

73/21

RECORD

REPT.BK.NO.73/21

*Depot*

ENG. GEOLOGY SECTION



GROUNDWATER SURVEY

Hundred Onkaparinga Section 3941

A. BELPERIO

Department of Mines  
South Australia —

73/21

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DEPARTMENT OF MINES  
SOUTH AUSTRALIA

GEOLOGICAL SURVEY  
ENGINEERING DIVISION

GROUNDWATER SURVEY

Section 3941, Hundred Onkaparinga

by

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STUDENT GEOLOGIST  
HYDROGEOLOGY SECTION

REPT. BK. NO. 73/21

DEPARTMENT OF MINES  
SOUTH AUSTRALIA

Rept. Bk. No. 73/21  
G.S. No. 5027  
Hyd. No. 2473  
D.M. No. 1332/72

GROUNDWATER SURVEY

Location

General: 6.5 km (4 miles) east of Charleston

Region: 4

County: Adelaide

Hundred: Onkaparinga

Section: 3941

Name of Property: Dalintober Springs

Owner: M.R. Priest

Postal Address: Box 21, Oakbank, S.A.

Telephone: 884.245

Requirements

Water required for: Cattle and household use.

Quantity: Not specified

Quality: Not specified but should be less than 10,000 milligrams per litre for stock. (1 mg/l is numerically equivalent to 1 part per million).

HYDROGEOLOGICAL REPORT

Physiography and Land Use:

The topography is mature with rounded hills, moderate slopes and shallow valleys. Drainage on the property is northerly into a tributary of the River Onkaparinga.

The area has been moderately cleared of scrub. Subject to sufficient bore water being available, the owner intends to divide the section into several paddocks with piped water for breeding stud cattle.

#### Climate:

Nearest rainfall station: Lobethal

Mean annual rainfall: 847 mm (33.33 ins.) averaged over 30 years.

Remarks on rainfall pattern: According to the owners, the rainfall on the property has averaged 864 mm (34 ins) over the past 5 years. All months of the year average at least 25 mm (1 inch) of rain.

#### Surface Hydrology:

Creek name: Unnamed low order tributaries of the River Onkaparinga.

Characteristics: Seasonal, running mainly through the spring and winter months.

Springs: Two minor seepages, which although reported to provide a year round pool of water, cannot be developed as a major water supply since the seepage is associated with a coarse sand horizon in the soil over weathered bedrock and at the time of the inspection, was no more than five to ten litres per hour, (one or two gallons per hour).

Surface storage: There are two existing dams on the property providing stock water. One of these could possibly be enlarged. It would not be feasible to construct any new dams because of the thinness of the soil cover.

#### Geology

Soil cover: An incomplete thin veneer of sandy clay soil overlies weathered bedrock. Soil thickness ranges from 30 cms on the slopes to several metres in some parts of the shallow valley. The soil is extremely sandy in parts, especially in the vicinity of the seepages.

Rock Units: Kanmantoo Group undifferentiated schistose sandstones and schistose quartzites.

**Lithology:** The rock type underlying the property is essentially a foliated medium grained micaceous sandstone in parts approaching gneissic composition.

Minor outcrops of quartz-amphibole rock also occur.

**Direction and Amount of dip:** Schistosity in the sandstones dips about 40° towards the south-east.

**Structural Features:** The sandstone is quite strongly jointed parallel to the schistosity.

#### Aquifer Assessment:

**Types:** Free water table. Groundwater is stored in fractures and joints within the bedrock. The bedrock, being moderately porous, is likely to be saturated with groundwater.

**Extent:** Throughout the property but would be much shallower in the valley.

**Potential Recharge:** The high rainfall, sandy soil, moderate slopes and good rock outcrop in the adjoining Section 3945 should result in a moderate to high recharge at the proposed bore site.

#### Borehole Site Location:

**General:** On the creek bank near the northeastern corner of the property.

**Reason for location:** This proposed site is closest to an area of potential maximum recharge in the adjoining Section 3945 and hence is likely to give the best quality and quantity of water.

**Proposed Depth:** 60 metres (200 feet)

**Expected Yield:** 2300 to 4500 litres per hour (500 - 1000 gallons per hour)

**Expected Quality:** Of the order of 2000 milligrams per litre.

**Probable Log:** Clayey sand over micaceous sandstone, weathered at the top.

#### Drilling and Testing Recommendations:

**Drilling Hazards:** Due to the hard nature of the sandstone, the use of a

rotary percussion drill is recommended. Casing need only be used until fresh unweathered bedrock is reached.

Sampling: Water samples should be taken at regular intervals (say every 5 m) and tested for approximate total dissolved salts, (this Department will analyse free of charge 1 litre or 26 fl. oz. samples). Rock samples should be collected at regular intervals (say every 2 m) to enable additional advice to be given if required.

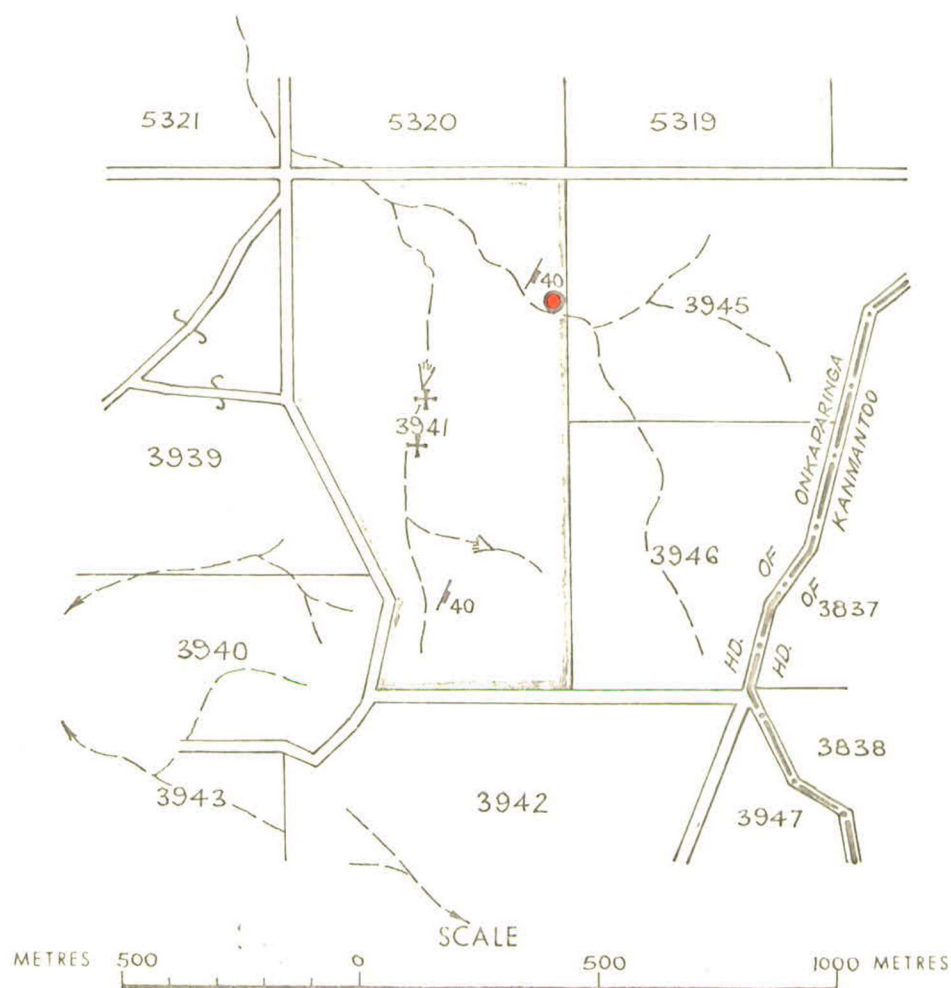
Pump Test: This service can be supplied by the driller and/or pump distributor.

Summary:

The property inspected is underlain by hard micaceous sandstones. The rocks, although only moderately porous, are well jointed and recharge is expected to be moderately high. A bore to 60 metres at the recommended site should provide stockwater of adequate quantity and quality.

APB:MFV  
22nd January, 1973

*A. Belperio*  
A.P. BELPERIO, B.Sc.  
Student Geologist  
Hydrogeology Section.



## LEGEND

 Kanmantoo Group - Undifferentiated schistose quartzite.

Strike and dip of bedding ..... 60  
 Strike and dip of jointing ..... 50  
 Strike and dip of foliation ..... 35  
 Strike and dip of cleavage ..... 45

Geological boundary .....  
 Fault line .....  
 Drainage lines .....  
 Surface storage .....

Existing borehole ..... 160 - Depth in metres  
 2015 - Salinity in milligrams per litre  
 5000 Supply in litres per hour  
 2.72 - Month/year

Well .....  
 Spring .....  
 Abandoned borehole .....  
 Proposed borehole .....

## DEPARTMENT OF MINES - SOUTH AUSTRALIA

HYDROGEOLOGY SECTION

Compiled. *A. Belperio*

Drn. *D.J.M.*

Ckd. *A.F.*

## GROUNDWATER SURVEY

SEC. 3941 HD. ONKAPARINGA

M. R. PREIST

Date. 30 Jan. '73

Drg. No.

S10126  
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