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

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July 26, 2000

Johnny Pappas, Sr. Environmental Engineer
Plateau Mining Corporation
847 Northwest Highway 191
Helper, Utah 84526

Re: Abandonment of Shuttle Cars, Plateau Mining Corp., Star Point Mine, ACT/007/006 Outgoing File

Dear Mr. Pappas:

The Division was recently notified of your plans to abandon two National Mine Service Shuttle cars in the Star Point Mine. It is our understanding that recovery of the shuttle cars is impossible at this point because of hazardous conditions in the mine. The enclosed technical memo discusses our analysis of the situation. While it is preferable that mining equipment (especially equipment containing petroleum products) be removed from the mine and disposed of properly, it is also recognized that due to safety concerns this may not always be possible. Your plans for the abandonment of the two shuttle cars underground can be approved; however, we need additional information in order to document your actions. Please provide a description of the equipment being left and a map showing the location. These should be submitted by no later than August 25, 2000. Thank you for your help in this process.

If you have any questions, please call me.

Sincerely,

Daron R. Haddock

Daron R. Haddock
Permit Supervisor

drh/sm
Enclosure:
cc: Mary Ann Wright
Richard Manus, BLM
Elaine Zieroth, USFS
Price Field Office
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July 13, 2000

TO: Internal File

THRU: Daron R. Haddock, Permit Supervisor

FROM: James D. Smith, Reclamation Specialist JDS

RE: Abandonment of two National Mine Service shuttle cars in the Star Point Mine, Plateau Mining Corporation, Star Point Mine, ACT/007/006

SUMMARY:

The BLM has received notification that Plateau Mining Corporation intends to seal the 2nd North Mains of the Middle Seam of the Star Point Mine, which will include abandoning two National Mine Service shuttle cars in the sealed area. This is within federal lease SL-031286, on lands managed by the USDA Forest Service (USFS). Plateau Mining believes recovery of the shuttle cars would be too hazardous because of collapsing roof and inability to adequately ventilate the area. The cars still contain lead-acid batteries, hydraulic fluids, and gear oil. Total volume of all fluids remaining is estimated to be less than 50 gallons, less than 25 gallons in each car. No information on the size, type, or number of batteries has been provided to UDOGM.

The USFS considers the intended abandoning of the two shuttle cars as an unauthorized disposal of solid waste on USFS lands. Abandonment of equipment and used oils is not in compliance with USFS lease stipulations and could have been avoided with proper planning; however, because of dangers that would be involved in removing the cars, the USFS has decided not to object to the approval of sealing the mine. The USFS wants Plateau to provide either a plan to encapsulate or otherwise render the cars and their fluids harmless or documentation from a qualified expert that the materials would pose no long term harm to the environment, plus a report on the materials and their location in the mine and a written statement that Plateau is aware that they might be held responsible for any environmental damage that results from leaving this equipment in the mine.

The Utah Coal 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 brief evaluation by UDOGM of probable impacts to the hydrologic balance in the area.

TECHNICAL ANALYSIS:

OPERATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: R645-300-730

Analysis:

UDOGM prepared a Cumulative Hydrologic Impact Assessment (CHIA) for Gentry Mountain, which includes the Star Point Mine, in 1994. Abandonment of equipment underground was not specifically covered in that CHIA, but potential effects from spills of hydrocarbons, longwall fluids, and other chemicals during mining and reclamation operations are mentioned.

The Probable Hydrologic Consequences (PHC) Determination in the Star Point MRP identifies changes in water quality at the Tie Fork Wells as a possible result of water re-entering the mine workings when they are abandoned; however, consequences from abandoned mining machinery and fluids were not included in the determination. Because of dilution and dispersion, natural seasonal fluctuations, and the limits of accuracy of analytical methods, the probable changes in water quality would not be expected to be large enough to be detected at the Tie Fork Wells. The PHC predicated that more distant springs would evidence little or no impact from water-quality changes brought on by flooding of the mine.

UDOGM cannot currently determine whether or not it is likely that the areas where these cars are located are expected to be flooded. UDOGM has not received adequate information from either Plateau Mining, BLM, or USFS to determine the exact locations of the abandoned shuttle cars in the mine. According to information from the BLM, one car is in crosscut #4 of Unit 1 and the other is in crosscut #4 of the mains; however, maps provided to UDOGM by Plateau Mining do not identify mains, units, and crosscuts. The map of the 2nd North Mains in the 1999 Annual Report shows faults, which could be conduits for ground-water flow, in the North Mains area but their proximity to the cars is not known.

A considerable tonnage of ferrous materials, such as steel roof bolts, wire mesh, and cans used in support pillars, is routinely abandoned in underground coal mines because the materials cannot be removed without endangering the lives of miners. By comparison to the amount of metal abandoned during underground mining operations, the amount of ferrous metal in the shuttle cars is minimal.

Non-ferrous metals such as zinc and copper are in the shuttle cars in small amounts, either pure or as alloying agents. It can be surmised that small amounts of these metals are abandoned in mines as part of routine mining operations, and if so, as with the ferrous metals, additional contribution from the shuttle cars probably is not going to be significant. Lead, in the batteries, is a metal that is not typically abandoned underground, so a similar comparison cannot be made for lead.

Conditions in the abandoned mine are not conducive to oxidation or other chemical reactions:

- Recorded pH values for ground waters at the Star Point Mine are typically neutral to slightly alkaline;
- 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 were to flood and the shuttle cars 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;
- The volume of water in the mine would be considerably greater than the total volume of the fluids in the abandoned shuttle cars;
- Water from the flooded mine is not expected to discharge from the portals; or to measurably impact springs or wells;
- If steel, lead, and other metals in the shuttle cars 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 (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 with the ground water. If any metal were to go into solution, concentrations would be highest near the cars, but the volume of water in the flooded mine would dilute concentrations outside the immediate vicinity of the shuttle cars;

- Oxidation would take years or decades to breach tanks, lines, cases, pumps, and such and to release the fluids to the ground-water, and not all fluids would be released simultaneously;

- Water soluble hydraulic fluids and soluble components of gear oils would be diluted when they were released and become more dilute as they moved with the ground water. They would be subject to chemical reactions and adsorption, and possibly to biodegradation;

- Non-volatile and insoluble components of oils and hydraulic fluids would be transported very slowly or be immobilized, adsorbing onto surfaces within the mine void and the pore spaces within the coal and rock; and

- Acids would be diluted and also neutralized by the bicarbonate that is a common ion in ground waters in this region.

If the shuttle cars are not covered with water as the mine floods, the metals might oxidize at a faster rate and fluids be released sooner. Even though possibly occurring over a shorter time period, the probable impacts would be similar to those resulting from the cars being covered with water - the impacts would be negligible to non-existent.

Finding:

Abandoning the two shuttle cars will cause minimal disturbance to the hydrologic balance within the permit and adjacent areas and is not expected to cause material damage outside the permit area and therefore can be considered to have met minimum regulatory requirements.

RECOMMENDATION

Monitoring of surface and ground waters should continue as stated in the Star Point Mine MRP.

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