0029

007/011 # 6

COAL MINING AND RECLAMATION OPERATIONS FOR 1991

(Must be submitted to the Division by March 31, 1992)

State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
3 Triad Center, Suite 350
355 West North Temple
Salt Lake City, Utah 84180-1203
(801) 538-5340

RECEIVED
MAR 16 1992
DIVISION OF
OIL GAS & MINING

Permittee: United states Fuel Company

Mine Name: King 4 Mine

Mailing Address: P.O. Box A Hiawatha, Utah 84527

Company Representative: Robert Eccli

Resident Agent: Robert Eccli

Permit Number: ACT 007/011

MSHA ID Number: 4200098

Date of Initial Permanent Program Permit: March 13, 1987

Date of Permit Renewal: March 13, 1992

Quantity of Coal Mined (tonnage) 1991: 219,682 Tons

Attach Updated Mine Sequence Map
(Same as Lease Royalty Payment Map and/or MSHA Progress Map)

All monitoring activities during the report period to be submitted with this report (including, but not limited to):

A. Summarized Water Monitoring Data:

1. **List of monitoring points and their locations and respective frequencies of monitoring (monthly, quarterly, etc.) as approved in the PAP**
2. **UPDES permit number, UPDES discharge points and their locations**
3. **Summary of findings based on water monitoring during 1991**
4. **Submit water monitoring as database files (ASCII, Lotus, dBase, etc.) (Please contact Ken Wyatt if you have any questions)**

B. Precipitation or Other Climatological Data (please submit as database files: ASCII, Lotus, dBase, etc.-- Contact Ken Wyatt if you have any questions)

UNITED STATES FUEL COMPANY

Hiawatha Mines ACT #007/001

Quarterly Sediment Pond Inspection Sheet

Inspector's Name ROBERT FECLI' Date 12-3-91

Sediment Pond Name and Location SEE BELOW Date Last Inspected 9-9-91

Observations Made

1) Seepage (specify location, color and approximate volume):
- at isolated spots on embankment slopes — NONE
- at natural hillside — NONE
- over sidespread areas — NONE
- NONE

2) Cracks or scarps on crest — NO

3) Cracks or scarps on slope — NO

4) Sloughing or bulging on slope — NO

5) Major erosional problems:
- spillway — NO
- embankments — NO
- diversion ditches — NO

6) Existing embankment freeboard:
Water_____ Increase_____ Decrease ✓ No Water — NO WATER

7) Visible sumps or sinkholes — NO

8) Clogging:
- spillway channels and pipes — NO
- decant system — NO
- diversion ditches — NO

9) Cracking or crushing of pipes:
- spillway pipes — NO
- decant system — NO

REGISTERED PROFESSIONAL ENGINEER MICHAEL P. WATSON 7095 STATE OF UTAH

Note additional comments below:

POND NO.	LOCATION	COMMENTS
D003	UPPER RAIL YARD	OK
D004	NORTH OF SLURRY POND No. 1	OK
D005	EAST OF SLURRY POND No. 4	OK
D006	NORTHEAST OF SLURRY POND No. 5	OK
D007	SOUTH EAST OF SLURRY POND No. 5	OK
D008	MIDDLE FORK MINE YARD	OK
D009	SOUTH FORK MINE YARD	OK
D011	SOUTH FORK TRUCK LOADOUT	OK

UNITED STATES FUEL COMPANY

Hiawatha Mines ACT #007/001

Quarterly Sediment Pond Inspection Sheet

Inspector's Name ROBERT ECCLI Date 9-9-91

Sediment Pond Name and Location SEE BELOW Date Last Inspected 6-7-91

Observations Made

1) Seepage (specify location, color and approximate volume): NONE
   - at isolated spots on embankment slopes "
   - at natural hillside "
   - over sidespread areas "

2) Cracks or scarps on crest NO

3) Cracks or scarps on slope NO

4) Sloughing or bulging on slope NO

5) Major erosional problems:
   - spillway NO
   - embankments NO
   - diversion ditches NO

6) Existing embankment freeboard: SEE BELOW
   Water_____ Increase_____ Decrease_____ No Water

7) Visible sumps or sinkholes NO

8) Clogging:
   - spillway channels and pipes NO
   - decant system NO
   - diversion ditches NO

9) Cracking or crushing of pipes:
   - spillway pipes NO
   - decant system NO

REGISTERED PROFESSIONAL ENGINEER MICHAEL WATSON 7095 STATE OF UTAH

Note additional comments below:

POND NO.	LOCATION	COMMENTS
D003	UPPER RAIL YARD	OK 12" WATER NORTH END
D004	NORTH OF SLURRY POND NO. 1	OK 12" STANDING WATER
D005	EAST OF SLURRY POND NO. 4	OK 6" WATER IN BTM.
D006	NORTH EAST OF SLURRY POND NO. 5	OK 6" WATER IN BTM
D007	SOUTH EAST OF SLURRY POND NO. 5	OK 3" WATER IN BTM
D008	MIDDLE FORK MINE YARD	OK 12" WATER IN BTM
D009	SOUTH FORK MINE YARD	OK 12" WATER SO. END
10 11	SOUTH FORK TRUCK LOADOUT	OK 12 WATER EAST END

UNITED STATES FUEL COMPANY

Hiawatha Mines ACT #007/001

Quarterly Sediment Pond Inspection Sheet

Inspector's Name ROBERT ECCLI

Date 06/07/91

Sediment Pond Name and Location SEE BELOW

Date Last Inspected 03/27/91

Observations Made

1) Seepage (specify location, color and approximate volume):
   - at isolated spots on embankment slopes — NONE
   - at natural hillside — "
   - over sidespread areas — "
   - over sidespread areas — "

2) Cracks or scarps on crest — NO

3) Cracks or scarps on slope — NO

4) Sloughing or bulging on slope — NO

5) Major erosional problems:
   - spillway — NO
   - embankments — NO
   - diversion ditches — NO

6) Existing embankment freeboard:
   Water____ Increase____ Decrease____ No Water — OK

7) Visible sumps or sinkholes — NO

8) Clogging:
   - spillway channels and pipes — NO
   - decant system — NO
   - diversion ditches — NO

9) Cracking or crushing of pipes:
   - spillway pipes — NO
   - decant system — NO

Note additional comments below:

POND NO.	LOCATION	COMMENTS
D003	UPPER RAIL YARD	OK 6" WATER IN BTM.
D004	NORTH OF SLURRY POND NO.1	OK 6" " "
D005	EAST OF SLURRY POND NO.4	OK NO WATER
D006	NORTH EAST OF SLURRY POND NO.5	OK NO WATER
D007	SOUTH EAST OF SLURRY POND NO.5	OK " "
D008	MIDDLE FORK	OK 1.5 FT. WATER IN BTM.
D009	SOUTH FORK MINE YARD	OK 6" WATER SOUTH END
D011	SOUTH FORK TRUCK LOADOUT	OK 1.0' WATER EAST END

MRW

UNITED STATES FUEL COMPANY

Hiawatha Mines ACT #007/001

Quarterly Sediment Pond Inspection Sheet

Inspector's Name ABDALLA M. ELIAS

Date MARCH 27, 1991

Sediment Pond Name and Location

Date Last Inspected DEC. 28, 1990

Observations Made

1) Seepage (specify location, color and approximate volume):
   - at isolated spots on embankment slopes
   - at natural hillside
   - over sidespread areas

2) Cracks or scarps on crest

3) Cracks or scarps on slope

4) Sloughing or bulging on slope

5) Major erosional problems:
   - spillway
   - embankments
   - diversion ditches

6) Existing embankment freeboard:
   Water_____ Increase_____ Decrease_____ No Water

7) Visible sumps or sinkholes

8) Clogging:
   - spillway channels and pipes
   - decant system
   - diversion ditches

9) Cracking or crushing of pipes:
   - spillway pipes
   - decant system

Note additional comments below:

I.D. NO.	LOCATION	COMMENTS
D003	Below Upper Rail Yard	OK- ≈ 1 ft. of water in BTM.
D004	Below Slurry Pond #1	OK- ≈ 8 in. of water in BTM.
D005	Below Slurry Pond #4	OK- Damp
D006	Below Slurry Pond #5 North	OK- Damp
D007	Below Slurry Pond #5 South	OK- Damp
D008	Below M. Fork Yard	OK - Damp
D009	Below S. Fork Yard	OK - ≈ 2 ft. of Snow in BTM.
D011	Below S. Fork Loadout	OK - ≈ 18 in. of snow in BTM.

INSPECTION FORM

COAL REFUSE PILES AND COAL WASTE IMPOUNDMENTS

Name ROBERT ECCLI Title ENGR

Date DEC. 2, 1991 Date last inspected SEPT 9, 1991

Site Name REFUSE PILES NO. 1 AND NO. 2 Mine Name KING

Refuse Facility ID # 1211-UT-09-00098-04 & 1211-UT-09-00098-05

Refuse piles---Part A only
Impoundments---Part A and Part B

Part A

1.	Foundation preparation (vegetation, topsoil removal?)	N/A Yes	___No
2.	Lift Thickness (inches)	24"	
3.	Compaction (4 to 6 complete passes)	✓ Yes	___No
4.	Burning* (specify extent and location)	___Yes	✓ No
5.	Angle of Slope (degrees)	24° TO 30°	
6.	Seepage* (specify location, color, & appr. volume	___Yes	✓ No
7.	Cracks or scarps* (location, size)	___Yes	✓ No
8.	Major erosion problems* (location and extent)	___Yes	✓ No
9.	Water impounding against toe*	___Yes	✓ No

Part B N/A

10.	Embankment freeboard (feet)		
11.	____Increase____Decrease in water level (feet)	___Yes	___No
12.	Sumps or sinkholes in slurry surface	___Yes	___No
13.	Clogging* (pipes, ditches, spillway)	___Yes	___No
14.	Trash racks clear and in place	___Yes	___No

* Adverse conditions noted in these items should be described (extent, location, volume, etc.) in the space provided. Major adverse changes could cause instability.

Inspection Category	Comments

FORM 1

INSPECTION FORM

COAL REFUSE PILES AND COAL WASTE IMPOUNDMENTS

Name ROBERT ECCLI Title ENGR

Date SEPT. 9, 1991 Date last inspected 6-7-91

Site Name REFUSE PILES No. 1 AND No. 2 Mine Name KING

Refuse Facility ID # 1211-UT-09-00098-04 / 1211-UT-09-00098-05

Refuse piles---Part A only
Impoundments---Part A and Part B

Part A

1.	Foundation preparation (vegetation, topsoil removal?)	✓ Yes	___ No
2.	Lift Thickness (inches)	24"	
3.	Compaction (4 to 6 complete passes)	✓ Yes	___ No
4.	Burning* (specify extent and location)	___ Yes	✓ No
5.	Angle of Slope (degrees)	24° TO 30°	
6.	Seepage* (specify location, color, & appr. volume	___ Yes	✓ No
7.	Cracks or scarps* (location, size)	___ Yes	✓ No
8.	Major erosion problems* (location and extent)	___ Yes	✓ No
9.	Water impounding against toe*	___ Yes	✓ No

Part B

10.	Embankment freeboard (feet)		
11.	____Increase____Decrease in water level (feet)	___ Yes	___ No
12.	Sumps or sinkholes in slurry surface	___ Yes	___ No
13.	Clogging* (pipes, ditches, spillway)	___ Yes	___ No
14.	Trash racks clear and in place	___ Yes	___ No

* Adverse conditions noted in these items should be described (extent, location, volume, etc.) in the space provided. Major adverse changes could cause instability.

Inspection Category	Comments

REGISTERED PROFESSIONAL ENGINEER MICHAEL A. [illegible] 7005 STATE OF UTAH

INSPECTION FORM

COAL REFUSE PILES AND COAL WASTE IMPOUNDMENTS

Name ROBERT ECCLI Title ENGR.

Date JUNE 7, 1991 Date last inspected MARCH 27, 1991

Site Name REFUSE PILES NO. 1 AND NO. 2 Mine Name KING

Refuse Facility ID # 1211-UT-09-00098-4 / 1211-UT-09-00098-5

Refuse piles---Part A only
Impoundments---Part A and Part B

Part A

1.	Foundation preparation (vegetation, topsoil removal?)	✓ Yes	___ No
2.	Lift Thickness (inches)	24"	
3.	Compaction (4 to 6 complete passes)	✓ Yes	___ No
4.	Burning* (specify extent and location)	___ Yes	✓ No
5.	Angle of Slope (degrees)	24° To 30°	
6.	Seepage* (specify location, color, & appr. volume	___ Yes	✓ No
7.	Cracks or scarps* (location, size)	___ Yes	✓ No
8.	Major erosion problems* (location and extent)	___ Yes	✓ No
9.	Water impounding against toe*	___ Yes	✓ No

Part B

10.	Embankment freeboard (feet)		
11.	____Increase____Decrease in water level (feet)		
12.	Sumps or sinkholes in slurry surface	___ Yes	___ No
13.	Clogging* (pipes, ditches, spillway)	___ Yes	___ No
14.	Trash racks clear and in place	___ Yes	___ No

* Adverse conditions noted in these items should be described (extent, location, volume, etc.) in the space provided. Major adverse changes could cause instability.

Inspection Category	Comments

M P Watt

FORM 1

INSPECTION FORM

COAL REFUSE PILES AND COAL WASTE IMPOUNDMENTS

Name ABDALLA M. ELIAS Title ENGINEER

Date MARCH 27, 1991 Date last inspected DEC. 28, 1990

Site Name REFUSE PILES #1 + #2 Mine Name KING

Refuse Facility ID # 1211-UT-09-00098-4 / 1211-UT-09-00098-5

Refuse piles---Part A only
Impoundments---Part A and Part B

Part A

1.	Foundation preparation (vegetation, topsoil removal?)	✓ Yes	___ No
2.	Lift Thickness (inches)	12" - 24"	
3.	Compaction (4 to 6 complete passes)	✓ Yes	___ No
4.	Burning* (specify extent and location)	___ Yes	✓ No
5.	Angle of Slope (degrees)	24°	30°
6.	Seepage* (specify location, color, & appr. volume	___ Yes	✓ No
7.	Cracks or scarps* (location, size)	___ Yes	✓ No
8.	Major erosion problems* (location and extent)	___ Yes	✓ No
9.	Water impounding against toe*	___ Yes	✓ No

Part B

10.	Embankment freeboard (feet)		
11.	____Increase____Decrease in water level (feet)	___ Yes	___ No
12.	Sumps or sinkholes in slurry surface	___ Yes	___ No
13.	Clogging* (pipes, ditches, spillway)	___ Yes	___ No
14.	Trash racks clear and in place	___ Yes	___ No

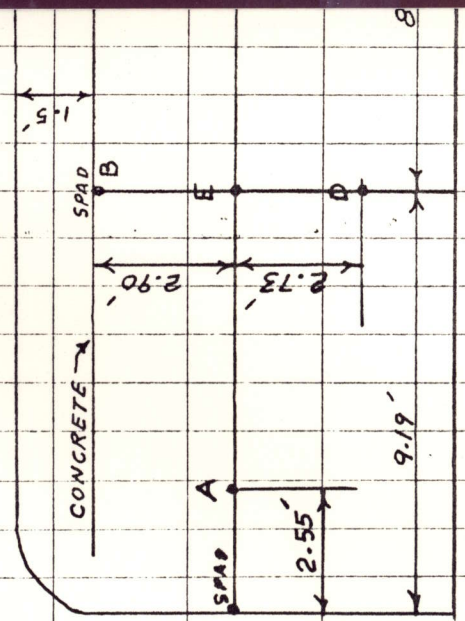
* Adverse conditions noted in these items should be described (extent, location, volume, etc.) in the space provided. Major adverse changes could cause instability.

Inspection Category	Comments

REGISTERED PROFESSIONAL ENGINEER MICHAEL P. WATSON 7095 STATE OF UTAH

FORM 1

MAIN ENTRY PORTAL



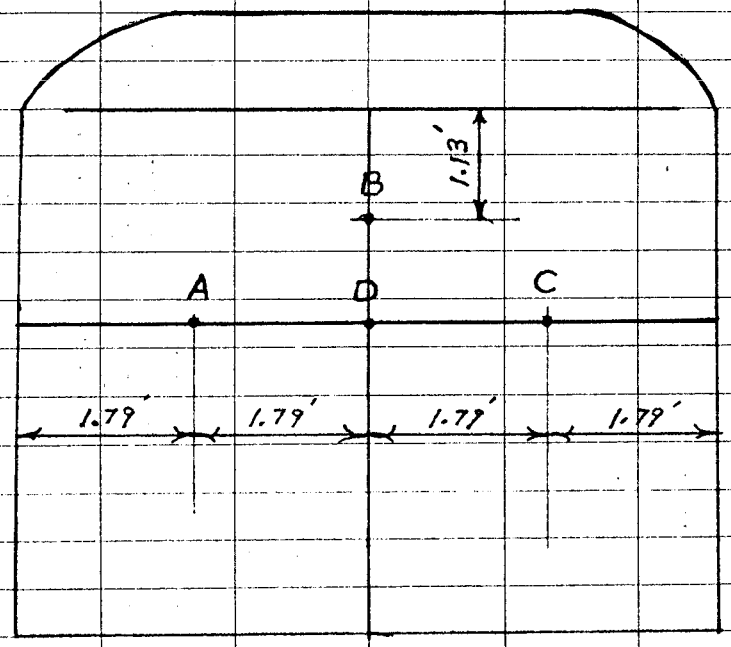
MAIN ENTRY PORTAL

MEASURE BACK OF SPAD TO PLUG

DATE	DISTANCE (FT.) A	B	C	D	E	CONDITION
9-30-87		6.93	5.37			BULKHEAD DAMP SMALL TRICKLES AT FLOOR
9-16-89	5.05	6.93	5.35	6.94	6.93	BULKHEAD DAMP VERY SMALL TRICKLES
6-13-90	5.05	6.92	5.35	6.94	6.93	BULKHEAD DAMP SMALL TROUPS NOTED
11-29-90	5.05	6.92	5.35	6.94	6.98	BULKHEAD DAMP SMALL TRICKLES
4-17-91						BULKHEAD DAMP SMALL TRICKLES
05/06/91	5.05	6.93	5.35	6.94	6.98	BULKHEAD DAMP SMALL TRICKLES AT LEFT 1/3
06/10/91	5.05	6.93	5.35	6.94	6.98	BULKHEAD DAMP SMALL ~~TRICKLES~~ NOTED FLOWS NOTED
07/26/91						CONDITION 2
08/20/91						CONDITION 2
09/16/91						CONDITION 2
10/18/91	5.05	6.93	5.35	6.94	6.98	CONDITION 2

②

MANWAY PORTAL



③

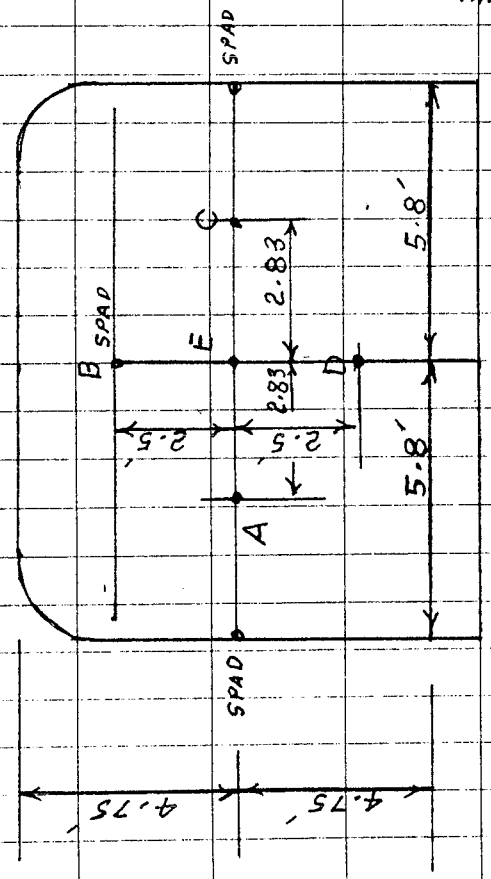
MANWAY PORTAL

DATE	DISTANCE (FT.) A	B	C	D	CONDITION
9-30-87	2.59	2.97	2.75	2.62	BULKHEAD DAMP FLOOR WET
9-16-89	2.59	2.97	2.75	2.62	BULKHEAD DAMP FLOOR WET
6-13-90	2.59	2.97	2.75	2.62	BULKHEAD DAMP FLOOR WET
11-28-90	2.59	2.97	2.75	2.62	BULKHEAD DAMP FLOOR WET
4-17-91					BULKHEAD DAMP FLOOR WET
05-06-91					NORMAL
06-10-91	2.59	2.97	2.75	2.62	BULKHEAD DAMP FLOOR WET 4.8 PSI NORMAL
07/26-91		GAUGE = 7.5 PSI			DAMP CONDITION 1
08/20/91		GAUGE = 7.0 PSI			DAMP CONDITION 1
09/16/91					GAUGE 6.5 PSI CONDITION 1
10/18/91	2.59	2.97	2.75	2.62	GAUGE 6.5 PSI CONDITION 1

CONDITION STATUS

1. DAMP - Damp walls occassional drippers
2. FLOW NOTED - TRICKLES & DISERNABLE SMALL FLOWS
3. SIGNIFICANT FLOW - UNUSUAL THOUGH MINOR INCREASE

RETURN AIR PORTAL



4. CRITICAL - Potentially Serious

RETURN AIR PORTAL

DATE	DISTANCE (FT.) A	B	C	D	E	CONDITION
6-16-89	4.76	5.18	4.62	5.14	5.20	BULKHEAD DAMP FLOOR MUDDY
6-13-90	4.76	5.18	4.62	5.14	5.20	BULKHEAD DAMP STANDING WATER ON FLOOR
11-28-90	4.76	5.16	4.62	5.14	5.20	BULKHEAD DAMP FLOOR FROZEN MUD
4-17-91						BULKHEAD DAMP FLOOR FROZEN
05-06-91				FLOOR FROZEN		BULKHEAD DAMP SMALL TRICKLE RIGHT SIDE
06-10-91	4.76	5.16	4.62	5.15	5.20	BULKHEAD SLIGHTLY DAMP SMALL TRICKLES FLOWS NOTED
07-26-91						CONDITION 2
08/20/91						CONDITION 2
09/16/91						CONDITION 2
10/18/91	4.76	5.16	4.62	5.15	5.20	CONDITION 2

UNITED STATES FUEL COMPANY

P.O. Box A
Hiawatha, Utah 84527

(801) 637-2252
TELEX: 453-123

February 14, 1992

Mr. William A. Holgate, District Manager
Mine Safety and Health Administration
Coal Mine Safety and Health, District 9
P.O. Box 25367
Denver, Colorado 80225

RE: Annual Impoundment Report - King No. 4 Mine, ID No. 4200098
Slurry Impoundment No. 1, ID No. 1211-UT-09-00098-01
Slurry Impoundment No. 4, ID No. 1211-UT-09-00098-02
Slurry Impoundment No. 5, ID No. 1211-UT-09-00098-03
Refuse Pile No. 1, ID No. 1211-UT-09-00098-04
Refuse Pile No. 2, ID No. 1211-Ut-09-00098-05

Dear Mr. Holgate:

The enclosed certified annual impoundment report is submitted by United States Fuel Company for slurry impoundments and refuse piles located near Hiawatha, Utah. As required by 30 CFR 77.216-3 and 77-216.4, the enclosed report contains the annual up date on the ponds and refuse piles for 1992.

Sincerely,

Michael W. Baum

Michael W. Baum
President & General Manager

Enclosures

cc: Mike Watson
Robert Eccli

RECEIVED
MAR 16 1992
DIVISION OF
OIL GAS & MINING

UTAH KING COAL

UNITED STATES FUEL COMPANY

Annual Impoundment Report

1991

UNITED STATES FUEL COMPANY

Slurry Impoundment Report - 1991

Slurry Impoundment No. 1 (1211-UT-09-00098-01)

Slurry Pond No. 1 has remained inactive since 1983. A 20 foot wide road cut was made in the east embankment in 1990 to access the pond surface for reclaiming coal fines. Although no fines were recovered in 1991 the road cut has been left in place for future access should a favorable market for the fines arise.

The embankment top remains at elevation 7175. The surface of the dry coal fines is at elevation 7164. The total storage capacity of the pond is 247 acre-feet. Coal fines occupy approximately 235 acre feet.

No changes have occurred to diminish embankment stability. No water is impounded and no fires have occurred in construction materials. No slurry is proposed to be discharged into this pond during 1992.

UNITED STATES FUEL COMPANY

Slurry Impoundment Report - 1991

Slurry Impoundment No. 4 (1211-UT-09-00098-02)

Slurry was discharged into this pond for a short period during January of 1991. Since then it has been allowed to dry out and no standing water is present. The surface of the fine coal sediment is at elevation 7105 feet. The top of the embankment remains at 7110 feet.

The total storage capacity of No. 4 pond is 97 acre feet and it presently stores about 94 acre-feet of coal fines. No additional slurry is proposed to be discharged into this pond until fines are reclaimed.

No changes have occurred in the pond embankment during 1991. No signs of instability have been detected and no fires have occurred.

UNITED STATES FUEL COMPANY

Slurry Impoundment Report - 1991

Slurry Impoundment No. 5 (1211-UT-09-00098-03)

Main Cell

Approximately 6,000 tons of coal fines were recovered from the main cell of Pond No. 5 during 1991. No slurry was added.

No changes have been made to the embankment of this cell during 1991. The embankment top remains at elevation 7085.5 while the dry slurry surface is at an average elevation of 7050 feet.

The total storage capacity of the main cell is approximately 500 acre-feet. It presently stores about 128 acre-feet of coal fines. Fines will continue to be recovered and sold during 1992.

A superficial "hot spot" which developed on the north west (uphill) corner of the embankment during October was eliminated by excavating approximately 10 cubic yards of refuse material. Nothing else has occurred that would decrease the ponds stability or effectiveness.

North Cell

Approximately 10,000 tons of slurry was discharged into this pond during the first four months of 1991. No additional slurry has been discharged into any of the ponds since April 19, and it is doubtful that any will be discharged during 1992.

No structural changes have been made to the embankment. It's top remains at elevation 7068. The coal fines are at approximately 7055 feet. Stability inspections continue to be made on all ponds on a weekly basis.

UNITED STATES FUEL COMPANY

Refuse Pile Report - 1991

Refuse Pile No. 1 (1211-UT-09-00098-04)

Refuse file No. 1 is not an active disposal site. This pile does not impound water and has not had any fires occur in the refuse material. No hazardous or unstable conditions are known to exist.

Refuse Pile No. 2 (1211-UT-09-00098-05)

Refuse Pile No. 2 is an active disposal site, however, no refuse has been deposited since June of 1991. Mining operations have been cut back to one shift per day and coal is being mined selectively so that washing is not required. Little if any refuse is expected to be generated during 1992. The maximum elevation of the overall disposal site remains at 7125 feet. All refuse has been deposited in accordance with MSHA approved plans. Nothing has occurred to diminish the structural stability of the refuse pile.

UNITED STATES FUEL COMPANY

Annual Impoundment Report - 1991

-CERTIFICATION-

I certify on February 14, 1991 that the work performed on these impoundments, embankments and refuse piles has been conducted in accordance with the appropriate plans and regulations.

REGISTERED PROFESSIONAL ENGINEER
MICHAEL P. WATSON
7095
STATE OF UTAH

Michael P. Watson P.E.

STREAM MONITORING REPORT

2 ND Quarter 1991

EFLUENT CHARACTERISTIC		ST - 1			ST - 2		
		APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate	g.p.m.		82.4	72.1		388	451
Air Temperature	°F		55	70		58	68
Water Temperature	°F		48	58		40	51
PH	units		7.6	7.6		7.22	7.[illegible]
Conductivity	umhos/cm		1330	1012		305	280
Dissolved Oxygen	p.p.m.		7.5	5.9		5.75	4.5
Total Dissolved Solids	mg/l		1680			324	
Total Suspended Solids	mg/l		17			69	
Total Settleable Solids	mg/l		<0.10			<0.10	
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l		1260			290	
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l		0.32			0.19	
Sulfide	mg/l		0.47			0.32	
Nitrate	mg/l		0.06			0.35	
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l		0.04			0.03	
Oil and Grease	mg/l						
Bicarbonate	mg/l		391			276	
Carbonate	mg/l		0			0	
Chloride	mg/l		40.1			18.4	
Sulfate	mg/l		845			35.6	
Calcium[Ca]	mg/l		177			74.4	
Magnesium[Mg]	mg/l		198			25.3	
Potassium[K]	mg/l		6.47			1.08	
Sodium[Na]	mg/l		15.4			3.1	
Cation-Anion Balance	%		1.6			1.29	
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
Iron, Dissolved	mg/l						
Manganese[Mn]	mg/l		0.11			0.25	
Molybdenum[Mo]	mg/l		<0.02			<0.02	
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						

STREAM MONITORING REPORT

2ND Quarter 1991

EFLUENT CHARACTERISTIC		ST - 2B			ST - 3		
		APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate	g.p.m.		198	175		51.5	10.3
Air Temperature	°F		55	68		55	84
Water Temperature	°F		43	54		44.9	56
PH	units		7.22	7.66		7.05	7.79
Conductivity	umhos/cm		452	430		2300	1429
Dissolved Oxygen	p.p.m.		6.25	5.5		6.0	4.2
Total Dissolved Solids	mg/l		522			2230	
Total Suspended Solids	mg/l		29			21	
Total Settleable Solids	mg/l		<0.10			<0.10	
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l		395			1330	
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l		0.22			0.34	
Sulfide	mg/l		<0.1			0.39	
Nitrate	mg/l		<0.04			0.06	
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l		0.10			0.07	
Oil and Grease	mg/l						
Bicarbonate	mg/l		309			436	
Carbonate	mg/l		0			0	
Chloride	mg/l		30.8			600	
Sulfate	mg/l		109			639	
Calcium[Ca]	mg/l		81			222	
Magnesium[Mg]	mg/l		47			189	
Potassium[K]	mg/l		1.88			8.3	
Sodium[Na]	mg/l		5.7			225	
Cation-Anion Balance	%		0.04			1.1	
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
ron, Dissolved	mg/l		0.08			0.09	
Manganese[Mn]	mg/l		<0.02			<0.02	
Molybdenum[Mo]	mg/l						
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						

STREAM MONITORING REPORT

2ND Quarter 1991

EFLUENT CHARACTERISTIC		ST - 3A			ST - 3B		
		APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate	g.p.m.		DRY	DRY			
Air Temperature	°F					2.2	3.7
Water Temperature	°F					54	58
PH	units					49.8	49
Conductivity	umhos/cm					7.02	7.29
Dissolved Oxygen	p.p.m.					3910	2410
Total Dissolved Solids	mg/l					6.5	5.5
Total Suspended Solids	mg/l					3430	
Total Settleable Solids	mg/l					24	
Acidity	mg/l					<0.10	
Total Hardness[CaCo3]	mg/l						
Total Phosphate	mg/l					1460	
Fluoride[Fl]	mg/l						
Sulfide	mg/l					0.37	
Nitrate	mg/l					0.47	
Nitrite[No2]	mg/l					<0.04	
Ammonia[NH3]	mg/l						
Oil and Grease	mg/l					0.16	
Bicarbonate	mg/l						
Carbonate	mg/l					417	
Chloride	mg/l					0	
Sulfate	mg/l					1410	
Calcium[Ca]	mg/l					405	
Magnesium[Mg]	mg/l					279	
Potassium[K]	mg/l					185	
Sodium[Na]	mg/l					9.94	
Cation-Anion Balance	%					561	
Arsenic[As]	mg/l					1.3	
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
ron, Dissolved	mg/l						
Manganese[Mn]	mg/l					0.44	
Molybdenum[Mo]	mg/l					0.16	
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						
	mg/l						

STREAM MONITORING REPORT

2ND Quarter 1991

EFLUENT CHARACTERISTIC		ST - 4			ST - 4A		
		APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate	g.p.m.		DRY	DRY		DRY	DRY
Air Temperature	°F						
Water Temperature	°F						
PH	units						
Conductivity	umhos/cm						
Dissolved Oxygen	p.p.m.						
Total Dissolved Solids	mg/l						
Total Suspended Solids	mg/l						
Total Settleable Solids	mg/l						
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l						
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l						
Sulfide	mg/l						
Nitrate	mg/l						
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l						
Oil and Grease	mg/l						
Bicarbonate	mg/l						
Carbonate	mg/l						
Chloride	mg/l						
Sulfate	mg/l						
Calcium[Ca]	mg/l						
Magnesium[Mg]	mg/l						
Potassium[K]	mg/l						
Sodium[Na]	mg/l						
Cation-Anion Balance	%						
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
ron, Dissolved	mg/l						
Manganese[Mn]	mg/l						
Molybdenum[Mo]	mg/l						
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						
	mg/l						

STREAM MONITORING REPORT

2ND Quarter 19

EFLUENT CHARACTERISTIC		ST - 4B			ST - 5		
		APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate	g.p.m.		DRY	DRY		292	215
Air Temperature	°F					66	59
Water Temperature	°F					53.1	53
PH	units					7.38	7.71
Conductivity	umhos/cm					1059	688
Dissolved Oxygen	p.p.m.					6.6	5.0
Total Dissolved Solids	mg/l					1160	
Total Suspended Solids	mg/l					41	
Total Settleable Solids	mg/l					<0.10	
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l					772	
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l					0.25	
Sulfide	mg/l					<0.1	
Nitrate	mg/l					0.03	
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l					0.13	
Oil and Grease	mg/l						
Bicarbonate	mg/l					343	
Carbonate	mg/l					0	
Chloride	mg/l					76.7	
Sulfate	mg/l					434	
Calcium[Ca]	mg/l					121	
Magnesium[Mg]	mg/l					115	
Potassium[K]	mg/l					4.1	
Sodium[Na]	mg/l					31.5	
Cation-Anion Balance	%					0.19	
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
ron, Dissolved	mg/l						
Manganese[Mn]	mg/l					0.17	
Molybdenum[Mo]	mg/l					<0.02	
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						

MINE WATER DISCHARGE REPORT

1991

NO DISCHARGE STATUS

ND

WATER DISCHARGE STATION DO	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	A.E.	A.E.	A.E.									
D001	D001-103 1/10/91 9:10 / ND	ND / ND	D001-104 3/14/91 10:52 / ND	ND 12:40 4/23/91 / D001-105	D001-106 5-9-91 1:51 / 5-29-91 D001-107	D001-108 6-14-91 9:30 1:55 / 6-28-91 D001-109						
D002	D002-149 1/10/91 8:30 / 10:20 1/28/91 D002-150	D002-151 2/18/91 10:00 / 10:30 2/27/91 D002-152	D002-153 3/14/91 10:29 / ND	ND 12:45 4/23/91 / D002-154	D002-155 1:15 5-9-91 / 5-29-91 NO DISCHARGE	D002-156 1:05 6-14-91 / 9:45 6-28-91 D002-157						
D003	ND	ND	ND	ND	ND	ND						
D004	ND	ND	ND	ND	ND	ND						
D005	ND	ND	ND	ND	ND	ND						
6	ND	ND	ND	ND	ND	ND						
7	ND	ND	ND	ND	ND	ND						
8	ND	ND	ND	ND	ND	ND						
9	ND	ND	ND	ND	ND	ND						
D010	ND	ND	ND	(NO DISCHARGE)	D010-52 1.5 GPM COND = 502 PH = 7.1	D010-53 11:15 AM 6-14-91						
D011	ND	ND	ND	ND	ND	ND						
D012	ND	ND	ND	ND	ND	ND						
D013	ND	ND	ND	ND	ND	ND						

MINE WATER DISCHARGE REPORT

Station D 001

1991

Parameters	Jan. (A.E.)	Feb. (A.E.)	Mar. (A.E.)	Apr. (R.E.)	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow Rate G.P.M.	D001-103 133.2 / ND	ND / ND	D001-104 292.0 / ND	ND / 390 / D001-105	D001-106 404 / 397 / D001-107	D001-108 215 / 215 / D001-109						
Acidity Mg/L												
Alkalinity Mg/L												
Conductivity UMHOS/CM	1015 / -		906 / -	- / 887	827 / 888	556 / 801						
Oil & Grease Mg/L	1.60 / -		1.0< / -	- / 1.1	2.0 / < 0.1	<1.0 / 2.3						
pH	6.87 / -		6.83 / -	- / 7.2	7.2 / 7.0	7.57 / 7.26						
Total Dissolved Solids Mg/L	694.0 / -		639 / -	- / 685	675 / 663	648 / 734						
Total Suspended Solids Mg/L	5.0 / -		1.0< / -	- / 3.0	2.0 / <1.0	2.0 / 3.0						
Iron, Dissolved Mg/L	.02< / -											
Iron Total Mg/L			0.10 / -	/ 0.02<	0.03 / <0.02	0.56 / 0.05						
Manganese, Total Mg/L												

MINE WATER DISCHARGE REPORT

Station D002

A.E. A.E. A.E. 1991

Parameters	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow Rate G.P.M.	D002-149 211.0 / 72.6 D002-150	D002-151 12.1 / 138.6 D002-152	D002-153 108.9 / ND	ND / 148 D002-154	D002-155 1,221 / ND	D002-156 228 / 204 D002-157	D002-158 133					
Acidity Mg/L												
Alkalinity Mg/L												
Conductivity UMHOS/CM	971 / 917	845 / 846	874	– / 838	834 / ND	577 / 775	805					
Oil & Grease Mg/L	1.0< / 1.0<	1.0< / 1.0<	1.0<	– / 1.2	1.0< / ND	1.0< / 2.0						
pH	6.72 / 6.98	7.11 / 7.30	7.01	– / 7.6	7.5 / ND	7.85 / 7.65	8.1					
Total Dissolved Solids Mg/L	233.0 / 577.0	618.0 / 598.0	616.0	– / 668.0	647 / ND	601 / 664						
Total Suspended Solids Mg/L	5.0 / 2.0	3.0 / 2.0	4.0	– / 2.0	3.0 / ND	3.0 / <1.0						
Iron, Dissolved Mg/L	0.02< / 0.03	0.02< / 0.02	0.34									
Iron Total Mg/L				– / 0.02<	0.02< / ND	0.02< / <0.02						
Manganese, Total Mg/L												

MINE WATER DISCHARGE REPORT

Station D010

1991

Parameters	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow Rate G.P.M.				[illegible]	D010-53 1.5	D010-53 1.9						
Acidity Mg/L												
Alkalinity Mg/L												
Conductivity UMHOS/CM					502	410						
Oil & Grease Mg/L					1.2	1.0<						
pH					7.1	7.19						
Total Dissolved Solids Mg/L					667	439						
Total Suspended Solids Mg/L					<1.0	<1.0						
Iron, Dissolved Mg/L												
Iron Total Mg/L					<0.02	0.09						
Manganese, Total Mg/L												

WATER MONITORING REPORT

3rd Quarter 1991

UNITED STATES FUEL COMPANY
Hiawatha, Utah 84527

STREAM MONITORING REPORT

3RD Quarter 1991

EFLUENT CHARACTERISTIC		ST - 1			ST - 2		
		JULY	AUG.	SEPT.	JULY	AUG.	SEPT.
Flow Rate	g.p.m.	46.4	51.5	51.5	133	82	59
Air Temperature	°F	65	62	60	70	67	59
Water Temperature	°F	59	55	52	53	53	46
PH	units	7.59	7.01	7.25	7.12	7.61	7.42
Conductivity	umhos/cm	1595	1198	1115	430	433	477
Dissolved Oxygen	p.p.m.	6.1	6.1	4.6	4.7	5.4	5.5
Total Dissolved Solids	mg/l			1360			372
Total Suspended Solids	mg/l			24			4
Total Settleable Solids	mg/l			<0.1			<0.1
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l			985			297
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l						
Sulfide	mg/l						
Nitrate	mg/l						
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l						
Oil and Grease	mg/l			9.0			<5.0
Bicarbonate	mg/l			338			284
Carbonate	mg/l			0			0
Chloride	mg/l			12.8		4.24 →	[redacted]
Sulfate	mg/l			73.4			74.9
Calcium[Ca]	mg/l			165			58.9
Magnesium[Mg]	mg/l			140			36.4
Potassium[K]	mg/l			6.5			1.5
Sodium[Na]	mg/l			13.8			4.5
Cation-Anion Balance	%			1.74			1.37
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
Iron, Dissolved	mg/l			0.5			0.09
Manganese[Mn]	mg/l			0.05			<0.02
Molybdenum[Mo]	mg/l						
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						

STREAM MONITORING REPORT

3RD Quarter 1991

EFLUENT CHARACTERISTIC		ST - 2B			ST - 3		
		JULY	AUG.	SEPT.	JULY	AUG.	SEPT.
Flow Rate	g.p.m.	77	103	77	21	15	21
Air Temperature	°F	66	62	59	75	77	65
Water Temperature	°F	59	52	49	61	59	50
PH	units	8.20	7.36	7.40	7.85	7.29	7.53
Conductivity	umhos/cm	733	513	625	2640	2480	2580
Dissolved Oxygen	p.p.m.	5.5	6.3	5.6	4.0	4.0	4.0
Total Dissolved Solids	mg/l			500			1880
Total Suspended Solids	mg/l			14			9
Total Settleable Solids	mg/l			<0.1			<0.1
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l			395			1130
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l						
Sulfide	mg/l						
Nitrate	mg/l						
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l						
Oil and Grease	mg/l			<5.0			<5.0
Bicarbonate	mg/l			315			407
Carbonate	mg/l			0			0
Chloride	mg/l			7.76			523
Sulfate	mg/l			142			545
Calcium[Ca]	mg/l			71			210
Magnesium[Mg]	mg/l			53			147
Potassium[K]	mg/l			2.6			8.7
Sodium[Na]	mg/l			6.7			201
Cation-Anion Balance	%			0.51			1.96
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
Iron, Dissolved	mg/l			0.15			0.28
Manganese[Mn]	mg/l			<0.02			0.08
Molybdenum[Mo]	mg/l						
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						

STREAM MONITORING REPORT

3RD Quarter 1991

EFLUENT CHARACTERISTIC		ST - 3A			ST - 3B		
		JULY	AUG.	SEPT.	JULY	AUG.	SEPT.
Flow Rate	g.p.m.	DRY	DRY	DRY	1.9	1.4	1.6
Air Temperature	°F				72	62	67
Water Temperature	°F				65	53	52
PH	units				7.52	6.96	6.83
Conductivity	umhos/cm				4560	4390	5160
Dissolved Oxygen	p.p.m.						
Total Dissolved Solids	mg/l						3480
Total Suspended Solids	mg/l						6
Total Settleable Solids	mg/l						<0.1
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l						1360
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l						
Sulfide	mg/l						
Nitrate	mg/l						
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l						
Oil and Grease	mg/l						<5.0
Bicarbonate	mg/l						399
Carbonate	mg/l						0
Chloride	mg/l						1630
Sulfate	mg/l						358
Calcium[Ca]	mg/l						335
Magnesium[Mg]	mg/l						127
Potassium[K]	mg/l						12.2
Sodium[Na]	mg/l						692
Cation-Anion Balance	%						1.97
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
Iron, Dissolved	mg/l						0.09
Manganese[Mn]	mg/l						0.18
Molybdenum[Mo]	mg/l						
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						

STREAM MONITORING REPORT

3RD Quarter 1991

EFLUENT CHARACTERISTIC		ST - 4			ST - 4A		
		JULY	AUG.	SEPT.	JULY	AUG.	SEPT.
Flow Rate	g.p.m.	DRY	DRY	DRY	DRY	DRY	DRY
Air Temperature	°F						
Water Temperature	°F						
PH	units						
Conductivity	umhos/cm						
Dissolved Oxygen	p.p.m.						
Total Dissolved Solids	mg/l						
Total Suspended Solids	mg/l						
Total Settleable Solids	mg/l						
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l						
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l						
Sulfide	mg/l						
Nitrate	mg/l						
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l						
Oil and Grease	mg/l						
Bicarbonate	mg/l						
Carbonate	mg/l						
Chloride	mg/l						
Sulfate	mg/l						
Calcium[Ca]	mg/l						
Magnesium[Mg]	mg/l						
Potassium[K]	mg/l						
Sodium[Na]	mg/l						
Cation-Anion Balance	%						
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
Iron, Dissolved	mg/l						
Manganese[Mn]	mg/l						
Molybdenum[Mo]	mg/l						
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						

STREAM MONITORING REPORT

3RD Quarter 1991

EFLUENT CHARACTERISTIC		ST - 4B			ST - 5		
		JULY	AUG.	SEPT.	JULY	AUG.	SEPT.
Flow Rate	g.p.m.	DRY	DRY	DRY	126	126	118
Air Temperature	°F				62	82	67
Water Temperature	°F				57	65	56
PH	units				7.71	7.08	7.37
Conductivity	umhos/cm				1020	1174	1390
Dissolved Oxygen	p.p.m.				5.5	5.5	5.2
Total Dissolved Solids	mg/l						1080
Total Suspended Solids	mg/l						4
Total Settleable Solids	mg/l						<0.1
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l						781
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l						
Sulfide	mg/l						
Nitrate	mg/l						
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l						
Oil and Grease	mg/l						<5.0
Bicarbonate	mg/l						335
Carbonate	mg/l						0
Chloride	mg/l						74.7
Sulfate	mg/l						493
Calcium[Ca]	mg/l						137
Magnesium[Mg]	mg/l						107
Potassium[K]	mg/l						3.91
Sodium[Na]	mg/l						43.2
Cation-Anion Balance	%						0.75
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
Iron, Dissolved	mg/l						
Manganese[Mn]	mg/l						0.15
Molybdenum[Mo]	mg/l						<0.02
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						

SPRING MONITORING REPORT

3RD Quarter 1991

EFLUENT CHARACTERISTIC		SP-2	SP-4	SP-5	SP-11	SP-12	SP-13
Flow Rate	g.p.m.	4.1	15	6	8	9	NO FLOW DAMP
Air Temperature	°F	72	67	72	65	61	
Water Temperature	°F	44	49	44	54	59	
PH	units	7.49	8.51	8.40	7.70	8.70	
Conductivity	umhos/cm	291	371	361	374	420	
Dissolved Oxygen	p.p.m.						
Total Dissolved Solids	mg/l	300	342	348	288	308	
Total Suspended Solids	mg/l						
Total Settleable Solids	mg/l						
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l	261	302	298	267	272	
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l						
Sulfide	mg/l						
Nitrate	mg/l						
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l						
Oil and Grease	mg/l						
carbonate	mg/l	307	362	336	285	302	
Carbonate	mg/l	0	0	0	5.1	0	
Chloride	mg/l	2.64	2.53	3.45	2.64	3.14	
Sulfate	mg/l	7	11.5	34.2	35.4	29.2	
Calcium[Ca]	mg/l	84.4	91	84.1	58.2	57.6	
Magnesium[Mg]	mg/l	12.2	18.2	21.5	29.6	31.3	
Potassium[K]	mg/l	0.39	0.57	0.73	1.03	1.05	
Sodium[Na]	mg/l	2.1	2.4	4.9	2.5	4.9	
Cation-Anion Balance	%	0.54	0.65	0.91	1.55	0.37	
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
n, Dissolved	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	
Manganese[Mn]	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	
Molybdenum[Mo]	mg/l						
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						

MINE WATER DISCHARGE REPORT

1991

NO DISCHARGE STATUS

ND

WATER DISCHARGE STATION	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	A.E.	A.E.	A.E.									
D001	D001-103 1/10/91 9:10 / ND	ND / ND	D001-104 3/10/91 10:52 / ND	ND / 12:40 4/23/91 D001-105	D001-106 5-9-91 1:51 / 5-29-91 D001-107	D001-108 6-14-91 1:55PM / 9:30 6-28-91 D001-109	D001-110 7-12-91 9:05 / 13:30 7-30-91 D001-111	D001-112 8-15-91 12:05 / 9:10 8-30-91 D001-113	D001-114 9-11-91 12:15 / 12:15 9-26-91 D001-115			
D002	D002-149 1/10/91 8:30 / 10:20 1/28/91 D002-150	D002-151 2/18/91 10:00 / 10:30 2/27/91 D002-152	D002-153 3/14/91 10:29 / ND	ND / 12:45 4/23/91 D002-154	D002-155 1:15 5-9-91 / 5-29-91 NO DISCHARGE	D002-156 1:05 PM 6-14-91 / 9:45 6-28-91 D002-157	D002-158 7-12-91 8:15 / 7:30 7-30-91 D002-159	D002-160 8-15-91 11:30 / 8:15 8-30-91 D002-161	D002-162 9-11-91 11:45 / 12:15 9-26-91 D002-163			
D003	ND	ND	ND	ND	ND	ND	ND	ND	ND			
D004	ND	ND	ND	ND	ND	ND	ND	ND	ND			
D005	ND	ND	ND	ND	ND	ND	ND	ND	ND			
6	ND	ND	ND	ND	ND	ND	ND	ND	ND			
7	ND	ND	ND	ND	ND	ND	ND	ND	ND			
8	ND	ND	ND	ND	ND	ND	ND	ND	ND			
9	ND	ND	ND	ND	ND	ND	ND	ND	ND			
D010	ND	ND	ND	INACCESSIBLE	D010-52 1.5GPM COND = 502 PH = 7.1	D010-53 11:15 1.9GPM 6-14-91	D010-54 11:55 1.9GPM 07-11-91	D010-55 9:45 0.13GPM 08-15-91	ND			
D011	ND	ND	ND	ND	ND	ND	ND	ND	ND			
D012	ND	ND	ND	ND	ND	ND	ND	ND	ND			
D013	ND	ND	ND	ND	ND	ND	ND	ND	ND			

MINE WATER DISCHARGE REPORT

Station D 001

1991

Parameters	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	A.E.	A.E.	A.E.	R.E.	R.E.							
Flow Rate G.P.M.	D001-103 133.2 / ND	ND / ND	D001-104 292.0 / ND	ND / 380 / D001-105	D001-106 404 / 387 / D001-107	D001-108 215 / 215 / D001-109	D001-110 215 / 628 / D001-111	D001-112 215 / 215 / D001-113	D001-114 242 / 242 / D001-115			
Acidity Mg/L												
Alkalinity Mg/L												
Conductivity UMHOS/CM	1015 / -		906 / -	- / 887	827 / 888	556 / 801	787 / 740	754 / 741	766 / 1035			
Oil & Grease Mg/L	1.60 / -		1.0< / -	- / 1.1	2.0 / < 0.1	<1.0 / 2.3	<1.0 / <1.0	4.7 / <1.0	<1.0 / <1.0			
pH	6.87 / -		6.83 / -	- / 7.2	7.2 / 7.0	7.57 / 7.26	8.00 / 7.22	7.21 / 7.25	7.37 / 7.2			
Total Dissolved Solids Mg/L	694.0 / -		639 / -	- / 685	675 / 663	648 / 734	665 / 731	707 / 887	689 / 688			
Total Suspended Solids Mg/L	5.0 / -		1.0< / -	- / 3.0	2.0 / <1.0	2.0 / 3.0	<1.0 / 2.0	5.0 / <1.0	2.0 / <1.0			
Iron, Dissolved Mg/L	.02< / -											
Iron Total Mg/L			0.10 / -	/ 0.02<	0.03 / <0.02	0.56 / 0.05	0.50 / 0.83	<0.02 / 0.06	<0.02 / <0.02			
Manganese, Total Mg/L												

MINE WATER DISCHARGE REPORT

Station D002

Parameters	Jan. (A.E.)	Feb. (A.E.)	Mar. (A.E.)	Apr.	May (R.E.)	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	1991											
Flow Rate G.P.M.	D002-149 211.0 / 72.6 D002-150	D002-151 12.1 / 138.6 D002-152	D002-153 108.9 / ND	ND / 148 D002-154	D002-155 1,221 / ND	D002-156 229 / 204 D002-157	D002-158 133 / 148 D002-159	D002-160 52 / 133 D002-161	D002-162 171 / 74 D002-163			
Acidity Mg/L												
Alkalinity Mg/L												
Conductivity UMHOS/CM	971 / 917	845 / 846	874	– / 838	834 / ND	577 / 775	805 / 744	818 / 730	760 / 885			
Oil & Grease Mg/L	1.0< / 1.0<	1.0< / 1.0<	1.0<	– / 1.2	1.0< / ND	1.0< / 2.0	<1.0 / <1.0	<1.0 / <1.0	CONTAMINATED AT LAB / <1.0			
pH	6.72 / 6.98	7.11 / 7.30	7.01	– / 7.6	7.5 / ND	7.85 / 7.65	8.1 / 7.13	7.55 / 7.22	7.30 / 7.17			
Total Dissolved Solids Mg/L	233.0 / 577.0	618.0 / 598.0	616.0	– / 668.0	647 / ND	601 / 664	609 / 627	684 / 654	640 / 688			
Total Suspended Solids Mg/L	5.0 / 2.0	3.0 / 2.0	4.0	– / 2.0	3.0 / ND	3.0 / <1.0	32 / <1.0	3.0 / 2.0	4.0 / <1.0			
Iron, Dissolved Mg/L	0.02< / 0.03	0.02< / 0.02<	0.34									
Iron Total Mg/L				– / 0.02<	0.02< / ND	0.02< / <0.02	0.39 / 0.24	0.38 / 0.08	<0.02 / <0.02			
Manganese, Total Mg/L												

MINE WATER CHARGE REPORT

Station D010

1991

'arameters	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
'low Rate .P.M.					D010-52 1.5	D010-53 1.9	D010-54 1.9	D010-55 0.13	DRY	DRY		
\cidity ig/L												
\lkalinity ig/L												
:onductivity MHOS/CM					502	410	472	460				
)il & Grease ig/L					1.2	1.0<	1.5	4.4				
)H					7.1	7.19	6.70	7.67				
otal Dissolved olids Mg/L					667	439	411	428				
otal Suspended olids Mg/L					<1.0	<1.0	<1.0	2.0				
ron, Dissolved g/L												
ron Total g/L					<0.02	0.09	0.41	0.31				
anganese, Total g/L												

WATER MONITORING REPORT

4th Quarter 1991

UNITED STATES FUEL COMPANY
Hiawatha, Utah 84527

STREAM MONITORING REPORT

4TH Quarter 1991

EFLUENT CHARACTERISTIC		ST - 1			ST - 2		
		OCT.	NOV.	DEC.	OCT.	NOV.	DEC.
Flow Rate	g.p.m.	46.4	N/A	N/A	74	N/A	N/A
Air Temperature	°F	41			39		
Water Temperature	°F	40			37		
PH	units	7.13			7.57		
Conductivity	umhos/cm	1850			642		
Dissolved Oxygen	p.p.m.	5.8			6.4		
Total Dissolved Solids	mg/l						
Total Suspended Solids	mg/l						
Total Settleable Solids	mg/l						
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l						
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l						
Sulfide	mg/l						
Nitrate	mg/l						
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l						
Oil and Grease	mg/l						
Bicarbonate	mg/l						
Carbonate	mg/l						
Chloride	mg/l						
Sulfate	mg/l						
Calcium[Ca]	mg/l						
Magnesium[Mg]	mg/l						
Potassium[K]	mg/l						
Sodium[Na]	mg/l						
Cation-Anion Balance	%						
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
Iron, Dissolved	mg/l						
Manganese[Mn]	mg/l						
Molybdenum[Mo]	mg/l						
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						

STREAM MONITORING REPORT

4TH Quarter 1991

EFLUENT CHARACTERISTIC		ST - 2B			ST - 13		
		OCT.	NOV.	DEC.	OCT.	NOV.	DEC.
Flow Rate	g.p.m.	82	N/A	N/A	21	N/A	N/A
Air Temperature	°F	40			38		
Water Temperature	°F	37			36		
PH	units	7.24			7.42		
Conductivity	umhos/cm	824			2750		
Dissolved Oxygen	p.p.m.	6.4			5.9		
Total Dissolved Solids	mg/l						
Total Suspended Solids	mg/l						
Total Settleable Solids	mg/l						
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l						
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l						
Sulfide	mg/l						
Nitrate	mg/l						
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l						
Oil and Grease	mg/l						
Bicarbonate	mg/l						
Carbonate	mg/l						
Chloride	mg/l						
Sulfate	mg/l						
Calcium[Ca]	mg/l						
Magnesium[Mg]	mg/l						
Potassium[K]	mg/l						
Sodium[Na]	mg/l						
Cation-Anion Balance	%						
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
ron, Dissolved	mg/l						
Manganese[Mn]	mg/l						
Molybdenum[Mo]	mg/l						
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						

STREAM MONITORING REPORT

4TH Quarter 1991

EFLUENT CHARACTERISTIC		ST - 3A			ST - 3B		
		OCT.	NOV.	DEC.	OCT.	NOV.	DEC.
Flow Rate	g.p.m.	DRY	N/A	N/A	1.5	N/A	N/A
Air Temperature	°F				35		
Water Temperature	°F				38		
PH	units				7.08		
Conductivity	umhos/cm				3490		
Dissolved Oxygen	p.p.m.						
Total Dissolved Solids	mg/l						
Total Suspended Solids	mg/l						
Total Settleable Solids	mg/l						
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l						
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l						
Sulfide	mg/l						
Nitrate	mg/l						
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l						
Oil and Grease	mg/l						
Bicarbonate	mg/l						
Carbonate	mg/l						
Chloride	mg/l						
Sulfate	mg/l						
Calcium[Ca]	mg/l						
Magnesium[Mg]	mg/l						
Potassium[K]	mg/l						
Sodium[Na]	mg/l						
Cation-Anion Balance	%						
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
Iron, Dissolved	mg/l						
Manganese[Mn]	mg/l						
Molybdenum[Mo]	mg/l						
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						
	mg/l						

STREAM MONITORING REPORT

4TH Quarter 1991

EFLUENT CHARACTERISTIC		ST - 4			ST - 4A		
		OCT.	NOV.	DEC.	OCT.	NOV.	DEC.
Flow Rate	g.p.m.	DRY	N/A	N/A	DRY	N/A	N/A
Air Temperature	°F						
Water Temperature	°F						
PH	units						
Conductivity	umhos/cm						
Dissolved Oxygen	p.p.m.						
Total Dissolved Solids	mg/l						
Total Suspended Solids	mg/l						
Total Settleable Solids	mg/l						
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l						
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l						
Sulfide	mg/l						
Nitrate	mg/l						
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l						
Oil and Grease	mg/l						
Bicarbonate	mg/l						
Carbonate	mg/l						
Chloride	mg/l						
Sulfate	mg/l						
Calcium[Ca]	mg/l						
Magnesium[Mg]	mg/l						
Potassium[K]	mg/l						
Sodium[Na]	mg/l						
Cation-Anion Balance	%						
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
Iron, Dissolved	mg/l						
Manganese[Mn]	mg/l						
Molybdenum[Mo]	mg/l						
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						
	mg/l						

STREAM MONITORING REPORT

4TH Quarter 1991

EFLUENT CHARACTERISTIC		ST - 4B			ST - 5		
		OCT.	NOV.	DEC.	OCT.	NOV.	DEC.
Flow Rate	g.p.m.	DRY	N/A	N/A	59	N/A	N/A
Air Temperature	°F				50		
Water Temperature	°F				45		
PH	units				7.42		
Conductivity	umhos/cm				1050		
Dissolved Oxygen	p.p.m.				5.5		
Total Dissolved Solids	mg/l						
Total Suspended Solids	mg/l						
Total Settleable Solids	mg/l						
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l						
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l						
Sulfide	mg/l						
Nitrate	mg/l						
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l						
Oil and Grease	mg/l						
Bicarbonate	mg/l						
Carbonate	mg/l						
Chloride	mg/l						
Sulfate	mg/l						
Calcium[Ca]	mg/l						
Magnesium[Mg]	mg/l						
Potassium[K]	mg/l						
Sodium[Na]	mg/l						
Cation-Anion Balance	%						
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l						
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
Iron, Dissolved	mg/l						
Manganese[Mn]	mg/l						
Molybdenum[Mo]	mg/l						
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						
	mg/l						

SPRING MONITORING REPORT

4TH Quarter 1991

EFLUENT CHARACTERISTIC		SP-2	SP-4	SP-5	SP-11	SP-12	SP-13
Flow Rate	g.p.m.	1.4	1.5	2.6	7.6	3.0	DRY
Air Temperature	°F	63	62	58	65	58	
Water Temperature	°F	48	48	49	48	51	
PH	units	7.83	8.34	7.83	7.83	8.56	
Conductivity	umhos/cm	392	438	419	351	351	
Dissolved Oxygen	p.p.m.						
Total Dissolved Solids	mg/l	248	300	308	252	262	
Total Suspended Solids	mg/l	1	16	<1	<1	<1	
Total Settleable Solids	mg/l						
Acidity	mg/l						
Total Hardness[CaCo3]	mg/l						
Total Phosphate	mg/l						
Fluoride[Fl]	mg/l						
Sulfide	mg/l						
Nitrate	mg/l	0.53	<0.02	<0.02	<0.02	0.03	
Nitrite[No2]	mg/l						
Ammonia[NH3]	mg/l						
Oil and Grease	mg/l						
icarbonate	mg/l						
Carbonate	mg/l						
Chloride	mg/l	1.45	2.69	1.86	1.86	2.28	
Sulfate	mg/l	14.8	14.8	34.6	33.8	38.7	
Calcium[Ca]	mg/l						
Magnesium[Mg]	mg/l						
Potassium[K]	mg/l						
Sodium[Na]	mg/l						
Cation-Anion Balance	%						
Arsenic[As]	mg/l						
Cadmium[Cd]	mg/l						
Mercury[Hg]	mg/l						
Lead[Pb]	mg/l						
Selenium[Se]	mg/l						
Iron, total[Fe]	mg/l	0.26	0.33	<0.10	<0.10	0.26	
Aluminum[Al]	mg/l						
Boron[B]	mg/l						
Barium[Ba]	mg/l						
Chromium[Cr]	mg/l						
Copper[Cu]	mg/l						
ron, Dissolved	mg/l	0.13	0.18	<0.10	<0.10	<0.10	
nganese[Mn]	mg/l						
Molybdenum[Mo]	mg/l						
Nickel[Ni]	mg/l						
Zinc[Zn]	mg/l						

MINE WATER DISCHARGE REPORT

1991

NO DISCHARGE STATUS

ND

WATER DISCHARGE STATION	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	A.E.	A.E.	A.E.									
D001	D001-103 1/10/91 9:10 / ND	ND / ND	D001-104 3/14/91 10:52 / ND	ND / 12:40 4/23/91 D001-105	D001-106 5-9-91 1:51 / 5-29-91 D001-107	D001-108 6-14-91 1:55 PM / 9:30 6-28-91 D001-109	D001-110 7-12-91 9:05 / 13:30 7-30-91 D001-111	D001-112 8-15-91 12:05 / 9:10 8-30-91 D001-113	D001-114 9-11-91 12:15 / 12:15 9-26-91 D001-115	D001-116 10-25-91 1400	D001-117 11-22-91 0910	D001-118 12-13-91 1040
D002	D002-149 1/10/91 8:30 / 10:20 1/28/91 D002-150	D002-151 2/18/91 10:00 / 10:30 2/27/91 D002-152	D002-153 3/14/91 10:29 / ND	ND / 12:45 4/23/91 D002-154	D002-155 1:15 5-9-91 / 5-29-91 NO DISCHARGE	D002-156 1:05 PM 6-14-91 / 9:45 6-28-91 D002-157	D002-158 7-12-91 8:15 / 7:30 7-30-91 D002-159	D002-160 8-15-91 11:30 / 8:15 8-30-91 D002-161	D002-162 9-11-91 11:45 / 12:15 9-26-91 D002-163	D002-164 10-25-91 1315	D002-165 11-22-91 0840	D002-166 12-13-91 0955
D003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DO 7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D010	ND	ND	ND	INACCESSIBLE	D010-52 1.5GPM COND = 502 PH = 7.1	D010-53 11:15 1.9GPM 06-14-91	D010-54 11:55 1.9GPM 07-11-91	D010-55 9:45 0.13GPM 08-15-91	ND	ND	INACCESSIBLE	INACCESSIBLE
D011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D013	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MINE WATER DISCHARGE REPORT

Station D 001

1991

Parameters	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	A.E.	A.E.	A.E.	R.E.	R.E.							
Flow Rate G.P.M.	D001-103 133.2 / ND	ND / ND	D001-104 292.0 / ND	ND / 880 D001-105	D001-106 404 / 387 D001-107	D001-108 215 / 215 D001-109	D001-110 215 / 628 D001-111	D001-112 215 / 215 D001-113	D001-114 242 / 242 D001-115	D001-116 319	D001-117 628	D001-118 215
Acidity Mg/L												
Alkalinity Mg/L												
Conductivity UMHOS/CM	1015 / -		906 / -	- / 887	827 / 888	556 / 801	787 / 740	754 / 741	766 / 1035	610	750	800
Oil & Grease Mg/L	1.60 / -		1.0< / -	- / 1.1	2.0 / <0.1	<1.0 / 2.3	<1.0 / <1.0	4.7 / <1.0	<1.0 / <1.0	2.0	<1.0	2.8
pH	6.87 / -		6.83 / -	- / 7.2	7.2 / 7.0	7.57 / 7.26	8.00 / 7.22	7.21 / 7.25	7.37 / 7.2	7.6	6.5	6.4
Total Dissolved Solids Mg/L	694.0 / -		639 / -	- / 685	675 / 663	648 / 734	665 / 731	709 / 887	689 / 688	502	675	696
Total Suspended Solids Mg/L	5.0 / -		1.0< / -	- / 3.0	2.0 / <1.0	2.0 / 3.0	<1.0 / 2.0	5.0 / <1.0	2.0 / <1.0	<1.0	<0.5	<1.0
Iron, Dissolved Mg/L	.02< / -											
Iron Total Mg/L			0.10 / -	0.02<	0.03 / <0.02	0.56 / 0.05	0.50 / 0.83	<0.02 / 0.06	<0.02 / <0.02	0.12	0.09	<0.02
Manganese, Total Mg/L												

MINE WATER DISCHARGE REPORT

Station D002

Parameters	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	A.E.	A.E.	A.E.	R.E.	R.E.	1991						
Flow Rate G.P.M.	D002-149 211.0 / 72.6 D002-150	D002-151 12.1 / 138.6 D002-152	D002-153 108.9 / ND	ND / 148 D002-154	D002-155 1,221 / ND	D002-156 228 / 204 D002-157	D002-158 133 / 148 D002-159	D002-160 52 / 133 D002-161	D002-162 171 / 74 D002-163	D002-164 74	D002-165 118	D002-166 171
Acidity Mg/L												
Alkalinity Mg/L												
Conductivity UMHOS/CM	971 / 917	845 / 846	874	– / 838	834 / ND	577 / 775	805 / 744	818 / 730	760 / 885	890	790	790
Oil & Grease Mg/L	1.0< / 1.0<	1.0< / 1.0<	1.0<	– / 1.2	1.0< / ND	1.0< / 2.0	<1.0 / <1.0	<1.0 / <1.0	CONTAMINATED AT LAB / <1.0	1.4	1.8	<1.0
pH	6.72 / 6.98	7.11 / 7.30	7.01	– / 7.6	7.5 / ND	7.85 / 7.65	8.1 / 7.13	7.55 / 7.22	7.30 / 7.17	7.8	7.7	7.6
Total Dissolved Solids Mg/L	233.0 / 577.0	618.0 / 598.0	616.0	– / 668.0	647 / ND	601 / 664	609 / 627	684 / 654	640 / 688	645	630	670
Total Suspended Solids Mg/L	5.0 / 2.0	3.0 / 2.0	4.0	– / 2.0	3.0 / ND	3.0 / <1.0	32 / <1.0	3.0 / 2.0	4.0 / <1.0	7.0	<0.5	<1.0
Iron, Dissolved Mg/L	0.02< / 0.03	0.02< / 0.02<	0.34									
Iron Total Mg/L				– / 0.02<	0.02< / ND	0.02< / <0.02	0.39 / 0.24	0.38 / 0.08	<0.02 / <0.02	<0.02	<0.02	<0.02
Manganese, Total Mg/L												

MINE WATER CHARGE REPORT

Station D010

1991

Parameters	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow Rate G.P.M.				INACCESSIBLE	D010-52 1.5	D010-53 1.9	D010-54 1.9	D010-55 0.13	DRY	DRY	INACCESSIBLE	INACCESSIBLE
Acidity Mg/L												
Alkalinity Mg/L												
Conductivity MMHOS/CM					502	410	472	460				
Oil & Grease Mg/L					1.2	1.0<	1.5	4.4				
pH					7.1	7.17	6.70	7.67				
Total Dissolved Solids Mg/L					667	439	411	428				
Total Suspended Solids Mg/L					<1.0	<1.0	<1.0	2.0				
Iron, Dissolved Mg/L												
Iron Total Mg/L					<0.02	0.09	0.41	0.31				
Manganese, Total Mg/L												

Olympus Aerial Surveys, Inc.
Subsidence Study Report
using elevation readings from photography dated
October 2, 1991 versus those of September 28, 1988
FOR
U. S. FUEL Co.

1991 HIAWATHA SUBSIDENCE STUDY

USING SEPT 1991 RE-SURVEYED CONTROL:

POINT	EASTING	NORTHING	1988 ELEVATION	1991 DIFFERENCE
300	-16154.840	9455.111	9145.112	+0.37
301	-19121.400	10685.800	9834.341	-0.71
302	-19173.660	10300.360	9820.787	-0.54
303	-18869.550	10206.930	9700.406	-0.06
304	-18581.160	10303.300	9654.682	-0.34
305	-18086.900	10234.140	9506.029	+0.88
306	-17709.620	10335.410	9565.751	-0.44
307	-17396.100	10215.500	9578.385	-0.12
308	-17026.660	10492.970	9421.047	-0.62
309	-16470.350	10432.950	9107.776	+0.13
310	-16010.350	10379.940	8892.648	-0.55
311	-15534.210	10214.410	8658.302	+0.04
312	-15030.330	10279.770	8555.364	-0.11
313	-19120.120	10030.570	9726.739	+0.18
314	-19064.920	9847.590	9637.451	-0.16
315	-18832.570	9843.370	9572.858	-0.35
316	-18533.110	9941.481	9495.159	-0.42
317	-18093.740	9870.180	9353.924	+0.14
318	-17723.090	9760.030	9359.174	+0.55
319	-17264.450	9925.780	9502.482	+0.02
320	-17237.770	9502.099	9325.442	+0.49
321	-17042.880	9835.380	9468.028	+0.49
322	-16862.990	9375.280	9410.637	-0.18
323	-16407.900	9639.151	9323.662	-0.20
324	-16022.320	9703.750	8994.828	+0.12
325	-15799.880	9592.111	8894.322	-0.39
326	-15439.190	9670.870	8702.314	-1.05
327	-14529.190	9520.170	8629.178	+0.49
328	-14098.140	9468.099	8680.602	-0.06
329	-13724.830	9466.059	8644.111	-0.02
331	-19057.040	9390.630	9480.814	-0.13
332	-18770.990	9358.941	9450.316	-0.47
333	-18429.550	9256.830	9293.848	+0.38
334	-17992.740	9296.120	9004.634	-0.12
335	-17505.630	9482.540	9272.661	+1.19
336	-17290.220	8829.290	8940.618	+0.16

337	-17042.450	9167.670	9216.474	+0.29
338	-16634.560	8974.170	9327.087	-0.22
339	-16314.620	9041.050	9307.090	+0.02
340	-16079.120	9068.769	9303.679	+0.21
341	-15915.270	9013.401	9190.972	+1.01
342	-15592.650	8946.680	9109.821	+1.08
343	-15148.100	8843.970	9083.488	+0.16
344	-14876.360	8741.880	9076.670	-0.01
345	-14506.670	8799.790	9019.289	-0.38
346	-14038.530	8845.220	8830.345	-0.18
347	-13740.430	8785.269	8694.092	+0.28
348	-13309.510	8655.700	8500.944	+0.29
349	-19032.930	8822.290	9267.530	-0.08
350	-18890.630	8447.550	9009.186	+0.14
351	-19344.280	8372.530	9011.030	+0.46
352	-19439.160	7927.910	9252.923	-0.04
353	-18801.990	7864.430	8831.269	-0.39
354	-18818.430	7465.640	8863.470	-0.26
355	-19385.660	7463.430	9253.964	-0.00
356	-19380.470	7271.070	9182.227	-0.51
357	-19063.200	6496.120	9430.716	+0.25
358	-19224.350	6288.240	9473.184	+0.13
359	-19198.780	5878.100	9389.512	+0.17
360	-18883.640	5414.380	9434.908	+0.77
361	-19002.720	5175.540	9524.309	+0.29
362	-18941.900	4764.810	9554.808	+0.59
363	-18853.510	3778.420	9634.849	-0.13
364	-19168.250	3300.660	9776.166	+0.38
365	-19130.530	3130.860	9769.474	+0.60
366	-19053.540	2638.470	9737.634	+0.06
367	-18969.160	2264.180	9728.724	+0.26
368	-18935.450	1853.960	9723.519	-0.36
369	-20166.080	9321.901	9569.492	-1.51
370	-19829.940	9318.361	9648.959	-1.04
371	-21680.930	9106.981	9826.106	-0.26
372	-21298.940	9057.080	9817.864	+0.14
373	-20819.750	8986.880	9754.463	-0.51
374	-20367.540	9121.519	9580.797	-0.52
375	-20036.820	8969.180	9460.342	-0.87
376	-19815.990	8907.580	9470.751	-1.28
377	-19490.490	9064.170	9436.415	+0.30
378	-21666.050	8764.280	9801.384	+0.43
379	-21356.450	8757.050	9813.171	+0.52
380	-20916.700	8591.220	9783.941	-0.48
381	-20318.900	8603.660	9606.745	-2.29
382	-20069.160	8380.790	9533.032	-1.80
383	-19859.970	8756.370	9385.830	-1.97
384	-19459.870	8502.210	9136.193	-2.06

385	-21704.690	8452.240	9791.019	+0.08
386	-21286.260	8301.750	9845.248	-0.29
387	-20935.160	8329.740	9807.496	+0.12
388	-20678.230	8266.420	9743.700	-0.37
389	-20436.990	8163.260	9686.879	-0.94
390	-20045.450	8071.420	9565.090	-1.47
391	-19591.360	7908.100	9329.545	-2.14
392	-20940.170	8042.870	9830.701	-0.38
393	-20514.770	7860.310	9765.892	-0.59
394	-20298.030	7698.640	9712.005	-0.05
395	-19343.990	7458.340	9226.758	-0.92
396	-20545.280	7554.420	9819.346	-0.37
397	-20715.050	7300.770	9871.544	-0.16
398	-20203.050	7270.050	9630.364	-0.06
399	-18623.100	8438.529	9862.740	-0.33
400	-18300.560	8438.862	8935.099	+0.03
401	-18085.670	8396.118	8872.620	-0.11
402	-17712.050	8476.898	8659.571	-0.46
403	-17465.940	8461.250	8713.420	-0.05
404	-17162.720	8423.468	8801.870	-0.08
405	-16856.160	8485.741	8941.970	-0.49
406	-16533.800	8458.642	8995.071	-0.65
407	-16223.300	8454.408	9084.349	-0.87
408	-15915.850	8443.883	8937.599	-0.83
409	-15606.060	8430.982	8867.099	-0.98
410	-15291.410	8442.887	8872.420	-0.19
411	-15000.030	8436.969	8899.242	-0.06
412	-14697.000	8451.369	8974.196	+0.06

NOTES:

1- As in the prior reports, 1988 elevations for points 349 to 368 are using the revised values to reflect better information. This revision is in accordance with our prior discussions on the subject.

Daren
007/011 #6

UNITED STATES FUEL COMPANY

P.O. Box A
Hiawatha, Utah 84527

(801) 637-2252
TELEX: 453-123

March 12, 1992

RECEIVED
MAR 16 1992
DIVISION OF
OIL GAS & MINING

Mr. Lowell Braxton
Division of Oil, Gas and Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Re: United States Fuel Company Annual Report for 1991

Dear Mr. Braxton:

Please find enclosed United States Fuel Company's Annual Report for 1991. Along with the annual cover sheet is an updated mine sequence map showing areas where coal was mined during 1991. The following is also provided as per your summary sheet:

A. Summarized Water Monitoring Data for springs, streams and UPDES discharge points.

B. No precipitation or climatological data was collected.

C. Subsidence monitoring information, including a listing of ground point elevation differences between the 1991 survey and the 1988 baseline survey and a monitoring map showing the locations of subsidence point readings and ground control survey monuments.

D. No vegetation monitoring was done in 1991.

E. 1. A copy of our certified annual slurry impoundment and refuse pile report.
   2. Certified quarterly sediment pond and refuse pile inspection reports for 1991.
   3. Copies of the Hiawatha No. 2 mine bulkhead inspection records and annual photographs for 1991.

F. No overburden, spoil, refuse, roof, floor or mid-seam data was collected during 1991.

G. Permit Stipulation Status: All permit stipulations attached to the March 13, 1987 permit have been addressed. Approval was granted for permit conditions on January 21, 1988. There are no outstanding stipulations or orders at this time.

Sincerely

Robert Eccli

Robert Eccli
Senior Engineer

UTAH KING COAL