

DY SHAFT PILOT HOLE**INTRODUCTION**

In order to begin underground development of the Dy ore body, shaft access is required. Prior to shaft excavation, a pilot hole is necessary to:

- 1) confirm that the ground in the shaft location is acceptable;
- 2) quantify expected water in-flows;
- 3) define rock quality for contractor bids; and
- 4) ensure the shaft will not intersect ore.

PROBLEM

The problem is to define the geotechnical characteristics and hydrologic characteristics of the area of a proposed shaft for the Dy deposit. The shaft proposal is to gain access to the Dy ore by sinking on the northeast margin of the ore deposit from an elevation at surface of about 1,200 metres to an elevation of approximately 400 metres. A cross-cut south will access the ore body. Drifting along strike within the ore, or below it, with diamond drilling from the drift will define the various ore horizons.

SOLUTION

- 1) A consultant with expertise and experience in controlled drilling techniques will be hired to write drilling procedures and to word the drilling contract to best insure completion of the Dy shaft pilot hole to specifications.
- 2) Four or five shallow angle holes will be drilled to define the geologic structure at the site. The results will be integrated with geological mapping and drill results to date to define fault locations, and the collar of the shaft pilot hole will be sited to avoid the faults.
- 3) A diamond drill hole using controlled drilling techniques is required to assess the ground within the shaft location. Specifications for this hole will be 6.35 centimetre (2.5 inch) diameter core (HQ). The hole will be vertical and is not to deviate more than 2.44 metres (8 feet) from its collar. The hole will be approximately 850 metres (2,800 feet) to 925 metres (3,000 feet) deep. Drill techniques will employ large diameter drill string, stabilized core barrel, stabilization of the lower 15.24 metres (50 feet) of drill string, and weighted drill string. A mud program will be developed for this hole specifically. Directional control will be by combination of single shot and gyroscope methods. In the event that the hole does deflect, a down hole motor will be used to pull the hole back to vertical.

ALTERNATIVES

There is no known alternative to drilling the pilot hole other than sinking the shaft blindly, or drilling ahead of the shaft in three phases of 304.8 metres (1,000 feet) each, and delaying the shaft. It would be possible to prove that there is no ore in the vicinity of the shaft without controlled drilling, however geotechnical data would not be from within the shaft.

BENEFITS

This is a critical path item for the development of the Dy deposit and is justified on the same grounds as the mining of the Dy deposit is justified.

PROPOSED SPENDING

1990 Dy Shaft Pilot Hole	April	May	June	July
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Stage 1: Consultant	\$ 12,500			
Stage 2: Site Investigation	\$ 2,000	\$ 70,000		
Stage 3: Pilot hole			\$ 250,000	\$ 250,000
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