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CHAPTER VII

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storage tanks on the surface or is discharged at the Whitmore fan. Water from these tanks is used as process water for the coal preparation plant and as irrigation water for several alfalfa fields in the area, the city park and golf course. Kaiser Coal holds application UWM 28812 (91-231) which allows usage of ground-water developed within the mine.

Quantity and quality of mine water are discussed in the next two sections.

Based on long-established practices and similar levels of future operation, little change in quantity and quality of underground mine water is anticipated during the permit period. Mining areas will be generally adjacent to and down-dip from the present workings. Water usage should continue to be similar to the present level.

There are no water wells in or adjacent to the mine plan area. Springs are used for stock and wildlife watering. Water quantity and source are listed in Table VII-5 and located on Plates III-1, III-4 and VII-3. Water quality is enclosed in Appendix VII-2.

The following describes the procedures for handling and measurement of underground mine water at the Sunnyside Mines:

(1) Water in the No. 1 Mine is pumped from various areas to a large sump in a mined-out area near the bottom of the main haulage slope. As the sump fills, water is picked up by a 450 HP sump pumps and piped to the active mining section for use in dust abatement and fire fighting facilities. Excess water beyond these needs is pumped to the outside. One means of egress is via a line up a 770-foot deep concrete-lined 16-foot diameter return air shaft. A flowmeter at the end of this line records the gallonage. The other means is a pipeline extending from the pump station up-dip approximately 7,500 feet to the main parting area and then along the strike to the outside to two 500,000 gallon storage tanks. A flowmeter located in this line records the flow prior to entering the storage tanks.

(2) A pair of entries completed in the early 1960s was driven across a portion of U.S. Steel's Mineral Lease and to the outside. Permission has been granted by U.S. Steel to Kaiser Coal to use these entries as return air courses. As there is some water build-up in these entries, a 4-inch steel line was installed from this area to the main parting area of No. 1 Mine. The flowmeter installed in this line has shown an average discharge rate of 4 gpm over a one year period.

(3) Excess water from the No. 3 Mine is pumped underground,

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UTAH DIVISION OF OIL, GAS AND MINING

CHAPTER III

crease the recovery ratio and to successfully mine coal in conditions that would make room and pillar mining extremely hazardous. This technique allows essentially full extraction of the seam, within the height limitations of the equipment, except for barrier pillars left to protect haulage and ventilation entries. This system also allows safe extraction in areas of high overburden that would be extremely hazardous for room and pillar mining.

Mining Schedule

The No. 1 Mine longwall will operate one shift per day and a continuous miner section two shifts per day. The No. 3 Mine longwall will be idle unless there is a major breakdown on the No. 1 Mine longwall. The production schedule may change if sales are higher than forecast.

3.3.1.3 Mine Development

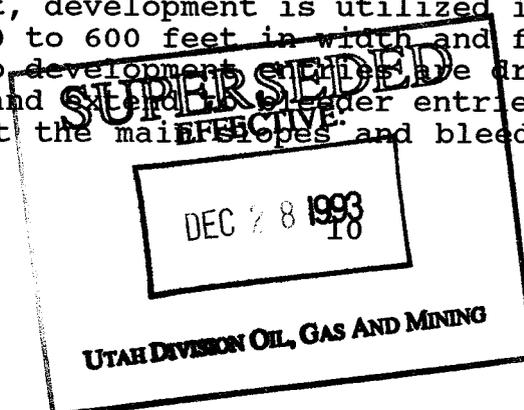
New mine development and old works are illustrated on Plates III-2 and III-3. It has also been discussed in Sections 3.3.1.1 in relation to the coal seams.

Strikes and dips of the coal seams as well as the applicable drill holes are identified on Plate III-4.

The mines have been developed with main slopes driven down the pitch and development entries driven on the strike. See Plate III-4. Motor haulage roads are driven on the strike to intersect the main hoist slopes.

Prior to the installation of the belt conveyor haulage system, coal was hoisted up the main slopes from the working sections in thirteen car trips of 5-ton capacity each. Four rope trips were assembled at the main partings and the fifty-two car trip was then transported to the preparation plant by electric locomotives. Now, all the coal is transported by belt conveyor across a strike entry to the No. 3 Mine main slope from No. 1 Mine then transferred to the main slope conveyor and brought to the surface to a belt feeding the rotary breaker.

At present, development is utilized in blocking out longwall panels from 500 to 600 feet in width and from 4,000 to 7,500 feet in length. Two development entries are driven off the main slope on the strike and extend to bleeder entries. Barrier pillars are left to protect the main slopes and bleeders at each end of the longwall panel.



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SUNNYSIDE COAL COMPANY
 ACT/007/007
 ALTERNATE SEDIMENT CONTROL AREAS
 (ASCA)
 UTILIZING
 BEST TECHNOLOGY CURRENTLY AVAILABLE
 (BTCA)

Affected Area	(ASCA) Yes/No	Drawing Number	Area (Acres)	Calculated **Runoff (Acre Feet)	Treatment Utilized	Comments
Pad above Twinshafts	No		NA 0.06	NA	Vegetative Filter	Outside disturbed boundary. Pre Law Disturbance.
*Twinshafts Area	No	A5-0105	NA 0.36	NA	Silt Fence/or Straw Bales	Area contains Sediment Controls done in Good Faith.
#2 Canyon Drainage Under Storage Belt	No		NA	NA	Silt Fence/or Straw Bales	Being evaluated.
*Manshaft Substation Area, General Area	Yes	A4-0213	0.13	0.00306	Silt Fence/or Straw Bales	
Manshaft Substation Area, East Field	Yes	A4-0213	1.29	0.00955	Vegetative Filter	
Manshaft Substation Area, West Field	Yes	A4-0213	1.19	0.00449	Vegetative Filter	
*Whitmore Fan Area	Yes	A5-0109	2.18	0.03639	Silt Fence/or Straw Bales	
Whitmore Test Plot	Yes	A4-0265	0.12	0.00045	Vegetative Filter	
*Pole Canyon Shaft Area	Yes	A5-0108	0.41	0.00544	Silt Fence/or Straw Bales	
Safety Training Field	Yes	A4-0264	3.73	0.11126	Vegetative Filter	
Rock Dust Bulk Tank	Yes	A4-0264	0.06	0.01243	Vegetative Filter	
*#2 Canyon Fan	Yes	A5-0106	0.50	0.01053	Silt Fence/or Straw Bales	Scheduled for Reclamation in 1991.
*Fan Canyon Area	Yes	A5-0110	0.95	0.07275	Silt Fence/or Straw Bales	Being Reclaimed 1990-1991.
*Water Canyon Area	Yes	A5-0107	0.99	0.12716	Silt Fence/or Straw Bales	Being Reclaimed
*Outcrop Fan Area	Yes	A5-0111	2.78	0.16139	Silt Fence/or Straw Bales	Rock gabian is also in place.
Roadside Substation	Yes	A4-0263	0.27	0.00550	Silt Fence/or Straw Bales	

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by Hugh date 5/2/91

Total ASCA Area = 14.60
 Total Disturbed Area = 287.36
 Total Permit Area = 14475.00
 % Disturbed Area utilizing ASCA = 5.08%
 % Permit Area utilizing ASCA = 0.10%
 Total ASCA Runoff in Acre Feet = 0.56 For 10-Year 24-Hour event.

* Originally Permitted as Small Area Exemptions.
 ** Calculated Runoff is for Total Drainage, not just ASCA Acreage.

CHAPTER III

Over ninety years of mining at the Sunnyside Mines has not caused any significant diminution of ground or surface water sources. Adverse effect of subsidence on surface waters is not expected (see Section 7.2.4).

The Sunnyside Mines operator will replace the water supply of an owner of interest in real property who obtains all or part of his or her supply of water for domestic, agricultural, industrial, or other legitimate use from an underground or surface source where the water supply has been affected by underground mining or surface contamination by the Sunnyside operator. To be replaced, the water supply must be considered unsuitable for use as outlined by State Board of Health, USDA, or other accepted industrial water quality standards. If the water supply is interrupted or diminished by underground mining or surface activities, the water supply will be replaced. The owner of interest in real property must prove water quality and or quantity previous to the contamination, diminution or interruption of the water supply to be eligible for replacement.

3.4.3.2 Control Measures to Mitigate Impact

Water discharged from the mine into Grassy Trail Creek or the Icelander drainage will meet all State and Federal water quality standards. The water is ponded to settle suspended solids and to enhance the separation of oil and grease. Oil and grease is trapped in the pond by using a "skimmer" on the discharge (see Appendix III-1).

Surface runoff from most areas is directed to sediment ponds.

Runoff from the remaining small disturbed areas, called BTCA areas, use sediment controls other than ponds. Runoff from such areas will pass through sediment control measures including, but not limited to silt fences, straw bales, and vegetative filters (Table III-50). All BTCA sediment structures will be monitored and maintained to meet all applicable state and federal effluent limits for the duration of the permit. Plate III-1 and Plate III-33 (1-12) show locations of BTCA areas. Plate III-34 shows the methodology used to install silt fences. A rock gabion will be used with a silt fence at the No. 1 Mine Outcrop Fan site to slow water velocities.

The Fan Canyon BTCA area addressed in DO 93A is shown on Plate III-33 (7 of 17). The area is pre-law disturbed with material placed there during the construction phase of the site. The area is across the channel from the portal area, and is reg-

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CHAPTER VII

"Groundwater Operational" in Table III-23. The operational monitoring plan will start after two years of baseline collection is complete and mining approaches within 1500 feet of the water source.

Groundwater and lithology information derived from drill holes will be provided to the Division. Two years of baseline water quality information will be collected and submitted for boreholes that encounter water.

Water located under the coal seams will be observed in a hole drilled to a depth of 100 feet. Location of the hole is shown on Plate III-3.

Results of the above programs will be submitted quarterly. Total water discharged from the mine will be reported annually.

7.2 Surface Water Hydrology

7.2.0 Scope

This section of Surface Water Hydrology pertains to requirements under UMC 783.13, 783.14, 783.16, and 783.17 as well as UMC 784.11(b), 784.13(b), 784.14, 784.16, and 784.22 primarily.

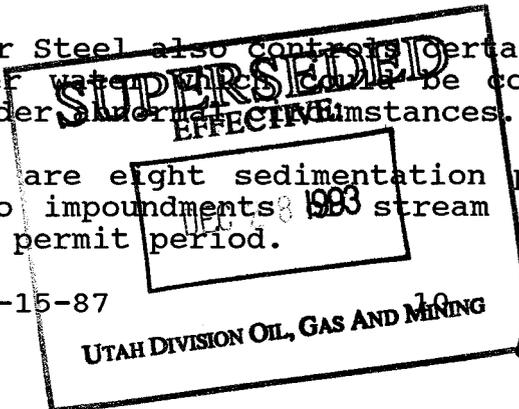
The Sunnyside Mines permit area occupies a portion of the Book Cliffs coal field which is drained by tributaries to the Price River. Grassy Trail Creek which flows through Whitmore Canyon is the only perennial stream in the permit area. A hydrogeologic study by a Utah Division of Mines and Geology geologist has identified a number of springs located hundreds of feet above and a mile or more from the mining areas. (See Plates III-1 and VI-1.)

Underground mine water supplies most of the water requirements of the Sunnyside Mines operation. Grassy Trail Reservoir provides domestic water to the towns of Sunnyside and East Carbon City as well as facilities of Kaiser Steel and U.S. Steel.

Kaiser Steel also controls certain rights to Range Creek and Price River water which could be considered possible alternate sources under ~~normal~~ ^{unusual} circumstances.

There are eight sedimentation ponds serving the disturbed areas. No impoundments or stream diversions are contemplated during the permit period.

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CHAPTER VII

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Water draining into mine works from overhead strata could lower the water level in some locally significant aquifers and perched zones. Quality of groundwater could be lowered by transmission of water between different formations in subsidence cracks. Observations of quantity and quality of groundwater have not shown significant deterioration. Table VII-1 summarizes results of mine water quality analysis for the Sunnyside Mines from December 1975 through December 1980 and is sufficient to assess toxicity levels of mine water discharge. Seasonal variations and variations in water quality from individual discharge points have been graphed on a monthly basis since 1980.

Location of points graphed, 002 and 004, are shown on Plate III-1 and are iron, manganese, sulfate, TDS, TSS, pH, and oil and grease. These data are enclosed as Appendix VII-3.

7.1.5 Mitigation and Control Plan

Grassy Trail Creek is the only perennial stream within the permit area. While excess mine water has been pumped into this stream, there is no gravity discharge of water from any mine opening since the dip of the coal beds is down and away from the direction of the creek.

Present water quality meet State and Federal standards. Future operating conditions are not expected to deviate from those of the present and the past. There should not be significant changes in quantity and quality of underground mine water.

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7.1.6 Groundwater monitoring plan

Groundwater (baseline and operational) will be monitored according to plans found in Chapters III and VII. A map (Plate III-3) showing the underground monitoring stations is provided.

Baseline water data will be collected for the three springs (WR-1, WR-2, and PC-1) in the mine plan area and the underground monitoring stations. Baseline data will be collected quarterly for the in-mine monitoring and four times at monthly intervals for the springs between May and October and include field and laboratory parameters in Table III-23. Baseline data will be collected before mining under PC-1 and WR-2.

The operational monitoring plan will be the same as the baseline program with the exception of parameters which are

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