DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

REPT. BK. NO. 89/66

GAB FIELD SURVEY - 1986/87

GEOLOGICAL SURVEY

by

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DME 99/80

E00052

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ABSTRACT

In 1986 and 1987, a well monitoring survey was conducted in the South Australian portion of the Great Artesian Basin. 116 flowing and 24 non-flowing wells were visited. Data collected included shut in pressure, temperature, flow rate, pH, headworks condition and full chemical analyses of water samples taken in the survey.

An observation network has since been established to monitor controlled flowing wells every two years. Water chemistry information will be obtained less frequently. This information will enable progress to be made in understanding the dynamics of the basin and will eventually be of assistance in formulating a management strategy.

INTRODUCTION

In 1986 a program of monitoring and sampling of flowing wells was instigated in the South Australian portion of the Great Artesian Basin (GAB). Before that year, information was collected on an irregular basis, mainly from drilling programs and well surveys of 1:250 000 map sheets. From 1986, selected flowing wells are to be visited on a regular basis, with shut in pressure, temperature, flow rate, pH, and total dissolved solids being measured every two years, and water chemistry every five or six years. Well status/condition, changes in the water distribution system and wetland area are also

recorded. This survey examined most flowing wells in this part of the basin, with exceptions being a number of wells visited by DME personnel in 1985, many of which were uncontrolled. Water samples were also collected in 1987 from non flowing wells around the extreme western margin of the basin. Subsequent surveys are expected to concentrate on flowing wells.

GEOLOGY/HYDROGEOLOGY

The Great Artesian Basin is a confined multi aquifer system covering approximately 1.2 x $10^6 km^2$ in central and eastern Australia (Fig. 1). The most important aquifer is that consisting of the Cadna-owie Formation and the Algebuckina Sandstone of Lower Cretaceous and Jurassic age. The main confining bed is the Bulldog Shale. The principle recharge area is in the highlands of the Great Dividing Range in central Queensland whilst a minor portion is thought to occur around the western margin in South Australia and the Northern Territory. The major flowpaths are from the main recharge area northward into the Carpentaria Basin, south into the Surat Basin, and south and west in the Eromanga Basin (all three basins are considered to form the GAB). In this aquifer, the potentiometric surface is generally above ground level, resulting in the free flow of waters in wells to the surface. Artesian springs have also formed, particularly around the basin margins. Areas where this does not occur include the recharge areas and those where concentrated groundwater withdrawal occurs, for example parts of Queensland and in the Marree township area. Groundwater also occurs in upper confined aquifers, but in South Australia the high salinity and non flowing nature of the waters have precluded their usage.

METHODOLOGY

A number of field trips were organised to visit wells in the South Australian part of the basin. The first of these was made to the wells along the Birdsville Track in October 1986, as part of a sampling and flow testing exercise (the flow tests were abandoned because of equipment limitations). Subsequent trips were made to wells around the basin margin in November and December of that year. Water supply wells in the Cooper Basin area were sampled by Santos field staff in January 1987. In July 1987, a number of flowing wells were sampled to check for differences in bicarbonate ion concentration between lab and field, whilst in September 1987 a number of non flowing wells at the extreme west and southwest of the basin were sampled for water chemistry, including field biocarbonate. Samples were taken from pumping wells (mainly windmills). No monitoring or sampling program was conducted in the Frome Embayment.

The procedure when visiting a flowing well was to obtain a sample, then measure temperature, pH, conductivity, flow rate and finally shut in pressure. The flow rate was measured with a v-notch weir, or a bucket where practicable. In some cases, the condition around a well did not allow an accurate flow measurement to be made, so flows were estimated. At all controlled flowing wells visited, the pressure recorded was the maximum shut in pressure observed before the water column cooled and the pressure decreased.

When measuring bicarbonate ion concentration, the temperature, pH and conductivity were measured, a titration was performed to obtain $[HCO_3^-]$, and a sample was taken for titration at a later date (several weeks after sampling).

In the September 1987 non flowing well survey, samples for full chemical analysis were taken from selected pumping wells, whilst temperature, pH, conductivity and bicarbonate ion concentration were also measured.

RESULTS

In total, 116 flowing and 24 non flowing wells were visited. Of those wells flowing, 54 were controlled whilst the others were uncontrolled - leaking from the headworks, leaking from casing, or having no headworks at all. Listings of flow rate, temperature, shut in pressure, status, and reduced head are given in Table 1, whilst description of headworks type and condition, the water distribution system and the extent of drains and wetlands are listed in Table 2. Full chemical analyses of samples taken from flowing wells are in Table 3, and from non flowing (extreme western margin) wells in Table 4. Field measurements of bicarbonate ion concentration are listed in Table 5, along with the results of the later titration. The spatial distribution and status of wells visited are shown in figures 1 and 2. Locations of wells visited in later surveys are shown in figure 3.

It can be seen that there are very few controlled wells available for pressure monitoring in such a large area, most of which are located around the basin margins, with a few wells along the Birdsville Track and in the Cooper Basin area. Several other wells have subsequently been rehabilitated, resulting in a slightly better distribution of pressure points.

A greater density of data is obtained from water sampling, because samples were taken from controlled flowing, uncontrolled flowing, and non flowing wells. A more detailed analysis of water chemistry will be tabled in a later report.

Results of the bicarbonate titration indicate that there is generally little change in concentration between field and laboratory. However there were a number of instances where the field measured concentration was higher than that recorded in the laboratory, whilst a couple of samples also gave a higher lab concentration. This may indicate that the effects of settling or standing are important in some areas.

SUMMARY/CONCLUSIONS

These surveys have been successful in gathering hydrogeological, geochemical, engineering and environmental data on the majority of flowing wells in the South Australian portion of the Great Artesian Basin. This information will enable progress to be made in understanding the flow patterns within the main aquifer. It also highlighted wastage of groundwater from uncontrolled wells and distribution systems.

The spatial distribution of wells in this part of the basin shows large areas without well control, for example the area between the Oodnadatta and Birdsville Tracks, and south of the William Ck. to Coober Pedy road. The drilling of observation wells has been proposed for the latter area, but the cost of establishing monitoring points in the deeper parts of the basin precludes much drilling activity. However, this Department has made funds available for the conversion of some newly drilled but dry hydrocarbon exploration wells to water observation wells, but once again the cost is high. The Department also has an ongoing program of rehabilitating uncontrolled flowing wells, which is important in conserving water and pressure in particular, but unfortunately for monitoring purposes most wells needing attention are located near the basin margins. There are a number of plugged and abandoned exploration wells located between Dalhousie and Birdsville that would be extremely useful as observation

wells, but the Department does not have rigs with the capacity to develop these wells at the depths required.

It is therefore unlikely that an adequate pressure monitoring network will be established in the foreseeable future. However, it is hoped that by defining the flow paths by hydraulic and geochemical means on a regional scale around the state borders, and in more detail around the margins, a workable model of groundwater flow may be established. Geochemistry in particular would seem a useful tool because of the greater number of wells available for sampling, and because the costs of sampling and analysis are small compared to drilling new wells.

Although there are large gaps in the distribution of controlled flowing wells, an observation network is to be established with monitoring taking place every two years to acquire a time series data set. Samples for full chemical analysis are to be taken every 5 or 6 years. There are many areas yet to be fully understood, such as quantifying recharge (including the western margin), aquifer configuration, interaction with deeper (Permian) aquifers, and leakage to shallow aquifers and the ground surface, both diffuse and structurally controlled.

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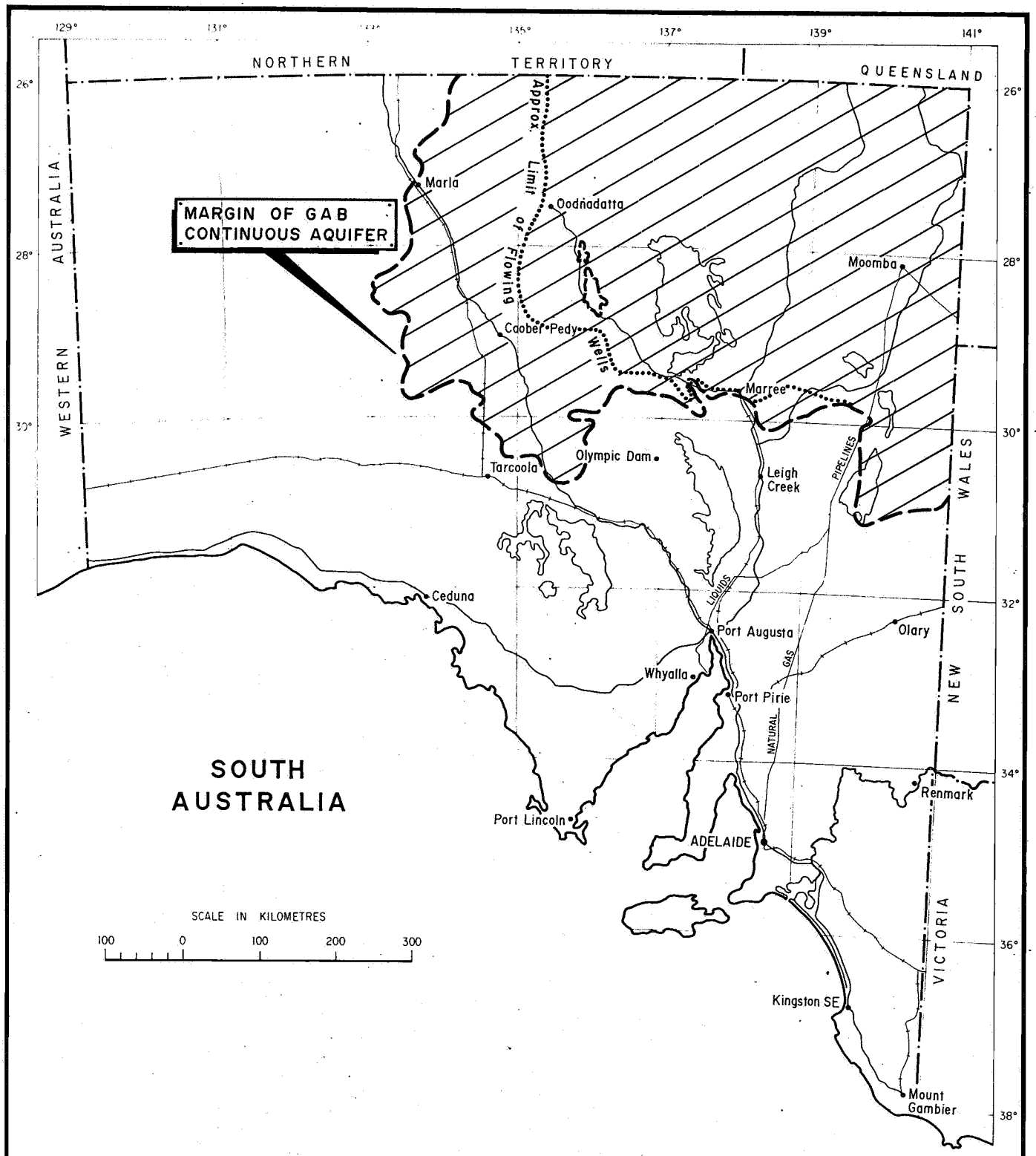

Figure.....1

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA	COMPILED R. Aldam	C.D.O. DATE
GREAT ARTESIAN BASIN	DRAWN B. Donovan	SCALE As Shown
LOCALITY PLAN	DATE 28·6·89	PLAN NUMBER S 21043
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TABLE 1. Physical properties of wells visited in 1986 survey.

UNIT NO.	NAME	DATE	FLOW(l/s) HOW MEASURED	TEMP(°C) AHD	SHUT IN PRESSURE (kPa)	COMMENTS	REFERENCE POINT ELEV (m AHD)	REDUCED HEAD (m AHD at 40°C) CALCULATED/ESTIMATED
5941-1	RASBERRY CK.	15/11/86	10	32	-	UNCONTROLLED	-	-
5941-5	DIGGERS	14/11/86	0.45	30	193	CONTROLLED	86 EST. FROM PLAN	106
5941-6	FERGYS	15/11/86	0.5 BUCKET	30	165	CONTROLLED	105 EST. FROM PLAN	122
5941-17	NICKS	14/11/86	-	28°	-	CONTROLLED PIPE DIRECT TO TROUGH WITH FLOAT VALVE & GATE VALVE	-	-
5942-1	OODNADATTA TWS #1	16/11/86	NOT TAKEN	45°	NOT TAKEN PIPE FITTED TO GAUGE SOCKET	CONTROLLED-OUTLETS DIRECT TO TOWN SUPPLY	116.90	-
5942-8	OODNADATTA TWS #2	16/11/86	NOT TAKEN	SAMPLE NOT TAKEN	NOT TAKEN	CONTROLLED ALL OUTLETS CONNECTED TO TOWN WATER SUPPLY	121.80	-
5942-10	NAPIERS	16/11/86	2.5 BUCKET	38°	280	CONTROLLED	91.60	120.00
5942-11	NASA	16/11/86	2.5 BUCKET	34	NOT TAKEN	UNCONTROLLED SMALL LEAK FROM CORRODING GATE VALVE	-	
5943-2	WIRE CK.	17/11/86	1.5 V. NOTCH	45°	NOT TAKEN	UNCONTROLLED	-	
5944-6	JUNCTION	14/11/86	1 V. NOTCH	47°	NOT TAKEN	UNCONTROLLED (REHAB. 16/9/87)	145.60	
5944-7	CRANS GRAVE	15/11/86	2.5 BUCKET	47	NOT TAKEN	CONTROLLED NO FACILITY FOR PRESSURE GAUGE	131.60	
5945-1	MT CRISPE	14/11/86	15 ESTIMATE	47	NOT TAKEN	UNCONTROLLED NO HEADWORKS, COULD NOT STABILIZE V.NOTCH WEIR DUE TO LARGE FLOW	-	
6041-1	LITTLE BLYTHE	17/11/86	NOT MEASURED PIPE TO TROUGH FLOW V. SMALL	29	NOT MEASURED	CONTROLLED	73.80	80.30

TABLE 1. (cont.)

UNIT NO.	NAME	DATE	FLOW(l/s) HOW MEASURED	TEMP(°C) AHD	SHUT IN PRESSURE (kPa)	COMMENTS	REFERENCE POINT ELEV (m AHD)	REDUCED HEAD (m AHD at 40°C) CALCULATED/ESTIMATED
6041-35	BARNEYS	14/11/86	NOT MEAS.	NOT MEAS.	N.A.	UNCONTROLLED DAM WITH WELL IN MIDDLE. NO MEASUREMENTS POSSIBLE	-	
6041-36	CENTENARY	16/11/86	3.3 BUCKET	35	260	CONTROLLED	49 EST FROM PLAN	76
6041-37	LHDH 15	16/11/86	NOT MEASURED	31	NOT MEASURED	CONTROLLED UNABLE TO LOOSEN PLUG FOR PRESSURE GAUGE	-	
6041-73	DAVIDS	14/11/86	0.2 BUCKET	29	N.R.	UNCONTROLLED NO FACILITY FOR PRESSURE GAUGE	-	
6041-77	BOUNDARY CAMP	14/11/86	0.9 BUCKET	25	N.R.	CONTROLLED NO FACILITY FOR PRESSURE GAUGE	-	
6042-3	WATSON CK.	18/11/86	10 (MINIMUM) ESTIMATE & BUCKET	44	N.R.	UNCONTROLLED NO FACILITY FOR PRESSURE READING	-	
6042-11	OCKENDEN	18/11/86	0.3 V.NOTCH (VERY APPROX.)	26	N.A.	UNCONTROLLED NO HEADWORKS	-	
6042-16	MT. DUTTON #2	18/11/86	1.1 BUCKET	32	NOT MEASURED	CONTROLLED UNABLE TO MEASURE SIP - GATE VALVE STEM SHEARED OFF	-	
6043-1	HORSESHOE	17/11/86	1.4 BUCKET	39	N.R.	UNCONTROLLED NO FACILITY FOR PRESSURE GAUGE	-	
6043-10	MACUMBA H/S #2	17/11/86	0.3 BUCKET	39	5	CONTROLLED PUMP COLUMN STUCK DOWN WELL	112.20	113.40
6044-4	ONQUEEDINNA	17/11/86	N.R.	58	N.R.	UNCONTROLLED LEAK IN HWKS, COULDN'T REMOVE FLOW LINE TO GET FLOW RATE	-	
6045-3	WITCHERRIE	15/11/86	>10 ESTIMATED	52	N.R.	UNCONTROLLED NO HEADWORKS	-	

TABLE 1. (cont.)

UNIT NO.	NAME	DATE	FLOW(l/s) HOW MEASURED	TEMP(°C) AHD	SHUT IN PRESSURE (kPa)	COMMENTS	REFERENCE POINT ELEV (m AHD)	REDUCED HEAD (m AHD at 40°C) CALCULATED/ESTIMATED
6139-22	MARAGRET CK.	20/11/86	1.4 BUCKET	25	105	CONTROLLED	42.1	53.40
6139-30	ONE TREE #2	20/11/86	0.7 BUCKET	27	20	CONTROLLED	57.5	80.70
6139-32	BEAUTIFUL VALLEY	20/11/86	1.4 BUCKET	28	180	CONTROLLED	47.9	67.20
6140-3	OLD HOPE CK.	17/11/86	1	30	N.TAKEN	UNCONTROLLED	-	-
6140-28	HONEYMOON	19/11/86	NOT MEASURED NOT ESTIMATED	31	150	CONTROLLED HWKS IN GOOD CONDITION	55 EST. FROM MAP	71
6140-33	BIRTHDAY	18/11/86	NOT MEASURED NOT ESTIMATED	31	N.R.	CONTROLLED SIP NOT READ DUE TO CONCRETE RING BEING TOO CLOSE TO HEADWORKS	71.80	-
6140-38	NEW HOPE CK.	17/11/86	FLOW RATE TOO SMALL TO MEASURE	N.R.	N.R.	CONTROLLED BORE HAS BEEN CAPPED OFF AS OLD HWKS HAD BEEN DAMAGED WHEN CONCRETE RING HAD FALLEN ONTO IT.	84.50	-
6140-39	SUNNY CK. 1A	18/11/86	NOT READ	38	N.R.	CONTROLLED UNABLE TO REMOVE PLUG DUE TO BUILD UP OF PRECIPITATES. POTENTIAL TO DAMAGE HWKS.	76.8	-
6140-40	WILLIAM CK.	19/11/86	NOT MEASURED	27	N.R.	NO DETAILS	-	-
6140-46	WHITES	19/11/86	NON FLOWING	-	-	PUMPED WELL, INDUSTRIAL USE. WATER LEVEL NOT MEASURED	-	-
6141-1	SIX MILE	17/11/86	1.7 BUCKET	37	N.R.	UNABLE TO UNDO PLUG (CORRODED) CONTROLLED	-	-
6141-21	JOHNSON #3	18/11/86	15 ESTIMATED	47	N.R.	UNCONTROLLED NO HWKS. WATER DISCHARGES FROM CASING AT GROUND LEVEL	-	-
6141-23	LEVI SP	17/11/86	V. SMALL FLOW	27	N.R.	SPRING WITH CASING IN IT	-	-

TABLE 1. (cont.)

UNIT NO.	NAME	DATE	FLOW(l/s) HOW MEASURED	TEMP(°C) AHD	SHUT IN PRESSURE (kPa)	COMMENTS	REFERENCE POINT ELEV (m AHD)	REDUCED HEAD (m AHD at 40°C) CALCULATED/ESTIMATED
6141-35	McLEANS	18/11/86	2 BUCKET	31	N.R.	UNCONTROLLED - NO GATE VALVE	57.90	-
6141-36	GEORGE CK.	17/11/86	0.6 BUCKET	31	N.R.	CONTROLLED NEED ADAPTOR TO FIT GAUGE	-	-
6141-37	BULLDOG CK.	17/11/86	5 BUCKET	31	56	CONTROLLED	71.30	77.70
6141-41	CHRISTINES	17/11/86	1.4 BUCKET	31	110	CONTROLLED	65.9	110
6141-46	EITZENS	18/11/86	0.6 BUCKET	33	358	CONTROLLED PVC DELIVERY PIPE BROKEN OFF AT CONCRETE RING, CREATING BOGGY CONDITIONS AROUND HWKS.	48.3	85.40
6141-47	KEMPES	17/11/86	3.3 BUCKET	28	180	CONTROLLED	57.60	76.20
6141-48	MAXINES	17/11/86	4.5 V.NOTCH	31	160	CONTROLLED	49.90	66.5
6141-53	JERRYS	18/11/86	2.5 BUCKET	30	160	CONTROLLED	70.10	86.90
6141-54	UMBUM #3	18/11/86	4.2 BUCKET	36	440	CONTROLLED HEADWORKS IN GOOD CONDITION	43.6	88.9
6142-1	DUCKHOLE	18/11/86	NOT MEASURED	>35	N.A.	UNCONTROLLED NO HEADWORKS. CASING IN POOL VISIBLE BELOW WATER SURFACE	-	-
6142-3	WOOD DUCK	17/11/86	3 BUCKET	40	N.A.	UNCONTROLLED	-	-
6142-4	DUCKHOLE #2	18/11/86	11 V.NOTCH	39	414	CONTROLLED, NOT IN CONSTANT USE	-	-
6239-2	LETHBRIDGE	20/11/86	NOT MEASURED	29	N.A.	UNCONTROLLED HEADWORKS BROKEN	42.3	-

TABLE 1. (cont.)

UNIT NO.	NAME	DATE	FLOW(l/s) HOW MEASURED	TEMP(°C) AHD	SHUT IN PRESSURE (kPa)	COMMENTS	REFERENCE POINT ELEV (m AHD)	REDUCED HEAD (m AHD at 40°C) CALCULATED/ESTIMATED
6239-4	BERESFORD	20/11/86	3.5 V.NOTCH	33	N.A.	UNCONTROLLED CAN'T CLOSE GATE VALVE, HWKS BADLY CORRODED, NO VALVE WHEEL	30.00	-
6239-6	ANGAS	20/11/86	CAN'T MEASURE	CAN'T MEASURE	N.A.	UNCONTROLLED WELLHEAD NOT LOCATED IN LARGE SWAMP	19.9	-
6239-10	TRIG	20/11/86	5.5 V.NOTCH	31	N.A.	UNCONTROLLED, NO HWKS.	-	-
6239-13	COWARD	20/11/86	CAN'T MEASURE	CAN'T MEASURE	N.A.	UNCONTROLLED WELLHEAD BENEATH METAL GRATE, CEMENTED IN PLACE, NO HEADWORKS. REHAB. ATTEMPTED BUT FAILED.	17.30	-
6239-26	McEWINS	20/11/86	12.5 EST.	27	210	LEAKING NEAR HWKS, REPAIRED 20/11/86	39.5 EST. FROM PLAN	70
6239-32	WELCOME #2A	20/11/86	12.5	28	165	HWKS IN GOOD COND.	38.1	55.40
6239-33	NUNNS #2	20/11/86	10 ESTIMATED	35	193	HWKS IN EXCELLENT COND.	54.90	75.20
6240-1	ARMISTICE	19/11/86	1.2 V.NOTCH	49	N.A.	UNCONTROLLED	-	-
6240-2	NANCY'S	19/11/86	NOT MEASURED NO EST.	47	N.A.	UNCONTROLLED	-	-
6338-2	NEW YEAR'S GIFT	21/11/86	4 BUCKET	29	NOT TESTED	CONTROLLED	11.70	-
6338-7	BEATRICE	21/11/86	0.8 BUCKET	27	NOT MEASURED	UNCONTROLLED	11.9	-
6338-35	GAB 5	21/11/86	NOT MEASURED	NOT MEAS.	331	CONTROLLED RMS BOREFIELD A WELL. FULLY SHUT IN WHEN VISITED	1 EST. FROM PLAN	35
6339-2	CURDIMURKA RS	21/11/86	0.8 BUCKET	33	N.A.	UNCONTROLLED SUBSEQUENTLY REHABILITATED	1.20	-

TABLE 1. (cont.)

UNIT NO.	NAME	DATE	FLOW(l/s) HOW MEASURED	TEMP(°C) AHD	SHUT IN PRESSURE (kPa)	COMMENTS	REFERENCE POINT ELEV (m AHD)	REDUCED HEAD (m AHD at 40°C) CALCULATED/ESTIMATED
6339-6	JACKBOOT	21/11/86	CAN'T MEASURE	53	662	CONTROLLED DISTRIBUTION LINES TO MANY PARTS OF PROPERTY. NOT ABLE TO MEASURE FLOW AT WELLHEAD	20.20	84.90
6438-1	CHARLES ANGAS	21/11/86	1.7 BUCKET	39	440	CONTROLLED	6.20	51.50
6438-3	ALBERRIE CK.	21/11/86	NOT MEASURED	29	NOT MEAS.	PRESSURE TOO LOW TO MEAS. BETWEEN 0 & 6 kPa. FLOWS TO TROUGH - CAN'T MEASURE FLOW	28.00	-
6438-4	COORANNA	22/11/86	3 BUCKET	36	190	CONTROLLED	21.30	41.10
6438-5	CALLANNA	21/11/86	1 BUCKET	31	63	CONTROLLED	43.70	50.50
6438-79	MAYNARDS	21/11/86	NOT MEASURED	30	40	CONTROLLED PIPED TO TANK & TROUGH, FLOAT VALVE EQUIPPED SO COULDN'T MEASURE FLOW	51.40	55 UNABLE TO CORRECT FOR TEMP-NO DEPTH INFORMATION
6438-80	WCB #1	22/11/86	5.2 V.NOTCH	34	210	CONTROLLED RMS OBS. WELL. USED FOR STOCK PURPOSES AS WELL	44 EST. FROM PLAN	65
6438-87	MORPHETTS	21/11/86	4	32	70	CONTROLLED	45.30	52.70
6439-6	CROWS NEST	22/11/86	11 V.NOTCH	44	650	CONTROLLED	16.00	83.30
6439-9	MORRIS CK.	21/11/86	9.5	43	500	CONTROLLED RMS OBSERVATION WELL	5.0 EST. FROM PLAN	55
6439-18	WCB #2	VISITED 21/11/86 BUT CEMENT CYLINDER LOCKED - NO ACCESS FOR MEASUREMENTS - CONTROLLED						-
6439-20	MULOORINA HS	11/12/86	25 V.NOTCH	54	NOT MEASURED	EQUIPPED WITH TURBINE POWER GENERATOR - COULD NOT SHUT IN	10.60	-
6538-4	FROME CK.	9/12/86	0.1 BUCKET	28	N.A.	UNCONTROLLED NO CAP ON HWKS.	-	-

TABLE 1. (cont.)

UNIT NO.	NAME	DATE	FLOW(l/s) HOW MEASURED	TEMP(°C) AHD	SHUT IN PRESSURE (kPa)	COMMENTS	REFERENCE POINT ELEV (m AHD)	REDUCED HEAD (m AHD at 40°C) CALCULATED/ESTIMATED
6538-14	LK. BILLY	12/12/86	3 BUCKET	42	N.A.	UNCONTROLLED	67.80	-
6539-1	PEACHAWARRINA (KELLY'S BORE)	17/10/86	6.5 V.NOTCH	63	740	CONTROLLED	19.20	92.20
6539-2	CLAYTON	18/10/86	NOT MEASURED	51	310	CONTROLLED	45.00	73.80
6539-3	DULKANINNA	15/10/86	2.5 V.NOTCH	64	N.A.	UNCONTROLLED SUBSEQUENTLY BACKFILLED 17/2/88	37.90	-
6539-4	MARION	21/10/86	6.1 V.NOTCH	48	260	CONTROLLED	61.10	86.12
6539-5	LAKE HARRY	21/10/86	NOT MEASURED	46	307	CONTROLLED NO FLOW MEASUREMENT AS PIPES GO UNDERGROUND CLOSE TO WELLHEAD	43.70	73.70
6539-8	PETERS	11/12/86	2 BUCKET	45	350	CONTROLLED	26.00	60.56
6539-9	CLAYTON #2	16/10/86	22.5 V.NOTCH	53	340	CONTROLLED	42.80	75.0
6639-2	SINCLAIR	10/12/86	NOT MEASURED	55	NOT MEAS.	VALVES RUSTED UP, COULD NOT SHUT IN. COULD NOT GET FLOW MEASUREMENT - GROUND TOO UNSTABLE FOR V.NOTCH	67.80	-
6639-3	COORYANINNA	14/12/86	12 V.NOTCH	56	N.A.	UNCONTROLLED	31.00	-
6639-4	JEWELLERY CK.	14/12/86	0.2 BUCKET	49	N.A.	UNCONTROLLED	22.90	-
6639-7	CHAPPALANNA	15/12/86	10 BUCKET	51	390	CONTROLLED REHABILITATED 13/5/86	59.60	96.77
6639-8	YARRA HILL	15/12/86	25	43	N.A.	UNCONTROLLED	62.90	-
6639-9	CLAYTON DAM	15/12/86	8.5	46	N.A.	UNCONTROLLED	74.20	-
6639-11	NICK-O-TIME	15/12/86	6	51	175	REHABILITATED 8/5/86	83.00	99.21

TABLE 1. (cont.)

UNIT NO.	NAME	DATE	FLOW(l/s) HOW MEASURED	TEMP(°C) AHD	SHUT IN PRESSURE (kPa)	COMMENTS	REFERENCE POINT ELEV (m AHD)	REDUCED HEAD (m AHD at 40°C) CALCULATED/ESTIMATED
6640-1	NEW KOPPERAMANNA	18/10/86	14 V.NOTCH	79	N.A.	CONTROLLED LEAK IN HEADWORKS	17.10	-
6640-4	CANNAWAUKANINNA	16/10/86	17 V.NOTCH	78	900	CONTROLLED	18.80	101.00
6641-3	MUNGERANIE	20/10/86	11.6 V.NOTCH	87	641	CONTROLLED - IN GOOD CONDITION	58.80	119.50
6641-6	MULKA	10/12/;86	NOT MEASURED	NOT MEAS.	NOT MEASURED	UNABLE TO TAKE WELLHEAD MEASUREMENTS AS WELL CONNECTED TO THERMAL POWER GENERATOR	64.00	-
6642-2	MIRRA MITTA	18/10/86	12 V.NOTCH	89	NOT MEASURED	WHEN WELLHEAD SHUT IN, WATER LEAKS UP AROUND CASING. CONSIDERED UNSAFE -UNCONTROLLED	36.50	-
6643-1	GOYDERS LAGOON	19/10/86	9 V.NOTCH	100	1100	CONTROLLED IN GOOD CONDITION	31.30	91.40
6643-2	MT. GASON	18/10/86	7.3 V.NOTCH	94	940	CONTROLLED	44.70	99.70
6738-2	MURNPEOWIE H.S.	15/12/86	5	46	120	CONTROLLED REHABILITATED 18/10/86	82 EST. FROM PLAN	93
6738-7	QUARTPOT	17/12/86	0.5	38	<1	CONTROLLED REHABILITATED 23/10/86. ADVISED TO NOT SHUT IN, SINCE MAY BE DIFFICULT TO INDUCE FLOW	95.60	96
6739-2	TOONKETCHEN	14/12/86	NOT MEASURED	57	413	CONTROLLED REHABILITATED 18/9/86 "LANDSCAPE TOO FLAT TO USE V.NOTCH"	48.90	86.90
6739-6	METEOR	17/12/86	6.6 BUCKET	43	192	CONTROLLED REHABILITATED 19/10/85	40.50	59
6741-1	JENNETT	9/11/86	NOT MEASURED	NOT MEAS.	965	CONVERTED HYDROCARBON EXPLORATION WELL, COMPLETED 22/10/86. VISITED BY DRILLING SUPERINTENDENT	21.30	85.0

TABLE 1. (cont.)

UNIT NO.	NAME	DATE	FLOW(l/s) HOW MEASURED	TEMP(°C) AHD	SHUT IN PRESSURE (kPa)	COMMENTS	REFERENCE POINT ELEV (m AHD)	REDUCED HEAD (m AHD at 40°C) CALCULATED/ESTIMATED
6744-1	PANDIE BURRA #1	19/10/86	29	100	1113	CONTROLLED	32.20	97.7
6838-3	DEANS LOOKOUT	17/12/86	10 BUCKET	49	190	CONTROLLED REHABILITATED 13/10/85	50.40	68.80
6838-4	PETERMORRA	17/12/86	10 BUCKET	47	322	CONTROLLED REHABILITATED 6/10/85	55.30	56.50
6838-6	LAKE CROSSING	17/12/86	10 BUCKET	44	238	CONTROLLED REHABILITATED 14/11/86	10.70	34.70
6838-29	WOOLATCHIE	18/12/86	0.3	BUCKET	N.A.	UNCONTROLLED	-	-
6838-46	BELLINGER	18/12/86	"SMALL" EST.	N.A.	N.A.	UNCONTROLLED, WELLHEAD NOT LOCATED IN REEDY SWAMP	-	-
6839-3	MONTECOLLINA	18/12/86	3	45	NOT MEAS.	UNABLE TO CLOSE GATE VALVE	-	-
6941-9	MOOMBA #3	13/1/87	NOT MEASURED	56	790	SANTOS WATER SUPPLY WELL, SAMPLED BY SANTOS STAFF. UNABLE TO FLOW TEST	41.40	100.30
6942-4	GIDGEALPA #1	15/1/87	NOT MEASURED	94	1020	SANTOS WATER SUPPLY WELL, SAMPLED BY SANTOS STAFF. UNABLE TO FLOW TEST	50.30	109.70
6942-9	MERRIMELIA #1	14/1/87	NOT MEASURED	46	820	SANTOS WATER SUPPLY WELL, SAMPLED BY SANTOS STAFF. UNABLE TO OBTAIN FLOW RATE	50.00	88.95
7043-11	INNAMINCKA #1	8/11/86	NOT MEASURED	NOT STATED	N.A.	UNCONTROLLED REHABILITATION ATTEMPTED BY SANTOS LATE '86, OUTCOME UNKNOWN	-	-

TABLE 2. Headworks, distribution system and wetland description of wells visited in 1986 survey.

UNIT NO.	NAME	HEADWORKS/CONDITION	DISTRIBUTION SYSTEM	DRAINS, SWAMP DIMENSIONS
5941-1	RASBERRY CK	Y CK None fitted.	None.	3 km x 150 m swamp.
5941-5	DIGGERS	Field Sheet missing.		
5941-6	FERGY'S	75 mm PVC HWKS, 50 mm brass gate valve, 75 mm plug on top of head.	PVC pipe to trough.	Overflow from trough forms swamp 150 x 20 m.
5941-17	NICK'S	None fitted - 50 mm PVC pipe (with gate valve) from casing to trough.	Trough with float valve.	Nil.
5942-1	OODNADATTA TOWN WATER SUPPLY NO. 1	150 mm steel, 2 way. 150 mm main gate valve, 2 x 100 mm valves, pressure gauge socket also has pipe screwed into it.	Pipes to town water supply.	Nil.
5942-8	OODNADATTA TOWN BORE 2	150 mm steel, 2 way, 150 mm main gate valve, 2 x 100 mm valves, pressure gauge socket also has pipe (25 mm).	Pipes to town water supply.	Nil.
5942-10	NAPIERS	Pressure gauge on wellhead, 100 mm outlet on side of casing, 75 mm brass gate valve reduced to 50 mm PVC pipe.	50 mm PVC pipe for 700 m, discharge into creek. Gate valve at end.	Waterhole 700 metres long x 5 m. Filled from well when required.
5942-11	NASA	PVC hwks, diam. not stated, 50 mm gate valve, top unscrewed & 50 mm PVC pipe placed inside & discharges uncontrolled 20 m away.	20 m of 50 mm PVC pipe.	Swamp approx. 0.5 Ha.
5943-2	WIRE CREEK	No headworks, wellhead in elongate pool, discharges direct from casing.	None.	Waters discharge into pool approx. 5 m x 10 m then into flat area forming wetland approx. 3 Ha.
5944-6	JUNCTION	Old corroded surface casing with hole punched in side allowing water to discharge.	None.	Water flows from wellhead for approx. 100 m then into creek. Total wetland approx. 2 Ha.
5944-7	CRANS GRAVE	No Hwks., 50 mm PVC pipe with 50 mm gate valve.	50 mm PVC pipe to dam	Nil. Flow controlled at wellhead - dam filled when necessary.

TABLE 2 (cont.)

UNIT NO.	NAME	HEADWORKS/CONDITION	DISTRIBUTION SYSTEM	DRAINS, SWAMP DIMENSIONS
5945-1	MT. CRISPE	None fitted (backfilled & abandoned 17/8/87).	None.	Drain approx. 100 m then into creek for approx. 6 km.
6041-1	LITTLE BLYTHE	50 mm PVC, 1 x 50 mm brass gate valve, 50 mm PVC plug on top of hwks.	50 mm PVC pipe, 300 m to trough, small leak near hwks.	1/3 Ha. swamp near hwks. caused by leak in pipe.
6041-35	BARNEYS	No description. "Dam with bore in middle" (15 m diam.).	Presumably no hwks.	No details.
6041-36	CENTENARY	75 mm PVC hwks., 50 mm brass gate valve, 12.5 mm plug for gauge in 50 mm PVC plug.	50 mm poly pipe for 5 m.	Swamp 250 m x 25 m.
6041-37	LHDH 15	75 mm PVC hwks., 1 x 50 mm gate valve, 75 mm PVC plug on top.	50 mm poly pipe for 5 m	Swamp 1000 m x 50 m.
6041-73	DAVIDS	35 mm poly pipe screwed into 50 mm PVC. No other details.	Pipe to trough.	Water flows over end of trough into drain 60 m long, small swamp at end.
6041-77	BOUNDARY CAMP	35 mm poly pipe, equipped with gate valve.. No other details.	Pipe to trough.	Water flows from trough to swamp 150 m x 6 m.
6042-3	WATSON CK.	Iron pipe with elbow to casing. Large hole in pipe.	None.	Water into creek - forming large swampy area, approx. 1 km x 300 m.
6042-11	OCKENDEN	No headworks. Casing inside old water tank overgrown with bamboo.	Nil.	Swamp approx. 0.5 Ha.
6042-16	MT. DUTTON #2	Hwks. set in concrete square, hwks. diam. not stated? 37 mm brass gate valve.	40 mm PVC discharge line for approx. 50 m, with tap at end. 25 mm PVC from tap for 5 m.	Discharges into pond 150 m x 15 m. Filled when needed (stock usage).
6043-1	HORSESHOE	None - 150 mm steel delivery line 3 m in length set in concrete block. Hole near wellhead.	None.	Swamp approx. 0.5 Ha., flows into small creek (approx. 1 km).
6043-10	MACUMBA HS #2	75 mm steel, no gate valve, 2 x 50 mm outlets (one blanked off) with gate valves, 12 mm pressure gauge plug.	50 mm PVC line to tank.	Nil.

TABLE 2 (cont.)

UNIT NO.	NAME	HEADWORKS/CONDITION	DISTRIBUTION SYSTEM	DRAINS, SWAMP DIMENSIONS
6044-4	ONQUEEDINNA	2 way hwks., diam. not stated, no main gate valve, 2 x 50 mm gate valves, 12 mm plug for press gauge.	50 mm PVC pipe to several troughs up to 8 km from well.	The other outlet also has 50 mm PVC pipe but discharges into creek, with branch lines to other troughs.
6045-3	WITCHERRIE	No headworks.	Water discharges from top of casing into channel.	The water has made its own channel - runs for several km. Dimensions not obtained due to dense scrubland.
6139-22	MARGRET CK.	75 mm PVC hwks., set in a drum of cement, 1 x 50 mm brass gate valve.	50 mm PVC for 3 m, discharges on to ground.	Small swamp, area not stated.
6139-30	ONE TREE #2	?75 mm PVC hwks., ?75 mm PVC plug at top, 50 mm C.I. gate valve.	50 mm PVC pipe to trough. gate valve.	Minor flow over trough, wetland 100 m x 10 m.
6139-32	BEAUTIFUL VALLEY	Standard PVC hwks., screw cap at top, elbow to PVC valve. Housed in concrete cylinder (as are most).	No discharge line fitted. Water discharges to creek.	Water flows 50 m from hwks. to creek & then approx. 200 m down creek.
6140-3	OLD HOPE CK.	None - 75 mm steel pipe and flange, badly rusted.	Nil	Discharges into creek 100 m x 2 m wide.
6140-28	HONEYMOON	75 mm PVC hwks, 75 mm PVC plug, 1 x 50 mm brass gate valve.	1 x 50 mm polypipe for 200 m to Highways Dept. dam.	Overflow from dam flows into watercourse for 300 m.
6140-33	BIRTHDAY	75 mm PVC hwks, 75 mm PVC plug at top, 1 x 50 mm brass gate valve.	50 mm polypipe to creek 4 m away.	Waters discharge into creek, wetlands 2 km x 8 m.
6140-38	NEW HOPE CK.	Hwks not described, 75 mm PVC plug in top. Capped presumably where gate valve normally fitted.	Nil.	Nil.
6140-39	SUNNY CK. 1A	Diam. not given, 75 mm PVC plug, 1 x 50 mm brass gate valve, buildup of crusty precipitate.	50 mm polypipe for 4 m	Swamp 1000 m x 150 m.
6140-40	WILLIAM CK.	75 mm PVC hwks, 1 x 50 mm brass gate valve. Facility for pressure gauge, 75 mm PVC plug.	Connected to hotel, water will flow from gate valve but not from pipe. Pump equipped.	None.
6140-46	WHITES	No record.	N.R.	Nil.

TABLE 2 (cont.)

UNIT NO.	NAME	HEADWORKS/CONDITION	DISTRIBUTION SYSTEM	DRAINS, SWAMP DIMENSIONS
6141-1	SIX MILE	150 mm casing into 75 mm PVC hwks, cemented inside, 50 mm gate valve. 50 mm PVC plug.	No record.	Swamp 800 m x 8 m.
6141-21	JOHNSON NO. 3	Nil.	Nil.	Swamp 2 km long.
6141-23	LEVI SPRINGS	Nil.	Nil.	Swamp approx. 0.3 Ha.
6141-35	McLEANS	75 mm PVC with 50 mm outlet. No gate valve.	50 mm polypipe for 3 m.	Drain 300 m then small swamp.
6141-36	GEORGE CK.	50 mm PVC in 150 mm steel casing. 50 mm polypipe inside original steel delivery pipe and adaptor.	Nil.	Swamp 250 m x 3 m.
6141-37	BULLDOG CK.	Standard PVC hwks. diam. not stated. 1 x 50 mm brass gate valve, 50 mm PVC plug on top.	50 mm diam. polypipe for 3 m.	Swamp 1 km x 8 m.
6141-41	CHRISTINES	PVC hwks., diam. not stated. 50 mm brass gate valve, 75 mm plug on top with 12 mm pressure gauge plug.	50 mm PVC pipe for 6 m.	Swamp approx. 0.6 Ha.
6141-46	EITZENS	PVC hwks., diam. not stated. 50 mm PVC plug. 50 mm flanged PVC gate valve.	Water discharges onto ground at wellhead.	Swamp approx. 2 Ha.
6141-47	KEMPES	Hwks. diam. not stated. 50 mm gate valve. 50 mm PVC plug on top of hwks.	Nil.	Swamp/800 m x 5 m. Drain.
6141-48	MAXINES	Diam. not stated. 75 mm PVC plug on top, with 12 mm plug, 50 mm brass gate valve.	Nil.	Discharge forms a series of water holes inter-connected by reedy swamps. Abundant birdlife and fish.
6141-53	JERRYS	75 mm PVC hwks., 75 mm plug, 12 mm plug within. 50 mm flanged PVC gate valve.	Nil.	Bore flows into swampy area then into watercourse for 800 m.
6141-54	UMBUM 3	75 mm PVC, 50 mm PVC gate valve (flanged), 75 mm PVC plug on top.	Nil.	Small swamp approx. 0.3 Ha.
6142-1	DUCKHOLE	Nil.	Nil.	Pool approx. 3 m diam, wetlands approx. 2 km x 0.5 km.
6142-3	WOOD DUCK	Steel casing inside concrete ring.	Nil.	Boggy channel approx. 1.5 km x 80 m.

TABLE 2 (cont.)

UNIT NO.	NAME	HEADWORKS/CONDITION	DISTRIBUTION SYSTEM	DRAINS, SWAMP DIMENSIONS
6142-4	DUCKHOLE 2	75 mm C.I. hwks., 2 way, set in cement block, 2 x 50 mm C.I. gate valves, no master valve. 12 mm plug for pressure gauge, fitted with tap.	2 pipes, 50 mm PVC, one to trough, other to ground. Both turned off.	Nil.
6239-2	LETHBRIDGE	75 mm PVC hwks. Broken at "T" piece. 75 mm PVC plug for press gauge. No gate valve (broken off).	Nil.	Swamp 600 m x 6 m.
6239-4	BERESFORD	100 m C.I. Hwks. 100 mm gate valve, C.I. elbow, water discharges over headworks.	Nil.	50 m drain, then into creek, wetland 1.2 km x 30 m.
6239-6	ANGAS	No hwks., water discharges from casing.	Nil.	Wetland approx. 500 m x 30 m.
6239-10	TRIG	No hwks.	Nil.	Wetland from wellhead approx. 400 m x 50 m.
6239-13	COWARD	No hwks. Water discharges from & around casing in many directions.	Nil.	Large wetland, approx. 50 Ha.
6239-26	McEWINS	75 mm PVC hwks. in cement cylinder, 75 mm PVC plug. 75 mm PVC gate valve.	50 mm PVC pipe to drain.	Drain/swamp 1 km x 40 m.
6239-32	WELCOME 2A	75 mm PVC hwks. 75 mm PVC plug. 50 mm brass gate valve.	50 mm PVC pipe for 25 m.	Wetlands 30-40 acres.
6239-33	NUNNS 2	75 mm PVC hwks. 1 x 50 mm brass gate valve. Plug for gauge 75 mm, 50 mm, 19 mm.	50 mm PVC pipe to swamp, also diverted to 2 dams for Highways Dept. use.	Pipe feeds large swamp/lake. Approx. 20 Ha.
6240-1	ARMISTICE	Wellhead in concreted drum. No hwks.	Nil.	Drains into creek bed, v.small flow along creek, swamp negligible, stream is wet for approx. 500 m.
6240-2	NANCY'S	No hwks.	Nil.	Drain approx. 20 m x 1 m then into watercourse.
6338-2	NEW YEAR'S GIFT	75 mm PVC with 75 mm plug on top. 1 x 50 mm brass gate valve. 10 mm plug for pressure gauge.	50 mm PVC pipe to drain.	Drain/wetland approx. 3 Ha.
6338-7	BEATRICE	75 mm steel casing with 37 mm C.I. pipe feeding into trough.	<10 m pipe to trough.	Overflows from trough to swamp, area approx. 1 Ha (near mound spring swamp).

TABLE 2 (cont.)

UNIT NO.	NAME	HEADWORKS/CONDITION	DISTRIBUTION SYSTEM	DRAINS, SWAMP DIMENSIONS
6338-35	GAB5	150 mm hwks., 150 mm gate valve.	Lay flat hose for discharge to creek (approx. 10 m).	Nil.
6339-2	CURDIMURKA RS	Set in cemented 200 l drum, 100 mm C.I. gate valve, elbow to discharge line, 50 mm C.I. pipe to ground. Water leaking from valve tap stem, hwks. corroding badly.	50 mm C.I. pipe to ground.	Swamp approx. 1 Ha.
6339-6	JACKBOOT	75 mm, 3 way hwks., 3 x 50 mm outlets, 3 x 50 mm gate valves, one not in use, one to tank, other splits into 2 (50 mm with 50 mm C.I. gate valves) & piped kms away. Also 25 mm pipe from hwks. to trough & shed.	Pipes to tank nearby, to tanks & troughs up to 20 km away, & to shed & trough nearby.	Small boggy area at trough near wellhead.
6438-1	CHARLES ANGAS	50 mm FRP casing with 50 mm PVC plug - 1 x 50 mm plastic gate valve. 10 mm fitting for press gauge.	50 mm PVC pipe to trough.	Water overflows trough & forms wetland area approx. 3 Ha.
6438-3	ALBERRIE CK.	100 mm steel casing with 1 x 50 mm gate valve, 1 x 50 mm C.I. pipe with "T" to trough and ?house.	Piped to trough, float valve controlled	Nil.
6438-4	COORANNA	Standard PVC hwks. set in concreted drum, fitted with RMS type pressure gauge tap & plug (12 mm). 50 mm valve after hwks.	50 mm PVC pipe for approx. 100 m to waste, also T to trough, not used.	Pipe discharges into creek, wetland for approx. 400 m.
6438-5	CALLANNA	Casing set in cement drum, 1 x 50 mm T piece, 1 x 10 mm RMS type pressure gauge tap & outlet, 1 x 50 mm brass gate valve.	50 mm steel pipe to trough.	Water overflows from trough and forms wetland approx. 1 Ha.
6438-79	MAYNARDS	100 mm PVC hwks.	50 mm polypipe to tank, and trough.	Water overflows from trough & forms reedy swamp.
6438-80	WCB #1	RMS T type, steel hwks., tap & press gauge socket on top 150 mm gate valve, 50 mm outlet to 2 x 50 mm valves & poly lines.	2 x 50 mm valves & poly lines, one to drain, one to tank, troughs. Used only when required.	Nil.
6438-87	MORPHETTS	125 mm FRP casing, 100 mm C.I. gate valve, 1 x 75 mm cross piece with 75 mm & 10 mm plug, 2 x 50 mm brass gate valves, discharging into 3 x 50 mm PVC pipes.	3 x 50 mm PVC pipes. One to trough, others to tanks & troughs in different paddocks.	Nil.

TABLE 2 (cont.)

UNIT NO.	NAME	HEADWORKS/CONDITION	DISTRIBUTION SYSTEM	DRAINS, SWAMP DIMENSIONS
6439-6	CROWS NEST	75 mm C.I. 3 way (75 mm main gate valve) 3 x 50 mm outlets, one blanked off, 2 x 50 mm gate valves.	2 x 50 mm discharge lines, one to creek & swamp, other to tank & troughs in other paddocks.	Water into creek 400 m x 3 m then into wetland 800 m x 400 m.
6439-9	MORRIS CK.	3 way C.I. hwks., 75 mm gate valve, 3 x 50 mm outlets, 2 blanked off, 1 x 50 mm gate valve.	50 mm PVC pipe to drain.	Approx. 40 m drain, then into creek, wetland for 2-3 km in creek (narrow).
6439-18	WCB #2	RMS type hwks./completion, fully shut-in, not flowing equipped with solar powered chart recorder for shut-in pressure.	Nil.	Nil.
6439-20	MULOORINA HS.	125 mm FRP casing, 125 mm main gate valve, 3 x 50 mm outlets, 1 x 100 mm outlet to generator, 2 x 50 mm bronze gate valves.	Water flows through turbine & into drain then to creek.	Creek 1 km x 2 m then pond & swamp (1 Ha), then drain/ creek continues for 5 km.
6538-4	FROME CK.	150 mm steel casing, 50 mm steel outlet line with 1 x 50 mm flanged gate valve. Hwks. has top missing & water flows through valve (not out hole in top).	50 mm steel pipe to tank - from tank to trough. Also from tank to other tanks & windmill relay pumps to troughs.	Nil.
6538-14	LK. BILLY	50 mm PVC "T" piece, 2 x 50 mm brass gate valves. No facility for pressure gauge.	50 mm PVC pipe to trough. 50 mm PVC pipe to tank (not used).	Water overflows from trough into creek, then flows for 2 km (up to 3 m wide).
6539-1	PEACHAWARRINA	75 mm steel hwks., 4 way, 75 mm main gate valve, 4 x 50 mm outlets, 4 x 50 mm gate valves, 10 mm ball valve fitting for press gauge, slight leak at one valve.	4 outlets, 1 x 50 mm PVC, 1 x 75 mm (from 50 mm at hwks.) to swamp, 1 x 50 mm into asbestos pipe, 1 blanked off.	Swamp 500 m x approx. 150 m, numerous small leaks & swamps in asbestos line (swamp area negligible).
6539-2	CLAYTON	150 mm steel hwks., 150 mm steel gate valve, 2 x 50 mm outlets & gate valves, 1 x 100 mm outlet with gate valve. 12 mm steel pipe from pressure gauge outlet.	1 x 100 mm steel pipe to pond & drain. 2 x 50 mm steel pipe to tanks & troughs.	Pond approx. 10 m diam. then into open drain for approx. 200 m waters flow into underground cavities.
6539-3	DULKANINNA	100 mm steel hwks., 3 way, 100 mm main gate valve, 3 x 50 mm valves, 12 mm plug on top for pressure gauge. Casing in poor condition, leaking.	1 x 50 mm outlet to drain. 2 x 50 mm PVC pipes, 1 for 13 km, other for approx. 3 km to troughs & tanks.	Drain/swamp approx. 300 m x 200 m.

TABLE 2 (cont.)

UNIT NO.	NAME	HEADWORKS/CONDITION	DISTRIBUTION SYSTEM	DRAINS, SWAMP DIMENSIONS
6539-4	MARION	75 mm steel hwks., 75 mm steel gate valve, 3 x 50 mm outlets with 50 mm steel valves. 12 mm plug for pressure gauge.	1 x 50 mm PVC pipes to drain. 2 x 50 mm PVC pipes to tanks.	Drain/wetland for up to 1 km?
6539-5	LAKE HARRY	100 mm steel hwks. with 75 mm main gate valve, 3 x 50 mm outlets & gate valves, 12 mm plug on wellhead flange.	3 x 50 mm outlets, 50 mm galvanized iron at hwks., and into PVC. Piped to tanks & troughs several km.	Nil.
6539-8	PETERS	50 mm galvanized iron "cross", 1 x 50 mm bronze gate valve, 10 mm RMS type valve on top.	50 mm PVC for 500 m into swamp.	Swamp 700 m x 100 m?
6539-9	CLAYTON #2	273 mm "T" piece hwks., flanged top with 80 mm valve & RMS type gauge fitting. 152 mm flanged gate valve with 152 mm pipe to drain.	152 mm steel pipe for 100 m to drain.	Drain then into creek, water in creek for 23 km in winter, approx. 9 km in summer.
6639-2	SINCLAIR	152 mm casing, 152 mm "T" shaped head, 2 x 100 mm, C.I. gate valves, 100 mm outlet on top capped off, wellset in 460 mm concrete drum.	2 x 100 mm steel pipes from wellhead into 152 mm flow pipe for approx. 30 m.	Drain for approx. 700 m then 1 Ha. swamp.
6639-3	COORYANINNA	No hwks., casing in cemented drum, water discharges through 100 mm flanged elbow.	Water discharges directly into drains.	2 drains - one to the north, one to west, joining at 1.5 km & flow for further 500 m.
6639-4	JEWELLERY CK.	50 mm galvanized piping cemented into 200 l drum. No headworks, no valves.	50 mm steel pipe to tank, then to trough, equipped with float valve.	Small wastage - from tank overflow - swamp <1 Ha.
6639-7	CHAPPALANNA	75 mm FRP casing, 75 mm C.I. main valve, 75 mm "T" piece, reduced to 50 mm, 2 x 50 mm bronze gate valves, connect pressure gauge to outlet line.	1 x 50 mm PVC line to swamp. 1 x 50 mm PVC line to drain.	Swamp 1 km x 100 m drain. 1.5 km x 1 m then into creek.
6639-8	YARRA HILL	Casing set in cement cylinder, 125 mm flanged elbow. No hwks., no valves.	Water flows into swamp.	Swamp 2 km x 300 m.
6639-9	CLAYTON DAM	No hwks., 112 mm C.I. flanged elbow & 100 mm C.I. pipe.	100 mm C.I. pipe discharges to drain.	Drain 3 km x 1 m, swampy in places.
6639-11	NICK-O-TIME	75 mm FRP casing, 75 mm C.I. gate valve, 75 mm "T" piece reduced to 50 mm, 2 x 50 mm brass gate valves pressure gauge fitted only at elbow line (50 mm).	2 x 50 mm PVC pipe, 6 m in length, discharging to drain.	Drain/swamp for 2 km.

TABLE 2 (cont.)

UNIT NO.	NAME	HEADWORKS/CONDITION	DISTRIBUTION SYSTEM	DRAINS, SWAMP DIMENSIONS
6640-1	NEW KOPPERAMANNA	100 mm hwks., 100 mm main gate valve (C.I.), 3 x 50 mm outlets, 3 x 50 mm C.I. valves, bad leak at hwks./ outlet junction.	1 x 50 mm steel pipe to drain (pipe length 5 m). 1 x 50 mm steel to house (14 km) & tanks, troughs.	Drain approx. 10 km then into channel.
6640-4	CANNAWAUKANINNA	100 mm steel casing, 125 mm steel hwks., 125 mm steel gate valve, 3 x 50 mm outlets, all with 50 mm valves- one not in use. 12 mm plug on top of hwks. for pressure gauge.	1 x 50 mm PVC to dam, regulated at hwks. 1 x 50 mm C.I. to Turkeys Nest & cooling channel.	Drain approx. 1 m wide for >2 km, up to 16 km in winter (into Cooper Ck.).
6641-3	MUNGERANIE	100 mm C.I. main gate valve, 100 mm hwks. (steel), 2 x 80 mm gate valves, one small valve on outlet pipe to swamp. 12 mm plug for press gauge.	500 m of 100 mm pipe to drain, other outlet branches - 1) to swamp; 2) to house, 50 mm fibrolite pipe.	Drain 500 m x 1 m diam., then into swamp approx. 1500 m x 50 m.
6641-6	MULKA	75 mm FRP casing, ?75 mm hwks., 2 way, ?75 mm gate valve pressure gauge fitted to hwks. flange, 2 flow line gate valves - diam. not stated.	Pipes: 27 km north to Turkeys Nest dam, 3 tanks & troughs; 12 km S to 3 dams; 12 km W to 2 dams; 25 km E to Coopers Creek.	Small swamp adjacent to power plant (approx. ½ Ha.).
6642-2	MIRRA MITTA	125 mm C.I. gate valve, 125 mm hwks., 5 x 50 mm outlets, 4 with 50 mm gate valves, one blanked off, 12 mm pressure gauge plug.	4 x 50 mm pipes - one not connected, one to drain, two to tanks, dams.	Pipe 50 mm for approx. 30 m then to swamp - area 200 m x 20 m.
6643-1	GOYDERS LAGOON	62 mm C.I. hwks., 2 way, 62 mm C.I. gate valve. 2 x 50 mm outlets, 2 x 50 mm C.I. valves.	2 pipes. 1 x 50 mm to house. 1 x 75 mm to drain.	Drain 1 km x 1 m then into creek.
6643-2	MT. GASON	100 mm C.I. hwks., 100 mm C.I. gate valve, set in 200 l drum. 3 x 50 mm gate valves, one blanked off.	2 pipes, 1 x 150 mm to drain, 1 x 50 mm? to tank - pump driven from here to rest of property.	Drain 600 m x 1 m then swamp 1000 m x 200 m.
6738-2	MURNPEOWIE H.S.	75 mm FRP casing, 75 mm C.I. master valve, 75 mm "T" piece, reduced to 50 mm, 2 x 50 mm bronze gate valves, pressure can only be measured by removing flowline.	2 x 50 mm PVC pipe, one to Merna Merna (6 km with X Section 3½ km to future tank). 1 line for 5 km to Turkeys Nest.	1 drain, 1 km a 1 m flows into creek.
6738-7	QUARTPOT	75 mm FRP casing, 50 mm reducer, no master valve, 2 x 50 mm bronze gate valves.	Relay mill to tank, then to trough (gate valve controlled).	Swamp approx. 15 m diam. near wellhead.

TABLE 2 (cont.)

UNIT NO.	NAME	HEADWORKS/CONDITION	DISTRIBUTION SYSTEM	DRAINS, SWAMP DIMENSIONS
6739-2	TOONKETCHEN	75 mm FRP casing, 75 mm C.I. gate valve, 75 mm "T" type hwks. reduced to 50 mm, 2 x 50 mm bronze gate valves. Pressure measured by removing flowline, no special facility.	2 x 50 mm PVC pipes. One 15 m long to drain, other 7 km & into creek.	Swamp approx. 3 acres near creek.
6739-6	METEOR	75 mm FRP casing, 75 mm C.I. gate valve, 75 mm "T" type hwks. reduced to 50 mm, 2 x 50 mm bronze gate valves. No facility for pressure gauge (need to remove flowline).	2 x 50 mm PVC pipe to drain. Approx. 10 m length.	Drain 200 m x 3 m, then into swamp. 700 m x 150 m then into creek for 2 km.
6741-1	JENNETT	No details.	Not in use at time of visit.	Nil.
6744-1	PANDIE BURRA #1	125 mm main gate valve, 125 mm C.I. hwks., (4 way), 3 x 50 mm outlets, all blanked off, 1 x 100 mm outlet, steel pipe with 100 mm gate valve 10 m along pipe, 12 mm pressure gauge plug on top of hwks.	100 mm steel pipe for approx. 15 m to drain.	Drain 60 m x 1 m to swamp not stated).
6838-3	DEANS LOOKOUT	75 mm FRP casing, 75 mm C.I. main valve, 75 mm "T" type hwks. reduced to 50 mm, 2 x 50 mm bronze gate valves, remove flowline to take pressure (no specific plug).	2 x 50 mm PVC pipes. One to pond & pumped out by w/mill; the other pipe to drain.	Drain fed by pipe from well, and also from overflow from pond, drain approx. 3 km x 1.5 m.
6838-4	PETERMORRA	102 mm main gate valve, 102 mm C.I. flange reduced to 75 mm "T" piece. 2 x 50 mm gate valves.	50 mm PVC pipe to Turkeys Nest (approx. 6 km distance). 50 mm PVC with "T" & valve one to creek, one for Highways Dept.	Drain 200 m x 2 m into creek & swamp, swamp approx. 2 Ha.
6838-6	LAKE CROSSING	75 mm FRP casing, 75 mm flanged main valve, 75 mm "T" type hwks., one side reduced to 50 mm. Pressure taken from 75 mm outlet.	75 mm outlet used by Highways Dept. 50 mm outlet to Turkeys Nest (50 mm pipe).	Nil.
6383-29	WOOLATCHIE	Nil. 102 mm steel casing with plate bolted on top.	50 mm elbow & steel pipe to mill. 50 mm steel pipe to tank.	Overflow from tank 100 m x 8 m wetland.
6838-46	BELLINGER	None visible.	None - water discharges from wellhead onto ground.	Two small drains, both covered in reeds & grasses, wetland area. Approx. 2 Ha.

TABLE 2 (cont.)

UNIT NO.	NAME	HEADWORKS/CONDITION	DISTRIBUTION SYSTEM	DRAINS, SWAMP DIMENSIONS
6839-3	MONTECOLLINA	Not described (from Photo: steel 2 way hwks). "T" type, one not in use, other with gate valve, discharge line to large dam.	Pipe to dam. Used by Highways Dept.	Nil.
6941-9	MOOMBA #3	Not described.	Not described.	Nil.
6942-4	GIDGEALPA #1	"	"	Nil.
6942-9	MERRIMELIA #1	"	"	Nil.
7043-11	INNAMINCKA #1	"	None stated.	None stated.

TABLE 3. FULL CHEMICAL ANALYSIS OF FLOWING WELLS SAMPLED IN 1986 SURVEY.

(concentrations in mg/l)

UNIT NO	WELL NAME	DATE	CA	MG	NA	K	CO3	HCO3	SO4	CL	NO3	TDS	PH
5841	7	16/11/86	490.00	505.00	1620.00	61.00	0.00	308.00	2400.00	2790.00	0.10	8020.00	7.90
5941	1 RASPBERRY CREEK	15/11/86	250.00	112.00	710.00	35.00	0.00	266.00	820.00	1180.00	0.10	3240.00	7.40
5941	3	14/11/86	212.00	105.00	1160.00	26.00	0.00	291.00	912.00	1740.00	0.10	4300.00	7.60
5941	3	27/09/87	212.00	105.00	1160.00	26.00	0.00	291.00	912.00	1740.00	0.10	3735.00	7.60
5941	5 DIGGERS	14/11/86	200.00	86.00	775.00	26.00	0.00	265.00	780.00	1130.00	0.10	3110.00	7.10
5941	6 FERGIES	14/11/86	150.00	54.00	715.00	20.00	0.00	267.00	620.00	397.00	0.10	2630.00	7.70
5941	17 NICKS	14/11/86	250.00	132.00	950.00	34.00	0.00	304.00	920.00	1480.00	0.10	3920.00	7.80
5942	1 OODNADATTA	16/11/86	66.00	30.00	540.00	16.00	0.00	269.00	325.00	677.00	0.10	1790.00	7.60
5942	10 NAPIERS	16/11/86	74.00	20.00	655.00	15.00	0.00	300.00	445.00	738.00	0.10	2090.00	7.70
5942	11 NASA	16/11/86	114.00	44.00	610.00	20.00	0.00	289.00	475.00	795.00	0.10	2200.00	7.70
5943	2 WIRE CK	17/11/86	48.00	3.40	730.00	5.00	0.00	266.00	427.00	771.00	2.80	2120.00	7.70
5944	6 JUNCTION	14/11/86	61.00	34.00	315.00	15.00	0.00	178.00	220.00	454.00	0.10	1190.00	7.20
5944	7 CRANS GRAVE	15/11/86	74.00	22.00	510.00	16.00	0.00	256.00	310.00	636.00	0.10	1690.00	0.00
6041	1 LITTLE BLYTHE	17/11/86	41.00	8.80	810.00	8.00	0.00	303.00	360.00	947.00	1.20	2320.00	7.60
6041	35 BARNEY'S	14/11/86	132.00	55.00	930.00	40.00	0.00	497.00	600.00	1130.00	0.10	3140.00	7.50
6041	36 CENTENARY	16/11/86	37.00	6.00	860.00	6.00	0.00	272.00	380.00	982.00	0.10	2410.00	7.70
6041	37 LHDH 15	16/11/86	44.00	5.60	810.00	6.50	0.00	267.00	375.00	972.00	0.10	2340.00	7.90
6041	73 DAVID'S	14/11/86	85.00	37.00	600.00	17.00	0.00	312.00	440.00	77.40	0.10	2110.00	7.50
6041	77 BOUNDARY CAMP	14/11/86	107.00	42.00	650.00		0.00	297.00	480.00	780.00	0.10	2230.00	7.30
6042	3 WATSON	18/11/86	56.00	6.20	900.00	7.50	0.00	275.00	39.00	1060.00	0.10	2550.00	7.60
6042	11 OCKENDEN	18/11/86	115.00	19.00	810.00	14.00	0.00	269.00	500.00	941.00	2.20	2530.00	8.20
6042	16 MT DUTTON	18/11/86	105.00	19.00	800.00	11.00	0.00	252.00	580.00	927.00	0.10	2570.00	7.40
6043	1 HORSE SHOE	17/11/86	84.00	13.00	790.00	12.00	0.00	255.00	430.00	959.00	0.10	2410.00	7.50
6043	10 MACUMBA H/S	17/11/86	53.00	4.00	1000.00	4.50	0.00	249.00	370.00	1250.00	0.10	2800.00	7.60
6043	10 MACUMBA H/S	20/11/86	63.00	4.50	1000.00	5.00	20.40	222.00	340.00	1330.00	2.60	2880.00	8.60
6044	4 ONQUEEDINNA	17/11/86	92.00	12.00	820.00	12.00	0.00	237.00	405.00	1060.00	0.10	2520.00	7.50
6045	3												
6139	22 MARGARET CK	20/11/86	149.00	31.00	1760.00	51.00	0.00	567.00	380.00	2450.00	0.70	5100.00	7.40
6139	30 ONE TREE #2	20/11/86	200.00	47.00	1850.00	55.00	0.00	423.00	540.00	2850.00	0.10	5750.00	7.60
6139	32 BEAUTIFUL VALLEY	20/11/86	216.00	47.00	1750.00	56.00	0.00	335.00	680.00	2620.00	0.10	5530.00	6.90
6140	3 HOPE CREEK (OLD)	18/11/86	175.00	50.00	1430.00	21.00	0.00	243.00	635.00	2150.00	0.10	4590.00	7.50
6140	28 HONEYMOON	19/11/86	215.00	46.00	1620.00	48.00	0.00	230.00	690.00	2370.00	0.10	5100.00	7.00
6140	33 BIRTHDAY	18/11/86	240.00	54.00	1370.00	35.00	0.00	234.00	560.00	2150.00	0.10	4520.00	8.00
6140	39 SUNNY CK	18/11/86	215.00	49.00	1350.00	29.00	0.00	218.00	630.00	208.00	0.10	4450.00	7.00
6140	40 NEW WILLIAM CK	19/11/86	220.00	60.00	1590.00	43.00	0.00	221.00	695.00	2500.00	0.30	5220.00	7.70
6140	46 WHITE'S	19/11/86	230.00	63.00	1580.00	50.00	0.00	252.00	680.00	2380.00	0.10	4980.00	7.40
6141	1 SIX MILE	17/11/86	56.00	10.00	760.00	10.00	0.00	293.00	355.00	904.00	0.10	2240.00	7.70
6141	4 MILNE SPRINGS	17/11/86	59.00	13.00	790.00	10.00	0.00	282.00	370.00	934.00	0.10	2310.00	7.40
6141	21 JOHNSON'S NO 3	18/11/86	174.00	36.00	1070.00	31.00	0.00	243.00	470.00	1590.00	0.70	3490.00	7.40
6141	23 LEVI SPRINGS	17/11/86	52.00	17.00	850.00	8.00	0.00	283.00	400.00	1000.00	0.10	2470.00	7.90

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Table 3 (cont.)

UNIT NO	WELL NAME	DATE	CA	MG	NA	K	CO3	HCO3	SO4	CL	NO3	TDS	PH
6141	35 McLEANS	18/11/86	210.00	47.00	1340.00	27.00	0.00	254.00	635.00	2040.00	0.10	4430.00	7.50
6141	36 GEORGE CK	17/11/86	193.00	50.00	1400.00	24.00	0.00	262.00	635.00	2140.00	0.10	4580.00	7.60
6141	37 BULLDOG CK	17/11/86	73.00	15.00	765.00	16.00	0.00	284.00	370.00	967.00	0.10	2350.00	7.60
6141	41 CHRISTINES	17/11/86	55.00	12.00	800.00	10.00	0.00	293.00	370.00	950.00	0.10	2340.00	7.50
6141	47 KEMPES	17/11/86	72.00	16.00	790.00	11.00	0.00	280.00	380.00	990.00	0.10	2400.00	7.50
6141	48 MAXINES	17/11/86	65.00	12.00	780.00	10.00	0.00	290.00	380.00	962.00	0.10	2350.00	7.50
6141	53 JERRY'S	18/11/86	210.00	39.00	1300.00	31.00	0.00	242.00	525.00	1900.00	0.50	4130.00	8.00
6141	54 UMBUM #3	18/11/86	180.00	42.00	1370.00	25.00	0.00	208.00	615.00	2030.00	0.10	4370.00	7.30
6142	1 DUCK HOLE	18/11/86	48.00	5.20	730.00	9.00	264.00	270.00	350.00	864.00	0.10	2140.00	7.40
6142	3 WOOD DUCK	17/11/86	55.00	7.80	710.00	11.00	0.00	282.00	340.00	853.00	0.10	2120.00	7.40
6142	4 DUCK HOLE #2	18/11/86	54.00	4.20	860.00	6.00	0.00	271.00	375.00	104.00	0.10	2480.00	7.60
6239	2 LETHBRIDGE	20/11/86	227.00	41.00	1270.00	31.00	0.00	253.00	525.00	1880.00	0.10	5080.00	7.80
6239	4 BERESFORD	20/11/86	76.00	36.00	1370.00	42.00	0.00	734.00	265.00	1720.00	0.20	3870.00	8.00
6239	10 TRIG	20/11/86	28.00	32.00	1200.00	30.00	28.20	1170.00	136.00	1280.00	0.20	3310.00	8.50
6239	13 COWARD SPRINGS	20/11/86	35.00	31.00	1170.00	29.00	0.00	1060.00	139.00	1300.00	0.20	3230.00	7.90
6239	26 McEWINS 1A	20/11/86	130.00	34.00	1700.00	44.00	0.00	545.00	420.00	2440.00	0.10	5040.00	7.50
6239	32 WELCOME 2A	20/11/86	100.00	26.00	1570.00	43.00	7.20	523.00	306.00	215.00	0.10	4460.00	8.40
6239	33 NUNNS #2	20/11/86	220.00	44.00	1700.00	60.00	0.00	298.00	560.00	2580.00	0.10	5320.00	8.10
6240	1 ARMISTICE	19/11/86	250.00	40.00	1640.00	50.00	0.00	354.00	630.00	2540.00	0.10	5320.00	7.70
6240	2 NANCY'S	19/11/86	220.00	50.00	1500.00	50.00		227.00	685.00	2250.00	0.10	4870.00	7.60
6338	2 NEW YEARS GIFT	21/11/86	16.00	18.00	850.00	16.00	0.00	1080.00	118.00	701.00	0.10	2250.00	7.80
6338	7 BEATRICE	21/11/86	15.00	27.00	810.00	16.00	0.00	978.00	150.00	723.00	0.10	2220.00	7.60
6339	2 CURDIMURKA RS	21/11/86	16.00	13.00	950.00	15.00	12.00	1200.00	46.00	851.00	0.20	2490.00	8.40
6339	6 JACKBOOT	21/11/86	11.00	2.40	940.00	11.00	0.00	1130.00	0.20	860.00	0.10	2380.00	8.10
6438	1 CHARLES ANGAS	21/11/86	6.80	1.70	680.00	9.00	0.00	1140.00	0.40	436.00	0.10	1690.00	8.20
6438	3 ALBERRIE CREEK RS	21/11/86	6.60	9.20	1270.00	12.00	0.00	1230.00	0.30	1320.00	0.10	3230.00	8.30
6438	4 COORANNA	22/11/86	0.80	0.80	605.00	3.50	18.60	1190.00	0.30	253.00	0.10	1470.00	8.40
6438	5 CALLANNA	21/11/86	4.40	3.90	720.00	3.50	0.00	1080.00	0.10	517.00	0.10	1780.00	8.10
6438	79 MAYNARDS	21/11/86	8.10	4.10	780.00	8.50	0.00	1180.00	1.30	558.00	0.20	1940.00	8.00
6438	80 WCB 1	22/11/86	1.10	1.50	715.00	5.00	22.80	1210.00	2.00	387.00	0.10	1730.00	8.40
6438	87 MORPHETTS	21/11/86	7.70	6.90	885.00	8.00	0.00	1180.00	8.50	716.00	0.10	2210.00	8.10
6439	6 LAKE LETTIE 2 CROWS	20/11/86	1.20	0.50	625.00	5.00	9.60	1160.00	0.40	319.00	0.10	1530.00	8.40
6439	9 MORRIS CREEK	21/11/86	6.20	1.20	690.00	9.00	0.00	1110.00	0.30	472.00	0.10	1620.00	8.30
6439	20 MULOORINA HS	11/12/86	0.60	0.40	600.00	4.50	0.00	1090.00	0.40	315.00	0.10	1460.00	8.30
6538	4 FROME CREEK	09/12/86	2.90	1.60	630.00	3.00	0.00	1090.00	0.10	378.00	0.10	1550.00	8.10
6538	14 LAKE BILLY	12/12/86	49.00	5.30	1210.00	4.00	0.00	605.00	260.00	1460.00	0.10	3290.00	8.20
6539	1 PEACHAWARRINA	17/10/86	0.80	0.90	570.00	10.00	0.00	895.00	0.40	372.00	0.10	1390.00	7.90
6539	2 CLAYTON	17/10/86	0.50	0.50	450.00	6.50	0.00	895.00	0.10	156.00	0.10	1000.00	8.10
6539	3 DULKANINNA	15/10/86	0.40	0.50	387.00	8.00	0.00	837.00	0.10	110.00	0.10	855.00	8.30
6539	4 MARION	21/10/86	0.50	0.60	540.00	3.00	0.00	988.00	0.10	272.00	0.10	1220.00	8.30
6539	5 LAKE HARRY	21/10/86	0.80	0.70	540.00	2.00	0.00	991.00	0.10	266.00	0.10	1250.00	8.00
6539	8 PETERS	11/12/86	0.60	0.40	550.00	3.00	0.00	1100.00	0.10	222.00	0.10	1320.00	8.10
6539	9 CLAYTON 2	16/10/86	0.40	0.60	450.00	7.00	0.00	846.00	1.30	148.00	0.10	1020.00	8.80
6639	2 SINCLAIR	10/12/86	1.00	0.40	460.00	5.00	0.00	964.00	0.90	178.00	0.10	1120.00	8.00
6639	3 COORYANINNA	14/12/86	6.00	0.40	415.00	8.00	0.00	913.00	0.50	144.00	0.10	1020.00	7.90
6639	4 JEWELLERY CK	14/12/86	3.40	0.60	390.00	7.50	0.00	872.00	0.50	133.00	0.10	964.00	7.70
6639	7 CHAPPALANNA	15/12/86	0.70	0.30	460.00	4.50	0.00	985.00	0.40	163.00	0.10	1110.00	8.10
6639	8 YARRAHILL	15/12/86	2.90	0.50	490.00	4.50	0.00	982.00	1.00	206.00	0.10	1190.00	8.00
6639	9 CLAYTON DAM	15/12/86	5.60	1.00	710.00	2.00	0.00	1090.00	31.00	465.00	0.10	1750.00	7.90

Table 3 (cont.)

UNIT NO	WELL NAME	DATE	CA	MG	NA	K	CO3	HCO3	SO4	CL	NO3	TDS	PH
6639	11 NICK 'O' TIME	15/12/86	3.00	0.30	425.00	4.00	0.00	940.00	0.10	140.00	0.10	1030.00	7.80
6639	15 TROUDANINNA #3	14/12/86	17.00	0.50	400.00	7.50	0.00	935.00	0.10	117.00	0.10	1000.00	7.90
6640	1 NEW KOPPERAMANNA	18/10/86	0.60	0.80	365.00	12.00	0.00	766.00	0.40	133.00	0.10	832.00	8.00
6640	4 CANNAWAUK-ANINNA	16/10/86	0.80	0.80	380.00	11.00	0.00	762.00	0.60	171.00	0.10	918.00	7.60
6641	3 MUNGERANIE	20/10/86	0.10	0.10	330.00	11.00	0.00	717.00	33.00	75.20	0.10	741.00	7.50
6642	2 MIRRA MITTA	18/10/86	0.10	0.10	305.00	12.00	0.00	661.00	35.00	67.20	0.10	684.00	7.50
6643	1 GOYDERS LAGOON	19/10/86	0.10	0.10	266.00	7.00	0.00	589.00	13.00	64.20	0.10	598.00	8.30
6643	2 MT GASON	18/10/86	0.10	0.10	290.00	7.00	0.00	663.00	13.00	65.00	0.10	672.00	7.80
6738	2 MURNPEOWIE H/S	15/12/86	0.90	0.50	500.00	1.50	0.00	989.00	26.00	208.00	0.10	1220.00	8.10
6738	7 QUARTPOT	17/12/86	7.80	1.60	545.00	2.50	0.00	862.00	13.00	364.00	0.10	1360.00	8.20
6739	2 TOONKETCHEN	14/12/86	5.00	0.40	445.00	6.00	0.00	992.00	1.00	146.00	0.10	1090.00	7.70
6741	1 JENNET	09/11/86	6.70	2.40	355.00	16.00	0.00	637.00	66.00	236.00	0.10	1070.00	8.20
6744	1 PANDIE BURRA	19/10/86	0.10	0.10	220.00	4.00	0.00	512.00	3.50	52.00	0.10	518.00	8.30
6838	3 DEANS LOOKOUT	17/12/86	22.00	3.00	620.00	5.00	0.00	612.00	2.40	769.00	0.10	1720.00	8.10
6838	4 PETERMORRA	17/12/86	9.20	0.90	445.00	4.00	0.00	929.00	0.10	181.00	0.10	1100.00	7.90
6838	6 LAKE CROSSING	17/12/86	325.00	37.00	3450.00	4.00	0.00	141.00	1120.00	5130.00	0.10	10100.00	7.40
6838	29 WOOLACHIE	18/12/86	4.70	0.60	612.00	5.00	0.00	825.00	1.20	490.00	0.10	1510.00	7.40
6838	46 BELLINGER	18/12/86	7.30	1.40	490.00	4.50	25.00	867.00	0.60	280.00	0.10	1210.00	7.60
6839	3 MONTECOLLINA	18/12/86	138.00	29.00	2560.00	3.50	0.00	248.00		4030.00	0.10	7010.00	7.60
6941	9 MOOMBA 3	13/01/87	18.00	1.20	1280.00	9.00	0.00	2010.00	19.00	870.00	0.10	3040.00	7.00
6942	4 GIDGEALPA 1	15/01/87	0.50	0.70	750.00	18.00	0.00	1820.00	152.00	152.00	0.10	1600.00	7.80
6942	9 MERRIMELIA 1	14/01/87	6.50	1.00	1290.00	19.00	0.00	2070.00	18.00	848.00	0.10	3070.00	7.00
7041	11 INNAMINCKA #1	08/11/86	0.10	0.40	740.00	13.00	869.60	1790.00	7.90	160.00	0.10	1800.00	8.50

TABLE 4. FULL CHEMICAL ANALYSES OF (NON FLOWING) WELLS FROM WESTERN MARGIN SAMPLED IN 1987 SURVEY.

(concentrations in mg/l)

UNIT NO		DATE	CA	MG	NA	K	CO3	HCO3	SO4	CL	NO3	TDS	PH	HCO_3 from field titration
5644	8	28/09/87	230.00	212.00	1074.00	36.00	0.00	207.00	954.00	1818.00	0.10	3846.00	7.50	207
5742	168	27/09/87	246.00	120.00	800.00	37.00	0.00	292.60	934.00	1255.00	0.10	3009.00	7.70	189
5743	5	27/09/87	140.00	43.00	283.00	15.00	0.00	196.60	360.00	387.00	48.00	1156.00	7.70	195
5743	6	27/09/87	247.00	113.00	522.00	48.00	0.00	150.70	768.00	948.00	0.10	2256.00	7.10	183
5744	2	27/09/87	94.00	58.00	600.00	18.00	0.00	195.00	470.00	884.00	3.10	2060.00	7.20	214
5840	21	29/09/87	158.00	137.00	930.00	43.00	0.00	312.00	760.00	1465.00	0.10	3177.00	7.20	323
5841	4	29/09/87	260.00	180.00	1428.00	40.00	14.00	270.00	1050.00	2224.00	0.10	4516.00	8.50	
5841	10	27/09/87	226.00	120.00	810.00	35.00	0.00	265.00	1020.00	1222.00	0.10	3009.00	7.50	280
5841	12	29/07/87	250.00	168.00	1169.00	55.00	0.00	287.00	1050.00	1884.00	0.10	4070.00	7.30	287
5842	4	28/09/87	300.00	164.00	810.00	44.00	0.00	275.00	975.00	1471.00	0.10	3456.00	7.20	287
5843	18	27/09/87	155.00	71.00	575.00	32.00	0.00	244.00	725.00	746.00	0.10	2032.00	7.50	244
5937	65	23/09/87	420.00	230.00	1370.00	42.00	53.70	240.00	850.00	2553.00	84.00	4907.00	8.60	225
5941	3	27/09/87	212.00	105.00	1160.00	26.00	0.00	291.00	912.00	1740.00	0.10	3735.00	7.60	299
6037	10	23/09/87	212.00	137.00	1050.00	36.00	0.00	391.60	655.00	1708.00	30.00	3679.00	7.90	409
6037	33	23/09/87	430.00	250.00	2000.00	33.00	0.00	308.60	1520.00	3499.00	0.10	6805.00	7.40	287
6037	36	22/09/87	475.00	340.00	2650.00	53.00	0.00	112.80	2000.00	4413.00	0.10	8089.00	7.10	183
6037	51	22/09/87	180.00	190.00	1250.00	46.00	0.00	338.30	1370.00	1661.00	0.10	4070.00	7.10	372
6037	65	23/09/87	550.00	360.00	1900.00	50.00	0.00	116.10	1490.00	3847.00	40.00	6693.00	6.90	116
6037	126	23/09/87	430.00	250.00	2000.00	33.00	0.00	308.60	1520.00	3499.00	0.10	6805.00	7.40	287
6037	138	22/09/87	370.00	260.00	2150.00	39.00	0.00	298.00	1290.00	3598.00	0.10	6917.00	7.30	347
6038	24	23/09/87	340.00	280.00	2110.00	53.00	0.00	237.60	1260.00	3718.00	25.00	6805.00	7.60	201
6038	25	24/09/87	405.00	312.00	2750.00	71.00	0.00	144.70	1930.00	4304.00	0.10	7921.00	7.30	
6038	28	24/09/87	325.00	235.00	2200.00	42.00	0.00	200.20	1874.00	3270.00	5.50	6247.00	7.80	287
6138	11	24/09/87	158.00	42.00	470.00	8.50	0.00	297.60	358.00	662.00	0.11	1586.00	7.70	299
6138	16	24/09/87	140.00	33.00	205.00	5.50	0.00	151.50	440.00	238.00	4.80	916.00	7.60	153
6140	34	25/09/87	250.00	62.00	1630.00	46.00	0.00	262.90	690.00	2535.00	0.10	4795.00	7.30	256
6140	41	25/09/87	250.00	62.00	1630.00	46.00	0.00	262.00	690.00	2535.00	0.10	4795.00	7.30	

TABLE 5

COMPARISON OF BICARBONATE ION CONCENTRATION IN THE FIELD AND IN OFFICE TO TEST EFFECT OF STANDING.

WELL NO	NAME	$[HCO_3^-]$ ON 8/5/87 (titrated in field)	$[-HCO_3^-]$ on 13/7/87 (titrated at Office, after settling)
6141-54	UMBUM	214	207
6140-3	HOPE CK	189	256
6140-28	HONEYMOON	292	226
6239-33	NUNNS	323	342
6239-4	BERESFORD	708	488
6239-23	BUBBLER	1025	1062
6339-2	CURDIMURKA	1153	1123
6438-3	ALBERRIE CK	1159	1125

NORTHERN TERRITORY

QUEENSLAND

NEW SOUTH WALES

SIMPSON DESERT

LAKE EYRE NORTH

LAKE EYRE SOUTH

COOPER BASIN Oil and Gas Fields

ENLARGEMENT

SEE ENLARGEMENT

SCALE IN KILOMETRES

0 10 20 30 40 50 60 70 80

WELLS COMPLETED IN ARTESIAN AQUIFERS

- Uncontrolled flow, requiring rehabilitation
- ● Casing integrity suspect. Also includes those without headworks.
- ⊷ Casing intact but leaking from headworks.
- ○ Controlled flow
- ⊖ Controlled flow - D.M.E. rehabilitated includes either original well rehabilitated or, original well plugged and replaced by new controlled well.
- ⊗ Abandoned, backfilled
- ⊖ Non-flowing
- ✧ Exploration, stratigraphic

Intersecting (but not completed in) artesian aquifers.

MARION Well visited in 1986 survey

FIG. 2

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA

GREAT ARTESIAN BASIN

LOCATION AND STATUS OF WELLS INTERSECTING MAIN AQUIFER, SHOWING WELLS SAMPLED IN 1986

COMPILED	R.A.
DRAWN	R.B.
DATE	JUNE 1989
CHECKED	
C.D.O. DATE	31.8.89
SCALE	AS SHOWN
PLAN NUMBER	89-189

4843

MF 146 D