



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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October 23, 2002

TO: Internal File
THRU: Peter H. Hess, Sr. Reclamation Specialist/Engineering, Team Lead *PHH by an*
FROM: Dana Dean, P.E., Reclamation Specialist/Hydrology *DD*
RE: Division Order 04-06-2000, West Ridge Resources, Inc., West Ridge Mine, C/007/041-DO00A-6

SUMMARY:

A Division Order was issued to West Ridge Resources, Inc. to submit as-built drawings and a detailed backfilling and grading plan on April 6, 2000. Since that time, the Permittee's responses have gone through several rounds of reviews, with the latest response coming in two parts on August 15, 2002 and October 3, 2002. The following is a technical review of the Hydrologic portions of the application that were modified in the latest response, not including the alternative sedimentation control areas (ASCA's).

Information found in the proposal is considered adequate to meet the requirements of the regulations.

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.

TECHNICAL MEMO

Analysis:

Diversions: General

Page 10a of Appendix 7-4 was reviewed and felt to be incomplete. However, it was determined via telephone conversation with the permittee's consultant, Mr. Dan Guy, P.E., of Blackhawk Engineering that the only error was in pagination. Page 10a should have been numbered Page 11a in the October 3, 2002 submittal. The permittee is aware of pagination errors that must be corrected when the clean copies of Appendix 7-4 are submitted, following conditional approval.

Diversions: Miscellaneous Flows

Drainage from the undisturbed areas will be directed through 14 underground culverts and 2 ditches to a discharge point below the disturbed area. Undisturbed culverts are properly sized for a 100-year, 6-hour storm event. Undisturbed ditches are properly sized for a 10-year 24-hour event with a minimum freeboard of 0.5 feet.

Drainage from the disturbed areas will be directed to a sedimentation pond via 14 ditches and 13 culverts. Disturbed culverts and ditches are sized for a 10-year 24-hour storm, the ditches having a minimum freeboard of 0.5 feet.

All culverts and ditches were sized using the Office of Surface Mining's STORM computer program, version 6.20 and Flowmaster version 3.43. Construction design recommendations are larger than the calculations call for, providing for factors of safety ranging from 1.1 to 4.8 for the culverts and the minimum freeboard of 0.5 feet for the ditches. All culverts will be fitted with trash racks at the inlet to keep rocks and debris from entering and plugging the culverts. The trash racks and culverts will be inspected regularly and cleaned as necessary. Outlets will also be inspected regularly and maintained as needed.

Siltation Structures: Sedimentation Ponds

There is one sedimentation pond at the West Ridge Mine, consisting of two cells. The pond has been designed to hold a 10-year 24-hour storm event. The application states that the total pond capacity is 8.170 acre-feet, with a sediment storage capacity of 1.824 acre-feet. Expected runoff volumes are: 2.160 acre-feet from the disturbed area, 2.790 acre-feet from the undisturbed area, and 0.277 acre-feet direct precipitation into the pond. The 60% sediment clean-out volume is 1.110 acre-feet in Cell A (6942.8 feet elevation) and 0.469 acre-feet in cell B (6928.8 feet elevation).

Sediment yields were calculated using the Universal Soil Loss Equation (USLE) and a total of 0.608 acre-feet of sediment is expected in 1 year (0.438 Cell A, 0.170 Cell B). In three years, the total sediment expected is 1.824 acre-feet (1.314 Cell A, 0.510 Cell B).

Discharge Structures

A riprap apron has been placed at the discharge of the final undisturbed culvert (UC-OO) to prevent erosion in the receiving channel. The apron is designed to fit the natural channel as closely as possible. The apron was designed for a 100-year 6-hour storm event.

Findings:

Information provided in the application is considered adequate to meet the minimum Hydrologic Information requirement of the Regulations.

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:

Certification Requirements

A professional engineer, registered by the State of Utah, has certified map 7-2, Mine Site Drainage Map as required. The map shows the location of each drainage area, culvert, drainage ditch, ASCA, and snow storage site.

Findings:

Information provided in the application is considered adequate to meet the minimum Maps, Plans and Cross Sections of Mining Operations requirement of the Regulations.

RECOMMENDATIONS:

Information provided in the application is considered adequate to meet the minimum requirements of the regulations. This application is recommended for approval.