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DIVISION OF
OIL, GAS & MINING

SURFACE AND GROUNDWATER MONITORING PLAN

3rd Quarter 1980

United States Fuel Company

Hiawatha, Utah 84527

STREAM MONITORING REPORT

DATE: NOV. 13 - 1980

EFFLUENT CHARACTERISTIC		ST - 1					
		JULY	AUGUST	SEP.			
Flow Rate	G.P.M.	117	77	77			
PH	Units	7.3	7.7	7.4			
Air Temp.	°F	60	65	53			
Water Temp.	°F	47	47	39			
Conductivity	umhos/cm	1820	1700	1900			
Acidity	Mg/L	2	24	18			
Total Suspended Solids	Mg/L	16	17	29			
Total Dissolved Solids	Mg/L	1190	1190	1330			
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.02	0.028	0.016			
Total Iron	Mg/L	0.22	0.185	0.24			
Dissolved Iron	Mg/L	0.1	0.065	0.12			
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	22	0.13	11.4			
Sulfate	Mg/L	540	29	840			
Nitrate NO_3-N	Mg/L	0.66	0.92	0.89			
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<0.1	<.01	1.4			

STREAM TEST DATA REPORT

DATE: NOV. 13 - 1980

EFFLUENT CHARACTERISTIC		ST - 2B					
		JULY	AUGUST	SEP.			
Flow Rate	G.P.M.	444	31	21			
PH	Units	7.6	7.8	7.6			
Air Temp.	°F	61	63	50			
Water Temp.	°F	49	53	39			
Conductivity	umhos/cm	610	700	760			
Acidity	Mg/L	<.1	10	14			
Total Suspended Solids	Mg/L	12	2	18			
Total Dissolved Solids	Mg/L	400	490	532			
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.024	0.033	0.015			
Total Iron	Mg/L	0.16	0.310	0.250			
Dissolved Iron	Mg/L	0.09	0.165	0.099			
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	4	0.01	5.1			
Sulfate	Mg/L	24	220	126			
Nitrate NO_3-N	Mg/L	<.01	<.01	<.01			
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<.1	<.01	0.8			

STEAM PLANT MONITORING REPORT

DATE: NOV. 13-198

EFFLUENT CHARACTERISTIC		ST - 5					
		JULY	AUGUST	SEP.			
Flow Rate	G.P.M.	889	59	118			
PH	Units	7.6	7.7	7.6			
Air Temp.	°F	67	67	59			
Water Temp.	°F	53	57	49			
Conductivity	umhos/cm	1050	1500	1600			
Acidity	Mg/L	<.1	20	18			
Total Suspended Solids	Mg/L	40	38	45			
Total Dissolved Solids	Mg/L	700	1050	1120			
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.03	0.004	0.044			
Total Iron	Mg/L	0.38	0.045	0.52			
Dissolved Iron	Mg/L	0.15	0.012	0.15			
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	14	0.06	41.7			
Sulfate	Mg/L	210	230	585			
Nitrate NO_3-N	Mg/L	0.24	0.8	0.79			
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<.1	0.8	<.1			

STREAM MONITORING REPORT

DATE: NOV. 13-1980

EFFLUENT CHARACTERISTIC		ST-6					
		JULY	AUGUST	SEP.			
Flow Rate	G.P.M.	373	89	67			
PH	Units	7.8	8	8			
Air Temp.	°F	67	67	52			
Water Temp.	°F	52	61	49			
Conductivity	umhos/cm	810	840	880			
Acidity	Mg/L	<.1	<.1	6			
Total Suspended Solids	Mg/L	2	191	22			
Total Dissolved Solids	Mg/L	532	588	616			
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.005	0.025	0.65			
Total Iron	Mg/L	0.04	0.206	13.5			
Dissolved Iron	Mg/L	0.013	0.11	3.21			
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	14	0.01	8.1			
Sulfate	Mg/L	232	530	240			
Nitrate NO_3-N	Mg/L	0.08	0.09	<.01			
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<.1	<.01	<.1			

Route to Wayne

UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

August 14, 1980

State of Utah
Department of Natural Resources
Division of Oil, Gas, and Mining
1588 West North Temple
Salt Lake City, Utah 84116

Dear Mr. Suchoski:

Regarding the Division's suggestions to sample four surface monitoring stations above and below Middle Fork and South Fork Tunnels.

The new surface monitoring stations are assigned the following numbers and locations:

ST 3A - Above Middle Fork Tunnel of Miller Creek

ST 3B - Below Middle Fork Tunnel of Miller Creek

ST 4A - Above South Fork Tunnel of Miller Creek

ST 4B - Below South Fork Tunnel of Miller Creek

1, 2b, 5, 6 also monthly

It is aticipated that this will give control on what the natural values are and allow for determinations of influences of mining operation.

The stations can be sampled on a monthly basis. The samples will begin July, 1980 and the results of the analyses will be in our engineering office records.

Yours truly,

8/14/80

Addalla M. Elias
Mine Engineer

AME/ds

RECEIVED AUG 18 1980 DIVISION OF OIL, GAS, & MINING

UTAH KING COAL

Quotations subject to immediate acceptance. Coal will be sold and invoiced at price in effect on date of shipment, at mine weights f. o. b. cars at place of shipment, unless otherwise specifically agreed in writing. Agreements are contingent upon causes of delay beyond our control, including strikes, accidents, riots, acts of God, lockouts, fire, flood, inability to secure cars or transportation.

TO WAYNE
TIS

Where are the results from

ST-5
ST-4
ST-3
ST-2A

? inaccessable

* cannot compare any possible mine contributions from the data presented.

Check their monitoring plan.

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AUG 4 1980

HYDROLIC MONITORING PLAN

Quarterly Report

United States Fuel Company

Hiawatha, Utah 84527

STREAM TEST MONITORING REPORT

DATE: July 30 - 1986

EFFLUENT CHARACTERISTIC		ST-1					
		APRIL	MAY	JUNE			
Flow Rate	G.P.M.	422	732	278			
PH	Units	7.8	8.0	6.5			
Air Temp.	°F				??		
Water Temp.	°F						
Conductivity	umhos/cm	1380	1000	1000			
Acidity	Mg/L	4.0	<.1	34			
Total Suspended Solids	Mg/L	25.5	42.5	47			
Total Dissolved Solids	Mg/L	900	700	800			
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.01	0.03	0.014			
Total Iron	Mg/L	0.27	0.630	0.196			
Dissolved Iron	Mg/L	0.11	0.260	0.106			
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	22.0	14.0	12.0			
Sulfate	Mg/L	300	270	33			
Nitrate NO_3-N	Mg/L	0.12	<.01	<.01			
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	5.8	0.4	3.4			

DATE: July 30 - 1980

EFFLUENT CHARACTERISTIC		ST-2B					
		APRIL	MAY	JUNE			
Flow Rate	G.P.M.	193	366	938			
PH	Units	7.8	7.8	8.0			
Air Temp.	°F						
Water Temp.	°F						
Conductivity	umhos/cm	770	700	500			
Acidity	Mg/L	12	<.1	<.1			
Total Suspended Solids	Mg/L	18	219	181			
Total Dissolved Solids	Mg/L	500	490	280			
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.01	0.12	0.011			
Total Iron	Mg/L	0.22	3.77	0.230			
Dissolved Iron	Mg/L	0.05	0.96	0.095			
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	10.0	8.0	2.0			
Sulfate	Mg/L	148	93	57			
Nitrate NO_3-N	Mg/L	0.05	0.41	<.01			
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	4.6	1.8	3.0			

STREAM MONITORING REPORT

DATE: July 30 - 1980

EFFLUENT CHARACTERISTIC		ST - 6					
		APRIL	MAY	JUNE			
Flow Rate	G.P.M.	133	2190	889			
PH	Units	7.9	7.8	7.8			
Air Temp.	°F						
Water Temp.	°F						
Conductivity	umhos/cm	1150	700	670			
Acidity	Mg/L	10	<.1	<.1			
Total Suspended Solids	Mg/L	137	1460	28			
Total Dissolved Solids	Mg/L	750	490	460			
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						
Total Iron	Mg/L	1.32	14	1.23			
Dissolved Iron	Mg/L	0.28	2.98	0.46			
Calcium	Mg/L						
Magnesium	Mg/L	0.04	0.39	<.01			
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	14	6	10			
Sulfate	Mg/L	315	216	78			
Nitrate NO_3-N	Mg/L	0.09	0.02	1.08			
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	1.4	0.80	1.4			

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MAY 19 1980
DIVISION OF
OIL, GAS & MINING

HYDROLIC MONITORING PLAN

Quarterly Report

United States Fuel Company

Hiawatha, Utah 84527

DATE: May 16 - 198"

EFFLUENT CHARACTERISTIC		ST - 1					
		JAN.	FEB.	MAR.			
Flow Rate	G.P.M.						
PH	Units						
Air Temp.	°F						
Water Temp.	°F						
Conductivity	umhos/cm						
Acidity	Mg/L						
Total Suspended Solids	Mg/L						
Total Dissolved Solids	Mg/L						
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						
Total Iron	Mg/L						
Dissolved Iron	Mg/L						
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L						
Sulfate	Mg/L						
Nitrate NO_3-N	Mg/L						
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L						

INACCESSIBLE

DATE: May 16-1980

EFFLUENT CHARACTERISTIC		ST - 2B					
		JAN.	FEB.	MAR.			
Flow Rate	G.P.M.						
PH	Units						
Air Temp.	°F						
Water Temp.	°F						
Conductivity	umhos/cm						
Acidity	Mg/L						
Total Suspended Solids	Mg/L						
Total Dissolved Solids	Mg/L						
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						
Total Iron	Mg/L						
Dissolved Iron	Mg/L						
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L						
Sulfate	Mg/L						
Nitrate NO_3-N	Mg/L						
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L						

INACCESSIBLE

DATE: May 16 - 1980

EFFLUENT CHARACTERISTIC		ST - 5					
		JAN.	FEB.	MAR.			
Flow Rate	G.P.M.			215			
PH	Units			7.8			
Air Temp.	°F			39			
Water Temp.	°F			35			
Conductivity	umhos/cm			960			
Acidity	Mg/L			14			
Total Suspended Solids	Mg/L			165			
Total Dissolved Solids	Mg/L			670			
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L			0.026			
Total Iron	Mg/L			1.1			
Dissolved Iron	Mg/L			0.6			
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L			58			
Sulfate	Mg/L			410			
Nitrate NO_3-N	Mg/L			0.11			
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L			4.8			

INACCESSIBLE

DATE: May 16 - 1980

EFFLUENT CHARACTERISTIC		ST - 6					
		JAN.	FEB.	MAR.			
Flow Rate	G.P.M.						
PH	Units						
Air Temp.	°F						
Water Temp.	°F						
Conductivity	umhos/cm						
Acidity	Mg/L						
Total Suspended Solids	Mg/L						
Total Dissolved Solids	Mg/L						
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						
Total Iron	Mg/L						
Dissolved Iron	Mg/L						
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L						
Sulfate	Mg/L						
Nitrate NO_3-N	Mg/L						
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L						

INACCESSIBLE

To: Tom

UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

State of Utah
Department of Natural Resources
Division of Oil, Gas, and Mining
1588 West North Temple
Salt Lake City, Utah 84116

Date January 29, 1980

Attention: RONALD W. DANIELS
Coordinator of mines land development.

Subject: Hydrolic Monitoring plan
Base line and annual Report for 1979

Gentlemen:

We attach for your attention the following:

Please find enclosed, one copy of our annual hydrologic monitoring report for 1979.

Very truly yours,

U. S. FUEL COMPANY

By Abdalla M. Elias
Engineering Department

KING COAL

Quotations subject to immediate acceptance. Coal will be sold and invoiced at price in effect on date of shipment, at mine weights f.o.b. cars at place of shipment, unless otherwise specifically agreed in writing. Agreements are contingent upon causes of delay beyond our control, including strikes, accidents, floods, acts of God, fire, flood, inability to secure cars or transportation.

HYDROLIC MONITORING PLAN

Baseline Data & Annual Reporting for 1979

United States Fuel Company
Hiawatha, Utah 84527

RECEIVED
JAN 31 1980
DIVISION OF
OIL, GAS & MINING

1979

EFFLUENT CHARACTERISTIC		Right Fork of North Fork of Miller Creek					
		May	July	Sept.	Oct.	Nov.	Dec.
Flow Rate	G.P.M.	377	52	31	36	21	41
PH	Units	7.79	8.20	7.70	7.60	7.54	8.00
Air Temp.	°F	58	63	61	45	39	31
Water Temp.	°F	43	46	45	40	37	33
Conductivity	umhos/cm	770		1,200	2,000	2,100	1,200
Acidity	Mg/L			2	2	12	18
Total Suspended Solids	Mg/L	32		19	1.0	6.0	<.1
Total Dissolved Solids	Mg/L	516		1,000	1,355	1,362	960
Total Organic Carbon	Mg/L				12		
Total Manganese	Mg/L			0.040	0.026	0.028	0.020
Total Iron	Mg/L	0.819		0.810	0.130	0.139	0.090
Dissolved Iron	Mg/L			0.640	0.090	0.095	0.050
Calcium	Mg/L				258.40		
Magnesium	Mg/L				110.08		
Sodium	Mg/L				13.40		
Potassium	Mg/L				5.430		
Carbonate	Mg/L				<.01		
Fluoride	Mg/L				0.22		
Bicarbonate	Mg/L				361.12		
Chloride	Mg/L	18		19	12	2	16
Sulfate	Mg/L	1,950		390	775	350	450
Nitrate NO_3-N	Mg/L	1.22		0.95	0.10	0.11	0.22
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L				<.01		
Dissolved Phosphorus	Mg/L				0.020		
Silica	Mg/L				7.65		
Trace Elements:							
Arsenic	Mg/L				<.001		
Cadmium	Mg/L				<.001		
Zinc	Mg/L				0.007		
Selenium	Mg/L				<.001		
Radioactivity:							
Gross Alpha	Pci/L				3.1		
Gross Beta	Pci/L				9.8		
Oil and Grease	Mg/L			<1.0	0.6	1.8	5.0

1979

EFFLUENT CHARACTERISTIC		Left Fork of North Fork of Miller Creek, just above the Hiawatha No.2 Mine Diversion Point.					
		May	July	Sept.	Oct.	Nov.	Dec.
Flow Rate	G.P.M.	700	168	3	2		Snow
PH	Units						
Air Temp.	°F	59	58	55	43		
Water Temp.	°F	41	44	43	41		
Conductivity	umhos/cm						
Acidity	Mg/L						
Total Suspended Solids	Mg/L						
Total Dissolved Solids	Mg/L						
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						
Total Iron	Mg/L						
Dissolved Iron	Mg/L						
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L						
Sulfate	Mg/L						
Nitrate NO_3-N	Mg/L						
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L						

1979

EFFLUENT CHARACTERISTIC		Left Fork of North Fork of Miller Creek, Just Between The Hiawatha No.2 Mine Diversion Point and the Junction With Right Fork,					
		May	July	Sept.	Oct.	Nov.	Dec.
Flow Rate	G.P.M.	444	46	28	36	57	36
PH	Units	7.84	8.40	7.70	7.70	7.65	7.90
Air Temp.	°F	63	67	55	41	33	29
Water Temp.	°F	45	50	42	37	33	33
Conductivity	umhos/cm	430		800	780	790	700
Acidity	Mg/L			4	4	16	8
Total Suspended Solids	Mg/L	232		33	2	5	<.1
Total Dissolved Solids	Mg/L	285		600	512	510	560
Total Organic Carbon	Mg/L				6		
Total Manganese	Mg/L			0.056	0.011	0.016	0.007
Total Iron	Mg/L	3.348		2.650	0.070	0.081	0.050
Dissolved Iron	Mg/L			1.380	0.030	0.041	0.020
Calcium	Mg/L				156.80		
Magnesium	Mg/L				3.36		
Sodium	Mg/L				15		
Potassium	Mg/L				3.200		
Carbonate	Mg/L				<.01		
Fluoride	Mg/L				0.15		
Bicarbonate	Mg/L				322.08		
Chloride	Mg/L	6		4	8	48	8
Sulfate	Mg/L	16		144	163	127	122
Nitrate NO_3-N	Mg/L	0.80		0.76	0.02	0.05	<0.01
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L				<.01		
Dissolved Phosphorus	Mg/L				0.630		
Silica	Mg/L				8.10		
Trace Elements:							
Arsenic	Mg/L				<.001		
Cadmium	Mg/L				<.001		
Zinc	Mg/L				0.004		
Selenium	Mg/L				<.001		
Radioactivity:							
Gross Alpha	Pci/L				2.8		
Gross Beta	Pci/L				12.5		
Oil and Grease	Mg/L			<1.0	0.8	0.4	2.0

ANNUAL STREAM MONITORING REPORT

1979

EFFLUENT CHARACTERISTIC		Middle Fork of Miller Creek					
		May	July	Sept.	Oct.	Nov.	Dec.
Flow Rate	G.P.M.	72	52	54	57		31
PH	Units	7.57	8.20	7.20	7.60		8.30
Air Temp.	°F	69	72	67	59		38
Water Temp.	°F	51	50	45	40		32
Conductivity	umhos/cm	1,690		1,950	2,200		
Acidity	Mg/L			6	2		
Total Suspended Solids	Mg/L	105		40	2		
Total Dissolved Solids	Mg/L	1,110		1,600	1,420		
Total Organic Carbon	Mg/L				9		
Total Manganese	Mg/L			0.035	0.035		
Total Iron	Mg/L	1.739		1.810	0.100		
Dissolved Iron	Mg/L			0.960	0.020		
Calcium	Mg/L				360.80		
Magnesium	Mg/L				22.56		
Sodium	Mg/L				69		
Potassium	Mg/L				8.330		
Carbonate	Mg/L				<.01		
Fluoride	Mg/L				0.21		
Bicarbonate	Mg/L				361.12		
Chloride	Mg/L	92		86	108		
Sulfate	Mg/L	160		640	670		
Nitrate NO_3-N	Mg/L	0.85		0.69	1.45		
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L				< .01		
Dissolved Phosphorus	Mg/L				0.120		
Silica	Mg/L				11.50		
Trace Elements:							
Arsenic	Mg/L				<.001		
Cadmium	Mg/L				<.001		
Zinc	Mg/L				0.009		
Selenium	Mg/L				<.001		
Radioactivity:							
Gross Alpha	Pci/L				1.4		
Gross Beta	Pci/L				10.4		
Oil and Grease	Mg/L			<1.0	1.2		

1979

EFFLUENT CHARACTERISTIC		South Fork of Miller Creek					
		May	July	Sept.	Oct.	Nov.	Dec.
Flow Rate	G.P.M.	144	41	NO	FLOW		
PH	Units	7.67	8.2				
Air Temp.	°F	70	83				
Water Temp.	°F	51	60				
Conductivity	umhos/cm	920					
Acidity	Mg/L						
Total Suspended Solids	Mg/L	527					
Total Dissolved Solids	Mg/L	605					
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						
Total Iron	Mg/L	9.960					
Dissolved Iron	Mg/L						
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	14					
Sulfate	Mg/L	150					
Nitrate NO_3-N	Mg/L	0.65					
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L						

ANNUAL STREAM MONITORING REPORT

1979

EFFLUENT CHARACTERISTIC		Miller Creek					
		May	July	Sept.	Oct.	Nov.	Dec.
Flow Rate	G.P.M.	889	74	44	44	67	319
PH	Units	7.73	8.2	7.40	7.80	7.65	7.80
Air Temp.	°F	75	87	65	67	45	45
Water Temp.	°F	53	64	51	45	39	39
Conductivity	umhos/cm	920		1,600	1,650	1,680	950
Acidity	Mg/L			2	6	28	8
Total Suspended Solids	Mg/L	318		61	3	18	32
Total Dissolved Solids	Mg/L	599		1,200	1,080	1,089	760
Total Organic Carbon	Mg/L				5		
Total Manganese	Mg/L			0.026	0.037	0.040	0.025
Total Iron	Mg/L	5.420		4.800	0.190	0.200	1.240
Dissolved Iron	Mg/L			1.140	0.140	0.144	0.650
Calcium	Mg/L				255.20		
Magnesium	Mg/L				23.04		
Sodium	Mg/L				75		
Potassium	Mg/L				5.780		
Carbonate	Mg/L				<.01		
Fluoride	Mg/L				0.20		
Bicarbonate	Mg/L				356.24		
Chloride	Mg/L	18		17	50	8	16
Sulfate	Mg/L	165		520	520	350	270
Nitrate NO_3-N	Mg/L	0.70		0.80	1.10	1.0	0.10
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L				<.01		
Dissolved Phosphorus	Mg/L				0.120		
Silica	Mg/L				10		
Trace Elements:							
Arsenic	Mg/L				<.001		
Cadmium	Mg/L				<.001		
Zinc	Mg/L				0.10		
Selenium	Mg/L				<.001		
Radioactivity:							
Gross Alpha	Pci/L				2.5		
Gross Beta	Pci/L				11.8		
Oil and Grease	Mg/L			<1.0	<.1	<.1	7.8

1979

EFFLUENT CHARACTERISTIC		Cedar Creek					
		June	July	Sept.	Oct.	Nov.	Dec.
Flow Rate	G.P.M.	1351	44	15	81	15	Snow
PH	Units	7.10	8.30	7.50	7.80	7.70	
Air Temp.	°F	78	82	59	65	41	
Water Temp.	°F	52	68	45	45	33	
Conductivity	umhos/cm	650		980	1,000	1,010	
Acidity	Mg/L	8		<.1	4	14	
Total Suspended Solids	Mg/L	22		1.0	1.0	18	
Total Dissolved Solids	Mg/L	420		860	658	661	
Total Organic Carbon	Mg/L				11.0		
Total Manganese	Mg/L			0.009	0.012	0.015	
Total Iron	Mg/L	<.010		0.070	0.110	0.114	
Dissolved Iron	Mg/L			0.030	0.060	0.065	
Calcium	Mg/L				179.20		
Magnesium	Mg/L				12.28		
Sodium	Mg/L				11.70		
Potassium	Mg/L				4.130		
Carbonate	Mg/L				<.01		
Fluoride	Mg/L				0.14		
Bicarbonate	Mg/L				263.52		
Chloride	Mg/L			12	6	2	
Sulfate	Mg/L	122		340	300	350	
Nitrate NO_3-N	Mg/L	0.10		<.01	0.08	0.05	
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L				<.01		
Dissolved Phosphorus	Mg/L				0.08		
Silica	Mg/L				8.45		
Trace Elements:							
Arsenic	Mg/L				<.001		
Cadmium	Mg/L				<.001		
Zinc	Mg/L				0.006		
Selenium	Mg/L				<.001		
Radioactivity:							
Gross Alpha	Pci/L				2		
Gross Beta	Pci/L				9.8		
Oil and Grease	Mg/L			1.6	0.8	0.6	

ANNUAL STREAM MONITORING REPORT

1979

EFFLUENT CHARACTERISTIC		Gentry Hollow Creek					
		June	July	Sept.	Oct.	Nov.	Dec.
Flow Rate	G.P.M.	2248		242	173		
PH	Units	7.48		7.30	7.60		
Air Temp.	°F	52		45	59		
Water Temp.	°F	44		42	42		
Conductivity	umhos/cm	430		510	500		
Acidity	Mg/L	2		10	4		
Total Suspended Solids	Mg/L	14		17	1.0		
Total Dissolved Solids	Mg/L	280		410	320		
Total Organic Carbon	Mg/L				6		
Total Manganese	Mg/L			0.016	0.022		
Total Iron	Mg/L	<.010		0.200	0.180		
Dissolved Iron	Mg/L			0.110	0.110		
Calcium	Mg/L				104		
Magnesium	Mg/L				4.32		
Sodium	Mg/L				4.33		
Potassium	Mg/L				1.200		
Carbonate	Mg/L				<.01		
Fluoride	Mg/L				0.11		
Bicarbonate	Mg/L				312.32		
Chloride	Mg/L			6	2		
Sulfate	Mg/L	10		31	35		
Nitrate NO_3-N	Mg/L	1.64		<.01	0.06		
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L				<.01		
Dissolved Phosphorus	Mg/L				0.180		
Silica	Mg/L				6.65		
Trace Elements:							
Arsenic	Mg/L				<.001		
Cadmium	Mg/L				<.001		
Zinc	Mg/L				0.005		
Selenium	Mg/L				<.001		
Radioactivity:							
Gross Alpha	Pci/L				2.2		
Gross Beta	Pci/L				13.2		
Oil and Grease	Mg/L			1.0	1.4		

ANNUAL SPRING MONITORING REPORT

1979

EFFLUENT CHARACTERISTIC		Star Point Spring		North Fork Spring		Gentry Hollow Spring	
		July	Oct.	June	Oct.	June	Oct.
Flow Rate	G.P.M.	2	0.3	8	4	7	6
PH	Units	7.07	7.50	7.54	7.60	7.53	7.80
Air Temp.	°F	64	77	73	59	65	51
Water Temp.	°F	45	49	51	47	43	39
Conductivity	umhos/cm	305	400	420	530	440	500
Acidity	Mg/L	22		8		12	
Total Suspended Solids	Mg/L	2		46		17	
Total Dissolved Solids	Mg/L	200	260	240	340	260	330
Total Organic Carbon	Mg/L		4		9		9
Total Manganese	Mg/L	0.007		0.028		0.011	
Total Iron	Mg/L	0.263	0.020	1.180	0.650	0.340	0.410
Dissolved Iron	Mg/L	0.122		0.320		0.090	
Calcium	Mg/L		59.60		77.60		94.40
Magnesium	Mg/L		3.36		3.36		3.84
Sodium	Mg/L		28.90		34.5		18.6
Potassium	Mg/L		6.851		10.4		8.5
Carbonate	Mg/L		<.01		<.01		<.01
Fluoride	Mg/L		0.11		0.09		0.09
Bicarbonate	Mg/L		202.52		251.56		295.24
Chloride	Mg/L	4	4	4	4	4	2
Sulfate	Mg/L	13	52.9	13	75	7	53
Nitrate NO_2-N	Mg/L	1.51	1.26	1.46	1.02	1.0	1.07
Nitrate NO_3-N	Mg/L						
Kjeldahl N	Mg/L		<.01		<.01		<.01
Dissolved Phosphorus	Mg/L		0.040		0.08		0.040
Silica	Mg/L		8.40		5.30		5.35
Trace Elements:							
Arsenic	Mg/L		<.001		<.001		<.001
Cadmium	Mg/L		<.001		<.001		<.001
Zinc	Mg/L		0.009		0.011		0.009
Selenium	Mg/L		<.001		<.001		<.001
Radioactivity:							
Gross Alpha	Pci/L		2.1		1.8		2.0
Gross Beta	Pci/L		6.3		6.5		5.9
Oil and Grease	Mg/L						

ANNUAL SPRING MONITORING REPORT

1979

EFFLUENT CHARACTERISTIC		South Fork Spring		Bald Ridge Spring		Head Cedar Creek Spring	
		June	Oct	June	Oct	June	Oct
Flow Rate	G.P.M.	10	5	1.3	2.5	9	8
PH	Units	7.54	7.80	7.37	7.60	7.32	7.60
Air Temp.	°F	59	55	65	55	68	50
Water Temp.	°F	45	41	39	43	39	39
Conductivity	micromho/cm	580	460	590	590	480	370
Acidity	Mg/L	20		12.0		12.0	
Total Suspended Solids	Mg/L	3		1.0		4.0	
Total Dissolved Solids	Mg/L	350	310	360	388	290	246
Total Organic Carbon	Mg/L		12		16		9.0
Total Manganese	Mg/L	0.006		0.008		0.005	
Total Iron	Mg/L	0.060	0.11	0.05	0.010	0.080	0.030
Dissolved Iron	Mg/L	0.100		0.10		0.030	
Calcium	Mg/L		100.80		105.60		84.80
Magnesium	Mg/L		3.84		2.40		3.84
Sodium	Mg/L		6.0		87		5.0
Potassium	Mg/L		0.51		0.62		1.10
Carbonate	Mg/L		<.01		<.01		<.01
Fluoride	Mg/L		0.11		0.11		0.08
Bicarbonate	Mg/L		314.76		309.88		270.84
Chloride	Mg/L	4	2.0	4.0	4.0	4.0	2.0
Sulfate	Mg/L	50	22.0	50	34	6.0	14.0
Nitrate NO_3-N	Mg/L	0.13	0.02	0.06	<.01	0.24	0.08
Nitrate NO_3-N	Mg/L						
Kjeldahl N	Mg/L		<.01		<.01		<.01
Dissolved Phosphorus	Mg/L		0.44		0.060		0.040
Silica	Mg/L		6.90		6.40		5.60
Trace Elements:							
Arsenic	Mg/L		<.001		<.001		<.001
Cadmium	Mg/L		<.001		<.001		<.001
Zinc	Mg/L		0.003		0.005		0.004
Selenium	Mg/L		<.001		<.001		<.001
Radioactivity:							
Gross Alpha	Pci/L		2.5		1.8		2.4
Gross Beta	Pci/L		10.2		14.2		12.2
Oil and Grease	Mg/L						

ANNUAL SPRING FLOW MONITORING REPORT

1979

EFFLUENT CHARACTERISTIC		McCadden Hollow Spring		Mohrland Portal Spring		Bear Canyon Spring	
		June	Oct	June	Oct	June	Oct
Flow Rate	G.P.M.	41	13	15	6	8	8
PH	Units	7.45	7.60	7.44	7.70	7.69	7.70
Air Temp.	°F	57	55	65	51	61	57
Water Temp.	°F	35	40	40	39	60	40
Conductivity	umhos/cm	460	380	580	610	380	340
Acidity	Mg/L	12.0		14.0		12.0	
Total Suspended Solids	Mg/L	1.0		1.0		21.0	
Total Dissolved Solids	Mg/L	280	249	370	397	240	224
Total Organic Carbon	Mg/L		13.0		19.0		22.0
Total Manganese	Mg/L	0.003		0.004		0.012	
Total Iron	Mg/L	0.070	<.001	0.060	<.001	0.340	<.001
Dissolved Iron	Mg/L	0.010		0.020		0.110	
Calcium	Mg/L		92		134.40		80
Magnesium	Mg/L		4.32		4.32		3.84
Sodium	Mg/L		0.30		6.80		1.10
Potassium	Mg/L		0.130		0.150		1.210
Carbonate	Mg/L		<.01		<.01		<.01
Fluoride	Mg/L		0.11		0.18		0.14
Bicarbonate	Mg/L		287.92		380.64		239.12
Chloride	Mg/L	6.0	<1.0	6.0	<1.0	4.0	<1.0
Sulfate	Mg/L	6.0	10.0	43	58	11.0	17.0
Nitrate NO_3-N	Mg/L	0.31	0.22	<.01	<.01	0.03	0.17
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L		<.01		<.01		<.01
Dissolved Phosphorus	Mg/L		0.020		0.040		0.280
Silica	Mg/L		6.0		6.30		5.55
Trace Elements:							
Arsenic	Mg/L		<.001		<.001		<.001
Cadmium	Mg/L		<.001		<.001		<.001
Zinc	Mg/L		0.003		0.005		0.002
Selenium	Mg/L		<.001		<.001		<.001
Radioactivity:							
Gross Alpha	Pci/L		2.3		2.2		1.4
Gross Beta	Pci/L		13.1		9.8		11.1
Oil and Grease	Mg/L						

ANNUAL SPRING MONITORING REPORT

1979

EFFLUENT CHARACTERISTIC		Long Point Spring					
		June	Oct				
Flow Rate	G.P.M.	30	4				
PH	Units	7.57	7.70				
Air Temp.	°F	68	58				
Water Temp.	°F	51	41				
Conductivity	umhos/cm	490	700				
Acidity	Mg/L	14.0					
Total Suspended Solids	Mg/L	17.0					
Total Dissolved Solids	Mg/L	300	455				
Total Organic Carbon	Mg/L		13.0				
Total Manganese	Mg/L	0.016					
Total Iron	Mg/L	0.150	0.010				
Dissolved Iron	Mg/L	0.050					
Calcium	Mg/L		110.40				
Magnesium	Mg/L		6.72				
Sodium	Mg/L		48				
Potassium	Mg/L		1.140				
Carbonate	Mg/L		<.01				
Fluoride	Mg/L		0.21				
Bicarbonate	Mg/L		412.36				
Chloride	Mg/L	4.0	4.0				
Sulfate	Mg/L	21.0	72				
Nitrate NO_3-N	Mg/L	<.01	<.01				
Nitrite NO_2-N	Mg/L						
Kjeldahl N	Mg/L		<.01				
Dissolved Phosphorus	Mg/L		0.060				
Silica	Mg/L		7.20				
Trace Elements:							
Arsenic	Mg/L		<.001				
Cadmium	Mg/L		<.001				
Zinc	Mg/L		0.003				
Selenium	Mg/L		<.001				
Radioactivity:							
Gross Alpha	Pci/L		2.5				
Gross Beta	Pci/L		12.6				
Oil and Grease	Mg/L						

MOHRLAND PORTAL

ANNUAL MINE WATER DISCHARGE MONITORING REPORT

1979

Effluent Characteristic		Flow Rate G.P.M.	Total Suspended Solids Mg/L	Total Dissolved Solids Mg/L	Total Manganese Mg/L	Total Iron Mg/L	Dissolved Iron Mg/L	Alkalinity Mg/L	Acidity Mg/L	PH Units	Oil & Grease Mg/L	BOD5 Mg/L	Total Coloforms MPN/100ML	Fecal Coloforms MPN/100ML
January	-19	485	4.0	604		0.007		338	20	7.25	2.4	2.2	<2.0	<2.0
	-28									7.20				
February	-05	67	5.0	571		0.026		242	30	7.15	1.6			
	-19									7.30				
March	-07									7.30				
	-26	310	SAMPLE BROKEN IN TRANSPORTATION											
April	-09		13.0	550		0.017		300	20	7.09	<1.0			
	-27	112	17.0	460		0.006		206	24	7.20	1.5	4.0	<2.0	<2.0
May	-17	10	5.0	689		0.410		370	6	7.41	2.6			
	-08									7.40				
June	-12									7.30				
	-25	550	8.0	700	0.020	0.400	0.166	378	24	6.99	2.4			
July	-11									6.80				
	-19	5	7.0	550	0.012	0.239	0.115	300	24	7.73	1.0	2.2	<2.0	<2.0
August	-09	5								6.90				
	-27	9	1.0	700	0.046	0.410	0.183	414	46	7.40	<1.0			
September	-12		NO OVER FLOW											
	-28		NO OVER FLOW											
October	-10	126								7.30				
	-24	6	2.0	694	0.040	0.400	0.150	410	32	7.30	<1.0	1.2	2.0	<2.0
November	-05		NO OVER FLOW											
	-19		NO OVER FLOW											
December	-05	81	<0.1	700	0.061	0.200	0.170	378	28	7.20	1.6			

US Fuel File Copy
~~Cop~~ Route to Tom for action.

UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

November 29, 1979

Mr. Ron Daniels
Coordinator of Mined Land Development
Division of Oil, Gas and Mining
1588 West North Temple
Salt Lake City, Utah 84116

Dear Ron:

Please find enclosed, three copies of our revised Hydrologic Monitoring Plan. This plan has been revised to comply with stipulations requested by Tom Suchoski of your Division in his letters dated June 15, 1979 and August 21, 1979.

In response to your letter dated Sept. 24, 1979 relating to reports on water quality information required under 30 CFR 715.17 and 717.17, the following information is submitted.

Reports for our facilities covered by NPDES discharge permits are filed at the end of each 60 day sample collection period with the agencies listed below.

Utah State Division of Health
Water Quality Section
150 West North Temple
P.O. Box 2500
Salt Lake City, Utah 84110

U.S. Enviormental Protection Agency
Suite 103, 1860 Lincoln Street
Denver, Colorado 80295

RECEIVED DEC 5 1979 DIVISION OF OIL, GAS, & MINING

Yours Truly,

Robert Eccli

Robert Eccli

RE/jl

ENCLOSURE:

UTAH KING COAL

Quotations subject to immediate acceptance. Coal will be sold and invoiced at price in effect on date of shipment, at mine weights f. o. b. cars at place of shipment, unless otherwise specifically agreed in writing. Agreements are contingent upon causes of delay beyond our control, including strikes, accidents, riots, acts of God, lockouts, fire, flood, inability to secure cars or transportation.

Comments on U.S. Fuel
Water Monitoring plans

→ No Groundwater!
→ No Provision for reporting violations
→ No Annual Summary.

→ Parameter lists
→ look good

UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

August 13, 1979

RECEIVED
AUG 16 1979
GAS, & MIN.

Mr. Thomas J. Suchoski
State of Utah
Dept. of Natural Resources
Division of Oil, Gas and Mining
1588 West North Temple
Salt Lake City, Utah 84116

Dear Sir:

In response to your letter of June 31, 1979 concerning the hydrologic monitoring plan proposed by U. S. Fuel Co., we sumbit the following comments:

Item 1:
U. S. Fuel Company will provide a map showing the location of monitoring stations in relation to stream diversions, sediment ponds, slurry ponds, and other surface facilities.

Item 2:
Present discharge points are covered by a NPDES discharge permit. All future points of discharge will also be covered.

Item 3:
We will include in our sampling an analysis of acidity, total manganese, dissolved iron, oil and grease.

Item 4:
We agree with all the sampling frequencies you've suggested, except that of stream stations. Of the six stream stations we are presently monitoring, three of these are a considerable distance from current mining operations and mining surface facilities. These stations would not be directly affected by mining in this area. Many of the changes occurring in the water analysis of these areas (flow rate, solids, etc.) can be attributed to natural causes such as, runoff. These changes are natural and expected. We feel that our present monitoring frequency of stream stations is sufficient to evaluate effeciently these areas.

Item 5:
Exploratory drill holes which encounter water will be considered for conversion to water monitoring wells.

UTAH KING COAL

Quotations subject to immediate acceptance. Coal will be sold and invoiced at price in effect on date of shipment, at mine weights f. o. b. cars at place of shipment, unless otherwise specifically agreed in writing. Agreements are contingent upon causes of delay beyond our control, including strikes, accidents, riots, acts of God, lockouts, fire, flood, inability to secure cars or transportation.

Item 6:

Due to the considerable distance of the majority of our monitoring stations from current mining operations and surface facilities, we feel that annual reporting of analysis results would be sufficient. We will submit annual reports during the first quarter of the year with the results of the analysis and explanation of these results.

Sincerely,

Duane Wise for R. Eccli

Robert Eccli,
Chief Engineer

RE/dl

cc: E. M. Gardiner

UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

July 31, 1979

RECEIVED
AUG 6 1979
DIVISION OF
OIL, GAS, & MINING

Mr. Thomas J. Suchoski
State of Utah
Dept. of Natural Resources
Division of Oil, Gas and Mining
1588 West North Temple
Salt Lake City, Utah 84116

Dear Sir:

In response to your letter of February 28, 1979 concerning the hydrolic monitoring plan proposed by U.S. Fuel Co., we submit the following comments.

You request a map showing monitoring stations in relation to surface facilities. U.S. Fuel will re-submit a revised plan when we are assured of those requirements necessary and our compliance with them. We appreciate your comments and suggestions, but we would like to know specifically if we are in compliance or not with our present plan.

With regards to discharge points, the Mohrland Mine water discharge point and the water tank overflow for Hiawatha are now covered by an NPDES permit. We have requested that future points of discharge also be included under this permit. This it seems would be adequate in complying with these requirements.

In the area of analytical sampling schedules and sampling frequency, you suggest some alterations.

U.S. Fuel will include in its sampling an analysis of acidity, total manganese, dissolved iron, oil and grease. These additions were suggested in your letter.

We agree with all the sampling frequency's you've suggested, except that of stream stations. Of the six stream stations we are presently monitoring, three of these are a considerable distance from current mining operations and mining surface facilities. These stations would not be directly affected by mining in this area. Many of the changes occurring in the water analysis of these areas (flow rate, solids, etc.) can be attributed to natural causes such as runoff. These changes are natural and expected. We feel that our present monitoring frequency of stream stations is sufficient to evaluate efficiently these areas.

UTAH KING COAL

Quotations subject to immediate acceptance. Coal will be sold and invoiced at price in effect on date of shipment, at mine weights f. o. b. cars at place of shipment, unless otherwise specifically agreed in writing. Agreements are contingent upon causes of delay beyond our control, including strikes, accidents, riots, acts of God, lockouts, fire, flood, inability to secure cars or transportation.

U.S. Fuel Co. in regards to drilling holes, will convert those to monitoring wells when deemed necessary and appropriate.

You also suggest in your letter that we submit reports with analysis results to your division quarterly. We do not feel that reporting this frequently is necessary. Again, most of our monitoring stations are a considerable distance from current mining operations and surface facilities and the majority of the changes that do occur are natural and expected. We feel that annual reporting should be sufficient. A requirement to report quarterly seems unjustified, in that it would result in more paperwork, added costs, and increased time consumption, all unnecessarily.

Sincerely,

Frank E. Colosimo

Frank E. Colosimo,
Engineering Department

FC/jl

File

SCOTT M. MATHESON
Governor

GORDON E. HARMSTON
Executive Director, NATURAL RESOURCES

CLEON B. FEIGHT
Director

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING
1588 West North Temple
Salt Lake City, Utah 84116
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June 15, 1979

Mr. Robert Eccli
Mine Engineer
U.S. Fuel Company
Hiawatha, Utah 84527

Re: U.S. Fuel Company
Hiawatha Complex
ACT/007/011
Hydrologic Monitoring
Proposal

Dear Mr. Eccli:

The Division has reviewed the Hydrologic Monitoring plan, proposed by U.S. Fuel which was forwarded to the Division on February 28, 1979. The following comments would be offered:

1. The map showing the monitoring stations does not show the surface facilities. The Division would require that U.S. Fuel provide a map showing the location of the monitoring stations in relation to the stream diversions, the sediment ponds, slurry ponds, and other surface facilities.

2. All impoundment structures which have a point source discharge are required to be covered by an NPDES discharge permit.

3. The Division would like U.S. Fuel to add the parameters of Acidity, Total Manganese, Dissolved Iron, and Oil and grease (Surface and Mine water discharge only) to the analytical sampling schedule.

4. The sampling frequency of the Monitoring program should be upgraded as follows:

Stream stations	once per month
Spring stations	once in the fall and once in the spring
Mine water and other discharges	Whenever discharge occurs.

5. Exploratory drilling holes which encounter water should be considered for conversion to water monitoring wells.

6. Reports containing results of the analyses should be sent to the Division quarterly. Annual reports dealing with the results of the analyses and an explanation of the results should be submitted during the first quarter of the year.

If you have any questions, please contact the Division.

Sincerely,

Thomas J. Suchoski

THOMAS J. SUCHOSKI
RECLAMATION HYDROLOGIST

TJS/sp
cc: O.S.M., Denver
John Hardaway

ADDENDUM TO HYDROLOGY PLAN

BASELINE DATA & ANNUAL REPORT

FOR

1978

U.S. FUEL COMPANY

HIAWATHA

UTAH

ANNUAL STREAM MONITORING REPORT

1978

EFFLUENT CHARACTERISTIC		ST-1						ST-2 A					
				May 31	July 20	Sept. 18	Oct. 9			May 31	July 20	Sept. 18	Oct 9
- Flow Rate	GPM			444	31	31	31			1113	67	30	15
- PH	Units			8.01			7.79						
- Air Temp	^{o}F			53.0	72	37	65			58	75	26	50
- Water Temp	^{o}F			49.0	45	40	45			44	48	37	39
- Conductivity	umhos/cm			540			1,100						
- Total Suspended Solids	Mg/L			77.0			19.0						
- Total Dissolved Solids	Mg/L			350			724						
- Calcium	Mg/L			60.0									
- Magnesium	Mg/L			32.2									
- Sodium	Mg/L			15.1									
- Potassium	Mg/L			2.022									
- Total Iron	Mg/L			0.638			0.091						
- Manganese	Mg/L			0.052									
- Fluoride	Mg/L			0.16									
- Bicarbonate	Mg/L			236.6									
- Chloride	Mg/L			12.0			12.0						
- Sulfate	Mg/L			110.0			268						
- Nitrate NO_3-N	Mg/L			0.28			0.04						
- Nitrate NO_2-N	Mg/L			<0.01									
- Kjeldahl N	Mg/L			<0.1									
- Phosphorus	Mg/L			0.15									
- Silica	mg/L			4.9									
- Arsenic	Mg/L			<0.001									
- Cadmium	Mg/L			<0.001									
- Zinc	Mg/L			0.003									
- Lead	Mg/L			<0.001									
- Selenium	Mg/L			<0.001									
- Gross Alpha	Pic/L	±3.5		3.2									
- Gross Beta	Pic/L	±5.0		11.0									
- Total Organic Carbon	Mg/L			69.0									

ANNUAL STREAM MONITORING REPORT

1978

EFFLUENT CHARACTERISTIC		ST - 2 B						ST - 3					
				May 31	July 20	Sept. 18	Oct. 9			June 1	July 20	Sept. 21	Oc 9
Flow Rate	GPM			117	36	26	24			29	18	4	No Flo
PH	Units			7.98			7.77			7.87			
Air Temp	^{o}F			56	76	31	59			56	68	52	
Water Temp	^{o}F			53	50	37	40			44	53	40	
Conductivity	umhos/cm			500			570			1,810			
Total suspended Solids	Mg/L			68.0			16.0			24.0			
Total Dissolved Solids	Mg/L			321			371			1,180			
Calcium	Mg/L			64.0						130.4			
Magnesium	Mg/L			30.7						120.5			
Sodium	Mg/l			7.44						83.2			
Potassium	Mg/L			1.967						5.86			
Total Iron	Mg/L			0.381			0.073			0.377			
Manganese	Mg/L			0.040						0.073			
Fluoride	Mg/L			0.16						0.22			
Bicarbonate	Mg/L			278.1						414.8			
Chloride	Mg/L			12.0			8.0			36.0			
Sulfate	Mg/L			64.0			87.0			600			
Nitrate No_3-N	Mg/L			0.08			0.02			0.14			
Nitrate No_2-N	Mg/L			<0.01						<0.01			
Kjeldahl N	Mg/L			<0.1						0.1			
Phosphorus	Mg/L			0.2						0.33			
Silica	Mg/L			5.4						10.0			
Arsenic	Mg/L			<0.001						<0.001			
Cadmium	Mg/L			<0.001						0.005			
Zinc	Mg/L			0.008						0.009			
Lead	Mg/L			<0.001						0.003			
Selenium	Mg/L			<0.001						<0.001			
Gross Alpha	Pic/L	$\pm$3.5		3.6						3.8			
Gross Beta	Pic/L	$\pm$5.0		8.0						6.0			
Total Organic Carbon	Mg/L			42.0						52.0			

ANNUAL STREAM MONITORING REPORT

1978

EFFLUENT CHARACTERISTIC		ST-4						ST - 5					
				June 1	July 20	Sept 18	Oct. 9			May 30	July 25	Sept. 18	Oct 9
Flow Rate	GPM			168	No Flow	No Flow	No Flow			700	67	215	30
PH	Units			8.0						7.93			7.81
Air Temp	^{o}F			56						70	79	37	68
Water Temp	^{o}F			41						57	68	41	49
Conductivity	umhos/cm			570						680			690
Total Suspended Solids	Mg/L			111.0						308			11.
Total Dissolved Solids	Mg/L			368						437			450
Calcium	Mg/L			71.2						75.2			
Magnesium	Mg/L			35.5						43.68			
Sodium	Mg/L			10.81						13.38			
Potassium	Mg/L			1.819						2.43			
Total Iron	Mg/L			1.595						0.355			0.12
Manganese	Mg/L			0.05						0.11			
Fluoride	Mg/L			0.19						0.19			
Bicarbonate	Mg/L			314.7						287.9			
Choride	Mg/L			12.0						14.0			16.
Sulfate	Mg/L			80.0						146			186.
Nitrate No_3-N	Mg/L			0.16						0.18			0.1
Nitrate No_2-N	Mg/L			<0.01						<0.01			
Kjeldahl N	Mg/L			<0.1						<0.1			
Phosphorus	Mg/L			0.26						0.4			
Silica	Mg/L			5.7						6.0			
Arsenic	Mg/L			<0.001						<0.001			
Cadmium	Mg/L			<0.001						<0.001			
Zinc	Mg/L			0.012						0.02			
Lead	Mg/L			0.002						0.003			
Selenium	Mg/L			<0.001						0.002			
Gross Alpha	Pic/L	$\pm$3.5		3.5						3.4			
Gross Beta	Pic/L	$\pm$5.0		12.0						10.0			
Total Organic Carbon	Mg/L			41						38.0			

ANNUAL STREAM MONITORING REPORT

1978

EFFLUENT CHARACTERISTIC		ST-6				ST-7					
			May 30	July 20	Sept. 18	Oct. 19		Oct. 10			
Flow Rate	GPM		1584	204	37	111		204			
PH	Units		7.96			7.67		7.51			
Air Temp	^{o}F		76	77	43	69		43			
Water Temp	^{o}F		53	60	52	55		40			
Conductivity	umhos/cm		480			640		580			
Total Suspended Solids	Mg/L		42.0			<1.0		17.0			
Total Dissolved Solids	Mg/L		310			420		380			
Calcium	Mg/L		62.4					61.6			
Magnesium	Mg/L		28.32					29.7			
Sodium	Mg/L		13.0					3.41			
Potassium	Mg/L		1.310					1.16			
Total Iron	Mg/L		0.249			0.039		0.072			
Manganese	Mg/L		0.026					0.028			
Fluoride	Mg/L		0.15					0.16			
Bicarbonate	Mg/L		273.2					331.8			
Chloride	Mg/L		14.0			12.0		2.0			
Sulfate	Mg/L		60.0			153		31.0			
Nitrate No_3-N	Mg/L		0.04			0.14		0.06			
Nitrate No_2-N	Mg/L		<0.01								
Kjeldahl N	Mg/L		<0.1					<0.1			
Phosphorus	Mg/L		0.38					0.025			
Silica	Mg/L		5.6					7.0			
Arsneic	Mg/L		<0.001					<0.001			
Cadmium	Mg/L		0.001					<0.001			
Zinc	Mg/L		0.008					0.014			
Lead	Mg/L		0.003					<0.001			
Selenium	Mg/L		0.003					<0.001			
Gross Alpha	Pic/L	$\pm$3.5	3.7								
Gross Beta	Pic/L	$\pm$5.0	12.0								
Total Organic Carbon	Mg/L		31.0					24.0			

ANNUAL SPRING MONITORING REPORT

1978

EFFLUENT CHARACTERISTIC	SP-1		SP-2		SP-3		SP-4		SP-5		SP-6	
	July 18	Oct. 17	July 18	Oct. 17	July 18	Oct. 17	July 18	Oct. 16	July 18	Oct. 16	June 19	Oct 16
Flow Rate GPM	2	3	6	5	5	5	9	4	5	2	12	6
PH Units	7.55	7.49	7.96	7.8	7.96	7.71	8.05	7.77	7.82	7.76	7.37	7.3
Air Temp. °F	60	55	68	45	64	50	58	49	57	57	59	51
Water Temp °F	42	40	56	39	45	39	44	43	44	45	39	40
Conductivity umhos/cm	360	440	370	410	450	440	520	540	580	570	410	440
Total Suspended Solids Mg/L	1.0	5.0	21.0	33.0	15.0	1.6	8.0	7.0	1.0	1.0	11.0	32.
Total Dissolved Solids Mg/L	270	290	260	270	310	292	360	356	380	372	268	290
Calcium Mg/L	55.2		60.0		72.0		84.0		84.0		72.6	
Magnesium Mg/L	9.6		12.96		16.32		20.16		22.08		13.92	
Sodium Mg/L	5.45		3.10		3.18		4.22		7.82		13.0	
Total Iron Mg/L	0.012	0.019	0.259	0.270	0.020	0.022	0.024	0.025	0.019	0.020	0.079	0.08
Manganese Mg/L	0.015		0.024		0.005		0.002		0.008		0.012	
Fluoride Mg/L	0.15		0.17		0.2		0.2		0.17		0.11	
Bicarbonate Mg/L	190.3		239.1		285.4		341.6		331.8		300.12	
Chloride Mg/L	2.0	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.0	3.0	10.0	2.
Sulfate Mg/L	10.0	11.0	5.0	12.0	5.0	10.0	10.0	19.0	33.0	14.0	8.0	6.
Nitrate No_3-N Mg/L	2.5	0.58	0.82	0.70	0.9	0.96	0.02	0.02	0.03	0.03	1.7	0.
Nitrate No_2-N Mg/L	<0.01		<0.01		<0.01		<0.01		<0.01			
Kjeldah/N Mg/L	<0.1		<0.1		<0.1		<0.1		<0.1		0.1	
Phosphorus Mg/L	0.05		0.08		0.1		0.15		0.12		0.03	
Silica Mg/L	5.2		4.8		5.1		4.9		5.4		50.0	
Arsenic Mg/L	<0.001		<0.001		<0.001		<0.001		<0.001		<0.001	
Cadmium Mg/L	<0.001		<0.001		<0.001		<0.001		<0.001		<0.001	
Zinc Mg/L	0.007		0.014		0.010		0.011		0.009		0.017	
Lead Mg/L	<0.001		<0.001		<0.001		<0.001		<0.001		<0.001	
Selenium Mg/L	<0.001		<0.001		<0.001		<0.001		<0.001		<0.001	
Gross Alpha Pic/L±3.5	3.6		3.5		3.8		3.7		3.8		3.8	
Gross Beta pic/L±5.0	12.0		15.0		18.0		11.0		13.0		10.0	
Total Organic Carbon Mg/L	18.0		12.0		22.0		6.0		5.0		34.0	
Potassium Mg/L	0.83		0.85		0.55		0.68		0.74		0.258	

ANNUAL SPRING MONITORING REPORT

1978

EFFLUENT CHARACTERISTIC	SP-7		SP-8		SP-9		SP-10					
	June 19	Oct. 16	June 19	Oct. 16	June 19	Oct. 16	June 19	Oct. 16				
Flow Rate GPM	61	12	10.7	10.5	6	7	31	3				
PH Units	7.51	7.48	7.68	7.54	7.81	7.68	7.77	7.79				
Air Temp ^{o}F	68	62	78	49	59	57	58	55				
Water Temp ^{o}F	43	37	40	39	54	43	43	44				
Conductivity umhos/cm	360	450	510	520	300	220	410	470				
Total Suspended Solids Mg/L	8.0	3.0	2.0	3.0	8.0	1.0	1.0	6.0				
Total Dissolved Solids Mg/L	235	293	330	338	200	210	270	305				
Calcium Mg/L	57.6		69.6		45.6		62.4					
Magnesium Mg/L	20.64		32.64		20.16		22.08					
Sodium Mg/L	3.18		7.91		3.0		8.67					
Total Iron Mg/L	0.051	0.05	0.048	0.046	0.062	0.060	0.037	0.030				
Manganese Mg/L	0.006		0.002		0.017		0.009					
Fluoride Mg/L	0.15		0.23		0.15		0.18					
Bicarbonate Mg/L	270.84		331.84		292.36		297.68					
Chloride Mg/L	10.0	4.0	10.0	2.0	6.0	3.0	8.0	2.0				
Sulfate Mg/L	8.0	8.0	42.0	66.0	8.0	6.0	18.0	86.0				
Nitrate No_3-N Mg/L	0.18	0.27	0.02	0.02	0.13	0.28	0.03	0.02				
Nitrate No_2-N Mg/L												
Kjeldahl N Mg/L	0.12		0.11		0.1		0.12					
Phosphorus Mg/L	0.023		0.02		0.024		0.025					
Silica Mg/L	52.0		55.5		49.0		58.0					
Arsenic Mg/L	<0.001		<0.001		<0.001		<0.001					
Cadmium Mg/L	<0.001		<0.001		<0.001		<0.001					
Zinc Mg/L	0.013		0.023		0.017		0.016					
Lead Mg/L	<0.001		<0.001		<0.001		<0.001					
Selenium Mg/L	<0.001		<0.001		<0.001		<0.001					
Gross Alpha pic/L $\pm$3.3	4.0		3.9		3.7		3.5					
Gross Beta pic/L $\pm$5.0	11.0		12.0		10.0		8.0					
Total organic Carbon Mg/L	32.0		34.0		30.0		30.0					
Potassium Mg/l	0.333		1.146		0.372		0.496					

MINE WATER DISCHARGE
ANNUAL DISCHARGE MONITORING REPORT

1978

EFFLUENT CHARACTERISTIC	FLOW RATE GL/M	TOTAL SUSPENDED SOLIDS MG/L	TOTAL DISSOLVED SOLIDS MG/L	TOTAL IRON AS FE MG/L	ALKALINITY AS $CaCO_3$ MG/L	ACIDITY AS $CaCO_3$ MG/L	PH UNITS	OIL & GREASE MG/L	BOD_5 MG/L	TOTAL COLIFORMS MPN/100 ML	FECAL COLIFORMS MPN/100 ML
MOHRLAND PORTAL											
January - 11	4.5	5.0	625	0.331	362	10.0	7.47	<1.0	17.7	<2.0	<2.0
February - 8	157.1										
March - 8	175.0	5.0	646	0.115	358		7.34	1.7			
April - 26	211.0										
May - 10	211.0	6.0	667	0.055	350		7.05	1.6			
June - 28	67.3	16.0	600	0.055	332	34.0	7.28	2.2			
July - 26	112.2								2.5	8	<2.0
August - 9	103.2	2.0	688	0.035	364	16.0	7.66	2.2			
September - 20	61.1										
October - 4	35.9	3.0	24.0	0.192	370	44.0	7.12	2.8	2.3	2	<2.0
October - 18	74.1						7.4				
November - 1	10.0	2.0	713	0.145	362	76.0	7.3	1.2			
November - 16	8.3						7.8				

SURFACE AND GROUNDWATER MONITORING REPORT

Fourth Quarter - 1985

United States Fuel Company

Hiawatha, Utah 84527

STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-1			ST-2		
		Oct	Nov	Dec	Oct	Nov	Dec
Flow Rate	G.P.M.	82.4					
Air Temperature	°F	42					
Water Temperature	°F	38					
Acidity	mg/l $CaCO_3$	<1.0			<1.0		
Alkalinity, Total	mg/l $CaCO_3$	302			235		
Alkalinity, Bicarbonate	"						
Alkalinity, Carbonate	"						
Chloride	mg/l $CaCO_3$	11			4		
Conductivity	umhos/cm	1400			525		
Fluoride	mg/l						
Kjeldahl N	mg/l						
Nitrogen, Nitrate	mg/l	.16	inaccessible	inaccessible	.02	inaccessible	inaccessible
Nitrogen, Nitrite	mg/l						
Oil & Grease	mg/l	.7			<0.5		
pH	units	7.7			7.8		
Phosphorus, Total	mg/l						
Radioactivity: Gross Alpha							
Gross Beta							
Solids, Total Dissolved	mg/l	1005			319		
Solids, Total Suspended	mg/l	15.0			1.0		
Sulfate	mg/l	510			33		
Arsenic	mg/l						
Cadmium	mg/l						
Calcium	mg/l						
Iron	mg/l	.21			.05		
Magnesium	mg/l						
Manganese	mg/l	.05			<0.01		
Potassium	mg/l						
Selenium	mg/l						
Silica	mg/l						
Sodium	mg/l						
Zinc	mg/l						
Iron (Diss.)	mg/l	<0.05			<0.05		
Total Organic Carbon	mg/l						

STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST2A			ST2B		
		Oct	Nov	Dec	Oct	Nov	Dec
Flow Rate	G.P.M.	103.6			56.7		
Air Temperature	°F	37			42		
Water Temperature	°F	35			35		
Acidity	mg/l $CaCO_3$	<1.0			<1.0		
Alkalinity, Total	mg/l $CaCO_3$	250			293		
Alkalinity, Bicarbonate	"						
Alkalinity, Carbonate	"						
Chloride	mg/l $CaCO_3$	4			9		
Conductivity	umhos/cm	550			800		
Fluoride	mg/l						
Kjeldahl N	mg/l						
Nitrogen, Nitrate	mg/l	.02			0.04		
Nitrogen, Nitrite	mg/l						
Oil & Grease	mg/l	<0.5			.6		
pH	units	7.7	Inaccessible	Inaccessible	7.7	Inaccessible	Inaccessible
Phosphorus, Total	mg/l						
Radioactivity: Gross Alpha							
Gross Beta							
Solids, Total Dissolved	mg/l	292			485		
Solids, Total Suspended	mg/l	<0.5			1.0		
Sulfate	mg/l	35			95		
Arsenic	mg/l						
Cadmium	mg/l						
Calcium	mg/l						
Iron	mg/l	<0.05			<0.05		
Magnesium	mg/l						
Manganese	mg/l	<0.01			0.01		
Potassium	mg/l						
Selenium	mg/l						
Silica	mg/l						
Sodium	mg/l						
Zinc	mg/l						
Iron (Diss.)	mg/l	<0.05			<0.05		
Total Organic Carbon	mg/l						

STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST 3			ST 3A		
		Oct	Nov	Dec			
Flow Rate	G.P.M.	46.4	46.4	36.1			
Air Temperature	°F	49	—	27			
Water Temperature	°F	37	—	32			
Acidity	mg/l $CaCO_3$	<1.0	<1.0	<1.0			
Alkalinity, Total	mg/l $CaCO_3$	343	406	347	No	Water	
Alkalinity, Bicarbonate	"						
Alkalinity, Carbonate	"						
Chloride	mg/l $CaCO_3$	345	386	267			
Conductivity	umhos/cm	2400	2690	2500			
Fluoride	mg/l						
Kjeldahl N	mg/l						
Nitrogen, Nitrate	mg/l	.10	.02	.06			
Nitrogen, Nitrite	mg/l						
Oil & Grease	mg/l	<0.5	<0.5	<0.5			
pH	units	7.6	7.3	7.7			
Phosphorus, Total	mg/l						
Radioactivity: Gross Alpha							
Gross Beta							
Solids, Total Dissolved	mg/l	1568	1713	1570			
Solids, Total Suspended	mg/l	6.0	9.0	7.0			
Sulfate	mg/l	525	640	580			
Arsenic	mg/l						
Cadmium	mg/l						
Calcium	mg/l						
Iron	mg/l	.12	.15	.15			
Magnesium	mg/l						
Manganese	mg/l	.06	.08	.08			
Potassium	mg/l						
Selenium	mg/l						
Silica	mg/l						
Sodium	mg/l						
Zinc	mg/l						
Iron (Diss.)	mg/l	<0.05	<0.05	<0.05			
Total Organic Carbon	mg/l						

STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC	ST3B			ST4		
	Oct	Nov	Dec	Oct	Nov	Dec
Flow Rate G.P.M.				15.5		
Air Temperature °F				53		
Water Temperature °F				40		
Acidity mg/l $CaCO_3$	<1.0	<1.0	<1.0	<1.0		
Alkalinity, Total mg/l $CaCO_3$	335	441	414	305	No	Water
Alkalinity, Bicarbonate "						
Alkalinity, Carbonate "						
Chloride mg/l $CaCO_3$	673	757	471	44		
Conductivity umhos/cm	2625	3050	2975	1350		
Fluoride mg/l						
Kjeldahl N mg/l						
Nitrogen, Nitrate mg/l	.08	.01	0.04	.13		
Nitrogen, Nitrite mg/l						
Oil & Grease mg/l	<0.5	<0.5	<0.5	<0.5		
pH units	7.8	7.35	7.8	7.8		
Phosphorus, Total mg/l						
Radioactivity: Gross Alpha						
Gross Beta						
Solids, Total Dissolved mg/l	1497	1627	1601	877		
Solids, Total Suspended mg/l	6.0	14.0	8.0	4.0		
Sulfate mg/l	300	360	310	400		
Arsenic mg/l						
Cadmium mg/l						
Calcium mg/l						
Iron mg/l	<0.05	.70	1.22	.08		
Magnesium mg/l						
Manganese mg/l	.20	.22	.23	<0.01		
Potassium mg/l						
Selenium mg/l						
Silica mg/l						
Sodium mg/l						
Zinc mg/l						
Iron (Diss.) mg/l	<0.05	<0.05	.25	<0.05		
Total Organic Carbon mg/l						

STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST4A			ST4B		
		Oct	Nov	Dec			
Flow Rate	G.P.M.						
Air Temperature	°F						
Water Temperature	°F						
Acidity	mg/l $CaCO_3$	<1.0	<1.0	<1.0			
Alkalinity, Total	mg/l $CaCO_3$	302	330	260			
Alkalinity, Bicarbonate	"				NO WATER		
Alkalinity, Carbonate	"						
Chloride	mg/l $CaCO_3$	6	5	5			
Conductivity	umhos/cm	925	1020	650			
Fluoride	mg/l						
Kjeldahl N	mg/l						
Nitrogen, Nitrate	mg/l	.03	<0.01	.08			
Nitrogen, Nitrite	mg/l						
Oil & Grease	mg/l	.6	<0.5	<0.5			
pH	units	7.7	7.55	7.9			
Phosphorus, Total	mg/l						
Radioactivity: Gross Alpha							
Gross Beta							
Solids, Total Dissolved	mg/l	564	598	360			
Solids, Total Suspended	mg/l	<0.5	5.0	11.0			
Sulfate	mg/l	215	280	70			
Arsenic	mg/l						
Cadmium	mg/l						
Calcium	mg/l						
Iron	mg/l	<0.05	.07	.14			
Magnesium	mg/l						
Manganese	mg/l	<0.01	<0.01	.02			
Potassium	mg/l						
Selenium	mg/l						
Silica	mg/l						
Sodium	mg/l						
Zinc	mg/l						
Iron (Diss.)	mg/l	<0.05	<0.05	<0.05			
Total Organic Carbon	mg/l						

STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST5			ST6		
		Oct	Nov	Dec	Oct	Nov	Dec
Flow Rate	G.P.M.	253.5	373	265	118.4	204	—
Air Temperature	°F	53	—	26	58	—	32
Water Temperature	°F	48	—	34	50	—	32
Acidity	mg/l $CaCO_3$	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total	mg/l $CaCO_3$	298	330	290	258	304	312
Alkalinity, Bicarbonate	"						
Alkalinity, Carbonate	"						
Chloride	mg/l $CaCO_3$	46	29	27	10	8	12
Conductivity	umhos/cm	1450	1400	1275	1050	1200	1200
Fluoride	mg/l						
Kjeldahl N	mg/l						
Nitrogen, Nitrate	mg/l	.13	.14	0.06	.03	.02	.04
Nitrogen, Nitrite	mg/l						
Oil & Grease	mg/l	.6	1.4	<0.5	1.0	<0.5	<0.5
pH	units	7.85	7.75	7.9	7.75	7.85	7.9
Phosphorus, Total	mg/l						
Radioactivity: Gross Alpha							
Gross Beta							
Solids, Total Dissolved	mg/l	1002	864	808	686	718	791
Solids, Total Suspended	mg/l	1.0	9.0	4.0	9.0	72	27
Sulfate	mg/l	460	395	370	330	395	350
Arsenic	mg/l						
Cadmium	mg/l						
Calcium	mg/l						
Iron	mg/l	.21	.18	.16	.06	.18	.05
Magnesium	mg/l						
Manganese	mg/l	.03	.02	.03	.02	.01	.03
Potassium	mg/l						
Selenium	mg/l						
Silica	mg/l						
Sodium	mg/l						
Zinc	mg/l						
Iron (Diss.)	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Organic Carbon	mg/l						

STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST6A					
		Oct	Nov	Dec			
Flow Rate	G.P.M.						
Air Temperature	°F						
Water Temperature	°F						
Acidity	mg/l $CaCO_3$	<1.0	<1.0				
Alkalinity, Total	mg/l $CaCO_3$	270	312				
Alkalinity, Bicarbonate	"						
Alkalinity, Carbonate	"						
Chloride	mg/l $CaCO_3$	6	5				
Conductivity	umhos/cm	850	930				
Fluoride	mg/l						
Kjeldahl N	mg/l						
Nitrogen, Nitrate	mg/l	.02	.01				
Nitrogen, Nitrite	mg/l						
Oil & Grease	mg/l	1.2	<0.5	Inaccessible			
pH	units	7.7	7.6				
Phosphorus, Total	mg/l						
Radioactivity: Gross Alpha							
Gross Beta							
Solids, Total Dissolved	mg/l	414	516				
Solids, Total Suspended	mg/l	8.0	21.0				
Sulfate	mg/l	205	255				
Arsenic	mg/l						
Cadmium	mg/l						
Calcium	mg/l						
Iron	mg/l	.10	.10				
Magnesium	mg/l						
Manganese	mg/l	.03	.02				
Potassium	mg/l						
Selenium	mg/l						
Silica	mg/l						
Sodium	mg/l						
Zinc	mg/l						
Iron (Diss.)	mg/l	<0.05	<0.05				
Total Organic Carbon	mg/l						

MINE WATER DISCHARGE MONITORING REPORT

D001 DATE 4th Quarter 1985 Mohrland Water Discharge D001

Effluent Characteristic	Flow Rate G.P.M.	Total Suspended Solids Mg/L	Total Dissolved Solids Mg/L	Total Manganese Mg/L	Total Iron Mg/L	Dissolved Iron Mg/L	Alkalinity Mg/L	Acidity Mg/L	PH Units	Oil & Grease Mg/L	BOD5 Mg/L	Total Coloforms MPN/100ML	Fecal Coloforms MPN/100ML	CONDUCTIVITY umhos/cm
January														
February														
March														
April														
May														
June														
July														
August														
September														
October					No Discharge									
November					No Discharge									
December					Inaccessible									

MINE WATER DISCHARGE MONITORING REPORT

D002 DATE 4th Quarter 1985 Town Water Overflow

Effluent Characteristic	Flow Rate G.P.M.	Total Suspended Solids Mg/L	Total Dissolved Solids Mg/L	Total Manganese Mg/L	Total Iron Mg/L	Dissolved Iron Mg/L	Alkalinity Mg/L	Acidity Mg/L	PH Units	Oil & Grease Mg/L	BOD5 Mg/L	Total Coloforms MPN/100ML	Fecal Coloforms MPN/100ML	CONDUCTIVITY umhos/cm
January														
February														
March														
April														
May														
June														
July														
August														
September														
October	155.2	<0.5	700	.02	.08	<0.05	291	<1.0	7.4	.6				1000
November					No	Discharge								
December	232.6	2.0	648	.01	<0.05	<0.05	345	<1.0	7.7	<0.5		<2	<2	1000

MINE WATER DISCHARGE MONITORING REPORT

D010 DATE 4th Quarter 1985 King #4 Vent Tunnel D010

Effluent Characteristic	Flow Rate G.P.M.	Total Suspended Solids Mg/L	Total Dissolved Solids Mg/L	Total Manganese Mg/L	Total Iron Mg/L	Dissolved Iron Mg/L	Alkalinity Mg/L	Acidity Mg/L	PH Units	Oil & Grease Mg/L	BOD5 Mg/L	Total Coloforms MPN/100ML	Fecal Coloforms MPN/100ML	CONDUCTIVITY umhos/cm
January														
February														
March														
April														
May														
June														
July														
August														
September														
October	5.9	3.0	361	.02	<0.05	<0.05	253	<1.0	7.5	<0.5		<2	<2	600
November						inaccessible								
December						inaccessible								

SURFACE AND GROUNDWATER MONITORING REPORT

Third Quarter - 1985

United States Fuel Company

Hiawatha, Utah 84527

SPRING MONITORING REPORT

DATE: 3rd Quarter 1985

EFFLUENT CHARACTERISTIC		SP-8					
		July	Aug.	Sept.			
Flow Rate	G.P.M.	10	8.3	9.3			
PH	Units	7.55	7.45	7.5			
Air Temp.	°F	61	68	58			
Water Temp.	°F	53	44	44			
Conductivity	umhos/cm	780	800	710			
Acidity	Mg/L						
Total Suspended Solids	Mg/L						
Total Dissolved Solids	Mg/L	433	442	449			
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						
Total Iron	Mg/L	<.05	<.05	<.05			
Dissolved Iron	Mg/L	<.05	<.05	<.05			
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	4	4	4			
Sulfate	Mg/L	70	98	106			
Nitrate NO_3-N	Mg/L	.01	<.01	<.01			
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L						
ALKALINITY	Mg/L						

Date: 3rd Quarter 1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-1			ST-2		
		July	Aug.	Sept.	July	Aug	Sept.
Flow Rate	G.P.M.	193	93	61.8			
PH	Units	8.15	7.4	7.5	8.15	7.7	7.7
Air Temp.	°F	57	70	63			
Water Temp.	°F	51	57	50			
Conductivity	umhos/cm	1050	1550	1395	425	410	393
Acidity	Mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Suspended Solids	Mg/L	21.0	37.0	13.0	26.0	6.0	<0.5
Total Dissolved Solids	Mg/L	747	1185	1144	266	225	271
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	.03	.07	.08	<0.01	<0.01	<0.01
Total Iron	Mg/L	.18	.39	.21	0.10	.07	.05
Dissolved Iron	Mg/L	<.05	<.05	<.05	<.05	<.05	<.05
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	9	12	12	3	3	4
Sulfate	Mg/L	360	600	556	27	28	29
Nitrate NO_3-N	Mg/L	.06	.08	.15	.06	<.01	.01
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ALKALINITY	Mg/L	257	250	295	222	208	200

Date: 3rd Quarter 1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-2A			ST-2B		
		July	Aug	Sept	July	Aug.	Sept.
Flow Rate	G.P.M.	292	119	59.2	561	117	41.2
PH	Units	8.2	7.6	7.7	7.95	7.7	7.7
Air Temp.	°F	60	66	64	59	70	64
Water Temp.	°F	51	53	47	55	55	47
Conductivity	umhos/cm	450	465	430	492	600	710
Acidity	Mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Suspended Solids	Mg/L	18.0	7.0	2.0	20.0	7.0	3.0
Total Dissolved Solids	Mg/L	266	267	289	268	343	495
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Iron	Mg/L	.13	.08	<.05	.12	.10	.06
Dissolved Iron	Mg/L	<.05	<.05	<.05	<.05	<.05	<.05
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	3	4	4	5	6	10
Sulfate	Mg/L	—	34	34	50	63	182
Nitrate NO_3-N	Mg/L	<.01	.11	.01	.02	.07	.02
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ALKALINITY	Mg/L	235	216	222	232	225	277

Date: 3rd Quarter 1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-3			ST-3A		
		July	Aug.	Sept	July	Aug.	Sept.
Flow Rate	G.P.M.	62	36	41			
PH	Units	7.85	7.7	7.55	8.2		
Air Temp.	°F	59	72	64			
Water Temp.	°F	52	58	49			
Conductivity	umhos/cm	1900	2150	2010	448		
Acidity	Mg/L	<1.0	<1.0	<1.0	<1.0		
Total Suspended Solids	Mg/L	44	8.0	1.0	32		
Total Dissolved Solids	Mg/L	1183	1361	1492	266		
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	.07	.02	.03	.01	NO WATER	NO WATER
Total Iron	Mg/L	.51	.11	.13	.20		
Dissolved Iron	Mg/L	<.05	<.05	<.05	<.05		
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	239	301	270	3		
Sulfate	Mg/L	380	500	576	33		
Nitrate NO_3-N	Mg/L	.09	<.01	.12	.03		
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<0.5	<0.5	<0.5	<0.5		
ALKALINITY	Mg/L	307	258	309	232		

Date: 3rd Quarter 1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-3B			ST-4		
		July	Aug.	Sept	July	Aug	Sept
Flow Rate	G.P.M.				52	31	10.3
PH	Units	8.15	7.6		8.0	7.8	7.6
Air Temp.	°F				59	83	60
Water Temp.	°F				53	57	48
Conductivity	umhos/cm	489	2200		1210	1300	1180
Acidity	Mg/L	<1.0	<1.0		<1.0	<1.0	<1.0
Total Suspended Solids	Mg/L	27	6.0		19	12	14
Total Dissolved Solids	Mg/L	302	1358		810	797	873
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	.01	.03	NO	<.01	<.01	<.01
Total Iron	Mg/L	.16	.09		.07	.09	<.05
Dissolved Iron	Mg/L	<.05	<.05		<.05	<.05	<.05
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L			WATER			
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	4	332		38	42	40
Sulfate	Mg/L	55	400		360	355	336
Nitrate NO_3-N	Mg/L	.04	.28		.26	.20	.18
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<.5	.6		<.5	<.5	<.5
ALKALINITY	Mg/L	237	347		285	234	264

Date: 3rd Quarter 1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-4A			ST-4B		
		July	Aug	Sept	July	Aug	Sept
Flow Rate	G.P.M.						
PH	Units	8.15	7.8	7.65	8.3		
Air Temp.	°F						
Water Temp.	°F						
Conductivity	umhos/cm	670	720	800	670		
Acidity	Mg/L	<1.0	<1.0	<1.0	<1.0		
Total Suspended Solids	Mg/L	<0.5	6.0	2.0	2.0		
Total Dissolved Solids	Mg/L	397	450	558	401		
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	<.01	<.01	<.01	<.01		
Total Iron	Mg/L	<.05	<.05	<.05	<.05		
Dissolved Iron	Mg/L	<.05	<.05	<.05	<.05	NO	NO
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L					WATER	WATER
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	4	5	6	4		
Sulfate	Mg/L	100	98	201	100		
Nitrate NO_3-N	Mg/L	<.01	<.01	<.01	<.01		
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<.5	<.5	<.5	<.5		
ALKALINITY	Mg/L	268	257	285	244		

Date: 3rd Quarter 1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-5			ST-6		
		July	Aug.	Sept	July	Aug	Sept
Flow Rate	G.P.M.	809	265	328	120	104	—
PH	Units	8.3	7.9	7.7	8.1	7.9	7.55
Air Temp.	°F	63	78	59	71	73	63
Water Temp.	°F	57	57	50	71	62	50
Conductivity	umhos/cm	1010	1320	1200	990	1320	975
Acidity	Mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Suspended Solids	Mg/L	71	8.0	7.0	186	8.0	16
Total Dissolved Solids	Mg/L	598	906	939	616	906	689
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						
Total Iron	Mg/L						
Dissolved Iron	Mg/L						
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L						
Sulfate	Mg/L	295	400	432	300	400	326
Nitrate NO_3-N	Mg/L	.10	.16	.11	.04	.16	.01
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ALKALINITY	Mg/L	289	263	255	258	263	253

Date: 3rd Quarter 1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-6A			ST-7		
		July	Aug	Sept	July	Aug	Sept
Flow Rate	G.P.M.						175
PH	Units	7.1	7.8	7.65			7.65
Air Temp.	°F						
Water Temp.	°F						
Conductivity	umhos/cm	700	800	715			411
Acidity	Mg/L	<1.0	<1.0	<1.0			<1.0
Total Suspended Solids	Mg/L	22	9.0	2.0			4.0
Total Dissolved Solids	Mg/L	416	478	501			290
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	.03	.05	.03			<.01
Total Iron	Mg/L	.09	.25	.09			.06
Dissolved Iron	Mg/L	<.05	<.05	<.05			<.05
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L						
Sulfate	Mg/L	100	200	201			33
Nitrate NO_3-N	Mg/L	.08	.04	<.01			.13
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	.7	<0.5	<0.5			<0.5
ALKALINITY	Mg/L	276	244	258			208

MINE WATER DISCHARGE MONITORING REPORT

D001 DATE 3rd Quarter 1985 Mohrland Water Discharge

Effluent Characteristic	Flow Rate G.P.M.	Total Suspended Solids Mg/L	Total Dissolved Solids Mg/L	Total Manganese Mg/L	Total Iron Mg/L	Dissolved Iron Mg/L	Alkalinity Mg/L	Acidity Mg/L	PH Units	Oil & Grease Mg/L	BOD_5 Mg/L	Total Coloforms MPN/100ML	Fecal Coloforms MPN/100ML	CONDUCTIVITY umhos/cm
January														
February														
March														
April														
May														
June														
July						No	Overflow							
August						No	Overflow							
September	67	2.0	669	.03	.12	<.05	367	<1.0	7.0	<0.5	<1	4	<2	1000
October														
November														
December														

MINE WATER DISCHARGE MONITORING REPORT

D002 DATE 3rd Quarter 1985 Town Water Overflow

Effluent Characteristic	Flow Rate G.P.M.	Total Suspended Solids Mg/L	Total Dissolved Solids Mg/L	Total Manganese Mg/L	Total Iron Mg/L	Dissolved Iron Mg/L	Alkalinity Mg/L	Acidity Mg/L	PH Units	Oil & Grease Mg/L	BOD_5 Mg/L	Total Coloforms MPN/100ML	Fecal Coloforms MPN/100ML	CONDUCTIVITY umhos/cm
January														
February														
March														
April														
May														
June														
July						No	Water							
August	78.7	8.0	622	<.01	<.05	<.05	280	<1.0	7.6	<.5				980
September	275.8	<.5	662	.1	<.05	<.05	294	<1.0	7.1	<.5	<1	4	<2	900
October														
November														
December														

SURFACE AND GROUNDWATER MONITORING PLAN

1st Quarter 1985

United States Fuel Company

Hiawatha, Utah 84527

SPRING MONITORING REPORT

DATE: 1st QUARTER - 1985

EFFLUENT CHARACTERISTIC		SP-1	SP-2	SP-3	SP-4	SP-5	SP-6
Flow Rate	G.P.M.						
PH	Units						
Air Temp.	°F						
Water Temp.	°F						
Conductivity	umhos/cm						
Acidity	Mg/L						
Total Suspended Solids	Mg/L						
Total Dissolved Solids	Mg/L						
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						
Total Iron	Mg/L						
Dissolved Iron	Mg/L						
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L						
Sulfate	Mg/L						
Nitrate NO_3-N	Mg/L						
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L						
ALKALINITY	Mg/L						

INACCESSIBLE

SPRING MONITORING REPORT

DATE: 1ST QUARTER - 1985

EFFLUENT CHARACTERISTIC		SP-7	SP-8			SP-9	SP-10
Flow Rate	G.P.M.						
PH	Units						
Air Temp.	°F						
Water Temp.	°F						
Conductivity	umhos/cm						
Acidity	Mg/L						
Total Suspended Solids	Mg/L						
Total Dissolved Solids	Mg/L						
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						
Total Iron	Mg/L						
Dissolved Iron	Mg/L						
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L						
Sulfate	Mg/L						
Nitrate NO_3-N	Mg/L						
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L						
ALKALINITY	Mg/L						

INACCESSIBLE

Date: 1st QUARTER - 1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-1			ST-2		
		JAN.	FEB.	MARCH	JAN.	FEB.	MARCH
Flow Rate	G.P.M.			153			
PH	Units			8.05			
Air Temp.	°F			49			
Water Temp.	°F			39			
Conductivity	umhos/cm			1404			
Acidity	Mg/L			<1.0			
Total Suspended Solids	Mg/L			26.0			
Total Dissolved Solids	Mg/L			997			
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L			0.03			
Total Iron	Mg/L			0.25			
Dissolved Iron	Mg/L			<0.05			
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L			13			
Sulfate	Mg/L			500			
Nitrate NO_3-N	Mg/L			0.06			
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L			<0.5			
ALKALINITY	MG/L			301			

INACCESSIBLE

INACCESSIBLE

Date: 1ST QUARTER - 1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-2 A			ST-2B		
		JAN.	FEB.	MARCH	JAN.	FEB.	MARCH.
Flow Rate	G.P.M.						133
PH	Units						8.0
Air Temp.	°F						45
Water Temp.	°F						37
Conductivity	umhos/cm						745
Acidity	Mg/L						<1.0
Total Suspended Solids	Mg/L						<0.5
Total Dissolved Solids	Mg/L						414
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						0.02
Total Iron	Mg/L						0.11
Dissolved Iron	Mg/L						<0.05
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L						8
Sulfate	Mg/L						150
Nitrate NO_3-N	Mg/L						<0.01
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L						<0.5
ALKALINITY	MG/L						268

INACCESSIBLE

INACCESSIBLE

Date: 1st QUARTER-1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-3			ST-3A		
		JAN.	FEB.	MARCH	JAN.	FEB.	MARCH
Flow Rate	G.P.M.	INACCESSIBLE		62			
PH	Units	7.7	7.3	7.75			
Air Temp.	°F	35	39	51			
Water Temp.	°F	33	35	35			
Conductivity	umhos/cm	2337	2276	2295			
Acidity	Mg/L	<1.0	<1.0	<1.0			
Total Suspended Solids	Mg/L	13	15	3.0			
Total Dissolved Solids	Mg/L	1568	1588	1534			
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.06	0.10	0.06			
Total Iron	Mg/L	0.45	0.18	0.12			
Dissolved Iron	Mg/L	<0.05	<0.05	<0.05			
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	275	285	294			
Sulfate	Mg/L	580	510	500			
Nitrate NO_3-N	Mg/L	0.13	0.04	0.06			
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<0.5	<0.5	<0.5			
ALKALINITY	MG/L	370	348	357			

INACCESSIBLE

NO WATER

Date: 1ST QUARTER - 1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-3B			ST-4		
		JAN.	FEB.	MARCH	JAN.	FEB.	MARCH
Flow Rate	G.P.M.						52
PH	Units						8.0
Air Temp.	°F						59
Water Temp.	°F						31
Conductivity	umhos/cm						999
Acidity	Mg/L						<1.0
Total Suspended Solids	Mg/L						36
Total Dissolved Solids	Mg/L						657
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						0.05
Total Iron	Mg/L						0.30
Dissolved Iron	Mg/L						<0.05
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L						28
Sulfate	Mg/L						275
Nitrate NO_3-N	Mg/L						0.04
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L						<0.5
ALKALINITY	Mg/L						257

INACCESSIBLE

NO WATER

INACCESSIBLE

NO WATER

Date: 1st QUARTER-1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-4A			ST-4B		
		JAN.	FEB.	MARCH	JAN.	FEB.	MARCH
Flow Rate	G.P.M.						
PH	Units						
Air Temp.	°F						
Water Temp.	°F						
Conductivity	umhos/cm						
Acidity	Mg/L						
Total Suspended Solids	Mg/L						
Total Dissolved Solids	Mg/L						
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						
Total Iron	Mg/L						
Dissolved Iron	Mg/L						
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L						
Sulfate	Mg/L						
Nitrate NO_3-N	Mg/L						
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L						
ALKALINITY	MG/L						

INACCESSIBLE

INACCESSIBLE

Date: 1ST QUARTER-1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-5			ST-6		
		JAN.	FEB.	MARCH	JAN.	FEB.	MARCH
Flow Rate	G.P.M.	242	306	483	74	148	182
PH	Units	7.7	7.6	8.0	7.75	7.55	7.8
Air Temp.	°F	41	37	57	41	45	57
Water Temp.	°F	37	40	47	33	39	45
Conductivity	umhos/cm	1353	1236	999	1107	979	983
Acidity	Mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Suspended Solids	Mg/L	5.0	164	36	90	541	125
Total Dissolved Solids	Mg/L	890	851	657	701	648	671
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.01	<0.01	0.05	0.03	0.10	0.04
Total Iron	Mg/L	0.19	0.09	0.30	0.44	2.56	0.40
Dissolved Iron	Mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	28	38	28	9	13	9
Sulfate	Mg/L	345	320	275	295	255	300
Nitrate NO_3-N	Mg/L	0.10	0.03	0.04	0.04	0.03	0.06
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<0.5	<0.5	<0.5	<0.5	1.6	1.1
ALKALINITY	MG/L	293	261	257	282	247	245

Date: 1ST QUARTER-1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-6A			ST-7		
		JAN.	FEB.	MARCH	JAN.	FEB.	MARCH
Flow Rate	G.P.M.						
PH	Units			8.05			
Air Temp.	°F						
Water Temp.	°F						
Conductivity	umhos/cm			756			
Acidity	Mg/L			<1.0			
Total Suspended Solids	Mg/L			651			
Total Dissolved Solids	Mg/L			452			
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L			0.02			
Total Iron	Mg/L			<0.05			
Dissolved Iron	Mg/L			<0.05			
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L			5.0			
Sulfate	Mg/L			175			
Nitrate NO_3-N	Mg/L			<0.01			
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L			1.5			
ALKALINITY	MG/L			235			

INACCESSIBLE

INACCESSIBLE

D-001
MOHRLAND WATER DISCHARGE

MINE WATER DISCHARGE MONITORING REPORT

DATE 1st QUARTER - 1985

Effluent Characteristic	Flow Rate G.P.M.	Total Suspended Solids Mg/L	Total Dissolved Solids Mg/L	Total Manganese Mg/L	Total Iron Mg/L	Dissolved Iron Mg/L	Alkalinity Mg/L	Acidity Mg/L	PH Units	Oil & Grease Mg/L	BOD_5 Mg/L	Total Coloforms MPN/100ML	Fecal Coloforms MPN/100ML	CONDUCTIVITY umhos/cm
January				INACCESSIBLE										
February				INACCESSIBLE										
March				NO WATER "NO DISCHARGE"										
April														
May														
June														
July														
August														
September														
October														
November														
December														

D-002
TOWN WATER OVERFLOW

MINE WATER DISCHARGE MONITORING REPORT

DATE 1st QUARTER - 1985

Effluent Characteristic	Flow Rate G.P.M.	Total Suspended Solids Mg/L	Total Dissolved Solids Mg/L	Total Manganese Mg/L	Total Iron Mg/L	Dissolved Iron Mg/L	Alkalinity Mg/L	Acidity Mg/L	PH Units	Oil & Grease Mg/L	BOD_5 Mg/L	Total Coloforms MPN/100ML	Fecal Coloforms MPN/100ML	CONDUCTIVITY umhos/cm
January	425	<0.5	651	<0.01	<0.05	<0.05	300	<1.0	7.5	<0.5				1045
February	300	4.0	673	0.02	0.07	<0.05	280	<1.0	7.5	0.6				937
March	373	<0.5	586	<0.01	0.06	<0.05	303	<1.0	7.1	<0.5	<1	<2	<2	983
April														
May														
June														
July														
August														
September														
October														
November														
December														

D - 070

KING #4 VENT TUNNEL

MINE WATER DISCHARGE MONITORING REPORT

DATE 1st QUARTER - 1985

Effluent Characteristic	Flow Rate G.P.M.	Total Suspended Solids Mg/L	Total Dissolved Solids Mg/L	Total Manganese Mg/L	Total Iron Mg/L	Dissolved Iron Mg/L	Alkalinity Mg/L	Acidity Mg/L	PH Units	Oil & Grease Mg/L	BOD_5 Mg/L	Total Coloforms MPN/100ML	Fecal Coloforms MPN/100ML	CONDUCTIVITY umhos/cm
January														
February														
March														
April														
May														
June														
July														
August														
September														
October														
November														
December														

INACCESSIBLE

SURFACE AND GROUNDWATER MONITORING PLAN

2nd Quarter 1985

United States Fuel Company

Hiawatha, Utah 84527

SPRING MONITORING REPORT

DATE: 2nd QUARTER -1985

EFFLUENT CHARACTERISTIC		SP-1	SP-2	SP-3	SP-4	SP-5	SP-6
		JUNE	JUNE	JUNE.	JUNE	JUNE.	JUNE
Flow Rate	G.P.M.	10.6	5.9	6.3	27.6	10.3	7.2
PH	Units	7.1	7.35	7.5	7.7	7.35	7.6
Air Temp.	°F	70	69	63	69	71	69
Water Temp.	°F	49	49	45	49	41	45
Conductivity	umhos/cm	290	458	460	492	480	460
Acidity	Mg/L						
Total Suspended Solids	Mg/L						
Total Dissolved Solids	Mg/L	189	241	233	264	340	234
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						
Total Iron	Mg/L	0.13	0.12	0.15	0.07	<0.05	0.06
Dissolved Iron	Mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	4	5	3	2	4	2
Sulfate	Mg/L	11	10	10	10	23	7
Nitrate NO_3-N	Mg/L	0.40	0.52	0.25	0.19	0.08	0.19
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L						
ALKALINITY	Mg/L						

SPRING MONITORING REPORT

DATE: 2nd QUARTER -1985

EFFLUENT CHARACTERISTIC		SP-7	SP-8			SP-9	SP-10
		JUNE	APRIL	MAY	JUNE	JUNE	JUNE
Flow Rate	G.P.M.	27.6		60	23.9	5.9	15.3
PH	Units	7.7		7.65	7.65	7.8	7.8
Air Temp.	°F	67		53	73	72	67
Water Temp.	°F	42		41	42	55	47
Conductivity	umhos/cm	458		750	800	392	475
Acidity	Mg/L						
Total Suspended Solids	Mg/L						
Total Dissolved Solids	Mg/L	232		437	412	195	246
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L						
Total Iron	Mg/L	<0.05		<0.05	<0.05	0.07	<0.05
Dissolved Iron	Mg/L	<0.05		<0.05	<0.05	<0.05	<0.05
Calcium	Mg/L		INACCESSIBLE				
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	2		5	4	3	3
Sulfate	Mg/L	6		43	49	9	12
Nitrate NO_3-N	Mg/L	0.29		0.08	0.01	0.16	0.09
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L						
ALKALINITY	Mg/L						

Date: 2nd QUARTER-1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-1			ST-2		
		APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate	G.P.M.	229	332	21			
PH	Units	8.1	7.5	7.6	8.15	7.35	7.70
Air Temp.	°F	49	65	80			
Water Temp.	°F	40	47	57			
Conductivity	umhos/cm	1010	710	1490	415	372	380
Acidity	Mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Suspended Solids	Mg/L	17	27	12	112	4.0	10.0
Total Dissolved Solids	Mg/L	715	469	1061	244	226	229
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.02	0.02	0.08	0.04	0.01	0.02
Total Iron	Mg/L	0.21	0.19	0.43	0.62	0.18	0.18
Dissolved Iron	Mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	16	8	16	6	3	4
Sulfate	Mg/L	325	85	505	24	14	18
Nitrate NO_3-N	Mg/L	0.08	0.04	0.11	0.18	0.04	0.09
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ALKALINITY	Mg/L	268	211	291	218	183	178

Date: 2nd QUARTER-1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-2A			ST-2B		
		APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate	G.P.M.	514	1071	160	404	1584	133
PH	Units	8.2	7.5	7.7	7.8	7.65	7.8
Air Temp.	°F	41	62	77	41	65	75
Water Temp.	°F	37	47	56	37	49	59
Conductivity	umhos/cm	445	410	425	495	440	500
Acidity	Mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Suspended Solids	Mg/L	68	<0.5	9.0	37	174	7.0
Total Dissolved Solids	Mg/L	257	235	242	298	256	300
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.03	0.01	0.02	0.02	0.08	0.02
Total Iron	Mg/L	0.42	0.17	0.24	0.39	0.40	0.27
Dissolved Iron	Mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	6	4	4	8	4	5
Sulfate	Mg/L	25	15	23	50	22	42
Nitrate NO_3-N	Mg/L	<0.01	0.04	0.12	<0.01	<0.01	0.09
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ALKALINITY	Mg/L	236	202	206	238	204	207

Date: 2nd QUARTER-1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST - 3			ST - 3A		
		APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate	G.P.M.	62	182	74			
PH	Units	7.9	7.7	7.55	7.8	7.85	8.00
Air Temp.	°F	49	67	65			
Water Temp.	°F	41	51	55			
Conductivity	umhos/cm	2306	1300	1890	995	440	402
Acidity	Mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Suspended Solids	Mg/L	<0.5	184	10	26	77	40
Total Dissolved Solids	Mg/L	1229	811	1164	570	251	226
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.05	0.19	0.04	<0.01	0.01	<0.01
Total Iron	Mg/L	0.12	1.91	0.32	0.16	0.25	0.12
Dissolved Iron	Mg/L	<0.05	0.12	<0.05	<0.05	<0.05	<0.05
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	303	136	262	10	4	4
Sulfate	Mg/L	500	205	410	205	24	28
Nitrate NO_3-N	Mg/L	0.08	<0.01	0.13	0.18	<0.01	0.06
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<0.5	<0.5	0.7	<0.5	<0.5	0.6
ALKALINITY	Mg/L	320	277	273	319	210	185

Date: 2nd QUARTER-1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-3B			ST-4		
		APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate	G.P.M.					278	72
PH	Units	7.75	7.60	8.0		7.55	7.55
Air Temp.	°F					50	70
Water Temp.	°F	-				41	51
Conductivity	umhos/cm	905	520	463		810	1150
Acidity	Mg/L	<1.0	<1.0	<1.0		<1.0	<1.0
Total Suspended Solids	Mg/L	<0.5	35	24		3.0	1.0
Total Dissolved Solids	Mg/L	546	303	254		512	605
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	<0.01	<0.01	0.01		0.03	<0.01
Total Iron	Mg/L	<0.05	0.14	0.11		0.34	0.15
Dissolved Iron	Mg/L	<0.05	<0.05	<0.05		<0.05	<0.05
Calcium	Mg/L				NO WATER		
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	11	5	4		17	32
Sulfate	Mg/L	220	45	40		130	265
Nitrate NO_3-N	Mg/L	0.04	<0.01	0.06		0.14	0.34
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<0.5	<0.5	<0.5		<0.5	<0.5
ALKALINITY	Mg/L	289	233	200		275	276

Date: 2nd QUARTER-1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-4A			ST-4B		
		APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate	G.P.M.						
PH	Units	7.8	7.6	7.7	8.0	7.95	7.95
Air Temp.	°F						
Water Temp.	°F						
Conductivity	umhos/cm	700	510	670	800	520	650
Acidity	Mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Suspended Solids	Mg/L	85	<0.5	2.0	70	71	82
Total Dissolved Solids	Mg/L	392	307	339	436	343	347
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.02	<0.01	<0.01	0.02	0.01	<0.01
Total Iron	Mg/L	0.44	0.06	<0.05	0.43	0.27	0.07
Dissolved Iron	Mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	7	4	5	18	6	6
Sulfate	Mg/L	125	38	72	145	60	90
Nitrate NO_3-N	Mg/L	0.02	0.08	0.02	<0.01	0.09	0.09
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<0.5	<0.5	<0.5	0.6	<0.5	<0.5
ALKALINITY	Mg/L	287	233	237	284	244	218

Date: 2nd QUARTER - 1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-5			ST-6		
		APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate	G.P.M.	404	1351	44	700	736	530
PH	Units	7.8	7.95	8.1	8.0	7.85	7.95
Air Temp.	°F	35	53	69	37	59	49
Water Temp.	°F	39	44	57	37	55	49
Conductivity	umhos/cm	905	790	1100	700	590	800
Acidity	Mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Suspended Solids	Mg/L	68	75	8.0	194	12	39
Total Dissolved Solids	Mg/L	566	463	649	397	349	475
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.03	0.03	0.02	0.04	<0.01	0.01
Total Iron	Mg/L	0.39	0.46	0.23	0.69	0.08	0.34
Dissolved Iron	Mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	29	20	34	7	6	6
Sulfate	Mg/L	250	120	265	150	70	204
Nitrate NO_3-N	Mg/L	0.02	0.24	0.12	<0.01	0.06	0.06
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<0.5	<0.5	0.9	<0.5	<0.5	1.3
ALKALINITY	Mg/L	244	248	248	239	217	233

Date: 2nd QUARTER-1985 STREAM MONITORING REPORT

EFFLUENT CHARACTERISTIC		ST-6A			ST-7		
		APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate	G.P.M.						766
PH	Units	8.0	7.9	7.9			7.75
Air Temp.	°F						69
Water Temp.	°F	-					51
Conductivity	umhos/cm	595	510	640			390
Acidity	Mg/L	<1.0	<1.0	<1.0			<1.0
Total Suspended Solids	Mg/L	385	12	44			4.5
Total Dissolved Solids	Mg/L	305	299	343			200
Total Organic Carbon	Mg/L						
Total Manganese	Mg/L	0.08	<0.01	0.01			<0.01
Total Iron	Mg/L	0.96	0.08	0.24			0.12
Dissolved Iron	Mg/L	<0.05	<0.05	<0.05			<0.05
Calcium	Mg/L						
Magnesium	Mg/L						
Sodium	Mg/L						
Potassium	Mg/L						
Carbonate	Mg/L						
Fluoride	Mg/L						
Bicarbonate	Mg/L						
Chloride	Mg/L	6	5	5			3
Sulfate	Mg/L	66	55	85			14
Nitrate NO_3-N	Mg/L	<0.01	0.03	0.07			0.40
Nitrate NO_2-N	Mg/L						
Kjeldahl N	Mg/L						
Dissolved Phosphorus	Mg/L						
Silica	Mg/L						
Trace Elements:							
Arsenic	Mg/L						
Cadmium	Mg/L						
Zinc	Mg/L						
Selenium	Mg/L						
Radioactivity:							
Gross Alpha	Pci/L						
Gross Beta	Pci/L						
Oil and Grease	Mg/L	<0.5	<0.5	<0.5			<0.5
ALKALINITY	Mg/L	235	218	239			197

D-001

MOHRLAND WATER DISCHARGE

MINE WATER DISCHARGE MONITORING REPORT

DATE 2nd QUARTER -1985

Effluent Characteristic	Flow Rate G.P.M.	Total Suspended Solids Mg/L	Total Dissolved Solids Mg/L	Total Manganese Mg/L	Total Iron Mg/L	Dissolved Iron Mg/L	Alkalinity Mg/L	Acidity Mg/L	PH Units	Oil & Grease Mg/L	BOD5 Mg/L	Total Coloforms MPN/100ML	Fecal Coloforms MPN/100ML	CONDUCTIVITY umhos/cm
January														
February														
March														
April	146	<0.5	695	0.01	0.12	<0.05	257	<1.0	7.45	<0.5				1090
May	<5	7.0	674	0.03	0.14	<0.05	359	<1.0	7.30	<0.5				1050
June	<2	3.0	698	0.06	0.76	<0.05	358	<1.0	6.95	<0.5	<1.0	9	<2	1100
July														
August														
September														
October														
November														
December														

D-002
TOWN WATER OVERFLOW

MINE WATER DISCHARGE MONITORING REPORT

DATE 2nd QUARTER-1985

Effluent Characteristic	Flow Rate G.P.M.	Total Suspended Solids Mg/L	Total Dissolved Solids Mg/L	Total Manganese Mg/L	Total Iron Mg/L	Dissolved Iron Mg/L	Alkalinity Mg/L	Acidity Mg/L	PH Units	Oil & Grease Mg/L	BOD5 Mg/L	Total Coloforms MPN/100ML	Fecal Coloforms MPN/100ML	CONDUCTIVITY umhos/cm
January														
February														
March														
April	79	<0.5	600	<0.01	<0.05	<0.05	288	<1.0	7.60	<0.5				975
May	172	6.0	607	0.01	0.18	<0.05	286	<1.0	7.25	<0.5				990
June	<5	2.0	712	0.03	0.40	<0.05	356	<1.0	7.30	<0.5	<1.0	<2	<2	1100
July														
August														
September														
October														
November														
December														

D-010

KING #4 VENT TUNNEL

MINE WATER DISCHARGE MONITORING REPORT

DATE 2nd QUARTER - 1985

Effluent Characteristic	Flow Rate G.P.M.	Total Suspended Solids Mg/L	Total Dissolved Solids Mg/L	Total Manganese Mg/L	Total Iron Mg/L	Dissolved Iron Mg/L	Alkalinity Mg/L	Acidity Mg/L	PH Units	Oil & Grease Mg/L	BOD5 Mg/L	Total Coloforms MPN/100ML	Fecal Coloforms MPN/100ML	CONDUCTIVITY umhos/cm
January														
February														
March														
April	—					NO	OVER	FLOW						
May	10	5.0	333	0.05	0.32	<0.05	245	<1.0	7.60	<0.5				600
June	11	<0.5	333	0.02	0.19	<0.05	242	<1.0	7.60	<0.5	<1.0	16	2	600
July														
August														
September														
October														
November														
December														

UNITED STATES FUEL COMPANY

VEGETATION TEST PLOTS

YEAR 2 PROGRESS REPORT

Hiawatha, Utah

by

Joseph M. Jarvis

Biologist

INTRODUCTION

A vegetation test plot program was submitted with the mine permit applications by U.S. Fuels to satisfy OSM regulations for a tested revegetation program. This revegetation program would be applied at mine shutdown for the reclamation of disturbed sites and material. The test plot program is to be monitored for five years to judge plant response to the various revegetation techniques tested. The complete details of the program are available in the OSM/DOGM mine permit applications. This progress report covers the 2nd year of monitoring. with subsequent reports due in year 3 (1986) and 5 (1988).

The test plot program was installed in 1984 with preparation of plot sites and seeding of various seed mix designs in the fall. 1983 and 1984 were "wet years" with above normal precipitation and below normal temperatures. The winter of 1985 started wet and cold but turned mild and dry by early spring. Spring was early, dry and mild with summer warm and dry. The only summer precipitation coming from heavy rain storms in July. The plots were read in August when soil conditions were dry. A succession of annual grasses and forbs had colonized the plots at lower elevations with a dense stand of living and dead plants. The plots in the canyons at higher elevations (8200') had produced vigorous stands of seeded species and some adventive species.

METHODS

Photo stations were established at each plot. Subplots in Study Sites 1 and 2 were also photographed. Each treatment in the plots or subplots were sampled with a 1/4 square meter quadrant at five random stations. Additional samples were taken if sampling error exceeded 10% except in the small canyon plots due to lack of space. Estimates of percent living and non-living cover were taken as were basal stem counts of all species in the quadrant. This provided the degree of cover, a total plant count per unit and species composition in the plots.

This data was collected and formatted to allow comparisons on a yearly basis and between treatments. The 2nd year data was not statistically analysed for differences in plant response to treatment.

Plots and subplots sampled:

Study Site #1
"old coal refuse substrate"
subplots 1,2,3,4,5 and 6

"new coal refuse substrate"
subplots A,B,C,D,E and F

Study Site #2
Plot #1
Plot #2

Middle Fork Plot

South Fork Plot

Riparian Plot

RESULTS

Study Site #1

The site was covered with a dense plant growth of living and dead annual grasses and forbs. The disturbance of the soil placed as topsoil on the coal refuse apparently provided an ideal growth environment for the adventive plants. This placed these "weedy species" in a strong competitive position and probably affected germination of seeded species in 1985 by shading the soil surface and depriving these desired species of soil moisture. The seeded species accounted for less than 1% of the plant species.

The adventive species were both early season and late season types indicating growth from spring moisture and later growth from the July moisture. The quick growth of these species on test plots is a situation repeatedly observed in test plot programs. This is generally due to the distubance of the site in seedbed preparation providing ideal environmental conditions. These adventive species usually fade from the plant community in the test plots as seeded species become established and soil conditions stablize.

The only differences between treatments, that was readily observable in the data, was the greater number of plants and plant cover in the old coal refuse substrate versus the new coal refuse substrate. Differences in plant response to treatments within the substrates was not detected.

Table I Transect Data

Subplot	Bare	Percent of Rock	Litter	Cover	Basal Stems Per Quad
A. New Coal Refuse Substrate					
A	18	0	58	24	17.2
B	11	6	62	21	21.0
C	9	0	59	32	25.8
D	6	0	54	40	26.4
E	11	0	54	35	26.6
F	9	0	67	24	27.2
Means	10.7	1.0	59	29.3	24.0
B. Old Coal Refuse Substrate					
1	11	0	64	25	23.4
2	13	0	54	33	28.4
3	9	1	56	34	32.4
4	2	0	62	36	28.4
5	2	0	64	32	28.6
6	2	0	64	32	35.4
Means	6.5	0.2	60.7	32	29.4

Table II Species Composition

Species	Total # Plots	Total # Plants	Ave. # /Quad	Percent of Total Cover
A. New Coal refuse Substrate		30 Quads		
Salsola kali	30	524	17.5	72.3
Kochia scoparia	28	128	4.6	19.5
Chenopodium sp.	25	35	1.4	5.8
grass seedlings *	7	15	2.1	0.01
Ceratoides lanata *	5	11	2.2	0.01
Hilaria jamesii	2	7	2.0	0.01
Grindelia squarrosa	1	1	1.0	0.001
unknown forbs	1	1	1.0	0.001
B. Old Coal refuse Substrate		30 Quads		
Salsola kali	30	601	20.0	70.0
Kochia scoparia	30	241	8.0	25.1
Chenopodium sp.	23	34	1.5	3.6
Ceratoides lanata *	9	9	1.0	0.6
unknown forbs	3	3	1.0	0.6
grass seedlings *	1	1	1.0	0.001

* seeded species

Study Site #2

This site, where 12" of topsoil was removed, was also covered with a heavy growth of annual grasses and forbs. The disturbance to the soils and removal of established groundcover provided conditions ideal for adventive plant species. Some seeded species were evident but there was no discernable difference between the two seed mixes used here.

Table I Transect Data, 10 quadrants per seed mix

Percent of				
Bare	Rock	Litter	Cover	Basal Stems/Quadrant
A. Seed Mix #1				
18.9	0	52.4	28.7	18.2
B. Seed Mix #2				
19.6	0	52.5	27.9	13.0

Table II Species Composition on Subplots

Species	Total # Plots	Total # Plants	Mean # /Quad	Percent of Total Cover
A. Seed Mix #1				
Salsola Kali	10	67	6.7	53.7
grass seedlings *	6	38	6.3	10.5
Linium lewisii	4	29	7.2	7.3
Kochia scoparia	4	13	3.2	7.0
Ceratoides lanata *	3	4	1.3	1.0
Convolvulus sp.	2	9	4.5	4.5
Melilotus officinalis *	2	5	2.5	6.3
Chrysothamnus naseosus *	2	5	2.5	1.7
Grindelia squarrosa	2	2	1.0	4.2
Chenopodium sp.	1	1	1.0	0.7
Astragulas sp.	1	1	1.0	0.7
Unknown forbs	6	8	1.3	2.4
B. Seed Mix #2				
Salsola kali	9	53	5.9	46.1
grass seedlings *	7	36	5.1	11.8
Kochia scoparia	3	10	3.3	9.7
Linum lewisii *	4	9	2.2	4.6
Chrysothamnus nauseosus*	4	5	1.2	2.1
Chenopodium sp.	4	4	1.0	3.1
Ceratoides lanata	3	4	1.3	2.6
Grindelia squarrosa	3	4	1.3	6.1
Melilotus officinalis *	2	2	1.0	1.5
Sphaeralcea coccinea	2	2	1.0	2.1
Erigeron sp.	1	2	2.0	1.5
Purshia tridentata *	1	1	1.0	0.5
Helianthus sp.	1	1	1.0	1.5
Unknown forbs	4	6	1.2	4.1

* seeded species

Canyon Plots

The three plots in the canyons produced good stands of the seeded species. Some of the grasses were in the flower stage during the field work period in August. The cover percentage was fairly consistent between quadrants. The riparian interseeding seeded cover was less than the other two plots but considering the conditions of shade and established plant cover it was moderately successful.

Table I Transect Data 5 quadrants

Percent of				
Bare	Rock	Litter	Cover	Basal Stems per Quadrant
A. Middle Fork				
2	3	42	53	74.5
B. South Fork				
4	4	21	71	70.2
C. Riparian				
41	11	34	14	32.0

Table II Species Composition

Species	Total # Plots	Total # Plants	Mean # /Quad	Percent of Total Cover
A. Middle Fork				
grass seedlings *	5	284	56.8	91.3
Bromus sp. *	3	6	2.0	0.9
Avena fatua	1	2	2.0	0.9
Phleum alpinum *	1	2	2.0	0.9
Monolepis nuttallianus	1	2	2.0	0.9
Chenopodium sp.	1	1	1.0	0.5
unknown forbs	1	1	1.0	0.5
B. South Fork				
grass seedlings	5	278	55.6	64.8
Bromus sp. *	4	27	6.7	7.4
Phleum alpinum *	4	7	1.8	2.2
Cynoglossum officinale	2	11	5.5	2.7
Agropyron sp. *	2	7	3.5	2.2
Melilotus officinale *	2	5	2.5	1.4
Chenopodium album	2	3	1.5	1.4
Cleome serrulata	2	3	1.5	6.6
Chenopodium sp.	1	1	1.0	-
Salsola kali	1	1	1.0	1.4
Viguiera multiflora	1	1	1.0	0.5
unknown forbs	5	17	3.4	9.4
C. Riparian				
grass seedlings *	5	149	29.8	93.1
Poa sp. *	1	4	4.0	2.5
Lathyrus sp.	1	3	3.0	1.9
Mertensia sp.	1	2	2.0	1.2
Mahonia repens	1	1	1.0	0.6
Balsamorhiza sagittata *	1	1	1.0	0.6

Sue Simon

UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

March 20, 1986

Mr. Lowell P. Braxton
State of Utah, DOGM
355 W. North Temple, 3 Triad Center
Salt Lake City, Utah 84180-1203

RECEIVED
MAR 26 1986
DIVISION OF
OIL, GAS & MINING

Dear Mr. Braxton:

Enclosed is the annual report form accompanied by the data which the Division is requesting.

No subsidence monitoring data has been included as the Forest Service is still working on it and has not released their report to U.S. Fuel yet. This information will be forwarded to the Division when it is received by U.S. Fuel.

In the future, all reports, information such as water monitoring, vegetation and subsidence data and other required materials will be presented to the Division once a year in the form of an Annual Report.

Copy each cover letter and place copy of cover letter in file #2, application and MRP Review, then place complete Annual Report in file #15 Misc file.

Sincerely,

Jean Semborski

Jean Semborski
Engineer

pc: E Ga
P Sc

KING COAL

Quotations subject to immediate acceptance. Coal will be sold and invoiced at price in effect on date of shipment, at mine weights f. o. b. cars at place of shipment, unless otherwise specifically agreed in writing. Agreements are contingent upon causes of delay beyond our control, including strikes, accidents, riots, acts of God, lockouts, fire, flood, inability to secure cars or transportation.

See Simon

UNITED STATES FUEL COMPANY

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Sincerely,

Jean Semborski

Jean Semborski
Engineer

pc: E Gardiner
P Schank

UTAH KING COAL

Quotations subject to immediate acceptance. Coal will be sold and invoiced at price in effect on date of shipment, at mine weights f. o. b. cars at place of shipment, unless otherwise specifically agreed in writing. Agreements are contingent upon causes of delay beyond our control, including strikes, accidents, riots, acts of God, lockouts, fire, flood, inability to secure cars or transportation.

(December 1985)

COAL MINING AND RECLAMATION OPERATIONS FOR 1985
(Authority UMC 784)

(Must be submitted to the Division by March 31, 1986)

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

Operator: United States Fuel Company
Mine Name: P.O. Box A
Mailing Address: Hiawatha, Utah 84527
Company Representative: Jean Semborski
Permit No.: ACT 007/011
Date of Permanent Program Permit: Interim permit status
Quantity of Coal Mined (tonnage) 1985: 670,000 tons

Attach Most Recent Certificate of Insurance.

Attach Updated Mine Sequence Map.

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

A. Water Monitoring Data

B. Precipitation Data

C. Subsidence Monitoring

D. Vegetation Data (test plots) or Revegetation Success Monitoring (includes interim and final)

E. Permit Stipulation Status

0488R

IRM

CERTIFICATE OF INSURANCE

This is TO CERTIFY that the described policies, covering in accordance with the terms thereof, are in force as of the date hereof:

INSURED: SHARON STEEL CORPORATION / U.S. Fuel Co.
P.O. Box A, Hiawatha, UT 84527

COVERAGE	COMPANY & POLICY NO.	EXPIRATION DATE	LIMITS OF LIABILITY BODILY INJURY	PROPERTY DAMAGE
Workers' Compensation	Nat'l Un. Fire Ins. Co. of Pittsburgh, PA WC1123348 (All States)	10/1/86	Statutory	Nil
Employers' Liability	F.C.C.I. Fund 718581604(F1)		Each Accident $ 100,000	Nil
Comprehensive General Liability	National Union Fire Ins. Co. of Pittsburgh, PA GLA9601769	10/1/86	Bodily Injury & Property Damage C/S/L $100,000/$1,000,000	
Products	Chesapeake Ins. Co. Ltd. CIC100485	10/1/86	$900,000 X's $100,000 subject to the $1,000,000 aggregate	
Completed Operations	National Union Fire Ins. Co. of Pittsburgh, PA 468-7864	10/1/86	C/S/L $1,000,000/$1,000,000 X'S of $1,000,000/$1,000,000	
Comprehensive Automobile Liability	National Union Fire Ins. Co. of Pgh. PA BA 9198497	10/1/86	Bodily Injury & Property Damage C/S/L $100,000	
	Chesapeake Ins. Co. Limited CIC 100485	10/1/86	$900,000 xs $100,000	
	National Union Fire Ins. Co. of Pgh. PA 468-7865	10/1/86	C/S/L $1,000,000 xs of $1,000,000	
Excess/Umbrella Liability			Combined Single Limit: $ Aggregate: $	

RE:

This Certificate is issued to: Division of Oil, Gas, & Mining
355 W. North Temple
3 Triad Center
Suite 350
Salt Lake City, UT 84180-1203
Attn: Pam Lattig

This document is furnished for information only. It does not provide or convey any insurance. Unless specified hereon its issuance does not make the person or organization to whom it is issued an additional insured under any policy of insurance. It neither affirmatively nor negatively amends, extends or alters the coverage afforded by the contract of insurance between the insured and any Company. Amendment, extension or change of such contract can only be effected by endorsement issued by the Company and attached thereto.

Should any above described policy be cancelled, the Company issuing said policy will issue 30 days' notice to the holder of this document, at the address shown herein, but failure to give such notice shall impose no obligation of any kind upon the Company or the undersigned.

DATED: 11-14-85

Attorney for Chesapeake Insruance Co.

Insurance and Risk Management, Inc.
U.S. Steel Building
59th Floor
Pittsburgh, PA 15219

RECEIVED
NOV 18 1985
U. S. FUEL CO.
Hiawatha, Utah

INSURED