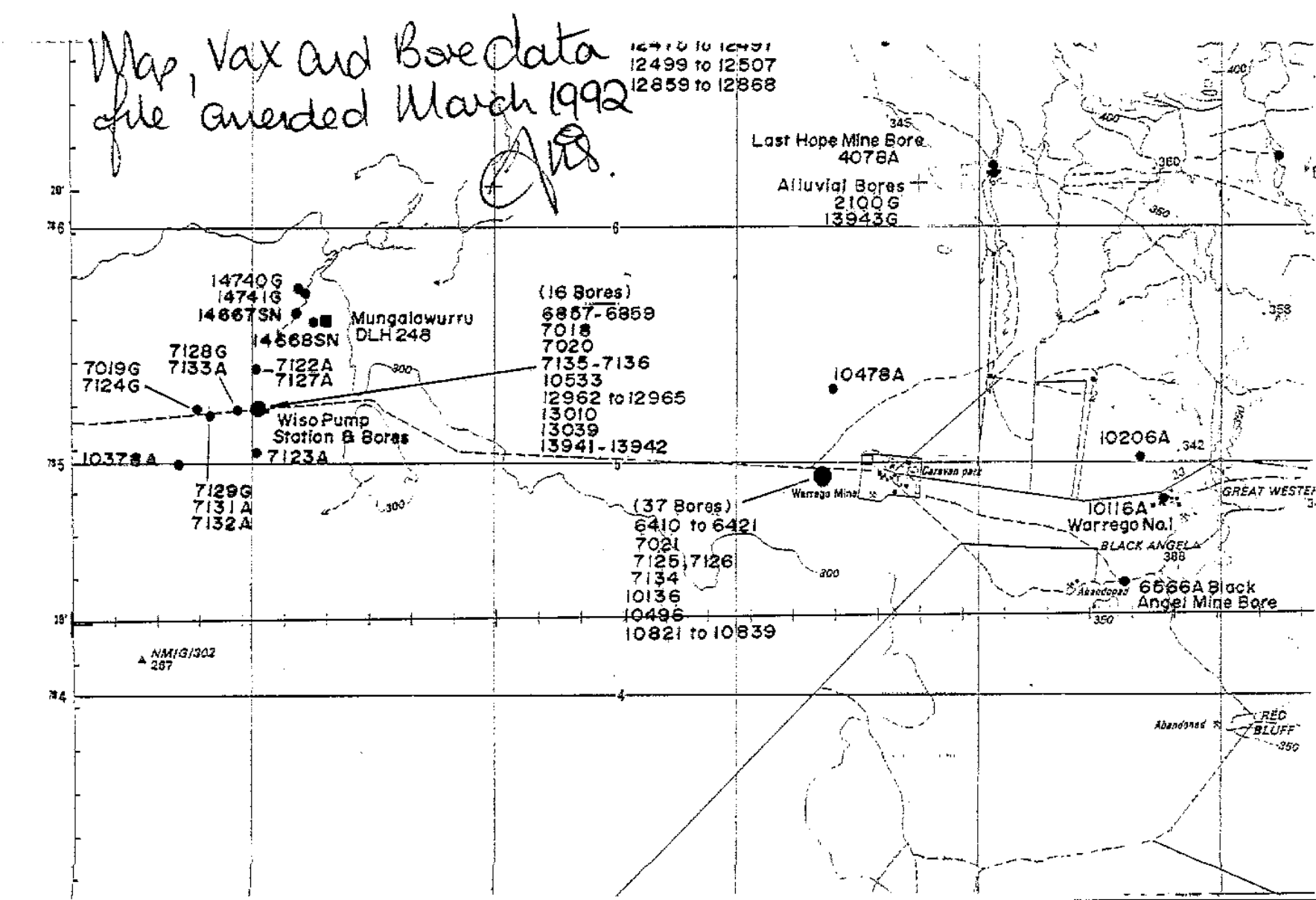


BORE DATA - MASTER INDEX - COMPUTER INPUT SHEET
Condition ADDRN 6858 INDEX 40/284NAME (30) WS3 WISO N^o6LOCATION (30) 35M WEST OF WISO PUMPING STNCADASTRAL (35) PHILLIP CREEK PL 831S NAV GPS/TRANS EL H V CT NO TIME AZIM ZONE 53 EASTING NORTHING LATITUDE 19° 53 LONGITUDE 133° 34LOCATION PRECISION 5 MAPAWRC BASIN NUMBER 1202 (4)OLD IMP GRID SES3/14 139-548. 1:250000 TENWANT CREEKNEW IMP GRID COMP/CONVERSION DISCHARGE LPS. DEPTH SAMPLED METHOD SAMPLE NO. TIME HRS. DATE TEMP PH CONDUCTIVITY OTHER T-DEPTH IF MEASURED METERSSWL IF MEASURED 51.967/L METERS- TIME 1445 DATE 9-11-89CASING/WELL ABOVE GROUND BY 0.43 MBORE EQUIPPED WITH 8" STEEL CASE SURFACE CASING 6" ID STEEL LINER

① TIME OF SWL TAKEN IF BORES WERE BEING PUMPED. THIS
BORE IS ABOUT THE CENTER OF ALL PUMPED BORES.

COMMENTS: NOT CAPEDTAG LOCATION: ON 6" CASINGUSED FOR: NILINSPECTING OFFICER R MarksDATE 9-11-89



WATER ANALYSIS

5 FEB 1970

M.T. ADMINISTRATION

Origin of water WARREGO MINE WS 3Reference Sn 70/ 329GOREY & COLE DRILLERSSpecimen Advice Note No. 1111Date sampled 20/12/69-30/12/69Date received 13/1/70* Results in milligrams per litre
of filtered sample.Recommended Maximums
(see over page).

	Sample	Domestic	Stock	Agriculture
HARDNESS (calculated as CaCO ₃)—				
" Total	<u>446</u>	500	—	—
" Carbonate	<u>346</u>	—	—	—
" Non-Carbonate	<u>100</u>	—	—	—
ALKALINITY IN EXCESS OF				
TOTAL HARDNESS	<u>NIL</u>	—	—	—
CHLORIDE	<u>660</u>	500	—	—
SULPHATE	<u>415</u>	250	2,000	—
BICARBONATE	<u>423</u>	—	—	—
		Child 20	—	—
NITRATE	<u>Not determined</u>	Adult 120	—	—
FLUORIDE	<u>" "</u>	1.5	5.0	—
CARBONATE	<u>NIL</u>	—	—	—
SODIUM	<u>530</u>	—	—	—
POTASSIUM	<u>82</u>	—	—	—
CALCIUM	<u>61</u>	100	—	—
MAGNESIUM	<u>71</u>	100	300	—
TOTAL DISSOLVED SALTS ..				
		3,000	8,000	1,000
RESIDUE ON EVAPORATION ..	<u>2300</u>	3,000	8,000	1,000
pH <u>8.2</u>				

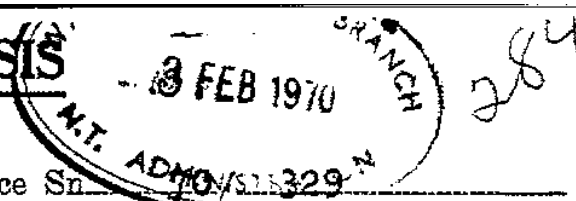
General remarks of Analysing Officer with particular reference to suitability of the water for the purpose for which it is stated to be required.

The sample, as analysed, is chemically unsuitable for human consumption due to the excess dissolved salt content of the water.

Signature James M. Best (Chemist)Date 2-2-70

* 14.3 milligrams per litre equals 1 grain per gallon. 437.5 grains equals 1oz.

WATER ANALYSIS



Origin of water WARREGO MINE WS3 Reference Sn 70/SLS 329

~~GOREY & COLE DRILLERS~~ Specimen Advice Note No. 1111

Date sampled 20/12/69-30/12/69 Date received 13/1/70

* Results in milligrams per litre
of filtered sample.

Recommended Maximums
(see over page).

	Sample	Domestic	Stock	Agriculture
HARDNESS (calculated as CaCO ₃)—				
" Total	<u>484</u>	500	—	—
" Carbonate	<u>350</u>	—	—	—
" Non-Carbonate	<u>134</u>	—	—	—
ALKALINITY IN EXCESS OF				
TOTAL HARDNESS	<u>NIL</u>	—	—	—
CHLORIDE	<u>690</u>	500	—	—
SULPHATE	<u>431</u>	250	2,000	—
BICARBONATE	<u>392</u>	—	—	—
		Child 20	—	—
NITRATE	<u>Not determined</u>	Adult 120	—	—
FLUORIDE	<u>" "</u>	1.5	5.0	—
CARBONATE	<u>17</u>	—	—	—
SODIUM	<u>500</u>	—	—	—
POTASSIUM	<u>85</u>	—	—	—
CALCIUM	<u>69</u>	100	—	—
MAGNESIUM	<u>76</u>	100	300	—
TOTAL DISSOLVED SALTS				
		3,000	8,000	1,000
RESIDUE ON EVAPORATION				
	<u>2500</u>	3,000	8,000	1,000
pH <u>8.4</u>				

General remarks of Analysing Officer with particular reference to suitability of the water for the purpose for which it is stated to be required.

The sample, as analysed, is chemically unsuitable for human consumption due to the excess of sulphate and high dissolved salt content of the water.

Signature Duan M. Best (chemist)

Date 2-2-70

* 14.3 milligrams per litre equals 1 grain per gallon. 437.5 grains equals 1oz.

WATER ANALYSIS - BORE WS 3

40/284

Sample No. : 1/BJ30
 Date Received in Laboratory : 13/1/70
 Analysed by : S. Best - Primary Industries
 Date of Sampling : 20/12/69 - 30/12/69 Branch NTA
 Depth of Bore : 255 feet
 Tested Supply : 10,000 gph
 Bore Completed : 3/12/69
 Circulation : Air
 Drilling Chemicals : Adafoam - stiff foam
 Method of Sampling : Airlift
 Pump Type : 1,200 cfm 120 psi compressor

Conductivity (Micromhos/cm²) at 25°C : 3,392
 Total Dissolved Solids : 2,300
 PH..... 8.2
 Hardness, Total : 446
 Hardness, Temporary : 346
 Hardness, Permanent : 100
 Alkalinity : Nil

ANIONS			CATIONS		
	ppm	Meq		ppm	Meq
Chloride	..660..	..18.62	Sodium	..530..	..22.04
Sulphate	..415..	..8.65	Potassium	..82..	..2.10
Nitrate	.....	.....	Calcium	..61..	..3.04
Carbonate	..Nil..	..7.7.	Magnesium	..71..	..5.84
Bicarbonate	..423..	..6.93	Iron	.....	.....
Flouride	.....	.....	Manganese	.....	.....
		<u>34.20</u>			<u>33.02</u>

% Difference Anions and Cations = 1.75% o.k.

HCO3

Cl = 0.37

S.A.R. = 10.49

Residual Alkalinity = 398

Richards Classification =

Remarks:

The sample as analysed is chemically unsuitable for human consumption due to excess of sulphate and high dissolved salt content.

40/284

WARREN GRINDWATER INVESTIGATION.

BORE NO. 3.

(Imperial-Road T3 Pitary Drilling Rig - Driller: Bruce Williams, 3/12/68)

Geologist's Log. (E. Williams - Geologist)

Driller's Log.

0 - 5 Top Soil
5 - 100 Clay

0	-	10	Minor fine grained rounded quartz and brown chert fragments cemented by caliche.
10	-	20	As for 0 - 10'. Caliche content lower.
20	-	30	Caliche and clay with minor quartz grains.
30	-	40	Fungulous fine grained very decomposed sandstone containing some dolomite cement. Some chips of caliche.
40	-	50	Fungulous fine grained sandstone slightly dolomitic and muscous. Quartz grains range from rounded to sub-angular.
50	-	60	Very fine grained sandstone as above and fine grained sandy onlonite.
60	-	70	As for 50 - 60'.
70	-	80	Grey-green and brown (limonitic) puggy clay after shale / silt.
80	-	90	As for 70 - 80'.
90	-	100	Sugary textured dolomitic sandstone. Quartz grains are fine to medium grained, sub-rounded and remarkably clear. Dolomite forms almost all of matrix.
100	-	110	Grey (water brown in part) fine grained dolomite - lower calcite on fractures.

100 - 125 Dolomite, Limestone, Chert, Siltstone Sands.

BORE WS 3 Cont'd.

110	-	120	As for 100 - 110' - sample wet.
120	-	130	As for 100 - 110' - sample moist.
130	-	140	As for 100 - 110' - sample wet.
140	-	150	As for 100 - 110' - sample wet.
150	-	160	As for 100 - 110' - sample wet.
160	-	170	Buff coloured granular dolomite containing possible brecciated fragments - sample wet.
170	-	180	As for 160 - 170'.
180	-	190	White sandy dolomite. Quartz grains are fine grained, sub-rounded, very clear and comprise about 30% of rock.

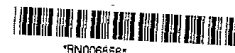
THE NORTHERN TERRITORY OF AUSTRALIA

N.T.A. 181

Regulation 8.

Control of Waters Ordinance

40/6/15.0E-13.20N.

FINAL STATEMENT OF BOREIN ~~40/6/15~~ 40/284

RN006858

From	To	Description of Strata	Name of Bore—								
0 - 5		Top Soil.	WS 3								
5 - 100		Clay.	Name of Property—								
100 - 255		Dolomite.	WARREGO								
			Description of Property—								
			MINING.								
			Name of Owner—								
			PERO MINES N.L.								
			Name of Contractor—								
			GOREY & COLE DRILLERS								
			Name of Driller—								
			BRUCE VILLIERS								
Location of Bore (or supply sketch on back hereof)—			Date of Commencement—								
30 Miles			2 / 12 / 69								
(a) <table border="1"> <tr> <td>N</td> <td>NE</td> </tr> <tr> <td>S</td> <td>SE</td> </tr> <tr> <td>E</td> <td>NW</td> </tr> <tr> <td>W</td> <td>SW</td> </tr> </table> of (b) Bore GSW 1			N	NE	S	SE	E	NW	W	SW	Date of Completion—
N	NE										
S	SE										
E	NW										
W	SW										
			3 / 12 / 69								
			Total Depth—								
			255 feet.								
			Particulars of Casing— 20' / 8" ϕ .								
			100 feet / 6" ϕ .								
			Particulars of Perforations or Screens—								
Additional information of interest about the bore—											
Approx 20 miles west of Warrego.											
Samples of strata and water supplies have been left at the following trading place—											
MINNS BARROW A/S											
Signature											
*Strike out which does not apply.											
For office use only—											
			Water								
			1st Supply								
			2nd Supply								
			3rd Supply								
			Struck at								
			125'								
			156'								
			164'								
			Standing Water Level								
			Pumping Supply : G.P.H.								
			7,000 gph								
			Duration of Pump Test								
			2 hrs.								
			Water Level During Test								
			Quality : Good, Fair or Bad								
			Fair								

N.T.A. 152

NORTHERN TERRITORY ADMINISTRATION—WATER RESOURCES BRANCH

WATER ANALYSIS

Sample No. 70/0616 Date received in Laboratory 26.5.70
 Time and date of sampling 0802 hrs 13.5.70
 Location and details Hooker Creek Welfare Bore No. 11 RN 6858
1060 gph 88°F 40/284

Analysis in parts per million— p.p.m. (unless otherwise stated)—

Appearance		Taste and odour	
Conductivity (Micromhos/cm ²)		pH	7.4
at 25°C	1050	Hardness, total	374
Total dissolved solids	690	Hardness, temporary	270
Suspended solids		Hardness, permanent	104
Total solids			

Anions—

Chloride	184
Sulphate	78
Nitrate	2
Nitrite	
Carbonate	
Bicarbonate	329
Fluoride	0.4
Silica	80
Boron	
Alkalinity	270
Turbidity	
Phosphate	1

Cations—

Sodium	93
Potassium	8
Calcium	57
Magnesium	60
Ammoniacal nitrogen	
Iron	0.1
Aluminium	
Selenium	
Arsenic	
Copper	
Lead	
Manganese	

Analysed by John B. Jones
 Date 26.6.70

REMARKS: The sample as tested is chemically suitable for human consumption according to World Health Organisation drinking water standards.

N.T.A. 152

NORTHERN TERRITORY ADMINISTRATION—WATER RESOURCES BRANCH**WATER ANALYSIS**

Sample No. 70/0617 Date received in Laboratory 26.5.70
Time and date of sampling 0759 hrs 14.5.70
Location and details Hooker Creek Welfare Bore No. 11
1060 gph 88°F RN 6858 40/284

Analysis in parts per million— p.p.m. (unless otherwise stated)—

Appearance	Taste and odour
Conductivity (Micromhos/cm ²)	pH
at 25°C	7.4
110	364
Total dissolved solids	Hardness, total
Suspended solids	Hardness, temporary
Total solids	Hardness, permanent
	102

Anions—

Chloride	180
Sulphate	
Nitrate	
Nitrite	
Carbonate	
Bicarbonate	320
Fluoride	
Silica	
Boron	
Alkalinity	262
Turbidity	

Cations—

Sodium
Potassium
Calcium
Magnesium
Ammoniacal nitrogen
Iron
Aluminium
Selenium
Arsenic
Copper
Lead
Manganese

Analysed by John B. JonesDate 26.6.70REMARKS:

N.T.A. 152

NORTHERN TERRITORY ADMINISTRATION—WATER RESOURCES BRANCH

WATER ANALYSIS

Sample No. 70/0043 Date received in Laboratory 12/1/70
 Time and date of sampling 30/11/69
 Location and details Warrego WS3 IN 40/284 R.N. 6858 Air Lift

Analysis in parts per million— p.p.m. (unless otherwise stated)—

Appearance	Taste and odour
Conductivity (Micromhos/cm ²)	
at 25°C 2000	pH 7.4
Total dissolved solids 1260	Hardness, total 400
Suspended solids	Hardness, temporary 240
Total solids	Hardness, permanent 160

Anions—

Chloride	410
Sulphate	182
Nitrate	15
Nitrite	
Carbonate	
Bicarbonate	293
Fluoride	4.0
Silica	25
Boron	
Alkalinity	240
Turbidity	
Phosphate	<1

Cations—

Sodium	270
Potassium	36
Calcium	64
Magnesium	58
Ammoniacal nitrogen	
Iron	Not done - too muddy
Aluminium	
Selenium	
Arsenic	
Copper	
Lead	
Manganese	

Analysed by John B. JonesDate 9/3/70

REMARKS: Air Lift sample, excess fluoride, otherwise sample as tested is chemically suitable for human consumption.

N.T.A. 152

NORTHERN TERRITORY ADMINISTRATION—WATER RESOURCES BRANCH

WATER ANALYSIS

Sample No. 70/0158 Date received in Laboratory 18/2/70

Time and date of sampling

Location and details Tennant Creek Warrego W.S. 3 IN 40/224 284

R.N. 6858

Analysis in parts per million— p.p.m. (unless otherwise stated)—

Appearance
Conductivity (Micromhos/cm²) 3180
at 25°C 2110
Total dissolved solids
Suspended solids
Total solids

Taste and odour
pH 7.9
Hardness, total 410
Hardness, temporary 302
Hardness, permanent 108

Anions—

Chloride 720
Sulphate 435
Nitrate 35
Nitrite
Carbonate
Bicarbonate 368
Fluoride 2.4
Silica 30
Boron
Alkalinity 302
Turbidity
Phosphate <1

Cations—

Sodium 573
Potassium 100
Calcium 46
Magnesium 75
Ammoniacal nitrogen
Iron 4.7
Aluminium
Selenium
Arsenic
Copper
Lead
Manganese

John B. Jones

Analysed by 17/3/70

Date

REMARKS: This sample is not suitable for drinking water standards, due to excessive dissolved solids. Suitable for stock.

N.T.A. 152

NORTHERN TERRITORY ADMINISTRATION—WATER RESOURCES BRANCHWATER ANALYSIS

Sample No. 70/0176 Date received in Laboratory 18/2/70
 Time and date of sampling 0930hrs 28/12/69
 Location and details Tennant Creek 20 miles West Warrego WS3 Suction
129ft. Temp 90°F disch. 2400 gph IN 40/284 R.N. 6859

Analysis in parts per million— p.p.m. (unless otherwise stated)—

Appearance	Taste and odour
Conductivity (Micromhos/cm ²)	pH
at 25°C .....	.....7.5
Total dissolved solids	Hardness, total
.....2070	.....480
Suspended solids	Hardness, temporary
.....	.....338
Total solids	Hardness, permanent
.....	.....142

Anions—

Chloride	720
Sulphate	389
Nitrate	33
Nitrite	
Carbonate	
Bicarbonate	412
Fluoride	2.2
Silica	32
Boron	
Alkalinity	338
Turbidity	
Phosphate	4

Cations—

Sodium	525
Potassium	93
Calcium	62
Magnesium	72
Ammoniacal nitrogen	
Iron	0.1
Aluminium	
Selenium	
Arsenic	
Copper	
Lead	
Manganese	

Analysed by John B. JonesDate 18/3/70

REMARKS: The sample as tested is not suitable for human consumption according to World Health Organisation drinking water standards, due to excessive dissolved solids and fluoride. Suitable for stock.

N.T.A. 152

NORTHERN TERRITORY ADMINISTRATION—WATER RESOURCES BRANCHWATER ANALYSISSample No. _____ Date received in Laboratory 13/1/70Time and date of sampling 20/12/69 - 30/12/69Location and details Warrego Mine WS3, Gorey & Cole Drillerssampled at A.B. Alice Springs 40/284Analysis in parts per million— p.p.m. (unless otherwise stated)—

Appearance _____

Conductivity (Micromhos/cm²) _____

at 25°C _____

Total dissolved solids _____

Suspended solids _____

Total solids _____

Taste and odour _____

pH 8.4Hardness, total 484Hardness, temporary 350Hardness, permanent 134Anions—Chloride 690Sulphate 431Nitrate Not Determined

Nitrite _____

Carbonate 17Bicarbonate 392Fluoride Not Determined

Silica _____

Boron _____

Alkalinity NIL

Turbidity _____

Total Dissolved salts _____

Residue on evaporation 2500Cations—Sodium 500Potassium 85Calcium 69Magnesium 76

Ammoniacal nitrogen _____

Iron _____

Aluminium _____

Selenium _____

Arsenic _____

Copper _____

Lead _____

Manganese _____

REMARKS:

The sample, as analysed, is chemically unsuitable for human consumption due to the excess of sulphate and high dissolved salt content of the water.

Analysed by Susan BestDate 2-2-70

N.T.A. 152

NORTHERN TERRITORY ADMINISTRATION—WATER RESOURCES BRANCH

WATER ANALYSIS

Sample No. _____ Date received in Laboratory 13/1/70
Time and date of sampling 20/12/69 - 30/12/69
Location and details Warrego Mine WS3, Gorey & cde Drillers
completed at A. J. B. Alu Springs 40/284

Analysis in parts per million— p.p.m. (unless otherwise stated)—

Appearance _____	Taste and odour _____
Conductivity (Micromhos/cm ²) _____	pH <u>8.2</u>
at 25°C _____	Hardness, total <u>446</u>
Total dissolved solids _____	Hardness, temporary <u>346</u>
Suspended solids _____	Hardness, permanent <u>100</u>
Total solids _____	

Anions—

Chloride	<u>660</u>
Sulphate	<u>415</u>
Nitrate	<u>Not Determined</u>
Nitrite	
Carbonate	<u>NIL</u>
Bicarbonate	<u>423</u>
Fluoride	<u>Not Determined</u>
Silica	
Boron	
Alkalinity	<u>NIL</u>
Turbidity	
Total dissolved salts	<u>-</u>
Residue on evaporation	<u>2300</u>

Cations—

Sodium	<u>530</u>
Potassium	<u>82</u>
Calcium	<u>61</u>
Magnesium	<u>71</u>
Ammoniacal nitrogen	
Iron	
Aluminium	
Selenium	
Arsenic	
Copper	
Lead	
Manganese	

Analysed by Susan M. Best (Chemist)Date 2.2.70

REMARKS: The sample, as analysed, is chemically unsuitable for human consumption due to the excess dissolved salt content of the water.