

DEPARTMENT OF MINES AND ENERGY  
SOUTH AUSTRALIA

REPORT ON DRILLING FOR GROUNDWATER IN THE  
ONKAPARINGA ESTUARY

BY

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Client: State Planning Authority

MICROFILMED

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## DEPARTMENT OF MINES - SOUTH AUSTRALIA

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KEY WORDS

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14-2-79

DEPARTMENT OF MINES AND ENERGY  
SOUTH AUSTRALIA

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REPORT ON DRILLING FOR GROUNDWATER IN  
THE ONKAPARINGA ESTUARY

A groundwater investigation well drilled on the site of a proposed public reserve adjacent to the Onkaparinga Estuary encountered water too saline for irrigation. The yield of the well was not tested and it was subsequently abandoned.

A suitable supply of groundwater may exist elsewhere within the Noarlunga Embayment that could be transported to the proposed reserve by pipeline.

INTRODUCTION

The Department of Mines and Energy was requested to investigate the prospects of obtaining a groundwater supply, suitable for the irrigation of turf, on a proposed public reserve to be established on sections 314, 323, 324, 328 and 329, hundred of Noarlunga.

The request was made by the Onkaparinga Estuary Joint Steering Committee of the State Planning Authority. The required supply was approximately 1 100 kilolitres per day with total dissolved salts not to exceed 1 000 mg/l.

Limited well data existed for the area of the Onkaparinga estuary, but the data that was available gave little indication of groundwater quality. Because of this, it was decided to drill an investigation well to determine the feasibility of developing a groundwater supply to irrigate the proposed public reserve.

DRILLING RESULTS

The original site for drilling was in section 329 but because of access problems a site adjacent to the Onkaparinga River in section 324 was selected (Figure 1). Drilling was completed on 24th November, 1978 at a depth of 69 metres in weathered slates.

Four separate cuts of water were encountered in the well, all of which were of poor quality. The best quality water (1 700 mg/l) was obtained at a depth of 10 metres but after bailing for half an hour, the salinity increased to 5 200 mg/l. The salinities of waters tested in the well are given below:

TABLE 1

<u>Depth (m)</u>	<u>Salinity (mg/l)</u>	<u>Analysis No.</u>
3	6 500	W 5 300/78
10	5 200	W 5 304/78
16	5 790	W 5 299/78
42	29 000	-

Because of the poor quality of the groundwater, testing of the well was not warranted and it was backfilled and abandoned.

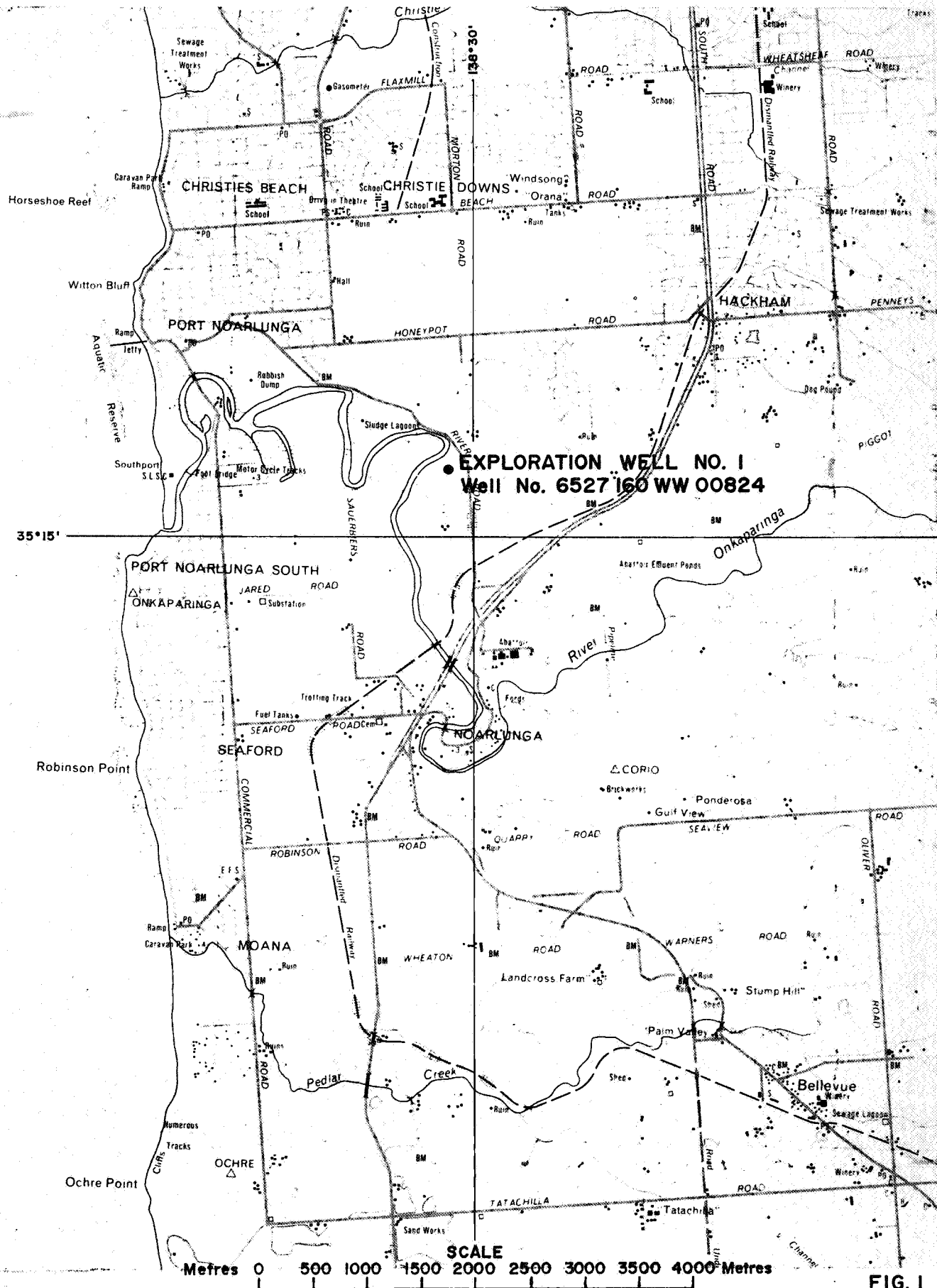
A geological log of the well is given in Figure 2.

#### CONCLUSIONS

1. Groundwater within the area of the proposed recreation reserve is too saline for the irrigation of lawn grasses, trees, and shrubs.
2. No further drilling for groundwater within the area of the proposed reserve is warranted.
3. If it is essential that a groundwater supply be established for the proposed reserve, it is possible that a suitable supply can be located elsewhere to which a pipeline can be connected. To establish such a supply will require a groundwater exploration programme.



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DEPARTMENT OF MINES AND ENERGY  
SOUTH AUSTRALIA

SCALE: 1:50000

COMPILED: O. J. W. B.

ONKAPARINGA ESTUARY GROUNDWATER

DATE 3rd JAN. 1979

DRN. T.E. CKD:

EXPLORATION WELL NO. 1

PLAN NUMBER

LOCALITY PLAN

S 13834

LOCATION OR COORDS

## WATER WELL LOG

HOLE NO: 1

UNIT / STATE NO

6527 160 WW 00824

DM

324 NOARLUNGA

El Surface

m

El Ref Point

m

Datum

AQUIFER

SUMMARY:

DEPTH TO  
WATER (m)DEPTH TO  
STANDING WATER (m)

INTERVAL TESTED

From

To

LITRES / DAY

SUPPLY

Test Length (m)

Method

TOTAL DISSOLVED SOLIDS

milligrammes / litre

Analysis

3

10

16

42

6500

5200

5790

29000

W — 5300/78

5304/78

5299/78

DEPTH (m)		GRAPHIC LOG	ROCK / SEDIMENT NAME	GEOLOGICAL DESCRIPTION	FORMATION / AGE	DEPTH CORE SAMPLE	CASING		
From	To						Drain	From	To
0	2		CLAY	Dark grey, moderately firm.	Precambrian				
2	8		CALCARENITE	Dark grey, silty, abundant shell fragments.					
8	16		SILTSTONE	Dark brown, soft, sandy, slightly lignitic					
16	20		GRAVEL	Pebbles to 50 mm,					
20	25		CONGLOMERATE	Poorly sorted grading to coarse sand.					
25	36		SANDSTONE	Whitish to pale grey, soft and unconsolidated clay matrix; moderately to well sorted.					
36	42		MUDSTONE	Pale to medium grey, firm, silty, laminated.					
42	50		CLAY	Pale brown to buff, soft, silty, slightly sandy. Multicoloured in part.					
50	60		CLAYSTONE	As above, becoming firmer.					
60	66		CLAYSTONE	As above, becoming dark brown, firm					
66	69		SLATE	Dark brown, soft, strongly weathered.					

REMARKS:

\* NOTE: 110 kl / day = 1000gals / hr

Abandoned due to poor quality of water

DRILL TYPE Cable-Tool

COMPLETED 30-11-78

CIRCULATION None

LOGGED BY O.J.W.B.

SHEET 1 OF 1

DATE 13-12-78