

**TASMANIA DEPARTMENT OF MINES  
UNPUBLISHED REPORT 1985/76**

**Examination of a proposed dam site at Grindelwald**

*by W. R. Moore*

As a result of the findings of an earlier report on a site for a proposed dam at Grindelwald, Legana (Moore, 1984), it was decided not to proceed with that particular site and a second site was selected.

The proposed site, on Muddy Creek, was examined on 17 January. This site appears to be underlain entirely by dolerite with thin superficial deposits of talus on the upper levels of the abutments. Dolerite, possible dolerite gravel and alluvial sediments thought to be overlying dolerite, occur in the reservoir area. The exposures in Muddy Creek indicate that the dolerite does not appear to be very jointed, and may require a drill hole and pressure testing for leakage, depending on the height of the proposed dam. A confirmatory seismic survey would be required across the abutments if this site is selected for the proposed dam. The dolerite is thought to be the deep high velocity layer present in the previous seismic survey spreads fired in the valley of the tributary of Muddy creek to the north.

During this mapping it was noticed that the ridge immediately upstream from the proposed site appeared to be a far more attractive dam site, with good exposures of dolerite occurring on both abutments. The reservoir area that would be flooded for a dam of the same height would give three to four times the volume of water.

At this stage any further investigation work on either of the sites appears unwarranted. Once the proponents have selected a site and the Rivers and Water Supply Commission have been consulted and permission for the dam to be constructed is finalised, then further investigation work may be required.

**Proposed dam site on southern tributary valley — Atkinsons Creek**

Two brief visits were made to the proposed site for a water supply dam for Grindlewald village. The first, on 27 March, comprised an initial visit to make a generalised geological appraisal of the site and included inspecting a series of shallow exploration pits on the valley floor. A second visit was made to collect some rock samples for petrological examination to establish if there was any basanite (a rock which is a Tertiary basalt with a doleritic texture) on the hill on which the water tower has been built for the Grindelwald village.

This report must be considered as only a preliminary appraisal, as no attempt has been made to geologically map the site or the reservoir area. At this stage this work does not appear warranted, although it may later be required by the site engineer or Rivers and Water Supply Commission.

The proposed dam is to have a long low wall across the wide valley and its greatest height will not exceed seven metres. From the series of shallow pits dug across the valley, the surface soil appears to be a friable silt underlain by clay. Some gravel occurs in the westernmost pit and river gravel may occur on the western side of the valley which could cause potential leakage problems, although the water would be expected to be shallow and clay blanketing could possibly seal off these sediments.

Talus and scree deposits of dolerite and/or basanite occur on the lower slope of the reservoir hill with outcrops of what appear to be dolerite capping its top. The dolerite has widely spaced

and tight joints and is not likely to leak. If these outcrops turn out to be basanite of Tertiary age rather than Jurassic dolerite then thin beds of sand and silty sand as well as clay may occur below the basanite and above the dolerite. These sediments may be hidden by the scree deposits on the lower slopes of this hill near the valley floor. If they occur in the reservoir area leakage may become a more potentially serious problem and surface geological mapping followed by subsurface backhoe exploration holes may become necessary.

When the centreline position of the dam is finalised and its height established, a shallow wide trench across the valley should be dug giving good exposures of the underlying sediments. If any gravel is encountered, even if it is boulders mixed with clay, deeper trenching will be required. This trench should be mapped geologically by an engineering geologist and samples of the clay collected for testing for possible piping. Any material to be used for the clay core and building of the dam walls should be checked by a suitable soil laboratory such as the Hydro-Electric Commission materials laboratory to the satisfaction of the site engineer.

### ***Atkinson Creek Damsite — petrology***

Dr D. Green, the Department's petrologist, has confirmed that the rock on the eastern abutment of the proposed dam site is basanite, not dolerite. This means that there is a possibility of sediment occurring below the talus on the eastern abutment as indicated above.

### **Reference**

MOORE, W. R. 1984. A preliminary seismic refraction survey of a proposed dam site at Grindelwald, West Tamar. *Unpublished Report Department of Mines Tasmania* 1984/60.

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