

File Act/007/011

Copy letter to  
see w/maps <sup>BTM</sup>

Jim

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

December 29, 1980

Mr. Cleon B. Feight, Director  
Utah Department of Natural Resources  
Division of Oil, Gas, and Mining  
1588 West North Temple  
Salt Lake City, Utah 84116

Re: Code of Federal Regulations,  
817.121 and 817.126

Dear Mr. Feight:

United States Fuel Company proposes to start a new section in our King IV mine. The new section will be called 8 North and will be driven north off from 11 East. A 1" to 100' scale section map and a quadrangle map with King IV mine overlayed, is included for your convenience. The new section is colored yellow on the quadrangle map.

The proposed section will pass directly beneath the right fork of Miller Creek. The right fork of Miller Creek is a perennial stream which flows with a volume of between 5 G.P.M. in the dry months to 1,000 G.P.M. during spring runoff. U. S. Fuel Company presently has a water monitoring station below the area where the proposed section will pass beneath the stream. Both quality and quantity of the water is monitored according to 30 CFR, 817.52.

U. S. Fuel proposes to mine this section by the room and pillar method. When mining reaches U. S. Fuel's property boundaries, a pillar extraction method of mining will be used for retreat. It is proposed that U. S. Fuel will leave adequate pillars in the vicinity of the stream for ground support. The minimum ground cover in the proposed new section will range from between 200 feet in the 2nd right to about 275 feet in the 2nd left.

Yours truly,

*Jay Marshall*

Jay Marshall,  
Mine Engineer

JM/ds

Enclosure(s)

**RECEIVED**

JAN 2 1981

DIVISION OF  
OIL, GAS & MINING



file ACT/007/011

IN REPLY REFER TO:

Jim



UNITED STATES  
DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY  
Office of the District Mining Supervisor  
Conservation Division  
2040 Administration Building  
1745 West 1700 South  
Salt Lake City, Utah 84104

November 5, 1980

Mr. Errol M. Gardiner  
Vice Pres. & General Manager  
United States Fuel Company  
Hiawatha, Utah 84527

Dear Mr. Gardiner:

By letter dated September 22, 1980, and attached mine maps, you requested approval of a proposed plan to open a mine portal in South Fork Canyon in the Hiawatha seam. This proposal involves a modification of your 1977 mine plan including surface disturbance at the portal area.

Where a proposed change in a mining plan involves an area not included in a previously approved mine plan and/or the proposal involves surface disturbance it is to be submitted to the Office of Surface Mining (OSM) as a major modification, for review and approval. This office will review the resource recovery portion of the plan and give our recommendations to OSM at that agency's request.

I am forwarding to OSM the six copies of the mine map received with your letters of September 22, 1980, and October 28, 1980. If you have any questions, please contact me or Gordon Whitney.

Sincerely yours,

Jackson W. Moffitt  
District Mining Supervisor

RECEIVED

NOV 6 1980

DIVISION OF  
OIL, GAS & MINING

cc: Denver  
Mr. A. E. Forest  
Mr. Cleon Feight ✓  
Mr. Donald A. Crane, OSM



IN REPLY REFER TO:

SL-025431

UNITED STATES  
DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY  
Office of the District Mining Supervisor  
Conservation Division  
2040 Administration Building  
1745 West 1700 South  
Salt Lake City, Utah 84104

November 5, 1980

Memorandum

TO: Regional Director, Denver  
Office of Surface Mining

From: District Mining Supervisor,  
Salt Lake City

Subject: Proposed Mine Plan Modification,  
U.S. Fuel Company

Enclosed are six copies of a proposed mine plan modification submitted to this office by U.S. Fuel Company. This proposal would modify the company's 1977 operating plan and involves surface disturbance of Fee land at the portal area.

We have retained a copy of the maps and will review the resource recovery portion of the proposal and will give you our recommendations upon your request.

Jackson W. Moffitt

Enclosures

cc: Denver  
Mr. Cleon Feight ✓

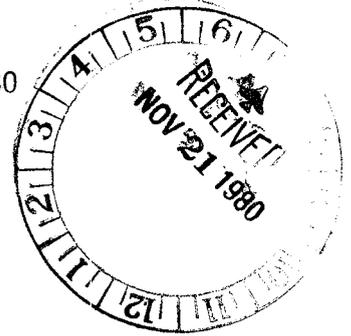
file ACT/007/011

Jim

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

November 18, 1980



Jim Smith  
Coordinator of Mined Land Development  
State of Utah Dept. of Natural Resources  
Division of Oil, Gas, and Mining  
1588 West North Temple  
Salt Lake City, Utah 84116

Dear Jim:

This letter is in connection with our plan for construction of the King 6 mine portal near Hiawatha, Utah.

On July 25, 1979, Donald Crane of the Office of Surface Mining sent a letter to Ron Daniels requesting additional information pertaining to our King 6 plan which was approved with stipulations by your division. On August 2, 1979, Ron sent him the additional information.

Would you please examine your file to see if O.S.M. has subsequently responded to this additional information. We have not received any correspondence from either the State or O.S.M. concerning this plan since that time.

We are hoping to begin development at this portal early next spring and would like to have O.S.M. approval by then.

I have enclosed a copy of O.S.M.'s letter and Ron's reply for your reference.

Yours truly,

*Robert Eccli*

Robert Eccli,  
Mining Engineer

RE/ds

Attachment





United States Department of the Interior  
OFFICE OF SURFACE MINING  
Reclamation and Enforcement  
POST OFFICE BLDG. RM. 270  
1823 STOUT STREET  
DENVER, COLORADO 80202

OFFICE OF THE REGIONAL DIRECTOR

25 JUL 1979

Mr. Ron Daniels  
Staff Assistant  
Division of Oil, Gas, and Mining  
Department of Natural Resources  
1588 West North Temple  
Salt Lake City, Utah 84116



Dear Ron:

We recently received your letter approving, with stipulations, the proposed King #6 Portal of the Hiawatha Mine. We believe we are in agreement with the three concerns listed in your letter. However, we do not have any recent correspondence from U. S. Fuel Company discussing the King #6 Portal. The approved mine plan addresses mining the coal, but does not speak to the surface disturbances your letter addressed. As Mr. Hardaway discussed with you, we can not approve such a proposal without the type of information you requested. We could not approve the portal if the information submitted consists only of the location and mine maps. If you are able to locate a trip report or other information, we would be pleased to use it in any further review.

Thank you for your help in this matter.

Sincerely,

*Donald A. Crane*  
DONALD A. CRANE



SCOTT M. MATHESON  
Governor

OIL, GAS, AND MINING BOARD

GORDON E. HARMSTON  
Executive Director,  
NATURAL RESOURCES

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES

CHARLES R. HENDERSON  
Chairman

CLEON B. FEIGHT  
Director

DIVISION OF OIL, GAS, AND MINING

1588 West North Temple  
Salt Lake City, Utah 84116  
(801) 533-5771

JOHN L. BELL  
C. RAY JUVELIN  
THADIS W. BOX  
CONSTANCE K. LUNDBERG  
EDWARD T. BECK  
E. STEELE McINTYRE



Mr. Don Crane  
Office of Surface Mining  
Denver Regional Office  
Room 270, Post Office Bldg.  
1823 Stout Street  
Denver, Colorado 80202

Re: U.S. Fuel Modification  
King # 6 Portal or  
South (left) Fork Portal

Dear Don:

The additional information which you requested in your letter of July 25, 1979 relative to this mine is enclosed. You will find that the March 16, 1979 trip report of the Division field inspection on March 15, 1979 mentions the facility in paragraph 4 on page 2.

Perhaps more detail can be found by your staff on the figure 4 attachment to Vaughn Hansen Associates' Report, "Surface Hydrology and Culvert Adequacy of the Hiawatha and Mohrland, Utah Areas". This report, on file in your office, has more detail on the proposed modification of surface facilities.

In addition, I have enclosed a copy of U.S. Fuel's original filing with this office under the 1975 Mined Land Reclamation Act. This Mining and Reclamation Plan was received in this office on June 1, 1977. The King #6 Portal is referred to as the South Fork Mine in that plan. South Fork refers to the South Fork of Miller Creek.

Enclosed also is a June 1, 1979 letter from U.S. Fuel relative to the name confusion.

ROUTING	
EG	<input checked="" type="checkbox"/>
WV	<input type="checkbox"/>
JS	<input type="checkbox"/>
JL	<input type="checkbox"/>
LM	<input type="checkbox"/>
GS	<input checked="" type="checkbox"/>
RA	<input type="checkbox"/>

Mr. Don Crane  
August 2, 1979  
Page Two

I hope that you now have enough information to review U.S. Fuel's plans.

Sincerely,



RONALD W. DANIELS  
COORDINATOR OF MINED  
LAND DEVELOPMENT

RWD/sp

cc: Errol Gardiner, U.S. Fuel  
enc: Completed forms MR-1 & 2  
Coal Memo dated 3/16/79  
U.S. Fuel letter dated 6/1/79



United States Department of the Interior  
OFFICE OF SURFACE MINING  
Reclamation and Enforcement  
BROOKS TOWERS  
1020 15TH STREET  
DENVER, COLORADO 80202

OFFICE OF THE REGIONAL DIRECTOR

OCT 2 8 1980

To Wayne  
file ACT/007/011  
U.S. Fuel  
Hiawatha JWS

DWH  
11/2/80  
TJS  
File

Mr. Charles Jahne  
Sharonsteel Mining Division  
19th Floor, University Club Building  
136 East South Temple  
Salt Lake City, UT 84111

Dear Mr. Jahne:

We have reviewed the plan for an additional sedimentation pond at the King VI Mine. The plan was submitted to this office on September 9, 1980 by Wayne Hedberg of the Utah Division of Oil, Gas, and Mining. After reviewing this document, we have the following comments and recommendations.

This proposed sedimentation pond was designed to control runoff from the conveyor, stockpile, and load-out areas. The Office of Surface Mining allows enclosed conveyor belts to be treated similarly to roads; that is, they are not considered disturbed area if they are correctly designed and the upstream area is not otherwise disturbed. To confirm our telephone conversation, runoff from the conveyor belt area does not need to pass through a sedimentation pond. However, the company needs to develop an erosion control and maintenance program for this area. Since the conveyor area comprises a large percentage of the calculated disturbed area, the pond may now be much smaller. With the reduction in size, the pond should be moved closer to the loadout area. If the pond embankment is less than 20 feet in height and the storage volume is less than 20 acre-feet, the spillway may be designed using the 25-year, 24-hour event. The company will need to submit updated calculations, graphs, and maps to the regulatory authorities. All sedimentation ponds must be designed, inspected, and certified by a registered professional engineer.

Plans for sedimentation ponds should include the following information:

1. The runoff potential from disturbed areas.
2. Pond sediment storage requirements.
3. Pond design.
4. Sediment disposal plan.
5. Temporary and final reclamation and revegetation plans for the ponds.
6. Pond discharge monitoring plan and a copy of the NPDES discharge permit, if required.
7. Maps showing that runoff from undisturbed areas will not flow into the sedimentation pond.

DIVISION OF  
OIL, GAS & MINING

OCT 30 1980

RECEIVED

-2-

Mr. Charles Jahne

Thank you for submitting this additional sedimentation pond information. Upon receipt of your response to the above comments, we will evaluate this material as soon as possible. If you have any questions, please contact Marianne Adams or John Nadolski of my staff at (303) 837-3773.

Sincerely,

DONALD A. CRANE

cc: Smith, DOGM, SLC ✓  
Trippe, USGS, Denver  
Moffitt, USGS, SLC  
Christensen, Manti-La Sal National Forest  
Johnson, Forest Service  
Eccli, U.S. Fuel Company



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  
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Salt Lake City, Utah 84116  
(801) 533-5771

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October 15, 1980

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

RE: Water Monitoring Plan  
U.S. Fuel Company  
King Mines  
ACT/007/011

Dear Bob:

Enclosed is a copy of the Office of Surface Mining's comments on U.S. Fuel's water monitoring plans for the King Mines. If you have any questions, please call me.

Sincerely,

D. WAYNE HEDBERG  
RECLAMATION HYDROLOGIST

DWH/te

cc: Don Crane, O.S.M.



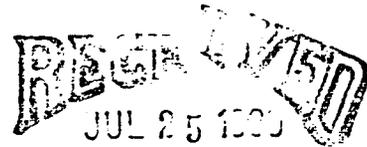
United States Department of the Interior  
OFFICE OF SURFACE MINING  
Reclamation and Enforcement  
BROOKS TOWERS  
1020 15TH STREET  
DENVER, COLORADO 80202

OFFICE OF THE REGIONAL DIRECTOR

Route to Tom  
Wayne  
File in  
ACT/007/011

JWS

.18 JUL 1980



Mr. James Smith, Jr.  
Coordinator of Mined Land Development  
Utah Department of Natural Resources  
Division of Oil, Gas, and Mining  
1588 West North Temple  
Salt Lake City, UT 84116

DIVISION OF  
OIL, GAS & MINING

Dear Mr. Smith:

We have reviewed the Water Monitoring Plan for U.S. Fuel Company's King Mines. The plans were submitted in correspondence from Mr. Suchoski of your Office, dated January 4, 1980. After reviewing this document, we have the following comments and recommendations.

Within the Gentry Mountain area, there are many springs in addition to those on U.S. Fuel Company's map. Many of these springs are critical to the maintenance of the existing population of livestock and wildlife. The Office of Surface Mining (OSM), the Division of Oil, Gas, and Mining (DOGM), the Forest Service (FS), and the Company need to meet to identify critical springs for monitoring. Those springs that contribute to streams flowing through disturbed areas should be monitored monthly. Final locations and procedures for sampling must be approved by the regulatory agencies.

Basic geologic data, including a map, should be part of this monitoring program. The Bear Canyon Fault is apparently a major ground water channel. The effects of mining on flow rates needs to be addressed. A ground water inventory should be included in the plan. Exploratory drill holes and an old gas well that is still cased could possibly be used to develop a water level map. The plan states that water diverted into the underground storage reservoir will be monitored, but the location and procedure has not been identified.

U.S. Fuel Company's program calls for samples of intermittent streams to be analyzed biannually. Samples should be analyzed on a monthly basis, when water is present, so that water quality data is representative of runoff, high and low flows, rainfall events and baseflow.

Perennial streams in areas of disturbance should be monitored monthly during baseline collection and after mining begins. If effluent limitations are being exceeded, a higher frequency is required.

In addition, we are concerned about how the data will be displayed. Appropriate data displays, such as maps, charts, tables, overlays, and narrative descriptions are essential to the success of the program. Data collected and filed are of no value and often cannot be later evaluated unless properly recorded and documented. We would like to commit the operator to at least annual summaries to the regulatory authority. U.S. Fuel Company must make a commitment to maintain the sampling sites and to have qualified persons taking samples.

This Office cannot approve U.S. Fuel Company's Water Monitoring Plan until the concerns outlined above can be met.

If you have any questions, please contact John Nadolski or Marianne Adams at (303) 837-3773.

Sincerely,



DONALD A. CRANE

cc: Trippe, USGS, Denver  
Moffitt, USGS, Salt Lake City  
Christensen, Manti-LaSal National Forest  
Johnson, Forest Service  
Eccli, U.S. Fuel Company



STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF WATER RIGHTS

DEE C. HANSEN  
STATE ENGINEER

EARL M. STAKER  
DEPUTY

200 EMPIRE BUILDING  
231 EAST 400 SOUTH  
SALT LAKE CITY, UTAH 84111  
(801) 533-6071

DIRECTING ENGINEERS  
HAROLD D. DONALDSON  
DONALD C. NORSETH  
STANLEY GREEN  
ROBERT L. MORGAN

File Hiawatha Complex:  
King 6 mine  
U.S. Fuel Co.  
Sharon Steel Mining Division DWH

ACT/007/811

September 16, 1980

Mr. D. Wayne Hedberg  
Division of Oil, Gas & Mining  
1588 West North Temple  
Salt Lake City, Utah 84116

Dear Mr. Hedberg:

This office has completed its review of the "Hydrologic Information for Sedimentation Pond for King VI Mine 42 Overland Conveyor Belt" report. We are in agreement with the general hydrology methodology in the O.S.M. regulations, but we cannot evaluate the total project as there are no details on the pond or its appurtenant structures.

Sincerely,

  
Dee C. Hansen, P.E.  
State Engineer

DCH:RLM:sn



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  
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(801) 533-5771

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E. STEELE McINTYRE

September 9, 1980

ACT/007/011

Mr. Bob Morgan  
Division of Water Rights  
Dam Safety  
231 East 400 South  
Salt Lake City, Utah 84111

Dear Bob:

Enclosed is one copy of Sharon Steel Corporation's report "Hydrologic Information for Sedimentation Pond for King VI Mine 42 Overland Conveyor Belt" for your review and approval.

The Division would appreciate an expeditious review, and would like to return our comment or approval by September 30, 1980 if possible.

Sincerely,

*Tamara Edge for*

D. WAYNE HEDBERG  
RECLAMATION HYDROLOGIST

DWH/te  
Enc: Hydrologic Information



SCOTT M. MATHESON  
Governor

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STATE OF UTAH

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DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL, GAS, AND MINING

CLEON B. FEIGHT  
*Director*

1588 West North Temple  
Salt Lake City, Utah 84116  
(801) 533-5771

JOHN L. BELL  
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E. STEELE McINTYRE

September 9, 1980

ACT/002/011

Mr. Don Crane  
Office of Surface Mining  
Brooks Towers  
1020 15th Street  
Denver, Colorado 80202

Dear Mr. Crane:

Enclosed are seven copies of Sharon Steel Corporation's report "Hydrologic Information for Sedimentation Pond for King VI Mine 42 Overland Conveyor Belt" for your review and approval.

The Division would appreciate an expeditious review, and would like to return our comment or approval by September 30, 1980 if possible.

Sincerely,

*Samara Edge for*

D. WAYNE HEDBERG  
RECLAMATION HYDROLOGIST

DWH/te  
Enc: Hydrologic Information



SCOTT M. MATHESON  
Governor

OIL, GAS, AND MINING BOARD

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*Executive Director,*  
NATURAL RESOURCES

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS, AND MINING  
1588 West North Temple  
Salt Lake City, Utah 84116  
(801) 533-5771

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E. STEELE McINTYRE

September 9, 1980

*ACT/007/011*

Mr. Steve McNeal  
Division of Health  
Water Pollution Control  
150 West North Temple  
Salt Lake City, Utah 84116

Dear Steve:

Enclosed is one copy of Sharon Steel Corporation's report "Hydrologic Information for Sedimentation Pond for King VI Mine 42 Overland Conveyor Belt" for your review and approval.

The Division would appreciate an expeditious review, and would like to return our comment or approval by September 30, 1980 if possible.

Sincerely,

*D. Wayne Hedberg for*

D. WAYNE HEDBERG  
RECLAMATION HYDROLOGIST

DWH/te  
Enc: Hydrologic Information

# SHARONSTEEL • Mining Division

AN **NVF** COMPANY

SHARON STEEL CORPORATION

19th Floor, University Club Building  
136 East South Temple  
Salt Lake City, Utah 84111  
Telephone (801) 355-5301

September 5, 1980

ACT/007/011

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

ATTENTION: Mr. Tom Suchoski:

Gentlemen:

This letter transmits 8 copies of the Report "Hydrologic Information For Sedimentation Pond For King VI Mine 42" Overland Conveyor Belt" as you requested in our phone conversation of September 4th. Since the first submittal of July 31, 1980, we have re-wroked our general arrangement drawings and the drawing numbers have changed.

Included with each copy of the Report are Drawings EST 43-79-G3, G4, G5 and G6 which are considered a part of the Report. In the first submittal, Drawings numbered EST 43-79-G2, G3 and G4 accompanied the Report. In order that all copies of the report have the same drawings in accompaniment, I am including 3 copies of Drawings EST 43-79-G3, G4, G5 and G6 in separate envelopes to be added to the copies of the Reports submitted on July 31, 1980.

Very truly yours,

  
Charles J. Jahne

CJJ:jrs

Enclosures

Route to Wayne  
To file: ACT/007/011

# 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

It is anticipated 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,



Addalla M. Elias  
Mine Engineer

AME/ds





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  
(801) 533-5771

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E. STEELE McINTYRE

January 9, 1980

Mr. John Nadolski  
Office of Surface Mining  
Brooks Towers  
1020 15th Street  
Denver, Colorado 80202

RE: Request for Maps and Letters.  
U.S. Fuel Company  
King Mines  
ACT/007/011

Dear John:

Enclosed are copies of the letters of June 13, 1979 and July 5, 1979, as we discussed in our phone conversation of January 7, 1980, dealing with the proposed fan portal in the Right Fork Canyon of Miller Creek. Also enclosed are photo-copies of the map to go along with the June 13, 1979 letter, sorry about the quality. If these maps are unacceptable, please contact the operator for the additional required copies. We are only able to locate one copy of these maps.

The Division requests the Office of Surface Mining's approval or comments of the proposed fan portal plan as U.S. Fuel is approaching an increased need for ventilation underground. If you have any further concerns please contact the Division.

Sincerely,

THOMAS J. SUCHOSKI  
RECLAMATION HYDROLOGIST

TJS/te

Enclosure: Letters and Maps.



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  
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January 4, 1980

Mr. Don Crane  
Regional Director  
Office of Surface Mining  
Brooks Towers  
1020 15th Street  
Denver, Colorado 80202

RE: Revised Water Monitoring Plan  
King Mines  
U.S. Fuel Company  
ACT/007/011

Dear Don:

Enclosed is one copy of U.S. Fuel Company's revised Water Monitoring Plans.

The Division is forwarding this for your staff's review. If more copies are required, please contact the operator for the additional copies required.

The Office of Surface Mining's comments are awaited before the Division will contact the operator.

Sincerely,

THOMAS J. SUCHOSKI  
RECLAMATION HYDROLOGIST

TJS/te

Enclosure: Water Monitoring Plans

77451 2/2/80

Tom,

Your letter of  
1/9/80 to Nadolski  
gives no deadlines for  
review. Write again  
for their comments  
giving a 2 week deadline  
from receipt of your  
registered letter. After

To That time state  
Date that we Time will

**WHILE YOU WERE OUT**

Mr. approve the San  
of portal proposal  
Phone copy to USFLO

RETURNED CALL

PLEASE CALL HIM

CALLED TO SEE YOU

PLEASE CALL HER

WANTS TO SEE YOU

WILL CALL AGAIN

Message           
          
          
        

Operator

*File Copy Tom, ACT/007/01/R  
Please view esm on  
their progress.*

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

December 16, 1979

*Ron,  
This fan portal  
plans are still on the file.  
T.S.*

Ronald W. Daniels  
Coordinator of Mined Land Development  
Utah Department of Natural Resources  
Division of Oil, Gas and Mining  
1588 West North Temple  
Salt Lake City, Utah 84116

Dear Ron:

This letter is submitted in response to stipulations set forth in the letter from Mary Ann Wright and Thomas Suchoski on October 12, 1979. The stipulations relate to hydro-mulched areas near slurry impoundment No. 1 and the proposed fan portal facility in the north fork of Miller Creek.

United States Fuel Company agrees to comply with the stipulations and recommendations set forth in the above mentioned letter.

Approval of our plan for construction of the north fork fan portal facility, submitted June 13, 1979, is requested.

Yours truly,

*Robert Eccli.*

Robert Eccli,  
Mine Engineer

RE/d1

**RECEIVED**

DEC 31 1979

DIVISION OF  
OIL, GAS & MINING



# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

*US Fuel File by  
Cap Route to Tom  
for action.  
File 1-19  
1/3*

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

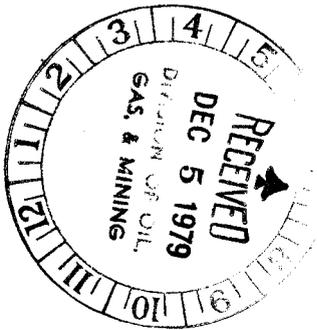
Dear Ron:

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. Environmental Protection Agency  
Suite 103, 1860 Lincoln Street  
Denver, Colorado 80295

Yours Truly,  
*Robert Eccli*  
Robert Eccli

RE/j1

ENCLOSURE:





SCOTT M. MATHESON  
Governor

OIL, GAS, AND MINING BOARD

GORDON E. HARMSTON  
*Executive Director,*  
NATURAL RESOURCES

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS, AND MINING  
1588 West North Temple  
Salt Lake City, Utah 84116  
(801) 533-5771

CHARLES R. HENDERSON  
*Chairman*

CLEON B. FEIGHT  
*Director*

JOHN L. BELL  
C. RAY JUVELIN  
THADIS W. BOX  
CONSTANCE K. LUNDBERG  
EDWARD T. BECK  
E. STEELE McINTYRE

October 12, 1979

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

RE: Hydro-mulched Areas and Fan Portal  
Facility and Related Structures  
U.S. Fuel Company  
ACT/007/011

Dear Bob:

Enclosed is a copy of the memo from a Division site inspection of the slurry pond reconstruction and the proposed fan portal area.

The Office of Surface Mining and the Division concur that reseeded of the areas connected to the slurry pond reconstruction is required. Hand broadcasting methods will be sufficient. Some vegetation may result from past seeding of these areas so that a full reseeded may not be necessary.

The following comments are offered, in relation to the proposed fan portal facility, in addition to those made by Mr. Ron Daniels in his July 5, 1979 letter to you.

1. As stated in the memo, the right fork of the north fork of Miller Creek appears to be perennial and this observation has been verified by the Hydrologic Monitoring Plan which was submitted by U.S. Fuel to the U.S. Geological Survey in November, 1977. Since this tributary is perennial and will be used for very limited access, the Division recommends that the two lower stream crossings be redesigned as stream fords with a low gravel pad. This will allow the filtration of low flows through the gravel pad and high flows to top over the pad and cause less erosion and sedimentation than if a culvert were washed out. The upper crossing will need to be culverted to handle the 10 year-24 hour storm, as regrading of the stream banks will cause excessive amounts of material to be moved.

2. The jeep trail which is proposed to be upgraded to a Class III Road also crosses four small draws, as noted in the memo. In order to minimize the disturbances to the hydrologic system due to erosion problems, the Division requires that appropriately sized culverts, to handle runoff from the 10 year-24 hour event, be installed at these locations. Appropriately constructed trash racks shall be installed on all culverts so that the function of these structures will not be imparred.
3. After a field inspection of the site it is suggested that it may be possible and desireable, for ease of handling to relocate the proposed topsoil stockpile closer to the site disturbance. This matter, however, would be left to the judgement of U.S. Fuel.
4. The following is a list of suggested species for the site. Only grasses and forb species have been suggested because of MSHA requirements on vegetation surrounding fans.

It is felt that a mixture of grasses to forbs with a ratio of 3:1, from the species list, at a rate of 20 pounds per acre would be good for local conditions. A selection of 5-7 species should be sufficient.

GRASSES SPECIES LIST

FORBS

Western Wheatgrass\*  
Thickspike wheatgrass\*  
Canada Wildrye\*  
Bluebunch wheatgrass\*  
Big Bluestem\*  
Basin wildrye\*  
Smooth Brome  
Orchard grass  
Fairwaycrested wheatgrass  
Standardcrested wheatgrass  
Bearded blu ebunch wheatgrass  
Bluestem wheatgrass  
Intermediate wheatgrass  
Pubescent wheatgrass  
Russian wildrye

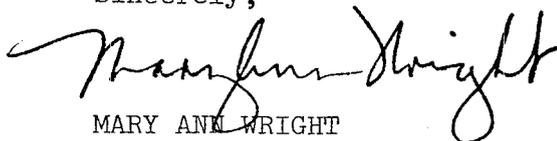
Alfalfa (Nomad or Ladak)<sup>1</sup>  
Utah sweetvetch\*  
Arrowleaf balsamroot\*  
Small burnet\*

\*Indicates native species.

Mr. Robert Eccli  
October 12, 1979  
Page Three

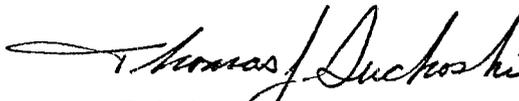
The Division awaits U.S. Fuel Company's response to these comments.  
If there are any questions, please contact the Division.

Sincerely,



MARY ANN WRIGHT  
RECLAMATION BIOLOGIST

AND



THOMAS J. SUCHOSKI  
RECLAMATION HYDROLOGIST

Enclosure: Memo

cc: John Hardaway  
Office of Surface Mining  
Region V

MAW/TJS:te

October 10, 1979

Memo to Coal File:

RE: U.S. Fuel Company  
King Mines  
Carbon County, Utah  
ACT/007/011

Mike Thompson and Tom Suchoski visited the above operation on September 19, 1979. They were accompanied by Mr. Bob Eccli of U.S. Fuel Company. The purpose of the visit was to inspect the site of the proposed fan portal in the right fork of the north fork of Miller Creek.

Of main concern was the placement of stream crossings and how it could be done. U.S. Fuel Company had plans to install three culverts at stream crossings on Miller Creek. In the two lower crossings the placement of culverts would require the disturbance of a fairly large area as the road would need to be built up to allow clearance of the culverts, also the material to do this would need to be brought from other areas. The suggestion was made that for these areas it might be better to use stream fords of coarse stream cobble pads which would allow the low flows to move through the pad, while high flows could run over the top with little hazard to the environment. This would cause less problem than the installation of culverts.

The upper crossing would need to be culverted as the banks are steep and regrading of them would cause many problems.

THOMAS J. SUCHOSKI *TJS*  
RECLAMATION HYDROLOGIST

cc: John Hardaway, O.S.M.

Statistics: Vehicle # EX 68804  
353 Miles  
2 persons x 11 hours @ 32.50/day =

TJS/te

File

U.S. Fuel Comp.  
ACT/007/007

Determination of Peak Discharge  
for diversion ditch associated with  
U.S. Fuel's #1 Slurry Pond

Problems have arisen regarding the sizing of the sediment control structure for U.S. Fuel's structure for U.S. Fuel's Reconstruction of Slurry Pond #1.

Using the Rational Equation to determine peak discharge is an acceptable method for small watersheds. The Rational Equation:

$$q = C i A \quad (1)$$

yields an estimate of peak discharge.  $C_n = 90$

$$S = 1000 / C_n - 10 = 1000 / 90 - 10 = 1.11 \text{ inches}$$

$$\text{Drainage area} = 2.5 \text{ acres}$$

$$\text{Hydraulic length} = 800 \text{ feet}$$

$$\text{Average watershed slope} = 50\%$$

$$\text{Watershed Lag} = \frac{(1.11)^{0.8} (S+1)^{0.7}}{1900 * y^{0.5}} = \frac{(800)^{0.8} (1.11+1)^{0.7}}{1900 * (50)^{0.5}} = 0.026 \text{ hours}$$

$$T_c = \text{Watershed Lag} / 0.6 = 0.0433 \text{ hours} = 2.6 \text{ minutes}$$

$$\text{Precip. intensity} = .16 / (60/5) = 1.92 \text{ in/hour}$$

$$C = \text{Rational Coefficient} = .65$$

$$q = C i A = (.65) 1.92 (2.5) \\ = \underline{\underline{3.12 \text{ cfs}}}$$

HYDROGRAPH COMPUTATION FORM

STREAM AND STATION Hiawatha

REMARKS Just took the peak discharge from chart.

DR. AREA 0.0039 SQ. MI.  $T_c$  0.0433 HR. RUNOFF CONDITION NO. II

RUNOFF CURVE NO. 90. STORM DISTRIB CURVE SCS. HYDRO. FAM. NO. 3

STORM DURATION 24 HR. RAINFALL: POINT 2.3 IN. AREAL \_\_\_\_\_ IN.

$Q$  1.35 IN. COMPUTED  $T_p$  0.0182 HR.  $T_o$  4.4 HR.

$(T_o/T_p)$ : COMPUTED 241 : USED 75 . REVISED  $T_p$  0.0587

$$q_p = \frac{484 A}{REV. T_p} = \frac{32.175}{0.0587} \text{ CFS.}$$

$$Qq_p = 43.44 \text{ CFS.}$$

$$t(\text{COLUMN}) = (t/T_p) REV. T_p$$

$$q(\text{COLUMN}) = (q_c/q_p) Qq_p$$

LINE NO.	t HOURS	q CFS	LINE NO.	t HOURS	q CFS	LINE NO.	t HOURS	q CFS
1			21			41		
2			22			42		
3			23			43		
4		3.0	24			44		
5			25			45		
6			26			46		
7			27			47		
8			28			48		
9			29			49		
10			30			50		
11			31			51		
12			32			52		
13			33			53		
14			34			54		
15			35			55		
16			36			56		
17			37			57		
18			38			58		
19			39			59		
20			40			60		

# Culvert Program Formats

Watershed?

U.S. Fuel - Slurry pond Diversion ditches

Curve Number?

90

$Y = 50$

Time of Concentration (hr)?

0.043

$S = 1.11$

$L = 800$

Area (sq. mi.)?

0.0039

Duration of Storm (hr)?

24

Rainfall depth (in)?

2.25

Distribution type (1 = SRS, 2 = Farmer-Fletcher)?

2

Peak discharge?

$q_p = \underline{2.397} \text{ CFS}$

Volume?

$Q = \underline{1.31258} \text{ IN}$



SCOTT M. MATHESON  
Governor

OIL, GAS, AND MINING BOARD

GORDON E. HARMSTON  
*Executive Director,*  
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STATE OF UTAH

DEPARTMENT OF NATURAL RESOURCES

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E. STEELE McINTYRE

August 2, 1979

Mr. Don Crane  
Office of Surface Mining  
Denver Regional Office  
Room 270, Post Office Bldg.  
1823 Stout Street  
Denver, Colorado 80202

Re: U.S. Fuel Modification  
King # 6 Portal or  
South (left) Fork Portal

Dear Don:

The additional information which you requested in your letter of July 25, 1979 relative to this mine is enclosed. You will find that the March 16, 1979 trip report of the Division field inspection on March 15, 1979 mentions the facility in paragraph 4 on page 2.

Perhaps more detail can be found by your staff on the figure 4 attachment to Vaughn Hansen Associates' Report, "Surface Hydrology and Culvert Adequacy of the Hiawatha and Mohrland, Utah Areas". This report, on file in your office, has more detail on the proposed modification of surface facilities.

In addition, I have enclosed a copy of U.S. Fuel's original filing with this office under the 1975 Mined Land Reclamation Act. This Mining and Reclamation Plan was received in this office on June 1, 1977. The King #6 Portal is referred to as the South Fork Mine in that plan. South Fork refers to the South Fork of Miller Creek.

Enclosed also is a June 1, 1979 letter from U.S. Fuel relative to the name confusion.

Mr. Don Crane  
August 2, 1979  
Page Two

I hope that you now have enough information to review U.S. Fuel's plans.

Sincerely,



RONALD W. DANIELS  
COORDINATOR OF MINED  
LAND DEVELOPMENT

RWD/sp

cc: Errol Gardiner, U.S. Fuel  
enc: Completed forms MR-1 & 2  
Coal Memo dated 3/16/79  
U.S. Fuel letter dated 6/1/79

This letter was  
copied to Don Crane  
8/7/79

*File Copy*  
*ACT/007/011*

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

August 1, 1979



Mr. Ronald W. Daniels  
Coordinator of Mined Land Development  
Utah Department of Natural Resources  
Division of Oil, Gas and Mining  
1588 West North Temple  
Salt Lake City, Utah 84116

Dear Ron:

This letter is submitted in response to your comments of July 5, 1979 relating to our proposed fan portal facility in the Right Fork of Miller Creek near Hiawatha, Utah.

The following information is provided to supplement and modify our plan according to your recommendations.

1. U.S. Fuel Company will extend and maintain the existing jeep road according to Class III road standards as you recommend.
2. Topsoil will be temporarily stockpiled and redistributed immediately following completion of surface structures. Seeding and mulching will be done promptly once topsoil is redistributed.
3. Sediment control measures will include prompt revegetation along with straw dikes or sediment control fabric.
4. We request your recommendations as to seed species and rate of distribution. The proposed site is located in aspen woodland at approximately 8300 ft. elevation. Rainfall is approximately 16 inches per year.

Yours truly,  
*Robert Eccli*  
Robert Eccli,  
Engineer

RE/jl



# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

July 31, 1979

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 streamstations. 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.



Page 2  
Continued

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,  
Engineering Department

FC/jl



SCOTT M. MATHESON  
Governor

OIL, GAS, AND MINING BOARD

GORDON E. HARMSTON  
*Executive Director,*  
NATURAL RESOURCES

STATE OF UTAH

DEPARTMENT OF NATURAL RESOURCES

CHARLES R. HENDERSON  
*Chairman*

CLEON B. FEIGHT  
*Director*

DIVISION OF OIL, GAS, AND MINING

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(801) 533-5771

JOHN L. BELL  
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THADIS W. BOX  
CONSTANCE K. LUNDBERG  
EDWARD T. BECK  
E. STEELE McINTYRE

July 5, 1979

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

RE: Fan Portal Facility & Related  
Structures  
U.S. Fuel Company  
ACT/007/011

Dear Bob:

The Division has reviewed the plans for the proposed fan facility in the right fork Miller Creek of U.S. Fuel's Hiawatha operations. The following comments are offered:

1. The proposed access to the fan site by way of the existing jeep road and its extension is acceptable to the Division. It is felt that U.S. Fuel Company can use the Class III Road Standards as this will minimize the amount of disturbance to the area. The limited use the road will receive during its life is also a factor in this determination.
2. The Division recommends the temporary stockpiling of topsoil and redistribution immediately following completion of surface structures. For such a plan the Division would require the prompt seeding and mulching of the area to protect it against erosion.

Mr. Robert Eccli  
July 5, 1979  
Page Two

3. Sediment control can be accomplished, for the small area to be disturbed, by the use of prompt revegetation along with strawdikes or some sort of sediment control fabric.

4. A seeding list with the species and rates of the temporary and the permanent seed mixes will be required.

The Division awaits U.S. Fuel's response on these comments.

A copy of the plans are being forwarded to the Office of Surface Mining along with a copy of this letter. By so doing they are informed of the Division's position.

If you have any questions, please contact the Division.

Sincerely,



RONALD W. DANIELS  
COORDINATOR OF MINED LAND DEVELOPMENT

RWD/te

cc: John Hardaway, Office of Surface Mining



SCOTT M. MATHESON  
Governor

OIL, GAS, AND MINING BOARD

GORDON E. HARMSTON  
*Executive Director,*  
NATURAL RESOURCES

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
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E. STEELE McINTYRE

July 3, 1979

Mr. John Hardaway  
Office of Surface Mining  
Room 270, Post Office Bldg.  
1823 Stout Street  
Denver, Colorado 80202

RE: Drainage maps for sediment pond  
design review.  
U.S. Fuel  
ACT/007/011

Dear John:

Enclosed are seven (7) copies of the Drainage Maps for the sediment ponds proposed for U.S. Fuel's Hiawatha operation. These are the plans which were needed to complete the review.

The Division requests an expeditious review of these plans so that U.S. Fuel can institute a sediment control plan.

Hope these help.

Sincerely,

THOMAS J. SUCHOSKI  
RECLAMATION HYDROLOGIST

TJS/te

cc: Bob Eccli, U.S. Fuel

Enclosure: Drainage Maps



SCOTT M. MATHESON  
Governor

OIL, GAS, AND MINING BOARD

GORDON E. HARMSTON  
Executive Director,  
NATURAL RESOURCES

STATE OF UTAH  
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EDWARD T. BECK  
E. STEELE McINTYRE

July 3, 1979

Mr. Steve McNeal  
Division of State Health  
150 West North Temple  
Salt Lake City, Utah 84110

RE: Drainage maps for sediment pond  
design review.  
U.S. Fuel  
ACT/007/011

Dear Steve:

Enclosed is one (1) copy of the Drainage Maps for the sediment ponds proposed for U.S. Fuel's Hiawatha operation. These are the plans which were needed to complete the review.

The Division requests an expeditious review of these plans so that U.S. Fuel can institute a sediment control plan.

Hope these help.

Sincerely,

THOMAS J. SUCHOSKI  
RECLAMATION HYDROLOGIST

TJS/te

cc: Bob Eccli, U.S. Fuel

Enclosure: Drainage Maps

SCOTT M. MATHESON  
Governor

GORDON E. HARMSTON  
Executive Director,  
NATURAL RESOURCES

CLEON B. FEIGHT  
Director



STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
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E. STEELE McINTYRE

July 3, 1979

Mr. Bob Morgan  
Division of Water Rights  
Empire Building  
231 East 400 South  
Salt Lake City, Utah 84111

RE: Drainage maps for sediment pond  
design review.  
U.S. Fuel  
ACT/007/011

Dear Bob:

Enclosed is one (1) copy of the Drainage Maps for the sediment ponds proposed for U.S. Fuel's Hiawatha operation. These are the plans which were needed to complete the review.

The Division requests an expeditious review of these plans so that U.S. Fuel can institute a sediment control plan.

Hope these help.

Sincerely,

A handwritten signature in cursive script, reading "Thomas J. Suchoski".

THOMAS J. SUCHOSKI  
RECLAMATION HYDROLOGIST

TJS/te

cc: Bob Eccli, U.S. Fuel

Enclosure: Drainage Maps



SCOTT M. MATHESON  
Governor

GORDON E. HARMSTON  
*Executive Director,*  
NATURAL RESOURCES

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*Director*

STATE OF UTAH  
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EDWARD T. BECK  
E. STEELE McINTYRE

July 3, 1979

Mr. Don Crane  
Regional Director  
Office of Surface Mining  
Room 270, Post Office Bldg.  
1823 Stout Street  
Denver, Colorado 80202

RE: Plan for Reconstruction of  
No. 1 Slurry Impoundment  
U.S. Fuel Company  
Hiawatha, Utah  
ACT/007/011

Dear Don:

After review of your May 30, 1979 letter and subsequent correspondence with Mr. Robert Eccli of U.S. Fuel Company the Division offers the following comments on the reconstruction of Slurry Pond No. 1 at Hiawatha, Utah.

1. The Final Engineering Design Report of reconstruction of the slurry pond was forwarded to your office on June 14, 1979 by the Division. The stability, on a long term basis, is addressed in this report.
2. The methods of reconstruction of Slurry Pond No. 1 are found in both the Preliminary and Final Engineering Reports and the plans for reconstruction included with the Final Engineering Report.
3. The peak runoff "volume" as determined by U.S. Fuel was in error. The Division staff has reviewed the design of the sediment control structures and diversion and finds that they are adequately sized. Any discrepancy about these results, I feel, should be handled between our agencies and when we are able to reach an agreement as to which is acceptable, then we should approach the operation.

Mr. Don Crane  
July 3, 1979  
Page Two

Mr. Eccli, in his June 11, 1979 letter, provided some additional information dealing with peak runoff determinations, but he used a precipitation depth from the 10-year, 2-hour storm. This was unacceptable to the Division as the diversions were part of the sediment control structure.

4. Additional information dealing with the stream channel diversion is provided in Mr. Eccli's June 11, 1979 letter, which is enclosed.

I hope this is helpful in resolving the differences in the review of U.S. Fuel's operation. If you have any questions please contact me.

Sincerely,



RONALD W. DANIELS  
COORDINATOR OF MINED LAND DEVELOPMENT

RWD/te

cc: Mr. Robert Eccli, U.S. Fuel Company

Enclosure: June 11, 1979 letter from Mr. Eccli

F/c

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

Date JUNE 29, 1979

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL, GAS AND MINING

1588 WEST NORTH TEMPLE

SALT LAKE CITY, UTAH 84116

Attention: THOMAS SUCHOSKI

Subject: SEDIMENT POND DESIGN

Gentlemen:

REVIEW (ACT/007/011)

We attach for your attention the following:

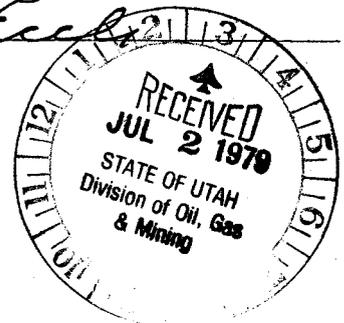
AS REQUESTED IN YOUR LETTER DATED JUNE 22, 1979,  
PLEASE FIND ENCLOSED, ELEVEN SETS OF MAPS SHOWING  
LOCAL TOPOGRAPHY, ROADS, DIVERSIONS AND DRAINAGE  
AREA BOUNDARIES.

SEDIMENT PONDS ARE SHOWN IN APPROXIMATE  
LOCATIONS. IT IS ASSUMED THAT MODIFICATIONS  
IN POND SIZE, CONFIGURATION AND LOCATION CAN  
BE UNDERTAKEN WITHOUT AFFECTING DESIGN CRITERIA  
PREVIOUSLY SUBMITTED.

Very truly yours,

U. S. FUEL COMPANY

By Robert Eccles



10  
File



SCOTT M. MATHESON  
Governor

OIL, GAS, AND MINING BOARD

GORDON E. HARMSTON  
Executive Director,  
NATURAL RESOURCES

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EDWARD T. BECK  
E. STEELE McINTYRE

1588 West North Temple  
Salt Lake City, Utah 84116  
(801) 533-5771

June 14, 1979

Mr. Bob Morgan  
Division of Water Rights  
Room 300, Empire Bldg.  
231 East 400 South  
Salt Lake City, Utah 84111

Re: Engineering Design Report  
for the Reconstruction of  
Slurry Impoundment No.1,  
U.S. Fuel, Hiawatha, Utah  
Rollins, Brown and Gunnell, Inc.  
ACT/007/011

Dear Bob:

Enclosed is one (1) copy of the Rollins, Brown, and Gunnell, Inc.'s  
report of Engineering design of reconstruction of Slurry pond No. 1.

Hope this is helpful to you.

Sincerely,

THOMAS J. SUCHOSKI  
RECLAMATION HYDROLOGIST

TJS/sp  
enc: Design Report

File



SCOTT M. MATHESON  
Governor

OIL, GAS, AND MINING BOARD

GORDON E. HARMSTON  
Executive Director,  
NATURAL RESOURCES

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES

CHARLES R. HENDERSON  
Chairman

CLEON B. FEIGHT  
Director

DIVISION OF OIL, GAS, AND MINING

1588 West North Temple  
Salt Lake City, Utah 84116  
(801) 533-5771

JOHN L. BELL  
C. RAY JUVELIN  
THADIS W. BOX  
CONSTANCE K. LUNDBERG  
EDWARD T. BECK  
E. STEELE McINTYRE

June 14, 1979

Mr. Steve McNeil  
Division of State Health  
150 West North Temple  
Salt Lake City, Utah 84110

Re: Engineering Design Report  
for the Reconstruction of  
Slurry Impoundment No.1  
U.S. Fuel, Hiawatha, Utah  
Rollins, Brown and Gunnell, Inc.  
ACT/007/011

Dear Steve:

Enclosed is one (1) copy of the Rollins, Brown, and Gunnell, Inc.'s  
report of Engineering design of reconstruction of Slurry pond No. 1.

Hope this is helpful to you.

Sincerely,

THOMAS J. SUCHOSKI  
RECLAMATION HYDROLOGIST

TJS/sp  
enc: Design Report

File



SCOTT M. MATHESON  
Governor

OIL, GAS, AND MINING BOARD

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NATURAL RESOURCES

STATE OF UTAH  
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E. STEELE McINTYRE

CLEON B. FEIGHT  
Director

DIVISION OF OIL, GAS, AND MINING  
1588 West North Temple  
Salt Lake City, Utah 84116  
(801) 533-5771

June 14, 1979

Mr. John Hardaway  
Region V, O.S.M.  
Room 27, Post Office Building  
1823 Stout Street  
Denver, Colorado 80202

Re: Engineering Design Report  
for the Reconstruction of  
Slurry Impoundment No.1,  
U.S. Fuel, Hiawatha, Utah  
Rollins, Brown and Gunnell,  
Inc.

ACT/007/011

007/011

Dear John:

Enclosed are the seven (7) copies of the Rollins, Brown, and Gunnell, Inc.'s report of Engineering design of reconstruction of Slurry pond No.1

Hope these are helpful to you.

Sincerely,

THOMAS J. SUCHOSKI  
RECLAMATION HYDROLOGIST

TJS/sp  
enc: Design Report

File

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

June 13, 1979

Mr. Cleon B. Feight, Director  
Utah Department of Natural Resources  
Division of Oil, Gas and Mining  
1588 West North Temple  
Salt Lake City, Utah 84116



RE: Plan for construction of a fan portal facility and related structures near Hiawatha, Utah. (Mining and Reclamation Plan No. Act/007/011)

Dear Mr. Feight:

United States Fuel Company proposes to construct a mine ventilation fan facility in the Right Fork canyon of Miller Creek near Hiawatha, Utah. This facility is needed to provide additional ventilating capacity for the King 4 Mine which is being developed west of this area. The location of the proposed fan site is shown on a quadrangle map included with this plan. A system of ventilating entrys is presently being driven in an easterly direction to break out at the proposed site. Following is an outline of proposed construction.

### SITE CONSTRUCTION

Figure 1 is a contour map of the site area showing proposed construction. There is an existing jeep road in Right Fork canyon extending from the town of Hiawatha to within 800 feet of the break out point. We propose to extend this road and construct a pad to facilitate a fan portal, fan housing, motor control building, and electrical substation. The size of the pad area will be approximately 1/2 acre.

The extended jeep road will only be wide enough to provide infrequent service to the fan installation. Drain culverts will be installed as shown in Figure 1.



A pole mounted electrical power transmission line will be installed from Hiawatha to the fan facility. It is anticipated that little surface disturbance will be caused by this installation since the existing jeep road can be used as access.

#### TOPSOIL HANDLING AND REVEGETATION

Trees and large brush will be cleared from the site before topsoil is removed. Topsoil will be removed as a separate operation and stockpiled in the area shown in figure 1. Topsoil will be redistributed immediately after surface structures have been completed or protected and redistributed upon final abandonment of the area, whichever is recommended.

Upon final abandonment of the area, all surface structures will be removed and disturbed lands, excluding road surfaces, will be seeded to achieve a permanent vegetative cover of native plants.

#### SEDIMENT CONTROL MEASURES

Due to the small size ( $\frac{1}{2}$  acre) of the area to be disturbed, and the small drainage area contributing runoff to the site, no sedimentation pond is proposed. Sediment will be controlled by the use of straw dikes placed in drain ditches. The disturbed area and topsoil stockpile will be seeded with a temporary cover of grasses or legumes immediately after surface facilities are constructed in order to control erosion.

Yours truly,



Robert Eccli,  
Engineer

RE/jl

Attachment:



United States Department of the Interior

OFFICE OF SURFACE MINING

Reclamation and Enforcement

POST OFFICE BLDG. RM. 270

1823 STOUT STREET

DENVER, COLORADO 80202

OFFICE OF THE REGIONAL DIRECTOR

30 MAY 1979



Mr. Ron Daniels  
Staff Assistant  
Div. of Oil, Gas, and Mining  
Dept. of Natural Resources  
1588 West North Temple  
Salt Lake City, Utah 84116

Dear Ron:

Reference: Plan for Reconstruction of No. 1 Slurry Impoundment - U. S. Fuel Company, Hiawatha, Utah ("Hiawatha Yard")

A brief review of the material received by the Utah Division of Oil, Gas, and Mining on February 1, 1979, and Addendum material transmitted from U. S. Fuel Company on March 19, 1979, addressing the subject reconstruction has been performed by this office. Construction was proposed to begin within one month of submission. Operation of the slurry impoundment is not stated but is expected to extend years into the future.

Office of Surface Mining assumes that the requirements of 30 CFR 715.18 have applied and that no later than October 12, 1979, the requirements of 30 CFR 817.81 through 817.85 will apply. Since the slurry impoundment is located offsite, these latter requirements apply through §827.12(g). The requirements of §816.81-85 are identical to the requirements of §817.81-85. The applicable requirements of the initial regulatory program are less detailed than those of the permanent program and thus are considered less stringent. The overall standard to be met is the long term static safety factor of 1.5.

The application lacks information regarding the long term stability of the unconstructed slurry impoundment. The "tests using appropriate engineering analysis" referenced on page 2 of the February submission should be provided. Methods of reconstruction and the proposed actions that will comply with 30 CFR Part 77 should be submitted. Otherwise the regulatory authority cannot make a finding regarding stability.

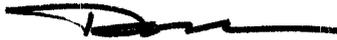
Mr. Ron Daniels

Page 2

The peak runoff volume calculated on pages 4 and 5 of the February submission appears to be too low by an order of magnitude, since the watershed lag time is an order of magnitude high. The diversion and sediment control structures need to be redesigned to be stable under these flow conditions and the recalculations and redesigns need to be submitted.

The proposal includes a stream channel diversion. Inadequate information is provided to satisfy either §715.17(c) or (d).

Sincerely,



Donald A. Crane

cc: U. S. Fuel Company

File

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

June 6, 1979

Mr. Cleon B. Feight, Director  
Utah Department of Natural Resources  
Division of Oil, Gas and Mining  
1588 West North Temple  
Salt Lake City, Utah 84116

RE: Final Stability and Engineering  
Design Report for Reconstruction  
of Slurry Impoundment No.1

Dear Mr. Feight:

Please find under separate cover, ten (10) copies of the Final Engineering Design Report for Reconstruction of Slurry Impoundment No.1 at Hiawatha, Utah.

This report is submitted to provide additional supporting data for the Preliminary Design Report submitted to your office on February 22, 1979.

Three copies of this report are being sent to the Mine Safety and Health Administration for their approval.

If you have any additional questions relating to reconstruction of this impoundment please call me at 343-2471.

Yours truly,



Robert Eccli,  
Mine Engineer

RE/jl



File

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

June 1, 1979



Mr. Cleon B. Feight, Director  
Utah Department of Natural Resources  
Division of Oil, Gas and Mining  
1588 West North Temple  
Salt Lake City, Utah 84116

RE: King-6 Mine (South Fork) portal  
facilities (Permit No. Act/007/011)

Dear Mr. Feight:

This letter is submitted to clarify an earlier notice to your office dated May 8, 1979 relating to a new portal excavations for our proposed King 6 Mine.

The King-6 Mine will be developed in a previously mined area near the South Fork (Left Fork on U.S.G.S. maps) of Miller Creek, approximately 3 miles west of Hiawatha, Utah. Underground mining will consist of extracting an isolated block of coal which was left in place during past mining in the Hiawatha Seam. See attached mining plan map.

The King-6 surface facilities will be located in the existing South Fork Mine yard. We propose to excavate two new portals for haulage and ventilation purposes. A bathhouse, shop, fan portal and supply portal are already existing in this area and will be reactivated for continued use. No surface disturbance will occur outside the existing mine yard area.

Runoff and sediment control measures are planned for this area as outlined in the Vaughn Hansen Associates report submitted to your office earlier this year.

Yours truly,  
*Robert Eccli*  
Robert Eccli,  
Mine Engineer

RE/jl



# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

June 11, 1979

Mr. Ron Daniels  
Department of Natural Resources  
Division of Oil, Gas and Mining  
1588 West North Temple  
Salt Lake City, Utah 84116



RE: Supplement to Plan for  
Reconstruction of No.1 Slurry  
Impoundment

Dear Ron,

This letter is intended to supplement our plan for reconstruction of Slurry Impoundment No.1 and to respond to comments submitted by Donald A. Crane of the Office of Surface Mining in his review dated May 30, 1979.

The review states that our plan lacks information regarding the long term stability of the impoundment as well as appropriate engineering analysis. Please note that our Preliminary Design Report submitted to your office on February 22, 1979 and our Final Engineering Design Report submitted June 6, 1979, as well as other supplementary data, present engineering analysis, stability investigations and methods of reconstruction.

Enclosed with this letter, please find the following additional items relating to 30 CFR 77.

1. MSHA approved inspection program for slurry impoundments.
2. MSHA approved plan for extinguishing fires on slurry impoundments.

Paragraph four of the OSM review notes an error in calculation of peak runoff volume presented on pages 4 and 5 of our plan, and states that diversion and sediment control structures need to be re-designed. The calculation is indeed in error, however we feel that the diversion ditch specifications shown in figure 3 of our plan and the sedimentation pond specifications (map No.10 of set submitted May 4, 1979) will be adequate for the following reasons:



1. Please refer to the location of the sedimentation pond and drainage ditches shown on the plan map included with our final engineering design report. The location of these structures have been changed somewhat from our original plan. Note that only one sediment pond is specified and that it is served by two drainage ditches. The storage volume of the pond (1.02 acre-ft.) is unchanged as calculated on page 5 of our plan since the drainage area remains the same.
2. The peak discharge affecting the drainage ditches is re-calculated below based on the following changes in our original calculations.
  - a. Precipitation depth is based on a 10 year storm (30 CFR 816.43 (b) ) rather than a 100 year storm as originally assumed.
  - b. The drainage area affecting each diversion ditch is only one half the total area originally used since two ditches are considered instead of one.

#### PEAK DISCHARGE PER DRAINAGE DITCH

CN = Hydrologic Soil Complex Number (curve number) = 90  
 S = Watershed Storage Factor =  $\frac{1000}{CN} - 10 = \frac{1000}{90} - 10 = 1.11$  inches  
 P = Precipitation Depth = 0.75 inches  
 Q = Runoff volume =  $\frac{(P-0.2S)^2}{P+0.8S} = \frac{(0.75-0.2 \times 1.11)^2}{0.75+0.8 \times 1.11} = 0.17$  inches  
 A = Drainage Area = 2.5 acres = .0039 square miles  
 L = Hydraulic Length = 800 feet  
 Y = Average watershed slope = 50%  
 L = Watershed Lag =  $\frac{(L^{0.8})(s+1)^{0.7}}{1900 * Y^{0.5}} = \frac{(800^{0.8})(1.11+1)^{0.7}}{(1900)(50^{0.5})} = 0.026$  hours  
 Tp = Time Factor = 1.17L = 1.17 x 0.026 = 0.030 hours  
 q = Peak Discharge =  $\frac{484AQ}{Tp} = \frac{(484)(.0039)(0.17)}{0.030} = 10.7$  ft<sup>3</sup>/sec.

#### DRAINAGE DITCH CAPACITY

A = Ditch Cross Section Area - 3.94 ft<sup>2</sup>  
 h = Coefficient of roughness = 0.025  
 R = Hydraulic Radius = 0.375 feet  
 S = Hydraulic slope = 0.025 feet per foot  
 V = Velocity =  $\frac{1.486 R^{0.67} S^{0.5}}{n} = \frac{1.486 (.375)^{0.67} (.025)^{0.5}}{.025} = 4.87$  ft./sec.

Ditch capacity = VA = 4.87 x 3.94 = 19.2 ft<sup>3</sup>/sec.

Paragraph five of the OSM review states that inadequate information is provided to satisfy 30 CFR 715.17 (c) and (d) relating to stream channel diversions, therefore, the following information is submitted:

1. The longitudinal profile of the diversion channel will be maintained in a condition at least equal to the stability and capacity of the unmodified stream channel immediately upstream and downstream of the diversion. The average stream gradient will be maintained.
2. The channel bank and flood-plain configuration will be adequate to safely pass the peak runoff of a 100-year, 24-hour precipitation event. See typical cross section previously submitted.
3. That section of the diversion channel that will contain the 100 year event will extend into a zone of naturally occurring cobbles and large boulders which should provide adequate riprap protection.
4. The channel bank will be reseeded as recommended in your letter dated March 29, 1979.
5. Stream realignment permits from the Utah Division of water rights and the Army Corps of Engineers are attached.

Yours Truly,

*Robert Eccli*

Robert Eccli,  
Mine Engineer

RE/jl

Enclosure:

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF WATER RIGHTS

DEE C. HANSEN  
STATE ENGINEER

EARL M. STAKER  
DEPUTY

200 EMPIRE BUILDING  
231 EAST 400 SOUTH  
SALT LAKE CITY, UTAH 84111  
(801) 533-6071

DIRECTING ENGINEERS  
HAROLD D. DONALDSON  
DONALD C. NORSETH  
STANLEY GREEN  
ROBERT L. MORGAN

March 2, 1979

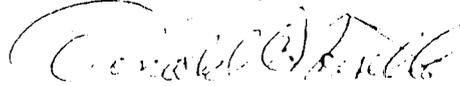
U.S. Fuel Company  
Box A  
Hiawatha, UT 84527

Gentlemen:

RE: Application No. 323  
to Alter Natural Stream

Your above numbered application to alter a natural channel has been approved pursuant to the requirements of Statute 73-3-29, Utah Code Annotated 1953 and subject to minimal use of equipment in the channel. A copy of the approved application is herewith returned to you for your records and future reference.

Yours truly,



DONALD C. NORSETH

For DEE C. HANSEN  
State Engineer

if

cc: Mark Page, Area Engineer  
Price Ofc.

David Rowley, Jr., Water Commissioner  
Rt. 1, Box 73  
Helper, UT 84526

Division of Wildlife Resources  
1596 West North Temple  
Salt Lake City, UT 84116

## APPLICATION TO ALTER NATURAL STREAM

Note: Information given in the following blanks should be free from explanatory matter, but when necessary, a complete supplementary statement should be made under the heading "Explanatory".

For the purpose of acquiring permission to alter a natural stream channel, application is hereby made to the State Engineer, based on the following facts, submitted in accordance with the requirements of the laws of the State of Utah, Section 73-3-29, Utah Code Annotated 1953, as amended.

1. Relocate  Revetment Work  Change  Divert Stream Flow
  2. Name of applicant U.S. Fuel Company
  3. Address of applicant Box A Hiawatha, Utah 84527
  4. The stream to be altered or relocated is Miller Creek
  5. The channel to be altered is in the drainage area of Price River -  
Colorado River
  6. The location of the channel to be altered is in Carbon County.  
Located in N43SE Sec. 27, T15S, R8E, S10&M  
(Give location within 40-acre tract of section, township, and range.)
  7. The nature of the proposed channel change is move the existing channel  
100 to 200 feet to the north for a length of 500 to 600 feet.
  8. The alteration or relocation is made for the purpose of to provide  
room to flatten the embankment of the #1 slurry pond (existing slope is  
35% and the proposed slope will be 26%)
  9. The existing condition of the channel is Fair
  10. The estimated streamflow is 0.50 to 3.0 cfs second-feet.
  11. The description of the proposed work involved is excavate the new  
channel and fill in the existing channel and construct the new pond  
embankment with a much flatter slope
  12. Is the land owned by the applicant? Yes  No  If the answer is  
"No", has written permission to proceed with the work been obtained?
- Note: The approval of this application does not grant the applicant the right of egress or trespass. Such authorization must be accomplished in accordance with the standard legal procedures.

13. Channel Improvement Grouping (for federal agencies only) \_\_\_\_\_

## Explanatory

The following additional facts are set forth in order to define more clearly the full purpose of the proposed application: U.S. Fuel Company needs the  
additional storage area for coal preparation slurry discharge. Slurry pond  
#1 would provide the storage area but new federal regulations require that  
all embankments slopes be reduced to 28% or less. The present stream location  
inhibits this reconstruction.

Include below a diagram or sketch of the channel changes proposed.

SEE THE ATTACHED MAP:

Jan. 23 - 1979  
Date

Robert Eeli  
Applicant's Signature

Recommendations of Area Engineer: The channel can be relocated  
with little or no effect to the existing channel within the  
extensive section of water ways  
imposed with...

Conditions

1. This application is rejected for the following reasons: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. This application has been reviewed and approved pursuant only to the requirements of House Bill 79. The approval is subject to: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3-2-79  
Date

Donald C. Norseth  
DONALD C. NORSETH For State Engineer DEE C. HANSEN



SCOTT M. MATHESON  
Governor

OIL, GAS, AND MINING BOARD

GORDON E. HARMSTON  
*Executive Director,*  
NATURAL RESOURCES

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES

CHARLES R. HENDERSON  
*Chairman*

CLEON B. FEIGHT  
*Director*

DIVISION OF OIL, GAS, AND MINING

1588 West North Temple  
Salt Lake City, Utah 84116  
(801) 533-5771

JOHN L. BELL  
C. RAY JUVELIN  
THADIS W. BOX  
CONSTANCE K. LUNDBERG  
EDWARD T. BECK  
E. STEELE McINTYRE

May 9, 1979

Mr. Don Crane  
Office of Surface Mining  
Room 270, Post Office Bldg.  
1823 Stout Street  
Denver, Colorado 80202

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

Dear Don:

Please find enclosed seven copies each of all of the following drawings and documents.

"Supplementary Hydrologic Information for the Sediment Ponds at Hiawatha and Mohrland Utah" Dated May 1979 and authored by Rollins Brown and Gunnell, Professional Engineers.

<u>Drawing Number</u>	<u>Description</u>
10/10	Sediment Pond for Slurry Pond Number 1.
1/10 thru 7/10 inclusive	Packet of sheets showing Sedimentation Pond Design for Hiawatha and Mohrland, Utah, dated 5/1/79.

Sincerely,

RONALD W. DANIELS  
COORDINATOR OF MINED  
LAND DEVELOPMENT

RWD/sp  
enc: drawings & documents

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

Date MAY 8, 1979

UTAH DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL, GAS AND MINING

1588 WEST NORTH TEMPLE

SALT LAKE CITY, UTAH 84116

Attention: CLEON FEIGHT

Subject: PLAN FOR RECONSTRUCTION

Gentlemen:

OF No. 1 SLURRY IMPOUNDMENT

We attach for your attention the following:

DEAR MR. FEIGHT:

ENCLOSED ARE PLANS AND SPECIFICATIONS FOR A SEDIMENTATION  
POND TO BE CONSTRUCTED IN CONNECTION WITH OUR No. 1  
SLURRY IMPOUNDMENT AT HIAWATHA, UTAH.

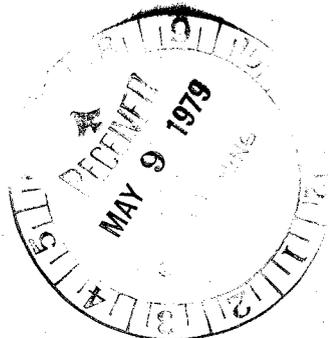
PLEASE REFER TO PAGE 4 OF OUR PLAN FOR RECONSTRUCTION  
OF No. 1 SLURRY IMPOUNDMENT FOR DETAILS OF RUNOFF  
CONTAINMENT.

Very truly yours,

U. S. FUEL COMPANY

By

Robert Eeli



*14 Copies received  
7 sent to OSM 5/9/79*

UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

*Early - Please  
send permit 3/29  
letter. P/4-5  
for  
Epl this.*

Date APRIL 3, 1979

STATE OF UTAH DEPT. OF NATURAL RESOURCES

DIVISION OF OIL, GAS AND MINING

1588 WEST NORTH TEMPLE

SALT LAKE CITY, UTAH 84116

Attention: RON DANIELS

Subject: RECONSTRUCTION OF NO. 1

Gentlemen:

SLURRY IMPOUNDMENT

We attach for your attention the following:

RON,

ENCLOSED ARE ADDITIONAL MAP COPIES AS  
REQUESTED IN YOUR LETTER DATED MARCH 29, 1979.

Very truly yours,

U. S. FUEL COMPANY

By

Bob Eckerl





SCOTT M. MATHESON  
Governor

OIL, GAS, AND MINING BOARD

GORDON E. HARMSTON  
Executive Director,  
NATURAL RESOURCES

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES

CHARLES R. HENDERSON  
Chairman

CLEON B. FEIGHT  
Director

DIVISION OF OIL, GAS, AND MINING

1588 West North Temple  
Salt Lake City, Utah 84116  
(801) 533-5771

JOHN L. BELL  
C. RAY JUVELIN  
THADIS W. BOX  
CONSTANCE K. LUNDBERG  
EDWARD T. BECK  
E. STEELE McINTYRE

March 29, 1979

Mr. Bob Eccli  
U.S. Fuel Company  
Hiawatha, Utah 84527

Re: Clarification of and  
additional information on  
No. 1 Slurry Impoundment  
ACT/007/011

Dear Mr. Eccli:

This letter is to clarify the commitments which you made in your letter of March 19, 1979, and to provide you with the Division-recommended seed mixture. In the way of clarification on your ~~three~~ commitments:

1. Topsoil or surficial soil materials to depth not less than 12 inches will be removed and segregated.
2. The channel of the realigned stream will be riprapped, not riprapped to the extent available. The area to be defined as the stream channel is the 10 feet of bottom and the 9 feet of side slopes as shown on your engineering design to hold the 100 year event. A copy of the design is enclosed.
3. Reseeding will be performed until success is evident on the area disturbed and to the standards of Rule M-10 and Rule MC-717.20.

The following revegetation plan is that which is recommended by the Division for this area.

Revegetation efforts shall commence as soon as construction is completed, if construction is completed by mid-May. If construction is not completed by this date, then seeding shall take place in October-November 1979.

The use of mulch will be required in revegetation of the streambank and slurry and sediment impoundment outslopes to assist in establishing a successful vegetative cover by reducing evaporation of soil moisture and minimizing erosion.

Several types of mulch are available depending upon the method of reseeding. A wood fiber mulch applied at a rate of 1500 pounds per acre works well and can be incorporated with seed and fertilizer if hydroseeding is the method used. If seed is broadcast a straw mulch can be used at a rate of 3000 pounds per acre and crimped into the soil surface using a caterpillar tractor or sheeps-foot roller. The straw can also be bound with an asphalt emulsion at a rate of 300 gallons per acre but this is a little more expensive.

Fertilization may be beneficial in establishing a successful vegetative cover depending upon nutrient deficiencies in the topsoil. Various fertilizers are available, with the type selected and rate of application being determined by soil testing analysis.

Revegetation plans are recommended for each of the three different disturbed areas; 1. the general disturbed area, 2. the sediment pond dam outslope, and, 3. the stream bank among the riprap.

1. For the disturbed area, including the streambank down to the riprap, but not including the slurry pond outslope. However, the Division recommends that an attempt be made to revegetate this area at the same time that revegetation of the other areas is taking place to reduce the sediment load and expense since this area will eventually have to be revegetated:

	<u>If Hand Broadcast</u>	<u>If Hydroseeded</u>
Fairway crested wheatgrass	3	2
Smooth brome or Bearded bluebunch (southern strain)	2	1
Indian rice grass	2	1
Intermediate wheatgrass or Pubescent wheatgrass	2	1
Russian wildrye	1	1
Alfalfa	1	1
Utah sweetvetch or yellow sweetclover	1	1/2
Small burnet		
Lewis flax	any 2	
Globemallow	of these	1/2 ea.
Penstemon	forb species	(x2)
Arrowleaf balsam root		
Bitterbrush	any 2	
Serviceberry	of these	3/4 ea.
Mountain mahogany	shrub species	<u>(x2)</u>
	<u>15</u>	<u>10</u>
Total Pounds/ Acre	15	10

Mr. Bob Eccli  
March 29, 1979  
Page Three

2. For the sediment pond dam outslope:

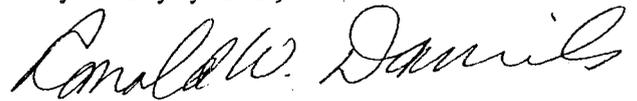
	<u>Pound/Acre</u>
Fairway crested wheatgrass	2
Smooth brome or Bearded bluebunch (southern strain)	2
Indian ricegrass	1
Intermediate wheatgrass	2
Russian wildrye	1
Alfalfa or yellow sweetclover	<u>1</u>
Total Pounds/Acre	9

3. For the stream bank among the riprap:

Place 2 foot cuttings of willows among the riprap, down to soil level, at the rate of 25 cuttings per 100 feet of diverted stream channel.

Please find enclosed a copy of a letter from the Division of Water Rights. Please send this Division two additional copies of the map which was enclosed with your letter of March 19, 1979. These will be forwarded to O.S.M.

Very truly yours,



RONALD W. DANIELS  
COORDINATOR OF MINED  
LAND DEVELOPMENT

RWD/sp

enc: Division of Water Rights  
Letter of 3/15/79

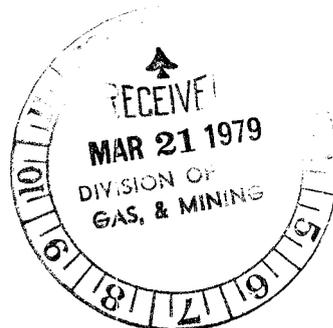
Engineering design for  
stream realignment

cc: Murray Smith  
O.S.M., Denver

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

March 19, 1979



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

RE: Addendum to Plan for Reconstruction  
of No.1 Slurry Impoundment

Dear Mr. Daniels,

The following additional information relating to reconstruction of No.1 Slurry Pond is submitted as per your request of March 17, 1979.

1. Before disturbance of the area in the vicinity of the proposed stream realignment, topsoil will be removed and segregated from other material. The topsoil will be stored on a stable area and redistributed upon completion of final regrading. The attached map shows the proposed location of topsoil storage.
2. The attached sketch shows a proposed typical cross section of the realigned stream channel. The channel will be constructed to pass the peak runoff from a 100 year 24 hour precipitation event. The bottom of the channel will riprapped to the extent possible using cobbles and boulders existing in the excavated material.
3. Upon completion of reconstruction, the area of the proposed stream realignment will be reseeded according to recommendations of the Division of Oil, Gas and Mining.

Yours truly

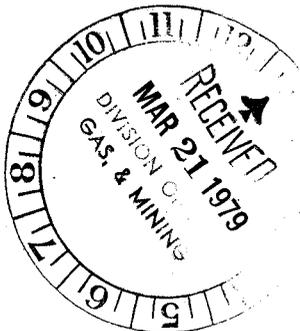
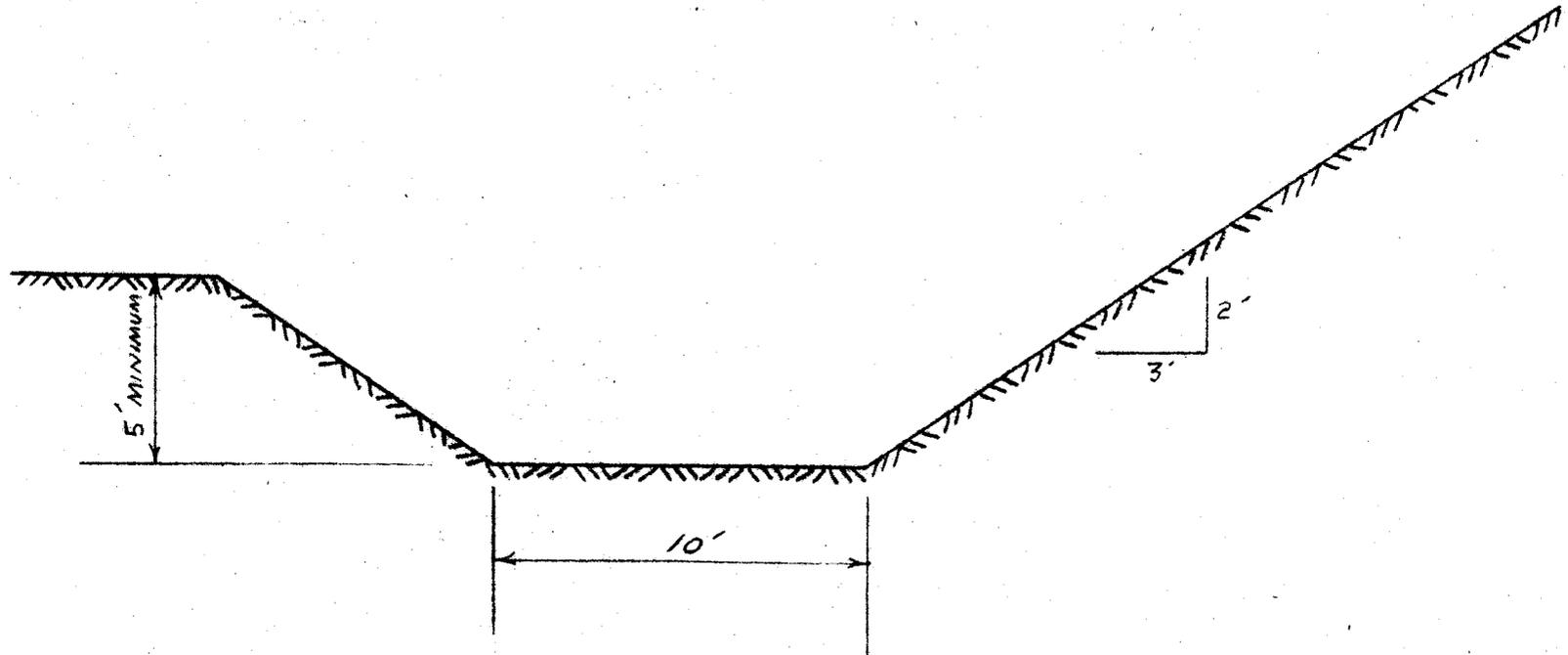
A handwritten signature in cursive script that reads 'Robert Eccli' followed by a small flourish.

Robert Eccli,  
Mine Engineer

RE/jl

ATTACHMENT:





UNITED STATES FUEL CO.			
HIAWATHA, UTAH			
SCALE	1" = 5'	REVISIONS	BY
DATE	3-17-79		DATE
DR'N	R. E.	CKD	
AP'VD.			
TITLE	TYPICAL PROPOSED CROSS SECTION THROUGH NEW STREAM CHANNEL		NO.

FILE COPY

ERUNING 40-105

UNITED STATES FUEL COMPANY  
ENGINEERING DEPT., HIAWATHA, UTAH

PLACE \_\_\_\_\_

COMPUTATION FOR \_\_\_\_\_

JOB #1 SLURRY IMPOUNDMENT

DATE \_\_\_\_\_

COMPUTED BY \_\_\_\_\_

CHECKED BY \_\_\_\_\_

REVISED \_\_\_\_\_

REF. DRAWING \_\_\_\_\_

$$V = \frac{1.486 R^{0.67} S^{0.5}}{n}$$

$$V = \frac{1.486 (3.13)^{0.67} (.046)^{0.5}}{.025}$$

$$V = 27.38 \text{ FT/SEC}$$

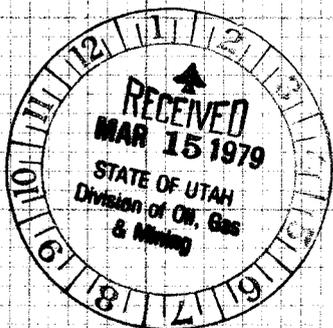
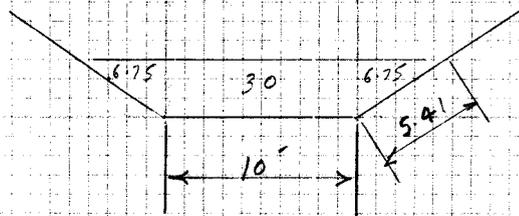
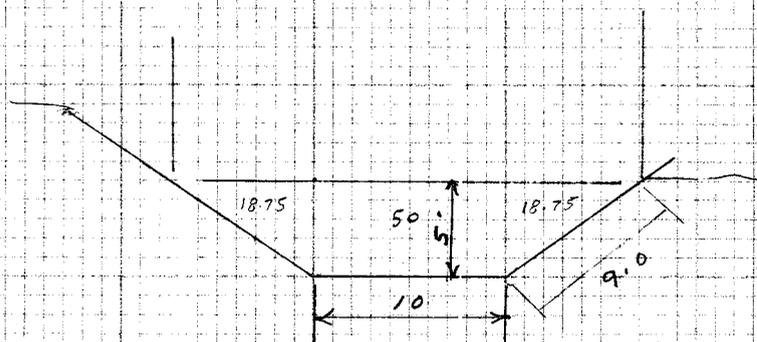
$$Q = VA = 27.38 \times 87.50$$

$$Q = 2,395 \text{ SEC-FT}$$

$$n = .025$$

$$S = .046$$

$$R = \frac{A}{P} = \frac{87.50}{28.0} = 3.13$$



SUBMITTED BY MR. BOB ECCLI-US  
FUEL ON 3/15/79. THIS IS THE  
DESIGN DETAIL FOR THE STREAM  
RELOCATION/DIVERSION. — Con

*File*

March 16, 1979

Memo to Coal File:

Re: U.S. Fuel  
ACT/007/011

On March 15, 1979 Mary Ann Wright and Ron Daniels of the Division met with Bob Eccli, Engineer for U.S. Fuel. This meeting and inspection was held on the U.S. Fuel property at Hiawatha, Utah.

The purpose of this trip was to clarify certain aspects of the slurry waste impoundment #1 which is proposed for use at the Hiawatha coal preparation plant, and also to perform a general inspection of the King 4 and 5 Mines, the coal preparation plant and the Mohrland coal load-out facility.

Mr. Eccli discussed with the Division representatives his latest design standards for the stream realignment planned for Miller Creek adjacent to the #1 slurry impoundment, the impoundment itself and then the proposed area for the stream realignment was inspected. Work was being performed on the dike using dragline and scraper. Compaction was also being done as lifts were added to the dike. The material being used to construct the impoundment dike consisted of coal refuse and waste material, much of which has already been burned. Some smoke appeared from the areas being dug by the dragline, thus it was estimated that some burning of the coal waste is taking place. Generally the outslope of the impoundment structure maintains a 2 horizontal 1 vertical slope in the area toward the middle of the north side of the impoundment. The slope in this area steepens to about 1 horizontal to 1 vertical.

Where the slope is steeper than 2 horizontal to 1 vertical, U.S. Fuel proposes to realign Miller Creek so that the outslope maintains a 2 to 1 slope. Generally, construction of the impoundment appears to be proceeding in accordance with the plans submitted by U.S. Fuel. A sedimentation pond is planned for installation at the mid-point of the north slope of the impoundment dike. This pond will collect surface runoff from the dike and thereby settle out suspended solids.

The stream realignment plans call for this structure to be installed as soon as possible so that the dike outslope can be reduced in slope. Mr. Eccli provided the alignment design criteria to the inspectors. Criteria shows the alignment to be capable of passing 2,395 CFS.

U.S. Fuel was instructed that the stream realignment construction could proceed as long as included in the plans are provisions for rip-rapping the channel bottom and stabilizing the side slopes through establishing vegetation on them. The new stream alignment will be designed to follow the same vertical gradient as the original stream bed. In addition, U.S. Fuel was instructed to engage in topsoil conservation techniques in two areas where new construction will take place, the sedimentation pond area and along the stream realignment channel. Topsoil would be stockpiled in a specific area and specified for future use in reclamation procedures. In addition, excess overburden would be stockpiled in a segregated stockpile from the surface soil pile.

Memo to Coal File  
U.S. Fuel  
March 16, 1979  
Page Two

Approval to construct the stream realignment was given to Mr. Eccli providing the previously mentioned conditions were met. (topsoil conservation and stream channel stabilization)

Questions were raised by U.S. Fuel on whether slurry waste could be deposited into the pond in its present condition. Mr. Eccli was told that final approval to use the facility was contingent upon several things; 1. Approval of the design of the impoundment by MSHA. 2. Approval of the design of the impoundment by the State Engineer and the Utah Division of Health. 3. Receipt of the final report from the U.S. Fuel's consultants, Rollins, Brown, and Gunnell, that the impoundment is constructed in accordance with the specifications of Rule MC-717.18(b)(3)(i)-(ix), and that the stability is equal to or greater than the minimum safety factor shown in these same sections.

The general inspection was performed of the King #4 & 5 Mines which are actively producing coal. These two mines are located in the middle fork of Miller Creek and are the only producing portals in the U.S. Fuel complex. While sedimentation ponds are planned to be utilized for the control of suspended solids for these two mines, final design criteria has not been received by the Division, nor has any construction work begun. The upper coal load-out yard was inspected, however, no coal is currently being stock piled here. A sedimentation pond is planned to be installed below the upper load-out coal yard.

The South Fork of Miller Creek, in which the old King #3 mine is located, was also inspected. An unused shower facility, shop, and access portal are located in this canyon. Since occasional access and supply storage are done here, a sedimentation pond will also be installed in the South Fork.

Of the Waste slurry ponds presently near Haiwatha Coal Preparation Plant, ponds #2 & 3 are not planned for utilization in the future. These ponds were abandoned prior to 1975 and could possibly be reclaimed using the Abandoned Land Reclamation Fund. Ponds #4 & 5 will be subject to reclamation under the law and naturally pond #1 which, as a new facility, would also be subject to reclamation. Three additional sedimentation ponds are proposed in the area of the preparation plant and slurry ponds.

The question was raised by Mr. Eccli on who has the responsibility for compliance with the performance standards at the Mohrland load-out facility. This facility is under lease from U.S. Fuel to Utah Power and Light who, it is rumored, sub-leases a portion of the load out to Consolidation Coal Company to load out coal from its Emery Deep Mine. Utah Power and Light will be contacted regard to their involvement in the Mohrland load-out facility.

Memo to Coal File  
U.S. Fuel  
March 16, 1979  
Page Two

A field inspection was made of the Mohrland load-out facility. The inspection revealed very poor consideration being given to suspended solids leaving the coal stockpiles, an accumulation of coal fines in the adjacent stream, and, one side of a double culvert blocked by debris. The double culvert carries a stream channel under approximately four acres of surface area.

Coal stockpiling and rail loading is done here. A sign on site indicated that load-out is operated by Western Coal Operators Association and is leased by Utah Power and Light.

Vehicle # EX68804  
296 Miles  
26 Person hours

RONALD W. DANIELS  
COORDINATOR OF MINED  
LAND DEVELOPMENT

/sp

cc: O.S.M., Denver  
U.S. Fuel Company



SCOTT M. MATHESON  
Governor

OIL, GAS, AND MINING BOARD

GORDON E. HARMSTON  
*Executive Director,*  
NATURAL RESOURCES

STATE OF UTAH

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL, GAS, AND MINING

1588 West North Temple

Salt Lake City, Utah 84116

(801) 533-5771

CHARLES R. HENDERSON  
*Chairman*

CLEON B. FEIGHT  
*Director*

JOHN L. BELL  
C. RAY JUVELIN  
THADIS W. BOX  
CONSTANCE K. LUNDBERG  
EDWARD T. BECK  
E. STEELE McINTYRE

M E M O R A N D U M

\* \* \* \* \*

TO: Ron Daniels, Coordinator of Mined Land Development

FROM: Mike Thompson, Engineering Geologist/Hydrologist

DATE: March 6, 1979

SUBJECT: U.S. Fuel Company - Hiawatha Mine - ACT/007/011  
Reconstruction of Slurry Pond No. 1

The Interim Program Regulations, specifically Part 717.18 "Dams constructed of Waste Material" apply to the proposed reconstruction and subsequent coal slurry impoundment use of the number one slurry pond. The aforementioned section of regulations initially applied to dams constructed of or dams impounding waste. However, Judge Flannery's May 3, 1978 District Court decision stated that the section only applies to dams constructed partially or wholly of waste. "Waste" is defined in Section 710.15 to mean "earth materials, which are combustible, physically unstable, or acid forming or toxic forming, wasted or otherwise separated from product coal and are slurried or otherwise transported from coal processing facilities or preparation after physical or chemical processing, cleaning or concentrating coal".

Mr. Walter Heine's letter of June 16, 1978 to Mr. Cleon Feight stated in reference to these structures, "It is worth remembering, however, that the Act's requirements with respect to imminent harms are applicable to any structure used in surface coal mining and reclamation operations, and that these standards may be used with respect to any dam be it constructed of waste material or merely impounding wastes." He also stated, If the resulting impoundment constitutes a settling pond, the comments at I.b. and II.a. (pre-existing sediment ponds and other structures and new sediment structures or facilities, respectively, must meet effluent limitations and must not create "an imminent danger to health or safety of the public" or "a significant imminent environmental harm to land, air or water resources") apply to the impoundment. The possibility of structure failure would constitute imminent harm of danger.

The following is a section-by-section review of Section 717.18 as applied to U.S. Fuel's proposed slurry pond project:

Applicability - The impounding dam is constructed of waste; therefore, this section applies.

717.18(a) - Waste cannot be used in or impounded by existing or new dams without the Division's approval. Dams constructed partially or wholly of waste must be designed, located, constructed, operated, maintained, modified, and abandoned in accordance with this section. U.S. Fuel has properly filed application prior to reconstruction.

(b) - Waste cannot be used in construction of dams unless demonstrated through appropriate engineering analysis, to have no adverse effect of stability. U.S. Fuels contracted Rollins, Brown, and Gunnell, Inc. to perform the appropriate engineering and soils analysis for the reconstruction project. The "Preliminary Design Report" has been completed and the final report will soon be available. The "Preliminary Design Report" states, "As indicated above, the existing embankment materials are relatively permeable in their in-situ condition. Since the results of the shear tests indicate that these materials have relatively good shear strength characteristics, it is our opinion that the coarse refuse material will be entirely satisfactory for use in the reconstructed embankment."

(2) Plans must be approved by the Division before construction, and shall contain the minimum plan requirements established by MESA (now MSHA). I submit that MSHA should determine if the plans meet their requirements. The Division's approval should be contingent upon the plan's approval by MSHA.

(3)(i) Design must be based on the flood from the probable maximum precipitation event unless the permittee shows that the failure of the impounding structure would not cause loss of life or severely damage property or the environment. The design, in any case, must be based on at least the 100-year frequency.

The Town of Hiawatha is situated directly south of Slurry Pond No. 1. However, present drainage through the area is toward the north. The south end of Hiawatha has an elevation of approximately 7250 and the elevation of the north end of Hiawatha is approximately 7200. The south end of the slurry pond also is at the approximate elevation of 7200 feet, and the present elevation of the north and east crest of the dam is approximately 7170. According to the Rollins, Brown and Gunnell report, the final reconstructed crest elevation will be 7165 and the high water elevation will be 7162. Therefore, it is appropriate to assume that possible failure of the dam would neither pose a threat to the Town of Hiawatha, nor cause an imminent danger to health or safety to the public. It must be noted, however, that the State Engineer's Office through Mr. Morgan's letter of February 26, 1979 expressed concern that possible failure might involve the railroad or the highway. Opinions concerning design specifications relating to loss of life or property have been solicited from their office.

Possible failure of the structure could affect Miller Creek. However, reconstruction and use of the existing pond should not increase the possible threat to the creek. The Division of State Health has been consulted concerning their opinion of required design specifications as they relate to environmental harm to land, air, or water resources.

In my opinion, design based upon the 100-year recurrence interval is adequate for the structure.

(ii) There must be at least 3 feet of freeboard. According to Rollins, Brown and Gunnell the design high water elevation is 7162 and the design crest elevation is 7165, thus creating 3 feet of freeboard.

(iii) Dams must have minimum safety factor as listed below;

<u>Case</u>	<u>Loading Condition</u>	<u>Minimum Safety Factor</u>
I.....	End of construction.....	1.3
II.....	Partial pool with steady seepage saturation.....	1.5
III....	Steady seepage from spillway or decant crest.....	1.5
IV.....	Earthquake (cases II and III with seismic loading).....	1.0

Rollins, Brown and Gunnell's preliminary report states, "A stability analysis was performed for an upstream slope having side slopes of 2 horizontal to 1 vertical and assuming the pond was empty. The results of this analysis indicates a factor of safety of 1.5 for the upstream slope". The assumption of an empty pond was defended by pointing out that "the permeability characteristics of the coarse refuse (used as fill in the embankment) is such that no hydrostatic pressures will exist within the refuse embankment at any time during the life of the structure". The final report should address the case involving seismic loading.

(iv) The dam, foundation and abutments must be stable under all conditions of construction and operation. Rollins, Brown and Gunnell's report states, "The subsurface material beneath the reconstructed embankment consists of a layer of silt to silty sand underlain by a medium dense sandy gravel". The report also states, "The silty sand to sandy silt is relatively impermeable and has low to medium strength characteristics. The strength characteristics of the sand and gravel underlying the silty sands and sandy silts is in a medium dense state and has moderately high shear strength characteristics". Considering the gentle slope of the foundation material and its characteristics, foundation stability can be assumed.

(v) This part of the regulations states, "Seepage through the dam, foundation, and abutments shall be controlled to prevent excessive uplift pressures, internal erosion, sloughing, removal of material by solution, or erosion of material by loss into cracks, joints, and cavities. This may require the use of impervious blankets, pervious drainage zones or blankets, toe drains, relief wells, or dental concreting of jointed rock surface in contact with embankment materials." According to Rollins, Brown and Gunnell the dam embankment material has a permeability rate capable of draining the water from the slurry material. Therefore, no hydrostatic pressure will exist within the embankment at any time during the life of the structure. They estimate the static groundwater level would exist at the base of the embankment and the foundation material would be saturated. The static safety factor of 1.5 is achieved by the draining of the water. It is uncertain, in my opinion, if the desired safety factor could be achieved if seepage was controlled. It is doubtful that infiltration and percolation of the water through the embankment would cause the loss of material contained within the pond. Sediment control measures and water quality monitoring are included within the plan.

(vi) Allowances for settlement of the dam and foundation must be made so that minimum freeboard is maintained.

(vii) This part of the regulations states, "Impoundments created by dams of waste materials shall be subject to a minimum drawdown criteria that allows the facility to be evacuated by spillways or decants of 90 percent of the volume of water stored during the design precipitation event within 10 days." No mechanical decant system such as a spillway or pipe is planned for the structure. Free standing water from the slurry discharge and precipitation should drain through the structure within the maximum period of 10 days. For example, measured permeability of Test Hole No. 1 at the depth of 4 to 5 feet is 25,418 feet/year (34.8 inches/hour).

(viii) This section requires periodic inspections and certification.

(ix) This section requires an identification sign.

(4) This section requires routine inspection as required by 30 CFR 77.216-3.

(5) This section requires routine maintainance.

(6) This section requires annual recertification.

(7) This section requires prior approval for future modifications.

(8) This section requires reclamation of the dams unless compatable with an approved post-mining land use.

Recommendations

1. Make the Division approval contingent upon MSHA approval.
2. Obtain opinions from State Engineer and the Division of State Health on design criteria (100-year or PMP) relative to loss of life or property and environmental harm to land, air or water resources, respectively.
3. Hold Division approval until Rollins, Brown and Gunnell issue the final report.
4. Review plans for sediment control and check flood stage level of Miller Creek resulting from the 100 year storm.
5. Have biologist review reclamation plan prior to approval.
6. Allow reconstruction to begin, but do not allow slurry to be disposed of in the structure until plans are finalized and approval is issued.
7. Approve the plan if State Engineer and State Health concur with 100-year flood design, final geotechnical report shows proper safety factors, erosion control structures and monitoring meet design criteria, and the design is properly certified.

/sp

cc: Murray Smith,  
O.S.M., Denver

File

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

Date MARCH 23, 1979

STATE OF UTAH DEPT. OF NATURAL RESOURCES

DIVISION OF OIL, GAS AND MINING

1588 WEST NORTH TEMPLE

SALT LAKE CITY, UTAH 84116

Attention: RON DANIELS

Subject: RECONSTRUCTION OF NO. 1

Gentlemen:

SLURRY IMPOUNDMENT

We attach for your attention the following:

RON,

ATTACHED IS A COPY OF MSHA'S RESPONSE TO OUR PRELIMINARY STABILITY REPORT. ADDITIONAL ITEMS REQUESTED IN THEIR MEMORANDUM WILL BE SUBMITTED TO THEM ALONG WITH THE FINAL STABILITY REPORT.

PLEASE NOTE THAT THEY HAVE GRANTED APPROVAL TO BEGIN DISCHARGING SLURRY INTO THE POND UPON COMPLETION OF THE STAGE ONE BUTTRESS. THE STAGE ONE BUTTRESS HAS BEEN COMPLETED. YOUR APPROVAL TO DISCHARGE SLURRY IS REQUESTED.

Very truly yours,

U. S. FUEL COMPANY

By Bof Ecker



U.S. DEPARTMENT OF LABOR  
MINE SAFETY AND HEALTH ADMINISTRATION

Mailing Address: P.O. Box 25367, DFC  
Denver, Colorado 80225

Street Address: 730 Simms  
Lakewood, Colorado

Coal Mine Safety & Health  
District 9



March 21, 1979

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

RE: Slurry Pond #1  
I.D. #1211-UT-9-0001  
King Mine  
I.D. No. 42-00098  
Plans for Pond

Dear Mr. Eccli:

The review of the plans that were sent to this office for reconstruction of the pond in question has been completed. After reviewing the plans, there were a number of inadequacies found.

These plans were separated into two parts. Stage One consisted of placing a buttress on the upstream slope of the existing embankment. Stage Two was to flatten the downstream slope and build up on the upstream slope.

Before an approval can be given, the items in the enclosed memorandum must be submitted.

In view of your problem of limited space to pump your slurry, Stage One has been given a tentative approval. This will allow you to build the Stage One buttress according to the plans submitted and pump the slurry behind the buttress. However, no slurry may be pumped into this pond until the Stage One buttress is completed.

Please submit the requested information as soon as possible.

Sincerely yours,

  
Harold E. Dotan  
Supervisory Mining Engineer

Enclosure

U.S. DEPARTMENT OF LABOR  
MINE SAFETY AND HEALTH ADMINISTRATION  
Mailing Address: P.O. Box 25367, DFC  
Denver, Colorado 80225

Street Address:  
730 Simms  
Lakewood, Colorado



DENVER TECHNICAL SUPPORT CENTER  
Mine Waste Branch

MAR 7 1979

Report No. D1872-W1150  
File: HLS-5

MEMORANDUM FOR: JOHN W. BARTON  
District Manager, District 9  
Coal Mine Safety and Health

THROUGH: ROBERT I. FUJIMOTO *RF*  
Chief, Mine Waste Branch

FROM: *Kenneth E. Cudworth*  
KENNETH E. CUDWORTH  
Civil Engineer, Mine Waste Branch

SUBJECT: Plan Review for Slurry Impoundment No. 1,  
I.D. No. 1211-UT9-0001, King Mine, I.D. No.  
42-00098, Hiawatha, Carbon County, Utah,  
United States Fuel Corporation



A review of the plan for the subject site, submitted with your memorandum dated February 21, 1979 and received in this office February 23, 1979, has been completed. The plan requires more information before approval can be considered.

The following information was submitted with your February 21 memorandum:

1. Preliminary Design Report, dated February 1979, assembled by Rollins, Brown, and Gunnell, Inc.
2. Three design drawings enclosed with the report which consisted of a plan view of the subject facility for phase I and phase II, area-capacity curves, borrow area, and four cross sections at various locations along the embankment.
3. Construction specifications which included excavation and fill aspects of the design.

This plan is preliminary only and therefore only a cursory type review and conceptual approval is possible at this time.

The concept of the plan appears satisfactory and the mine company is encouraged to pursue this design plan.

A cursory review was performed on the material submitted and the following are comments regarding this review which should be seriously considered while compiling the final report.

#### HYDROLOGY

1. The watershed affecting this facility should be shown in its entirety. This should include the watershed contributing flow directly into the pond and also the watershed of the stream which passes along the toe of the embankment.
2. Flow values from the respective watersheds should be submitted as requested per section 77.216-2 (10 and 11), Title 30, CFR.
3. The runoff flow patterns from the respective watershed should be explicitly shown in and around the facility.

#### HYDRAULICS

1. Calculations should be submitted for the determination of the hydraulic properties for all hydraulic facilities directly involved with the stability of the embankment. This will include major water bearing channels in and around the facility.
2. The maximum design water surface and the maximum design normal water surface requires clarification.
3. Plans to bypass or discharge the design flood flows need to be submitted. Evacuating normal slurry effluent should also be explained. It should be noted that 90 per cent of the impounded water resulting from the design storm, must be evacuated within 10 days from the initiation of the storm.

#### GEOTECHNICAL CONSIDERATIONS

Comments regarding the determination of the embankment's material parameters will not be discussed further since this area has been sufficiently addressed in a previous report.

## STABILITY ANALYSIS

1. The location of the phreatic surface assumed for the design problem must be presented. It is suggested that, at a minimum, the assumed design phreatic surface is a straight line extended from the maximum design water surface to the toe of the embankment. A more conservative approach could be considered; however, for this particular design problem, the straight line approach should be sufficient.
2. Because of the questionable foundation material, a flow net should be constructed and submitted with the final design.

## DRAWING DISCREPANCIES

1. A note presented on "figure No. 13" of the preliminary design report, states, "Existing embankment assumed to consist of a combination of coarse coal refuse and slurry material." This assumption will not be satisfactory for design purposes. Parameters used for the stability analysis must be derived from sound engineering judgement based on data resulting from dependable test information.
2. With reference to the same drawing as noted in comment 1, the drawing's scale has been omitted. All drawings in the final report must be accompanied by well defined scales.
3. The table, on figure 13, presenting soil parameters, is adequate except for the cohesion values. These values should be zero as discussed in an earlier report.

## GENERAL COMMENTS

1. Major items or structures immediately downstream from the subject facility should be documented and presented in the final report.
2. Instrumentation to measure the phreatic surface through the embankment should be permanently installed at several locations along the centerline or axis of the embankment.
3. Embankment erosion protection should be considered for both upstream and downstream slopes.
4. A spillway, whether it be a closed conduit or an open channel, should be seriously considered for the subject facility.
5. Because of the presumably small watershed which might affect the subject impoundment, it is suggested that the PMP storm be considered as the design storm, thus eliminating problems associated with the OPP as the design storm.

If you should have any questions concerning this report, please feel free to contact me for further information.

cc: Administrator, CMS&H  
S. A. Stanin  
J. Mulhern  
K. K. Wu  
D. Hutchinson

ROLLINS, BROWN AND GUNNELL, INC.  
PROFESSIONAL ENGINEERS

1435 WEST 820 NORTH, P.O. BOX 711, PROVO, UTAH 84601 TELEPHONE 374-5771



FILE COPY  
Act 1007/p11  
Copy to Bob Morgan -  
Dir of Water Rights  
& Steve Mitchell - Dir  
of Env. Health.  
+ O.S.M.  
Denise

RECEIVED  
MAR 23 1979  
DIVISION OF  
GAS. & MINING

March 21, 1979

Mr. Ron Daniels  
State of Utah  
Oil, Gas and Mining Division  
1588 West North Temple  
Salt Lake City, UT 84116

Dear Mr. Daniels:

In accordance with our conversation of several weeks ago, we are submitting to you a copy of a letter transmitted to the Mine Safety and Health Administration in regard to our stability analysis performed for the Reconstruction of Slurry Impoundment No. 1 at the U. S. Fuel Facilities in Hiawatha, Utah.

It should be noted that the assumptions used and engineering rational supporting those assumptions for the location of the phreatic surface within the reconstructed embankment are presented in that letter.

In our telephone conversation you indicated that you required an evaluation of the stability for the Reconstructed Slurry Impoundment No. 1 for the 4 cases and loading conditions cited in Section 816.93 of the Federal Register, Volume 43, No. 181, Monday, September 18, 1978. Inasmuch as we do not have access to your regulations, but you indicated in our conversation that they are the same as the above cited source, the following minimum safety factor requirements have been used.

<u>Case</u>	<u>Loading Condition</u>	<u>Minimum Safety Factor</u>
I	End of Construction	1.3
II	Partial Pool with Steady Seepage Saturation	1.5
III	Steady Seepage from Spillway or Decant Crest	1.5
IV	Earthquake (Case II and III with Seismic Loading.)	1.0

A computerized stability analysis using Spencer's Method has been performed for both the upstream and downstream slopes using shearing strength parameters and permeability data obtained during the subsurface investigation and subsequent laboratory testing. A detailed presentation of the shear strength data and stability procedures will be given in the final design report which will be transmitted to Mr. Bob Eccli of U. S. Fuel Company in the near future.



Mr. Ron Daniels  
Page 2  
March 21, 1979

The results of the computerized stability analysis for cases I, II and III indicated that the minimum factors of safety for the upstream and downstream slopes are greater than the required minimum safety factors tabulated on Page I.

A detailed stability analysis has not been performed for case IV, which considers seismic loading. However, it is generally recognized that failure of earth dams does not occur unless the foundation materials are susceptible to liquefaction. Due to the elastic properties of an earth embankment, deformation of the embankment rather than slope stability failure occurs during seismic activity. The foundation materials at Slurry Impoundment No. I are not readily susceptible to liquefaction and, therefore, it is our opinion that the embankment will remain stable during seismic loading.

Therefore, it is our opinion that the Reconstructed Slurry Impoundment No. I will function satisfactorily with regard to slope stability.

If you have any questions, please contact us.

Yours truly,

ROLLINS, BROWN AND GUNNELL, INC.



Ralph L. Rollins

dmk  
enclosures  
cc: Bob Eccli

ROLANS, BROWN AND GUNNELL, INC.  
PROFESSIONAL ENGINEERS

1435 WEST 820 NORTH, P.O. BOX 711 PROVO, UTAH 84601 TELEPHONE 374-5771

FILE COPY

MARCH 5, 1979



MINE SAFETY AND HEALTH ADMINISTRATION  
P.O. Box 25367, DFC  
DENVER, CO 80225

ATTENTION: LARRY WILSON

GENTLEMEN:

ON FEBRUARY 5, 1979, WE SUBMITTED A PRELIMINARY DESIGN REPORT ON THE RECONSTRUCTION OF THE SLURRY IMPOUNDMENT No. 1 FOR THE U. S. FUEL FACILITIES AT HIAWATHA, UTAH. THIS REPORT WAS DIRECTED TO THE ATTENTION OF BOB ECCLI, ENGINEER FOR U. S. FUEL, AND WE PRESUME THAT YOUR ORGANIZATION HAS A COPY OF THAT REPORT.

IT IS OUR UNDERSTANDING THAT YOU DESIRE THE FOLLOWING INFORMATION:

1. A SIGNED COPY OF THE PRELIMINARY CONSTRUCTION DRAWINGS FOR THE SLURRY IMPOUNDMENT No. 1 FOR U. S. FUEL AT HIAWATHA, UTAH.
2. INFORMATION CONCERNING THE LOCATION OF THE PHREATIC SURFACE IN THE PROPOSED EMBANKMENT.
3. RESULTS OF QUALITY CONTROL TESTS PERFORMED TO DATE IN PHASE I OF THE RECONSTRUCTED IMPOUNDMENT.

THREE SIGNED COPIES OF THE CONSTRUCTION DRAWINGS FOR THE SLURRY IMPOUNDMENT ARE ATTACHED HERETO.

AS INDICATED IN OUR PREVIOUS REPORT, IT IS OUR OPINION THAT NO APPRECIABLE PHREATIC SURFACE WILL EXIST IN THE EMBANKMENT THROUGHOUT THE LIFE OF THIS FACILITY. YOUR ATTENTION IS DIRECTED TO TABLE No. 2 OF THE PRELIMINARY DESIGN REPORT WHERE A TABULATION OF THE MEASURED PERMEABILITIES IN THE EMBANKMENT IS SHOWN.

THE RESULTS OF TWO ADDITIONAL TEST HOLES DRILLED THROUGHOUT THE EXISTING EMBANKMENT INDICATE SIMILAR PERMEABILITY CHARACTERISTICS THROUGH THE EMBANKMENT MATERIAL.



MARCH 5, 1979

WE HAVE BEEN INFORMED BY U. S. FUEL THAT THE MAXIMUM AVERAGE INFLOW FOR A 24-HOUR PERIOD INTO THE IMPOUNDMENT BASIN WOULD BE 0.91 CUBIC FEET PER SECOND. IF THE PERMEABILITY OF THE EMBANKMENT MATERIAL IMMEDIATELY ABOVE THE SILTY SAND IS ASSUMED TO BE 10,000 FEET PER YEAR, OUR CALCULATIONS INDICATE THAT THE MAXIMUM HEIGHT OF WATER IN THE IMPOUNDMENT WOULD NOT EXCEED BETWEEN 5 AND 10 FEET DUE TO AN INFLOW OF 0.91 CFS. IN MAKING THIS CALCULATION, NO CONSIDERATION HAS BEEN GIVEN TO ANY VERTICAL SEEPAGE FROM THE RESERVOIR BASIN.

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MINE SAFETY AND HEALTH ADMINISTRATION

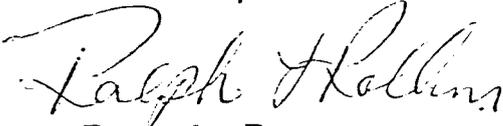
PAGE 3

MARCH 5, 1979

IN THE MEANTIME, IF THERE IS ANY ADDITIONAL INFORMATION WHICH YOU DESIRE FROM OUR ORGANIZATION, WE WOULD BE PLEASED TO SUPPLY YOU WITH IT.

YOURS TRULY,

ROLLINS, BROWN AND GUNNELL, INC.

A handwritten signature in cursive script that reads "Ralph L. Rollins". The signature is written in dark ink and is positioned above the printed name.

RALPH L. ROLLINS

DMK

ATTACHMENTS:

CC: BOB ECCLI

FIGURE \_\_\_\_\_ SOIL MOISTURE DENSITY RELATIONSHIP  
ASTM D 1557-70  
MAXIMUM DENSITY 95.9 LBS. PER CU.FT.  
OPTIMUM MOISTURE 17.5 %  
PROJECT: U. S. FUEL  
LOCATION: \_\_\_\_\_

DRY UNIT WEIGHT IN LBS. PER CU. FT.

96  
95  
94  
93  
92  
91

15 16 17 18 19 20

MOISTURE IN PERCENT

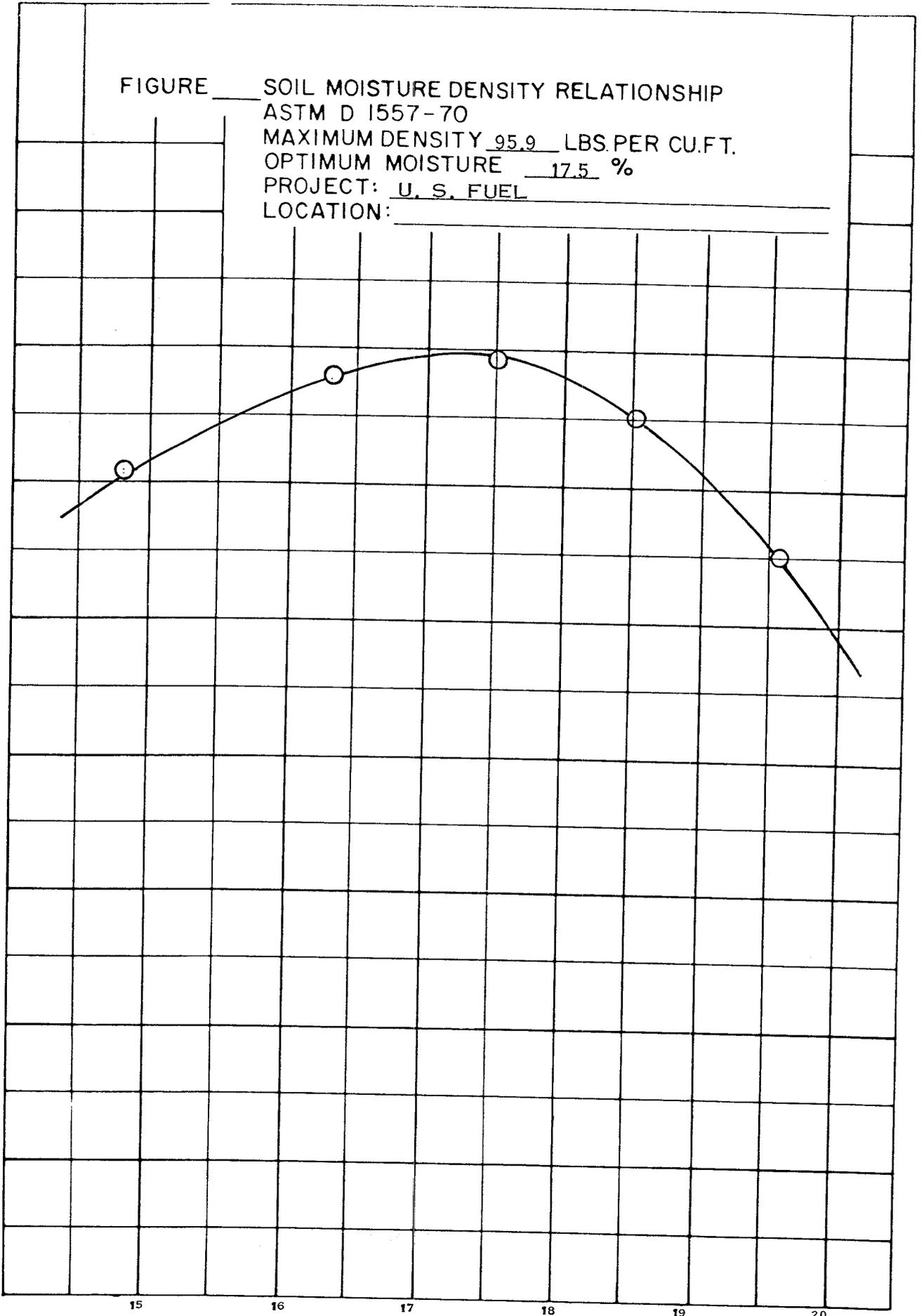


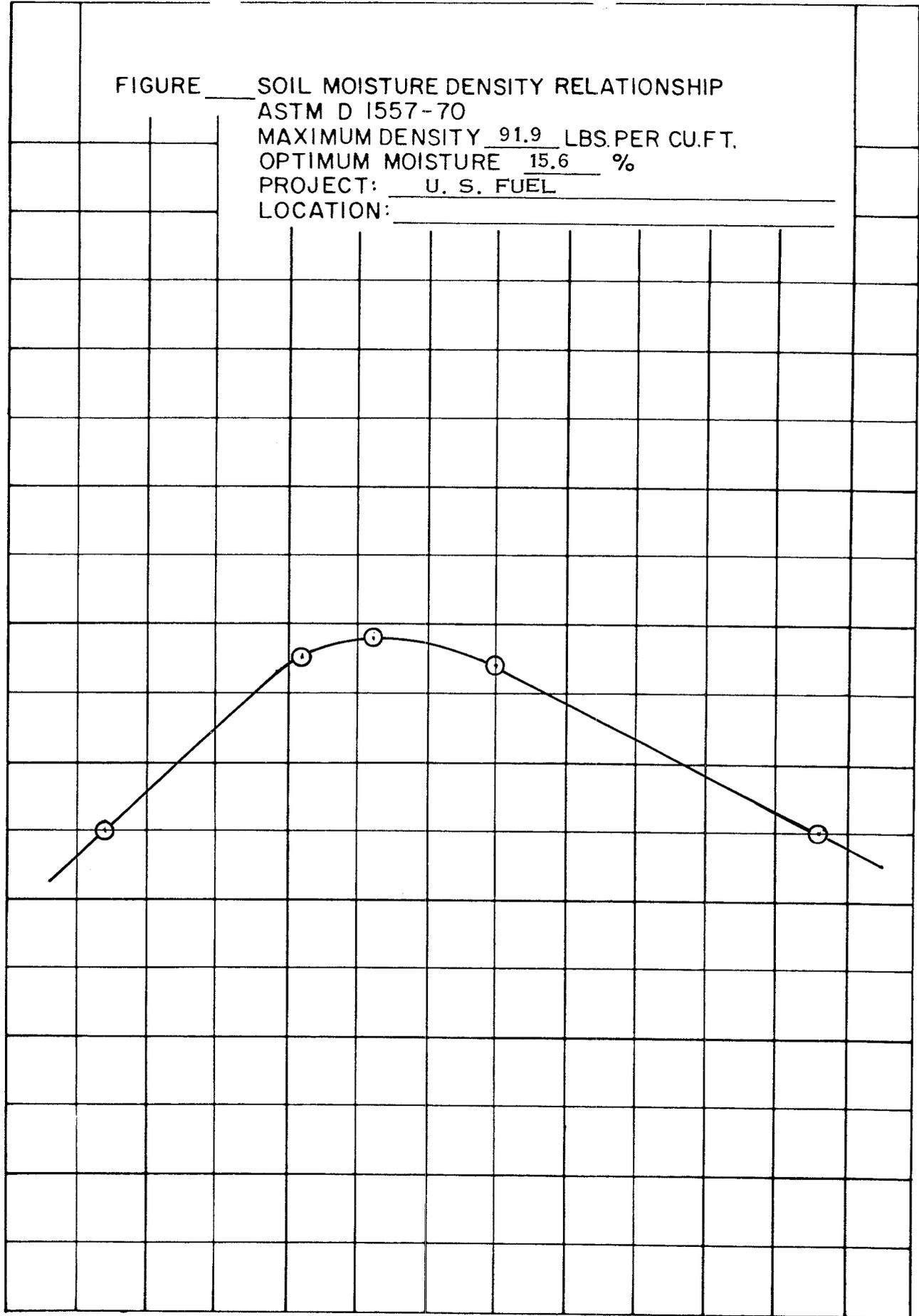
FIGURE \_\_\_\_\_ SOIL MOISTURE DENSITY RELATIONSHIP  
ASTM D 1557-70  
MAXIMUM DENSITY 91.9 LBS. PER CU.FT.  
OPTIMUM MOISTURE 15.6 %  
PROJECT: U. S. FUEL  
LOCATION: \_\_\_\_\_

DRY UNIT WEIGHT IN LBS. PER CU. FT.

93  
92  
91  
90  
89

13 14 15 16 17 18 19

MOISTURE IN PERCENT



## CONTROL OF COMPACTED FILL

Job No. U. S. FUEL SLURRY IMPOUNDMENT NO. 1 RECONSTRUCTION

Job Engineer ROLLINS, BROWN AND GUNNELL, INC.

No.	Date	Elevation.	Moisture Content Percent	Density In-Place LB/CU. FT.	Compaction Curve For Control LB/CU. FT.	Percent of Maximum Density	Location	Remarks
7-1	2-7-79	1' of fill	10.7	92.0	95.9	95.9	3+00	Slurry material
2		1' of fill	14.3	96.5	95.9	100.6	3+50	removed and existing
3		1' of fill	10.2	92.6	95.9	96.6	2+50	material scarified
4		2' of fill	10.1	92.0	95.9	95.9	4+50	before any fill placed
5		2' of fill	10.2	91.4	95.9	95.3	1+50	Material is being compacted with 6 passes
8-1	2-8-79	3' of fill	10.9	90.2	95.9	94.1	5+00	minimum with a 10-ton
2		3' of fill	10.6	90.7	95.9	94.6	4+50	vibrator.
3		4' of fill	10.0	91.4	95.9	95.3	4+00	
4		4' of fill	11.4	89.6	95.9	93.4	3+50	
5		4' of fill	10.6	90.8	95.9	94.7	2+00	
9-1	2-9-79	6' of fill	13.0	92.0	95.9	95.9	4+50	
2		6' of fill	17.7	90.4	95.9	94.3	3+50	
3		7' of fill	14.0	89.0	91.9	96.8	2+50	
4		7' of fill	14.7	88.4	91.9	96.2	1+50	
5		8' of fill	12.5	90.4	95.9	94.3	1+00	
6		8' of fill	12.0	90.7	91.9	98.7	2+00	
7		9' of fill	14.7	88.3	91.9	96.1	3+00	
8		6" of fill	14.2	89.0	91.9	96.8	2+50	

### CONTROL OF COMPACTED FILL

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Job Engineer ROLLINS, BROWN AND GUNNELL, INC.

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12-1	2-12-79	9' of fill	14.3	87.2	91.9	94.9	5+25	
2		10' of fill	11.7	90.1	91.9	98.0	4+00	
3		10' of fill	10.7	91.5	95.9	95.4	2+75	
4		4' of fill	11.4	90.1	91.9	98.0	7+00	
5		11' of fill	10.9	90.7	95.9	94.6	3+00	
6		11' of fill	9.9	91.4	95.9	95.3	1+00	
13-1	2-13-79	5' of fill	10.5	91.7	95.9	95.6	7+00	
2		5' of fill	10.8	90.5	95.9	94.4	9+00	
3		4' of fill	11.2	91.1	95.9	95.0	10+00	
4		15' of fill	10.5	91.8	95.9	95.7	1+00	
5		15' of fill	10.8	90.5	95.9	94.4	2+00	
6		15' of fill	9.9	92.3	95.9	96.2	3+00	
7		17' of fill	10.1	92.3	95.9	96.2	4+00	
14-1	2-14-79	6' of fill	9.7	92.5	95.9	96.5	8+00	
2		6' of fill	10.5	90.8	95.9	94.7	9+00	
3		6' of fill	10.1	92.0	95.9	95.9	10+00	
4		5' of fill	10.1	92.4	95.9	96.4	11+00	

### CONTROL OF COMPACTED FILL

Job No. U. S. FUEL SLURRY IMPOUNDMENT NO. 1 RECONSTRUCTION

Job Engineer ROLLINS, BROWN AND GUNNELL, INC.

No.	Date	Elevation.	Moisture Content Percent	Density In-Place LB/CU. FT.	Compaction Curve For Control LB/CU. FT.	Percent of Maximum Density	Location	Remarks
14-5	2-14-79	18' of fill	10.8	90.5	95.9	94.4	2+00	
6		18' of fill	10.6	90.8	95.9	94.7	4+00	
7		20' of fill	10.3	91.8	95.9	95.7	6+00	
8		10' of fill	10.0	91.1	95.9	95.0	8+00	
9		20' of fill	11.0	91.0	95.9	95.1	6+00	
15-1	2-15-79	10' of fill	10.3	91.9	95.9	95.8	9+00	
2		10' of fill	10.0	92.2	95.9	96.1	10+00	
3		9' of fill	10.1	92.0	95.9	95.9	11+00	
4		8' of fill	10.3	90.9	95.9	94.8	12+00	
5		7' of fill	10.5	91.7	95.9	95.6	13+00	
6		21' of fill	10.1	91.1	95.9	95.0	1+00	
7		22' of fill	10.1	91.1	95.9	95.0	2+00	
8		23' of fill	10.2	90.9	95.9	94.8	3+00	
16-1	2-16-79	20' of fill	10.1	92.0	95.9	95.9	5+00	
2		22' of fill	10.0	92.2	95.9	96.1	6+00	
3		17' of fill	9.9	92.3	95.9	96.2	7+00	
4		14' of fill	10.3	92.0	95.9	95.9	8+00	



SCOTT M. MATHESON  
Governor



OIL, GAS, AND MINING BOARD

GORDON E. HARMSTON  
*Executive Director,*  
NATURAL RESOURCES

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS, AND MINING  
1588 West North Temple  
Salt Lake City, Utah 84116  
(801) 533-5771

CHARLES R. HENDERSON  
*Chairman*

CLEON B. FEIGHT  
*Director*

JOHN L. BELL  
C. RAY JUVELIN  
THADIS W. BOX  
CONSTANCE K. LUNDBERG  
EDWARD T. BECK  
E. STEELE McINTYRE

March 8, 1979

Mr. Robert L. Morgan  
Utah State Engineer  
Division of Water Rights  
Department of Natural Resources  
200 Empire Building  
231 East 400 South  
Salt Lake City, Utah 84111

RE: U.S. Fuels  
Reconstruction of Slurry Pond No. 1  
ACT/007/011

Dear Bob:

Enclosed is a copy of Rollin, Brown and Gunnell's "Preliminary Design Report" for the proposed reconstruction of the Number 1 Slurry Pond at Hiawatha, Utah. Your expeditious review and comment will be most appreciated.

The Division would also appreciate your office's opinion of required hydrologic design criteria. I feel that design based on the 100 year event is adequate to provide proper protection of life and property. Your response would be most helpful.

Sincerely,

A handwritten signature in cursive script that reads "K. Michael Thompson".

K. MICHAEL THOMPSON  
ENGINEERING GEOLOGIST

KMT/te

Enclosure: Report



SCOTT M. MATHESON  
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CLEON B. FEIGHT  
*Director*

March 8, 1979

Mr. Steve McNeal  
Division of Health  
Environmental Health Services  
Bureau of Water Pollution Control  
Room 410  
150 West North Temple  
Salt Lake City, Utah 84103

RE: U.S. Fuels  
Reconstruction of Slurry Pond No. 1  
ACT/007/011

Dear Steve:

Enclosed is a copy of Rollin, Brown and Gunnell's "Preliminary Design Report" for the proposed reconstruction of the Number 1 Slurry Pond at Hiawatha, Utah. Your expeditious review and comment will be most appreciated.

The Division would also appreciate your office's opinion of required hydrologic design criteria. I feel that design based on the 100 year event is adequate to provide proper protection of Miller Creek and the environment. Your response would be most helpful.

Sincerely,

K. MICHAEL THOMPSON  
ENGINEERING GEOLOGIST

KMT/te

Enclosure: Report

3/12/79

Copy to:

~~ASM Dennis~~

~~Steve McNeil~~

~~Robert Morgan~~, State Engineers Office

Then to Mike T.

UTAH ACT/007/011

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

Date MARCH 8, 1979

STATE OF UTAH DEPT. OF NATURAL RESOURCES

DIVISION OF OIL, GAS AND MINING

1588 WEST NORTH TEMPLE

SALT LAKE CITY, UTAH 84116

Attention: RON DANIELS



Subject: RECONSTRUCTION OF No. 1 SLURRY

Gentlemen:

POND AT HIAWATHA

We attach for your attention the following:

RON,

PLEASE FIND ENCLOSED, THE FOLLOWING ITEMS RELATING TO RECONSTRUCTION OF No. 1 SLURRY POND.

1- APPROVED STREAM REALIGNMENT PERMIT (APPLICATION NO. 323)

2- ADDITIONAL STABILITY DATA REQUESTED BY MINE SAFETY AND HEALTH ADMINISTRATION.

APPROVAL FROM YOUR AGENCY TO BEGIN STREAM REALIGNMENT WORK AND TO BEGIN DISCHARGING SLURRY INTO No. 1 POND UNDER STAGE I OF PRELIMINARY STABILITY DESIGN PLAN IS REQUESTED.

Very truly yours,

U. S. FUEL COMPANY

By Bob Eecli



## APPLICATION TO ALTER NATURAL STREAM

Note: Information given in the following blanks should be free from explanatory matter, but when necessary, a complete supplementary statement should be made under the heading "Explanatory".

For the purpose of acquiring permission to alter a natural stream channel, application is hereby made to the State Engineer, based on the following facts, submitted in accordance with the requirements of the laws of the State of Utah, Section 73-3-29, Utah Code Annotated 1953, as amended.

1. Relocate  Revetment Work  Change  Divert Stream Flow
  2. Name of applicant U.S. Fuel Company
  3. Address of applicant Box A Piawatha, Utah 84527
  4. The stream to be altered or relocated is Miller Creek
  5. The channel to be altered is in the drainage area of Price River - Colorado River
  6. The location of the channel to be altered is in Carbon County. Located in T15S, R2E, S10E Sec. 27, T15S, R2E, S10E  
(Give location within 40-acre tract of section, township, and range.)
  7. The nature of the proposed channel change is move the existing channel 100 to 200 feet to the north for a length of 500 to 600 feet.
  8. The alteration or relocation is made for the purpose of to provide room to flatten the embankment of the #1 slurry pond (existing slope is 35% and the proposed slope will be 26%)
  9. The existing condition of the channel is Fair
  10. The estimated streamflow is 0.50 to 3.0 cfs second-feet.
  11. The description of the proposed work involved is excavate the new channel and fill in the existing channel and construct the new pond embankment with a much flatter slope
  12. Is the land owned by the applicant? Yes  No  If the answer is "No", has written permission to proceed with the work been obtained?
- Note: The approval of this application does not grant the applicant the right of egress or trespass. Such authorization must be accomplished in accordance with the standard legal procedures.
13. Channel Improvement Grouping (for federal agencies only) \_\_\_\_\_

## Explanatory

The following additional facts are set forth in order to define more clearly the full purpose of the proposed application: U.S. Fuel Company needs the additional storage area for coal preparation slurry discharge. Slurry pond #1 would provide the storage area but new federal regulations require that all embankment slopes be reduced to 28% or less. The present stream location inhibits this reconstruction.

Include below a diagram or sketch of the channel changes proposed.

SEE THE ATTACHED MAP:

Jan. 23 - 1979  
Date

Robert Ecchi  
Applicant's Signature

Recommendations of Area Engineer: The project can be accepted  
with little or no effect to the existing channel and no  
alteration of water level.  
Approved: Mark [unclear]

Conditions

1. This application is rejected for the following reasons: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. This application has been reviewed and approved pursuant only to the requirements of House Bill 79. The approval is subject to: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3-2-79  
Date

Donald C. Norseth  
DONALD C. NORSETH For State Engineer DEE C. HANSEN

B. Cole

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF WATER RIGHTS

DEE C. HANSEN  
STATE ENGINEER

EARL M. STAKER  
DEPUTY

200 EMPIRE BUILDING  
231 EAST 400 SOUTH  
SALT LAKE CITY, UTAH 84111  
(801) 533-6071

DIRECTING ENGINEERS  
HAROLD D. DONALDSON  
DONALD C. NORSETH  
STANLEY GREEN  
ROBERT L. MORGAN

March 2, 1979



U.S. Fuel Company  
Box A  
Hiawatha, UT 84527

Gentlemen:

RE: Application No. 323  
to Alter Natural Stream

Your above numbered application to alter a natural channel has been approved pursuant to the requirements of Statute 73-3-29, Utah Code Annotated 1953 and subject to minimal use of equipment in the channel. A copy of the approved application is herewith returned to you for your records and future reference.

Yours truly,

A handwritten signature in cursive script, appearing to read "Donald C. Norseth".

DONALD C. NORSETH

For DEE C. HANSEN  
State Engineer

if

cc: Mark Page, Area Engineer  
Price Ofc.

David Rowley, Jr., Water Commissioner  
Rt. 1, Box 73  
Helper, UT 84526

Division of Wildlife Resources  
1596 West North Temple  
Salt Lake City, UT 84116

ROLINS, BROWN AND GUNNELL, C.  
PROFESSIONAL ENGINEERS  
1435 WEST 820 NORTH, P.O. BOX 711, PROVO, UTAH 84601 TELEPHONE 374-5771

MARCH 5, 1979

MINE SAFETY AND HEALTH ADMINISTRATION  
P.O. Box 25367, DFC  
DENVER, CO 80225

ATTENTION: LARRY WILSON

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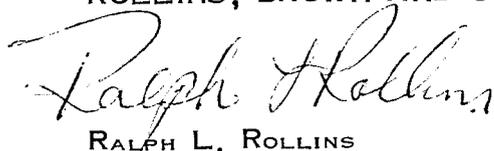
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MARCH 5, 1979

IN THE MEANTIME, IF THERE IS ANY ADDITIONAL INFORMATION WHICH YOU DESIRE FROM OUR ORGANIZATION, WE WOULD BE PLEASED TO SUPPLY YOU WITH IT.

YOURS TRULY,

ROLLINS, BROWN AND GUNNELL, INC.

A handwritten signature in cursive script that reads "Ralph L. Rollins".

RALPH L. ROLLINS

DMK

ATTACHMENTS:

✓ CC: BOB ECCLI

FIGURE \_\_\_\_\_ SOIL MOISTURE DENSITY RELATIONSHIP  
ASTM D 1557-70  
MAXIMUM DENSITY 95.9 LBS. PER CU. FT.  
OPTIMUM MOISTURE 17.5 %  
PROJECT: U. S. FUEL  
LOCATION: \_\_\_\_\_

DRY UNIT WEIGHT IN LBS. PER CU. FT.

96  
95  
94  
93  
92  
91

15 16 17 18 19 20

MOISTURE IN PERCENT

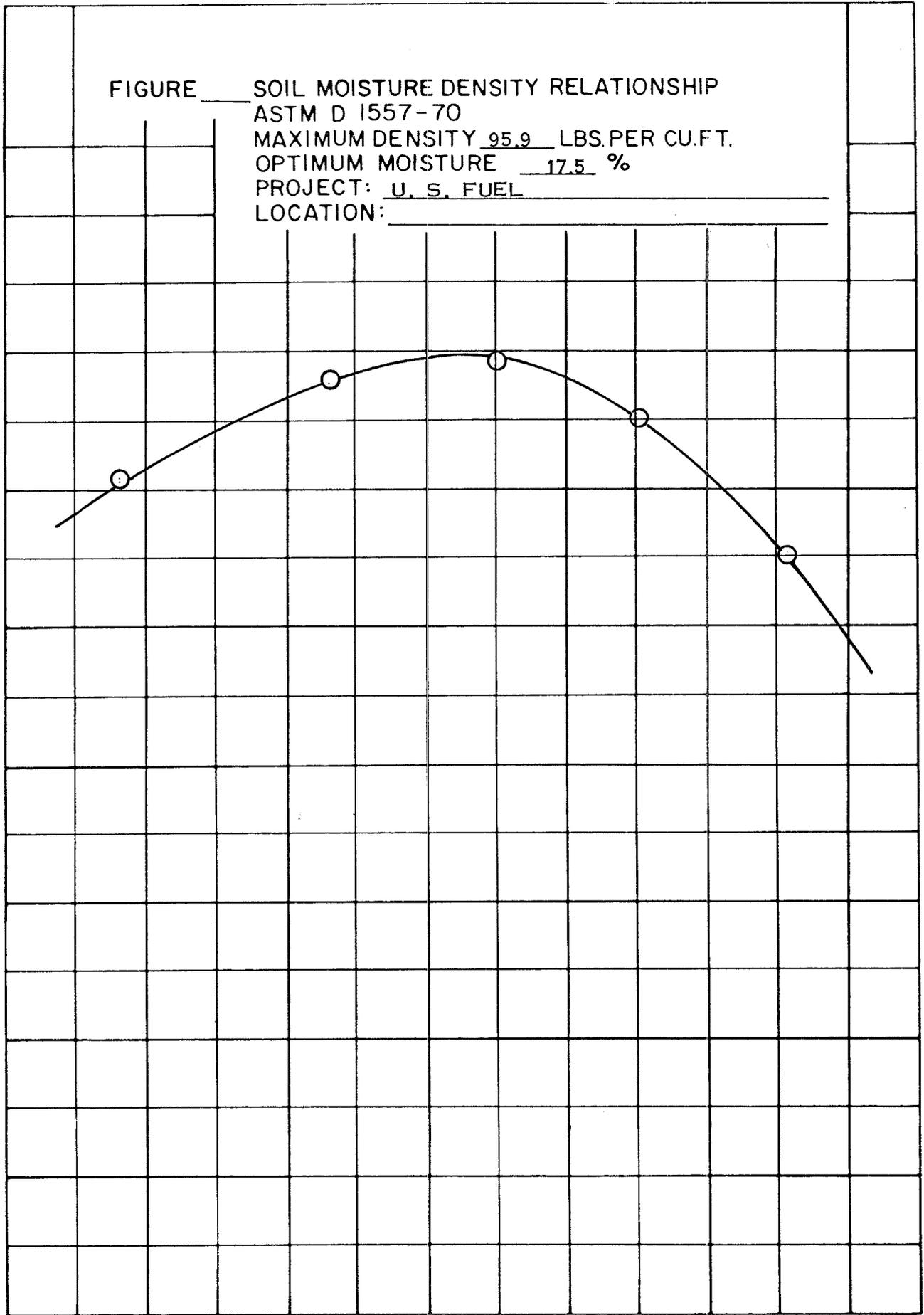


FIGURE \_\_\_\_\_

SOIL MOISTURE DENSITY RELATIONSHIP

ASTM D 1557-70

MAXIMUM DENSITY 91.9 LBS. PER CU. FT.

OPTIMUM MOISTURE 15.6 %

PROJECT: U. S. FUEL

LOCATION: \_\_\_\_\_

DRY UNIT WEIGHT IN LBS. PER CU. FT.

93

92

91

90

89

13

14

15

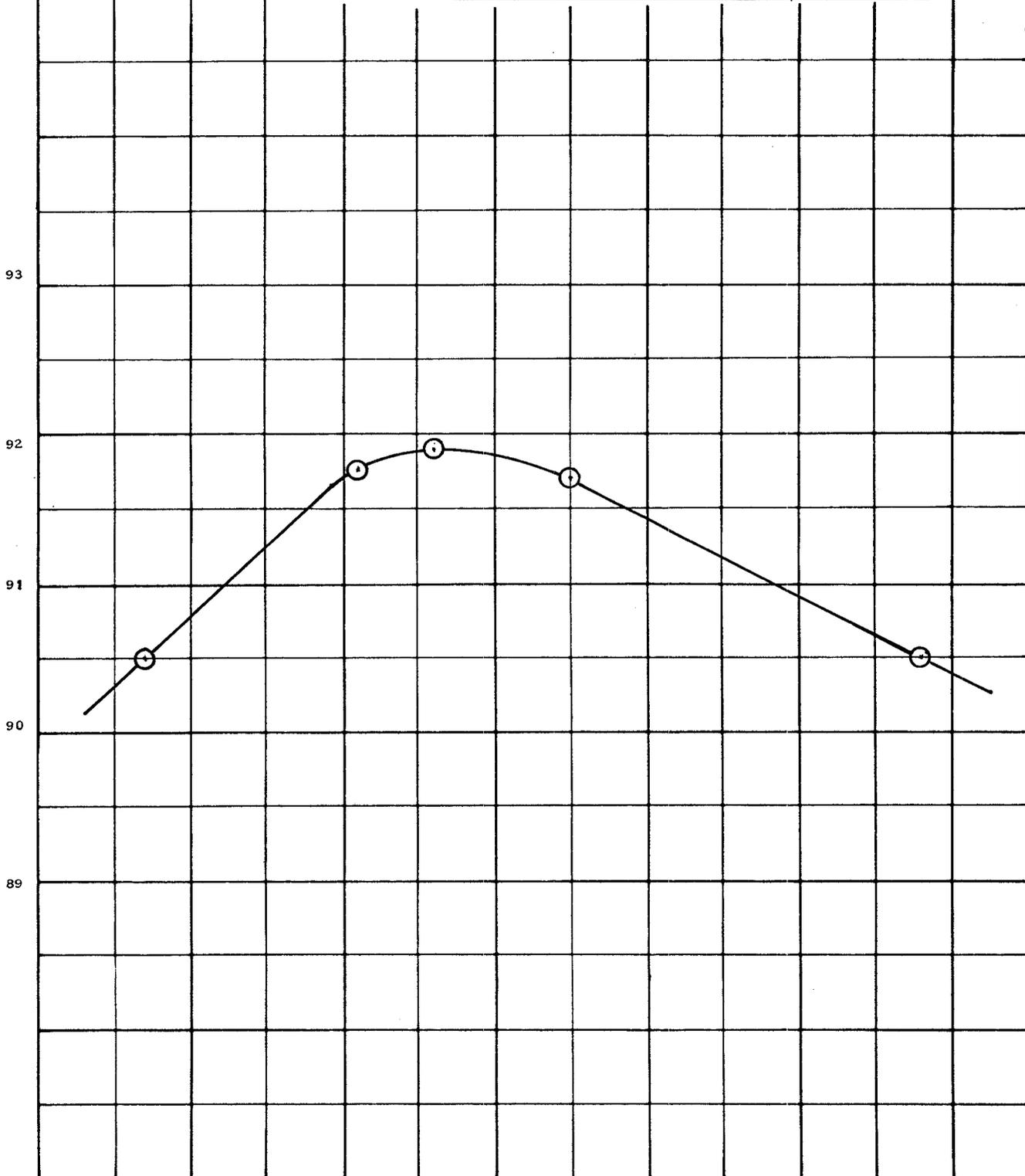
16

17

18

19

MOISTURE IN PERCENT



## CONTROL OF COMPACTED FILL

Job No. U. S. FUEL SLURRY IMPOUNDMENT NO. 1 RECONSTRUCTION

Job Engineer ROLLINS, BROWN AND GUNNELL, INC.

No.	Date	Elevation.	Moisture Content Percent	Density In-Place LB/CU. FT.	Compaction Curve For Control LB/CU. FT.	Percent of Maximum Density	Location	Remarks
7-1	2-7-79	1' of fill	10.7	92.0	95.9	95.9	3+00	Slurry material
2		1' of fill	14.3	96.5	95.9	100.6	3+50	removed and existing
3		1' of fill	10.2	92.6	95.9	96.6	2+50	material scarified
4		2' of fill	10.1	92.0	95.9	95.9	4+50	before any fill placed
5		2' of fill	10.2	91.4	95.9	95.3	1+50	Material is being compacted with 6 passes
8-1	2-8-79	3' of fill	10.9	90.2	95.9	94.1	5+00	minimum with a 10-ton vibrator.
2		3' of fill	10.6	90.7	95.9	94.6	4+50	
3		4' of fill	10.0	91.4	95.9	95.3	4+00	
4		4' of fill	11.4	89.6	95.9	93.4	3+50	
5		4' of fill	10.6	90.8	95.9	94.7	2+00	
9-1	2-9-79	6' of fill	13.0	92.0	95.9	95.9	4+50	
2		6' of fill	17.7	90.4	95.9	94.3	3+50	
3		7' of fill	14.0	89.0	91.9	96.8	2+50	
4		7' of fill	14.7	88.4	91.9	96.2	1+50	
5		8' of fill	12.5	90.4	95.9	94.3	1+00	
6		8' of fill	12.0	90.7	91.9	98.7	2+00	
7		9' of fill	14.7	88.3	91.9	96.1	3+00	
8		6" of fill	14.2	89.0	91.9	96.8	2+50	

### CONTROL OF COMPACTED FILL

Job No. U. S. FUEL SLURRY IMPOUNDMENT NO. 1 RECONSTRUCTION

Job Engineer ROLLINS, BROWN AND GUNNELL, INC.

No.	Date	Elevation.	Moisture Content Percent	Density In-Place LB/CU. FT.	Compaction Curve For Control LB/CU. FT.	Percent of Maximum Density	Location	Remarks
12-1	2-12-79	9' of fill	14.3	87.2	91.9	94.9	5+25	
2		10' of fill	11.7	90.1	91.9	98.0	4+00	
3		10' of fill	10.7	91.5	95.9	95.4	2+75	
4		4' of fill	11.4	90.1	91.9	98.0	7+00	
5		11' of fill	10.9	90.7	95.9	94.6	3+00	
6		11' of fill	9.9	91.4	95.9	95.3	1+00	
13-1	2-13-79	5' of fill	10.5	91.7	95.9	95.6	7+00	
2		5' of fill	10.8	90.5	95.9	94.4	9+00	
3		4' of fill	11.2	91.1	95.9	95.0	10+00	
4		15' of fill	10.5	91.8	95.9	95.7	1+00	
5		15' of fill	10.8	90.5	95.9	94.4	2+00	
6		15' of fill	9.9	92.3	95.9	96.2	3+00	
7		17' of fill	10.1	92.3	95.9	96.2	4+00	
14-1	2-14-79	6' of fill	9.7	92.5	95.9	96.5	8+00	
2		6' of fill	10.5	90.8	95.9	94.7	9+00	
3		6' of fill	10.1	92.0	95.9	95.9	10+00	
4		5' of fill	10.1	92.4	95.9	96.4	11+00	

### CONTROL OF COMPACTED FILL

Job No. U. S. FUEL SLURRY IMPOUNDMENT NO. 1 RECONSTRUCTION

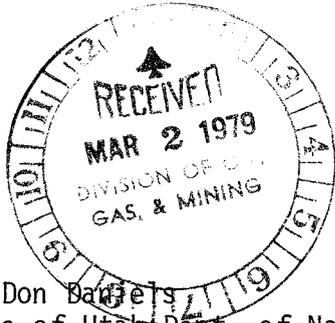
Job Engineer ROLLINS, BROWN AND GUNNELL, INC.

No.	Date	Elevation.	Moisture Content Percent	Density In-Place LB/CU. FT.	Compaction Curve For Control LB/CU. FT.	Percent of Maximum Density	Location	Remarks
14-5	2-14-79	18' of fill	10.8	90.5	95.9	94.4	2+00	
6		18' of fill	10.6	90.8	95.9	94.7	4+00	
7		20' of fill	10.3	91.8	95.9	95.7	6+00	
8		10' of fill	10.0	91.1	95.9	95.0	8+00	
9		20' of fill	11.0	91.0	95.9	95.1	6+00	
15-1	2-15-79	10' of fill	10.3	91.9	95.9	95.8	9+00	
2		10' of fill	10.0	92.2	95.9	96.1	10+00	
3		9' of fill	10.1	92.0	95.9	95.9	11+00	
4		8' of fill	10.3	90.9	95.9	94.8	12+00	
5		7' of fill	10.5	91.7	95.9	95.6	13+00	
6		21' of fill	10.1	91.1	95.9	95.0	1+00	
7		22' of fill	10.1	91.1	95.9	95.0	2+00	
8		23' of fill	10.2	90.9	95.9	94.8	3+00	
16-1	2-16-79	20' of fill	10.1	92.0	95.9	95.9	5+00	
2		22' of fill	10.0	92.2	95.9	96.1	6+00	
3		17' of fill	9.9	92.3	95.9	96.2	7+00	
4		14' of fill	10.3	92.0	95.9	95.9	8+00	



# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527



February 28, 1979

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

RE: Addendum to Plan for Reconstruction  
of No.1 Slurry Impoundment

Dear Mr. Daniels,

In response to your request of Feb. 26, 1979, please find enclosed four copies of our Hydrologic Monitoring Plan. Along with these plans are copies of baseline data and monitoring results for 1978.

In reply to your question concerning disposal of sediment accumulations in sedimentation ponds, we propose the following procedures:

1. Excavate each sedimentation pond when the volume of sediment accumulates to 60 percent of the required sediment storage volume.
2. Dispose of sediment by placing it in existing slurry impoundments.

Yours truly,

Robert Eccli, Mine Engineer

RE/jl

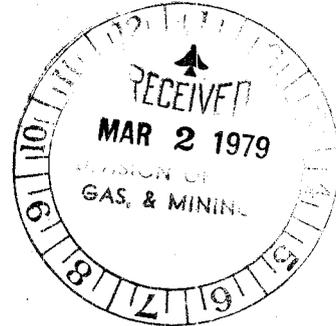
Enclosures:



# UNITED STATES FUEL COMPANY

NINETEENTH FLOOR UNIVERSITY CLUB BUILDING  
136 EAST SOUTH TEMPLE  
SALT LAKE CITY, UTAH 84111

November 29, 1977



Mr. Jackson W. Moffitt  
Area Mining Supervisor  
Conservation Division  
United States Geological Survey  
8426 Federal Building  
125 South State Street  
Salt Lake City, Utah 84138

Re: HYDROLOGIC MONITORING PLAN

Dear Mr. Moffitt:

This plan is submitted as an addendum to the Hydrology Section of our mining plan submitted May 5, 1977. Included with this plan is a map showing the location of major hydrologic features in relation to existing mine workings and property boundaries. Proposed water monitoring points are identified by symbols.

A comprehensive water analysis consisting of items listed in Table 1 will be run on samples from each monitoring point to define their initial character. Additional routine sampling and analysis for items listed in Table 2 will be determined at intervals specified for individual points.

Monitored data will be organized, tabulated and submitted to the Mining Supervisor on an annual basis.

Following is a description of proposed monitoring sites.

## STREAMS

1. Right Fork of North Fork of Miller Creek. This perennial tributary to Miller Creek will be monitored with a V-notch weir or small Cipolletti weir installed just above the junction with Left Fork. This station will be monitored for flow on a bi-monthly basis except during some winter months when access is usually restricted by snow cover. Routine water samples will be collected and analyzed according to Table 2 twice yearly.
2. Left Fork of North Fork of Miller Creek. Two recording stations will be installed on this perennial tributary. One just above the Hiawatha No. 2 mine diversion point and one between the diversion point and the junction with Right Fork. Water samples will be analyzed on a semi-annual basis for the lower station only. Volume measurements will be by V-notch or Cipolletti weirs monitored bi-monthly during accessible months.



3. Middle Fork of Miller Creek. This tributary is intermittent. A recording station consisting of a suitably sized weir will be installed near the confluence with the North Fork of Miller Creek. Flow measurements will be taken bi-monthly. Water samples will be analyzed twice yearly.
4. South Fork of Miller Creek. This tributary is intermittent. A weir will be installed near the confluence with Miller Creek and monitored similarly to Middle Fork.
5. Miller Creek. The main channel of this significant perennial stream will be monitored with a 3 foot Cipolletti weir at a point below the confluence of South Fork. Flow will be measured bi-monthly. Samples will be analyzed semi-annually.
6. Cedar Creek. This is a significant perennial stream. It will be monitored at a point just below the old Mohrland mine portal and above the mine water discharge point. Volume measurements will be by a suitably sized weir measured bi-monthly. Samples will be analyzed semi-annually.
7. Gentry Hollow Creek. A recording station for this perennial stream will be installed just above the junction with Wild Cattle Hollow. Due to the remote location of this point, we propose to make flow measurements and take water samples semi-annually.

#### SPRINGS

The map included with this plan shows the location of ten numbered Springs which we propose to measure and analyze twice yearly. These springs were selected because of their representative location with respect to mine workings and because they each had flow during the fall of this dry year. Flow measurements will be made with V-notch weirs on open springs and by the time-volume method where springs discharge from installed pipes.

#### LAKES AND RESERVOIRS

There are no surface lakes or reservoirs on the mine property. An underground storage reservoir is maintained in the old Hiawatha No. 2 mine as a culinary water supply for the King 4 and King 5 mine facilities. This water is also used as a supplementary supply for Hiawatha. Water diverted into this reservoir will be monitored near a diversion dam on the Left Fork of Miller Creek.

There are no known observation wells on the mine property.

#### MINE WATER DISCHARGE

At the present time, mine water is being discharged at the old Mohrland Portal in Cedar Creek Canyon. Water from this point is partly diverted to Cedar Creek and partly diverted to Miller Creek by way of a pipeline which supplies water for culinary and industrial purposes at Hiawatha. Water from the pipeline regularly overflows at the town water tanks and drains into Miller Creek.

This mine water discharge is covered by E.P.A. Permit No. Ut-0023094 dated October 17, 1977. Monitoring requirements under this permit are listed in Table 3. An additional comprehensive analysis of items listed in Table 1 will be determined for this discharge once a year.

Mr. Jackson W. Moffitt

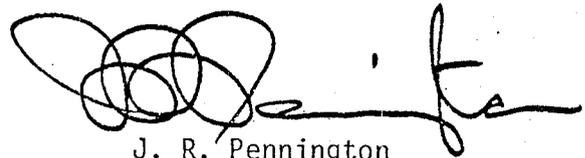
-3-

November 29, 1977

BEAR CANYON FAULT

The Bear Canyon Fault, running northerly through the area and having a displacement in excess of 200 feet, is a major water-bearing structure. Mine workings that intercept the fault zone have all encountered flows of water that make up the major discharge from the Mohrland Portal. Monitoring the Mohrland discharge will closely reflect the character of water intercepted along the fault.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. R. Pennington', with a stylized flourish at the end.

J. R. Pennington  
President

JRP:S

TABLE 1

Initial Comprehensive Analytical Schedule

Flow Rate  
pH  
Air & Water Temperature  
Specific Conductance  
Total Suspended Solids (Surface Water Only)  
Total Dissolved Solids  
Calcium  
Magnesium  
Sodium  
Potassium  
Iron  
Carbonate  
Fluoride  
Bicarbonate  
Chloride  
Sulfate  
Nitrate Plus Nitrite (as N)  
Kjeldahl N  
Dissolved Phosphorus  
Silica  
Trace Elements  
    Arsenic  
    Cadmium  
    Zinc  
    Selenium  
Radioactivity  
    Gross Alpha  
    Gross Beta  
  
Total Organic Carbon

TABLE 2

Routine Sampling Analytical Schedule

Flow Rate  
pH  
Air & Water Temperature  
Specific Conductance  
Total Suspended Solids (Surface Waters Only)  
Total Dissolved Solids  
Iron  
Nitrate (As N)  
Sulfate  
Chloride

TABLE 3

E.P.A. Monitoring Requirements for Mohrland Mine Water Discharge

Effluent Characteristic	Monitoring Frequency
Flow	Monthly
Total Suspended Solids	"
Total Dissolved Solids	"
Total Iron	"
Alkalinity-Acidity	"
pH	"
Oil & Grease	"
BOD <sub>5</sub>	Quarterly
Total Coliforms/100 ML	"
Fecal Coliforms/100 ML	"

ADDENDUM TO HYDROLOGY PLAN

BASELINE DATA & ANNUAL REPORT

FOR

1978

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U.S. FUEL COMPANY

HIAWATHA

UTAH



## 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	Oct. 9
Flow Rate GPM		117	36	26	24		29	18	4	No Flow
PH Units		7.98			7.77		7.87			
Air Temp °F		56	76	31	59		56	68	52	
Water Temp °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 <sub>3</sub> -N Mg/L		0.08			0.02		0.14			
Nitrate No <sub>2</sub> -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 <sup>±</sup> 3.5		3.6					3.8			
Gross Beta Pic/L <sup>±</sup> 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	No	No			700	67	215	30
PH Units			8.0	Flow	Flow	Flow			7.93			7.81
Air Temp °F			56						70	79	37	68
Water Temp °F			41						57	68	41	49
Conductivity umhos/cm			570						680			690
Total Suspended Solids Mg/L			111.0						308			11.0
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			
Chloride Mg/L			12.0						14.0			16.0
Sulfate Mg/L			80.0						146			186.0
Nitrate No <sub>3</sub> -N Mg/L			0.16						0.18			0.1
Nitrate No <sub>2</sub> -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 <sup>±</sup> -3.5			3.5						3.4			
Gross Beta Pic/L <sup>±</sup> -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 °F	76	77	43	69	43	
Water Temp °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 <sub>3</sub> -N Mg/L	0.04			0.14	0.06	
Nitrate No <sub>2</sub> -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	
Arsenic 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 <sup>+3.5</sup>	3.7					
Gross Beta Pic/L <sup>+5.0</sup>	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	32.0
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	2.0
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	6.0
Nitrate No <sub>3</sub> -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	0.0
Nitrate No <sub>2</sub> -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										
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 °F	68	62	78	49	59	57	58	55				
Water Temp °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 <sub>3</sub> -N Mg/L	0.18	0.27	0.02	0.02	0.13	0.28	0.03	0.02				
Nitrate NO <sub>2</sub> -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 <sup>±</sup> 3.3	4.0		3.9		3.7		3.5					
Gross Beta pic/L <sup>±</sup> 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 GPM	TOTAL SUSPENDED SOLIDS MG/L	TOTAL DISSOLVED SOLIDS MG/L	TOTAL IRON AS FE MG/L	ALKALINITY AS CaCO <sub>3</sub> MG/L	ACIDITY AS CaCO <sub>3</sub> 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					



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  
(801) 533-5771

OIL, GAS, AND MINING BOARD

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E. STEELE McINTYRE

February 26, 1979

Mr. Murray Smith  
Office of Surface Mining  
Denver Regional Office  
Room 270, Post Office Bldg.  
1823 Stout Street  
Denver, Colorado 80202

Re: U.S. Fuel Company  
Hiawatha Plant  
Preliminary Design  
Report for Dam  
*ACT/007/011*

Dear Murray:

Enclosed you will find two copies of the document entitled "Preliminary Design Report" which is a supplement to the materials previously submitted to you on this planned reconstruction.

I hope this will assist your staff in their review of the plans for this facility. At this point the design is only preliminary, thus an expeditious review would be appreciated.

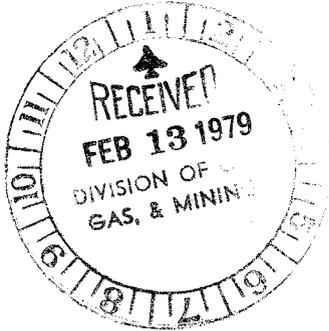
Sincerely,

RONALD W. DANIELS  
COORDINATOR OF MINED  
LAND DEVELOPMENT

RWD/sp  
enc: Preliminary Design Report

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527



February 7, 1979

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

Re: Reconstruction of Slurry Impoundment  
No.1 at Hiawatha, Utah

Dear Mr. Daniels,

This letter is submitted in request for approval to begin construction on the downstream face of slurry impoundment No.1 as detailed in our plan for reconstruction submitted January 30, 1979.

The existing downstream embankment has slopes approaching 35 degrees in places and extends directly into the adjacent stream channel.

We propose to begin construction of a drainage channel around the downstream toe and flatten the embankment from that point on a slope not to exceed 2 ft. horizontal to 1 ft. vertical (approximately 26°).

We feel that this proposed work will upgrade the now existing conditions by reducing erosion and sediment resulting from runoff on steep slopes.

We would like to begin work on this stage of reconstruction as soon as possible. A written statement of your approval would be greatly appreciated.

Yours truly,

Robert Eccli, Mine Engineer

RE/jl



ADDENDUM TO HYDROLOGY PLAN

BASELINE DATA & ANNUAL REPORT

FOR

1978

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U.S. FUEL COMPANY

HIAWATHA

UTAH



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	Oct 9
Flow Rate GPM	117	36	26	24	29	18	4	No Flow
PH Units	7.98			7.77	7.87			
Air Temp °F	56	76	31	59	56	68	52	
Water Temp °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 <sub>3</sub> -N Mg/L	0.08			0.02	0.14			
Nitrate No <sub>2</sub> -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 <sup>±</sup> 3.5	3.6				3.8			
Gross Beta Pic/L <sup>±</sup> 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	No	No			700	67	215	30
PH Units			8.0	Flow	Flow	Flow			7.93			7.81
Air Temp °F			56						70	79	37	68
Water Temp °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 Choride Mg/L			314.7						287.9			16.
Sulfate Mg/L			80.0						146			186.
Nitrate No <sub>3</sub> -N Mg/L			0.16						0.18			0.1
Nitrate No <sub>2</sub> -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 <sup>±</sup> 3.5			3.5						3.4			
Gross Beta Pic/L <sup>±</sup> 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 °F		76	77	43	69	43
Water Temp °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 <sub>3</sub> -N Mg/L		0.04			0.14	0.06
Nitrate NO <sub>2</sub> -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
Arsenic 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 <sup>+3.5</sup>		3.7				
Gross Beta Pic/L <sup>+5.0</sup>		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	32.0
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	2.0
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	6.0
Nitrate No <sub>3</sub> -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	0.0
Nitrate No <sub>2</sub> -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										
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 °F	68	62	78	49	59	57	58	55				
Water Temp °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 <sub>3</sub> -N Mg/L	0.18	0.27	0.02	0.02	0.13	0.28	0.03	0.02				
Nitrate NO <sub>2</sub> -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 <sup>±</sup> 3.3	4.0		3.9		3.7		3.5					
Gross Beta pic/L <sup>±</sup> 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					

SEWAGE TREATMENT PLANT WASTE WATER DISCHARGE  
ANNUAL DISCHARGE MONITORING REPORT

1978

EFFLUENT CHARACTERISTIC	FLOW RATE	TOTAL SUSPENDED SOLIDS	TOTAL DISSOLVED SOLIDS	TOTAL IRON AS FE	ALKALINITY AS CaCO <sub>3</sub>	ACIDITY AS CaCO <sub>3</sub>	PH	UNITS	OIL & GREASE	BOD <sub>5</sub>	TOTAL COLIFORMS	FECAL COLIFORMS
	GL/HR	MG/L	MG/L	MG/L	MG/L	MG/L			MG/L	MG/L	MG/L	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					



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Governor

OIL, GAS, AND MINING BOARD

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Executive Director,  
NATURAL RESOURCES

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS, AND MINING  
1588 West North Temple  
Salt Lake City, Utah 84116  
(801) 533-5771

I. DANIEL STEWART  
Chairman

CLEON B. FEIGHT  
Director

CHARLES R. HENDERSON  
JOHN L. BELL  
THADIS W. BOX  
C. RAY JUVELIN

July 28, 1978

Mr. Bob Eccli  
U.S. Fuel Company  
Hiawatha, UT 84527

Re: U.S. Fuel Company  
King 4 & 5 Mohrland Mines  
Carbon County  
ACT/007/011  
Rule M-10 and  
Amendment to Plan

Dear Mr. Eccli:

Please find enclosed a copy of the changes and additions to the Rules and Regulations, particularly concerning Rule M-10, and copies of the required State forms which you requested during our telephone conversation today.

Regarding your proposed plans concerning the King 6 & 7 Mohrland Mines, they may be filed as an amendment to the King 4 & 5 Mohrland Mines if U.S. Fuel Company is considering them as an expansion of the original operation and not as a separate operation.

Please include in the amendment, in duplicate, a detailed narrative of your proposed plans and a map showing all surface disturbances and facilities (topographic features; drainages; roads; culverts; sedimentation ponds; pads; buildings; portals and shafts; coal, waste, and topsoil stockpiles; etc.).

As you know all coal operations are now controlled by Federal regulations promulgated by Public Law 95-87 and all plans require final approval by the Office of Surface Mining.

If you require further assistance please don't hesitate to call.

Sincerely,

JAMES W. SMITH  
RECLAMATION SOILS SPECIALIST

Enclosures: Changes & Additions  
MR-1, MR-2, MR-8  
and Cover Letter

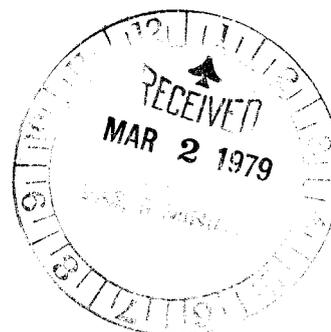
# UNITED STATES FUEL COMPANY

NINETEENTH FLOOR UNIVERSITY CLUB BUILDING

136 EAST SOUTH TEMPLE

SALT LAKE CITY, UTAH 84111

November 29, 1977



Mr. Jackson W. Moffitt  
Area Mining Supervisor  
Conservation Division  
United States Geological Survey  
8426 Federal Building  
125 South State Street  
Salt Lake City, Utah 84138

Re: HYDROLOGIC MONITORING PLAN

Dear Mr. Moffitt:

This plan is submitted as an addendum to the Hydrology Section of our mining plan submitted May 5, 1977. Included with this plan is a map showing the location of major hydrologic features in relation to existing mine workings and property boundaries. Proposed water monitoring points are identified by symbols.

A comprehensive water analysis consisting of items listed in Table 1 will be run on samples from each monitoring point to define their initial character. Additional routine sampling and analysis for items listed in Table 2 will be determined at intervals specified for individual points.

Monitored data will be organized, tabulated and submitted to the Mining Supervisor on an annual basis.

Following is a description of proposed monitoring sites.

## STREAMS

1. Right Fork of North Fork of Miller Creek. This perennial tributary to Miller Creek will be monitored with a V-notch weir or small Cipolletti weir installed just above the junction with Left Fork. This station will be monitored for flow on a bi-monthly basis except during some winter months when access is usually restricted by snow cover. Routine water samples will be collected and analyzed according to Table 2 twice yearly.
2. Left Fork of North Fork of Miller Creek. Two recording stations will be installed on this perennial tributary. One just above the Hiawatha No. 2 mine diversion point and one between the diversion point and the junction with Right Fork. Water samples will be analyzed on a semi-annual basis for the lower station only. Volume measurements will be by V-notch or Cipolletti weirs monitored bi-monthly during accessible months.



3. Middle Fork of Miller Creek. This tributary is intermittent. A recording station consisting of a suitably sized weir will be installed near the confluence with the North Fork of Miller Creek. Flow measurements will be taken bi-monthly. Water samples will be analyzed twice yearly.

4. South Fork of Miller Creek. This tributary is intermittent. A weir will be installed near the confluence with Miller Creek and monitored similarly to Middle Fork.

5. Miller Creek. The main channel of this significant perennial stream will be monitored with a 3 foot Cipolletti weir at a point below the confluence of South Fork. Flow will be measured bi-monthly. Samples will be analyzed semi-annually.

6. Cedar Creek. This is a significant perennial stream. It will be monitored at a point just below the old Mohrland mine portal and above the mine water discharge point. Volume measurements will be by a suitably sized weir measured bi-monthly. Samples will be analyzed semi-annually.

7. Gentry Hollow Creek. A recording station for this perennial stream will be installed just above the junction with Wild Cattle Hollow. Due to the remote location of this point, we propose to make flow measurements and take water samples semi-annually.

#### SPRINGS

The map included with this plan shows the location of ten numbered Springs which we propose to measure and analyze twice yearly. These springs were selected because of their representative location with respect to mine workings and because they each had flow during the fall of this dry year. Flow measurements will be made with V-notch weirs on open springs and by the time-volume method where springs discharge from installed pipes.

#### LAKES AND RESERVOIRS

There are no surface lakes or reservoirs on the mine property. An underground storage reservoir is maintained in the old Hiawatha No. 2 mine as a culinary water supply for the King 4 and King 5 mine facilities. This water is also used as a supplementary supply for Hiawatha. Water diverted into this reservoir will be monitored near a diversion dam on the Left Fork of Miller Creek.

There are no known observation wells on the mine property.

#### MINE WATER DISCHARGE

At the present time, mine water is being discharged at the old Mohrland Portal in Cedar Creek Canyon. Water from this point is partly diverted to Cedar Creek and partly diverted to Miller Creek by way of a pipeline which supplies water for culinary and industrial purposes at Hiawatha. Water from the pipeline regularly overflows at the town water tanks and drains into Miller Creek.

This mine water discharge is covered by E.P.A. Permit No. Ut-0023094 dated October 17, 1977. Monitoring requirements under this permit are listed in Table 3. An additional comprehensive analysis of items listed in Table 1 will be determined for this discharge once a year.

BEAR CANYON FAULT

The Bear Canyon Fault, running northerly through the area and having a displacement in excess of 200 feet, is a major water-bearing structure. Mine workings that intercept the fault zone have all encountered flows of water that make up the major discharge from the Mohrland Portal. Monitoring the Mohrland discharge will closely reflect the character of water intercepted along the fault.

Sincerely,

A handwritten signature in black ink, consisting of several loops and a long horizontal stroke ending in a small flourish.

J. R. Pennington  
President

JRP:S

TABLE 1

Initial Comprehensive Analytical Schedule

Flow Rate  
pH  
Air & Water Temperature  
Specific Conductance  
Total Suspended Solids (Surface Water Only)  
Total Dissolved Solids  
Calcium  
Magnesium  
Sodium  
Potassium  
Iron  
Carbonate  
Fluoride  
Bicarbonate  
Chloride  
Sulfate  
Nitrate Plus Nitrite (as N)  
Kjeldahl N  
Dissolved Phosphorus  
Silica  
Trace Elements  
    Arsenic  
    Cadmium  
    Zinc  
    Selenium  
Radioactivity  
    Gross Alpha  
    Gross Beta  
  
Total Organic Carbon

TABLE 2

Routine Sampling Analytical Schedule

Flow Rate  
pH  
Air & Water Temperature  
Specific Conductance  
Total Suspended Solids (Surface Waters Only)  
Total Dissolved Solids  
Iron  
Nitrate (As N)  
Sulfate  
Chloride

TABLE 3

E.P.A. Monitoring Requirements for Mohrland Mine Water Discharge

Effluent Characteristic	Monitoring Frequency
Flow	Monthly
Total Suspended Solids	"
Total Dissolved Solids	"
Total Iron	"
Alkalinity-Acidity	"
pH	"
Oil & Grease	"
BOD <sub>5</sub>	Quarterly
Total Coliforms/100 ML	"
Fecal Coliforms/100 ML	"

December 7, 1977

Bob  
JWS  
KHP

Memo to File:

Re: United States Fuel Company  
ACT/007/011

This mine property was inspected on the 11th of November 1977 by Mike Thompson and Ron Daniels for the purpose of obtaining more information to evaluate the previously submitted mining and reclamation plan. Mr. Bob Eccli showed the Division staff the various phases of the mining operation and where a new portal is proposed in Cedar Creek Canyon. The two portals in the middle fork drainage are presently active.

The King-4 mine is producing coal. The King-5 portal is being driven at this time. Other present activities in the Hiawatha area include the reclaiming via the mining of coal from the previously deposited slurry ponds. Slurry #1 will be totally mined out and will be ready to be reclaimed in two years. The other ponds will be mined out as markets allow.

The mining and reclamation plan which was submitted by U.S. Fuel adequately covers existing mines here, however, more detail is needed in certain areas. The Division needs more detail on:

1. Transportation of coal from the new portal King #2 or the Mohrland portal to the loadout. The possibility exists for road or conveyer transportation here.
2. The hydrologic monitoring plan which was proposed for fee as well as Federal acreage, which was submitted by the USGS.
3. Reclamation of the mined out ponds in the Hiawatha area. U.S. Fuel will be asked for this additional information.

RONALD W. DANIELS  
COORDINATOR OF MINED  
LAND DEVELOPMENT

/tlb