RECEIVED
JUN 14 1979
STATE OF UTAH
Division of Oil, Gas
& Mining

FRANK M MINE WASTE AREA

SELECTION STUDY

This summarizes the results of a field reconnaissance survey for locating the mine portal and waste rock disposal area for subject mine. The field survey was performed March 12 to 16, 1979 by Dr. J. B. F. Champlin of Woodward-Clyde Consultants. He was accompanied in the field by Ms. P. Newman of Plateau Resources Limited.

General criteria for the site selection process were as follows:

.The length of unproductive drifting, between the mine portal and the ore body, was to be minimized in-so-far as practical. Preference was to be given to a drift distance of less than 2000 feet if possible. A greater drift distance would be considered if the length of the above-ground haul roads, between the mine portal and Highway 276 and between the portal and the waste rock disposal area, could be reduced thereby.

.Above-ground haul roads should be across exposed surfaces of the Salt Wash Member of the Morrison Formation, or its local equivalent in strength, thickness and soil properties. Exposures of Mancos or other shales should be avoided, if possible, to minimize problems with mud during inclement weather.

.The mine waste rock storage area must be clearly above flood levels in all drainage courses for all storms having a probability of occurrence greater than once in 500 years. This criterion is based on the draft EPA regulations for the disposal of hazardous wastes, proposed to implement the Resource Conservation and Recovery Act, PL 94-580.

.No deep canyons should be crossed by the ore haul road between the mine portal and Highway 276. Maximum grade on the haul road should not exceed 13 percent, if possible, although short grades to 20 percent could be tolerated, if necessary.

.The area draining to the mine waste rock disposal area should be as small as reasonably achievable to minimize water quality degradation and control concerns.

.Quantity of mine waste rock to be disposed from the Frank M mine is estimated to be 2.5 to 3.0 million cubic yards.

PRL provided colored aerial photographic coverage of the general area of interest. The photographs were useful for orientation in the field, for preliminary identification of potential waste disposal areas, and for classification of exposed formations. Also PRL provided topographic maps of the area. The maps were at a scale of one inch equal to 200 feet and with 10-feet contour intervals, and they were valuable for accurately locating and evaluating areas that were considered for mine waste disposal.

The Frank M Mine site is located in sections 2 and 3, Township 35 South, Range 11 East. It is about two to three miles northeast of the existing Tony M and Lucky Strike 10 mine sections, and about 6 miles north of the proposed Shootering Canyon uranium ore processing facility. Rugged terrain between the Frank M mine site and the existing mine sections and mine camp precludes economic development of a direct road between the two mine areas.

Uranium ore in the Frank M ore body is distributed over an area about one mile long in the east-west direction, and one-half mile wide in the north-south direction. The common (north-south) section line of sections 2 and 3 essentially bisects the ore body, and the ore body is generally within the middle one-half of the two sections. A major branch of Shootering Creek crosses the ore body approximately along the common section line. At the eastern edge of the ore body there is about 300 feet of cover over the ore whereas there are apporximately 1100 feet of cover over the mineralized zone at the western limits of the ore body.

Dr. Champlin's investigations started with a thorough map and photo study to identify potential mine waste storage basins. This was followed by a field inspection of each identified potential basin. The field inspection involved an appraisal

of the basin topography, structure and geology, potential acces routes to the basin from the mine area, and the possibility of using the waste haulage road for ore haulage to the processing plant. Basins that appeared satisfactory for waste disposal, based on the field evaluations, were then analyzed for capacity, flood potentials, road alignment and relative economic feasibility.

--Recommended Mine Waste Disposal Basin and Location of Mine Portal.

Principal features of the proposed mine waste rock disposal area and mine portal are as follows:

.The waste area would be able to accommodate approximately 5 million cubic yards of material.

.Area that would contribute drainage to the disposal site is small. The area within the drainage divide, as outlined on the maps, is about 220 acres.

.The bottom of the disposal basin is dense, well-cemented sandstone and pebble conglomerate. This material is underlain by shale. The walls of the basin are shales capped with dense, well-cemented sandstone and pebble conglomerate, extending to the level of the drainage divide. PRL's geologists are uncertain whether the stratigraphic sequence observed in the basin is a part of the Salt Wash Member or is an early portion of the Brushy Basin Member that overlies the Salt Wash Member. The stratigraphy is capable of retaining mine waste solids.

.A sharp topographic drop of over 20 feet at the lower end of the basin, and below the limits of the proposed disposal area, will place the waste well above maximum possible flood levels in the branch of Shootering Creek to which the waste disposal basin drains.

.The disposal area is near the proposed mine portal. The waste rock haul road would require only gentle grades for its full length.

.The mine portal would be at the closest practical location to Highway 276. An ore haul road from the mine portal to the highway would have a nearly uniform grade of about 5 percent, and would be about one mile long.

.The mine portal would be at the lowest practical elevation within the general area. Also the portal would be well above the level of all potential floods.

.Elevation of the mine portal is about 250 feet above the ore zone.

RECEIVED
JUN 14 1979
STATE OF UTAH
Division of Oil, Gas
& Mining