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DIVISION OF OIL, GAS AND MINING

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September 14, 2001

TO: Internal File

THRU: Pete Hess, Team Lead sm for JDS

FROM: Jim Smith, Reclamation Specialist JDS

RE: Temporary Cessation, Energy West Mining Company, Cottonwood/Wilberg Mine, C/015/019-TC01B-1

SUMMARY:

Besides being adjacent to each other, the Cottonwood/Wilberg and Trail Mountain Mines have been linked through their conveyor systems by way of the Trail Mountain Access tunnel. From that tunnel, the Cottonwood/Wilberg conveyor system transported Trail Mountain coal through East Mountain to the truck load-out at the Cottonwood Mine main facilities area.

Energy West submitted a notice of Temporary Cessation of Operations for the Trail Mountain, Cottonwood, and Wilberg Mines to the BLM on February 8, 2001. In a letter dated March 20, 2001, Energy West Mining Company informed the Division of the planned abandonment of certain mining equipment in the Trail Mountain and Cottonwood/Wilberg Mines. A letter specifically addressing closure of the Cottonwood/Wilberg Mine was sent May 22, 2001 (received May 24).

Mr. Pete Hess of UDOGM participated in underground verification of equipment removal in the Cottonwood/Wilberg Mine on May 4, 2001. Portals were sealed on May 28, 2001 and mining operations at the Cottonwood/Wilberg Mine ceased temporarily effective May 29, 2001. Longwall and continuous miners, belt haulage, and electrical wire were removed before the portals were sealed. Remaining in the mine during temporary cessation are belt, belt structure, and steel and pvc pipe. Remaining permanently in the mine are 109 longwall shields abandoned in place because of the Wilberg Mine fire in 1984.

Although the permittee's May 22 letter was not an amendment, a TA was prepared (dated June 11, 2001) that identified regulations concerning temporary closure which needed to be addressed in an amendment to the MRP. In response to that TA, Energy West sent UDOGM an amendment on August 7, 2001 (received August 10, 2001) that adds information on temporary closure of the mine and on underground abandonment of materials and machinery. The amendment is intended to replace the current Chapter 3 in its entirety.

Water conveyance structures are to be maintained as specified in the MRP. Hydrologic monitoring will continue as specified in the MRP. During temporary cessation the Trail Mountain Access tunnel is designated as a drain, and the Utah Division of Water Quality approved moving the outfall for UPDES 0022896 001 from Grimes Wash to the Access Tunnel in Cottonwood Canyon on July 20, 2001.

Reclamation of surface facilities is not to be done at this time, all environmental monitoring will continue, and all ditches or other hydraulic conveyance structures will be maintained.

Utah Coal Mining Rules require a coal mine operator to demonstrate steps to be taken to minimize disturbance to the hydrologic balance within the permit and adjacent areas and to prevent material damage outside the permit area. The following is an evaluation by UDOGM of probable impacts to the hydrologic balance in the area from the abandonment of this equipment.

TECHNICAL ANALYSIS:

OPERATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Ground-water monitoring

There is no change in the operation ground-water monitoring plan during temporary cessation. Hydrologic monitoring will continue as specified in the MRP.

Surface-water monitoring

There is no change in the operation surface-water monitoring plan during temporary cessation. Hydrologic monitoring will continue as specified in the MRP. During temporary cessation, the Trail Mountain Access tunnel is designated as a drain, and the Utah Division of Water Quality approved moving the outfall for UPDES 0022896 001 from Grimes Wash to Cottonwood Canyon on July 20, 2001.

Gravity discharges

During temporary cessation the Trail Mountain Access tunnel is designated as a drain, and the Utah Division of Water Quality approved moving the outfall for UPDES 0022896 001 from Grimes Wash to Cottonwood Canyon on July 20, 2001.

Diversions

During temporary cessation, water conveyance structures are to be maintained as specified in the MRP.

Discharge structures

During temporary cessation the Trail Mountain Access tunnel is designated as a drain, and the Utah Division of Water Quality approved moving the outfall for UPDES 0022896 001 from Grimes Wash to Cottonwood Canyon on July 20, 2001.

Water quality standards and effluent limitations

There is to be no change in water quality standards and effluent limitations.

UDOGM prepared Cumulative Hydrologic Impact Assessments (CHIA) for East Mountain (updated 1994) and the Cottonwood Creek Basin (1987), which include the Trail Mountain and Cottonwood/Wilberg Mines. Abandonment of equipment underground was not covered in these CHIAs.

Consequences from abandoned mining machinery and fluids were not included in the Probable Hydrologic Consequences (PHC) determination in the Cottonwood/Wilberg Mine MRP. Water encountered in the mine has little communication with the surface and not subject to annual recharge events.

- Conditions in abandoned mines in the Wasatch Plateau are not conducive to oxidation or other chemical reactions.

- Recorded pH values for ground waters at the PacifiCorp Mines range from 6.5 to 9.7, but are typically neutral to slightly alkaline.

- With time, oxygen would be absent or at low concentration both in the air and waters of the abandoned mine. Other oxidizing agents would not typically be found in an abandoned mine.

- The cool temperatures in the abandoned mine would tend to retard rather than accelerate most chemical reactions.

Assuming the mine was to flood and the abandoned equipment was to be covered with water, several probable results and impacts can be evaluated.

- Flooding of the abandoned mine might be relatively rapid, but once flooded, flow of ground water into, through, and out-of the void spaces of the mine should be slow.

- If steel or other metals in the equipment were to oxidize, it would be at a very slow rate and the amount of iron and other metals added to the ground water at any one time would be very small.

- Oxides of most metals are insoluble or slightly soluble in water with a neutral pH (anions in solution in the water could increase solubility, but this is not anticipated based on typical ground-water chemistries of the region), especially at temperatures expected in the mine, so once formed, metal oxides would tend to precipitate as solids within the mine rather than flow in solution in the ground water. If any metal were to go into solution, concentrations would be highest near the equipment, but the volume of water in the flooded mine would dilute concentrations outside the immediate vicinity of the equipment.

- Structural dip is to the west, so movement of water both within the abandoned workings and in the enclosing strata is probably toward the Trail Mountain Access tunnel, the lowest point in the Cottonwood/Wilberg Mine, and Cottonwood Creek. At least in the area where it was measured in the mine, the potentiometric surface in the Blackhawk - Star Point Formations is also inclined towards the west (Volume 9 - Figure HF-5B). During temporary cessation the Trail Mountain Access tunnel is designated as a drain, and the Utah Division of Water Quality approved moving the outfall for UPDES 0022896 001 from Grimes Wash to Cottonwood Canyon on July 20, 2001. There is no approval for permanent discharge from this portal nor from any other part of the mine.

- Because of dilution and dispersion, natural seasonal fluctuations, and the limits of accuracy of analytical methods, changes in water quality from the abandonment of this

equipment would not be expected to be large enough to be detected at springs, wells, or ground-water base flow to streams.

If the abandoned equipment is not covered with water as the mine floods, metals might oxidize at a faster rate. Even though possibly occurring over a shorter time period, the probable impacts would be negligible to nonexistent because there would be no water to convey potential contaminants to ground or surface waters.

Ferrous metals

Considerable tonnages of ferrous materials, such as steel roof bolts and wire mesh used for roof-support and steel-covered longwall support cans, is routinely abandoned in underground coal mines because the materials cannot be removed without endangering the lives of miners. At the Genwal Crandall Canyon Mine located just north of the PacifiCorp mines, room-and-pillar mining requires approximately 400 tons of steel be placed and abandoned underground to produce each million tons of coal; however, longwall mining, as at Cottonwood/Wilberg Mountain, uses steel at a considerably lower rate because less roof is supported. In comparison to the amount of steel routinely abandoned during underground mining operations, the additional ferrous metal in the shields, conveyors, and pipes is not significant.

Lubricants and Oils

The abandoned shields contain emulsified hydraulic fluid, gear oil, ATF fluid, and grease that could eventually enter the hydrologic system. The shields were abandoned due to a fire so there was no chance to remove fluids, nor has there been nor will there be any subsequent attempt to remove them because of safety considerations. The slow rate of oxidation of metal in the shields will delay release of these fluids. Failure of the metals will probably not be catastrophic so any release of the fluids will be in small increments over a long time. Material Safety Data Sheets (MSDS) for the hydraulic fluid and greases have been included in the 2000 Annual Report.

Polymers, Resins, Plastics and Rubber

PVC piping contains polymers and resins, and perhaps other organic compounds. PVC generally has long-term stability, especially when not exposed to ultraviolet light. Products used in the manufacture of materials such as PVC often remain in very small, often undetectable amounts. Considering the amount of PVC being left underground and the other factors already discussed, the potential for impact to the hydrologic system from the PVC pipe is negligible.

Findings:

Abandoning the equipment will cause minimal, if any, disturbance to the hydrologic balance within the permit and adjacent areas and is not expected to cause material damage to the hydrologic balance, and therefore, can be considered to have met minimum regulatory requirements.

RECLAMATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Ground-Water Monitoring

There is no change in the reclamation ground-water monitoring plan.

Surface-Water Monitoring

There is no change in the reclamation surface-water monitoring plan. During temporary cessation the Trail Mountain Access tunnel is designated as a drain, and the Utah Division of Water Quality approved moving the outfall for UPDES 0022896 001 from Grimes Wash to Cottonwood Canyon on July 20, 2001.

Gravity Discharges

During temporary cessation the Trail Mountain Access tunnel is designated as a drain, and the Utah Division of Water Quality approved moving the outfall for UPDES 0022896 001 from Grimes Wash to Cottonwood Canyon on July 20, 2001. There is no approval for permanent discharge from this portal nor from any other part of the mine.

Findings:

Abandoning the equipment will cause minimal, if any, disturbance to the hydrologic balance within the permit and adjacent areas and is not expected to cause material damage to the hydrologic balance, and therefore, can be considered to have met minimum regulatory requirements.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

The CHIA does not need to be updated for this amendment. The only change to the hydrologic system is the new location of the outfall for UPDES 0022896 001.

RECOMMENDATION:

The Division should approve this amendment of Chapter 3 that modifies the MRP to address abandonment of specific mining machinery and materials underground. Monitoring of surface and ground waters is to continue as described in Volume 9 - Hydrology of the Trail Mountain, Cottonwood/Wilberg, and Des-Bee-Dove Mines.