



Environmental Management Guidelines for Industry

BOREHOLE SEALING REQUIREMENTS ON THE BEDS OF WATER BODIES: COAL EXPLORATION

CONTENTS

	Page
1 PURPOSE	1
2 SCOPE	1
3 REFERENCE	2
4 DEFINITIONS	2
5 SEALING REQUIREMENTS	3
5.1 Filling Requirements	3
5.2 Cement Mixtures	3
5.3 Sealing Procedures	3
5.4 Rehabilitation Requirements	4
5.5 Survey Requirement	4
6 ATTACHMENTS	4

1. PURPOSE

This guideline specifically addresses the environment and safety requirements for drillholes pursuant to NSW mining legislation and conditions of mining and exploration titles.

The guidelines identify the basis for assessment for relinquishment of security deposits, as relates to condition of drillholes.

2. SCOPE

Part 5 Operation of Mines Section 137 of the Coal Mines Regulation Act 1982 No. 67 states:

'Where any borehole to which section 135 applies is:

(a) drilled from the surface or from underground-it shall, upon completion, be completely backfilled with material of an approved type unless otherwise directed by the Chief Inspector, or

(b) drilled from under water-it shall, upon completion, be sealed completely in the presence of an officer authorised by the Chief Inspector.'

Section 135.1 states"

"(1) Subject to subsection (4), any person who, at a mine, proposes to drill a borehole, or extend an existing borehole, for the purpose of proving coal shall, before commencing work, notify the Chief Inspector of his intention to do so and furnish to him particulars of the location of the borehole.

(2) A person referred to in subsection (1) shall furnish such additional particulars in relation to a borehole as the Chief Inspector may require.

(3) A requirement under subsection (2) may be made either before or after the commencement of the work to which the requirement relates.

(4) This section does not apply to boreholes put down to determine: (a) the extent of overburden; or

(b) the thickness and quality of coal,

for the purpose of open cut workings where the occurrence of coal has previously been proved."

The following guidelines are intended to assist the licence holder in the sealing of boreholes drilled in waterbodies.

The guidelines do not specify quantitative information for seal works as it is not intended to restrict innovative design. Where specific design or procedures are required, advice should be sought from Chief Inspector of Coal Mines, Department of Mineral Resources.

3. REFERENCE

Standard Conditions Of Authority - 1997 (Coal)

Coal Mines Regulation Act 1982

Mining Act 1992

Document 08060201.GUI - Department of Mineral Resources "Guidelines For Borehole Sealing Requirements On Land

Document 08060201.QSR - Statutory Declaration Department of Mineral Resources "Exploration Licence - Confirmation of Sealing and Rehabilitation of Exploration Sites"

Department of Mineral Resources Drillers Guide

4. DEFINITIONS

shall - means that the requirement is mandatory

should - means recommended. If not adopted the decision shall be justified by a documented risk review.

Waterbodies (Coal Mines Regulation Act 1984 Part 3 Methods and Systems of Working - Underground Mines) Section 11) - means in relation to all mines the ocean, a river, a creek, a brook, a lake, an estuary, a reservoir or an aquifer where the water from which, if it were to enter a mine, would create a danger

5. SEALING REQUIREMENTS

5.1. Filling Requirements

All boreholes shall be filled in from the total depth to the bed of the waterbody with approved cement mixtures, in such manner that no excess is deposited on the waterbody bed which may interfere with boating or marine activities.

If a hole is left open temporarily for any reason a suitable casing cap or bridge must be placed over the top of the hole for the period involved.

5.2. Cement Mixtures

Approved cement mixtures shall be designed to support the maximum allowable length of grout and provide an effective seal within the hole.

Approved cement mixtures shall not be deposited in more than two hundred (200) metres of vertical depth in any borehole at any one time. Setting and weight testing shall be satisfactory completed and recorded before any further cement mixtures can be deposited in the borehole. Representative samples of the concrete mixture shall be kept for strength determinations

5.3. Sealing Procedures

No borehole drilled under waterbodies shall be left in an open state.

Records shall be kept to demonstrate the method used to seal the hole, volumes and types of materials used and information on the drillhole such as depth, diameter and casing string(s) left in the hole. Any loss of cement mixture due to high flow aquifers or permeable strata shall also be recorded and the method used to overcome these problems. All records relating to the sealing of boreholes shall be provided to the Department together with a declaration by the titleholder confirming that the work was carried out according to these guidelines and documenting any variations with supporting explanation.

All boreholes must be sealed by pumping the cement mixture from either the base of the hole or the bottom of the previously cemented section of the hole.

The cement maybe preceded and/or followed by plugs. The position of the plugs in the borehole shall be determined before further grouting. In the event that a number of plugs are used within a borehole, the plugs must be placed so as not to leave a significant unfilled section between the plug and the underlying previously cemented section.

When grouting surface casing the cement mixture should be allowed to extrude from the annulus between the casing and the borehole wall or another larger diameter casing string.

All boreholes should be depth tested between all grouting and plug operations to determine if the level of the grout in the borehole is higher than shown in the calculations. All depth testing for this purpose shall be recorded.

No excess of cement mixture excess shall be deposited on the bed of the waterbody.

In order to produce an effective seal all casing strings that are not cemented into place according to these guidelines must be removed prior to or during the sealing of the hole. Where non-grouted casing cannot be removed, the casing must be perforated and grout must be pumped under pressure to fill the annulus behind the unsealed casing. In this situation it may be necessary to place a suitable bridge or plug near the base of the affected casing in order to facilitate the injection of grout behind the casing.

5.4. Rehabilitation Requirements

In the event that any excavations were made in conjunction with any borehole drilled under waterbodies than such excavations shall be refilled, levelled and rehabilitated. The area shall be left in a clean, tidy and safe condition.

Ensure that the company carrying out the drilling operations have complied with the Conditions Of Authority - Coal and any other conditions as set by the Department of Mineral Resources and any other Government instrumentality.

The Department of Mineral Resources shall receive notification when the borehole(s) are abandoned.

An application for assessment of relinquishment of the security deposit in accordance with the guidelines shall be accompanied by Document 08060201.QSR - Statutory Declaration Department of Mineral Resources "Exploration Licence - Confirmation of Sealing and Rehabilitation of Exploration Sites."

5.5. Survey Requirements

All boreholes shall be surveyed in compliance with the Conditions of Authority -Coal

A reference mark shall be placed on the shore in the vicinity of each borehole with a side traverse of the borehole for relocation purposes.

All reference marks shall be surveyed with a vertical position accuracy of +/- 0.3 metres and a horizontal position accuracy of +A 1.0 metres. The vertical position shall relate to the Australian Height Datum (AHD) level values and the horizontal position shall relate to the Integrated Survey Grid (ISG) co-ordinate values.

6. ATTACHMENTS

Document 08060201.QSR - Statutory Declaration Department of Mineral Resources "Exploration Licence - Confirmation of Sealing and Rehabilitation of Exploration Sites". Available as a "Word" template as EDG01F01.

For further information and contact details see www.minerals.nsw.gov.au, or telephone (02) 9901 8888.