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FAX 359-4200

ACT/041/002 #2

1/5/99

To: Stan Perkes (BLM)
From: Pamela Grubaugh-Littig (UDOGM)
Re: Pines Trace EIS Comment on "That" Paragraph

Stan, thanks for letting me review that paragraph...I ran it by Ron Daniels and Mary Ann...here are the suggested changes.... Thanks.....

In the event that groundwater discharge rates are impacted, Utah Code 40-10-18 requires the operator to "promptly replace any state-appropriated water in existence prior to the application for a surface coal mining and reclamation permit." Replacement of drinking, domestic or residential water supplies is required by SMCRA, which is administered by UDOGM. (See note for this sentence.) UDOGM is required to determine, for purposes of permit approval, whether the proposed coal mining and reclamation operation has been designed to prevent material damage to the hydrologic balance outside the permit area, Utah Administrative Code, R645-301-729.100.

Note: "Utah Coal Regulatory Program does not require the replacement of water necessary to sustain ecosystems in the affected area, unless it is state-appropriated water." (Would prefer if this sentence was deleted..)

1/15/99

These were the comments given to BLM State Office for the Pines Trace EIS.
BLM gave to FS on 1/15/99 to incorporate.

in two other monitoring wells, US77-8 and US80-4, remained constant during and for several years after these wells were undermined.

The unstable isotopic composition of water from a sealed longwall gob area in the SUFCO Mine also suggests that subsidence-related fracturing has not induced the downward movement of modern, overlying groundwaters into the mine (Mayo and Associates 1997a). Mining ceased in this longwall area in 1989, and the outflow from this area has steadily decreased since that time. When sampled in 1996, the outflow from this subsided area had a mean ¹⁴C age of 13,000 years and contained no tritium. If groundwaters from shallow, overlying systems (which contain anthropogenic carbon and tritium) were intercepted by subsidence fractures and were flowing downward into the mine, some of modern water would be expected in this sample.

Although springs that discharge in lower Box Canyon are west of the Pines Coal Lease Tract (Figure 3-4) and will not be directly undermined, some of these springs, especially those with antiquity, may discharge from systems whose flow paths include strata above the proposed mining area. Mining-induced bedrock fracturing of sandstone paleochannels in the Blackhawk Formation may potentially divert flow from these channels into underlying strata. Discharge from Pines 303 would possibly be impacted by mining, representing a 3 gpm loss if the entire discharge from this spring ceased. This spring issues 100 feet stratigraphically above the coal seam and discharges water that has a radiocarbon age of 3,500 years to 4,000 years. This indicates that the recharge area for this groundwater system is some distance from Box Canyon, and the flow path likely includes strata overlying the Pines Coal Lease Tract. The destination of water that is diverted from overlying strata is unknown. However, clays in Blackhawk Formation shales and mudstones swell when wetted and anneal mining-induced fractures. Thus, the downward migration of groundwaters is naturally mitigated. This occurrence is suggested by the fact that the discharge from mined-out longwall areas in the SUFCO Mine and other Wasatch Plateau mines consistently decrease with time.

In the event that groundwater discharge rates are impacted, Utah Code 40-10-18 requires the operator to "promptly replace any state-appropriated water in existence prior to the application for a surface coal mining and reclamation permit." Replacement of culinary sources is required by SMCRA, which is administered by UDOGM. These regulations do not require the replacement of water necessary to sustain ecosystems in the affected area, nor do they stipulate that water be replaced at the source (i.e. spring or seep location). What this means is that the lessee could adversely impact non-appropriated and non-culinary groundwater resources and not be required to replace the impacted water.

Fracturing of bedrock on the surface of the upland areas surrounding the canyons may increase recharge to Castlegate Sandstone groundwater systems. Mining-induced fractures may enhance pre-existing recharge locations and/or provide additional recharge locations. Water that is intercepted by fractures will be almost exclusively transmitted by and stored within fractures. The well-cemented nature of the Castlegate Sandstone will prevent the sandstone from receiving and transmitting much water. Nonetheless, fractures could significantly increase the storage volume of

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To	PAM G-L	From	STAN P
Co./Dept.		Co.	
Phone #		Phone #	529-4026
Fax #	359-3940	Fax #	529-4200