

BEAVER CREEK COAL COMPANY

1988 ANNUAL REPORT

C.V. SPUR

BEAVER CREEK Coal Company

Post Office Box 1378
Price, Utah 84501
Telephone 801 637-5050

RECEIVED
MAR 31 1989
DIVISION OF OIL,
GAS & MINING
PRICE, UTAH



March 31, 1989

Mr. Lowell Braxton
Administrator
Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: 1988 Annual Report
C.V. Spur Loadout Facility
ACT/007/022
Carbon County, Utah

Dear Mr. Braxton:

Enclosed is the Annual Report for Coal Mining and Reclamation Operations for 1988 for the C.V. Spur.

If you have any questions or need any further information, please let me know.

Respectfully,

Dan W. Guy,
Manager, Permitting & Compliance

DWG/cr

cc: Johnny Coffey
File 4-P-5-1-1

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ACT/007/022
Carbon County, Utah

Dear Mr. Braxton:

Enclosed is the Annual Report for Coal Mining and Reclamation Operations for 1988 for the C.V. Spur.

If you have any questions or need any further information, please let me know.

Respectfully,

A handwritten signature in cursive script, appearing to read "Dan W. Guy".

Dan W. Guy,
Manager, Permitting & Compliance

DWG/cr

cc: Johnny Coffey
File 4-P-5-1-1

COAL MINING AND RECLAMATION OPERATIONS FOR 1988
(Authority UMC 784)

(Must be submitted to the Division by March 31, 1989)

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

(801) 538-5340

Operator: Beaver Creek Coal Company

Mine Name: C.V Spur Processing and Loadout Facility

Mailing Address: P.O. Box 1378, Price, Utah 84501

Company Representative: Dan W. Guy

Permit Number: ACT/007/022

Date of Most Recent Permanent Program Permit: 8/6/84

Quantity of Coal Mined (tonnage) 1988: 907,006 Tons Shipped

Attach Updated Mine Sequence Map. N/A

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

- A. Summarized Water Monitoring Data (Included)
- B. Precipitation or Other Climatological Data (Included)
- C. Subsidence Monitoring Report (N/A)
- D. Vegetation Data (test plots) or Revegetation Success Monitoring (includes interim and final) (Included)
- E. Permit Stipulation Status (Included)

CERTIFICATES OF INSURANCE

Revised November, 1987.

CERTIFICATE OF LIABILITY INSURANCE

Issued to:
State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
--oo00oo--

THIS IS TO CERTIFY THAT:

Insurance Company of North America

(Name of Insurance Company)

1600 Arch Street, Philadelphia, PA 19101

(Home Office Address of Insurance Company)

HAS ISSUED TO:

BEAVER CREEK COAL CO.

(Name of Permit Applicant)

C.V. SPUR PROCESSING/LOADOUT FACILITY
(Mine Name)

ACT/007/022

(Permit Number)

CERTIFICATE OF INSURANCE:

HDO GO 969065-7

(Policy Number)

1-1-88

(Effective Date)

UNDER THE FOLLOWING TERMS AND CONDITIONS:

As Per UMC/SMC Part 800.60 Terms and Conditions for Liability Insurance;

- A. The Division shall require the applicant to submit as part of its permit application a certificate issued by an insurance company authorized to do business in the state of Utah certifying that the applicant has a public liability insurance policy in force for the surface coal mining and reclamation operations for which the permit is sought. Such policy shall provide for personal injury and property damage protection in an amount adequate to compensate any persons injured or property damaged as a result of the surface coal mining and reclamation operations, including the use of explosives and who are entitled to compensation under the applicable provisions of state law. Minimum insurance coverage for bodily injury and property damage shall be \$300,000 for each occurrence and \$500,000 aggregate.
- B. The policy shall be maintained in full force during the life of the permit or any renewal thereof, including the liability period necessary to complete all reclamation operations under this chapter.

CERTIFICATE OF LIABILITY INSURANCE

C. The policy shall include a rider requiring that the insurer notify the Division whenever substantive changes are made in the policy including any termination or failure to renew.

IN ACCORDANCE WITH THE ABOVE TERMS AND CONDITIONS, and the Utah Code Annotated 40-10-1 et seq., the Insurance Company hereby attests to the fact that coverage for said Permit Applicant is in accordance with the requirements of the State of Utah and agrees to notify the Division of Oil, Gas and Mining in writing of any substantive change, including cancellation, failure to renew, or other material change. No change shall be effective until at least thirty (30) days after such notice is received by the Division.

UNDERWRITING AGENT:

M. J. Morehouse

213-739-4630

(Agent's Name)

(Phone)

Insurance Company of North America

(Company Name)

3333 Wilshire Blvd

(Mailing Address)

Los Angeles, CA 90010

(City, State, Zip Code)

The undersigned affirms that the above information is true and complete to the best of his or her knowledge and belief, and that he or she is an authorized representative of the above-named insurance company.

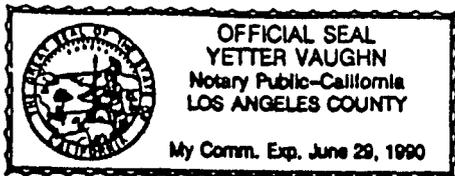
1-27-88 M.J. Morehouse - Account Manager
(Date, Signature and Title of Authorized Agent of Insurance Company)

Signed and sworn before me by

M. J. MOREHOUSE

(Name)

this 27th day of January, 1988.



Yetter Vaughn
(Signature)

My Commission Expires:

June 29, 1990
(Date)

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES AND ENERGY
DIVISION OF OIL, GAS AND MINING
4241 State Office Building
Salt Lake City, Utah 84114

RECEIVED

JUL 30 1984

DIVISION OF OIL
GAS & MINING

THE MINED LANDS RECLAMATION ACT

BOND

The undersigned Beaver Creek Coal Company
as principal, and FEDERAL INSURANCE COMPANY as
surety, hereby jointly and severally bind ourselves, our heirs, administrators,
executors, successors and assigns unto the State of Utah, Division of Oil, Gas
and Mining in the penal sum of Two Million, Seventeen Thousand, Six Hundred &
Sixty Nine dollars (\$2,017,669.00).

The principal estimated in a "Notice of Intention to Commence Mining
Operations and a Mining and Reclamation Plan," filed with the Division of Oil,
Gas and Mining on the 23rd day of September,
1983, that 160.0 acres of land will be affected by this mining
operation in the State of Utah. A description of the affected land is attached
hereto as Exhibit "A."

If the principal shall satisfactorily reclaim the above-mentioned lands
affected by mining by the said principal in accordance with the Mining and
Reclamation Plan and shall faithfully perform all requirements of the Mined
Land Reclamation Act, and comply with the Rules and Regulations adopted in
accordance therewith, then this obligation shall be void; otherwise it shall
remain in full force and effect until the reclamation is completed as outlined
in the approved Mining and Reclamation Plan.

If the approved plan provides for reclamation of the land affected on
piecemeal or cyclic basis, and the land is reclaimed in accordance with such
plan, then this bond may be reduced periodically.

In the converse, if the plan provides for a gradual increase in the area
of the land affected or increased reclamation work, then this bond may
accordingly be increased with the written approval of the surety company.

NOTE: Where one signs by virtue of Power of Attorney for a surety company, such Power of Attorney must be filed with this bond. If the principal is a corporation, the bond shall be executed by its duly authorized officers with the seal of the corporation affixed.

Beaver Creek Coal Company
Principal (Company)

By J.A. Herickhoff
Company Official - Position
J.A. Herickhoff
General Manager

Date: July 30, 1984

FEDERAL INSURANCE COMPANY
Surety (Company)

By Norman D. Squires
Official of Surety - Position
Norman D. Squires, Attorney-in-Fact
447 East First South
Salt Lake City, Utah 84111

DATE: July 30, 1984

STATE OF UTAH
County of Salt Lake

} ss.:

On this 30th day of July, in the year nineteen hundred
eighty-four, A. D., before me, Mary Cristaudo, a Notary Public in and for the
County of Salt Lake, State of Utah, residing therein, duly commissioned and sworn to,

personally appeared Norman D. Squires, known to me to be the Attorney(s) in Fact of Federal Insurance Company executing the annexed instrument, and acknowledged to me that such Corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed by official seal in said county the day and year in this certificate first above written.

Mary Cristaudo
Notary Public in and for the County of Salt Lake, State of Utah

My Commission Expires July 4, 1957

C.V. SPUR PROCESSING & LOADOUT FACILITY

Exhibit A

Affected Area

SW $\frac{1}{4}$, Section 11, T. 15S., R. 10E., SLM, Utah
(160 Acres, more or less)

POWER OF ATTORNEY

Know all Men by these Presents, That the FEDERAL INSURANCE COMPANY, 15 Mountain View Road, Warren, New Jersey, a New Jersey corporation, has constituted and appointed, and does hereby constitute and appoint Norman D. Squires, Richard G. Taylor and George L. Williams, Salt Lake City, Utah

each its true and lawful Attorney-in-Fact to execute under such designation in its name and to affix its corporate seal to and deliver for and on its behalf and for the benefit of the said company, its heirs, assigns and successors, all such instruments, contracts, bonds or other securities thereon or otherwise, bonds of any of the following classes, to-wit:

- 1. Bonds and Undertakings filed in any suit, matter or proceeding in any Court, or filed with any Sheriff or Magistrate, for the doing or not doing of any act specified in such Bond or Undertaking.
2. Surety bonds to the United States of America or any agency thereof, including those required or permitted under the laws or regulations relating to Internal Revenue; License and Permit Bonds or other indemnity bonds under the laws, ordinances or regulations of any State, City, Town or other body or organization, public or private; bonds to Transportation Companies, Lost Instrument bonds; Lease bonds, Workers Compensation bonds, Miscellaneous Surety bonds and bonds on behalf of Notaries Public, Sheriffs, Deputy Sheriffs and similar public officials.
3. Bonds on behalf of contractors in connection with bids, proposals or contracts.

In Witness Whereof, the said FEDERAL INSURANCE COMPANY has, pursuant to its By-Laws, caused these presents to be signed by its Assistant Vice-President and Assistant Secretary and its corporate seal to be hereto affixed this 12th day of December 19 83

Corporate Seal



Richard D. O'Connor, Assistant Secretary

FEDERAL INSURANCE COMPANY

By George McClellan, Assistant Vice-President

STATE OF NEW JERSEY
County of Somerset

ss.

On this 12th day of December 19 83, before me personally came Richard D. O'Connor to me known and by me known to be Assistant Secretary of the FEDERAL INSURANCE COMPANY, the corporation described in and which executed the foregoing Power of Attorney, and the said Richard D. O'Connor being by me duly sworn, did depose and say that he is a duly authorized officer of the FEDERAL INSURANCE COMPANY and knows the corporate seal thereof; that the seal affixed to the foregoing Power of Attorney is such corporate seal and was thereto affixed by authority of said Company, and that he signed said Power of Attorney as Assistant Secretary of said Company by like authority; and that he is acquainted with George McClellan and knows him to be the Assistant Secretary of said Company, and that the signature of said George McClellan subscribed to said Power of Attorney is in the genuine handwriting of said George McClellan and was thereto subscribed in and in the presence of said Richard D. O'Connor.

Notarial Seal



Acknowledged and Sworn to before me on the date above written.

Alice Leonard, Notary Public

CERTIFICATION

ALICE LEONARD, Notary Public of New Jersey. My Commission Expires June 28, 1988

STATE OF NEW JERSEY
County of Somerset

ss.

I, the undersigned, Assistant Secretary of the FEDERAL INSURANCE COMPANY, do hereby certify that the following is a true excerpt from the By-Laws of the said Company as adopted by the Board of Directors on March 11, 1953 and most recently amended March 11, 1983 and that this By-Law is in full force and effect.

"ARTICLE XVIII.

Section 2. All bonds, undertakings, contracts and other instruments other than as above for and on behalf of the Company which it is authorized by law or its charter to execute and shall be executed in the name and on behalf of the Company either by the Chairman or the Vice-Chairman or the President or a Vice-President, jointly with the Secretary or an Assistant Secretary, under their respective designations, except that any one or more officers or attorneys-in-fact designated in any resolution of the Board of Directors or the Executive Committee or in any power of attorney executed as provided for in Section 3 below, may execute any such bond, undertaking or other obligation as provided in such resolution or power of attorney.

Section 3. All powers of attorney for and on behalf of the Company may and shall be executed in the name and on behalf of the Company, either by the Chairman or the Vice-Chairman or the President or a Vice-President or an Assistant Vice-President, jointly with the Secretary or an Assistant Secretary, under their respective designations. The signature of such officers may be engraved, typed or intaglio-printed."

I further certify that said FEDERAL INSURANCE COMPANY is duly licensed to transact liability and surety business in each of the States of the United States of America, District of Columbia, Puerto Rico and the Provinces of Canada with the exception of Prince Edward Island, and is also duly licensed to become sole surety on bonds, undertakings, etc., permitted or required by law.

I, the undersigned Assistant Secretary of FEDERAL INSURANCE COMPANY, do hereby certify that the foregoing Power of Attorney is in full force and effect.

Given under my hand and the seal of said Company at Warren, N.J., this 30th day of July 19 84

Corporate Seal



Norman D. Squires, Assistant Secretary

1988

WATER MONITORING DATA

Beaver Creek Coal Company
Water Monitoring Report

CV-0-W
Station #

Property: CV Spur
 Location: N.W. Corner
 Type: Well
 Frequency: Bi-annual

Field Measurements:	Date Sampled		Mean
	5/24/88	11/30/88	
Depth from Surface	DRY	DRY	DRY
PH			
Temperature [C°]			
Specific Cond. [ohms]			

Laboratory Measurements [mg/l]	Date Sampled		Mean
	5/24/88	11/30/88	
Total Suspended Solids			DRY
Total Dissolved Solids			
Total Hardness [as CaCO ₃]			
Acidity [CaCO ₃]			
Carbonate [CO ₃ ⁻²]			
Bicarbonate [HC ₃ ⁻¹]			
Calcium [Ca]			
Chloride [Cl ⁻]			
Iron [Fe]			
Magnesium [Mg]			
Total Manganese [Mn]			
Potassium [K]			
Sodium [Na]			
Sulfate [SO ₄ ⁻²]			
Cation - Anion Balance			

Beaver Creek Coal Company
Water Monitoring Report

CV-1-W
Station #

Property: CV Spur
 Location: Pumphouse
 Type: French Drain
 Frequency: Bi-annual

Field Measurements:	Date Sampled		Mean
	5/24/88	11/30/88	
Flow [gpm]	DRY	UK	
PH		8.1	8.1
Temperature [C°]		4°	4°
Specific Cond. [ohms]		10,000+	10,000+

Laboratory Measurements [mg/l]	Date Sampled		Mean
	5/24/88	11/30/88	
Total Suspended Solids		<i>Not Run</i>	-
Total Dissolved Solids		11,800	11,800
Total Hardness [as CaCO ₃]		2,170	2,170
Acidity [CaCO ₃]		<.1	<.1
Carbonate [CO ₃ ⁻²]		0	0
Bicarbonate [HC ₃ ⁻¹]		470	470
Calcim [Ca]		412	412
Chloride [Cl ⁻]		143	143
Iron [Fe]		.65	.65
Magnesium [Mg]		279	279
Total Manganese [Mn]		<.02	<.02
Potassium [K]		4	4
Sodium [Na]		2930	2930
Sulfate [SO ₄ ⁻²]		7800	7800
Cation - Anion Balance		.90%	.90%

Beaver Creek Coal Company
Water Monitoring Report

CV-3-W
Station #

Property: CV Spur
 Location: S. Central
 Type: Well
 Frequency: Bi-annual

Field Measurements:	Date Sampled		Mean
	5/24/88	11/30/88	
Depth [feet from Surface]	6.9'	5	6
PH	7.86	7.9	7.9
Temperature [C°]	11	5	8
Specific Cond. [ohms]	4140	3500	3820

Laboratory Measurements [mg/l]	Date Sampled		Mean
	5/24/88	11/30/88	
Total Suspended Solids	1117	NR	1117
Total Dissolved Solids	3730	3650	3690
Total Hardness [as CaCO ₃]	1990	1810	1900
Acidity [CaCO ₃]	< 1	< .1	< .1
Carbonate [CO ₃ ⁻²]	0	0	0
Bicarbonate [HC ₃ ⁻¹]	312	317	315
Calcim [Ca]	477	466	472
Chloride [Cl ⁻]	52	46	48
Iron [Fe]	.71	.9	.85
Magnesium [Mg]	193	157	180
Total Manganese [Mn]	.44	.22	.33
Potassium [K]	10	2	6
Sodium [Na]	421	424	423
Sulfate [SO ₄ ⁻²]	2420	2400	2410
Cation - Anion Balance	1.08%	1.64%	1.35%

Beaver Creek Coal Company
Water Monitoring Report

CV-4-W
Station #

Property: CV Spur
 Location: N.E. Corner
 Type: Well
 Frequency: Bi-annual

Field Measurements:	Date Sampled		Mean
	5/24/88	11/29/88	
Depth [feet from Surface]	DRY	DRY	DRY
PH			
Temperature [C°]			
Specific Cond: [ohms]			

Laboratory Measurements [mg/l]	Date Sampled		Mean
	5/24/88	11/29/88	
Total Suspended Solids			
Total Dissolved Solids			
Total Hardness [as CaCO ₃]			
Acidity [CaCO ₃]			
Carbonate [CO ₃ ⁻²]			
Bicarbonate [HC ₃ ⁻¹]			
Calcim [Ca]			
Chloride [Cl ⁻]			
Iron [Fe]			
Magnesium [Mg]			
Total Manganese [Mn]			
Potassium [K]			
Sodium [Na]			
Sulfate [SO ₄ ⁻²]			
Cation - Anion Balance			

Beaver Creek Coal Company
Water Monitoring Report

CV-5-W
Station #

Property: CV Spur
 Location: N. Central
 Type: Well
 Frequency: Bi-annual

Field Measurements:	Date Sampled		Mean
	5/24/88	11/29/88	
Depth from Surface	DRY	DRY	DRY
PH			
Temperature [C°]			
Specific Cond. [ohms]			

Laboratory Measurements [mg/l]	Date Sampled		Mean
Total Suspended Solids			
Total Dissolved Solids			
Total Hardness [as CaCO ₃]			
Acidity [CaCO ₃]			
Carbonate [CO ₃ ⁻²]			
Bicarbonate [HC] ₃ ⁻¹			
Calcim [Ca]			
Chloride [Cl ⁻]			
Iron [Fe]			
Magnesium [Mg]			
Total Manganese [Mn]			
Potassium [K]			
Sodium [Na]			
Sulfate [SO ₄ ⁻²]			
Cation - Anion Balance			

Beaver Creek Coal Company
Water Monitoring Report

CV-6-W
Station #

Property: CV Spur
 Location: E. Central
 Type: Well
 Frequency: Bi-annual

Field Measurements:	Date Sampled		Mean
	5/24/88	11/30/88	
Depth [feet from Surface]	3.4'	7.'	5.2
PH	7.6	7.9	7.8
Temperature [C°]	11	6	8.5
Specific Cond. [ohms]	14,670	10,000+	10,000+

Laboratory Measurements [mg/l]	Date Sampled		Mean
	5/24/88	11/30/88	
Total Suspended Solids	53	ND	53
Total Dissolved Solids	15,540	22,272	18,906
Total Hardness [as CaCO ₃]	3090	3980	3535
Acidity [CaCO ₃]	< 1	< 1	< 1
Carbonate [CO ₃ ⁻²]	0	0	0
Bicarbonate [HC ₃ ⁻¹]	357	406	382
Calcim [Ca]	485	606	546
Chloride [Cl ⁻]	191	284	237
Iron [Fe]	.08	.74	.44
Magnesium [Mg]	457	600	526
Total Manganese [Mn]	.39	.10	.26
Potassium [K]	31	8	.20
Sodium [Na]	3750	5640	4695
Sulfate [SO ₄ ⁻²]	10,450	14,940	12,695
Cation - Anion Balance	.77%	.16%	.48%

Beaver Creek Coal Company
Water Monitoring Report

CV-10-W
Station #

Property: CV Spur
 Location: S.E. Adj.
 Type: Well
 Frequency: Bi-annual

Field Measurements:	Date Sampled		Mean
	5/26/88	11/29/88	
Depth [feet from Surface]	16'4"	17'	16.5
PH	7.8	Insufficient	
Temperature [C°]	18	to sample	
Specific Cond. [ohms]	15,000		

Laboratory Measurements [mg/l]	Date Sampled		Mean
	5/26/88	11/29/88	
Total Suspended Solids	15,500		15,500
Total Dissolved Solids	3880		3880
Total Hardness [as CaCO ₃]	2090		2090
Acidity [CaCO ₃]	< 1		< 1
Carbonate [CO ₃ ⁻²]	0		0
Bicarbonate [HC ₃ ⁻¹]	428		428
Calcium [Ca]	514		514
Chloride [Cl ⁻]	35		35
Iron [Fe]	1.39		1.39
Magnesium [Mg]	197		197
Total Manganese [Mn]	.11		.11
Potassium [K]	17		17
Sodium [Na]	400		400
Sulfate [SO ₄ ⁻²]	2510		2510
Cation - Anion Balance	.53		.53

Beaver Creek Coal Company
Water Monitoring Report

CV-11-W
Station #

Property: CV Spur
 Location: N.E. Adj.
 Type: Well
 Frequency: Bi-annual

Field Measurements:	Date Sampled		Mean
	5/24/88	11/29/88	
Depth [feet from Surface]	2' 5"	6'	4.25
PH	7.5	7.6	7.6
Temperature [C°]	17°	4°	10°
Specific Cond. [ohms]	10,000+	40,000+	40,000+

Laboratory Measurements [mg/l]	Date Sampled		Mean
	5/24/88	11/29/88	
Total Suspended Solids	664	NT	664
Total Dissolved Solids	43320	43790	43510
Total Hardness [as CaCO ₃]	11510	11,880	11,700
Acidity [CaCO ₃]	< 1	< 1	< 1
Carbonate [CO ₃ ⁻²]	0	0	0
Bicarbonate [HC ₃ ⁻¹]	1210	1210	1210
Calcium [Ca]	412	622	517
Chloride [Cl ⁻]	493	521	507
Iron [Fe]	.63	.98	.81
Magnesium [Mg]	2250	2510	2380
Total Manganese [Mn]	.49	<.02	.25
Potassium [K]	20	1	11
Sodium [Na]	9460	9540	9500
Sulfate [SO ₄ ⁻²]	29790	30,000	29900
Cation - Anion Balance	.94%	.52%	.73%

Beaver Creek Coal Company
Water Monitoring Report

CV-12-W
Station #

Property: CV Spur
 Location: N. Adj.
 Type: Well
 Frequency: Bi-annual

Field Measurements:	Date Sampled		Mean
	5/24/88	11/29/88	
Depth [feet from Surface]	10' 3"	16.9	13.6
PH	7.8	Insufficient to sample	
Temperature [C°]	12		
Specific Cond. [ohms]	10,000+		

Laboratory Measurements [mg/l]	Date Sampled		Mean
	5/24/88	11/29/88	
Total Suspended Solids	18,340		18,340
Total Dissolved Solids	3540		3540
Total Hardness [as CaCO ₃]	2510		2510
Acidity [CaCO ₃]	< 1		< 1
Carbonate [CO ₃ ⁻²]	0		0
Bicarbonate [HC ₃ ⁻¹]	842		842
Calcim [Ca]	660		660
Chloride [Cl ⁻]	31		31
Iron [Fe]	1.78		1.78
Magnesium [Mg]	211		211
Total Manganese [Mn]	219		219
Potassium [K]	63		63
Sodium [Na]	128		128
Sulfate [SO ₄ ⁻²]	2030		2030
Cation - Anion Balance	.48%		.48%

Beaver Creek Coal Company
Water Monitoring Report

CV-14-W
Station #

Property: CV Spur
 Location: N.E. Corner
 Type: Ditch
 Frequency: Bi-annual

Field Measurements:	Date Sampled		Mean
	5/24/88	11/29/88	
Flow [gpm]	DRY	DRY	DRY
PH			
Temperature [C°]			
Specific Cond. [ohms]			

Laboratory Measurements [mg/l]	Date Sampled		Mean
	5/24/88	11/29/88	
Total Suspended Solids			
Total Dissolved Solids			
Total Hardness [as CaCO ₃]			
Acidity [CaCO ₃]			
Carbonate [CO ₃ ⁻²]			
Bicarbonate [HC ₃ ⁻¹]			
Calcium [Ca]			
Chloride [Cl ⁻]			
Iron [Fe]			
Magnesium [Mg]			
Total Manganese [Mn]			
Potassium [K]			
Sodium [Na]			
Sulfate [SO ₄ ⁻²]			
Cation - Anion Balance			
Oil & Grease			

Sediment Pond Report

Mine: C.V. Spur

Year: 1988

This report is submitted to satisfy the requirements of UMC 817.46, UMC 817.49, and 30 CFR 817.49.

1.*This report addresses the following ponds:

	<u>Pond</u>	<u>Capacity</u>
1.	#6	1.80 Ac. ft. (Pond Incised; 1:1 Inside Slopes)
2.		
3.		

The ponds listed above have been constructed and maintained in accordance with the approved plan and the above listed regulations.

2. The following addresses the required monitoring procedures and instrumentation used at each pond or impoundment:

	<u>Pond</u>	<u>Requirement</u>
1.	#6	NPDES Discharge pt; Quarterly Inspections.
2.		
3.		

3.	<u>Pond</u>	<u>Design Depth/Elevation</u>	<u>Average Depth/Elevation</u>
1.	#6	5.0' (Above pipe)	5.0' (Above Pipe; as-built)
2.		7.0' (Total	
3.			

4.	<u>Pond #</u>	<u>Accumulated Sediment</u>	<u>Existing Storage Capacity</u>
1.	#6	6" -12"	1.77 Ac. ft

* All ponds at C.V. Spur are incised.
Pond #6 is included in this certification only because it is an NPDES Discharge Point.

5. Have any fires occurred in the impoundment embankments?

<u>Pond</u>	<u>Yes</u>	<u>No</u>
1. #6		X
2.		
3.		

6. The ponds have been inspected for structural stability with the following results:

<u>Pond #</u>	<u>Comments</u>
1. #6	Pond Incised; stable; no evident erosion; minor sediment in upper cell

I do hereby certify that the information found in this 1988 report is true and correct to the best of my knowledge.

Dan W. King
9/1/88

Class I Haul Road Certification

Mine: Beaver Creek Coal Company

Location: C.V. Spur

Haul Road Location: County Road to Preparation Plant

I do hereby certify that haul road "Coal Haulage Road"
has been constructed in accordance with UMC 817.151-817.154 and the
approved permit design.

Dan M. King
2/1/89



PRECIPITATION DATA



H25

STATE OF UTAH DEPARTMENT OF HEALTH
 DIVISION OF ENVIRONMENTAL HEALTH
 BUREAU OF AIR QUALITY
 AIR POLLUTION SOURCE EVALUATION REPORT

TYPE OF INSPECTION: INITIAL () STACK TEST () CEM ()
 FOLLOW-UP () ANNUAL (X) SURVEILLANCE () COMPLAINTS ()
 DATE: 8-11-88 TIME ARR: 10:00 a.m. TIME DPT: 11:30 PAGE: 1 of 1

OBSERVATION & WEATHER CONDITIONS

COMPANY: Beaver Co. Coal Co. - C.V. P
 CONTACT: Dan Guy - Plant Office
 LOCATION: Wellington Carbon Co.
 PHONE #: 637-5050
 INDUSTRY: Coal Processing/Leakouts CDS CLASS. A
 SOURCE: Unit Road / Yard Area
 HEIGHT OF DISCHARGE POINT: N/A DIMENSIONS: N/A
 OPERATING PARAMETERS OF SOURCE-NORMAL (YES) (NO)
 ACTUAL: 11,900 TPD DESIGN: _____
 TYPE BURNER FUEL: N/A
 CONTROL FACILITY: Under Sprays

OBSERVERS DISTANCE TO SOURCE: _____
 BACKGROUND DESCRIPTION: _____

PLUME DESCRIPTION:

COLOR: Black LENGTH: _____
 STEAM PLUME: Y/N/ ATTACHED: Y/N/ LENGTH OF STEAM
 PLUME: N/A

Wx CONDITION:

WIND DIRECTION: 100 WIND SPEED: 0-5
 AMBIENT TEMP: 75 RELATIVE HUMIDITY: 50

APPLICABLE REGULATIONS/APPROVAL ORDER(S)/LIMITATIONS/CONDITIONS MET:

<u>A.O. 8-21-80</u>	<u>Stack Min</u>	Y/N:
<u>Utah Code 195 UACB</u>	<u>Min</u>	Y/N:
_____	_____	Y/N:

STACK TEST INFORMATION

MAXIMUM ALLOWABLE EMISSION RATE: N/A
 LAST TEST DATE: N/A NEXT TEST DUE DATE: N/A

OBSERVER: D. U. Smith

OBSERVER CERTIFICATION DATE: 8-88

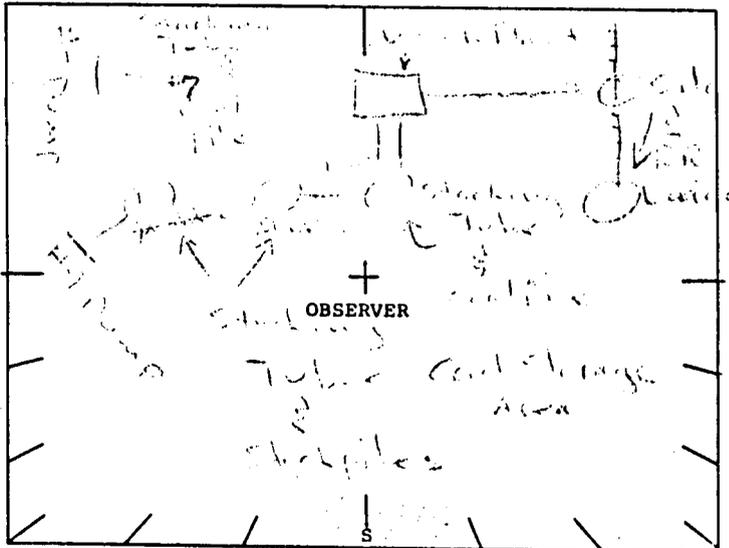
OBSERVER SIGNATURE: (Signature)

COPY OF REPORT GIVEN TO: Dan Guy

CONTACT SIGNATURE: (Signature)

COMMENTS:

#17 Dump handles coal from Garden
Co. #17 Mine. #19 Dump handles
coal from Beaver Co. #19 Mine
(Total Mt. n.) Total Production
Aug 11, 1988 (7000 from #17 and
1000 from #19) #17 coal by-passes
much dust. #19 coal by-passes
little dust.



OPACITY READINGS

No.	Hr:Min.	SECONDS				AVG.
		0	15	30	45	
1	10:15	Areas of spill				
2	:	near haul road				
3	:	near massive				
4	:	low water stream				
5	:	dark wet ground				
6	:	applied during				
1	10:25	inception of				
2	10:35	near haul road				
3	10:45	being abated				
4	:	near massive				
5	:	near massive				
6	:	near massive				

Fl 7 P
SOURCE: Truck Coal Dump
Hght. of Dischg 21 DIMENSION N/A

OPERATING PARAMETERS NORMAL (Y/N)
ACTUAL: 2,600 TPD
DESIGN: 4,900 TPD Total
CONTROL FACILITY: Coal Module
TYPE BURNER FUEL: N/A

APPLICABLE REG/A.O. LIMIT/COND. MET:
A.C. 8-21-80 20% (Y/N)
____ Y/N
____ Y/N
____ Y/N
____ Y/N

ALLOWABLE EMISSION RATE N/A
LAST TEST DATE NA DUE DATE NA
DISTANCE TO SOURCE 100'
BACKGROUND DESCRIPTION Blue sky/Mtn.
PLUME COLOR None/LENGTH None
STEAM PLUME Y/N ATTACHED Y/N
LENGTH OF STEAM PLUME NA
WIND SPEED 0-5/DIRECTION NW
AMB. TEMP. 75 R.H. 20

119
SOURCE: Truck Coal Dump
Hght. of Dischg 21 DIMENSION N/A

OPERATING PARAMETERS NORMAL (Y/N)
ACTUAL: 2,200
DESIGN: 4,900 TPD Total
CONTROL FACILITY: Coal Module
TYPE BURNER FUEL: N/A

APPLICABLE REG/A.O. LIMIT/COND. MET:
A.O. 8-21-80 20% (Y/N)
____ Y/N
____ Y/N
____ Y/N
____ Y/N

ALLOWABLE EMISSION RATE NA
LAST TEST DATE NA DUE DATE NA
DISTANCE TO SOURCE 100'
BACKGROUND DESCRIPTION Blue sky/Mtn.
PLUME COLOR Black/LENGTH Var
STEAM PLUME Y/N ATTACHED Y/N
LENGTH OF STEAM PLUME NA
WIND SPEED 0-5/DIRECTION NW
AMB. TEMP. 75 R.H. 20

117 Plant PAGE 2 of 5
SOURCE: Stack Tube
Hght. of Dischg 50' DIMENSION N/A

OPERATING PARAMETERS NORMAL (Y/N)
ACTUAL: 2,600 TPD
DESIGN: 4,900 TPD
CONTROL FACILITY: Coal Module
TYPE BURNER FUEL: N/A

APPLICABLE REG/A.O. LIMIT/COND. MET:
A.C. 8-21-80 20% (Y/N)
____ Y/N
____ Y/N
____ Y/N
____ Y/N

ALLOWABLE EMISSION RATE NA
LAST TEST DATE NA DUE DATE NA
DISTANCE TO SOURCE 100'
BACKGROUND DESCRIPTION Blue sky
PLUME COLOR None/LENGTH None
STEAM PLUME Y/N ATTACHED Y/N
LENGTH OF STEAM PLUME NA
WIND SPEED 0-5/DIRECTION NW
AMB. TEMP. 75 R.H. 20

Not Operating						Periodic short term excess fugitive dust depending upon coal moisture						Not Operating								
#	HR:MIN	SECONDS					#	HR:MIN	SECONDS					#	HR:MIN	SECONDS				
		0	15	30	45	AVG.			0	15	30	45	AVG.			0	15	30	45	AVG.
1	10:15	0					1	10:30						1	10:15	0				
2							2							2						
3							3			Light				3						
4							4			+				4						
5							5			Excess				5						
6							6							6						
1							1							1						
2							2							2						
3							3							3						
4							4							4						
5							5							5						
6							6							6						

SOURCE: #19 stacking Tube
 HIGHT. OF DISCHG 80' max DIMENSION _____
 OPERATING PARAMETERS NORMAL (Y/N)

Plant to Feed
 SOURCE: Plant Stacking Tube
 HIGHT. OF DISCHG 6' max DIMENSION _____
 OPERATING PARAMETERS NORMAL (Y/N)

Plant Feed PAGE 3 of 5
 SOURCE: Mill Stacking Tube
 HIGHT. OF DISCHG _____ DIMENSION _____
 OPERATING PARAMETERS NORMAL (Y/N)

ACTUAL: 2000 TPD
 DESIGN: 4500 TPD
 CONTROL FACILITY: Coal Moisture
 TYPE BURNER FUEL: N/A

ACTUAL: _____
 DESIGN: 4500 TPD
 CONTROL FACILITY: Coal Moisture
 TYPE BURNER FUEL: N/A

ACTUAL: _____
 DESIGN: 4500 TPD
 CONTROL FACILITY: Coal Moisture
 TYPE BURNER FUEL: N/A

APPLICABLE REG/A.O. LIMIT/COND. MET:
A.O. 9-21-90 70% Y/N
UACR Sec 41.5 70% Y/N
 _____ Y/N
 _____ Y/N
 _____ Y/N

APPLICABLE REG/A.O. LIMIT/COND. MET:
A.O. 9-21-90 70% Y/N
 _____ Y/N
 _____ Y/N
 _____ Y/N

APPLICABLE REG/A.O. LIMIT/COND. MET:
A.O. 9-21-90 70% Y/N
 _____ Y/N
 _____ Y/N
 _____ Y/N

ALLOWABLE EMISSION RATE NA
 LAST TEST DATE NA DUE DATE NA
 DISTANCE TO SOURCE 100'
 BACKGROUND DESCRIPTION sky
 PLUME COLOR Black / LENGTH Var
 STEAM PLUME Y/N ATTACHED Y/N
 LENGTH OF STEAM PLUME NA
 WIND SPEED 0-5 / DIRECTION NW
 MB. TEMP. 75 R.H. 50

ALLOWABLE EMISSION RATE N/A
 LAST TEST DATE NA DUE DATE NA
 DISTANCE TO SOURCE 100'
 BACKGROUND DESCRIPTION sky
 PLUME COLOR None / LENGTH None
 STEAM PLUME Y/N ATTACHED Y/N
 LENGTH OF STEAM PLUME NA
 WIND SPEED 0-5 / DIRECTION NW
 AMB. TEMP. 75 R.H. 50

ALLOWABLE EMISSION RATE N/A
 LAST TEST DATE N/A DUE DATE N/A
 DISTANCE TO SOURCE 100'
 BACKGROUND DESCRIPTION sky
 PLUME COLOR None / LENGTH None
 STEAM PLUME Y/N ATTACHED Y/N
 LENGTH OF STEAM PLUME NA
 WIND SPEED 0-5 / DIRECTION NW
 AMB. TEMP. 75 R.H. 50

<p>Periodic Short Duration Excess Fugitive Emissions Depending on Coal Moisture</p> <p>See p.1</p>						<p>Not Operating</p> <p>See p.1</p>						<p>Not Operating</p> <p>See p.1</p>									
#	HR:MIN	SECONDS					#	HR:MIN	SECONDS					#	HR:MIN	SECONDS					
		0	15	30	45	AVG.			0	15	30	45	AVG.			0	15	30	45	AVG.	
1	10:30						1	10:30	0					1	10:30	0					
2		Light					2						2								
3		to					3						3								
4		Excess					4						4								
5							5						5								
6							6		0				6		0						0
1							1						1								
2							2						2								
3							3						3								
4							4						4								
5							5						5								
6							6						6								

SOURCE: Coal Storage Silo
 HGHT. OF DISCHG _____ DIMENSION _____
 1611' Tall
 OPERATING PARAMETERS NORMAL (Y/N)
 ACTUAL: 11,500 Ton capacity
 DESIGN: _____
 CONTROL FACILITY: Enclosed
 TYPE BURNER FUEL: N/A

SOURCE: PR Lumber
 HGHT. OF DISCHG _____ DIMENSION _____
 OPERATING PARAMETERS NORMAL (Y/N)
 ACTUAL: 1.3 Hrs / 1000 Cars
 DESIGN: 100 Tons / car
 CONTROL FACILITY: Enclosed
 TYPE BURNER FUEL: N/A

SOURCE: Wash. Plant
 HGHT. OF DISCHG _____ DIMENSION _____
 OPERATING PARAMETERS NORMAL (Y/N)
 ACTUAL: _____
 DESIGN: _____
 CONTROL FACILITY: Water
 TYPE BURNER FUEL: N/A

APPLICABLE REG/A.O. LIMIT/COND. MET:
A.C. 8-21-80 50% Y/N
 _____ Y/N
 _____ Y/N
 _____ Y/N
 _____ Y/N

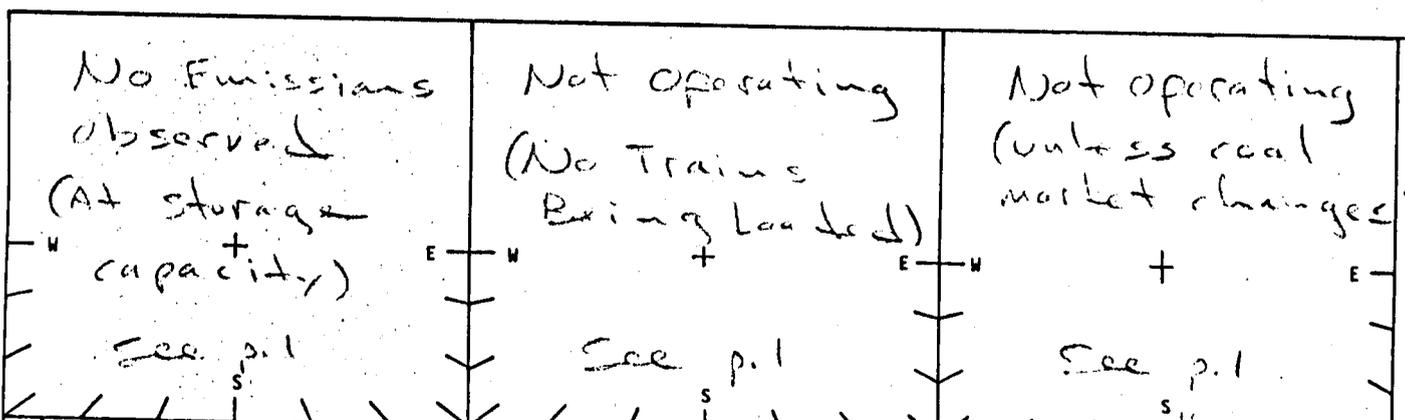
APPLICABLE REG/A.O. LIMIT/COND. MET:
A.C. 8-21-80 50% Y/N
 _____ Y/N
 _____ Y/N
 _____ Y/N
 _____ Y/N

APPLICABLE REG/A.O. LIMIT/COND. MET:
A.C. 8-21-80 50% Y/N
 _____ Y/N
 _____ Y/N
 _____ Y/N
 _____ Y/N

ALLOWABLE EMISSION RATE NA
 LAST TEST DATE NA DUE DATE NA
 DISTANCE TO SOURCE 100'
 BACKGROUND DESCRIPTION sky
 PLUME COLOR None/LENGTH None
 STEAM PLUME (Y/N) ATTACHED (Y/N)
 LENGTH OF STEAM PLUME NA
 WIND SPEED 0-5 /DIRECTION NW
 AMB. TEMP. 75 R.H. 20

ALLOWABLE EMISSION RATE NA
 LAST TEST DATE NA DUE DATE NA
 DISTANCE TO SOURCE 100'
 BACKGROUND DESCRIPTION sky
 PLUME COLOR None/LENGTH None
 STEAM PLUME (Y/N) ATTACHED (Y/N)
 LENGTH OF STEAM PLUME NA
 WIND SPEED 0-5 /DIRECTION NW
 AMB. TEMP. 75 R.H. 20

ALLOWABLE EMISSION RATE NA
 LAST TEST DATE NA DUE DATE NA
 DISTANCE TO SOURCE 100'
 BACKGROUND DESCRIPTION sky
 PLUME COLOR None/LENGTH None
 STEAM PLUME (Y/N) ATTACHED (Y/N)
 LENGTH OF STEAM PLUME NA
 WIND SPEED 0-5 /DIRECTION NW
 AMB. TEMP. 75 R.H. 20



#	HR:MIN	SECONDS					#	HR:MIN	SECONDS					#	HR:MIN	SECONDS				
		0	15	30	45	AVG.			0	15	30	45	AVG.			0	15	30	45	AVG.
1	11:00	0	0	0	0	0	1	11:00	0	0	0	0	0	1	10:45	0	0	0	0	0
2							2							2						
3							3							3						
4							4							4						
5							5							5						
6							6							6						
1							1							1						
2							2							2						
3							3							3						
4							4							4						
5							5							5						
6							6							6						

SOURCE: Portable Stoker Screening
 HGHT. OF DISCHG 6' DIMENSION NA

OPERATING PARAMETERS NORMAL (Y/N)
 ACTUAL: Periodic
 DESIGN: "
 CONTROL FACILITY: Coal Moisture
 TYPE BURNER FUEL: NA

APPLICABLE REG/A.O. LIMIT/COND. MET:
9-21-90 20% (Y/N)
Sec. 11.5 UACR 20% (Y/N)
 _____ Y/N
 _____ Y/N
 _____ Y/N

ALLOWABLE EMISSION RATE NA
 LAST TEST DATE NA DUE DATE NA
 DISTANCE TO SOURCE 100'
 BACKGROUND DESCRIPTION Sky, Mtn
 PLUME COLOR Black/LENGTH Var
 STEAM PLUME Y/N (Y/N) ATTACHED Y/N (Y/N)
 LENGTH OF STEAM PLUME NA
 WIND SPEED 0-5 /DIRECTION NW
 IB. TEMP. 75 R.H. 20

SOURCE: Conveyors
 HGHT. OF DISCHG Var DIMENSION NA

OPERATING PARAMETERS NORMAL (Y/N)
 ACTUAL: 2200 TPD
 DESIGN: 11,900 TPD Total
 CONTROL FACILITY: Coal Moist
 TYPE BURNER FUEL: COAL

APPLICABLE REG/A.O. LIMIT/COND. MET:
A.C. 9-21-90 20% (Y/N)
Sec. 11.5 UACR 20% (Y/N)
 _____ Y/N
 _____ Y/N
 _____ Y/N

ALLOWABLE EMISSION RATE NA
 LAST TEST DATE NA DUE DATE NA
 DISTANCE TO SOURCE 100'
 BACKGROUND DESCRIPTION Sky
 PLUME COLOR None/LENGTH None
 STEAM PLUME Y/N (Y/N) ATTACHED Y/N (Y/N)
 LENGTH OF STEAM PLUME NA
 WIND SPEED 0-5 /DIRECTION NW
 AMB. TEMP. 75 R.H. 20

SOURCE: Material Hdg.
 HGHT. OF DISCHG NA DIMENSION NA

OPERATING PARAMETERS NORMAL (Y/N)
 ACTUAL: NA
 DESIGN: NA
 CONTROL FACILITY: Water Spr.
 TYPE BURNER FUEL: NA Coal

APPLICABLE REG/A.O. LIMIT/COND. MET:
A.C. 9-21-90 20% (Y/N)
Sec 11.5 UACR 20% (Y/N)
 _____ Y/N
 _____ Y/N
 _____ Y/N

ALLOWABLE EMISSION RATE NA
 LAST TEST DATE NA DUE DATE NA
 DISTANCE TO SOURCE 100'
 BACKGROUND DESCRIPTION sky
 PLUME COLOR Black/LENGTH Var
 STEAM PLUME Y/N (Y/N) ATTACHED Y/N (Y/N)
 LENGTH OF STEAM PLUME NA
 WIND SPEED 0-5 /DIRECTION NW
 AMB. TEMP. 75 R.H. 20

<p>Occasional short term duration fugitives Moderate + depending on coal moisture See p. 1</p>	<p>Covers Only #9 Dump conveyor to stacking tube operating No Emissions See p. 1</p>	<p>(Coal Blending) Periodic Excessive fugitive Emissions from Truck Loading with Front End Loader See p. 1</p>
--	--	--

#	HR:MIN	SECONDS					#	HR:MIN	SECONDS					#	HR:MIN	SECONDS				
		0	15	30	45	AVG.			0	15	30	45	AVG.			0	15	30	45	AVG.
1	10:45						1	10:30	0			0		1	10:45					
2			Light				2						2							
3							3						3							
4							4						4							
5							5		0				5							
6							6					0	6							
1							1						1							
2							2						2							
3							3						3							
4							4						4							
5							5						5							
6							6						6							

1988
VEGETATION DATA

APPENDIX 9-1
VEGETATION TEST PLOTS

VEGETATION TEST PLOTS

C.V. SPUR

Scope:

Beaver Creek C.V. Spur is located approximately 4 miles southeast of Price, Utah in Carbon County. The area comprises approximately 120 acres of potential disturbance associated with the washing, cleaning and loading of coal. The land lies in an agricultural region but is not classified a prime farm ground due to the rolling topography with saline soils derived from mancos shale. The predominant vegetative cover prior to disturbance is outlined in C.V. Spur MRP, Chapter 9. Total vegetative cover is less than 18% comprised predominantly of species which are of marginal importance to wildlife or domestic grazing. This, in combination with very low productivity, less than 300# per acre renders this area ideal to attempt to enhance the region in its ability to support a more diversified population of wildlife while providing increased forage and cover over what existed prior to disturbance.

Attempts to perform contemporaneous revegetation at the site in the past have met with little success. The purpose of the test plots is to evaluate different soil treatment and planting techniques, including a mixture of soil and refuse as a planting medium. In addition, a standard control test plot will be used to

allow evaluation of individual plant species within the seed mix. The test plots will be placed on the west end of the refuse pile and will remain undisturbed throughout the life of the study.

The following report outlines the design and implementation of the test plots.

Vegetation Monitoring Report

CV Spur Test Plots

Scope:

On October 18, 1988, the vegetation test plots located in Carbon County, Utah at Beaver Creek Coal Company, CV Spur site were examined to determine success of revegetation methodologies. The plots were implemented in the fall of 1987 under the direction of Mr. Dan Guy of Beaver Creek Coal Company.

Three soil treatments and two mulches were tested as to their effectiveness in facilitating the establishment of 17 species of vegetation (see Attachment 1 - Species List). The test plot was established approximately in the south central portion of the property (Plate 9-1-A1) on an existing coal refuse pile. An area of approximately 140' by 120' was dedicated to the test plots. Soil was hauled from an adjacent top soil pile and placed in 25' strips, 120' in length at a rate of 6", 6", 4", and 3". After the soil was in place, 2" refuse was overlaid on the 4" soil strip, and 3" of coal refuse was overlaid on the 3" soil strip. A John Deere 750 Farm tractor was then utilized to thoroughly till (mix) the refuse and soil areas into a uniform consistency of 33% coal soil and 50% coal soil respectively. The 6" soil area was also tilled in order to minimize surface compaction associated with the transport and spreading of materials. Soil

analysis was conducted and is attached as Attachment 2. Two control blocks 25' by 25' were then marked off on the 6" soil area and the balance of the site was drill seeded utilizing a John Deere grain drill set at 3/8" depth. The two control plots were hand seeded with each species separated in strips approximately 10' by 18" and hand raked in order to partially cover the seed (see Exhibit 1).

After seeding, the south half of the test area was hydromulched utilizing a Bowie Hydromulcher. "Spraya Mulch", a wood fiber mulch was oversprayed at a rate of 2,000 lbs. per acre and 60 lbs. per acre Terra Tac AR on all but 1 control plot. Incorporated into the mulch slurry was 100 lbs. per acre of 16-16-8 fertilizer (see Exhibit 2 - Test Plot Layout). A 20' buffer zone between the hydromulched area was established to preclude overspray onto the hay mulch area.

The north half of the area was then mulched utilizing a "Finn" 2000 straw blower. Third cut alfalfa hay was applied at a rate of 2,000 lbs. per acre and crimped in on all but 1 control plot. Incorporated with the hay was 100 lbs. per acre of 16-16-8 fertilizer (see Exhibit 2 - Test Plot Layout). One hundred, (100) lbs. per acre of 16-16-8 fertilizer was then hand broadcast over the two control plots. The entire site was then fenced to preclude equipment or livestock trespass.

In May of 1988, the plots were examined to determine general condition. It was noted that the area was being heavily utilized by the indigenous wild hare or rabbit population in the area. This was noted by the number of scat sites as well as employee observation and tracks. Mr. Guy had the site re-fenced utilizing 48" X 1" X 1" chicken wire buried to a depth of 10" to 12" and tied to the top strain of barbed wire, approximately 36" above ground line. This appears to have actively precluded rabbit use since. The site was monitored for success in October of 1988.

Monitoring Methodology:

On October 11, 1988, the plots were monitored utilizing a 1.6% sample randomly located in each of the test plots. Ocular estimates of percent vegetative cover was made based on canopy coverage of the actual area. Where feasible, each species was identified (due to the emergent nature of the grass species, positive identification was almost impossible), each sprig within the monitoring plot was counted and apparent vigor was indicated of the overall plot. On a number of plots, large Russian thistles dominated the site. In order to gain an accurate count of sprigs, these thistle plants were removed. The monitoring plots were laid out north to south with the southwest corner located as the origination point. This corner was located on the ground and its approximate position is indicated with an "X" on Exhibit 2. No estimates of productivity were made due to the nature (emergent) of the vegetation cover.

It is important to note that the viability of a number of the species was in question due to the extreme draught experienced during the 1988 growing season. The 1989 monitoring should be more indicative of actual establishment.

The results of the survey are as follows:

	<u>Plot Description</u>	<u>% Veg. Cover</u>	<u>Vigor</u>
1.	Control - 6" soil	8%	Poor
2.	6" soil, wood mulch, fertilizer	22%	Average
3.	4" soil, 2" refuse, wood mulch, fert.	15%	Average
4.	3" soil, 3" refuse, wood mulch, fert.	21%	Good
5.	6" soil, hay mulch, fertilizer	7%	Poor
6.	4" soil, 2" refuse, hay mulch, fert.	10%	Poor
7.	3" soil, 3" refuse, hay mulch, fert.	<3%	Poor

Strip Plantings

Species	% Ground Cover %	Vigor Wood Mulch V	% Ground Cover %	Vigor Hay Mulch V
<i>Atriplex currugata</i>	0		0	
<i>Agropyron trichophorum</i>	25%	G	30%	A
<i>Atriplex confertifolia</i>	0		0	
<i>Atriplex canescens</i>	5%	G	25%	A
<i>Agropyron dasystachyum</i>	50%	A	25%	G
<i>Oryzopsis hymenoides</i>	30%	A	75%	G
<i>Hilaria jamesii</i>	0		0	
<i>Melilotus officinalis</i>	5%	P	5%	P
<i>opyron cristatum ephraim</i>	80%	VG	50%	P
<i>Sporobolus airoides</i>	5%	P	0	
<i>Penstemon palmeri</i>	0		0	
<i>Helianthus annuus</i>	15%	A	5%	P
<i>Agropyron cristatum fairway</i>	80%	P	20%	P
<i>Sphaeralcea graossulariae folia</i>	<2%	P	0	
<i>Eurotia lanta</i>	40%	G	15%	G
<i>Chrysothamnus nauseosus</i>	0	P	<2%	P
<i>Agropyron smithii</i>	<2%	P	<2%	P

VG = Very good vigor (seed heads present)
 G = Good vigor
 A = Average vigor
 P = Poor vigor

Average Number of Plants Per Plot (1.6% Of Area)

Plot Description	Halogeton	Russian Thistle	Winterfat	Yellow Clover	Rabbit Brush	Rag Weed	Sun Flower	Grasses
Control - 6" soil	20	4	4	1	1	0	0	23
<u>Wood Mulch</u>								
6" soil								
Wood mulch	5	3	12	2	2	0	0	135
Fertilizer								
4" soil 2" refuse								
Wood mulch	5	7	1	0	0	0	0	129
Fertilizer								
3" soil 3" refuse								
Wood mulch	5	30	1	0	0	8	0	68
Fertilizer								
<u>Hay Mulch</u>								
6" soil								
Hay mulch	19	3	1	2	0	3	2	60
Fertilizer								
4" soil 2" refuse								
Hay mulch	7	21	1	1	0	15	0	52
Fertilizer								
3" soil 3" refuse								
Hay mulch	11	9	0	2	0	6	0	0
Fertilizer								

Conclusions and Recommendations:

Based on the first year monitoring results, it appears that:

1. Wood fiber mulch offers a 50% increase in vegetation establishment over both hay mulch or no mulch.
2. Coal refuse (up to 50%) is not a significant deterrent to vegetation establishment.
3. Crested wheatgrasses and Indian rice grass offer the greatest potential for vegetation establishment in combination with Winter fat.
4. Third cut alfalfa hay may be an attractant to indigenous wildlife (rabbits) and as such, be detrimental to vegetation establishment.

A general observation of the site indicates that the test plot was severely impacted by the 1988 draught experienced in Carbon county. In conducting the monitoring, all emergent vegetation was inventoried at the time monitoring was conducted (October). It was impossible to determine whether the individual plants were dormant or dead. The 1989 monitoring should yield more significant data as to long term establishment.

It was interesting to note that the wood fiber mulch was largely in place with 90%+ ground cover while the hay mulch was sparse and accounted for less than 50% ground cover. It was impossible to determine whether the loss of hay mulch was due to rodent activity or wind dispersal.

Continued monitoring appears to be essential to substantiate the above referenced conclusions.

Beaver Creek - CV Spur
Vegetation Test Plot

<u>Control</u> 6" Soil Seed Only X	6" Soil Seed & Mulch X Wood Fiber 2000#/acre	4" Soil 2" Coal Refuse Seed & X Mulch Wood Fiber 2000#/acre	3" Soil 3" Coal Refuse Seed & Mulch X Wood Fiber 2000#/acre
Strip Planting of species Wood Fiber Mulch	X "	" X "	" X

20' Buffer Area

<u>Control</u> 6" Soil Seed Only X	6" Soil Seed & Hay Mulch X 2000#/acre	4" X Soil 2" Coal Refuse Seed & Hay Mulch 2000#/acre	3" Soil 3" Coal Refuse Seed & Hay X Mulch 2000#/acre
Strip Planting 6" Soil 2000#/acre Hay Mulch	X	" X "	X "

1" = 20'



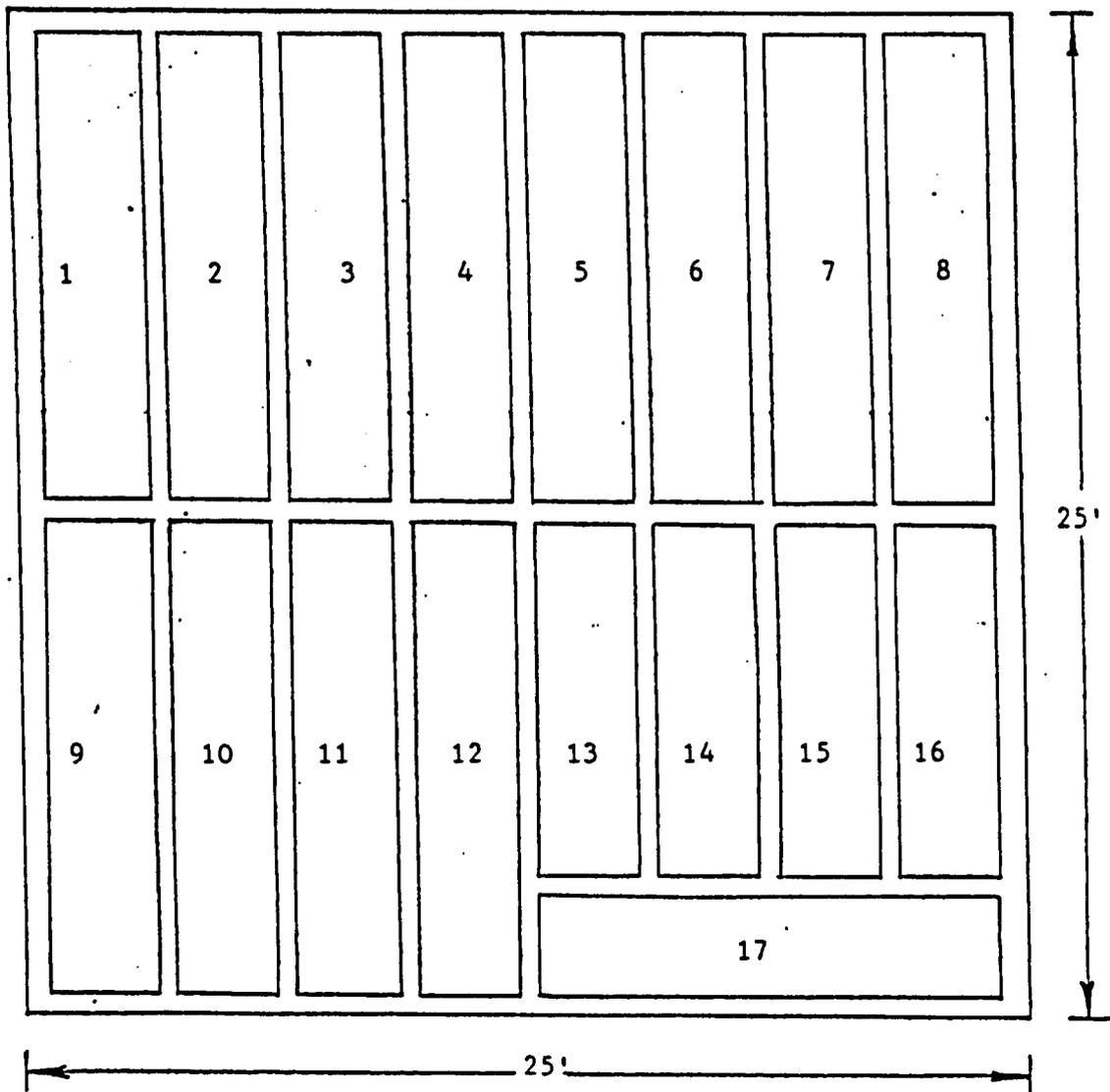
C.V. SPUR
TEST PLOTS

STRIP PLANTING
CONTROL PLOT

- 1- *Atriplex corrugata*
- 2- *Agro trichophorum*
- 3- *Atriplex confertifolia*
- 4- *Atriplex canescens*
- 5- *Agro dasystachyum*
- 6- *Oryzopsis hymenoides*
- 7- *Hilaria jamesii*
- 8- *Melilotus officinalis*
- 9- *Agro Cristatum ephraim*

- 10- *Sporobolus airoides*
- 11- *Penstemon palmeri*
- 12- *Helianthus annuus*
- 13- *Agro cristatum fairway*
- 14- *Sphaeralcea græssulariae folia*
- 15- *Eurotia lanta*
- 16- *Chrysothamnus nauseosus*
- 17- *Agro Smithii*

Scale: 1" = 5'



Mining and Reclamation Plan
 Castle Valley Spur Coal Processing and Loadout Facility Permit Application

Attachment I
 PERMANENT RECLAMATION SEED MIXTURE

Name	Rate (Pounds PLS/AC)	Price Per Pound	Total
<u>Grasses</u>			
Galleta (<u>Hilaria jamesii</u>)	2	\$26.25	\$ 52.50
Thickspike wheatgrass (<u>Agropyron dasystachyum</u>)	4	\$ 3.90	\$ 15.60
Indian ricegrass (<u>Oryzopsis hymenoides</u>)	3	\$ 8.15	\$ 24.45
Alkali scaton (<u>Sporobolus airoides</u>)	.75	\$ 3.30	\$ 2.48
Inland saltgrass (<u>Distichlis spicata</u>)	1	NA	<u>NA</u> \$ 95.03
<u>Forbs</u>			
Globemallow (<u>Sphaeralcea grossulariaefolia</u>)	.5	\$45.00	\$ 27.50
Sunflower (<u>Helianthus annuus</u>)	4	\$ 8.95	\$ 35.80
Palmer Penstemon (<u>Penstemon palmeri</u>)	.5	\$35.00	\$ 17.50
Yellow sweetclover (<u>Melilotus officinalis</u>)	2	\$.68	<u>\$ 1.36</u> \$ 82.16
<u>Shrubs</u>			
Winterfat (<u>Ceratoides lanata</u>)	3	\$18.50	\$ 55.50
Shadscale (<u>Atriplex confertifolia</u>)	4	\$ 8.00	\$ 32.00

Mining and Reclamation Plan
 Castle Valley Spur Coal Processing and Loadout Facility Permit Application

Name	Rate (Pounds PLS/AC)	Price Per Pound	Total
<u>Shrubs (continued)</u>			
Matbush (<u>Atriplex corrugata</u>)	4	\$15.00	\$ 60.00
Whitestem rubber rabbitbrush (<u>Chrysothamnus nauseosus</u> var. <u>albicanlis</u>)	1.5	\$68.00	\$102.00
Four-wing saltbrush (<u>Atriplex canescens</u>)	<u>3</u>	\$ 6.00	<u>\$ 18.00</u>
			\$267.50
TOTAL (for broadcast or hydroseeding)	<u>33.25</u>		\$444.69
(½ rate for drill seeding.)			

ATTACHMENT II

SOILS TEST



2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

March 28, 1988

Mr. Dan Guy
Beaver Creek Coal Company
P.O. Box 1378
Price, Utah 84501

Dear Dan:

On March 07, 1988, our laboratory received two (2) soil samples for analysis. These samples were analyzed for the parameters requested by the State of Utah, Dept. of Oil, Gas & Mining.

Enclosed are the results of the analysis performed. If you have any questions or if we can be of further service, please call.

Sincerely,

A handwritten signature in cursive script that reads 'Ron R. Richardson'.

Ron R. Richardson
Lab Director

Enclosures



Inter-Mountain Laboratories, Inc.

Farmington, New Mexico 87401

Tel. (505) 326-4737

2506 West Main Street

BEAVER CREEK COAL Co.

PRICE, UTAH

Mine:

CV-SPUR TEST PLOT

Reported: March 25, 1988

Location	Depth	pH	EC µmhos/cm @ 25C	Satur- ation %	Calcium mg/l	Magnesium mg/l	Sodium mg/l	SAR
COMP-SOIL	0.0-0.0	7.6	1.96	53.8	9.49	2.72	11.1	4.49
COMP-RUFUSE	0.0-0.0	7.3	2.71	43.3	23.1	5.99	7.78	2.04

A9-1-17

Various Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, Exch= Exchangeable, Avail= Available



Inter-Mountain Laboratories, Inc.

Farmington, New Mexico 87401

BEAVER CREEK COAL Co.

PRICE, UTAH

Mine:

CV-SPUR TEST PLOT

Tel. (505) 326-4737

2506 West Main Street

Reported: March 25, 1988

Location	Depth	Sand %	Silt %	Clay %	Texture	Organic Matter %	T.S. ABP t/1000t	Pyritic Sulfur %	Organic Sulfur %	Boron ppm	Selenium ppm	H2O Sol Selenium ppm
COMP-SOIL	0.0-0.0	22.7	42.6	34.5	CLAY LOAM	7.1	127.	0.01	0.04	0.30	<0.02	<0.01
COMP-RUFUSE	0.0-0.0	80.0	12.7	7.3	LOAMY SAND	14.3	10.3	0.10	0.39	0.98	<0.02	<0.01

A9-1-18

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, ABPTA= Ammonium Bicarbonate-DPTA, AAO= Acid Ammonium Oxalate
 Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, PyrOrg= Pyritic Sulfur + Organic Sulfur,
 Net. Pot.= Neutralization Potential

UNCULTIVATED

AREA

C.V. 14W
(SURFACE
DITCH)

C.V. 4W

C.V. 5W

C.V. 0W

NO. CV1W
(DRAIN)

PUMP
HOUSE

NPOES

DISCHARGE POI

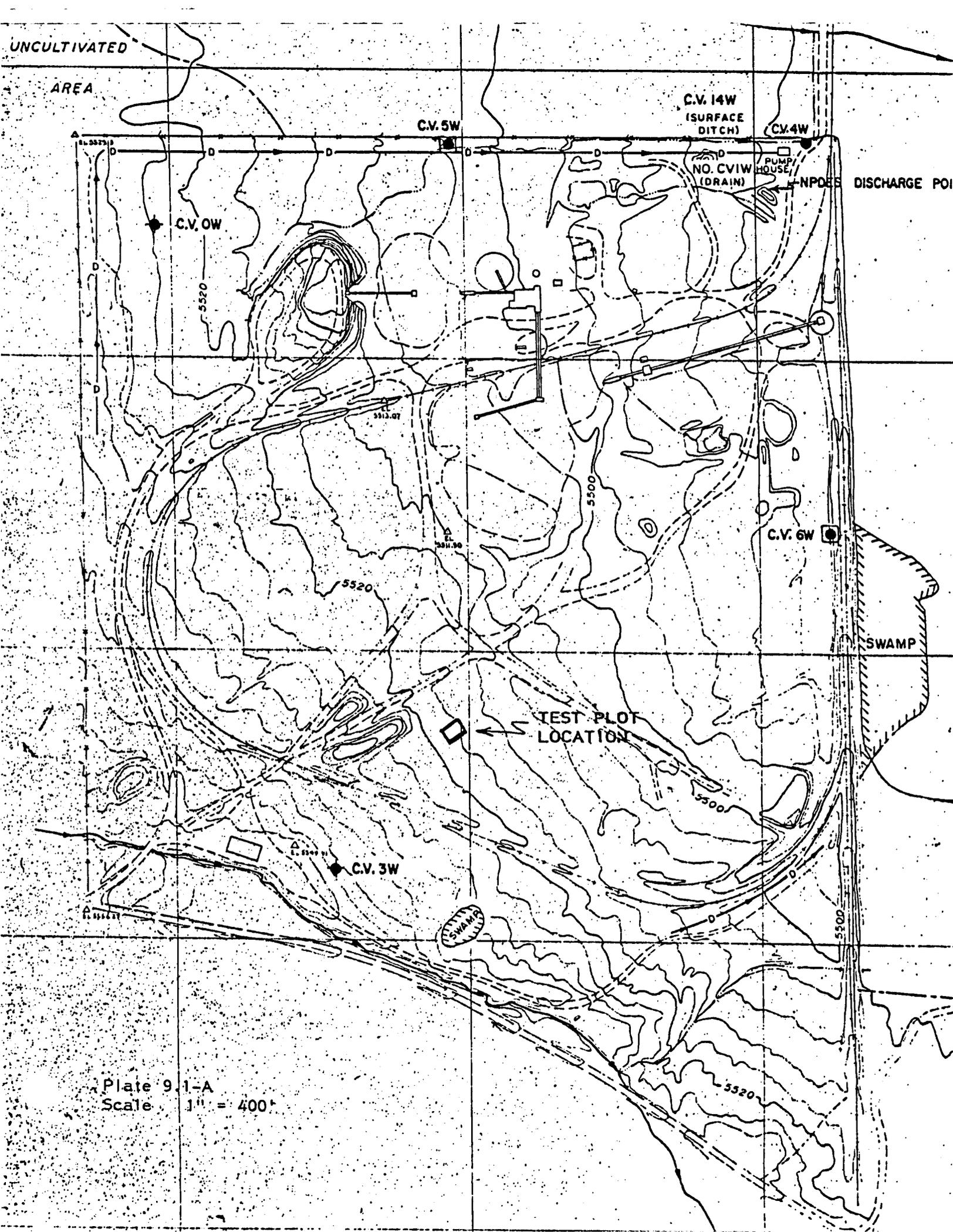
C.V. 6W

SWAMP

TEST PLOT
LOCATION

C.V. 3W

Plate 9.1-A
Scale 1" = 400'



1988
PERMIT / STIPULATION STATUS



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangert, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triod Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

March 2, 1988

Mr. Dan W. Guy, Manager
Permitting & Compliance
Beaver Creek Coal Company
P. O. Box 1378
Price, Utah 84501

Dear Mr. Guy:

Re: Approval of PAP Amendment, Request to Revise Water Monitoring Plan, Beaver Creek Coal Company, C. V. Spur Loadout Facility, ACT/007/022-87C, Folder No. 3, Carbon County, Utah

The Division received Beaver Creek Coal Company's (BCCC's) conditional approval response on February 12, 1988. The response was reviewed by James Fricke, Reclamation Hydrologist, and has been determined adequate for final approval. This letter will serve as the Division's final approval for this permit change application. Beaver Creek Coal Company has now provided all of the information required by this office to finalize this permitting action.

The Division will forward extra copies of the approved plans to the appropriate state and federal agencies to update file copies of BCCC's approved Mining and Reclamation Plan (MRP). Thank you for your cooperation in completing this permitting action.

Sincerely,

D. Wayne Hedberg
Data Management Coordinator

jr

Attachment

cc: P. Rutledge

R. Hagen

J. Whitehead

8992R/30

J. Fricke

P.F.O.



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

September 14, 1987

Mr. Dan Guy, Manager
Beaver Creek Coal Company
Permitting & Compliance
P. O. Box 1378
Price, Utah 84501

Dear Mr. Guy:

Re: C. V. Spur Test Plot Approval, Beaver Creek Coal Company, C. V. Spur, ACT/007/022, Folder #2, Carbon County, Utah

This letter confirms our phone conversation on September 9, 1987, concerning the C. V. Spur test plots. The design of the test plot is approved as proposed, with the following conditions:

1. The test plot treatments shall be duplicated using a randomized design.
2. The following species shall be incorporated into plot #8 and tested on an individual basis for adaptability to the site for possible use in future seed mixes. The species are:

Scientific Name

Common Name

Agropyron Smithii
Agropyron Cristatum
Agropyron Elongatum
Agropyron Trichophorum

Western Wheatgrass
Crested Wheatgrass
Tall Wheatgrass
Pubescent Wheatgrass

It is also suggested that Beaver Creek Coal Company (BCCC) try planting bare root stock or containerized plants of the shrub species proposed in the seed mix. These could be planted in the fall or early spring to test survival rates. Five plants of each species should be planted.

Page 2
Dan Guy, Manager
ACT/007/022
September 14, 1987

After the proposed three year monitoring period, if success is not evident to the Division, from data provided, BCCC must repeat the test plots using other treatments and incorporating procedures and species which were successful initially. Other treatments may include different mulching materials, rates or incorporating techniques, other adaptable species, and irrigation treatments.

Technically, the Division believes irrigation may be the best treatment for success in the permit area because of the dry, saline environment. The Division agrees with Beaver Creek that test plots should not test too many treatments, that the plots become unmanageable, and that initial plots should test treatments that require the least amount of management.

If irrigation treatments are to be used in subsequent plots, the plan should be for a two year irrigation period, to leach salts from the root zone and to establish plants. In the first year, enough water should be applied to leach salts out of the root zone and to prevent salts from raising back up into the root zone in the evaporational stream. This will also provide adequate soil moisture to encourage plant establishment. In the second year, water should be applied twice; first, early in the growing season for adequate soil moisture, and then again later in the season after plants have gone through a drying cycle. This will help harden plants for survival in the dry climate. When planning an irrigation program the irrigation water quality must be considered to establish the proper leaching fraction for the soils present. Drainage conditions of the soil profile and the timing and duration of irrigation must also be considered.

If I can be of any help, please feel free to contact me.

Sincerely,



Dan Duce
Reclamation Soils Specialist

DD/djh
cc: J. Whitehead
0835R/4



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

File
Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

April 2, 1987

Mr. Dan Guy, Manager
Permitting & Compliance
Beaver Creek Coal Company
P. O. Box 1378
Price, Utah 84501

Dear Mr.  Guy:

Re: Approval, Mid-Term Permit Review and Updated MRP, C. V. Spur,
Beaver Creek Coal Company, ACT/007/022, Folder No. 2 and 3,
Carbon County, Utah

The Division has reviewed the materials submitted January 9, 1987 in response to the Mid-Term Review Process. The Division finds that approval can be given to the Mining and Reclamation Plan as updated.

Please feel free to contact Lowell Braxton or John Whitehead should you have questions.

Best regards,



Dianne R. Nielson
Director

TM/djh
cc: A. Klein
J. Whitehead
B. Malencik
0800R/63

FINDINGS

Mid Permit Term Review
Beaver Creek Coal Company
C. V. Spur Mine
ACT/007/022

March 31, 1987

1. The Mining and Reclamation Plan (MRP) has been updated by submittals up through January 9, 1987 and is now complete and current.
2. The consolidated MRP has been reviewed and found to comply with current Division of Oil, Gas and Mining (Division) policy and rules.
3. Beaver Creek Coal Company has no outstanding permit stipulations for the C. V. Spur permit.
4. The applicant has proposed no changes to the application which would require a change in bond amount.

John J. Hitchcock
Permit Supervisor

Kenneth E. May 3/30/87
Associate Director, Mining

Samuel P. Buehler 3/30
Administrator, Mined
Land Development and
Reclamation Program

Donna P. Nielson
Director 4-2-87

APPROVED AS TO FORM:

Paul W. Robert
Assistant Attorney General



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Dianne R. Nielson, Ph.D., Division Director

4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

October 31, 1984

Mr. Dan W. Guy, Manager
Permitting and Compliance
Beaver Creek Coal Company
P. O. Box 1378
Price, Utah 84501

Dear Mr. Guy:

RE: Stipulation Responses, C. V. Spur Preparation Plant,
ACT/007/022, #2 and #4, Carbon County, Utah

This letter is to apprise you that the responses to the C. V. Spur Preparation Plant Stipulations 817.46-(1-2)-JW and 817.48-(1)-JW forwarded by Beaver Creek Coal Company to the Division on September 5, 1984 have been reviewed by the Division staff and are complete and adequate.

Thank you for your cooperation in this matter.

Sincerely,

Mary M. Boucek
Mary M. Boucek
Permit Supervisor/
Reclamation Biologist

JW/btb

cc: Allen Klein
Robert Hagen
John Whitehead
Ken Wyatt

92940-20

C.V. SPUR
1988
REFUSE PILE
INSPECTION / ANALYSES

REFUSE PILE INSPECTION REPORT

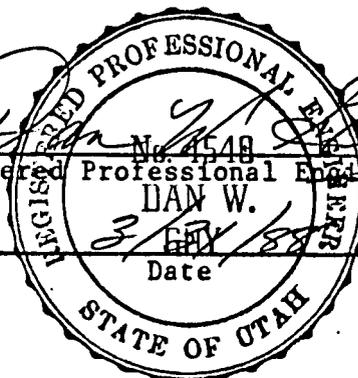
MSHA SITE #1211-UT-9-0034

C.V. SPUR

QUARTER 1/88

<u>ITEM</u>	<u>REMARKS</u>
(1) Potential Safety Hazards	<u>None</u>
(2) Slope Stability	<u>Stable ; Regraded on east side - looks good.</u>
(3) Removal of Topsoil and Organics	<u>N/A - Test Plots don't show any growth yet. Heavy rabbit use on straw.</u>
(4) Construction and Maintenance Performance Standards	<u>O.K.</u>
(5) Recommendations	<u>None - Pile Looks Good.</u>

I have performed the above inspection on this refuse pile and do hereby certify it to be a true and accurate representation of the pile at this time.


Registered Professional Engineer
DAN W.
Date 3/88

REFUSE PILE INSPECTION REPORT

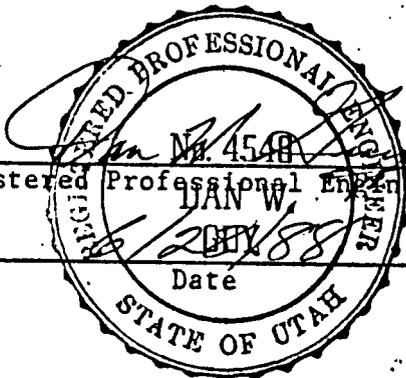
MSHA SITE #1211-UT-9-0034

C.V. SPUR

QUARTER 2/88

<u>ITEM</u>	<u>REMARKS</u>
(1) Potential Safety Hazards	<u>None</u>
(2) Slope Stability	<u>Stable</u>
(3) Removal of Topsoil and Organics	<u>N/A; Test Plots have new rabbit-proof fence. Growth on plots seems to be mostly weeds - minor grasses.</u>
(4) Construction and Maintenance Performance Standards	<u>O.K. - Regrading Looks Good.</u>
(5) Recommendations	<u>None</u>

I have performed the above inspection on this refuse pile and do hereby certify it to be a true and accurate representation of the pile at this time.


Registered Professional Engineer
DAN W.
2/20/88
Date

REFUSE PILE INSPECTION REPORT

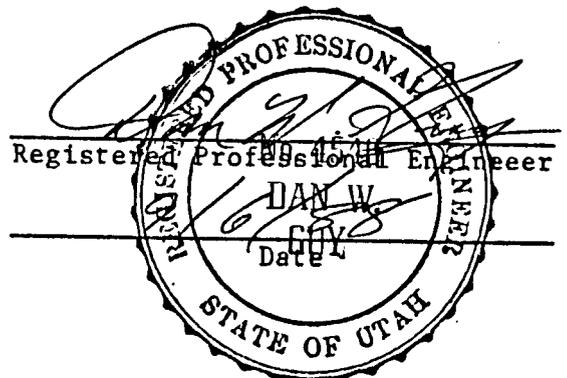
MSHA SITE #1211-UT-9-0034

C.V. SPUR

QUARTER 3/88

<u>ITEM</u>	<u>REMARKS</u>
(1) Potential Safety Hazards	<u>None</u>
(2) Slope Stability	<u>Stable</u>
(3) Removal of Topsoil and Organics	<u>N/A; Test Plots very dry - Halogoten major veg.</u>
(4) Construction and Maintenance Performance Standards	<u>O.K. - Minor accumulations of #2 sed. Pond cleaning need to be blacked out when dry.</u>
(5) Recommendations	<u>None - see (4) above.</u>

I have performed the above inspection on this refuse pile and do hereby certify it to be a true and accurate representation of the pile at this time.



REFUSE PILE INSPECTION REPORT

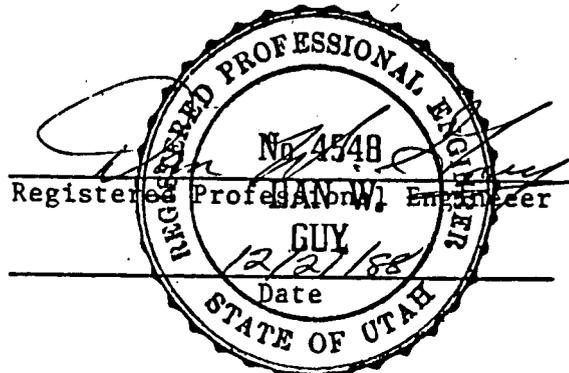
MSHA SITE #1211-UT-9-0034

C.V. SPUR

QUARTER 4/88

<u>ITEM</u>	<u>REMARKS</u>
(1) Potential Safety Hazards	<u>NONE</u>
(2) Slope Stability	<u>Stable</u>
(3) Removal of Topsoil and Organics	<u>N/A ; Test Plots Sampled - Minor success noted on 50% Refuse area.</u>
(4) Construction and Maintenance Performance Standards	<u>O.K. - Sediment Pond Waste & No. 8 Pad Material need compacted when dry. Minor erosion on south side of pile.</u>
(5) Recommendations	<u>Blade out loose material when dry. Fill in minor erosion gullies on south side of pile.</u>

I have performed the above inspection on this refuse pile and do hereby certify it to be a true and accurate representation of the pile at this time.



REFUSE PILE ANALYSIS



NCE 1908

COMMERCIAL TESTING & ENGINEERING CO.

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

Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO:
224 SO. CARBON AVE., PRICE, UT 84501
TELEPHONE: (801) 637-7540

BEAVER CREEK COAL CO.
P.O. Box 1378
Price, Utah 84501

February 6, 1989

Sample identification
by

Beaver Creek Coal Co.

Refuse material

Kind of sample reported to us	Coal
Sample taken at	C V Spur
Sample taken by	Beaver Creek Coal Co.
Date sampled	12/30/88
Date received	01/24/89

Analysis report no. 57-28458

SHORT PROXIMATE ANALYSIS

	<u>As Received</u>	<u>Dry Basis</u>
--	--------------------	------------------

% Moisture	5.75	xxxxx
% Ash	30.96	32.85
Btu/lb	8483	9000
% Sulfur	0.62	0.66

% Air Dry Loss =	4.77
Moisture, Ash-free Btu =	13403
Pounds of SO ₂ per 10 ⁶ Btu =	1.47
Moist, Mineral matter free Btu * =	12763
(Based on as rec'd moisture)*	
Pounds of Sulfur per 10 ⁶ Btu =	0.73
% Residual moisture =	1.03

NEUTRALIZATION POTENTIAL	97 tons CaCO ₃ / 1000 tons
ACID POTENTIAL (of pyritic sulfur)	10 tons caCO ₃ / 1000 tons

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Debra Pennington
Manager, Price Laboratory

DP/rf

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

TYPICAL COAL ANALYSIS
NO. 7 MINE - CASTLE GATE "A" SEAM



COMMERCIAL TESTING & ENGINEERING CO.

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

INCE 1908

Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO:
224 SO. CARBON AVE., PRICE, UT 84501
TELEPHONE: (801) 637-7540

BEAVER CREEK COAL CO.
P.O. Box 1378
Price, Utah 84501

February 6, 1989

Sample identification
by

Beaver Creek Coal Co.

No. 7 Mine

Kind of sample reported to us Coal
Sample taken at C V Spur
Sample taken by Beaver Creek Coal Co.
Date sampled 12/30/88
Date received 01/24/89

Analysis report no. 57-28459

SHORT PROXIMATE ANALYSIS

As Received Dry Basis

% Moisture	8.63	xxxxx
% Ash	6.54	7.16
Btu/lb	12380	13549
% Sulfur	0.50	0.55

% Air Dry Loss = 6.93
 Moisture, Ash-free Btu = 14594
 Pounds of SO₂ per 10⁶ Btu = 0.81
 Moist, Mineral matter free Btu * = 13333
 (Based on as rec'd moisture)*
 Pounds of Sulfur per 10⁶ Btu = 0.41
 % Residual moisture = 1.83

NEUTRALIZATION POTENTIAL 6 tons CaCO₃ / 1000 tons
 ACID POTENTIAL (of pyritic sulfur) 3 tons CaCO₃ / 1000 tons

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Dorlene Pennington
Manager, Price Laboratory

DP/rf

Original Copy Watermarked
For Your Protection

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

TYPICAL COAL ANALYSIS
NO. 9 MINE - HIAWATHA SEAM



COMMERCIAL TESTING & ENGINEERING CO.

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

VCE 1908

Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO:
224 SO. CARBON AVE., PRICE, UT 84501
TELEPHONE: (801) 637-7540

February 6, 1989

BEAVER CREEK COAL CO.
P.O. Box 1378
Price, Utah 84501

Sample identification
by

Beaver Creek Coal Co.

Kind of sample reported to us Coal
Sample taken at C V Spur
Sample taken by Beaver Creek CoalCo.
Date sampled 12/30/88
Date received 1/24/89

No. 9 Mine

Analysis report no. 57-28460

SHORT PROXIMATE ANALYSIS

As Received Dry Basis

% Moisture	8.06	xxxxx
% Ash	10.42	11.33
Btu/lb	11766	12798
% Sulfur	0.52	0.57

% Air Dry Loss = 6.79
 Moisture, Ash-free Btu = 14433
 Pounds of SO₂ per 10⁶ Btu = 0.89
 Moist, Mineral matter free Btu * = 13271
 (Based on as rec'd moisture)*
 Pounds of Sulfur per 10⁶ Btu = 0.45
 % Residual moisture = 1.36

NEUTRALIZATION POTENTIAL 21 tons CaCO₃ / 1000 tons
ACID POTENTIAL (of pyritic sulfur) 5 tons CaCO₃ / 1000 tons

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Debra Pennington
Manager, Price Laboratory

DP/rf

Original Copy Watermarked
For Your Protection

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

1988

MODIFICATIONS / AMENDMENTS

1987

MODIFICATIONS / AMENDMENTS



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

November 16, 1987

Mr. Dan W. Guy, Manager
Permitting & Compliance
Beaver Creek Coal Company
P. O. Box 1378
Price, Utah 84501

Dear Mr. Guy:

Re: Approval of PAP Amendment, T.D.N. #1, 2, & 4 Response, MRP
Discrepancy Corrections, Beaver Creek Coal Company, C. V. Spur
Loadout Facility, ACT/007/022-87F, Folder #2, Carbon County, Utah

The Division has completed review of plans received October 22, 1987 for the above referenced PAP amendment. Division hydrologist, James Fricke, has reviewed the plans and recommends approving the amendment. The plans provided are adequately formatted for insertion into the approved PAP. These plans will be forwarded to all appropriate regulatory agencies for updating their copies of the approved mining and reclamation plan.

Thank you for your cooperation in completing this permitting action. Please call me, James Fricke or John Whitehead should you have questions pertaining to this amendment review.

Sincerely,

A handwritten signature in cursive script that reads "D. Wayne Hedberg".

D. Wayne Hedberg
Data Management Coordinator

djh
cc: R. Hagen J. Whitehead
 P. Rutledge P.F.O.
 J. Fricke
8992R/37



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

November 16, 1987

Mr. Dan W. Guy, Manager
Permitting & Compliance
Beaver Creek Coal Company
P. O. Box 1378
Price, Utah 84501

Dear Mr. Guy:

Re: Conditional Approval of PAP Amendment, T.D.N. #5 Response,
Sediment Pond Markers & Cleanout Levels, Beaver Creek Coal
Company, C. V. Spur Loadout Facility, ACT/007/022-87D, Folder
No. 3, Carbon County, Utah

The Division has completed a review of plans received October 22, 1987 for the above referenced PAP amendment. Division hydrologist, James Fricke, has reviewed the plans and recommends granting conditional approval for the amendment. Please refer to the attached technical memorandum for an explanation of the conditions which will require additional information from the operator.

Please provide the requested information by December 5, 1987. Thank you for your cooperation in completing this permitting action. Please call me, James Fricke or John Whitehead should you have questions pertaining to this amendment review.

Sincerely,

A handwritten signature in cursive script that reads "D. Wayne Hedberg".

D. Wayne Hedberg
Data Management Coordinator

djh
Attachment
cc: R. Hagen J. Whitehead
 P. Rutledge P.F.O.
 J. Fricke
8992R/34



STATE OF UTAH
 NATURAL RESOURCES
 Oil, Gas & Mining

Norman H. Bangerter, Governor
 Dee C. Hansen, Executive Director
 Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

November 16, 1987

Mr. Dan W. Guy, Manager
 Permitting & Compliance
 Beaver Creek Coal Company
 P. O. Box 1378
 Price, Utah 84501

Dear Mr. Guy:

Re: Review of PAP Amendment, T.D.N. #6, 7, & 8 Responses, MRP
 Discrepancy Corrections to Drainage Control Plan, Beaver Creek
 Coal Company, C.V. Spur Loadout Facility, ACT/007/022-87E,
 Folder No. 2, Carbon County, Utah

The Division cannot approve the above referenced PAP amendment request as received October 22, 1987. James Fricke, Division hydrologist, has performed a technical review of the proposal and made recommendations requiring additional information from the operator. Please refer to the attached technical memo for an explanation of our concerns with this amendment request. These deficiencies must be adequately addressed before the Division may consider granting approval. Please provide the technical information as requested in the technical memo no later than December 5, 1987.

Thank you for your cooperation in completing this permitting activity. Please contact me, James Fricke, or John Whitehead should you have questions concerning the technical review recommendations.

Sincerely,

D. Wayne Hedberg
 Data Management Coordinator

djh
 Attachment
 cc: P. Rutledge
 R. Hagen
 J. Whitehead
 8992R/36

J. Fricke
 P.F.O.

Beaver Creek Coal Company

P.O. Box 1378
Price, Utah 84501
Telephone 801 637-5050



December 10, 1987

Mr. Lowell P. Braxton
Administrator
Utah Division of Oil Gas & Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1230

RE: Response to Review of Amendments
T.D.N. 1 thru 8
C.V. Spur Loadout Facility
ACT/007/022-87E,#2
Carbon County, Utah

Dear Mr. Braxton:

Enclosed are 8 copies of revised pages for the PAP, addressing the concerns in Mr. Hedberg's letters of 11/16/87. The revised pages are numbered and dated, and should replace those previously submitted.

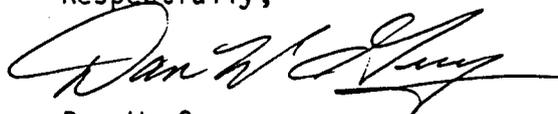
Some of the technical comments are addressed by an explanation rather than a page revision. The following is a summary of my understanding of the present status of the TDN responses, deficiencies, and revisions or explanations to address the deficiencies:

- (1) TDN #1,2,3,& 4 - Response adequate or none required;
- (2) TDN #5- Page 7-90d revised to address concerns in conditional approval;
- (3) TDN #6,7 - No technical concerns received - I assume the previous response was adequate;
- (4) TDN #8 - Required correction of discrepancies in (a),(b)(2), and (c);
 - (a) Culvert numbers were identified in the T.D.N. response, on page 7-88a and Plate 3-2 (10/15/87);
 - (b)(2) The two ten-inch culverts are described on the 3rd page, item (3)(b) of my response letter on T.D.N. #8 (10/21/87); the culverts were un-numbered and appeared on the old map; they have been removed and drainage is as shown on Plate 3-2 (10/15/87);

(c) As discussed with my previous T.D.N. submittal on 10/21/87, culvert C-5 was replaced with a larger (24") culvert some years ago; The culvert design specifications on Table 7-25, p.7-88a (10/15/87) show the velocity to be non-erosive (3.59 fps). Velocities at this culvert outlet are so low that the area acts as a settling basin and requires frequent cleaning; rip-rap was placed at the outlet, however there is no need for a filter blanket and a plan, since the rip-rap is primarily cosmetic and will likely be disturbed on a frequent basis for cleaning. It should be noted that culvert C-5 discussed above was the only culvert in the original plan with proposed rip-rap; this was based on a smaller size culvert and an apparently erroneous velocity calculation which has now been corrected. Rip-rap was placed at all culvert outlets showing evidence of scouring after the inspection; however, the short time frame did not allow for design and submittal of plans on filter blankets, etc. Gravel ranging from $\frac{1}{4}$ "- 1" was mixed in with the rip-rap during placement, and appears to be working adequately. These culverts are maintained on a regular basis. If additional scouring or erosion becomes evident, it will be corrected. If the problem appears to be associated with the lack of a filter blanket, it will be installed at that time.

I hope this submittal and explanation will help clarify remaining questions on the T.D.N. responses. If you have any questions, please let me know.

Respectfully,



Dan W. Guy
Mgr. Permitting/Compliance

cc: J.L. Coffey
R.J. Marshall
File

7.27 Sediment Cleanout Determination

The sediment ponds will be checked by level survey on a quarterly basis to determine sediment levels. Results of the survey will be kept on file.

When the sediment accumulation reached the cleanout depths as listed below (60% of maximum sediment storage) measures will be implemented to clean the affected pond within 60 days, weather permitting, of the measurement.

Actual sediment levels will be the average of the measurements taken in the pond.

Cleanout levels for each of the ponds are as follows:

<u>Pond No.</u>	<u>Depth (Down from Overflow)</u>
1	5.78'
2	6.78'
3	6.78'
5	6.61'
6	4.64'

The baseline survey point will be the low point of the pond overflow structure. The sediment level will be taken at (or near) the center of empty ponds. When ponds contain water, a minimum of 3 measurements shall be taken from the pond edges, and the average depth will be used to determine the sediment level.



STATE OF UTAH
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Norman H. Bangerter, Governor
 Dee C. Hansen, Executive Director
 Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

January 22, 1988

Mr. Dan W. Guy, Manager
 Permitting & Compliance
 Beaver Creek Coal Company
 P. O. Box 1378
 Price, Utah 84501

Dear Mr. Guy:

Re: Final Approval of PAP Amendment, Ten-Day-Notice (TDN) #5 Response, Sediment Pond Cleanout Level Markers, Beaver Creek Coal Company, C. V. Spur Preparation Facility, ACT/007/022-87D, Folder No. 3, Carbon County, Utah

The Division received Beaver Creek Coal Company's (BCCC) conditional approval response to TDN #5 on December 16, 1987. The latest response was reviewed by James R. Fricke, Reclamation Hydrologist. Please refer to the attached memorandum for an expansion of the technical review and approval recommendation. This letter will serve as the Division's final approval for this permit change application. Beaver Creek Coal Company has now adequately addressed all of the conditions required by this office to finalize this permitting action.

The Division will forward the extra copies of the approved plans to appropriate state and federal agencies to update file copies of BCCC's approved mining and reclamation plan permit application.

Thank you for your cooperation in completing permitting action. Please call if you have questions or need additional information pertaining to this review.

Sincerely,

D. Wayne Hedberg
 Data Management Coordinator

djh

Attachment

cc: M. Bailey J. Fricke
 R. Hagen J. Whitehead
 P. Rutledge P.F.O.

8992R/26



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

May 20, 1988

Mr. Dan Guy, Manager
Permitting & Compliance
Beaver Creek Coal Company
P. O. Box 1378
Price, Utah 84501

Dear Mr. Guy:

Re: Ditch Typical Revision, NOV Abatement Plan, Exploration
Application, Beaver Creek Coal Company, C. V. Spur,
ACT/007/022-87E, Folder 3, Carbon County, Utah

Review of your submittal dated April 29, 1988, has been completed by Jim Fricke, Reclamation Hydrologist.

Resolution of the following condition by June 3, 1988 will consummate final approval. Beaver Creek Coal Company must submit one amendment package containing all information from the April 13, 1988 submittal, and Plate 7-3 and page 7-77 of the October 21, 1987 submittal.

Sincerely,

A handwritten signature in cursive script, appearing to read 'John J. Whitehead'.

John J. Whitehead
Permit Supervisor/
Reclamation Hydrologist

JCH/djh
Attachment(s)
cc: R. Hagen, OSMRE
J. Helfrich
J. Fricke
0341R/30



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

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Dee C. Hansen, Executive Director
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May 20, 1988

Mr. Dan Guy, Manager
Permitting & Compliance
Beaver Creek Coal Company
P. O. Box 1378
Price, Utah 84501

Dear Mr. Guy:

Re: Final Approval of PAP Amendment, Culvert Outlet
Protection Plan, Beaver Creek Coal Company, C. V. Spur,
ACT/007/022-87E, Folder 3, Carbon County, Utah

The Division received your response for a PAP Amendment for the Culvert Outlet Protection Plan on April 12, 1988. The plans were reviewed by Jim Fricke, Reclamation Hydrologist, of the Division technical staff. This letter will serve as the Division's final approval for this permit change application. Beaver Creek Coal Company has now adequately addressed all of the conditions required by this office to finalize this permitting action. Thank you for your cooperation and prompt response in completing this permitting action.

Sincerely,

A handwritten signature in cursive script, appearing to read "John J. Whitehead".

John J. Whitehead
Permit Supervisor/
Reclamation Hydrologist

JCH/djh
Attachment(s)
cc: R. Hagen, OSMRE
 J. Helfrich
 J. Fricke
0341R/29

FIGURE 7-6

CULVERT OUTLET PROTECTION PLAN

Scale: 1" = 1'

4/7/88 D.G.

Groundline ✓

BEAVER CREEK Coal Company

Post Office Box 1378
Price, Utah 84501
Telephone 801 637-5050



April 12, 1988

Mr. Lowell P. Braxton
Administrator
Utah Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Attention: Mr. D. Wayne Hedberg

RE: T.D.N. #7 and #8 Response
Riprap Design for Culvert Outlets
C.V. Spur Loadout Facility
ACT/007/022-87 E; #2
Carbon County, Utah

Dear Mr. Braxton:

Pursuant to Mr. Hedberg's letter of 2/4/88, I am enclosing 8 copies of a Culvert Outlet Protection Plan for the C.V. Spur M.R.P.

This plan is in the form of an additional figure, and should be inserted in the M.R.P. in the designated page location in Chapter 7.

I hope this submittal will complete the requirements for the T.D.N.'s.

If you need any further information please let me know.

Respectfully,

Dan W. Guy



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Norman H. Bangerter
Governor

Dee C. Hansen
Executive Director

Dianne R. Nielson, Ph.D.
Division Director

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

September 19, 1988

Mr. Dan Guy, Manager
Permitting & Compliance
Beaver Creek Coal Company
P. O. Box 1378
Price, Utah 84501

Dear Mr. Guy:

Re: Final Approval, Typical Ditch Amendment, Beaver Creek Coal Company, C. V. Spur, ACT/007/022-87E, Folder #3, Carbon County, Utah

The Division has approved your submittal(s) received August 25, 1988. The plans were reviewed by Jim Fricke of the Division's technical staff.

Thank you for your cooperation in this matter. The termination notice for NOV-N88-22-1-1 is enclosed.

If you have any questions, please call Jim Fricke or me.

Sincerely,

John J. Whitehead
Permit Supervisor/
Reclamation Hydrologist

djh

Enclosure(s)

cc: J. Fricke

J. Helfrich

B. Malencik

WP+/17

BEAVER CREEK Coal Company

Post Office Box 1378
Price, Utah 84501
Telephone 801 637-5050



August 25, 1988

Mr. Lowell P. Braxton
Administrator
Utah Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Attention: Mr. James R. Frickie

RE: N.O.V. N88-22-2-1
Ditch Typical Revision
C.V. Spur
ACT/007/022-87E; #2 & #6
Carbon County, Utah

Dear Mr. Braxton:

Enclosed is one copy of an amendment package for the C.V. Spur "Ditch Typical Revision" as requested in the 5/20/88 letter to Beaver Creek Coal Company from Mr. Whitehead and in the 4/29/88 memo from Mr. Frickie to Mr. Whitehead. This information is also submitted as abatement for the above referenced N.O.V.

If you need any further information, please let me know.

Respectfully,

A handwritten signature in cursive script that reads "Dan W. Guy".

Dan W. Guy
Manager Permitting/Compliance

cc: Johnny Coffey
Dave Arnolds
File

DWG/cr
IBMCATHY7

7.2.3.2 Undisturbed Runoff Diversions (continued)

Determination of Peak Discharges from Off-Site Areas A & B

The SCS TR20 computer model was used to determine the peak discharges from the off-site areas whose runoff is intercepted by the diversion shown on Figure 7-4 and Plate 3-2. Physical basin parameters were determined from topographic maps. Time of concentration, T_c , was determined from basin hydraulic length, elevation difference, and the Kirpich equation: $T_c = (11.9L^3/H)^{0.385}$. The curve number of 87 was determined from the soil survey and vegetation characteristics. The Farmer-Fletcher rainfall distribution was selected as the most applicable to the area. For the 10-year, 24-hour rainfall event, the highest peak discharge to be conveyed by the diversion was found to be 6.3 cfs.

Size of Diversion Channel

The diversion, shown on Figure 7-4, is intended to intercept and divert runoff from drainages A and B. It was excavated in the native soil, and is earth lined. Low velocities and regular maintenance serve to impede erosion. The channel is maintained with a minimum cross-sectional area of 4 ft². A typical diversion cross section is provided in Plate 7-3.

The length of the diversion is about 2,200 ft., and the elevation change along it is about 35 ft. The average slope of the channel is therefore about 0.016.

Manning's formula was used to determine the adequacy of the channel. Manning's N, the roughness coefficient, was assumed to be 0.05. A calculator program, developed for the

Mining and Reclamation Plan
Castle Valley Spur Coal Processing and Loadout Facility Permit Application

U.S. Office of Surface Mining (Selected Hand-held Calculator Codes for the Evaluation of the Cumulative Hydrologic Impacts of Mining, OSM, Region V, Contract J5191334, Denver, Colorado) was used to perform the actual calculation. The calculator outputs are listed in Table 7-20.

The water depth, in the channel, is about 0.77 ft. for a discharge of 6.3 cfs. When depths of 0.5 ft. and 1.0 ft. were assumed, the discharge was found to be about 3.0 and 10.0 cfs, respectively. In all cases channel flow velocities are less than 3 ft. per second.

7.2.3.2.1 Disturbed Area Runoff

Disturbed area runoff from the site is routed to the sediment ponds via collection ditches, as shown on Plate 3-2. Collection ditches vary in size and configuration; however, ditches will be maintained at minimum cross-sectional areas as shown on Plate 7-5.

7.2.3.3 Sedimentation Control

Sedimentation Ponds and on-site drainage controls are shown on Plate 3-2. Sedimentation ponds are located to collect and treat runoff from various sub-drainages. All ponds are designed to store at least one year of sediment plus the runoff volume from a 10-year, 24-hour rainfall. The sedimentation ponds are arranged in series such that all runoff from disturbed areas passes through Sedimentation Pond No. 6. The outlet of Sedimentation Pond No. 6 is an NPDES discharge monitoring and Compliance Point.

Water from Pond 6 is normally not discharged, but is placed back into the raw water feed for the preparation plant for re-use.

The sedimentation and other ponds will be cleaned periodically to maintain at least one year's sediment storage capacity. Cleaning is accomplished by a backhoe or dragline. The material is placed directly into trucks and hauled to the refuse pile on site for final disposal. The drainage from

1988
RAPTOR SURVEY
AND
MONITORING REPORT



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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Executive Director

Dianne R. Nielson, Ph.D.
Division Director

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

September 28, 1988

Mr. Dan Guy, Manager
Permitting and Compliance
Beaver Creek Coal Company
P. O. Box 1378
Price, Utah 84501

Dear Mr. Guy:

Re: Final Approval, Request to Suspend Annual Raptor
Surveys, Beaver Creek Coal Company, C. V. Spur
Preparation Plant, ACT/007/022, Folder No. 3, Carbon
County, Utah

The Division hereby approves the above-noted amendment received August 31, 1988. The plans were reviewed by Brent Stettler, Reclamation Biologist, of the Division's technical staff.

If you have any questions, please call Brent Stettler or me. Thank you for your cooperation in this matter.

Sincerely,

A handwritten signature in cursive script that reads "John J. Whitehead".

John J. Whitehead
Permit Supervisor/
Reclamation Hydrologist

djh
Attachment(s)
cc: R. Hagen
B. Malencik
B. Stettler
WP+15/24

BEAVER CREEK Coal Company

Post Office Box 1378
Price, Utah 84501
Telephone 801 637-5050



August 25, 1988

Mr. Lowell P. Braxton
Administrator
Utah Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Attention: Mr. John Whitehead

RE: Request to Suspend Annual
Raptor Surveys
C.V. Spur Prep Plant
ACT/007/022; #6
Carbon County, Utah

Dear Mr. Braxton:

In response to Mr. Whitehead's letter of July 19, 1988, Beaver Creek Coal Company is requesting the Division's approval to suspend annual raptor surveys for the above referred permit. No revised pages for the permit were found necessary for this request.

If you need any further information, please let me know.

Respectfully,

A handwritten signature in black ink, appearing to read "Dan W. Guy". The signature is fluid and cursive, with a large initial "D" and "G".

Dan W. Guy
Manager Permitting/Compliance

cc Johnny Coffey
File