Rept.Bk.No. 69/77
G.S. No. 4331
Hyd. No. 2190

DEPARTMENT OF MINES
SOUTH AUSTRALIA

GEOLOGICAL SURVEY

ENGINEERING DIVISION

EYRE PENINSULA GROUNDWATER STUDY

ULEY SOUTH BASIN

PROGRESS REPORT NO. 2 - AQUIFER EVALUATION

by

J.A.C. PAINTER
ASSISTANT SENIOR GEOLOGIST
HYDROGEOLOGY SECTION

19th September, 1969

DM.1059/69

DEPARTMENT OF MINES
SOUTH AUSTRALIA

RB 69/77

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SUMMARY AND CONCLUSIONS

Evaluation of the Pleistocene aquifer in the Uley South Basin has been continued with limited geological mapping and the carrying out of three pump tests. The tests indicate that individual holes may yield supplies of up to 2.5 cusecs for extended periods (in excess of 100 days). However aquifer characteristics determined from the tests are at variance with characteristics determined from previous tests.

From the investigations carried out so far the following conclusions may be drawn:

1. The boundaries of the Pleistocene aquifer require more accurate delineation.

2. Areas of concentration of sink holes may represent areas of cavernous aquifer and thus potential recharge zones.

3. There is a possibility of hydraulic connection between the Uley South Basin and the Uley Wanilla Basin, with consequent underground recharge of the Uley South Basin.

4. Aquifer characteristics determined from pump tests may not be reliable for use in basin analysis. Thus estimates of safe yield based on pump test results should be viewed with caution until confirmed by other methods of assessment.

5. Future investigations aimed at full delineation and evaluation of the basin should include surface mapping, drilling of observation holes, geophysical surveys, pump testing, and observation of rainfall and run-off phenomena.

INTRODUCTION

Evaluation of the yield from aquifers of the Uley South Basin commenced in 1964 with the initiation of a series of three pump tests, designated PT.1, PT.2 and PT.3. Two of these tests PT.2 PT.3, were conducted in Aquifer A, an unconfined aquifer formed by variably cemented aeolianite of Pleistocene age. The results of the tests, together with a summary of the geology and hydrology of the basin, are discussed by Morton and Steel (1968).

In order to obtain a more accurate assessment of the properties of Aquifer A, a further series of pump tests was carried out during February and March, 1969. These tests are designated PTU.4, PTU.5 and PTU.6. At the same time some additional geological mapping and delineation of vegetation was carried out.

The purpose of this report is:

..... to present the results of additional surface mapping.

..... to describe the results of pump tests PTU.4, 5 and 6.

..... to re-examine, in the light of latest results, aquifer characteristics and basin potential as determined by Morton and Steel (1968).

..... to indicate where gaps in information still occur and to suggest further investigations to fill the gaps.

RESULTS OF MAPPING

Geological

Geological mapping was restricted to the search for surface indications of sub-surface collapse, or of cavernous ground. Surface features sought were:

..... open or collapsed sink holes.

..... closely jointed and broken surface calcrete.

..... depressed areas and enclosed basins.

Because of the short duration of the field work, and the difficulty of vehicular travel over much of the area, the mapping was limited to small areas, shown on Figure 2.

It is possible that areas of potentially high recharge may coincide with areas of cavernous ground as indicated by surface collapse features. However, no relationship has yet been shown to exist.

Vegetation

The nature and distribution of vegetation over the basin is shown on Figure 3. Delineation of vegetation is based on isolated inspections in the field and air-photo interpretation.

Fresh water occurs throughout the entire basin under all vegetation types. It is considered unlikely, therefore that the vegetation distribution pattern bears any significant relation to groundwater quality. It may bear some relationship to the capacity but because of the high horizontal permeabilities its effects are apparently insignificant.

PUMP TESTS

Location of sites

In selecting sites for pump testing, the following factors were considered:

..... location of existing pump test holes.

..... aquifer thickness.

..... depth to water.

..... the possibility of a cavernous aquifer.

Sites were located in an attempt to test the full range of thickness and material types of the aquifer. The location of sites is shown on Figure 1.

Bore Construction

Drilling of pump test sites commenced on 28th January 1969 and was completed on 22nd February 1969. Details of hole and site construction are shown in Table 1, and in the Appendices.

TABLE 1 - BORE HOLES

Site No.	Depth of Pump Hole (ft.)	Diameter of pump Hole (in.)	Static Water Level (ft.)	Screen or Casing	No. of Obs. Holes	Distance from Pump Hole (ft.)
PTU.4	45	10	20	T. 35 sure screen 35-45 ft.	4	25, 50, 75, 100.
PTU.5	49	10	4	Slotted 10 inch casing	3	50, 100, 100.
PTU.6	97	10	40	"	4	50, 100, 150, 200

Pumping

Pump testing commenced at PTU.4 on 22nd February, and at PTU.5 on 24th February. At each site testing was carried out as follows:-

(a) Three stages of 100 minutes pumping, each stage followed by at least 100 minutes recovery.

(b) One stage of 4,350 minutes (3 days) pumping, followed by recovery of 1,450 minutes (1 day).

Development of PTU.6 commenced on 1st March. It was found that the water level could not be lowered after two hours

of pumping at 2.85 cusecs (65,000 g.p.h.), and after eight hours pumping at 2.47 cusecs (55,000 g.p.h.). Further testing at this site with the pumps available at the time was therefore not warranted. Significant pump test data are summarised in Table 2.

TABLE 2 - PUMPING

Hole No.	Date of Test	Duration (Minutes)	Discharge (Cusecs)	G.P.H.	Maximum drawdown at end of test (ft.)
PTU. 4	22nd February	100	1.50	33,610	0.845
	"	100	1.81	40,630	1.22
	"	100	2.05	46,000	1.61
	23rd February	4350	2.53	50,960	4.04
PTU. 5	24th February	100	1.89	42,480	1.25
	"	100	2.13	47,860	1.525
	"	100	2.32	52,110	1.76
	25th February	4350	2.59	18,320	2.575
PTU. 6	1st March	120	2.89	65,000	0
	1st March	510	2.47	55,000	0

Bore Yields

The pump tests indicate that holes PTU.4 and PTU.5 are capable of yielding large supplies (up to 2.5 cusecs) for extended periods. Although the tests were of only three days duration, extrapolation of the drawdown plots indicate that the pumping rates could be maintained for periods in excess of 100 days, including allowances for the occurrence of hydrogeological boundaries and consequent increase in rates of drawdown.

Hole PTU.6 was tested for only eight hours, with no drawdown occurring in this time. Estimation of future performance based on the results of this test is not possible.

Bore Evaluation

To evaluate the performance of the bores, the equation

$s_{w_{100}} = BQ + CQ^2$ was used, (Todd, 1959),

in which

$s_{w_{100}}$ = drawdown at time = 100 minutes since pumping commenced.

B = aquifer loss constant

BQ = drawdown due to aquifer loss

C = well loss constant

CQ^2 = drawdown due to well loss.

The following equations representing drawdown in the pumped well in terms of aquifer loss and well loss were determined for time t = 100 minutes;

PTU.4 $s_{w_{100}} = 0.12Q + 0.31Q^2$

PTU.5 $s_{w_{100}} = 0.26Q + 0.21Q^2$

In considering bore efficiency, Walton (1962) has shown that value for well loss C of less than 5 indicate an efficient bore. The above well loss and aquifer loss figures indicate that all bores are highly efficient.

AQUIFER EVALUATION

Adjustment of Field Data

Lowering of the water level during pumping in an unconfined aquifer is increased because of slow movement of water through the portion of the aquifer being de-watered. Therefore in applying the theory of aquifer analysis to

unconfined aquifers, observed values of drawdown were adjusted by the method developed by Jacob (Todd, 1959). The adjustments must be reversed in interpreting data.

Analysis of Field Data

The tests PTU.4 and PTU.5 yielded data suitable for analysis. No data are available on PTU.6 since no drawdown could be obtained in pumping. Details of analyses and full results for each site are included in the Appendices.

Analysis was carried out using the Theis non-equilibrium method and the Jacob modified non-equilibrium method (Todd, 1959). Aquifer characteristics obtained are:

Coefficient of transmissability 'T' in cusec/ft.

Storage coefficient 'S', dimensionless

Permeability 'P' in cusec/ft^2.

The validity of the analyses was checked by the construction of distance - drawdown graphs, and by comparison with plots of recovery data. Results obtained by all methods were in close agreement, and it is considered that the aquifer characteristics as determined are reliable.

A method developed by Prickett (1965) specifically for use with data from unconfined aquifers could not be applied to these tests due to the rapid attainment of steady state conditions.

Aquifer Characteristics

Average aquifer characteritistcs for each site are shown in Table 3. The table also lists aquifer characteristics from PT.2 and PT.3, determined by Morton and Steel, which will be referred to later in DISCUSSION.

TABLE 3 - AVERAGE AQUIFER CHARACTERISTICS

HOLE	TRANSMISSIVITY T, cusec/ft.	STORAGE COEFFICIENT S x 10^{-1}	PERMEABILITY Cusec/ft^2
PT.2C	0.496	6.92	1.55
PT.3A	0.236	1.38	1.07 (i)
	0.147		0.67 (ii)
PTU.4	1.30	0.172	5.2
PTU.5	1.38	0.288	3.1

((i) calculated from early part of drawdown curve.
(ii) calculated from late party of drawdown curve).

Aquifer Evaluation

Although the aquifer characteristics determined from PTU.4 and PTU.5 show close agreement, and may be considered reliable determinations from the tests conducted, they differ markedly from values obtained by Morton and Steel from tests PT.2 and PT.3.

Transmissivity

Values obtained from PTU.4 and 5 exceed those of PT.2 and 3 by factors up to 10. Thus, if the average value of T from PTU.4 and 5 is used in calculating the safe yield from the basin by the formula used by Morton and Steel, (1968) a safe yield of the order of 100 cusecs is obtained. This represents more than the total annual rainfall over the basin, and is obviously impossible.

Storage Coefficient

Morton and Steel considered the value of S of 6.92×10^{-1} obtained from PT.2 to be abnormally high, preferring the lower value of 1.38×10^{-1} from PT.3.

However the S of approximately 2×10^{-2} obtained from PTU.4 and 5 is considered to be abnormally low, indicating a porosity of the aquifer of the order of 2%. If the aquifer were considered to be a homogeneous, granular, material this figure would be incompatible with the high transmissivity figures obtained.

The theory of aquifer tests is based on the following assumptions:

(i) water is derived from a point source.

(ii) flow to the well is radial, and occurs through the full aquifer thickness.

(iii) the aquifer is homogeneous, isotropic and of constant thickness.

Drilling indicates that the aquifer is composed of more-or-less horixontal layers of varying character. The aquifer is known to be jointed and cavernous; thus movement of water towards a pumped well may be directed largely along specific lines of joints and caverns. The S value of 2×10^{-2} suggests a rock mass containing one or two gaping joints or solution pipes, which will allow high water flows while the actual porosity of the rock mass exposed on a percentage can be very low. In addition if a well intersects a system of caverns, the effective size of the well may be much greater than its drilled size.

In view of the results obtained from the pump tests, and the factors outlined above, it is considered probable that the physical character of the aquifer at the pumped site departs from ideal conditions to such an extent that the basic theory of the aquifer analysis is no longer applicable. Aquifer characteristics determined from pump tests may not represent the true characteristics of the aquifer as a whole, and should be used with caution in basin analysis.

It is possible also that pumping rates for the tests were not sufficiently high to produce adequate drawdown for aquifer analysis, and that tests carried out at pumping rates of about 5 cusecs may give more accurate results.

AQUIFER LIMITS

During examination of drillhole logs for the purpose of locating pump test sites, it was noticed that the limits of the Pleistocene aquifer are in places based on inadequate sub-surface information. This is particularly true of the western limits of the aquifer, where the most westerly line of drill holes show a generally thick aquifer containing fresh water. It is also the case in the northern arm of the basin which extends towards the Uley-Wanilla basin; hydraulic connection may exist between the two basins.

RECOMMENDATIONS

Future investigations should be aimed at complete delineation of the Pleistocene aquifer in the Uley South Basin, and a more accurate assessment of the safe yield of the basin. The following work is recommended:

1. Re-evaluation of drillhole logs.
2. Drilling of observation holes.
3. Geophysical surveys.

The above are aimed at locating the limits of the aquifer and proving the nature of a probable connection between Uley South and Uley-Wanilla Basins.

4. Surface mapping to locate potential recharge zones.

5. Pumping tests at rates of at least 5 cusecs to determine the reliability of aquifer characteristics.
6. Observation and measurement of rainfall and run-off phenomena.
7. Preparation and evaluation of hydrographs, in association with rainfall measurements; in particular, the establishment of continuous water level recorders and pluviographs at selected points.

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JACP:JMM
19.9.69

REFERENCES

MORTON, W.M. and STEEL, T.M., 1968. Eyre Peninsula Groundwater Study, Uley South Basin, Progress Report No. 1 - Aquifer Evaluation. S.A. Dept. of Mines Rept. Bk. No. 66/49.

TODD, D.K., 1959. Groundwater Hydrogeology. John Wiley and Son New York.

WALTON, W.C., 1962. Selected Analytical Methods for Well and Aquifer Evaluation. Illinois State Water Survey Bull. 49.

APPENDIX A - PTU.4

APPENDIX B - PTU 5

APPENDIX C - PTU.6

EYRE PENINSULA GROUNDWATER STUDY

ULEY SOUTH BASIN

PROGRESS REPORT NO. 2 - AQUIFER EVALUATION

APPENDIX A

PUMP TEST PTU. 4

CONTENTS PAGE

APPENDIX A

PUMP TEST PTU.4

INTRODUCTION

Testing commenced on 22nd February 1969 and was completed on 27th February 1969.

The distance relationship of pumping hole and observation holes is shown on Figure A1. The aquifer thickness was taken at 25 ft. Bore logs for the pump test holes are shown on Figures A2 to A6 inclusive.

BORE CONSTRUCTION

All holes were constructed by cable-tool drilling. Observation holes were 6" diameter. The pump hole was 10" diameter, which initially was completed with slotted casing. However uncemented aeolianite at 36-43 ft. depth collapsed and entered through the slots during development pumping, so that excessive drawdowns occurred with relatively low pumping rates. Slotted casing was replaced by a 10 ft. length of stainless steel wire would screen, (0.035" opening) and thereafter the hole functioned adequately. However, fluctuations in water level over a range of about 0.5 ft. were observed after about 500 minutes and it is believed that the water level inside the casing was up to 0.5 ft. below the level outside the casing. This is further discussed in chapter Bore Evaluation.

PUMPING

Average pumping rates were as follows:

Stage 1,	100 min.	1.50 cusec
Stage 2,	100 min.	1.81 cusec
Stage 3,	100 min.	2.05 cusec
Stage 4,	3 days	2.53 cusec.

Stages 1 to 3 were completed without incident.

After 1250 minutes of the 3 day test, a momentary breakdown of the pump motor resulted in a slight fall in pumping rate. The water level in the pump hole rose 1.8 ft. However the effect was not observed in observation holes, so that data remained amenable to analysis. The pumping rate for the three day test was maintained at 2.53 cusecs within a range of 1.01%.

ANALYSIS OF DATA

Data plots for each analysis method were essentially similar, and typical plots are shown as follows:

Logarithmic plot, PTU.4C	Figure A7
Semi-logarithmic plot PTU.4B, also shows recovery.	Figure A8
Distance - drawdown	Figure A9

Drawdown Data

Figure A8 shows that the cone of depression attained steady - state conditions at about six minutes, with a rate of drawdown of 0.19 feet per log cycle. This was maintained to about 120 minutes, when the rate increased to 0.36 feet per log cycle. Thus a boundary condition is indicated, with the effect becoming apparent at times ranging from 90 to 135 minutes. Determination of aquifer characteristics was carried out on both portions of the data plot, with results as shown on Table A1.

Recovery Data

Plots of recovery data (Fig. A8) show a change in rate of recovery at times ranging from 120 to 220 minutes, thus also indicating a boundary condition. A comparison of rates of drawdown and recovery is given in Table A2.

TABLE A2 - RATES OF DRAWDOWN AND RECOVERY

Hole No.	Drawdown (ft/log cycle)		Recovery (ft/log cycle)	
	Early Data	Late Data	Early Data	Late Data
PTU.4	0.27	1.13	0.23	0.37
A	0.19	0.36	0.23	0.38
B	0.17	0.35	0.19	0.39
C	0.19	0.36	0.21	0.35
82	0.17	0.34	0.22	0.40

Aquifer characteristics determined from recovery data are shown in Table A3. Values of T are in close agreement with drawdown methods. However compariatively large variations in the values of S for both early and late time portions of the data plot indicate that recovery data may not be suitable for the determination of S.

Distance - Drawdown Data

Distance - drawdown curves were constructed for the lines of observation holes A - B and C-82. In consideration of the probable boundary condition, curves were constructed at times of 100 minutes and 4000 minutes i.e. before and after the boundary condition became apparent. Aquifer characteristics so determined are shown in Table A4. Results obtained for the curve at time 100 minutes are in close agreement with other results from the early data.

Boundary Conditions

Location of a hydrogeological boundary may be determined by the use of the image-well theory, (Todd 1959). The times at which the boundary condition became apparent in observation holes as indicated by the change in slope of data plots, and the calculated distances to the image-well, are shown in Table A.5

TABLE A.5 - BOUNDARY EFFECT

HOLE NO.	DISTANCE TO PUMP HOLE (ft.)	TIME OF EFFECT (min.)	IMAGE-WELL DISTANCE (ft.)
A	25	105	1300
B	75	124	1550
C	50	135	1900
82	100	105	1890

The radii of the various image-well distances are plotted on Figure A10. Since no common intersection point can be obtained for the curve, it is concluded that the boundary effect is not caused by a distinct impermeable geological boundary at distance from the pump test site.

Logs of drill holes show that the aquifer is of variable thickness resting on an irregular basement surface. It is considered that the apparent boundary effect is caused by this variation in aquifer thickness.

TABLE A.1

AQUIFER CHARACTERISTICS - DRAWDOWN DATA - PTU.4

HOLE NO.	DISTANCE FROM	EARLY DATA T cusec/ft		EARLY DATA S x 10^{-2}		LATE DATA T cusec/ft		LATE DATA S x 10^{-1}	
		Theis	Jacob	Theis	Jacob (Note 1)	Theis	Jacob	Theis	Jacob
A	25	2.70	2.44	2.12	3.50	1.25	1.29	6.8	6.4
B	75	2.83	2.72	2.11	0.98	1.33	1.32	1.9	2.1
C	50	2.41	2.44	1.70	1.54	1.25	1.29	2.6	2.5
82	100	2.60	2.72	1.25	0.55	1.33	1.36	1.1	1.1
AVERAGE		2.64	2.58	1.79	1.64	1.29	1.32	3.1	3.0
RANGE		0.42	0.28	0.87	2.95	0.08	0.07	6.7	6.3

Average values T (late data) = 1.30 cusec/ft.

S (early data) = 1.72 x 10^{-2}

P = S. 2 x 10^{-2} cusec/ft^2

Note: Inaccurate extropolation in this method.

TABLE A.3

AQUIFER CHARACTERISTICS - PTU.4 - RECOVERY DATA

HOLE NO.	DISTANCE FROM PUMP HOLE	EARLY DATA T cusec/ft	EARLY DATA S x 10^{-2}	LATE DATA T cusec/ft	LATE DATA S x 10^{-1}
A	25	2.00	13.0	1.21	25.8
B	75	2.42	0.485	1.18	5.08
C	500	2.20	1.78	1.32	10.7
82	100	2.10	0.458	1.15	2.95

TABLE A.4

DISTANCE - DRAWDOWN

LINE OF OBS. HOLES	AT TIME t= 100 min t (cusec/ft)	AT TIME t= 100 min S x 10^{-2}	AT TIME t = 4000 minutes T (cusec/ft)	AT TIME t = 4000 minutes S x 10^{-2}
A - B	2.65	2.12	2.0	3.2
C - 82	2.41	1.92	2.13	0.40

Average Aquifer Characteristics

In all methods used to determine aquifer characteristics it can be seen that:

(i) From early-time data, T and S are both constant, and values have a narrow range.

(ii) From late-time data;

(a) T is constant, with a narrow range in values.

(b) S is variable, with a wide range in values.

Since the performance of the aquifer during pumping will be influenced by the boundary effect, the rate of drawdown and hence the values of T determined from the late-time portion of the data plot will be applicable. In addition this is the lower value of T and thus introduces a factor of safety.

The variation in S may be directly attributed to the occurrence of boundary effects; therefore the constant value of S determined from the early-time portion of the data plot must be considered more reliable.

Average aquifer characteristics are therefore chosen;

T (from late-time data)	1.30 cusec/ft.
S (from early-time data)	1.72×10^{-2}
P (from average aquifer thickness)	5.2×10^{-2} cusec/ft^2.

These are averages of balues determined by the drawdown methods, since recovery and distance - drawdown methods are considered less reliable.

Bore Evaluation

During the test, after approximately 500 minutes of pumping, the water level in the pump hole began to fluctuate over a range of up to 0.5 ft. At the same time the water level inside the casing was observed to be up to 0.5 ft. below the water level outside the casing. Furthermore, Table B2 shows that the rate of drawdown in the pump hole was somewhat greater than that in observation holes.

These effects are considered to be due to partial blocking of the screen by aquifer collapse, with consequent restriction of water entry into the casing.

Evaluation of well loss and aquifer loss was carried out as shown on Figure A.11, with the result as follows:

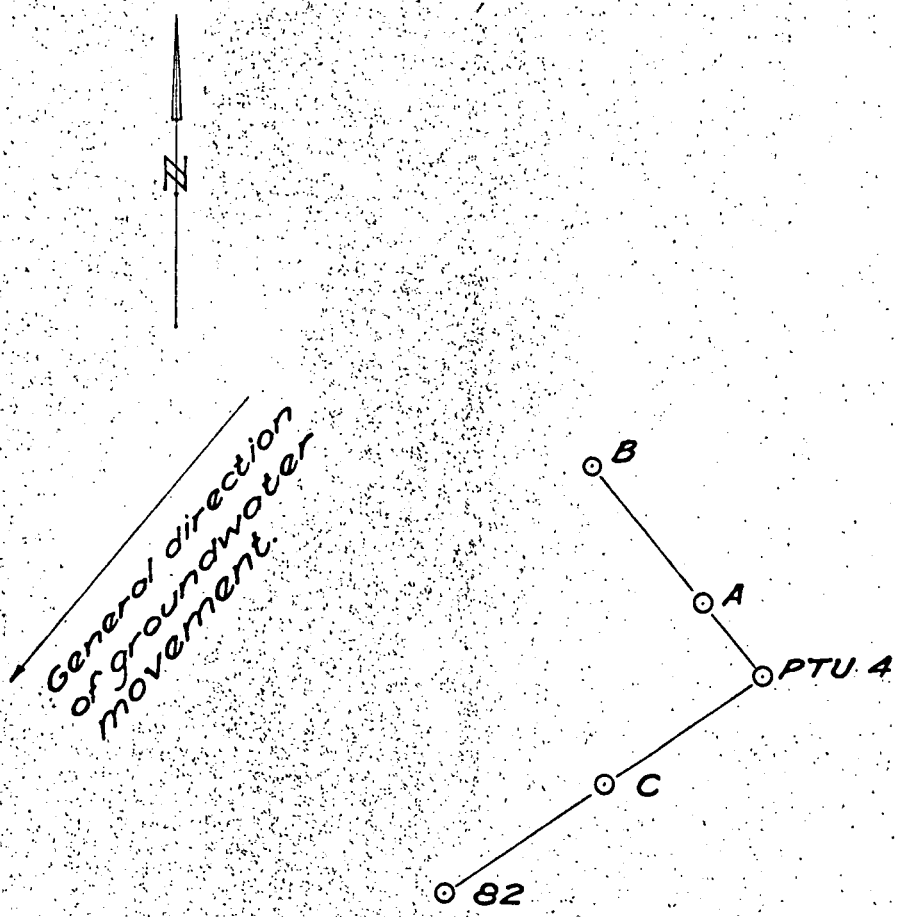
at t = 100 min. $s_{w_{100}} = 0.12Q + 0.31Q^2$

where $s_{w_{100}}$ = drawdown at 100 minutes.

$0.12Q$ = drawdown due to aquifer loss.

$0.31Q^2$ = drawdown due to well loss.

Walton (1962), in discussing well loss, concludes that values for well loss less than $5 \times Q^2$ indicate efficient wells. This result therefore indicates that the well is highly efficient.



SCALE

50 0 50 100

FEET

FIG. A1

DEPARTMENT OF MINES — SOUTH AUSTRALIA

	Drn. J.P.	EYRE PENINSULA GROUND-WATER STUDY	SCALE: As shown
	Tcd. G.M.	ULEY SOUTH BASIN	S7418 Dn 12+14
	Ckd. L.V.W.	PTU 4 SITE ARRANGEMENT	DATE: 4 Aug '69
	Exd.		

DEPARTMENT OF MINES · SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE No. PTU.4
SHEET 1 OF 1

PURPOSE OF BORE PUMP TEST
HIRER DEPARTMENT OF MINES
HUNDRED ULEY
DRILLER I. McDOUGALL
COMMENCED 31.1.1969 COMPLETED 3.2.1969
LOGGED BY J.A.C.PAINTER DATE 4.2.1969

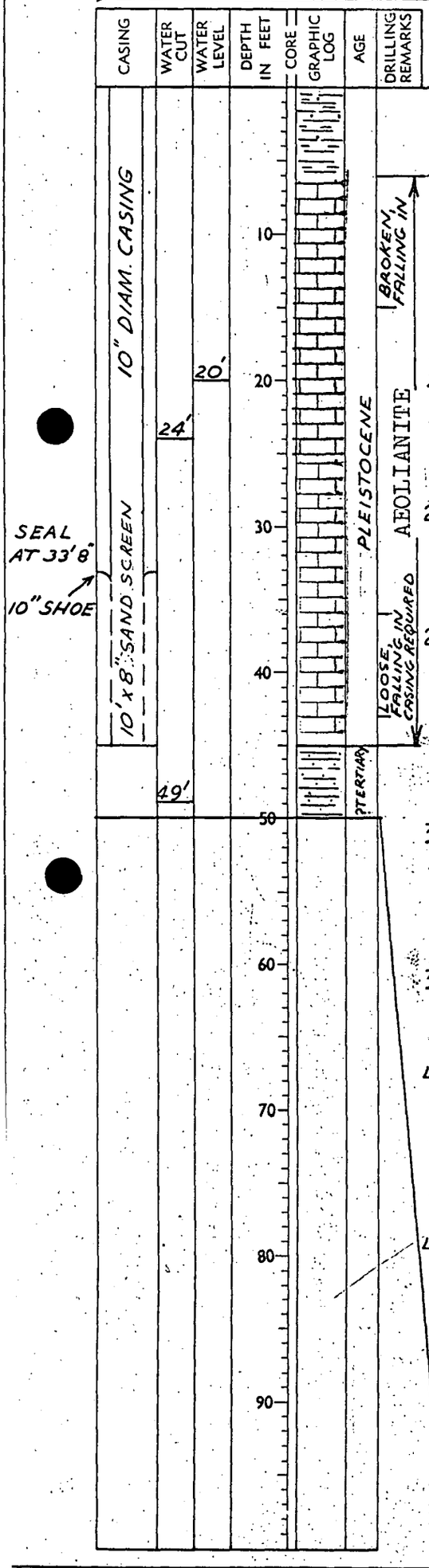
BORE SERIAL No. 49/69
ADDRESS ADELAIDE.
SECTION 2B
DOCKET No. DM.115/69
R.L. COLLAR (M.S.L.)
R.L. SURFACE

CO-ORDS: E
N
DEPTH 50ft.
CASING 45ft. of 10"

WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
24	20	57,000	Pump test - 3 days	460 568	LW.277/69 LW.304/69

REMARKS 6" hole reamed to 10"



DESCRIPTION

0 - 6ft. SOIL, Silt, clayey, sandy, organic rich. Contains numerous fragments of calcrete and aeolianite to 0.5ft. size. Red-brown.

6 - 15ft. Fine to medium grained, weakly to moderately cemented, silty and clayey. Grains are calcite, shell fragments and grey carbonate, 0.2 to 1mm. Silt and clay up to 20% disseminated. Brown to light reddish brown.

15 - 24ft. As above, but moderately cemented at top grading to weakly cemented at bottom. Few thin calcrete Sands. Silt and clay 10-15%. Whitish brown.

24 - 28ft. Medium grained, weakly cemented to uncemented. Grains are calcite and shell fragments, rare, grey carbonate, 0.4 to 0.8mm. Pale yellow-brown.

28 - 32ft. Well graded fine to coarse grained, silty and clayey. Grains as above, silt size to 1.5mm. Some fine grained crystalline limestone. Contains 15-20% silt and clay, calcareous, disseminated and in discrete grey pockets. Pale greenish brown to yellow-brown.

32 - 36ft. Fine to medium grained, weakly to moderately cemented, broken. Few thin calcrete bands. Grains are calcite and shell fragments, 0.1 to 1mm. Yellow-brown to pale reddish brown.

36 - 43ft. Fine to medium grained, weakly cemented to uncemented. Few harder bands. Grains as above. Contains up to 10% silt. Pale yellow-brown.

43 - 45ft. Fine to medium grained, moderately cemented. Contains some crystalline limestone. Contains 10-30% rounded quartz grains to 2mm, rounded laterite fragments to 4mm. Pale yellow-brown to red-brown.

45 - 50ft. CLAY, sandy and gravelly. Clay is stiff, plastic, grey and green. Sand and gravel is quartz grains and laterite fragments, rare fragments of (?) weathered gneiss.

FIG A2

DEPARTMENT OF MINES SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE No PTU.4A
SHEET 1 OF 1

PURPOSE OF BORE OBSERVATION
HIRER DEPARTMENT OF MINES
HUNDRED ULEY
DRILLER I. McDOUGALL
COMMENCED 7.2.1969 COMPLETED 10.2.1969
LOGGED BY T. BRADFORD DATE 12.2.1969

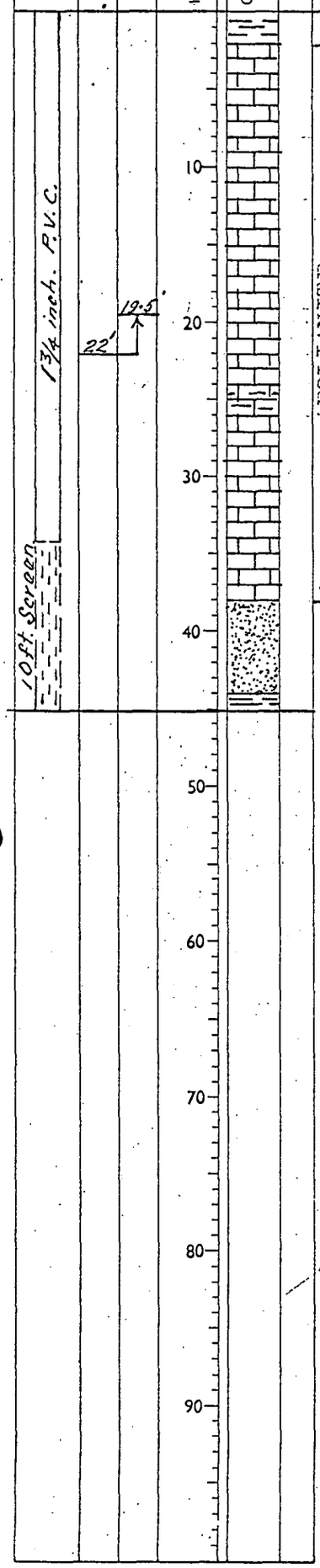
BORE SERIAL No. 397/69
ADDRESS ADELAIDE
SECTION 2B
DOCKET No. 115/69
R.L. COLLAR (M.S.L.) 150.74
R.L. SURFACE 148.95

CO-ORDS: E
N
DEPTH 45ft.
CASING 45ft. of 1½" PVC.

WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
22	19'5"		not tested	487	LW.306/67

REMARKS OBSERVATION BORE 25FT. FROM PTU.4.



DESCRIPTION

0 - 2ft. TOPSOIL, silt, clayey and slightly sandy. Organic rich. Contains fragments and boulders of calcareous silt. Generally fairly soft. Dark reddish brown.

2 - 8ft. Grains are quartz and calcite with occasional shell fragments. 0.1mm to 0.6mm with a few to 1.0mm. Strongly cemented with a few bands of cryptocrystalline calcrete and small pockets of dark yellow-brown clay. Rare ironstaining. Pale yellow-brown.

8 - 12ft. Grains are calcite, quartz and shell fragments from 0.1mm to 1mm. Some Ironstaining. Strongly cemented with a few pockets of calcrete, pale yellow-brown.

12 - 19ft. Materials as above. Strongly cemented. Off-white.

19 - 22ft. Grains are calcite, shell fragments and quartz from 0.1mm to 0.6mm with grains to 1.5mm. Very strongly cemented with thin bars and pockets of hard grey marl. Off-white.

22 - 24ft. Materials as above. Uncemented.

24 - 26ft. As above with 40% dark greenish grey clay.

26 - 38ft. Grains are calcite, shell fragments and minor quartz. Moderately cemented with hard bands, and a few poorly cemented bands. Quartz sand becoming cominant from 36ft.

38 - 44ft. SAND, grains are quartz with lesser calcite and shell fragments, from 0.1mm to 1mm. Well rounded. Contains a few fragments of Latterite grit. Uncemented.

44 - 45ft. CLAY, grains are quartz. Pale green. Very sandy.

FIG A3

DEPARTMENT OF MINES · SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE Nº PTU4B
SHEET 1 OF 1

PURPOSE OF BORE OBSERVATION
HIRER DEPARTMENT OF MINES
HUNDRED ULEY
DRILLER J.McDOUGALL
COMMENCED 10.2.69 COMPLETED 12.2.69
LOGGED BY J.BRADFORD DATE 12.2.69

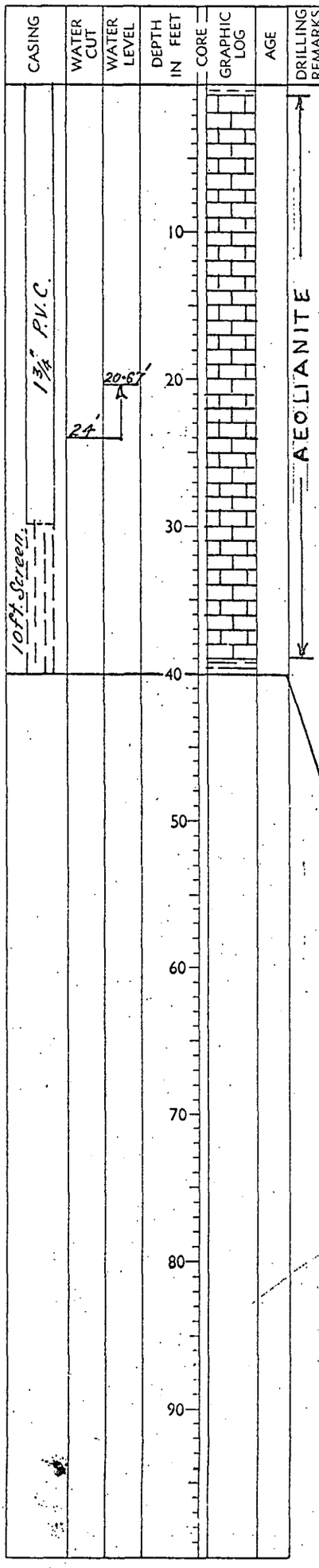
BORE SERIAL No. 402/69
ADDRESS ADELAIDE
SECTION 2B
DOCKET No. 115/69
R.L. COLLAR (M.S.L.) 150.88
R.L. SURFACE 149.10

CO-ORDS: E
N
DEPTH 40ft.
CASING 40ft. of 1¾"PVC

WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
24	20.67		Not tested	487	LW. 308/67

REMARKS Observation bore 75ft. from PTU 4.



DESCRIPTION

0 - 0.5ft. TOPSOIL - Silt. Clayey and slightly sandy. Organic ritch. Contains fragments and boulders of calcareous silt. Dark reddish-brown.

0.5 - 22ft. Grains are calcite, quartz and shell fragments from 0.1mm to 0.6mm with a few to 1.5mm. some ironstaining, moderately to very strongly cemented.
Yellow-brown.

22 - 24ft. As above grains for 0.1 to 1mm.

24 - 28ft. As above. Moderately cemented with hard bands and pockets of off white sandy clay.

28 - 34ft. As above. Uncemented.

34 - 39ft. As above grainsize. Mainly 0.1mm to 0.4mm. Moderately cemented. Offwhite.

39 - 40ft. CLAY - sandy. Grains are quartz from 0.1mm to 0.3mm. Some ironstone fragments. Sand content 10%. Mottled yellow-brown, red-brown and grey.

FIG A 4

DEPARTMENT OF MINES : SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

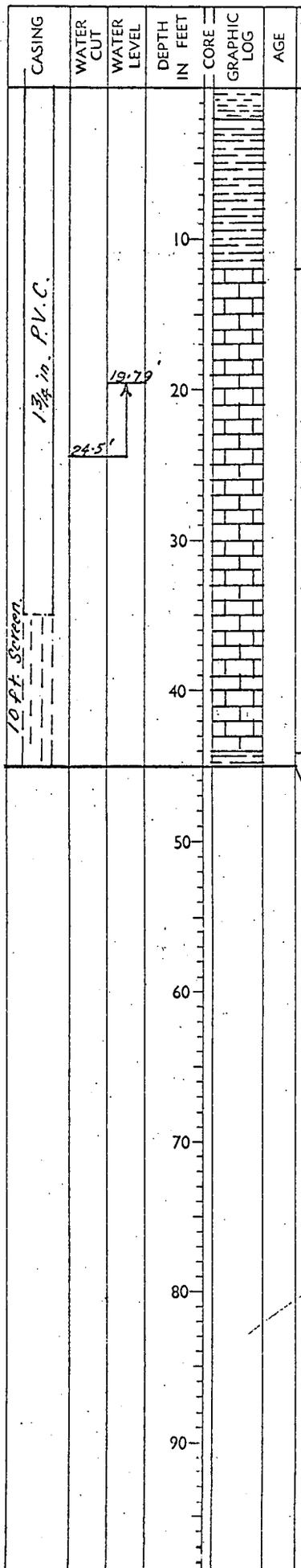
BORE Nº PTU4C
SHEET 1 OF 1

PURPOSE OF BORE OBSERVATION — BORE SERIAL No. 403/69
HIRER DEPARTMENT OF MINES — ADDRESS ADELAIDE
HUNDRED ULEY — SECTION 2B — CO-ORDS: E
DRILLER J. McDOUGALL — DOCKET No. 115/69 — N
COMMENCED 12thFeb.69 COMPLETED 13thFeb.69 R.L. COLLAR (M.S.L.) 152.52 DEPTH 45 ft.
LOGGED BY J.BRADFORD DATE 14thFeb.69 R.L. SURFACE 150.20 CASING 45 of 1¾". P.V.C

WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
24.5	19.79		not tested	473	LW 325/69

REMARKS Observation bore 50 ft from PTU4



DESCRIPTION

0 - 2ft. TOPSOIL Silt. Clayey and slightly sandy Organic nitch. Dark reddish-brown. Contains fragments and boulders of calcareous silt.

2 - 12ft. CLAY Sandy grains are quartz and calcite Contains boulders and fragments of strongly cemented aeolianite and some fragments of ferruginous grit. Red-brown and yellow brown.

12 - 30 ft. AEOLIANITE grains are mainly calcite with minor shell fragments and quartz 0.1 t 0.5 mm with some to 1.0 mm. Very strongly cemented with bands and lense of sandy limestone. Pale grey and pale yellow brown.

30 - 40ft. As above, no quartz, grains are from 0.1 mm to 1.5 mm. Moderately cemented. Off white.

40 - 44 ft. As above. 0.1 mm to 0.5 mm Very strongly cemented with clay pockets.

44 - 45 ft. CLAY Stiff. Contains a few aeolianite grains and fragments of limestone. Dark green-grey, pale yellow brown, off whie and red mottled

FIG A5

DEPARTMENT OF MINES · SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE Nº 82
SHEET 1 OF 1

PURPOSE OF BORE WATER
HIRER E. & W.S. DEPARTMENT
HUNDRED ULEY
DRILLER A.R. GRAHAM
COMMENCED 14.2.61 COMPLETED 21.2.61
LOGGED BY R.G. SHEPHERD DATE 10.3.61

BORE SERIAL No. 146/61
ADDRESS PORT LINCOLN
SECTION 2B
DOCKET No. 2134/58
R.L. COLLAR (M.S.L.)
R.L. SURFACE 50.27

CO-ORDS: E
N
DEPTH 68'
CASING

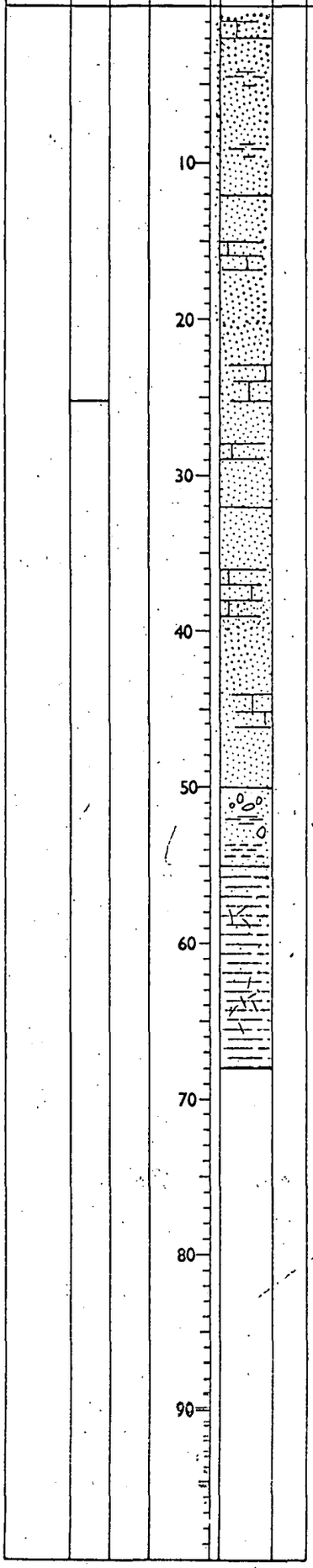
WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
65	25			471	LW.118/61
65	35			471	LW.119/61
65	55			471	LW.121/61

CASING | WATER CUT | WATER LEVEL | DEPTH IN FEET | CORE | GRAPHIC LOG | AGE | DRILLING REMARKS

REMARKS

DESCRIPTION



0 - 2 SOIL. Sandy brown with fragments of limestone.

2 - 12 SAND. Clayey, fine, brown, with abundant limestone grit.

12 - 32 SANDSTONE. Calcareous fine grained dense with limestone and sand.

32- 50 SANDSTONE. Calcareous cream fine - medium grained with light grey limestone.

50 - 55 SAND. Silty light brown clayey fine with limestone gravel and boulders.

55 - 68 CLAY. Sandy brownish grey with fragments of highly weathered gneiss.

$Q = 2.53$ cusecs

$r = 50$ feet

MATCH POINT 1 - EARLY TIME DATA

$W(u) = 10$

$u = 10^{-2}$

$s = 0.83$ ft.

$t = 438$ sec.

$$T = \frac{Q}{4\pi s} \cdot W(u)$$

$$= \frac{2.53}{4 \times 3.14 \times 0.83} \times 10$$

$$= \underline{\underline{2.41 \text{ cusec/ft}}}$$

$$S = \frac{4Tut}{r^2}$$

$$= \frac{4 \times 2.41 \times 10^{-2} \times 438}{2500}$$

$$= \underline{\underline{1.70 \times 10^{-2}}}$$

MATCH POINT 2 - LATE TIME DATA.

$W(u) = 1$

$u = 10^{-1}$

$s = 0.16$ ft.

$t = 1098$ sec.

$$T = \frac{2.53}{4 \times 3.14 \times 0.16}$$

$$= \underline{\underline{1.25 \text{ cusec/ft}}}$$

$$S = \frac{4 \times 1.25 \times 10^{-1} \times 1098}{2500}$$

$$= \underline{\underline{0.26}}$$

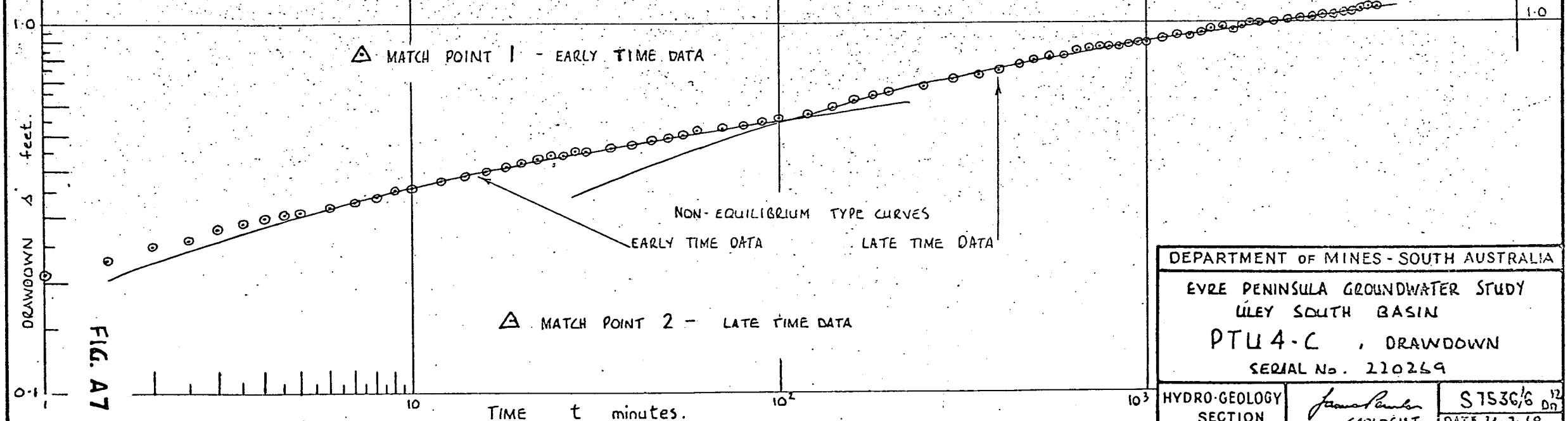


FIG. A7

DEPARTMENT OF MINES - SOUTH AUSTRALIA

EYRE PENINSULA GROUNDWATER STUDY

ULEY SOUTH BASIN

PTU 4-C , DRAWDOWN

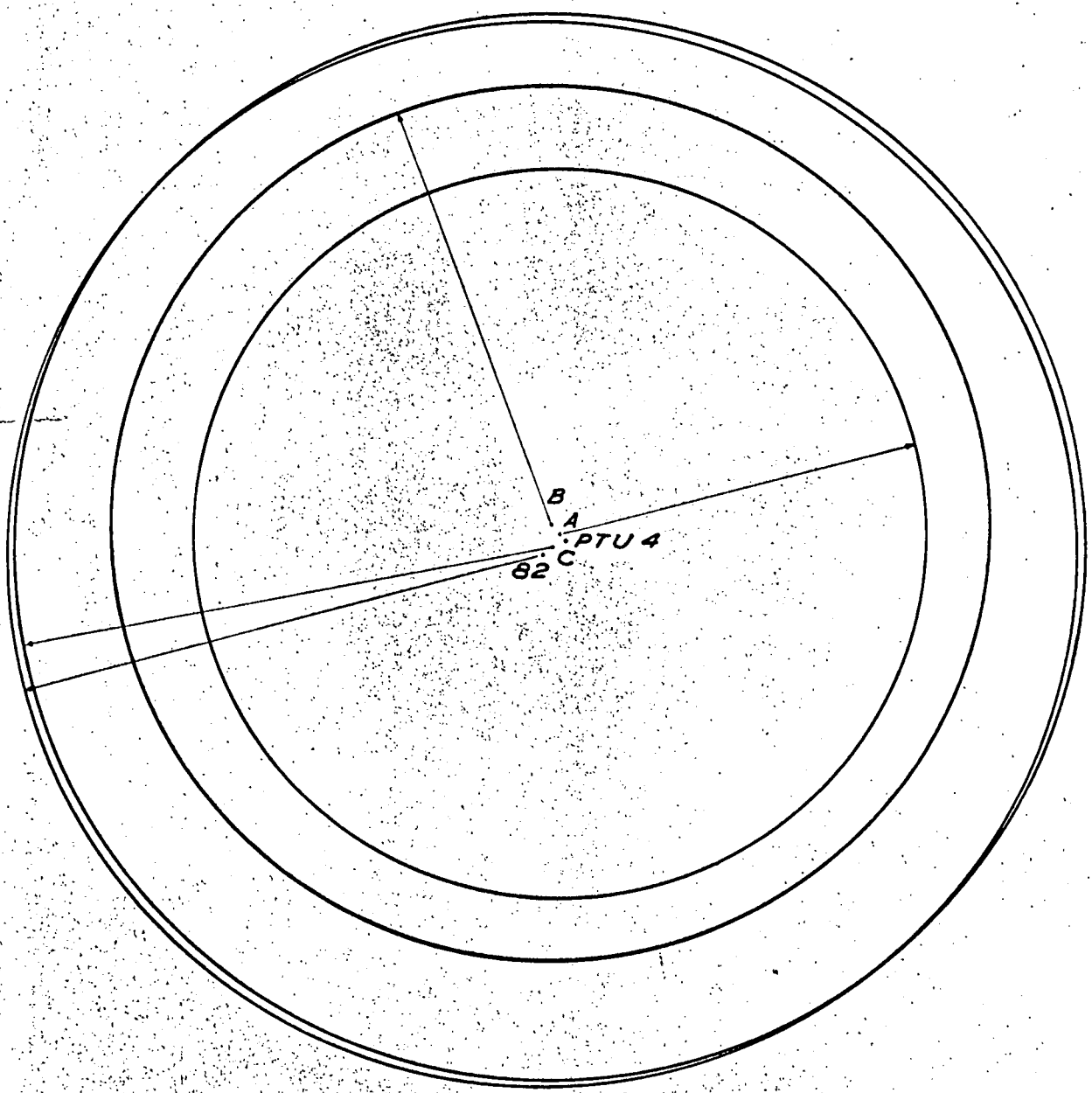
SERIAL No. 220269

HYDRO-GEOLOGY SECTION

GEOLOGIST

S7536/6 DD 12

DATE 24-7-69



SCALE

600 0 600 1200

FEET

FIG. A 10

DEPARTMENT OF MINES — SOUTH AUSTRALIA

	Drn. J.P	EYRE PENINSULA GROUNDWATER STUDY	SCALE: As shown
	Tcd. G.M.	ULEY SOUTH BASIN	S 7419 Dn 12-14
	Ckd. L.V.W.	PTU 4	
	Exd.	IMAGE-WELL LOCALITY	DATE: 4.8.69

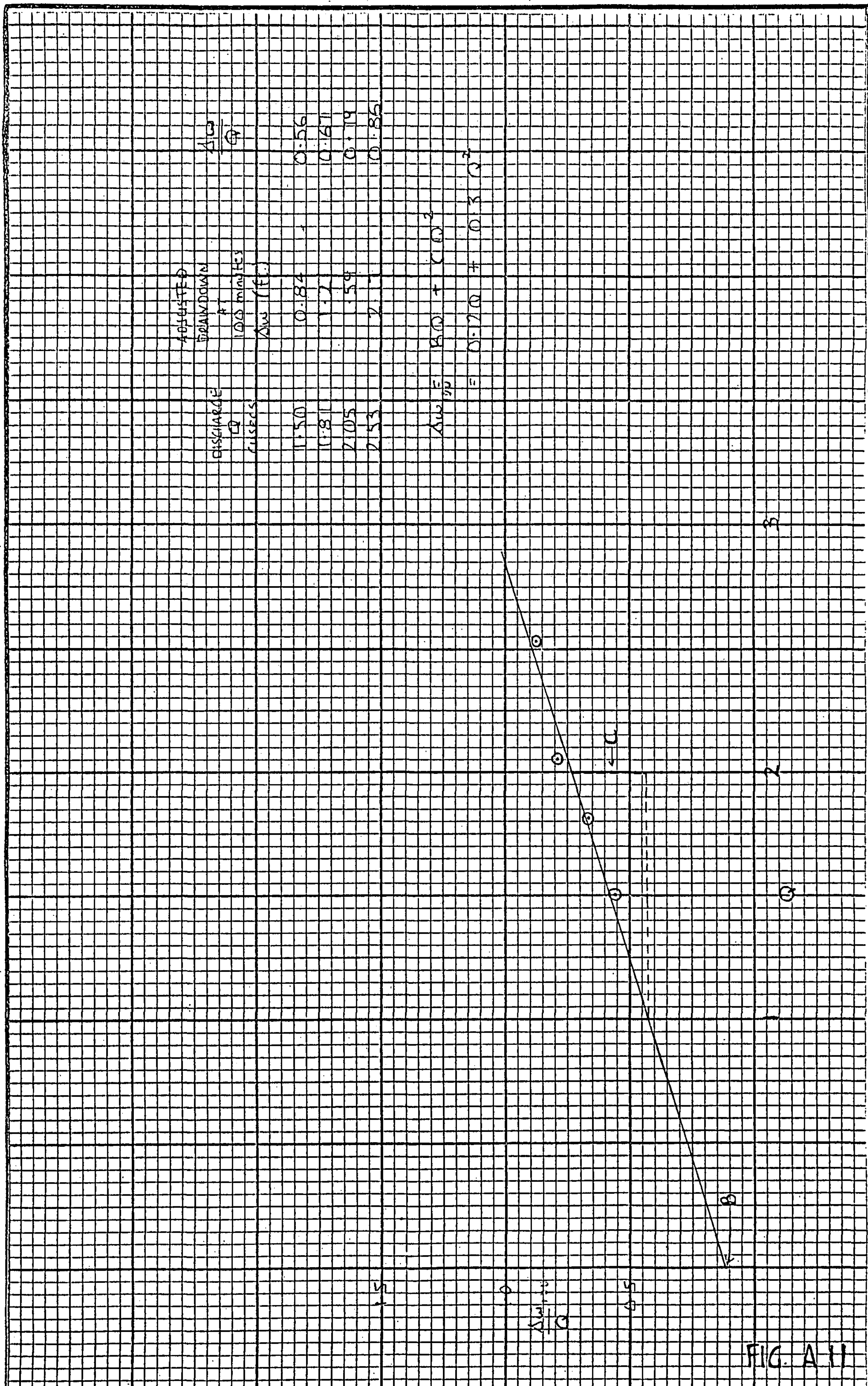


FIG. A 11

DEPARTMENT OF MINES — SOUTH AUSTRALIA

Drn. J.P.	EYRE PENINSULA GROUNDWATER STUDY	SCALE: —	
Tcd.	ULEY SOUTH BASIN	S 7535	Dn12
Ckd.	PTU 4		
Exd.	BORE EVALUATION	DATE: 24 July 69.	

t in min. after start test	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C	Obs. Hole B2	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
30	0.78	0.27	0.205	0.25	0.225	
28	0.77	0.265	0.20	0.25	0.22	
26	0.76	0.26	0.19	0.25	0.22	
24	0.75	0.255	0.17	0.245	0.21	
22	0.75	0.25	0.20	0.245	0.20	
20	0.75	0.245	0.18	0.23	0.20	
18	0.74	0.24	0.18	0.23	0.19	
16	0.73	0.235	0.17	0.22	0.19	
14	0.72	0.23	0.16	0.22	0.185	
12	0.71	0.225	0.15	0.21	0.18	
10	0.71	0.225	0.15	0.20	0.175	1.48
9	0.71	0.22	0.14	0.19	0.175	
8	0.685	0.22	0.14	0.19	0.17	
7	0.69	0.21	0.13	0.19	0.16	
6	0.68	0.20	0.12	0.185	0.145	
5	0.65	0.19	0.11	0.17	0.145	
4½	0.65	0.185	0.11	0.165	0.135	
4	0.64	0.18	0.11	0.16	0.135	
3½	0.64	0.175	0.10	0.16	0.12	
3	0.64	0.17	0.10	0.135	0.12	
2½	0.635	0.155	0.10	0.14	0.115	
2	0.63	0.15	0.08	0.14	0.115	
1½	0.61	0.14	0.07	0.13	0.11	
1	0.62	0.14	0.05	0.11	0.11	
1/2	0.61	0.1	0.04	0.09	0.075	
0	0	0	0	0	0	

AQUIFER FROM...20... TO 45...FT. WATER LEVEL BELOW REF. PT. AT START OF TEST...21.5.....FT.

REF.PT. ABOVE, GR.LEVEL...3....FT.

MILITARY SHEET..... PUMP STARTED AT.....ON 22.II.69

AERIAL SURVEY NO..... PUMP STOPPED AT.....ON 23.II.69

RUN.....PHOTO NO..... PUMP SETTING...31.8.....FT.

OWNER...Dept. of Mines..... AV. PUMPING RATE.....

SECTION..... TEST SERIAL NO.....

HUNDRED...Illey..... DISTANCE FROM PUMP HOLE TO OBS. HOLE 25.50.75.100.....

PROJECT...Illey South..... OBS. HOLE NO.'S P.U.4. (A,B,C) & B2

DATE OF TEST...22.2.69..... PUMPED HOLE NO. P.U. 4.....

PUMPING TEST Stage 1

t in min. after start test	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C	Obs. Hole B2	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
100	0.845	0.34	0.26	0.315	0.265	
90	0.84	0.33	0.25	0.31	0.260	
80	0.82	0.32	0.25	0.30	0.260	
70	0.83	0.31	0.24	0.295	0.255	
60	0.83	0.30	0.23	0.285	0.255	
50	0.81	0.30	0.22	0.28	0.250	
45	0.80	0.29	0.21	0.275	0.245	
40	0.80	0.28	0.21	0.26	0.235	
35	0.80	0.28	0.205	0.26	0.225	

AQUIFER FROM..80..... TO 45....FT. WATER LEVEL BELOW REF. PT. AT START OF TEST..21.5'.....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET..... PUMP STARTED AT.....ON.22.11.69

AERIAL SURVEY NO..... PUMP STOPPED AT.....ON.22.11.69

RUN.....PHOTO NO..... PUMP SETTING...?18.....FT.

OWNER..Dept..of..mines..... AV. PUMPING RATE.....

SECTION..1..... TEST SERIAL NO.....

HUNDRED..Hay..... DISTANCE FROM PUMP HOLE TO OBS. HOLE..25,50,75,100.....

PROJECT....Hay....South..... OBS. HOLE NO.'S PTU..CA.B.C.,.B2.

DATE OF TEST.22.11.69..... PUMPED HOLE NO....PTU4.....

PUMPING TEST Stage 1.

RECOVERY TEST

PROJECT: ..Wy...South... OBS at HOLE'S NOS..P.Hs..4,.4A,4B,4C,82

OWNER ...Dept...of...mines.. HUNDRED...Wy.....SECTION.....

AVERAGE PUMPING RATE: .1.5.gpm PUMPED STOPPED AT ..... ON .23.1.69...

DISTANCES TO PUMPED HOLE 25,50,75,100, WATER LEVEL BELOW REF.PT. AT START OF TEST.....FT.

STAGE NO: ..1.....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/t1	Pump Hole 4	Obs.Hole 4A	Obs.Hole 4B	Obs.Hole 4C	Obs.Hole 82.
½	201	0.41	0.33	0.19	0.24	0.23
1	101	0.21	0.23	0.18	0.22	0.19
1½	67.5	0.19	0.21	0.165	0.21	0.18
2	51	0.18	0.19	0.15	0.19	0.175
2½	41	0.17	0.18	0.15	0.18	0.16
3	34.3	0.16	0.17	0.14	0.17	0.155
3½	29.6	0.15	0.16	0.135	0.65	0.15
4	26	0.14	0.155	0.13	0.16	0.15
4½	23.2	0.13	0.15	0.13	0.155	0.15
5	21	0.12	0.14	0.125	0.145	0.145
6	17.7	0.12	0.13	0.12	0.14	0.14
7	15.3	0.11	0.125	0.115	0.14	0.13
8	13.5	0.10	0.12	0.11	0.13	0.12
9	12.1	0.095	0.115	0.105	0.12	0.12
10	11	0.09	0.11	0.105	0.13	0.115
12	9.26	0.08	0.10	0.10	0.11	0.10
14	8.14	0.08	0.10	0.09	0.11	0.10
16	7.25	0.07	0.10	0.085	0.10	0.09
18	6.55	0.07	0.105	0.08	0.95	0.085
20	6.0	0.06	0.09	0.075	0.9	0.085
22	5.54	0.06	0.085	0.07	0.9	0.08
24	5.17	0.05	0.08	0.065	0.9	0.08
26	4.84	0.05	0.08	0.06	0.9	0.07
28	4.57	0.04	0.08	0.06	0.8	0.07
30	4.33	0.04	0.07	0.06	0.8	0.07
35	3.86	0.04	0.06	0.055	0.7	0.09

RECOVERY TEST

PROJECT: ..Ulverstone South.... OBS at HOLE'S NOS..Pt.No.4.A.B.C.82....

OWNER ..Dept....of...Mines.. HUNDRED..Ulverstone.....SECTION.....

AVERAGE PUMPING RATE: ..1.5 cusecs PUMPED STOPPED AT ..... ON 23.11.69...

DISTANCES TO PUMPED HOLE 25, 50, 75, 100. WATER LEVEL BELOW REF.PT. AT START OF TEST.....FT.

STAGE NO: ....1.....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/t1	Pump Hole	Obs.Hole A	Obs.Hole B	Obs.Hole C	Obs.Hole 82
40	3·5	0·04	0·06	0·05	0·065	0·07
45	3·22	0·04	0·055	0·045	0·07	0·07
50	3·0	0·04	0·05	0·04	0·06	0·06
55	2·82	0·03	0·045	0·035	0·06	0·055
60	2·67	0·04	0·04	0·035	0·05	0·055
65	2·54	0·04	0·04	0·035	0·04	0·055
70	2·43	0·04	0·04	0·03	0·04	0·055
20	2·25	0·025	0·04	0·03	0·04	0·04
130	1·77	0·01	0·02	0·15	0·02	0·005

t in min. after start test	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C	Obs. Hole D	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
30	1.125	0.365	0.27	0.335	0.265	
28	1.120	0.36	0.26	0.33	0.26	
26	1.110	0.355	0.25	0.325	0.26	
24	1.090	0.35	0.245	0.320	0.26	
22	—	—	—	—	0.255	
20	1.070	0.34	0.23	0.31	0.245	
18	1.070	0.335	0.23	0.305	0.24	
16	1.070	0.335	0.23	0.30	0.24	
14	1.055	0.325	0.22	0.30	0.235	
12	1.050	0.32	0.22	0.285	0.23	1.81
10	1.040	0.30 ~~0.295~~	0.21	0.275	0.22	
9	1.020	0.295	0.20	0.275	0.21	
8	1.015	0.29 ~~0.285~~	0.20	0.265	0.21	
7	1.015	0.285	0.19	0.26	0.205	
6	1.015	0.28	0.19	0.25	0.195	
5	1.000	0.27	0.175	0.25	0.19	
4½	0.995	0.265	0.17	0.245	0.19	
4	0.990	0.26	0.17	0.235	0.195	
3½	0.980	0.25	0.17	0.24	0.18	
3	0.975	0.245	0.155	0.225	0.17	
2½	0.970	0.235	0.155	0.22	0.165	
2	0.970	0.22	0.145	0.21	0.15	
1½	0.960	0.21	0.13	0.195	0.145	
1	0.960	0.20	0.125	0.185	0.13	
½	0.960	0.195	0.11	0.16	0.2	
0	0	0	0	0	0	

AQUIFER FROM...2.0.... TO .45...FT. WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET..... PUMP STARTED AT.....ON.22.2.69

AERIAL SURVEY NO..... PUMP STOPPED AT.....ON.22.2.69.

RUN.....PHOTO NO..... PUMP SETTING.....FT.

OWNER..Dept..of..Mines..... AV. PUMPING RATE.....

SECTION..... TEST SERIAL NO.....

HUNDRED..Uley..... DISTANCE FROM PUMP HOLE TO OBS. HOLE..25.50.75.100.....

PROJECT..Uley South..... OBS. HOLE NO.'S.PT44.(A,B,C,&D)

DATE OF TEST..22.2.69..... PUMPED HOLE NO.....

PUMPING TEST Stage 2.

t in min. after start test	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C	Obs. Hole B2	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
100	1.220	—	—	0.405	0.40	
90	1.210	0.435	0.32	0.395	0.32	
80	1.200	0.415	0.33	0.39	0.31	
70	1.190	0.41	0.31	0.38	0.305	
60	1.180	0.40	0.30	0.38	0.30	
55	1.180	0.395	0.30	0.375	0.295	
50	1.170	0.39	0.295	0.37 ~~0.36~~	0.285	
45	1.170	0.385	0.29	0.365	0.28	
40	1.145	0.375	0.275	0.36 ~~0.355~~	0.275	
35	1.135	0.37	0.275	0.35	0.27	

AQUIFER FROM..... TO .....FT. WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET..... PUMP STARTED AT.....ON 22.2.69.

AERIAL SURVEY NO..... PUMP STOPPED AT.....ON 22.2.69

RUN.....PHOTO NO..... PUMP SETTING.....FT.

OWNER..Dept. of Mines..... AV. PUMPING RATE.....

SECTION..... TEST SERIAL NO.....

HUNDRED..Illy..... DISTANCE FROM PUMP HOLE TO OBS. HOLE..25.50.75.100.....

PROJECT..Illy South..... OBS. HOLE NO.'S..PEH 4, (A, B, C, B2)

DATE OF TEST.....22.2.69..... PUMPED HOLE NO.....

PUMPING TEST Stage 2.

RECOVERY TEST

PROJECT: [illegible] OBS at HOLE'S NOS. [illegible] (A, B, C, & 82

OWNER Dept. of Mines HUNDRED [illegible] SECTION ....

AVERAGE PUMPING RATE: 1.81 [illegible] PUMPED STOPPED AT .... ON 22.6.69.

DISTANCES TO PUMPED HOLE ..... WATER LEVEL BELOW REF. PT. AT START OF TEST .... FT.

STAGE NO: 2

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/tl	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C	Obs. Hole 82
0	—	—	—	—	—	—
½	201	0.30	0.33	0.27	0.27	0.27
1	101	—	—	—	—	—
1½	67.5	0.25	0.26	0.24	—	0.23
2	51	0.24	0.245	0.21	0.25	0.22
2½	41	0.225	0.24	0.20	0.24	0.21
3	34.3	0.250	0.23	0.205	0.23	0.20
3½	29.6	0.210	0.22	0.19	0.23	0.19
4	26	0.200	0.21	0.185	0.215	0.18
4½	23.2	0.190	0.20	0.17	0.20	0.18
5	21	0.190	0.19	0.16	0.195	0.175
6	17.7	0.180	0.18	0.155	0.19	0.17
7	~~0.17~~ 15.3	0.17	0.17	0.15	0.18	0.16
8	13.5	0.16	0.165	0.145	0.175	0.155
9	12.1	0.15	0.165	0.14	0.17	0.15
10	11	0.145	0.16	0.135	0.16	0.145
12	9.26	0.14	0.15	0.13	0.145	0.14
14	8.14	0.13	0.14	0.125	0.135	0.13
16	7.25	0.12	0.135	0.12	0.13	0.12
18	6.55	0.12	0.13	0.11	0.125	0.12
20	6.0	0.115	0.125	0.105	0.12	0.115
22	5.54	0.115	0.115	0.105	0.115	0.11
24	5.17	0.105	0.11	0.095	0.115	0.11
26	4.84	0.105	0.105	0.085	0.11	0.11
28	4.57	0.105	0.105	0.08	0.11	0.095
30	4.33	0.095	0.105	0.075	0.105	0.09

RECOVERY TEST

PROJECT: Hay South..... OBS at HOLE'S NOS... P.H. 4. OBS 5. & 2

OWNER ..Dept. of Mines.... HUNDRED..Hay.....SECTION.....

AVERAGE PUMPING RATE: .1.8. g.p.m. PUMPED STOPPED AT ..... ON .23.11.69..

DISTANCES TO PUMPED HOLE ..... WATER LEVEL BELOW REF.PT.
AT START OF TEST.....FT.

STAGE NO: ..2.....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/t1	Pump Hole	Obs.Hole	Obs.Hole	Obs.Hole	Obs.Hole
35	3.86	0.085	0.095	0.075	0.10	0.085
40	3.5	0.085	0.095	0.07	0.09	0.08
45	3.22	0.085	0.09	0.065	0.09	0.08
50	3.0	0.07	0.09	—	0.09	0.08
60	2.67	0.07	0.08	0.065	0.09	0.07
70	2.43	0.06	0.08	0.06	0.080	0.06
80	2.25	0.05	0.07	0.05	0.075	0.055
90	2.11	0.05	0.06	0.045	0.06	0.045
100	2.0	0.045	0.055	0.045	0.055	0.045

t in min. after start test	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C	Obs. Hole B2	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
30	1·39	0·46	0·325	0·415	0·33	
28	1·33	0·455	0·33	0·41	0·33	
26	1·365	0·45	0·320	0·40	0·33	
24	1·36	0·445	0·315	0·405	0·32	
22	1·35	0·44	0·310	0·395	0·32	
20	1·34	0·435	0·305	0·39	0·31	
18	1·335	0·43	0·30	0·39	0·305	
16	1·33	0·42	0·295	0·38	0·305	
14	1·33	0·41	0·28	0·37	0·30	
12	1·31	0·395	0·27	0·36	0·29	
10	1·30	0·38	0·26	0·35	0·28	2·05
9	1·285	0·375	0·255	0·34	0·275	
8	1·27	0·375	0·255	0·33	0·27	
7	1·26	0·37	0·24	0·345	0·265	
6	1·25	0·355	0·235	0·325	0·26	
5	1·24	0·35	0·23	0·305	0·255	
4½	1·215	0·34	0·22	0·30	0·25	
4	1·285	0·335	0·205	0·29	0·235	
3½	1·215	0·325	0·185	0·28	0·23	
3	1·215	0·315	0·175	0·275	0·22	
2½	1·21	0·30	0·165	0·265	0·215	
2	1·225	0·29	0·16	0·245	0·21	
1½	1·225	0·28	-	0·235	0·20	
1	1·22	0·265	-	0·20	0·19	
½	1·20	0·23	-	-	0·21	
0	0	0	-	-	-	

AQUIFER FROM..~~20~~..... TO 45...FT. WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET..... PUMP STARTED AT.....ON.22/2/69

AERIAL SURVEY NO..... PUMP STOPPED AT.....ON.22/2/69.

RUN.....PHOTO NO..... PUMP SETTING.....FT.

OWNER.Dept. of Mines..... AV. PUMPING RATE.....

SECTION..... TEST SERIAL NO.....

HUNDRED.....Illy..... DISTANCE FROM PUMP HOLE TO OBS. HOLE....25/50/75/100.....

PROJECT....Illy Sour..... OBS. HOLE NO.'S.....

DATE OF TEST..22/2/69..... PUMPED HOLE NO.....

PUMPING TEST Stage 3.

t in min. after start test	Pump Hole	Obs. Hole	Obs. Hole	Obs. Hole	Obs. Hole	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
100	1.61	0.54	0.41	0.49	0.41	
90	1.57	0.53	0.40	0.49	0.39	
80	1.54	0.52	0.38	0.485	0.375	
70	1.52	0.52	0.375	0.48	0.37	
65	1.51	0.515	0.375	0.475	0.37	
60	1.485	0.505	0.37	0.465	0.365	
55	1.465	0.50	0.365	0.46	0.365	
50	1.45	0.49	0.355	0.445	0.355	
45	1.43	0.485	0.35	0.45	0.35	
40	1.41	0.48	0.34	0.455	0.34	
35	1.395	0.47	0.335	0.44	0.34	

PUMPING TEST

AQUIFER FROM..... TO .....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET.....

AERIAL SURVEY NO.....

RUN.....PHOTO NO.....

OWNER.....

SECTION.....

HUNDRED.....

PROJECT.....

DATE OF TEST.....

WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

PUMP STARTED AT.....ON.....

PUMP STOPPED AT.....ON.....

PUMP SETTING.....FT.

AV. PUMPING RATE.....

TEST SERIAL NO.....

DISTANCE FROM PUMP HOLE TO OBS. HOLE.....

OBS. HOLE NO.'S.....

PUMPED HOLE NO.....

RECOVERY TEST

PG 4 (A, B, C, & 82)

PROJECT: Ulby....South.. OBS at HOLE'S NOS.....Ulby.....

OWNER .Dept...of...Mines.. HUNDRED..Ulby.....SECTION.....

AVERAGE PUMPING RATE: .2.05. ~~cusecs~~ PUMPED STOPPED AT ..... ON .22.2.69..

DISTANCES TO PUMPED HOLE ~~.165.~~ cusecs WATER LEVEL BELOW REF.PT.
AT START OF TEST.....FT.

STAGE NO: ....3.....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/t1	Pump Hole	Obs.Hole	Obs.Hole	Obs.Hole	Obs.Hole
0	—	—	—	—	—	—
½	201	0.38	0.53	0.33	0.39	0.325
1	101	0.35	0.52	0.31	0.345	0.30
1½	67.5	0.31	0.51	0.29	0.325	0.29
2	51	0.30	0.40	0.28	0.30	0.28
2½	41	0.28	0.35	0.265	0.29	0.27
3	34.3	0.27	0.33	0.26	0.28	0.26
3½	29.6	0.26	0.31	0.25	0.27	0.25
4	26	0.25	0.30	0.24	0.26	0.245
4½	23.2	0.24	0.29	0.23	0.255	0.24
5	21	0.23	0.25	0.22 ~~0.245~~	0.25	0.23
6	17.7	0.22	0.24	0.215	0.235	0.22
7	15.3	0.21	0.23	0.21	0.23	0.205
8	13.5	0.21	0.22	0.20 ~~0.195~~	0.23	0.20
9	12.1	0.20	0.21	0.195	0.21	0.195
10	11	0.19	0.20	0.19	0.205	0.19
12	9.26	0.18	0.19	0.18	0.195	0.175
14	8.14	0.18	0.18	0.175	0.185	0.165
16	7.25	0.17	0.17	0.17	0.18	0.16
18	6.55	0.165	0.16	0.165	0.175	0.16
20	6.0	0.16	0.155	0.16	0.17	0.145
22	5.54	0.15	0.15	0.15	0.165	0.14
24	5.17	0.145	0.15	0.145	0.165	0.14
26	4.84	0.14	0.145	0.14	0.155	0.14
28	4.57	0.135	0.14	0.13	0.15	0.14
30	4.33	0.13	0.13	0.13	0.145	0.135

RECOVERY TEST

PROJECT: ...Ulverstone South... OBS at HOLE'S NOS...P.U.4.(A,B,C,+.87)

OWNER ..... HUNDRED..Ulverstone.....SECTION.....

AVERAGE PUMPING RATE: 2.05 cusecs PUMPED STOPPED AT ..... ON .....

DISTANCES TO PUMPED HOLE ..... WATER LEVEL BELOW REF.PT. AT START OF TEST.....FT.

STAGE NO: ...3.....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/t1	Pump Hole	Obs.Hole A	Obs.Hole B	Obs.Hole C	Obs.Hole D
35	3.86	0.12	0.135	0.12	0.14	0.125
40	3.5	0.12	0.13	0.11	0.13	0.12
45	3.32	0.115	0.125	0.10	0.13	0.12
50	3.0	0.11	0.12	0.10	0.12	0.115
55	2.82	0.105	0.11	0.095	0.11	0.11
60	2.67	0.10	0.10	0.09	0.10	0.10
70	2.43	0.08	0.105	0.08	[illegible]	0.095
80						0.09
100	2.0	0.07	0.10	0.07	0.09	0.07
150	1.67	0.06	0.07	0.045	0.07	0.06

t in min. after start test	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C	Obs. Hole B2	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
30	2·10	0·52	0·345	0·45	0·34	
28	2·06	0·51	0·34	0·45	0·335	
26	1·985	0·50	0·33	0·44	0·33	
24	2·01	0·495	0·32	0·44	0·325	
22	1·97	0·48	0·31	0·43	0·32	
20	1·955	0·475	0·30	0·42	0·31	
18	1·935	0·47	0·30	0·41	0·30	
16	1·92	0·46	0·29	0·40	0·29	
14	1·90	0·45	0·285	0·39	0·28	
12	1·88	0·445	0·275	0·375	0·27	
10	1·87	0·44	0·26	0·36	0·26	
9	1·86	0·43	0·25	0·355	0·255	
8	1·855	0·42	0·235	0·34	0·245	
7	1·825	0·41	0·24	0·33	0·24	
6	1·83	0·395	0·225	0·32	0·25	
5	1·79	0·39 ~~0·385~~	0·22	0·31	0·22	
4½	1·79	0·385	0·21	0·305	0·215	
4	1·77	0·38 ~~0·365~~	0·20	0·30	0·21	
3½	1·75	0·365	0·19	0·29	0·205	
3	1·73	0·35 ~~0·345~~	0·18	0·28	0·19	
2½	1·75	0·345	0·17	0·26	0·18	
2	1·76	0·34	0·165	0·25	0·175	
1½	1·74	0·32	0·15	0·23	0·17	
1	~~1·72~~	0·31	0·12	0·21	0·155	
½	1·37	0·28	0·11	0·17	0·14	
0	—	—	—	—	—	

AQUIFER FROM...~~20~~... TO .45..FT. WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET..... PUMP STARTED AT.....ON..23.2.69.

AERIAL SURVEY NO..... PUMP STOPPED AT.....ON..26.2.69.

RUN.....PHOTO NO..... PUMP SETTING.....FT.

OWNER...Dept. of Mines..... AV. PUMPING RATE.....

SECTION..... TEST SERIAL NO..85.....

HUNDRED...Hay..... DISTANCE FROM PUMP HOLE TO OBS. HOLE...25.50.75.100.....

PROJECT...Hay South..... OBS. HOLE NO.'S..P44.(A,B,C,B2)

DATE OF TEST..23.2.69..... PUMPED HOLE NO.....

PUMPING TEST 4350 mins

t in min. after start test	Pump Hole	Obs. Hole	Obs. Hole	Obs. Hole	Obs. Hole	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
750	3·42	0·95	0·74	0·87	0·74	
700	3·37	0·94	0·74	0·86	0·74	
650	3·35	0·93	0·72	0·85	0·72	
600	3·28	0·89	0·70	0·82	0·70	
550	3·10	0·82	0·68	0·815	0·70	
500	3·30	0·88	0·67	0·80	0·70	
450	3·225	0·855	0·64	0·78	0·655	
400	3·165	0·83	0·63	0·75	0·63	
350	3·08	0·81	0·615	0·73	0·615	
300	3·075	0·78	0·60	0·71	0·60	
250	2·90	0·76	0·55	0·68	0·565	
200	2·87	0·725	0·525	0·655	0·535	
180	2·825	0·705	0·52	0·645	0·51	
160	2·74	0·69	0·50	0·625	0·50	
140	2·58	0·66	0·475	0·60	0·48	
120	2·50	0·64	0·46	0·575	0·46	
100	2·26	0·615	0·44	0·56	0·435	
90	2·15	0·605	0·43	0·55	0·42	
80	2·13	0·595	0·42	0·535	0·415	
70	2·125	0·585	0·40	0·525	0·40	
60	2·125	0·575	0·39	0·52	0·39	
55	2·115	0·565	0·39	0·500	0·385	
50	2·145	0·56	0·375 0·39	0·495	0·38	
45	2·106	0·55	0·37	0·485	0·37	
40	2·09	0·54	0·365	0·47	0·36	
35	2·105 2·066	0·53	0·05	0·46	0·35	

AQUIFER FROM..20..... TO ..45...FT. WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET..... PUMP STARTED AT.....ON.23.2.69

AERIAL SURVEY NO..... PUMP STOPPED AT.....ON.26.2.69.

RUN....., PHOTO NO..... PUMP SETTING.....FT.

OWNER..Dept. of Mines..... AV. PUMPING RATE.....

SECTION..... TEST SERIAL NO.....

HUNDRED...Uley..... DISTANCE FROM PUMP HOLE TO OBS. HOLE..25.50.75.100.....

PROJECT..Uley South..... OBS. HOLE NO.'S..P64..(A,B,C,82)..

DATE OF TEST..23.2.69..... PUMPED HOLE NO.....

PUMPING TEST 4350 mins

t in min. after start test	Pump Hole	Obs. Hole	Obs. Hole	Obs. Hole	Obs. Hole	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
2050.	3.23	1.075	0.875	1.00	0.87	
2000	3.36	1.07	0.875	1.00	0.875	
1950	3.28	1.07	0.875	0.995	0.88	
1900	3.40	1.09	0.86	1.00	0.88	
1850	3.39	1.06	0.85	0.98	0.86	
1800	3.50	1.08	0.85	0.98	0.86	
1750	3.46	1.05	0.86	0.98	0.86	
1700	3.12	1.04	0.85	0.96	0.86	
1650	3.05	1.03	0.85	0.98	0.86	
1600	3.14	1.05	0.85	0.98	0.87	
1550	3.22	1.04	0.84	0.97	0.83	
1500	3.08	1.05	0.82	0.98	0.84	
1450	2.925	1.035	0.825	0.97	0.84	
1400	2.95	1.02	0.82	0.95	0.82	
1350	2.84	1.02	0.82	0.93	0.82	
1300	2.81	1.01	0.82	0.93	0.815	
1250	4.60	1.01	0.82	0.94	0.82	
1200	4.57	1.01	0.81	0.935	0.82	
1150	4.49	1.005	0.79	0.92	0.805	
1100	4.53	1.00	0.79	0.92	0.80	
1050	4.56	0.99	0.78	0.91	0.795	
1000	4.35	0.98	0.78	0.895	0.775	
950	3.63	0.96	0.77	0.89	0.765	
900	3.62	0.95	0.765	0.885	0.755	
850	3.50	0.95	0.77	0.87	0.755	
800	3.64	0.95	0.76	0.87	0.755	

AQUIFER FROM..20..... TO ..45..FT. WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

REF.PT. ABOVE, GR.LEVEL. .....FT.

MILITARY SHEET..... PUMP STARTED AT.....ON.23.2.69

AERIAL SURVEY NO..... PUMP STOPPED AT.....ON.26.2.69

RUN.....PHOTO N..... PUMP SETTING.....FT.

OWNER.Dept. of Mines..... AV. PUMPING RATE.....

SECTION..... TEST SERIAL NO.....

HUNDRED.Illy..... DISTANCE FROM PUMP HOLE TO OBS. HOLE..25,50,75,100.....

PROJECT.....Illy South..... OBS. HOLE NO.'S..P.S.W.(A.B.C.D.)

DATE OF TEST.23.2.69..... PUMPED HOLE NO.....

PUMPING TEST 4350 mins

3350	3·94	1·14	0·935	1·07	0·94	
3300	3·38	1·15	0·94	1·07	0·995	
3250	3·84	1·14	0·94	1·06	0·94	
3200	3·30	1·14	0·936	1·05	0·935	
3150	3·48	1·13	0·93	1·06	0·94	
3100	3·95	1·15	0·925	1·06	0·935	
3050	3·84	1·125	0·93	1·045	0·93 0·935	
3000	3·71	1·15	0·925	1·05	0·94	
2950	3·69	1·14	0·93	1·06	0·935	
2900	3·63	1·13	0·93	1·06	0·935	
2850	3·66	1·14	0·93	1·07	0·94	
2800	3·66	1·14	0·92	1·04	0·93	
2750	3·54	1·12	0·92	1·03	0·92	
2700	3·66	1·13	0·91	1·03	0·92	
2650	3·65	1·14	0·91	1·035	0·925	
2600	3·53	1·12	0·90	1·035	0·92	
2550	3·30	1·11	0·91	1·03	0·92	
2500	3·47	1·1	0·90	1·025	0·90	
2450	3·56	1·13	0·90	1·025	0·90	
2400	3·53	1·12	0·89	1·025	0·90	
2350	3·55	1·11	0·88	1·02	0·91	
2300	3·50	1·085	0·875	1·01	0·89	
2250	3·48	1·085	0·88	1·01	0·89	
2200	3·50	1·085	0·88	1·01	0·89	
2150	3·46	1·08	0·88	1·01	0·89	
2100	3·35	1·02	0·88	1·005	0·885	
t in min. after start test	Pump Hole	Obs. Hole	Obs. Hole	Obs. Hole	Obs. Hole	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					

AQUIFER FROM..28..... TO 45....FT. WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET..... PUMP STARTED AT.....ON.23.2.69

AERIAL SURVEY NO..... PUMP STOPPED AT.....ON.26.2.69

RUN.....PHOTO NO..... PUMP SETTING.....FT.

OWNER..Dept. of Mines..... AV. PUMPING RATE.....

SECTION..... TEST SERIAL NO.....

HUNDRED..Uley..... DISTANCE FROM PUMP HOLE TO OBS. HOLE....25..50..75..100.....

PROJECT..Uley...South..... OBS. HOLE NO.'S..P.1..2..(A,B,C,&2)

DATE OF TEST..23.2.69..... PUMPED HOLE NO.....

PUMPING TEST 4350 →

t in min. after start test	Pump Hole	Obs. Hole	Obs. Hole	Obs. Hole	Obs. Hole	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
4350	4.04	1.19	0.99	1.11	0.985	
4300	4.08	1.19	0.99	1.12	0.97	
4250	3.98	1.19	0.985	1.11	0.975	
4200	3.92	1.185	0.98	1.10	0.98	
4150	3.78	1.19	0.99	1.11	0.975	
4100	3.96	1.18	0.99	1.12	0.97	
4050	3.81	1.19	0.99	1.10	0.99	
4000	3.68	1.19	0.97	1.13	0.99	
3950	3.62	1.18	0.98	1.10	0.97	
3900	3.67	1.18	0.96	1.10	0.96	
3850	3.66	1.17	0.975	1.10	0.97	
3800	3.62	1.19	0.95	1.09	0.97	
3750	3.63	1.13	0.955	1.09	0.97	
3700	3.50	1.17	0.93	1.10	0.96	
3650	3.47	1.17	0.94	1.10	1.00	
3600	3.62	1.17	0.95	1.07	0.96	
3550	3.65	1.18	0.96	1.07	0.97	
3500	3.71	1.17	0.96	1.09	0.95	
3450	3.52	1.16	0.94	1.07	0.96	
3400	3.30	1.17	0.96.	1.07.	0.97	

AQUIFER FROM...20... TO ..45..FT. WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET..... PUMP STARTED AT.....ON.23.2.69

AERIAL SURVEY NO..... PUMP STOPPED AT.....ON..26.2.69.

RUN.....PHOTO NO..... PUMP SETTING.....FT.

OWNER...Dept. of Mines..... AV. PUMPING RATE.....

SECTION..... TEST SERIAL NO.....

HUNDRED...Illey..... DISTANCE FROM PUMP HOLE TO OBS. HOLE..25..50..75..100.....

PROJECT...Illey South..... OBS. HOLE NO.'S P.H.(A,B,C,&D)

DATE OF TEST...23.2.69..... PUMPED HOLE NO.....

PUMPING TEST

RECOVERY TEST

PROJECT: ...Wiley South... OBS at HOLE'S NOS..P&L.A..(A,B,C,+82)

OWNER ...Dept. of Mines.. HUNDRED..Wiley.....SECTION.....

AVERAGE PUMPING RATE: .2.53 cus PUMPED STOPPED AT ..... ON ..8.7.....

DISTANCES TO PUMPED HOLE ..... WATER LEVEL BELOW REF.PT. AT START OF TEST.....FT.

STAGE NO: ..4350 mins.....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/t1	Pump Hole	Obs.Hole A	Obs.Hole B	Obs.Hole C	Obs.Hole 82
0.5	8701	1.00	1.00	0.91	-	0.885
1	4351	0.95	0.94	0.87	0.935	0.855
1½	2900.7	0.90	0.91	0.85	0.895	0.83
2	2176	0.80	0.89	0.835	0.88	0.82
2½	1740.8	0.86	0.88	0.82	0.86	0.805
3	1351	0.84	0.86	0.81	0.845	0.80
3½	1243.7	0.83	0.84	0.795	0.83	0.785
4	10885	0.835	0.83	0.785	0.815	0.77
4½	967.6	0.80	0.815	0.775	0.805	0.77
5	871	0.79	0.805	0.765	0.79	0.76
6	726	0.72	0.785	0.75	0.77	0.75
7	622.4	0.71	0.77	0.74	0.75	0.74
8	544.8	0.74	0.76	0.73	0.74	0.73
9	484.3	0.73	0.74	0.72	0.73	0.72
10	436	0.72	0.73	0.71	0.73	0.71
12	363.5	0.70	0.71	0.69	0.72	0.70
14	311.7	0.68	0.70	0.68	0.70	0.68
16	272.9	0.67	0.685	0.665	0.69	0.67
18	242.7	0.65	0.675	0.66	0.675	0.66
20	218.5	0.645	0.66	0.65	0665	0.65
22	198.6	0.64	0.655	0.64	0.66	0.645
24	182.25	0.63	0.65	0.635	0.65	0.635
26	168.3	0.625	0.635	0.63	0.64	0.63
28	156.4	0.62	0.63	0.62	0.635	0.625
30	146	0.605	0.63	0.615	0.63	0.63
35	125.3	0.59	0.62	0.605	0.615	0.60

RECOVERY TEST

PROJECT: ..Warg...South.... OBS at HOLE'S NOS...P.W.H.(A.B.C.1982)

OWNER .....Mines....Dept... HUNDRED..Wy.....SECTION.....

AVERAGE PUMPING RATE: 2.53 cusec PUMPED STOPPED AT ..... ON .....

DISTANCES TO PUMPED HOLE ..... WATER LEVEL BELOW REF.PT.
AT START OF TEST.....FT.

STAGE NO: ..4350.mm.....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/t1	Pump Hole	Obs.Hole	Obs.Hole	Obs.Hole	Obs.Hole
40	109·75	0·59	0·60	0·595	0·605	0·59
45	95·44	0·58	0·595	0·58	0·595	0·58
50	88	0·58	0·585	0·575	0·585	0·575
55	80·1	0·57	0·575	0·565	0·575	0·565
60	73·5	0·555	0·565	0·560	0·565	0·55
70	63·14	0·53	0·55	0·55	0·55	0·53
80	55·37	0·53	0·53	0·535	0·53	0·515
92	49·33	0·53	0·515	0·52	0·525	0·50
100	44·5	0·50	0·49	0·51	0·515	0·485
120	37·25	0·485	0·50	0·49	0·485	0·48
140	32·07	0·46	0·48	0·48	0·47	0·47
160	28·19	0·45	0·465	0·47	0·46	0·455
180	25·17	0·43	0·44	0·45	0·45	0·43
200	22·75	0·40	0·43	0·43	0·43	0·415
250	18·4	0·39	0·41	0·41	0·40	0·405
300	15·5	0·37	0·375	0·385	0·365	0·39
350	13·43	0·33	0·36	0·35	0·35	0·35
400	11·87	0·32	0·325	0·325	0·325	0·32
450	10·67	0·305	0·32	0·30	0·31	0·31
500	9·7	0·31	0·32	0·305	0·30	0·30
550	8·91	0·285	0·29	0·27	0·28	0·27
600	8·3	0·265	0·26	0·255	0·26	0·255
650	7·7	0·250	0·25	0·24	0·25	0·24
700	7·21	0·235	0·23	0·23	0·235	0·215
750	6·8	0·225	0·225	0·225	0·230	0·210
800	6·44	0·215	0·225	0·22	0·230	0·205

RECOVERY TEST

PROJECT: Uley...South..... OBS at HOLE'S NOS...P.U.A.(A,B,C,)82

OWNER ....Dept...of...Mines... HUNDRED..Uley.....SECTION.....

AVERAGE PUMPING RATE: 253 cum PUMPED STOPPED AT ..... ON .....

DISTANCES TO PUMPED HOLE ..... WATER LEVEL BELOW REF.PT. AT START OF TEST.....FT.

STAGE NO: ..4350.mm.....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/t1	Pump Hole	Obs.Hole A	Obs.Hole B	Obs.Hole C	Obs.Hole 82
850	6.12	0.215	0.215	0.21	0.220	0.195
900	5.83	0.20	0.21	0.21	0.225	0.20
950	5.56	0.20	0.20	0.20	0.205	0.19
1000	5.35	0.185	0.185	0.185	0.20	0.175
1050	5.14	0.195	0.195	0.185	0.19	0.17
1100	4.95	0.19	0.19	0.18	0.18	0.17
1150	4.78	0.18	0.18	0.18	0.17	0.165
1200	4.62	0.175	0.175	0.17	0.17	0.15
1250	4.48	0.175	0.175	0.17	0.17	0.15
1300	4.35	0.17	0.17	0.17	0.16	0.16
1350	4.22	0.16	0.16	0.16	0.16	0.15
1400	4.11	0.15	0.15	0.145	0.145	0.13
1450	4.00	0.13	0.13	0.13	0.125	0.11

EYRE PENINSULA GROUNDWATER STUDY

ULEY SOUTH BASIN

PROGRESS REPORT NO. 2 - AQUIFER EVALUATION

APPENDIX B

PUMP TEST PTU.5

CONTENTS

APPENDIX B

PUMP TEST PTU.5

INTRODUCTION

Testing commenced on 24th February 1969 and was completed on 29th February 1969.

The distance relationship of pumping hole and observation holes is shown on Figures B1, and logs for all holes are shown on Figures B2 to B5 inclusive. Aquifer thickness was taken as 44 feet.

BORE CONSTRUCTION

All holes were constructed by cable-tool drilling. Observation holes were 6-inch diameter. The pump hole was approximately 12-in diameter, completed with 10-inch steel casing slotted in the bottom 26 ft. Initially the slots were an average of 13 inches long and 1/8-inch to 1/16-inch wide, 4 slots per 18 inches of casing. However pumping during development revealed very low efficiency of the hole, with pumping rates up to 1.5 cusecs resulting in water levels up to 30 ft. lower inside the casing than outside. The casing was pulled and the number and size of slots increased to 12 slots per foot of casing, 15 inches long and 1/4-inch wide. When this casing was replaced in the hole, adequate performance was obtained at pumping rates up to 3 cusecs. However during the test it was observed that the water level inside the casing was up to 0.2 ft. lower than the water level outside the casing. This is further discussed in the chapter Bore Evaluation.

PUMPING

Average pumping rates were as follows:

Stage 1, 100 minutes	1.89 cusecs
Stage 2, " "	2.13 cusecs
Stage 3, " "	2.32 cusecs
Stage 4, 3 days	2.59 cusecs

All testing was completed without incident. During the three days test the pumping rate of 2.59 cusecs was maintained within a range of 1.4%.

ANALYSIS OF DATA

Data plots for each analysis method were essentially similar, and typical plots are shown as follows:

Logarithmic plot, PTU.5 A	Figure B6
Semi-logarthmic plot, PTU.5 A showing recovery	Figure B7
Distance drawdown	Figure B8.

Drawdown data

Steady state conditions were attained after about ten minutes, with a rate of drawdown of 0.35 feet per log cycle. This rate was maintained to the end of the test. Values of aquifer characteristics are shown in Table B1.

Recovery Data

A steady rate of recovery was attained within five to ten minutes of pump sut-down. The rate of recovery was within 0.04 feet per log cycle of the rate of drawdown, as shown in Table B1. Water levels had recovered to within 0.14 ft. of original static level after the 24 hours recovery test.

TABLE B2 - AQUIFER CHARACTERISTICS

METHOD	THEIS		JACOB		RECOVERY		DISTANCE - DRAWDOWN	
Aquifer Characteritic	T	$Sx10^{-2}$	T	$Sx10^{-2}$	T	$Sx10^{-2}$	T	$Sx10^{-2}$
HOLE NO.								
A	1.29	3.67	1.37	2.96	1.27	10.4		
B	1.33	3.30	1.37	3.14	1.35	1.82	1.32	4.1
C	1.47	1.96	1.44	2.24	1.27	3.60		
AVERAGE	1.36	2.98	1.39	2.78				
RANGE	0.18	1.71	0.07	0.90				

Average Values (Thei and Jacob Drawdown Methods) -

$T = 1.38$ cusecs/ft.

$S = 2.88 \times 10^{-2}$

$P = 3.1 \times 10^{-2}$ cusecs/ft^2.

TABLE B1 - RATES OF DRAWDOWN AND RECOVERY

HOLE NO.	DRAWDOWN (ft/log cycle)	RECOVERY (ft/log cycle)
PTU 5	0.34	0.36
PTU 5A	0.35	0.37
PTU 5B	0.35	0.34
PTU 5C	0.33	0.37

Aquifer characteristics are shown on Table B2. Although values of T are in close agreement with other methods, comparatively large variations in the value of S indicates that recovery data may not be suitable for determination of S.

Distance - Drawdown Data

Distance - drawdown curves could be constructed only for the line A - B of observation holes. While it is realised that the use of only two holes in constructing distance - drawdown curves is liable to introduce errors in extrapolation, the results obtained are in close agreement with results obtained from other methods, as shown on Table B2.

Average Aquifer Characteristics

Full details of aquifer characteristics obtained from analysis of field data by each of the above methods are shown on Table B2. Average aquifer characteristics have been determined from the Theis and Jacob results only, because of the possibility of erroneous results from recovery and distance-drawdown methods.

Bore Evaluation

During the test the water level inside the casing was generally only 0.2 ft. below the level outside the casing, and there was no fluctuation in level.

Evaluation of well loss and aquifer loss was carried out as shown on Figure B9 with the result as follows:

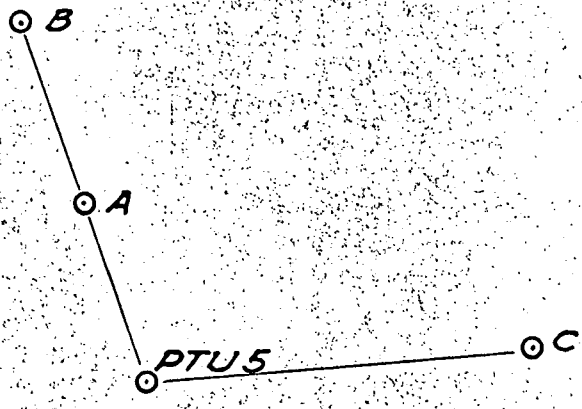
$$s_{w_{100}} = 0.26Q + 21Q^2$$

where $s_{w_{100}}$ = drawdown at 100 minutes.

$0.26Q$ = drawdown due to aquifer loss.

$0.21Q^2$ = drawdown due to well loss.

Walton (1962), in discussing well loss, concludes that values for well loss less than $5 \times Q^2$ indicate efficient wells. This result therefore indicates that the well is highly efficient.



General direction of groundwater movement.

SCALE

50 0 50 100

FEET

FIG. B 1

DEPARTMENT OF MINES — SOUTH AUSTRALIA

	Drn. J.P.	EYRE PENINSULA GROUNDWATER STUDY	SCALE: As shown
	Tcd. G.M.	ULEY SOUTH BASIN PTU 5 SITE ARRANGEMENT	S7420 Dn12+14
	Ckd. L.V.W.		
	Exd.		DATE: 4·8·69

DEPARTMENT OF MINES · SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE No. PTU5
SHEET 1 OF 1.

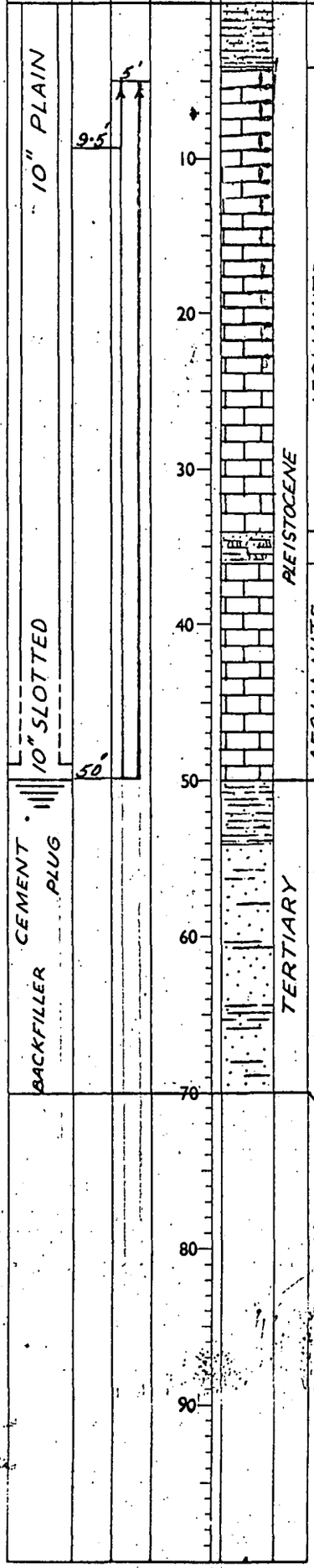
PURPOSE OF BORE . PUMP TEST
HIRER . DEPT. OF MINES
HUNDRED . ULEY
DRILLER F. FARROW
COMMENCED 29 JAN.69 COMPLETED 3 FEB.69
LOGGED BY J.A.C.PAINTER DATE 4 FEB.69

BORE SERIAL No. 46/69
ADDRESS . ADELAIDE
SECTION . 1.
DOCKET No. DM.115/69
R.L. COLLAR (M.S.L.)
R.L. SURFACE
CO-ORDS : E
N
DEPTH 70'
CASING 49' of 10"

WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
9.5	5	58000	Pump Test -	527.	LW.264/69.
60	"	"	" 3 Days.	649.	LW.272/69.

REMARKS 6" hole to 70ft. Backfilled, with cement plug at 50ft. Reamed 10" hole to 50ft.



DESCRIPTION

0-4 Soil. Silt, clayey, slightly sandy. Boulders to calcrete and aeolianite to 0.3ft. Red-brown to dark brown.

4-8 Fine to medium grained, weakly cemented, sitty and clayey. Grains are calcite and shell fragments to 0.5 mm. Silt and clay up to 30%, disseminated. Light brown.

8-14 As above, well graded fine to coarse grained, moderately to strongly cemented. Grains 0.1 to 2.5 mainly 0.2 to 1mm. Few vein bands of calcrete light brown to yellow brown.

14-18 Mainly weakly cemented to un-cemented. Grain as above. Light greyish brown.

18-24 As above, fine to medium grained. 0.1 to 1mm. Mainly light greyish brown to light red brown.

24-34 As above but with a few thin bands of crystalline limestone. Whitish brown.

34-36 Clay, silty and sandy, calcareous. Clay is soft, low plasticity. Sand calcite grain, aeolianite and limestone fragments to 2 mm., Whitish to pale yellow-brown.

36-50 AEOLIANITE, fine to medium grained, mainly weakly to moderately cemented. Grains are calcite and shell fragments 0.1 to 1 mm., with 20% quartz grains 0.1 to 2 mm. Contains up to 20% calcareous silt and clay in top 2 ft., quartz content, increases to 40% in bottom 2ft. Yellow-brown.

50-54 CLAY, sandy. Clay is stiff, plastic, red brown to grey and green. Sand is mainly quartz grains, sub-rounded, 0.1 to 2.5 mm., increasing in content towards base. General colour light brown.

54-70 SAND, fine grained. Very clayey, grades in places to CLAY, very sandy. Sand is quartz, sub-rounded, mainly less than 0.2 mm., a few grains to 1 mm. Mainly uncemented, weakly to moderately cemented in few thin Sands. Clay is mainly disseminated, also in discrete pockets. Yellow-brown.

FIG B2

DEPARTMENT OF MINES · SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE No. PTU.5A
SHEET 1 OF 1

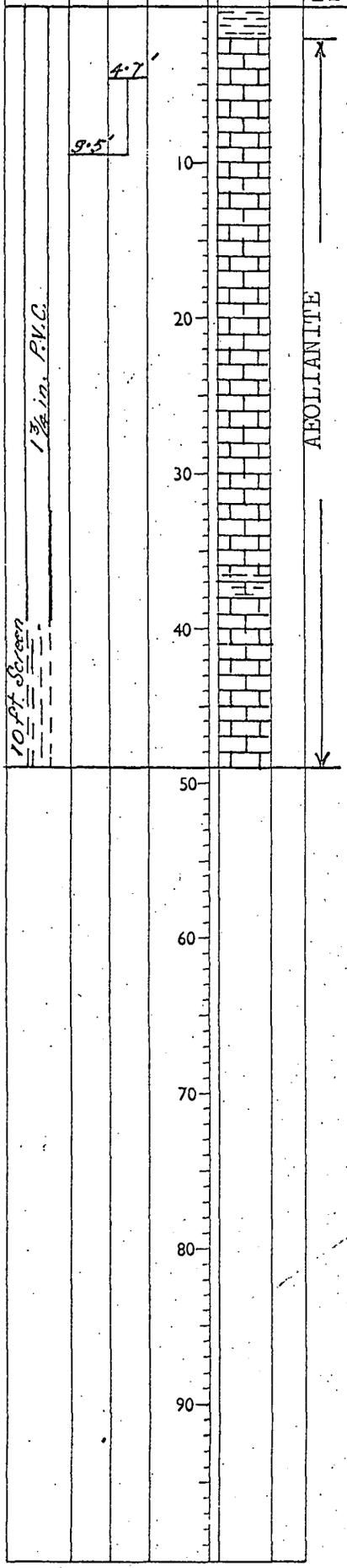
PURPOSE OF BORE OBSERVATION
HIRER DEPARTMENT OF MINES
HUNDRED ULEY
DRILLER F. FARROW
COMMENCED 28.1.69 COMPLETED 7.2.69
LOGGED BY J. BRADFORD DATE 12.2.69

BORE SERIAL No. 392/69
ADDRESS ADELAIDE.
SECTION BLK. 1
DOCKET No. DM.115/69
R.L. COLLAR (M.S.L.) 125.27
R.L. SURFACE 123.44
CO-ORDS: E
N
DEPTH 49ft.
CASING 49ft.

WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
9.5	4.71		Not tested	554	LW.528/69

REMARKS OBSERVATION BORE 25ft. FROM PTU.5



DESCRIPTION

0 - 2ft. TOPSOIL, silt, clayey and sandy, organic rich, contains boulders of fine grinaed aeolianite.

2 - 12ft. Grains are mainly calcite, with minor shell fragments and quartz, silty and clayey 0.1mm to 0.5mm with a few to 1.0mm. Very strongly cemented with lenses of grey limestone and fragments of Ironstained carbonate.

12 - 36ft. As above. Moderately to strongly cemented with a few calcrete lenses and bands of sandy Limestone. Pale grey.

36 - 38ft. As above with pockets of off-white clay.

38 - 49ft. As above, grains 0.1mm to 0.5mm with a few to 1.0mm. Moderately to strongly cemented with grey limestone bars and a poorly cemented lens from 42ft. to 44ft.

FIG B3

DEPARTMENT OF MINES : SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE Nº PTU.5B
SHEET. 1. OF. 1.

PURPOSE OF BORE OBSERVATION
HIRER DEPARTMENT OF MINES
HUNDRED ULEY
DRILLER F. FARROW
COMMENCED 7.2.1969 COMPLETED 11.2.1969
LOGGED BY J. BRADFORD DATE 14.2.1969

BORE SERIAL No. 396/69
ADDRESS ADELAIDE.
SECTION BLK.1
DOCKET No. DM.115/69
R.L. COLLAR (M.S.L.) 125.11
R.L. SURFACE 123.01

CO-ORDS : E
N
DEPTH 49ft.
CASING 49ft.

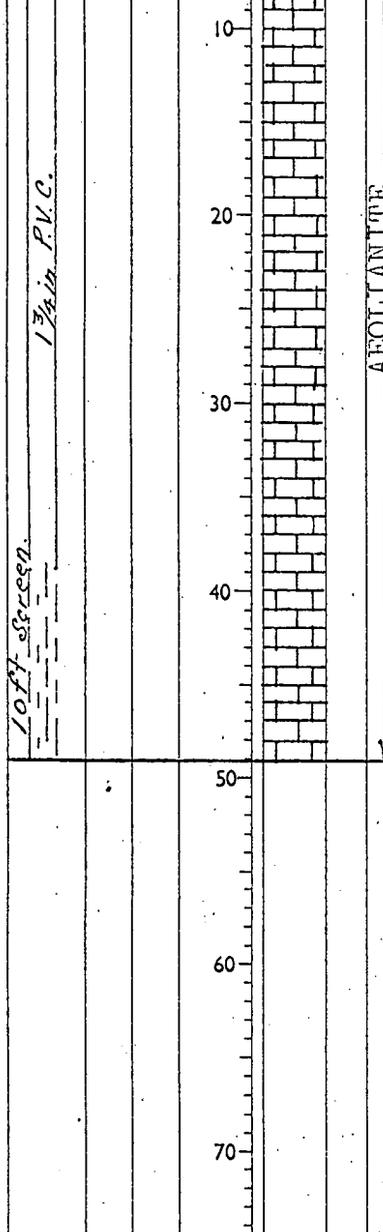
WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
7ft.	4ft.7in.		Not tested	554	LW.319/69

REMARKS OBSERVATION BORE 50 FT. FROM PTU.5

CASING | WATER CUT | WATER LEVEL | DEPTH IN FEET | CORE | GRAPHIC LOG | AGE | DRILLING REMARKS

DESCRIPTION



0 - 4ft. Grains are mainly calcite with lesser shell fragments and quartz from 0.1mm to 0.5mm. Strongly cemented. Boulders and fragments with Interstitial red-brown silty soil to 1 ft.

4 - 30ft. As above. A few grains to 1.5mm. Moderately to very strongly cemented with thin lenses of cryptocrystalline limestone. Off-white and pale yellow-brown.

30 - 49ft. Grains are mainly calcite with quartz increasing to 25% with depth. 0.1mm to 1.0mm with a few grains to 1.5mm. Moderately to strongly cemented with lenses of sandy limestone. Off-white and pale grey.

50
60
70
80
90

FIG B4

DEPARTMENT OF MINES · SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE No. PTU.5C
SHEET. 1. OF. 1.

PURPOSE OF BORE. OBSERVATION
HIRER. DEPARTMENT OF MINES
HUNDRED ULEY
DRILLER F. FARROW
COMMENCED 11.2.1969 COMPLETED 12.2.1969
LOGGED BY J. BRADFORD DATE 14.2.1969

BORE SERIAL No. 400/69
ADDRESS ADELAIDE.
SECTION BLK.1
DOCKET No. DM.115/69
R.L. COLLAR (M.S.L.)
R.L. SURFACE

CO-ORDS: E
N
DEPTH 49ft.
CASING 49ft.

WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
7	5ft.2in.		Not tested	568	LW.320/69

REMARKS. OBSERVATION BORE 75 FT. FROM PTU.5

CASING | WATER CUT | WATER LEVEL | DEPTH IN FEET | CORE | GRAPHIC LOG | AGE | DRILLING REMARKS

DESCRIPTION

0 - 1ft. TOPSOIL. Silt, organic rich. Contains boulders and fragments of calcrete and aeolianite. Cark brown.

1 - 8ft. Grains are mainly calcite with shell fragments, 0.1mm to 0.5mm with some to 1.0mm. Strongly cemented, grades to calcrete in parts. Pale yellow brown.

8 - 16ft. As above. Strongly cemented, grades to very sandy limestone in parts. Off white.

16 - 38ft. As above. Moderately to strongly cemented with thin lenses of cryptocrystalline limestone. Off white and yellow-brown.

38 - 40ft. CLAY. Calcareous. Contains lenses of off-white limestone. Pale yellow-brown.

40 - 49ft. AEOLIANITE, grains are calcite, shell fragments and quartz from 0.1mm to 1.5mm. Moderately cemented with harder bars and lenses of cryptocrystalline limestone. Off-white and pale yellow-brown.

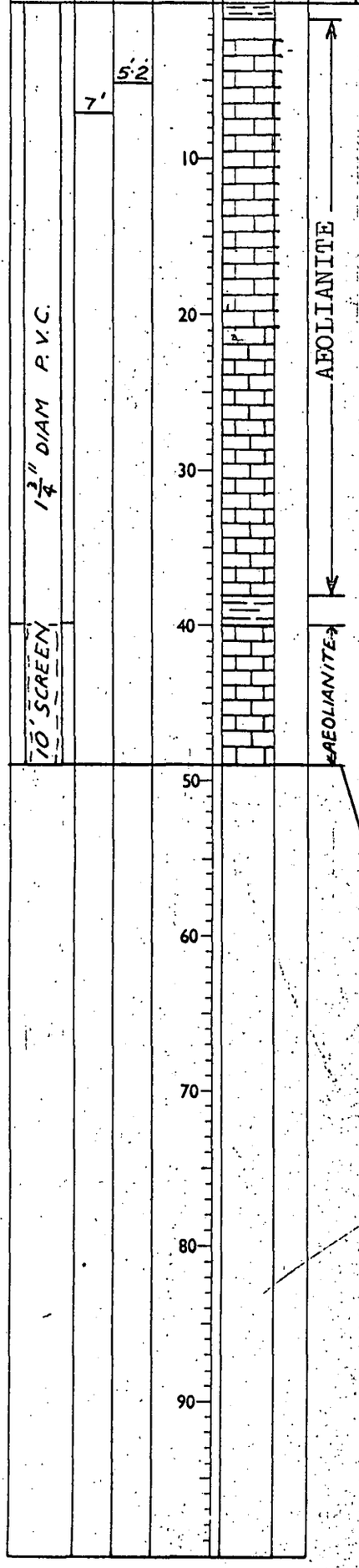


FIG B5

$Q = 2.59$ cusecs

$r = 50$ feet.

$W(u) = 1$

$u = 10^{-2}$

$\Delta = 0.16$ ft.

$t = 1780$ sec.

$$T = \frac{Q}{4.\pi.\Delta} \cdot W(u)$$

$$= \frac{2.59}{4 \times 3.14 \times 0.16}$$

$$= \underline{1.29 \text{ cusec / ft.}}$$

$$S = \frac{4.T.u.t.}{r^2}$$

$$= \frac{4 \times 1.29 \times 10^{-2} \times 1780}{2500}$$

$$= \underline{3.67 \times 10^{-2}}$$

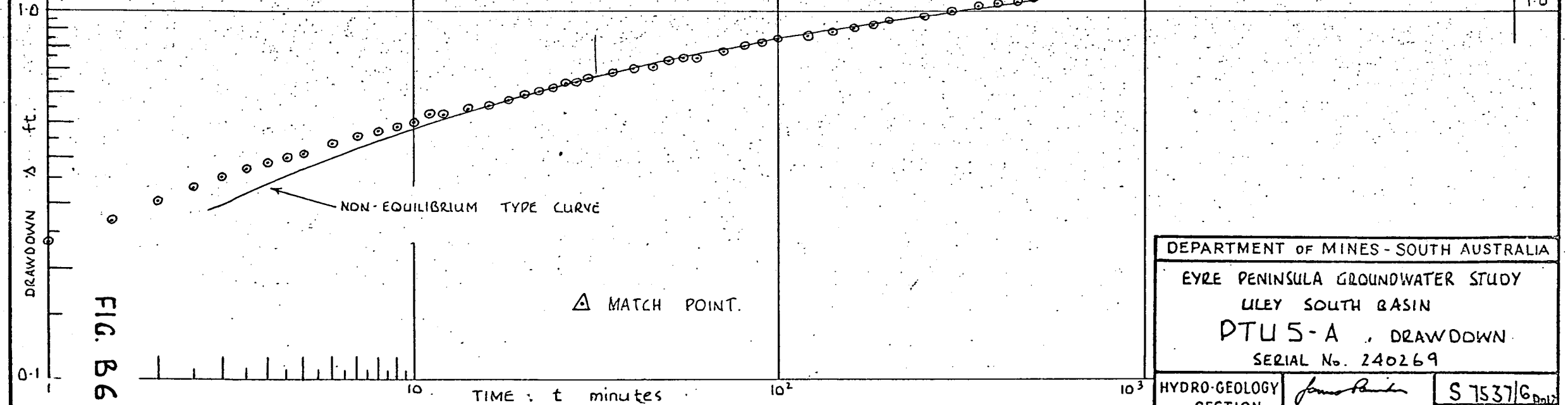


FIG. B6

DEPARTMENT OF MINES - SOUTH AUSTRALIA

EYRE PENINSULA GROUNDWATER STUDY

ULEY SOUTH BASIN

PTU 5-A , DRAWDOWN

SERIAL No. 240269

HYDRO-GEOLOGY SECTION

GEOLOGIST

S 7537/6 Dup

DATE 24.7.69

DISCHARGE Q gallons per minute	ADJUSTED DRAWDOWN AT 100 minutes s_{100} (feet)	$\frac{s_{100}}{Q}$
1·84	1·24	0·65
2·13	1·50	0·70
2·32	1·73	0·74
2·59	1·95	0·75

$s_{100} = BQ + CQ^2$

$= 0.260Q + 0.1Q^2$

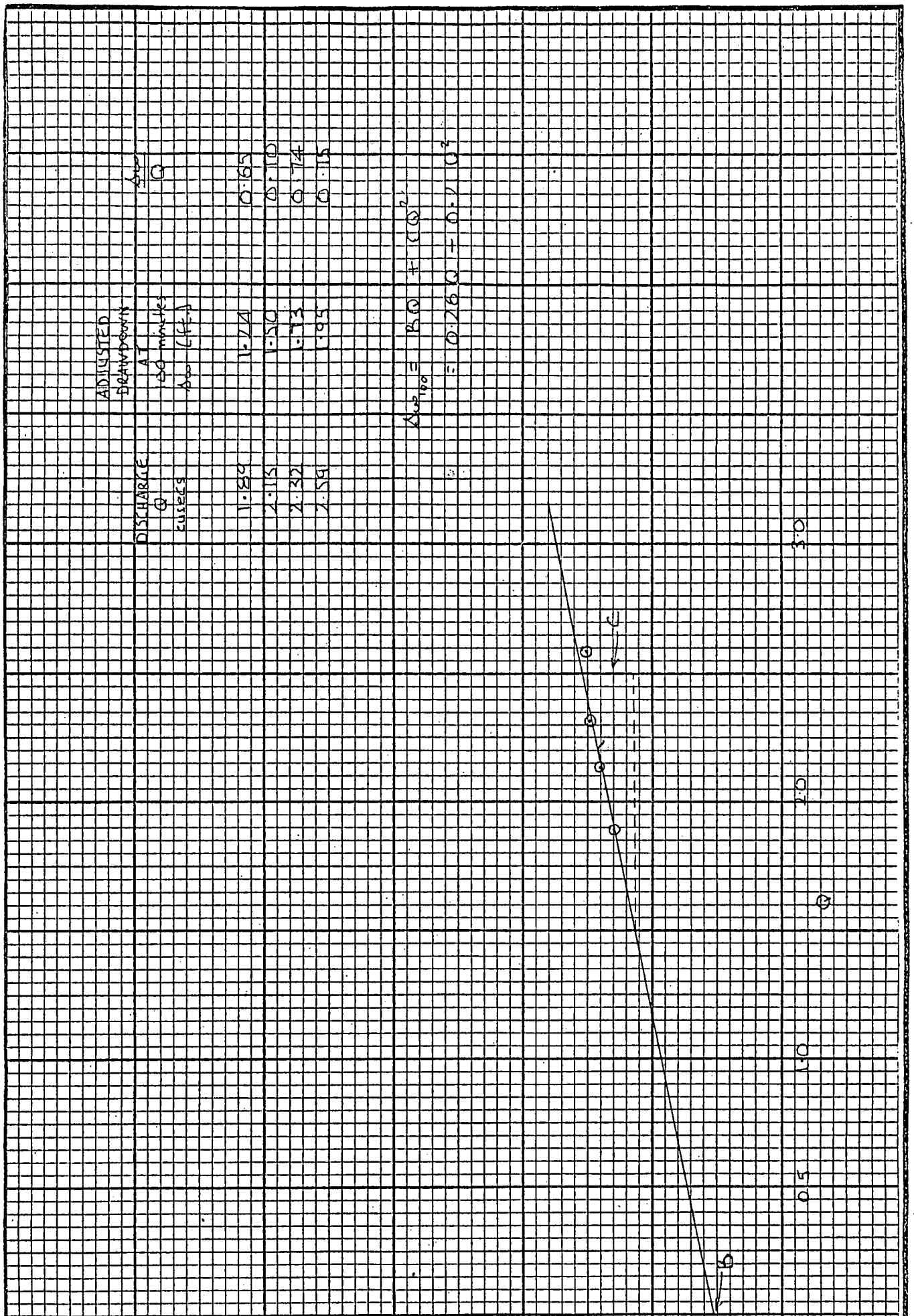


FIG. B9

DEPARTMENT OF MINES — SOUTH AUSTRALIA

	Drn. J.P.	EYRE PENINSULA GROUNDWATER STUDY	SCALE: —
	Tcd.	ULEY SOUTH BASIN	S 7535
	Ckd.	PTU 5	Dn 12
	Exd.	BORE EVALUATION	DATE: 24 July 69

30	1·12.	0·44	0·32.	0·325	1·01	
28	1·12	0·43	0·31	0·315	1·01	
26	1·10	0·43	0·305	0·31	1·01	
24	1·09	0·42.	0·30·	0·30	1·01	
22	1·09	0·41	0·30	0·295	0·98	
20	1·06	0·405	0·29	0·285	0·98	
18	1·06	0·395	0·28	0·275	0·98	
16	1·04	0·38	0·265	0·26	0·96	
14	1·04	0·37	0·25	0·25	0·94	
12	1·02	0·355	0·24	0·235	0·94	
10	1·01	0·345	0·22	0·22	0·94	
9	0·98	0·33	0·21	0·21	0·89	
8	0·98	0·32	0·20	0·195	0·89	
7	0·98	0·31	0·19	0·19	0·89	
6	0·98	0·30	0·175	0·175	0·89	
5	0·95	0·29	0·16	0·165	0·86	
4½	0·94	0·27	0·15	0·145	0·86	
4	0·94	0·26	0·14	0·135	0·86	
3½	0·94	0·255	0·135	0·14	0·86	
3	0·94	0·25	0·125	0·125	0·82	
2½	0·91	0·23·	0·115	0·11	0·82	
2	0·88	0·215	0·10	0·09	0·82	
1½	0·85	0·195	0·085	0·08	0·77	
1	0·79	0·165	0·065	0·05	0·74	
½	0·77	0·125	0·045	0·03	0·73	
0	–	–	–	–	–	
t in min. after start test	Pump Hole	Obs. A Hole	Obs. B Hole	Obs. C Hole	Obs. Outer Casing Hole	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					

AQUIFER FROM....4.... TO .49...FT. WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET..... PUMP STARTED AT..2000..ON..24.12.69

AERIAL SURVEY NO..... PUMP STOPPED AT.....ON..24/2/69.

RUN.....PHOTO NO..... PUMP SETTING....32.....FT.

OWNER...Dept...of...Mines..... AV. PUMPING RATE.....

SECTION.....1..... TEST SERIAL NO...240269.....

HUNDRED.....Ulley..... DISTANCE FROM PUMP HOLE TO OBS. HOLE.....

PROJECT..Ulley...South...Aquifer...Evaluation OBS. HOLE NO.'S..PIV.S.1.A,B,C.outer casing

DATE OF TEST..24th...January...1969.... PUMPED HOLE NO...PIV.S.....

PUMPING TEST Stage 1.

t in min. after start test	Pump Hole	Obs. A Hole	Obs. B Hole	Obs. C Hole	Obs. Outer Casing Hole	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
100	1·25	0·565	0·435	0·45	1·14	
90	1·23	0·555	0·415	0·44	1·14	
80	1·21	0·55	0·405	0·43	1·12	
70	1·21	0·53	0·395	0·41	1·12	
60	1·19	0·51	0·39	0·40	1·10	
55	1·18	0·50	0·37	0·40	1·10	
50	1·16	0·49	0·355	0·39	1·07	
45	1·16	0·48	0·32	0·376	1·07	
40	1·16	0·465	0·31	0·355	1·05	
35	1·13.	0·455	0·305	0·34	1·05	

AQUIFER FROM...4..... TO .49..FT. WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET..... PUMP STARTED AT..0900..ON..24/2/69.

AERIAL SURVEY NO..... PUMP STOPPED AT.....ON.24/2/69.

RUN.....PHOTO NO..... PUMP SETTING...32.....FT.

OWNER..Dept..of..Mines..... AV. PUMPING RATE.....

SECTION..Uley.....1..... TEST SERIAL NO...240269.....

HUNDRED.....Uley..... DISTANCE FROM PUMP HOLE TO OBS. HOLE.....

PROJECT..Uley..South..Aquifer..Exploration OBS. HOLE NO.'S..P.V.5..(A.B.C.Outer casing)

DATE OF TEST...24th...Feb...1969... PUMPED HOLE NO....P.V.5.....

PUMPING TEST Stage 1.

RECOVERY TEST

PROJECT: Wey. Sands. Aquifer Evaluation OBS at HOLE'S NOS. PTW 5 (a,b,c)

OWNER Dept. of Mines HUNDRED Wey SECTION 1

AVERAGE PUMPING RATE: 1.89 cusecs PUMPED STOPPED AT 1040 ON 24-2-69

DISTANCES TO PUMPED HOLE 50, 100 / 100 WATER LEVEL BELOW REF. PT. AT START OF TEST 8.34 FT.

STAGE NO: 1

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/tl	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C1	Obs. Hole Outside casing
½		0.46	0.435	0.41	0.42	0.555
1		0.445	0.405	0.395	0.41	0.50
1½		0.445	0.37	0.375	0.375	0.465
2		0.37	0.35	0.36	0.35	0.425
2½		0.37	0.34	0.355	0.35	0.425
3		0.34	0.31	0.345	0.325	0.40
3½		0.34	0.30	0.33	0.32	0.40 ~~0.335~~
4		0.34	0.29	0.32	0.32	0.335
4½		0.32	0.28	0.30	0.31	0.335
5		0.32	0.265	0.29	0.30	0.335
6		0.30	0.26	0.275	0.275	0.335
7		0.27	0.245	0.26	0.245	0.335
8		0.245	0.23	0.25	0.265	0.32 ~~0.29~~
9		0.24	0.22	0.235	0.245	0.29
10		0.24	0.21	0.23	0.22	0.29
12		0.23	0.20	0.21	0.215	0.27 ~~0.25~~
14		0.20	0.18	0.20	0.20	0.25
16		0.20	0.17	0.19	0.19	0.25 ~~0.225~~
18		0.185	0.16	0.18	0.18	0.225
20		0.185	0.15	0.17	0.165	0.225
22		0.17	0.145	0.16	0.16	0.205
24		0.17	0.135	0.155	0.155	0.205
26		0.145	0.125	0.15	0.145	0.205
28		0.145	0.12	0.145	0.14	0.17
30		0.145	0.115	0.135	0.135	0.155 ~~0.155~~
35		0.12	0.105	0.12	0.115	0.155

RECOVERY TEST

PROJECT: Wy. South. Aquifer. Evaluation at HOLE'S NOS. P.U.S. (A, B, C) .....

OWNER Dept. of Mines ..... HUNDRED ..Wy..... SECTION ...1.....

AVERAGE PUMPING RATE: ..1.89 cusecs PUMPED STOPPED AT 1040 ... ON ..24.2.69.

DISTANCES TO PUMPED HOLE ~~99~~ 100 WATER LEVEL BELOW REF.PT.

AT START OF TEST ...8.34.....FT.

STAGE NO: .....1.....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/t1	Pump Hole	Obs.Hole A	Obs.Hole B	Obs.Hole C	Obs.Hole
40		0.12	0.10	0.115	0.11	0.155
45		0.095	0.09	0.105	0.10	0.13
50		0.095	0.085	0.100	0.095	0.115
55		0.095	0.075	0.095	0.09	0.105
60		0.085	0.07	0.095	0.085	0.105
70		0.085	0.055	0.09	0.075	0.09
80		0.07	0.05	0.08	0.07	0.09
90		0.055	0.045	0.07	0.06	0.07
100		0.05	0.03	0.065	0.055	0.06

t in min. after start test	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C	Obs. Hole	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
~~29~~ 30	1·37	0·555	0·39	0·425	1·235	
28	1·36	0·545	0·385	0·415	1·225	
26	1·345	0·535	0·375	0·41	1·22	
24	1·335	0·525	0·37	0·40	1·21	
22	1·325	0·515	0·365	0·395	1·195	
20	1·31	0·50	0·35	0·38	1·19	
18	1·29	0·49	0·335	0·37	1·19	
16	1·26	0·475	0·32	0·35	1·17	
14	1·123	0·46	0·31	0·335	1·13	
12	1·121	0·44	0·295	0·315	1·105	
10	1·195	0·43	0·265	0·30	1·095	
9	1·190	0·41	0·255	0·29	1·075	
8	1·165	0·395	0·245	0·28	1·065	
7	1·115	0·385	0·23	0·275	1·05	
6	1·13	0·375	0·215	0·25	1·03	
5	1·105	0·36	0·205	0·24	1·03	
4½	1·095	0·35	0·19	0·22	1·005	
4	1·095	0·335	0·18	0·245	1·005	
3½	1·075	0·315	0·17	0·215	0·985	
3	1·075	0·305	0·16	0·195	0·97	
2½	1·05	0·29	0·145	0·205	0·97	
2	1·025	0·275	0·13	0·16	0·945	
1½	·995	0·25	0·11	0·14	0·93	
1	·975	0·225	0·08	0·115	0·89	
½	·895	0·18	0·05	0·095	0·85	
0	—	—	—	—	—	

over page

AQUIFER FROM.....4..... TO .....49.....FT. WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET..... PUMP STARTED AT..1309..ON..24.2.69.

AERIAL SURVEY NO..... PUMP STOPPED AT..1440..ON..24.2.69.

RUN.....PHOTO NO..... PUMP SETTING.....32.....FT.

OWNER..... AV. PUMPING RATE.....

SECTION.....1..... TEST SERIAL NO...24.2.69.....

HUNDRED.....Illey..... DISTANCE FROM PUMP HOLE TO OBS. HOLE.....

PROJECT..... OBS. HOLE NO.'S..PTS 5 (A,B,C,other)

DATE OF TEST...24th...Feb...1969.... PUMPED HOLE NO...PTS 5.....

PUMPING TEST Stage 2

t in min. after start test	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C.	Obs. Hole outer arms	DISCHARGE in Cusecs
		OBSERVED DRAWDOWN				
100	1·525	0·685	0·520	0·545	1·375	
90	1·50	0·675	0·510	0·54	1·36	
80	1·48	0·66	0·495	0·53	1·35	
70	1·46	0·645	0·485	0·51	1·35	
60	1·44	0·625	0·465	0·50	1·33	
55	1·44	0·615	0·45	0·495	1·31	
50	1·425	0·605	0·44	0·48	1·295	
45	1·415	0·595	0·43	0·47	1·295	
40	1·395	0·58	0·42	0·46	1·28	
35	1·38.	0·57	0·41	0·44	1·26.	

AQUIFER FROM.....4... TO .49..FT. WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET..... PUMP STARTED AT..1308..ON..24.2.69

AERIAL SURVEY NO..... PUMP STOPPED AT.1448..ON..24.2.69

RUN.....PHOTO NO..... PUMP SETTING...32.....FT.

OWNER..... AV. PUMPING RATE.....

SECTION..... TEST SERIAL NO...240269.....

HUNDRED.....Ulog..... DISTANCE FROM PUMP HOLE TO OBS. HOLE.....

PROJECT..... OBS. HOLE NO.'S..P.S.4.5 (A.B.C. outer arms

DATE OF TEST..... PUMPED HOLE NO..P.S.4.5.....

PUMPING TEST

RECOVERY TEST

PROJECT: Lbry. Sth. Aquifer Evaluation OBS at HOLE'S NOS...Pt 4 (A,B,C).....

OWNER ..Dept. of Mines.... HUNDRED..Lbry.....SECTION.....

AVERAGE PUMPING RATE: 2.13 c.f.s. PUMPED STOPPED AT .1440. ON ..24.2.65.

DISTANCES TO PUMPED HOLE 50,100,10 WATER LEVEL BELOW REF.PT.
AT START OF TEST.....FT.

STAGE NO: ..2.....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/t1	Pump Hole	Obs.Hole	Obs.Hole	Obs.Hole C	Obs.Hole
½		—	—	—	—	—
1		0.515	.525	0.485	0.495	0.50
1½		0.46	0.47	0.455	0.475	0.46
2		0.435	0.435	0.440	0.45	0.44
2½		0.415	0.405	0.42	0.445	0.42
3		0.40	0.39	0.405	0.425	0.415
3½		0.385	0.37	0.395	0.40	0.40
4		0.38	0.355	0.385	0.40	0.40
4½		0.365	0.345	0.375	0.39	0.385
5		0.36	0.335	0.365	0.37	0.385
6		0.34	0.32	0.35	0.35	0.375
7		0.33	0.31	0.335	0.325	0.325
8		0.315	0.30	0.32	0.32	0.34
9		0.305	0.285	0.31	0.31	0.325
10		0.29	0.27	0.30	0.30	0.31
12		0.29	0.255	0.28	0.28	0.30
14		0.275	0.245	0.265	0.27	0.30
16		0.25	0.23	0.25	0.26	0.28
18		0.24	0.22	0.24	0.245	0.255
20		0.24	0.205	0.23	0.23	0.255
22		0.22	0.20	0.22	0.22	0.235
24		0.22	0.185	0.21	0.21	0.235
26		0.20	0.18	0.20	0.215	0.22
28		0.20	0.175	0.195	0.195	0.22
30		0.175	0.165	0.19	0.190	0.195
35		0.175	0.155	0.175	~~0.40~~ 0.165	0.195

RECOVERY TEST

PROJECT: Wey. St. Aquifer Evaluation OBS at HOLE'S NOS... Ptn. 5 (A, B, C)...

OWNER . Dept. of Mines .... HUNDRED.. Wey .... SECTION... 1 ......

AVERAGE PUMPING RATE: .. 2.13 cusecs PUMPED STOPPED AT . 1440 .. ON .. 24.2.69.

DISTANCES TO PUMPED HOLE 50, 80, 100 WATER LEVEL BELOW REF.PT.
AT START OF TEST...............FT.

STAGE NO: ... 2 ....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/tl	Pump Hole	Obs.Hole A	Obs.Hole B	Obs.Hole C	Obs.Hole Outside Casing
40		0.155	0.14	0.155	0.15	0.170
45		0.155	0.135	0.145	0.145	0.155
50		0.155	0.13	0.14	0.135	0.155
55		0.13	0.12	0.135	0.12	0.13
60		0.13	0.11	0.13	0.11	0.13
70		0.011	0.095	0.125	0.085	0.11
80		0.011	0.085	0.11	0.08	0.11
90		0.085	0.075	0.10	0.075	0.11
100		–	0.07	0.09	–	–

30	1.605	0.645	0.455	0.49	1.465	
28	1.605	0.63	0.45	0.48	1.465	
26	1.59	0.625	0.435	0.47	1.45	
24	1.56	0.615	0.42	0.47	1.43	
22	1.525	0.595	0.41	0.46	1.39	
20	1.525	0.58	0.405	0.445	1.39	
18	1.51	0.575	0.385	0.43	1.39	
16	1.49	0.56	0.36	0.405	1.38	
14	1.475	0.54	0.34	0.385	1.35	
12	1.455	0.52	0.33	0.38	1.32	
10	1.44	0.495	0.325	0.37	1.30	
9	1.42	0.485	0.32	0.34	1.285	
8	1.395	0.465	0.31	0.33	1.27	
7	1.395	0.455	0.30	0.32	1.26	
6	1.37	0.44	0.28	0.305	1.245	
5	1.33	0.415	0.26	0.29	1.21	
4½	1.33	0.41	0.255	0.275	1.21	
4	1.315	0.405	0.245	0.26	1.185	
3½	1.295	0.375	0.23	0.25	1.185	
3	1.27	0.36	0.215	0.23	1.155	
2½	1.245	0.345	0.20	0.22	1.13	
2	1.225	0.33	0.185	0.21	1.11	
1½	1.195	0.295	0.165	0.17	1.085	
1	1.14	0.27	0.15	0.15	1.06	
½	1.065	0.20	0.12	0.11	1.04	
0	-	-	-	-	-	
t in min. after start test	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C.	Outer Casing Obs. Hole	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					

AQUIFER FROM...4..... TO .49..FT. WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET..... PUMP STARTED AT..1639..ON..24.2.69.

AERIAL SURVEY NO..... PUMP STOPPED AT..1800..ON..24.2.69.

RUN.....PHOTO NO..... PUMP SETTING...32.....FT.

OWNER.Bore...of.Mary..... AV. PUMPING RATE.....

SECTION.....1..... TEST SERIAL NO..240269.....

HUNDRED...Uley..... DISTANCE FROM PUMP HOLE TO OBS. HOLE...50'..100'..100'.....

PROJECT...Uley South Aquifer Evaluation..... OBS. HOLE NO.'S..PT.N..5.(A.B.C.) outer

DATE OF TEST..24th Feb....1969..... PUMPED HOLE NO....PT.N.5.....

PUMPING TEST Stage 3

t in min. after start test	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C	Obs. Hole outer room	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
100	1.76	0.795	0.585	—	1.595	
90	1.745	0.78	0.575	0.97	1.57	
80	1.71	0.76	0.56	0.95	1.57	
70	1.71	0.745	0.55	0.90	1.55	
60	1.69	0.73	0.54	0.58	1.535	
55	1.69	0.725	0.525	0.57	1.535	
50	1.675	0.705	0.51	0.56	1.52	
45	1.66	0.695	0.495	0.545	1.52	
40	1.64	0.675	0.485	0.53	1.50	
35	1.62	0.66	0.465	0.51	1.50	

PUMPING TEST

AQUIFER FROM....4.... TO ..49..FT. WATER LEVEL BELOW REF. PT. AT START OF TEST.....FT.

REF.PT. ABOVE, GR.LEVEL.....FT.

MILITARY SHEET..... PUMP STARTED AT..1620...ON..24.2.69.

AERIAL SURVEY NO..... PUMP STOPPED AT..1800...ON..24.2.69.

RUN.....PHOTO NO..... PUMP SETTING....32.....FT.

OWNER...Dept. of mines..... AV. PUMPING RATE.....

SECTION..... TEST SERIAL NO...240269.....

HUNDRED...Ulley..... DISTANCE FROM PUMP HOLE TO OBS. HOLE.....50.100.100.....

PROJECT..Ulley South aquifer Evaluation OBS. HOLE NO.'S..PTU5.(a,b,c) outer room

DATE OF TEST...24.2.69..... PUMPED HOLE NO..PTU5.

RECOVERY TEST

PROJECT: Ully. Sth... Aquifer. Evaluation OBS at HOLE'S NOS... P.4.5..(A.B.C.)..

OWNER .Dept. of. Mines..... HUNDRED..Ully.....SECTION..1.....

AVERAGE PUMPING RATE: 232 c.p.m. PUMPED STOPPED AT .8:00.. ON ..24/7/69

DISTANCES TO PUMPED HOLE 50.109 m. WATER LEVEL BELOW REF.PT.
AT START OF TEST.....FT.

STAGE NO: ...3.....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/t1	Pump Hole	Obs.Hole A	Obs.Hole B	Obs.Hole C.	Obs.Hole outside casing
½		0.90	0.635	0.580	0.60	0.685
1		0.63	0.570	0.555	0.565	0.65
1½		0.583	0.550	0.535	0.53	0.60
2		0.55	0.505	0.520	0.50	0.575
2½		0.515	0.48	0.500	0.48	0.575
3		0.505	0.47	0.480	0.465	0.54
3½		0.49	0.455	0.470	0.45	0.54
4		0.475	0.44	0.460	0.445	0.50
4½		0.46	0.425	0.450	0.435	0.50
5		0.445	0.41	0.440	0.425	0.475
6		0.425	0.40	0.420	0.45	0.46
7		0.41	0.38	0.400	0.39	0.46
8		0.395	0.365	0.439	0.37	0.42
9		0.38	0.35	0.375	0.355	0.40
10		0.365	0.34	0.365	0.345	0.40
12		0.35	0.315	0.345	0.32	0.37
14		0.335	0.300	0.330	0.305	0.35
16		0.325	0.28	0.310	0.29	0.35
18		0.31	0.27	0.295	0.275	0.33
20		0.30	0.26	0.27	0.26	0.315
22		0.285	0.25	0.26	0.25	0.30
24		0.285	0.24	0.25	0.24	0.29
26		0.26	0.23	0.25	0.23	0.29
28		0.255	0.22	0.25	0.225	0.27
30		0.245	0.21	0.24	0.22	0.25
35		0.245	0.195	0.21	0.215	0.24

RECOVERY TEST

PROJECT: Wy..Sk...Aquifer Evaluation OBS at HOLE'S NOS..P.H.S..(A,B,C)..

OWNER ..Dept..of..Mines..... HUNDRED..Wby.....SECTION...1.....

AVERAGE PUMPING RATE: ..2.32... PUMPED STOPPED AT ..1800.. ON ..24.2.69.

DISTANCES TO PUMPED HOLE 50,100,100 WATER LEVEL BELOW REF.PT. AT START OF TEST.....FT.

STAGE NO: ..3.....

TIME			RESIDUAL DRAWDOWN			
in Min. after Pump stopped	t/t1	Pump Hole	Obs.Hole	Obs.Hole	Obs.Hole	Obs.Hole
40		0.230	0.170	0.205	0.205 ~~0.200~~	0.24
45		0.205	0.165	0.200	0.195	0.21
50		0.19	0.165	0.19	0.185	0.195
55		0.19	0.155	0.19	0.185	0.17
60		0.17	0.145	0.175	0.170	0.17
70		0.155	0.135	0.15	0.155	0.155
80		0.155	0.120	0.145	0.135	0.155
90		0.14	0.110	0.14	0.125	0.14
100		0.125	0.105	0.13	0.110	0.14

t in min. after start test	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C.	Obs. Hole Outside Casing	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
30	1·80	0·66	0·445	0·475	1·63	
28	1·800	0·65	0·44	0·47	1·62	
26	1·790	0·64	0·43	0·465	1·62	
24	1·770	0·635	0·42	0·450	1·59	
22	1·750	0·61	0·41	0·440	1·59	
20	1·735	0·60	0·395	0·425	1·575	
18	1·720	0·58	0·385	0·410	1·56	
16	1·700	0·56	0·37	0·395	1·535	
14	1·680	0·55	0·35	0·375	1·515	
12	1·665	0·53	0·33	0·350	1·495	
10	1·645	0·50	0·31	0·325	1·475	
9	1·625	0·485	0·30	0·315	1·445	
8	1·605	0·47	0·28	0·300	1·425 1·435	
7	1·59	0·455	0·265	0·285	1·41 1·405	
6	1·575	0·435	0·25	0·265	1·40	
5	1·56	0·41	0·235	0·245	1·385	
4½	1·53	0·40	0·22	0·235	1·37	
4	1·52	0·39	0·21	0·22	1·365	
3½	1·50	0·375	0·19	0·21	1·33	
3	1·48	0·355	0·175	0·19	1·31	
2½	1·455	0·33	0·165	0·17	1·29	
2	1·415	0·305	0·14	0·15	1·26	
1½	1·38	0·270	0·125	0·135	1·245	
1	1·37	0·235	0·10	0·105	1·23	
½	1·26	0·20	0·08	0·07	1·21	
0	—	—	—	—	—	

AQUIFER FROM...4..... TO ..49..FT. WATER LEVEL BELOW REF. PT. AT START OF TEST...7·305.....FT.

REF.PT. ABOVE, GR.LEVEL.1·87...FT.

MILITARY SHEET..... PUMP STARTED AT.0.900.ON.25.2.69.

AERIAL SURVEY NO..... PUMP STOPPED AT.09.30.ON..28.2.69

RUN.....PHOTO NO..... PUMP SETTING.....32.....FT.

OWNER.Dept. of Mines..... AV. PUMPING RATE..2·59.....

SECTION..... TEST SERIAL NO..240269.....

HUNDRED.....Uley..... DISTANCE FROM PUMP HOLE TO OBS. HOLE...59.188.190.....

PROJECT Uley South Aquifer Evaluation OBS. HOLE NO.'S...P.T.U.5. (A,B,C outside casing)

DATE OF TEST...25.2.69..... PUMPED HOLE NO..P.U.5.....

PUMPING TEST 72 hours.

750	2·330	1·18	0·97	1·01	2·112.	
700	2·31	1·17	0·955	0·99	2·11	
650	2·27	1·15	0·935	0·97	2·10	
600	2·26	1·135	0·920	0·95	2·075	
550	2·250	1·12	0·885	0·91	2·045	
500	2·23	1·099	0·865	0·88	2·03	
450	2·205	1·07	0·86	0·87	2·025	
400	2·195	1·055	0·84	0·86	2·0	
350	2·170	1·035	0·81	0·835	1·995	
300	2·155	1·01	0·785	0·810	1·96	
250	2·115	0·97	0·750	0·780	1·95	
200	2·11	0·95	0·73	0·760	1·925	
180	2·09	0·925	0·705	0·740	1·91	
160	2·07	0·91	0·69	0·720	1·89	
140	2·04	0·89	0·670	0·700	1·855	
120	2·02	0·865	0·640	0·675	1·84	
100	1·99	0·83	0·625	0·65	1·815	
90	1·965	0·825	0·61	0·635	1·79	
80	1·940	0·81	0·585	0·615	1·77	
70	1·925	0·780	0·565	0·600	1·75	
60	1·90	0·755	0·545	0·575	1·74	
55	1·88	0·75	0·54	0·560	1·72	
50	1·865	0·74	0·525	0·550	1·705	
45	1·85	0·715	0·51	0·535	1·695	
40	1·83	0·70	0·49	0·52	1·67	
35	1·815	0·68	0·475	0·49	1·65	
t in min. after start test	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C	Obs. Hole	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					

AQUIFER FROM...4..... TO ..49..FT. WATER LEVEL BELOW REF. PT. AT START OF TEST...7:305....FT.

REF.PT. ABOVE, GR.LEVEL..187...FT.

MILITARY SHEET..... PUMP STARTED AT.0900.ON.25.2.69

AERIAL SURVEY NO..... PUMP STOPPED AT..0930..ON..28.2.69

RUN...../PHOTO NO..... PUMP SETTING...32.....FT.

OWNER..Dept...of...Mines..... AV. PUMPING RATE...259.....

SECTION..... TEST SERIAL NO..240269.....

HUNDRED..Ulva..... DISTANCE FROM PUMP HOLE TO OBS. HOLE....50'..100'..100.....

PROJECT...Ulva South Aquifer Evaluation..... OBS. HOLE NO.'S.PH.5.(a,b,c).

DATE OF TEST..25.2.69..... PUMPED HOLE NO...PH.5:.....

PUMPING TEST - 72 hours

2050	2·450	1·31	1·100	1·110	2·25	
2000	2·44	1·31	1·07	1·095	2·205	
1950	2·425	1·28	1·065	1·065	2·205	
1900	2·425	1·28	1·065	1·06	2·205	
1850	2·425	1·28	1·065	1·06	2·205	
1800	2·420	1·28	1·065	1·06	2·20	
1750	2·415	1·28	1·065	1·06	2·20	
1700	2·410	1·275	1·065	1·06	2·20	
1650	2·410	1·270	1·065	1·06	2·20	
1600	2·410	1·270	1·065	1·06	2·20	
1550	2·410	1·265	1·065	1·06	2·1	
1500	2·410	1·260	1·065	1·055	2·215	
1450	2·405	1·250	1·065	1·04	2·2	
1400	2·59	1·310	1·075	1·080	2·33	
1350	2·82	1·320	1·085	1·065	2·53	
1300	2·75	1·280	1·02	1·035	2·40	
1250	2·36	1·220	1·00	1·01	2·13	
1200	2·240	1·170	0·965	1·01	2·04	
1150	2·21	1·170	0·97	0·990	2·0	
1100	2·365	1·220	0·995	1·035	2·15	
1050	2·455	1·215	0·99	1·02	2·2	
1000	2·460	1·220	0·98	1·00	2·18	
950	2·460	1·215	0·975	0·995	2·185	
900	2·375	1·210	1·01	1·035	2·185	
850	2·350	1·20	1·00	1·030	2·165	
800	2·340 ~~2·340~~	1·19	0·985	1·020	2·14	
t in min. after start test	Pump Hole	Obs. Hole	Obs. Hole	Obs. Hole	Obs. Hole	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					

AQUIFER FROM....4.... TO ..49..FT. WATER LEVEL BELOW REF. PT. AT START OF TEST...7.305....FT.

REF.PT. ABOVE, GR.LEVEL...1.87..FT.

MILITARY SHEET..... PUMP STARTED AT 0900 ON..25.2.69

AERIAL SURVEY NO..... PUMP STOPPED AT. 0930 ON..28.2.69

RUN.....PHOTO NO..... PUMP SETTING..32.....FT.

OWNER..Dept. of Mines..... AV. PUMPING RATE..259.....

SECTION..... TEST SERIAL NO..24.2.69.....

HUNDRED..Hay..... DISTANCE FROM PUMP HOLE TO OBS. HOLE...50,100,150.....

PROJECT.Hay Sub. Aquifer Evaluation OBS. HOLE NO.'S...PTH 5 (A,B,C,)

DATE OF TEST..25-2.69..... PUMPED HOLE NO...PTH 5.....

PUMPING TEST 72 hours

t in min. after start test	Pump Hole	Obs. Hole	Obs. Hole	Obs. Hole	Obs. Hole	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					
3350	2.535	1.38	1.16	1.13	2.31	
3300	2.53	1.375	1.16	1.125	2.30	
3250	2.525	1.37	1.15 ~~1.155~~	1.125	2.30	
3200	2.52	1.375	1.155	1.125	2.295	
3150	2.52	1.370	1.150	1.125	2.30	
3100	2.52	1.370	1150	1.125	2.30	
3050	2.52	1.370	1.150	1.125	2.30 2.305	
3000	2.51	1.370	1.150 ~~1.155~~	1.125	2.305	
2950	2.5	1.350	1.135	1.105	2.305	
2900	2.5	1.350	1.135	1.105	2.305	
2850	2.495	1.360	1.125	1.140	2.280	
2800	2.495	1.355	1.135	1.13	2.275	
2750	2.5	1.355	1.125	1.13	2.275	
2700	2.495	1.355	1.125	1.135	2.275	
2650	2.495	1.355	1.12	1.13	2.275	
2600	2.495	1.34	1.115	1.12	2.28	
2550	2.495	1.335	1.115	1.11	2.285	
2500	2.490	1.33	1.115	1.11	2.28	
2450	2.490	1.33	1.115	1.11	2.27	
2400	2.490	1.325	1.100 1.125	1.105	2.265	
2350	2.490	1.345	1.125	1.12	2.30	
2300	2.490	1.345	1.125	1.12	2.30	
2250	2.475	1.33	1.125	1.12	2.29	
2200	2.475	1.33	1.12	1.12	2.29	
2150	2.475	1.31	1.12	1.12	2.275	
2100	2.450	1.31	1.12	1.12	2.275	

AQUIFER FROM....4..... TO .49...FT. WATER LEVEL BELOW REF. PT. AT START OF TEST..7.305.....FT.

REF.PT. ABOVE, GR.LEVEL.....1.37...FT.

MILITARY SHEET..... PUMP STARTED AT.0900..ON.25.2.69

AERIAL SURVEY NO..... PUMP STOPPED AT..0930..ON..28.2.69

RUN.....PHOTO NO..... PUMP SETTING.....32.....FT.

OWNER...Dept. of Mines..... AV. PUMPING RATE..2.59 cusecs....

SECTION..... TEST SERIAL NO..240269.....

HUNDRED..Illoy..... DISTANCE FROM PUMP HOLE TO OBS. HOLE....50.100.100.....

PROJECT..Illoy Ht. Aquifer Evaluation OBS. HOLE NO.'S..PTH.5.(A.B.C.)

DATE OF TEST..28.2.69..... PUMPED HOLE NO...PTH.5.....

PUMPING TEST

4350	2.575	1.425	1.205	1.19	2.335	
4300	2.570	1.420	1.205	1.195	2.33	
4250	2.565	1.415	1.200	1.185	2.33	
4200	2.560	1.420	1.200	1.185	2.32	
4150	2.560	1.410	1.205	1.180	2.315	
4100	2.555	1.415	1.195	1.175	2.31	
4050	2.550	1.415	1.185	1.170	2.31	
4000	2.545	1.415	1.190	1.160	2.31	
3950	2.540	1.405	1.175	1.15	2.315	
3900	2.545	1.400	1.175	1.155	2.31	
3850	2.560	1.400	1.175	1.15	2.315	
3800	2.555	1.400	1.17	1.155	2.31	
3750	2.555	1.395	1.17	1.15	2.31	
3700	2.550	1.395	1.170	1.15	2.305	
3650	2.550	1.390	1.165	1.155	2.305	
3600	2.550	1.395	1.165	1.150	2.3	
3550	2.545	1.390	1.165	1.150	2.3	
3500	2.535	1.385	1.16	1.145	2.3	
3450	2.53	1.38	1.16	1.135	2.315	
3400	2.535	1.38	1.155	1.13	2.315	
t in min. after start test	Pump Hole	Obs. Hole A	Obs. Hole B	Obs. Hole C	Obs. Hole outside casing	DISCHARGE in Cusecs
	OBSERVED DRAWDOWN					

AQUIFER FROM...4..... TO ..49..FT. WATER LEVEL BELOW REF. PT. AT START OF TEST..7.380.....FT.

REF.PT. ABOVE, GR.LEVEL...1.87...FT.

MILITARY SHEET..... PUMP STARTED AT..0900..ON..25-2-69.

AERIAL SURVEY NO..... PUMP STOPPED AT.....ON..28-2-69

RUN.....PHOTO NO..... PUMP SETTING.....32.....FT.

OWNER...Dept...of...Mines..... AV. PUMPING RATE...2.59 cusecs.....

SECTION.....1..... TEST SERIAL NO...240269.....

HUNDRED...Uley..... DISTANCE FROM PUMP HOLE TO OBS. HOLE...PP.10A.10B.....

PROJECT..Uley South Aquifer Evaluation OBS. HOLE NO.'S.PP.4.5.(A,B,C)..

DATE OF TEST..25..... PUMPED HOLE NO..PP.4.5.....

PUMPING TEST 72 hr.

RECOVERY TEST

PROJECT: Uley South Aquifer Env. Obs at HOLE'S NOS...P.E.W.5...(A,B,C)..

OWNER ..Dept. of Mines..... HUNDRED..Uley.....SECTION...1.....

AVERAGE PUMPING RATE: 3.59 ~~cusecs~~ PUMPED STOPPED AT .0930. ON .28.2.69.

DISTANCES TO PUMPED HOLE 50, 100, 100 WATER LEVEL BELOW REF.PT.
AT START OF TEST.....FT.

STAGE NO: .72. Hours.....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/t1	Pump Hole	Obs.Hole A	Obs.Hole B	Obs.Hole C	Obs.Hole Outside Casing
½	8701	-	-	-	-	-
1	4351	1.270	1.215	1.115	1.14	1.22
1½	2900.7	1.21	1.175	1.130	1.11	1.155
2	2176	1.17	1.140	1.110	1.09	1.13
2½	1740.8	1.185	1.115	1.100	1.065	1.1
3	1251	1.105	1.08	1.075	1.05	1.077
3½	1243.7	1.08	1.065	1.055	1.03	1.045
4	1088.5	1.06	1.045	1.04	1.015	1.03
4½	967.6	1.05	1.03	1.03	0.995	1.02
5	871	1.035	1.02	1.01	0.985	1.01
6	726	1.015	1.00	0.990	0.965	0.98
7	622.4	1.00	0.97	0.985	0.940	0.96
8	544.8	0.980	0.955	0.96	0.925	0.935
9	484.3	0.965	0.93	0.94	0.905	0.915
10	436	0.940	0.92	0.935	0.890	0.905
12	363.5	0.910	0.885	0.900	0.855	0.875
14	311.7	0.89	0.86	0.88	0.835	0.850
16	272.9	0.875	0.83	0.85	0.810	0.830
18	242.7	0.865	0.815	0.825	0.785	0.810
20	218.5	0.840	0.795	0.82	0.775	0.795
22	198.6	0.845	0.78	0.81	0.760	0.78
24	192.25	0.805 ~~0.895~~	0.775	0.795	0.745	0.77
26	168.3	0.79 ~~0.880~~	0.755	0.775	0.725	0.755
28	156.4	0.780	0.745	0.78	0.715	0.74
30	146.	0.765	0.735	0.76	0.705	0.735
35	125.3	0.745	0.710	0.75	0.680	0.71

RECOVERY TEST

PROJECT: Hwy. Str. Offig. Evalu OBS at HOLE'S NOS...P.S.H.S.(A,B,C)...

OWNER .Dept. of. Mines..... HUNDRED Hwy.....SECTION..1.....

AVERAGE PUMPING RATE: 2.59. cusec PUMPED STOPPED AT 0930... ON .28.3.69.

DISTANCES TO PUMPED HOLE 59, 102, 102 WATER LEVEL BELOW REF.PT. AT START OF TEST.....FT.

STAGE NO: .1&2. hours.....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/t1	Pump Hole	Obs.Hole A	Obs.Hole B	Obs.Hole C	Obs.Hole outside Casing
40	109.75	0.735	0.69	0.735	0.655	0.685
45	95.44	0.72	0.68	0.715	0.640	0.67
50	88	0.685	0.655	0.700	0.625	0.66
55	80.1	0.665	0.645	0.69	0.610	0.64
60	73.5	0.66	0.63	0.68	0.600	0.625
70	63.14	0.64	0.615	0.635	0.570	0.605
80	55.37	0.615	0.60	0.625	0.550	0.58
90	49.33	0.595	0.565	0.595	0.540	0.565
100	44.5	0.575	0.55	0.585	0.525	0.545
120	37.25	0.54	0.52	0.540	0.515	0.52
130	32.07	0.51	0.49	0.53	0.455	0.495
140	28.19	0.485	0.47	0.515	0.44	0.475
150	25.17	0.47	0.45	0.475	0.42	0.45
200	22.75	0.455	0.435	0.465	0.405	0.43
250	18.4	0.415	0.395	0.43	0.35	0.40
300	15.5	0.385	0.37	0.405	0.335	0.37
350	13.43	0.360	0.34	0.37	0.30	0.335
400	11.87	0.33	0.33	0.355	0.29	0.320
450	10.67	0.315	0.305	0.345	0.275	0.305
500	9.7	0.30	0.285	0.32	0.25	0.285
550	8.9	0.29	0.280	0.31	0.24	0.275
600	8.3	0.285	0.275	0.305	0.235	0.265
650	7.7	0.27	0.26	0.29	0.215	0.250
700	7.2	0.255	0.25	0.28	0.21	0.235
750	6.8	0.25	0.245	0.270	0.205	0.225
800	6.44	0.235	0.23	0.255	0.190	0.215

RECOVERY TEST

PROJECT: Hwy. 5th. Spring. Eyre OBS at HOLE'S NOS... P.H.S. (A,B,C)..

OWNER ..Dept...of..Mines..... HUNDRED..Hwy.....SECTION..1.....

AVERAGE PUMPING RATE: 2.5 g.p.m. PUMPED STOPPED AT 0930. ON ..28.7.69.

DISTANCES TO PUMPED HOLE 50.100.150 WATER LEVEL BELOW REF.PT.
AT START OF TEST. .....FT.

STAGE NO: .72. hours.....

TIME		RESIDUAL DRAWDOWN				
in Min. after Pump stopped	t/t1	Pump Hole	Obs.Hole A	Obs.Hole B	Obs.Hole	Obs.Hole outside Casing
850	6.12	0.225	0.22	0.275	0.18	0.205
900	5.83	0.210	0.205	0.29	0.17	0.200
950	5.56	0.205	0.21	0.24	0.165	0.245
1000	5.35	0.19	0.19	0.22	0.155	0.205
1050	5.14	0.185	0.18	0.205	0.145	0.185
1100	4.95	0.175	0.165	0.205	0.14	0.170
1150	4.78	0.17	0.165	0.195	0.14	0.160
1200	4.62	0.170	0.165	0.185	0.14	0.155
1250	4.48	0.165	0.165	0.185	0.13	0.155
1300	4.35	0.165	0.165	0.185	0.13	0.155
1350	4.22	0.155	0.15	0.175	0.12	0.145
1400	4.11	0.155	0.15	0.175	0.12	0.140
1450	4.00	0.14	0.13	0.165	0.11	0.135

EYRE PENINSULA GROUNDWATER STUDY

ULEY SOUTH BASIN

PROGRESS REPORT NO. 2 - AQUIFER EVALUATION

APPENDIX C

PUMP TEST PTU. 6

APPENDIX C

PUMP TEST PTU. 6

The distance relationship of pumping hole and observation holes is shown on Figure C1, and logs for all holes are shown on Figures C2 to C6 inclusive.

Testing commenced on 1st March, 1969. No drawdown could be obtained during several hours of pumping at rates up to 2.89 cusecs (65,000 gallons per hour). Since this rate was maximum pump capacity, testing was abandoned.

It is assumed therefore that at this site, aquifer transmissivity is exceptionally high, and that water pumped was probably withdrawn from an extensive cavern or caverns.

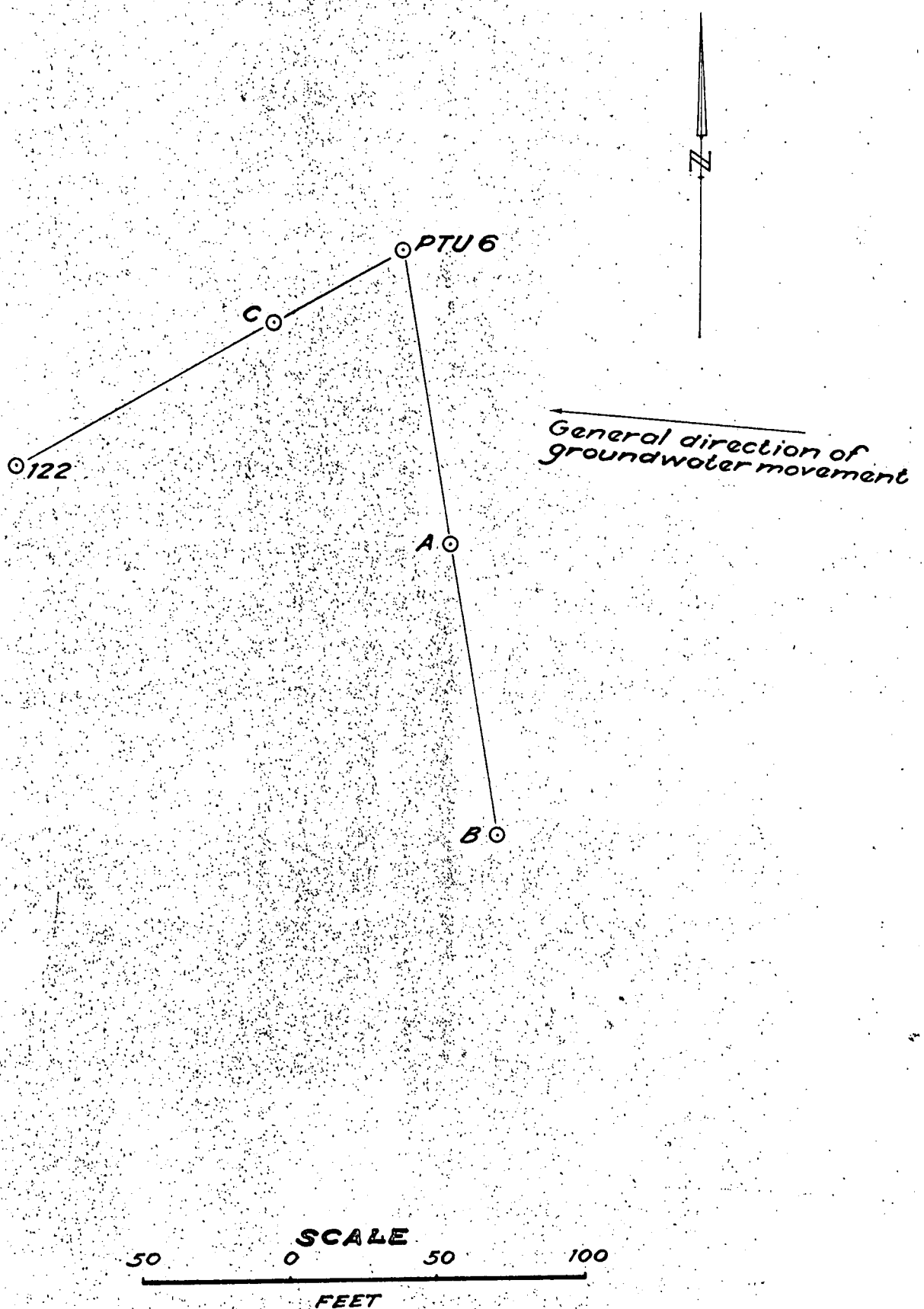


FIG. C 1

DEPARTMENT OF MINES — SOUTH AUSTRALIA

	Drn. J.P	EYRE PENINSULA	SCALE: As shown
	Tcd. G.M	GROUNDWATER STUDY	S 7421 Dn 12-14
	Ckd. L.V.W.	ULEY BASIN SOUTH	
	Exd.	PTU 6 SITE ARRANGEMENT	DATE: 5·8·69

DEPARTMENT OF MINES · SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE Nº PTU 6
SHEET 1 OF 2

PURPOSE OF BORE . PUMP TEST . . . BORE SERIAL No. 52/69 . . . . . .
HIRER . . . . DEPARTMENT OF MINES ADDRESS . ADELAIDE . . . . . .
HUNDRED . . . . ULEY . . . . . SECTION . 1A . . CO-ORDS : E . . . . .
DRILLER . . . . D. PHILLIPS . . . DOCKET No. DM.115/69 . . . N . . . .
COMMENCED 7th Feb, '69 COMPLETED 21st Feb, 69 R.L. COLLAR (M.S.L.) 157.36 . . DEPTH . 103.
LOGGED BY J.A.C.Painter DATE 24th Feb, 69 R.L. SURFACE 156.19 . . CASING . . 97. . .

WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
42	40	55-65000	pump, 8 hours	581	LW 309/69
92	"	"	"	581	LW 317/69

CASING | WATER CUT | WATER LEVEL | DEPTH IN FEET | CORE | GRAPHIC LOG | AGE | DRILLING REMARKS

REMARKS 6" pilot hole to 103 ft. Reamed 10" hole to 97 ft.

DESCRIPTION

0- 2ft. CALCRETE, Aeolianite, medium grained, very strongly cemented. Whitish brown.

2-16ft. Medium grained, silty, weakly cemented. Grains are calcite, shell fragments and grey carbonate, 0.2 to 1.5 mm., mainly 0.4 mm. Contains up to 20% silt and clay. Pale brown.

16-26ft. As above, grains 0.1 - 1.5 mm, well graded fine to medium grained. Slightly silty, weakly to moderately cemented. Up to 10% silt Whitish brown

26-40ft. As above, grains less than 0.3 mm. Contains 10-20% silt. Pale yellow-brown.

40-44ft. As above, grains 0.3 - 0.6 mm, moderately to strongly cemented. Pale yellow-brown.

44-48ft. As above grains 0.2 - 0.5 mm, uncemented. Light yellow-brown.

48-56ft. As above, moderatley to strongly cemented. Contains 10-15% silt. Pale brown.

56-65ft. As above, grains 0.1 - 0.4 mm, weakly to mainly uncemented, few thin hard bands. Contains 10-15% silt. At 60-61 contains up to 40% grey calcareous silt and clay. Pale yellow to whitish brown.

65-69ft. As above, grains mainly 0.2 to 0.7 mm. Moderately cemented. Pale yellow-brown.

69-77ft. As above, grains 0.1 - 0.5 mm. Rare quartz. Up to 10% silt. Weakly to strongly cemented. Pale yellow-brown.

77-81ft. As for 65-69ft.

81-90ft. As for 69-77ft.

90-93ft. Grains are calcite and shell fragments, rare quartz, 0.1 to 0.8 mm. Silty mainly weakly cemented. Contains up to 30% LIMESTONE fine grained, crystalline, grey. Contains 10-20% silt. Pale grey-brown.

93-95ft. CLAY, silty and very sandy, grades in places to SILT very clayey. Sand is calcareous grains 0.1 to 0.8 mm Grey.

(Continued on sheet 2)

C2·1

DEPARTMENT OF MINES · SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE No. PTU 6
SHEET. 2 OF 2

PURPOSE OF BORE . . PUMP TEST . . . BORE SERIAL No. 52/69
HIRER . . . . DEPARTMENT OF MINES ADDRESS . ADELAIDE
HUNDRED . . . . ULEY . . . . SECTION . 1A . . CO-ORDS : E
DRILLER . . . . D.PHILLIPS . . . DOCKET No. D.M.115/69 N
COMMENCED 7th Feb'69 COMPLETED 21st Feb,'69 R.L. COLLAR (M.S.L) . . . DEPTH . . 103
LOGGED BY J.A.C.Painter DATE 24th Feb,'69 R.L. SURFACE . . . . CASING . 97

WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
42	40	55-65000	pump, 8 hours	581	LW 309/69
92	"	"	" "	581	LW 317/69

CASING | WATER CUT | WATER LEVEL | DEPTH IN FEET | CORE | GRAPHIC LOG | AGE | DRILLING REMARKS

REMARKS 6" pilot hole to 103 ft. Reamed 10" hole to 97 ft.

DESCRIPTION

95-97ft. AEOLIANITE, and LIMESTONE, as for 90-93 but limestone is 10-15%

97-103ft. CLAY, soft, calcareous, sandy and gravelly. Clay is soft, non-plastic. Sand is calcareous grains and quartz to 1 mm. Gravel is fragments of aeolianite, crystalline limestone and rare to rounded laterite, up to 3 mm. Yellow to yellow-brown.

110
120
130
140
150
160
170
180
190

FIG C2·2

DEPARTMENT OF MINES · SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE No. PTU6A
SHEET 1 OF 1

PURPOSE OF BORE OBSERVATION
HIRER DEPT. OF MINES
HUNDRED ULEY
DRILLER F. FARROW
COMMENCED 13 FEB.69 COMPLETED 18FEB.69
LOGGED BY J. BRADFORD DATE 19 FEB.69

BORE SERIAL No. 406/69
ADDRESS ADELAIDE
SECTION 1A
DOCKET No. DM.115/69
R.L. COLLAR (M.S.L.) 156.58
R.L. SURFACE 154.43

CO-ORDS: E
N
DEPTH 75ft.
CASING 75ft. of 1¼ PVC

WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
40	40		NOT TESTED	561	LW.327/69

CASING | WATER CUT | WATER LEVEL | DEPTH IN FEET | CORE | GRAPHIC LOG | AGE | DRILLING REMARKS

REMARKS Observation bore, 50 ft from PTU6. Abandoned at 75ft. Aquifer considered adequately penetrated.

DESCRIPTION

0-2' TOPSOIL Silt, clayey and slightly sandy. Organic tich. Contains boulders and fragments of calcrete and aeolianite. Dark brown.

2-8' Grains are mainly calcite with shell fragments and quartz 0.1 mm to 0.4 mm with a few to 1.0 mm. Strongly cemented - Dark yellow brown.

8-46' As above. Moderately to strongly cemented.

46-54' As above. Grains of 0.2 mm to 0.7 mm. with a few to 1.5 mm. Minor quartz. Poorely to uncemented. Yellow brown.

54-58' LIMESTONE Fine grained. Crystalline grey, containing a few shells and shell fragments up to 3 mm in size with lenses of strongly cemented aeolianite. Dark grey.

58-75' Grains are calcite and shell fragments with minor quartz 0.2 mm to 0.7 mm with a few to 1.5 mm. Poorly to moderately cemented with harder bars.

1¼" P.V.C. Casing
Screen
40 40'
AEOLIANITE
AEOLIANITE
10 20 30 40 50 60 70 80 90

FIG C3

DEPARTMENT OF MINES · SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE No PTU6B
SHEET 1 OF 1

PURPOSE OF BORE OBSERVATION
HIRER DEPT. OF MINES
HUNDRED ULEY
DRILLER J. McDOUGALL
COMMENCED 17 FEB.69 COMPLETED 21. FEB.69
LOGGED BY J. BRADFORD DATE 21. FEB.69

BORE SERIAL No. 408/64
ADDRESS ADELAIDE
SECTION 1A
DOCKET No. DM.115/69
R.L. COLLAR (M.S.L.) 155.09
R.L. SURFACE 152.68

CO-ORDS: E
N
DEPTH 97ft.
CASING 97ft.

WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
40.5	37		Not Tested	548	LW.331/69

REMARKS Observation bore 25' from PTU.6.

CASING | WATER CUT | WATER LEVEL | DEPTH IN FEET | CORE | GRAPHIC LOG | AGE | DRILLING REMARKS

DESCRIPTION

0-6" TOPSOIL: silt, clayey and sand, red brown, contains boulders and fragments of calcrete.

6"-14 Grains as calcite, shell fragments and minor quartz from 0.2 mm to 0.5 mm. with a few to 1.0 mm. Poorly cemented, becoming strongly cemented from 10 ft. Yellow brown.

14-18 As above. Contains some off white limestone lenses, and small pockets of brown silty clay.

18-44 As above. No clay. Strongly cemented.

44-96 As above. Grains are well graded from 0.2mm to 0.7 mm., with some to 1.5 mm. Generally poorly cemented with occasional harder lenses. Yellow-brown.

96-97 As above with traces of Clay Brown.

AEOLIANITE

1¾" P.V.C.
37'
40.5'
10ft Screen
10ft Screen

FIG C4

DEPARTMENT OF MINES · SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE No PTU6C
SHEET 1 OF 1

PURPOSE OF BORE OBSERVATION
HIRER DEPARTMENT OF MINES
HUNDRED ULEY
DRILLER F.FARROW
COMMENCED COMPLETED
LOGGED BY J.BRADFORD DATE 24 FEBRUARY

BORE SERIAL No. 401/69
ADDRESS ADELAIDE
SECTION 1A
DOCKET No. DM.115/69
R.L. COLLAR (M.S.L.) 158.88
R.L. SURFACE 156.63
CO-ORDS: E
N
DEPTH 75ft.
CASING 75ft.

WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
42	40		not tested	568	LW.329/69

REMARKS OBSERVATION BORE 75 FT. FROM PTU6

CASING | WATER CUT | WATER LEVEL | DEPTH IN FEET | CORE | GRAPHIC LOG | AGE | DRILLING REMARKS

DESCRIPTION

0.22 Grains are calcite and shell fragments with minor quartz - slight ironstaining Mainly 0.2mm to 0.5mm with some to 1.0mm. strongly cemented. Yellow -brown.

22-29 As above. very strongly cemented. pale yellow-brown.

29-46 As above grains 0.3mm to 0.7mm with a few to 1.0mm. no quartz Moderately cemented

AEOLIANITE

46-50 As above. very strongly cemented

50-75 As above grains are well graded from 0.3mm to 1.0 mm. poorly to moderately cemented with a harder bar from 60-64 ft.yellow-brown.

1¾ in. P.V.C.

40'

42'

10ft Screen

10 20 30 40 50 60 70 80 90

FIG C5

DEPARTMENT OF MINES · SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE Nº 122
SHEET 1 OF 2

PURPOSE OF BORE WATER
HIRER E. & W.S. DEPARTMENT
HUNDRED ULEY
DRILLER J. BAUMANIS
COMMENCED 28.7.61 COMPLETED 4.8.61
LOGGED BY R.G. SHEPHERD DATE 25.8.61

BORE SERIAL No. 22/62
ADDRESS PORT LINCOLN
SECTION 1A
DOCKET No. 2134/58
R.L. COLLAR (M.S.L.)
R.L. SURFACE 56.28'

CO-ORDS: E
N
DEPTH 204'
CASING 64'7" of 2½" pipe

WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
47-101' 173'-197'	45'	6-8000	No TEST "	ATS 45	LW 403/61

CASING | WATER CUT | WATER LEVEL | DEPTH IN FEET | CORE | GRAPHIC LOG | AGE | DRILLING REMARKS

REMARKS PRODUCTIVE.

DESCRIPTION

0'- 7' SOIL, dark brown, with fragments of travertine.

7'-11' SAND, calcareous, cream, fine-medium grained.

11'-47' SANDSTONE, calcareous, cream, fine-grained dense.

47'-101' SANDSTONE, calcareous, buff, fine grained and sand

DEPARTMENT OF MINES · SOUTH AUSTRALIA

BORE LOG PERCUSSION · ROTARY DRILLING

BORE Nº 122
SHEET 2 OF 2

PURPOSE OF BORE WATER
HIRER E. & W.S. DEPARTMENT
HUNDRED ULEY
DRILLER J. BAUMANIS
COMMENCED 28.7.61 COMPLETED 4.8.61
LOGGED BY R.G. SHEPHERD DATE 25.8.61

BORE SERIAL No. 22/62
ADDRESS PORT LINCOLN
SECTION 1A
DOCKET No. 2134/58
R.L. COLLAR (M.S.L.)
R.L. SURFACE 56.28'

CO-ORDS: E
N
DEPTH 204'
CASING 64'7" of 2½" pipe

WATERS CUT

DEPTH IN FEET	WATER LEVEL	SUPPLY GALLONS PER HOUR	HOW TESTED	TOTAL SALTS PARTS PER MILLION	ANALYSIS No.
47-101' 173'-197'	45'	6-8000	NO. TEST	ATS 45	LW 403/61

CASING | WATER CUT | WATER LEVEL | DEPTH IN FEET | CORE | GRAPHIC LOG | AGE | DRILLING REMARKS

REMARKS . PRODUCTIVE.

DESCRIPTION

47'-101' SANDSTONE, calcareous, buff, fine grained, and sand. calcareous sand.

101'-134' CLAY, sandy and gritty, light brown and grey.

134'-173' CLAY, sandy, lignitic, dark grey.

173'-197' SAND, brown, coarse, and sub-angular grit.

197'-204' QUARTZITE, grey dense.

204 Depth of Bore