

A comparison of sites S-1 and S-7 indicates that the canal water at S-7 is essentially identical to Muddy Creek water at S-1 except for a lower mean pH of 8.2. As indicated on Plate VI-1, the canal system servicing the entire Emery area originates at S-1. Thus, the chemical quality of waters sampled at S-1 and S-7 are probably very representative of all irrigation waters in the Emery area.

Hydrologic Mapping Requirements

Plate VI-6 contains the locations of water supply intakes for current users of surface water in and around the mine plan area and also identifies receiving streams, irrigation diversions and water well users.

Plate VI-3 identifies surface and ground water monitoring stations. If surface or groundwater monitoring stations are encountered in the path of mining, they will be relocated or mined around.

Plates VI-4 and VI-5 show the location and extent of subsurface water while Figures VI-5 thru VI-9 show seasonal static water level variations for different aquifers.

Plates VI-2 and VI-2A show the location of springs within the proposed permit and adjacent areas.

UMC 782.17

Underground operations at the Emery Mine is an ongoing situation which does not occur in phases. The extent of the underground workings over the life of the permit is shown on Plates IV-1 and IV-2. The permit area encompasses approximately 5,408 acres.

It is anticipated that mining activities will continue considerably beyond the five (5) year permit term. This will require renewals at the end of each term.

UMC 782.18, UMC 800.60

Appendix I-5 contains a copy of the insurance certificate, for the Emery Mine, covering personal injury and property damage.

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Revised 4/05

Section 22 T22S, R6E

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Section 27 T22S, R6E

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Section 29 T22S, R6E

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15 E. Center
Orangeville, Utah 84537

Emery County
Emery County Courthouse
Castle Dale, Utah 84513

Refer to Page 7b thru 7d for
Exploration & Surface Agreement

Morgan Robertson
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Revised 10/2003

	SE $\frac{1}{4}$ SW $\frac{1}{4}$	Deed from Emery County to Kemmerer Coal Co. dated 5/14/68
	SW $\frac{1}{4}$ SE $\frac{1}{4}$	Deed from L.M. and S.M. Pratt to Kemmerer Coal Co. dated 6/22/49
	N $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$	United States of America Not Leased
	W $\frac{1}{2}$ SW $\frac{1}{4}$	Emery County 95 E. Main Castledale, Utah 84513 (801) 748-2474
Section 20	NW $\frac{1}{4}$ SW $\frac{1}{4}$ S $\frac{1}{2}$ S $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$	Lease from United States of America (BLM) to Kemmerer and Consol dated 7/1/70 (#U-5287)
	NE $\frac{1}{4}$ E $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. date 10/1/58
	W $\frac{1}{2}$ NW $\frac{1}{4}$	United States of America Not Leased
Section 21	W $\frac{1}{2}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ W $\frac{1}{2}$ NE $\frac{1}{4}$	Deed from San Rafael Fuel Co. to Kemmerer Coal Co.
	SE $\frac{1}{4}$ NE $\frac{1}{4}$	Deed from L.M. and S.M. Pratt to Kemmerer Coal Co.
Section 22	NW $\frac{1}{4}$ NW $\frac{1}{4}$	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
	SW $\frac{1}{4}$ NW $\frac{1}{4}$ N $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$	Lease from United States of America (BLM) to Consol dated 7/1/83 (#U-50044)
	W $\frac{1}{2}$ SE $\frac{1}{4}$ E $\frac{1}{2}$ NW $\frac{1}{4}$ W $\frac{1}{2}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	Deed from I. Browning to Kemmerer Coal Co. dated 8/23/66
Section 23	SW $\frac{1}{4}$ NW $\frac{1}{4}$	Deed from I. Browning to Kemmerer Coal Co. dated 8/23/66
	NW $\frac{1}{4}$ SW $\frac{1}{4}$	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58

Section 27

S $\frac{1}{2}$ NW $\frac{1}{4}$
SW $\frac{1}{4}$ NE $\frac{1}{4}$

Deed from San Rafael Coal Co.
to Kemmerer Coal Co. dated 10/1/58

N $\frac{1}{2}$ NE $\frac{1}{4}$

Deed from L.M. and S.M. Pratt
to Kemmerer Coal Co. dated 6/22/49

	S $\frac{1}{2}$ NE $\frac{1}{4}$	Deed from Kemmerer Coal Co.
Section 28	NW $\frac{1}{4}$	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
	NE $\frac{1}{4}$	Dated from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
	S $\frac{1}{2}$	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
Section 29	NW $\frac{1}{4}$ NW $\frac{1}{4}$ E $\frac{1}{2}$ NW $\frac{1}{4}$ W $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$	Lease from United States of America (BLM) to Kemmerer and Consol dated 7/1/70 (#U-5287)
Beginning 20 rods South of the NW corner of the SW Quarter of Section 29, thence South 60 rods, thence East 80 rods, thence North 20 rods, thence Northwesterly to the place of the beginning.		Lease from John and Carolyn Lewis to Consol and Kemmerer dated 11/12/80 1163 E. 25th Street Idaho Falls, ID 83401 (208) 522-3646
SW $\frac{1}{4}$ NW $\frac{1}{4}$, beginning at the NW corner of SW $\frac{1}{4}$, thence E 80 rods, thence S 76 rods, thence Northwesterly to the place of the beginning.		Lease from George Olsen to Consolidation Coal Co. dated 12/17/80 15 E. Center Orangeville, Utah (801) 748-2522
	SE $\frac{1}{4}$ NE $\frac{1}{4}$	Lease from R.D. Jensen and D.R. Close to Consolidation Coal Co. dated 12/17/80 520 E. 1 N. Cleveland, Utah 84518 (801) 653-2252
	NE $\frac{1}{4}$ NE $\frac{1}{4}$ E $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
	S $\frac{1}{2}$ SW $\frac{1}{4}$	State of Utah Lease Relinquished by Consolidation Coal Co.

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CHAPTER IV ENGINEERING DESIGNS

IV.A UNDERGROUND MINE PLAN

This part covers the description of the underground mining operations to be conducted at the Emery Mine.

IV.A.1 UNDERGROUND MINE PLAN

UMC 783.12(a), 783.24(c), 783.25(e), 783.25(h), 784.11(a), 784.23(a)

The permit area for the Emery Mine encompasses approximately 5,408 acres. The boundary of the permit area is shown on the Permit Boundaries and Bonding map (Plate III-9). The description of the permit area is as follows:

Township 22 South, Range 6 East

Section 19: S/2NE/4, SE/4, E/2SW/4

Section 20: S/2NE/4, SE/4NW/4, S/2

Section 21: S/2N/2, S/2

Section 22: SE/4, SW/4, SE/4NW/4, NE/4

Section 23: SW/4NW/4, W/2SW/4

Section 27: W/2, NE/4

Section 28: All

Section 29: All

Section 30: E/2, E/2NW/4, SW/4NW/4, N/2NW/4SW/4, E/2SW/4

Section 31: N/2, W/2SW/4, E/2SE/4, SW/4SE/4

Section 32: All

Section 33: W/2NE/4

Mining operations at the Emery Mine are conducted in the IJ Zone utilizing the room and pillar mining method. Plate IV-1 shows the layout, the present mine workings and the projected areas to be mined during the permit term. The existing workings have been marked to show the extent of underground mining operations (1) before August 3, 1977, (2) between August 3, 1977 and May 3, 1978, and (3) after May 3, 1978 up to the permit approval date of January 5, 1986. There are no surface mining operations at the Emery Mine. The projected mine workings are delineated by year for the next five year permit term. Plate IV-2 shows the same plan on a 1"=1000' map to show the extent of the projected life of mine plan in the IJ Zone. The Emery Mine operates under the General Safety Orders, Utah Coal Mines issued by the Industrial Commission of Utah and the applicable regulations issued by the Mine Health and Safety Administration (MSHA).

Access to the underground workings is through the portals shown on Plate II-1. All of the present portals are drift openings at the outcrop of the seam. These openings consist of intake, return, and belt entries. It may be necessary in the future to install ventilation raises in other areas of the property; however, these locations are not known at the present time. Future portals may consist of ramp excavations and shafts to access the coal seam. The new 4 East portal will use a ramp excavation down to the top of the IJ seam. A new set of portals will be installed for the southern main entries of the mine when production from the southern part of the mine warrants it.

UMC 817.52

In addition to NPDES monitoring of discharge pints, a monitoring program of surface and ground water sites has been established to assess mining impacts on these resources. The current operational monitoring plan is described in Sec. VI.A.5.

UMC 817.95

Protection of air resources during operation of the mine is discussed in Part C of Chapter X. Appendix X.C-1 evaluates emissions from the proposed preparation plant. Fugitive dust (particulate) is considered the only potentially significant air pollutant generated by both facilities. Appendix X.C-2 evaluates emissions from the 4th East Portal. Appendix X.C-3, Norwest's evaluation and recommendation of engineering controls and other measures to minimize generation of dusting from the 4th East Portal, was initiated to abate NOV 03-39-11.

Control measures employed at the current operation utilize water sprays at all product transfer points, a silt fence downwind of the conical product stockpile, a water truck to wet down unpaved roads, and revegetation of topsoil and subsoil stockpiles. Measures to be used at the proposed coal preparation plant will include fully hooded conveyor belts, totally enclosed transfer points with water sprays, stacking tubes with water sprays at storage pile loading points, revegetation of topsoil and subsoil stockpiles, and water spraying of unpaved roads.

All control equipment will be properly installed, maintained, and operated such that visible emissions from the facilities will not exceed opacity limits established by Utah Division of Environmental Health and applicable requirements of the Clean Air Act. Operator will perform opacity readings as required by the modified approval order.

UMC 817.97

Refer to page 25a for a discussion on the Windy Gap Process

Protection of fish and wildlife during operation of the mine is discussed in Chapter IX. The discussion addresses mining impacts on these resources and mitigative measures that will be

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The Emery mine pumps approximately 137,000,000 gallons of water per year from the mine. The water that is used for dust suppression is accounted for in the ventilation calculation and the coal moisture consumption calculation. Portions of the water sprayed on the coal are either evaporated by the ventilation process, drain back into the mine drainage system, or is carried out in the product. The consumed volume is accounted for in the ventilation evaporation calculation and the coal moisture consumption calculation.

Mining consumption: See above explanation, and coal moisture consumption calculation

Ventilation consumption: See Ventilation evaporation calculation

Coal producing consumption: See coal moisture calculation

Ventilation evaporation: There is no data currently available to calculate the loss due to ventilation. With the fan returning approximately 218,000 CFM, this could evaporate approximately 25 ac-ft per year. This amount will vary based on the volume of air returned from the mine, the barometric conditions of the mine air and the barometric conditions of the outside air, as well as temperature of both.

Sediment pond evaporation: Water entering the sediment ponds is stored long enough to allow the accumulated sediment to drop out. The water is allowed to discharge into the receiving stream. This would not be considered a consumptive mechanism.

Springs and seep effects from subsidence: There have been no reports of seeps from subsidence.

Alluvial aquifer abstractions into mines: There are no water infiltrations from alluvial systems into the mine.

Alluvial well pumpage: There is zero pumpage from alluvial wells.

Deep aquifer pumpage: There is zero pumpage from deep aquifer wells.

Post mining inflow to old workings: There is zero post mining inflow to the old workings

Coal moisture consumption: The inherent moisture in the Emery coal is approximately 4 %. The as received moisture of the coal is approximately 6 %. The Emery Mine produced 243,153 tons of coal in 2003. Using these values, the consumption was approximately 3.6 ac-ft in 2002.

Direct diversion: There are no direct diversions at the Emery mine therefore zero consumption.

Adding the two approximate losses together equals 26.6 ac-ft. The mine pumps and discharges approximately 137,000,000 million gallons (420 ac-ft) of water per year. Doing the math, you arrive at a 394 ac-ft. per year enhancement to the Colorado River Basin. Water consumption by the Emery mine will not jeopardize the existence of or adversely modify the critical habitat of the Colorado River endangered fish species.

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