

Mr. Tom Tetting  
Division of Oil, Gas and Mining  
June 9, 1983  
Page 5

Under UMC 784.17

Historic, Cultural, etc. - submitted 4-4-83.

Under UMC 784.20

Subsidence Discussion - provided 4-27-83.

Under UMC 784.22

Diversions

1. Cross section of Schoolhouse diversion. See Item 4. See attached Exhibit 3.4-2.
2. Schoolhouse diversion construction - provided 4-4-83.
3. Channel cross sections, culvert sizing and flow. See Item 4. See attached Exhibits 3.2-2, 3.3-2, 3.4-2, 3.6-2. All tables with site discussions.
4. Final channel dimensions. See Item 4. See attached Exhibits 3.2-3, 3.3-3, 3.4-3, 3.6-3. Tables with site discussions.
5. Longitudinal profiles - satisfied 1-13-83.

Under UMC 784.23

Maps and Plans

1. Pond 011 - satisfied 12-12-83.
2. Berms. See Item 4. Shown on Exhibits 3.2-1, 3.3-1, 3.4-1, 3.5-1, 3.6-1.
3. Sumps. See Item 4. See previous Exhibits and 3.2-2, 3.3-2, 3.4-2, 3.6-2.
4. Sowbelly culverts. See Exhibits 3.2-1 and 3.2-2.
5. Pond plans and cross sections. See Exhibits 3.2-2, 3.3-2 A & B, 3.4-2, 3.5-1, 3.6-2.
6. Bonding - surface permit area. See Exhibits 3.2-1, 3.3-1, 3.4-1, 3.5-1, 3.6-1.
7. Underground waste - satisfied 1-13-83 and 4-4-83.

Mr. Tom Tetting  
Division of Oil, Gas and Mining  
June 9, 1983  
Page 6.

Under UMC 784.25

Transportation

1. Rails - deleted.
2. Conveyors - satisfied 1-31-83.

Under UMC 805.11

Bonding - provided 4-4-83.

Under 817.11

Bonding - provided 4-4-83.

Under UMC 817.11

Signs - provided 4-4-83

Under UMC 817.43

Hydrology - Outlet Schoolhouse Canyon - attached. See Item 4.

Under UMC 817.97

Fish and wildlife - deleted.

Sincerely yours,

PRICE RIVER COAL COMPANY

R. L. Wiley  
Environmental Engineer

RLW:jp

Enclosures



STATE OF UTAH  
NATURAL RESOURCES  
Oil, Gas & Mining

Scott M. Matheson, Governor  
Temple A. Reynolds, Executive Director  
Dr. G. A. (Jim) Shirazi, Division Director

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

June 13, 1983

Mr. Robert Wiley  
Price River Coal Company  
P. O. Box 629  
Helper, Utah 84526

RE: Price River Complex  
ACT/007/004  
Folder No. 2  
Carbon County, Utah

Dear Mr. Wiley:

The Utah State Regulatory Program, approved January 21, 1981, required that all existing mines file an application for a permit within two months of the program approval date. All applications were to have been acted upon within eight months (September 21, 1981) of the program approval date; however, an administrative delay provision within the Utah Program allows continued operations during extended permit application review.

It is now 20 months after the date by which all permits were to have been approved, and the Office of Surface Mining (OSM) is requiring that a decision be made on your permit. OSM plans to make a decision on your permit application in December 1983. This decision will be made in accordance with the written findings of compliance requirements of UMC 786.19. These findings can be made only on the basis of a complete application, and cannot be addressed through the use of permit stipulations. Therefore, it is essential that you respond to any deficiencies found during the review of your application within the time period stated in the deficiency letter.

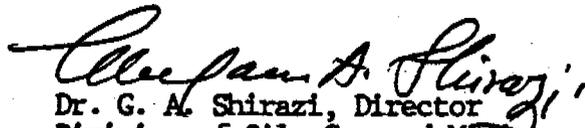
OSM has assumed the primary responsibility for reviewing your application for a permit. This is largely due to the existence of Federal lands involved in your operation. The change in responsibility to OSM rather than the Utah Division of Oil, Gas and Mining (UDOGM) in no way changes the status of the Utah program. OSM is the regulatory authority on Federal lands in Utah until a cooperative agreement has been finalized. Until then OSM will continue to issue permits on Federal lands. Once the regulatory authority has made a

Mr. Robert Wiley  
ACT/007/004  
June 13, 1983  
Page Two

decision on your permit application, your authorization to continue operation under administrative delay is ended. This means that in order to approve your permit application, we must have the information necessary to make all of the required findings on schedule.

Please work with us to assure a timely decision on your permit application. If you have any questions, please contact Steve Manger or Walter Swain at OSM (303) 837-5421.

Sincerely,

  
Dr. G. A. Shirazi, Director  
Division of Oil, Gas and Mining  
Utah Department of Natural Resources

  
Allen D. Klein, Administrator  
Western Technical Center  
Office of Surface Mining



STATE OF UTAH  
NATURAL RESOURCES  
Oil, Gas & Mining

Scott M. Matheson, Governor  
Temple A. Reynolds, Executive Director  
Dr. G. A. (Jim) Shirazi, Division Director

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

June 23, 1983

Mr. Rob Wiley  
Environmental Engineer  
Price River Coal Company  
P.O. Box 629  
Helper, Utah 84526

RE: Minor Modification Approvals  
Price River Complex  
ACT/007/004  
Folder No. 4  
Carbon County, Utah

Dear Rob:

This letter is to confirm verbal approval granted to Price River Coal Company for two minor modifications.

Price River is granted approval to divert approximately 7 acres of undisturbed runoff into the sedimentation pond in Crandall Canyon in accordance with the procedures outlined in your letter dated April 21, 1983.

Approval is also granted to construct a temporary bridge across Willow Creek to provide access for removing equipment from the mine property. Approval is for a 30 day period effective upon receipt of this letter. Upon removal of the equipment, Price River will be required to remove the bridge.

If you have any questions please contact David Darby or myself

Sincerely,

JAMES W. SMITH, JR.  
COORDINATOR  
MINED LAND DEVELOPMENT

JWS/DWD:lm

cc: Bart Kale, DCGM  
Dave Darby, DCGM

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

July 5, 1983

CERTIFIED RECEIPT REQUESTED  
Certified Receipt No. 562096

Mr. Tom Tetting, Engineering Geologist  
Division of Oil, Gas and Mining  
4241 State Office Building  
Salt Lake City, Utah 84114

Dear Tom:

Please find enclosed two (2) additional copies of the final ACR submittal of 6-9-83, less the hydrology report. Copies have not yet arrived from Vaughn Hansen Associates. I will forward them to you as soon as they are available.

Maps and plans included with this submittal have been mailed in separate, large yellow tubes.

Sincerely

PRICE RIVER COAL COMPANY

*R. L. Wiley /jp*

R. L. Wiley  
Environmental Engineer

RLW:jp

Enclosures

cc: K. Hutchinson

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

July 12, 1983

CERTIFIED RECEIPT REQUESTED  
Certified No. 562074

Mr. Tom Tetting and  
Mr. Dave Darby  
Division of Oil, Gas and Mining  
4241 State Office Building  
Salt Lake City, Utah 84114

Re: Re-installation of Access to the Willow Creek Storage Area

Gentlemen:

About four weeks ago unusually high flood waters in Willow Creek washed out the old crossing to our storage facility. We wish to re-establish this crossing as soon as possible.

The old structure consisted of two 64" gmp culverts with about 10 feet of head water over the inlet but with no headwall. Our intent is to rebuild the crossing, again using a ten feet diameter smolth steel pipe with headwall. The attached drawings show the designs of the proposed structure. This configuration is adequate to pass the theoretical 10-year, 24-hour precipitation event (see attached hydologic calculations for the Willow Creek drainage and the highway department nomograph).

A bridge or larger culvert structure is not proposed at this time. Although the Willow Creek area has a projected life of several decades, its use as a storage area is now limited to a few (3-5) years. We are not completely decided, at this time, as to the final location of the bridge to be built as part of the major surface complex. When plans for the complex are finished and we enter into permitting, a bridge design and location will be specified.

The proposed design meets requirements for a temporary crossing for at least the 10-year, 24-hour theoretical event and is suitable for our protection in that the flow capacity exceeds the peak flow from the 10-year event as determined by a frequency analysis of USGS flow records for Willow Creek (see attached calculations by M. Allen, P.E.).

Construction of the new crossing cannot begin until flood waters drop off to some manageable level. Estimates from the Division of Water Rights indicate that this may not occur until the 15th or perhaps the 30th of July. We would, however, like to be prepared to begin work by the 25th of July should the flow situation favor us.

Please note on construction drawing WCE-100 (MRP Exhibit 3.6-1) that a borrow area is designated that is on PRCC property but off the permit area. This material is placed fill material, formerly part of the approach grade to a bridge that once crossed Willow Creek. There is an existing access road to the borrow wite that requires no upgrading for our proposed limited usage. We will need 300-350 yds<sup>3</sup> of this sandy material to properly backfill the crossing.

PRICE RIVER COAL COMPANY

P.O. BOX 629 • 801 - 472-3411 OFFICE  
HELPER, UTAH 84526

Mr. Tom Tetting and  
Mr. Dave Darby  
Division of Oil, Gas and Mining  
July 12, 1983  
Page 2

When we are finished we will grade the borrow site in preparation for re-seeding this fall. We will use the south facing slope seed mix.

Please contact me if you require any additional information.

Very truly yours

PRICE RIVER COAL COMPANY

*R. L. Wiley*  
R. L. Wiley  
Environmental Engineer

RLW:jp

Enclosures: Hydrologic Calculations  
2 Construction Drawing Sheets

cc: K. Hutchinson

**VAUGHN  
HANSEN  
ASSOCIATES**WATERBURY PLAZA - SUITE A  
5620 SOUTH 1475 EAST  
SALT LAKE CITY, UTAH 84121  
(801) 272-5263

June 14, 1983

Mr. Rob Wiley  
Price River Coal Company  
P. O. Box 629  
Helper, Utah 84526

Dear Rob:

As you requested, I have estimated the peak discharge of Willow Creek near its confluence with the Price River, resulting from the following precipitation events: 2-year 24-hour, 5-year 24-hour, 10-year 24-hour, 25-year 24-hour, 50-year 24-hour and 100-year 24-hour. In addition, for comparison with the above indicated events, I have prepared a quick frequency analysis on peak instantaneous flows of lower Willow Creek from 20 years of available USGS gaging records.

From the analysis of the USGS records, it is interesting to note that peak instantaneous flows on Willow Creek for only 5 years out of 20 years were snowmelt related. Peak instantaneous flows for 15 years out of 20 years (including all flows in excess of 262 cfs) resulted from summer thunderstorm activity (not necessarily and probably not the 24-hour event).

Peak discharges from the above indicated precipitation events were estimated from the SCS unit hydrograph technique. The results for both analyses are presented below and computation sheets are attached.

SCS UNIT HYDROGRAPH  
PEAK FLOWS FROM 24-HOUR EVENTS

Precipitation Event	Peak Flow cfs
2-year 24-hour (1.4 inches)	68
5-year 24 hour (1.7 inches)	192
10-year 24-hour (2.0 inches)	393
25-year 24-hour (2.3 inches)	668
50-year 24-hour (2.6 inches)	1149
100-year 24-hour (2.9 inches)	1556

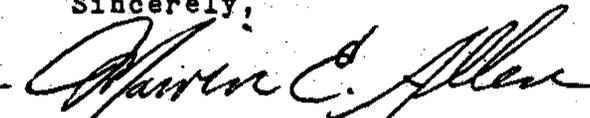
Mr. Rob Wiley  
June 14, 1983  
Page 2

FREQUENCY ANALYSIS  
USGS FLOW RECORDS  
WILLOW CREEK

Event	Peak Flow cfs
2-year	220
5-year	455
10-year	700
25-year	1100
50-year	1460
100-year	1900

Should you need additional clarification, please call.

Sincerely,



Marvin E. Allen, P.E.  
Executive Vice President

Enclosures

MEA/jd



III - Predicted flow rates from the 2-year, 5-year, 10-year, 50-year, and 100-year 24-hour precipitation event on Willow Creek (using the USGS unit hydrograph technique).

A - Drainage Area = 49540 acres

B - Basin Slope =  $\frac{\text{length of Contour} \times \text{Contour interval}}{\text{Drainage Area}} \times 100$

$$= \frac{654,720' (1000')}{49540 \text{ acres } (43560 \frac{\text{ft}^2}{\text{ac}})} \times 100 = 31\%$$

C - Hydraulic Length = 82,900 ft.

D - Curve Number - See Table A-4 pg 538 - Design of Small Dams  
USBR

- 1 - 6400 acres - Juniper Grass Complex - Soil Group C - Condition Fair - CN = 70
- 2 - 18900 acres - Sage Grass Complex - Soil Group C - Condition Fair to Good - CN = 57
- 3 - 12100 acres - Pine-Agave Complex - Soil Group C - Condition Fair to Good - CN = 50
- 4 - 12140 acres - Juniper Grass - Soil Group C - Condition Fair to Good - CN = 66

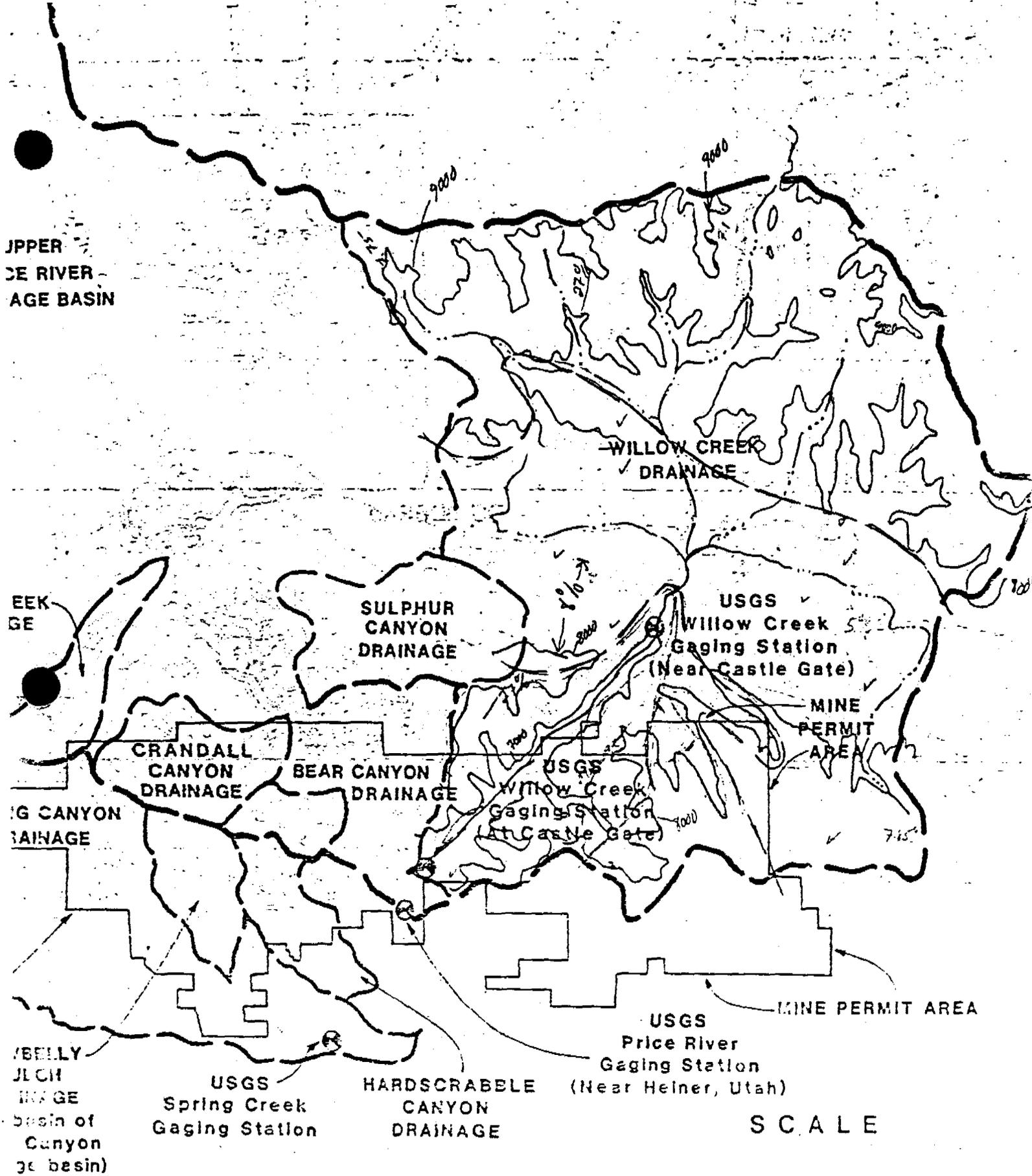
Wt. Curve Numbers are obtained by weighting runoff volumes from each complex and storm - (see attached table)

E - Design Storm from NCEM Atlas:

2-year 24-hour	=	1.4"
5-year	=	1.7"
10-year	=	2.0"
50-year	=	2.3"
50-year	=	2.6"
100-year	=	2.9"

Cover Complex	Fraction of Total Area	2yr 24hr (1.1in)		5yr 24hr (1.7in)		10yr 24hr (2.0in)		25yr 24hr (2.3in)		50yr 24hr (2.6in)		100yr 24hr (2.9in)	
		Q in	Wt. Q in	Q in	Wt. Q in	Q in	Wt. Q in	Q in	Wt. Q in	Q in	Wt. Q in	Q in	Wt. Q in
Juniper Grass - Fair CN=70 S=11.29 0.25=0.86	0.129	0.061	0.008	0.139	0.018	0.241	0.031	0.363	0.047	0.504	0.065	0.659	0.085
Sage Grass - Fair to Good CN=57 S=7.24/0.25=1.51	0.382	0	0	0.005	0.002	0.030	0.011	0.075	0.029	0.138	0.053	0.217	0.083
Pine Aspen - Fair to Good CN=50 S=10 0.25=2.0	0.211	0	0	0	0	0	0	0.009	0.002	0.038	0.008	0.074	0.018
Juniper Grass - Fair to Good CN=66 S=5.15 0.25=1.03	0.245	0.025	0.006	0.077	0.019	0.154	0.038	0.251	0.062	0.367	0.090	0.498	0.122
			$\Sigma=0.014$		$\Sigma=0.039$		$\Sigma=0.090$		$\Sigma=0.14$		$\Sigma=0.216$		$\Sigma=0.308$
			<u>64</u>		<u>63</u>		<u>62</u>		<u>61</u>		<u>61</u>		<u>60</u>

Wt. Cal to give Wt. Q for the given precipitation



PEAK DISCHARGE  
2-YEAR 24-HOUR EVENT

AREA= 49540.0 ACRES  
 AVERAGE BASIN SLOPE= 31.0 PERCENT  
 INCREMENT OF RAINFALL EXCESS= .43 HOURS  
 CURVE NUMBER=64.0  
 DESIGN STORM= 1.40 INCHES  
 STORM DURATION= 24.0 HOURS  
 HYDRAULIC LENGTH= 82900. FEET

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
12.90	1.0704	0.0000	0.0000	0.0	0.00
13.33	1.1057	0.0000	0.0000	0.0	0.00
13.76	1.1339	.0000	.0000	133.9	.00
14.19	1.1586	.0002	.0002	1087.6	.04
14.62	1.1807	.0005	.0003	3049.0	.29
15.05	1.1976	.0009	.0004	5530.3	1.07
15.48	1.2144	.0014	.0005	7901.9	2.67
15.91	1.2290	.0019	.0005	9709.0	5.25
16.34	1.2425	.0024	.0005	10749.4	8.83
16.77	1.2550	.0029	.0005	11028.0	13.25
17.20	1.2676	.0035	.0006	10674.0	18.27
17.63	1.2801	.0042	.0006	9867.5	23.67
18.06	1.2909	.0048	.0006	8789.3	29.25
18.49	1.3017	.0054	.0006	7592.4	34.81
18.92	1.3114	.0060	.0006	6391.7	40.18
19.35	1.3210	.0066	.0006	5264.1	45.20
19.78	1.3291	.0071	.0005	4254.2	49.73
20.21	1.3375	.0077	.0006	3381.9	53.68
20.64	1.3471	.0084	.0007	2649.9	57.00
21.07	1.3564	.0091	.0007	2049.8	59.80
21.50	1.3636	.0097	.0006	1567.7	62.26
21.93	1.3696	.0102	.0005	1186.7	64.38
22.36	1.3766	.0108	.0006	890.0	66.06
22.79	1.3831	.0113	.0005	661.9	67.23
23.22	1.3891	.0118	.0005	488.6	67.90
23.65	1.3951	.0124	.0005	358.1	68.13
24.08	1.3951	.0124	0.0000	260.8	67.92
24.51	1.3951	.0124	0.0000	188.8	66.93
24.94	1.3951	.0124	0.0000	135.9	64.73
25.37	1.3951	.0124	0.0000	97.4	61.13
25.80	1.3951	.0124	0.0000	69.4	56.25
26.23	1.3951	.0124	0.0000	49.3	50.43

HYDROGRAPH PEAK = 68.13 CFS  
 TIME TO PEAK= 23.66 HOURS

PEAK DISCHARGE  
5-YEAR 24-HOUR EVENT

AREA= 49540.0 ACRES  
AVERAGE BASIN SLOPE= 31.0 PERCENT  
INCREMENT OF RAINFALL EXCESS= .44 HOURS  
CURVE NUMBER=63.0  
DESIGN STORM= 1.70 INCHES  
STORM DURATION= 24.0 HOURS  
HYDRAULIC LENGTH= 82900. FEET

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
11.00	.4012	0.0000	0.0000	0.0	0.00
11.44	.4715	0.0000	0.0000	0.0	0.00
11.88	.9721	0.0000	0.0000	0.0	0.00
12.32	1.2054	.0002	.0002	129.4	.02
12.76	1.2822	.0019	.0018	1052.0	.40
13.20	1.3308	.0040	.0021	2952.9	2.62
13.64	1.3683	.0062	.0021	5363.0	8.60
14.08	1.3994	.0083	.0021	7672.6	19.50
14.52	1.4290	.0106	.0023	9439.3	35.27
14.96	1.4499	.0123	.0018	10464.2	54.93
15.40	1.4708	.0142	.0019	10749.2	76.72
15.84	1.4895	.0160	.0018	10417.3	98.79
16.28	1.5065	.0178	.0017	9642.7	119.58
16.72	1.5222	.0194	.0017	8599.9	138.00
17.16	1.5377	.0211	.0017	7438.4	153.43
17.60	1.5535	.0230	.0018	6270.1	165.75
18.04	1.5669	.0246	.0016	5170.5	175.23
18.48	1.5804	.0262	.0017	4183.9	182.23
18.92	1.5924	.0278	.0015	3330.3	187.08
19.36	1.6044	.0293	.0016	2612.8	190.09
19.80	1.6143	.0306	.0013	2023.7	191.52
20.24	1.6249	.0321	.0014	1549.7	191.51
20.68	1.6369	.0337	.0017	1174.6	190.31
21.12	1.6480	.0353	.0016	882.0	188.39
21.56	1.6568	.0366	.0013	656.9	186.21
22.00	1.6643	.0377	.0011	485.4	183.86
22.44	1.6733	.0390	.0013	356.2	181.11

HYDROGRAPH PEAK = 191.69 CFS  
TIME TO PEAK= 20.02 HOURS

61

PEAK DISCHARGE  
10-YEAR 24-HOUR EVENT

AREA= 49540.0 ACRES  
 AVERAGE BASIN SLOPE= 31.0 PERCENT  
 INCREMENT OF RAINFALL EXCESS= .45 HOURS  
 CURVE NUMBER=62.0  
 DESIGN STORM= 2.00 INCHES  
 STORM DURATION= 24.0 HOURS  
 HYDRAULIC LENGTH= 82900. FEET

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
6.75	.1900	0.0000	0.0000	0.0	0.00
7.20	.2088	0.0000	0.0000	0.0	0.00
7.65	.2274	0.0000	0.0000	0.0	0.00
8.10	.2448	0.0000	0.0000	0.0	0.00
9.90	.3548	0.0000	0.0000	0.0	0.00
10.35	.3942	0.0000	0.0000	0.0	0.00
10.80	.4464	0.0000	0.0000	0.0	0.00
11.25	.5190	0.0000	0.0000	0.0	0.00
11.70	.8700	0.0000	0.0000	0.0	0.00
12.15	1.3692	.0033	.0033	124.9	.41
12.60	1.4848	.0105	.0072	1016.6	4.23
13.05	1.5494	.0162	.0057	2857.8	17.43
13.50	1.5980	.0213	.0051	5197.6	44.13
13.95	1.6358	.0257	.0044	7446.8	84.03
14.40	1.6720	.0303	.0046	9174.8	133.19
14.85	1.6996	.0340	.0037	10186.0	186.39
15.30	1.7248	.0376	.0036	10478.5	238.45
15.75	1.7480	.0410	.0034	10169.9	285.17
16.20	1.7688	.0442	.0032	9427.3	323.93
16.65	1.7880	.0472	.0030	8420.2	353.60
17.10	1.8064	.0502	.0030	7293.5	374.17
17.55	1.8258	.0535	.0033	6156.9	386.55
18.00	1.8420	.0563	.0028	5084.6	392.30
18.45	1.8582	.0591	.0029	4120.5	392.94
18.90	1.8728	.0618	.0026	3284.6	389.79
19.35	1.8872	.0644	.0026	2580.7	383.88
19.80	1.8992	.0667	.0022	2001.8	375.98
20.25	1.9120	.0691	.0024	1535.1	366.58
20.70	1.9264	.0719	.0028	1165.2	356.16
21.15	1.9396	.0745	.0026	876.3	345.51

HYDROGRAPH PEAK = 393.15 CFS  
 TIME TO PEAK= 18.30 HOURS

PEAK DISCHARGE  
25-YEAR 24-HOUR EVENT

AREA= 49540.0 ACRES  
 AVERAGE BASIN SLOPE= 31.0 PERCENT  
 INCREMENT OF RAINFALL EXCESS= .46 HOURS  
 CURVE NUMBER=61.0  
 DESIGN STORM= 2.30 INCHES  
 STORM DURATION= 24.0 HOURS  
 HYDRAULIC LENGTH= 82900. FEET

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
9.20	.3528	0.0000	0.0000	0.0	0.00
9.66	.3881	0.0000	0.0000	0.0	0.00
10.12	.4290	0.0000	0.0000	0.0	0.00
10.58	.4810	0.0000	0.0000	0.0	0.00
11.04	.5514	0.0000	0.0000	0.0	0.00
11.50	.6509	0.0000	0.0000	0.0	0.00
11.96	1.4550	.0047	.0047	120.3	.57
12.42	1.6640	.0219	.0172	981.4	6.71
12.88	1.7552	.0330	.0111	2763.3	31.27
13.34	1.8178	.0419	.0089	5034.1	83.27
13.80	1.8667	.0495	.0076	7224.4	161.05
14.26	1.9099	.0567	.0072	8915.4	255.20
14.72	1.9462	.0631	.0064	9914.1	354.03
15.18	1.9758	.0685	.0054	10215.4	447.12
15.64	2.0041	.0739	.0054	9930.7	526.77
16.10	2.0291	.0788	.0049	9220.7	588.76
16.56	2.0521	.0835	.0046	8249.1	631.92
17.02	2.0733	.0878	.0044	7157.0	657.28
17.48	2.0966	.0928	.0049	6051.5	667.28
17.94	2.1158	.0969	.0042	5005.7	665.37
18.40	2.1349	.1011	.0042	4063.1	654.90
18.86	2.1522	.1050	.0039	3244.2	638.63
19.32	2.1692	.1089	.0039	2553.1	618.69
19.78	2.1835	.1122	.0033	1983.6	596.65
20.24	2.1984	.1157	.0035	1523.7	573.46

HYDROGRAPH PEAK = 667.97 CFS  
 TIME TO PEAK= 17.64 HOURS

PEAK DISCHARGE  
50-YEAR 24-HOUR EVENT

AREA= 49540.0 ACRES  
 AVERAGE BASIN SLOPE= 31.0 PERCENT  
 INCREMENT OF RAINFALL EXCESS= .46 HOURS  
 CURVE NUMBER=61.0  
 DESIGN STORM= 2.60 INCHES  
 STORM DURATION= 24.0 HOURS  
 HYDRAULIC LENGTH= 82900. FEET

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
9.66	.4388	0.0000	0.0000	0.0	0.00
10.12	.4850	0.0000	0.0000	0.0	0.00
10.58	.5437	0.0000	0.0000	0.0	0.00
11.04	.6234	0.0000	0.0000	0.0	0.00
11.50	.7358	0.0000	0.0000	0.0	0.00
11.96	1.6448	.0198	.0198	120.3	2.39
12.42	1.8810	.0519	.0320	981.4	23.31
12.88	1.9841	.0701	.0182	2763.3	88.42
13.34	2.0549	.0840	.0139	5034.1	207.91
13.80	2.1102	.0957	.0116	7224.4	369.99
14.26	2.1590	.1065	.0109	8915.4	551.28
14.72	2.2000	.1160	.0095	9914.1	728.10
15.18	2.2335	.1241	.0080	10215.4	882.39
15.64	2.2655	.1320	.0079	9930.7	1003.14
16.10	2.2937	.1391	.0071	9220.7	1086.34
16.56	2.3197	.1458	.0067	8249.1	1133.34
17.02	2.3437	.1521	.0063	7157.0	1148.75
17.48	2.3701	.1591	.0070	6051.5	1138.89
17.94	2.3918	.1651	.0059	5005.7	1110.96
18.40	2.4133	.1710	.0060	4063.1	1071.37
18.86	2.4330	.1765	.0055	3244.2	1025.15
19.32	2.4521	.1820	.0054	2553.1	975.95
19.78	2.4683	.1866	.0047	1983.6	926.28

HYDROGRAPH PEAK =1148.90 CFS  
 TIME TO PEAK= 17.07 HOURS

PEAK DISCHARGE  
100-YEAR 24-HOUR EVENT

AREA= 49540.0 ACRES  
 AVERAGE BASIN SLOPE= 31.0 PERCENT  
 INCREMENT OF RAINFALL EXCESS= .47 HOURS  
 CURVE NUMBER=60.0  
 DESIGN STORM= 2.90 INCHES  
 STORM DURATION= 24.0 HOURS  
 HYDRAULIC LENGTH= 82900. FEET

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
8.93	.4202	0.0000	0.0000	0.0	0.00
9.40	.4634	0.0000	0.0000	0.0	0.00
9.87	.5113	0.0000	0.0000	0.0	0.00
10.34	.5703	0.0000	0.0000	0.0	0.00
10.81	.6491	0.0000	0.0000	0.0	0.00
11.28	.7607	0.0000	0.0000	0.0	0.00
11.75	1.3717	.0002	.0002	115.9	.03
12.22	2.0146	.0632	.0629	946.5	7.50
12.69	2.1723	.0938	.0306	2669.9	63.71
13.16	2.2639	.1140	.0202	4872.7	200.43
13.63	2.3329	.1303	.0164	7005.3	410.97
14.10	2.3896	.1445	.0141	8660.7	663.04
14.57	2.4417	.1580	.0135	9648.2	918.74
15.04	2.4798	.1682	.0102	9959.4	1147.54
15.51	2.5179	.1787	.0105	9699.2	1329.81
15.98	2.5506	.1879	.0092	9022.1	1457.21
16.45	2.5807	.1966	.0087	8085.9	1530.41
16.92	2.6083	.2047	.0081	7028.1	1555.67
17.39	2.6378	.2135	.0088	5953.3	1542.30
17.86	2.6636	.2213	.0078	4933.3	1500.91
18.33	2.6881	.2288	.0075	4011.6	1441.40
18.80	2.7109	.2359	.0071	3208.8	1371.75
19.27	2.7327	.2428	.0069	2529.8	1297.81
19.74	2.7518	.2488	.0061	1969.1	1223.59

HYDROGRAPH PEAK =1556.13 CFS  
 TIME TO PEAK= 16.99 HOURS

Instantaneous  
 Peak Flow - Willow Creek @ USGS station near Castle  
 and at Castle Gate.

From  
1971  
Book.

Water Year	Willow Creek Near Castle Gate Flow cfs	Willow Creek Near Castle Gate Date	Willow Creek @ Castle Gate Flow cfs	Willow Creek @ Castle Gate Date
1962	800	Sept. 21	* 849	
1963	292	Oct. 5 <sup>base flow</sup>	* 311	
1964	106	June 28 @ 3.5	* 114	
1965	262	May 21,	* 279	
1966	388	July 1, @ 6.0	* 413	
1967	550	July 15, @ 7.0	* 584	
1968	206	Aug 9, @ 7 cfs.	* 220	
1969	214	Apr. 21,	* 228	
1970	152	Sept 5, @ 0.5 cfs	* 162	
1971	119	Aug 16, @ 0.5 cfs	* 127	
1972	91	Sept 19, @ 0.7 cfs	* 98	
1973	836	Aug 6., @ 8 cfs	* 887	
1974	28	July 18, @ 1.0 cfs.	* 31	
1975	115	April 22	* 123	
1976	208	July 25, @ 1.5	* 251	
1977	313	July 19,	* 333	
1978	124	April 11	* 133	
1979	242	May 5	* 258	
1980	200**	May 3	-	
1981	207	Apr. 9.	189	
1982	130	Aug 21	* 194	
1983				

\* Predicted from relationship on following page.  
 \*\*Peak daily flow.

Correlated Peak Bailey Flows of Willow Creek between the gaging station near Willow Creek and the Gaging Station at Willow Creek.

Date	Willow Creek Near Castle Gate cfs.	Willow Creek @ Castle Gate cfs.
5/6/80	130	140
5/15/80	82	86
5/23/80	200	210
6/1/80	57	74
8/25/80	8	8.2
10/15/80	8.7	8.4
4/9/81	40	40
4/15/81	30	32
5/3/81	14	16
6/3/81	7.4	8.1
7/2/81	4.0	5.3

Linear regression

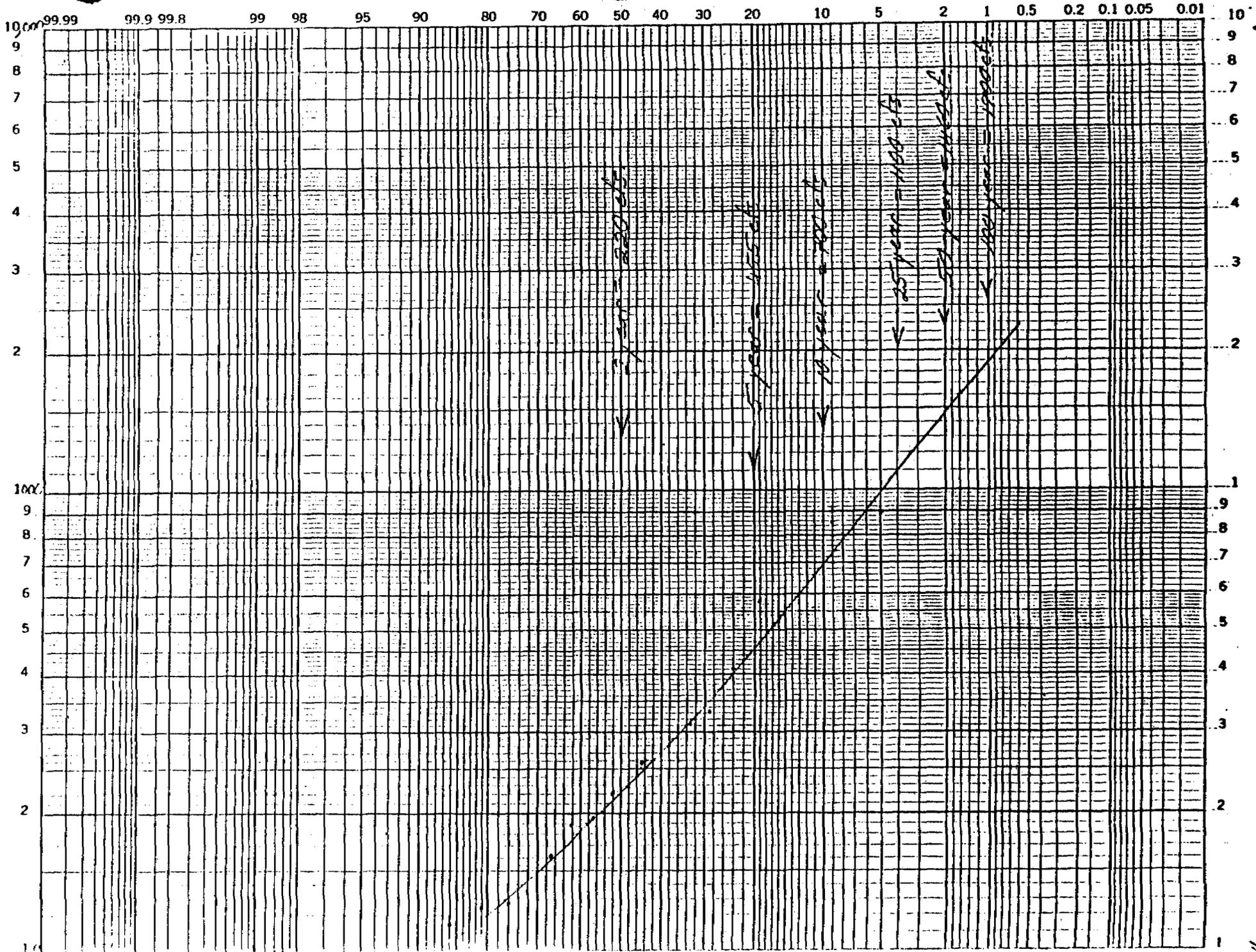
$$R^2 = 0.996$$

$$\text{Willow Creek @ Castle Gate} = 1.3 + 1.06(\text{Willow Creek near Castle Gate})$$

Peak Instantaneous Flows on Willow Creek Ranked

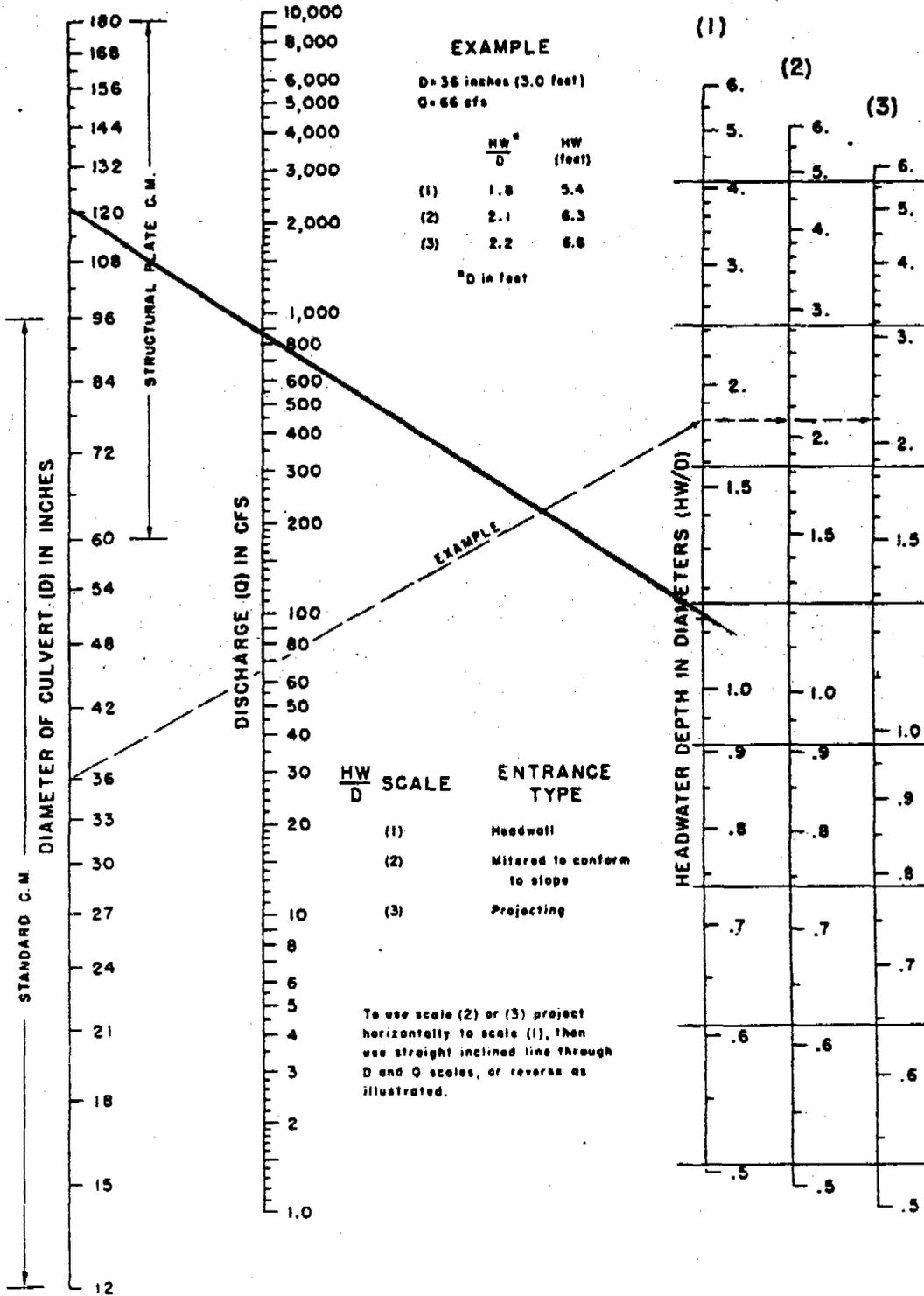
Rank m	Year	Flow, cfs	Plotting Position m/n+1
1	1974	31	0.048
2	1972	98	0.095
3	1964	114	0.14
4	1975	123	0.19
5	1971	127	0.24
6	1978	133	0.28
7	1970	162	0.33
8	1981	189	0.38
9	1982	194	0.43
10	1968	220	0.48
11	1969	228	0.52
12	1979	258	0.57
13	1965	279	0.62
14	1963	311	0.67
15	1977	333	0.71
16	1966	413	0.76
17	1967	534	0.81
18	1962	819	0.86
19	1976	858	0.91
20	1973	887	0.95

Willow Creek Peak Instantaneous Flow (cfs)



1/10

Chart 2-53: HEADWATER DEPTH FOR C.M.P. CULVERTS WITH INLET CONTROL



## THE PRICE RIVER MINE COMPLEX

### QUESTIONS ON THE ACR RESPONSES

These questions were developed subsequent to the review of several submittals by the Price River Coal Company in response to an Apparent Completeness Review completed by OSM and DOGM on December 7, 1982.

#### Surface Water Hydrology

Culvert design data for the road section located below the facilities area in Sowbelly Canyon must be supplied. Data was supplied for the culverts in the canyon, however, two of the culverts were not located on a plan view map. It may be that the culverts not located are the culverts that exist below the facilities area. If so, then the location of the culverts must be identified on a map.

The design of the bridges in Hardscrabble Canyon must be provided to determine if they comply with the permanent performance standards.

Specifications for ditch D-9, the diversion around Gravel Canyon, have not been provided on Table 3.4E. If the specifications are the same as those noted in Chapter 8, a statement to that effect should be provided. Also the applicant should provide a statement that the area as shown in Exhibit 3.4-2 is the average as-built cross-sectional area.

On plans drawn on 11/9/82 and approved on 12/8/82, drawing number B1-100 entitled Barn Canyon Drainage Diversion for areas CG6 and CG7, inlet and discharge structures are shown. Are these structures still in existence? if so, they should be located on a plan view map.

NPDES permits have been acquired by Price River Coal Company for Mine 3 in Hardscrabble Canyon and for the old Peerless Mine. What controls or treatment, if any, will be applied to these discharges?

The parameters utilized in the Manning Equation for pre- and post- mining ditch sizing must be provided to facilitate the evaluation of ditch adequacy. These parameters include depth, side slopes, bottom width and hydraulic radius.



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

July 21, 1983

Mr. Robert Wiley  
Environmental Engineer  
Price River Coal Company  
P.O. Box 629  
Helper, Utah 84526

Dear Mr. Wiley:

Pursuant to the telephone conversations between yourself, Bennett Young, Connie Kimball and Debbie Richardson on July 19 and 20, 1983, please find enclosed the request for clarifications and additional information developed as a result of the Office of Surface Mining's (OSM) review of the Price River Coal Company's Apparent Completeness Review (ACR) responses submitted to OSM and the Utah Division of Oil, Gas, and Mining (UDOGM) in late Spring 1983.

Expedient responses to these ACR concerns are essential to maintain the established permit review schedule. Therefore, OSM needs to receive the requested information no later than August 10, 1983. If all concerns cannot be responded to by this time, please inform us which concerns will be late and by how much. If you have any questions or need clarifications, please contact Bennett H. Young at 837-5656 or Walt Swain at 837-3806.

Sincerely,

*Robert E. Dawes*

*f* Allen D. Klein

Enclosure

cc: UDOGM  
Debbie Richardson

Utah State Office  
2040 Administration Building  
1745 West 1700 South  
Salt Lake City, Utah 84104

July 29, 1983

Memorandum

To: Utah Senior Project Manager, OSM, Denver  
Attn: Mr. Ben Young

From: Chief, Branch Solid Minerals

Subject: Price River Coal Company, Price River Complex,  
Carbon County, Utah, Mining and Reclamation Plan

Additional information, submitted April 5, 1983, and May 12, 1983, in response to the Apparent Completeness Review of the subject mine plan and forwarded with your letter dated June 16, 1983, has been reviewed for completeness and technical adequacy as requested. Also, as requested, information related to proposed coal recovery procedures will not conflict with future recovery of the resources.

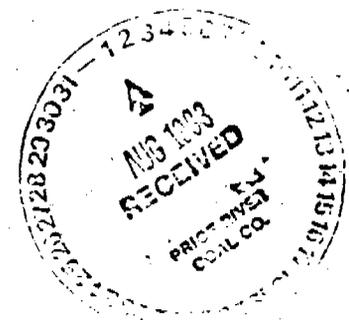
The submitted material is compatible with 30 CFR 211 rules, effective August 30, 1980, and will not conflict with our administration of the associated Federal leases. The information relates principally to chemical analyses of roof, floor, and refuse; discussions of seam similarity and subsidence; reclamation costs and bonding, etc.; and an engineering report on slope stability of the coal refuse pile.

Under reclamation costs and bonding, two sketches for portal sealing methods are included, down dip method and up dip method. The methods as shown will not meet our requirements. Underground abandonment plans, including sealing of portals, must include onsite inspections and reviews between management and personnel from BLM, Branch of Solid Minerals followed by an official submittal for approval.

This submittal does not contain anything that will interfere with the safe recovery of the maximum amount of the resource, within the limits of the equipment and technology presently being used.

Acting

cc: EIM Chrono  
ECCM  
Price River Coal  
McKean (2)  
Jim Piani (U-931)  
Bob Randolph (U-931)  
Max Nielson (U-931)



Utah State Office  
2040 Administration Building  
1745 West 1700 South  
Salt Lake City, Utah 84104

July 29, 1983

Memorandum

To: Utah Senior Project Manager, OSM, Denver  
Attn: Mr. Bennett Young

From: Chief, Branch of Solid Minerals

Subject: Price River Coal Company, Price River Complex  
Carbon County, Utah, Mining and Reclamation Plan

The final submittal of the apparent completeness review response dated June 13, 1983, to the subject plan and forwarded with your letter dated July 6, 1983, has been reviewed, as requested, for completeness and technical adequacy. We were also asked to analyze the proposed coal recovery procedures and identify any conflicts with future recovery of the coal resources.

The initial submittal of the mining and reclamation plan (MRP) was received in this office on March 27, 1981. This plan was reviewed for completeness and technical adequacy. Our review comments were outlined in a memorandum dated April 24, 1981. On March 24, 1983, we received a resubmittal of the MRP plan including response comments to the initial apparent completeness review by CFM dated April 1981.

The complete plan, now on file in this office, is adequate for our administration of the associated Federal coal leases and is in compliance with the 30 CFR 211.10(b) rules, effective August 30, 1982. The plan is designed to achieve maximum economic recovery of the resource within the limits of the equipment and technology presently being used. We recommend approval of the underground mining plan part of the mining and reclamation plan permit application package.

Acting

cc: BLM Chrono  
Price River Coal ✓  
DOGM  
McKean(2)  
Jim Piani (U-931)  
Bob Randolph (U-931)  
Max Nielson (U-931)



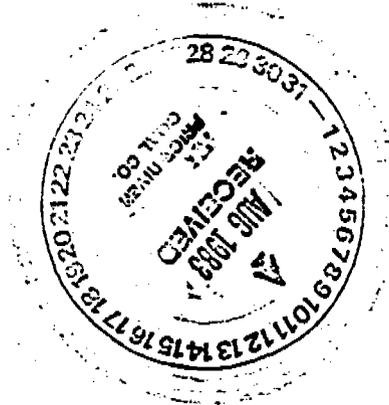


STATE OF UTAH  
NATURAL RESOURCES  
Oil, Gas & Mining

Scott M. Matheson, Governor  
Temple A. Reynolds, Executive Director  
Dr. G. A. (Jim) Shirazi, Division Director

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

August 8, 1983



Mr. Rob Wiley  
Environmental Engineer  
Price River Coal Company  
P.O. Box 629  
Helper, UT 84526

RE: Willow Creek Stream  
Channel Culvert Approval  
ACT/007/004, Folder #4  
Carbon County, Utah

Dear Rob:

The Division has completed its review of the proposed stream channel culvert modification submitted by Price River Coal Company on July 12, 1983, and has determined that the 10-foot diameter smooth steel pipe is adequate to handle the probable flood event for the projected life of the access area. I apologize for not getting this reviewed sooner, but the staff had a difficult time finding a nomograph for smooth steel pipe and also locating your borrow site.

Approval of the modification is hereby granted and construction may commence according to the proposals set forth in the modification. If we may be of further assistance, please let us know.

Sincerely,

JAMES W. SMITH, JR.  
COORDINATOR OF  
MINED LAND DEVELOPMENT

JWS/DD:gl

cc: Bennett Young, OSM  
D. Darby, DOGM  
T. Tetting, DOGM  
Debbie Richardson, Hart Associates

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

August 8, 1983

CERTIFIED RECEIPT REQUESTED  
Certified No. 562077

Mr. Tom Tetting, Engineering Geologist  
Division of Oil, Gas, and Mining  
4241 State Office Building  
Salt Lake City, Utah 84114

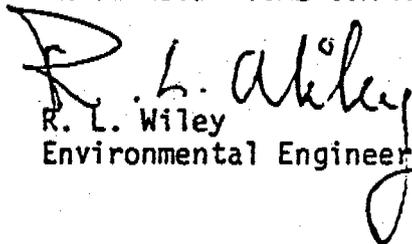
Re: Price River Coal ACR Concerns

Dear Tom:

Enclosed is a copy of the latest PRCC responses to continuing OSM requests.

Sincerely,

PRICE RIVER COAL COMPANY

  
R. L. Wiley  
Environmental Engineer

RLW:jp

Enclosure

cc: K. Hutchinson

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

August 8, 1983

CERTIFIED RECEIPT REQUESTED  
Certified No. 562076

Mr. Bennet Young  
Office of Surface Mining  
Brooks Towers  
1020 - 15th Street  
Denver, CO 80202

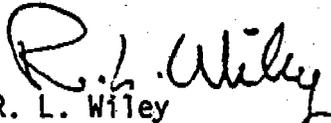
Re: Price River Coal ACR Concerns

Dear Ben:

Please find enclosed five (5) copies of our recent responses to your 7-21-83 correspondence. Contact me if you need anything else.

Very truly yours,

PRICE RIVER COAL COMPANY

  
R. L. Wiley  
Environmental Engineer

RLW:jp  
Enclosures  
cc: K. Hutchinson

### Surface Water Hydrology

Culvert design data for the road section located below the facilities area in Sowbelly Canyon must be supplied. Data was supplied for the culverts in the canyon, however, two of the culverts were not located on a plan view map. It may be that the culverts not located are the culverts that exist below the facilities area. If so, then the location of the culverts must be identified on a map.

As per phone discussion with Connie Kimball on 7-19-83, the two culverts are shown on Exhibit 3.2-1B.

*The design of the bridges in Hardscrabble Canyon must be provided to determine if they comply with the permanent performance standards.*

This point was clarified by C. Kimball (7-19-83) to be a concern related to hydrology, i.e. is the bridge height and span sufficient to preclude a constriction to channel flow? The answer is yes. The minimum underbridge cross-sectional area is about 60 ft.<sup>2</sup>.

A little descriptive information may be helpful. All bridges are simple spans, primarily of wood, that have been in place for 20-50 years.

The upper bridge sits on concrete abutments and appears to have been more recently braced with steel "I" beam girders. The span is about 15 feet, the channel depth about 8 feet and the channel bottom width about 10 feet.

The middle bridge is a 12 foot wooden span resting on uncemented rock abutments. The channel depth is about 4 feet and the width is 15 feet.

The lower bridge, also entirely wooden, spans 20 feet. The west abutment is of uncemented rock, the east concrete. Channel depth and width are both about 8 feet.

*Specifications for ditch D-9, the diversion around Gravel Canyon, have not been provided on Table 3.4E. If the specifications are the same as those noted in Chapter 8, a statement to that effect should be provided. Also the applicant should provide a statement that the area as shown in Exhibit 3.4-2 is the average as-built cross-sectional area.*

Sorry . . . this was somehow overlooked. An amended Table 3.4(E) is attached.

The ditch cross-sectional areas shown are close to the average for the entire ditch.

The calculations in Chapter 8, Appendix 8A, pp. 3-4, are to indicate minimum needed ditch capacity and sizing. The "as-built" is larger since it is difficult to build a small ditch with a large (D-8) tractor.



*On plans drawn on 11/9/82 and approved on 12/8/82, drawing number 81-100 entitled Barn Canyon Drainage Diversion for areas CG6 and CT7, inlet and discharge structures are shown. Are these structures still in existence? If so, they should be located on a plan view map.*

These structures are shown on the plan of the Castle Gate area, Exhibit 3.4-1. This matter was clarified and I believe satisfied during the phone conversation with C. Kimball on 7-19-83.

*NPDES permits have been acquired by Price River Coal Company for Mine 3 in Hardscrabble Canyon and for the old Peerless Mine. What controls or treatment, if any, will be applied to these discharges?*

We have a discharge permit for the new Peerless Mine (circa 1926). To date we have never needed to use it. We maintain it (the permit) only as a contingency, should water build up in the New Peerless Mine threaten active workings. We will not be in a position to worry about New Peerless for at least 10 years. Should we need to pump it out we will be required to pipe it to a point below all water plant intakes and limit quantities to that amount that will maintain less than 1 ton per day TDS discharge into Price River (as well as meeting other effluent limitations).

The discharge from No. 3 Mine (point 020) has no treatment system and requires none so long as effluent limitations are met. Monitoring since this discharge began has indicated that effluent limitations have been sustained (copies attached).

*The parameters utilized in the Manning Equation for pre- and post- mining ditch sizing must be provided to facilitate the evaluation of ditch adequacy. These parameters include depth, side slopes, bottom width and hydraulic radius.*

For your reference copies of our calculation work sheets are attached. They are in rough condition but, I think, readable. They are not meant for publication.

We've also included a copy of Table 7-5 and the S.C.S. table used to derive the roughness factor based on hydraulic radius.

Company Name/Location: **RIVER COAL COMPANY**  
 Address: **Box 629**  
 City: **Helper, UT 84526**

Permit Number: **UT-0023086**  
 Discharge Number: **020**  
 Monitoring Period:  
 FROM: **83 1 1** TO: **83 3 31**  
(10-10) (11-14) (12-14) (10-31) (11-30) (12-31)

Facility: **XXXXXXXXXXXXXXXXXX No. 3 Mine**  
 Location: \_\_\_\_\_

NOTE: Read instructions before completing this form.

PARAMETER (12-17)	SAMPLE MEASUREMENT PERMIT REQUIREMENT	QUANTITY OR LOADING (34-41)			QUALITY OR CONCENTRATION (34-41)			NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM			
Total Suspended Solids	SAMPLE MEASUREMENT				5.5	6.0	7.0	MG/L	4/90	
	PERMIT REQUIREMENT						70			
Total Iron	SAMPLE MEASUREMENT				0.60	0.645	0.69	MG/L	4/90	
	PERMIT REQUIREMENT						2.0			
Total Dissolved Solids	SAMPLE MEASUREMENT				1101	1557	2019	MG/L	1 4/90	
	PERMIT REQUIREMENT				(1 ton/day)	or 2,000				
Oil & Grease	SAMPLE MEASUREMENT				<0.5	1.95	6.4	MG/L	4/90	
	PERMIT REQUIREMENT									
pH	SAMPLE MEASUREMENT				7.5	7.97	8.4	Stand. Units	4/90	
	PERMIT REQUIREMENT				6.5	--	9.0			
Flow (Intermittent Discharge)*	SAMPLE MEASUREMENT								4/90	
	PERMIT REQUIREMENT					Tied to TDS		See Note		
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									

Winnable Principal Executive Officer:  
**Gordon Cook, V.P. and General Manager**  
 TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1318 (Penalties under these statutes may include fines up to \$10,000 and/or maximum imprisonment of between 6 months and 5 years.)

*R.L. Wiley*  
 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: **801 472-341**  
 DATE: **83 4 4**  
 AREA CODE NUMBER YEAR MO DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):  
 \*Flow has been about 16 hours per day at the rate of about 100 gpm. There was no discharge for 3+ weeks in February. Discharge occurs five days a week when mine sumps are pumped out.

### Surface Water Hydrology

Culvert design data for the road section located below the facilities area in Sowbelly Canyon must be supplied. Data was supplied for the culverts in the canyon, however, two of the culverts were not located on a plan view map. It may be that the culverts not located are the culverts that exist below the facilities area. If so, then the location of the culverts must be identified on a map.

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This point was clarified by C. Kimball (7-19-83) to be a concern related to hydrology, i.e. is the bridge height and span sufficient to preclude a constriction to channel flow? The answer is yes. The minimum underbridge cross-sectional area is about 60 ft.<sup>2</sup>.

A little descriptive information may be helpful. All bridges are simple spans, primarily of wood, that have been in place for 20-50 years.

The upper bridge sits on concrete abutments and appears to have been more recently braced with steel "I" beam girders. The span is about 15 feet, the channel depth about 8 feet and the channel bottom width about 10 feet.

The middle bridge is a 12 foot wooden span resting on uncemented rock abutments. The channel depth is about 4 feet and the width is 15 feet.

The lower bridge, also entirely wooden, spans 20 feet. The west abutment is of uncemented rock, the east concrete. Channel depth and width are both about 8 feet.

Specifications for ditch D-9, the diversion around Gravel Canyon, have not been provided on Table 3.4E. If the specifications are the same as those noted in Chapter 8, a statement to that effect should be provided. Also the applicant should provide a statement that the area as shown in Exhibit 3.4-2 is the average as-built cross-sectional area.

Sorry . . . this was somehow overlooked. An amended Table 3.4(E) is attached.

The ditch cross-sectional areas shown are close to the average for the entire ditch.

The calculations in Chapter 8, Appendix 8A, pp. 3-4, are to indicate minimum needed ditch capacity and sizing. The "as-built" is larger since it is difficult to build a small ditch with a large (D-8) tractor.



On plans drawn on 11/9/82 and approved on 12/8/82, drawing number 81-100 entitled Barn Canyon Drainage Diversion for areas CG6 and CT7, inlet and discharge structures are shown. Are these structures still in existence? If so, they should be located on a plan view map.

These structures are shown on the plan of the Castle Gate area, Exhibit 3.4-1. This matter was clarified and I believe satisfied during the phone conversation with C. Kimball on 7-19-83.

NPDES permits have been acquired by Price River Coal Company for Mine 3 in Hardscrabble Canyon and for the old Peerless Mine. What controls or treatment, if any, will be applied to these discharges?

We have a discharge permit for the new Peerless Mine (circa 1926). To date we have never needed to use it. We maintain it (the permit) only as a contingency, should water build up in the New Peerless Mine threaten active workings. We will not be in a position to worry about New Peerless for at least 10 years. Should we need to pump it out we will be required to pipe it to a point below all water plant intakes and limit quantities to that amount that will maintain less than 1 ton per day TDS discharge into Price River (as well as meeting other effluent limitations).

The discharge from No. 3 Mine (point 020) has no treatment system and requires none so long as effluent limitations are met. Monitoring since this discharge began has indicated that effluent limitations have been sustained (copies attached).

The parameters utilized in the Manning Equation for pre- and post-mining ditch sizing must be provided to facilitate the evaluation of ditch adequacy. These parameters include depth, side slopes, bottom width and hydraulic radius.

For your reference copies of our calculation work sheets are attached. They are in rough condition but, I think, readable. They are not meant for publication.

We've also included a copy of Table 7-5 and the S.C.S. table used to derive the roughness factor based on hydraulic radius.

PERMITTEE NAME (Include facility name if different) **ICE RIVER COAL COMPANY**  
 ADDRESS **P. O. Box 629**  
**Helper, UT 84526**  
 FACILITY **XXXXXXXXXXXXXXXXXXXX No. 3 Mine**  
 LOCATION

**DISCHARGE MONITORING REPORT (DMR)**  
 (2-16) (17-19)  
**UT-0023086** **020**  
 PERMIT NUMBER DISCHARGE NUMBER  
 MONITORING PERIOD  
 FROM YEAR 83 MO 1 DAY 1 TO YEAR 83 MO 3 DAY 31  
(10-31) (11-31) (12-31) (10-31) (11-31) (12-31)

NOTE: Read instructions before completing this form.

PARAMETER (12-17)	X	(1 Card Only) QUANTITY OR LOADING (14-15)			(1 Card Only) QUALITY OR CONCENTRATION (18-19)			NO. OF ANALYSIS (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM			
Total Suspended Solids	SAMPLE MEASUREMENT				5.5	6.0	7.0	MG/L	4/90	
	PERMIT REQUIREMENT						70			
Total Iron	SAMPLE MEASUREMENT				0.60	0.645	0.69	MG/L	4/90	
	PERMIT REQUIREMENT						2.0			
Total Dissolved Solids	SAMPLE MEASUREMENT				1101	1557	2019	MG/L	1	4/90
	PERMIT REQUIREMENT				(1 ton/day)	or 2,000				
Oil & Grease	SAMPLE MEASUREMENT				<0.5	1.95	6.4	MG/L	4/90	
	PERMIT REQUIREMENT									
pH	SAMPLE MEASUREMENT				7.5	7.97	8.4	Stand. Units	4/90	
	PERMIT REQUIREMENT				6.5	--	9.0			
Flow (Intermittent Discharge)*	SAMPLE MEASUREMENT							See Note	4/90	
	PERMIT REQUIREMENT					Tied to TDS				
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									

RESPONSIBLE PRINCIPAL EXECUTIVE OFFICER  
**Gordon Cook, V.P. and General Manager**  
 TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 USC 1001 AND 33 USC 1310. (Penalties under these statutes may include fines up to \$10,000 and/or maximum imprisonment of between 6 months and 3 years.)

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT  
*R.L. Wiley*

TELEPHONE  
**801 472-341**  
 AREA CODE NUMBER  
 DATE  
**83 4 4**  
 YEAR MO DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)  
 \*Flow has been about 16 hours per day at the rate of about 100 gpm. There was no discharge for 3+ weeks in February. Discharge occurs five days a week when mine sumps are pumped out.

DISCHARGE MONITORING REPORT (DMR)

NAME PRICE RIVER COAL COMPANY  
 ADDRESS P. O. Box 629  
Helper, Utah 84526  
 FACILITY No. 3 Mine  
 LOCATION \_\_\_\_\_

UT-0023086  
 PERMIT NUMBER

020  
 DISCHARGE NUMBER

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
83	3	31	83	6	30
(16-17)	(12-14)	(10-15)	(16-17)	(12-14)	(10-11)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)	X	(3 Card Only) QUANTITY OR LOADING (46-53)			(4 Card Only) QUALITY OR CONCENTRATION (54-61)			NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)	
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM				UNITS
Total Suspended Solids	SAMPLE MEASUREMENT				2.5	3.6	5.5	MG/L	3	3/92	Grab
	PERMIT REQUIREMENT										
Total Iron	SAMPLE MEASUREMENT				0.05	0.11	0.17	MG/L	3		Grab
	PERMIT REQUIREMENT										
Total Dissolved Solids	SAMPLE MEASUREMENT				1503	1675	1805	MG/L	3		Grab
	PERMIT REQUIREMENT										
Oil & Grease	SAMPLE MEASUREMENT				.05	5.5	8.1	MG/L	3		Grab
	PERMIT REQUIREMENT										
pH	SAMPLE MEASUREMENT				8.0	8.05	8.1	Std. Units	3		Grab
	PERMIT REQUIREMENT										
Flow (7 to 12 hrs/day 4-5 days/week)	SAMPLE MEASUREMENT				50	108	175	gpm	3		Grab
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER  
Gordon Cook, V.P. and  
General Manager  
 TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 USC § 1001 AND 33 USC § 1319. (Penalties under these statutes may include fines up to \$10,000 and/or maximum imprisonment of between 6 months and 3 years.)

*R. L. Wiley*  
 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE		DATE		
801	472-3411	83	7	13
AREA CODE	NUMBER	YEAR	MO	DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

NOTE: Discharge point was inaccessible for obtaining samples during the periods of 4-1-83 to 4-21-83 and 5-1-83 to 5-31-83 due to flood waters in Price River.

Table 14-3 Value of "n" for drainage ditch design

Hydraulic radius	"n"
Less than 2.5	0.040 - 0.045
2.5 to 4.0	.035 - .040
4.0 to 5.0	.030 - .035
more than 5.0	.025 - .030

### Ditch Bottom Widths

The type of machinery to be used for construction should be considered in the selection of ditch bottom widths. "V" type ditches are sometimes used when they are to be built with bulldozers or blade equipment. Flat bottom ditches frequently are designed when scrapers and draglines are to be used to construct the ditch. Depth of ditch and soil conditions affect the type of equipment used. Specified minimum bottom widths are often based on the types of equipment available.

### Relationship Between Depth and Bottom Width

The most economical ditch section approaches that of a semicircle. As a general rule, a deep, narrow ditch will carry more water than a wide, shallow ditch of the same cross-sectional area. An excessively wide, shallow ditch tends to develop sand or silt bars which cause ditch meandering and bank cutting. A fairly deep, narrow ditch tends to increase velocities and to reduce siltation and meandering. The section selected is a matter of judgment, taking into account all factors involved. In some cases it may be necessary to sacrifice economy and hydraulic efficiency in the interest of ditch stability.

### Calculation of Ditch Capacity

The volume of water passing a ditch cross section is calculated in cubic feet per second and is the product of the flow area cross section in square feet and the average velocity in the cross section expressed in feet per second.

The formula is:  $Q = av$

Various curves and tables, all based on Manning's formula for velocity, have been prepared to determine ditch capacities. The "Hydraulic Tables" prepared by the Corps of Engineers are used also. See Exhibit 14-5 for SCS charts available for ditch design.

### Ditch Berms

Adequate berms should be designed as required to provide roadways for maintenance equipment, to provide for work areas and to facilitate spoil-bank spreading, to prevent excavated material from washing back into ditches, and to prevent sloughing of ditchbanks caused by placing heavy loads too near the edge of the ditch.

NAME PRICE RIVER COAL COMPANY  
 ADDRESS P. O. Box 629  
Helper, Utah 84526

PERMIT NUMBER UT-0023086 DISCHARGE NUMBER 020

FACILITY No. 3 Mine  
 LOCATION \_\_\_\_\_

MONITORING PERIOD  
 FROM 

YEAR	MO	DAY
83	3	31

 TO 

YEAR	MO	DAY
83	6	30

NOTE: Read instructions before completing this form.

PARAMETER (33-37)	SAMPLE MEASUREMENT / PERMIT REQUIREMENT	QUANTITY OR LOADING (46-53)			QUALITY OR CONCENTRATION (54-61)			NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)	
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM				UNITS
Total Suspended Solids	SAMPLE MEASUREMENT				2.5	3.6	5.5	MG/L	3	3/92	Grab
	PERMIT REQUIREMENT										
Total Iron	SAMPLE MEASUREMENT				0.05	0.11	0.17	MG/L	3		Grab
	PERMIT REQUIREMENT										
Total Dissolved Solids	SAMPLE MEASUREMENT				1503	1675	1805	MG/L	3		Grab
	PERMIT REQUIREMENT										
Oil & Grease	SAMPLE MEASUREMENT				.05	5.5	8.1	MG/L	3		Grab
	PERMIT REQUIREMENT										
pH	SAMPLE MEASUREMENT				8.0	8.05	8.1	Std. Units	3		Grab
	PERMIT REQUIREMENT										
Flow (7 to 12 hrs/day 4-5 days/week)	SAMPLE MEASUREMENT				50	108	175	gpm	3		Grab
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER  
Gordon Cook, V.P. and General Manager  
 TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 USC 1001 AND 33 USC 1321b (Penalties under these statutes may include fines up to \$10,000 and/or maximum imprisonment of between 6 months and 5 years.)

*R.L. Wiley*  
 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE 801 472-3411  
 DATE 83 7 13  
 AREA CODE NUMBER YEAR MO DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

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4.0 to 5.0	.030 - .035
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The type of machinery to be used for construction should be considered in the selection of ditch bottom widths. "V" type ditches are sometimes used when they are to be built with bulldozers or blade equipment. Flat bottom ditches frequently are designed when scrapers and draglines are to be used to construct the ditch. Depth of ditch and soil conditions affect the type of equipment used. Specified minimum bottom widths are often based on the types of equipment available.

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#### Calculation of Ditch Capacity

The volume of water passing a ditch cross section is calculated in cubic feet per second and is the product of the flow area cross section in square feet and the average velocity in the cross section expressed in feet per second.

The formula is:  $Q = av$

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#### Ditch Berms

Adequate berms should be designed as required to provide roadways for maintenance equipment, to provide for work areas and to facilitate spoil-bank spreading, to prevent excavated material from washing back into ditches, and to prevent sloughing of ditchbanks caused by placing heavy loads too near the edge of the ditch.

PEAK FLOW CALCULATION FOR SEALED GRA PAVEMENT AREAS (SEE EXHIBIT J-1 FOR LOCATIONS)

WATER-SHED NO.	AREA A (ACRES)	RUNOFF COEF. C	GRA-DIENT FT/FT	MAX LENGTH (FT)	tc (MIN)	tc ROUNDED (MIN)	RAIN INTENSITY (INCHES/HR)			VOLUME OF FLOW (cfs)					
							10 yr	25 yr	100 yr	10 yr	25yr	100 yr			
SB1	16.4	0.4	0.51	1600	2.96	5	0.21	0.25	0.33	2.52	3.00	3.96	16.5	19.7	26.0
SB2	130.2	0.5	0.41	3200	5.50	5	0.21	0.25	0.33	2.52	3.00	3.96	164.1	195.3	257.8
SB3	1006.74	0.5	0.22	8700	15.09	15	0.41	0.50	0.66	1.64	2.00	2.64	825.5	1006.7	1328.9
SB4	131.33	0.5	0.33	3700	6.68	5	0.21	0.25	0.33	2.52	3.00	3.96	165.5	196.9	260.3
SB5	4.32	0.4	0.57	600	1.33	5	0.21	0.25	0.33	2.52	3.00	3.96	4.3	5.2	6.8
SB6	9.99	0.4	0.45	1250	2.57	5	0.21	0.25	0.33	2.52	3.00	3.96	10.1	11.9	15.8
SB7	1.52	0.4	1.00	100	0.27	5	0.21	0.25	0.33	2.52	3.00	3.96	160.7	191.3	252.5
MC1	127.53	0.5	0.34	3100	5.77	5	0.21	0.25	0.33	2.52	3.00	3.96	160.7	191.3	252.5
MC2	60.89	0.4	0.37	2650	4.95	5	0.21	0.25	0.33	2.52	3.00	3.96	61.5	73.1	96.2
MC3	61.29	0.4	0.66	1600	2.68	5	0.21	0.25	0.33	2.52	3.00	3.96	61.9	73.5	96.8
MC4	180.99	0.5	0.35	3400	6.12	5	0.21	0.25	0.33	2.52	3.00	3.96	228.0	271.5	358.4
MC5	359.25	0.5	0.22	5950	11.26	10	0.33	0.39	0.52	1.98	2.43	3.12	452.65	538.9	711.3
MC6	29.43	0.4	0.56	1700	3.00	5	0.21	0.25	0.33	2.52	3.00	3.96	29.72	35.3	46.5
MC7	5.55	0.4	0.50	600	1.40	5	0.21	0.25	0.33	2.52	3.00	3.96	5.6	6.6	8.8
MC8	11.07	0.4	0.58	1600	2.82	5	0.21	0.25	0.33	2.52	3.00	3.96	11.2	13.3	17.5
MC9	12.33	0.4	0.37	1800	3.67	5	0.21	0.25	0.33	2.52	3.00	3.96	12.45	14.8	19.5
MC10	6.18	0.4	0.56	1000	1.99	5	0.21	0.25	0.33	2.52	3.00	3.96	6.2	7.4	9.6
MC11	52.37	0.4	0.54	2250	3.77	5	0.21	0.25	0.33	2.52	3.00	3.96	52.9	62.8	82.7
MC12	9.5	0.4	0.47	1900	2.76	5	0.21	0.25	0.33	2.52	3.00	3.96	9.6	11.4	15.0
MC13	2.38	0.4	0.58	550	1.24	5	0.21	0.25	0.33	2.52	3.00	3.96	2.4	2.8	3.8
MC14	1.85	0.4	0.51	550	1.30	5	0.21	0.25	0.33	2.52	3.00	3.96	1.9	2.2	2.9
MC15	21.0	0.4	0.48	1250	2.51	5	0.21	0.25	0.33	2.52	3.00	3.96	21.2	25.2	33.3
MC16	19.71	0.4	0.53	1000	2.03	5	0.21	0.25	0.33	2.52	3.00	3.96	19.99	23.6	31.1
MC17	0.99	0.4	0.74	350	0.80	5	0.21	0.25	0.33	2.52	3.00	3.96	.9	1.2	1.6
MC18	1.5	0.4	0.44	600	1.13	5	0.21	0.25	0.33	2.52	3.00	3.96	1.5	1.8	2.4
CG1	90.41	0.5	0.56	2600	3.91	5	0.21	0.25	0.33	2.52	3.00	3.96	113.9	135.9	179.0
CG2	8.39	0.4	0.60	1000	1.94	5	0.21	0.25	0.33	2.52	3.00	3.96	8.5	10.1	13.3
CG3	26.39	0.4	0.49	1450	2.79	5	0.21	0.25	0.33	2.52	3.00	3.96	26.6	31.6	41.7
CG4	101.01	0.5	0.44	3600	5.86	5	0.21	0.25	0.33	2.52	3.00	3.96	127.3	151.5	200.0
CG5	63.88	0.4	0.45	3400	5.62	5	0.21	0.25	0.33	2.52	3.00	3.96	69.5	76.6	100.9
CG6	6.34	0.4	0.45	670	1.59	5	0.21	0.25	0.33	2.52	3.00	3.96	6.4	7.6	10.1
CG7	8.39	0.4	0.28	1430	3.42	5	0.21	0.25	0.33	2.52	3.00	3.96	8.47	10.1	13.2
CG8	3.71	0.4	0.53	750	1.63	5	0.21	0.25	0.33	2.52	3.00	3.96	3.7	4.5	5.9
CG9A	1050.0	0.5	0.18	12500	21.55	30	0.57	0.69	0.90	1.14	1.38	1.8	598.5	724.5	945.0
CG9B	188.2	0.5	0.26	6900	11.8	10	0.33	0.39	0.52	1.98	2.43	3.12	184.3	228.6	293.6
WC1	25.97	0.4	0.54	1600	2.89	5	0.21	0.25	0.33	2.52	3.00	3.96	26.2	31.2	41.0
WC2	15.10	0.4	0.50	1750	3.21	5	0.21	0.25	0.33	2.52	3.00	3.96	15.2	18.1	23.8
WC3	67.85	0.4	0.49	3340	5.29	5	0.21	0.25	0.33	2.52	3.00	3.96	68.6	81.4	107.2
WC4	32.54	0.4	0.52	1960	3.45	5	0.21	0.25	0.33	2.52	3.00	3.96	32.9	39.0	51.4
WC5	11.07	0.4	0.58	1600	2.82	5	0.21	0.25	0.33	2.52	3.00	3.96	11.2	13.3	17.5

TABLE 7-5

PEAK FLOW CALCULATIONS FOR SELECTED DRAINAGE AREAS(SEE EXHIBIT 7-1 FOR LOCATIONS)

WATER-SHED NO.	AREA A (ACRES)	RUNOFF COEF. C	GRA-DIENT FT/FT	MAX LENGTH (FT)	tc (MIN)	tc ROUNDED (MIN)	RAIN INTENSITY (INCHES tc)			RAIN INTENSITY (INCHES/HR)			VOLUME OF FLOW (cfs)		
							10 yr	25 yr	100 yr	10 yr	25 yr	100 yr	10 yr	25yr	100 yr
CC1	44.19	0.4	0.46	2600	4.48	5	0.21	0.25	0.33	2.52	3.00	3.96	44.6	53.0	69.8
CC2	108.0	0.5	0.34	4300	7.42	10	0.33	0.39	0.52	1.98	2.43	3.12	136.1	162.0	213.8
CC3	7.38	0.4	0.66	930	1.77	5	0.21	0.25	0.33	2.52	3.00	3.96	7.4	8.8	11.7
CC4	25.12	0.4	0.62	1970	3.23	5	0.21	0.25	0.33	2.52	3.00	3.96	25.4	30.1	39.7
CC5	12.46	0.4	0.73	1500	2.46	5	0.21	0.25	0.33	2.52	3.00	3.96	12.6	14.9	19.7
CC6	15.12	0.4	0.67	1710	2.81	5	0.21	0.25	0.33	2.52	3.00	3.96	15.3	18.1	23.9
CC7	45.71	0.4	0.54	2460	4.04	5	0.21	0.25	0.33	2.52	3.00	3.96	46.2	54.8	72.2
CC8	27.54	0.4	0.55	2220	3.70	5	0.21	0.25	0.33	2.52	3.00	3.96	27.8	33.0	43.5
CC9	10.37	0.4	0.75	1270	2.14	5	0.21	0.25	0.33	2.52	3.00	3.96	10.5	12.4	16.4
CC10	9.00	0.4	0.74	1190	2.04	5	0.21	0.25	0.33	2.52	3.00	3.96	9.1	10.8	14.2
CC11	6.94	0.4	0.73	950	1.73	5	0.21	0.25	0.33	2.52	3.00	3.96	7.0	8.3	10.9
CC12	5.04	0.4	0.67	1000	1.86	5	0.21	0.25	0.33	2.52	3.00	3.96	5.1	6.0	8.0
CC13	4.03	0.4	0.66	850	1.65	5	0.21	0.25	0.33	2.52	3.00	3.96	4.1	4.8	6.4
CC14	46.45	0.4	0.47	3000	4.96	5	0.21	0.25	0.33	2.52	3.00	3.96	47.0	55.7	73.4
CC15	2644.15	0.5	0.18	17300	27.66	30	0.57	0.69	0.90	1.14	1.38	1.8	1507.2	1824.5	2379.7
CC16	230.00	0.5	0.30	5000	8.74	10	0.33	0.39	0.52	1.98	2.43	3.12	289.8	345	455.4
CC17	230.00	0.5	0.37	5027	8.1	10	0.33	0.39	0.52	1.98	2.43	3.12	289.8	345	455.4
CC18	48.0	0.4	0.48	2920	4.82	5	0.21	0.25	0.33	2.52	3.00	3.96	48.5	57.6	75.8
CC19	19.5	0.4	0.40	1480	3.06	5	0.21	0.25	0.33	2.52	3.00	3.96	19.7	23.4	30.08
CC20	32.0	0.4	0.57	1850	3.18	5	0.21	0.25	0.33	2.52	3.00	3.96	32.2	38.4	50.7

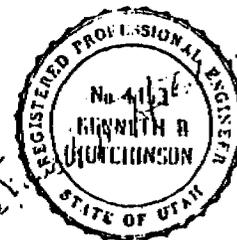
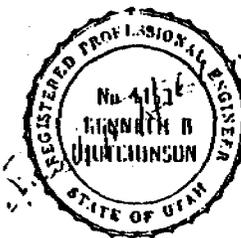


TABLE 7-5  
PEAK FLOW CALCULATIONS FOR SELECTED DRAINAGE AREAS (SEE EXHIBIT 7-1 FOR LOCATIONS)

WATER-SHEE NO.	AREA (ACRES)	RUNOFF COEF. C	GRA-DIENT FT/FT	MAX LENGTH (FT)	LC (MIN)	LC ROUNDED (MIN)	RAIN INTENSITY (INCHES/HR)			RAIN INTENSITY (INCHES/HR)			VOLUME OF FLOW (cfs)		
							10 yr	25 yr	100 yr	10 yr	25 yr	100 yr	10 yr	25yr	100 yr
S01	16.4	0.4	0.51	1600	2.96	5	0.21	0.25	0.33	2.52	3.00	3.96	16.5	19.7	26.0
S02	130.2	0.5	0.41	3200	5.50	5	0.21	0.25	0.33	2.52	3.00	3.96	164.1	195.3	257.8
S03	1006.74	0.5	0.22	8700	15.09	15	0.41	0.50	0.66	1.64	2.00	2.64	825.5	1006.7	1320.9
S04	131.33	0.5	0.33	3700	6.68	5	0.21	0.25	0.33	2.52	3.00	3.96	165.5	196.9	260.3
S05	4.32	0.4	0.57	600	1.33	5	0.21	0.25	0.33	2.52	3.00	3.96	4.3	5.2	6.8
S06	9.99	0.4	0.45	1250	2.57	5	0.21	0.25	0.33	2.52	3.00	3.96	10.1	11.9	15.8
S07	1.52	0.4	1.00	100	0.27	5	0.21	0.25	0.33	2.52	3.00	3.96	160.7	191.3	252.5
NC1	127.53	0.5	0.34	3100	5.77	5	0.21	0.25	0.33	2.52	3.00	3.96	160.7	191.3	252.5
NC2	60.89	0.4	0.37	2650	4.95	5	0.21	0.25	0.33	2.52	3.00	3.96	61.5	73.1	96.2
NC3	61.29	0.4	0.66	1600	2.68	5	0.21	0.25	0.33	2.52	3.00	3.96	61.9	73.5	96.8
NC4	180.99	0.5	0.35	3400	6.12	5	0.21	0.25	0.33	2.52	3.00	3.96	228.0	271.5	358.4
NC5	359.25	0.5	0.22	5950	11.26	10	0.33	0.39	0.52	1.98	2.43	3.12	452.65	538.9	711.3
NC6	29.43	0.4	0.56	1700	3.00	5	0.21	0.25	0.33	2.52	3.00	3.96	29.72	35.3	46.5
NC7	5.55	0.4	0.50	600	1.40	5	0.21	0.25	0.33	2.52	3.00	3.96	5.6	6.6	8.8
NC8	11.07	0.4	0.58	1600	2.82	5	0.21	0.25	0.33	2.52	3.00	3.96	11.2	13.3	17.5
NC9	12.33	0.4	0.37	1800	3.67	5	0.21	0.25	0.33	2.52	3.00	3.96	12.45	14.8	19.5
NC10	6.18	0.4	0.56	1000	1.99	5	0.21	0.25	0.33	2.52	3.00	3.96	6.2	7.4	9.6
NC11	52.37	0.4	0.54	2250	3.77	5	0.21	0.25	0.33	2.52	3.00	3.96	52.9	62.8	82.7
NC12	9.5	0.4	0.47	1900	2.76	5	0.21	0.25	0.33	2.52	3.00	3.96	9.6	11.4	15.0
NC13	2.30	0.4	0.58	550	1.74	5	0.21	0.25	0.33	2.52	3.00	3.96	2.4	2.8	3.8
NC14	1.85	0.4	0.51	550	1.30	5	0.21	0.25	0.33	2.52	3.00	3.96	1.9	2.2	2.9
NC15	21.0	0.4	0.48	1250	2.51	5	0.21	0.25	0.33	2.52	3.00	3.96	21.2	25.2	33.3
NC16	19.71	0.4	0.53	1000	2.03	5	0.21	0.25	0.33	2.52	3.00	3.96	19.99	23.6	31.1
NC17	0.99	0.4	0.74	350	0.80	5	0.21	0.25	0.33	2.52	3.00	3.96	.9	1.2	1.6
NC18	1.5	0.4	0.44	600	1.13	5	0.21	0.25	0.33	2.52	3.00	3.96	1.5	1.8	2.4
CG1	90.41	0.5	0.56	2400	3.91	5	0.21	0.25	0.33	2.52	3.00	3.96	113.9	135.9	179.0
CG2	8.39	0.4	0.60	1000	1.94	5	0.21	0.25	0.33	2.52	3.00	3.96	8.5	10.1	13.3
CG3	26.39	0.4	0.49	1450	2.79	5	0.21	0.25	0.33	2.52	3.00	3.96	26.6	31.6	41.7
CG4	101.01	0.5	0.44	3600	5.86	5	0.21	0.25	0.33	2.52	3.00	3.96	127.3	151.5	200.0
CG5	63.88	0.4	0.45	3400	5.62	5	0.21	0.25	0.33	2.52	3.00	3.96	69.5	76.6	100.9
CG6	6.34	0.4	0.45	670	1.59	5	0.21	0.25	0.33	2.52	3.00	3.96	6.4	7.6	10.1
CG7	8.39	0.4	0.78	1430	3.42	5	0.21	0.25	0.33	2.52	3.00	3.96	8.47	10.1	13.2
CG8	3.71	0.4	0.53	750	1.63	5	0.21	0.25	0.33	2.52	3.00	3.96	3.7	4.5	5.9
CG9A	1050.0	0.5	0.18	12500	21.55	30	0.57	0.69	0.90	1.14	1.38	1.8	598.5	724.5	945.0
CG9B	188.7	0.5	0.26	6900	11.8	10	0.33	0.39	0.52	1.98	2.43	3.12	186.3	228.6	293.6
VC1	25.97	0.4	0.54	1600	2.89	5	0.21	0.25	0.33	2.52	3.00	3.96	26.2	31.2	41.0
VC2	15.10	0.4	0.50	1750	3.21	5	0.21	0.25	0.33	2.52	3.00	3.96	15.2	18.1	23.8
VC3	67.85	0.4	0.49	3340	5.29	5	0.21	0.25	0.33	2.52	3.00	3.96	68.6	81.4	107.2
VC4	32.54	0.4	0.52	1960	3.45	5	0.21	0.25	0.33	2.52	3.00	3.96	32.9	39.0	51.4
VC5	25.91	0.4	0.74	2100	3.16	5	0.21	0.25	0.33	2.52	3.00	3.96	26.2	31.2	41.0

**TABLE 7-5**  
**PEAK FLOW CALCULATIONS FOR SELECTED DRAINAGE AREAS (SEE EXHIBIT 7-1 FOR LOCATIONS)**

WATER-SHED NO.	AREA A (ACRES)	RUNOFF COEF. C	GRA-DIENT FT/FT	MAX LENGTH (FT)	tc (MIN)	tc ROUNDED (MIN)	RAIN INTENSITY (INCHES tc)			RAIN INTENSITY (INCHES/HR)			VOLUME OF FLOW (cfs)		
							10 yr	25 yr	100 yr	10 yr	25 yr	100 yr	10 yr	25yr	100 yr
CC1	44.19	0.4	0.46	2600	4.48	5	0.21	0.25	0.33	2.52	3.00	3.96	44.6	53.0	69.8
CC2	108.0	0.5	0.34	4300	7.42	10	0.33	0.39	0.52	1.98	2.43	3.12	136.1	162.0	213.8
CC3	7.38	0.4	0.66	930	1.77	5	0.21	0.25	0.33	2.52	3.00	3.96	7.4	8.8	11.7
CC4	25.12	0.4	0.62	1970	3.23	5	0.21	0.25	0.33	2.52	3.00	3.96	25.4	30.1	39.7
CC5	12.46	0.4	0.73	1500	2.46	5	0.21	0.25	0.33	2.52	3.00	3.96	12.6	14.9	19.7
CC6	15.12	0.4	0.67	1710	2.81	5	0.21	0.25	0.33	2.52	3.00	3.96	15.3	18.1	23.9
CC7	45.71	0.4	0.54	2460	4.04	5	0.21	0.25	0.33	2.52	3.00	3.96	46.2	54.8	72.2
CC8	27.54	0.4	0.55	2220	3.70	5	0.21	0.25	0.33	2.52	3.00	3.96	27.8	33.0	43.5
CC9	10.37	0.4	0.75	1270	2.14	5	0.21	0.25	0.33	2.52	3.00	3.96	10.5	12.4	16.4
CC10	9.00	0.4	0.74	1190	2.04	5	0.21	0.25	0.33	2.52	3.00	3.96	9.1	10.8	14.2
CC11	6.94	0.4	0.73	950	1.73	5	0.21	0.25	0.33	2.52	3.00	3.96	7.0	8.3	10.9
CC12	5.04	0.4	0.67	1000	1.86	5	0.21	0.25	0.33	2.52	3.00	3.96	5.1	6.0	8.0
CC13	4.83	0.4	0.66	850	1.65	5	0.21	0.25	0.33	2.52	3.00	3.96	4.1	4.8	6.4
CC14	46.45	0.4	0.47	3000	4.96	5	0.21	0.25	0.33	2.52	3.00	3.96	47.0	55.7	73.4
CC15	2644.15	0.5	0.18	17300	27.66	30	0.57	0.69	0.90	1.14	1.38	1.8	1507.2	1824.5	2379.7
CC16	230.00	0.5	0.30	5000	8.74	10	0.33	0.39	0.52	1.98	2.43	3.12	289.8	345	455.4
CC17	230.00	0.5	0.37	5027	8.1	10	0.33	0.39	0.52	1.98	2.43	3.12	289.8	345	455.4
CC18	48.0	0.4	0.48	2920	4.82	5	0.21	0.25	0.33	2.52	3.00	3.96	48.5	57.6	75.8
CC19	19.5	0.4	0.40	1480	3.06	5	0.21	0.25	0.33	2.52	3.00	3.96	19.7	23.4	30.08
CC20	32.0	0.4	0.57	1850	3.18	5	0.21	0.25	0.33	2.52	3.00	3.96	32.2	38.4	50.7



### Stability of Postmining Slopes

The stability of the roadcut slope at the No. 5 Mine (colluvium - 40 degrees) and the No. 3 Mine refuse pile (25 - 30 degrees) must be addressed. These slopes must be shown to have a 1.3 static safety factor after final reclamation has occurred. If the safety factor cannot be met as proposed, a plan for stabilization of the slopes must be developed.

This point was further clarified during a phone conversation on 7-27-83 with D. Richardson. There was some question as to why we sent pictures of these particular slopes. These are within designated permit areas and to some extent part of present operations. Some will be backfilled, some will be left as is. Others may be backfilled partially as necessary to seal portals.

The two slopes specifically mentioned will both be altered to flatter configurations.

The slope in Sowbelly Canyon is not a road cut but a toe of slope cut within the pad area. It ranges to a maximum of 12' height. It will be backfilled to a 2:1 or flatter slope.

The slope of the old refuse is about 2:1. The entire area will be recontoured during reclamation which will occur this and next year. We will try to obtain a maximum slope (in refuse) of about 2.5:1. Should this not be possible, some compacting effort will be applied so as to achieve the 1.3 safety factor.



SCOTT M. MATHESON  
GOVERNOR



STATE OF UTAH  
DEPARTMENT OF COMMUNITY AND  
ECONOMIC DEVELOPMENT

COMMUNITY DEVELOPMENT DIVISION

6233 STATE OFFICE BUILDING  
SALT LAKE CITY, UTAH 84114  
(801) 533-4054

6th Floor  
N.E. ED  
THURS @ 2:00 PM

September 2, 1983

Mr. Robert Wiley, Environmental Engineer  
Price River Coal Company  
76 South Main Street  
Helper, UT 84626

Dear Mr. Wiley:

The U.S. Office of Surface Mining has informed our office that the Price River Coal Company is planning to expand its mining operations in Carbon County.

Upon review of information Price River has submitted to OSM, it appears that your expansion plans would be subject to provisions of the Utah Resource Development Code (UCA, 63-51-1 et. seq.). These provisions require the Price River Coal Company to prepare and file with the Department of Community and Economic Development and all units of local governments affected by your project a socioeconomic and fiscal impact statement together with an alleviation plan. Both the impact statement and alleviation plan must be submitted at least 90 days prior to commencement of construction (UCA, 63-51-10(2)).

I have enclosed for your reference a copy of the "Utah Approach" to socioeconomic impact mitigation which includes areas to be addressed in the impact statement and alleviation plan.

We would welcome the opportunity to meet with you to discuss your expansion plans and look forward to working with you on your impact statement and alleviation plan.

Sincerely,

Buzz Hunt, Director

BH:aw

Enc.

cc: Richard Walker, Carbon County  
Sarah Bransom, Office of Surface Mining



# CARBON COUNTY

## PRICE, UTAH 84501

September 13, 1983

Mr. Robert Wiley, Environmental Engineer  
Price River Coal Co.  
76 South Main Street  
Helper, Utah 84526

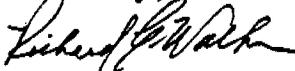
Dear Mr. Wiley,

Carbon County has been made aware of your companies plans to expand its operations in our county. We want to make sure that you are aware that county ordinance requires the submittal of a socio-economic impact assessment and resultant impact mitigation plan to the Carbon County Planning and Zoning Commission. The Development Code of Carbon County, Utah, section 5-4 sets a 75 person employment horizon as a partial definition of a large scale mining operation. When a project exceeds this employment level then this plan is prepared to assist the county in preparing for the related growth. The mitigation plan identifies how the company will assist the county in this effort.

This plan can be the same plan filed with the Department of Community and Economic Development to satisfy UCA, 3-51-1. We have included a copy of our ordinance which very simply deliniates the basic components of the plan and also the related approval process with the Planning and Zoning Commission and the County Commission. The process will take 90 to 120 days depending upon when final plan approval is given by OSM.

We will need to get together and discuss the timing of this process. I will be happy to meet with you at any time.

Sincerely,

  
Richard Walker,  
County Planner



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

SEP 1 6 1983

Mr. Rob Wiley  
Environmental Engineer  
Price River Coal Company  
76 South Main Street  
Helper, UT 84526

Dear Mr. Wiley:

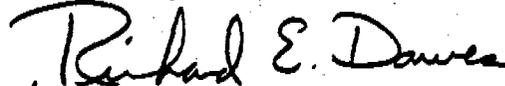
As a result of an August 29, 1983 meeting between OSM, UDOGM, Fred C. Hart Associates, Vaughn Hansen Associates, and Price River Coal Company (PRCC), at the offices of Vaughn Hansen Associates in Salt Lake City, it is understood that PRCC will assemble additional groundwater data and a groundwater monitoring plan which will be incorporated into the Draft Technical and Environmental Analysis (TEA) for assessment of groundwater impacts. The information which is missing and must be provided in a concise manner includes the following:

- 1) A prediction of the flow rates of ground water to be intercepted for the next five (5) years and for the anticipated life-of-mine.
- 2) Substantiation of the claim that the data from coal and other strata from nearby areas are geo-chemically similar to each other.
- 3) A proposed groundwater monitoring plan which contains:
  - a) The locations of discharge points in existing and abandoned mines and identification of strata from which discharge occurs. At a minimum, PRCC must monitor:
    1. One of the alluvial springs in Spring Canyon Creek;
    2. The Crandall Canyon Spring; and,
    3. The flow and quality at all abandoned mine access points in the lease area and at one of the mines discharging into Spring Canyon Creek.
  - b) A discussion of the sampling frequency as well as the chemical parameters to be analyzed. In addition to the basic NPDES requirements, PRCC must analyze the major cations and anions and calculate the Sodium Absorption Ratio (SAR) semi-annually.
  - c) A generalized monitoring plan to assure that no material damage to the hydrologic balance outside the permit area occurs.

In addition, OSM has reviewed PRCC's subsidence plan and has determined that PRCC has provided insufficient information to properly assess the effects of subsidence underneath and immediately adjacent to the Price River, except for mining proposed in the sub-3 seam.

PRCC must submit acceptable groundwater monitoring and subsidence plans by September 23, 1983 if OSM is to meet the decision deadline discussed in the joint UDOGM/OSM letter of June 13, 1983. Should you have any questions concerning this discussion on groundwater monitoring and subsidence plans for PRCC, please call either Dave Maxwell or Walter Swain at (303) 837-3807.

Sincerely,



*for* Allen D. Klein  
*as* Administrator  
Western Technical Center

cc: Laine Adair - PRCC  
Tom Tetting - UDOGM  
Lynn Kunzler - UDOGM  
Walter Swain - OSM  
Steve Manger - OSM  
Bennett Young - OSM  
Scott Grace - OSM



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

Mr. Rob Wiley  
Environmental Engineer  
Price River Coal Company  
76 S. Main Street  
Helper, UT 84526

Dear Mr. Wiley:

Enclosed is the Draft Technical Environmental Analysis (TEA) of the Groundwater Hydrological Balance for Price River Mine. I am also forwarding a draft copy to Vaughn Hansen Associates in Salt Lake City. This draft TEA will be the topic of discussion at the proposed meeting early next week at Vaughn Hansen Associates between representatives of OSM, Richardson Associates, Vaughn Hansen Associates, UDOGM, and Price River Coal Company.

At this meeting preliminary discussions on a groundwater monitoring plan for the Price River mine will commence. The meeting will provide an opportunity for all parties to comment on the Draft TEA for Groundwater Hydrological Balance. Please keep in mind that this Draft TEA does not represent a finalized format or plan.

Should you have any questions, please contact me at (303) 837-3807.

Sincerely,

Dave Maxwell  
Project Leader

Enclosure

Price River Coal - OSM - DOGM  
8-29-83

Vaughn Hansen	Vaughn Hansen Associates	272-5263
Marc A. Jewett	Richardson Associates	591-8404
DAVE MAXWELL	OSM - DENVER	837-3806
SCOTT GRACE	OSM - DENVER	837-3806
LAINIE ADAIR	P.R.C.C.	472-3411
Marv Allen	Vaughn Hansen Assoc.	272-5263
R.L. Wilby	PRICE RIVER COAL	472-3411
John Whitehead	Dw Oil Gas & Mining	533-5771
<del>D.W. ARBY</del>	Division Oil, Gas & Mining	"
Lynn Kunzler	DOGM	"

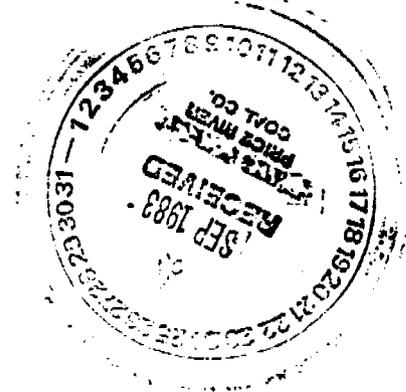


STATE OF UTAH  
NATURAL RESOURCES  
Oil, Gas & Mining

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

Scott M. Matheson, Governor  
Temple A. Reynolds, Executive Director  
Dr. G. A. (Jim) Shirazi, Division Director

September 22, 1983



Mr. Robert Wiley  
Environmental Engineer  
Price River Coal Company  
P. O. Box 629  
Helper, Utah 84526

RE: Policy Regarding Operator Responses  
to Division Reviews of Permanent  
Program Permit Applications  
Price River Complex  
ACT/007/004, Folder Nos. 2 and 6  
Carbon County, Utah

Dear Mr. Wiley:

In order that the Division of Oil, Gas and Mining can meet its statutory obligations of permitting all coal mining operations under the permanent regulatory program, it has become necessary for the Division to adopt and enforce a strict policy regarding allowable time to respond to Division requests for additional information.

All responses to Division requests for information must be complete and furnished within time frames established by the Division. Individual circumstances will be considered, wherever possible, in setting the maximum allowable time for a particular request, but the overall goal of issuing a permanent program permit within a fixed time period remains to be of paramount importance.

Failure to comply with this policy and meeting the established deadlines with complete and adequate information will result in suspension of your interim permit, placement of the application in a lower review priority and cessation of operations until such time as a permanent program permit is issued.

It is unfortunate that we have to take this position, but there appears to be no other alternative in resolving the problem of not receiving timely responses to permit reviews.

Mr. Robert Wiley  
ACT/007/004  
September 22, 1983  
Page 2

We are very eager to issue you a permit, as I know you are eager to receive one--but it can't be done unless both parties work together as a team and cooperate to resolve this impasse.

Sincerely,

  
Dr. G. A. "Jim" Shiraz  
Director

JS/JWS:btb

cc: Allen Klein, OSM, Denver  
Robert Hagen, OSM, Albuquerque

PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

September 27, 1983

Mr. Dave Maxwell  
Office of Surface Mining  
Western Technical Center  
Brooks Towers, 1020 15th Street  
Denver, CO 80202

Re: Cemetery at Willow Creek and Socioeconomic Considerations

Dear Mr. Maxwell:

Please find enclosed an 8" x 10" section map which depicts the Willow Creek cemetery and existing, surrounding mining appurtences as requested during our 9-23-83 meeting in Salt Lake City. Also enclosed is an updated work force expansion schedule as requested by Buzz Hunt of Utah DCED, Richard Walker from Carbon County Planning Office and OSM's Sarah Bransom during our 9-22-83 meeting in Salt Lake City. Additionally, and again as requested, Price River Coal Company agrees and commits to comply with all state and county regulations concerning developmental impacts on the community and to work closely with Mr. Walker's and Mr. Hunt's offices, well in advance of proposed project start-up dates to develop impact mitigation strategies.

Very truly yours,

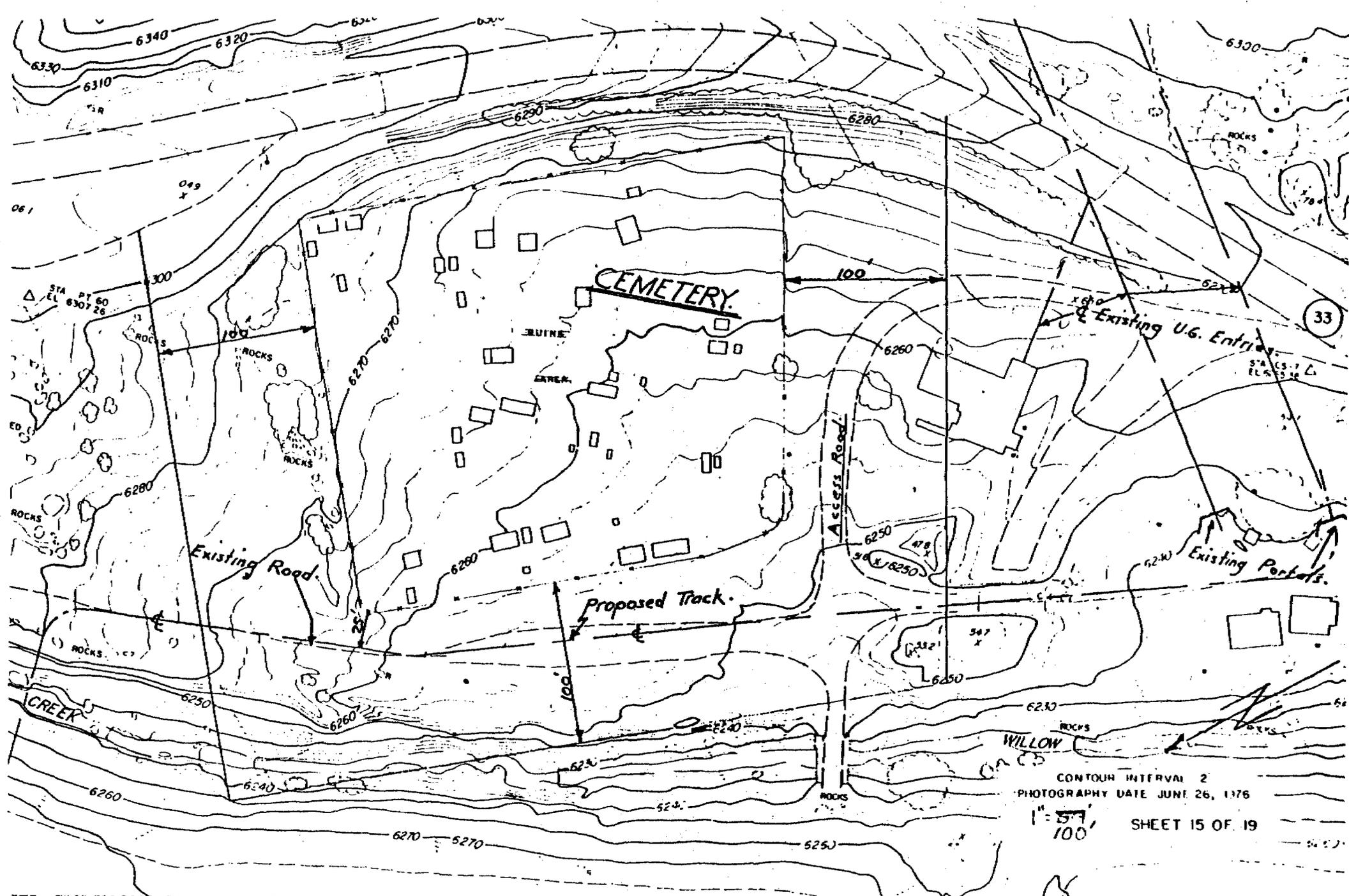
PRICE RIVER COAL COMPANY

*Rob L. Wiley*  
Rob L. Wiley  
Environmental Engineer

RLW:jp

Enclosures

cc: Buzz Hunt, DCED  
Richard Walker, Carbon Co.  
Tom Tetting, DOGM



CONTOUR INTERVAL 2  
 PHOTOGRAPHY DATE JUNE 26, 1976  
 1" = 100'  
 SHEET 15 OF 19

33

INCREASES OF LABOR FORCE

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Construction	50	--	40	--	--	50	50	--
Mine Employees	130	130	550	550	550	550	550	750
Total Employees	180	130	590	550	550	600	600	750
Total Price River Mine Population*	461	333	1,510	1,408	1,408	1,536	1,536	1,926

\* Projection computed estimating 80% new employees were married and families would average 3.2 members.

Note: This updated schedule is at best S.W.A.G and subject to change based on market conditions.

\*\* Projections after 1990 will involve a steady increase in mine production capacity, therefore work force. Maximum anticipated work force is expected to be 1,200 by year 2000.

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

September 29, 1983

CERTIFIED RECEIPT REQUESTED  
Certified No. 562080

Mr. Dave Maxwell  
Office of Surface Mining  
Western Technical Center  
Brooks Towers, 1020 15th Street  
Denver, CO 80202

Dear Mr. Maxwell:

Enclosed please find additional ground water data and modified ground water monitoring plan as provided by Vaughn Hansen Associates, Inc. These documents should provide the additional information requested by OSM.

Please advise if you have any additional questions.

Very truly yours,

PRICE RIVER COAL COMPANY

  
Rob L. Wiley  
Environmental Engineer

RLW:jp

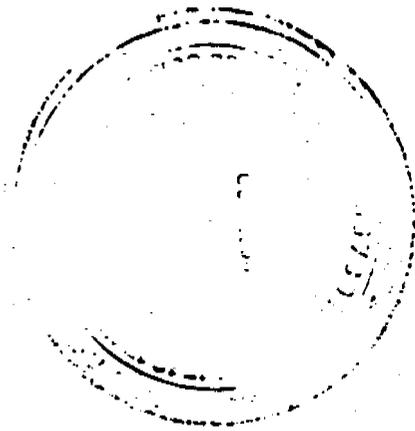
Enclosures: (11 copies each)

1. Vaughn Hansen Associates Letter dated 9/21/83
2. Plate 1, Ground and Surface Water Monitoring Stations

cc: T. Tetting, DOGM

GC  
LA  
RLW

1. Red Arrow



3400  
ST-029003  
(1-021)

October 3, 1983

Memorandum

To: Utah Senior Project Manager, CSM, Denver  
Attn: Mr. Dave Maxwell

Through: Chief, Branch of Solid Minerals

From: Deputy State Director, Mineral Resources

Subject: Price River Coal Company, Price River  
Complex, Carbon County, Utah, Mining  
and Reclamation Plan (MRP)

As stated in our letter dated July 29, 1983, the subject plan, now on file in this office, is adequate for our administration and is in compliance with the 30 CFR 211.10(b) rules, effective August 30, 1982. The plan is designed to achieve maximum economic recovery of the resource within the limits of the equipment and technology presently being used. We recommend approval of the underground mining plan part of the MRP plan permit application package (PAP).

Recently, Debby Richardson, consultant to CSM, Denver, contacted us and said she was concerned about the first mining of five seams of coal under the Price River corridor. If she had to approve the plan at this time she would only approve the issuance of a mining permit for the bottom seam (Sub-3).

In our review of the mine plan, we have determined that a corridor or safety zone has been designed to protect and minimize surface impacts along the Price River within which only limited mining will be approved. Parts of five minable seams will be first mined with pillars oriented to be superimposed in the vertical direction. Mining in the corridor will conform with typical entry and roof and pillar systems that have been approved by the Mine Health and Safety Administration (MSHA) for the Price River Coal Company MRP plan. In all of these mining methods, more than 50 percent of the coal by area will be left as supporting pillars following first mining.

The BLM, Division of Mineral Resources are recommending, as stated in the first paragraph of this letter, that the Price River Coal Company be allowed to begin mining under the Price River safety corridor as shown on the maps included in the subject MRP plan. The operations will be field inspected by BLM, Division of Mineral Resources' mining personnel at least once on a quarterly basis. The inspections will involve discussions relative to the geologic and mining conditions being encountered and to the basic principals

of multiple seam mining, with particular emphasis in the Price River safety corridor. Should modifications be required, the EM will be actively involved in all modifications or necessary changes that follow. All modifications or changes to the underground mining plan must be submitted to the EM for approval. Approvals of any modifications will be based on sound basic engineering concepts and experienced expertise which will assure the integrity of the corridor. In our opinion, mining as described above will not have an impact on the surface or surface values in the Price River safety corridor.

Orig. Sgd. Douglas H. Hillman

cc:  
DOGM  
Price River Coal ✓  
McKean (2)



STATE OF UTAH  
NATURAL RESOURCES  
Oil, Gas & Mining

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

CC - K.D. 11/11  
SC  
EL/p H. KEKE  
Scott M. Matheson, Governor  
Temple A. Reynolds, Executive Director  
Dr. G. A. (Jim) Shirazi, Division Director

October 5, 1983

Mr. Robert Wiley  
Environmental Engineer  
Price River Coal Company  
P. O. Box 629  
Helper, Utah 84526

RE: County Roads  
Price River Complex  
ACT/007/004, Folder No. 6  
Carbon County, Utah

Dear Mr. Wiley:

It has recently come to the attention of the Division of Oil, Gas and Mining (DOG M) that use of county roads for the purposes of coal mining may cause those roads to be subject to haul road performance standards promulgated pursuant to Section 40-10-1 et seq., Utah Code Annotated 1953, as amended. The result of such a determination would be that the operator using that road would have to include the portion of the road used in the operation in the mine plan, i.e., obtain a permit and maintain the road as a coal haul road.

A decision has been made to schedule each operator for a formal hearing before the Board of Oil, Gas and Mining to present testimony and evidence as to the nature of the access road. A determination by the Board that the road is a haul road, or a voluntary agreement between DOGM and the operator that such road may be presumed to fail to meet the test of a public road, will result in a specific, but reasonable, period of time during which such road can be permitted and brought to standards.

- 2 Briefly, the test for a public road is twofold. First, there must be significant public use of the road and the road must be maintained with public funds. Of course, it will not be necessary to permit the road if you prove that the test has been met.

If you agree that your access road will not meet the test, please contact DOGM before October 14, 1983 for information as to what will be needed to comply with the statute and regulations. If you do not contact DOGM before

County Roads  
October 5, 1983  
Page Two

October 28, 1983, DOGM shall assume that the matter is to be contested. A hearing date will be set up and an order to show cause as to why you should not be required to permit your access road shall be issued.

If you have any questions, please contact Ron Daniels at 533-5771 or Barbara Roberts at 533-6684.

Sincerely,

*R. W. Daniels*  
*for*

RONALD W. DANIELS  
DEPUTY DIRECTOR

RWD/ms

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

October 5, 1983

CERTIFIED RECEIPT REQUESTED  
Certified Mail No. 562081

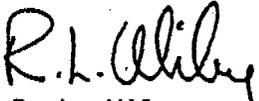
Mr. Dave Maxwell  
Office of Surface Mining  
Mine Plan Review Branch  
Brooks Towers, 1020 15th Street  
Denver, CO 80202

Dear Mr. Maxwell:

Please find enclosed two (2) additional copies of Exhibit 1-1, "Permit Area", as requested on October 3, 1983. This exhibit was originally submitted by Price River Coal Company (seven copies) on June 9, 1983.

Very truly yours,

PRICE RIVER COAL COMPANY

  
R. L. Wiley  
Environmental Engineer

RLW:jp

Enclosures



STATE OF UTAH  
NATURAL RESOURCES  
Oil, Gas & Mining

Scott M. Matheson, Governor  
Temple A. Reynolds, Executive Director  
Dr. G. A. (Jim) Shirazi, Division Director

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

October 5, 1983

Mr. Gordon Cook, Vice-President  
Price River Coal Company  
P. O. Box 629  
Helper, Utah 84526

RE: Determination of Apparent  
Completeness  
Price River Coal Company  
Price River Complex  
ACT/007/004, Folder No. 2  
Carbon County, Utah

Dear Mr. Cook:

The Utah Division of Oil, Gas and Mining (Division), together with the Office of Surface Mining (OSM) have completed a review of the Mining and Reclamation Plan (MRP) and amendments submitted by Price River Coal Company for its Price River Complex and have determined the plan to be apparently complete. In compliance with Section UMC 786.11(b) and (c) of the "Regulations Pertaining to Surface Effects of Underground Coal Mining Activities, Final Rules of the Utah Board and Division of Oil, Gas and Mining," promulgated under Regulation of Coal Mining and Reclamation Operations (Title, 40-10, UCA 1953), notice is hereby given to all appropriate agencies having jurisdiction over or an interest in the area of the proposed operations, that a complete plan is available for public review.

Pursuant to UMC 786.11(b), the following notification is set forth:

'UMC 786.11(b) Upon receipt of a complete application for a permit, the Division shall issue written notification of--

- (1) The applicant's intention to surface mine a particularly described tract of land."

Price River Coal Company's proposed Price River Complex will involve surface facilities and the underground mining of coal. The proposed permit area contains the following areas:

Section 35 and 36, Township 12 South, Range 8 East;

Mr. Gordon Cook  
ACT/007/004  
October 5, 1983  
Page 2

Portion Section 2, Township 13 South;

S1/2 Section 25, Section 26, 27, 28, S3/4 and Portion Section 29, S3/4 Section 30, Section 31, 32, 33, 34, 35, 36, Township 12 South, Range 9 East;

SW, NE and NW1/4's Section 1, Section 2, 3, 4, 5, 6, NE1/4 and NW1/4 and SE1/4 and the NE, NW and SE1/4's SW1/4 Section 8, Section 9, N1/2 and NE1/4 SW1/4 Section 10, N1/2 NW1/4 Section 11, NW1/4, Section 12, NW1/4 and SW1/4 and NW, SW, SE1/4's NE1/4 and NE, SW, SE1/4's SE1/4 Section 16, SE1/4 NE1/4 Section 17, Township 13 South, Range 9 East;

Section 26, 27, S1/2 and NW1/4 NW1/4 Section 28, S1/2 and S1/2 NE1/4 Section 29, S1/2 Section 30, Section 31, 32, 33, 34, 35 Township 12 South, Range 10 East;

SW1/4 Section 1, Section 2, 3, 4, 5, NW and NE and SE1/4's Section 6, E1/2 NW1/4 and NW, SE, SW1/4's SE1/4 and S1/2 SW1/4 Section 8, Section 9, NW1/4 and NE1/4 and SE1/4 SW1/4 and NW, NE and SE1/4's Section 10, Section 11, NW, SW, SE1/4's NE1/4 and NW, SW SE1/4's Section 12, NW1/4 Section 16, NE1/4 and N1/2 NW1/4 Section 17, N1/2 NE1/4 Section 18, Township 13 South, Range 10 East.

The project area is shown on the following U. S. Geological Survey 7.5-minute maps:

Standardville, Kyune, Matt's Summit, Helper and Deadman Canyon.

"(2) The application number."

The Utah Division of Oil, Gas and Mining application number is ACT/007/004. The Office of Surface Mining application number is UT 0007

"(3) Where a copy of the application may be inspected."

The application contains information regarding environmental resources and the proposed operations and reclamation plan. A copy of the application is available for public inspection at the following locations:

Recorder's Office  
Carbon County Courthouse  
Price, Utah 84501

and

Utah Division of Oil, Gas and Mining  
4241 State Office Building  
Salt Lake City, Utah 84114

Mr. Gordon Cook  
ACT/007/004  
October 5, 1983  
Page 3

and

Office of Surface Mining  
Western Technical Center  
Brooks Towers  
1020 Fifteenth Street  
Denver, Colorado 80202

"(4) Where comments on the application may be submitted  
under Section UMC 786.12 of this part . . ."

Comments on the proposed Price River Complex may be submitted to:

Dr. G. A. "Jim" Shirazi, Director  
Division of Oil, Gas and Mining  
4241 State Office Building  
Salt Lake City, Utah 84114

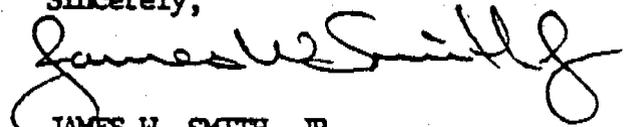
The Federal Coal Leases, that are included in the mine plan area are:  
U-25484, U-25485; U-058184, U-019524; SL-029093-046653; SL-046652, U-0148779,  
SL-071737; SL-048442-050115; U-0146345 and U-25683.

The Utah State Coal Leases that are included in the mine plan area are:  
ML-11940; ML-18148; ML-13681 and ML-1892.

The Division of Oil, Gas and Mining and the Office of Surface Mining will  
begin a Technical Analysis (TA) to determine whether the proposed plan meets  
all criteria of the Permanent Program Performance Standards contained in  
regulations UMC 817.1 et seq., pursuant to UCA, Section 40-10-1 et seq.

The technical review is scheduled to be completed by October 28, 1983.  
Comments submitted in response to this notice should be received prior to  
October 28, 1983. If further information is required, please contact either  
Tom Tetting or Lynn Kunzler of the Division.

Sincerely,



JAMES W. SMITH, JR.  
COORDINATOR OF MINED  
LAND DEVELOPMENT

JWS/TNT:bcb

cc: Allen Klein, OSM, Denver  
Dave Maxwell, OSM, Denver  
Robert Hagen, OSM, Albuquerque  
Rob Wiley, Price River Coal Company  
T. Tetting, DOGM  
L. Kunzler, DOGM  
S. Storrud, DOGM

D. Darby, DOGM  
E. Hooper, DOGM  
B. Kale, DOGM

CC KBA/4



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

OCT 5 1983

KNS.  
10-25-83

Mr. Rob Wiley  
Environmental Engineering  
Price River Coal Company  
76 S. Main Street  
Helper, UT 84526

Dear Mr. Wiley:

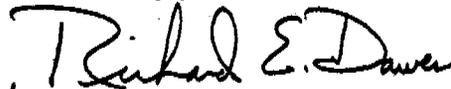
This letter addresses issues regarding the revegetation portion of the Price River Coal Company permit application for the Price River Complex, currently under review by the Office of Surface Mining (OSM). We realize the significant effort made by your staff and consultants in preparing the document. However, additional information concerning the revegetation plan for your operation must be provided to enable OSM to complete the Technical Analysis and make the required findings under UMC 786.19.

1. The composition (i.e. proportion of each species) of the bulk seed mix and a commitment as to its use must be supplied. Because of the competitive nature of Chinese elm, Russian olive, and crested wheatgrass, these introduced species should be eliminated from all seed and planting mixes that will be used for permanent reclamation. Document that the species included in the seeding and planting mixes will provide for the establishment of a diverse community.
2. You have provided an extensive listing of tree and shrub species, most of which should be appropriate for revegetation purposes. A preferred species grouping or a prioritization of species is required, including specific numbers of each species to be used. Additionally, the density of species proposed seems rather low if initial shrub/tree densities are to be re-established. Please explain the reasoning for using such low woody material densities.
3. Your selection of reference areas as a technique against which to measure revegetation success necessitates that range condition be in fair or better condition on these reference areas for comparisons in determining revegetation success. A commitment to monitor or otherwise manage reference areas to achieve and maintain this goal must be included in the mine plan.

4. Upon commencement of revegetation activities, it will be necessary to monitor vegetative development to demonstrate that revegetation is proceeding successfully. A monitoring program to provide information on revegetation trends is required for review and approval.
5. The operator needs to provide a commitment for obtaining productivity data using the same method for both reference areas and reclaimed areas.

Should you have any questions concerning the additional information requested, please contact either Dave Maxwell or Walter Swain at (303) 837-3807.

Sincerely yours,



 Allen D. Klein  
Administrator  
Western Technical Center

cc: Tom Tetting, UDOGM  
Lynn Kunzler, UDOGM  
Bob Hagen, OSM-Albuquerque

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

October 24, 1985

Mr. Ronald M. Daniels  
Deputy Director  
Division of Oil, Gas, and Mining  
4241 State Office Building  
Salt Lake City, Utah 84114

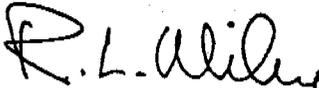
Re: Access Roads

Dear Mr. Daniels:

All access roads to Price River Coal Company facilities, which should be subject to the performance standards of Section 40-10-1 et seq., Utah Annotated Code 1953, have been included and addressed within our pending (and soon to be approved) Mining and Reclamation Plan.

Sincerely yours,

PRICE RIVER COAL COMPANY



Rob L. Wiley  
Environmental Engineer

RLW:jp

cc: Gordon Cook  
Kenneth B. Hutchinson  
H. Michael Keller



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

OCT 28 1983

AWS

10-27-83

Mr. Rob Wiley  
Environmental Engineer  
Price River Coal Company  
76 South Main Street  
Helper, UT 84526

Dear Mr. Wiley:

This letter is to request additional information on the Price River mine complex proposed surface water control program that was discussed between Connie Kimball of Richardson Associates and you on October 17, 1983. In order to complete the technical analysis of the surface water hydrology section of the Mining and Reclamation Plan, the following commitments and plans must be provided to the Office of Surface Mining as soon as possible:

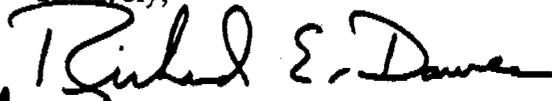
- (1) The applicant shall commit to inspecting earthen ditches for which excessive flow velocities were calculated after precipitation events. If erosion occurs, the applicant shall riprap those sections to prevent further damage to the channel.
- (2) The applicant must reassess Exhibit 3.2-2 in the Mining and Reclamation Plan and provide accurate cross sections that can be used to determine the volume of pond 004.
- (3) The applicant shall modify the design for reclaimed channel section RC-2 in Sowbelly Gulch to provide more flow capacity for the culvert and overflow section.
- (4) The applicant shall reconstruct ditches D-2, D-4, and D-6 in Hardscrabble Canyon to provide the flow capacity required to pass the peak flow from a 10-year, 24-hour storm event or provide a justification as to why the ditches cannot be reconstructed to handle the larger volume.
- (5) The applicant shall redesign reclaimed ditch section RC-5 to provide sufficient flow capacity to pass the peak flow from a 10-year, 24-hour storm event.
- (6) The applicant shall commit to removing sediment from pond 007 before it reaches thirty percent of sediment pool capacity in order to maintain the necessary storage area.
- (7) The applicant shall provide baffling or some other design alteration to prevent short circuiting if monitoring data reveals that pond 011 is not providing adequate settling of suspended solids inflow.
- (8) The applicant shall replace culvert C-1 in Hardscrabble Canyon with a

culvert that is adequate to handle the required peak flow from a 10-year, 24-hour storm.

(9) The applicant shall provide a new assessment of culverts in the lower portion of Sowbelly Gulch surface facilities area, demonstrating that adequately-sized culverts have been installed under the access road to that site.

Should you have any questions concerning the contents of this letter, please contact either Dave Maxwell or Walter Swain at (303) 837-3807.

Sincerely,

  
for Allen D. Klein  
Administrator  
Western Technical Center

cc: Tom Tetting - UDOGM  
Lynn Kunzler - UDOGM  
Robert Hagen - OSM - Albuquerque  
Connie Kimball - Richardson Associates

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

October 26, 1983

CERTIFIED RECEIPT REQUESTED  
Certified No. 562082

Mr. Dave Maxwell  
Office of Surface Mining  
Brooks Towers  
1020 - 15th Street  
Denver, CO 80202

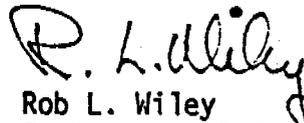
Re: Technical Analysis Revegetation Concerns

Dear Mr. Maxwell:

Please find enclosed the Price River Coal Company response to your recent concerns about our revegetation plan.

Sincerely yours,

PRICE RIVER COAL COMPANY



Rob L. Wiley  
Environmental Engineer

RLW:jp

Enclosure

cc: Lynn Kunzler, DOGM - Certified Mail No. 562083  
K. B. Hutchinson, PRCC

PRICE RIVER COAL COMPANY RESPONSES TO OSM CONCERNS (LETTER DATED 10-5-83)  
REGARDING VEGETATION...

1. *The composition (i.e. proportion of each species) of the bulk seed mix and a commitment as to its use must be supplied. Because of the competitive nature of Chinese elm, Russian olive, and crested wheatgrass, these introduced species should be eliminated from all seed and planting mixes that will be used for permanent reclamation. Document that the species included in the seeding and planting mixes will provide for the establishment of a diverse community.*

The proportion of species within the bulk seed mix will be based on percentage by weight. The percentage of each species will be equal. We realize the relationship between seed size and number per unit of weight but do not view this as a problem. The bulk seed mix is included to enhance the species composition not to provide site stabilization and cover; that is the function of the primary planting and seeding mixes. We do not expect all included species in the bulk mix to be viable on all sites. We do hope that some of these will succeed on every site.

We have included this mix because we intend to use it. The "may" refers to species availability.

We will delete Russian olive, Chinese elm and crested wheatgrass from all permanent seed lists.

We do not know how to document the relationship of the seed mix(es) to diversity. Diversity is more a qualitative than quantitative factor related to the mix of different items within a unit of area. In plant communities diversity includes discussion of the number of different species (or growth habits) that make up a defined community; the metes and bounds of the community being somewhat arbitrary and involved with microclimate considerations.

The vegetation analyses at Price River Coal Company have not attempted to quantify diversity. (The diversity index is a dimensionless number.) We have merely listed species present at randomly sampled locations within defined and statistically adequate reference areas. We have not attempted to state that our lists are absolute or to make the determination that a given community (say pinon-juniper) will have 34 species present and another (say riparian?) 91 species.

It is not the intent of the reclamation program to physically replace the exact number of species per unit area but to make every effort to establish a group of species that can reasonably be expected to cover and hold the area. Using either the dictionary or strict botanical definition our seed and planting mixes are diverse. We have committed to using pure live seed rates for plantings and viable planting stock. We have chosen species that are native to the site or have been often successfully used throughout the west. We are using herbs, forbs, grasses, shrubs and trees. We have proposed methods for seeding and planting that provide good chances for survival. Should we properly implement our reclamation program, as proposed, we will have a diverse community by any reasonable definition of the term diverse.

2. You have provided an extensive listing of tree and shrub species, most of which should be appropriate for revegetation purposes. A preferred species grouping or a prioritization of species is required, including numbers of each species to be used. Additionally, the density of species proposed seems rather low if initial shrub/tree densities are to be re-established. Please explain the reasoning for using such low woody material densities.

We do not see the function of prioritizing lists of items which are, probably, equally appropriate. If the agencies feel prioritizing is important, then assume all lists are set up in order of priority; from top to bottom.

To determine number planted read minimum #/acre on all lists instead of maximum. Total number of seedlings planted per acre, per list is modified as follows:

List #1	. . . .	250/ac.
List #2	. . . .	150/ac.
List #3	. . . .	250/ac.
List #4	. . . .	50/ac.

For discussion of stocking densities, see Tables 3.6 and 3.7, pp. 448 and 449 MRP.

Tree stocking in reference areas is rather low to start with. Stocking density per acre ranges from 17 to 384 with an average of 119 TPA. Our modified planting lists exceed the average for trees.

Shrub stocking is much higher, perhaps too high for the end use of most sites. Present stocking ranges from 162/ac. to 7,113/ac. with the average at 2,805/ac.

Comparing stocking densities shown on Table 3.6, p. 498 with productivity estimates provided by the Soil Conservation Service (SCS) on p. 511, an inverse relationship between stocking density and productivity can be perceived.

Productivity is related to the end primary use of the reclaimed land; grazing. Figures seem to indicate that a lessened shrub stocking density would, at least temporarily, provide increased range and forage capability. This thesis is reinforced by decades of range management techniques, within both the private and public land management sectors, which select against dense shrub stocking, through some rather extreme physical removal methods.

Price River Coal Company feels that lessened shrub stocking will help to achieve the stated goals of the Mining and Reclamation Act to return mined land to an equal or better condition.

3. Your selection of reference areas as a technique against which to measure revegetation success necessitates that range condition be in fair or better condition on these reference areas for comparisons in determining revegetation success. A commitment to monitor or otherwise manage reference areas to achieve and maintain this goal must be included in the mine plan.

We will monitor the reference areas at intervals of 3-5 years using the expertise of the local SCS office to determine condition of sites. Should problems arise, we will meet with DOGM and SCS to discuss and act upon improvement recommendations.

4. *Upon commencement of revegetation activities, it will be necessary to monitor vegetative development to demonstrate that revegetation is proceeding successfully. A monitoring program to provide information on revegetation trends is required for review and approval.*

We will monitor reclamation sites for cover, density and frequency during each of the first three years to determine if supplemental planting and seeding is needed. We will check again at 5 years, 7 years and 9 years. Analyses at these defined intervals will be through use of the same random sampling and statistical analysis techniques used in the original reference area sampling. Revegetation areas will be inspected, usually several times each year to generally identify problems.

5. *The operator needs to provide a commitment for obtaining productivity data using the same method for both reference areas and reclaimed areas.*

Be it so committed . . .

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

October 31, 1983

CERTIFIED RECEIPT REQUESTED  
Certified No. 561851

Mr. Dave Maxwell  
Office of Surface Mining  
Brooks Towers  
1020 - 15th Street  
Denver, CO 80202

Re: Technical Analysis - Surface Hydrology Concerns - Items Discussed with  
OSM's Consultant Connie Kimball by Phone on 10-17-83.

Dear Mr. Maxwell:

We have yet to receive the official letter from your office expressing these concerns, however in the interest of continuing to expedite the review and approval of our mine plan, we will attempt to address your consultant's concerns as expressed over the phone.

1. The operator must commit to inspect and maintain surface diversions and riprap as needed.

See Section 7.4-3-(1), p. 414

2. Re-check the water surface elevation of Pond 004.

There is an error in depicting the potential maximum water surface at Station 1+41 on Exhibit 3.2-2. The water level at this station should be at assumed elevation 91.3, approximately 4 feet lower than shown. This is only a drawing error and does not reflect a change in pond capacity.

3. Should Ditch RC-2 be designed to have a larger capacity so as to reduce potential loading on culvert C-3 in Sowbelly Canyon?

We don't think it should be, but it could be. It is changed as follows:

New Ditch cross section will be 200 ft.<sup>2</sup>.

Configuration -

Top Width	=	55'
Bottom Width	=	25'
Depth	=	5'
Side Slope	=	3:1
Grade	=	2%
n	=	0.04
Capacity	=	2,438 cfs

Mr. Dave Maxwell, OSM  
October 31, 1983  
Page 2

Excavating the ditch to 5 ft. depth will reduce total headwater on the inlet to 1.4d, reducing the maximum flow capacity to 300 cfs. The now oversized ditch will handle the 1,029 cfs excess flow.

4. Diversions D-1, D-4 and D-6 and culverts C-1 and C-4 Hardscrabble Canyon are underdesigned.

We requested a variance on these due to the short life of the Hardscrabble facility. Reclamation of the site will correct all problems. Reclamation for the Goose Island area intended in 1984-85 will eliminate the need for diversions D-1, D-4 and culvert C-1. We would continue to request a grace period for diversion D-6. Up-grading now would effectively close the mine due to its final size requirements through the narrowest stretch of the canyon at the entrance to the facility. Culvert C-4 replacement could result in the closing of our main #5 mine loadout facility which would shut our only presently active mine down for several weeks . . . show a little mercy?

5. Diversion RC-5 in Hardscrabble Canyon may be calculated in error. Recheck.

Calculations were in error which resulted in ditch redesign. See attached design work sheets.

6. Pond 007 is inadequately sized for drainage area but does not need to be reconstructed if the operator commits to sediment removal when 30% of design storage is attained.

We can commit to this requirement.

7. OSM/DOGM wishes to receive dam inspection reports for the refuse pile pond at the same interval that they are submitted to MSHA. Ref. 817.46(T).

PRCC agrees to submit such reports to DOGM annually.

8. Pond 001 may need baffels due to short distance between inflow and potential outflow. Should discharge fail to meet effluent limitations, the operator must commit to installation of other methods to enhance settlement, such as baffels.

Pond 011 is sized to contain the 10-year, 24-hour storm without discharge. Should the pond discharge because of a precipitation event, it will be from a storm exceeding the 10-year, 24-hour storm runoff, for which effluent limitations do not apply. Should a problem arise we will make necessary modifications.

9. Culvert C-1 in Hardscrabble Canyon should be replaced.

See comments under No. 4 response.

Mr. Dave Maxwell, OSM  
October 31, 1983  
Page 3

10. Road drainage on the lower section of the Sowbelly Canyon access road remains unclear. Please clarify.

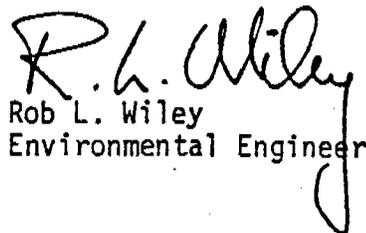
A review of Exhibit 3.2-1 and Table 3.2-3(D) has revealed a major mixup on our part.

- a. Culvert C-8 is missing on the original map. A new map is included showing its proper location.
- b. Culvert C-9 is labled on the original map as C-8.
- c. The drainage area for actual C-8 is 24 acres from the hillside west of the road. The peak flow, from which would be about 25 cfs for the 10-year, 24-hour storm.
- d. Culvert C-10 has been forgotten altogether. C-10 is a 60" cmp with 8' of head water capable of flowing 220 cfs. C-10 is located at the mouth of Sowbelly Canyon under the access road at its junction with Spring Canyon road. C-10 could catch drainage from 1,947 acres. Peak flow from a 10-year, 24-hour storm is 594 cfs. Flow to C-10 greater than its 220 cfs capacity will flow east into the Spring Canyon road north side ditch and through various culverts and dips designed into the county road off PRCC property. This culvert has been in place for some 20 years without damage to either the #5 mine access road or to the county road.

I hope these responses are satisfactory. Contact me and/or send your official letter should you have any further needs.

Very truly yours,

PRICE RIVER COAL COMPANY

  
Rob L. Wiley  
Environmental Engineer

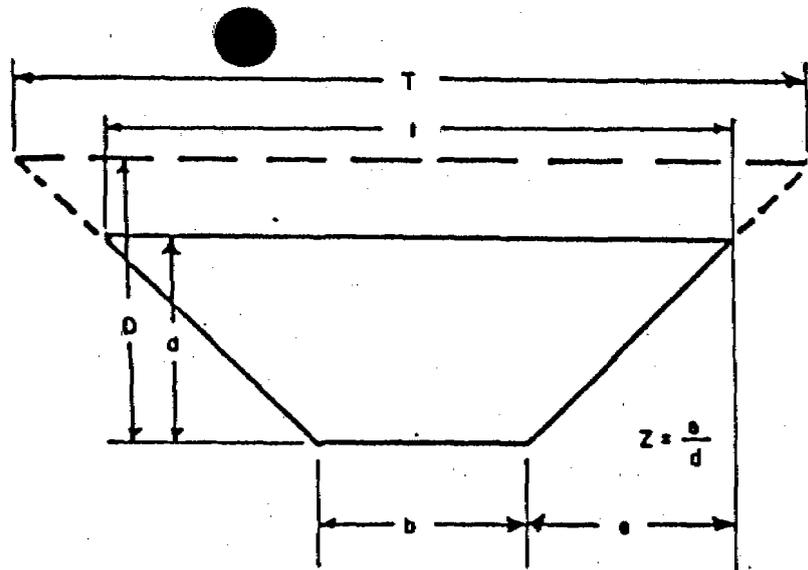
RLW:jp

Enclosures

cc: K. Hutchinson  
File

DESIGN WORKSHEET FOR TRAPEZOIDAL SHAPED CHANNEL

DATE 10-26-83



FACTOR VALUES

T 31  
 d 2.5  
 b 16  
 z 3

FORMULAS

a = X-SECT. AREA =  $bd + zd^2$  58.75  
 p = WETTED PERIMETER =  $b + 2d\sqrt{z^2 + 1}$  31.8  
 R = HYDRAULIC RADIUS =  $\frac{a}{p}$  1.85  
 T = TOP WIDTH =  $\frac{b + 2Dz}{b + 2dz}$  \_\_\_\_\_  
 V = VELOCITY (fps) =  $\frac{1.486 R^{2/3} S^{1/2}}{n}$  13.74  
 Q = CAPACITY (cfs) =  $aV$  807 cfs  
 n = COEF. ROUGHNESS 0.04  
 S = SLOPE 0.06

CHANNEL LOCATION RC-5  
HARDSCRAPPLE

REQ'D PEAK FLOW 920 cfs

RE-CALCULATED

10-26-83

$$16 + 2[(2.5)(3)] = 31$$

$$(16)(2.5) + 3(2.5)^2$$

$$40 + 18.75$$

$$16 + 2(2.5)\sqrt{3^2 + 1}$$

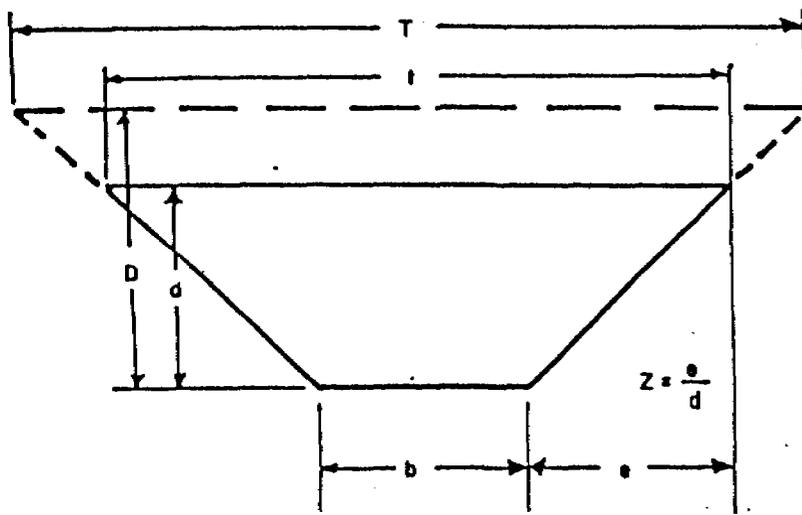
$$16 + 5(3.16)$$

$$\frac{1.486}{0.04} (1.85)^{2/3} (0.06)^{1/2}$$

$$37.15(1.51)(0.245)$$

DESIGN WORKSHEET FOR TRAPEZOIDAL SHAPED CHANNEL

DATE 10-26



FACTOR VALUES

T 35  
 d 2.5  
 b 20  
 z 3

FORMULAS

a = X-SECT. AREA =  $bd + Zd^2$  68.75  
 p = WETTED PERIMETER =  $b + 2d\sqrt{z^2 + 1}$  35.8  
 R = HYDRAULIC RADIUS =  $\frac{a}{p}$  1.92  
 T = TOP WIDTH =  $\frac{b + 2DZ}{b + 2dZ}$  35  
 V = VELOCITY (fps) =  $\frac{1.486}{n} R^{2/3} S^{1/2}$  14.06  
 Q = CAPACITY (cfs) = aV 966.8 cfs  
 n = COEF. ROUGHNESS 0.04  
 S = SLOPE 0.06

OK

CHANNEL LOCATION RC-5  
HARDSCRABBLE CYN.

REQ'D PEAK FLOW 920 cfs

$$20(2.5) + 3(2.5)^2$$

$$50 + 18.75$$

$$37.15(1.54)(0.245)$$

NEW DESIGN  
 USED RESULTING FROM  
 ERROR IN ORIG. CALC.

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

November 1, 1983

CERTIFIED RECEIPT REQUESTED  
Certified No. 561849

Mr. Dave Maxwell  
Office of Surface Management  
Brooks Towers  
1020 - 15th Street  
Denver, CO 80202

Re: Willow Creek Cemetery and Existing Operations

Dear Mr. Maxwell:

In a phone conversation initiated by you on October 31, 1983, you requested a recapitulation of ownership and operation information, available in PRCC's Mining and Reclamation Plan (see Chapter II, pp. 27-36 and Chapter III, pp. 158-166) concerning mining activity prior to 1977.

The mines active within PRCC's present holdings have been active, with only intermittent shutdowns, since the turn of the century. The lands and rights to mine have been held by PRCC's landholding company, Franklin Real Estate (now Blackhawk Coal) since March 20, 1974. Price River Coal Company, a reorganization of the Braztah Corporation, has been the designated operator of the continuously active mines since December 1, 1979.

Very truly yours,

PRICE RIVER COAL COMPANY

*R. L. Wiley*  
Rob L. Wiley  
Environmental Engineer

RLW:jp

cc: K. Hutchinson  
L. Kunzler, DOGM, Certified No. P290 262 247  
M. Keller

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

November 2, 1983

CERTIFIED RECEIPT REQUESTED  
Certified No. P290 262 248

Mr. Dave Darby, Staff Hydrologist  
Division of Oil, Gas, and Mining  
4241 State Office Building  
Salt Lake City, Utah 84114

Re: Subdrainage System to be Installed in the Upper Crandall Site

Dear Mr. Darby:

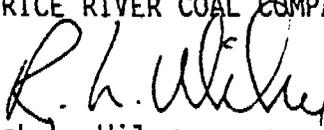
Please find enclosed a copy of the construction drawing for installation of the subdrainage system to be installed in the upper Crandall Canyon site. Designed to relieve lateral pressure caused by water buildup behind the retaining wall, K. Hutchinson and I discussed this matter with you in your office on 10-19-83. Proceeding on your verbal approval we have requested bids on the necessary work including repair of failed sections of the retaining wall and subdrain installation. We hope to commence the work by 11-14-83.

You suggested that we closely monitor the effluent from the subdrain, after installation, to determine possible problems in water quality. We do not expect problems but will continue to monitor as requested.

Should you need any additional information, please contact me.

Very truly yours,

PRICE RIVER COAL COMPANY

  
Rob L. Wiley  
Environmental Engineer

RLW:jp

Enclosure

cc: K. Hutchinson



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

NOV 4 1983

Mr. Rob Wiley  
Environmental Engineer  
Price River Coal Company  
76 S. Main Street  
Helper, UT 84526

Dear Mr. Wiley:

This letter details OSM's concerns over the subsidence plan proposed by Price River Coal Company (PRCC) for the Price River Coal Complex Mining and Reclamation Plan. Specifically, PRCC has proposed to mine five seams underneath and immediately adjacent to the Price River, the Denver Rio Grande and Western Railroad and U. S. Highway 6. These five seams are located below the D-seam which has been previously mined.

PRCC has provided a mining plan that would superimpose pillars for the five seams proposed to be mined. Since mining in the D-seam was conducted without a regular pillar design, superimposing pillars between the D-seam and the Kenilworth seam is not operationally feasible. UMC 784.20(a) and 784.20(b)(ii) require a subsidence control plan which incorporates a detailed description of the mining method and the measures to be taken to prevent material damage as a result of subsidence. An example of a subsidence control measure is leaving adequate support pillars of coal. PRCC has described multiple seam mining in previously mined areas and has stated that due to the existence of massive sandstone layers between coal seams, subsidence has not occurred where pillars have been left by the mining operation. PRCC has also stated that proposed mining underneath the Price River will cause no significant subsidence impacts due to the existence of these same sandstone layers.

After thorough in-house staff review, OSM has determined that PRCC must substantiate the existence of these sandstone layers under the river and between the coal seams to be mined. Therefore, PRCC must provide the following information:

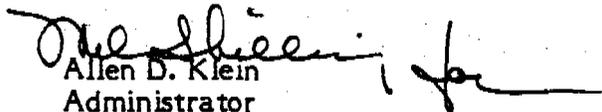
- (1) Sufficient drill log data that would indicate whether sandstone layers are abundant enough to prevent subsidence impacts;
- (2) A correlation with geologic information from the previous mine operation where subsidence was not a concern and has not caused significant impacts; and,
- (3) The effects of mining under the D-seam and possible pillar deterioration

in the D-seam due to mining in the Kenilworth seam (located immediately below the D-seam).

The subsidence plan for the sub-3 seam appears acceptable to OSM. However, analysis of the potential impacts of mining in the other four seams depends upon the requested information which must be reviewed and approved by OSM. Should you have any questions concerning the contents of this letter, please contact either Dave Maxwell or Walter Swain at (303) 837-3807.

Sincerely yours,

837-5421  
EX 25

  
Allen D. Klein  
Administrator  
Western Technical Center

cc: Bob Hagen - OSM Albuquerque  
Keith Kirk - OSM  
Tom Tetting - UDOGM  
Lynn Kunzler - UDOGM  
Deborah Richardson - Consultant



United States Department of the Interior

OFFICE OF SURFACE MINING

Reclamation and Enforcement

BROOKS TOWERS  
1020 15TH STREET  
DENVER, COLORADO 80202

xc: K. Hutchinson  
R. Wiley  
11-10-83 /j

NOV 0 7 1983

RECEIVED

NOV 9 1983

GORDON COOK  
PRICE RIVER COAL CO.

Mr. Gordon Cook  
Vice President  
Price River Coal Company  
76 S. Main Street  
Helper, UT 84526

Dear Mr. Cook:

The following is the assignment of the compliance schedule for processing the permanent program permit application for the Price River Mine Complex (UT 0007).

On June 13, 1983, we notified you that the Office of Surface Mining (OSM) and the Utah Division of Oil, Gas, and Mining (UDOGM) had adopted a joint review process and provided you with a general schedule for review of your application for a mining and reclamation permit under the Utah State program, and for a mining plan under the authority of the Secretary of the Interior. Since that date, both agencies have experienced serious problems in obtaining the necessary information in a timely manner to meet the general schedule.

In order to complete the administrative review and decision process within the target date, OSM has established a more detailed compliance schedule (see enclosure). This schedule recognizes that since December 11, 1981, all existing mines in Utah have continued to operate under the administrative delay provision of UMC 771.13(b), which provides for continued mining under an existing permit while the Regulatory Authority processes each permit application. Because the right to operate under administrative delay is not intended to continue indefinitely, the assigned compliance schedule for the Price River Mine Complex shows that December 16, 1983 is the date by which OSM will proceed to render an initial decision under the Utah State program based upon the information available at that time.

The compliance schedule assumes that all required Findings of Compliance (UMC 786.19) will be based upon a complete and accurate permit application. It is your responsibility to assure that your application meets these requirements. Because the deadline indicated in the attached schedule is rapidly approaching, there is only limited time for you to demonstrate compliance with applicable regulations. Compliance is necessary to enable OSM to make the required findings prior to the issuance of any permit. If, on the date established in the compliance schedule, your application is determined not to be adequate to meet the program requirements, you will have failed to satisfy the requirements of UMC 771.13(b)(1), 789.19(a), and your compliance schedule and, therefore, your

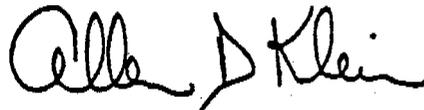
application will be disapproved. The authority to operate under administrative delay pursuant to UMC 771.13(b) is available only until the time the Regulatory Authority issues its initial administrative decision. Therefore, upon notification of a disapproval based on not meeting the program requirements, your authority to continue operations under administrative delay will terminate. The authority to conduct surface coal mining operations subsequently will be dependent upon the approval of a complete and accurate permit application under OSM's Federal Land Program and the Utah State program when all information has been provided to OSM.

OSM will evaluate your application to determine if it complies substantively with the permitting requirements and will then prepare its written Findings of Compliance with the permitting regulations. In addition, OSM will determine whether other appropriate Federal statutes and regulations have been satisfied and will prepare NEPA compliance documents in order to recommend approval or disapproval of the mining plan. If, at any point in the technical review, OSM determines that the requirements for one or more Findings of Compliance have not been met and any required information cannot be obtained from the applicant under the compliance schedule, a decision to disapprove the permit application will be made without further supplementing or processing of the application.

The attached schedule shows the minimum time required to complete the review process. OSM will not be able to consider any changes or submittals that would delay this schedule.

Upon receipt of this letter, please contact me at (303) 837-5421 to discuss this matter further.

Sincerely,



Allen D. Klein  
Administrator  
Western Technical Center

Enclosure

cc: Robert Hagen, AFO  
Scott M. Matheson, Governor of Utah  
James R. Harris, Director, OSM

## COMPLIANCE SCHEDULE

Price River Coal Company  
Price River Mine Complex  
UT 0007

REVIEW ACTION	COMPLETION DATE
1. Determination of permit application completeness based upon existing information.	10/15/83
2. Regulatory Authority drafts Findings of Compliance and supporting documents.	10/28/83
3. Regulatory Authority prepares final findings and supporting documents.	12/16/83
4. Mining plan and permit decision issued.	1/27/84

RICHARDSON  
ASSOCIATES OF DENVER

MINING/ENVIRONMENTAL CONSULTANTS P.O. BOX 5111 DENVER, COLORADO 80227 (303) 490-8435

November 8, 1983

Mr. Laine Adair  
Mining Engineer  
Price River Coal Company  
P.O. Box 629  
Helper, Utah 84526

Dear Mr. Adair:

Please find enclosed a final copy of the summary of the telephone conversation that we had concerning mining conditions at Price River. I have incorporated your comments and added some description concerning the USBM study. If you could look at that section in particular to make sure I understood what you were getting at, I would appreciate it.

I will probably not have to submit anything on subsidence to the OSM for a couple of weeks yet, so if you have any additional thoughts or comments on the memo, please give me a call.

Sincerely,



Deborah L. Richardson

enclosure

REPORT ON TELEPHONE CONVERSATION WITH LAINE ADAIR ON SUBSIDENCE  
AT THE PRICE RIVER MINE

To obtain additional information from Price River Coal Company concerning potential subsidence impacts due to proposed operations under the Price River, a conversation was held with Laine Adair on August, 1983. The following is a summary of that conversation.

Past evaluations at the mine concerning strata stability

Since the sale of the mine was based on the amount of recoverable coal, the original negotiations had to take into consideration the amount of coal which was not mineable due to subsidence problems and thickness of interburden. Due to the stability of interburden material as evidenced by past mining operations, it was agreed upon that a minimum interburden thickness of 30 feet could be tolerated allowing recovery of the coal seams. Gates Engineering was advising 20 feet at that time. Maximum depth of cover was determined to be 3000 feet. Subsidence to the road in Price Canyon was specifically addressed, and a 45 degree angle of draw was used to define the areas of limited extraction.

During negotiations, the following companies were involved in determining the reserve settlement:

Paul Weir Company  
John T. Boyd Company  
Gates Engineering

In addition design of the main entries was evaluated by Chas. T. Holland and Jack Parker.

Current operations

Presently longwall mining is occurring in the No. 5 mine under 2200 feet of cover. Infinitely strong pillars in the gate entries have been designed by the PDNCB to support the roof as longwall mining progresses. Observation has shown that these pillars are stable after mining has occurred in both panels on either side of the pillars for the duration of time that the pillars were visible. No noticeable effects can be seen in the No. 3 mine by the gate pillars left in the No. 5 mine 450 feet above. The two mines are not columnized.

In the Number 5 mine, 85' x 100' pillars under 2000 feet of cover have shown only minor spalling subsequent to mining out of panels on either side of the pillars. The core of the pillar remains intact.

In the Number 3 mine longwall operations in the Sub 3 seam are currently taking place under the old Royal mine in the D seam. The interburden in these areas is 400 to 450 feet, depth of cover is 800 to 1800 feet. Superposition of the operations has not been possible due to the layout of the old workings, and no problems have been noticed in the longwall operations in the Sub 3 seam due to additional stresses.

Extensive multiple seam mining has occurred in the seams above the Number 3 mine. In one area, the A seam has been mined, 50 feet above that the B

seam has been mined, 60 feet above that the C seam has been mined, and 15 feet above that the D seam has been mined. The only problems which have been noticed are related to the immediate roof control, but these do not appear to be associated with the close proximity of the seams. Second mining was practiced in all 4 of the upper seams.

In some areas where there is only 20 feet of interburden there has been some interaction between seams when the bottom seam was mined first and the upper seam is mined second. The operations were room and pillar operations.

#### Past operations .

The Spring Canyon Coal Company located in Sowbelly Canyon, mined in six different seams in that area. The lower seams were the Sub 3, Sub 2, and Sub 1. Located above these seams was the Aberdeen Sandstone. Total interburden between the seams was about 30 feet, that is, 6 feet to 12 feet between seams. Above the Aberdeen the A, B, and D seams were mined. The depth of cover in this area is 1600 feet and the mining operator did not attempt to stack pillars nor mine square, regularly spaced pillars. Observation of pillars in this mine shows that there has been no deterioration of the pillars and roof falls have only occurred at intersections (very little supplemental roof support was used in these mines and was wood support when used which has long since rotted).

The Standard Coal Co. did a similar type of operation except the D seam was not recovered. Similar conditions exist as in the previous mine.

In the Willow Creek area, the C seam has been mined out 12 feet below the Kenilworth seam with 600 feet of cover. 70 feet below the Kenilworth the B seam has been mined. There is no roof support and the entries are 30 feet wide. No problems due to pillar failure have been apparent. In another area, two seams have been mined out under Willow Creek and the highway with 20 to 900 feet of cover, and no subsidence problems have been noticed due to lack of any pillar failure.

#### Current evaluations on strata stability

A USBM project has been conducted in the Number 5 mine in the D seam. The D seam was developed 160 feet above the B seam, and 35 feet below that the A seam had been mined and 200 feet below that the Sub 3 seam had been mined. Pressure cells were placed in the pillars and extensometers were installed in the entries. The pillars which were monitored were located over mined out areas under the D seam or over areas where barrier pillars had been left in the lower seams. As mining occurred in the D seam, the effect of the different rates of extraction in the lower operations could not be measured on the pillars in the D seam. Pillar development in the mine was on 60 x 70 foot centers with 20 foot wide openings leaving 40 x 50 foot pillars.

In a small section of the Number 3 mine, mining has occurred under up to three of the following seams; the A, B, Cw, and D seams; without the pillars being stacked between the mined out areas and mining in the Number 3 mine. There are no stability problems and it is possible to enter these areas except the Cw seam.

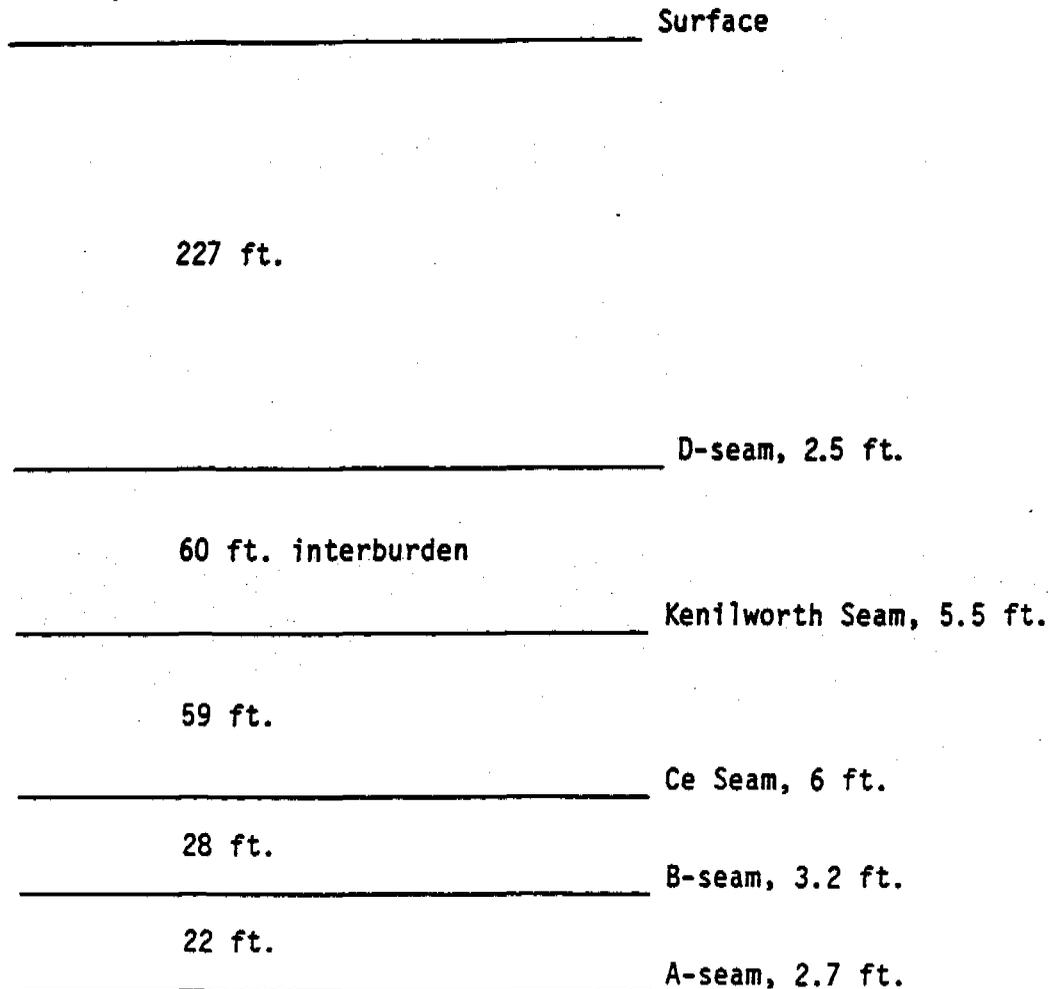
It appears that the sandstone disperses the stresses caused by pillar loading, and a "point loading" effect is not noticed.

Geologic and mining conditions in the area to be mined under the Price River.

Drill log data in the vicinity of the area to be mined under the Price river are attached showing the location of coal seams. Drill log data also shows that there is extensive interbedding of sandstones in the interburden and the overburden. The Aberdeen Sandstone exists below the A seam. The ~~Kenilworth~~ sandstone does not occur in this area due to erosion by the Price River. *castle gate*

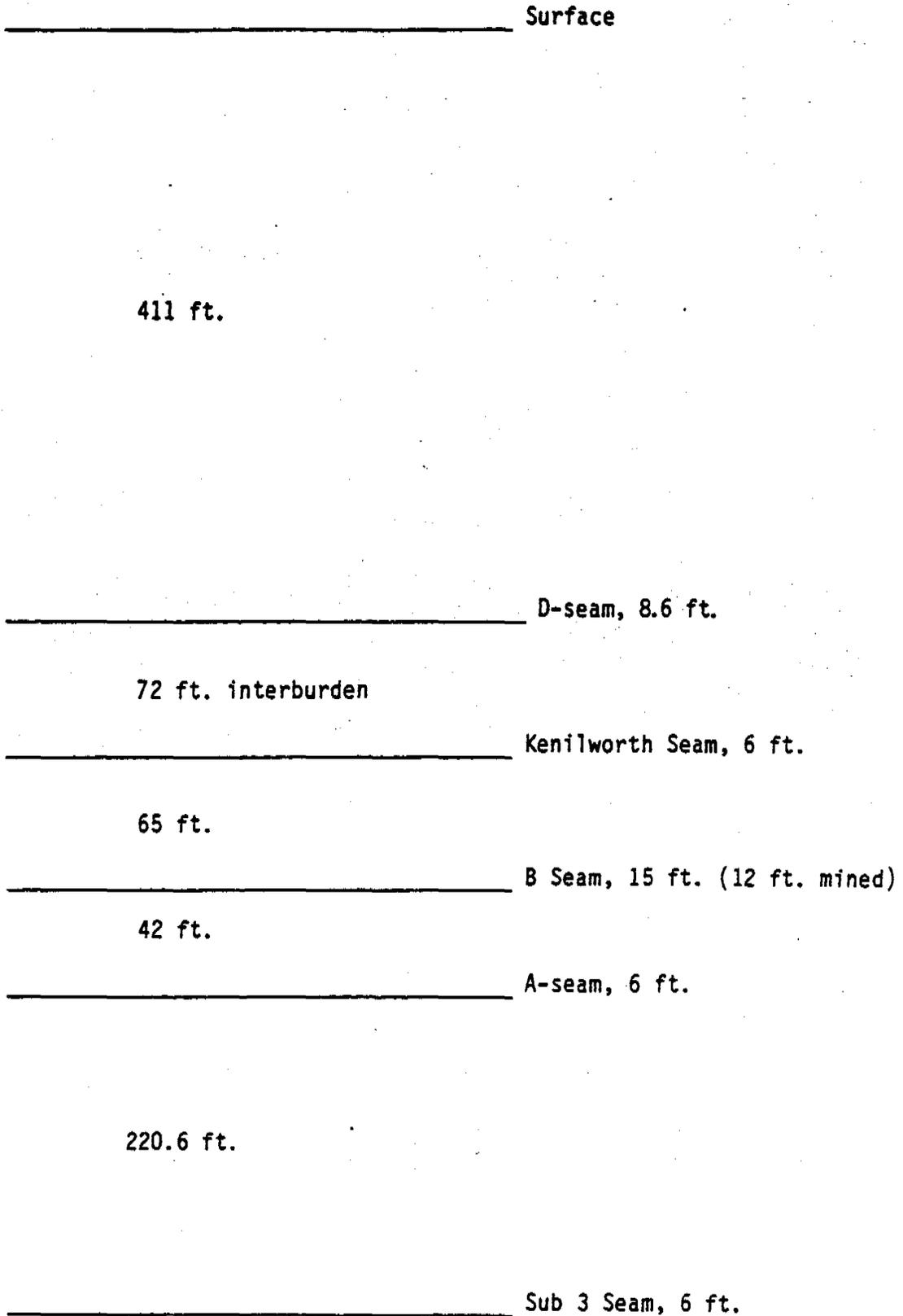
The plan for mining under the Price River is to determine the appropriate pillar size for the lowest seam to be mined and stack the same size pillar in all other seams. This pillar size will be approximately 70' by 70' in the northeast quarter of Section 35. This pillar size may change once mining enters that area due to geologic and mining conditions encountered. This size of pillar is based upon past mining experience, information in the literature, and from discussions with consultants at the mine.

DRILL HOLE MC-52



Although this hole was not drill through the Aberdeen to the Sub 3 Seam, the occurrence of the Aberdeen is very consistent throughout this area. Detailed lithologic information was submitted for three other drill holes and in each of these holes, the Aberdeen sandstone existed.

DRILL HOLE MC-6



# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

November 17, 1983

Mr. Dave Maxwell  
Office of Surface Mining  
Brooks Towers  
1020 15th Street  
Denver, CO 80202

CERTIFIED RECEIPT REQUESTED  
Certified No. P290 262 254

Re: Additional Information Related to Subsidence

Dear Mr. Maxwell:

Please find enclosed the three drill hole logs that you requested during the conference call on 11-14-83, between you and Keith Kirk of OSM and Laine Adair, Ken Hutchinson and myself of the Price River Coal Company engineering staff. It was agreed that the enclosed logs would satisfy the items of concern stated in the 11-4-83 letter from OSM.

The location of these holes can be found on Exhibit 6-2 in the Mine Plan Map Supplement, by referring to the coordinate information in the upper righthand corner of the enclosed pictorial logs.

Included also is a listing of mean compressive strength of the various strata, determined by Pittsburg Testing Labs during the drilling program. This information may aid your review.

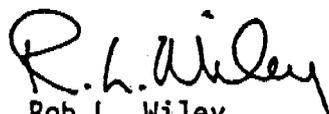
Sandstone	13,800 psi
Shale	9,000 psi
Siltstone	6,500 psi
Coal	2,200 psi

We hope this final section of review is now adequately addressed, however, contact us if you need more information.

Prior to mailing this letter, Connie Kimball of Fred C. Hart Associates, called and asked that the following commitments be included:

1. PRCC agrees to maintain all straw dikes and replace them when they become sediment clogged.
2. PRCC agrees to submit plans for a suitable dry stream crossing, replacing culvert C-10 in Sowbelly Canyon, 90 days prior to commencement of reclamation.

Sincerely,

  
Rob L. Wiley  
Environmental Engineer

RLW:jp  
Enclosures  
cc: K. Hutchinson  
G. Cook

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

November 21, 1983

CERTIFIED RECEIPT REQUESTED  
Certified No. P290 262 256

Mr. Allen D. Klein  
Administrator, Western Technical Center  
Office of Surface Mining  
Reclamation and Enforcement  
Brooks Towers  
1020 15th Street  
Denver, CO 80202

Re: Letter of 11-7-83 concerning Timely Responses and Permitting Schedules

Dear Mr. Klein:

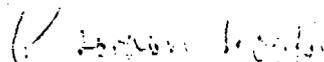
We at Price River Coal Company must take exception to the statement in your 11-7-83 letter, claiming "serious problems in obtaining necessary information in a timely manner". You are either misinformed or uninformed as related to the past performance of PRCC regarding cooperation with regulatory personnel and the supplying of the, seemingly endless, additional informational requests. Should you find the time to actually check with your permit review staff you would discover that PRCC has always provided requested information in a timely and acceptable fashion. We have, on occasion, submitted needed information or clarification prior to receipt of official requests because of our close working relationship with your staff.

You may note that we have proceeded, successfully, through Items 1 and 2 of your new compliance schedule. It would seem that Item 3 and 4 are entirely within your control. We presume that your review process is operating within Item 3 of your schedule. PRCC will provide whatever clarifications may be needed to continue to expedite the permitting process that has dragged on these nearly three years; primarily as a result of regulatory delay.

It is suspected that your 11-7-83 communique is merely a fill in the blanks form letter, not directed specifically at PRCC.

Very truly yours,

PRICE RIVER COAL COMPANY

  
Gordon Cook  
Vice President and  
General Manager

RW:jp

cc: R. L. Wiley  
H. Michael Keller, Esq.  
K. Hutchinson  
Scott M. Matheson, Governor of Utah  
James R. Harris, Director, OSM



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

DEC 6 1983

Mr. Rob Wiley  
Environmental Engineer  
Price River Coal Company  
76 S. Main Street  
Helper, Utah 84526

Dear Mr. Wiley:

This letter concerns the determination of an angle of draw for subsidence control within the permit boundary area at Price River Coal Company. While the angle of draw at most underground mines in Utah ranges between 15 and 20 degrees, your application has proposed an angle of draw of 45 degrees, specifically for the area along the Price Canyon and Willow Creek Corridors. The potential for subsidence impacts, assuming such an extremely conservative angle of draw, extends beyond the borders of the permit boundary at Price River Coal Complex.

OSM policy requires that any potential subsidence impact areas must be included within the permit boundary (UMC 784.20 and SMCRA 516(b)(1)). With a 45 degree angle of draw throughout the entire mine complex, the permit boundary would have to be expanded to include potential subsidence areas. A lesser angle of draw (e.g. 20 degrees) for areas outside of the Price Canyon and Willow Creek Corridors may be more representative. However, any resubmittal of subsidence data incorporating a reduction in the angle of draw must be supported by sufficient engineering data and calculations to allow analysis for compliance with UMC 784.20 and 817.121. If upon review, you find that 45° is the most representative angle of draw for your mining conditions, please revise your permit boundaries to include all potentially impacted areas. Should you have any questions on this matter, please contact either Dave Maxwell or Walter Swain at (303) 837-3806.

Sincerely yours,

for Allen D. Klein  
Administrator  
Western Technical Center

cc: Dianne Nielson, UDOGM  
Jim Smith, UDOGM  
Deborah Richardson, consultant  
Keith Kirk, OSM  
Bob Hagen, OSM - Albuquerque



xc: K. Hutchinson /p 12-15-83  
R. Wiley

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

DEC 15 1983

Mr. Gordon Cook  
Vice President and General Manager  
Price River Coal Company  
P. O. Box 629  
Helper, Utah 84526

Dear Mr. Cook:

I have received your letter of November 21, 1983 in response to my November 7, 1983 form letter to the various mining operators that have permit applications currently under review at OSM. I recognize that Price River Coal Company has been providing responses to requested information in a timely manner the past several months and has been working closely with OSM staff.

An initial decision on the Price River Mine Complex Permit Application Package will be forthcoming from OSM in mid-February, 1984. I urge your staff to continue their close working relationship with my staff. The permit review process has been expedited the past few months through an open channel of communication between Price River Coal Company and OSM.

Should you have any additional concerns or questions, please contact me at (303) 837-5421 to discuss the matter further.

Sincerely,

*Richard E. Dawes*  
for Allen D. Klein  
Administrator  
Western Technical Center

RECEIVED

DEC 18 1983

GORDON COOK  
PRICE RIVER COAL CO.



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

JAN 1 7 1984

Mr. Rob Wiley  
Environmental Engineer  
Price River Coal Company  
76 South Main Street  
Price, Utah 84256

Dear Mr. Wiley:

This letter concerns the OSM position on the relationship between surface subsidence effects and the permit area per your conversations with Dave Maxwell during the week of December 12, 1983. OSM requires that all surface subsidence effects resulting from underground coal mining activities must be within the permit area. An operator is permitted to undertake development work within a permitted area, but not to extract coal at rates which would cause subsidence effects to extend beyond the permit area. It is the operator's responsibility to designate zones within the permit area in which extraction is limited, subject to approval by the Regulatory Authority.

Should an operator propose to extract coal which could cause surface subsidence effects outside of the permit boundary, the operator would be required to increase the size of the proposed permit area to incorporate the land outside of the current permit boundary that could be impacted by surface subsidence. UMC 700.5 (Definitions) states that a permit area includes, at a minimum, all areas which are or will be affected by the underground coal mining activities during the term of the permit. With the required concurrence from landowners or land-management agencies, this additional land would become part of a revised permit area.

Should you have any questions concerning these issues, please contact either Dave Maxwell or Walter Swain at (303) 837-3706.

Sincerely,

Allen D. Klein  
Administrator  
Western Technical Center

cc: Walter Swain, OSM, Western Technical Center  
Keith Kirk, OSM, Western Technical Center  
Bob Hagen, OSM, Albuquerque Field Office  
Dianne Nielson, DCGM



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

MEETING WITH PRICE RIVER COAL COMPANY ON THE PRICE RIVER COAL COMPLEX PERMIT APPLICATION

JANUARY 20, 1984

ATTENDEES:

ROB WILEY	PRICE RIVER COAL COMPANY
GORDON COOK	PRICE RIVER COAL COMPANY
KEN HUTCHINSON	PRICE RIVER COAL COMPANY
DEBORAH RICHARDSON	FRED C. HART & ASSOCIATES
WALTER SWAIN	OFFICE OF SURFACE MINING-DENVER
BEN YOUNG	OFFICE OF SURFACE MINING-DENVER
MARK HUMPHREY	OFFICE OF SURFACE MINING-DENVER
DAVE MAXWELL	OFFICE OF SURFACE MINING-DENVER

AGENDA:

- I. INTRODUCTIONS
- II. BONDING CALCULATIONS AND REQUIREMENTS
- III. REVEGETATION
- ~~IV. POST-MINING LAND USE~~
- V. SUBSIDENCE — *PR REC. AREA CHG. STATEMENT*
- VI. OSM SCHEDULE FOR PROCESSING PERMIT APPLICATION AND DECISION DOCUMENT
- VII. APPLICANT UPDATING MINE PLAN FOR PUBLIC COMMENT PERIOD <
- VIII. PROPOSED STIPULATIONS AND RECTIFICATION OF SOME STIPULATIONS
- IX. COMMENTS AND DISCUSSION FROM THE APPLICANT
- X. ASSIGNMENT OF TASKS
- XI. ADJOURNMENT

*DRAFT DECISION  
2-17-84  
DOCUMENT*

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

January 25, 1984

CERTIFIED RECEIPT REQUESTED  
Certified No. 562127

Mr. Mark Humphrey  
Office of Surface Mining  
Brooks Towers  
1020 - 15th Street  
Denver, Colorado 80202

Re: CLARIFICATION OF REVEGETATION PLANS; INFORMATION REQUESTED DURING  
THE 1-20-84 DENVER MEETING

Dear Mr. Humphrey:

The following items were discussed during the 1-20-84 Denver meeting in your offices. Price River Coal Company provides the following responses:

1. Explain disturbed area acreage differences indicated on page 484 vs. bonding acreages.

The acreages indicated in the bonding section are the actual surveyed figures. Disturbed area figures shown on page 482 vary due to planimeter measurement inaccuracy on small scale aerial photographs by our vegetative sampling consultant. The figures on page 482 are only estimates.

2. Describe erosion controlling contemporaneous reclamation measures.

This type of information has been placed generally under sediment control measures and can be found at the following MRP locations:

Crandall Canyon: p. 299

Castle Gate: p. 149, also see drainage control upgrading,  
plan submitted 12-7-82

Hardscrabble Canyon: pp. 134 - 137

Sowbelly Canyon: pp. 118 - 120

Gravel Canyon: p. 6, Appendix 8A

General: p. 411, p. 449

Mr. Mark Humprey, OSM  
January 25, 1984  
Page 2

3. Prioritize seeding and planting mixes with respect to proposed plant community to be re-established by reclamation.

See attached prioritization schedule. This list is to be used in conjunction with the modified seed lists (attached), the other seed and planting lists in Chapter IX and revised "final reclamation configuration" maps for all sites (also attached).

4. Provide summary sheets for the vegetation resources analysis.

We have included a copy of the entire computer printout. Please return it to us C.O.D. when you are finished.

5. Provide a plan for reclamation of riparian areas.

A plan for reclamation of riparian areas can be drawn from existing plans. Techniques will not vary from those proposed on other areas with two exceptions.

- 1) Seed/planting mixes. Species suited to riparian areas will be utilized (see attached planting priority lists and revised reclamation configuration maps).
- 2) Some designated riparian areas are to be riprapped somewhat limiting planting and seeding. Channel bottoms, in ephemeral streams, which are not targeted for riprap will be seeded. Some planting will be done in random locations and protected by water bars (Crandall only).

Areas proximate to the Price River at Castle Gate, not normally receiving surface flow, will be seeded throughout and planted in clumps, as proposed elsewhere.

Please be aware that areas shown on revised "final reclamation configuration" maps as "probable re-established plant community pattern" are estimates and not exact, immutable areas. The species designated in PRCC's reclamation plans will be used in situations providing the highest chance for survival.

We hope the foregoing information finally satisfies all OSM concerns relating to reclamation or revegetation. Contact me if additional clarification is needed.

Mr. Mark Humprey, OSM  
January 25, 1984  
Page 3

ATTACHMENTS:

1. Vegetation Data Report for Price River Coal Company's Mine Area, Helper, Utah; Appendix C
2. Site/Species Prioritization
3. Revised map Exhibits 3.2-3, 3.3-3, 3.4-3, 3.6-3, 3.7-9
4. Revised Seeding and Planting Lists

Very truly yours,

PRICE RIVER COAL COMPANY

*R. L. Wiley*  
Rob L. Wiley  
Environmental Engineer

RLW:jp

cc: w/o attachments  
Dave Maxwell, OSM  
K. Hutchinson, PRCC  
G. Cook, PRCC

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

February 1, 1984

CERTIFIED RECEIPT REQUESTED  
Certified No. 562123

Mr. Dave Maxwell  
Office of Surface Mining  
Brooks Towers  
1020 - 15th Street  
Denver, Colorado 80202

Re: Further Commitments

Dear Mr. Maxwell:

Price River Coal Company makes the following commitments in order to eliminate intended permit stipulations or conditions:

#### Proposed Condition No. 4

The applicant must submit a plan for regrading of rills and gullies that might develop once reclamation is complete. This plan must identify how often the site will be inspected to determine if this type of erosion has occurred and at what stage of rill and gully development the applicant intends to commence filling of the gullies. This plan must be submitted within 30 days of permit approval.

Price River Coal Company will inspect reclaimed sites at least four (4) times yearly. Should rills and gullies develop, which exceed 9" (as per 817.106) in depth, Price River Coal Company will regrade, re-topsoil, and seed the damaged areas. Other temporary methods of erosion control may be necessary, such as jute matting and straw dikes. These and other methods will be employed if needed.

#### Proposed Condition No. 5

Where golden eagle nests are found in the future, exploration will not occur within 0.5 miles of the nest when surface disturbances would be below or above the nest.

#### Proposed Condition No. 6

Exploration will not be allowed on deer or elk critical winter range during the period November 1 through May 15.

#### Proposed Condition No. 7

Where elk calving areas are identified in the future, exploration activities would not be allowed during the period June 1 through July 15.

Price River Coal Company does not anticipate any new surface disturbances at this time on BLM land. We do, however, commit to these considerations for wildlife protection.

Mr. Dave Maxwell, OSM  
February 1, 1984  
Page 2

An additional issue arose during the 1-20-84 Denver meeting; the concern with longwall under or near the Price Canyon Recreation Area (PCRA). All mine planning maps show longwalling to be planned within an angle of draw that could cause some subsidence to impact the PCRA.

Although we have included the PCRA in "areas to be protected" (Chapter II, p. 70, paragraph 2), our mining plans have always shown otherwise. We wish to delete discussion of the PCRA as a protected area.

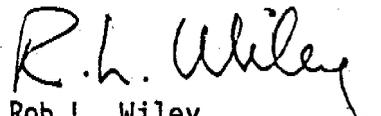
Significant damage from subsidence is not anticipated. Any that may occur will be repaired by PRCC.

Also included are some updated mine maps for the 'D' and 'A' Seams as promised by Mr. Cook during our 1-20-84 meeting in Denver.

Should you have any further questions, please contact me.

Very truly yours,

PRICE RIVER COAL COMPANY

  
Rob L. Wiley  
Environmental Engineer

RLW:jp

Enclosures

cc: K. Hutchinson  
G. Cook



STATE OF UTAH  
NATURAL RESOURCES  
Oil, Gas & Mining

Scott M. Matheson, Governor  
Temple A. Reynolds, Executive Director  
Dr. G. A. (Jim) Shirazi, Division Director

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

February 1, 1984

Mr. Rob Wiley  
Environmental Engineer  
Price River Coal Company  
P. O. Box 629  
Helper, Utah 84526

RE: Approval for Drainage Control  
in Upper Mine Pad in  
Crandall Canyon  
Price River Complex  
ACT/007/004, Folders #3,4,7  
Carbon County, Utah

Dear Rob:

The Division has reviewed Price River Coal Company's plans to install a drainage system beneath the upper mine pad in Crandall Canyon to control slumping.

The plans have been determined to be complete and adequate. Final approval is hereby granted for construction and completion of the plan.

If we can be of further assistance please contact us anytime.

Sincerely,

A handwritten signature in cursive script that reads "David W. Darby".

David W. Darby  
Reclamation Hydrologist

DWD:re

cc: Sandy Pruitt, DOGM

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

February 3, 1984

CERTIFIED RECEIPT REQUESTED  
Certified No. 562120

Alan D. Klein, Administrator  
Western Technical Center  
Office of Surface Mining  
1020 15th Street  
Denver, Colorado 80202

Dear Mr. Klein:

I am writing in response to your letters of December 9, 1983 and January 17, 1984 wherein you articulated OSM's "position" on the relationship between surface subsidence effects and the permit area at our mine complex. In your letters, you refer to an "OSM policy" requiring that any potential subsidence impact areas be included within the permit boundary. Since receipt of your letters, we met with members of your staff on this and other issues relating to review of our permit application.

As we clearly expressed to your staff, we know of no authority whatsoever to support such a policy. In your letter of January 17 you merely cite a state regulation in support of OSM's policy. OSM is apparently ignoring the fact that such a policy is directly contrary to OSM's promulgated regulations and its policies as previously expressed in various explanatory preambles to its past and present regulations. We assume that you are aware of OSM's final rulemaking of April 5, 1983 wherein it redefined the term "permit area" and expressly stated in a preamble thereto that the permit area did not include areas of potential subsidence. Moreover, OSM's original regulations of March 13, 1979, on which Utah's were based at OSM's insistence, were accompanied by explanatory preambles which clearly established a policy of not limiting the surface effects from subsidence to the permit area. In light of that rulemaking and clear expression of past and present regulatory intent, we can find no basis whatsoever for the policy announced in your recent letters.

Finally, we note that the new "policy" is completely inconsistent with the pre-SMCRA approval and existing rights which Price River Coal Company obtained from the United States Geological Survey for its mine plan under the preexisting regulatory program in 30 CRF Part 211.

OSM should consider the potential adverse impacts of this policy on the maximum efficient recovery of federal coal reserves and the attendant loss of significant income to the federal and state governments in the form of lost royalties on unmined coal. In light of the clear language of OSM's regulations, past policies, and statutory requirements of SMCRA, OSM should seriously reconsider and reject its recently announced "policy" regarding the surface effects of subsidence.

PRICE RIVER COAL COMPANY

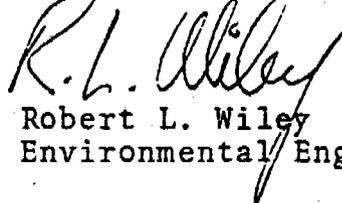
P.O. BOX 629 - 801 - 472-3411 OFFICE  
HELPER, UTAH 84526

Alan D. Klein, Administrator  
Western Technical Center  
Office of Surface Mining  
February 3, 1984  
Page 2

Price River Coal Company has been in the past and continues to be cooperative in working with OSM in the review of its permit application, but regards the newly announced policy as clearly contrary to law and detrimental to the legitimate interests of the company and the economic interest of the federal government as owner of the coal to be mined.

Very truly yours,

PRICE RIVER COAL COMPANY



Robert L. Wiley  
Environmental Engineer

RLW:jp

cc: K. Hutchinson, PRCC  
G. Cook, PRCC  
Walter Swain, OSM, Western Technical Center, Certified No. 562118  
Keith Kirk, OSM, Western Technical Center, Certified No. 562119  
Dianne Nielson, DOGM, Certified No. 562117  
Dave Maxwell, OSM, Certified No. 562116

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

February 6, 1984

Mr. Dave Maxwell  
Office of Surface Mining  
Brooks Towers  
1020 - 15th Street  
Denver, Colorado 80202

Re: Responses to your Additional Requests on 2-2-84

Dear Mr. Maxwell:

Price River Coal Company provides the following responses to your newest requests.

1. Price River Coal Company must commit to preparing and submitting, within 60 days of permit approval, an edited, updated version of the Mining and Reclamation Plan.

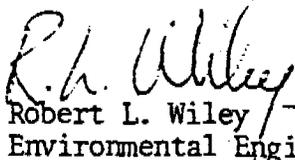
Price River Coal Company agrees to this provision.

2. Clarify Table 2-1 with respect to U. S. Fish and Wildlife's concerns that Price River Coal Company would proceed with development in the listed areas without first looking for raptors.

Price River Coal Company is already in Crandall Canyon (see Section 3.7, p. 156, Mining and Reclamation Plan). PRCC is obviously not applying for a permit which includes site facilities at any of the other sites. We will eventually seek permits for some or all of these areas. At the point that we wish to develop other sites a vast quantity of baseline information will be collected. We realize that raptor surveys will be needed for each.

Very truly yours,

PRICE RIVER COAL COMPANY

  
Robert L. Wiley  
Environmental Engineer

RLW:jp

cc: K. Hutchinson  
G. Cook



February 15, 1984

APPROVED BY THE STATE  
OF UTAH DIVISION OF  
OIL, GAS, AND MINING  
DATE: 2-15-84  
BY: James R. Matheson

TO: Dianne R. Nielson, Director  
FROM: Ronald W. Daniels, Associate Director of Mining  
SUBJECT: Policy on the Permit Area of Underground Mines  
Relative to the Angle of Draw

The purpose of this memo is to set forth the Division's policy with regard to the permit area as related to underground mine workings and the angle of draw. There is some latitude in establishing where the permit area, as defined in the Utah program, can be located.

I recommend that the following policy be adopted: The affected area, that area vertically above the underground workings, will be included in the mine permit area, and will be subject to a subsidence control plan. The area potentially impacted by the angle of draw will be described as the adjacent area. The subsidence control plan must protect both affected and adjacent areas, if there are any structures and renewable resource lands involved. Public notice provisions will be initiated for surface owners of lands above the underground workings and lands adjacent to the permit boundary.

I believe that this policy will satisfy the needs of the Office of Surface Mining in utilizing the Utah coal regulations for mine repermitting, and that it clarifies the Utah statute and rules. A copy of this policy statement should be included in the policy notebook.

RWD/jb

cc: Jim Smith, DOGM  
Joe Helfrich, DOGM  
Allen Klein, OSM, Denver



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

FEB 22 1984

Mr. Robert L. Wiley  
Price River Coal Company  
P. O. Box 629  
Helper, Utah 84526

Dear Mr. Wiley:

In response to your request of February 3, 1984 to reconsider the statement in our January 17, 1984 letter relative to potential subsidence and the accompanying permit boundary. Although we do not agree with some of the statements in your letter we feel that you are correct in asking us to reassess this issue. Based upon my further review of this issue and a policy interpretation recently developed by Utah's Division of Oil, Gas and Mining, OSM withdraws our earlier requests on this subject. Please utilize the enclosed Utah Division of Oil, Gas and Mining policy statement as guidance as this policy is acceptable to OSM for delineating your permit boundaries.

Enclosed is the policy statement. We have also discussed this concept with Boyd McKean, BLM.

Sincerely,

Allen D. Klein  
Administrator  
Western Technical Center

Enclosure

cc: Boyd McKean, BLM

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

CERTIFIED RECEIPT REQUESTED  
Certified No. 562088

March 16, 1984

Mr. Jim Smith, Mined Lands Coordinator  
Division of Oil, Gas, and Mining  
4241 State Office Building  
Salt Lake City, UT 84114

Re: Minor Modification, Pond 014 in Crandall Canyon

Dear Jim:

Please review and approve plans for the final configuration of Pond 014. Maps and plans were hand delivered to Wayne Hedburg on 3-14-84. The following information is pertinent to your review.

The final configuration of Pond 014 will accommodate surface runoff from a drainage area of 14 acres; which includes the entire Crandall Canyon surface facility. Hydrologic calculations reveal that a total pond storage capacity of about 60,000 cubic feet will contain the ten-year, 24-hour precipitation event and provide adequate sediment storage (see attached pond volume summation sheet). The designs shown on construction drawings CCE-102 and CCE-103 will, when implemented, provide a volume of about 60,343 cubic feet.

The proposed design will result in a less extreme and more maintainable facility than the existing (and approved) structure. We would like to begin construction in mid June.

Very truly yours,

PRICE RIVER COAL COMPANY

  
Rob L. Wiley  
Environmental Engineer

RLW:jp

Attachments

cc: K. Hutchinson  
G. Cook



# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

CERTIFIED RECEIPT REQUESTED  
Certified No. 562087

xc: Dave Maxwell /  
4-18-84 /p

March 16, 1984

Mr. Jim Smith, Mine Land Coordinator  
Division of Oil Gas and Mining  
4241 State Office Building  
Salt Lake City, UT 84114

Re: Reclamation in Hardscrabble Canyon-  
Goose Island Reclamation Project

Dear Jim:

Price River Coal Company is committed to commencing reclamation activities this year on about 6.5 acres of upper Hardscrabble Canyon known as the Goose Island area. The general goal is to establish a self-sustaining, soil stabilizing vegetated area which achieves the post mine land use. The accomplishment of this goal is related to specific needs for this site. Such needs are a combination of regulatory requirements and the continued operational requirements of Price River Coal Company. These are:

1. Re-establishment of the apparent pre-mining drainage pattern.
2. Covering refuse material with a suitable growth medium.
3. Backfilling cuts to the extent possible.
4. Erosion and sediment control during plant establishment.
5. Maintaining access to PRCC's substation for both vehicles and power lines for the life of the mine.
6. Maintaining permanent up-canyon access for the post mining land use; grazing.

So far, this discussion is completely within the framework of our pending reclamation plan. However, the achievement of the stated needs and goals requires some clarifications, modifications, and perhaps, variances.

The first is based upon the requirements of UMC 817.85(d). Four feet of material is mandatory for covering refuse piles unless the refuse is shown to be non-acid and non-toxic and will pose no threat to revegetation success. Chemical tests have been conducted. Copies are attached which seem to indicate that no toxicity problem exists. As a result, PRCC wishes to propose that a variance be granted allowing a reduction of covering material to a depth of 1.5 feet; 6 inches of which would be topsoil. The

material to be used for primary covering is on site and is a sandy waste rock (see attached construction drawing HCE-100, et al) similar to the Crandall Canyon shaft muck. Chemical and physical tests recently performed on this material are also attached.

The second concern is related to acquisition of topsoil. We had originally proposed to haul in needed topsoil. We had overlooked on-site availability. Suitable soil materials exist within reasonable proximity as shown on construction drawings HCE-101. The area designated for topsoil borrow is comprised of two storage pads developed prior to 1977. Removed soils were merely sidecast and remain accessible. Some interpad zones have not been disturbed. The material available is a somewhat weathered toe of slope colluvium. It is fairly rocky but the larger boulders will provide an on-site source for needed riprap. We feel this is the best material available and wish for your concurrence in the form of a minor modification.

The third point to be negotiated relates to the requirement in UMC 817.46(u) for the retention of sediment ponds until after an area has been vegetated and when the runoff meets water quality standards. The problem we have with this, in our situation, is apparent through review of the attached construction plans. The stream channel cannot be re-established unless the pond is eliminated. Should there be any way to retain the pond it would have to be enlarged by a factor of 10+ since proper backfilling would increase its drainage area.

PRCC requests a variance in the nature of a small area exception and proposes the use of alternative methods to minimize erosion and sedimentation. Our primary defense against erosion would be cross-contour mulch crimping. We also will install straw dikes at intervals in channels and use silt fence in critical areas.

It is worthy of noting that, in reference to water quality standards for TSS, natural undisturbed drainages do not often comply and during a storm or snow melt never do! I am concerned that a strict interpretation of UMC817.46(u) will prevent any bond releases in Utah.

The last items to discuss are depicted on HCE-101; a temporary ephemeral stream crossing and on HCE-108; a permanent ephemeral stream crossing. The temporary crossing is to access the site for maintenance and is designed to pass the 10-year, 24-hour storm.

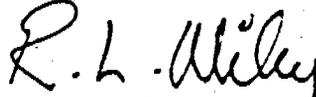
The drainage area to this point is 359.2 acres which would produce about 452 cfs. Each 60" cmp could safely pass about 250 cfs with the 10 feet of head shown on HCE-101, Detail 1. The permanent crossing will be riprapped with 6" minus cobbles.

I would like to meet with you and your staff at your earliest convenience to further discuss and resolve these matters. Please suggest a time for such a meeting.

We must begin reclamation activities by July of this year if we are to meet our permitting commitments.

Very truly yours,

PRICE RIVER COAL COMPANY



Rob L. Wiley  
Environmental Engineer

RLW:jp

Enclosures

cc: K. Hutchinson  
G. Cook

COMPARISON OF CHEMICAL ANALYSES OF COAL REFUSE AND ROCK WASTE IN HARDCRABBLE CANYON  
AT GOOSE ISLAND

Description of Material

Coal Refuse: Deposited at location during operation of Diamanti coal tippie  
(1950 - 1975) - coal fines, rock fines, rock boulders  
Rock is from No. 5 Mine - Texture: sand - sandy

Rock Waste: Deposited during 1978 - 1979 by Braztah Corporation from No. 3 Mine  
floor for purpose of refuse covering material - Texture: sand

Sample Dates =	MATERIAL: COAL REFUSE					MATERIAL: ROCK WASTE	
	1-25-80	6-2-82	4-25-83		2-29-84	4-25-83	2-29-84
			#5 Roof	#5 Floor		#3 Mine Floor	
AS	0.011	--	0.001	0.001	--	0.001	--
Se	0.002	--	0.003	0.003	--	0.003	--
Hg	0.04	--	0.0002	0.0002	--	0.001	--
Cd	0.004	--	0.005	0.005	--	0.005	--
Pd	0.06	--	0.05	0.05	--	0.05	--
Cr	0.01	--	0.005	0.005	--	0.005	--
Ag	0.01	--	0.004	0.004	--	0.004	--
Ba	0.8	--	0.27	0.25	--	0.16	--
K	--	0.22	--	--	--	--	--
Na	--	0.34	5.5	1.9	--	42	--
Ca	--	37.0	80	7.1	--	22	--
Mg	--	2.18	5.5	1.9	--	9.8	--
B	--	200.4	--	--	--	--	--
CL	--	0.15	--	--	--	--	--
SO <sub>4</sub>	--	1.35	--	--	--	--	--
HCO <sub>3</sub>	--	0.11	--	--	--	--	--
%K	--	0.22	--	--	--	--	--
NO <sub>3</sub> -N	--	0.85	--	--	--	--	--
P	--	4.1	--	--	--	--	--
Organic Matter %	--	5.4	--	--	--	--	--
pH	--	8.45	--	--	7.7	--	--
EC	--	29.5	--	--	--	--	--
SAR	--	0.24	0.96	2.4	3.85	1.87	1.67
S-Tot	--	--	0.11	0.07	0.18	0.07	0.31
ALK	--	--	193	35	101	28	55
Salinity	--	--	408 (Mg/L)	510 (Mg/L)	0.05 (%)	281 (Mg/L)	0.20 (%)
Acid	0	--	--	--	0	--	--
Spec. Cond.	--	--	637	--	820	439	3,200

# COMMERCIAL TESTING & ENGINEERING CO.

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

ROBERT L. TAYLOR, Ph.D.  
MANAGER  
INSTRUMENTAL ANALYSIS DIVISION



PLEASE ADDRESS ALL CORRESPONDENCE TO  
490 ORCHARD ST., GOLDEN, CO 80401  
OFFICE TEL. (303) 278-9521

February 29, 1984

Jack Blair  
C T & E  
224 South Carbon Avenue  
Price, UT 84501

PRICE RIVER COAL CO.

57-15012 #1 Coal refuse, Goose Island

RE: IAD #97-N805-335-02

57-15013 #2 Rock Waste

Sampled 2-4-84

## Analytical Report

Two soil samples were received for analysis on February 21, 1984. These samples were assigned our IAD identification #97-N805-335-02.

Textural Analysis was performed in accordance with the procedure of ASTM, Part 19, Method D422. The results of these determinations are presented in Table No. I and are reported in weight percent (Wt %) on an "as received" basis.

Alkalinity, Salinity, Specific Conductance, pH and Sodium Adsorption Ratio (SAR) were determined on the saturated paste extract in accordance with the procedures of Handbook No. 60, USDA, August, 1969. The results of these determinations are presented in Table No. II and are reported on the saturation extract basis in units as indicated in the table.

Table No. I  
(Wt. % - As Received)

<u>Parameter</u>	<u>57-15012</u>	<u>57-15013</u>
Gravel (75 to 4.75 mm)	0.0	0.0
Coarse Sand (4.75 to 2.00 mm)	30.6	18.8
Medium Sand (2.00 to 0.425 mm)	0.0	0.0
Fine Sand (0.425 to 0.074 mm)	62.6	71.3
Silt (0.074 to 0.005 mm)	5.2	8.0
Clay (<0.005 mm)	1.5	1.9
Texture	Sand	Sand

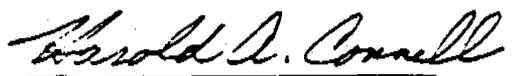


Charter Member

Table No. II  
(Saturation Extract)

<u>Parameter</u>	<u>57-15012</u>	<u>57-15013</u>
Alkalinity as CaCO <sub>3</sub> (mg/L)	101	54.6
Salinity (%)	0.05	0.20
Specific Conductance at 25°C (µmhos/cm)	820	3,200
pH (Standard Units)	7.7	7.5
SAR (Ratio)	3.85	1.67
* Total Sulfur	0.18	0.31

If you have any questions concerning these results please call.

  
Harold A. Connell  
Assistant Lab Manager

  
Robert L. Taylor, Ph.D., Mgr.  
Instrumental Analysis Div. *(initials)*

as



Table

SAMPLES BY NATIVE  
PLANTS INC. - 6-2-72

	pH	EC	SAR	K*	Na*	Ca*	Mg*	Cl*	SO <sub>4</sub> *	HCO <sub>3</sub> *
Topsoil	8.38	0.14	0.47	0.53	0.52	23.0	1.16	<.001	0.04	0.009
New refuse (School House)	7.89	1.76	3.62	0.44	4.26	26.4	1.23	0.31	1.6	0.014
New refuse	9.43	0.73								
Topsoil	8.99	0.11								
Old refuse										
0-15 cm	6.70	0.96								
15-30 cm	5.77	1.55								

#22										
0-15 cm	8.53	0.22	0.26	0.25	0.37	36.4	2.30	0.03	1.3	0.010
15-30 cm	8.38	0.37	0.22	0.19	0.31	37.9	2.06	<.001	1.48	0.012
#23										
0-30 cm	8.05	0.40								

	ppm S	%K	NO <sub>2</sub> -N	P	% Organic Matter	% Sand	% Silt	% Clay	Texture
Topsoil	58.0	0.62	1.35	4.2	3.4	37	37	26	loam
New refuse (School House)	58.4	0.39				63	16	21	sandy clay loam
New refuse			0.90	2.0	6.3	63	17	20	sandy clay loam
Topsoil						35	32	33	clay loam
Old refuse									
0-15 cm						72	12	16	sandy loam
15-30 cm						70	12	18	sandy loam
#22									
0-15 cm	176.4	0.24	1.0	4.0	6.3	74	12	14	sandy loam
15-30 cm	224.4	0.18	0.7	4.2	4.5	67	19	14	sandy loam
#23									
0-30 cm						75	11	14	sandy loam

\*expressed as meq/100g.

# COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 AREA CODE 312 726-8434

WESTERN DIVISION MANAGER  
OYD W. TAYLOR, JR.



PLEASE ADDRESS ALL CORRESPONDENCE TO  
139 SOUTH MAIN, HELPER, UTAH 84527  
OFFICE TEL: (801) 472-3537

PRICE RIVER COAL CO.  
P.O. Box 629  
Helper, Utah 84526

Jan. 25, 1980

Sample identification  
by

Price River Coal Co.  
Refuse Pile  
1211-UT-9-0027

Kind of sample reported to us Coal  
Sample taken at Castle Gate Prep. Plant-Refuse Pile  
Sample taken by Price River Coal Co.  
Date sampled 1-16-80  
Date received 1-16-80

Analysis report no. 57-3329

TOXICITY- Following procedure as outlined in the Federal Register, Part IV, Dec. 18, 1978

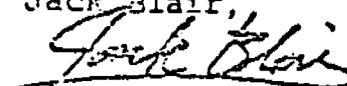
Arsenic- 0.011 mg/l  
Selenium- less than or = to 0.002 mg/l  
Mercury- less than or = to 0.04 micrograms/l  
Cadmium- less than or = to 0.004 mg/l  
Lead- less than or = to 0.06 mg/l  
Cromium- less than or = to 0.01 mg/l  
Silver- less than or = to 0.01 mg/l  
Barium- 0.8 mg/l

ACIDITY- Sample prepared 1:1 coal-water extraction, following procedures of the U.S. Dept. of Agriculture-Handbook 60. Acidity determined as directed in Standard Methods 14th Edition.

Acidity- 0

JB/gp

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.  
Jack Blair,

  
Manager, Helper Laboratory



Charter Member

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For Your Protection

# COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601

AREA CODE 312 728-8434



PLEASE ADDRESS ALL CORRESPONDENCE TO

DAVE SELDON  
MANAGER  
SOUTHWEST DIVISION

224 S. CARBON AVE., PRICE, UT 84501  
OFFICE TEL. (801) 637-7540

April 25, 1983

PRICE RIVER COAL COMPANY  
Robert Wiley  
P.O. Box 629  
Helper, Utah 84526

Dear Mr. Wiley,

The following is the Analytical Report on the five soil samples we received in our Price Laboratory on March 3, 1983. Also enclosed, please find your analysis.

## ANALYTICAL REPORT

Five soil samples were received for analysis on March 3, 1983. These samples were assigned Instrument Analysis Division #97-L493-335-05.

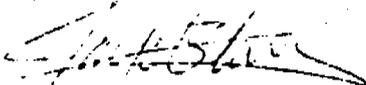
With the exception of the Clay Content results, all analytical data was sent on April 6, 1983.

Clay Content was determined by an external laboratory in accordance with the procedure of the American Society of Agronomy, Monograph 9, Part I, Method 43-5. The results of the determination are presented in Table No. I and are reported in weight percent (WT %) on an "As Received" Basis.

If you have any questions concerning these results, please call.

Sincerely,

COMMERCIAL TESTING & ENGINEERING COMPANY

  
Jack D. Blair, Assistant Manager  
Southwestern Division

JB/dt

Enclosure



Charter Member

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

# COMMERCIAL TESTING & ENGINEERING CO.

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

DAVE SELDON  
MANAGER  
SOUTHWEST DIVISION



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

PRICE RIVER COAL CO.  
P.O. Box 629  
Helper, Utah 84526

April 25, 1983

Sample Identification  
by

Price River Coal Co.

#3 Mine Roof - 57-12619  
#3 Mine Floor- 57-12618  
#5 Mine Roof - 57-12621  
#5 Mine Floor- 57-12620  
Refuse - 57-12622

Kind of sample  
reported to us Soil

Sample taken at Castle Gate Prep Plant

Sample taken by Price River Coal Co.

Date sampled xxxxxx

Date received 3-8-83

Analysis report no. 57-12618 thru 57-12622

TABLE NO. I  
CLAY CONTENT ANALYSIS  
(WT%-As Received)

<u>Sample ID</u>	<u>Sand</u>	<u>Silt</u>	<u>Clay</u>
57-12618	74	14	12
57-12619	86	8	6
57-12620	77	17	6
57-12621	84	10	6
57-12622	69	21	10

JB/dt

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Jack Blair*  
Manager, Price Laboratory



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For Your Protection

# COMMERCIAL TESTING & ENGINEERING CO.

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

DAVE SELDON  
MANAGER  
SOUTHWEST DIVISION



PLEASE ADDRESS ALL CORRESPONDENCE TO  
224 S. CARBON AVE., PRICE, UT 84501  
OFFICE TEL. (801) 637-7540

PRICE RIVER COAL COMPANY  
P.O. Box 629  
Helper, Utah 84526

April 14, 1983

Sample Identification  
by  
Price River Coal Co.

Kind of sample  
reported to us Floor

#5 Floor

Sample taken at Castle Gate Prep Plant

Sample taken by Price River Coal Co.

Date sampled xxxxxx

Date received 3-8-83

Analysis report no. 57-12620

## MOISTURE AND SULFUR ANALYSIS

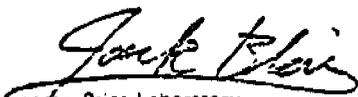
	<u>As Received</u>	<u>Dry Basis</u>
% Moisture	0.65	xxxxxx
% Sulfur	0.07	0.07

## SULFUR FORMS

	<u>As Received</u>	<u>Dry Basis</u>
% Pyritic Sulfur	0.01	0.01
% Sulfate Sulfur	0.00	0.00
% Organic Sulfur (Diff)	0.06	0.06
Total	0.07	0.07

JB/dt

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

  
Manager, Price Laboratory



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For Your Protection

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

**COMMERCIAL TESTING & ENGINEERING CO.**

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

DAVE SELDON  
MANAGER  
SOUTHWEST DIVISION



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

April 14, 1983

PRICE RIVER COAL COMPANY  
P.O. Box 629  
Helper, Utah 84526

Sample identification  
by  
Price River Coal Co.

Kind of sample  
reported to us **Roof**

**#5 Mine Roof**

Sample taken at **Castle Gate Prep Plant**

Sample taken by **Price River Coal Co.**

Date sampled **xxxxxx**

Date received **3-8-83**

Analysis report no. **57-12621**

MOISTURE AND SULFUR ANALYSIS

	<u>As Received</u>	<u>Dry Basis</u>
% Moisture	0.74	xxxxxx
% Sulfur	0.11	0.11

SULFUR FORMS

	<u>As Received</u>	<u>Dry Basis</u>
% Pyritic Sulfur	0.04	0.04
% Sulfate Sulfur	0.00	0.00
% Organic Sulfur (Diff)	0.07	0.07
Total	0.11	0.11

JB/dt

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, Price Laboratory



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# COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • (312) 993-9300

DAVE SELDON  
MANAGER  
SOUTHWEST DIVISION



PLEASE ADDRESS ALL CORRESPONDENCE TO  
224 S. CARBON AVE., PRICE, UT 84501  
OFFICE TEL. (801) 637-7540

PRICE RIVER COAL COMPANY  
P.O. Box 629  
Helper, Utah 84526

April 14, 1983

Sample identification  
by  
Price River Coal Co.

Kind of sample  
reported to us Refuse

Refuse

Sample taken at Castle Gate Prep Plant

Sample taken by Price River Coal Co.

Date sampled xxxxxx

Date received 3-8-83

Analysis report no. 57-12622

## MOISTURE AND SULFUR ANALYSIS

	<u>As Received</u>	<u>Dry Basis</u>
% Moisture	9.35	xxxxxx
% Sulfur	0.41	0.45

## SULFUR FORMS

	<u>As Received</u>	<u>Dry Basis</u>
% Pyritic Sulfur	0.17	0.19
% Sulfate Sulfur	0.07	0.08
% Organic Sulfur (Diff)	0.17	0.18
Total	0.41	0.45

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

  
Manager, Price Laboratory



Charter Member

JB/dt

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

**COMMERCIAL TESTING & ENGINEERING CO.**

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

DAVE SELDON  
MANAGER  
SOUTHWEST DIVISIONPLEASE ADDRESS ALL CORRESPONDENCE TO:  
224 S. CARBON AVE., PRICE, UT 84501  
OFFICE TEL. (801) 637-7540

April 14, 1983

PRICE RIVER COAL COMPANY  
P.O. Box 629  
Helper, Utah 84526Sample Identification  
by  
Price River Coal Co.

#3 Mine Roof

Kind of sample  
reported to us Roof

Sample taken at Castle Gate Prep Plant

Sample taken by Price River Coal Co.

Date sampled ~~xxxxx~~

Date received 3-8-83

Analysis report no. 57-12619

MOISTURE AND SULFUR ANALYSIS

	<u>As Received</u>	<u>Dry Basis</u>
% Moisture	0.51	<del>xxxxx</del>
% Sulfur	0.12	0.12

SULFUR FORMS

	<u>As Received</u>	<u>Dry Basis</u>
% Pyritic Sulfur	0.10	0.10
% Sulfate Sulfur	0.00	0.00
% Organic Sulfur (Diff)	0.02	0.02
Total	0.12	0.12

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, Price Laboratory



Charter Member

JB/dt

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

# COMMERCIAL TESTING & ENGINEERING CO.

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DAVE SELDON  
MANAGER  
SOUTHWEST DIVISION



PLEASE ADDRESS ALL CORRESPONDENCE TO  
224 S. CARBON AVE., PRICE, UT 8450  
OFFICE TEL. (801) 637-7540

PRICE RIVER COAL COMPANY  
P.O. Box 629  
Helper, Utah 84526

April 14, 1983

Sample identification  
by  
Price River Coal Co.

Kind of sample reported to us Floor

#3 Mine Floor

Sample taken at Castle Gate Prep Plant

Sample taken by Price River Coal Co.

Date sampled ~~XXXXX~~

Date received 3-8-83

Analysis report no. 57-12618

## MOISTURE AND SULFUR ANALYSIS

	<u>As Received</u>	<u>Dry Basis</u>
% Moisture	0.39	<del>XXXXX</del>
% Sulfur	0.07	0.07

## SULFUR FORMS

	<u>As Received</u>	<u>Dry Basis</u>
% Pyritic Sulfur	0.01	0.01
% Sulfate Sulfur	0.00	0.00
% Organic Sulfur (Diff)	0.06	0.06
Total	0.07	0.07

JB/dt

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

  
Manager, Price Laboratory



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

# COMMERCIAL TESTING & ENGINEERING CO.



Reply to  
Instrumental Analysis Division  
490 Orchard Street  
Golden, CO 80401

Phone: 303-278-9521

April 6, 1983

Mr. Jack Blair  
CT & E  
224 S. Carbon Ave.  
Price, UT 84501

Re: IAD #97-L493-335-05

## Analytical Report

Five soil samples were received for analysis on March 16, 1983. These samples were assigned our IAD identification #97-L493-335-05.

Alkalinity, Salinity, Sodium Adsorption Ratio (SAR) and Specific Conductivity were determined in accordance with the procedures of Agriculture Handbook No. 60, U.S. Department of Agriculture, August 1969. The results of these determinations are presented in Table No. I and are reported in milligrams per litre (mg/L) unless otherwise noted.

A representative portion of each sample was forwarded to an external laboratory for the determination of Clay Content. A separate report will be sent upon completion of the Clay Content determinations.

In accordance with 40 CFR 260 (Federal Register/Vol.45, No.98/ Monday, May 19, 1980) a representative portion (100g) of each sample was extracted for 24 hours using 1600 mL of deionized water. The solutions were pH adjusted using 0.5N acetic acid to a pH of 5.0. At the completion of the extraction, each sample was pressure-filtered through a 0.45 micrometer filter. The filtrate of each sample was then diluted to a final volume of 2000 millilitres including the amount of acetic acid used for pH adjustment.



<u>Sample ID</u>	<u>Sample Weight(g)</u>	<u>Final Filtrate Volume(mL)</u>	<u>Initial pH</u>	<u>Final pH</u>	<u>Volume of 0.5N Acetic Acid(mL)</u>
57-12618 <	100.0	2000	7.1	5.1	5.5
57-12619	100.0	2000	9.6	4.9	34
57-12620	100.0	2000	9.5	4.9	11
57-12621	100.0	2000	9.9	5.0	15
57-12622	100.0	2000	6.4	5.2	64.5

A summary of the analytical methodology used in the determination of the EPT Toxic Metals is presented in Table No. II. The results of these determinations are presented in Table No. III and are reported in milligrams per litre (mg/L).

Table No. I  
(Concentrations in mg/L)

<u>Parameter</u>	<u>57-12618 &lt;</u>	<u>57-12619</u>	<u>57-12620</u>	<u>57-12621</u>	<u>57-12622</u>
Alkalinity (as CaCO <sub>3</sub> )	28	224	35	193	415
Salinity (Salt Content)	281	318	510	408	894
Specific Conductivity (umhos/cm)	439	497	797	637	1,397
Calcium	22	100	7.1	80	260
Magnesium	9.8	20	1.9	5.5	28
Sodium	42	40	28	33	20
Sodium Adsorption Ratio (SAR)	1.87	0.96	2.40	0.96	0.31

Table No. II  
Summary of Methodology  
EP Toxic Extract Determinations

<u>Parameter</u>	<u>Method</u>	<u>Reference</u>
Arsenic	Hydride Generation A. A. Spectrophotometry	EPA*, Method 206.3
Barium	Flame Atomic Absorption Spectrophotometry	EPA*, Method 208.1
Cadmium	Flame Atomic Absorption Spectrophotometry	EPA*, Method 213.1
Chromium	Flame Atomic Absorption Spectrophotometry	EPA*, Method 218.1
Lead	Flame Atomic Absorption Spectrophotometry	EPA*, Method 239.1
Silver	Flame Atomic Absorption Spectrophotometry	EPA*, Method 272.1
Selenium	Hydride Generation A.A. Spectrophotometry	EPA*, Method 270.3
Mercury	Cold Vapor Flameless A.A. Spectrophotometry	EPA*, Method 245.1



Table No. III  
 EP Toxic Extraction Filtrates  
 (Concentrations in mg/L)

Parameter	57-12618	57-12619	57-12620	57-12621	57-12622	Minimum Concentration for Characteristic of EP Toxicity
Arsenic	≤0.001	≤0.001	≤0.001	≤0.001	≤0.001	5.0 (D004)*
Barium	0.16	0.25	0.25	0.27	0.39	100.0 (D005)*
Cadmium	≤0.005	≤0.005	≤0.005	≤0.005	≤0.005	1.0 (D006)*
Chromium	≤0.005	≤0.005	≤0.005	≤0.005	≤0.005	5.0 (D007)*
Lead	≤0.05	≤0.05	≤0.05	≤0.05	≤0.05	5.0 (D008)*
Mercury	≤0.0002	≤0.0002	≤0.0002	≤0.0002	≤0.0002	0.2 (D009)*
Selenium	≤0.003	≤0.003	≤0.003	≤0.003	≤0.003	1.0 (D010)*
Silver	≤0.004	≤0.004	≤0.004	≤0.004	≤0.004	5.0 (D011)*

\*EPA Hazardous Waste Number

If you have any questions concerning these results, please call.

*Harold A. Connell*  
 Harold A. Connell  
 Assistant Laboratory Manager

*Robert L. Taylor*  
 Robert L. Taylor, Ph.D., Mngr. 6 Dept 83  
 Instrumental Analysis Division

HAC/gh





United States Department of the Interior

OFFICE OF SURFACE MINING

Reclamation and Enforcement

BROOKS TOWERS

1020 15TH STREET

DENVER, COLORADO 80202

APR 26 1984

REC'D 4-26-84  
3:45 PM

Mr. Rob Wiley  
Environmental Engineer  
Price River Coal Company  
P.O. Box 629  
Helper, Utah 84526

Dear Mr. Wiley:

The Office of Surface Mining (OSM) has reviewed the Price River Coal Company permit application for the Price River Mine Complex. In light of the conditions brought to our attention as a result of the joint OSM/Utah Division of Oil, Gas, and Mining (UDOGM) inspection from February 28 to March 1, 1984, and the OSM/UDOGM joint site visit April 16 to 17, 1984, OSM has determined that there is inadequate information to find that the permit application is in compliance with the applicable regulations.

OSM requires additional information be provided so that there will be an adequate basis for compliance determination at the various facilities within the proposed permit area. The information that must be provided to OSM is listed below:

1. Hardscrabble Canyon facilities area

(a) Complete reclamation plans for the No. 3 and No. 4 mine facilities area, including a revised plan for the Goose Island reclamation project area that incorporates erosionally stable reconstructed channel designs, must be submitted. Individual project area plans may be submitted but demonstration must be made that transition zones between project areas will also be erosionally stable. Reconstructed channel gradients must be demonstrated to be erosionally stable throughout the entire reclamation area with reconstructed channel cross-sections at least equal to the capacity of natural stream channels immediately upstream and downstream from the reclamation area. The applicant may retain the use of shading to show areas to be backfilled, but depth of fill must be clear and slope cross sections must be provided. The applicant must provide a plan to supplement information on the quality of material to be placed at and near the surface during backfilling and grading to assure that suitable subsoil material is present in the rooting zone.

(b) A comprehensive sediment control plan for the entire Hardscrabble Canyon facilities area must be provided. The plan must demonstrate that water and sediment volumes for the 10-year, 24-hour design storm event will be entirely contained within the facilities area and that emergency discharge devices will be adequate to pass the 25-year, 24-hour design storm discharge if not totally retained within the facilities area. The submitted plan may include additional pond(s) in conjunction with alterna-

tive sediment control measures such as pond baffles, settlement basins, straw dikes, and silt fences. Control of sedimentation from high sediment production areas by controlling erosion at these sources is required. In the event that the applicant chooses to submit plans incorporating alternative sediment control techniques, a demonstration must be made showing that effluent standards will be met.

(c) A plan for monitoring existing sediment control structures and diversion ditches in the Hardscrabble Canyon facilities area must be submitted. The plan must show that maintenance capability is adequate to reestablish design capacity where that capacity has been lost due to bank sloughing, sediment inflows, and other factors.

2. Sowbelly Gulch facilities area

(a) In accordance with UMC 817.46, as-built certifications for sediment control devices within the entire facilities area must be provided. The plan must demonstrate that the existing sedimentation ponds, acting in series, have the capacity to retain the total water and sediment runoff volumes generated by the 25-year, 24-hour design storm and that all water and sediment runoff will be retained within the facilities area. In the event that such a demonstration cannot be made, the applicant must demonstrate that the ponds will contain the 10-year, 24-hour event and spillway designs must be submitted.

(b) A complete reclamation plan for the No. 5 mine facilities area must be submitted. The plan must prove that reconstructed channels will be erosionally stable by incorporating stable channel gradients as well as reconstructed channel cross-sections that are at least equal to the capacity of natural stream channels immediately upstream and downstream from the reclamation area. The applicant may retain the use of shading to show areas to be backfilled, but depth of fill must be clear and slope cross sections must be provided. The applicant must provide a plan to supplement information on the quality of material to be placed at and near the surface during backfilling and grading to assure that suitable subsoil material is present in the rooting zone.

(c) A plan for maintaining existing sediment control structures and diversion ditches in the Sowbelly Gulch facilities area must be provided. The plan must demonstrate that maintenance capability is adequate to reestablish design capacity where that capacity has been lost due to bank sloughing, sediment inflows, and other factors.

3. Castle Gate Preparation Plant

(a) A berm must be placed around the thickener overflow basin area at the Castle Gate Preparation Plant. The designs of such berms must be submitted.

(b) A design drawing for the clean water pond must be submitted. The design drawing must show water containment and identify decant devices for that pond.

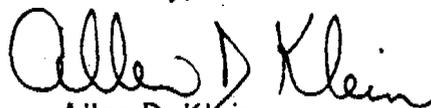
(c) Sedimentation pond decant devices must be properly designed and labeled in order to adequately measure pond sediment storage in the Castle Gate Preparation Plant area. The applicant must provide plans to determine the level of the decant device outlet and to install such labeling.

4. OSM has reviewed the potential and actual topsoil and soil substitute sources available in the area. As a result, it is apparent that an additional 25,000 cubic yards of soil resource material are necessary to assure adequate reclamation of all disturbed sites within the proposed permit area. The applicant must provide information on alternative sources within the permit area that will supply the requisite amounts of soil materials. In the event that such soil sources cannot be sampled in the time available, the applicant shall designate a minimum of 75,000 cubic yards of proposed soil material to assure that there is adequate material for reclamation. Reclamation of the proposed soil source site(s) shall also be addressed.
5. A complete surface- and ground-water hydrologic monitoring plan that will measure sustained ground-water flow greater than one gallon per minute away from the working face must be provided. The plan must effectively meet performance standards and specify parameters to be monitored as well as specify the frequency of monitoring. In developing the hydrology monitoring plan, the applicant is encouraged to consult with the regulatory authority for guidance.
6. The applicant must submit a completely updated permit application package which will compile all recent data submittals, commitments, revised plans, and other pertinent information so that the new permit application package is complete and technically accurate by June 22, 1984.

In order to meet a revised permit decision schedule for the Price River Mine Complex application, OSM requests that the required information be submitted for review and approval by May 8, 1984. It is imperative that the information submitted be complete and as technically accurate as possible in order for OSM to properly evaluate the Price River Mine Complex permit application.

Should you wish to discuss any of the points or if you have any questions, please contact either Dave Maxwell or Walter Swain at (303) 837-3806.

Sincerely,



Allen D. Klein  
Administrator  
Western Technical Center

cc: Dianne Nielson - UDOGM  
Sandy Pruitt - UDOGM  
Susan Linner - UDOGM  
Bob Hagen - OSM, Albuquerque  
Donna Griffin - OSM, Albuquerque  
Tom Ehmett - OSM, Albuquerque

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

May 3, 1984

Mr. Dave Maxwell  
Office of Surface Mining  
Brooks Towers  
1020 - 15th Street  
Denver, Colorado 80202

Re: Response to Letter from A. Klein dated 4-26-84

Dear Mr. Maxwell:

Please find attached several of the items needed to complete your permit review process. The items enclosed are:

1. The revised water monitoring plan
2. As-built design drawing for Castle Gate raw water pond.
3. As-built design drawing for the thickener overflow pond with proposed modifications.
4. A discussion of pond decant devises.
5. A discussion of the intended soil sampling program.
6. The plan for borrow of topsoil and subsoil materials.

Price River Coal Company will make every effort to provide the remaining items by May 8, 1984.

Very truly yours,

PRICE RIVER COAL COMPANY



Rob L. Wiley  
Environmental Engineer

RLW:jp  
Attachments  
cc: K. Hutchinson  
G. Cook

# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

May 8, 1984

Mr. Allen D. Klein  
Administrator  
Office of Surface Mining  
Western Technical Center  
Brooks Towers  
1020 - 15th Street  
Denver, CO 80202

Re: Response to the Informational Requests in your 4-26-84 Letter

Dear Mr. Klein:

Please find enclosed the remaining information requested to complete review and approval of Price River Coal Company's Mining and Reclamation Plan. Some of the requested information was mailed separately on 5-3-84. We hope this information is sufficient to complete your review.

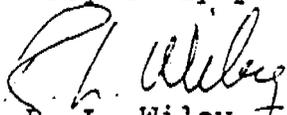
The enclosed items address the following topics:

1. Hydrologic calculations for design of drainage control structures.
2. Drainage control structures for Hardscrabble and Sowbelly canyons.
3. Reconstructed stream channel design and stabilization.
4. Backfilling and grading.
5. Drainage control maintenance.

These items have been assembled in an extremely hurried fashion. Some minor errors may exist so please contact me if any clarification is needed.

PRCC will now make every attempt to prepare and submit an updated permit application package which includes the enclosed and all other revisions by June 22, 1984.

Very truly yours,

  
R. L. Wiley  
Environmental Engineer

RLW:jp  
Enclosures

PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

May 10, 1984

Mr. Mark Humphrey  
Office of Surface Mining  
1020 - 15th Street  
Brooks Towers  
Denver, Colorado 80202

Dear Mr. Humphrey:

Attached is clarification of top soil borrow information  
as requested by your phone call of May 10, 1984.

Please advise if we may be of any further assistance.

Very truly yours,

PRICE RIVER COAL COMPANY

*Rob L. Wiley*

Rob L. Wiley  
Environmental Engineer

RLW:jp

Enclosures

## PLAN FOR ON-SITE BORROW OF RESOILING MATERIALS

Active mine sites on PRCC property, with the exception of Crandall Canyon, are pre-SMCRA facilities for which no topsoil was saved. Plans for supplement soil deficits have, in the past, included import of materials from remote areas. The new plan proposes on-site borrow from areas on PRCC fee surface. Such a plan has merit from both a cost standpoint and a regulatory compliance aspect.

There are numerous potential borrow sites on PRCC's extensive fee and fee surface holdings. Several have been identified on Exhibit 8-7. These are chosen based on the following criteria:

1. Proximity to the mine sites
2. Apparent suitability for topsoil or subsoil usage
3. Reclaimability

Each site will be briefly discussed. Samples of each site will be obtained during the sampling program, discussed separately. Samples will be taken to the anticipated depth of borrow.

### RESOILING MATERIALS BUDGET

PRCC has need to reclaim 121.5 acres. The 6" topsoiling requirement entails a need for 807 cubic yards per acre or a total of 98,051 cubic yards. At present suitable topsoiling storage, derived from Crandall Canyon development, accounts for 65,000 cubic yards. Topsoil piles, shown on Exhibit 8-7 (and other exhibits) have the following approximate volumes:

T-1.....	12,000 cubic yards
T-2.....	8,000 cubic yards
T-3.....	45,000 cubic yards

Subsoil materials, to be used for refuse pile covering prior to topsoil placement, are also in deficit. Twelve inches (12") of such material or 1,614 cubic yards/acre are needed for 23 acres at Castle Gate and about 4 acres in Hardscrabble Canyon. The total needed is 41,964 cubic yards. About 10,000 cubic yards of rock waste are located on Goose Island refuse pile in Hardscrabble Canyon to be used entirely for that site. The deficit is only for the 23 acres at Castle Gate.

Total materials to be obtained through borrow:

Topsoil.....	33,051 cubic yards
Subsoil.....	37,122 cubic yards
Net Deficit.....	70,170 cubic yards

### PROPOSED BORROW SITES

B-1: This site, located in the first major west fork of Sowbelly Canyon, is about 1/4 acre of material piled up during face-up

operations for the old Spring Canyon Coal Company No. 7 Mine (abandoned 1968). This material is colluvium from a south facing slope and canyon bottom. There is an average 5 feet of salvageable material. Total volume is about 2,016 cubic yards. Due to some apparent mixing of coal and shale at the surface, this site is designated as subsoil.

Reclamation for this site will be similar to proposed Sowbelly Canyon mixed brush and conifer reclamation plans.

B-2: This site is located just north of the Sowbelly site at the major canyon forks. It is a mound of alluvium scraped up when the access roads were driven (20 years ago?). About 3 feet of material may be available over 1/3 acre, or about 1,613 cubic yards.

Reclamation will be similar to that proposed for the Sowbelly grass-sage area.

B-3: This site is located about 1,000' north of Goose Island and is a combination of colluvium and alluvium that has been previously disturbed, but not moved, by early mining (1950's) and continuing cattle management activities.

About an acre is accessible and a borrow of 3 feet would not be excessive. About 4,842 cubic yards is available. During salvage operations the upper 6 inches of soil will be removed and replaced on the borrow area.

Reclamation for the site will be similar to that proposed for Hardscrabble, dry mixed brush and pinion juniper.

B-4: This area is depicted on the Goose Island reclamation project plan. Cross sections indicate that about 6,000 cubic yards could be available. This is topsoil material.

B-5: Material on this site is similar in generation to B-1 but from the early Carbon Fuel Company operations (1950's). The majority of the material was used to develop a pad. PRCC has used this area for the location and on-foot access to a 3' square portable powder magazine. Approximately 3' of material is available over 1/2 acre; 2,420 cubic yards. Subsoil will be the primary use of this material.

Reclamation for this site is already covered by plans.

B-6: This site is located in the mouth of a north facing valley in west Crandall Canyon. This site was once a pond site. Remnants of

a dike are visible at the mouth of the canyon. About 4 feet could be obtained over an 8 acre area or about 51,648 cubic yards.

The material, alluvial, colluvial and probably to some degree lacustrine, is suitable for both topsoil and subsoil usage. During borrow operations the upper 6 inches will be removed, stockpiled, and replaced.

Reclamation will be similar to Crandall Canyon conifer and wet mixed brush associations.

B-7: This site is in the mouth of the next canyon east of B-6. The area is about 3 acres from which about 3 feet could be derived; 14,517 cubic yards. Existing topsoil (6 inches) would be removed and replaced. This undisturbed area supports a hearty growth of aspen and fir. It will not be utilized unless absolutely necessary.

Reclamation would approximate that intended for the Crandall conifer type.

B-8: This site is located across the channel from the Crandall upper site and is about 1.5 acres of alluvial outwash and appears to have a salvageable thickness of about 6 feet; 14,520 cubic yards. During salvage existing topsoil will be removed and replaced on the borrow site. Reclamation will be similar to Crandall conifer and mixed brush sites.

Use will be as subsoil and topsoil.

SUMMATION OF QUANTITIES OF TOPSOIL AND SUBSOIL FROM BORROW SITES

<u>Borrow Site</u>	<u>Volume of Material (yds<sup>3</sup>)</u>	
	<u>Topsoil</u>	<u>Subsoil</u>
B-1	-0-	2,016
B-2	1,613	-0-
B-3	4,842	-0-
B-4	6,000	-0-
B-5	-0-	2,420
B-6	25,824	25,824
B-7	7,258.5	7,258.5
B-8	7,260	7,260
Subtotals	52,797.5 yds <sup>3</sup>	44,778.5 yds <sup>3</sup>
Total	<u>97,576 yds<sup>3</sup></u>	

Many other sources could be found on PRCC properties. For example, the cross seam drift (this is completely underground - no surface expression) anticipated for construction in 1986 could generate 30,000 cubic yards of clean rock waste, similar to the rock waste at Crandall Canyon, suitable for subsoil on the Castle Gate refuse pile.

SOIL CHARACTERISTICS

Information obtained from an ongoing soil survey, recently provided by the local soil conservation service, defines the characteristics of the proposed borrow sites. Copies of this information and soil maps are attached:

According to the soil surveys, our borrow sites are within the following soil associations or in colluvium/alluvium derived therefrom:

- B-1.....MRG, DPG
- B-2.....MRG
- B-3.....LRG
- B-4.....LRG
- B-5.....MRG
- B-6.....PPH, FKG
- B-7.....FKG
- B-8.....FKG

GENERAL RECLAMATION PLAN FOR BORROW SITES

Immediately after borrow operations are completed for each site, grading will eliminate any cuts and tie grades into the undisturbed slopes. Prior to the use of any sites cross sections will be obtained and submitted to the regulatory authority.

Seeding and planting procedures will be identical to those proposed for mine sites and will be performed in the first appropriate seasons after disturbance.

Drainage will be controlled during and after operations by means of straw dikes and silt fence.

SOIL PROTECTION

The identified areas are all moderately to thickly vegetated and out of the way of normal activity. It is suggested that no further protection measures are needed.

UNITED STATES  
DEPARTMENT OF  
AGRICULTURE

SOIL  
CONSERVATION  
SERVICE

350 North 4th East  
Price, Utah 84501

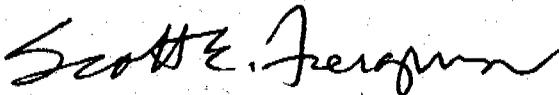
June 9, 1989

Richard Allison  
Castle Gate Coal Company  
P.O. Box 449  
Helper, Utah 84526

Dear Mr. Allison:

The production on the Crandall Canyon site is about 400 lbs/ac air dry. There are about 200 Utah Juniper trees per acre. This site is in fair condition with a static trend in condition.

The production on the Barn Canyon site is around 1,162 lbs/ac air dry. It is in low fair condition with an upward trend in condition. The area is a potential Pinyon-Juniper site, and has been burned off at some point in the past, hence the somewhat low condition rating in spite of high production.



Scott E. Ferguson  
Range Conservationist  
Price, Utah