CONTENTS ENVELOPE 2589 DME 1239/56

TENEMENT: NOT RELATED

TENEMENT HOLDER: DEPARTMENT OF MINES, SOUTH AUSTRALIA

REPORTS:

Plans

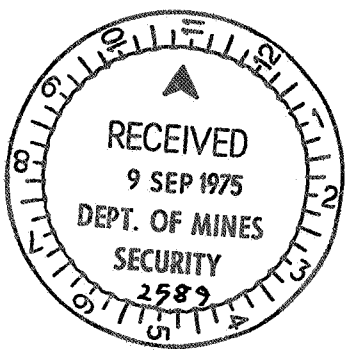
SAMPLING OF YORKE PENINSULA STRATIGRAPHIC BORES

BY

THE BROKEN HILL PROPRIETARY COMPANY LIMITED

APRIL 1975

W.J. SHAW



SAMPLES FROM YORKE PENINSULA STRATIGRAPHIC BORES 04

Summary

Three boreholes were examined to test the Cambrian Parara Limestone for phosphate following field indications that this unit was the source of phosphate deposits at Clinton and Ardrossan on the Yorke Peninsula. Although assay results confirm that the Parara Limestone is an anomalously phosphatic unit, no encouraging results were obtained. The Parara Limestone generally gives phosphate assays much higher than those obtained from the Kulpara Limestone.

Stratigraphic Units

Lower Cambrian	Ramsay Limestone
	Red Bed Clastics
	Parara Limestone
	Kulpara Limestone
Proterozoic	Feldspathic sandstones

Work Done

On 21/4/1975 core from three boreholes on Yorke Peninsula was tested at the Works Depot of the South Australian Mines Department. The core was tested with ammonium-nitro-molybdate solution and samples were taken for assay from intervals where phosphate was indicated by a yellow precipitate.

Minlaton No.1 Bore

This is the type section core for the Kulpara Limestone and Parara Limestone. Total depth was 3261 ft. 3 in. Parara Limestone occurred between 1,177 ft. and 2111 ft. 9 in. Kulpara Limestone occurred between 2111 ft. 9 in. grading into transitional basal beds at 3075 ft. (see Ludbrook, 1965). Core intervals tested with ammonium-nitro-molybdate were as follows:

625 ft. to 641 ft.
1155 ft. to 1198 ft.
1288 ft. to 1327 ft.
1485 ft. to 1532 ft.
1532 ft. to 1603 ft.
1991 ft. to 2029 ft.
2101 ft. to 2201 ft.
2387 ft. to 2412 ft.
2451 ft. to 2480 ft.
2557 ft. to 2591 ft.

Stansbury West No.1 Well

Total depth 5352 ft. Parara Limestone occurred between 2736 ft. and 5003 ft. Kulpara Limestone occurred between 5003 ft. and 5336 ft. (see Watts et al, 1966). Within this zone of present interest only the following core runs were available for testing:

Core No. 6	3139 ft.	to	3149 ft.
Core No. 7	3315 ft.	to	3325 ft.
Core No. 8	3822 ft.	to	3829 ft.

Edithburgh No.1 Well

Total depth 3455 ft. Parara Limestone occurred between 2266 ft. and 3118 ft. Kulpara Limestone occurred between 3118 ft. and 3437 ft. (see Watts et al, 1967). Within this zone of present interest only the following core runs were available for testing:

Core No. 2	2278 ft.	to	2298 ft.
Core No. 3	3205 ft.	to	3216 ft.

Results

The borehole localities are indicated on the attached map. All assay results are presented in Table 1.

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References:

Ludbrook, N.H., 1965 — Minlaton and Stansbury Stratigraphic Bores, pp 83-96 in The Geology of Yorke Peninsula by A.R. Crawford. Bull. 7, S.A. Mines Dept.

*Watts, T.R. and Gausden, J., 1966 — Stansbury West No.1 Well completion report; for Beach Petroleum N.L. (S.A. Mines Dept. open file envelope 656 - unpub.).

*Watts, T.R. and Gausden, J., 1967. — Edithburgh No.1 Well completion report; for Beach Petroleum N.L. (S.A. Mines Dept. open file evelope 702 - unpub.).

*Data from these two reports are summarized in:

Ellis, G.K., 1974 — A review of the geology and hydrocarbon potential of the Gulf of St. Vincent region, South Australia. S.A. Mines Dept. Rept. Bk. No. 74/89, G.S. No. 5408, D.M. No. 381/74.

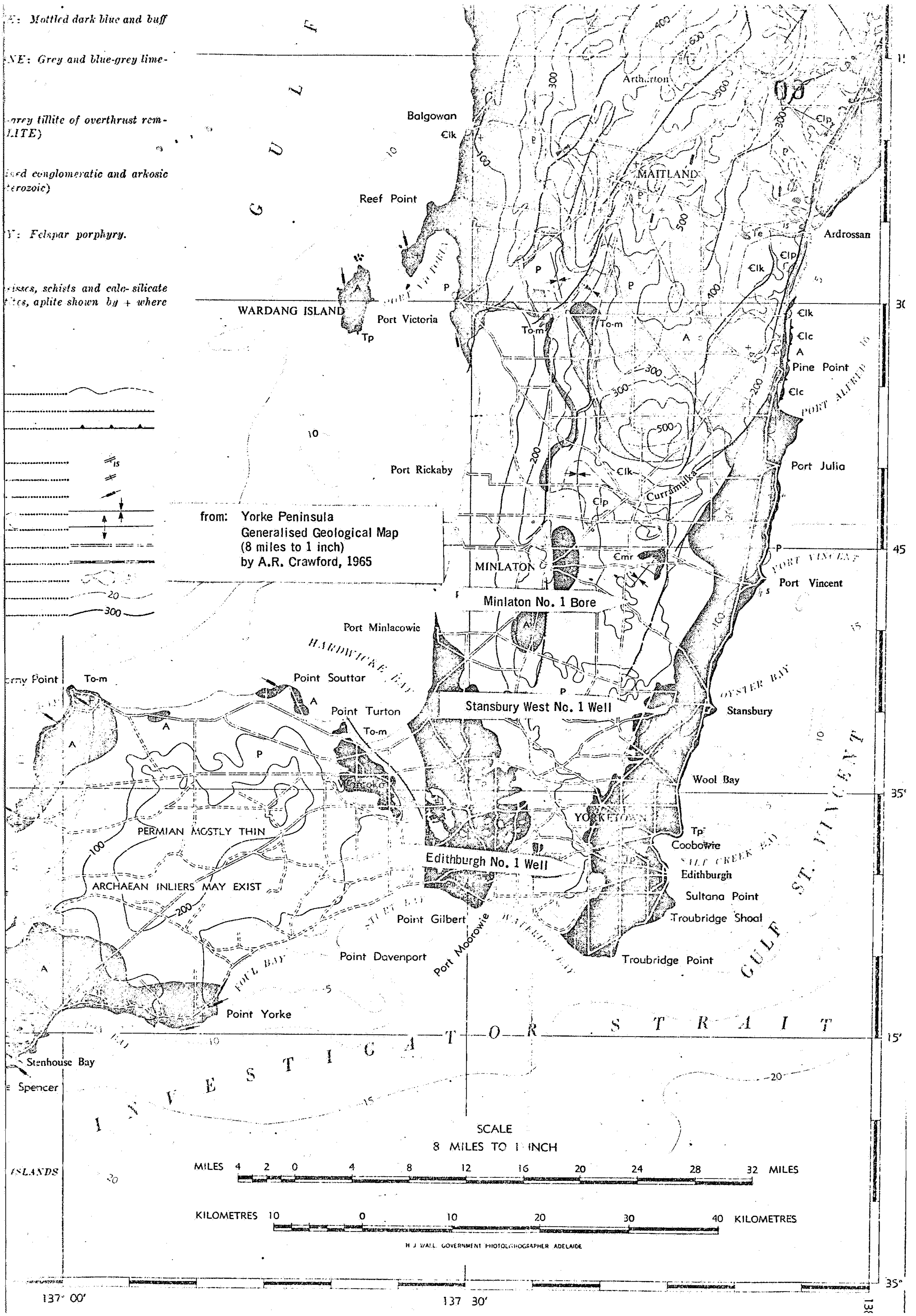
TABLE 1 ASSAY RESULTS - YORKE PENINSULA STRATIGRAPHIC BORES

Sample No.	SiO_2 %	Al_2O_3 %	Loss %	P %	CaO %	MgO %	Mn %	S %	TiO_2 %	P_2O_5 %	Description
Minlaton Strat. Bore No.1											
Min 1489 feet	5.3	.4	41.3	.38	43	8.6	.2	.01	.05	.87	Parara Limestone
Min 1524 feet	11	1.7	36.1	.12	43	4.7	.1	.13	.05	.28	" "
Min 2006 feet	2.4	.4	41.8	.28	53	1.2	.2	.06	.05	.64	" "
Min 2015 feet	1.9	.6	41.1	.30	52	2.1	.2	.03	.05	.69	" "
Min 2027 feet	3.1	.7	40.8	.49	51	2.4	.1	.06	.05	1.1	" "
Min 2103 feet	12	.7	37.9	.08	48	1.1	.2	.01	.05	.18	Near contact between Parara & Kulpara.
Min 2200 feet	3.3	.1	42.0	.05	54	.6	.1	.03	.05	.10	Kulpara Limestone.
Stansbury West No.1 Well											
SW 3142 feet	16	3.2	34.0	.10	42	1.9	.1	.15	.15	.23	Parara Limestone - light grey limestone.
SW 3324 feet	3.2	.2	42.4	.03	53	1.4	.1	.03	.05	.05	Parara Limestone - grey limestone clasts in similar matrix.
SW 3825 feet	1.0	.1	42.6	.38	52	2.5	.1	.08	.05	.87	Parara Limestone - grey lst intraclasts in darker grey limestone.

TABLE 1 ASSAY RESULTS - YORKE PENINSULA STRATIGRAPHIC BORES

Sample No.	SiO_2 %	Al_2O_3 %	Loss %	P %	CaO %	MgO %	Mn %	S %	TiO_5 %	P_2O_5 %	Description
					Edithburgh No.1 Well						
E 2279 feet	7.9	1.1	41.0	.11	32	16	.2	.25	.05	.25	Parara Limestone - white, sugary textured.
E 3205 feet	24	4.8	31.2	.28	22	14	.1	.05	.20	.64	Kulpara Limestone - grey brown, visible bedding.
E 3215 feet	3.7	.5	44.5	.03	31	19	.1	.03	.05	.06	Kulpara Limestone - grey brown, homogeneous sugary texture.

Assays carried out by
Quality Control Laboratories, Whyalla
under D. McKenzie, Chief Chemist.



Mottled dark blue and buff
Grey and blue-grey lime-
grey tillite of overthrust rem-
LITE)
conglomeratic and arkosic
terozoic)
Felspar porphyry.
gneisses, schists and calc-silicate
aplite shown by + where
from: Yorke Peninsula
Generalised Geological Map
(8 miles to 1 inch)
by A.R. Crawford, 1965
Minlaton No. 1 Bore
Stansbury West No. 1 Well
Edithburgh No. 1 Well
Balgowan
Reef Point
Arthurton
MAITLAND
Ardrossan
WARDANG ISLAND
Port Victoria
PORT VICTORIA
Pine Point
PORT ALFRED
Port Rickaby
Port Julia
Curramulka
MINLATON
Port Vincent
PORT VINCENT
Port Minlacowie
HARDWICKE BAY
Point Souttar
Point Turton
Stansbury
OYSTER BAY
Wool Bay
YORKETOWN
Coobowie
SALT CREEK BAY
Edithburgh
Sultana Point
Troubridge Shoal
Troubridge Point
Point Gilbert
Port Moorowie
Point Davenport
FOUL BAY
Point Yorke
PERMIAN MOSTLY THIN
ARCHAEAN INLIERS MAY EXIST
Stenhouse Bay
Spencer
ISLANDS
GULF
GULF ST. VINCENT
INVESTIGATOR STRAIT
SCALE
8 MILES TO 1 INCH
MILES 4 2 0 4 8 12 16 20 24 28 32 MILES
KILOMETRES 10 0 10 20 30 40 KILOMETRES
H J WALL GOVERNMENT PHOTOLITHOGRAPHER ADELAIDE
137° 00′
137° 30′