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

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August 7, 2001

Chuck Semborski, Environmental Supervisor
Energy West Mining Company
P.O. Box 310
Huntington, Utah 84528

Re: Final Approval of Chapter 3, PacifiCorp, Trail Mountain Mine, [redacted] AM01A, [redacted]

Dear Mr. Semborski:

The above-referenced amendment was conditionally approved on July 11, 2001. Clean copies were received in our office on August 2, 2001. Enclosed are a stamped incorporated copy for insertion into your Mining and Reclamation Plan and a copy of out Technical Analysis for your information.

Thank you for completing this permitting action. If you have any questions, please feel free to call me at (801) 538-5325.

Sincerely,

Daron R. Haddock

Daron R. Haddock
Permit Supervisor

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Enclosure: (2)
cc: Joe Wilcox, OSM
Richard Manus, BLM
Elaine Zieroth, USFS (2)
Mark Page, Water Rights w/o
Dave Ariotti, DEQ w/o
Derris Jones, DWR w/o
Price Field Office
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State of Utah

Utah Oil Gas and Mining

Coal Regulatory Program

Trail Mountain Mine
Chapter 3, Abandoned Mine Machinery
C/015/009-AM01A
Technical Analysis
June 29, 2001

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TECHNICAL ANALYSIS

INTRODUCTION

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. This letter described mining related paraphernalia, including various types of installed roof support materials, fresh water and de-watering pipelines of varying diameter, high voltage transmission cable, and conveyor structure and belting that the permittee labeled "mine extension material", that the permittee intended to abandon within the Trail Mountain Mine. On March 12, 2001, the permittee was notified verbally by UDOGM personnel to submit an amendment to the Trail Mountain Mine MRP that would describe in detail the type, amount, and location of the material and equipment being abandoned. 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.

Mining operations at the Trail Mountain Mine ceased, temporarily, on March 15, 2001. All longwall and continuous mining equipment, haulage belt, and electrical equipment were removed from the mine. Except for 9,000 feet of 6-inch water supply line and 9,000 feet of 12-inch PVC dewatering line, the mine-dewatering system was removed. Pete Hess of UDOGM and Steve Falk of the BLM participated with Ed Riggle of Energy West in underground verification of equipment removal on April 6, 2001; in addition to the piping, 50 to 60 feet of conveyor structure, ten-inch square steel box (½ inch wall) tubing used for conveyor drive supports, wood supports, pulverized limestone, and other minor items were seen remaining in the mine during the inspection. (Abandonment of three longwall shields in the 3rd Right Longwall panel was approved by the BLM in December 2000, and Gregg Galecki reviewed this action in a Tech Memo dated November 5, 2000. Abandonment of 148 shields and related face conveyor in the 10th Right Longwall panel in September 1998 was approved by the BLM for safety reasons, but a UDOGM Tech Memo was not done).

Mine portals were sealed on May 1 or 2, 2001 and Energy West notified UDOGM of cessation of coal mining operations at the Trail Mountain Mine effective May 4, 2001 (letter to UDOGM dated May 2, 2001 and received May 7, 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.

INTRODUCTION

Energy West sent UDOGM an amendment to the MRP on May 8, 2001 (received May 18, 2001) that adds information on temporary closure of the mine and on underground abandonment of materials and machinery. The amendment replaces the entire Chapter3 and Plates 3-2 and 3-3, and adds Plate 3-8, which shows the locations of the remaining piping and the previously abandoned shields.

This proposed cessation covers federal leases UTU-64375, U-49332, and U-082996. The State of Utah, private landowners, and the federal government, which is managed by the USFS, own the overlying surface lands.

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 a Technical Analysis of probable impacts to the hydrologic balance in the area from the abandonment of this equipment.

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:

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 CHIA's.

Consequences from abandoned mining machinery and fluids were not included in the Probable Hydrologic Consequences (PHC) determination in the Trail Mountain 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 away from the sealed Trail Mountain mine portals and away from Cottonwood Creek. Plate 6-1 in the MRP indicates the potentiometric surface in the Blackhawk - Star Point aquifer also is inclined towards the west. Joes Valley Reservoir is west of the Trail Mountain Mine, but there are no mine openings in that direction and potential groundwater flow paths to wells, springs, or surface water are much longer than to the east, towards Cottonwood Creek.

- 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 Trail Mountain, uses steel at a considerably lower rate because less roof is supported. (From 1996 to 1999, production at Trail Mountain was on the order of 4 million tons/year.) 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 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:

The proposed amendment meets the minimum requirements of the Operations Hydrologic Information section of the Coal Mining Rules.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Mine workings maps

Plates 3-2 and 3-3 have been updated to show the mine workings as of May 2001. New Plate 3-8 shows the locations of the abandoned equipment.

Findings:

The proposed amendment meets the minimum requirements of the Maps, Plans, and Cross Sections of Mining Operations Section of the Coal Mining Rules.

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:

Water quality standards and effluent limitations

The in-mine abandonment of various types of mining related apparatus has necessitated a change in UDNR/OGM policy that now requires that all permittee's submit an amendment to the mining and reclamation plan for the respective mine in which such material is to be abandoned, either temporarily or permanently. This requirement has been established to provide what is felt to be the information necessary for the Division to make a written findings relative to the potential for impact to the hydrologic regime within the associated permit area for the mine.

Volume 1, Chapter 3, page 3-35 and 3-36, section 3.4.3, PROTECTION OF HYDROLOGIC BALANCE of the currently approved mining and reclamation plan discusses how the permittee would have conducted the underground mining activities in order to "minimize potential impacts to surface and ground water resources." Upon cessation of underground coal extraction activities at the Trail Mountain Mine on March 15, 2001, the permittee initiated the extraction of all underground machinery, as well as the associated support systems necessary. Material to be abandoned in-mine was described in the notice of intent letter to the US Department of the Interior, Bureau of Land Management, Price Field Office dated February 6, 2001. That letter indicated that the following types of materials would be abandoned in-mine, prior to the sealing of the portals via the MSHA approved plan. A second letter authored by the permittee and addressed to the Utah Division of Oil, Gas and Mining on March 20, 2001 indicated that the following materials would be abandoned in-mine at the Trail Mountain site:

- Installed primary and secondary roof and rib support materials.
- General miscellaneous mine supplies and/or hardware items.
- Fresh water and de-watering pipelines (steel and PVC).
- High voltage electrical distribution and monitoring cable.
- Main line 60-inch conveyor structure.

An underground inspection conducted by Mr. Ed Riggle, representing the permittee, Mr. Steven Falk, Bureau of Land Management, Price Field Office, and Peter Hess, Reclamation Specialist III, DOGM, Price Field Office was conducted on April 6, 2001. On that date, the permittee provided an inventory of the mine extension material, which Energy West intended to leave in-mine. Based on that material list, the permittee intended to leave 2,390 feet of 60-inch

conveyor structure in the Trail Mountain first West #1 and #2 conveyors, and approximately 2 miles each of six-inch steel and twelve-inch PVC pipe.

On April 6, 2001, an underground visit was traveled by way of the intake entry to the newly constructed seals in 5th Left Mains. At that point, the belt entry was entered and walked to the portals. It was determined that nearly all of the conveyor structure which had been listed on the material inventory list had been extracted, with only 50-60 feet of that type of mine extension material remaining. The six-inch steel and twelve-inch PVC pipe was observed to remain in place. Other materials that were observed in the mine on April 6, 2001 included ten-inch square steel box (1/2 inch wall) tubing used for conveyor drive supports, wood products (some installed as support), pulverized limestone (for explosion-potential reduction), and other minor items. It was this individual's opinion that none of the items that were observed and are to be left inside the Trail Mountain Mine could have an effect on the ground water regime of the area. Any ground water which will accumulate in the mine will do so in the lower areas and will not come in contact with the steel or PVC lines which are to remain in place. On May 8, 2001, the permittee submitted an amendment to the Trail Mountain Mine mining and reclamation plan to address the requirements which the Division has established relative to the abandonment of mining related paraphernalia in-mine. The location of the pipelines left in place is depicted on Plate 3-8, Trail Mountain Mine, Abandoned Equipment and Discharge Water Pipelines. Plate 3-8 is P.E. certified by Mr. John Christensen.

Plate 3-8 also depicts the locations of 151 longwall face shields and a face conveyor which had been abandoned prior to the submittal required by the Utah Department of Natural Resources, Division of Oil, Gas, and Mining. The equipment abandonment occurred in September of 1998 and December of 2000, and approved to be left in place by the Bureau of Land Management.

The Hiawatha coal seam in which the Trail Mountain Mine was developed dips away from the portals that are located in Cottonwood Canyon. Any ground water that accumulates in-mine will have a tendency to flow down dip away from the seals located at the outcrop. Therefore, the discharge of mine water from the seals into Cottonwood Creek is unlikely. There will be no effect on the surface hydrologic regime.

The May 8, 2001 amendment to the Trail Mountain Mine mining and reclamation plan will be used such that the Division can make a written finding relative to the potential for impact to the surface and ground water hydrologic regimes within the Trail Mountain Mine permit area.

Findings:

The proposed amendment meets the minimum requirements of the Reclamation Hydrologic Information section of the Coal Mining Rules.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

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

The proposed permit revision has been reviewed by the Division, and the Division has determined that the current CHIA is sufficient to determine, for purposes of permit approval, that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area, and will not involve operations outside of the cumulative impact area as defined in the CHIA.

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