











































Acumyside Mine 11/3/89
Grassy Trail Creek / Whitman Co
Sampling below mine water
confluence (State Health)



Sunnyside Mine 11/3/89
Grassy Trail Creek / Whitmore Cyn
Sampling below mine
water confluence (State Health)

SRS

Sunnyside Mine

Grassy Trail Creek

11/3/89

Collection of water &
sludge samples by
State Health.



Sunnyside Mine 11/2/89

Grassy Trail Creek / Whitman Cyn
Sampling below mine
water confluence (State Health)



Sunnyside Mine 11/3/89

Grassy Trail Creek / Whitman Cyn

Sludge sample from each



11/3/89

Sunnyside Mine
Grassy Trail Creek
rock sample



Sunnyside Mine 11/3/89
Grassy trail Creek / Whitman Cyn
Sludge sample from rock



Sunnyside Mine 11/3/89

Grassy Trail Creek / Whitman Cyn

Sludge sample from rock



Sunnyside Mine 11/3/89

Grassy Trail Creek, Whitman Cyn

Mud sample from rock

EXHIBIT VII - PHOTO PRINTS-Environmental Control Measures.

Re: Assessment Conference 6/18/90, SRS/006M, NOV 89-26-24-1, 12/20/89



SSF Pond

Photo Taken 12/18/89
www.



New Whitmore Pond.
Constructed In 1989
Just Before 12/18/89 Snadent

Photo Taken 12/18/89
www

EXHIBIT VII - PHOTO PRINTS - Emulsion Incident

Re: Assessment Conference 6/18/90, SRS/006M, NOV 89-26-24-1, 12/20/89

Old Whitman Pond Discharge
Into Pole Creek

culvert 15"
Outfall 002A
Discharge
at 9am
12/18/89
estimated
20% normal
flow. No
in flow was
taking place.



WJM 6/14/90

EXHIBIT VII - PHOTO PRINTS - Grassy Trail Creek
Emulsion Event

Re: Assessment Conference 6/18/90, SRS/006M, NOV 89-26-24-1, 12/20/89

Confluence Of Pole & Grassy Trail Creeks

Photo
6/18/89
WJM



EXHIBIT VII - PHOTO PRINTS Grassy trail Creek
Emulsion Event.

Re: Assessment Conference 6/18/90, SRS/006M, NOV 89-26-24-1, 12/20/89

Photos. www
12/18/90



EXHIBIT VII - PHOTO PRINTS - Environmental Control Measures

Re: Assessment Conference 6/18/90, SRS/006M, NOV 89-26-24-1, 12/20/89

Flock being injected into the mine water line just before entering the Whitmore Pond

Photo Taken May, 1989
www

Flock breaks down oil emulsion so it reacts more like oil & grease

Unit Operational
10am on 12/18/89.



May 1989
www

Straw bales & silt fence to extra oil & grease from mine water

This photo was taken in May 1989 & only demonstrates an approval technique used by SES

EXHIBIT VII - PHOTO PRINTS - Environmental Control
Pole Creek

Re: Assessment Conference 6/18/90, SRS/006M, NOV 89-26-24-1, 12/20/89



Straw bales existing being removed and replaced by new straw bales and silt fences.

Photo - 12/18/89 www

SRS

DAMAGE

• letter of Div Wildlife Resources.

6-2
3
30

Negligence

SRS, Inc.

Sunnyside Reclamation & Salvage, Inc.

P.O. Box 99 — Sunnyside, Utah 84539

June 14, 1990

Ms. Pamela Grubaugh-Littig
Permit Supervisor
Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Dear Pamela:

Re: Abatement of NOV 89-26-24-1, Part 7 of 7,
Sunnyside Mines, Sunnyside Coal Company,
ACT/007/007

Enclosed are copies of the letters mailed to livestock operators and revised Chapter 4.4.3 of our Mining and Reclamation Plan per your letter dated June 5, 1990.

Please feel free to contact me if further information or action is needed to expedite the abatement of this violation.

Sincerely,



Karl R. Houskeeper
Environmental Coordinator
Sunnyside Coal Company

KRH:th

cc: Bill Balaz

CHAPTER IV

The land within the mine plan area has not historically been used as cropland because of the mountainous terrain, steep slopes, and rocky surface. Farming is limited to small areas on canyon bottoms. About four acres of alfalfa, irrigated with mine water, is being farmed adjacent to the surface facilities of the mine.

Productivity of the land in the permit area has been rated by the U. S. Soil Conservation Service as "Fair to Poor," and its study of the mine plan area did not show any units designated as prime farmland (see Figure IV-1).

Zoning for the permit area is M & G-1. A copy of the Carbon County Utah zoning regulations pertaining to this zone designation is included in Appendix IV-1.

4.4.3 Land Use During Operations

Land use during operation will continue to be mining, fish and wildlife habitat, recreation, limited livestock grazing, and minor cropland. Livestock which has been historically drifted along Grassy Trail Creek, while being moved to summer range, is required to be trailed from the mine site to a point above Grassy Trail Reservoir within one day.

This policy will be effective in the fall of 1990 and continue for the life of the mine. The purpose of this policy is to protect the riparian zones and vegetation along Grassy Trail Creek.

The effect of this underground coal mining operation on such land use is minimal and is not expected to change during the permit period.

Areas in the permit area which have been mined previously are found in Appendix IV-2.

4.5 Postmining Land Use

Postmining land use will be the same as premining land use.

The reclamation activities following mining are designed to allow the area to revert to the type of activity that occurred prior to mining.

4.6 Socioeconomic Considerations

Carbon County, with its low population density and isolation from Utah's urban centers, is historically an important coal-producing area in the State. The local economy is dependent upon conditions of the coal market.

Department of Commerce data indicates that in 1975 Carbon County had a total employment of 6,748, of which 20% engaged in mining, 3% in farming, 21% in government, and 18% in trade.

Kaiser Coal Corporation's Sunnyside Mines contribute a substantial share of employment in mining and, indirectly, in

SRS, Inc.

Sunnyside Reclamation & Salvage, Inc.

P.O. Box 99 — Sunnyside, Utah 84539

June 14, 1990

Mr. Dale Andrews
P. O. Box 846
East Carbon, Utah 84520

Dear Dale:

Re: Cattle Trailing Along Grassy Trail Creek

Sunnyside Coal Company is notifying landowners that it has been advised by the State of Utah, Division of Oil, Gas & Mining that all livestock being moved to or from summer range must be trailed between the mine site and a point above Grassy Trail Reservoir within one day.

This change has been made to protect the riparian zone and vegetation along Grassy Trail Creek to enhance the habitat. This policy will become effective immediately and continue for the life of the mine.

Thank you for your cooperation in helping Sunnyside Coal Company comply with this modification to our Mining and Reclamation Plan.

Sincerely,



Bill Balaz
Mine Manager

BB:th

cc: Division of Oil, Gas & Mining
Karl R. Houskeeper

SRS, Inc.

Sunnyside Reclamation & Salvage, Inc.

P.O. Box 99 — Sunnyside, Utah 84539

June 14, 1990

Mr. George Ferguson
131 Valley View
Sunnyside, Utah 84539

Dear George:

Re: Cattle Trailing Along Grassy Trail Creek

Sunnyside Coal Company is notifying landowners that it has been advised by the State of Utah, Division of Oil, Gas & Mining that all livestock being moved to or from summer range must be trailed between the mine site and a point above Grassy Trail Reservoir within one day.

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Thank you for your cooperation in helping Sunnyside Coal Company comply with this modification to our Mining and Reclamation Plan.

Sincerely,



Bill Balaz
Mine Manager

BB:th

cc: Division of Oil, Gas & Mining
Karl R. Houskeeper

SRS, Inc.

Sunnyside Reclamation & Salvage, Inc.

P.O. Box 99 — Sunnyside, Utah 84539

June 14, 1990

Dr. Paul Martinez
Star Route
East Carbon, Utah 84520

Dear Dr. Martinez:

Re: Cattle Trailing Along Grassy Trail Creek

Sunnyside Coal Company is notifying landowners that it has been advised by the State of Utah, Division of Oil, Gas & Mining that all livestock being moved to or from summer range must be trailed between the mine site and a point above Grassy Trail Reservoir within one day.

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Sincerely,



Bill Balaz
Mine Manager

BB:th

cc: Division of Oil, Gas & Mining
Karl R. Houskeeper

SRS, Inc.

Sunnyside Reclamation & Salvage, Inc.

P.O. Box 99 — Sunnyside, Utah 84539

June 14, 1990

Mr. Lenny Pagano
55 West Main
Price, Utah 84501

Dear Mr. Pagano:

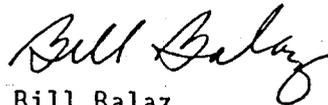
Re: Cattle Trailing Along Grassy Trail Creek

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Thank you for your cooperation in helping Sunnyside Coal Company comply with this modification to our Mining and Reclamation Plan.

Sincerely,



Bill Balaz
Mine Manager

BB:th

cc: Division of Oil, Gas & Mining
Karl R. Houskeeper

SRS, Inc.

Sunnyside Reclamation & Salvage, Inc.

P.O. Box 99 — Sunnyside, Utah 84539

June 14, 1990

Mr. Lavon Day
P. O. Box 328
Castle Dale, Utah 84513

Dear Mr. Day:

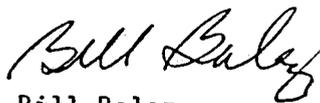
Re: Cattle Trailing Along Grassy Trail Creek

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Thank you for your cooperation in helping Sunnyside Coal Company comply with this modification to our Mining and Reclamation Plan.

Sincerely,



Bill Balaz
Mine Manager

BB:th

cc: Division of Oil, Gas & Mining
Karl R. Houskeeper

SRS, Inc.

Sunnyside Reclamation & Salvage, Inc.

P.O. Box 99 — Sunnyside, Utah 84539

June 14, 1990

Mr. Bruce Norton
1589 East Main
Wellington, Utah 84542

Dear Mr. Norton:

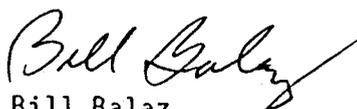
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Thank you for your cooperation in helping Sunnyside Coal Company comply with this modification to our Mining and Reclamation Plan.

Sincerely,



Bill Balaz
Mine Manager

BB:th

cc: Division of Oil, Gas & Mining
Karl R. Houskeeper

SRS, Inc.

Sunnyside Reclamation & Salvage, Inc.

P.O. Box 99 — Sunnyside, Utah 84539

June 14, 1990

Mr. Ted Nielsen
c/o Allen Nielsen
6555 Lower Miller Creek Road
Price, Utah 84501

Dear Mr. Nielsen:

Re: Cattle Trailing Along Grassy Trail Creek

Sunnyside Coal Company is notifying landowners that it has been advised by the State of Utah, Division of Oil, Gas & Mining that all livestock being moved to or from summer range must be trailed between the mine site and a point above Grassy Trail Reservoir within one day.

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Thank you for your cooperation in helping Sunnyside Coal Company comply with this modification to our Mining and Reclamation Plan.

Sincerely,



Bill Balaz
Mine Manager

BB:th

cc: Division of Oil, Gas & Mining
Karl R. Houskeeper

SRS, Inc.

Sunnyside Reclamation & Salvage, Inc.

P.O. Box 99 — Sunnyside, Utah 84539

June 14, 1990

Mr. Cory Hansen
Elmo, Utah 84521

Dear Mr. Hansen:

Re: Cattle Trailing Along Grassy Trail Creek

Sunnyside Coal Company is notifying landowners that it has been advised by the State of Utah, Division of Oil, Gas & Mining that all livestock being moved to or from summer range must be trailed between the mine site and a point above Grassy Trail Reservoir within one day.

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Thank you for your cooperation in helping Sunnyside Coal Company comply with this modification to our Mining and Reclamation Plan.

Sincerely,


Bill Balaz
Mine Manager

BB:th

cc: Division of Oil, Gas & Mining
Karl R. Houskeeper



Norman H. Bangertter
Governor
Dee C. Hansen
Executive Director
Timothy H. Provan
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

1596 West North Temple
Salt Lake City, Utah 84116-3195
801-533-9333

RECEIVED

JAN 18 1990

DIVISION OF OIL
GAS & MINING
STATE OF UTAH

January 12, 1990

Dr. Dianne R. Nielson, Director
Utah Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84180-1203

Subject: Water pollution and fish kill in Grassy Trail Creek from Sunnyside Reclamation and Salvage, Inc.'s 002A outfall point (UPDES Permit No. UT-0022942)

Dear Dianne:

As you know, Sunnyside Reclamation and Salvage, Inc. (SRS) has had three unlawful discharges during 1989, that represented pollution (Utah Code 23-15-6) to a substantial segment of Grassy Trail Creek. Their 002A outfall point (UPDES Permit No. 0022942) located at the Sunnyside Coal Mines (ACT-007-007) in Carbon County, Utah has been the pollution source in all three instances. The enclosed report details the pollution problems and associated fish kills.

The pollution event that began March 24, 1989 (2,000 gallons of 5% oil:95% water emulsion) totally killed all fish life in a 3.3 mile section of Grassy Trail Creek - 1,122 trout valued at \$1,662.74 (reference April 14, 1989 and April 17, 1989 correspondence from Timothy Provan to Don Ostler and Dianne Nielson, respectively).

The second pollution event that began April 15, 1989 coated the substrate along a 0.76 mile length of Grassy Trail Creek (between Pole and Pasture Canyons) with a layer of flocculant. The flocculant remains today and trout did not successfully spawn in that material during spring of 1989. Until the flocculant is removed from the stream's substrate, successful spawning cannot occur (reference correspondence from Larry Dalton to Bill Malencik and David Ariotti, April 21, 1989; and correspondence from Timothy H. Provan to Dianne Nielson, October 10, 1989).

The third and most recent pollution event began December 16, 1989. An emulsion oil spill (1,097 gallons of a 5% oil:95% water emulsion) again killed all fish life in a 3.3 mile section of Grassy Trail Creek. Ninety-nine trout valued at \$331.21 were lost (reference attached report).

Dr. Dianne R. Nielson, Director
January 12, 1989
Page 2

All three spill events during 1989 reduced macroinvertebrate populations in the polluted zone of Grassy Trail Creek as compared to an immediate upstream area. The first oil spill in March reduced number of specimens for macroinvertebrates by 58% (3.3 mile downstream) to 91% (200 feet downstream). The spill in April measured at the same locations as in March reduced number of specimens by 43% and 50%. The oil spill in December reduced number of macroinvertebrated specimens by 62% (200 feet downstream) (reference correspondence from Timothy H. Provan to Don Ostler and Dianne Nielson, April 14, 1989 and April 17, 1989, respectively; and correspondence from Larry Dalton to Bill Malencik and David Ariotti, April 21, 1989; and correspondence from Timothy H. Provan to Dianne Nielson on October 10, 1989).

The following mitigation recommendations are provided for your consideration.

1. Utah Division of Wildlife Resources must be reimbursed \$1,993.95 by Sunnyside Reclamation and Salvage, Inc. for monetary value of the 1,221 fish killed by their pollution events in March and December, 1989.
2. The company must determine and demonstrate a suitable technique for removing soluble or emulsified oil from mine water. Spills in 1989 demonstrated that fish were killed while technology or existing materials failed to clean the water.
3. The company should expeditiously develop a detailed written plan that is available to all mine personnel so that inadvertent releases of soluble or emulsified oil does not occur.
 - a. Mine water contaminated with soluble or emulsified oil during routine mining practices should be diverted to underground sumps or old workings where it can be treated to remove the oil.
 - b. Automatic mechanical safeguards in the oil emulsion mixing and delivery system need to be established. Breakdowns in the current system have resulted in two unnecessary fish kills during 1989.
4. Future management of the ponds by the company should be such that frequent cleaning occurs. Also, one pond should be maintained empty while the other is in operation. If an inadvertent oil spill occurs, the mine water discharge could be directed to the empty pond. This will allow additional time to deal with contaminants before a discharge occurs. Both ponds need gated valves so that contaminants can be held and not automatically released, as is the case now.
 - a. Pond 002A now has a layer of coal fines and oil that has been precipitated to the bottom due to flocculant and other contaminants. Mine water discharge should be diverted to pond 002B. Pond 002A should be allowed to dry and be dredged. Pond sediments must be disposed of in an appropriate manner.

- b. Routine water quality monitoring and biomonitoring by the company should be increased. Physical and biological evidence in the stream demonstrates historic mine water discharges having high nutrient loads, toxic contaminants and coal fines.
5. In order to maintain the wild trout quality of the stream, restocking will be accomplished through natural downstream drift and capture/transplant of wild trout from the drainage. This will require four man-days effort (\$480) by Division biologists, and two vehicles traveling 140 miles @ \$0.32/mile (\$44.80). The company should be required to reimburse the Division \$524.80 for this procedure.
6. Because of the first fish kill, a substantial loss of angling opportunity has occurred. Experience in other drainages suggests that recovery of the fish population will take three or more years. We suggest that mitigation for this loss can be accomplished by the mine allowing public walk-in access for the life-of-the-mine along the full length of stream and at the Whitmore (Grassy Trail) Reservoir. Trespass along the stream has never been an issue, although the reservoir has been closed to trespass by the company. We would not recommend vehicle access for the public beyond the existing facilities or gate. The Division of Wildlife Resources would appropriately manage Whitmore Reservoir to accommodate the anticipated increase in angler use. No increase in use by anglers along the creek is anticipated. Please understand, this is only a suggestion that would help pacify public concern for the loss of a significant fishery. Implementation should be at the mine's discretion.
 - a. The mine should be encouraged to erect an informational sign near the mouth of the canyon indicating that the stream and reservoir are open to public walk-in access for purposes of angling.
7. Mitigation as riparian enhancement and stream substrate review should occur to compensate for damage to the aquatic habitat, reduction in macroinvertebrate populations and loss of all age classes of fish.
 - a. We recommend that the mine fence the stream such that livestock grazing is precluded between the reservoir and Sunnyside town. This will stabilize streambanks, reduce sediment loading, improve substrate conditions and allow for cooler summertime temperatures due to shade. An enhanced riparian will increase available detritus for use as forage by macroinvertebrates. An improvement in the macroinvertebrate population will enhance forage conditions for the fish. Also, greater stability in the stream's environment will result, ultimately benefiting the structure of the fish population.
 - b. The substrate in the 0.76 mile segment of Grassy Trail Creek that is now coated with flocculant should be monitored through spring runoff to see if any breakdown, scouring or movement of the flocculant

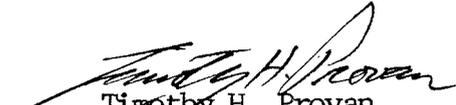
Dr. Dianne R. Nielson, Director
January 12, 1990
Page 4

material has resulted. After spring runoff we would like to revisit this issue and determine course of action, if any.

We would also recommend a task force review, with manufacturers, of flocculant toxicity to fish and potential alternative products that may be more environmentally positive.

Thank you for an opportunity to provide comment on this situation. If you have any further questions, please coordinate with the Resource Analyst, Larry Dalton (telephone 637-3310), in our Price regional office.

Sincerely,



Timothy H. Provan
Director

Enclosures

POLLUTION OF GRASSY TRAIL CREEK, 1989

Sunnyside Reclamation and Salvage, Inc. (SRS), -- P.O. Box 99, Sunnyside, Utah 84539 -- has had three unlawful discharges during 1989 from their 002A outfall point (UPDES Permit No. 0022942). This outfall point discharges an average of 1.65 million gallons per day (2.55 cfs) and is located in Pole Canyon on the Company's Sunnyside Coal Mine (ACT-007-007) property. Each discharge (March 24, April 15 and December 16) resulted in pollution (Utah Code 23-15-6) to a 3.3 mile segment of Grassy Trail Creek that lies in the lower reach of stream section No. 1. It supports protected aquatic wildlife (trout) and macroinvertebrates. These animals represent a biotic community as defined by Utah's coal mining regulations.

Description of Natural Environment

Natural flows in Pole Canyon are only intermittent. The 2.55 cfs mine water discharge from the 002A or 002B outfall points flows approximately 300 feet down Pole Canyon to its confluence with the perennial Grassy Trail Creek (N2 NE4, sec. 29, T14S, R14E, SLBM, Carbon County, Utah). Grassy Trail Creek without the mine water has an average annual discharge of 9.89 cfs (1978-1984) with a range of 0.04 (Feb. 1981) to 631 (May 1983) cfs during that same period of record.

Grassy Trail Creek, as a trout fishery, has two distinct areas (Figure 1). The two mile long stream Section No. 2 between Grassy Trail Reservoir and Water Canyon is the best reach due to less sedimentation and improved riparian habitat. Stream Section No. 1 is 5.6 miles long and lies between East Carbon City and Water Canyon. It shows substantial degradation due to livestock grazing and sedimentation from tributary drainages. Periodic mine water discharges and other mining activity over the years has impacted Section No. 1. Particularly evident are accumulations of coal fines in the substrate. If mine water discharges were of equal quality to the receiving stream, the

fishery downstream from the outfall point(s) would be better than the upstream areas due to increased flows. Unfortunately, such is not the case due to poor quality of mine water being discharged.

Trout in sufficient numbers to support sport angling activity have been reported by early community residents. Likely, Colorado cutthroat trout inhabited Grassy Trail creek prior to fish culture manipulations by man. Prior to 1969, no records exist concerning fisheries management of Grassy Trail Creek. Management by DWR of Grassy Trail Creek between 1969 and 1979 was with annual stockings of 400 to 1,000 catchable sized rainbow trout. Since 1980, fish management has been with self sustaining rainbow and brown trout populations through natural reproduction. Experimental stockings of 1,000 brown trout fingerlings per year occurred nearby to the coal preparation facilities area in 1984, 1985 and 1986. Albino rainbow trout (surplus brood stock 2 lbs. or larger) were stocked in 1987 (179 fish) and 1988 (150 fish).

Nongame fish are not evident in Grassy Trail Creek between East Carbon City and the Grassy Trail Reservoir. Populations estimates from electro-sampling by DWR in 1983, 1987 and 1989 showed 160 (57.1 lb/acre), 561 and 1,535 (163 lb/acre) trout per mile, respectively in Section 2. During 1983, only rainbow trout were present. By 1987, 66% of the fish population were rainbow and 34% were brown trout. A similar relationship of 74% rainbow and 26% brown trout was observed in 1989.

Population estimates from electro-sampling by DWR in 1969, 1970, 1983, 1986, 1987 and 1989 showed 90, 180, 0, 88, 87 and 350 trout per mile in Section No. 1. Prior to 1989, all of the fish sampled were rainbow trout. By 1989, 85% of the fish population were rainbow and 15% were brown trout.

March 24, 1989 Pollution Event (9 continuous days, plus 4 other separate days)

A spill of approximately 2,000 gallons of 5% oil:95% water emulsion occurred during late evening on Friday, March 24, 1989, within the Sunnyside No. 1 coal mine. The emulsion, containing a soluble Texaco oil product (D1670

LWM concentrate), is used as a hydraulic fluid in the shields on longwall mining units. SRS personnel noted the emulsion's milky-white discharge from Pole Canyon into Grassy Trail Creek early morning, Saturday, March 25, 1989. Pole Canyon was only discharging mine water at the time of the spill. Oil and grease standards for Pole Canyon's discharge are to be less than 10 mg/l

SRS personnel measured oil and grease in Pole Canyon as 59 mg/l on Saturday, March 25, 1989. Follow-up measurements by mine personnel showed oil and grease to be 256 mg/l on March 27, 1989 and 18.8 mg/l on March 29, 1989. By April 2 and 4, 1989, the level had dropped to 7.2 mg/l and 6.9 mg/l, respectively. These analysis were performed by Chem Tech in Murray, Utah.

Utah Division of Oil, Gas & Mining (DOG M) measured the oil and grease level as 20.7 on march 29, 1989. Water pollution and violation of the UPDES permit spanned the nine day period from March 24 through April 1, 1989.

Note: the oil and grease level reached 11.5 mg/l on April 12, 1989 as measured by the Bureau of Water Pollution Control. Other exceedances have occurred in 1989, also (12.4 mg/l on April 28, 22.6 and 24.9 mg/l on May 5, as well as 16.1 mg/l on May 10). Each of these dates also represent pollution events.

Flow in Grassy Trail Creek, as measured by DWR on 3/28/89, upstream from Pole Canyon, was 3 cfs. Thus, Pole Canyon's mine water discharge equated to 46% of the 5.55 cfs flow in the impacted zone of Grassy Trail Creek. Grassy Trail Creek was turned a milky-white color due to the soluble oil emulsion.

On Monday, March 27, 1989 (2:30 pm) SRS began to inject a flocculant (Thatcher Chemical Product, T-Floc-IF9) into the mine water discharge system. Its purpose was to pull the oil out of the solution and deposit it on the bottom of the settling pond at Pole Canyon. The T-Floc was injected at a rate of 5 gallons/hr (72.7 ppm). The rate of injection for the flocculant was decreased on March 28, 1989, to 2 gallons/hr (29.2 ppm). The rate of injection for the flocculant was again decreased on April 1, 1989, to 0.67 gallons/hr (0.40 ppm).

DOGM (Bill Malencik) was notified by SRS personnel of the problem during late morning, Saturday, March 25, 1989. Notification by the mine of the U.S. Environmental Protection Agency (EPA) and the Utah Department of Health concerning the oil spill was not expeditious. Their notification occurred during late afternoon of Monday, March 27, 1989. Mike Reed (EPA) and Don Hilden (Utah Division of Environmental Health) were only told of the exceedance for the 10 mg/l oil and grease standards at the UPDES discharge point in Pole Canyon. No discussion of an oil spill into Grassy Trail Creek was made by the mine.

An anonymous complainant notified DWR of the problem early morning Tuesday, March 28, 1989, since dead fish were evident in the stream. Simultaneously, the U.S. Fish and Wildlife Service and the Utah Department of Health's Division of Environmental Health in Price notified DWR. DWR proceeded to assess the polluted stream on that date.

DWR inspected the problem area on March 28 and 29, 1989. A 3.3 mile length of stream below the confluence of Pole Canyon with Grassy Trail Creek evidenced 72 dead trout (67 rainbow and 5 brown). This equates to 20 dead rainbow trout and 2 dead brown trout observed per mile. All dead fish were adults, 10 inches or longer. The fish appeared to have been dead for several days. No fish loss was evident upstream from the point of pollution. Intensive evaluation of the fish kill and instream habitat degradation due to oil emulsion was planned for April 7, 1989, when the water would be clear.

DWR's electro-survey of the stream on April 7, 1989 showed only two fish, both of which were adults, alive in the polluted zone (sample station 1-2-2 and 1-3C-1). An adjacent nonpolluted zone (sample station 1-3 B-1) showed a trout population of multiple age classes which equated to 350 fish/mile (85% rainbow and 15% brown). Fish biomass in the polluted zone was reduced to 4.6 lb/acre (1.97 kg/mile) compared to 126 lb/acre (54.25 kg/mile) immediately upstream in a nonimpacted area. Thus, a 97% loss in fish numbers --1,122 trout (954 rainbow and 168 brown)-- and a corresponding 96% decrease of fish biomass occurred in the 3.3 mile long impact zone (Table 1).

Macroinvertebrate populations in the polluted zone were also damaged. They were decreased in number of organisms by 91% (15 specimens/square foot) immediately below the point of pollution to 58% (67 specimens/square foot) 3.3 miles downstream as compared to the 160 specimens per square foot in the adjacent nonpolluted upstream segment.

The T-Floc, which is believed to have been injected after the aquatic organisms died, can be toxic due to its sodium hydroxide element. Total mortality of aquatic organisms, as reported by Thatcher Chemical Company, has been measured at 100 to 110 ppm (TTM, 96 hr). The highest level of T-Floc was 73 ppm, and it would have been diluted by 55% when it reached Grassy Trail Creek. Likely, the flocculant had no impact on the stream.

Monetary value of the 1,122 fish that were killed amounted to \$1,662.74 (Table 2). In addition, an opportunity for an unknown number of recreational fishing days has been lost. The substrate was temporarily damaged due to adherence of the emulsified oil and penetration of that oil into the interspaces of the gravels. This damaged the macroinvertebrate population, which represents the forage base for fish life.

Utah Department of Health's Division of Environmental Health issued a violation (Administrative Order 189-02) to SRS for the oil spill/fish kill on July 21, 1989. DOGM likely issued a violation on this event, also. No definitive action by either agency is known to have been taken to date (12-22-89) on these violations.

April 15, 1989 Pollution Event (5 days)

Sunnyside Reclamation and Salvage, Inc.'s mine water discharge pipe that flows 1.65 million gallons of water per day into the Pole Canyon UPDES (UT0022942) discharge pond (002A) broke on Saturday, April 15, 1989. The pipe was repaired that day, but its support blocks slipped allowing the water to discharge against the pond's bottom rather than onto the surface. The intense velocity of the water stirred up a black sludge primarily composed of coal

finer flocculated oil and other settleable solids. Thus, the pond discharged a high level of suspended solids into Grassy Trail Creek.

During a routine mine inspection on Tuesday, April 18, 1989, a DOGM employee noted the ongoing discharge. DOGM (Brent Stettler) notified DWR (Larry Dalton) and Walt Donaldson) early morning on Wednesday, April 19, 1989. It was then recommended that DOGM advise the mine to place a series of sediment traps in Grassy Trail Creek at the farthest downstream point where the sludge could be identified in order to contain it in the shortest reach of stream possible. DWR, on April 19, 1989, notified Southeastern Utah's Division of Environmental Health (secretary) of the problem, also. The mine, on April 19, 1989, placed a series of temporary sediment traps and filter dikes below the Pole Canyon Pond's effluent in order to lessen the amount of sludge reaching Grassy Trail Creek. The pond's effluent remained clouded with coal fines as of April 20, 1989, in spite of a series of straw settling basins and filter dikes placed by the mine in the 300 foot segment of Pole Canyon Creek between the pond and Grassy Trail Creek. DWR had contacted the mine (Carl Housekeeper) at 1:15 pm, April 19, 1989, to express concern relative to damage of Grassy Trail Creek's substrate from the black sludge. The mine was advised that it would be prudent to contain the sludge in as short a stream length as practicable in order to lessen further impacts to the stream's biotic system and ultimate cleanup costs.

On April 20, 1989, DOGM personnel (Bill Malencik, Lynn Kunzler and Brent Stettler) DWR (Larry Dalton) personnel, as well as mine officials (Bill Balaz and Carl Housekeeper) inspected the problem area. A 0.76 mile length of Grassy Trail Creek between Pole Canyon and Pasture Canyon evidenced substantial degradation of the substrate due to adherence of the sludge. Macroinvertebrates were essentially eliminated (only crane fly larvae could be found) in the upper segment immediately below Pole Canyon. (Note, macroinvertebrates had earlier been reduced by 91% due to an oil spill caused by the mine. Fish life had also been eliminated by the March 24, 1989 oil spill.) It was determined that the substrate needed to be mechanically cleaned of the sludge in order to facilitate recovery of the stream's biotic communities.

It was recommended that the mine immediately place a series of at least five temporary sediment traps/filter dikes within Grassy Trail creek at Pasture Canyon. A larger series could be needed, but the goal was to discharge clear water from the last filter dike. Such action will contain the sludge within the stream length where it currently exists. There was evidence that flows were moving the material further downstream; a precipitation event would accelerate that process. Cost for cleanup could be minimized by the company containing the sludge where it now lies. Additionally, the mine must stop the discharge of sludge from the Pole Canyon Pond (002A). It was hoped that Exxon Chemical Company would find an environmentally safe technique to precipitate the suspended solids with an anion treatment and/or float them with a cation treatment and ultimately capture the coal fines and other compounds of the sludge. (Sam Deal --Exxon Chemicals-- was on site 4-20-89, assessing how to treat the Pole Canyon pond in order to control suspended solids.)

The pond (002A) continued to discharge throughout spring, summer and fall of 1989; it has yet (12-22-89) to be dredged and cleaned. A new pond (002B) has been constructed, but was not put into use until 12-17-89. (Another emulsion oil spill on 12-16-89 prompted use of th 002B pond.) Discharge of sludge from the 002A pond persisted for several weeks. Department of Health's Division of Environmental Health issued a violation (Administrative Order 189-02) to SRS for discharging coal fines into Grassy Trail Creek on July 21, 1989. DOGM likely issued a violation on this event, also. No definitive action by either agency is known to have been taken to date (12-22-89) on these violations.

December 16, 1989 Pollution Event (3 days)

A spill of approximately 1,097 gallons of a 5% oil:95% water emulsion occurred during late evening on Saturday, December 16, 1989, within the Sunnyside No. 1 coal mine. The emulsion, containing a soluble Texaco oil product (D1670 LWM concentrate), is used as a hydraulic fluid in the shields on longwall mining units. SRS personnel noted the emulsion's milky-white

discharge from Pole Canyon into Grassy Trail Creek early morning, Sunday, December 17, 1989. Pole Canyon was only discharging mine water at the time of the spill.

Oil and grease standards for Pole Canyon's discharge are to be less than mg/l. SRS personnel measured oil and grease in Pole Canyon as 76.9 mg/l on Sunday, December 17, 1989. Follow-up measurements of Pole canyon discharge by mine personnel showed oil and grease to be 40.3 mg/l on December 18, 1989. Discharge from 002A pond stopped by December 19, 1989, since all water was diverted to the empty 002B pond. Water pollution and violation of the UPDES Permit spanned the three day period from December 16 through December 18, 1989.

Flow in Grassy Trail Creek, as estimated by DWR on 12-18-89, upstream from Pole Canyon, was 0.5 cfs. Thus, Pole Canyon's mine water discharge (0.78 cfs --352 gal/min-- as reported by SRS) equated to 61% of the 1.28 cfs flow in the impacted zone of Grassy Trail Creek. Grassy Trail Creek was again turned a milky-white color due to the soluble oil emulsion.

On Sunday (afternoon) , December 17, 1989, SRS began to inject a flocculant (Exxon Chemical Product, JAYFLOC-824) into the mine water discharge system. Its purpose was to pull the oil out of the solution and float it on the top of the settling ponds (002A and 002B) at Pole Canyon. Oil absorbency brooms would then capture the oil. The JAYFLOC was injected into the mine water discharge at the rate of 0.0333 gallons/min (94.6 ppm).

DOGM (Bill Malencik) was notified by SRS personnel of the problem during late afternoon, Sunday, December 17, 1989. Notification by the mine of the U.S. Environmental Protection Agency (EPA) and the Department of Health concerning the oil spill was expeditious. Their notification of EPA (Mike Holmes) occurred during late afternoon of Sunday, December 17, 1989. Mike Herkimer (Utah Division of Environmental Health) was notified of the spill during the morning of Monday, December 18, 1989. DWR (Larry Dalton) was also notified by the mine that Monday morning. DWR personnel proceeded to assess impacts of the spill on Monday, December 18, 1989.

DWR inspected the problem area on December 18, 19 and 20, 1989. A 0.2 mile long transect along the stream below the confluence of Pole Canyon with Grassy Trail evidenced 6 dead trout (all rainbow). This equated to 30 dead trout per mile in the 3.3 miles of impacted stream length. all dead fish were adults. They had invaded this stream reach since the kill 9 months earlier. The fish appeared to have been dead for only a day or two. No fish loss was evident upstream from the point of pollution. Intensive evaluation of the fish kill and instream habitat degradation due to the oil emulsion was planned for December 19, 1989, when the water would be clear. Severe icing and milky water on December 18, 1989, restricted evaluation to just that zone between Pole and Pasture Canyons.

DWR elctro-survey of the stream on December 19, 1989, showed no fish to survive in the polluted zone. Sampling immediately above that impacted zone showed a healthy trout population of multiple age classes. It compared to the 350 fish/mile (85% rainbow and 15% brown) documented in April, 1989. Fish biomass in the polluted zone was reduced to zero compared to 126 lb/acre (54.25 kg/mile) immediately upstream in a nonimpacted area. Thus, a 100% loss in fish numbers --99 rainbow trout-- and a corresponding 100% loss of fish biomass occurred in the 3.3 mile long impact zone (Table 1).

Macroinvertebrate populations in the polluted zone were damaged, also. They were decreased in number of organisms by 62% (30 specimens/square foot) immediately below the point of pollution as compared to the 93 specimens per square foot in the adjacent nonpolluted upstream segment.

The JAYFLOC, which is believed to have been injected after the aquatic organisms died, can be dangerous due to its 0.2% by weight formaldehyde element. It is known to cause squamous cell carcinomas in rats and is suspect of carcinogenic potential in man. Spill control procedures outlined in "Material Data Safety Sheets" (HDHA-P-18052, 11-22-88) for this product recommend to prevent spilled product ". . . from entering sewers, water courses or low areas." JAYFLOC was injected into the mine water discharge at a rate of 94.6 ppm (2 gal/hr Jay floc added to 352 gal/mine water discharge).

Formaldehyde only represented 0.2% of the JAYFLOC. Thus, formaldehyde was present in the mine water discharge at 0.19 ppm. Once the discharge entered the stream, it was even more diluted. The JAYFLOC represented a 0.01% solution. The manufacturer recommends use up to 1% solution (9,460 ppm JAYFLOC).

Indefinite exposure to formaldehyde at levels less than 10 ppm is likely safe for trout. The 1% solution of Jayfloc recommended by the manufacturer represents 18.9 ppm formaldehyde. Flow in the receiving water would have to be equal to the mine water discharge at a 1% solution in order for JAYFLOC to be safe.

Utah Department of Health's Division of Environmental Health and DOGM are continuing investigation of this December oil spill/fish kill.

The mechanism for kill of the fish and macroinvertebrates during the March and December oil spills was plugging of the gills by longchain hydrocarbons from the soluble oil. Such a reaction is immediate under high concentrations of oil. The UPDES discharge limit for oil and grease is 10 mg/l. The mine's discharge was many times that level.

Texaco has tested the emulsion (5% oil: 95% water) and reported that fathead minnows perished in a static system when 1,000 ppm were reached (LC 50, 96 hr). Daphnia also perished at the same level (LC 50, 48 hr). Without question, the trout (rainbow and brown) and macroinvertebrates of Grassy Trail Creek perished at levels much lower than Texaco would recommend.

John Neuhold, Fishery Ecologist and Assistant Dean, Department of Fish and Wildlife at Utah State University, indicated that soluble fractions of Wyoming crude oil caused mortality in rainbow trout fingerlings at levels ranging from 0.15 to 217 mg/l. In the same evaluation, fathead minnows perished at 5.4 mg/l. In both tests, flow-through rather than static systems were used, and the longer the time of exposure, the higher the mortality rate. Also, the U.S. Environmental Protection Agency's Water Quality Criteria Handbook (1976)

identified mortality in benthic organisms (macroinvertebrates) as occurring between 1 and 10 mg/l. Long term exposure of aquatic organisms to soluble oils can result in mortality due to the small chain aromatic hydrocarbons, also. They ultimately inhibit enzymatic actions in the metabolic process.

Monetary value of the 1,221 fish that were killed amounted to \$1,993.95 (Table 2) and 3.3 miles of stream is uninhabited by fish. In addition, an opportunity for an unknown number of recreational fishing days was lost in 1989. This lost opportunity will persist into 1990 and longer. The substrate along 0.76 miles of stream remains damaged from the April 15, 1989 sludge spill. Spawning did not occur successfully in 1989 and will not be successful until the substrate is cleaned. Then a year or two will be required for total reestablishment of the benthic organisms, and several years (at least 3) will pass before a fish population with multiple age classes is again present.

The public in Carbon County has always been interested in coal mining and mine/environmental issues. Historically, workers at the Sunnyside mine routinely and openly advised DWR of pollution problems in Grassy Trail Creek. Often, complaints were latent to when the episode occurred. More recently, input from employees has become anonymous, but more timely, exacting and factual. In either scenario, the public has had an expectation that DWR would take action to safeguard wildlife's environment proximal to the mine.

The East Carbon Wildlife Federation planted over 10,000 willow shoots in the Grassy Trail Creek drainage during 1986. They also placed several dozen sediment traps in tributary drainages. Their interest in enhancing Grassy Trail Creek's fishery has always been intense. Use of the fishery by local people is a regular occurrence, since it is the only trout fishery nearby to the community.

Early in the week of December 17, 1989, a concerned citizen anonymously called KUTV's news desk to report this most recent oil spill/fish kill. According to Reese Stein, "They were irate" about pollution to "their stream." DWR (SER0) was contacted by Mr. Stein (telephone) early morning on

December 19, 1989. At approximately 10:00 a.m., Larry Dalton returned KUTV's call, but Mr. Stein was not in. By noon, Mr. Stein recontacted Mr. Dalton and requested to interview DWR biologists and visit the Grassy Trail Creek area on December 20, 1989. DWR's Salt Lake City Office (Ralph Miles) was advised of the KUTV/DWR interview being planned.

On December 20, 1989, Mr. Stein and his cameraman interviewed DWR biologists at SERO, at the East Carbon City Park, and at the confluence of Pole Canyon and Grassy Trail Creek. (DWR biologists were making a final inspection of the fish kill.) Mr. Stein was advised that the site at Pole Canyon was private property owned by SRS. He indicated that if it were posted "No Trespassing" he would not enter the land. However, if it was not posted, he would film the spill at that location. He also indicated that if he was confronted by the mine (SRS), he would leave. The site was not posted and access was via a county road. Mr. Stein also interviewed mine personnel on December 20, 1989. A new release resulted.

FIGURE 1
GRASSY TRAIL CREEK FISH KILL MAP

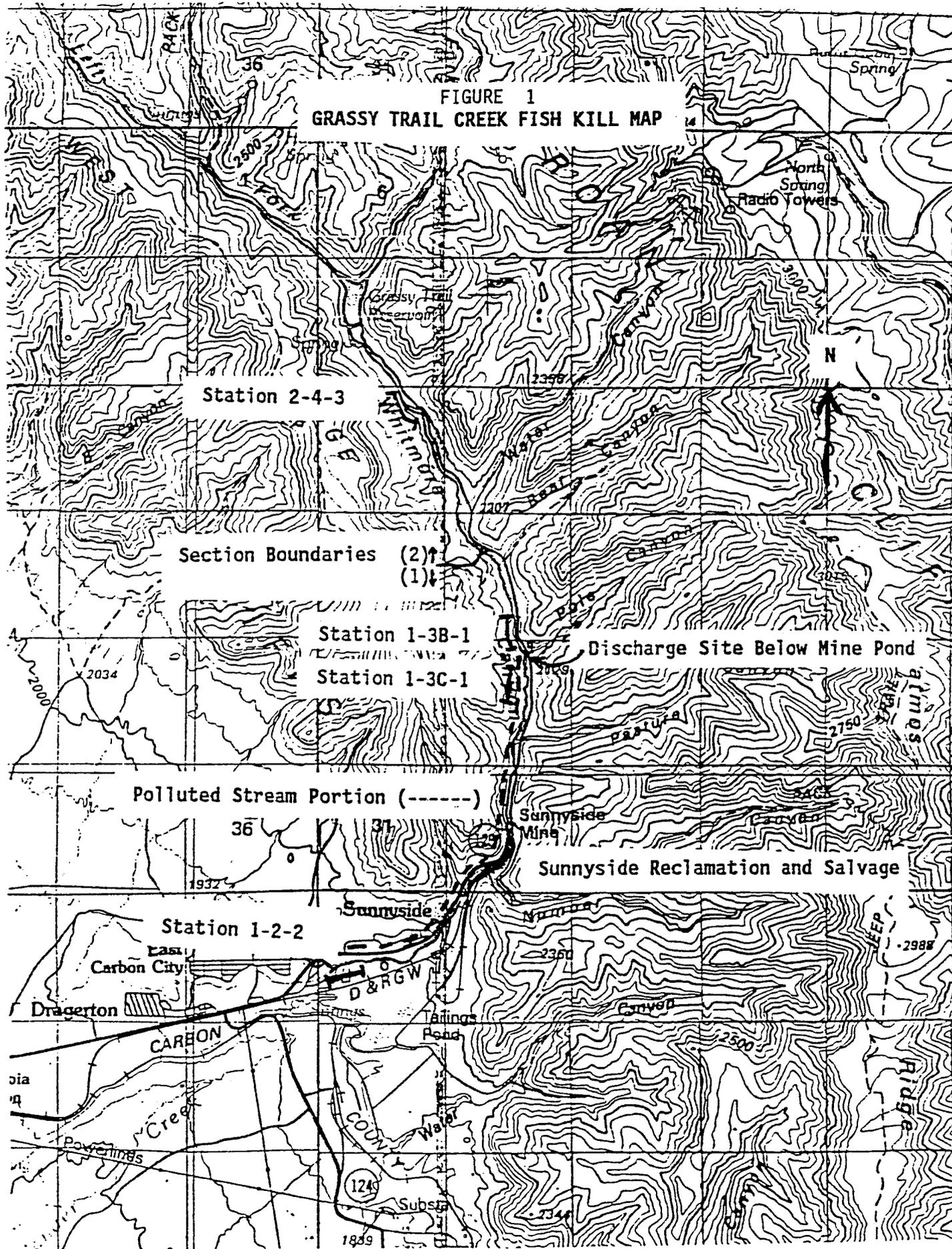


Table 1. Age and growth of trout collected with electrogear from Grassy Trail Creek, Utah, on April 7, 1989

| Station | Species | Parameter | AGE | | | | | |
|---------------------|---------|-------------------|-----|------|------|------|------|--------|
| | | | I | II | III | IV | V | VI (+) |
| 1-2-2 ¹ | Rbt | N | | | | | | |
| 1-3C-1 ² | Rbt | N | | | 1 | 1 | | |
| | | \bar{X} TL (mm) | | | 212 | 230 | | |
| | | \bar{X} W (g) | | | 91 | 106 | | |
| | | \bar{X} K | | | .96 | .87 | | |
| 1-3B-1 ³ | Rbt | N | | 1 | 15 | 9 | 1 | 3 |
| | | \bar{X} TL (mm) | | 126 | 194 | 227 | 262 | 347 |
| | | \bar{X} W (g) | | 26 | 83 | 133 | 202 | 494 |
| | | \bar{X} K | | 1.30 | 1.12 | 1.13 | 1.12 | 1.17 |
| | Brn | N | | 1 | | 3* | 1* | |
| | | \bar{X} TL (mm) | | 129 | | 300 | 337 | |
| | | \bar{X} W (g) | | 24 | | 236 | 337 | |
| | | \bar{X} K | | 1.12 | | 0.87 | 0.99 | |

*Assumed stocked as fingerling in 1984-5, respectively

1. Station 1-2-2 was not electrofished on 12-19-89, due to severe icing --emulsion oil in evidence. All fish presumed dead from emulsion oil.
2. Station 1-3C-1 was electrofished 12-19-89. No fish were found; all presumed dead due to emulsion oil spill on 12-16-89.
3. Station 1-3 B-1 electrofished on 12-19-89. A measured sample station was not sampled due to severe icing. However, random sampling showed all age classes of trout (rainbow and brown) to be present and trout were abundant.

Table 2. Monetary value of fish killed due to Sunnyside Reclamation and Salvage's pollutions of Grassy Trail Creek on March 24, and December 16, 1989. Methodology derived from "Monetary Values of Freshwater Fish and Fish Kill Counting Guidelines" (1982). Prepared by the Monetary Values of Freshwater Fish Committee and the Pollution Committee, American Fisheries Society; special publication No. 13 (ISSN 0097-0638); 40 pp.

| Fish Kill | | 1979-80 Value | Consumer Price Index** | 1989 Value (\$) |
|------------------------------------|------------------|-----------------|------------------------|-----------------|
| Size Class (% Total) | (Number of Fish) | (\$/Fish)/Total | | |
| March 1989 Oil Spill/Fish Kill | | | | |
| 954 Rainbow Trout | | | | |
| 5" (3.5%) | 33 | 0.39/\$ 12.87 | 56.9% | \$ 20.19 |
| 8" (52%) | 497 | 0.67/\$332.99 | 56.9% | \$522.46 |
| 9" (31%) | 296 | 0.83/\$245.68 | 56.9% | \$385.47 |
| 10" (3.5%) | 33 | 1.06/\$ 34.98 | 56.9% | \$ 54.88 |
| 14" (10%) | 95 | 2.06/\$195.71* | 56.9% | \$307.07 |
| 168 Brown Trout | | | | |
| 5" (20%) | 34 | 0.39/\$ 13.26 | 56.9% | \$ 20.81 |
| 12" (60%) | 100 | 1.60/\$160.00 | 56.9% | \$251.04 |
| 13" (20%) | 34 | 1.89.\$ 64.26 | 56.9% | \$100.82 |
| | | | March Total: | \$1,662.74 |
| December, 1989 Oil Spill/Fish Kill | | | | |
| 99 Rainbow Trout | | | | |
| 10" (16%) | 15 | 1.06/\$ 15.90 | 64.8% | \$ 26.20 |
| 11" (14%) | 14 | 1.33/\$ 18.62 | 64.8% | \$ 30.69 |
| 12" (28%) | 28 | 1.60/\$ 44.80 | 64.8% | \$ 73.83 |
| 14" (28%) | 28 | 2.74/\$ 76.72 | 64.8% | \$126.43 |
| 15" (14%) | 14 | 3.21/\$ 44.94 | 64.8% | \$ 74.06 |
| | | | December Total: | \$331.21 |
| Grand Total: | | | | \$1,993.95 |

*1979-80 value is \$1.89/lb since average 14" rainbow trout in December sample weighed 1.45 lb (660 grams).

*1979-80 value is \$1.89/lb since average 14" rainbow trout in March sample weighed 1.09 lb (494 grams).

*1979-80 value is \$1.89/lb since average 15" rainbow trout in december sample weighed 1.7 lb (770 grams).

**U.S. Bureau of Labor Statistics, Consumer Price Index (CPI-U). Note, the CPI for the March kill represented the increase from November 1979 to Fishery 1989, and the CPI for the December kill represented the increase from November, 1989.



**MOUNTAIN
STATES
ANALYTICAL**

ANALYTICAL REPORT

CLIENT: Oil, Gas, & Mining
3 Triad Center
Salt Lake City, UT 84180-1203
Phone: 801-637-5806 801-359-3940 (FAX)
ATTN: Mr. Harold Sandbeck
Project: Sunnyside-Grassy Trail C.

Date Samples Rec'd: 02/20/90
MSAI Group No.: 1764
Sample Matrix: Non-Aqueous/Solid
Report Date: 03/12/90
P.O. Number:

| LAB SAMPLE NO. DATE | SAMP SAMPLE TIME | DESCRIPTION | ANALYSES PERFORMED | RESULT |
|------------------------|---------------------|--------------------|---------------------|------------|
| 10759 02/13/90 | 920 #1 | - Above Confluence | OIL & GREASE, Solid | 194 mg/kg |
| 10760 02/13/90 | 930 #2 | - Above Pole Cyn. | OIL & GREASE, Solid | 330 mg/kg |
| 10761 02/13/90 | 0 #3 | - Below Confluence | OIL & GREASE, Solid | 2261 mg/kg |
| 10762 02/13/90 | 945 #4 | - Below Pole Cyn. | OIL & GREASE, Solid | 247 mg/kg |

Respectfully submitted,

Douglas W. Later, Ph.D. *DWL*
Laboratory Director

Glenn A. Sorensen, B.S. *GLS*
Manager, Technical Operations

COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • (312) 953-9300



SINCE 1908

Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1020, HUNTINGTON, UT 84528
TELEPHONE: (801) 653-2311

April 19, 1990

Job No.: 59 10348

Sample ID: STATE OF UTAH

Date Rec'd: April 13, 1990

WHITMORE MINE FOND OUTFALL

Date Sampled: April 12, 1990

FOND #2

SRS

Sampled By: STATE OF UTAH

APR 24 1990

STATE OF UTAH NATURAL RESOURCE
BOX 169
451 EAST 400 NORTH
PRICE UT 84501

LABORATORY
GAS ANALYSIS
STATE OF UTAH

WATER ANALYSIS

| | | | | | |
|----------------|------|------|--------------------|------|------|
| Oil and Grease | 1.0< | mg/l | Solids, Settleable | 1.0< | mg/l |
| 04-18-90 | | | 04-13-90 | | |
| | | | Solids, Suspended | 6.0 | mg/l |
| | | | 04-17-90 | | |

ANALYST: D. Lyson

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

[Signature]

Manager, Huntington Laboratory

EXHIBITS

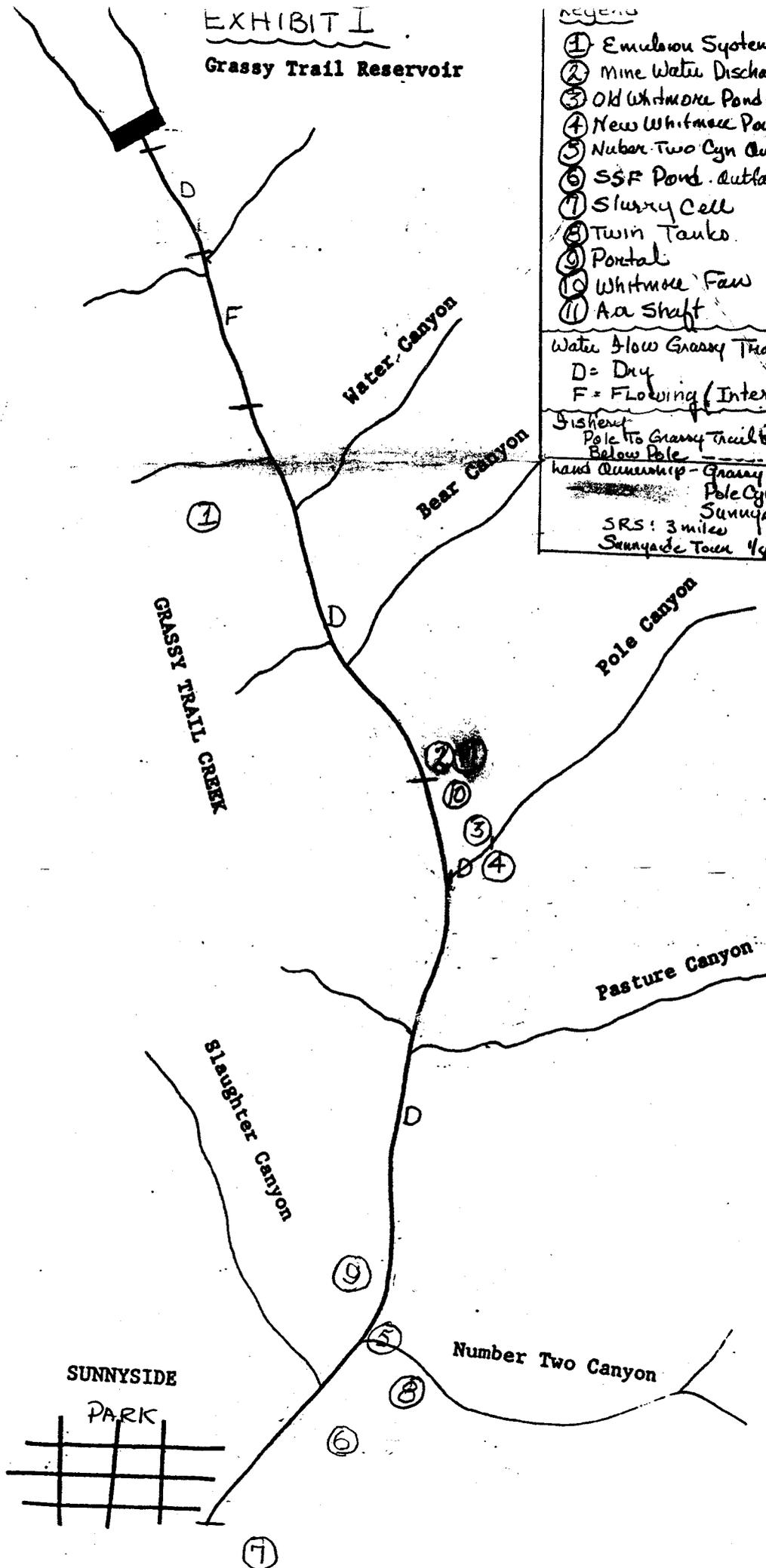
RE: ASSESSMENT CONFERENCE, SRS/DOGM, NOV 89-26-24-1, June 18,
1990

- EXHIBIT I - SKETCH MAP OF THE MINE SURFACE AND
PERTINENT ENVIRONMENTAL CONTROL
MEASURES ASSOCIATED WITH THE NOV
- EXHIBIT II - SKETCH OF THE LONGWALL EMULSION
SYSTEM
- EXHIBIT III - SKETCH OF THE MINE WATER DISCHARGE
SYSTEM
- EXHIBIT IV - MINE WATER SAMPLE LAB ANALYSIS
- EXHIBIT V - EXCERPTS FROM PUBLIC RECORDS
o GRASSY TRAIL CREEK
o GRASSY TRAIL CREEK
FISHERY
- EXHIBIT VI - NOTICE OF VIOLATION
- EXHIBIT VII - PHOTO PRINTS OF MINE WATER/EMULSION
INCIDENT
- EXHIBIT VIII - ABATEMENT MEASURES
o ITEM 1, 2, 3 & 4
o ITEM 5
o ITEM 6
o ITEM 7
- EXHIBIT IX - SUMMARY AND CHRONOLOGY

EXHIBIT I

EXHIBIT I

Grassy Trail Reservoir



LEGEND

- ① Emulsion System (Exhibit II)
- ② Mine Water Discharge System (" III)
- ③ Old Whitmore Pond - Outfall 002 A
- ④ New Whitmore Pond " 002 B
- ⑤ Number Two Cyn Outfall
- ⑥ SSF Pond outfall 014
- ⑦ Slurry Cell
- ⑧ Twin Tanks
- ⑨ Portal
- ⑩ Whitmore Fan
- ⑪ Aa Shaft

Water flow Grassy Trail Creek 6/18/90

D = Dry

F = Flowing (Intermittent in 90)

Sishen Pole To Grassy Trail Reservoir Below Pole

hand ownership - Grassy Trail Creek To Pole Cyn Thru To Sunnyside Park To

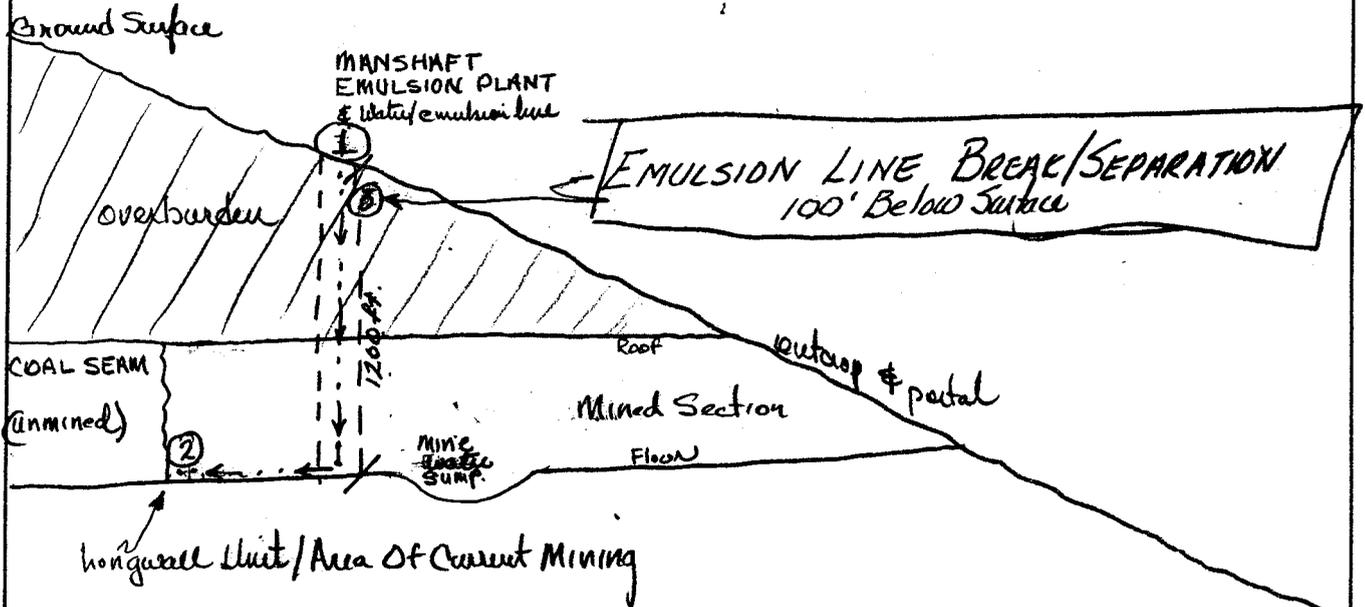
SRS: 3 miles
Sunnyside Town 4 1/2 mile

EXHIBIT II

EXHIBIT II SKETCH

(NOT DRAWN TO SCALE)

Re: Assessment Conference 6/18/90, SRS/DOGMM, NOV 89-26-24-1, 12/20/89



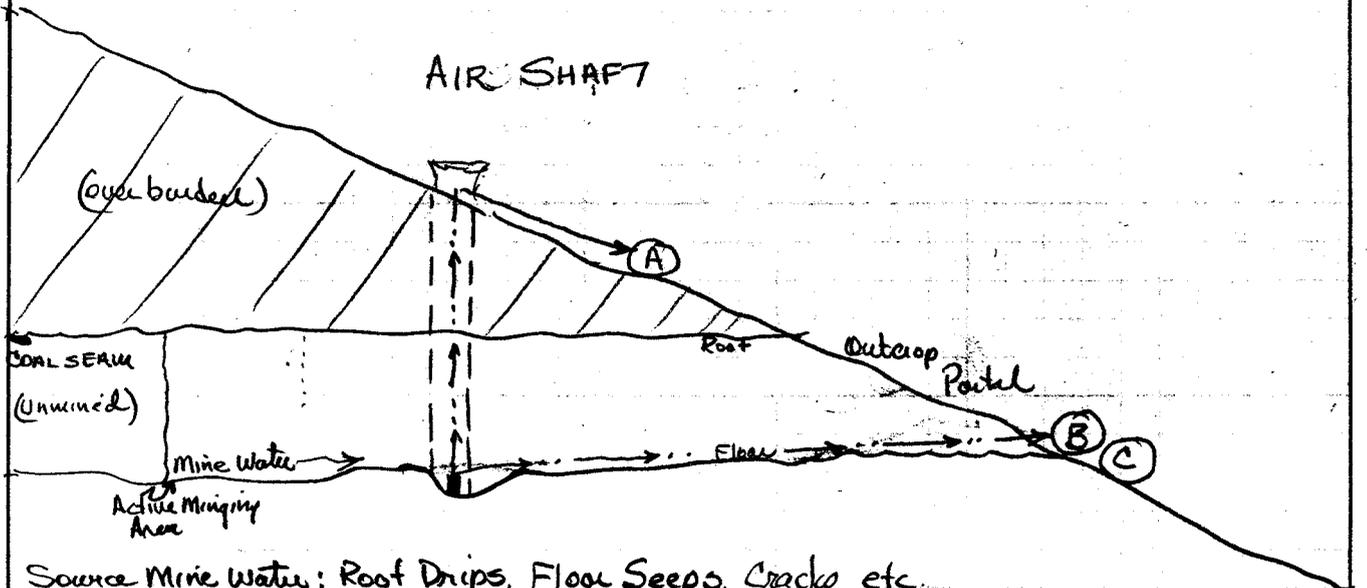
- (1) Water 95% and oil 5% is mixed in the mixing tank & gravity flow to the longwall unit.
- (2) Any leaks from pipe, hoses, shields or longwall unit would if in sufficient quantity flow into the ground/mine water system.
- (3) Emulsion fluid drained from the mixing tank while the emulsion line separated and and flowed to the mine sump.

EXHIBIT III

EXHIBIT III SKETCH

(Not Drawn To Scale)

Re: Assessment Conference 6/18/90, SRS/DOGM, 140V 89-26-241, 12/20/89



Source Mine Water: Roof Drips, Floor Seeps, Cracks etc.
 Mine water is pumped, gravity flow or otherwise moved from the active mining area to previously mined area (low areas) collected and pumped to surface. Also previously mined areas not sealed contribute water. Sunnyside #1 mine discharges about 1 million to 1.5 million gallons of water per day. Continuous discharging when pump is operating.

MINE WATER DISCHARGE POINTS

- (A) Two Whitmore Ponds - Old & New
 Discharged into Grassy Trail Creek via Pole Creek
- (B) Wash Plant
 Coal washing plant → coal slurry and water → slurry ditch and to the coal slurry cell (total impoundment with no surface discharge)
- (C) Twin Tanks
 - Overflow to No 2 Cyn Outfall
 - Three Water lines Owned By City → Golf Course, City Park, Hag Fields
 - SSF Pond - (Disturbed Area Runoff Pond) SPOC Plan, can use SSF pond for mine water then to Grassy Trail Creek (Outfall)
 - Slurry Cell By Via SSF pond ditch and slurry ditch
 - Wash Plant.

23:3 19PM '77
K 168 OF Records
E 692
ANN O'SRIEN
COUNTY RECORDER

Indexed ✓
Abstracted ✓
Rec. Fee 4.00

BILL OF SALE

EXHIBIT III

KAISER STEEL CORPORATION, a Nevada corporation, Seller, with its

main place of business located at 300 Lakeside Drive, Oakland, California, in consideration of ten dollars (\$10.00) paid to Kaiser Steel Corporation, by the CITY OF SUNNYSIDE, a municipal corporation in Carbon County, organized under the laws of the State of Utah, receipt of which is hereby acknowledged, do hereby grant, sell, transfer, and deliver to the buyer the following waterworks, facilities and water distribution system:

All waterworks, pipelines and distribution facilities presently utilized to supply the City of Sunnyside and its inhabitants thereof with municipal and domestic water; including all pipelines, water meters and valves; Beginning at the point of intersection of said pipeline with the East boundary of the West 1/2 of the S.E. 1/4 of the S.W. 1/4 of Section 32, T. 14 S., R. 14 E., S.L.B. and M. It is understood that this Bill of Sale does not include any waterworks or storage facilities presently owned by Kaiser Steel Corporation above this described point of beginning.

The Buyer shall have all rights and title to the above described waterwork facilities in itself and its successors and assigns.

Seller makes no warranties, express or implied, with regards to the waterwork facilities, but merely transfers hereby its lawful interest in and to the same.

IN WITNESS WHEREOF, Seller has executed this Agreement at Oakland, California, on this 12th day of May, 1977.

KAISER STEEL CORPORATION

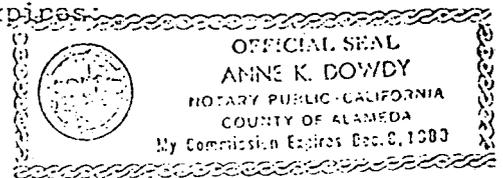
J. D. Saussaman
by: J. D. Saussaman

COUNTY OF ALAMEDA)
: ss.
STATE OF CALIFORNIA)

Subscribed to before me this 12th day of May, 1977.

Anne K. Dowdy
Notary

My Commission Expires:



Cell. Co. Records

EXHIBIT IV



COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • (312) 953-9300

SINCE 1908

Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1020, HUNTINGTON, UT 84528
TELEPHONE: (801) 653-2311

December 19, 1989

Job No.: 59 10206

Sample ID: STATE OF UTAH

Date Rec'd: December 18, 1989

SSF POND

Date Sampled: December 18, 1989

Rec'd 1230 hr.

Sampled 1015 hr.

Sampled By: STATE OF UTAH

STATE OF UTAH NATURAL RESOURCE
BOX 169
451 EAST 400 NORTH
PRICE UT 84501

WATER ANALYSIS

Oil and Grease 1.6 mg/l
12-19-89

ANALYST: _____

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Manager, Huntington Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS,
TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

Original Copy Watermarked
For Your Protection



COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • (312) 953-9300

SINCE 1908

Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1020, HUNTINGTON, UT 84528
TELEPHONE: (801) 853-2311

April 19, 1990

Job No.: 59 10348

Sample ID: STATE OF UTAH

Date Rec'd: April 13, 1990

WHITMORE MINE POND OUTFALL

Date Sampled: April 12, 1990

POND #2

SRS

Sampled By: STATE OF UTAH

STATE OF UTAH NATURAL RESOURCE
BOX 169
451 EAST 400 NORTH
PRICE UT 84501

APR 24 1990

DIVISION OF OIL
GAS & MINING
PRICE, UTAH

WATER ANALYSIS

| | | | | | |
|----------------|------|------|--------------------|------|------|
| Oil and Grease | 1.0< | mg/l | Solids, Settleable | 1.0< | mg/l |
| 04-18-90 | | | 04-13-90 | | |
| | | | Solids, Suspended | 6.0 | mg/l |
| | | | 04-17-90 | | |

ANALYST: *D. Tyson*

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Orl C. H.
Manager, Huntington Laboratory

Original Copy Watermarked
For Your Protection

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS,
TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

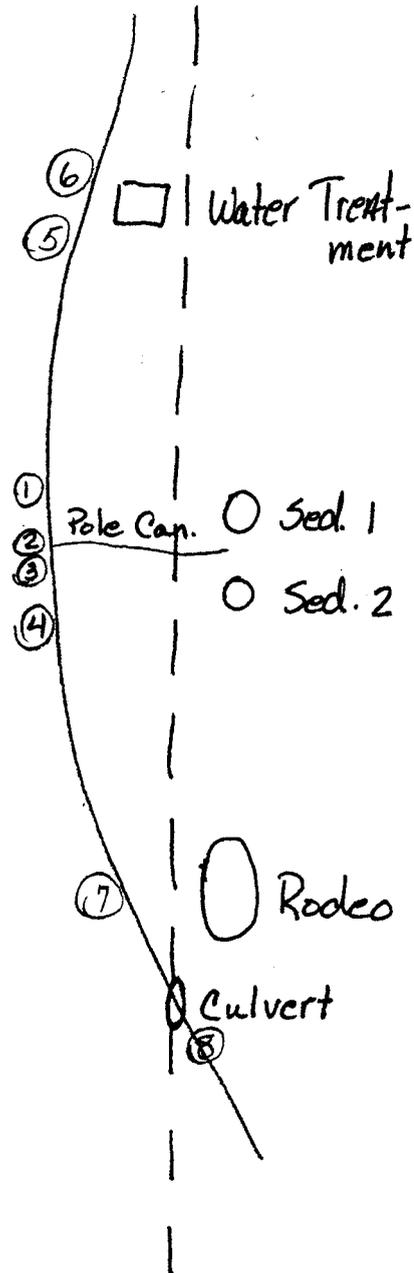
EXHIBIT IV

GRASSY TRAIL STREAMBED ANALYSIS

WMM
6/15/90

Sunnyside Result Grassy Trail Creek Oil and Grease Samples

| | | |
|---|---|--------------------------------------|
| 1 | Above Pole Can 2/13/90 5/01/90 5/01/90 GC TPH | 194 mg/kg 682 mg/kg <10 mg/kg |
| 2 | Above Confluence 2/13/90 5/01/90 | 194 mg/kg 716 mg/kg |
| 3 | Below Confluence 2/13/90 5/01/90 | 2261 mg/kg 810 mg/kg |
| 4 | Below Pole Cyn. 2/13/90 5/01/90 5/01/90 GC TPH | 247 mg/kg 1610 mg/kg 171 mg/kg |
| 5 | Below Treat 5/01/90 | 845 mg/kg |
| 6 | Above Treat. 5/01/90 5/01/90 GC TPH | 21,200 mg/kg 21 mg/kg |
| 7 | Rodeo Grounds 5/01/90 5/01/90 GC TPH | 1640 mg/kg <10 mg/kg |
| 8 | Below Road Culv. 5/01/90 | 310 mg/kg |





**MOUNTAIN
STATES
ANALYTICAL**

ANALYTICAL REPORT

CLIENT: Oil, Gas, & Mining
3 Triad Center
Salt Lake City, UT 84180-1203
Phone: 801-637-5806 801-359-3940 (FAX)
ATTN: Mr. Harold Sandbeck
Project: Sunnyside-Grassy Trail C.

Date Samples Rec'd: 02/20/90
MSAI Group No.: 1764
Sample Matrix: Non-Aqueous/Solid
Report Date: 03/12/90
P.O. Number:

| LAB SAMPLE NO. DATE | SAMP SAMPLE DESCRIPTION TIME | ANALYSES PERFORMED | RESULT |
|------------------------|---------------------------------|---------------------|------------|
| 10759 02/13/90 | 920 #1 - Above Confluence | OIL & GREASE, Solid | 194 mg/kg |
| 10760 02/13/90 | 930 #2 - Above Pole Cyn. | OIL & GREASE, Solid | 330 mg/kg |
| 10761 02/13/90 | 0 #3 - Below Confluence | OIL & GREASE, Solid | 2261 mg/kg |
| 10762 02/13/90 | 945 #4 - Below Pole Cyn. | OIL & GREASE, Solid | 247 mg/kg |

Respectfully submitted,

Douglas W. Later, Ph.D. *DW*
Laboratory Director

Glenn A. Sorensen, B.S. *GS*
Manager, Technical Operations



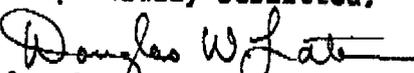
**MOUNTAIN
STATES
ANALYTICAL**

ANALYTICAL REPORT

CLIENT: Oil, Gas, & Mining
3 Triad Center
Salt Lake City, UT 84180-1203
Phone: 801-637-5806 801-359-3940 (FAX)
ATTN: Ms. Susan White
Project: 11824,25,26,27 P.O.583240

Date Samples Rec'd: 05/02/90
MSAI Group No.: 1984
Sample Matrix: Non-Aqueous/Solid
Report Date: 05/11/90
P.O. Number: 583237

| LAB SAMPLE NO. DATE | SAMP SAMPLE DESCRIPTION TIME | ANALYSES PERFORMED | RESULT |
|---------------------|------------------------------|--|--------------------------------|
| 11820 05/01/90 | 0 ABOVE POLE CANYON #2 | OIL & GREASE, Solid | 716 mg/kg |
| 11821 05/01/90 | 0 POLE CANYON & GRASSY T.#1 | OIL & GREASE, Solid | 682 mg/kg |
| 11822 05/01/90 | 0 BELOW POLE AND GRASSY | OIL & GREASE, Solid | 810 mg/kg |
| 11823 05/01/90 | 0 BELOW POLE CANYON | OIL & GREASE, Solid | 1610 mg/kg |
| 11824 05/01/90 #1 | 0 BELOW TREATMENT PLANT | DON'T ANALYZE, CLIENT HO OIL & GREASE, Solid | Held NO REPORT 845 mg/kg |
| 11825 05/01/90 #2 | 0 ABOVE TREATMENT PLANT | DON'T ANALYZE, CLIENT HO OIL & GREASE, Solid | Held NO REPORT 21,200 mg/kg |
| 11826 05/01/90 | 0 BELOW ROAD CULVERT | DON'T ANALYZE, CLIENT HO OIL & GREASE, Solid | Held NO REPORT 310 mg/kg |
| 11827 05/01/90 | 0 RODEO GROUNDS | DON'T ANALYZE, CLIENT HO OIL & GREASE, Solid | Held NO REPORT 1640 mg/kg |

Respectfully submitted,

 Douglas W. Later, Ph.D.
 Laboratory Director

 Glenn A. Sorensen, B.S.
 Manager, Technical Operations



**MOUNTAIN
STATES
ANALYTICAL**

ANALYTICAL REPORT

CLIENT: Oil, Gas & Mining
3 Triad Center
Salt Lake City, Utah 84108-1203

ATTN: Susan White

SAMPLE ID: Rodeo Grounds

LAB NO: 12051
GROUP NO: 2029
DATE SAMPLED: 05/01/90
TIME SAMPLED:
DATE RECEIVED: 05/11/90
DATE REPORTED: 05/21/90
DISPOSAL DATE: 06/20/90

ANALYSIS: GC Fingerprint/Total Petroleum Hydrocarbons
Reference: Method SW-846/800/8015 Modified [Utah]
Supelco Technical Bulletin #775

| COMPOUNDS | RESULT, DRY WT. | QUANTITATION LIMIT |
|---------------|-----------------|--------------------|
| Moisture | 46.2 % | |
| Benzene | < 0.05 mg/kg | 0.5 mg/kg |
| Toluene | < 0.05 mg/kg | 0.5 mg/kg |
| Ethylbenzene | < 0.05 mg/kg | 0.5 mg/kg |
| m,p-Xylene | < 0.05 mg/kg | 0.5 mg/kg |
| o-Xylene | < 0.05 mg/kg | 0.5 mg/kg |
| TPH as Diesel | <10.0 mg/kg | 10. mg/kg |

Respectfully submitted,

Kenneth A. Roberts, B.S.
Manager, Organics Department



**MOUNTAIN
STATES
ANALYTICAL**

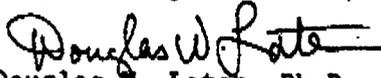
ANALYTICAL REPORT

CLIENT: Oil, Gas, & Mining
3 Triad Center
Salt Lake City, UT 84180-1203
Phone: 801-538-5340 801-359-3940 (FAX)
ATTN: Susan White
Project:

Date Samples Rec'd: 05/11/90
MSAI Group No.: 2029
Sample Matrix: Non-Aqueous/Solid
Report Date: 05/22/90
P.O. Number:

| LAB SAMPLE NO. DATE | SAMP SAMPLE DESCRIPTION TIME | ANALYSES PERFORMED | RESULT |
|------------------------|---------------------------------|----------------------------------|--------------------------|
| 12051 05/01/90 | 0 RODEO GRDS. (11827) | TFH (8015 Mod./Utah) MOISTURE | See Attach --- 46.2 % |

Respectfully submitted,


Douglas W. Later, Ph.D.
Laboratory Director

Glenn A. Sorensen, B.S.
Manager, Technical Operations



**MOUNTAIN
STATES
ANALYTICAL**

ANALYTICAL REPORT

CLIENT: Oil, Gas & Mining
3 Triad Center
Salt Lake City, Utah 84108-1203

ATTN: Susan White

SAMPLE ID: Above Treatment Plant

LAB NO: 12050
GROUP NO: 2028
DATE SAMPLED: 05/01/90
TIME SAMPLED:
DATE RECEIVED: 05/11/90
DATE REPORTED: 05/21/90
DISPOSAL DATE: 06/20/90

ANALYSIS: GC Fingerprint/Total Petroleum Hydrocarbons
Reference: Method SW-846/800/8015 Modified [Utah]
Supalco Technical Bulletin #775

| COMPOUNDS ----- | RESULT, DRY WT. ----- | QUANTITATION LIMIT ----- |
|--------------------|--------------------------|-----------------------------|
| Moisture | 31.5% | |
| Benzene | < 0.05 mg/kg | 0.5 mg/kg |
| Toluene | < 0.05 mg/kg | 0.5 mg/kg |
| Ethylbenzene | < 0.05 mg/kg | 0.5 mg/kg |
| m,p-Xylene | < 0.05 mg/kg | 0.5 mg/kg |
| o-Xylene | < 0.05 mg/kg | 0.5 mg/kg |
| TPH as Diesel | 21.0 mg/kg | 10. mg/kg |

Respectfully submitted,

Kenneth A. Roberts, B.S.
Manager, Organics Department



**MOUNTAIN
STATES
ANALYTICAL**

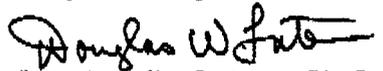
ANALYTICAL REPORT

CLIENT: Oil, Gas, & Mining
3 Triad Center
Salt Lake City, UT 84180-1203
Phone: 801-538-5340 801-359-3940 (FAX)
ATTN: Susan White
Project:

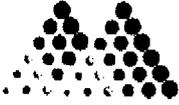
Date Samples Rec'd: 05/11/90
MSAI Group No.: 2028
Sample Matrix: Non-Aqueous/Solid
Report Date: 05/22/90
P.O. Number:

| LAB SAMPLE NO. DATE | SAMP SAMPLE DESCRIPTION TIME | ANALYSES PERFORMED | RESULT |
|------------------------|---------------------------------|----------------------------------|--------------------------|
| 12050 05/01/90 | 0 ABOVE TREAT. PLT (11825) | TPH (8015 Mod./Utah) MOISTURE | See Attach --- 31.5 % |

Respectfully submitted,


Douglas W. Later, Ph.D.
Laboratory Director

Glenn A. Sorensen, B.S.
Manager, Technical Operations



**MOUNTAIN
STATES
ANALYTICAL**

ANALYTICAL REPORT

| | |
|---------------------------------|-------------------------|
| CLIENT: Oil, Gas & Mining | LAB NO: 12049 |
| 3 Triad Center | GROUP NO: 2027 |
| Salt Lake City, Utah 84108-1203 | DATE SAMPLED: 05/01/90 |
| | TIME SAMPLED: |
| ATTN: Susan White | DATE RECEIVED: 05/11/90 |
| | DATE REPORTED: 05/22/90 |
| SAMPLE ID: Below Pole Canyon | DISPOSAL DATE: 06/21/90 |

ANALYSIS: GC Fingerprint/Total Petroleum Hydrocarbons
 Reference: Method SW-846/800/8015 Modified [Utah]
 Supelco Technical Bulletin #775

| COMPOUNDS | RESULT, DRY WT. | QUANTITATION LIMIT |
|---------------|-----------------|--------------------|
| ----- | ----- | ----- |
| Moisture | 52.6% | |
| Benzene | < 0.05 mg/kg | 0.5 mg/kg |
| Toluene | < 0.05 mg/kg | 0.5 mg/kg |
| Ethylbenzene | < 0.05 mg/kg | 0.5 mg/kg |
| m,p-Xylene | < 0.05 mg/kg | 0.5 mg/kg |
| o-Xylene | < 0.05 mg/kg | 0.5 mg/kg |
| TPH as Diesel | 171 mg/kg | 10. mg/kg |

Respectfully submitted,

Kenneth A. Roberts, B.S.
 Manager, Organics Department



**MOUNTAIN
STATES
ANALYTICAL**

ANALYTICAL REPORT

CLIENT: Oil, Gas, & Mining
3 Triad Center
Salt Lake City, UT 84180-1203
Phone: 801-538-5340 801-359-3940 (FAX)
ATTN: Susan White
Project:

Date Samples Rec'd: 05/11/90
MSAI Group No.: 2027
Sample Matrix: Non-Aqueous/Solid
Report Date: 05/22/90
P.O. Number:

| LAB SAMPLE NO. DATE | SAMP SAMPLE DESCRIPTION TIME | ANALYSES PERFORMED | RESULT |
|------------------------|---------------------------------|----------------------------------|--------------------------|
| 12049 05/01/90 | 0 BELOW POLE C. (11823) | TPH (8015 Mod./Utah) MOISTURE | See Attach --- 52.6 % |

Respectfully submitted,

Douglas W. Later, Ph.D.
Laboratory Director

Glenn A. Sorensen, B.S.
Manager, Technical Operations



**MOUNTAIN
STATES
ANALYTICAL**

ANALYTICAL REPORT

CLIENT: Oil, Gas & Mining
3 Triad Center
Salt Lake City, Utah 84108-1203

ATTN: Susan White

SAMPLE ID: Pole Canyon & G.T.

LAB NO: 12048
GROUP NO: 2026
DATE SAMPLED: 05/01/90
TIME SAMPLED:
DATE RECEIVED: 05/11/90
DATE REPORTED: 05/21/90
DISPOSAL DATE: 06/20/90

ANALYSIS: GC Fingerprint/Total Petroleum Hydrocarbons
Reference: Method SW-846/800/8015 Modified [Utah]
Supelco Technical Bulletin #775

| COMPOUNDS | RESULT, DRY WT. | QUANTITATION LIMIT |
|---------------|-----------------|--------------------|
| Moisture | 18.0% | |
| Benzene | < 0.05 mg/kg | 0.5 mg/kg |
| Toluene | < 0.05 mg/kg | 0.5 mg/kg |
| Ethylbenzene | < 0.05 mg/kg | 0.5 mg/kg |
| m,p-Xylene | < 0.05 mg/kg | 0.5 mg/kg |
| o-Xylene | < 0.05 mg/kg | 0.5 mg/kg |
| TPH as Diesel | <10.0 mg/kg | 10. mg/kg |

Respectfully submitted,

Kenneth A. Roberts, B.S.
Manager, Organics Department



**MOUNTAIN
STATES
ANALYTICAL**

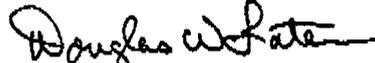
ANALYTICAL REPORT

CLIENT: Oil, Gas, & Mining
3 Triad Center
Salt Lake City, UT 84180-1203
Phone: 801-538-5340 801-359-3940 (FAX)
ATTN: Susan White
Project:

Date Samples Rec'd: 05/11/90
MSAI Group No.: 2026
Sample Matrix: Non-Aqueous/Solid
Report Date: 05/22/90
P.O. Number:

| LAB SAMPLE NO. DATE | SAMP SAMPLE DESCRIPTION TIME | ANALYSES PERFORMED | RESULT |
|------------------------|---------------------------------|----------------------------------|--------------------------|
| 12048 05/01/90 | 0 POLE CANYON & G.T.(11821) | TPH (8015 Mod./Utah) MOISTURE | See Attach --- 18.0 % |

Respectfully submitted,


Douglas W. Later, Ph.D.
Laboratory Director

Glenn A. Sorensen, B.S.
Manager, Technical Operations

EXHIBIT V

EXHIBIT V
Grassy Trail Creek

- 4 -

Based on information provided in Chapter 7 of the MRP, the essential functions of the AVF in question are limited to surface water. The present day stream channel has cut 10 to 25 feet below the farmland. There are no subirrigated farmlands present.

Plate III-29 illustrates the extent of current and historical farming. The MRP notes that much of the farmland shown on Plate III-29 has been abandoned due to lack of water (page 22, Chapter 7, MRP).

The current amount of mine water discharged to Grassy Trail Creek is approximately 1,200 ac/ft per year (page 9, Chapter III, MRP). Over half of the acreage reported in alfalfa is irrigated with mine water. In addition, a significant portion (up to 23 percent) of the flow in Grassy Trail Creek is composed of mine water. If these values are correct, mine closure will result at least initially in a substantial reduction in flow of Grassy Trail Creek. Since the AVF will not be mined through or under, reduction in flow will be the only potential impact.

The applicant has researched historical records to determine the premining flow regime of Grassy Trail Creek. Based on the Supreme Court of Utah review of the Joseph R. Sharp vs. George C. Whitmore (Decree #3028) Grassy Trail Creek frequently dried up during the majority of years (Response to Technical Deficiencies received March 1, 1985).

Cessation of mining activities will, in effect, return Grassy Trail Creek to a hydrologic regime more typical of premining conditions. Historical court records indicate that very limited irrigated farming activities existed prior to the initiation of mining. Moreover, water supplies were previously piped in from Range Creek over Patmos Ridge to the Sunnyside Mines (page 17, Chapter 7, MRP). It is only since the construction of Grassy Trail Reservoir and the addition of mine water that perennial flow has been established in Grassy Trail Creek.

The Division thus makes the finding pursuant to UMC 785.19(c)(3) that the proposed operation will include neither the extraction of coal nor will significant physical disturbance of the surface or ground water regime associated with the AVF occur and that mining activities actually enhance farming activities on the AVF.

The Division thus waives the requirements of UMC 785.19(d) and (e) and UMC 822 which deal with additional technical information, findings, and performance standards required of operations affecting designated alluvial valley floors.

Stipulations

None.

EXHIBIT V

Grassy Trail Creek Fishery

CHAPTER X

terms.

Low stocking rates and fence control are management techniques that will maintain forage production at optimum levels for the benefit of livestock and wildlife.

A rodeo arena is located in riparian habitat in Section 29, R14E, T14S. Recreational use of the arena is limited to warm weather months. Another recreational activity that occurs in the riparian habitat in Whitmore Canyon is a "put and take" fishery discussed in the following section.

Post-mining land use will continue to be wildlife, grazing, recreation and culinary water use in Grassy Trail Reservoir. The sites disturbed by mining activity will be reclaimed to wildlife and grazing uses.

10.3.2.1 Aquatics

The UDWR has stocked Grassy Trail Reservoir and Grassy Trail Creek with brown trout and rainbow trout respectively. Brown trout were stocked to control a nuisance population of tiger salamanders and the UDWR (1979) has reported success.

The brown and rainbow trouts are exotic game species that are of high interest to Utah. There is no spawning habitat for either species in the permit area. Fishing in Grassy Trail Reservoir is presently prohibited because the water is used for culinary purposes.

The tiger salamander is a year long resident of the permit area. Grassy trail reservoir and Grassy Trail Creek are used as breeding and larva habitat during the period March - September. Riparian habitat along Grassy Trail Creek is used by the adult life form.

A three mile segment of Grassy Trail Creek below the reservoir (Plate X-1) is designated a Class 3 fishery (significant value) by the UDWR. The rainbow trout fishery is sustained on a put and take basis during seasons of adequate water flow. The remainder of Grassy Trail Creek and all other streams on the permit area have a limited value for sport fisheries and have been designated as Class 5 or Class 6. Class 6 streams are dewatered during portions of the year.

Aquatic macroinvertebrates were the organisms studied in the aquatic resource analysis of Grassy Trail Creek. According to Winget (1980), aquatic macroinvertebrates are generally much more susceptible to water-borne toxicants and other environmental



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Norman H. Bangertter
Governor

Dee C. Hansen
Executive Director

Dianne R. Nielson, Ph.D.
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

December 27, 1989

Letter to the Editor
Sun Advocate
Box 1870
76 West Main
Price, Utah 84501

Dear Editor and Readers:

I appreciate this opportunity to correct statements and perceptions in the December 21, 1989 Sun Advocate article concerning the oil spill at the Sunnyside Mine and Utah's coal mining regulatory program.

First, Utah has a comprehensive coal mining regulatory program, which is strictly enforced at all mines by the Utah Division of Oil, Gas and Mining (DOGM). The oil spills which occurred in March and December are violations of state rules and of the mine's permits. DOGM, as well as the Division of Environmental Health, Bureau of Water Pollution Control (Health), have fined Sunnyside Reclamation and Salvage, Inc. (SRS), for those violations, including payment for fish killed, and have required repairs, maintenance, and redesign, in order to avoid future spills and contamination of the stream. Because this is a "native" trout habitat and because there are sufficient trout upstream to re-populate the stream, Wildlife Resources has indicated that the money paid for the fish kill will not be used to restock Grassy Trail.

Second, the reclamation surety at the Sunnyside Mine is not a self bond. Reclamation is guaranteed by a collateral bond which has been posted by SRS. SRS, not the state, is liable for and has bonded to ensure full reclamation. DOGM is not "going easy" on SRS.

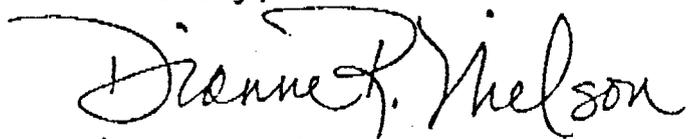
Third, there is no failure to require cleaning of the stream. DOGM, Health and Wildlife Resources agreed in November that SRS would not be required to vacuum the stream. The oil which entered the stream, because it is water soluble, does not adhere to the stream bottom. The material which is in a 3/4 mile stretch of the stream is flocculant, a material which has been approved by Wildlife Resources, DOGM and Health to remove oil from the mine water. The flocculant has been scraped from rocks in the stream and analyzed by

both DOGM and Health, and found to contain no toxic levels of chemicals or oil/grease. Fish have utilized that portion of the stream and macroinvertebrates (food for the fish) have populated that portion of the stream subsequent to the March 1989 spill. The wisdom of vacuuming the stream has been considered by technical experts, and the company was told not to vacuum the stream. There is no failure of enforcement or compliance by either the regulatory agencies or the company.

Finally, let us look at the history of Grassy Trail Creek. The creek, above the mine, is fed by numerous springs and seeps and exists year-round. Before mining began at Sunnyside, the creek at and below the mine was often dry. Dewatering of the mine's underground workings now provides a continual supply of water to that portion of Grassy Trail Creek. In other words, water (and fish) occupy the creek bed year-round because the mine is there. Reported fish kill from the March spill alone is quoted by Wildlife Resources at over 1,500 fish. This is an estimate. It is based on the actual dead fish recovered and the estimated population of fish per mile of stream. In fact, 72 dead fish were recovered from 3.3 miles of stream in March, and five dead fish were found in an undisclosed length of stream in December.

I am not discounting the environmental impacts of the March and December spills. However, I want your readers to understand that such violations trigger both citations, often with substantial fines, and on the ground clean-up, restoration, and mitigation. Any efforts to clean up or restore an area must also consider the impact of the clean-up efforts on the natural environment. The record shows that, for the March incident, both the penalty process and the required remedial actions fit the mandate of the Utah Coal Regulatory Program. I am confident that the program will be enforced in reclamation of the December oil spill.

Sincerely,



Dianne R. Nielson
Director
Utah Division of Oil, Gas
and Mining

Lest we forget

Forty members of the 27 miners killed in the Wilberg Mine two years ago remembered the event in many ceremonies last Tuesday. Both

the Wilberg and Cottonwood mines were closed for one day in observance of the tragedy.

Utah coal industry cannot afford a severance tax on coal, he explained. The tax credit would face its greatest opposition from proponents of such a tax.

"I submitted the bill last year and couldn't get it out of committee. At least by filing the bill this year we can show we don't need any additional taxes," said Dmitrich. "The coal industry cannot tolerate any additional taxes and still be competitive with neighboring states."

Dmitrich patterned the proposal after similar laws in Colorado and Oklahoma. Such

government will probably be most important."

Because education is in need and social programs have been cut in the past, dealing properly with all areas of state government will be a challenge, according to Dmitrich.

"There's not enough money in Utah to make everyone happy. We'll have to take care of the priorities," he said.

The state representative will be making an effort to change the bill submitted by the Utah Liquor Tax Force, which he says discriminates
(Continued on Page 3A)

Once again

Sun Advocate 12/21/89

Mine oil spill kills fish in Grassy Trail

By LAYNE MILLER
Staff writer

Sunnyside Reclamation Salvage in Sunnyside has been the cause of another fish kill in Grassy Trail Creek.

Division of Wildlife Resources personnel said an oil spill early last Sunday morning has decimated the fish population in 3.3 miles of the creek. A similar spill in March killed over 1,500 wild rainbow trout, wiping out the entire population in the same stretch of water.

Larry Dalton, DWR fisheries biologist, said the most recent spill killed all the fish in the reach. "We don't know exactly how many fish were killed because the water was so

murky we couldn't see to the bottom," Dalton said. Officials electro-fished the stream and no fish came to the top, indicating the kill was total.

The spill is creating a controversy between the Division of Oil, Gas and Mining and the DWR. Even though the DOGM admits "there clearly was an unapproved oil spill," they don't agree with the cleanup suggested by the DWR. "They (DWR) would like to see the stream vacuumed, but some biologists believe that would also vacuum up the micro-invertebrates the fish eat," said Lowell Brantton, DOGM official. He said SRS officials claim the stream is cleaner now, even after the spill, than it was before 1980.

Brantton said the mine was fined approximately \$5,000 after the March spill and it will be reprimanded for the spill last weekend. He said the mine has not paid the first fine, but is appealing the fine and the citation. He did not know how SRS would be reprimanded this time.

SRS mine manager Bill Ballas said the mine has done everything it can to keep this type of thing from happening, including voluntarily building a bigger retention pond to hold the mine's runoff water. "We did that voluntarily," said Ballas, "as one told us to do it."

He said the spill was created when a pipe filled with hydraulic fluid feeding the number one longwall broke, releasing the fluid into the

stream.

Dalton said, "The toxic level was seven times higher than the acceptable level for the fish."

Officials believe the fish are native to Grassy Trail Creek. The Colorado cutthroat trout probably survived there for some time, as long-time residents of Sunnyside tell of catching fish in the stream 30-40 years ago.

DWR officials claim they are pushing DOGM to take more severe action against the company because of their "apparent lack of concern" about the environment. Dalton said, "This seems to happen frequently up there." He said other area mines are easier to work with than SRS. "They (the other mines) do

more for the environment than is even required of them," he said. To prove his point, Dalton said the March spill in Sunnyside has yet to be cleaned up. "There just seems to be a lack of care on the mine's part," he said.

One official, who wished not to be identified, suggested that DOGM is going easy on SRS because if the company goes under, as Kaiser did, the state of Utah will be responsible for the cleanup, because of the Kaiser bankruptcy. He explained DOGM allowed Kaiser to post its own bond for the reclamation of the area, so when they took out bankruptcy, the state was left holding the bag. "If SRS goes under, the state will be liable for the reclamation," he said.

EXHIBIT VI



NO. N 89-26-241

notice of violation

To the following Permittee or Operator:

Name Summit Reclamation & Salvage Corporation

Mine Summit surface Underground Other

County Carbon State Utah Telephone 888 4421

Mailing Address P.O. Box 99 Summit, Utah

State Permit No. Act 5041009

Ownership Category State Federal Federal/State Mixed

Date of Inspection Dec 18 1989

Time of Inspection 9 a.m. p.m.

Operator Name (other than Permittee) N/A

Mailing Address N/A

Under authority of the Utah Coal Mining and Reclamation Act, Section 40-10-1 et seq., Utah Code Annotated, 1953, the undersigned authorized representative of the Division of Oil, Gas & Mining has conducted an inspection of above mine on above date and has found violation(s) of the act, regulations or required permit condition(s) listed in attachment(s). This notice constitutes a separate Notice of Violation for each violation listed.

You must abate each of these violations within the designated abatement time. You are responsible for doing all work in a safe and workmanlike manner.

The undersigned representative finds that **cessation of mining is** is not expressly or in practical effect required by this notice. For this purpose, "mining" means extracting coal from the earth or a waste pile, and transporting it within or from the mine site.

This notice shall remain in effect until it expires as provided on reverse side of this form, or is modified, terminated or vacated by written notice of an authorized representative of the director of the Division of Oil, Gas & Mining. Time for abatement may be extended by authorized representative for good cause, if a request is made within a reasonable time before the end of abatement period.

Date of service/ mailing Dec 20 1989

Time of service/ mailing 2 a.m. p.m.

Bill Balaz
Permittee/Operator representative

Mine Manager
Title

Bill Balaz
Signature

Wm. J. Matencik
Division of Oil, Gas & Mining representative

Reclam. Spec.
Title

Wm. J. Matencik
Signature
12/10/89

26
Identification Number

SEE REVERSE SIDE

WHITE-DOG M YELLOW-OSM PINK-PERMITTEE/OPERATOR GOLDENROD-NOV FILE



NOTICE OF VIOLATION NO. N-59-26-21-1

Violation No. 1 of 1

Nature of violation

Failure to maintain support facilities required or used incidentally for the operation of the underground mine. The specific support facility associated with this "NOV" is the oil emulsion pipeline underground, particularly down the manshaft.

Provisions of act, regulations or permit violated

UMC 817.181 & 817.42

PORTION OF OPERATION WHICH NOTICE APPLIES

Underground emulsion pipeline and mine water surface system

REMEDIAL ACTION REQUIRED

Portion of operation to which notice applies

1. Turn off emulsion valve and repair pipeline break
2. Redirect mine water to other storage facilities
3. Treat mine water if sampling or noncompliance is suspected
4. Install straw filters in mine water discharge channel (Pole Canyon)
5. Sample mine water discharge at the outfall:
 - a. daily until oil & grease limits are met, and,

Remedial action required (including any interim steps)

b. thereafter, on a weekly basis, until four weeks of compliance is demonstrated by weekly sampling.

6. Provide adequate support for the underground emulsion pipeline
7. Commit to stream restoration, if needed, as determined by

^{then} the Division of Oil, Gas, & Mining

Abatement time (including interim steps)

1, 2 & 4 - completed

3 - Ongoing until oil & grease limits are met or non compliance is no longer suspected.

5 Sampling as specified in 3 above with daily sampling to start when discharge from new mine water pond occurs.

6. Jan 31, 1990

7. March 20, 1990



MODIFICATION OF NOTICE OF VIOLATION/CESSATION ORDER

To the following Permittee or Operator:

Name Sunnyside Reclamation & Salvage, Inc. (aka Sunnyside Coal Company)
Mailing Address P.O. BOX 99 Sunnyside, Utah
State Permit No. ACT/007/007

Utah Coal Mining & Reclamation Act, Section 40-10-1 et seq., Utah Code Annotated (1953):

Notice of Violation No. N 89-26-24-1 dated Dec. 20, 19 89.

Cessation Order No. C _____ dated _____, 19 ____.

Part 7 of 7 is modified as follows: to extend abatement date to July 2, 1990 to allow ~~operator~~ for

Reason for modification is approval and implementation of the "stream enhancement" plan

Part _____ of _____ is modified as follows: for trailing cattle through Sunnyside Mine permit area

Reason for modification is in one day. This plan will include ^{ERP} text additions ^{in the PMP} and a copy

Part _____ of _____ is modified as follows: of the notice sent to livestock operators.

Date of service/ mailing May 31, 1990 Time of service/ mailing 10:00 a.m. p.m.

Date of inspection December 18, 1990

BILL BALAZ
Permittee/Operator representative

Mine Manager
Title

Signature _____

PAMELA GREENBAUGH-LITTIG
Division of Oil, Gas & Mining

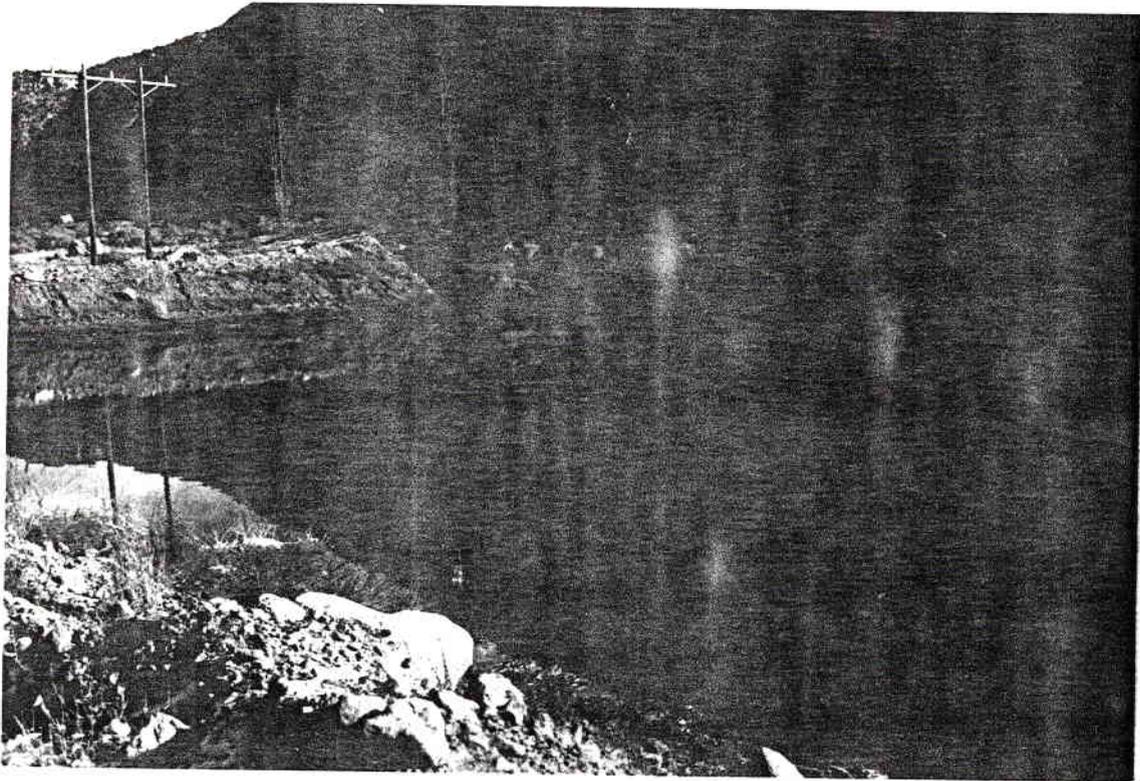
Permit Supervisor
Title

Pamela Greenbaugh-Littig
Signature

EXHIBIT VII

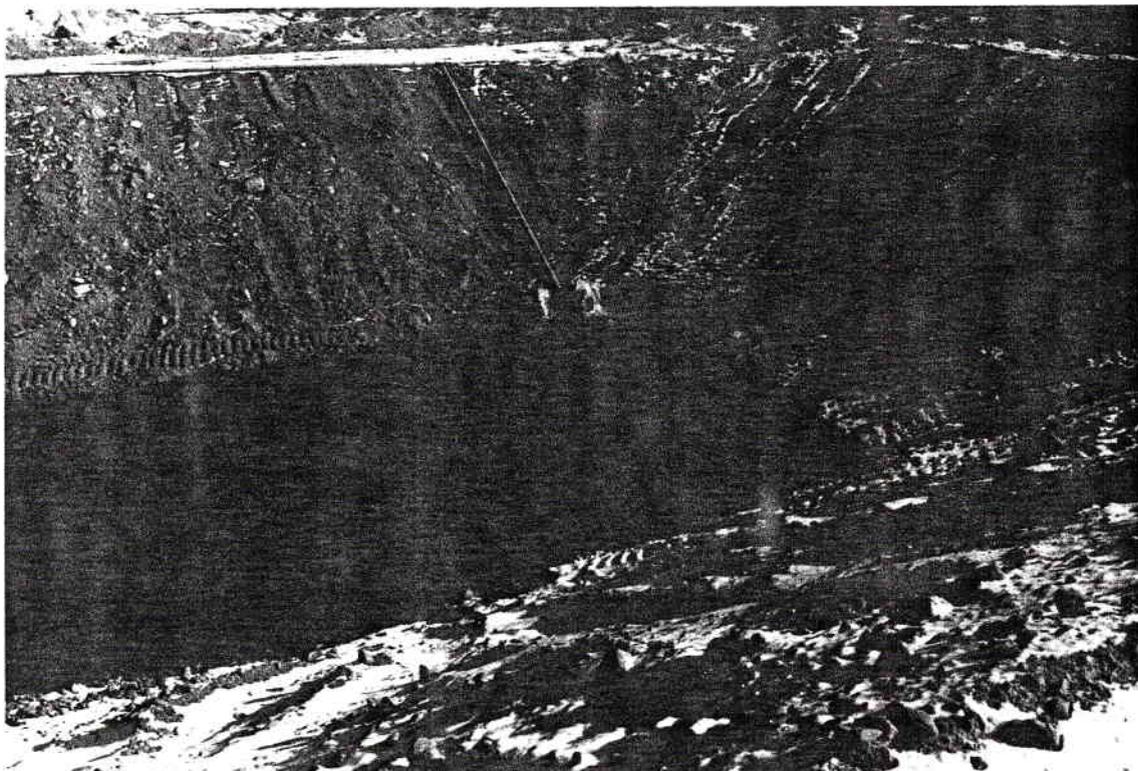
EXHIBIT VII - PHOTO PRINTS - Environmental Control Measures.

Re: Assessment Conference 6/18/90, SRS/006M, NOV 89-26-24-1, 12/20/89



SSF Pond

Photo Taken 12/18/89
www.



New Whitmore Pond
Constructed in 1989
Just before 12/18/89 incident

Photo Taken 12/18/89
www

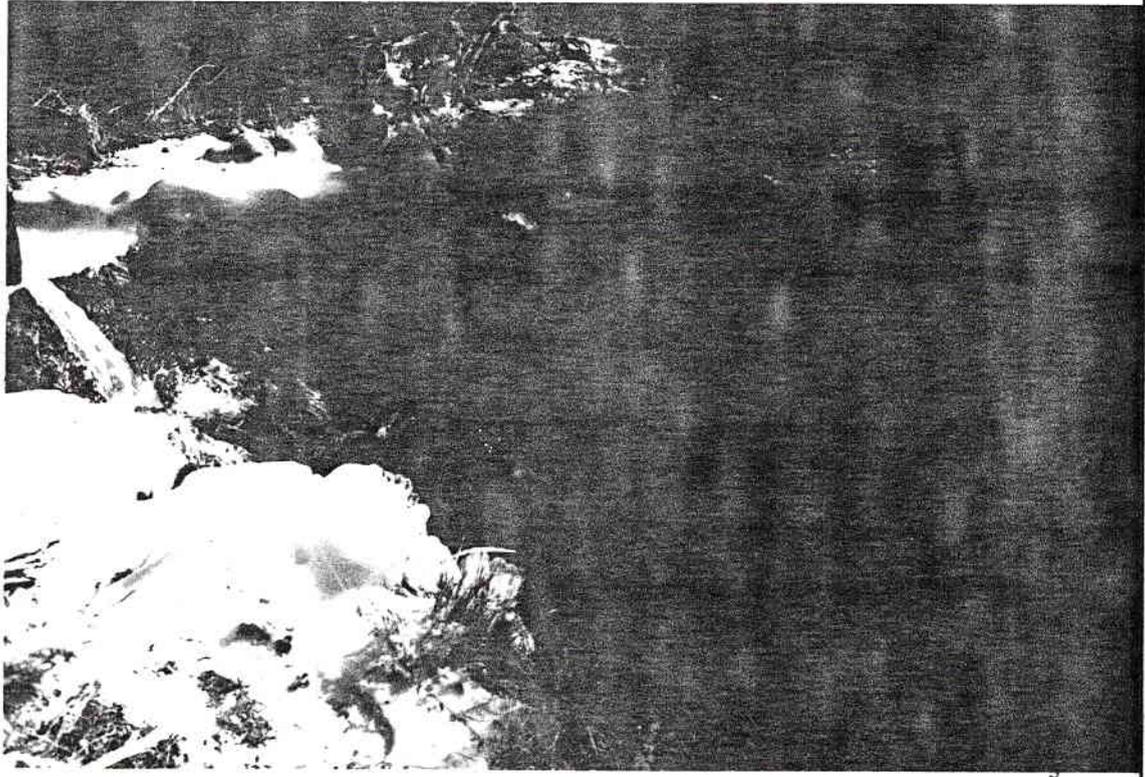
EXHIBIT VII - PHOTO PRINTS - Emulsion Incident

Re: Assessment Conference 6/18/90, SRS/006M, NOV 89-26-24-1, 12/20/89

Old Whitmore Pond Discharge
Into Pole Creek

culvert 15"
outfall 002A

Discharge
at 9am
12/18/89
estimated
20% normal
flow. No
in flow was
taking place.



WJM 6/14/96

EXHIBIT VII - PHOTO PRINTS - Grassy trail Creek Emulsion Event

Re: Assessment Conference 6/18/90, SRS/006M, NOV 89-26-24-1, 12/20/89

Confluence Of Pole & Grassy trail Creeks

Photo
6/18/89
WJM

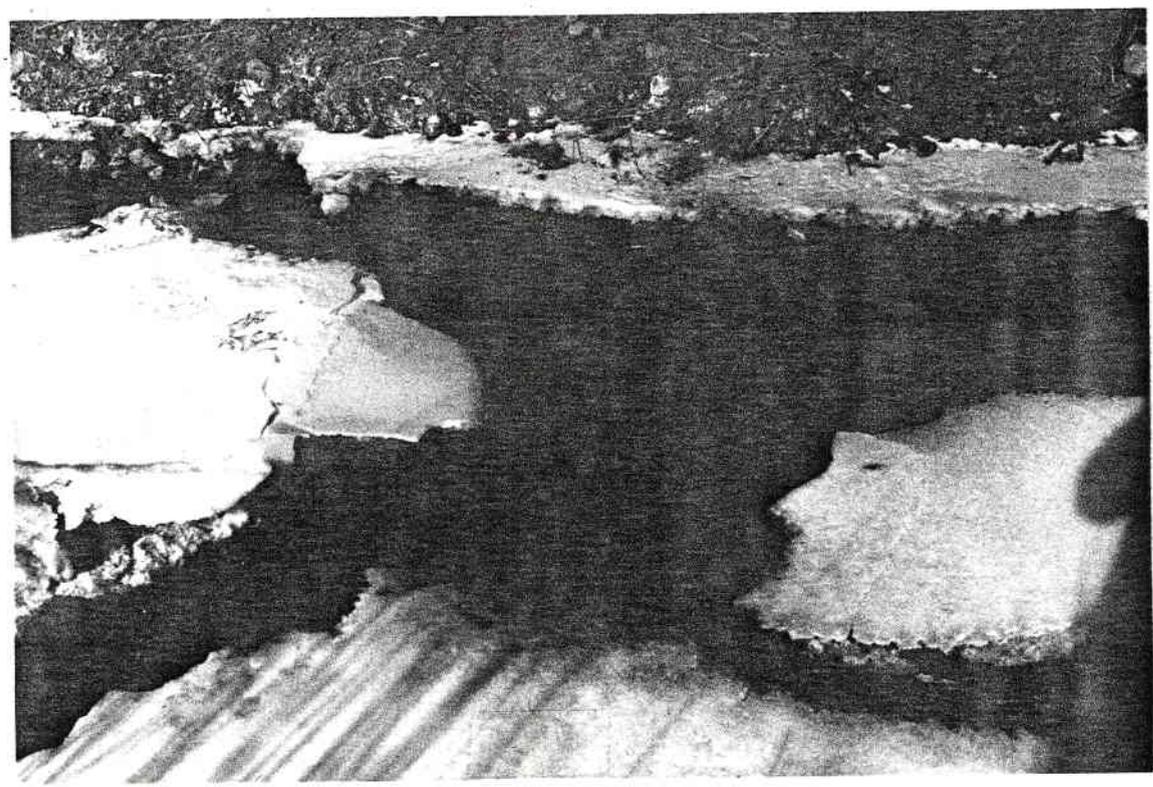
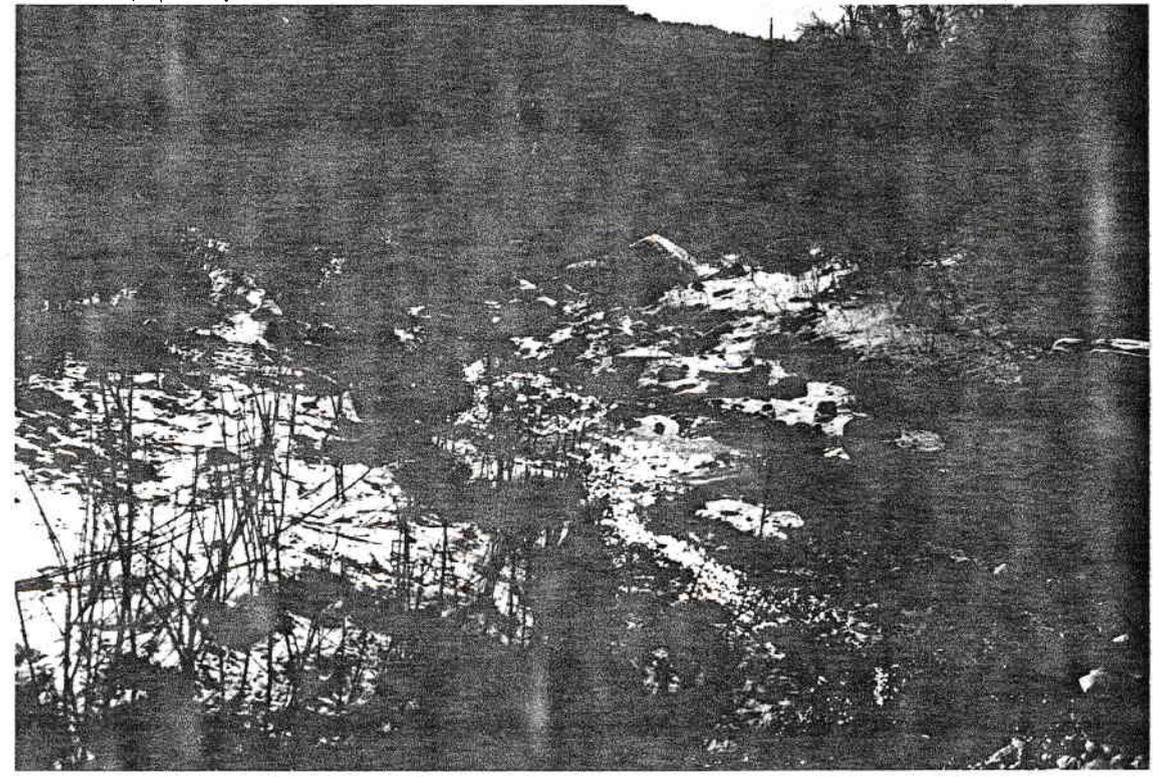


EXHIBIT VII - PHOTO PRINTS Grassy Trail Creek
Emulsion Event.

Re: Assessment Conference 6/18/90, SRS/006M, NOV 89-26-24-1, 12/20/89

Photos. www
12/18/90

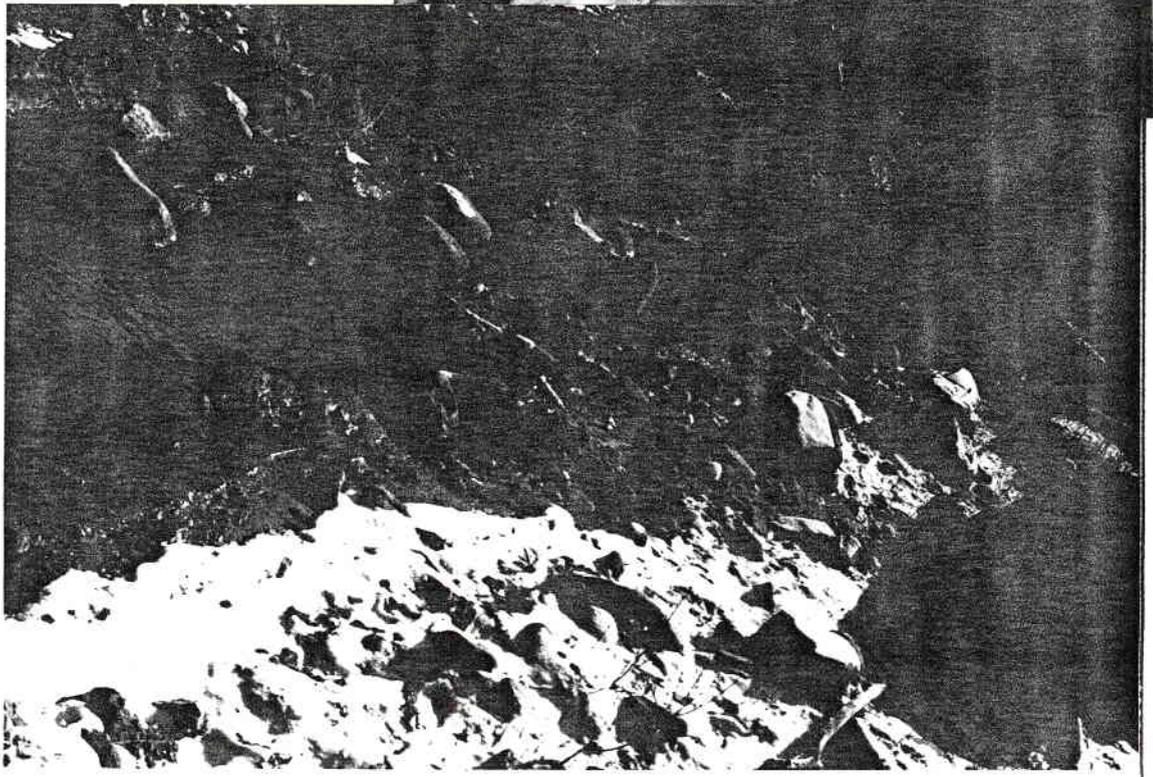
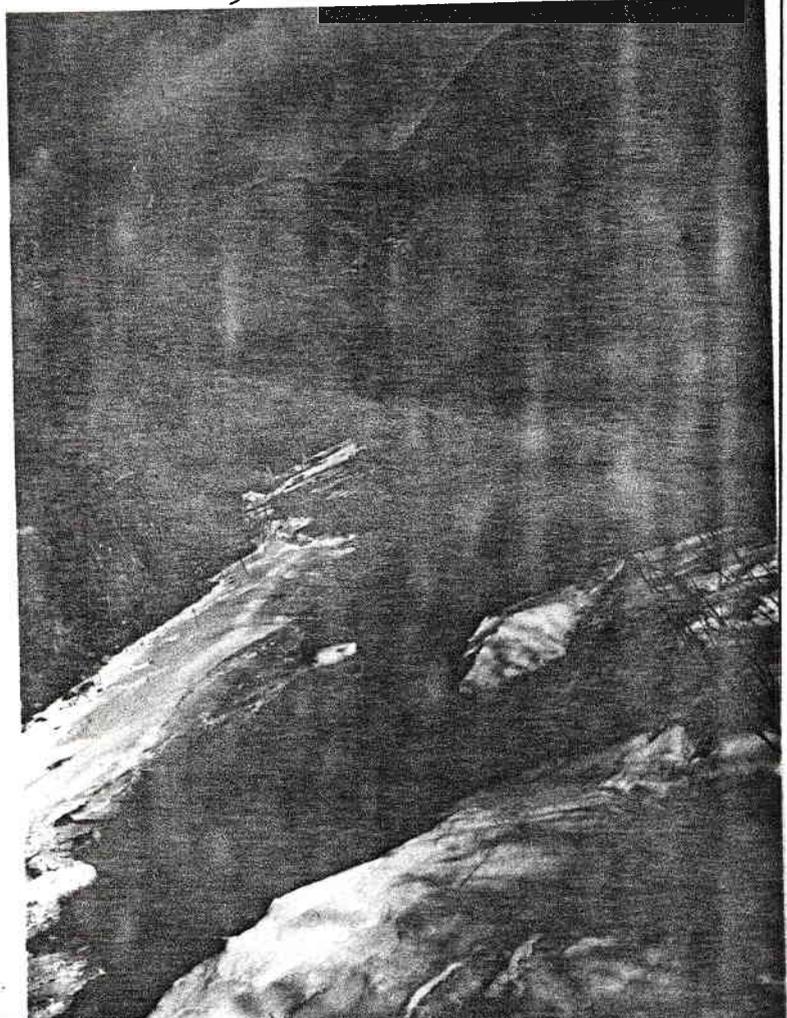


EXHIBIT VII - PHOTO PRINTS - Environmental Control Measures

Re: Assessment Conference 6/18/90, SRS/006M, NOV 89-26-24-1, 12/20/89

Flock being injected into the mine water line just before entering the Whitmore Pond

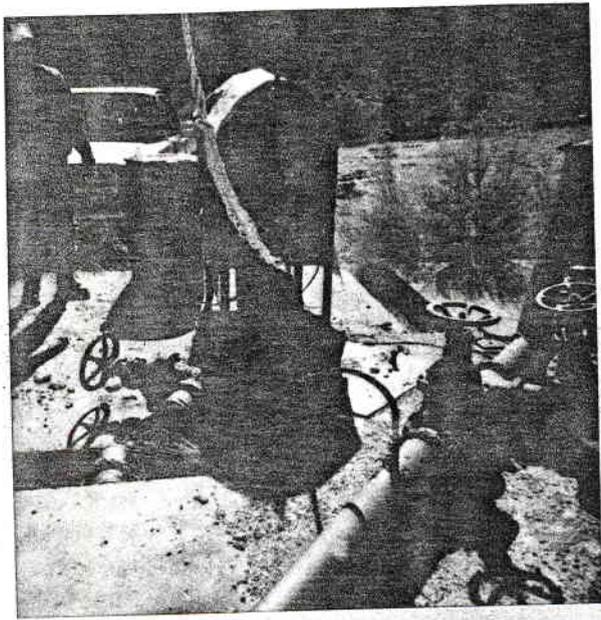
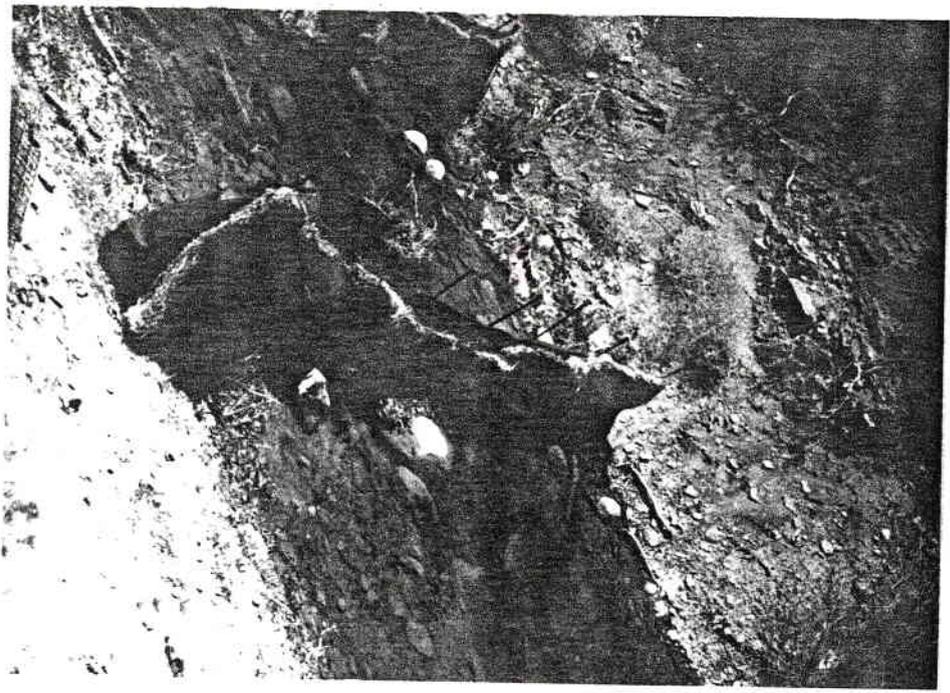


Photo Taken May 1989
www

Flock break down oil emulsion so it reacts more like oil & grease

Unit Operational
10a.m on 12/18/89.



may 1989
www

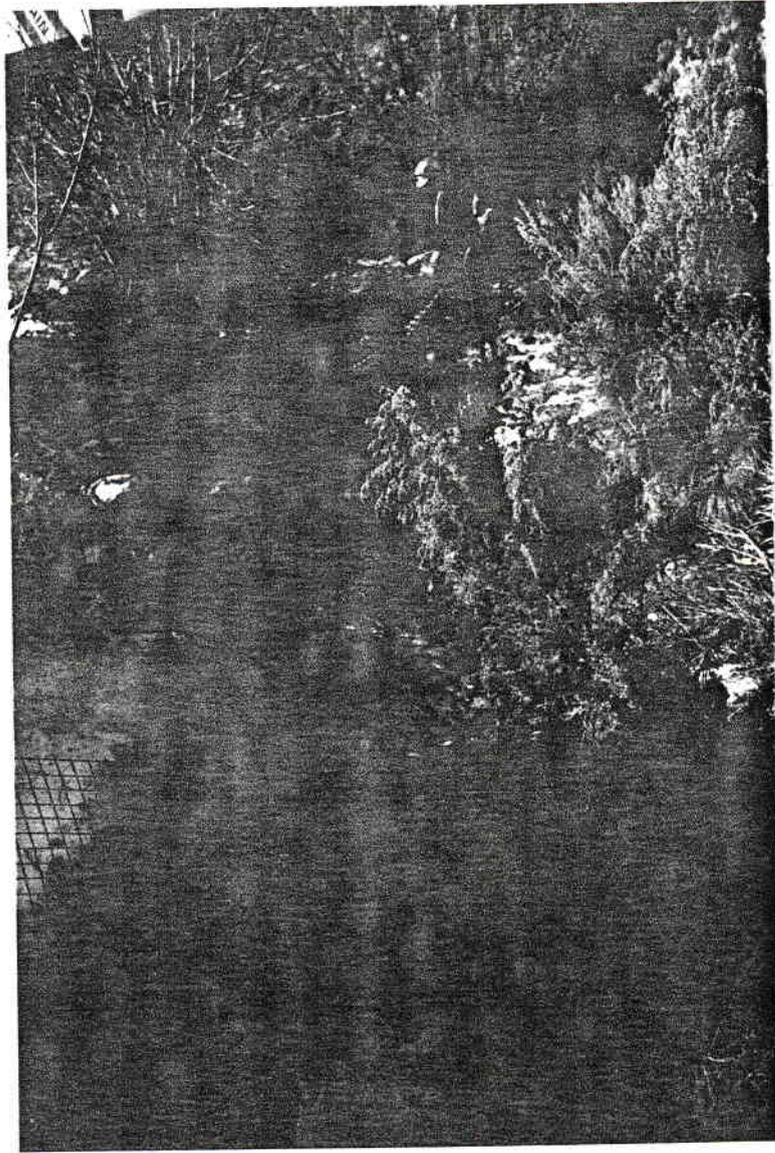
Straw bales & silt fence to extra oil & grease from mine water

This photo was taken in May 1989 & only demonstrates an approval technique used by SRS

6
www 6/14/96

EXHIBIT VII - PHOTO PRINTS - Environmental Control Measures
Pole Creek

Re: Assessment Conference 6/18/90, SRS/006M, NOV 89-26-24-1, 12/20/89



Straw bales existing being removed and replaced by new straw bales and silt fences.

Photo - 12/18/89 www

EXHIBIT VIII

EXHIBIT VIII
Abatement Measures.

TABLE I

| ITEM | DESCRIPTION | DUE DATE | COMPLETION DATE | INSPECTION DATE |
|------|--|---|---|---------------------|
| (1) | Turnoff Emulsion Valve Repair Pipeline Break | Immediate 12/18 | 12/17 12/18 | 12/17 12/18 |
| (2) | Redirect Mine Water To Other Facilities | 12/17 | 12/17 | 12/18 & On Going |
| (3) | Treat Mine Water (Flock) | 12/17 | 12/17 On Going | 12/18 |
| (4) | Replace Straw Filters In Mine Water Discharge Channel | 12/18 | 12/18 | 12/18 |
| (5) | Sample Mine Water At Discharge Outfalls | 12/17 | 12/17 & On Going | 12/18 & On Going |
| (6) | Provide Additional Support For Underground Emulsion Line | 1/31/90 | 1/29/90* | 2/5/90 |
| (7) | Commit To Stream Restoration, If Needed, As Determined By DOGM | 3/20/90 Amended 6/1/90 Amended 7/2/90 Abatement | DOGM Determination Dated 6/5/90** | *** |

Footnotes

* Operator replaced line with a threaded pipe. See memo of 2/5/90, Appendix VIII.

** See letter of 6/5/90, Appendix VIII.

*** Grassy Trail Stream Enhancement Program consisting of curtailing livestock drifting and in lieu thereof require operators to trail livestock from mine to Grassy Trail Reservoir. See Appendix VIII.



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Norman H. Bangerter
Governor

Dee C. Hanson
Executive Director

Dianne R. Nielson, Ph.D.
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

May 23, 1990

TO: Pamela Grubaugh-Littig, Permit Supervisor

FROM: William J. Malencik, Reclamation Specialists *WJM*

RE: Sunnyside Coal Company - NOV. 89-26-24-1

This has reference to the aforementioned Notice of Violation (NOV). The abatement included two parts: (1) Repairing the emulsion line and (2) Stream habitat restoration, if needed, as determined by the Division.

Part one has been completed and the matter reduced to writing by the undersigned. The operator installed a new threaded emulsion pipeline with stainless steel couplings. Also, an approved emulsion shut off system and procedures have been implemented by the operator.

The final abatement on part two is still pending; June 1, 1990, is the deadline date. In lieu of a stream restoration program, I would recommend the operator initiate a stream enhancement program. The program by Division direction would include: (1) eliminating livestock drifting both spring and fall on Sunnyside Coal Company patented land along Grassy Trail Creek (2) trailing in lieu of drifting the livestock and (3) Sunnyside Coal Company notifying the affected livestock operators of this change in writing effective with the fall 1990 livestock movement. This practice would continue for the life of the mine. The notice must provide that the livestock operators would have one day to trail their livestock from the mine site to the Grassy Trail Reservoir. Further, the livestock operators should be requested to trail the livestock up the access road or adjacent area with central though of keeping the cows out of the stream bottom (riparian areas). The operator should be requested to send a copy of his notice to the Division.

It would be difficult to attribute sediment as part of the emulsion incident, however, it should be done in lieu of other emulsion stream abatement or restoration work. This measure should provide long term benefits to Grassy Trail Creek and be more cost effective and beneficial than many restoration measures.

BM/lap



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Norman H. Bangertter
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Executive Director

Dianne R. Nielson, Ph.D.
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

June 5, 1990

Mr. Bill Balaz
General Mine Manager
Sunnyside Reclamation and Salvage, Inc.
P.O. Box 99
Sunnyside, Utah 84539

Dear Mr. Balaz:

Re: Abatement of NOV N89-26-24-1, Part 7 of 7, Sunnyside Mines,
Sunnyside Reclamation and Salvage, Inc., ACT/007/007, Folders #2
and #5, Carbon County, Utah

Notice of Violation No. N89-26-24-1, part 7 of 7, was modified and the abatement date extended to July 2, 1990 for approval and implementation of a "stream enhancement" plan as will be explained in the following paragraphs.

The stream enhancement plan would necessitate trailing livestock (not drifting livestock), through the permit area in both the spring and fall. This livestock practice must be submitted for inclusion and approval in the text of the Permit Application Package (PAP). Sunnyside Reclamation and Salvage, Inc., (also known as Sunnyside Coal Company) must also notify the affected livestock owners of this change in writing and a copy of the notice sent to the Division. The notice, effective fall 1990 for the life of the mine, must state that the livestock operators would have one day to trail their livestock from the mine site to Grassy Trail Reservoir. Further, the livestock operators must be requested to trail the livestock up the access road or adjacent area, keeping the cows out of the stream bottom (riparian area).

This stream enhancement plan will be implemented by the operator in lieu of other emulsion stream abatement or restoration work. Current livestock practices in the permit area allow the cattle to drift through the stream riparian zone. The cattle create trails along the stream banks which contributes to increased sediment loading of the stream. Stream sediment loading cannot be attributed to the emulsion incident, however, a stream enhancement plan may be more cost effective and beneficial than many restoration measures.

Page 2
Mr. Bill Balaz
June 5, 1990

The practice of trailing the cattle on the road will stabilize stream banks, reducing the sediment in the stream, which will increase detritus for use as forage by macroinvertebrates and increase fish population.

Please submit the text for the livestock practice for inclusion in the PAP and copies of the letters sent to the livestock owners by June 22, 1990.

If you have any questions, please call me.

Sincerely,


Pamela Grubaugh-Littig
Permit Supervisor

cl
cc: D.R. Nielson
L.P. Braxton
J. Helfrich
S. White
B. Malencik
BT37/84-85

EXHIBIT IX

EXHIBIT IX - SUMMARY & CHRONOLOGY

SRS - Notice of Violation - N89-26-24-1, December 20, 1989.

Incident: Emulsion pipeline separated in a Sunnyside Coal Mine underground shaft. The emulsion (95% water and 5% longwall emulsion oil) comingled with mine water, drained to a mine sump, pumped to surface and discharged in a mine water discharge system. (See Exhibits II & III). The mine water was discharged into Grassy Trails Creek at the time of discovery.

Facts Regarding The Incident

1. When Detected: Sunday morning 12/17/89 (Weekend Mine Idle).
2. Who Detected: Karl Housekeeper, SRS, Environmental Official.
3. What Was Done: Notified Division (Malencik) about noon on 12/17/89.

He advised me and/or we concluded:

- a. Operator immediately turned off the valve from the emulsion mixing tank to prevent further emulsion flow into the separate pipe.
- b. Discontinued use of the emulsion line until it could be repaired.
- c. Would hold water in mine as long as possible short of flooding the mine.
- d. Divert water to lower less sensitive surface mine site i.e.,
 - o Slurry Cell -- Total containment.
 - o SSF Pond -- Discharges into lower reach of Grassy Trail Creek.
 - o Utilize New Pond (Whitmore).
 - o Treat Whitmore Ponds and discharge.
- e. Notify others as required.
- f. Sampled mine discharge at the outfalls.
- g. Would flock the pond (Whitmore).
- h. Would replace booms, straw bales and other control measures in Pole Creek.

- i. Would repair the line 12/18/89 when workers come back on shift.

Note: (The leak was detected in the manshaft, a pipe separation had occurred about 100' down a 1200' manshaft).

4. Environmental Impacts:

a. Water Analysis:

Undersigned on 12/18/89 took water samples at both the SSF Pond and Whitmore Pond discharge at the outfalls. At the time of sampling no mine water was being discharged into the Whitmore Pond and the SSF Pond. The discharge out of the Whitmore Pond terminated about 5:00 p.m. 12/18/89. The SSF Pond discharge was clear not milky in color, therefore, the emulsion had not reached the SSF Pond. Nevertheless, the pond was sampled.

Sample results:

SSF Pond Outfall less than 1 mg/l (oil and grease)

Whitmore Pond Outfall: 45.9 mg/l (oil and grease)

The permit limit on oil and grease is 10 mg/l.

b. Stream Bed Analysis:

Stream bed samples for oil and grease were not conclusive relative to oil and grease loading in the stream bed. Sampling, some of a repetitive nature, taken on 2/13/90 and 5/01/90. Four stations on Grassy Trail Creek were sampled on 2/13/90, eight stations on Grassy Trail Creek on 5/01/90. Only four stations could be sampled because some sections of the stream were frozen.

c. Fish:

Undersigned on 2/18/89 walked the stream area 1/8 of a mile below the Confluence of Pole and Grassy Trail Creek. While the stream was chalky colored I did not observe any dead fish.

Later that day I conversed with the Fish and Game Warden and he said he had seen two (2) dead fish about 1/4 mile downstream from the Pole Creek.

The Game and Fish report based on 0.2 of a mile survey indicate six (6) dead fish had been observed by their personnel.

d. Aquatic Insects:

Undoubtedly the emulsion incident had some adverse impact on the aquatic insects. After the event insect observations were conducted and were observed under the rocks. The damage to the insect is not fully documented because drought conditions have completely dried up sections of Grassy Trail Creek. (Exhibit I)

e. Mine Water Subsequent Discharge:

Mine water had not been discharged into Grassy Trail Creek via Pole Creek after 12/18/89 until 3/26/90. Pole Creek outfall sample as taken by undersigned on 4/12/90 showed discharges were in compliance (oil and grease less than 1 mg/l).

5. Notice Of Violation:

Undersigned on 12/18/89, after field observations notified the operator of the potential violation. However, the violation would not be issued until water sample analysis had been received. NOV 89-26-24-1 was issued on 12/20/89.

6. Abatement Measures Required By DOGM:

See Table I Attachment.

Jim J. Skolnick
Rec Spec 6/15/90