

POWER AND WATER AUTHORITY
REPORT NO 73/88D

Bore Completion Report
BORE 24305
MARYINGAR OUTSTATION

REPORT

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1. GROUNDWATER QUALITY

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LIST OF ABBREVIATIONS

AMG	-	Australian Map Grid
°C	-	degree Celsius
ID	-	internal diameter
km	-	kilometre
L/s	-	litre per second
L/c/d	-	litre per capita per day
m	-	metre
m ³ /d	-	cubic metres per day
mg/L	-	milligrams per litre
mm	-	millimetre
pH	-	acidity and alkalinity index
SWL	-	standing water level
us/cm	-	microsiemens per centimetre

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1. INTRODUCTION

The objective of this work was to investigate the groundwater potential and subsequently construct a production bore providing water supply for the Maryingar Outstation. The work was carried out in October 1986 and July 1987 by Water Resources Group of the Water Directorate on behalf of the Office of Local Government.

Preliminary hydrogeological study, interpretation of aerial photographs, hydrochemical study and other relevant studies of the area were carried out in the office and resulted in selection of three sites.

Maryingar Outstation is situated some 50 km east of Port Keats at the AMG co-ordinates 603000 - 8442200 (Keats 1:100 000 Sheet 4869). It is accessible by four wheel drive track for most of the year.

The area lies in the Cambridge Gulf Lowlands physiographic unit, one of three basic physiographic units in Port Keats sheet area. The unit forms a belt along the coast of Joseph Bonaparte Gulf and is underlain by palaeozoic and mesozoic rocks of the Bonaparte Gulf Basin. Maryingar Outstation is located within this unit, on flat and low lying soil and marshy alluvium plains.

Climate of the area is monsoonal. The mean annual rainfall is about 1300 mm and the mean annual evaporation is about 2700 mm. The coolest months are June and July with mean minimum temperatures of 20.3°. October and December are the hottest months with mean maximum temperatures of 32.6°C.

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2. HYDROGEOLOGY

The area is located in the western margin of the Cambrian to Cretaceous Bonaparte Gove Basin and lies on the geological map Port Keats 1:250 000 Sheet SE52-11. The area is underlain by the Mesozoic sediments and covered in turn by the Cainozoic sediments. The Cainozoic sediments mainly consist of laterite, sandy soil and alluvium.

The Mullaman Beds which are a water bearing formation in the area are composed of friable sandstone, siltstone, conglomerate and various coloured plastic clay.

During the investigation drilling in the first bore located in the vicinity of Maryingar Outstation aquifer was struck between 20.0 m - 26.0 m of depth in Mesozoic sandstone and supply about 2.0 L/s.

3. WATER QUALITY

The water quality results from Bore 24305 are summarised in Table 1. The water is within the recommended limit for drinking water as adopted by the Australian Water Resources Council/National Health and Medical Resource Council (Reference 1) except for low pH. There appears to be no health risk associated with the bore has low pH.

4. WATER DEMAND

The present and future demand of Maryingar outstation could be met with supply from Bore 24305. The demand is estimated to be 24.0 m³/d (based on 1200 L/c/d).

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5. RESULTS

One bore (24305) was drilled and constructed with PVC casing and telescopic steel screens.

An eight hour constant discharge test and a recovery test were carried out on the bore and water samples were collected.

The test pump report (Test Report Bore RN 24305) indicated maximum pumping rate of 2.0 L/s with the relevant pump setting of 20.0 m below the ground level.

The maximum continuous pumping rates and pump setting depth are based on available hydraulic data, which are considered safe but not conservative.

6. RECOMMENDATIONS

It is recommended that:

- the pump setting depth should be 20.0 m below ground level for a pumping rate from 1.0 to 2.0 L/s.
- absorption trenches and septic tanks be located in a minimum distance of 100 metres from the bore.
- corrosion resistant fitting should be considered when the bore is equipped.

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REFERENCES

1. Australian Water Resources Council/National Health and Medical Research Council - Guidelines for Drinking Water Quality in Australia. Australian Government Publishing Service, 1987.
2. MORGAN, C.M.; 1972 - Explanatory Notes on the Port Keats Northern Territory 1:250 000 Geological Series; Bureau of Mineral Resources, Australia. Port Keats NT 1:250 000 Sheet SD/52-11 Geological Series - Explanatory Notes BMR, Australia.

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TEST REPORT — BORE RN. 24305

Bore location: Maryingar Outstation
Wadeye

Client/owner: Jacob Miler
Client's reference:
Purpose of supply: Outstation

Map: Keats 1:100 000 Sheet 4869
Grid reference: 603000 - 8442200

RECOMMENDATIONS

Pumping rate: 2.0 L/s. Pump setting: 20.0 m below ground level

General recommendations are given on the reverse side.

The aquifer and bore ~~can~~ cannot sustain higher pumping rates with deeper pump settings or for short periods in favourable seasons. Further advice can be obtained from: PAWA, Water Directorate (In all correspondence refer to the bore's RN number). SASCO House, DARWIN

BORE DATA

Finished depth: 26.85 m Completion date: 29/10/87 Test date: 21/7/87

Standing water level 5.91 m on 21/7/87

Construction details:

AQUIFER TEST

Test rates: 1.06, 1.5, 1.9 L/s
Test duration 8 hrs

Interval (m)	Description
0 - 24.85	154 mm ID Blank PVC
24.50 - 26.85	107 mm ID Telescopic stainless steel screens with 0.89 mm slots and sump

- Notes: 1. Top of casing as constructed was 0.20 m above ground
2. All depths are measured from natural ground level
3. Test rates are not indicative of safe long term pumping rates.

WARNING: MINIMUM INTERNAL BORE DIAMETER IS 107 mm Nominal size

COMMENTS

- These results are based on a limited test for 8 hours and assume that hydrological conditions will remain constant for long term pumping.
- Provisions to obtain water samples at the bore head should be incorporated in any reticulation.

WATER QUALITY

See water laboratory report (Analysis No. 87/88/0206)

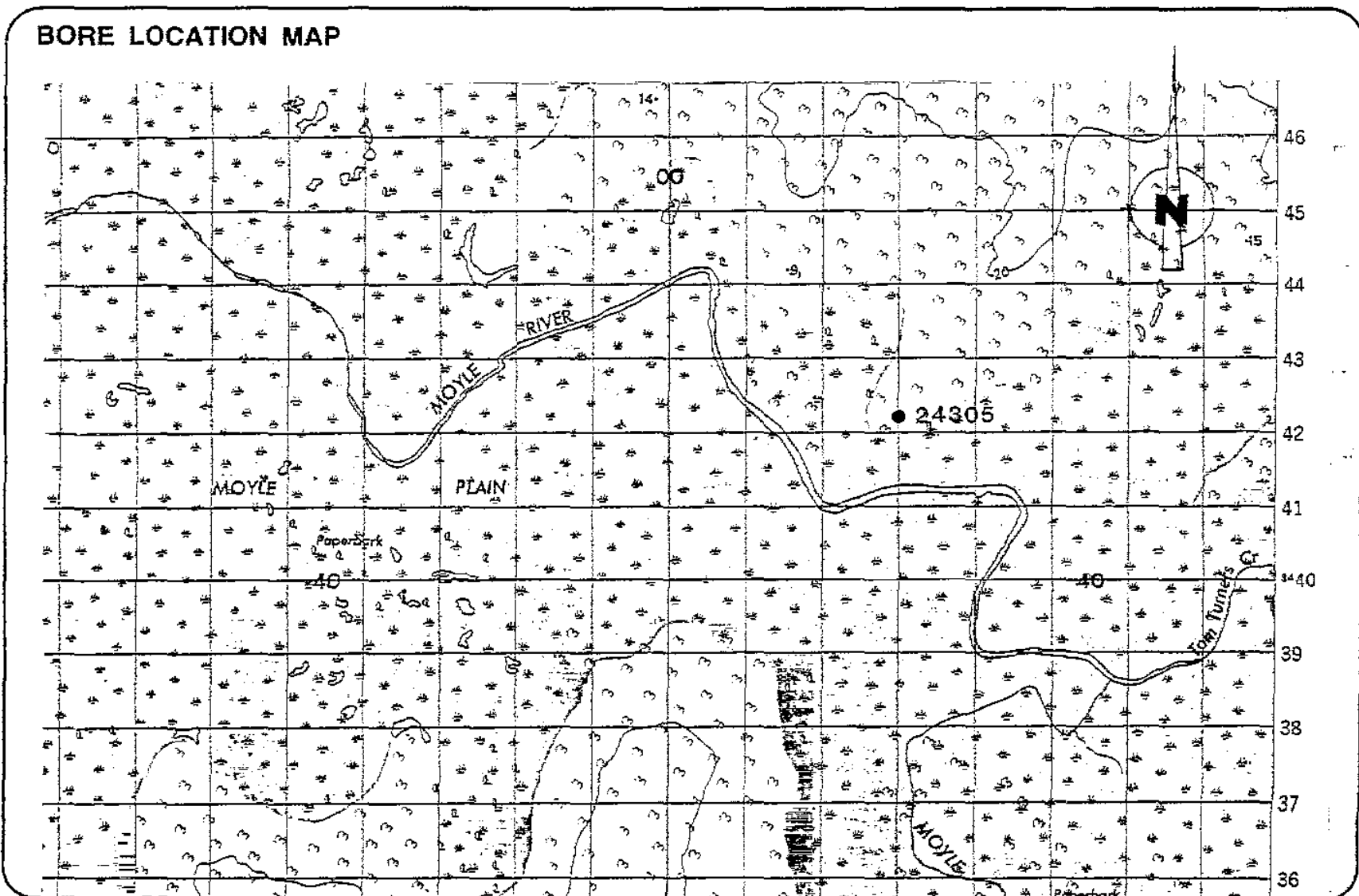
WRD4020 By: J Rykiert

RECOMMENDATIONS FOR FINISHING, OPERATING AND PROTECTING GROUNDWATER BORES

Attention to the following points will ensure a long and safe life for the bore supply and help prevent pollution of the groundwater resource.

1. Construct a concrete apron around the bore head to prevent surface flow, seepage and waste from entering the bore.
2. Seal the space between the casing and pump equipment to prevent entry of vermin, dirt and pollutants.
3. Maintain pumping equipment in good order to prevent pollution. Prevent spillage of fuel and oil on the ground around the bore. Store fertilizer and other chemicals at least 50 m away.
4. Keep stock away from the bore head. Discourage domestic activity at the bore. The first tap on the pipeline should not be less than 5 m from the bore head.
5. Pumping the bore at higher than recommended rates may fork the bore leading to instability or pump maintenance problems. Seek the professional advice of an hydrogeologist or groundwater engineer.
6. If the bore is no longer required, the casing is to be removed or securely capped and the bore backfilled with clayey material. A cement plug may be required in some instances.

In addition, please ensure that the BORE IDENTIFICATION TAG is retained securely at all times. The registered bore number is Water Resources Division's only reference to the scientific and engineering data on this bore, and hence important to WRD's further advice to bore owners.



G. L. DUFFIELD, Government Printer of the Northern Territory

