 60% of the TDS is represented by NaCl in the two samples. This adds evidence that the majority of the TDS problem stems from the salt storage procedures.

SUFACO recently requested a TDS limitation variance from the Utah Department of Health. In a letter dated March 3, 1983 from Calvin Sudweeks of the Utah Department of Health, a revision of TDS limitations was granted upon 5 conditions as listed below:

1. Implement and maintain best management control on the salt storage and use.
2. Analyze the shop water discharge and submit information on the practicability of achieving no salt discharge from this portion of the facility.
3. Do not exceed a maximum of 2,000 mg/l TDS from the sediment pond.
4. Do not exceed 100 lbs per day of salt on a monthly average discharge from the sediment pond.
5. Analyze and submit quarterly reports on the flows and TDS concentrations in East Spring Canyon, Convulsion Canyon and Quitchupah Creek. The sediment pond discharge must be controlled so as to not cause Quitchupah Creek to exceed 723 mg's/l on a monthly average and 1,200 mg/l maximum.

Condition #1 is currently being accommodated by the construction of the salt storage bin thereby reducing salt contamination from the salt stockpile. The 2,000 mg/l maximum can be met assuming that the 60% NaCl portion of the TDS is removed by proper salt handling. Condition #4 limits the salt discharge by requiring less than a 100 lbs per day average discharge.

In calculating the average daily discharge of salt, the fact that the baseline discharge rate of approximately 4 gallons per minute fluctuates greatly should be incorporated into the volume calculation. During snowmelt periods this inspector has observed discharge rates far in excess of 4 gallons per minute, possibly up to 60 gallons per minute. This variation in flow should be kept in mind when calculating the lbs of salt discharged per day. One method of determining daily flow would be to monitor the discharge rate periodically during the course of a day.

Assuming that NaCl constitutes approximately 60% of the TDS concentration and that proper handling of the salt storage area will eliminate up to 50% of the TDS, than most samples in Table II would be in compliance once the NaCl is removed. This may be the largest contributing factor in the TDS problem at the SUFACO mine. Construction of the salt storage facility should proceed at the earliest possible time.

INSPECTION MEMO TO COAL FILE
ACT/041/002
March 15, 1983
Page 8

817.89 Disposal of Non-Coal Waste

Trash and non-coal waste is temporarily stored in the pit across from the guard house. These wastes are periodically hauled to the Salina City landfill for disposal.

817.99 Slides and Other Damage

Due to the prevailing wet conditions accompanying snowmelt. Much slumping is occurring along road cuts and highwalls, especially just north of the office building and along the sediment pond access road. Areas of the parking pad have already exhibited some slumping as discussed in the hydrologic section. SUFCO should make every effort to maintain ditches during the snowmelt season to insure proper drainage and to help prevent large scale slides.

817.150 - 176 Roads

The County access road to the mine area from Interstate 70 was showing signs of stress due to road base slumpage. This was especially prominent several miles from the interstate towards the mine. Mr. Davis indicated that he had planned to do some maintenance work on this road within the next several days.

KEN WYATT *KW*
FIELD SPECIALIST

KW/lm

cc: Tom Ehmett, OSM
Kerry Frame, SUFCO
Joe Helfrich, DOGM
Rick Summers, DOGM

Statistics:

See Knight Mine memo, dated March 15, 1983.
Grant: A & E

