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DEPARTMENT OF NATURAL RESOURCES

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Internal
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Project Initiation: October 29, 2009

Project Completion: November 19, 2009

TO: Internal File

THRU: Daron Haddock, Coal Program Manager *DH*
Steve Christensen, En Sci II / Hydrology / Team Lead

RE: MINE WATER TREATMENT FACILITY, Andalex Resources, Inc., Crandall Canyon Mine, C/015/032, Task ID # 3415

SUMMARY:

Mine water containing high levels of iron began discharging from the Crandall Canyon Mine after the portals were sealed. These levels often exceeded the iron level parameter established by Utah and federal water quality standards. Eventually, staining of the Crandall Creek channel began to occur. The UPDES outfall is identified as 002, Mine Quantity in the Utah DOGM water monitoring data base.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

Analysis:

Determination of Bond Amount

The Division understands that other mining operations operated by Andalex Resources, Inc., parent company, Murray Energy Corporation, utilize Maelstrom Oxidizers to treat mine water discharges containing high concentrations of iron at several eastern operations.

The Division requires that the Permittee submit operating costs from one of two sources;

- 1) the Permittee may obtain operating cost information from other Murray Energy operations which utilize Maelstrom mine water treatment systems.
- 2) The Permittee may monitor monthly operating costs for the Crandall Canyon Maelstrom oxidizer unit, and submit them to



the Division within 45 days following the completion of the monitoring of the oxidizer operating costs.

The Division needs these costs to project the possible need to bond for perpetual treatment of the Crandall Mine water discharge.

The Division has calculated a reclamation amount for the proposed water treatment facility of \$ 2,971.00. The proposed facility is only a temporary unit, to determine if the Maelstrom oxidizer is effective in treating the high iron water reporting out of the UPDES outfall.

The \$2,971 amount is 0.14 % of the existing \$2,062,000 bond amount which is currently posted, therefore an increase in the bond amount is not necessary.

Terms and Conditions for Liability Insurance

Findings:

Conditional approval of this application is recommended.

Final approval will be granted when the Permittee provides

- 1) anticipated monthly operating costs for a Maelstrom oxidizer unit treating 600 GPM without the addition of chemicals.
- 2) the cost to replace the Maelstrom unit blower motor including motor cost, and labor (hours required and cost per hour).
- 3) Estimate of maintenance costs to clean sludge from the settling pond and dispose of the sludge material, including transportation costs.
- 4) The anticipated cleanout frequency required to maintain the settling pond.