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State of Utah
DEPARTMENT OF NATURAL RESOURCES
Division of Oil, Gas & Mining

MICHAEL R. STYLER
Executive Director

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Division Director

Inspection Report
Minerals Regulatory Program
August 5, 2008

Reviewed: TK

Mine Name: Rim/Columbus
Operator Name: Denison Mines (USA)

Permit number: M0370006
Inspection Date: July 30, 2008
Time: 10:15 AM – 12:15 PM

Inspector(s): Paul Baker
Other Participants: Brian Bishop participated, but I also spoke with Jim Fisher and a person named Eric
Mine Status: Active

Weather: Mostly clear, 80s

Elements of Inspection	Evaluated	Comment	Enforcement
1. Permits, Revisions, Transfer, Bonds, Permit Fees	☒	☒	☐
2. Public Safety (shafts, adits, trash, signs, highwalls)	☒	☒	☐
3. Protection of Drainages / Erosion Control	☐	☐	☐
4. Deleterious Material	☐	☐	☐
5. Roads (maintenance, surfacing, dust control, safety)	☒	☒	☐
6. Concurrent Reclamation	☐	☐	☐
7. Backfilling/Grading (trenches, pits, roads, highwalls, shafts, drill holes)	☐	☐	☐
8. Soils	☐	☐	☐
9. Revegetation	☒	☒	☐
10. Other	☒	☒	☐

Purpose of Inspection:
This was a routine inspection.

Inspection Summary:
1. Permits, Revisions, Transfer, Bonds, Permit Fees
The Division holds a surety in the amount of $74,200.00 in the form of a corporate surety with National Union Fire Insurance Company. The bond is due to be escalated in September 2010.

On November 17, 2007, the Division approved a change in the name on the reclamation surety from International Uranium to Denison Mines (USA).

2. Public Safety (shafts, adits, trash, signs, highwalls)
The operator has been working to re-open the mine, but I do not know the full extent of the work being done. One of the workers told me he had been working to clear escape routes. I was told there is a large rock blocking the shaft that the operator tried to clear by bringing in a drill rig. To get the drill rig in, some of the horizontal supports on the headframe had to be removed.

There was a power drop along the road to the Columbus and Humbug mines (Photos 7 and 8).

The Columbus and Humbug mines were both open, but gates had been installed so they could be closed. Other work has been done, especially at the Humbug mine, to make the areas around the portals more stable and safe (Photos 9 and 11).

The road to the Columbus and Humbug mines has been graded and otherwise improved substantially since the last time I was to this site about five years ago. This is a county road.

A lot of trash and scrap has been cleaned up since the last time I was at the mine, particularly at the shaft. The old power transformers have been removed.

The main waste pile near the shaft has a lot of wood in it (Photo 5).

Near the Humbug mine was a pile of old pipe that looked like aluminum. Mr. Bishop said the operator hopes to recycle it but that it may not be possible because it might have radioactive contaminants. If that is the case, I do not know how it should be disposed of, but it should not be buried in the waste pile without approval.

9. Revegetation
On May 14, 2008, the Division received a report from the operator showing weed control efforts. The operator used an herbicide called Curtail to control what was believed to be an infestation of knapweed. While it could have been knapweed, the plants in a photo the operator supplied appeared to me to be tumblemustard. I forgot to look for these plants when I was at the mine.

10. Other
There is a new steel frame building at the Humbug mine (Photo 10). It is about 40 X 30 feet and about 20 feet high at the peak with a concrete foundation. It is off-white, and when I inspected another mine site on the opposite side of the valley, this building was very prominent.

Some concrete had been disposed of on the outslope of the waste pile at the Humbug mine (Photo 12). I assume this was from when the foundation for the new building was poured. Most of the concrete was on the slope, but it appeared a small amount made it to the drainage below.

At the Rim mine, facilities include the headframe and hoist house, two water treatment ponds and a water treatment building, one waste pile, two ore pads, a pond that might be used as a sediment pond, and various power lines that have been recently upgraded (Photos 1-4).

I was told that there used to be a building at the Rim mine and that the operator intends to re-build it on the existing foundation.

The drainage system at the Rim mine is such that most of the water is routed away from the pond below the waste rock pile (see Photos 4 and 6). The pond appears to be in an area with a natural seep, and I am not sure whether it is considered a sediment pond, a stock watering pond, or something else. Maps in the Division's file show it within the disturbed area.

The operator has a UPDES permit for water discharge at the Rim mine.

Conclusions and Recommendations:
There are several permitting and other items that need to be resolved:

1. Buildings
The bond estimate normally designates how much money would be used for various aspects of reclamation. The current bond estimate is based on one originally done in 1988. This estimate includes a

lump sum of $5000.00 for removal of structures and debris. It does not show how many structures or where they are located.

Maps in the file show a shop, a shower room, and a few other unlabelled smaller buildings near the shaft, but I was not able to find a map showing any buildings at the Humbug mine.

If the operator has a map showing the old building at the Humbug mine, it needs to be provided to the Division. If this building is not shown on existing maps, the operator needs to supply a map showing current facilities at the mine, and the bond should be updated to include reclamation of this building.

I recommend that the building be painted, perhaps dark tan, so it is not so prominent.

2. Borehole
I believe there are two boreholes, and the 1988 bond estimate includes sealing two boreholes. In a letter dated April 22, 2005, the Division made the following comment about one of the boreholes:

> A 20-inch vent hole is shown between the Rim and Humbug areas. This area and access to this area needs to be included in the total disturbance.

The borehole referred to in this letter appears to be the one being used as a power drop. The operator made the following response to the Division's comment:

> This old vent hole has been shown only as a general feature in the area and is not covered under the Rim-Columbus permit. This vent hole is pre-law and not a part of modern mine operations, and is therefore not included in the disturbed area and the reclamation obligations under the permit.

Based on this information, it appears the borehole being used as a power drop is included in the reclamation bond estimate but that it is not included within the disturbed area. The operator should update maps to include the borehole in the disturbed area.

3. Concrete and Other Waste
The operator needs to clean up the concrete that went down the side of the waste rock pile. The outslopes of the waste rock piles are not considered to be part of the disturbed area.

Nothing except waste rock should be disposed of in the waste rock piles. Any extraneous debris, such as the wood in the pile near the shaft, should be cleaned up.

4. Drainage Control
I recommend that ditches at the shaft be modified so runoff would flow into the pond below the waste rock pile.

5. Columbus Mine
The latest maps show no disturbed areas at the Columbus mine, and the mine plan I was able to find does not address how much of the disturbance at this mine will be reclaimed. (See, however, the segment from the Division's August 21, 1997, letter quoted below.) A 2005 letter from the operator to the Division referred to a letter from the Division dated August 6, 1985, and said the operator's only responsibility at this mine was to seal the portal.

The Division's August 6, 1985, letter says:

> Records on file at the Division indicate that as part of the overall reclamation plan for the Rim Mine, the portals at the Columbus Mine will be sealed by Atlas [the former operator]. Responsibility for the reclamation of the extensive waste development and low grade ore dumps are not part of Atlas Minerals reclamation plan as approved by the Division.

Another letter from the Division to the operator, dated August 21, 1997, says:

> Approximately four acres of previously disturbed area at the portals [the Humbug and Columbus portals] were included in the Rim-Columbus large mine permit approved by the Division. The permit described the Humbug and Columbus portal areas as being used for ventilation or secondary escape routes only. The approved permit did not include utilizing these portals for ore removal or placing additional waste rock on the mine dumps. Reclamation of these four acres as described in the permit includes closure or sealing of the portals and seeding of the affected areas. The pre-law angle of repose waste dumps were not required to be regraded or topsoiled at final reclamation.

The letter goes on to describe an amendment which allows placement of waste and ore on 1.6 acres at the Humbug portal.

It is difficult to determine exactly what does and does not need to be reclaimed in these areas based on this history of correspondence. My interpretations are:

- The outslopes do not need to be reclaimed and are not considered part of the permitted area.
- Although the operator may disagree, reclamation at the Columbus portal should include sealing the portal and reclaiming any portions of the pad used for the mining operation.
- The pads need to be seeded, but the operator is not required to borrow topsoil to establish vegetation.

Maps of the disturbed area need to be revised, and when this happens, the operator should show revised disturbed areas reflecting use of the pads, the borehole near the Columbus mine, and any other new disturbances.

Inspector's Signature PBB **Date:** 8/6/08

PBB:pb
cc: Harold Roberts, Denison
Ted McDougall, Monticello BLM
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Photo 1. An overview of part of the Rim mine disturbed area.

Photo 2. One of the water treatment ponds at the Rim mine.

Photo 3. The water treatment building.

Photo 4. This pond is below the waste rock pile at the Rim mine and looks like a sediment pond. There appears to be a natural seep at the pond.

Photo 5. There is a lot of wood and other debris on the waste rock pile at the Rim mine.

Photo 6. Runoff from most of the waste rock pile would go through the channel in the center of this pictures rather than going to the pond which is just to the left.

Photo 7. This is a power drop which is probably at the same location as a 20-inch borehole shown on some of the maps.

Photo 8. This shows some of the disturbed area near the power drop in Photo 7.

Photo 9. This picture shows some of the area being used at the Columbus portal.

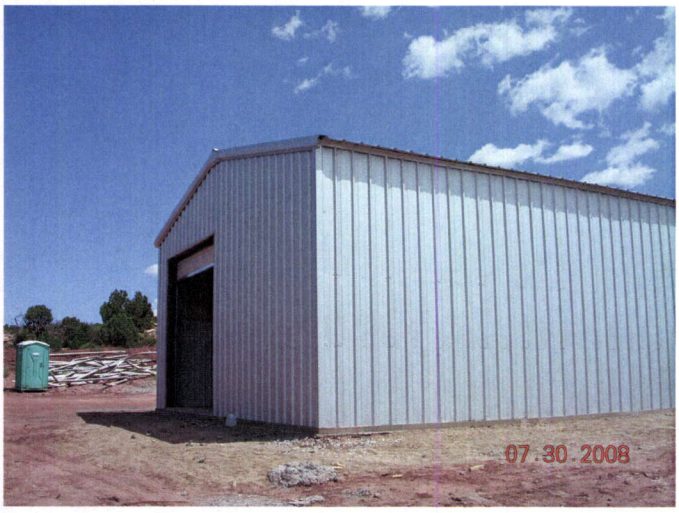

Photo 10. A new building at the Humbug portal pad.

Photo 11. The Humbug portal.

Photo 12. Concrete was dumped down the outslope of the Humbug portal pad.