DRILLING AT SIX HERMANNSBURG OUTSTATIONS 1987

(UNDAKARAI, IPOLERA, ANTJAKWERA, LYILJERA, KWALA AND INTJARRTNAAMA)

Report 29/1987

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LIST OF ABBREVIATIONS

RN    Registered Number
L/s   litres per second
m     metre
mm    millimetre
km    kilometre
mg/L  milligrams per litre
µS/cm micro-Siemens per centimetre
TDS   Total Dissolved Solids
SWL   Standing Water Level (m below ground level)
1. INTRODUCTION

The objective of the work described in this report was to construct potable water supply bores for six outstations in the vicinity of Hermannsburg. The names of the outstations and their locations are shown in Figure 1.

The work was carried out by Water Resources Branch, PAWA, on behalf of the Office of Local Government. Bores were drilled and constructed by the period drilling contractor.

Geological field work was undertaken in March 1987. Eight sites were selected for drilling. Successful bores were test pumped in June 1987. All field work was carried out in co-ordination with the Hermannsburg community advisor, Mr Glenn Auricht.

The aim of this report is to provide recommendations on the use of the recently constructed bores. The report also presents brief hydrogeological comments that could assist future groundwater investigations in the area.

2. WATER DEMAND

According to information provided by the community advisor, the population at each outstation will be less than 50 people. An output of 1 L/s per constructed bore was considered sufficient for most of the outstations. The exception was Ipolera, an outstation where a small tourist operation will be developed. It was estimated that Ipolera would require a bore yielding 2 L/s.

These estimates were based on the present water demand at the Uluru aboriginal community. The community has 200 inhabitants; 1987 records show it to consume an average of less than 400 litres per person per day. This demand could be met by a bore yielding 1 L/s.
3. HYDROGEOLOGY

All the outstations lie in the area between the Krichauff and Macdonnell Ranges (Figure 1). The average annual rainfall in the region is approximately 250 mm, and average annual evaporation exceeds 2500 mm.

Both the Macdonnell and Krichauff Ranges are formed by rocks of the Amadeus Basin sequence. Some formations within this sequence are capable of yielding potable groundwater supplies.

Outstations Ipolera, Antjakwera (Sugar Creek), Ljiljera, and Intjarrtnama, located at the foot of the Krichauff Ranges, are underlain by Hermannsburg Sandstone. This sandstone usually provides supplies of less than 3 L/s when drilled to depths sometimes exceeding 200 m.

Outstations Kwala and Undarana are located away from the ranges, on the Missionary Plain. The plain is underlain by Brewer Conglomerate. Bores drilled in this formation have generally been saline or dry. Drilling for these outstations was nevertheless recommended, because of their proximity to major creeks. Such proximity often has a favourable influence through recharge on the water quality of otherwise saline aquifers. The possibility of fresh water being available in usable amounts near the outstations was also supported by the presence, in both areas, of small potable groundwater supplies. At Kwala there is an old unregistered well constructed in the sand of the Ellery Creek which is used occasionally. At Undarana, a seismic hole (RN 5089) was cased and provides a supply of less than 0.3 L/s. Neither supply meets present groundwater demands.
4. DRILLING RESULTS

Drilling results are summarised in Table 1. They show that the bores drilled in Hermannsburg Sandstone were successful, while the bores drilled in Brewer Conglomerate were unsuccessful.

4.1 Hermannsburg Sandstone

The bores drilled in Hermannsburg Sandstone could be further subdivided into bores that were less than 100 m deep and bores that were over 100 m deep.

Bores less than 100 m deep were constructed at Ipolera and Antjakwera. In both locations the siting of the bores was based on air photo interpretation. The bores were placed in line with major lineaments crossing the nearby ranges. Such lineaments are formed by erosional incisions in the outcrops of Hermannsburg Sandstone and are characterised by straight line drainage patterns. They were interpreted as representing fracture zones. This interpretation seems confirmed by the higher yield obtained at Antjakwera and the shallower water strike at both locations (Table 1).

Bores over 100 m deep were drilled at Intjarrtnama and Ljiljera. At Intjarrtnama no structural features were seen on air photographs and the bore was 194.4 m deep. At Ljiljera, groundwater feeds permanent springs discharging from small fractures in outcrop. Consequently, no use was made of air photo interpretation. The bore was sited along the strike of these fractures, less than 40 m from the springs. However, it struck sufficient water only after drilling progressed beyond 100 m (Table 1).

That the distinction is not due merely to position up or down dip was verified by comparison with production bores in the Hermannsburg borefield, where no such correlation exists.
4.2 Brewer Conglomerate

At Undarana three unsuccessful bores were drilled. The first two bores, RN 14953 and RN 14954 were sited 300 to 400 m north of the existing low yielding production bore (RN 5089) and struck no supplies (Table 1). The third bore, RN 14958, was sited 50 m from the existing production bore. Seepage was struck; as it had a specific conductance much greater than the value reflecting potable salinity, the hole was backfilled.

At Kwala a bore was drilled next to the existing well. It struck, at 15 m, groundwater with high specific conductance values (Table 1). It was also backfilled.

5. PUMPING TESTS

A preliminary test, five 80-minute step-drawdown tests, and a 24 hour constant rate test were performed on each of the cased bores. Recovery of the bores after pumping was also measured. Time-drawdown graphs and data obtained are available at the Water Resources Library in Alice Springs. Test reports are appended to this report; recommendations relevant to equipping the bores are included in Table 2.

6. WATER QUALITY RESULTS

Water samples were collected during the pumping tests. Chemical analyses were carried out; results are presented in Table 3. They show that groundwaters struck at Ipolera, Antjakwera, Ljiljera and Intjarrtnama satisfy the guidelines for human consumption set by the Australian Water Resources Council and the National Health and Medical Research Council.
7. CONCLUSIONS

1. Successful bores were completed at outstations Ipolera, Antjakwera, Ljiljera and Intjarrtnama. At each one of these outstations the client's requirement was met as potable supplies of 2 L/s or more were obtained. Unsuccessful drilling was carried out at Undarana and Kwala, where bores were either saline or dry.

2. Drilling results suggest that a strict geological control exists in the Hermannsburg area over the occurrence of potable groundwater supplies.

Supplies can be obtained only by drilling into favourable formations, such as Mereenie, Pacoota and Hermannsburg Sandstones. These formations crop out in limited areas, within and next to the Krichauff and Macdonnell ranges and in the vicinity of Gosses Bluff (Figure 1).

The groundwater source most accessible to drilling in the area is the Hermannsburg Sandstone. This sandstone, which provided all the potable supplies found by the present drilling programme, crops out mainly on the margins of the Missionary Plain, and also in the Macdonnell and Krichauff Ranges.

Outside of these areas, in the general area of the Missionary Plains, groundwater prospects are extremely poor. The four bores drilled away from the ranges during the present drilling programme were either saline or dry.

Groundwater supplies for Kwala may exist south of its present location, in the vicinity of the Krichauff Ranges. Groundwater supplies for Undarana may be found some 10 km north or northwest of its present location, next to the MacDonnell Ranges. Both proposed areas are underlain by
Hermannsburg Sandstone.

3. Factors normally having a positive influence on the occurrence of potable supplies, such as proximity to recharge sources, seem to have little weight in the Hermannsburg area. For example, levels of salinity were high at a shallow bore drilled next to Ellery Creek, one of the main streams crossing the area (RN 14959).

4. The Hermannsburg Sandstone is not an ideal target as bores are generally deep and supplies are usually small. The depth of production bores in Hermannsburg Sandstone can, nevertheless, be decreased and their yield increased by siting them on geological structures such as fracture zones or faults. Two bores, RN 14955 and RN 14956, struck such targets. The former was only 48.3 m deep and the latter obtained an airlifted yield of 10 L/s.

Such structural targets can sometimes be detected by air photo interpretation. Resistivity traversing could perhaps assist in their location especially in areas next to the Krichauff Ranges, where piezometric levels are high and fractures (occasionally forming permanent springs) may be detectable as conductors.
8. RECOMMENDATIONS

1. All the bores should be equipped in accordance with the data set out in the attached test reports. Any bore not equipped must be kept sealed by a screwed or welded cap.

2. Due to the confined nature of the aquifer, no particular pollution protection radius has been specified. Bore headworks should prevent the ponding of runoff around any bore, and fuel storage tanks should not be sited immediately upslope of any bore. Pit latrines or septic systems nearby should be sited and constructed according to Department of Health standards.

3. Maximum continuous pumping rates, as recommended in Table 2, should not be exceeded. As the pumping rates were derived from pumping tests on the bores, they do not necessarily coincide with airlifted yields listed in Table 1, which are preliminary estimates made during drilling.

4. No additional drilling is recommended at Kwala or Undarana. The present drilling program has confirmed the low groundwater potential in the vicinity of these outstations.

5. Due to the difficulties that groundwater exploration can encounter in the areas surrounding Hermannsburg, groundwater supplies should be secured and tested before incurring the expense of building living facilities such as those at Undarana. This recommendation applies in particular to the area of the Missionary Plain, where groundwater resources are scarce, and in general, to all communities wanting to establish themselves in localities where permanent surface water is not available.
ATTACHMENTS

Figure and Tables
<table>
<thead>
<tr>
<th>RN (REGISTERED NUMBER)</th>
<th>LOCATION (SEE FIG 1)</th>
<th>GEOLOGICAL FORMATION</th>
<th>LITHOLOGY</th>
<th>TOTAL DEPTH</th>
<th>AQUIFER DEPTHS AND AILIFTED YIELDS</th>
<th>TOTAL AIRLIFTED YIELD</th>
<th>SPECIFIC CONDUCTANCE (μS/cm)</th>
<th>CONSTRUCTION STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>14952</td>
<td>Intjarrtnama</td>
<td>Hermannsburg Sandstone</td>
<td>Sandstone (0 - 194.6 m)</td>
<td>194.6 m</td>
<td>121 m + 0.3 L/s 145 m + 0.6 L/s 176 m + 0.9 L/s 188 m + 0.2 L/s</td>
<td>2 L/s</td>
<td>810</td>
<td>Cased for Test Pumping (see Table 2)</td>
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<tr>
<td>14953</td>
<td>Undarana Brewer</td>
<td>Brewer Conglomerate</td>
<td>Brown, calcareous, clayey semi-consolidated sandstone (0 - 60.5 m)</td>
<td>60.5 m</td>
<td>Dry Hole</td>
<td>Dry Hole</td>
<td>-</td>
<td>Backfilled</td>
</tr>
<tr>
<td>14954</td>
<td>Undarana Brewer</td>
<td>Brewer Conglomerate</td>
<td>Same as above</td>
<td>60.5 m</td>
<td>Dry Hole</td>
<td>Dry Hole</td>
<td>-</td>
<td>Backfilled</td>
</tr>
<tr>
<td>14955</td>
<td>Ipolera</td>
<td>Hermannsburg Sandstone</td>
<td>Sandstone (0 - 48.3 m)</td>
<td>48.3 m</td>
<td>22 m + 0.25 L/s 26 m + 1 L/s 44 m + 1.25 L/s</td>
<td>2.5 L/s</td>
<td>970</td>
<td>Cased for Test Pumping (See Table 2)</td>
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<td>14956</td>
<td>Antjakwera</td>
<td>Hermannsburg Sandstone</td>
<td>Sandstone (0 - 78.8 m)</td>
<td>78.8 m</td>
<td>75 m + 10 L/s</td>
<td>10 L/s</td>
<td>1000</td>
<td>Cased for Test Pumping (See Table 2)</td>
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<td>14957</td>
<td>Ljiljera</td>
<td>Hermannsburg Sandstone</td>
<td>Sandstone (0 - 112.2 m)</td>
<td>112.2 m</td>
<td>58 m + 0.2 L/s 107 m + 1.8 L/s</td>
<td>2 L/s</td>
<td>860</td>
<td>Cased for Test Pumping (See Table 2)</td>
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<td>Undarana Brewer</td>
<td>Brewer Conglomerate</td>
<td>Brown, calcareous, weathered sandstone (0 - 90 m) Calcarenite interbedded with siltstone (90 - 121 m)</td>
<td>121.5 m</td>
<td>Seepage Only</td>
<td>Seepage Only</td>
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<td>Backfilled</td>
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<tr>
<td>14959</td>
<td>Kwala</td>
<td>Brewer Conglomerate</td>
<td>Gravel, weathered sandstone</td>
<td>15.0 m</td>
<td>11 m + 1 L/s</td>
<td>1 L/s</td>
<td>5700</td>
<td>Backfilled</td>
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</table>
### TABLE 2

**BORE CONSTRUCTION DETAILS AND PUMPING RECOMMENDATIONS (HERMANNSBURG OUTSTATIONS 1987)**

<table>
<thead>
<tr>
<th>RN (REGISTERED NUMBER)</th>
<th>LOCATION (SEE FIGURE 1)</th>
<th>SURFACE CASING (DEPTH ID)</th>
<th>INTERNAL CASING (DEPTH ID)</th>
<th>PERFORATIONS (DEPTH INTERVAL)</th>
<th>RECOMMENDED PUMP SETTING</th>
<th>STANDING WATER LEVEL JUNE 1987</th>
<th>RECOMMENDED MAXIMUM CONTINUOUS PUMPING RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>14952</td>
<td>Intjarntana</td>
<td>2.3 m - 203 mm</td>
<td>195 m - 152 mm</td>
<td>182.6 m - 188.6 m</td>
<td>142 m</td>
<td>41 m</td>
<td>2 L/s</td>
</tr>
<tr>
<td>14955</td>
<td>Ipolera</td>
<td>9.1 m - 203 mm</td>
<td>48.2 m - 152 mm</td>
<td>37 m - 43 m</td>
<td>36 m</td>
<td>16.9 m</td>
<td>2 L/s</td>
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<tr>
<td>14956</td>
<td>Antjakwera</td>
<td>6.5 m - 203 mm</td>
<td>79.2 m - 152 mm</td>
<td>72.7 m - 78.8 m</td>
<td>60 m</td>
<td>2.7 m</td>
<td>8 L/s</td>
</tr>
<tr>
<td>14957</td>
<td>Ljiljera</td>
<td>6.6 m - 203 mm</td>
<td>112.5 m - 152 mm</td>
<td>99.2 m - 105.7 m</td>
<td>80 m</td>
<td>4.9 m</td>
<td>2 L/s</td>
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</table>

[ ID = INTERNAL DIAMETER ]
### WATER QUALITY DATA

**HERMANNSBURG OUTSTATIONS 1987**

**TABLE 3**

<table>
<thead>
<tr>
<th>BORE REGISTERED NUMBER</th>
<th>DATE OF SAMPLING</th>
<th>SPECIFIC CONDUCTANCE µS/cm</th>
<th>TDS</th>
<th>pH</th>
<th>Na</th>
<th>K</th>
<th>Ca</th>
<th>Mg</th>
<th>CaCO₃</th>
<th>CaCO₃</th>
<th>Fe</th>
<th>SiO₃</th>
<th>Cl</th>
<th>SO₄</th>
<th>NO₃</th>
<th>HCO₃</th>
<th>F</th>
<th>NaCl</th>
<th>COMMENTS</th>
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</thead>
<tbody>
<tr>
<td>14952</td>
<td>30/6/87</td>
<td>880</td>
<td>520</td>
<td>7.4</td>
<td>50</td>
<td>8</td>
<td>60</td>
<td>53</td>
<td>335</td>
<td>290</td>
<td>0.1</td>
<td>23</td>
<td>120</td>
<td>42</td>
<td>27</td>
<td>354</td>
<td>0.5</td>
<td>198</td>
<td>Intjarrtnama Pumping test</td>
</tr>
<tr>
<td>14955</td>
<td>18/6/87</td>
<td>880</td>
<td>525</td>
<td>7.5</td>
<td>29</td>
<td>4</td>
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<td>23</td>
<td>399</td>
<td>174</td>
<td>0.1</td>
<td>48</td>
<td>147</td>
<td>54</td>
<td>24</td>
<td>212</td>
<td>0.2</td>
<td>242</td>
<td>Ipolera Pumping test</td>
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<td>14956</td>
<td>24/6/87</td>
<td>1180</td>
<td>710</td>
<td>7.5</td>
<td>82</td>
<td>9</td>
<td>83</td>
<td>52</td>
<td>421</td>
<td>271</td>
<td>&lt;0.1</td>
<td>17</td>
<td>157</td>
<td>85</td>
<td>14</td>
<td>331</td>
<td>0.4</td>
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<td>24/6/87</td>
<td>890</td>
<td>515</td>
<td>7.5</td>
<td>53</td>
<td>10</td>
<td>73</td>
<td>35</td>
<td>327</td>
<td>247</td>
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<td>92</td>
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<td>&lt;1</td>
<td>301</td>
<td>0.3</td>
<td>152</td>
<td>Ljiljera pumping test</td>
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</tbody>
</table>

| NHMRC Guidelines       | 1500             | 6.5-8.5                      | 300 | 500 | 0.3 | 400| 400| 45 | 0.5-1.7 | maxima, except pH range |

| 14959                  | 10/4/87          | 6500                         | 4000| 7.5 | 885| 22| 243| 209| 1465 | 304  | U/S | 36  | 1634| 677 | 4 | 370 | 0.6 | 2693 | Kwala drilling |

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**Notes:**
- **TDS** stands for Total Dissolved Solids.
- **pH** is the measure of acidity or basicity.
- **Na**, **K**, **Ca**, **Mg** are the concentrations of sodium, potassium, calcium, and magnesium, respectively, in milligrams per litre.
- **CaCO₃** and **CaCO₃** refer to calcium carbonate and calcium hydroxide, respectively, in milligrams per litre.
- **Fe**, **SiO₃**, **Cl**, **SO₄**, **NO₃**, **HCO₃**, and **NaCl** are the concentrations of iron, silicon dioxide, chloride, sulphate, nitrate, bicarbonate, and sodium chloride, respectively, in milligrams per litre.
- **Comments** note the sampling method or location relevant to the water quality data.
TEST REPORT — BORE RN 14952

Bore location: Hermannsburg
Outstation INTJARRTNAMA

Client/owner: Office of Local Government
Client's reference: 
Purpose of supply: Outstation

Map: SF 53.1
Grid reference: 616-001

RECOMMENDATIONS
Pumping rate: maximum 2 L/s. Pump setting: 142 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: Water Resources Branch (In all correspondence refer to the bore's RN number).
Nth Stuart Hwy Alice Springs

BORE DATA
Finished depth: 194.6 m Completion date: 2/4/87
Standing water level 41.72m on 26/6/87
Construction details:

<table>
<thead>
<tr>
<th>Interval (m)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 2.3</td>
<td>203 mm Steel Surface Casing</td>
</tr>
<tr>
<td>0 – 182.56</td>
<td>152 mm ID Blank Steel Casing</td>
</tr>
<tr>
<td>182.56 – 188.58</td>
<td>152 mm ID Perforated Casing x 9 mm Holes</td>
</tr>
<tr>
<td>188.58 – 195</td>
<td>152 mm ID Blank Steel Casing</td>
</tr>
</tbody>
</table>

Test date: 29/6/87
Test rates: 2.02 L/s
Test duration: 29 hrs

Notes: 1. Top of casing as constructed was 0.60 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 152 mm

COMMENTS

WATER QUALITY

See water laboratory report (Analysis No.)
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.

BORE LOCATION MAP
TEST REPORT — BORE RN 14955

Bore location: Hermannsburg
Outstation IPOLERA

Client/owner: Office of Local Government
Client’s reference: 
Purpose of supply: Outstation

Map: SF 53.13
Grid reference: 553-011

RECOMMENDATIONS
Pumping rate: maximum 2 L/s. Pump setting: 36 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: Water Resources (In all correspondence refer to the bore’s RN number). Nth Stuart Hwy Alice Springs

BORE DATA
Finished depth: 48.30 m Completion date: 4/4/87 Test date: 17/6/87
Standing water level 16.02 m on 16/6/87 Test rates: 2.5 L/s
Construction details: Test duration: 24 hrs

<table>
<thead>
<tr>
<th>Interval (m)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 9.1</td>
<td>203 mm ID Steel Surface Casing</td>
</tr>
<tr>
<td>0 – 36.98</td>
<td>152 mm ID Blank Steel Casing</td>
</tr>
<tr>
<td>36.98 – 43.00</td>
<td>152 mm ID Perforated Casing x 9 mm Holes</td>
</tr>
<tr>
<td>43.00 – 48.30</td>
<td>152 mm ID Blank Casing</td>
</tr>
</tbody>
</table>

Notes: 1. Top of casing as constructed was 0.40 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 152 mm

COMMENTS

The recommended maximum pumping rate of this bore could become significantly reduced if nearby bore RN 6632 is pumped at the same time.

WATER QUALITY

See water laboratory report (Analysis No.)
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.

BORE LOCATION MAP
TEST REPORT — BORE RN 14956

Bore location: Hermannsburg
Outstation ANTJAKWERA

Client/owner: Office of Local Government
Client’s reference:
Purpose of supply: Outstation

Map: SF 53.13
Grid reference: 574-015

RECOMMENDATIONS
Pumping rate: maximum 8 L/s. Pump setting: 60 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: Water Resources (In all correspondence refer to the bore’s RN number). Nth Stuart Hwy Alice Springs

BORE DATA
Finished depth: 78.80 m
Completion date: 7/4/87
Standing water level: 3.12 m on 20/6/87
Construction details:

<table>
<thead>
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<th>Interval (m)</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>0 - 6.5</td>
<td>203 mm ID Surface Casing Steel</td>
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<td>0 - 72.72</td>
<td>152 mm ID Blank Steel Casing</td>
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<td>72.72 - 78.80</td>
<td>152 mm ID Perforated Steel Casing x 9 mm Holes</td>
</tr>
</tbody>
</table>

AQUIFER TEST
Test date: 23/6/87
Test rates: 10 L/s
Test duration: 24 hrs

Notes: 1. Top of casing as constructed was 0.40 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 152 mm

COMMENTS

WATER QUALITY

See water laboratory report (Analysis No. )
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.
TEST REPORT — BORE RN 14957

Bore location: Hermannsburg
Outstation LYILJERA

Client/owner: Office of Local Government
Client’s reference:
Purpose of supply: Outstation

Map: SF 53.13
Grid reference: 581-015

RECOMMENDATIONS
Pumping rate: maximum 2 L/s. Pump setting: 80 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 Water Resources (in all correspondence refer to the bore’s RN number). Nth Stuart Hwy Alice Springs

BORE DATA
Finished depth: 112.2 m Completion date: 8/4/87 Test date: 24/6/87
Standing water level 5.40 m on 22/6/87 Test rates: 2.02 L/s
Construction details:
Test duration 24 hrs

Interval (m) Description
0 – 6.6 203 mm ID Surface Casing
0 – 99.16 152 mm ID Blank Steel Casing
99.16 – 105.68 152 mm ID Perforated Steel Casing x 9 mm Holes
105.68 – 112.20 152 mm ID Blank Steel Casing

Notes: 1. Top of casing as constructed was 0.48m 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 152 mm

COMMENTS

WATER QUALITY

See water laboratory report (Analysis No. )
RECOMMENDATIONS FOR FINISHING, OPERATING AND PROTECTING GROUNDWATER BORES

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