PROJECT 972

GROUNDWATER INVESTIGATION

MOLYHIL PROJECT

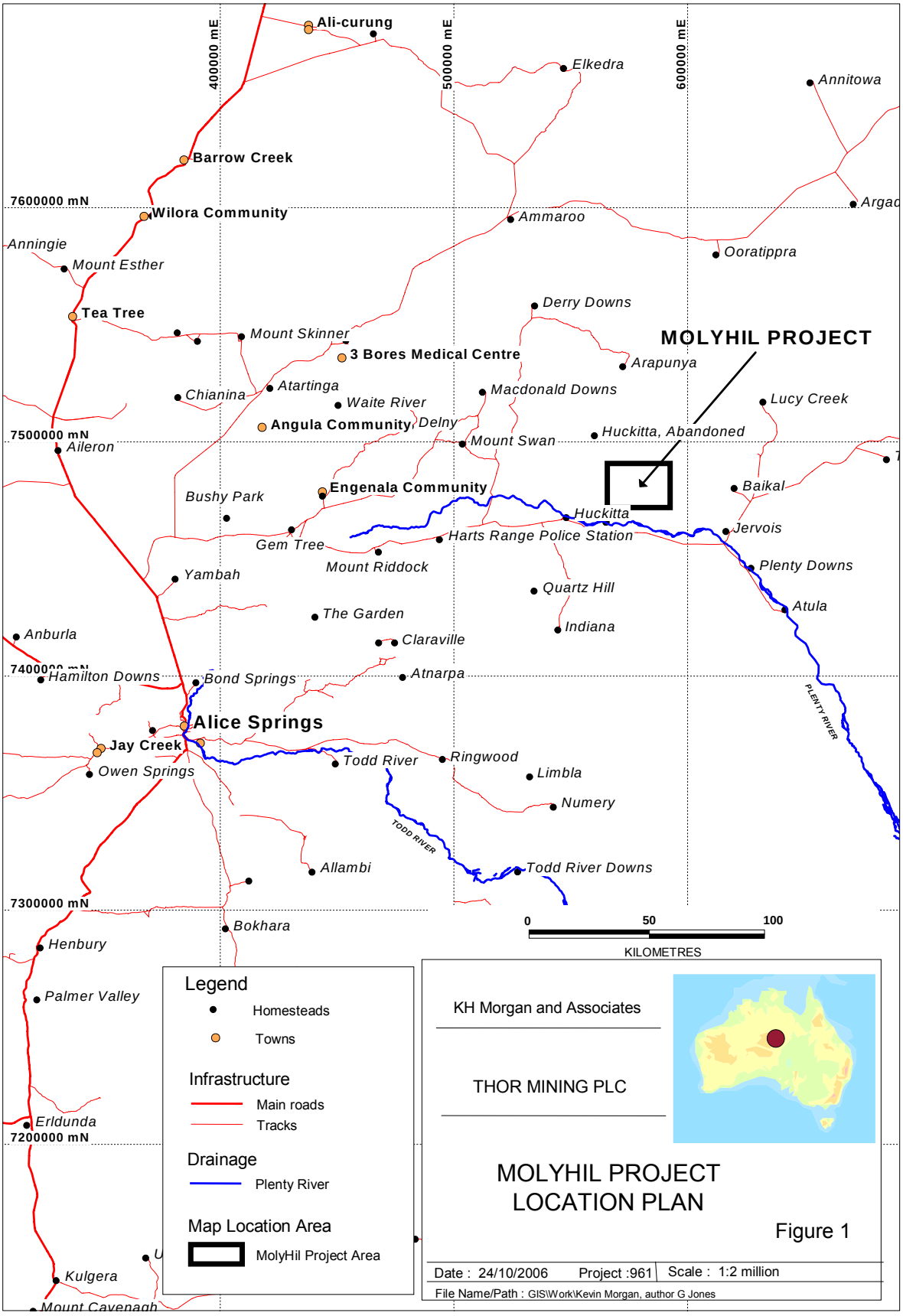
FOR

THOR MINING PLC

20 OCTOBER 2006

CONSULTING GEOLOGISTS
- Groundwater
- Exploration
- Mining
- Environment

KH Morgan Geological Consultants Pty Ltd
ABN 68 008 752 547
trading as
KH Morgan and Associates
Bentley Business Centre
Unit 10, 4 Queen Street
Bentley WA 6102
Telephone 93565455
Fascimile 93519853
email khmorgan@iinet.net.au


400000 mE
500000 mE
600000 mE
7600000 mN
7500000 mN
7400000 mN
7300000 mN
7200000 mN
Ali-curung
Elkedra
Annitowa
Barrow Creek
Wilora Community
Ammaroo
Anningie
Mount Esther
Ooratippra
Tea Tree
Derry Downs
Mount Skinner
3 Bores Medical Centre
MOLYHIL PROJECT
Arapunya
Chianina
Atartinga
Macdonald Downs
Lucy Creek
Waite River
Angula Community
Delny
Huckitta, Abandoned
Mount Swan
Aileron
Engenala Community
Baikal
Bushy Park
Huckitta
Jervois
Harts Range Police Station
Gem Tree
Mount Riddock
Plenty Downs
Yambah
Quartz Hill
Atula
The Garden
Indiana
Anburla
Claraville
Hamilton Downs
Bond Springs
Atnarpa
PLENTY RIVER
Alice Springs
Jay Creek
Todd River
Ringwood
Limbla
Owen Springs
Numery
TODD RIVER
Allambi
Todd River Downs
Bokhara
0
50
100
KILOMETRES
Henbury
Palmer Valley
Legend
Homesteads
Towns
Infrastructure
Main roads
Tracks
Drainage
Plenty River
Map Location Area
MolyHil Project Area
Erldunda
Kulgera
Mount Cavenagh
KH Morgan and Associates
THOR MINING PLC
MOLYHIL PROJECT
LOCATION PLAN
Figure 1
Date : 24/10/2006
Project :961
Scale : 1:2 million
File Name/Path : GIS\Work\Kevin Morgan, author G Jones

GROUNDWATER INVESTIGATION
MOLYHIL PROJECT

THOR MINING PLC

1. INTRODUCTION

This report has been prepared to provide preliminary planning information resultant from a groundwater exploration and evaluation programme conducted on site 1 to 8 October 2006.

Molyhil, an identified resource of molybdenite and scheelite, is located approximately 240 kilometres northeast from Alice Springs (Figure 1), centred latitude 220º 45'S, longitude 135º 45'E. The project, which is proceeding to Feasibility status, requires identification of a suitable water resource.

At this stage of feasibility the project is estimated to require approximately 400,000 tpa of water to process 300,000 tpa of ore over a mining and processing life of between three to five years. This requirement equates to a maintained groundwater supply of $46m^3h^{-1}$ (kLh^{-1}) or $12.7Ls^{-1}$.

A supply of approximately $6.5m^3h^{-1}$ ($1.8Ls^{-1}$) of potable quality water will be required for the residential village and general workshop purpose.

2. EXISTING GROUNDWATER INFORMATION

The Molyhil region contains sparse distribution of stock bores, the closest being Gap Bore which 7 kilometres to the northeast of the mine (7483463N/0583655E) near a confluence of a tributary of Ooraba Creek where it crosses Cambrian dolomite. This bore has a salinity of approximately $2000mgL^{-1}$ TDS. It is equipped with a 4 metre windmill and is located approximately 30 metres from an abandoned steel cased bore.

Four bores have been sunk close to a dam located 700 metres northwest from the pit. These bores have been drilled to intersect a prominent west-northwest ridge of pelitic and arenite sediments of the Grant Bluff Formation.

Three of the bores have registration plates with numbers NTG12192, NTG12389 and NTG12036. Two of these bores described in reports, RN11520 and RN12036, are reported to yield $5m^3h^{-1}$.

Bore field information is as following:

Bore 1

Location	10 metres west of dam (7483513N/576621E)
Reduced level	approximately 445 metres
NTG registration	12192
Casing	200 millimetre steel.

This bore is thought to be Fama Mines WB2 which was drilled to 46 metres and cased with 100 millimetre PVC. The bore was test pumped for two hours at $5m^3h^{-1}$ with a drawdown of 5.5 metres and recovered in fifteen minutes.

Bore 2

Location	22 metres west of dam (7483509N/576611E)
Reduced level	approximately 446 metres
NTG registration	no registration number
Casing	150 millimetre steel with 100 millimetre PVC

Bore 3

Location	approximately 30 metres west of dam (7483515N/576607E)
Reduced level	approximately 446 metres reduced level
NTG registration	12389
Casing	150 millimetre steel

Bore 4

Location	approximately 48 metres west of dam (7483522N/576592E)
Reduced level	444 metres
NTG registration	12036
Casing	150 millimetre steel

Application is being made to the Northern Territory Government for further data on these bores.

Prices Bore

Prices Bore, located approximately 6 kilometres northeast from the Molyhil Pit, is connected to the old workings by a 100 millimetre (?) fibro-cement pipeline.

Although two bores are present, only one is currently operable and this is reported to be partly obstructed by a bend or failure of the steel casing. The bore is located on a raised concrete pad approximately 1 metre above ground level and has a steel framed cover.

The bores have been sunk into Cambrian Arrinthunga Formation consisting of dolstone and limestone with minor silt and quartz arenite interbeds.

Summary inspection of the bore is as follows:

Location	approximately 6 kilometres northeast from the pit (7485456N/582086E)
Reduced level	428 metres
NTG registration	13000, AWRC Basin No 1007
Drilled for	Petrocarb Exploration NL
Drilled by	Gory and Cole
Date drilled	11 to 12 February 1981
Depth	73 metres
Casing	3 metres 200 millimetre steel collar; 56 metres 150 millimetre steel casing
Screen	12 metres of perforation between 48 to 56 metres
Standing water level	41 metres
Water encountered	46 and 50 metres
Salinity	530 ppm TDS, pH 7.6
Yield	the bore was test pumped for three days by Rockwater Pty Ltd at a rate of 3000 gph ($13.5m^3h^{-1}$) with a 1.1 metre drawdown

Test pumping data suggests that, theoretically, the bore can be pumped at a much higher rate than $13.5m^3h^{-1}$. However, as a result of its poor condition it will require redrilling and reconstruction to provide a sustainable water supply.

Molyhil Pit Water

Detailed water chemistry data of five samples, understood to have been obtained from the Molyhil Pit, were submitted to Australian Laboratory Services, Queensland, 26 March 2004 by Neil Biddle of Hallmark Consolidated Ltd.

These samples have a pH range of 7.63 to 8.24 and a total salinity range of 84,400mgL^{-1} to 86,000mgL^{-1} TDS. Heavy metal content is relatively low for waters of this high salinity, suggesting either poor release or ready reabsorption from, or into, the parent rock.

Exploration Drilling

Water has been reported only rarely in exploration drilling at Molyhil. Drillhole MH19 was reported to have encountered a flow of approximately 0.8Ls^{-1} of saline water.

3. HYDROGEOLOGY

The hydrogeology of the region is a product of the interaction of four natural phenomena: geology, climate, topography and geomorphic development. These four factors are briefly described within the following paragraphs.

3.1 Geology

Molyhil is contained in a northwesterly striking sequence of Proterozoic dominantly clastic sedimentary rocks assigned to the Mopunga Group. This little metamorphosed sequence, consisting of sandstone, siltstone and shale is intruded by the Jinka Granite and Marshall Granite. Molyhil's molybdenite/scheelite mineralisation is contained on a steeply dipping sequence of marble, calc-silicate and quartz feldspathic highly metamorphosed rocks forming a roof pendant in the Jinka Granite. The Jinka Granite has been dated by the BMR by Rb/Sr at 1690My.

Immediately to the north of the deposit is a prominent northwesterly striking ridge of arenite and wacke, designated as the Grant Bluff Formation.

Keels of Cambrian sediment are down-folded and down-faulted into the Mopunga Group sediments.

Cambrian rocks form a narrow northwesterly trending linear syncline passing 5 kilometres to the north of Molyhil. A second downfolded strike concordant keel occurs approximately 4 kilometres to the south of the mine. The boundaries of these downfolded belts are partially controlled by strike faults.

The Cambrian rocks are outliers of the Georgina Basin which is extensively developed to the northeast of this region.

The basal units of the Cambrian sequence occurring to the north of Molyhil comprise a basal sequence of quartz arenite assigned as the Mt Baldwin Formation. This formation is overlain by a sequence of carbonates consisting of the dominant dolostone Errarra Formation which is, in turn, overlain by the poorer outcropping calcareous siltstone and limestone Arthur Creek Formation.

These three Cambrian formations are the principal environment for groundwater development for the Molyhil Mine.

3.2 Climate

Climate of the Molyhil region is arid in that it has low, unreliable temporal and spatial distribution of rainfall, a warm climate exhibiting widely seasonal and daily temperature extremes and a constant high evaporation excess over rainfall. Its position deep within the large Australian land mass limits the amount of moisture available for the generation of ‘weather’.

Climate is similar to that of Alice Springs which has an average rainfall of 279.1 millimetres (see climate averages Appendix 1). Rain can fall anytime of the year with the months November to March having the highest rainfall and highest intensity falls, the latter being of importance for the generation of stream run-off and groundwater recharge.

Average annual evaporation is in the order of 2400 millimetres which is approximately a factor of nine times that of rainfall. This high evaporation excess has significance in the storage of surface water and the generation of saline groundwater conditions on flow paths away from locations of rainfall recharge.

Climate northward from the Harts Range area develops more distinct seasonal patterns with higher impacts from cyclonic storm events. For example, at Tennant Creek, 500 kilometres to the north-northwest, annual average rainfall increases to 460 millimetres in which more than 50 percent of the falls in the months of January and February are assisted by tropical cyclones centred in the Gulf of Carpentaria or from the Indian Ocean (see Appendix 1).

The Bureau of Meteorology predicts that October to December 2006 has probability of higher than average rainfall.

Prevailing winds are from the east-southeast to southeast; evidenced by trees having a tendency to lean towards the northwest.

Alice Springs average daily minimum and maximum temperatures for July are 14º and 19.6º Celsius, and for January 21.3º and 36.3º Celsius.

3.3 Topography

Topography of the Molyhil area can be divided into two types which, principally, are dependent on the composition of the underlying bedrock.

The Proterozoic rocks containing Molyhil and the area to the south give rise to wide plainlands covered by thin sheets of alluvium and colluvium with an elevation ranging between 390 to 405 metres reduced level. The plainlands are broken by isolated rocky outliers of crystalline Proterozoic rock with form dependent on bedrock structures. These beds, such as Mt Sainthill, rise to 546 metres reduced level. Immediately to the north of Molyhil is a narrow steep dipping band of Proterozoic arenite which forms a prominent west-northwest trending ridge with a relief of approximately 25 metres from the plainland.

The second topographic type is provided by Cambrian sedimentary rocks which form a series of northwest trending hogback dip-slope ridges passing 5 kilometres to the north of the mine. Grant Bluff, on the Elyuah Range within this structure, stands at 450 metres reduced level.

Drainage is by a set of sand based intermittent and structurally consequent creeks. Oorabra Creek, the main trunk drainage, is a superimposed system draining southward across the regional strike to Marshall River, a tributary of the inland draining Plenty River.

3.4 Geomorphic Development

The region has been subjected to a geologically relatively recent erosion event possibly resultant from uplift locally removing evidence of the older peneplained or plateau surface which is present outside the Molyhil area.

Hill forms are rock structurally controlled with the tops exhibiting broken rock outcrop. The isolated hills are surrounded by wide shallow fills of alluvium/colluvium suggesting maturing of landscape development.

The hydrogeological significance of this geomorphic development is that most of the former lateritic profile has been removed by erosion. Only relatively thin remnants of saprolite are present with weathered crystalline rocks occurring at a depth of 2 to 6 metres below the surface.

In this location the occurrence of groundwater depends on storage in the oxidation transition zone and in wider distributed fractured and leached zones associated with fault and fracture zones within the non-oxidised bedrock. As a consequence, groundwater storage is restricted to the limit of these structures. The development of groundwater resources is therefore dependent on storage in structures with access to recharge.

For this reason, exploratory drill sites were located on structural lineaments crossing or associated with the main creeks and drainage paths. The probability of recharge in these structures is associated with stream flow resultant from intensive rain events.

4. DRILLING PROGRAMME

An exploratory drilling programme was conducted 1 to 8 October 2006 utilising Arrinooka Drilling which was on-site conducting resource drilling.

Arrinooka drilling rig at TMRC30, outside water flow

The drill rig is a truck mounted Hydco with an onboard Atlas Copco XRV Compressor with an output of 1000 cfm at 360 psi. An auxiliary XRVS97b compressor was mounted on a support truck with an output of 1000cfm at 360psi. A Hurricane Airdrill M82D booster was also mounted on the support truck. An AUDR rod handler was mounted on the drill truck along with a 100 metre rod rack.

Drilling was by reverse circulation air hammer utilising a 140.5 millimetre (5.5in) hammer bit. Outside return was maintained through a collar stuffing box and discharge pipe. Samples were collected through a dust control trailer mounted cyclone.

Black water flow from 83 metres at drillhole TMRC41

TMRC42 site, note large ‘cork’ tree in background on lineament

Large cork trees on TMRC42. Large cork trees are frequently associated with shallow water bearing structures

TMRC47 location

Drilling was by reverse circulation air hammer utilising a 140.5 millimetre (5.5in) hammer bit. Outside return was maintained through a collar stuffing box and discharge pipe. Samples were collected through a dust control trailer mounted cyclone.

During the program, fourteen holes were drilled for a total of 1077 metres. Six of the holes were in Cambrian carbonate rocks, 6 to 10 kilometres northerly from the mine, to locate the principal process water source.

Eight holes were drilled into the Proterozoic rocks mostly to the south of the mine in an attempt to locate a proximal potable water supply. A summary of drill results is presented on Table 1. Detailed drill logs are in Appendix 2 and location of the drillholes in shown on Figure 2.

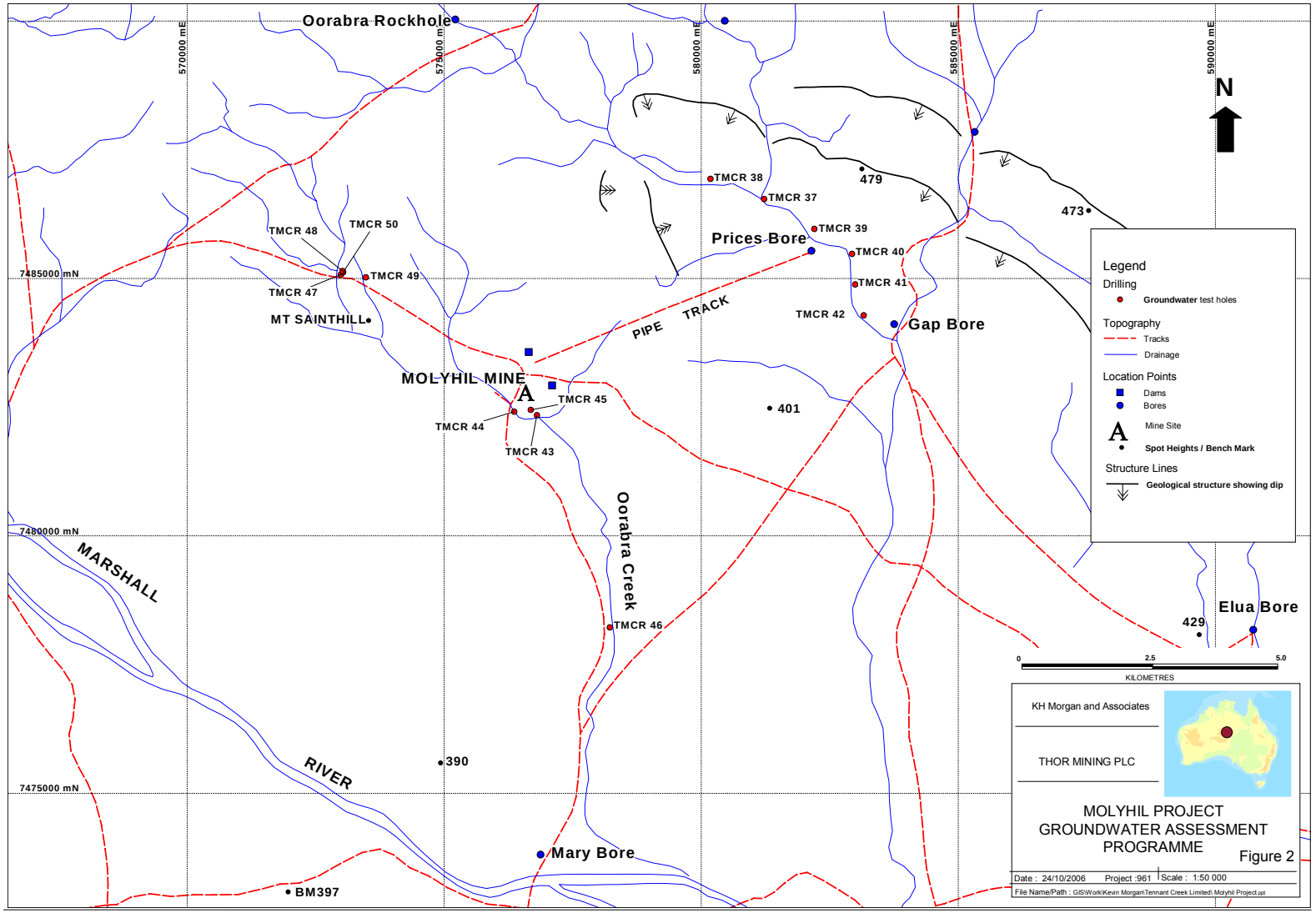

Oorabra Rockhole
570000 mE
575000 mE
580000 mE
585000 mE
590000 mE
N
TMCR 38
TMCR 37
479
473
TMCR 48
TMCR 50
TMCR 49
TMCR 47
7485000 mN
MT SAINTHILL
Prices Bore
TMCR 39
TMCR 40
TMCR 41
TMCR 42
Gap Bore
PIPE TRACK
MOLYHIL MINE
A
TMCR 45
TMCR 44
TMCR 43
401
Oorabra Creek
7480000 mN
MARSHALL
TMCR 46
429
Elua Bore
RIVER
390
7475000 mN
Mary Bore
BM397
Legend
Drilling
Groundwater test holes
Topography
Tracks
Drainage
Location Points
Dams
Bores
Mine Site
Spot Heights / Bench Mark
Structure Lines
Geological structure showing dip
0
2.5
5.0
KILOMETRES
KH Morgan and Associates
THOR MINING PLC
MOLYHIL PROJECT
GROUNDWATER ASSESSMENT
PROGRAMME
Figure 2
Date : 24/10/2006
Project :961
Scale : 1:50 000
File Name/Path : GIS\Work\Kevin Morgan\Tennant Creek Limited\ Molyhil Project.ppt

Table 1 Summary drill data results, Molyhil Project, Thor Mining PLC

Drillhole number	Location	Total depth (m)	Water struck (m)	Water level (m)	Main aquifer (m)	Yield (m^3h^{-1})	Salinity (ppm) TDS	Collar, casing, slotting, screen	Remarks
TMRC37	7486367N/581093E	96	42	37	39 -46			2.0m 150mm PVC foam cemented	Could not test cavern 39 to 41 metres, production bore potential
TMRC38	7486936N/580176E	102	30		30 -33 48 -49?	0.4	≈300	2.0m 150mm PVC foam cemented	
TMRC39	7485987N/582193E	102	61 78 91		61 -94	7.6	480	3.0m 150mm PVC foam cemented	Collar washed out, bridged at 2 metres below ground level
TMRC40	7485472N/582949E	78	40.5		40.5-68	9.0	710	2.0m 150mm PVC foam cemented	Proposed production bore
TMRC41	7484884N/582993E	102	42		42 -51 87 -94	14.4	1050	3.2m 150mm PVC foam cemented	Potential production bore, bridged at 2 metres
TMRC42	7484285N/583149E	96	40.5 (?)	31	40 -52	(?)	1570	3.0m 150mm PVC foam cemented	Could not test due to caverns
TMRC43	7482341N/576805E	66	Dry			Seepage		3.0m 150mm PVC foam cemented	
TMRC44	7482412N/576362E	72	Dry			0.4		4.0m 150mm PVC foam cemented	
TMRC45	7482449N/576684E	30	10	9	10 -14	Seepage	5200	2.0m 150mm PVC foam cemented	
TMRC46	7478223N/578223E	45	44(?)	22(?)		Seepage		6.0m 150mm PVC foam cemented	
TMRC47	7485076N/572992E	54				Seepage		6.0m 150mm PVC foam cemented	
TMRC48	7485145N/573024E	60						6.0m 150mm PVC foam cemented	
TMRC49	7485021N/573476E	60	45	20	45 -47	Small	6430	3.0m 150mm PVC foam cemented	
TMRC50	7485175N/573017E	42	24		23 -24	Less 0.4	2180	3.0m 150mm PVC foam cemented	Backfilled with drill hose

5. GROUNDWATER CHEMISTRY

5.1 Total Analyses

Samples from four drillholes were submitted to Australian Laboratory Services for detailed water analyses on filtered samples. A summary of the results is shown on Table 2. Detailed analyses certificates are presented in Appendix 3.

The waters are low in chloride relative to the ratio of chloride in sea water suggesting addition of other ions. This conclusion is further suggested from the calcium plus magnesium ratio which is much higher than sea water and shows that these ions have been added by dissolution of carbonate rocks.

Sulphates are also much higher than in sea water, apart from indicating maturing arid conditions, this amount of sulphide is almost certainly the result of sulphide oxidation. The sulphide source is unknown and requires investigation.

Boron ratio is marginally higher than that of sea water and possibly suggests a tourmaline rock source in the catchment.

The bromine ratio potentially reflects a meteoric source for recharge.

Table 2 Groundwater chemistry, Molyhil Project

Chemical component 12.10.2006	LOR	TMRC39	TMRC40	TMRC41	TMRC42
Analyte grouping/analyte	Client Sample ID (Secondary):				
EA005P: pH by PC Titrator					
pH value (pH Unit)	0.01	8.1	7.99	7.75	7.84
EA015: TDS					
TDS @ 180˚C	1	340	550	1460	1970
ED037P: alkalinity by PC Titrator					
Hydroxide alkalinity as $CaC0_3$	1	<1	<1	<1	<1
Carbonate alkalinity as $CaC0_3$	1	<1	<1	<1	<1
Bicarbonate alkalinity as $CaC0_3$	1	255	307	318	384
Total alkalinity as $CaC0_3$	1	255	307	318	384
ED040F: Dissolved major anions					
Sulphate as SO_4 2-	1	15	61	360	548
Sulphur as S	1	5	20	120	183
Silica	0.1	-	13.4	18.1	-
ED045G: Chloride discrete analyser					
Chloride	1	7.5	180	439	653
ED093F: Dissolved major cations					
Calcium	1	46	85	120	126
Magnesium	1	31	72	107	156
Sodium	1	15	65	254	414
Potassium	1	15	8	11	26
EG005T: Total metals by ICP-AES					
Iron	0.05	0.14	1.57	2.97	-
EG020F: Dissolved metals by ICP-MS					
Aluminium	0.01	<0.01	<0.01	<0.01	-
Antimony	0.001	0.003	0.008	0.021	-
Arsenic	0.001	<0.001	0.014	0.073	-
Beryllium	0.001	<0.001	<0.001	<0.001	-
Barium	0.001	0.226	0.117	0.078	-
Cadmium	0.0001	<0.0001	<0.0001	<0.0001	-
Chromium	0.001	<0.001	<0.001	<0.001	-
Copper	0.001	<0.001	<0.001	<0.001	-
Lead	0.001	<0.001	<0.001	<0.001	-
Manganese	0.001	0.037	0.22	0.112	-
Molybdenum	0.001	0.013	0.015	0.004	-
Selenium	0.01	<0.010	0.027	0.025	-
Silver	0.001	<0.001	<0.001	<0.001	-
Strontium	0.001	0.228	0.428	0.916	-
Tin	0.001	<0.001	<0.001	<0.001	-
Uranium	0.001	0.005	0.242	0.066	-
Zinc	0.005	0.01	0.012	0.024	-
Boron	0.05	0.13	0.16	0.24	-
Bromine	0.1	<0.1	0.9	1.4	-
Tungsten	0.001	0.063	<0.001	<0.001	-

Analysis expressed as mg/L except where shown

Table 2 Groundwater chemistry, Molyhil Project

Chemical component 12.10.2006	LOR	TMRC39	TMRC40	TMRC41	TMRC42
Analyte grouping/analyte	Client Sample ID (Secondary):				
EG035F: Dissolved mercury by FIMS					
Mercury	0.0001	<0.0001	<0.0001	<0.0001	-
EK040P: Fluoride by PC Titrator					
Fluoride	0.1	1.4	1	1	-
EK057G: Nitrate as N by discrete analyser					
Nitrate as N	0.01	<0.010	<0.010	<0.010	-
EK058G: Nitrate as N by discrete analyser					
Nitrate as N	0.01	0.01	0.07	0.01	-
EK059G: NOX as N by discrete analyser					
Nitrite + Nitrate as N	0.01	0.01	0.07	0.01	-
EK067G: Total phosphorous as P by discrete analyser					
Total Phosphorous as P	0.01	<0.01	0.05	0.15	-
EN055: Ionic balance					
Total anions (meq/L)	0.01	5.61	12.5	26.2	37.5
Total cations (meq/L)	0.01	5.89	13.2	26.2	37.7
Ionic balance(%)	0.01	2.44	2.96	0.16	0.27

Analysis expressed as mg/L except where shown

5.2 Groundwater Classification

Common water ions have been converted to milli-equivalents per litre and plotted on Schoeller diagrams (Figure 3) where they are compared to the chemistry of sea water, a stable chemical system. The drillhole waters are of much lower total salinity than sea water and reflect different ionic ratios.

Drillholes TMRC39 and TMRC40 are relatively low in sodium plus potassium suggesting adsorption or ion exchange as a result of excessive amounts of calcium and magnesium added from the limestones. Drillholes TMRC41 and TMRC42 show sea water ratio of these ions relative to chloride.

5.3 Ionic Ratios

A method for the further evaluation of water chemistry is to compare ionic ratios with that of sea water. Ratios of selected ions are presented on Table 3.

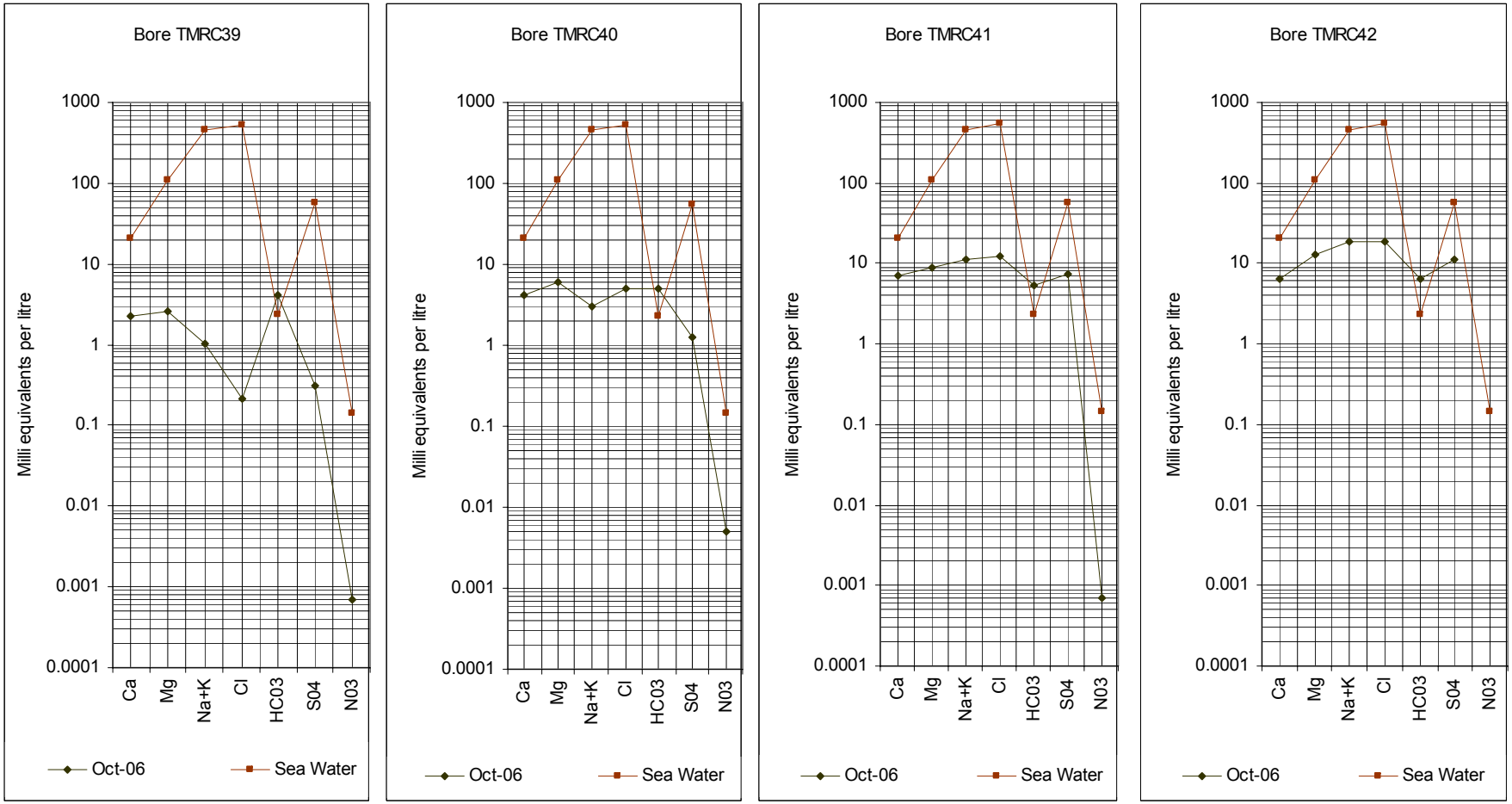

Bore TMRC39
Bore TMRC40
Bore TMRC41
Bore TMRC42
Milli equivalents per litre
1000
100
10
1
0.1
0.01
0.001
0.0001
Ca
Mg
Na+K
Cl
HC03
S04
N03
Oct-06
Sea Water

Figure 3

Table 3 Ionic ratios, water analyses, October 2006, Molyhil Project

Bore	Parameter	$\frac{Cl}{TDS}$ ($x10^{-1}$)	$\frac{Ca+Mg}{TDS}$ ($x10^{-2}$)	$\frac{Ca+Mg}{Cl}$ ($x10^{-2}$)	$\frac{SO_4}{TDS}$ ($x10^{-2}$)	$\frac{SO_4}{Cl}$ ($x10^{-2}$)	$\frac{N}{TDS}$ ($x10^{-4}$)	$\frac{N}{Cl}$ ($x10^{-4}$)	$\frac{Br}{TDS}$ ($x10^{-4}$)	$\frac{Br}{Cl}$ ($x10^{-4}$)	$\frac{B}{TDS}$ ($x10^{-4}$)	$\frac{B}{Cl}$ ($x10^{-4}$)
Sea Water		5.49	5.10	9.20	7.80	14.21	19.38	35.26	19.40	35.30	1.30	2.37
MHWE3		0.22	22.65	1026.67	4.41	200.00	<0.29	<13.33	<2.94	<133.33	3.82	173.33
MHWE4		3.27	28.55	87.20	11.09	33.89	1.27	3.89	16.36	50.00	2.91	8.89
MHWE5		3.00	15.55	51.71	24.66	82.00	0.07	0.23	9.59	31.89	1.64	5.47
MHWE6		3.31	14.31	43.19	27.82	83.92	-	-	-	-	-	-

5. CONCLUSIONS AND RECOMMENDATIONS

Six drillholes, TMRC37 to TMRC42, amounting to 576 metres tested the Cambrian carbonate rocks 6 to 10 kilometres northerly from the mine site.

Salinities gradually increased from west to east and downstream along the creek line from 300mgL^{-1} TDS in TMRC38 to 1570mgL^{-1} TDS in TMRC42.

Difficulty was experienced in obtaining reliable airlift yields from the drillholes due to karstic formation. Drillhole TMRC39 airlifted at 7.6m^3h^{-1}, TMRC40 at 9m^3h^{-1} and TMRC41 at 14.4m^3h^{-1}. The presence of cavernous ground below standing water level suggests that the bores have potential for high yields following construction and test pumping.

Difficulty was also experienced in obtaining reliable standing water levels as a result of hole collapse immediately following withdrawal of the drill rods.

Eight drillholes, TMRC43 to TMRC50, were drilled generally southward from the mine in attempt to locate a proximal potable water supply in fractured Proterozoic rocks. These drillholes demonstrated saline water and small yields. Any potable source located in this southern area is likely to become saline in this environment and no further exploration is recommended.

A review of data on Prices Bore indicates that this bore has potential for a yield higher than the tested yield of 13.5m^3h^{-1}. The casing of this bore is in poor condition and the bore would need to be redrilled to be a reliable water source.

It is recommended that:

1 TMRC50 is constructed as a test production bore. This site should be drilled to a depth of 68 metres at 300 millimetre diameter and cased with design slotted 200 millimetre PN12 PVC. Following construction the bore should be prepared for test pumping. An observation piezometer should be drilled to 68 metres at a distance of approximately 15 metres at a selected location to provide data for the test pumping programme.

2 TMRC42 is constructed as a test production bore to a depth of 52 metres with 200 millimetre PN12 PVC and, similarly to TMRC40, the well is to be supported with a cased observation piezometer and subjected to a controlled continuous rate 48 hour pumping test.

3 Prices Bore is redrilled and constructed as a source for potable water or as a support water supply source for the project.

An alternative potable water supply could be obtained by reverse osmosis treatment of the process water source.

KH MORGAN BSc FAusIMM (CPGeo) FAIG MMICA DipGAA

20 October 2006

CONDITIONS OF ISSUE

This report has been provided for in-house planning purposes only. This report, in full or part, should not be issued to parties outside Thor Mining PLC without discussions with KH Morgan and Associates

REFERENCES

Barraclough D 1979 Geological Investigations at the Molyhil Scheelite Mine, Central Australia. Department of Mines and Energy NT. Geological Survey GS/79

Smith KG and others Second Edition 1982. Huckitta 1:250000 Geology SF53-11 Northern Territory Geological Survey Department of Mine and Energy in collaboration with the Bureau of Mineral Resources, Geology and Geophysics, Department of Resources and Energy

APPENDIX 1

CLIMATE DATA

Climate averages for Alice Springs

Element	January	February	March	April	May	June	July	August	September	October	November	December	Annual	Number of years	Percent complete
Mean daily maximum temperature ºC	35.9	34.9	32.3	27.5	23	19.7	20	23	27	31.1	33.9	36	29	75.6	100
Mean number days where maximum temperature = 40ºC	5.5	2.8	0.8	0	0	0	0	0	0	0.6	2.4	5.1	17	75.6	100
Mean number days where maximum temperature = 35ºC	19.7	16.4	9.7	1.4	0	0	0	0.1	1.3	9	14.2	19	91	75.6	100
Mean number days where maximum temperature = 30ºC	28.1	24.5	22.8	9.5	2	0.1	0.1	2.5	10	18.9	24.2	27	170	75.6	100
Highest daily maximum temperature ºC	46.7	44.4	45	39.1	38.3	31.4	31	36	37.6	45	45.6	48	48	75.8	100
Mean daily minimum temperature ºC	20.8	20.1	17.1	12.2	7.7	4.9	3.7	6	9.7	14.4	17.6	20	13	75.6	100
Mean number days where minimum temperature = 2ºC	0	0	0	0	2.7	8.6	13	6.4	1	0	0	0	31	75.6	100
Mean number days where minimum temperature = 0ºC	0	0	0	0	0.6	4.3	7.4	2.9	0.1	0	0	0	15	75.6	100
Lowest daily minimum temperature ºC	10	8.9	3.9	1.8	-3	-5.6	-7.2	-3.9	-1.1	2.4	4.1	7.8	-7.2	75.8	100
Mean 9am air temperature ºC	29	27.9	25	20.1	15.2	11.5	11	14	19.2	24	27.1	29	21	75.8	100
Mean 9am wet bulb temperature ºC	18.5	18.4	16.5	13.3	10.3	7.7	6.7	8.5	11.3	14.3	16.6	18	13	75.8	100
Mean 9am dew point ºC	10.3	11	9.5	6.7	4.7	2.9	1	1	2.1	4.4	7.1	9.1	5.8	75.8	100
Mean 9am relative humidity, percent	36	40	41	45	52	58	54	44	35	32	33	34	42	75.8	100
Mean 9am wind speed - km/hour	12.1	10.5	9.7	9	7.6	6.5	7	9.1	11.8	13.6	12.3	12	10	71.8	92
Mean 3pm air temperature ºC	34.6	33.8	31.4	26.7	22.3	18.9	19	22	26.2	30	32.5	34	28	75.7	100
Mean 3pm wet bulb temperature ºC	20.5	20.3	18.8	16	13.6	11.5	11	12	14.6	17	18.7	20	16	75.7	100
Mean 3pm dew point ºC	10.2	10.4	9	6.5	4.8	3.2	1.3	1.5	2.6	5.1	7.3	9.2	5.9	75.7	100
Mean 3pm relative humidity, percent	26	28	28	31	35	38	34	28	25	24	24	26	29	75.7	100
Mean 3pm wind speed - km/hour	13	12.9	11.9	10.9	10	9.7	10	11	11.5	11.6	10.9	11	11	71.7	94
Mean monthly rainfall, millimetres	42.7	41.4	33.1	16.4	16.1	14.6	14	10	9.4	20.1	25.1	36	279	114	100
Median (5th decile) monthly rainfall, millimetres	22.6	14.3	11.6	2.8	2.9	5.1	0.8	1.3	1.6	16.3	17.8	18	258	111	
9th decile of monthly rainfall, millimetres	110	135.7	87.6	58	51.3	47.7	35	31	33.9	47.9	56	96	482	111	
1st decile of monthly rainfall, millimetres	0	0	0	0	0	0	0	0	0	0	0.7	0	138	111	
Mean number raindays	3.4	3.3	2.8	1.7	2.1	2	1.6	1.4	1.5	3.1	3.8	4	31	107	94
Highest monthly rainfall, millimetres	314	235.8	363	117	109	81.8	245	158	89.7	116	139	288		114	100
Lowest monthly rainfall, millimetres	0	0	0	0	0	0	0	0	0	0	0	0		114	100
Highest recorded daily rainfall, millimetres	107	105.4	166	72.1	47.5	62.8	135	69	47.2	57.9	67.6	118	166	112	98
Mean number clear days	12.9	12	14.7	15.2	15.1	14.5	17	18	17.8	14.8	11.9	12	176	75.2	99
Mean number cloudy days	5.1	4.3	3.6	3.6	4.4	4.4	3	2.5	2	3.6	4.5	5.5	47	75.2	99
Mean daily evaporation, millimetres	9.9	9.5	8.1	6.1	4.1	3	3	4.1	6	7.7	8.8	9.5	6.6	53.7	84

Tennant Creek climate averages

Element	January	February	March	April	May	June	July	August	September	October	November	December	Annual	Number of years	Percent complete
Mean daily maximum temperature ºC	36.8	35.6	34.3	31.6	27.6	24.6	24.5	28	31.5	34.6	36.4	37.2	32	34.8	100
Mean number days where maximum temperature = 40ºC	5.7	2.7	0.3	0	0	0	0	0	0	0.7	3.2	6.1	19	34.8	100
Mean number days where maximum temperature = 35ºC	22.9	16.6	14.2	3.4	0.1	0	0	0.2	5.5	16.4	21.5	24.8	126	34.8	100
Mean number days where maximum temperature = 30ºC	29.5	26.1	28.2	22.5	8.4	1.9	1.8	8.5	20.7	27.4	28.9	30.2	234	34.8	100
Highest daily maximum temperature ºC	44	44.5	40.7	37.6	35.5	32.9	34.7	36	38.9	41.6	43.4	44.7	45	35	100
Mean daily minimum temperature ºC	25	24.5	23.2	20.3	16.4	13	12.2	15	18.3	21.6	23.7	24.9	20	34.8	100
Mean number days where minimum temperature = 2ºC	0	0	0	0	0	0	0	0	0	0	0	0	0	34.8	100
Mean number days where minimum temperature = 0ºC	0	0	0	0	0	0	0	0	0	0	0	0	0	34.8	100
Lowest daily minimum temperature ºC	17.2	17.2	14.6	11.6	6.7	5.3	4.5	6	7.4	11.6	10.7	17.8	4.5	35	100
Mean 9am air temperature ºC	29.2	28.2	27	24.1	19.9	16.3	15.7	19	23.1	26.8	28.9	29.8	24	34.9	100
Mean 9am wet bulb temperature ºC	21	21.3	19	15.6	12.7	10.2	9.2	11	13.3	16	18.5	20.3	16	34.9	100
Mean 9am dew point ºC	15	16.3	12.5	7.5	5.1	2.7	0.6	0	1.7	4.6	9.1	12.9	7.3	34.9	100
Mean 9am relative humidity, percent	49	55	46	38	40	42	38	31	28	29	35	42	39	34.9	100
Mean 9am wind speed - km/hour	16.8	16.6	19.6	23.7	24.8	24.2	23.5	25	25.6	25	21.4	18.2	22	35.2	101
Mean 3pm air temperature ºC	35.4	34.3	33.3	30.8	26.9	23.9	23.8	27	30.7	33.5	35.1	35.8	31	34.3	99
Mean 3pm wet bulb temperature ºC	21.9	22.2	20.5	18	15.7	13.6	12.9	14	16.2	18.1	20	21.2	18	34.3	99
Mean 3pm dew point ºC	12.2	14	10.8	7.1	4.7	2	-0.1	-1	0.6	3.4	7.4	10.4	6	34.3	99
Mean 3pm relative humidity, percent	30	36	30	25	26	25	22	18	17	19	22	26	25	34.3	99
Mean 3pm wind speed, kilometre/hour	15.1	15.8	17.5	17.2	16.6	16.2	15.3	16	15.9	14.3	13.7	14	16	34.7	99
Mean monthly rainfall, millimetres	100.5	129.9	58.2	15.7	8.4	4.5	5	1.9	7.9	19.5	36.8	72.1	460	34.8	100
Median (5th decile) monthly rainfall, millimetres	88.2	96.6	34.2	2	0	0	0	0	1.2	16	28	44.8	403	34	
9th decile of monthly rainfall, millimetres	257	345.5	171.9	57.1	33	15.4	14	6.6	27.5	48.8	81.9	186	776	34	
1st decile of monthly rainfall, millimetres	11	5.8	0.7	0	0	0	0	0	0	0	2.9	8.2	219	34	
Mean number raindays	9.4	9.6	6.3	2	1.5	0.6	0.7	0.8	1.8	4	6	7.6	50	34.8	100
Highest monthly rainfall, millimetres	280.2	377	237.6	135.4	50.8	85.3	74.2	18	55.6	75.5	160	250		34.8	100
Lowest monthly rainfall, millimetres	2.2	1	0	0	0	0	0	0	0	0	1.8	1.8		34.8	100
Highest recorded daily rainfall, millimetres	138.4	153.6	95.2	102.8	22.6	45.5	62.2	18	29.6	51.6	71.6	135	154	34.9	100
Mean number clear days	6.5	4.5	10.6	14.9	18.6	20.2	22.8	22	20.1	16.8	10.5	7.8	176	35	100
Mean number cloudy days	12.5	12.8	9.3	5.6	4.3	2.6	2.1	1.8	2.4	4.8	6.3	10.1	75	35	100
Mean daily hours sunshine	9.4	8.9	9.3	9.8	9.7	10	10.2	11	10.2	10	9.7	9.7	9.8	34.8	100
Highest recorded wind gust, km/hour	116.6	101.9	94.7	98.3	81.4	77.8	79.6	78	76	104	100	106	117	34.9	100
Mean daily evaporation, millimetres	12.9	11.5	11.5	11	8.9	7.5	7.6	9.5	12	13.5	13.8	13.5	11	34.9	100

APPENDIX 2

DRILL LOGS

Project	Thor Mining PLC Molyhil Project
Drillhole number	TMRC037
Date drilled	1 October 2006
Location	0581093E/7486367N, northeastern corner of creek junction
Total depth	96 metres
Standing water level	42 metres approximately
Water encountered	37 metres (?); dry mud bridge at 26 metres (02.10.2006), air still escaping on hole completion
Main aquifer	39(?) to 46 metres
Yield and test method	could not airlift from cavern
Salinity	not tested
Drilling contractor	Arrinooka Drilling, P Kennedy
Drilling rig	Hydco Atlas Copco XRV compressor 1000cfm 360cfm. Auxiliary XRVS97b compressor 360psi 1000cfm. Booster Hurricane Airdrill M82D with AUDR rod handler
Drilling method	reverse circulation, air
Hole sizes, bits, depths	5.5 inch (140.5mm) hammer bit
Driller	S Morfit and D Galante
Logged by	KH Morgan
Down-hole logs	-
Completion details:	
collar and cementing	2m 150mm vinidex PVC drill casing
casing	-
screens and slots	-
development	-
gravel pack	-

Drillhole	TMRC037	
Depth (m)	Lithology	
0 - 2	Brown stony alluvium quartzite, dolomite clasts in silty red-brown sand.	
2 - 6	Orange to yellowish oxidised (dolomite?).	
6 - 30	Yellow powder (dolomite?).	
	19	Orange-yellow, damp, still powdery.
	25 - 30	Orange-brown, damp, clayey, soft (lateritic dolstone?).
30 - 96	30 - 39	Red-brown to deep orange-brown, soft and hard bands. Poor sample return in soft layers.
	39 - 41	Cavern.
	42	Red-brown broken dolomite, damp. Temporary water from cyclone at 42 metres.
	43	No sample return, wet broken brown massive dolomite. No water from outside return or cyclone.
	54	Dusty sample. Harder drilling. Pinkish dolomite.
	58 - 68	Grey hard massive dolomite. Slow drilling (1.5m/min).
	68 - 96	Red-brown softer dolomite.

Project	Thor Mining PLC Molyhil Project
Drillhole number	TMRC038
Date drilled	1 October 2006
Location	0580176E/7486367N
Total depth	102 metres
Standing water level	-
Water encountered	30 metres
Main aquifer	30 to 33 metres, 48 to 49 metres
Yield and test method	airlift outside return, small seepage, approximately 0.1Ls^{-1}
Salinity	approximately 300mg/L TDS
Drilling contractor	Arrinooka Drilling, P Kennedy
Drilling rig	Hydco Atlas Copco XRV compressor 1000cfm 360cfm. Auxiliary XRVS97b compressor 360psi 1000cfm. Booster Hurricane Airdrill M82D with AUDR rod handler
Drilling method	reverse circulation, air
Hole sizes, bits, depths	5.5 inch (140.5mm) hammer bit
Driller	S Morfit
Logged by	KH Morgan
Down-hole logs	-
Completion details:	
collar and cementing	2m 150mm PVC, foam cemented
casing	-
screens and slots	-
development	-
gravel pack	-

Drillhole	TMRC038	
Depth (m)	Lithology	
0 - 2	Brown broken dolomite argillite and fine silt.	
2 - 12	Pale yellow soft weathered argillite.	
12 - 18	Brown, red-brown argillite.	
18 - 26	Yellow to khaki, soft claystone.	
26 - 33	Brown, very damp clay. Little sample return. Wet clay 30 to 33 metres.	
33 - 35	Khaki argillite.	
	35	Grey brittle argillite/dolomite. Yellowish-pale grey brittle argillaceous dolomite, in places, dendritic structured.
43 - 48	Red-brown brittle argillaceous dolomite.	
48 - 49	Brown wet soft clay. Minor muddy water from cyclone, then dry.	
49 - 66	Brown to red-brown argillite.	
	53 - 64	Wet clay and argillite.
66 -102	Brown hard brittle medium grained to poorly sorted quartz arenite.	
	72	Small seepage at rod change possibly from 30 to 33 metres.
	78	Siltstone and brittle shale. Slower drilling.

Project	Thor Mining PLC Molyhil Project
Drillhole number	TMRC039
Date drilled	2 October 2006
Location	0582193E/7485987N
Total depth	102 metres
Standing water level	hole bridged at 2 metre depth
Water encountered	61 metres, 78 metres, 91 metres
Main aquifer	61 to 94 metres
Yield and test method	$2Ls^{-1}$ bucket fill blowdown
Salinity	$480mgL^{-1}$ TDS, water sample
Drilling contractor	Arrinooka Drilling, P Kennedy
Drilling rig	Hydco Atlas Copco XRV compressor 1000cfm 360cfm. Auxiliary XRVS97b compressor 360psi 1000cfm. Booster Hurricane Airdrill M82D with AUDR rod handler
Drilling method	reverse circulation, air
Hole sizes, bits, depths	5.5 inch (140.5mm) hammer bit
Driller	S Morfit
Logged by	KH Morgan
Down-hole logs	-
Completion details:	
collar and cementing	3m 150mm PVC, foam cemented
casing	-
screens and slots	-
development	-
gravel pack	-

Drillhole	TMRC039
Depth (m)	Lithology
0 - 5	Brown oxide faced claystone and brown silt.
5 - 12	White-brown mottled broken claystone, after calc rock (dolomite?).
12 - 20	Dark mauve to grey hard flaking mudstone.
20 - 33	Pale grey blocky fracturing silicified (porcellanised) dolomite. Some faces with Fe staining.
	24 - 33 Massive, no obvious fractures.
33 - 54	Brown to pale mauve silicified hard brittle silicified claystone.
54 - 65	Pale grey massive silicified claystone.
65 -102	Red-brown brittle claystone. Possible small water make. Less 0.1Ls^{-1} from outside return. Could be from high up in the hole. Driller reported water at 61 metres in pale grey-mauve mudstone.
	78 Flow approximately 0.3Ls^{-1} outside water flow ceased when drilling.
	84 Blown-down sub test; 0.25Ls^{-1}, 400mgL^{-1} TDS. Water sample, clear settled.
	90 Onwards, faster drilling.
	93 - 94 Coarse chips. Sample wet, increased flow. Collar blow-out. Add 1.5 metres of collar.
	100 Flaking purple-brown pelite. Samples dry.
	102 480mgL^{-1} TDS; flow 1.5Ls^{-1}(+). Blow-down sub, 2Ls^{-1}.

Project	Thor Mining PLC Molyhil Project
Drillhole number	TMRC040
Date drilled	3 October 2006
Location	0582949E/7485472N
Total depth	78 metres
Standing water level	bridged at 26 metres
Water encountered	40.5 metres
Main aquifer	40.5 to 68 metres
Yield and test method	2.5Ls^{-1} on hole completion, bucket fill outside return with booster on
Salinity	710mgL^{-1} TDS, very muddy, black turbidity
Drilling contractor	Arrinooka Drilling, P Kennedy
Drilling rig	Hydco Atlas Copco XRV compressor 1000cfm 360cfm. Auxiliary XRVS97b compressor 360psi 1000cfm. Booster Hurricane Airdrill M82D with AUDR rod handler
Drilling method	reverse circulation, air
Hole sizes, bits, depths	5.5 inch (140.5mm) hammer bit
Driller	S Morfit
Logged by	KH Morgan
Down-hole logs	-
Completion details:	
collar and cementing	2m 150mm PVC, foam cemented
casing	-
screens and slots	-
development	-
gravel pack	-

Drillhole	TMRC040	
Depth (m)	Lithology	
0 - 5	Brown-pale brown granular silt sand supported alluvium-colluvium.	
5 - 18	Brown, grey-brown highly weathered hard argillite to silicic chips, possibly replaced carbonate.	
18 - 24	Dark grey silicified dolomite. Hard.	
24 - 26	Brown oxidised dolomite. Softer drilling.	
26 - 31	Dark grey, flaking hard dolomite.	
31 - 40	Dark grey broken with Fe facings.	
40 - 51	Pale yellow-grey silicified argillite(?).	
	40.5	Water.
	43 - 51	Broken brown oxide faced dolomite chips. No water returns.
51 - 54	Red-brown pelitic rock.	
54 - 56.5	54	Cavern 2.5 metres.
56.5- 58	Black mud.	
58 - 59	Grey pelite.	
60 - 65	Cavern.	
65 - 68	Black mud; 2.5Ls^{-1}, 710mgL^{-1} TDS. Flow limited by airlift method.	
68 - 74	Dark grey silicified(?) pelite (after carbonate?).	
74 - 78	Purple-red pelite. Test with booster on, 2.5Ls^{-1}, water black and muddy.	

Project	Thor Mining PLC Molyhil Project
Drillhole number	TMRC041
Date drilled	4 October 2006
Location	0582993E/7484884N, eastern bank of creek
Total depth	102 metres
Standing water level	bridged at 26 metres on hole completion
Water encountered	42 metres
Main aquifer	42 to 51 metres, 87 to 94 metres
Yield and test method	4.6Ls^{-1} bucket fill outside return
Salinity	1050mgL^{-1} TDS
Drilling contractor	Arrinooka Drilling, P Kennedy
Drilling rig	Hydco Atlas Copco XRV compressor 1000cfm 360cfm. Auxiliary XRVS97b compressor 360psi 1000cfm. Booster Hurricane Airdrill M82D with AUDR rod handler
Drilling method	reverse circulation, air
Hole sizes, bits, depths	5.5 inch (140.5mm) hammer bit
Driller	D Galante, S Morfit and M Bentley
Logged by	KH Morgan
Down-hole logs	-
Completion details:	
collar and cementing	3.2m 150mm PVC, foam cemented
casing	-
screens and slots	-
development	-
gravel pack	-

Drillhole	TMRC041	
Depth (m)	Lithology	
0 - 4	Brown angular cobble alluvial scree and silty alluvium sand.	
4 - 7	Grey-brown broken dolomite.	
7 - 15	White to pale grey and brown dolomite.	
15 - 46	Pale grey-white massive crystalline dolomite.	
	37	Damp onwards. Adhering dust on particles, yellowish colouration. Circular biogenic(?) structures. Small vughs.
	42	Water. Softer drilling.
	44	Outside flow approximately $0.4Ls^{-1}$, highly yellow coloured turbid water.
46 - 47	White massive non-oxidised dolomite.	
47 - 52	Broken oxidised dolomite.	
	51	Brown oxidation, broken dolomite.
52 - 87	Grey to dark grey massive hard dolomite. Flow $1Ls^{-1}$ to $2Ls^{-1}$. Possible flow increase 47 to 52 metres.	
	54	Outsider return flow $0.75Ls^{-1}$. Massive non-oxidised dolomite, conical 4 centimetre (1cm diameter at top) long biogenic structures.
	72	Blocked inner tube, round trip. On re-entry, a large amount of cave-in required redrilling.
	83	Minor breaks.
87-102	Pale grey dolomite(?), Fe faces. Discharge water turned black. Increase in flow, $2(+)Ls^{-1}$.	
	94	Onwards, grey to dark grey dolomite.
	102	Flow $4Ls^{-1}$, $050mgL^{-1}$ TDS.

Project	Thor Mining PLC Molyhil Project
Drillhole number	TMRC042
Date drilled	5 October 2006
Location	0583149E/7484285N
Total depth	96 metres
Standing water level	31 metres
Water encountered	40.5 metres
Main aquifer	40(?) to 52 metres, 76 to 78 metres
Yield and test method	could not test due to cavernous ground
Salinity	1570mgL^{-1} ppm TDS
Drilling contractor	Arrinooka Drilling, P Kennedy
Drilling rig	Hydco Atlas Copco XRV compressor 1000cfm 360cfm. Auxiliary XRVS97b compressor 360psi 1000cfm. Booster Hurricane Airdrill M82D with AUDR rod handler
Drilling method	reverse circulation, air
Hole sizes, bits, depths	5.5 inch (140.5mm) hammer bit
Driller	S Morfit, D Galante and M Bentley
Logged by	KH Morgan
Down-hole logs	-
Completion details:	
collar and cementing	3m 150mm PVC, foam cemented
casing	-
screens and slots	-
development	-
gravel pack	-

Drillhole	TMRC042
Depth (m)	Lithology
0 - 2	Red-brown to brown silty sand and pebble alluvium. Sub-angular clasts.
2 - 4	Yellow-brown broken colluvial dolomite(?) debris.
4 - 8	Yellow-brown highly oxidised claystone.
8 - 21	Yellow to brown indurated clay. Damp and, in places, sticky.
21 - 34	Pale grey oxidised dolomite with increasing solids with depth. Brown staining.
34 - 37	Cavern.
37 - 40	Yellow stained pale grey dolomite.
40 - 43	Cavernous. Small sample return. Highly yellow stained dolomite.
43 - 52	Yellow to pale grey crystalline dolomite.
52 - 58	Dark grey dolomite. Minor Fe oxide faces.
58 - 61	Grey to dark grey dolomite.
61 - 96	Dark grey dolomite.
	67 - 78 Yellow clayey strongly oxidised.
	90 Minor cyclone water after rod change.
	88 Slow hard drilling. Cyclone temporary lift, 1570mgL^{-1} ppm TDS.

Project	Thor Mining PLC Molyhil Project
Drillhole number	TMRC043
Date drilled	6 October 2006
Location	0576805E/7482341N
Total depth	66 metres
Standing water level	-
Water encountered	-
Main aquifer	-
Yield and test method	dry, seepage water in hole after standing overnight
Salinity	-
Drilling contractor	Arrinooka Drilling, P Kennedy
Drilling rig	Hydco Atlas Copco XRV compressor 1000cfm 360cfm. Auxiliary XRVS97b compressor 360psi 1000cfm. Booster Hurricane Airdrill M82D with AUDR rod handler
Drilling method	reverse circulation, air
Hole sizes, bits, depths	5.5 inch (140.5mm) hammer bit
Driller	S Morfit, D Galante and D Lloyd
Logged by	KH Morgan
Down-hole logs	-
Completion details:	
collar and cementing	3m 150mm PVC, foam cemented
casing	-
screens and slots	-
development	-
gravel pack	-

Depth (m)		Lithology
0 - 4		Brown angular sand granule sand and granite skeletal.
4 - 20		Grey weathered medium grained pink feldspar biotite granite.
	15	Slightly weathered.
20 - 66		Grey non-oxidised granite.
	43	Minor oxidation.
	47	Minor breaks; coarser fragments, slight oxidation.
	54	Slight oxidation, coarser grained.

Project	Thor Mining PLC Molyhil Project
Drillhole number	TMRC044
Date drilled	6 October 2006
Location	0576362E/7482412N
Total depth	72 metres
Standing water level	-
Water encountered	-
Main aquifer	-
Yield and test method	dry
Salinity	-
Drilling contractor	Arrinooka Drilling, P Kennedy
Drilling rig	Hydco Atlas Copco XRV compressor 1000cfm 360cfm. Auxiliary XRVS97b compressor 360psi 1000cfm. Booster Hurricane Airdrill M82D with AUDR rod handler
Drilling method	reverse circulation, air
Hole sizes, bits, depths	5.5 inch (140.5mm) hammer bit
Driller	P Kennedy, S Western, D Galante and M Bentley
Logged by	KH Morgan
Down-hole logs	-
Completion details:	
collar and cementing	4m 150mm PVC, foam cemented
casing	-
screens and slots	-
development	-
gravel pack	-

Depth (m)	Lithology
0 - 3	Red-brown silt alluvium.
3 - 5	Pale grey hard calcrete.
5 - 12	Brown highly oxidised insitu granite skeletal.
12 - 16	Brown oxidised grey medium to coarse grained granite.
16 - 30	Slightly oxidised granite.
30 - 72	Non-oxidised grey medium grained pink feldspar grey plagioclase biotite granite.
42 - 44	Slight brown oxidation.

Project	Thor Mining PLC Molyhil Project
Drillhole number	TMRC045
Date drilled	6 October 2006
Location	0576684E/7482449N
Total depth	30 metres
Standing water level	9 metres
Water encountered	10 metres
Main aquifer	10 to 14 metres
Yield and test method	0.1Ls^{-1} bucket fill
Salinity	5200mgL^{-1} ppm TDS
Drilling contractor	Arrinooka Drilling, P Kennedy
Drilling rig	Hydco Atlas Copco XRV compressor 1000cfm 360cfm. Auxiliary XRVS97b compressor 360psi 1000cfm. Booster Hurricane Airdrill M82D with AUDR rod handler
Drilling method	reverse circulation, air
Hole sizes, bits, depths	5.5 inch (140.5mm) hammer bit
Driller	P Kennedy, S Western, D Galante and M Bentley
Logged by	KH Morgan
Down-hole logs	-
Completion details:	
collar and cementing	2m 150mm PVC, foam cemented
casing	-
screens and slots	-
development	-
gravel pack	-

Depth (m)	Lithology
0 - 1	Red-brown alluvial.
1 - 3	Brown granite skeletal.
3 - 14	Brown weathered fragmenting granite. Water at 10 metres.
10	Water. Weathered coarse granite.
14	Flow approximately 0.1Ls^{-1} from outside return. 543mgL^{-1} TDS.
14 - 30	Grey harder little oxidation. Granite.
30	Test 5200mgL^{-1} TDS; yield 0.1Ls^{-1}; standing water level 9 metres.

Project	Thor Mining PLC Molyhil Project
Drillhole number	TMRC046
Date drilled	6 to 7 October 2006
Location	0578223E/7478223N
Total depth	45 metres
Standing water level	22 metres
Water encountered	44 metres
Main aquifer	-
Yield and test method	seepage
Salinity	-
Drilling contractor	Arrinooka Drilling, P Kennedy
Drilling rig	Hydco Atlas Copco XRV compressor 1000cfm 360cfm. Auxiliary XRVS97b compressor 360psi 1000cfm. Booster Hurricane Airdrill M82D with AUDR rod handler
Drilling method	reverse circulation, air
Hole sizes, bits, depths	5.5 inch (140.5mm) hammer bit
Driller	P Kennedy, S Western, D Galante and M Bentley
Logged by	KH Morgan
Down-hole logs	-
Completion details:	
collar and cementing	6m 150mm PVC, foam cemented
casing	-
screens and slots	-
development	-
gravel pack	-

Depth (m)	Lithology
0 - 5	Red-brown silty supported granite skeletal alluvium/colluvium.
5 - 27	Pale grey highly weathered fragmental fine grained muscovite granite oxidation gradually decreasing with depth.
27 - 45	Grey to dark grey slightly oxidised to fresh, fine to medium grained biotite granite.
44	Samples. Damp.

Project	Thor Mining PLC Molyhil Project
Drillhole number	TMRC047
Date drilled	7 October 2006
Location	0572992E/7485076N
Total depth	54 metres, 447.53 metres reduced level
Standing water level	-
Water encountered	not detected by drilling
Main aquifer	-
Yield and test method	seepage
Salinity	-
Drilling contractor	Arrinooka Drilling, P Kennedy
Drilling rig	Hydco Atlas Copco XRV compressor 1000cfm 360cfm. Auxiliary XRVS97b compressor 360psi 1000cfm. Booster Hurricane Airdrill M82D with AUDR rod handler
Drilling method	reverse circulation, air
Hole sizes, bits, depths	5.5 inch (140.5mm) hammer bit
Driller	S Western, P Kennedy, D Galante and M Bentley
Logged by	KH Morgan
Down-hole logs	-
Completion details:	
collar and cementing	3m 150mm PVC, foam cemented
casing	-
screens and slots	-
development	-
gravel pack	-

Depth (m)	Lithology
0 - 16	Brown stained weathered medium grained biotite granite.
16 - 54	Grey slightly oxidised to nearly fresh biotite granite.

Project	Thor Mining PLC Molyhil Project
Drillhole number	TMRC048
Date drilled	7 October 2006
Location	0573024E/7485145N
Total depth	60 metres
Standing water level	-
Water encountered	-
Main aquifer	-
Yield and test method	-
Salinity	-
Drilling contractor	Arrinooka Drilling, P Kennedy
Drilling rig	Hydco Atlas Copco XRV compressor 1000cfm 360cfm. Auxiliary XRVS976 compressor 360psi 1000cfm. Booster Hurricane Airdrill M82D with AUDR rod handler
Drilling method	reverse circulation, air
Hole sizes, bits, depths	5.5 inch (140.5mm) hammer bit
Driller	P Kennedy, S Western, D Galante and M Bentley
Logged by	KH Morgan
Down-hole logs	-
Completion details:	
collar and cementing	3m 150mm PVC, foam cemented
casing	-
screens and slots	-
development	-
gravel pack	-

Depth (m)	Lithology
0 - 2	Yellow-brown silt and oxidised pelite.
2 - 14	Yellow to brown oxide faced grey fragmental pelite.
14 - 21	Harder, brittle oxide faced pelite.
15 - 16	Yellow strongly oxidised pelite.
21 - 60	Medium to darker grey hard silicified pelite little evidence of oxidation.
52 - 54	Brown softer oxidised pelite, no water on standing for five minutes.

Project	Thor Mining PLC Molyhil Project
Drillhole number	TMRC049
Date drilled	7 to 8 October 2006
Location	0573476E/7485021N
Total depth	60 metres
Standing water level	20 metres
Water encountered	46 metres
Main aquifer	46 to 47 metres
Yield and test method	low, not tested
Salinity	6430mgL^{-1} ppm TDS
Drilling contractor	Arrinooka Drilling, P Kennedy
Drilling rig	Hydco Atlas Copco XRV compressor 1000cfm 360cfm. Auxiliary XRVS97b compressor 360psi 1000cfm. Booster Hurricane Airdrill M82D with AUDR rod handler
Drilling method	reverse circulation, air
Hole sizes, bits, depths	5.5 inch (140.5mm) hammer bit
Driller	S Western, P Kennedy, D Galante and M Bentley
Logged by	KH Morgan
Down-hole logs	-
Completion details:	
collar and cementing	3m 150mm PVC, foam cemented
casing	-
screens and slots	-
development	-
gravel pack	-

Drillhole	TMRC049
Depth (m)	Lithology
0 - 3	Red-brown silty sand.
3 - 6	Brown oxidised fragmental granite.
6 - 20	Grey to pink coarse grained highly weathered. Pink feldspar biotite granite.
20 - 45	Less oxidised, less fractured granite, as above.
	28 Onwards, slower drilling.
	37 Very slow drilling with booster off. Small volume of water after standing overnight. 6430mgL^{-1} ppm TDS.
45 - 46	Oxidised contact granite and silicic rock.
46 - 47	Oxidised faced chips grey silicic rock.
47 - 60	Grey, sightly oxide faced chips, grey silicic rock.

Project	Thor Mining PLC Molyhil Project
Drillhole number	TMRC050
Date drilled	8 October 2006
Location	0573017E/7485175N
Total depth	42 metres
Standing water level	-
Water encountered	24 metres
Main aquifer	23 to 24 metres
Yield and test method	-
Salinity	-
Drilling contractor	Arrinooka Drilling, P Kennedy
Drilling rig	Hydco Atlas Copco XRV compressor 1000cfm 360cfm. Auxiliary XRVS976 compressor 360psi 1000cfm. Booster Hurricane Airdrill M82D with AUDR rod handler
Drilling method	reverse circulation, air
Hole sizes, bits, depths	5.5 inch (140.5mm) hammer bit
Driller	S Western, P Kennedy, D Galante and M Bentley
Logged by	KH Morgan
Down-hole logs	-
Completion details:	
collar and cementing	3m 150mm PVC, foam cemented
casing	-
screens and slots	-
development	-
gravel pack	-

Depth (m)	Lithology
0 - 1	Red-brown silty sand and granite fragments.
1 - 6	Grey to whitish highly clayey oxidised pegmatitic granite.
6 - 26	Grey soft pelitic rock becoming harder and fracturing with brown oxide faces past 24 metres.
24	Water 2180 ppm TDS. Seepage.
26 - 42	Grey hard chipping non-oxidised pelite. Small flow less 0.1Ls^{-1}.

APPENDIX 3

ALS ENVIRONMENTAL ANALYSIS CERTIFICATES