

**PERMIT TRACKING FORM**

- Permit Amendment  
  Exploration Permit  
  NOV Abatement  
  Division Order  
  Permit Transfer  
  Incidental Boundary Change  
 Permit Midterm (MT)  
  Permit Renewal (PR)  
  New Permit  
  Significant Revision  
  Bond Release

Date Received:	By:	PERMIT NUMBER	ACT/007/022
Title of Proposal: <i>Water Monitoring Wells</i>		PERMIT CHANGE #	<i>98B</i>
Description:		PERMITTEE	Savage Industries, INC.
# Copies Required: 3	# Copies Received:	MINE NAME	Savage Coal Terminal

**PERMIT CHANGE APPLICATION SENT TO SLC**      Date: \_\_\_\_\_      Letter to Permittee: \_\_\_\_\_

**15 DAY INITIAL RESPONSE TO PERMIT CHANGE APPLICATION OR INITIAL COMPLETENESS REVIEW**      Date Due: \_\_\_\_\_      Date Done: \_\_\_\_\_      Letter to Permittee: \_\_\_\_\_

**Notice of Affidavit of Publication. (If change is a Significant Revision, New Permit, or Permit Transfer.)**      Date Due: \_\_\_\_\_      Date Done: \_\_\_\_\_      Public Comment Received: \_\_\_\_\_

PFO Review Tracking	Round		Round		SLC Review Tracking	Round		Round	
	Due	Done	Due	Done		Due	Done	Due	Done
<input type="checkbox"/> Lead <input type="checkbox"/> Generalist					<input type="checkbox"/> Lead <input type="checkbox"/> Generalist				
<input type="checkbox"/> Administrative					<input type="checkbox"/> Administrative				
<input type="checkbox"/> Land Use/ AQ					<input type="checkbox"/> Land Use/ AQ				
<input type="checkbox"/> Biology					<input type="checkbox"/> Biology				
<input type="checkbox"/> Engineering					<input type="checkbox"/> Engineering				
<input type="checkbox"/> Geology					<input type="checkbox"/> Geology				
<input type="checkbox"/> Soils					<input type="checkbox"/> Soils				
<input type="checkbox"/> Hydrology					<input type="checkbox"/> Hydrology				

TA Review Due: \_\_\_\_\_ Date: \_\_\_\_\_      Permittee Response Due:  Stipulation    Condition    No Requirements      Date: \_\_\_\_\_      Division Decision Letter:  Approve    Deny

TA Review Done: \_\_\_\_\_ Date: \_\_\_\_\_      Response Received: \_\_\_\_\_      Date: \_\_\_\_\_      Date: \_\_\_\_\_

Coordinated Reviews:	Phone Cont.	Round		Round		Received:	Additional Tracking:	Date:
		Sent	Due	Sent	Due			
<input type="checkbox"/> Water Rights							Public Hearing	
<input type="checkbox"/> DEQ							Letter from Comp. Super.	
<input type="checkbox"/> DWR							AVS Completed	
							Approval Effective Date	
							Approved Copy to File	

Comments: *Sent 1 copy of maps to PFO.*

Approve copy to Permittee	
Approve copy to PFO/SLC	
Approved copy to agencies	
CHIA Modified	
Update master TA Y/N	

# PERMIT TRACKING FORM

- Permit Amendment(INS)  
  Exploration Permit(INS)  
  N.O.V. (INS)  
  D.O.  
  Permit Transfer  
  Incidental Boundary Change  
 Permit Midterm (MT)  
 Permit Renewal (PR)  
 New Permit  
 Significant Revision (SR)  
 Bond Release (BR)

DATE RECEIVED <b>3-20-98</b>	By: <i>Handwritten</i> <b>Dano</b> (Initial)	PERMIT NUMBER <b>ACT/007/022</b>	
Title of Proposal: <b>Water Monitoring wells</b>		PERMIT CHANGE # <b>98B</b>	
Description:		PERMITTEE <b>Savage</b>	
# Copies Required <b>3</b>	# Copies Received <b>3</b>	MINE NAME <b>Savage Coal Terminal</b>	

PERMIT CHANGE APPLICATION SENT TO SLC      DATE: \_\_\_\_\_      LETTER TO PERMITTEE: \_\_\_\_\_

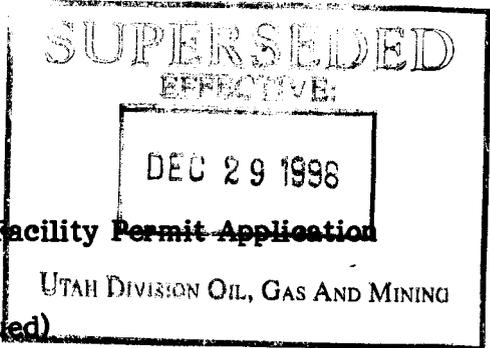
<input type="checkbox"/> 15 DAY INITIAL RESPONSE TO PERMIT CHANGE APPLICATION OR INITIAL COMPLETENESS REVIEW	DATE DUE	DATE DONE	LETTER TO PERMITTEE:
<input type="checkbox"/> Notice of Affidavit of Publication. (If change is a Significant Revision, New Permit or Permit Transfer)	DATE DUE:	DATE DONE	PUBLIC COMMENT RECEIVED:

PRICE REVIEW TRACKING	REVIEW		SLC REVIEW TRACKING	REVIEW	
	DUE	DONE		DUE	DONE
<input checked="" type="checkbox"/> Lead <input type="checkbox"/> Generalist			<input checked="" type="checkbox"/> Lead <i>Ken/DAC</i>	<b>4/13</b>	
<input type="checkbox"/> Administrative			<input type="checkbox"/> Administrative		
<input type="checkbox"/> Land Use/AQ			<input type="checkbox"/> Land Use/AQ		
<input type="checkbox"/> Biology			<input type="checkbox"/> Biology		
<input type="checkbox"/> Engineering			<input type="checkbox"/> Engineering		
<input type="checkbox"/> Geology			<input type="checkbox"/> Geology		
<input type="checkbox"/> Soils			<input type="checkbox"/> Soils		
<input type="checkbox"/> Hydrology			<input checked="" type="checkbox"/> Hydrology <i>Ken/DAC</i>	<b>11</b>	

TA Review Due	Date:	Permittee Response Due <input type="checkbox"/> Stipulation <input type="checkbox"/> Condition <input type="checkbox"/> No Requirements	Date:	DIVISION DECISION LETTER <input type="checkbox"/> APPROVE <input type="checkbox"/> DENY
TA Review Done	Date:	Response Received	Date:	Date:

COORDINATED REVIEWS	PHONE CONTACT	SENT	DUE	RECEIVED	ADDITIONAL TRACKING	Date:
<input type="checkbox"/> OSMRE					PUBLIC HEARING	
<input type="checkbox"/> US Forest Service					LETTER FROM COMPLIANCE SUPER.	
<input type="checkbox"/> BLM					AVS COMPLETED	
<input type="checkbox"/> US FWS					APPROVAL EFFECTIVE DATE	
<input type="checkbox"/> US NPS					APPROVED COPY TO FILE	
<input type="checkbox"/> UT SHPO					APPROVED COPY TO PERMITTEE	
<input type="checkbox"/> UT DEQ					APPROVED COPY TO PFO/SLC	
<input type="checkbox"/> UT Water Rights					APPROVED COPY TO AGENCIES	
<input type="checkbox"/> UT Wildlife Resources					CHIA MODIFIED	
<input type="checkbox"/> UT SITLA					UPDATE MASTER TA   DONE/NEEDED	

PRICE FIELD OFFICE COMMENTS: <i>This hydrology would concern two wells in a hay field that was the subject of a memo to Mr. Helrick. Mr. Helrick assigned the case to Mr. Wayoff. Attached is copy of my memo of 2/19/98.</i> <i>2/24/98</i>	SLC OFFICE COMMENTS:
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7.1.2.1 Regional Groundwater Hydrology (continued)

shale. The water is of poor quality and accumulations of salt are found where the water table approaches the ground surface. Groundwater is not used for irrigation in the area because of its poor quality. The nearest springs or wells to the C.V. Spur site are located close to the town of Wellington on the opposite side of the Price River. Five wells and one spring exist in the alluvium above the Bluegate shale in this area. These wells and springs are in a different drainage and are not associated with the C.V. Spur site.

7.1.2.2 Mine Plan Area Aquifers

Monitoring wells were completed in the weathered material above the Bluegate shale. In addition several wells were completed in the Bluegate shale in order to test the hypotheses that the low permeability of this unit isolates the water table aquifer from groundwater in the Ferron sandstone or deeper formations.

Observation Wells - Six observation wells were drilled in various places on the C.V. Spur site. In addition, three observation wells already existed on the property. Four observation wells were drilled on the farmland adjacent to the site. These wells were all extended through the soil and weathered shale and terminated at the surface of the Bluegate shale. The locations of observation wells are shown on Plate 7-1. Typical well completions are illustrated in Figure 7-1.

3  
6  
4  
13 wells

Two dual observation wells labeled 6D and 5D were installed near Well No. CV6W and No. CV5W. These were extended 10 feet into the shale with the bottom 4 feet perforated and a seal using bentonite pellets installed in the first 6 feet of the shale. These holes were used to determine the permeability of the shale.

6-1  
5-2

7.1.5 Mitigation and Control Plans (continued)

activities, the collector sump at the northeast corner of the property will be filled in, and the french drain line will be severed approximately 50 feet from the sump and plugged off with concrete. The smaller french drain line located south of the railroad loop will also be severed at the lower end and plugged off with concrete to render it non-discharging. While water table conditions on the site are expected to rise following removal of the sump, saturation of reclaimed surface or coal refuse is not expected to occur. The remaining portion of the french drain will continue to favor lowering of the water table and diversion of shallow groundwater around the site. Saturated conditions and seepage expected to occur in the vicinity of the sump and downslope of the french drain. The coal refuse, which is at a higher elevation, should remain above the water table.

7.1.4 Groundwater Monitoring Plan

Monthly water levels and quarterly water quality samples were continued in 1982 for an additional one-year baseline monitoring period. Following this baseline period, water levels of existing wells will be measured bi-annually in the Spring and Fall just prior to water quality sampling. Water quality analysis will be completed for the parameters listed in Table 7-15. Monitoring results will be reported quarterly for surface stations, bi-annually for groundwater stations, and in an annual summary. Data will be examined for trends in water quality characteristics. Spatial relationships and any trends will be examined in an effort to relate trends to operational activities, off site activities or natural variation.

7.1.6 Groundwater Monitoring Plan (continued)

**SUPERSEDED**  
EFFECTIVE:  
DEC 29 1958  
DIVISION OF OIL, GAS AND MINING

Water levels in wells shall be measured with a steel tape or sounder prior to sampling. In order to ensure that representative samples are obtained from wells, at least three wellbore volumes will be pumped (or bailed) from the well before a sample is taken. The pH, conductivity and temperature of the pumped (or bailed) water will be monitored and a sample only taken when these parameters are stable, provided the minimum volume has been pumped from the well.

Field measurement of pH, specific conductivity and temperature will be recorded along with the static water level, the date, time, station location, sampling method description, and listing of sample containers including volume and preservative method. A grab sample and flow measurement shall also be taken semiannually from the French Drain (station CV-1W) where it enters to the sump at the Northwest corner of the facility.

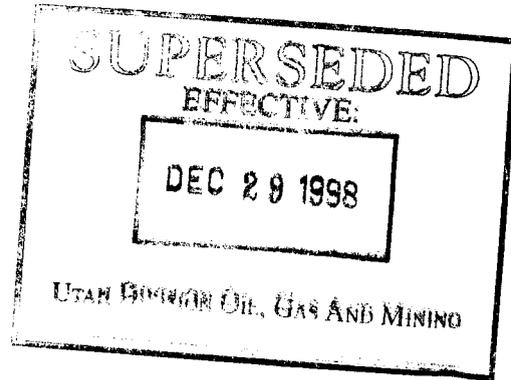
Post-mining monitoring will be conducted as described in Section 7.2.8.2 of this M.R.P.

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

Water Monitoring Program  
Castle Valley Spur

Station	Location	Type	Frequency	Flow Device	Results To	Remarks
CV-0-W	N.W. Corner of Property	Well	Bi-Annually	Level Rod	DOGM, OSM	
CV-1-W	Pumphouse	French Drain	Bi-Annually	Time/Volume	DOGM, OSM	
CV-3-W	South Central Property	Well	Bi-Annually	Level Rod	DOGM, OSM	
CV-4-W	NE Corner Property	Well	Bi-Annually	Level Rod	DOGM, OSM	
CV-5-W	North Central Property	Well	Bi-Annually	Level Rod	DOGM, OSM	
CV-6-W	E. Central Property	Well	Bi-Annually	Level Rod	DOGM, OSM	
CV-10-W	S.E. Adjacent Property	Well	Bi-Annually	Level Rod	DOGM, OSM	
CV-11-W	N.E. Adjacent Property	Well	Bi-Annually	Level Rod	DOGM, OSM	
CV-12-W	North Adjacent Property	Well	Bi-Annually	Level Rod	DOGM, OSM	
CV-14-W	N.E. Corner Property	Ditch	Bi-Annually	Level Rod	DOGM, OSM	
CV-15-W	Sed. Pond Discharge	Pond Outlet	Monthly	Hand-Held Time/Volume	E.P.A., DOGM Utah Health Dept.	Monitored per NPDES Permit
CV-16-W	West Property Line	Surface Ditch	Bi-Annually	Time/Volume	DOGM	Baseline thru 5/91

DIVISION OF OIL, GAS AND MINING  
 DEC 29 1988  
 MONITORED PER NPDES PERMIT  
 BASELINE THRU 5/91  
 APPROVED



APPENDIX 7-1  
WATER MONITORING DATA

Beaver Creek Coal Company

Water Monitoring Report

CV-0-W  
Station #

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

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

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

Beaver Creek Coal Company  
Water Monitoring Report

CV-1-W  
Station #

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

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

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

Beaver Creek Coal Company

Water Monitoring Report

CV-3-W  
Station #

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

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

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

Beaver Creek Coal Company  
Water Monitoring Report

CV-4-W  
Station #

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

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

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

Beaver Creek Coal Company  
Water Monitoring Report

CV-5-W  
Station #

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

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

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

Beaver Creek Coal Company  
Water Monitoring Report

CV-6-W  
Station #

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

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

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

Beaver Creek Coal Company

Water Monitoring Report

CV-10-W  
Station #

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

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

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

Beaver Creek Coal Company

Water Monitoring Report

CV-11-W  
Station #

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

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

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

Beaver Creek Coal Company

Water Monitoring Report

CV-12-W  
Station #

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

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

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

Beaver Creek Coal Company  
Water Monitoring Report

CV-14-W  
Station #

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

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

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



APPENDIX 7-2

WATER RIGHTS DOCUMENTATION

7/25/89

INCORPORATED UNDER THE LAWS OF

State of Utah

No. 2814

Shares 137.17

PRICE RIVER WATER USERS ASSOCIATION

(A NON-PROFIT MUTUAL IRRIGATION CORPORATION)

PRICE, UTAH

Was certified that

SWISLER COAL COMPANY

ONE HUNDRED THIRTY SEVEN & 1/10

PRICE RIVER WATER USERS ASSOCIATION

*Ans. A. O'Brien*

SECRETARY

*W. B. Bunker*

PRESIDENT

SHARES

Non-Par

TEACH

INCORPORATED UNDER THE LAWS OF

No 2589

State of Utah

Shares 20.00

PRICE RIVER WATER USERS ASSOCIATION

(A NON-PROFIT MUTUAL IRRIGATION CORPORATION)

PRICE, UTAH

This Certifies that

(TWENTY (20))

SWISHER COAL COMPANY

is the owner of  
Shares of the Capital Stock of

PRICE RIVER WATER USERS ASSOCIATION

and will maintain the books of this Corporation as by the holder  
herein named as by Attorney upon surrender of this Certificate  
properly indorsed.

On this 1st day of March A.D. 1976, the said Corporation has caused this Certificate to be  
signed by duly authorized officers and to be sealed with the Seal of the Corporation.

James R. Harsanyi  
SECRETARY

Lyle P. Bryner  
PRESIDENT

SHARES

Non-Par

TEACH

BILL OF SALE AND RECEIPT

Pursuant to that certain Agreement dated March 14, 1980, by and between Wallace V. Jacobson and William P. Hansen ("Sellers"), and Atlantic Richfield Company, a Pennsylvania corporation, ("Buyer"), and in consideration for the payment by Buyer of \$132,000.00, receipt of which is hereby acknowledged, Sellers hereby sell, transfer and convey to Buyer, free of liens, encumbrances or assessments of any kind, 55 shares of the capital stock of Price River Water Users Association. Sellers warrant that they have valid title to said stock; that said stock is presently free of liens, encumbrances or assessments of any kind; and that they will defend the same at their own cost.

IN WITNESS WHEREOF, the Sellers have executed this Bill of Sale and Receipt this 21st day of March, 1980.

Wallace V. Jacobson  
Wallace V. Jacobson

William P. Hansen  
William P. Hansen

STATE OF UTAH            )  
                                  : ss.  
COUNTY OF SALT LAKE )

On this 20 day of March, 1980, personally appeared before me Wallace V. Jacobson and William P. Hansen, the signers of the above instrument, who duly acknowledged to me that they executed the same.

[Signature]  
Notary Public

My Commission Expires:  
10/18/83

INCORPORATED UNDER THE LAWS OF

NO 3648

State of Utah

SHARES 55.00

PRICE RIVER WATER USERS ASSOCIATION  
(A NON-PROFIT MUTUAL IRRIGATION CORPORATION)

PRICE, UTAH

This certifies that

ATLANTIC RICHFIELD COMPANY, A Penn Corp

FIFTY FIVE & 00/100

55.00

PRICE RIVER WATER USERS ASSOCIATION

SECRETARY

PRESIDENT

SHARES

Non-Pay

TEACH

May 2, 1980

Price River Water Users Association  
c/o Ann O'Brien  
Carbon County Courthouse  
Price, UT 84501

Gentlemen:

This letter is to advise you of the sale by Lola Mae Marsing Easton and Ann Kay Marsing Archibald of 150 shares of capital stock of the Price River Water Users Association, to Atlantic Richfield Company, a Pennsylvania corporation. This sale took place on May 2, 1980.

A portion of said 150 shares of stock has been placed in escrow and will be delivered to Atlantic Richfield Company as payments of the purchase price are made over a ten-year period. As the stock is delivered to Atlantic Richfield Company, the company will present it to you in order to obtain stock certificates in its own name. In the meantime, the stock will remain in the names of Lola Mae Marsing Easton and Ann Kay Marsing Archibald.

As of May 2, 1980, Atlantic Richfield Company shall have the sole and exclusive right to the use of all water represented by said 150 shares of stock, and shall be responsible for payment of all water assessments and other charges made upon the stock. Please therefore send all assessments and other charges on the stock to Atlantic Richfield Company at the following address:

John R. Hardin, Land Manager  
Atlantic Richfield Company  
555 Seventeenth Street  
P.O. Box 5300  
Denver, CO 80217

Please advise Mr. Hardin if you need any additional information.

Sincerely,

*Lola Mae Marsing Easton*  
Lola Mae Marsing Easton

*Ann Kay Marsing Archibald*  
Ann Kay Marsing Archibald

Received by  
Ann O'Brien



STATE OF UTAH  
NATURAL RESOURCES  
Water Rights

Norman H. Bangerter, Governor  
Dee C. Hansen, Executive Director  
Robert L. Morgan, State Engineer

Southeastern Area • 453 S. Carbon Avenue • P.O. Box 718 • Price, UT 84501-0718 • 801-637-1303

April 19, 1988

Beaver Creek Coal Company  
Attn: Dan Guy  
P.O. Box AU  
Price, Utah 84501

Re: Water Right No. 91-4164

Dear Mr. Guy:

In lieu of Proof of Appropriation on Application No. 91-4164, you executed an Election to File a Water Users Claim, thereby requesting the State Engineer's Office to prepare a Statement of Water Users Claim in the pending general determination of water rights.

The enclosed Water Users Claims have been prepared by the Division of Water Rights to cover the proof on the above referenced application. Examine the claims carefully, and if you are in agreement with the information, please sign the three copies in the presence of a Notary Public, and return the stapled copies to this office within fifteen days of the date hereon. Retain the third copy for your records.

Should you have any questions, please feel free to come into the Southeastern Utah Area Office located at 453 South Carbon Avenue, P.O. Box 718, Price, Utah 84501, or phone us at 637-1303. Thank you for your cooperation.

Sincerely,

A handwritten signature in cursive script, appearing to read "Mark P. Page".

Mark P. Page  
Area Engineer

Enclosures  
MPP/mjk

IN THE SEVENTH JUDICIAL DISTRICT COURT, IN AND FOR THE  
COUNTY OF CARBON STATE OF UTAH

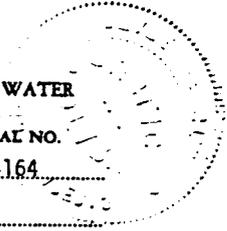
IN THE MATTER OF THE GENERAL DETERMINATION  
OF RIGHTS TO THE USE OF WATER, BOTH SURFACE AND  
UNDERGROUND, WITHIN THE DRAINAGE AREA OF THE PRICE  
RIVER AND OF THE DRAINAGE AREA OF THE GREEN RIVER  
FROM THE CONFLUENCE OF THE PRICE AND GREEN RIVERS  
TO THE CONFLUENCE OF THE GREEN AND COLORADO RIVERS  
EXCLUDING THE DRAINAGE AREA OF THE SAN RAFAEL RIVER  
IN UTAH

STATEMENT OF WATER  
USER'S CLAIM

CODE NO. SERIAL NO.

91 4164

MAP NO.



NOTE: This blank is sent to you in accordance with Utah Law. The information called for herein will be used in connection with the adjudication of water rights on the above mentioned drainage area. All questions applicable to your claim must be answered fully, and one copy of this form must be filed with the Clerk of the District Court at \_\_\_\_\_, Utah, within sixty (60) days from date of service of the attached Notice. A copy shall be filed with the State Engineer, State Capitol, Salt Lake City. Failure to file the attached Statement of the Water User's Claim with the Clerk of the District Court within the time stated will forever bar and estop you from asserting any right to the use of water from said drainage area.

1. Name of Claimant Beaver Creek Coal Company  
P.O. Box AU  
Price, Utah 84501 Interest Claimed Full
2. Address Price, Utah 84501
3. Name of particular spring, spring area, stream, well, tunnel or drain from which water is diverted is Underground water well in Carbon County.
4. Priority date claimed July 22, 1977 Date when water was first used \_\_\_\_\_  
Date when work on diverting system was first begun \_\_\_\_\_ Date when diverting system was completed \_\_\_\_\_  
Nature of work \_\_\_\_\_
5. Class of Right (Indicate by X):  
 (a)  Right to surface water initiated by beneficial use before 1903 Claim No. \_\_\_\_\_  
 (b)  Right to underground water initiated before 1935 Claim No. \_\_\_\_\_  
 (c)  Right decreed by court, cite title of case \_\_\_\_\_  
 (d)  Application filed, State Engineer's Office No. 49858 Cert. of App. No. Election  
 (e)  Right acquired by adverse use prior to 1939 \_\_\_\_\_
6. Nature (Indicate by X), Amount, and Annual Period of Use (by month & day):  
 (a)  Irrigation Sec. Ft. \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ (both dates incl.)  
 (b)  Stockwatering Sec. Ft. \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ (both dates incl.)  
 (c)  Domestic Sec. Ft. \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ (both dates incl.)  
 (d)  Municipal Sec. Ft. \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ (both dates incl.)  
 (e)  Industrial Sec. Ft. 0.25 from November 1 to March 31 (both dates incl.)
7. Direct Flow Appropriation (must be described with reference to U. S. Government Survey Corner)  
 (a) Point of diversion from spring, spring area, stream, well, tunnel, drain \_\_\_\_\_  
 S. 520 ft. & W. 105 ft. from N 1/4 Cor. Sec. 2, T15S, R10E, SLB&M.  
 (b) Description of spring area \_\_\_\_\_  
 (c) Point of redirection or point of return to natural channel \_\_\_\_\_  
 (d) If flow is intermittently diverted, list by number or description, all rights involved \_\_\_\_\_
8. Where water is used for irrigation purposes:  
 (a) Area irrigated in legal subdivisions of land by 40-acre tract. (All sources of water for same land or lands must be described in each instance by name or claim number) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 (b) Do you get water under a ditch owned by several users. \_\_\_\_\_ If so, give names of all users and divisions of interest \_\_\_\_\_
9. Where water is used for Stockwatering:  
 (a) Number of each kind of stock watered \_\_\_\_\_  
 (b) All sources of water for same stock. (Describe by name or claim number) \_\_\_\_\_  
 \_\_\_\_\_
10. Where water is used for Domestic: \_\_\_\_\_  
 (a) Number of families or their equivalent \_\_\_\_\_ All sources of water for same use.  
 (Describe by name or claim number) \_\_\_\_\_

11. Where water is used for Municipal Purposes:  
 (a) Name of city or town supplied ..... Population .....  
 Number of families ..... Quantity of water .....
12. Where water is used for a purpose not above enumerated:  
 (a) Nature of Use Industrial ..... Extent of Use .....  
Industrial uses pertinent to a coal preparation and unit load-out facility:  
SWA Sec. 11, TISS, RIOE, SLB&M.
13. Appropriation for Storage Purposes:  
 (a) Name of reservoir .....  
 (b) Location of reservoir by legal subdivisions described by 40-acre tracts .....  
 (c) Maximum capacity of reservoir in acre feet ..... Year construction commenced .....  
 Completed ..... Water first used ..... Is reservoir located on or off stream .....  
 (d) Period of Storage from ..... to ..... (both dates incl.). Period of use from .....  
 to ..... (both dates incl.). Maximum area in acres inundated ..... Max. depth in feet .....  
 Average depth in feet ..... Is reservoir drained each year ..... Maximum number of fillings per  
 year ..... Is reservoir used for equalizing purposes ..... If feeder canal is used, give maximum  
 carrying capacity in sec. ft. ....
14. Diverting Works:  
 (a) Surface water diverting dam: Material composed of .....  
 Max. length ..... Max. height ..... Max. width at bottom ..... Max. width  
 at top .....  
 (b) Underground water diverting works: Is well flowing or pump ..... Depth of well .....  
 Diameter of well ..... Length of drain ..... Width of drain ..... Depth of drain .....  
 Diameter of drain ..... Length of tunnel ..... Width of tunnel ..... Height of tunnel .....  
 Type of pump ..... Capacity of pump .....  
 (c) Surface and underground water conveying works: Length of ditch to first place of use ..... Width of  
 ditch at top ..... Width of ditch at bottom ..... Depth of water ..... Grade of  
 ditch per 1000 ft. .... Material through which ditch passes ..... Maximum length of  
 pipe line to first place of use ..... Diameter of pipe line ..... Grade of pipe line per  
 1000 feet .....
15. The undersigned hereby enters his appearance and waives service of summons or other process.

STATE OF UTAH

COUNTY OF .....

} SS. (To be used if claimant is an individual)

..... being first duly sworn, upon oath deposes and says that he is the claimant  
 whose name appears hereon, that he has read the foregoing statement of his claim and knows the contents thereof, that  
 he has signed the same, and that the answers set forth therein are true to his best knowledge and belief

*[Handwritten Signature]*

Signature of Claimant

Subscribed and sworn to before me this ..... day of ..... 19.....

NOTARY PUBLIC

STATE OF UTAH

COUNTY OF Carbon .....

} SS. (To be used if claimant is a corporation or an estate)

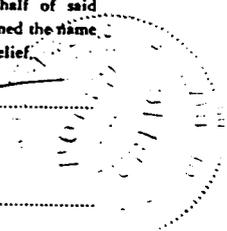
Daniel R. Meadows ..... being first duly sworn, upon oath deposes and says that he is the  
authorized representative ..... of the above claimant, that he makes this certification on behalf of said  
 claimant, that he has read the foregoing statement of claim and knows the contents thereof, and that he has signed the name  
 of said claimant to said statement, that the answers set forth therein are true to his best knowledge and belief

*[Handwritten Signature]*

Subscribed and sworn to before me this 6th day of July 1988

*[Handwritten Signature]*

NOTARY PUBLIC



APPENDIX 7-~~A~~ 3

SMALL AREA EXEMPTION

RIVER PUMP / PIPELINE

INCORPORATED  
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JUL 8 1994

UTAH DIVISION OIL, GAS AND MINING

May 26, 1994

Kathleen G. Welt  
Mountain Coal Company  
P.O. Box 591  
Somerset, Colorado 81434

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EFFECTIVE:

JUL 8 1994

UTAH DIVISION OIL, GAS AND MINING



**EarthFax**

EarthFax  
Engineering Inc.  
Engineers/Scientists  
7324 So Union Park Ave  
Suite 100  
Midvale, Utah 84047  
Telephone 801-561-1555  
Fax 801-561-1861

**Subject: Sediment Analysis of C.V. Spur Facility**

Dear Kathleen:

The purpose of this letter is to compare the erosion potential from the disturbed area of the C.V. Spur River Pump Pipeline System, under existing conditions, to that of the pre-disturbed area. The Utah Division of Oil, Gas & Mining (DOG M) requested a detailed sediment analysis of the C.V. Spur Pipeline to evaluate the potential for erosion under existing site conditions. Due to the nature of the disturbance, I am not convinced a detailed analysis is required. It is my intent to evaluate the information required for a detailed sediment analysis and determine the deviations between the undisturbed and existing conditions of the C.V. Spur Pipeline within the disturbed area boundary.

The C.V. Spur Pipeline was installed in 1977. The actual disturbance consists of a single trench which contains two pipelines. The length of the disturbance is approximately 10,000 feet, and it crosses portions of farm roads, pasture, cultivated areas, undisturbed areas, and railroad facilities. The width of the trench disturbance is only 30 inches; however, a 20-foot right-of-way was assumed for the disturbed area boundary. The disturbed area was revegetated after the pipeline was installed, and the vegetation is well established under existing conditions.

For the purpose of this discussion, it is assumed that the surface backfill material in the trench is the native material removed from the trench during construction. In addition, it is assumed that the area was re-graded to the approximate original contours after the pipeline was installed.

The information required to perform a detailed sediment analysis using SEDCAD or a similar software consists of hydrologic data and sediment data. The information required to determine the runoff volume and peak flow for the design watershed includes:

- o Curve number
- o Watershed slope
- o Watershed area
- o Hydraulic length of watershed
- o Design storm and rainfall distribution

In evaluating the hydrologic data for an analysis, the determination of the curve number is the most sensitive piece of information. The curve number for a watershed is determined by evaluating the watershed surface characteristics based on soils and vegetative type. Since

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**JUL 8 1994**

the soils for the disturbed and undisturbed areas are assumed to be the same, the vegetative cover is of primary concern in the curve number determination. ~~The total ground cover (includes vegetation and litter) is used to determine the appropriate curve number.~~ The results of a recent vegetative study conducted by Environmental Industrial Services reported the total ground cover for the disturbed area (under existing conditions) to be 82.3%, and the total ground cover for the undisturbed (reference) area to be 79.3%. The vegetative type identified in both areas consisted primarily of forbs. From this analysis, it is expected that the curve number, although not determined, would be slightly lower for the disturbed area under existing conditions because it had a greater total ground cover.

The watershed characteristics (i.e., area, slope, hydraulic length) for the undisturbed watershed would be the same as those for existing conditions since it is assumed that the disturbed area was re-graded to the approximate original contours. In addition, the design storm and rainfall distribution would be the same for both undisturbed and existing conditions. Therefore, it is expected that the runoff volume and peak flow would be less under existing conditions than for undisturbed conditions due to the lower curve number.

The information required to determine sediment volumes, using the Revised Universal Soil Loss Equation, includes:

- o Runoff volume and peak flow (determined from hydrology calculations)
- o Soil erodibility factor
- o Sediment particle size distribution
- o Land-slope factor
- o Control-practice factor

In determining the sediment yield for the undisturbed and existing watersheds, the soil erodibility factor is critical. This factor is a numeric representation of the ability of the soil to resist the erosive energy of rain. The soil erodibility factor is independent of slope, and dependent only upon particle size and distribution, structure, void space and pore size, and organic-matter. The particle size distributions of the undisturbed and disturbed conditions are assumed to be the same, since the trench was backfilled with the native material excavated during construction. It is possible that the structure of the compacted soil in the trench is different than the native material; however, it is probable that greater compaction was achieved within the trench during backfill operations which would provide the soils a greater resistance to erosion. Thus, it is conservatively assumed that the soil erodibility factor is equal for both undisturbed and existing conditions.

The land-slope factor is a multiplier which accounts for the topography of the surface under evaluation. It is assumed that the land-slope factor is the same for both undisturbed and existing conditions because it is assumed that the disturbed area was re-graded to the approximate original contours.

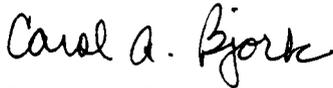
Kathleen Welt  
May 26, 1994  
Page 3

The control-practice factor is a ratio of sediment loss from an area with a given cover and conservation practice to that of a field in continuous fallow. Since the total ground cover under the existing conditions is slightly greater than that of the undisturbed area, and assuming an equal conservation practice for both conditions, it is expected that the control-practice factor for the existing conditions would be slightly lower than for the undisturbed area.

In summary, it is expected that the sediment yield from the disturbed area of the C.V. Spur Pipeline, under existing conditions, would be slightly less than the sediment yield of the same area before it was disturbed. This conclusion is based primarily on the results of the vegetative study, which indicated that the total ground cover was slightly greater under existing conditions. The greater ground cover will result in a lower curve number determination, and thus a lower runoff volume and peak flow. In addition, the greater ground cover will result in a lower control-practice factor. Both of these effects will, analytically, result in a lower sediment yield from the existing site.

It has been a pleasure to provide this discussion for you. If you have any questions or need additional information, please contact me.

Sincerely,



Carol A. Bjork, P.E.  
Civil Engineer

cc: Dan Guy, Blackhawk Engineering

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JUL 8 1994

UTAH DIVISION OIL, GAS AND MINING

**MOUNTAIN COAL COMPANY: CV SPUR WATERLINE  
ROW GROUND COVER ASSESSMENT**

**MAY 11-12, 1994  
PERFORMED AND PREPARED BY  
ENVIRONMENTAL INDUSTRIAL SERVICES**

**INCORPORATED  
EFFECTIVE:**

**JUL 8 1994**

**UTAH DIVISION OIL, GAS AND MINING**

---

## INTRODUCTION

The analysis detailed within this report was conducted by Environmental Industrial Services (EIS) for Mountain Coal Coal Company on May 11-12, 1994. The purpose of this assessment was to determine ground cover similarity of a water line right-of-way (ROW) to the relatively undisturbed area bordering the ROW. The level of disturbance present in the vicinity of the study site is quite extensive; therefore, this study's determinate degree of "disturbance" is relative only to the ROW. Grazing and farming disturbances limited assessment in and around the length of the ROW to approximately 78,000 square feet. This prevented any sort of significant analysis for more than 100,000 square feet of ROW underlying irrigated alfalfa fields and grazed pasture.

## METHODS

Eight (8) transects were established for assessment of ground cover. Four (4) transects were randomly established along the length of the twenty (20) foot wide ROW using a random number generator. Actual lateral location of a particular transect within the ROW was established by the same random number generator. Four (4) transects were established near each ROW transect in relatively undisturbed areas. The transects established in these areas were used as a reference on which to qualitatively determine any difference in percentage of ground cover for the disturbed ROW and the undisturbed sites. Reference transects were established whenever ground cover type was ocularly determined to change (>50 percent community difference).

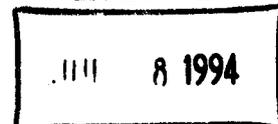
A modified ten-point frame was used to acquire actual sample points along each one hundred (100) foot transect. Ten (10) sample points were gathered on each side of the transect at every 20 foot increment. Points gathered were classified into litter, bare ground, rock, or vegetation. Vegetation was grouped into grass, forb, or shrub. Four hundred (400) points were gathered for disturbed (ROW) sites. The same was done for reference sites.

Points acquired for each respective grouping were compared to determine similarity. Points for disturbed and reference areas were compared as follows:

$$\frac{\text{Group Cover A}}{\text{Group Cover B}^*} = \text{percent similarity}$$

\* Where Cover B is determined to be larger value

Percent total cover similarity was determined with this same method. Litter and total living vegetation was lumped together to determine percent similarity between the disturbed and reference (undisturbed) sites.



## RESULTS

Total vegetation cover similarity of the disturbed ROW and surrounding undisturbed reference sites was determined to be 74.2% (25.8% difference). Bare ground similarity was 85.5% (14.5% difference), while litter cover similarity was 66.5% (33% difference). Total ground cover similarity was 96.4% (3.6% difference).

Vegetation cover percentage was higher in the undisturbed reference sites (48.5% vs. 36.0% for disturbed sites). Total cover, however, was higher in the disturbed ROW sites (82.3% vs. 79.3% for reference sites). Litter cover was quite extensive for all ROW sites (33.5% higher than undisturbed sites). See TABLE 1 and 2 for this data.

Vegetation type similarity differed widely between the two areas. Grasses were far more abundant along all undisturbed transects and little similarity existed (78.1% difference). Forbs and shrubs were relatively similar for both areas (82.8% and 71.4% respectively). Individual plant similarity of each area varied, favoring the undisturbed area (See TABLE 3 and 4).

## DISCUSSION

Though the sample size is too small to obtain any quantitative treatment, a qualitative assessment of cover similarity can readily be obtained. Analysis of points sampled allow us to determine inherent similarities and differences for community sites along the ROW. Although vegetation percentages for ground cover was higher in undisturbed areas, the high similarity between sites for total ground cover (litter and vegetation) leads us to believe that substantial ground cover is present to impede most erosional impacts. Areas not sampled because of use for farmland and grazing have extensive ground cover that contribute to its ability to resist erosional impacts. Therefore it is in our opinion that the pipeline ROW has sufficient ground cover to be exempt from any sort of additional erosion control. We also feel that any future studies, no matter how extensive, will reflect our conclusion.

Species present within disturbed areas had a 50% similarity with those in the undisturbed reference sites. The cause of the diversity seen for plant species is difficult to define. Diversity of individual species within the disturbed area may be the result of past re-seeding efforts. Whatever the reasons for the diversity seen in individual plant cover, the species that compose the vegetative cover of the ROW are predominantly forbs with extensive root growth that will provide adequate soil stabilization.

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**TABLE 1. GROUP COVER POINTS AND PERCENTAGES FOR DISTURBED (ROW) SITES.**

**Disturbed Right-of-Way:**

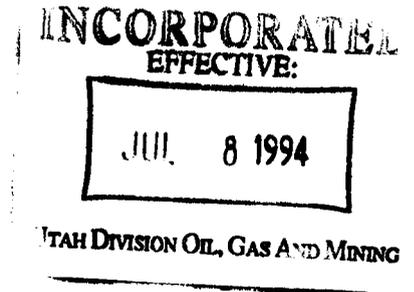
<u>Transect 1</u>		<u>Points</u>
Litter		54
Bare		7
Rock		0
Vegetation		39
grasses	7	
forbs	32	
shrubs	0	

<u>Transect 2</u>		
Litter		30
Bare		13
Rock		0
Vegetation		57
grasses	0	
forbs	55	
shrubs	2	

<u>Transect 3</u>		
Litter		70
Bare		8
Rock		0
Vegetation		22
grasses	0	
forbs	19	
shrubs	3	

<u>Transect 4</u>		
Litter		31
Bare		43
Rock		0
Vegetation		26
grasses	0	
forbs	24	
shrubs	2	

<u>Total Disturbance (Transect 1-4)</u>		<u>Percentage</u>
Litter	185	46.25
Bare	71	17.75
Vegetation	144	36.0
grasses	7 (1.75%)	
forbs	130 (32.5%)	
shrubs	7 (1.75%)	



**TABLE 2. GROUP COVER POINTS AND PERCENTAGES FOR UNDISTURBED (REFERENCE) SITES**

Undisturbed (Reference):

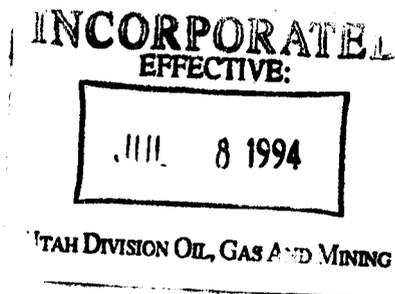
<u>Transect 1</u>		<u>Points</u>
Litter		55
Bare		2
Rock		0
Vegetation		43
grasses	16	
forbs	27	
shrubs	0	

<u>Transect 2</u>		
Litter		20
Bare		3
Rock		0
Vegetation		77
grasses	0	
forbs	77	
shrubs	0	

<u>Transect 3</u>		
Litter		29
Bare		16
Rock		0
Vegetation		55
grasses	11	
forbs	44	
shrubs	0	

<u>Transect 4</u>		
Litter		19
Bare		62
Rock		0
Vegetation		19
grasses	5	
forbs	9	
shrubs	5	

<u>Total Undisturbed (Transect 1-4)</u>		<u>Percentage</u>
Litter	123	30.75
Bare	83	20.75
Vegetation	194	48.5
Grasses	32 (8%)	
Forbs	157 (39.25%)	
Shrubs	5 (1.25%)	



**TABLE 3. PERCENT COVER OF PLANT SPECIES PRESENT WITHIN DISTURBED AND UNDISTURBED AREAS**

**Disturbed**

	<u>Species Name</u>	<u>Cover (%)</u>	<u>Common Name</u>
<b>Grasses</b>			
Agrop	Agropyron spp.	3.5	wheatgrass
	Unidentified	1.4	
<b>Forbs</b>			
Kosc	Kochia scoparia	53.5	kochia
Centa	Centaurea spp.	16.0	knapweed
Convo	Convolvulus spp.	2.1	bindweed
Maca	Machaeranthera canescens	2.1	purple aster
Daca	Daucus carota	16.7	wild carrot
<b>Shrubs</b>			
Cadr	Cardaria draba	1.4	hoary cress
Atco	Atriplex confertifolia	0.7	shadscale
Chna	Chrysothamnus nauseosus	<u>2.1</u>	Gray rabbitbrush
		100.0%	

**Undisturbed**

<b>Grasses</b>			
Elel	Elymus elymoides	4.1	squirreltail
Agrop	Agropyron spp.	6.7	wheatgrass
<b>Forbs</b>			
Kosc	Kochia scoparia	42.3	kochia
Vepe	Veronica peregrina	7.2	purslane speedwell
Centa	Centaurea spp.	8.3	knapweed
Convo	Convolvulus spp.	1.0	bindweed
Daca	Daucus carota	26.8	wild carrot
Mesa	Medicago sativa	1.0	alfalfa
<b>Shrubs</b>			
Atco	Atriplex confertifolia	<u>2.6</u>	shadscale
		100.0%	

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EFFECTIVE:

JUL 8 1994

UTAH DIVISION OIL, GAS AND MINING

TABLE 4. PERCENT COVER SIMILARITY OF VEGETATION FOR DISTURBED AND UNDISTURBED AREAS

<u>COVER</u>	<u>SPECIES</u>	<u>SIMILARITY (%)</u>	<u>FAVOR</u>
Grasses	Agropyron spp.	38.5	Undisturbed
Forbs	Kochia scoparia	93.9	Undisturbed
	Centaurea spp.	69.6	Disturbed
	Convolvulus spp.	66.6	Disturbed
	Daucus carota	46.2	Undisturbed
Shrubs	Atriplex confertifolia	20.0	Undisturbed

INCORPORATED  
EFFECTIVE:

JUL 8 1994

UTAH DIVISION OIL, GAS AND MINING



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor

Kathleen Clarke  
Executive Director

Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210

PO Box 145801

Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)

December 29, 1998

Dan Guy  
Blackhawk Engineering  
Rt. 1 Box 146-H5  
Helper, Utah 84526

Re: Water Monitoring Wells, Savage Coal Industries, Savage Coal Terminal, ACT/007/022-98B, Folder #2, Carbon County, Utah

Dear Mr. Guy:

The referenced amendment is hereby approved effective December 29, 1998. A stamped approved incorporated copy is enclosed for insertion in your mining and reclamation plan.

Sincerely,

A handwritten signature in cursive script, reading "Joseph C. Helfrich".

Joseph C. Helfrich  
Permit Supervisor

tam

Enclosure: Approved Amendment

cc: Mark Page, Water Rights, Price (w/o enclosure)

Dave Ariotti, Health, Price (w/o enclosure)

Bill Bates, Wildlife, Price (w/o enclosure)

Price Field Office

O:\007022.SA\FINAL\APPROVAL.98B



**Savage Industries Inc.**  
2025 E. 5000 S.  
Price, Utah 84501  
(801) 637-5664  
(801) 637-3418 FAX

**Mr. Joe Helfrich**  
**Permit Supervisor**  
**Utah Division of Oil, Gas, & Mining**  
**P.O. Box 145801**  
**Salt Lake City, Utah 84114-5801**

**Re: Water Monitoring Wells**  
**Proposed Amendment**  
**Savage Coal Terminal**  
**ACT/007/022; Folder #2**  
**Carbon County, Utah**

*Copy Joe*

**Dear Mr. Helfrich:**

*In response to your letter of December 4, 1998, please find enclosed 3 copies of Plates 3-2, 7-1 and A7-1 for the Savage Coal Terminal Permit. I have revised the plates and made the copies as original plots for better quality.*

*I didn't fill out a new routing form. This should be the same as the previous form. We are in the process of moving, and the forms are boxed up. I hope this submittal will clarify any questions on the amendment. If you need any further information, please let me know.*

*Sincerely,*

*Dan W. Guy*

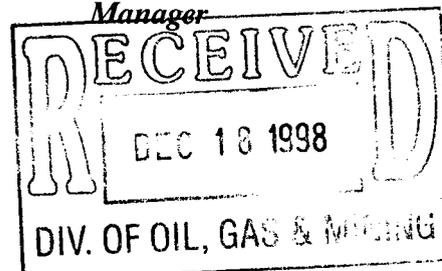
**Dan W. Guy**

*for*

**Boyd Rhodes**

**Manager**

**cc: Jeff Chesler - Savage**  
**Dan W. Guy - Blackhawk**  
**File**





**State of Utah**  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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801-359-3940 (Fax)

801-538-7223 (TDD)

December 4, 1998

Dan Guy  
Blackhawk Engineering  
214 East 1st North  
Price, Utah 84501

Re: Water Monitoring Wells, Savage Coal Industries, Savage Coal Terminal, ACT/007/022-98B  
Folder #2, Carbon County, Utah

Dear Mr. Guy:

The referenced amendment has been reviewed by Jim Smith, (Senior Reclamation Specialist for the Division). The following technical analysis is provided for your review and response.

**TECHNICAL ANALYSIS**

**ENVIRONMENTAL RESOURCE INFORMATION**

**HYDROLOGIC RESOURCE INFORMATION**

**MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION**

**Analysis:**

**Monitoring Sampling Location Maps**

A revised Plate 7-1 and a new Plate A7-1 are included with the proposed amendment. Elevations and locations of the wells that are currently monitored are shown on Plate A7-1, and Plate 7-1 shows CV-1W (the french-drain monitoring well) as the only ground-water monitoring location under the proposed amendment. Both Plates 7-1 and A7-1 show the three surface-water monitoring locations that are currently monitored and that will continue to be monitored under the proposed revision of the MRP. The copies of these maps submitted to UDOGM are of poor quality and details cannot be read.

**Subsurface Water Resource Maps**

Plate 7-1 in the current MRP shows the underground drain constructed in the southeast corner of the Savage Coal Terminal property, south of the railroad loop. In the letter from Savage Industries received October 20, 1998 it is indicated that this drain has been added to Plate 7-1; however, the submitted copies of this map are of such poor quality that the drain cannot be seen.

**Findings:**

Maps, plans, and cross sections of resource information are not adequate to meet the requirements of this section. Prior to approval the applicant must provide the following information:

**R645-301-722.200, -731.720, -731.760** - The submitted copies of Plates 7-1 and A7-1 are so poor that most features cannot be identified on them. The underground drain constructed in the southeast corner of the Savage Coal Terminal property, south of the railroad loop cannot be identified on the submitted copy of Plate 7-1.

## **OPERATION PLAN**

### **HYDROLOGIC INFORMATION**

**Analysis:**

Appendix 7-1 states that well CV-12W is on land owned by Rail Co Coal Loadout (Co-Op Coal Company) and that the use of the land has changed since CV-12W was installed. This well has been dry for at least five years, but any monitoring results that might be obtained would most likely indicate impacts from the Rail Co operation rather than the Savage Coal Terminal. (Plate 4-1 shows E. W. Stoddard, G. W. Stoddard, and Dan R. Brown as the landowners of the Rail Co property; none of these names appear in the Co-Op Coal Company's Bear Canyon Mine MRP, but B. W. Stoddard is listed as an officer and director.) A railroad cut on the Rail Co property is mentioned on page 3 of Appendix 7-1 and the part of the cut nearest the Savage terminal is shown on Plate 3-2. During a visit to the site on April 30, 1998 this cut was observed just adjacent to the north boundary of the Savage Coal Terminal. The cut is 15 to 20 feet deep, approximately the same depth as Savage's french drain and monitoring, and there are patches of dried salt at the bottom of the cut. Although Plate 3-2 shows the Rail Co railroad cut, Plates A7-1 and 7-1 indicate the property north of the Savage terminal is an alfalfa field and show no railroad cut. Use of adjacent lands needs to be clarified on these maps.

On pages 3 and 4 of Appendix 7-1 the Rail Co railroad cut is mentioned, along with the french drain at the west and north boundaries, as impacting ground water flow or recharge to wells CV-4W and CV-5W. As already discussed there is no railroad cut shown on the maps. CV-4W and CV-5W are immediately adjacent to the french drain and have been dry for at least five years. Continued monitoring of CV-4W and CV-5W appears to be of no value as long as the french drain and the Rail Co railroad cut are draining the ground water from the area.

Plate 3-2 shows a small portion of the railroad cut and indicates the location of Covol Technologies and the Jensen Trucking facility, but Plates 7-1 and A7-1 do not show any of these adjacent operations and their relationship to current operations at the Savage Coal Terminal. None of these maps accurately show the location of all buildings located within 1000 feet of the proposed permit area, with identification of the current use. These off-permit operations have the potential to affect surface- and ground- water quality and post-mining land use in the permit and adjacent areas.

**Findings:**

Hydrologic operation information is adequate to meet the requirements of this section. Deficiencies on the related maps are discussed in the following section.

**MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS**

**Analysis:**

**Surface and subsurface manmade features maps.**

Since the coal terminal was first permitted, several other industries have developed on adjacent lands. Rail Co's coal shipping operation and Covol's briquet manufacturing plant are immediately adjacent to the Savage Coal Terminal, to the north and west, respectively. A deep cut for Rail Co's railroad loop lies within 100 feet of the Savage terminal's north boundary line. In the mid 90's the CTC truck maintenance facility was opened adjacent to the southwest corner of the Savage terminal. Cascade Mountain Resources opened a wood processing plant adjacent to the southeast corner, along the main railroad spur. Along with the Jensen Trucking operation, these industries have the potential to affect surface- and ground- water quality and post-mining land use.

Plate 3-2 shows these adjacent operations except for the CTC and Cascade operations. Plates 7-1 and A7-1 do not show any of these adjacent operations and their relationship to current operations at the Savage Coal Terminal.

**Surface and subsurface ownership maps.**

Plate 4-1 has been updated to show current ownership of properties adjacent to the Savage Coal Terminal.

**Monitoring and sample location maps.**

A revised Plate 7-1 and a new Plate A7-1 are included with the proposed amendment. Elevations and locations of the wells that are currently monitored are shown on Plate 7-1, and Plate A7-1 shows CV-1W (the french-drain monitoring well) as the only ground-water monitoring location under the proposed amendment. Both Plates 7-1 and A7-1 show the three surface-water monitoring locations that are currently monitored and that will continue to be monitored under the proposed revision of the MRP. (Plate 7-2 in the current MRP shows locations of older wells that are no longer monitored.) Plates 7-1 and A7-1 are certified. However, the copies of these maps submitted to UDOGM are of poor quality and details cannot be read.

**Surface Water Resource Maps**

Plates 7-1, A7-1, and 7-2 show locations of surface waters that receive discharges from affected areas in the Savage Coal Terminal property and locations of surface water bodies such as

streams, lakes, ponds, wetlands, springs, drains, and irrigation ditches within the proposed permit and adjacent areas. The copies of these maps submitted to UDOGM are of poor quality and details cannot be read.

Surface drainage from the Jensen Trucking property has been diverted and no longer flows to the Savage Coal Terminal sedimentation ponds. Plates 7-1 and A7-1 show drainage from the Jensen Trucking flows onto the Savage Coal Terminal property, along the south side of the railroad loop to the BTCA area in the southeast corner of the permitted area, then through a culvert under the main railroad line, and off the Savage Industries property. If there is any discharge from the southern french drain, that water mixes with the surface drainage from the Jensen property before it flows off the Savage Coal Terminal.

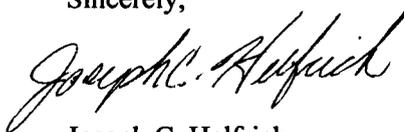
**Findings:**

Maps, plans, and cross sections of surface and subsurface operations and monitoring and sampling locations are not adequate to meet the requirements of this section. Prior to approval the applicant must provide the following information:

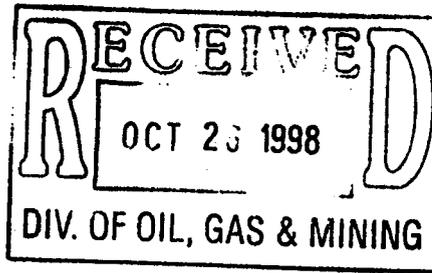
**R645-301-722.200, -731.720, -731.760** - The submitted copies of Plates 7-1 and A7-1 are so poor that most features cannot be identified on them. Although Plate 3-2 shows a small portion of the Rail Co railroad cut, Plates A7-1 and 7-1 indicate the property north of the Savage terminal is an alfalfa field and show no railroad cut. Use of adjacent lands needs to be clarified on these maps.

Please submit 3 copies of the revised maps by December 16, 1998. If you have any questions please call.

Sincerely,



Joseph C. Helfrich  
Permit Supervisor



**Savage Industries Inc.**  
2025 E. 5000 S.  
Price, Utah 84501  
(801) 637-5664  
(801) 637-3418 FAX

**Mr. Helfrich**  
**Permit Supervisor**  
**Utah Division of Oil, Gas & Mining**  
**1594 West North Temple, Suite 1210**  
**Box 145801**  
**Salt Lake City, Utah 84114-5801**

**Re: Water Monitoring Wells**  
**Additional Information**  
**~~Savage Coal Terminal~~**  
**ACT/007/022-98B; #2**  
**~~Carbon County, Utah~~**

**Dear Mr. Helfrich:**

**Thank you for your follow up on your letter of May 21, 1998 concerning water monitoring wells, Savage Coal Industries, Inc. permit ACT/007/022-98B.**

**Enclosed are the MRP documents that have been amended and certified as you requested.**

**Re Page 5 the following mandatory action have been taken:**

**Item #1 Plate 7-1 has been amended and certified to show the underground drain lying on the westerly and northerly boundary and within the permit area.**  
**This resolves the two problems cited on page 5.**

**Re Page 9 the following actions have been taken:**

**Item #2: Plates 7-1 as mentioned in Item #1 has been certified. Also plate A7-1 has been certified.**

**Item #3: The surface facilities map has been updated to show other significant facilities lying adjacent to and immediately outside of the Savage Permit Area. These include the following:**

**On the west: Covol Technologies**  
**401 North Carbonville Road**

**CTC Trucking**  
**2005 East 5000 South**  
**Price, Utah 84501**

**The Materials Management and Transportation Systems Company**

*On the north: Rail Co Coal Loadout (Coal Storage, Train Loadout)  
2005 East 5000 South  
Price, Utah 84501*

*On the east: R.D. Campbell (Rancher/Farm)  
1535 West 250 South  
Wellington, Utah 84542*

*Cascade Mountain Resources, Inc. (Sawmill)  
600 East Main  
Wellington, Utah 84542*

*On the south: Kevin Jensen (Truck Maintenance Shop)  
2075 East 5000 South  
Price, Utah 84501*

*Item #4: On the matter of current surface estate owners I have checked the Carbon County Court House records and find the surface landownership as follows.*

*E: R.D. Campbell  
SE: Cascade Resources  
N: Several individuals who's names are associated with Co-Op Mining  
W: COVOL  
S: Kevin Jensen*

*Plate 4-1 has been updated to reflect the current ownership.*

*Attached are four copies of the following MRP documents:*

*Plate 7-1 (certified)*

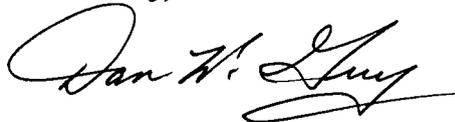
*Plate A 7-1 (certified)*

*Plate 3-2 Updated Surface Facilities Map that shows underground drain and also adjoining business firms. (certified)*

*Plate 4-1 Updated as necessary showing current ownership per Carbon County Records. (certified)*

*If you need more information please call or write me.*

*Sincerely,*



*Dan W. Guy  
for  
Boyd Rhodes,  
Manager*

# APPLICATION FOR PERMIT PROCESSING

Permit Change <input checked="" type="checkbox"/>	New Permit <input type="checkbox"/>	Renewal <input type="checkbox"/>	Transfer <input type="checkbox"/>	Exploration <input type="checkbox"/>	Bond Release <input type="checkbox"/>	Permit Number: <i>ACT/007/022</i>
Title of Proposal: <i>WATER MONITORING WELL AMENDMENT ADDITIONAL INFORMATION</i>						Mine: <i>SAVAGE COAL TERMINAL</i>
						Permittee: <i>SAVAGE INDUSTRIES</i>

Description, include reason for application and timing required to implement:

**Instructions:** If you answer yes to any of the first 8 questions (gray), submit the application to the Salt Lake Office. Otherwise, you may submit it to your reclamation specialist.

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	1. Change in the size of the Permit Area? _____ acres Disturbed Area? _____ acres <input type="checkbox"/> increase <input type="checkbox"/> decrease.
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	2. Is the application submitted as a result of a Division Order? DO #
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	3. Does application include operations outside a previously identified Cumulative Hydrologic Impact Area?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	4. Does application include operations in hydrologic basins other than as currently approved?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	5. Does application result from cancellation, reduction or increase of insurance or reclamation bond?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	6. Does the application require or include public notice/publication?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	7. Does the application require or include ownership, control, right-of-entry, or compliance information?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	9. Is the application submitted as a result of a Violation? NOV #
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	10. Is the application submitted as a result of other laws or regulations or policies? Explain:
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	11. Does the application affect the surface landowner or change the post mining land use?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2?)
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	13. Does the application require or include collection and reporting of any baseline information?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	15. Does application require or include soil removal, storage or placement?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	16. Does the application require or include vegetation monitoring, removal or revegetation activities?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	17. Does the application require or include construction, modification, or removal of surface facilities?
<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	18. Does the application require or include water monitoring, sediment or drainage control measures?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	19. Does the application require or include certified designs, maps, or calculations?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	20. Does the application require or include subsidence control or monitoring?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	21. Have reclamation costs for bonding been provided for?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	22. Does application involve a perennial stream, a stream buffer zone or discharges to a stream?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	23. Does the application affect permits issued by other agencies or permits issued to other entities?

Attach 4 complete copies of the application.

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

*Wende L. Jacobson for Boyd Rhodes, Mar. 10/23/98*  
Signed - Name - Position - Date

Subscribed and sworn to before me this 23 day of October, 19 98.

*Wende L. Jacobson*  
Notary Public



My Commission Expires: 9-8-2001  
Attest: STATE OF Ut  
COUNTY OF Carbon

**WENDE L. JACOBSON**  
NOTARY PUBLIC - STATE OF UTAH  
821 CASTLE GATE CIRCLE  
HELPER, UT 84526  
COMM. EXP 9-8-2001

Received by Oil, Gas & Mining

ASSIGNED TRACKING NUMBER





State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor

Ted Stewart  
Executive Director

Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210

PO Box 145801

Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)

May 18, 1998

TO: File

THRU: Joe Helfrich, Permit Supervisor *JH*

FROM: James D. Smith, Reclamation Specialist *JDS*

RE: Water Monitoring Wells Proposed Amendment, Savage Industries, Inc. Savage Coal Terminal, ACT/007/022-98B, Folder #2, Carbon County, Utah.

**SUMMARY**

Monitoring wells CV10W and CV11W are located in an alfalfa field adjacent to the Savage Coal Terminal. This land is plowed and irrigated and also used for cattle grazing. Sometime in late 1997 wells CV10W and CV11W were rendered inoperable for water monitoring purposes when they were damaged, apparently when the field was plowed. Damage to these wells by farming activities was noted as early as 1995. These wells were initially installed to verify that water from the wash plant did not raise the water table under the alfalfa fields.

In a letter to Mr. Boyd Hughes of Savage Industries dated February 19, 1997, Mr. Bill Malencik of UDOGM stated that to be in compliance with the MRP and Utah Coal Mining Rules wells CV10W and CV11W needed to be repaired or replaced; however, an option of submitting data to show the wells were no longer needed was also given. Savage Industries submitted a proposed amendment to the MRP that would eliminate not only wells CV10W and CV11W but would eliminate all ground-water monitoring wells at the Savage Coal Terminal. No change in surface-water monitoring is proposed, and water will continue to be monitored at the french-drain sump, CV-1W. The proposed amendment consists of five pages to replace existing pages in the MRP and a replacement for Plate 7-1, plus Plate A7-1 and Appendix 7-1 to be added to the MRP.

The purposes set forth in the monitoring plan, Section 7.1.6 of the MRP are to identify trends in water quality characteristics and to relate any trends to operational activities, off-site activities, or natural variation.

The material on the refuse disposal piles has been determined to be non-toxic and non-acid forming. Coal washing is no longer done at the site and there are no current or future plans to wash coal. The only new material placed on the refuse disposal piles is from cleaning of the sedimentation pond and ditches.

All ground water in the area is of poor quality. The approved post-mining land use of small mammal and songbird habitat will not depend on ground water quality or quantity. There have been no off-site impacts or material damage from the coal mining operations; however, the water table has been lowered under an adjacent alfalfa field, through an informal agreement between Savage Industries and

the owner of the field, by pumping water from Sediment Pond No. 5 to the french-drain sump.

### **RECOMMENDATION**

It is recommended that Savage Industries be allowed to cease ground-water monitoring at wells CV-0W, CV-3W, CV-4W, CV-5W, CV-6W, CV-10W, CV-11, and CV-12W and, except for CV-10W and CV-11W that are no longer accessible, permanently seal the wells using the method described in the amendment. If coal washing were to resume in the future, UDOGM would reevaluate the need to monitor ground-water conditions.

Savage Industries should consider replacing CV-3W with another well, adjacent to the Jensen property but on the Savage Coal Terminal property, to monitor the quality of the ground water flowing from the Jensen property to the coal terminal. This would be for their own protection in case there is a problem on the Jensen property, rather than a requirement of the Coal Mining Rules

The proposed amendment should be approved after maps have been updated to show current ownership and use of adjacent lands and have been certified.

### **TECHNICAL ANALYSIS**

## **ENVIRONMENTAL RESOURCE INFORMATION**

### **HYDROLOGIC RESOURCE INFORMATION**

#### **Analysis:**

Initial surface disturbance of the terminal area was in 1975 by Utah Power and Light. The land was sold to Swisher Coal Company in 1977, and construction of the loadout, coal preparation plant, railroad loop and related facilities was done mainly between October 1977 and June 1979. Most of the site is identified as "pre-law" on Plate 3-1 in the MRP, disturbance having occurred prior to May 3, 1978.

At least 2 french drains were constructed; one extending across the entire length of the northern border and approximately one-half of the east border of the property, and the other in the southeast corner along the south side of the railroad loop (Plate 7-2 of the MRP). Ground water flowed from the french drain adjacent to the railroad loop for a while and then ceased. The french drain along the north and west sides of the property has been described as flowing continually. CV-4W and CV-5W, wells near the drain, initially had water but have been dry for at least five years.

Three monitoring wells were in operation on the property in 1980 when 10 additional wells were installed on and adjacent to the site, so with the french-drain sump there was a total of 14 ground-water monitoring stations. Monitoring of CV-2W, CV-7W, CV-8W, CV-9W, and CV-13W was eliminated in 1987 because the wells were dry, the casing was blocked, or the wells were in the way of expansion of the coal and refuse piles. These 5 wells were simply capped and were not filled, with the intention of keeping them for possible future use (Table 7-1a of the MRP and letter to UDOGM dated

March 16, 1987).

There has been no coal washing at this site since 1984. Only minor amounts of coal and waste from sedimentation pond clean-out have been added to the refuse pile since 1984. Savage Industries purchased the property in 1993 and has operated it as a coal handling facility. Savage Industries has indicated there are no current or future plans to resume washing coal (Appendix 7-1), but coal washing is still a permitted operation under the current MRP and the washing facilities have not been removed from the site.

Monitoring wells CV-0W, CV-4W, CV-5W, CV-10W, and CV-12W have been dry for at least five years. Under the current MRP, monitoring of all wells is to cease when reclamation regrading begins even though the french drains will not be severed and plugged nor the sump filled until completion of site reclamation. Because areas monitored by these wells will remain dry up to and probably through reclamation, continuation of operational monitoring appears to be of no value.

Well CV-11W has been damaged to the point it is useless as a monitoring well. Water quality data indicate that ground water in this area is affected by agricultural operations rather than by operations at the Savage Coal Terminal.

Monitoring well CV-3W is located on property owned and controlled by Jensen Trucking. It is located approximately 200 feet downgradient of a small irrigation canal and water in this well may be mostly seepage from that canal. Three water samples from well CV-3W have been analyzed for oil and grease: one from 1993 was clean but two from 1980 contained 495 and 239 mg/L. (Bill Malencik indicated that around the time of construction of the berm between the Jensen Trucking property and the Savage Coal Terminal water from Savage's pond 5 was found to contain tetrachloroethylene, a common industrial solvent known by many other names including perchloroethylene, PERC, and PCE. The source could have been runoff from the Jensen property but could also have been the refuse pile. DOGM has no analysis reports on water from pond No. 5 to confirm or refute this.)

Water levels in well CV-6W correlate with the water surface elevation in Sediment Pond No. 5 and with the marshy ground-water discharge area located nearby, west of the main rail line. Savage Industries pumps the water from pond No. 5 to pond No. 6 and the sump in order to keep ground water levels low under the adjacent alfalfa field. The water level in CV-6W is affected by this pumping, so water levels from this well provide little useful information. Water quality is better than at other sites, but TDS content varies and is too high for agricultural use at times. Water pumped from this area is mixed with other waters in the french-drain sump and analyzed.

Water in the french-drain sump CV-1W does not characterize ground-water conditions at the Savage Coal Terminal. Water in this sump is a mixture of surface runoff from the terminal property and ground water intercepted as it moves towards the terminal from irrigation canals, irrigated fields, and manufacturing and coal-shipping operations on adjacent lands. TDS concentrations in the sump water have repeatedly fluctuated up and down through a wide range of values.

#### **Probable hydrologic consequences determination.**

The current MRP contains no section identified as a PHC determination but Section 7.1.4

discusses observed and probable effects of operations on ground water and Section 7.2.4 discusses observed and probable effects of operations on surface water. The proposed revision of the MRP contains no changes to these determinations of the probable hydrologic consequences from coal mining operations at this site. Review by UDOGM has determined that this proposed permit revision does not require a new or updated PHC.

#### **Ground-water monitoring plan.**

Before construction of the french drain, depth to ground water in the permit area was as much as 20 feet in places. On the other hand, even with the french drain in operation, the water table currently intersects the surface in a marshy area east of the railroad embankment that runs along the east edge of the Savage Coal Terminal property (Plate 7-1). A system of irrigation canals west and south of the permit area appear to be the main source for ground water recharge. Flood irrigation and grazing in the fields east and downgradient of the Savage Coal Terminal affect the quality and quantity of ground water in that area.

Water-table elevations were monitored as early as 1977 at several locations. Results of water quality analyses are summarized for December 1979 through December 1982 in Tables 7-4 through 7-14a in the current MRP and for May 1993 through December 1997 in Table A7-1 in Appendix 7-1. Wells CV-7W, CV-9W, and CV-13W were dry from August 1980 until monitoring ceased in 1987. Except for August 1980, CV-2W was dry from December 1979 up to the time monitoring ceased in 1987. CV-8W had measurable water levels over this same period, but was closed to allow expansion of the refuse pile. CV-10W has had alternate wet and dry periods but has been dry since at least May 1993. CV-0W, CV-4W, CV-5W, and CV-12W had measurable water levels in the early 1980's but have been dry since at least May 1993.

The ground water is not suitable for irrigation, stockwatering, and most other uses because of the high TDS content. The approved post-mining land use of small mammal and songbird habitat will not depend on ground water quality or quantity. Water quality in the wells varies, with higher concentrations during winter and spring in some wells but no discernable pattern in others. Only a small percentage of samples have a TDS concentration below 1200 mg/L, the Utah water quality standard for agricultural use. Sodium sulfate is the dominant solute in the water and deposits of mineral salts are found at low spots where the water table is, or has been, close to the surface.

Water from the french drain is collected and used for dust control within the Savage Coal Terminal. In the past the french drain was also an alternate, secondary source for water used in the coal washing process.

Available information indicates that the shallow water-bearing stratum in the permit and adjacent areas does not serve as an aquifer that significantly ensures the hydrologic balance within the cumulative impact area.

#### **Findings:**

Hydrologic resource information is adequate to meet the requirements of this section.

## **MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION**

### **Analysis:**

#### **Monitoring Sampling Location Maps**

A revised Plate 7-1 and a new Plate A7-1 are included with the proposed amendment. Elevations and locations of the wells that are currently monitored are shown on the Plate 7-1, and Plate A7-1 shows CV-1W (the french-drain monitoring well) as the only ground-water monitoring location under the proposed amendment. Both Plates 7-1 and A7-1 show the three surface-water monitoring locations that are currently monitored and that will continue to be monitored under the proposed revision of the MRP. Plate 7-2 in the current MRP shows locations of older wells that are no longer monitored. This map has not been revised and will remain in the MRP. Plates 7-1 and A7-1 are not certified.

#### **Subsurface Water Resource Maps**

Plate 7-2 in the current MRP shows the direction of ground-water flow and the general configuration of the water-table surface. This map is based on ground-water levels measured on August 20, 1980. Several of the contour lines on Plate 7-2 are mislabeled and the water-surface elevation shown for well CV-10W is incorrect. CV-3W was not dry on August 8, 1980 as indicated on Plate 7-2, and either the elevation of CV-3W is incorrect on Plate 7-2 and in Tables 7-1 and 7-1a or the location of this well is incorrect on Plates 7-1, A7-1, and 7-2. Plate 7-2 is certified. Plate 7-2 is not part of the proposed revision and these errors do not hinder enforcement of the Coal Mining Rules, so no requirement to correct this map is being made at this time.

Plate 7-1 in the current MRP shows the underground drain constructed in the southeast corner of the Savage Coal Terminal property, south of the railroad loop. The revised Plate 7-1 does not show this drain.

#### **Surface Water Resource Maps**

Plates 7-1, A7-1, and 7-2 show locations of surface waters that receive discharges from affected areas in the Savage Coal Terminal property and locations of surface water bodies such as streams, lakes, ponds, wetlands, springs, drains, and irrigation ditches within the proposed permit and adjacent areas.

Surface drainage from the Jensen Trucking property has been diverted and no longer flows to the Savage Coal Terminal sedimentation ponds. Plates 7-1 and A7-1 show drainage from this area flows onto the Savage Coal Terminal property, along the south side of the railroad loop to the BTCA area in the southeast corner of the permitted area, then through a culvert under the main railroad line and off the Savage Industries property.

### **Findings:**

Maps, plans, and cross sections of surface and subsurface water resources and monitoring and sampling locations are adequate to meet the requirements of this section except:

**R645-301-731.700** - The revised Plate 7-1 does not show the underground drain constructed in the southeast corner of the Savage Coal Terminal property, south of the railroad loop.

**R645-301-731.730** - Plates 7-1 and A7-1 are not certified.

## **OPERATION PLAN**

### **HYDROLOGIC INFORMATION**

#### **Analysis:**

##### **Ground-water monitoring.**

The purposes set forth in the monitoring plan, Section 7.1.6 of the MRP are to identify trends in water quality characteristics and to relate any trends to operational activities, off-site activities, or natural variation.

Following the ground-water monitoring plan in the MRP, ground water is currently monitored in eight wells and the french drain. Savage Industries has requested that monitoring be eliminated at the 8 wells, with monitoring to be continued at the french-drain sump, CV-1W.

Before installation of the french drain, ground water was at or near the surface and the Savage Coal Terminal and surrounding lands were an area of ground-water discharge rather than recharge. There are still low places where water is at or near the surface, as indicated by soft, boggy ground and salt crusts on the surface (Plate 7-1). However, the refuse storage piles have been constructed on higher ground where high or surfacing ground water has not been observed, either presently or prior to construction of the piles.

The french drains have lowered the water table at the site to the extent that CV-4W, CV-5W, CV-10W, and CV-12W, which had water in them in 1982, are now dry. Deepening these wells would be of no benefit because they already penetrate a few feet into the Bluegate Shale and are intended to monitor the water table above this impermeable stratum. Under the current MRP ground-water monitoring at the wells will stop when regrading for reclamation begins; under the proposed revision the monitoring will end immediately. The water table may recover when, at completion of site reclamation, the french drains are severed and plugged and pumping from the sump is terminated, but operations on the adjacent RailCo and COVOL properties may continue to affect the ground water.

The material on the refuse disposal piles has been determined to be non-toxic and non-acid forming (p. 7-55a). Coal washing is no longer done at the site and there are no current or future plans to wash coal. The only new material placed on the refuse disposal piles is from cleaning of the sedimentation pond and ditches.

Wells CV-10W and CV-11W are outside the permit area, in an alfalfa field not owned or controlled by Savage Industries (Plate 4-1). CV-10W and CV-11W have been recently damaged by

plowing and are no longer accessible. Savage Industries wants to remove these two wells from the monitoring plan rather than try to repair or replace them. Their main concern is that any wells in this area will always be subject to damage from ongoing farming and grazing operations. Water quality data that have been collected indicate that the wells probably have been monitoring impacts from farming and that there have been no impacts from operation of the Savage Coal Terminal. Continued monitoring of ground water at these locations does not appear to be necessary, especially as long as there is no coal processing on the Savage Coal Terminal property.

Appendix 7-1 states that well CV-12W is on land owned by RailCo (Co-Op) and that the use of the land has changed since CV-12W was installed. This well has been dry for at least five years, but any monitoring results that might be obtained would most likely indicate impacts from the RailCo operation rather than the Savage Coal Terminal. Plate 4-1 does not show RailCo as the landowner. A railroad cut on the RailCo property is mentioned on page 3 of Appendix 7-1, but Plates A7-1 and 7-1 indicate this is an alfalfa field and show no railroad cut. Ownership and use of this land need to be clarified on the maps. Continued monitoring of well CV-12W will probably be of little or no value and Savage Industries should be allowed to drop it from the ground-water monitoring plan.

Well CV-6W is located along the western edge of the permit area, adjacent to the main rail line and near Sediment Pond No. 5. Water levels in CV-6W correlate with the water surface elevation in Sediment Pond No. 5 and with the wetness of the marshy area in the alfalfa field west of the railroad embankment. Savage Industries pumps the water from pond No. 5 to pond No. 6, and from there to the french-drain sump where samples are taken for water-quality analysis. Pumping from pond No. 5 is done, in part, to keep ground-water levels low under the adjacent alfalfa field: this is an informal agreement between Savage Industries and the owner of the field. The water level in CV-6W is affected by this pumping, so water levels from this well provide little useful information.

Well CV-6W is downgradient of the refuse and coal-storage piles. TDS concentrations vary and generally exceed TDS standards for agricultural use, but except for several very high TDS measurements, especially during the period from 1983 to 1989, water quality has been better in CV-6W than at other monitoring sites. On page 4 of Appendix 7-1 it is stated that water quality has improved in CV-6W with time, but data from Table 7-9a in the MRP and Table A7-1 in Appendix 7-1 indicate that TDS has increased somewhat since monitoring began in 1981, although there has been a slight decrease since 1991.

Savage Industries asserts that water-quality monitoring from well CV-6W is not necessary because the same water can be monitored at Sediment Pond No. 5 or the french-drain sump. No water-quality data for pond No. 5 have been submitted to DOGM. Although water in Sediment Pond No. 5 or the sump may have similarities to that in CV-6W, it also contains sediments and solutes carried in by surface runoff and is in a geochemical environment very different from the ground water. TDS measured at the sump is typically 2 to 3 times higher than TDS measured at CV-6W. However, continuing analysis of ground water from CV-6W will likely produce no further information to identify trends in water quality characteristics or to relate any such trends to operational activities, off-site activities, or natural variation, which are the purposes set forth in the monitoring plan, Section 7.1.6 of the MRP.

On pages 3 and 4 of Appendix 7-1 the RailCo railroad cut is mentioned, along with the french drain, as impacting ground water flow or recharge to wells CV-4W and CV-5W. As already

discussed there is no railroad cut shown on the maps. CV-4W and CV-5W are immediately adjacent to the french drain and have been dry for at least five years. Continued monitoring of CV-4W and CV-5W appears to be of no value as long as the french drain and the RailCo railroad cut are draining the ground water from the area.

CV-3W is also outside the permit area, on land owned and controlled by Jensen Trucking (Kevin and Lois Jensen, Plate 4-1). This well is upgradient of all Savage Coal Terminal operations. Although TDS content is too high for agricultural use, this water probably originates as seepage from the nearby irrigation ditch. Because the well is on property Savage Industries does not own or control and to which there is not ready access, Savage Industries should be allowed to drop CV-3W from the ground-water monitoring plan. However, it would be in Savage Industries' best interest to have a monitoring well located where it could sample ground water flowing to the Savage Coal Terminal from the Jensen property.

The french-drain sump, CV-1W, is to be monitored up to the initiation of reclamation regrading. Under the current proposal CV-1W would be the only ground-water monitoring station to remain in use. This sump not only holds ground water drained from the north and west perimeters of the property, but also receives water pumped from Sediment Ponds No. 5 and No. 6. It provides a general or broad indication of ground-water quality.

CV-0W is within 200 feet of and downgradient of the french drain. It has been dry since December 1979. It is in an undisturbed corner of the permit area. Further monitoring of this well appears to be of no value.

The operator has demonstrated, using baseline and operational ground-water monitoring data, that the operation has minimized disturbance to the prevailing hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area. Mostly because of the high TDS content, the shallow ground water is not suitable for grazing and agriculture; data collected on and adjacent to the Savage Coal Terminal indicate that the quality of the shallow ground water may even be made worse by grazing and irrigation.

#### **Casing and sealing of wells.**

Wells CV-10W and CV-11W have been damaged by plowing in the alfalfa field where they are located. The casing has been broken off below the surface and the wells are probably at least partially filled with soil. No further work is planned to close these two wells.

For the other wells that are abandoned:

- PVC casing will be cut approximately 4 to 6 inches below the surface;
- The casing will be filled with gravel to within approximately 3 feet of the surface;
- The remainder of the casing will be filled with concrete; and
- The surface will be covered over with native soil.

#### **Findings:**

Hydrologic operation information is adequate to meet the requirements of this section.

## **MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS**

### **Analysis:**

#### **Surface and subsurface manmade features maps.**

RailCo's coal shipping operation and COVOL's briquet manufacturing plant are immediately adjacent to the Savage Coal Terminal, to the north and west, respectively. A deep cut for RailCo's railroad loop lies within 100 feet of the Savage terminal's north boundary line. There is also a wood processing plant adjacent to the southeast corner, along the main rail line. Although they could be having significant impacts on ground and surface water, none of these adjacent operations are shown on the maps in the MRP.

#### **Surface and subsurface ownership maps.**

It isn't clear if Plate 4-1 has been updated to show current ownership of properties adjacent to the Savage Coal Terminal. It may be that RailCo and COVOL are leasing the land their facilities are on and that the ownership is still as shown on Plate 4-1.

#### **Monitoring and sample location maps.**

A revised Plate 7-1 and a new Plate A7-1 are included with the proposed amendment. Elevations and locations of the wells that are currently monitored are shown on the Plate 7-1, and Plate A7-1 shows CV-1W (the french-drain monitoring well) as the only ground-water monitoring location under the proposed amendment. Both Plates 7-1 and A7-1 show the three surface-water monitoring locations that are currently monitored and that will continue to be monitored under the proposed revision of the MRP. (Plate 7-2 in the current MRP shows locations of older wells that are no longer monitored.) Plates 7-1 and A7-1 are not certified.

#### **Subsurface Water Resource Maps**

Plate 7-2 in the current MRP shows the direction of ground-water flow and the general configuration of the water-table surface. This map is based on ground-water levels measured on August 20, 1980. Several of the contour lines on Plate 7-2 are mislabeled and the water-surface elevation shown for well CV-10W is incorrect. Plate 7-2 is certified. Plate 7-2 is not part of the proposed revision and these errors do not hinder enforcement of the Coal Mining Rules, so no requirement to correct this map is being made at this time.

#### **Surface Water Resource Maps**

Plates 7-1, A7-1, and 7-2 show locations of surface waters that receive discharges from affected areas in the Savage Coal Terminal property and locations of surface water bodies such as streams, lakes, ponds, wetlands, springs, drains, and irrigation ditches within the proposed permit and adjacent areas.

Surface drainage from the Jensen Trucking property has been diverted and no longer flows to

the Savage Coal Terminal sedimentation ponds. Plates 7-1 and A7-1 show drainage from this area flows onto the Savage Coal Terminal property, along the south side of the railroad loop to the BTCA area in the southeast corner of the permitted area, then through a culvert under the main railroad line and off the Savage Industries property.

**Findings:**

Maps, plans, and cross sections of surface and subsurface operations and monitoring and sampling locations are adequate to meet the requirements of this section except:

**R645-301-731.730** - (Repeat - see Resources Section) Plates 7-1 and A7-1 are not certified.

**R645-301-521.121, -521.190** - Maps in the MRP do not show buildings and other facilities that are adjacent to Savage Coal Terminal, such as the COVOL briquet manufacturing plant, the wood products plant, and the RailCo coal loading facility, which includes a deep excavated cut for a railroad loop.

**R645-301-112.600** - It is not clear whether or not Plate 4-1 has been updated to show current ownership of properties adjacent to the Savage Coal Terminal.

## **RECLAMATION PLAN**

### **HYDROLOGIC INFORMATION**

**Analysis:**

**Ground-water monitoring.**

Under the current MRP ground-water monitoring at the wells will stop when regrading for reclamation begins; under the proposed revision this monitoring will end immediately. The water table may recover when, at completion of site reclamation, the french drain is severed and plugged and pumping from the sump is terminated, but operations on the adjacent RailCo and COVOL properties may continue to affect the ground water.

**Transfer of wells.**

Wells will not be transferred.

**Casing and sealing of wells.**

The following steps are to be taken to case or seal wells that are no longer used:

- PVC casing will be cut approximately 4 to 6 inches below the surface;

- The casing will be filled with gravel to within approximately 3 feet of the surface;
- The remainder of the casing will be filled with concrete; and
- The surface will be covered over with native soil.

**Findings:**

Hydrologic reclamation information is adequate to meet the requirements of this section.

## **MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS**

**Analysis:**

### **Reclamation Monitoring and Sampling Location Maps**

According to the current MRP ground-water monitoring is to end when mining operations cease and regrading begins. The only effect of the proposed revision is that the monitoring wells will become inactive immediately rather than at the time of reclamation. Surface-water monitoring will continue at UPDES discharge point CV-15 until removal of the sedimentation pond and at stations CV-14 and CV-15 until bond release. Elevations and locations of those three surface-water monitoring stations are shown on Plates 7-1 and A7-1.

### **Certification Requirements**

Plates 7-1 and A7-1 are not certified.

**Findings:**

**R645-301-731.730** - (Repeat-see Resources Section) Reclamation monitoring and sampling location maps on Plates 7-1 and A7-1 are not certified.

## **CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT**

The application for permit revision has been reviewed by UDOGM and it has been determined that a new or updated CHIA is not required.

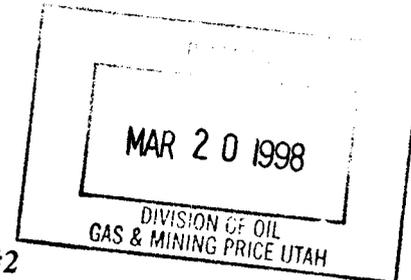
ACT/007/022 #2



**Savage Industries Inc.**  
2025 E. 5000 S.  
Price, Utah 84501  
(801) 637-5664  
(801) 637-3418 FAX

**Mr. Joe Helfrich**  
**Permit Supervisor**  
**Utah Division of Oil, Gas, & Mining**  
**P.O. Box 145801**  
**Salt Lake City, Utah 84114-5801**

**Re: Water Monitoring Wells**  
**Proposed Amendment**  
**Savage Coal Terminal**  
**ACT/007/022; Folder #2**  
**Carbon County, Utah**



**Dear Mr. Helfrich:**

*In response to the February 19, 1998 letter from Mr. Malencik, Savage Industries, Inc. has decided to pursue Option No. 3, justifying the proposed elimination of ground water monitoring wells CV-10W and CV-11W. In fact, this amendment will propose elimination of all ground water monitoring wells except CV-1W, the French Drain well.*

*Ground water monitoring data for the site has been evaluated for the past 5 years - which includes the time prior to Savage Industries' purchase of the site. This data, along with other justification specific to each well, is presented in the attached Appendix 7-1.*

*While the letter was specific to wells CV-10W and CV-11W, upon examination, it was apparent that many of the wells are either dry or not located on property controlled by Savage Industries; therefore, it was decided to evaluate each of the wells and determine their value. Wells CV-10W and CV-11W have been destroyed by the land owner - they were in a field which is regularly plowed, irrigated and used for cattle grazing. Wells CV-3W and CV-12W are also located on property controlled by others, and eventually, will likely suffer the same fate. Wells CV-0W, CV-4W, CV-5W, CV-10W and CV-12W have been dry since 1992. The data and justifications in Appendix 7-1 will provide details specific to each well.*

*The proposed data and justifications have been submitted as an Appendix;*

*however, applicable pages and plates have also been amended for the permit. Required change forms are also enclosed.*

*It is our hope this proposal will meet with your approval. If you have any questions or need additional information, please contact me at (435) 637-5664 or Dan Guy at (435) 637-2422.*

*Sincerely,*

A handwritten signature in black ink, appearing to read 'BR', with a long horizontal line extending to the right.

*Boyd Rhodes  
Manager*

*cc: Jeff Chesler - Savage  
Dan W. Guy - Blackhawk  
File*

# APPLICATION FOR PERMIT PROCESSING

Permit Change <input type="checkbox"/>	New Permit <input type="checkbox"/>	Renewal <input type="checkbox"/>	Transfer <input type="checkbox"/>	Exploration <input type="checkbox"/>	Bond Release <input type="checkbox"/>	Permit Number:
Title of Proposal: <b>PROPOSAL TO DEACTIVATE GROUND WATER MONITORING WELLS</b>						Mine: <b>SAVAGE COAL TERMINAL</b>
						Permittee: <b>SAVAGE INDUSTRIES</b>

Description, include reason for application and timing required to implement:

**LANDOWNER DESTROYED WELLS / DRY WELLS**

Instructions: If you answer yes to any of the first 7 questions (gray), submit the application to the Salt Lake Office. Otherwise, you may submit it to an inspector.

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	1. Change in the size of the Permit Area? _____ acres <input type="checkbox"/> increase <input type="checkbox"/> decrease.
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	2. Change in the size of the Disturbed Area? _____ acres <input type="checkbox"/> increase <input type="checkbox"/> decrease.
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	3. Does application include operations outside a previously identified Cumulative Hydrologic Impact Area?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	4. Does application include operations in hydrologic basins other than as currently approved?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	5. Does application result from cancellation, reduction or increase of insurance or reclamation bond?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	6. Does the application require or include public notice/publication?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	7. Does the application require or include ownership, control, right-of-entry, or compliance information?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	8. Is the application submitted as a result of a Violation? Violation # _____
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	9. Is the application submitted as a result of a Division Order? D.O. # _____
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	10. Is the application submitted as a result of other laws or regulations or policies? Explain: _____
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	11. Does the application affect the surface landowner or change the post mining land use?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2?)
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	13. Does the application require or include collection and reporting of any baseline information?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	15. Does application require or include soil removal, storage or placement?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	16. Does the application require or include vegetation monitoring, removal or revegetation activities?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	17. Does the application require or include construction, modification, or removal of surface facilities?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	18. Does the application require or include water monitoring, sediment or drainage control measures?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	19. Does the application require or include certified designs, maps, or calculations?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	20. Does the application require or include subsidence control or monitoring?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	21. Have reclamation costs for bonding been provided for?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	22. Is proposed activity within 100 feet of a public road or perennial stream or 300 feet of an occupied dwelling?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	23. Is this coal exploration activity?

Attach 4 complete copies of the application.

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

*[Signature]* **Mar 21 1998**

Signed - Name - Position - Date

Subscribed and sworn to before me this 14 day of March, 19 98

Notary Public: [Signature]

Commission Expires: 9-27-2001  
Attest: STATE OF \_\_\_\_\_ COUNTY OF \_\_\_\_\_



**DANA BALLARD**  
NOTARY PUBLIC - STATE OF UTAH  
865 EAST 2800 SOUTH  
PRICE, UT 84501  
COMM. EXP 9-27-2001

Received by Oil, Gas & Mining

**MAR 20 1998**

DIVISION OF OIL  
GAS & MINING PRICE UTAH

ASSIGNED PERMIT CHANGE NUMBER

**988**



***ADDENDUM TO AMENDMENT:***

**R 645-301-200, Soils**

*No soils issues are involved with this amendment.*

**R 645-301-300, Biology**

*No biology issues are involved or impacted by this amendment.*

**R 645-301-400, Land Use and Air Quality**

*This amendment will have no impact on land use or air quality. The adjacent landowner has plowed 2 of the wells under as described in Appendix 7-1.*

**R 645-301-500, Engineering**

*This amendment does not involve any new structures or designs. Required maps are certified as provided in this section.*

**R 645-301-600, Geology**

*No geologic concerns are involved with this amendment, except for the occurrence and monitoring of ground water. These issues are discussed under R645-301-700.*

**R 645-301-700, Hydrology**

*Text, required maps and water monitoring data are provided with this amendment.*

**R 645-301-800, Bonding and Insurance**

*No bonding issues or changes are necessary for this amendment.*

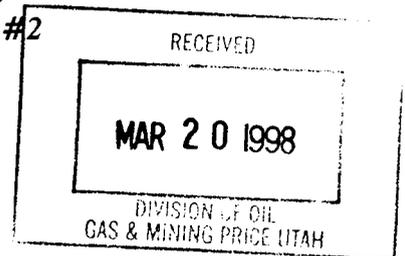


Savage Industries Inc.  
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Mr. Joe Helfrich  
Permit Supervisor  
Utah Division of Oil, Gas, & Mining  
P.O. Box 145801  
Salt Lake City, Utah 84114-5801

Q8B

Re: Water Monitoring Wells  
Proposed Amendment  
Savage Coal Terminal  
ACT/007/022; Folder #2  
Carbon County, Utah



Dear Mr. Helfrich:

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*Boyd Rhodes  
Manager*

*cc: Jeff Chesler - Savage  
Dan W. Guy - Blackhawk  
File*

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Title of Proposal: <b>PROPOSAL TO DEACTIVATE GROUND WATER MONITORING WELLS</b>	Mine: <b>SAVAGE COAL TERMINAL</b>
	Permittee: <b>SAVAGE INDUSTRIES</b>

Description, include reason for application and timing required to implement:  
**LANDOWNER DESTROYED WELLS / DRY WELLS**

**Instructions:** If you answer yes to any of the first 7 questions (gray), submit the application to the Salt Lake Office. Otherwise, you may submit it to an inspector.

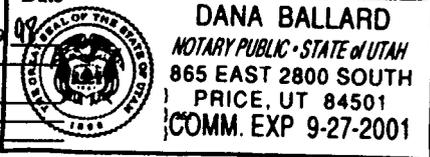
- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 1. Change in the size of the Permit Area? _____ acres <input type="checkbox"/> increase <input type="checkbox"/> decrease    |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 2. Change in the size of the Disturbed Area? _____ acres <input type="checkbox"/> increase <input type="checkbox"/> decrease |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 3. Does application include operations outside a previously identified Cumulative Hydrologic Impact Area?                    |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 4. Does application include operations in hydrologic basins other than as currently approved?                                |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 5. Does application result from cancellation, reduction or increase of insurance or reclamation bond?                        |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 6. Does the application require or include public notice/publication?  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 7. Does the application require or include ownership, control, right-of-entry, or compliance information?                    |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 8. Is the application submitted as a result of a Violation? Violation #  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 9. Is the application submitted as a result of a Division Order? D.O. #  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 10. Is the application submitted as a result of other laws or regulations or policies? Explain:                              |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 11. Does the application affect the surface landowner or change the post mining land use?                                    |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2?)          |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 13. Does the application require or include collection and reporting of any baseline information?                            |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?                      |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 15. Does application require or include soil removal, storage or placement?  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 16. Does the application require or include vegetation monitoring, removal or revegetation activities?                       |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 17. Does the application require or include construction, modification, or removal of surface facilities?                    |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 18. Does the application require or include water monitoring, sediment or drainage control measures?                         |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 19. Does the application require or include certified designs, maps, or calculations?  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 20. Does the application require or include subsidence control or monitoring?  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 21. Have reclamation costs for bonding been provided for?  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 22. Is proposed activity within 100 feet of a public road or perennial stream or 300 feet of an occupied dwelling?           |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | 23. Is this coal exploration activity?   |

Attach 4 complete copies of the application.

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

*[Signature]* MGR 3-14-98  
 Signed - Name - Position Date

Subscribed and sworn to before me this 14 day of MARCH, 1998  
 My Commission Expires: 9-27-2001  
 Attest: STATE OF \_\_\_\_\_ COUNTY OF \_\_\_\_\_



Received by Oil, Gas & Mining

**MAR 20 1998**

DIVISION OF OIL & MINING PRICE UTAH

ASSIGNED PERMIT CHANGE NUMBER



## ***ADDENDUM TO AMENDMENT:***

### **R 645-301-200, Soils**

*No soils issues are involved with this amendment.*

### **R 645-301-300, Biology**

*No biology issues are involved or impacted by this amendment.*

### **R 645-301-400, Land Use and Air Quality**

*This amendment will have no impact on land use or air quality. The adjacent landowner has plowed 2 of the wells under as described in Appendix 7-1.*

### **R 645-301-500, Engineering**

*This amendment does not involve any new structures or designs. Required maps are certified as provided in this section.*

### **R 645-301-600, Geology**

*No geologic concerns are involved with this amendment, except for the occurrence and monitoring of ground water. These issues are discussed under R645-301-700.*

### **R 645-301-700, Hydrology**

*Text, required maps and water monitoring data are provided with this amendment.*

### **R 645-301-800, Bonding and Insurance**

*No bonding issues or changes are necessary for this amendment.*