GEOPEKO LIMITED

CENTRAL AUSTRALIA

ANNUAL REPORT

ON

EXPLORATION LICENCE NO. 228

Compiled

by

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ANNUAL REPORT ON EXPLORATION LICENCE NO. 228

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1. INTRODUCTION.

Exploration Licence No. 228 held by Australian Ores and Minerals Limited was granted on 25th May, 1973. It covers an area of 474 square kilometers (183 square miles) and whose north-eastern corner is situated 52.5 kms on a true bearing of 241 degrees from Tennant Creek.

Access to the Exploration Licence is via a bitumen road from Tennant Creek to the Warrego Mine of Peko Mines Limited, thence 11.5 kilometres along a formed dirt road west from the mine to a track that runs in a southerly direction to the Rover 1 Prospect which lies on the southern boundary of the Exploration Licence. Lateral access within the Exploration Licence is via a graded track to the east and west of Rover 1 Prospect. The track to the east provides an alternate access route to the Exploration Licence via either a track from Cabbage Gum Bore or the track from Kelly Well, both tracks joins at Kelly West which is situated approximately 20 kms east of the Exploration Licence boundary.

This report covers the exploration activities by Geopeko Limited for the year ended 21st May, 1974 and is the second Statutory Annual Report to be submitted on the Exploration Licence.

Prior to the area being held on an Authority to Prospect by Australian Ores and Minerals Limited an area which embraces the Exploration Licence was covered by an aeromagnetic survey by the Bureau of Mineral Resources. An additional low level aeromagnetic survey was conducted over the area by Australian Ores and Minerals Limited in 1970-71 while the area was held as an Authority to Prospect. The tenure was subsequently converted to an Exploration Licence.

Seven aeromagnetic anomalies were located on the ground and were covered by reconnaissance magnetics during the period 22nd May, 1972 to 21st May 1973. The seven anomalies were named Rovers 1 to 7. Rovers 1,2 and 4 were gridded and covered by a total force magnetic survey. Analysis of the results from Rover 1 indicated that the anomaly was caused by a discrete ironstone body at depth. A diamond drill hole was drilled to test the body. A small ironstone body is considered to be responsible for the anomaly at Rover 4 and the prospect was scheduled for drilling.

During the period 22nd May, 1973 to 21st May, 1974, a further five aeromagnetic anomalies were located, viz. Rovers 8, 11, 12, 13 and 14.

Reconnaissance magnetics were conducted over the anomalies using the vehicle magnetometer - navigator.

A grid was surveyed in and a total force magnetic survey was carried out at Rover 5,8,11 and 14.

A geophysical parameter study was undertaken at Rover1 utilising data from Rover 1 DDH1 which was negative. The re-analysis established the existence of two bodies and provided revised drilling targets to test the bodies.

The drilling programme is to define the resource in the eastern (H20) body. A hole designed to test the eastern (J80) body was completed.

2. TENURE

The following list is of leases which are either granted or under application within the Exploration Licence -

NO.	AREA.	NAME.	STATUS.
ML 543E	16 Ha	Rover 1 No. 1	Granted
ML 544E	"	" No. 2	"
ML 545E	"	" No. 3	"
ML 546E	"	" No. 4	"
ML 649E	"	" No. 5	"
ML 547E	"	Rover 2 No. 1	"
ML 548E	"	" No. 2	"
ML 549E	"	" No. 3	"
ML 550E	"	" No. 4	"
ML 743E	"	Rover 3 No. 1	Under application
ML 744E	"	" No. 2	" "
ML 745E	"	" No. 3	" "
ML 746E	"	" No. 4	" "
ML 747E	"	" No. 5	" "
ML 748E	"	" No. 6	" "
ML 749E	"	" No. 7	" "
ML 750E	"	" No. 8	" "
ML 751E	"	" No. 9	" "
ML 685E	"	Rover 4 No. 1	Granted
ML 686E	"	" No. 2	"
ML 687E	"	" No. 3	"
ML 688E	"	" No. 4	"
ML 723E	"	Rover 5 No. 1	Under Application
ML 724E	"	" No. 2	" "
ML 725E	"	" No. 3	" "
ML 726E	"	" No. 4	" "
ML 727E	"	" No. 5	" "
ML 728E	"	" No. 6	" "
ML 729E	"	" No. 7	" "
ML 730E	"	" No. 8	" "
ML 731E	"	" No. 9	" "

NO.	AREA	NAME	STATUS
ML 714E	16 HA	Rover 13 No. 1	Under Application
ML 715E	"	" No. 2	" "
ML 716E	"	" No. 3	" "
ML 717E	"	" No. 4	" "
ML 718E	"	" No. 5	" "
ML 719E	"	" No. 6	" "
ML 720E	"	" No. 7	" "
ML 721E	"	" No. 8	" "
ML 722E	"	" No. 9	" "
ML 732E	"	Rover 14 No. 1	" "
ML 733E	"	" No. 2	" "
ML 734E	"	" No. 3	" "
ML 735E	"	" No. 4	" "

3. REGIONAL GEOLOGY

The Exploration Licence is devoid of any outcrop. Beneath the superficial sand and bulldust cover the Middle Cambrian Merrina Beds have been intersected in drill holes at the Rover 1 Prospect. The Cambrian unconformably overlies the Lower Proterozoic sediments of the Warramunga Group which are the host rocks to the mineralisation at Rover 1. The unconformity between the Warramunga sequence and dolomites and dolomitic siltstones of the Merrina Beds outcrops at the Kelly West locality.

The Cambrian is known to extend to the West and South of the Exploration Licence but the distribution of the Warramunga Group has not been determined. The Cambrian sequence is essentially flat lying, however, it is not possible to ascertain and folding within the Warramunga Group. ?

Trends in the aeromagnetics in an ENE-WSW and NW-SE direction can be observed which could be interpretated as faults.

4. REGIONAL GEOPHYSICS

The Bureau of Mineral Resources flew aeromagnetic surveys in 1956 and 1960 over an area which embraced the Exploration Licence Australian Ores and Minerals Limited carried out a low level aeromagnetic survey in 1970-71 covering an area held as Authority to Prospect No. 2451 whose tenure was subsequently converted to Exploration Licence No. 228. The low level survey was used to determine areas of interest within the Exploration Licence which were to be studied in more detail using vehicular ground magnetic surveys.

A study of the aeromagnetic results indicates a WNW-ESE zone of magnetic highs cutting across the south-western quadrant of the Exploration Licence. A number of discrete anomalies lie along the Northern side of this magnetic ridge. Over the remainder of the Exploration Licence the magnetics display a featureless character except for a number of sporadic highs the most prominent of which is the Rover 1 Prospect.

In addition to the seven aeromagnetic anomalies previously investigated a further five have been studied. They are as follows:-

1. An anomaly situated at the intersection of Latitude 19°59' 03" with Longitude 133° 27' 40". The anomaly was called Rover 8 Prospect.

2. An anomaly situated at the intersection of Latitude 19° 58' 25" with Longitude 133° 32' 33". The anomaly was called Rover 11 Prospect.

3. An anomaly situated at the intersection of Latitude 19° 57' 12" with Longitude 133° 28' 00". The anomaly was called Rover 12 Prospedt.

4. An anomaly situated at the intersection of Latitude 19°55' 44" with Longitude 133° 31' 47". The anomaly was called Rover 13 Prospect.

5. An anomaly located at the intersection of Latitude 19° 57' 44" with Longitude 133° 31' 29". The prospect was called Rover 14 Prospect.

Reconnaissance magnetic traverses were conducted over the five anomalies using the vehicle magnetometer - navigator. All five prospects were scheduled for further investigation.

5. PROSPECT EVALUATION

5.1. Rover 1 Prospect

5.1.1. Location

Rover 1 Prospect is situated 68 kms on a true bearing of 235° from Tennant Creek at the intersection of latitude 20° 00' 00" with longitude 133° 39' 08". Access is via a formed dirt road to a point 11.5 kms west of the Warrego Mine, thence on a dirt track in a southerly direction for 65 kms.

5.1.2. Tenure

The prospect is covered by 5 leases held by Australian Ores and Minerals Limited. The specifications are as follows:-

No.	Area.	Name.
ML 543E	16 HA	Rover 1 No. 1
ML 544E	"	" No. 2
ML 545E	"	" No. 3
ML 546E	"	" No. 4
ML 679E	"	" No. 5

5.1.3. Grid Surveys

The following additional grid traverses have been surveyed in:

800E from 00N to 500N and
" 1500N " 2000N
850E " 500N " 1500N
900E " 00N " 500N
950E " 500N " 1500N
1000E " 00N " 500N and
" 1500N " 2000N
1050E " 500N " 1500N
1100E " 00N " 500N and
" 1500N " 2000N
1150E " 500N " 1500N
1200E " 00N " 5000N and
" 1500N " 2000N

Sub baselines were constructed at:

500N from 00E to 2000E and
1500N " 00E " 2000E

5.1.4. Geophysics.

A total force magnetic survey was conducted over the grid extensions

using the Geometrics Magnetometer.

5.1.5. Geology

All geological data has been ascertained from diamond drill holes. The sub-surface geology is comprised of Middle Cambrian Merrina Beds and Lower Proterozoic Warramung Group Sediments. An unconformity exists between the Merrina Beds and the Warramunga sequence at 120-140 m R.L. (Rover 1 DDH1 - 123.2 m R.L.; Rover 1 DDH 2 Parent - 134.7m R.L. and Rover 1 DDH3 Parent - 136.4m R.L.).

A. Cambrian

Three intersections of the Cambrian sequence have been recorded. They have indicated that the sequence is relatively uniform and that it can be broadly correlated laterally from one drill hole to another.

The intersected sequence can be sub-divided into three basic lithological units.

Lithology	Thickness
Siltstone and Mudstone (partly dolomitic)	?
Dolomite (including algal dolomite)	15-20m
Sandstone and conglomerate (partly dolomitic)	30-35m

The angles between the bedding planes and core axis indicate that the sequence is flat lying or has a very shallow dip.

A thickness cannot be assigned to the uppermost siltstone and mudstone unit as it extends beyond the point where coring commenced. The siltstone unit displays some bedding characteristics and is various shades of brown in colour which is the result of oxidation. The bottom 7m of the unit is dolomitic and contains discrete beds of dolomite.

The dolomitic unit is fairly distinctive and individual beds within the unit can be correlated from hole to hole. Some beds are extremely fossiliferous and are comprised almost entirely of

stromatolites which are globular in shape with concentric rings. Several horizons within the dolomitic unit contain a considerable number of voids and are substantial acquifers.

The lower most unit consists of medium to coarse grained sandstones/grits and poorly sorted conglomerates. The top section of the unit contains dolomitic sandstones and some siltstones. The sandstones and conglomerates are poorly cemented.

The unconformity is not distinct, although a basal conglomerate is present. There is a breccia zone underlying the conglomerate contains angular shale and sandstone fragments in a matrix of sand and silt. The fragments are Warramunga type lithologies.

B. Warramunga Group

It has not been possible to establish a stratigraphic sub-division of the Warramunga Group. There is no marker horizons and the lithological units do not persist laterally. The facies changes are extremely rapid. The rocks types encountered consist of a variety of siltstones and shales, minor fine grained sandstones, quartzites, greywackes and chert. The rocks have been subjected to various degrees of chloritisation and silicification.

The composition of the lode varies considerably but consists primarily of quartz, jasper, chlorite, hematite and magnetite in variable proportions. Pyrite and chalcopyrite are the main sulphide components and occur as varying amounts as veins and blebs. Pyrite has been observed in one intersection to be the dominant mineral present. It is often the only sulphide mineral recorded within the lode. A mineral assemblage containing gold, bismuth, silver, lead, zinc and cobalt has not been observed macroscopically but the presence of these elements has been ascertained by assaying.

There are two lode types, one is an ironstone comprised of magnetite and/or hematite with subordinate sulphide, the other is termed mineralised sediments. The mineralised sediment contains a relic sedimentary fabric but it is usually masked by the alteration by chloritisation which accompanies the mineralising

fluids. The progenitor of the mineralised sediments is either a mudstone or a siltstone.

A halo of chloritisation is observed around the lode. In the immediate vicinity of the lode the sediment consists almost exclusively of structureless chlorite. The ground is very badly fractured and the contact of the lode with the chloritised country rock is usually sharp.

C. Structure.

It has been very difficult to ascertain the strike and dip of the bedding in the Warramunga sediments. A sterographic projection plot of the beddingto core axis angle data suggests that the strike is approximately 122° and the dip is 87° to the south-west. The strike and dip of the cleavage was similarily determined and was found to be striking at approximately 122° and dipping at an angle of 89° to the north-east.

The attitude of the eastern (H20) body has been estimated from the geophysical model and the limited number of intersections. It is assumed to be striking at approximately 090° dipping at approximately 85-86° to the north and plunging at a similar angle to the east.

Intense fracturing suggests that faults are present but only one major fault has been recognised. This was intersected in Rover 1 DDH 3 WR02 at199.0-213.7m. Its presence was indicated by a zone of intense fracturing, quartz veining and substantial silicification. The attitude of the fault has not been determined.

A considerable number of dislocations, disruptions, flexures, contortions and veinlets can be observed in the core in addition to enumerable sedimentary dykes and chlorite injections which suggest the sediments were considerably mobile during diagenesis and prior to lithification.

5.1.6. Drilling

Analysis of the result from the magnetic survey delineated a geophysical target to test the cursory body. Rover 1 DDH1 intersected the target and was negative. A re-analysis of the geophysical data indicated the presence of two bodies. Rover 1 DDH2 Parent and subsequent wedge run offs were designed to test the eastern (H20) body. Rover 1 DDH3 was designed to test the western (J80) body (see figs. 3).

A. Rover 1 DDH2 Parent

Collar Coordinates: 1106E; 734N approximate geographic coordinates
Lafitude 20°00' 03"; Longitude 133° 38' 54".
A.M.G. Coordinates: 358000E; 7787550N.

Bearing: 011° Grid: 015½° Magnetic

Inclination: -80°

Target: 400 metres vertically below 1140E; 875N.

Hole Summary:

0-136.2m Cambrian Merrina Beds.

136.2m Unconformity between Merrina Beds and Warramunga Group.

136.2-231.4m Warramunga sediment viz sandstones, siltstone and hematite shale.

190-194m and 196-205m Badly fractured zone which possibly represents a fault zone. The hole was abandoned as it was not lifting sufficiently in profile and would not have intersected the planned target.

The core log of Rover 1 DDH2 Parent is appended.

B. Rover 1 DDH2 WRO1

Collar Coordinates: 1106E; 734N; approximate geographic coordinates Latitude 20°00' 13"; Longitude 133° 38' 54".

A.M.G. Coordinates: 358000E; 7787550N.

Bearing: 011° Grid; 015½° Magnetic.

Inclination: -80°

Target: 400m vertically below 1140E; 875N.

Hole Summary:

Hall Rowe Wedge placed at 168m.

172-394.3m Warramunga sediments vizsandstones, siltstones and hematite shale.

394.3-489.15m Magnetite/hematite lode with scattered sulphide. Interbedded chloritic sediment

489.15-515.2m Slightly chloritised sediment.

Economic Results Summary:

The significant copper values were:-

448-449m	1m	1.9% Cu
451-452m	1m	2.85% Cu
463-465m	2m	3.67% Cu

The gold values were overall insignificant but spot highs were recorded at:-

463-464m	1m	2.9gm/mt
465-466m	1m	2.7gm/mt

Bismuth, silver, lead and zinc values were negligible.

The core log of Rover 1 DDH 2 WRO 1 is appended. The plan and profile of the hole displaying detailed geology and structure is shown on Fig. 7.

C. Rover 1 DDH2 WRO2

Collar Coordinates: 1106E; 734N. Approximate geographic coordinates. Latitude 20° 00' 13", Longitude 133° 38' 54".
A.M.G. Coordinates: 358000E; 7787550N.
Bearing: 011° Grid 015½° Magnetic
Inclination: -80°
Target: 500m vertically below 1140E; 850N.
Hole Summary:
Hall Rowe Wedge placed at 163m.

167.00-564.35m	Warramunga Group sandstones, siltstones, and hematite shale.
564.35-575.65m	Magnetite-hematite lode and quartz-magnetite-hematite lode with subordinate pyrite and chalcopyrite.
575.65-621.00m	Mineralised sediment with minor pyrite and chalcopyrite.

A zone of chloritic sediment was intersected between 532.40m and 535.40m.

The core log of Rover 1 DDH 2 WRO 2 is appended. The plan and profile of the hole displaying detailed geology and structure is displayed on Fig. 7.

Economic Results Summary:
The copper values were sporadic and sub-economic. Assays of the lode zone were as follows:-

570-579m	9m	3.09% Cu	Nil Au
576-577m	1m	Nil Cu	11.7 gm/mt Au
582-586m	4m	0.3% Cu	12.3 gm/mt Au
586-591m	5m	Nil Cu	1.1 gm/mt Au
591-598m	7m	1.1% Cu	14.2 gm/mt Au
582-598m	16m	0.8% Cu	9.6 gm/mt Au

Bismuth, silver, lead and zinc values were neglibible.

D. Rover 1 DDH2 WRO 3

Collar Coordinates: 1106E; 734N Approximate geographic coordinates: Latitude 20° 00' 13"; Longitude 133° 38' 54".
A.M.G. Coordinates: 358000E; 7787550N.
Bearing: 011° Grid; 015½° Magnetic
Inclination: -80°
Target: 500m Vertically below 1120E; 875N.

Hole Summary:

Hall Rowe Wedge placed at 385m

387.00-570.95m Warramunga sediments viz shales, hematite and chloritic shales and siltstones.

510.95-513.00m Satellite lode of quartz-jasper-hematite with considerable pyrite and chalcopyrite.

531.40-594.00m Main lode - pyritic ironstone lode from 545.6 - 566.5m. Pyrite is ubiquitous in the lode and is massivein some sections. Main lode is comprised of both ironstone and mineralised sediment. Predominant sulphide in the mineralised sediment is pyrite.

594.00-608.00m (EOH) Chloritic shales and siltstones with minor disseminated pyrite.

The core log of Rover 1 DDH2 WR03 is appended. Fig. 8 is a plan and profile of the hole displaying the detailed geology and structure.

Economic Results Summary:

Copper values sporadic and marginally economic in grade. Summary of assays of lode zone is as follows:

511-512m	1m	2.04% Cu	Nil Au
535-536m	1m	2.20% Cu	20.3 gm/mt Au
540-541m	1m	2.08% Cu	Nil Au
545-546m	1m	2.06% Cu	Nil Au
574-575m	1m	3.96% Cu	Nil Au

overall:

533-546m	13m	1.15% Cu	Nil Au
573-577m	4m	1.79% Cu	Nil Au

E. Rover 1 DDH2 WR04

Collar Coordinates: 1106E; 734N; Approximate geographic coordinates: Latitude 20° 00' 13"; Longitude 133° 38' 54".

A.G.M. Coordinates: 358000E; 7787550N.

Bearing: 011° Grid: 015½° Magnetic.

Inclination: -80°

Target: 500m vertically below 1160E; 875N.

Hole Summary:

Hall Rowe Wedge placed at 327m

329.00-349.00m Warramunga sediments.

The hole was abandoned because drilling equipment was lost in the

hole which necessitated a further wedge run off.

F. Rover 1 DDH2 WRO 5.

Collar Coordinates: 1106E; 734N Approximate geographic coordinates: Latitude 20° 00' 13"; Longitude: 133° 38' 54".
A.G.M. Coordinates: 358000E; 7787550N.
Bearing: 011° Grid; 015½° Magnetic.
Inclination: -80°.
Target: 500m vertically below 1160E; 875N.
Hole Summary:
The wedge run was commenced at 275.0m but was abandoned at 631m because the hole deviated violently to the east. A sequence of Warramunga sediments comprised of phyllitic shale, hematite shale, shale, siltstone, minor quartzite, jasper and chert was intersected. The degree of silicification is noticeably stronger in this sequence indicating that in the Footwall Zone east of 1150E there is a higher grade of metamorphism with associated silicification. No mineralisation was encountered.
The core log of Rover 1 DDH2 WR05 is appended. Fig. 9 is a plan and profile of the drill hole and displays the detailed geology and structure.

G. Rover 1 DDH3 Parent.

Collar Coordinates: 810E; 834N. Approximate geographic coordinates: Latitude 20° 00' 08"; Longitude 133° 38' 58".
A.M.G. Coordinates: 358700E; 7787650N.
Bearing: 010° Grid; 005½° Magnetic.
Inclination: -78°.
Target: 360m vertically below 830E; 930N.
Hole Summary:
55.65-137.8m Middle Cambrian Merrina Beds (No core from 0.00-55.65m - roller drilled).
137.80m- Cambrian Merrina Beds - Lower Proterozoic Warramunga Group, unconformity.
137.80-256.00 Phyllitic shales and chloritic and cherty chloritic shales of the Warramunga Group.
The hole was terminated at 256.00 because it deviated violently to the east.
The core log of Rover 1 DDH3 Parent is appended. Fig. 10 is a plan and profile of the drill hole displaying the detailed geology and structure.

H. Rover 1 DDH3 WR01

Collar Coordinates: 810E; 834N. Approximate geographic coordinates: Latitude 20° 00' 08"; Longitude 133° 38' 58".
A.M.G. Coordinates: 358700E: 7787650N.
Bearing: 010° Grid; 005½° Magnetic.
Inclination: -78°
Target: 360m vertically below 830E; 930N.
Hole Summary:
Hall Rowe Wedge placed at 174.0m
179.80-193.00 Warramunga sediments.
The hole was terminated at 193.0 because it was deviating excessively from the planned course.
The core log of Rover 1 DDH3 WR01 is appended. Fig. 10 is a plan and profile of the drill hole displaying the detailed geology and structure.

I. Rover 1 DDH3 WR02

Collar Coordinates: 810E; 834N. Approximate geographic coordinates. Latitude 20° 00' 08" Longitude 133° 38' 58".
A.M.G. Coordinates: 358700E; 7787650N.
Bearing: 010° Grid; 005½° Magnetic
Inclination: -78°
Target: 360m vertically below 830E; 930N.
Hole Summary:
Hall Rowe Wedge placed at 148.00m.
151.20-355.80m Phyllitic shales and chloritic and silicified chloritic shales of the Warramunga Group.
213.70-316.7m Zone of quartz-chlorite venation.
199.0 -213.7m Major fault zone
355.80-375.60m Hematite-quartz-magnetite-pyrite lode with minor chalcopyrite.
375.60-460.3 (EOH) Chloritic and silicified chloritic shale and hematite shale.
The core log of Rover1 DDH3 WR02 is appended. Fig 10 is a plan and profile of the drill hole displaying the detailed geology and structure.
Economic Results Summary:
Moderate copper and negligible gold values were recorded in the lode zone. In the Footwall Zone some low copper values were recorded.

	340-341m	1m	2.18% Cu Nil Au
overall:			
	332-346m	14m	0.34% Cu Nil Au
	367-368m	1m	1.74% Cu Nil Au
	375-376m	1m	1.067%Cu Nil Au
overall:			
	365-378m	13m	0.35% Cu Nil Au

5.2. ROVER 5 PROSPECT.

5.2.1. Location:

Rover 5 Prospect is situated 6 kms on a true bearing of 017° from Rover 1 Prospect at the intersection of latitude 19°56'58" with longitude 133°40'07". Access is via a graded track from the Rover 1 Prospect to Warrego Mine. The Prospect is immediately east of the track approximately 7 kms north of Rover 1 (See Fig.2).

5.2.2. Tenure:

The prospect is covered by a mineral lease under application by Australian Ores and Minerals Limited. The details are as follows:-

No.	Area.	Name.
ML 723E	16 HA	Rover 5 No. 1
ML 724E	"	" No. 2
ML 725E	"	" No. 3
ML 726E	"	" No. 4
ML 727E	"	" No. 5
ML 728E	"	" No. 6
ML 729E	"	" No. 7
ML 730E	"	" No. 8
ML 731E	"	" No. 9

5.2.3. Grid Surveys:

Grid coordinates are relative to the Rover 1 datum. The following grid extensions were surveyed in:

Cross traverses at:

3100E from 6000N to 7200N
3200E " 6000N " 7200N
3300E " 6000N " 7200N
3400E " 6000N " 7200N
3500E " 6000N " 7200N
3600E " 6000N " 7200N

3800E from 6000N to 7200N
4000E " 6000N " 7200N

5.2.4. Geophysics:

A total force magnetic was conducted on the grid and extensions using the Geometrics SN 566 Magnetometer (See Fig. 11). A preliminary analysis indicates that both magnetic sediments and and ironstone body are present. Further geophysics is required to evaluate the anomaly.

5.2.5. Conclusions:

Additional gridding and magnetics are scheduled. If the results clearly indicate the presence of a discrete ironstone body a geophysical target for a diamond drill hole will be delineated.

5.3. ROVER 8 PROSPECT:

5.3.1. Location:

Rover 8 Prospect is situated approximately 20 kms on a true bearing of 274^{o} from the Rover 1 Prospect at the intersection of latitude $19^{o}59'03"$ with longitude 133^{o} 27' 40". Access is via a graded track to a point approximately 20 kms west of Rover 1 Prospect thence in southerly direction on a bush track for 15 kms (see Fig.2_0)

5.3.2. Tenure:

There are no mining tenements either held or under application over the prospect.

5.3.3. Grid Surveys:

The centre of the anomaly was determined using the vehicle magnetometer-navigator, this is the grid datum viz 1000E; 1000N. A baseline was surveyed in:

1000N from 400E to 1600E

Traverse were surveyed in on:

400E from 00N to 1700N
550E " 00N " 1700N
700E " 00N " 1700N
850E " 00N " 1700N

1000E from 00N to 1700N
1150E " 00N " 1700N
1300E " 00N " 1700N
1450E " 00N " 1700N
1600E " 00N " 1700N

5.3.4. Geophysics:

A total force magnetic survey was conducted on the grid using the Geometrics SN566 Magnetometer (see Fig. 12). Analysis of the geophysical results indicate that the anomaly is caused by an ironstone body at depth.

5.3.5. Conclusions

The body is considered to be too deep to contemplate drilling. No further work is planned.

5.4. ROVER 11 PROSPECT:

5.4.1. Location:

Rover 11 Prospect is situated approximately 11.8 kms on a true bearing of 284° from Rover 1 Prospect at the intersection of latitude 19° 58' 25" with longitude 133° 32' 33". Access is via a graded track west from Rover 1 Prospect. The prospect is located adjacent to the track at a point 15 kms from Rover 1 (see Fig. 2).

5.4.2. Tenure:

There is no mining tenement either held or under application over
8 the prospect.

5.4.3. Grid Surveys:

The centre of the anomaly was located using the vehicle magnetometer-navigator, this point was established as the grid datum viz 1000E; 1000N.

A baseline was surveyed in:

1000N from 600E to 1400E

Traverses were surveyed in at:

600E from 00N to 1500N
800E " 00N " 1500N
1000E " 00N " 1500N
1200E " 00N " 1500N
1400E " 00N " 1500N

5.4.4. Geophysics:

A total force magnetic survey was conducted on the grid using a Geometric SN566 Magnetometer (see Fig. 13 & 14).

5.4.5. Conclusions:

Geophysical analysis indicates that the anomaly is caused by magnetic sediments and no further work is planned.

5.5. ROVER 14 PROSPECT.

5.5.1. Location:

Rover 14 Prospect is situated approximately 14 kms on a true bearing of 288° from Rover 1 Prospect at the intersection of latitude 19° 57' 44" with longitude 133° 31' 29". Access is via a graded track to a point approximately 17 kms west of Rover 1 Prospect thence on a bush track in a northerly direction for approximately 1.2 kms (see Fig. 2).

5.5.2. Tenure:

The prospect is covered by mineral leases under application by Australian Ores and Minerals Limited. Details are as follows:-

No.	Area.	Name.
ML 732E	16 HA	Rover 14 No. 1
ML 733E	"	" No. 2
ML 734E	"	" No. 3
ML 735E	"	" No. 4

5.5.3. Grid Surveys:

The Rover 11 baseline was extended from 600E; 1000N to 1000W; 1000N. A traverse was surveyed in as follows:

1000W from 1000N to 3500N

A sub-baseline was survey in at 2500N from 1400W to 300W

Traverse were surveyed in as follows:

1400W from 1600N to 3000N
1300W " 1600N " 3000N
1200W " 1600N " 3000N
1100W " 1600N " 3000N
900W " 1600N " 3000N
800W " 1600N " 3000N
700W " 1600N " 3000N

600W from 1600N to 3000N
500W " 1600N " 3000N
400W " 1600N " 3000N
300W " 1600N " 3000N

5.5.4. Geophysics:

A total force magnetic survey was conducted over the prospect using a Geometric SN566 Magnetometer (See Fig. 5, 13 & 14.)

5.5.5. Conclusions:

Geophysical analysis of the results from the magnetic survey indicate that the anomaly is caused by a discrete ironstone body at a moderate depth. A geophysical target has been determined and the prospect has been scheduled for drilling.

6. EXPENDITURE

The total expenditure for the 12 months,21st May 1973, was $153,968.24. The following is a dissection of the expenditure:

Diamond Drilling	76736.05
Assaying	1660.55
Surveying & Drafting	25854.31
Leasing	3901.69
Geological Services	6026.00
Geophysical Services	11629.01
Computer Services	435.00
Field Supplies - Direct	1508.87
Administration	11706.38
Unallocated Field Expenses	14510.38

a. Expenditure is costed directly, the exceptions being administration overheads and field overheads.

b. Administration costs are proportioned on the basis of the payroll costs for the project to the total payroll.

c. Unallocated field expenses is comprised of the following field overheads which are spread on the same basis as the administration costs.

Field Messing.
Field Vehicle Operating.
Field Supplies.
Workshop Supplies.
Depreciation - Field Plant.

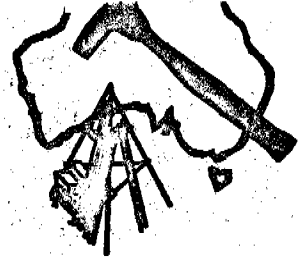
APPENDIX 1

Core Log of Rover 1 DDH2 Parent

WRO1 and WRO 2

GEOPEKO LIMITED

TENNANT CREEK
Northern Territory



PROSPECT/MINE: Rover 1

Log of Hole: 2 Parent

Location: EL 228, South West of Tennant Creek

Purpose of Hole: To test magnetic anomaly

Proposed By: R.L. Richardson Date: 20/6/1973

Proposed Target: 1150 E: 850 N: - 370 R.L.

Hole Planned By: R. Maher Date: 26/6/73 Checked: J. Ackland

Hole Approved By: May 1973 Technical meeting, Tennant Creek

Hole Logged By: W. Maehl

Collar Co-Ordinates:

Proposed: 1106 E: 734 N: 0 R.L.

Surveyed: 1106 E: 734 N: 0 R.L. Surveyed in By: J. Ackland Date: 26/6/73

Actual: 1106 E: 734 N: 0 R.L. Picked up By: W. Maehl Date:

Collar Bearing:

Proposed: 015° Grid: 011° Magnetic:

Surveyed: 015° Grid: 011° Magnetic: Surveyed in By: J. Ackland

Actual: 015° Grid: 011° Magnetic: Picked up By: W. Maehl

Collar Inclination:

Proposed: -80°

Surveyed: -80° Surveyed in By: J. Ackland

Actual: -80° Picked up By: W. Maehl

Target Depth: 395 m.

Proposed Final Depth: 450 m.

Actual Final Depth: 231.4 m. Hole Terminated By: R. Maher/W. Maehl

Reason for Termination: Hole was not lifting, and thus would not have intersected target

Drilling :- Date Commenced: Date Completed:

Drilled By: Geopeko Drilling Division

Wedges Placed At: None

Remarks: For wedge runs refer separate sheets

Economic Summary Result: Parent hole negative

DDH2 Wr01: 463m-465m, 2m at 3.67% Cu
451m-452m, 1m at 2.85% Cu

DDH2 Wr02: 570m-579m, 9m at 3.09% Cu
582m-586m, 4m at 12.3g/mt Au
591-598m, 7m at 14.2g/mt Au

S.McD. 11937/1073

Prospect: Rover 1 **Hole No:** 2

DRILLING PARTICULARS

Drill Method	Machine	Size	Parent From	Parent To	W.R.1. From	W.R.1. To	W.R.2. From	W.R.2. To
Roller	F47	4½"	0	45m				
Diamond core	F47	NQ	45	162m				
Diamond core	F47	BQ	162	231.4				
					168	515.2		
Diamond core	F47	BQ						
							163	641m
Diamond core	F47	BQ						

Casing Placed	Size	Depth	Recovered
Black Pipe	3"	0m-45m	
BX Casing	BX	0m-162m	

Drilling Fluids Used: Dromus B oil. Super Gel mud.
Special Diamonds Used:
Special Tools Used:
Water Loss at:
Caving Ground:

Remarks: Both W.R.O.1 and W.R.O.2 lode intersections were plugged by cement.

Wedges Placed:

Position	Branch	Type	Purpose	Result
168m	W.R.O.1	Hall Rowe	lift hole to target	intersected lode
177.4	W.R.O.1	BX Clappison	lift hole to target	intersected lode
163m	W.R.O.2	Hall Rowe	to cut W.R.O.2	intersected lode
296.7	W.R.O.2	BX Clappison	lift hole to target	intersected lode
317.7	W.R.O.2	BX Clappison	lift hole to target	intersected lode

HOLE SUMMARY

DEH 2 PARENT

The mid Cambrian Kerring Beds were cored from 0 to 136.2m where the angular unconformity between the Kerring beds and Warrawanga Group was intersected. Three lithologic sequences were noted within the Cambrian sequence,

i.e. dolomitic claystone sequence

dolomite carbonate sequence

sandstone and conglomerate sequence.

From 136.2 to 231.4m sediments of the Warrawanga Group were cored namely sandstones, siltstones and hematite shale. Between 190m to 194m and 196m to 205m a badly fractured zone of rock fault ?, was intersected.

ROVER 1. DDH2. Parent.

SURVEYS.

Date	Depth	Type	Dip Read	Dip Corr.	Bearing Read	Bearing Mag.	Bearing Grid
19.7.73	47m	Photo	83°	83°	006°	006°	010.5°
19.7.73	62m	Photo	82°	82°	010°	010°	014.5°
19.7.73	77m	Photo	82°	82°	010	010°	014.5°
30.7.73	97m	Photo	83°	83°			(013.5°)
30.7.73	112m	Photo	83°	83°			(013°)
30.7.73	127m	Photo	83°	83°			(012°)
30.7.73	142m	Photo	83.5°	83.5°	007°	007°	011.5°
3.8.73	160m	Photo	84.5°	84.5°			(012.5°)
3.8.73	175m	Photo	83°	83°	009°	009°	013.5°
	200m			(84°)			(013.5)
	220m			(85°)			(013.5°)
	231.5m			(85°)			(013.5°)

Figures in brackets are assumed or interpolated.

ROVER 1, DDH2. Parent.

GEOLOGICAL LOG. by W. Mashl.

0 - 45m		No core recovery. Soft oxidised sediments, and recent sand and bulldust.
45 - 48.4m		Kaolinite white clay.
48.4 - 65.75m		Oxidised dolomite claystone with bedding traces just visible, generally horizontal.
	65.75m	Oxidation Boundary.
65.75 - 78.40m		Dolomite claystone member of the Marrima Beds. Bedding generally normal to CA or 80° to CA. Minor sole plane phenomena, i.e. load casts, ripple marks, cross bedding and sediment leases.
	77.50m	Minor fault, 15° to CA. Post depositional and infilled with Carbonate.
78.40 - 107.3 10.78m		Dolomite, usually all carbonate but may contain some lutite fraction. Bedding generally not apparent, only stylolites. Dolomite is vughy in part between 80.5 and 80.0 and 81.4 to 81.6
	85.0 to 86.2m	Broken and fractured core.
	86.2m	From dolomite displayed, some bedding planes and stylolites.
	89.75	10cm zone, normal to core. Displaying brecciated calcilutite fragments set in a sand/dolomite matrix.

GEOLOGICAL LOG, continued.

91.4 - 92		Dolomite sequence contains inter beds of grey dolomite with fossils.
	92m	Sequence becomes more a bioherm dolomite. This continues to with wavy stylolite, bedding not strongly evident.
	92.4 - 93m	Fracture and broken dolostone.
	101.6 - 103.7m	Dolostone sequence is vugky and cavities show effect of iron staining. From 104.0 to 105.1m green-cream dolostone generally homogenous, showing some wavy stylolites. From 105.1
107.6 - 112.8m		Clastic sequence composed of sandstone grains, brecciated rock fragments, up to 10mm in length, at 108.8m set in a carbonate matrix (dolomite ?). From 109.7 to 112.7m clastic fragments became larger, up to 20mm in length. Generally sandstone, siltstone, and carbonate clastics set in sandstone grains and carbonate matrix.
112.8 - 115.7m		Finer grained sandstone, with carbonate matrix. From 112.6 to 115.7m interlayered carbonate and sandstone with carbonate matrix is noted. From 114.8 the sandstone material lessens.

GEOLOGICAL LOG. continued.

115.7 - 119.30m	Brown dolostone containing clastic sand grains. Some wavy stylolites are noted.
119.30 - 124.4m	Brown to cream coloured clastic dolostone vughy in part. Clastic are sandgrains and angular fragments up to 8mm in length. Minor dolomite interlayers are noted but are rare. Wavy stylolites are also present.
124.4 - 134.85m	Ortho - conglomerate sequence of several lithologic varieties present i.e. oligomict composed of sumangular to subrounded vein cobbles thru pebbles and granules to sand-grain size. Varieties present include siliceous sandstones, up to at least 6cm in length, longest dimension, siltstones, calcilutite, granite. Matrix is of sandsize sandstone grains with a fair proportion of quartz grains and carbonate cement. From 132 to 134.85m clastic fragments are smaller subangular to subrounded fragments. Sand matrix increases as does carbonate in some parts i.e. 133.7m. Minor wavy stylolites are noted also dolomite content is increased.
134.85 - 136.2m	Conglomerate composed of predominantly angular to subangular fragments, showing a natural progression from the weathered Warramunga surface; the unconformity siliceous sandstone and siltstone fragments are also present but they tend to be subangular to sub-rounded. The Warramunga group fragments tend to be greener in colour, and greatly cleaved.

GEOLOGICAL LOG, CONTINUED.

136.2m

Unconformity. Warramunga Group rock tend to break up along and parallel to cleavage 30° to CA. These fragments are plucked out and aligned normal to core axis and paralleling bedding.

GEOLOGICAL LOG. CONTINUED.

136.2m	KARRAMINGA GROUP sediments. Fine grained sandstones with inter bedded siltstones.
137.2m	Cleavage to CA = 15°
138.7m	Bedding to CA = 40°
137.8 - 138m	Quarts with minor chlorite with thin brecciated zone at 138m.
	Minor quarts veining at 141.2m and 142.2m. Minor chlorite is also present.
144.6m	BP to CA = 8° +
149.6m	Cleavage to CA = 5°
	Fracture at joint normal at 80° to CA is usually common.
	From 149.4 to minor quarts augen aligned with the cleavage.
138m	Cleavage to CA = 8°
165.3m	Joint to CA = 70°
167.6 - 168.3m	Quarts-chlorite vein 5° to CA
168.4m	" " " 25° to CA
168.85 - 169.3m	" " " 5° to CA
169.6 - 169.9m	" " " 5° to CA
174.5m	B.P. to CA = 5°
	Cleavage to CA = 15°
176 - 178m	Broken and fractured ground.
	From 178.5m minor quarts veins are noted cutting the core in an irregular fashion parallel to core and usually normal to the core.

GEOLOGICAL LOG, CONTINUED.

178.7 - 179.6m	Broken and fractured ground.
180.5 - 180.7m	" " " "
182.7m	Brown iron stained fracture, 10° to CA
184.6m	Quartz-chlorite veins, 5° to CA.
186.6m	Bedding plane to CA =15° Cleavage to CA = 5°
188.5 - 188.6m	Minor quartz veining normal to core that has been phygmatically folded.
189.8 - 2m	Broken and fractured sedimentary rock - faulting. Quartz, chlorite and talc is often common. Very badly broken at 192.8 to 194.2m. Fairly competent core from 194.2 to 195m. From 195m to 203m ground is very broken and fractured. From 203m core is not so broken and fractured to 213m. In this zone thin irregular quartz veins are usual. From 211m core is more competent.
213.7m	Bedding plane to CA = 32°
213.7m	Hematite shale zone composed of purple brown thin bedded laminae.
215.5	Bedding down parallel to core direction. Cleavage about 5° to CA.

GEOLOGICAL LOG, CONTINUED.

220.5m	B.P. to CA = 25°
222 - 225.2m	Fractured and broken core.
226.9m	B.P. to CA = 5° Cleavage to CA = 5° and jointing to CA = 70°
227.80 - 231.4m	Fine to medium grained sandstone, with bedding not readily apparent. Jointing at 65 - 70° to CA is prinent and cleavage is subdued.

END OF PARENT HOLE 231.4m

ROVER 1, WRO 1, HOLE 2

SURVEYS.

Date	Depth	Type	Dip		Bearing			Remarks
			Read	Corr.	Read	Mag	Grid	
13/8/73	168m	Acid	86	84.5			(018)	BX wedge clinometer survey
14/8/73	174m	Acid	85	83			(019)	BX Hall Rowe wedge placed at 168m
16/8/73	181m	Photo	81	81	015	015	019.5	BX Clappison wedge placed 177m
16/8/73	187m	Photo	80.5	80.5	014.5	014.5	019	
16/8/73	202m	Photo	79.5	79.5	013	013	017.5	
23/8/73	230m	Photo	78	78	015.5	015.5	020	
23/8/73	245m	Photo	77	77	015.5	015.5	020	
23/8/73	260m	Photo	75	75	014	014	018.5	
23/8/73	275m	Photo	71.5	71.5	013	013	017.5	
23/8/73	290m	Photo	67	67	012	012	016.5	
31/8/73	297m	Photo	66	66	011	011	015.5	
31/8/73	312m	Photo	63	63	010.5	010.5	015	
31/8/73	327m	Photo	58.5	58.5	009	009	013.5	
31/8/73	342m	Photo	55	55	008	008	012.5	
31/8/73	357m	Photo	53.5	53.5	007.5	007.5	012	
31/8/73	372m	Photo	49	49	007	007	011.5	
1/10/73	385m	Photo	45.5	45.5	004		(011.5)	Possibly effected by magnetics
1/10/73	400m	Photo	44	44	249		(012)	Affected by magnetics
1/10/73	415m	Photo	39	39	354		(012.5)	Affected by magnetics
12/9/73	416m	Acid	49	42				Disregarded for drafting
1/10/73	430m	Photo	36.5	36.5	311		(012.5)	Affected by magnetics
12/9/73	446m	Acid	43	36			(012.5)	
1/10/73	455m	Photo	36	36	254		(013.5)	Affected by magnetics
1/10/73	470m	Photo	36	36	004		(014)	Affected by magnetics
1/10/73	485m	Photo	35.5	35.5	019		(014)	Affected by magnetics
1/10/73	500m	Photo	34	34	010	010	014.5	
1/10/73	515m	Photo	31.5	31.5	010.5	010.5	015	515.2 metres end of hole

Figures in brackets are assumed or interpolated.

ROVER 1 HOLE 2 WBO 1.

ASSAYS.

Sample	Assay Section Metres	Type	Au gm/mt	Cu%	Bi%	Ag gm/mt	Pb%	Zn%	Co%
F13093	385 - 386	H/C	<0.1	<0.01	<0.01	2	<0.01	0.01	<0.01
F13094	386 - 387		<0.01	<0.01	<0.01	2	<0.01	0.01	<0.01
F13095	387 - 388		<0.01	<0.01	<0.01	2	<0.01	<0.01	<0.01
F13096	388 - 389		<0.01	<0.01	<0.01	2	<0.01	0.01	<0.01
F13097	389 - 390		<0.1	<0.01	<0.01	2	<0.01	0.01	<0.01
F13098	390 - 391		0.1	<0.01	<0.01	2	<0.01	0.01	<0.01
F13099	391 - 392		0.15	<0.01	<0.01	2	<0.01	0.01	<0.01
F13100	392 - 393		0.5	<0.01	<0.01	3	<0.01	0.01	<0.01
F13101	393 - 394		0.3	0.01	0.01	3	0.01	0.02	0.01
F12152	394.2- 395		0.2	0.25	0.01	<1	<0.01	<0.01	0.09
F12154	396 - 397		0.5	0.22	0.01	<1	<0.01	<0.01	0.11
F12155	397 - 398		<0.1	0.09	0.01	<1	<0.01	<0.01	0.05
F12156	398 - 399		0.2	1.00	0.01	<1	<0.01	<0.01	0.17
F12157	399 - 400		0.5	0.17	0.01	<1	<0.01	<0.01	0.25
F12158	400 - 401		0.8	0.15	0.01	<1	<0.01	<0.01	0.20
F12159	401 - 402		0.5	0.06	0.02	<1	<0.01	<0.01	0.11
F12160	402 - 403		<0.1	0.02	0.01	<1	<0.01	<0.01	0.04
F12161	403 - 404		0.2	0.36	0.02	<1	<0.01	<0.01	0.07
F12162	404 - 405		0.3	0.06	0.02	<1	<0.01	<0.01	0.06
F12163	405 - 406		0.4	0.07	0.06	<1	0.01	<0.01	0.20
F12164	406 - 407		0.4	0.07	0.01	<1	<0.01	<0.01	0.37
F12165	407 - 408		0.3	0.01	0.01	<1	<0.01	0.01	0.14
F12166	408 - 409		0.4	0.02	0.01	<1	<0.01	0.01	0.11
F12167	409 - 410		0.1	0.01	0.02	<1	<0.01	<0.01	0.13
F12168	410 - 411		0.2	0.03	0.01	<1	0.01	<0.01	0.16
F12169	411 - 412		0.2	0.03	0.02	<1	<0.01	<0.01	0.14
F12170	412 - 413		0.4	0.03	0.02	<1	<0.01	<0.01	0.04
F12171	413 - 413.80		0.5	0.15	0.02	<1	<0.01	<0.01	0.09
F13102	414 - 415		0.45	0.01	0.01	3	<0.01	0.01	0.01
F13103	415 - 416		<0.01	<0.01	0.01	3	<0.01	0.01	<0.01
F13104	416 - 417		0.2	0.01	<0.01	3	0.01	0.01	<0.01
F13105	417 - 418		0.1	<0.01	0.01	7	<0.01	0.01	<0.01

ROVER 1 HOLE 2 WRO 1

ASSAYS.

Sample	Assay Section Metres	Type	Au gm/mt	Cu%	Bi%	Ag gm/mt	Pb%	Zn%	Co%
F13106	418 - 419	N/C	<0.1	<0.01	<0.01	2	<0.01	0.01	<0.01
F13107	419 - 420		<0.1	<0.01	<0.01	2	<0.01	0.01	<0.01
F13108	420 - 421		0.35	<0.01	<0.01	2	<0.01	0.01	<0.01
F13109	421 - 422		0.1	<0.01	<0.01	2	<0.01	0.01	<0.01
F13110	422 - 423		0.1	0.01	0.01	3	<0.01	0.01	0.01
F13111	423 - 424		0.1	<0.01	0.01	3	<0.01	0.01	0.01
F13112	424 - 425		<0.1	<0.01	0.01	3	<0.01	0.01	0.01
F13113	425 - 426		0.1	<0.01	0.01	4	<0.01	0.01	0.04
F13114	426 - 427		0.01	<0.01	0.01	3	<0.01	0.01	0.04
F13115	427 - 428		0.1	<0.01	0.02	3	<0.01	0.01	0.01
F13116	428 - 429		0.1	<0.01	0.01	4	<0.01	0.01	0.01
F13117	429 - 430		<0.1	<0.01	0.01	3	<0.01	0.01	0.01
F13118	430 - 431		0.15	<0.01	0.01	3	<0.01	0.01	0.02
F13119	431 - 432		0.1	0.13	0.01	3	0.01	0.01	0.01
F12190	432 - 433		0.2	0.24	0.01	<1	0.01	<1	0.04
F12191	433 - 434		0.3	0.08	0.01	<1	0.01	<0.01	0.07
F12192	434 - 435		0.1	0.08	0.04	<1	0.01	<0.01	0.03
F12193	435 - 436		0.2	0.02	0.05	<1	0.01	<0.01	0.02
F12194	436 - 437		0.3	0.02	0.07	<1	0.01	<0.01	0.01
F12195	437 - 438		0.2	0.04	0.11	<1	0.01	<0.01	0.01
F12196	438 - 439		0.1	0.06	0.13	<1	0.01	<0.01	0.01
F12197	439 - 440		0.3	0.02	0.03	<1	0.01	<0.01	0.02
F12198	440 - 441		0.2	0.02	0.02	<1	0.01	<0.01	0.01
F12199	441 - 442		0.4	0.05	0.01	<1	0.01	<0.01	0.01
F12200	442 - 443		0.3	0.42	0.02	<1	0.01	<0.01	0.03
F12201	443 - 444		0.2	0.02	0.01	<1	0.01	<0.01	0.01
F12202	444 - 445		0.2	0.03	0.01	<1	0.01	<0.01	0.01
F12203	445 - 446		<0.1	0.01	0.01	<1	0.01	0.01	0.01
F12204	446 - 447		0.1	0.08	0.01	<1	0.01	<0.01	0.03
F12205	447 - 448		0.4	0.46	0.01	<1	0.01	<0.01	0.05
F12206	448 - 449		0.1	1.90	0.01	<1	0.01	<0.01	0.03
F12207	449 - 450		0.3	0.37	0.01	<1	0.01	<0.01	0.02
F12208	450 - 451		0.2	0.35	0.01	<1	0.01	<0.01	0.07

ROVER 1 HOLE 2 MRO 1

ASSAYS

Sample	Assay Section Metres	Type	Au gm/mt	Cu gm/mt	Bi%	Ag	Pb%	Zn%	Co%
F12208	450 - 451	H/C	0.2	0.35	0.01	<1	0.01	<0.01	0.07
F12209	451 - 452		0.2	2.85	0.02	<1	0.01	<0.01	0.09
F12210	452 - 453		0.2	1.55	0.01	<1	0.01	<0.01	0.02
F12211	453 - 454		0.4	0.17	0.01	<1	0.01	<0.01	0.06
F12212	454 - 455		<0.1	0.68	0.01	<1	0.01	<0.01	0.03
F12213	455 - 456		0.2	0.05	0.02	<1	0.02	<0.01	0.06
F12214	456 - 457		0.1	0.15	<0.01	<1	0.02	<0.01	0.04
F12215	457 - 458		<0.1	0.05	0.01	<1	0.02	<0.01	0.02
F12216	458 - 459		<0.1	0.07	0.01	<1	0.02	<0.01	0.02
F12217	459 - 460		0.1	0.06	0.01	<1	0.01	<0.01	0.05
F12218	460 - 461		0.2	0.02	0.01	<1	0.01	<0.01	0.05
F12219	461 - 462		0.1	0.07	0.01	<1	0.02	<0.01	0.05
F12220	462 - 463		1.2	0.02	<0.01	<1	0.02	<0.01	0.06
F12221	463 - 464		2.9	2.55	0.03	<1	0.01	<0.01	0.10
F12222	464 - 465		0.9	4.80	0.03	<1	0.01	<0.01	0.06
F12223	465 - 466		2.7	0.04	0.09	<1	0.01	<0.01	0.04
F12224	466 - 467		0.2	0.02	0.07	<1	0.01	<0.01	0.05
F12225	467 - 468		0.8	0.09	0.01	<1	0.01	<0.01	0.08
F12226	468 - 469		0.1	.11	0.01	<1	0.01	<0.01	0.03
F12227	469 - 470		0.1	0.1	0.01	<1	0.01	<0.01	0.02
F12228	470 - 471		1.3	0.01	0.01	<1	0.01	<0.01	0.02
F12234	471 - 472		0.9	0.01	0.02	<1	0.01	<0.01	0.02
F12235	472 - 473		0.4	<0.01	0.02	<1	<0.01	<0.01	0.02
F12236	473 - 474		0.3	0.01	0.01	<1	<0.01	<0.01	0.04
F12237	474 - 475		<0.1	0.01	0.01	<1	<0.01	<0.01	0.02
F12238	475 - 476		0.3	0.01	0.02	<1	<0.01	<0.01	0.02
F12239	476 - 477		0.4	<0.01	0.02	<1	<0.01	<0.01	0.02
F12240	477 - 478		0.2	0.04	0.02	<1	<0.01	<0.01	0.02
F12241	478 - 479		1.0	0.02	0.03	<1	<0.01	<0.01	0.02
F12242	479 - 480		0.1	0.15	0.02	<1	<0.01	<0.01	0.02
F12243	480 - 481		0.1	0.01	0.02	<1	<0.01	<0.01	0.02
F12244	481 - 482		0.6	0.03	0.06	<1	0.01	<0.01	0.02
F12245	482 - 483		0.8	0.01	0.04	<1	0.01	<0.01	0.02

Rover 1 Hole 2 RRO 1.

ASSAYS.

Sample	Assay Section Metres	Type	Au gm/mt	Cu%	Bi%	Ag gm/mt	Pb%	Zn%	Co%
F12246	483 - 484	R/C	1.1	<0.01	0.01	<1	0.01	0.01	0.02
F12247	484 - 485		0.6	0.02	0.01	<1	0.01	<0.01	0.02
F12248	485 - 486		1.1	0.03	0.01	<1	<0.01	<0.01	0.01
F12249	486 - 487		0.7	0.03	0.01	<1	0.01	<0.01	0.03
F12250	487 - 488		1.5	0.04	0.01	<1	0.01	<0.01	0.03
F12251	488 - 489		0.5	0.03	0.01	<1	<0.01	<0.01	0.02
F13120	489 - 490		<0.1	0.01	0.02	3	0.01	0.01	0.02
F13121	490 - 491		0.15	0.01	0.02	3	0.01	0.01	0.01
F13122	491 - 492		0.2	0.01	0.02	4	0.01	0.01	0.02
F13123	492 - 493		0.1	<0.01	0.02	4	0.01	0.01	0.01
F13124	493 - 494		0.1	<0.01	0.02	3	<0.01	0.01	0.01
F13125	494 - 495		<0.1	<0.01	0.02	3	0.01	0.01	0.02
F13126	495 - 496		0.15	<0.01	0.02	3	0.01	0.01	0.02
F13127	496 - 497		0.1	<0.01	0.01	4	0.01	0.01	0.01
F13128	497 - 498		< 0.01	<0.01	0.01	3	<0.01	0.01	0.01
F13129	498 - 499		0.2	<0.01	0.01	3	<0.01	0.01	0.01
F13130	499 - 500		0.1	<0.01	0.01	2	<0.01	0.01	0.01

HOLE SUMMARY DDH2, W.R.O.1

This wedge commenced at 160m and cored a sequence of bedded Warrawanga Group sediments, i.e. sandstones, siltstones, and hematite shale before intersecting magnetite hematite lode at 394.3m. From 394.3m various varieties of ironstone lode containing scattered sulphide and chloritic sediment zones were intersected to 489.15m. Thereafter bedded sediments, slightly chloritic, were intersected after the lode to the end of the hole at 515.2m. The central point of the lode intersection was at 11368 8758 at the 400m RL.

The significant Cu assay values were,

446m - 449m, 1m at 1.9%Cu
451m - 452m, 1m at 2.65%Cu
463m - 465m, 2m at 3.67%Cu

The gold values were generally low with higher values recorded between,

463 - 464m 2.9 gm/mt

and

465 - 466m 2.7 gm/mt

The other base metal assays, Bi, Ag, Pb, and Zn values were negligible.

ROVER 1 DDH3 PRO 1

GEOLOGICAL LOG By.H.W.R.Kuehl.

168m		Wedge placed
168-172m		No core - ball nose bit
172-177.4m		Bedded fine grained grey sandstone with siltstone tops. Bedding to CA = 10° Core is cleared cleavage to core axis = 12°. Core is also cut persistent fracture/joint almost normal to the core i.e. 80° to C.A.
177.4-181m		No core due to placement of wedge
181-305.70m		Cleared fine grained sandstone which from 181.5 becomes broken and iron stained. Iron staining almost complete from 182.5 to 185, where bleaching of core has taken place and irregular bleached zones are present in the core.
	188	Bedding to CA = 5°, slight sinous bedding plane which has suffered minor fault disruptions by fractures nearly normal to core i.e. 75° - 85°.
	186.4 to 187.5	Moderate fracturing of core along micro fault and cleavage.
	187.5	An 8cm quartz vein normal to core containing minor chlorite.
	193.17-193.5	Quartz/chlorite vein, approximately 5° to 10° to CA due to sinuous nature.
	193.85	Quartz chlorite vein, 25° to CA.
	194-203	From 194 fine grained sandstone becomes more severly fractured. Fractures generally normal to core or paralleling bedding and cleavage.
	201.0-201.4	Quartz-chlorite vein, angle to CA = 3°
	203	From 203m onwards bedding generally wavey, angle to CA = 25° Cleavage to CA = 8°
	205-205.3	Quartz-chlorite vein, generally sinous 5cm wide approx 5° to CA
	206-215.9	Core fractured and jointed and mildly iron strained through to 211 and thereafter core is broken and fractured with some talc present 215.9
		From 215 to 223.3 thin irregular quartz veins are noted generally running along the core.

GEOLOGICAL LOG Continued

220.1	Quartz chlorite vein, 2 cm wide at 12° to CA
222.5	Quartz vein, 20° to CA, 10mm wide. Iron stained fractures are common from 220.2 through to badly fractured zone commencing at 226.
226-232.4	Badly broken and fractured ground. Show zone 10mm wide noted in core at about 0°-5° to CA. Infilling of crushed rock and minor chlorite. Iron staining is also common.
228-228.8	Quartz chlorite vein cutting and incorporating sediments.
233-233.5	Quartz chlorite vein containing minor incorporated sediments.
235-244	Broken and fractured rock zone, with associated quartz veining. Very bad at 236 to 236.5m, 237.3m to 238.2m, 239.8 to 240.1m and 241.0 to 242. Crushed rock is present in these zones along with chlorite. Jointing, near normal to core axis is still noted in core which is not excessively fractured. fracturing is usually at an angle to 10°-15° to CA.
244.5	Joint, angle to CA = 65° minor quartz and iron staining on face. From 245.2 to 246.4 core is again fractured by joints and fractures at 5° - 10° to core.
247.20 - 247.60	Zone of quartz veins, ptygmatically folded and vary in width from 10 mm to 1 cm.
248.8 - 249.1	Quartz chlorite vein cutting the fine grained sandstones. Marginal to the vein the rock is chloritized and cut by thin irregular veinlets of quartz.
248.8	Bedding to CA = 15° in fine grained sandstones. Jointing 70° - 80° to CA is still common. Minor small folds have developed in bedding, e.g. 254.25 rotation. End of Hole Sinistral ?
254.7	Quartz chlorite vein 2cm wide, angle to CA = 20°
255	Quartz chlorite vein 3cm wide, angle to CA = 30°
255	Bedding to CA = 25°.
259.5 -260	Thin irregular quartz veins are present in the fine to medium grained sandstone.
262	At 262 a minor zone of fractured rock
262.5 - 263.6	Fractured and broken rock generally along joints near normal to core and shows 5° - 10° to CA.

GEOLOGICAL LOG Continued

263.5	Bedding to CA = 5°
264 - 265	Core is fractured and broken.
266.4	Quartz chlorite vein, 5° to CA with minor small cremulations.
	From 269 core is well cleared and minor small irregular quartz veins are noted. Clearage to CA = 15°, some quartz veins are cut off by the clearage and other quartz veins are normal to the core cutting grey fine to medium grained sandstones.
273.6 - 274	Quartz chlorite vein, 10 mm wide, 5° to CA
275	Clearage to CA = 15°
277.8 - 278.2	Fractured rock zone. Few normal joints still present some we infilled by quartz.
284.2 - 284.5	Fractured rock zone - fault ?
285.80 - 286.2	Thin quartz veins up to 10 mm wide irregularly cut. The core generally alongthe core.
290	Joints, 50° and 65° to CA are still present generally evenly disposed through the rock.
292-292.5	Minor quartz lenticles developed, possibly along clearage. The quartz lenticle reach a maximum length of 15 mm and lineation to CA = 18°
293.8	Quartz chlorite vein, angle to CA = 15°
294	A further zone of quartz lenticles maximum length reached is 15 mm.
297	Quartz vein containing minor chlorite and 50° to CA with a width of 15 mm.
298.7	Clearage to CA = 10°
	Pyrite, generally fine disseminations is noted from 297.3 through to 299. Some coalescing blobs are noted, e.g. 298.5
300.3	Cleavage to CA = 20° and bedding to CA = 40°
300.05 - 300.1	Small zone of silicification (pink) and minor astomosing quartz veins through the sediment.
304 - 304.2	Badley fractured and broken zone
305.5	Bedding to CA = 40° ; cleavage to CA = 20°
305.70-308.0m	Hematite shale, dark brown red in colour showing the thin fine grained laminae. Bedding to CA = 40°

GEOLOGICAL LOG CONTINUED.

		(306.70) Sheared and fractured core at 307.9 - 308, and 308.5 - 309.
	308	Thin irregular quartz veins.
308.9-325.9m		Grey fine to medium grained sandstones with thin siltstone interlayers. Bedding to CA = 30° (311m)
	311.30	Minor thin irregular quartz veins
	312.6-312.7	Minor thin irregular quartz veins.
	313	Cleavage to CA = 15°. Several thin ptygmatically fold quartz veins are noted nearby at 313.1 m.
	313.3-313.40	Zone of chloritized sediments, and thin irregular quartz veins.
		Broken fractured ground 314.5 to 314.6
		Broken fractured ground 315.1 to 315.25
		Sediments are becoming a greener grey c.f. with colour earlier in the hole.
	317	Thin irregular quartz veins, again at 318.3 and again at 319.50.
	319.5	Bedding to CA = 25°, Minor thin amounts of chlorite is developed along the bedding.
	321.8	Bedding to CA = 35°
325.9-333m		Hematite shale which at 326.25 becomes chloritised and then quartz veins appear from 326.9m. Usually they are normal to the core up to 5 cm wide. From 327.25 quartz is more massive and contains chlorite to 328.2. Frombere quartz and chlorite veins are quite prevalent replacing the hematite shale. From 329 to 330.7 hematite shale is chloritized and original features are almost unrecognized. From 330.7 chloritized hematite shale.
	331	Bedding to CA = 25°
	331.5	Bedding to CA = 30°
333-336		Fine to medium grained sandstone.
	333.3	Bedding to CA = 25°
		Minor chlorite veining and quartz veining is present at 333.3.

GEOLOGICAL LOG Continued

	335-335.1	Quartz and possibly feldspar vein.
	335.36-335.40	Quartz chlorite and feldspar vein 45° to CA
	335.46-336	Quartz vein containing minor amounts of chlorite.
336-341.8		Chloritized hematite shale, with minor chlorite
	336	Beddingto CA = 25°
	337	Beddingto CA = 28°
	337.3	Bedding to CA = 25°
	338.5	Bedding to CA = 35°
	339	Bedding to CA = 35°
	Fro	From 337 to 338 and 340 to 341.2 very fine red hematite rhythmic layering is developed. Minor small flexures are noted on the bedding.
	341	Bedding to CA = 20°
		Several quartz veins normal to core are noted at 341.1 and 341.25
341.8-343.1		Quartz containing chlorite, talc and feldspar.
343.1-354.3		Grey sediments, mainly interbedded graded sandstones and siltstones. The sandstones tend to be pinkish grey in colour. Sediments are mildly fractured from 343.1 to 345.
	344	Bedding to CA = 35°
		Breakage is seen to occur along the bedding shown where green chlorite has developed. Sandstones are usually pink in colour and grade up into creamy pink siltstone.
	345.5	Bedding to CA = 35°. Grading in sandstone/ siltstone sequence appears fine to collar.
	348	Bedding to CA = 35°
	349.8-354.4	Fractured and well broken core. Quartz veins are present, and chlorite also Chlorite is of two types, dark green and light green
354.3-356.4		Quartz vein containing vein green chlorite

GEOLOGICAL LOG Continued

358.4-361		Bedded pink sandstones and creamy siltstones.
	359.9	Bedding to CA = 48°, and cut and mared by micro faulting.
	359.5-359.8	Very broken and fractured core.
	360.25	Minor irregular quartz veining.
	360.6-360.75	Small zone of interbedded hematite shale. Bedding to CA = 45°
361-361.8		Sediment show a greenish tinge.and Shale with very thin fine sandstone interbeds. Shale portion is purple red and the sequence has hematite shale affinities.
	361.5	Bedding to CA = 30°
	361.75	Bedding to CA = 50°
361.8-363.4m		Hematite shale, finely laminar with occasional green sandstone interbeds.
	362.25	Bedding to CA = 65°.
	363	Bedding to CA = 70°.
363.4-374		Bedded sandstones grading to siltstones.
	364.2	Quartz vein containing green chlorite and feldspar ?
	365	Quartz chlorite vein approx 15mm thick angle of 45° CA.
	365.2-365.35	Quartz and chlorite veining plus feldspar.
	366	Bedding to CA = 60°.
	366.15-336	Quartz vein, containing chlorite. Sediment rock margins are chloritic .
	367	Near and about this depth small pyrite cubes are finely disseminated through the core to 369.
	367.6	Bedding to CA = 55°. A micro fault cut core normal to bedding. From 367.6 small micro flexures are noted. Noticable from 367.3 are the green banding caused by green chlorite parallel with bedding.
	369.0	A medium to coarse grained sandstone is evident.
	369.4 to 369.7	Broken and fractured ground.
	370.5	Bedding to CA = 50°

GEOLOGICAL LOG Continued

371	Minor fracturing and breakage of core with thin film of chlorite on fracture plane.
373	Bedding to CA = 55°.
373.4-373.8	A grit horizon, containing fragments up to 10cm in length
374-392.4 m	Sequence of bedded siltstone and fine grained sandstones, showing minor chloritization effects and silicification.
375	Bedding to CA = 65°
377	Bedding to CA = 60° Silicification and chloritization causes mottling effect.
380.5	Bedding to CA = 65°.
381	Cleavage = 65° to CA Bedding 45° to CA.
381.6	Beddingto CA = 65°. Small micro fault normal to bedding dislocates the bedding 2-3 mm.
386.10	Brecciated rock zone with mild recementation by quartz 60 mm wide
385.5	Bedding to CA = 70°. Bedding generally shows by still increase in chloritization and silica banding.
385.8	Chloritic sediments, containing darker chlorite lineation possibly bedding to CA. Commencement of pinkish chert zones. From 387.80 chloritization and silicification becomes more intense to form banded and mottled zones. From 389.30 to 391.70 combns appearances of chert breccia frags in matrix of qz. From to 392.4 chloritic beds and minor chert lineation of chert to CA.
392.4-394.3 m	Chloritic beds, with cleavage 80° to CA and from 393.10 silica veins are present. Small amounts of deminimated pyrite is present, as well as minute magnetite. From 394 moderate amounts of sub angular hematite mains appear in the core.
394.3-400.5m	Haematite/magnetite rock with minor qz and

GEOLOGICAL LOG CONTINUED.

	jasper. Pyrite blobs and disseminations and minor splashes veinlets and blobs of cpy very minor qz veining and some hc veining. At 399.7 a 5cm vein of chalcopyrite very minor to negligible amounts of chlorite.
400.5-403.1	Quartz-magnetite rock with specular hematite, containing pyrite blobs and very minor chalcopyrite. Minor chlorite veining is also present and jasper is also present.
403.1-404.33	Magnetite hematite rock with veins of specular hc pyrite crystals and veinlets and blobs of chalcoprite.
404.38-405	Quartz-magnetite-jasper, plus veins of jasper pyrite and minor chlorite.
405-407.30	Magnetite-hematite containing chlorite veins pyrite crystals and blobs of chalcopyrite. At 405.60 a 7 cm zone of qz-magnetite-jasper.
407.30-408.85	Chlorite sediment rock no recognisable structures containing quartz pyrite crystals and blobs. Regular hematite. Some hematite veining is noted with a lineation of to CA at 408.6
408.85-412.20	Magnetite-hematite rock containing pyrite crystals and blobs plus negligible chalcopyrite. also present is thin veins of hematite, green chlorite and quartz and chlorite.
411.3-411.45	Chlorite rich zone within magnetite-hematite rock and streaming cut of pyrite 30° to CA.
412.09	Quartz vein and chlorite 40° to CA.

412.20-413		Hematite rock with minor magnetite pyrite blobs and chlorite veins. Some vein chalcopyrite is noted at 412.8
413-413.9		Magnetite chlorite containing blobs and veinlets of pyrite.
413.9-413.55		Chloritic sediments, showing cleavage and relic bedding. Lineation to CA = 55° (451).
	416.3-416.45	Brecciated sediments, quartz veined and also jasper.
		Minor amounts of jasper is noted along the bedding ? at 417 to 418. From 418 to 419 core has the mottled effect with chlorite along the cleavages. Minor amount of jasper (blob-like in appearance) is noted at 418.70
		Bedded chloritic sediments showing range bedding trends and cleavage.
	420	Bedding ? 55° to CA.
		Bedding ? 60° to CA.
		From 422.5 core becomes progressively more chloritic.
	424.5-425	Core is fractured and broken to 425 where this is a small quartz vein.
	425.6-425.8	Broken and fractured core.
	425.8-427	Chloritic sediment show thin qz veins some containing coiling pyrite blobs, angle to CA = 55° Also present are fine pyrite cubes and disseminated throught the core.
	430.5	Minor quartz veining, generally irregular and containing granular pyrite.
	430.75	Quartz veining is more prolific and sediments become more chloritic and broken and fractured.
	431.3-431.5	Quartz and dolomite veining is present aligned 55° to CA.
431.55-446.1	431.55	Contact between chloritic sediments and quartz-jasper-hematite.
	433-433.5	Chloritic sediments containing zones of sericitation aligned 55° to CA. Minor quartz and jasper present.

LITHOLOGICAL LOG CONTINUED.

433.5-434	Quartz-magnetite containing minor amounts of green chlorite as blebs and veins.
	From 434 quartz-jasper-magnetite continues containing minor amounts of chlorite, pyrite chalcopyrite and hematite veining.
	From 440 quartz content increases with respect to the jasper. Minor blebs of chalcopyrite and pyrite continue.
441.45	Quartz vein 25° to CA 80mm wide. From 442 quartz veins up to 100mm in width are present to 444.4.
441.4	Magnetite-chlorite vein and pyrite blebs.
442.0	Chalcopyrite bein 30 mm wide.
444.1	Thin vein of hematite.
445	Veining of hematite cutting quartz jasper rig. Quartz magnetite containing quartz veins pyrite and chalcopyrite blebs and veins hematite as blebs or thin veins is also present.
446.3	Quartz jasper magnetite zone in quartz magnetite.
From 449	Pyrite is common sulphide, chalcopyrite is in very minor amounts.
451.4-451.5	Chalcopyrite vein
452.5-453.3	Quartz vein with 10mm chalcopyrite vein at 452.70 to 452.80
454.15-454.20	Quartz vein - normal to core.
454.4-454.5	Quartz vein - normal to core.
455.5-455.6	Quartz vein - normal to core. Minor magnetite and hematite
456.2-456.65	Quartz vein contains magnetite and hematite veining.
456.65-458.70	Quartz-hematite containing minor magnetite. Also present are blebs and veinlets of dolomite Very minor chalcopyrite and pyrite is present.
457.30-458.70	Dominantly quartz and minor amounts of hematite veining.
458.70-464.75	Quartz magnetite with minor hematite except from 459.0 to 459.3. Minor amount of carbonate is also present. From 459.3 hematite veining occurs infrequently, up to 10mm wide. Pyrite is the common sulphide, chalcopyrite is very rare.

GEOLOGICAL LOG CONTINUED

464.73-464.00 Magnetite rock containing minor quartz and some blebs and veins of chlorite. Pyrite is present, and chalcopyrite is noted as big blebs, thin veinlets and blebs.

464.40-464.15 Chalcopyrite vein plus quartz 15mm wide.

464.90-466.90 Quartz magnetite hematite with pyrite and rare amounts of chalcopyrite.

466-466.2 Quartz vein containe minor magnetite.

466.90-467.20 Magnetite rock with minor quartz, hematite and chlorite and containing pyrite and chalcopyrite veinlets and blebs.

467.20-482.6 Quartz-magnetite containing very minor hematite, pyrite blebs and veining and very minor chalcopyrite blebs and veinlets. Dolomite is also present as veinlets or blebs.

468.4-468.6 Quartz vein containing minor magnetite.

468.95-469.67 Quartz vein with minor magnetite, dolomite and sulphide.

From 470 dolomite content increases and sulphide content decreases as well as the quartz.

474-474.8 Very minor dolomite, but increase in quartz and jasper. From 474.8 dolomite as veins and blebs is evident fo 475.4.

477.7 Dolomite again present as blebs and veins sulphides (pyrite and chalcopyrite are rare.) Quartz and chlorite is also present in minor amounts. Veinlets of hematite are present throughout usually specular.

From 478 its presence becomes more marked.

480-480.4 Core is very vuggy, vugs partly infilled by calcite, minor quartz ? and specular hematite crystals.

482.0-484.15 Extremely chloritized sedimentary rock containing pyrite blebs. Contact at 482.6 is 35° to CA and 484.15 is 35° to CA.

GEOLOGICAL LOG CONTINUED.

484.15-484.5		Magnetite rock minor sulphide
484.5-489.15		Quartz-jasper and very minor magnetite. Magnetite at 485 to 486-485.20 are also as veins or blebs. Pyrite and chalcopyrite are present in very minor amounts. Contact at 486 = 40° to CA. Contact at 486.20 = 40° to CA.
	488.55-488.7	Chloritic sediment.
		Contact of quartz-jasper-magnetite at 489.15 is 55°-60° to CA.
489.15-492.10		Chloritic and sheered sediments. Minor blebs of quartz and jasper is present.
	491.70	Cleavage to CA = 60°.
492.10-493.90		Chloritised sediment containing magnetic, jasper quartz. Sulphide is rare. From 492.8 to 493.90 replacement is more complete and lithology mainly quartz, jasper, magnetite and chlorite.
493.90-499.7		Chloritic sediments, containing minor blebs of jasper and quartz.
	494-494.9	Cleavage to CA = 45°.
		Cleavage to CA = 50°.
		Sediments become more chloritic towards 495.9.
		At 495 to 496.3 a fractured brecciated contact is noted with extremely chloritic rock - basic type ? at 80° to CA.
		At 497.3 to 499.7 quartz is present in the chloritic core as blebs segregations and veinlets often contacted.
499.7-514.4		Fine grained bedded sandstone and siltstones
	500	BP to CA = 10°, cleavage to CA = 40°.
		Usually core fine grained and chloritization effects are less.
	506.5	BA to CA = 15°, cleavage = 60°.
	508m	BP to CA = 25°.
	510.3	BP to CA = 40° grading finer to collar ?
	510.6	BP to CA = 20° grading finer to EOH.

GEOLOGICAL LOG CONTINUED

	511	EP to CA 25° grading fines to BCH.
	513.4	EP to CA = 25°, cleavage = 65°.
514.4-515.0		Jasper cut and veined by hematite and quartz Minor pyrite is present. Contacts 514.4 (90°) and 515.0 (80°).
515.0-515.2		Mildly chloritic sediments, showing cleavage.

END OF NRO 1 AT 515

EP
7.13.73

ROVER 1. Hole 2. WRO2.

SURVEYS.

Date	Depth	Type	Dip Read	Dip Corr.	Bearing Read	Bearing Mag.	Bearing Grid.
4.10.73	181m	Photo	85°	85°	020°	020°	024.5° *
4.10.73	196m	Photo	85°	85°	025.5°	025.5°	030°
8.10.73	205m	Photo	85°	85°	021°	021°	025.5°
8.10.73	220m	Photo	85°	85°	034.5°	034.5°	039°
12.10.73	236m	Photo	85°	85°	030°	030°	034.5°
12.10.73	251m	Photo	85°	85°	030°	030°	034.5°
12.10.73	266m	Photo	85°	85°	022°	022°	026.5
12.10.73	281m	Photo	85°	85°	026°	026°	030.5°
12.10.73	296m	Photo	85°	85°	030°	030°	034.5° **
17.10.73	302m	Photo	84°	84°	024°	024°	028.5°
17.10.73	317m	Photo	84°	84°	017°	017°	021.5° ***
23.10.73	331m	Photo	81.5°	81.5°	024°	024°	028.5°
23.10.73	346m	Photo	81°	81°	025.5°	025.5°	030°
23.10.73	361m	Photo	79.5°	79.5°	024°	024°	028.5°
31.10.73	371m	Photo	79°	79°	023°	023°	027.5°
31.10.73	386m	Photo	77°	77°	019°	019°	023.5°
31.10.73	401m	Photo	74°	74°	014°	014°	018.5°
31.10.73	416m	Photo	71°	71°	011.5°	011.5°	016°
31.10.73	431m	Photo	67°	67	009.5°	009.5°	014°
31.10.73	446m	Photo	64°	64°	006°	006°	010.5°
31.10.73	461.m	Photo	60.5°	60.5°	004.5°	004.5°	009°
15.11.73	485m	Photo	44°	44°	358° X		(008.5°)
15.11.73	520m	Photo	40.5°	40.5°	354° X		(007.5°)
13.11.73	545m	Acid	45.5°	38°			(007°)
15.11.73	560m	Photo	35°	35°	064° X		(006.5°)
13.11.73	590m	Acid	38.5°	32°			(006°)
15.11.73	610m	Photo	30°	30°	352° X		(005.5°)
15.11.73	625m	Photo	28.5°	28.5°	355° X		(005°)
15.11.73	640m	Photo	25°	25°	360°	360°	004.5°
							E.O.H. 651m

* BX Hall Rowe Wedge at 163m

X Magnetics affected.

** BX Clappison Wedge at 296m

*** BX Clappison Wedge at 317m

Figures in brackets are assumed or interpolated

ROVER 1, Hole 2, WH82.

ASSAYS.

Sample	Assayed section metres	Type	Au gm/mt	Cu%	Pb%	Ag gm/mt	Pb%	Zn%	Cu%
F12334	535.8 - 536.4m	H/C	0.3	0.68	0.01	4	<0.01	0.01	0.01
F12335	536.4 - 537.4m		0.2	1.24	0.10	4	<0.01	<0.01	0.02
F12337	537.4 - 538m		0.1	0.56	0.01	2	<0.01	0.01	0.02
F12380	538 - 539m		0.4) 0.2)	0.26	0.01	<1	<0.01	<0.01	0.01
F12381	539 - 540m		0.4) 0.7)	0.41	<0.01	<1	0.01	<0.01	0.01
F12382	540 - 541m		2.0) 1.3)	1.48	0.13	<1	0.01	<0.01	0.05
F12383	541 - 542m		0.1) 0.1)	0.22	0.01	<1	0.01	<0.01	0.03
F12384	542 - 543m		0.4) 0.3)	0.35	0.02	<1	0.01	<0.01	0.02
F12385	543 - 544m		0.3) 0.4)	0.14	0.01	<1	0.01	<0.01	<0.01
F12386	544 - 545m		0.2) 0.2)	0.22	0.26	<1	0.02	<0.01	<0.01
F12387	545 - 546m		0.1) <0.1)	0.35	0.03	<1	0.01	<0.01	0.01
F12388	546 - 547m		0.4) 0.6)	0.03	0.11	<1	0.01	<0.01	<0.01
F12389	547 - 548m		0.3) 0.3)	0.04	0.08	<1	0.01	<0.01	<0.01
F12390	548 - 549m		0.3) 0.2)	0.13	0.01	<1	0.01	0.01	0.05
F12391	549 - 550m		0.3) 0.2)	0.24	0.01	<1	0.01	0.01	0.05
F12338	564.40-565m		0.4	0.46	0.01	<1	<0.01	<0.01	0.02
F12339	565 - 566m		0.8	1.80	0.01	4	<0.01	<0.01	0.01
F12340	566 - 567m		0.4	1.46	0.01	2	<0.01	<0.01	0.01
F12341	567 - 568m		0.3	0.57	0.01	<1	<0.01	<0.01	<0.01
F12342	568 - 569m		0.1	0.21	0.01	<1	<0.01	<0.01	0.01
F12343	569 - 570m		0.4	1.24	0.01	<1	<0.01	<0.01	0.02
F12344	570 - 571m		0.8	2.63	0.01	2	<0.01	<0.01	0.04
F12345	571 - 572m		0.3	2.02	0.01	2	<0.01	<0.01	0.02
F12346	572 - 573m		0.8	3.15	0.01	4	<0.01	<0.01	0.10
F12347	573 - 574m		0.3	1.00	0.01	2	<0.01	<0.01	0.06
F12348	574 - 575m		0.3	1.00	0.01	2	<0.01	<0.01	0.02
F12349	575 - 576m		1.2	3.99	0.12	4	<0.01	0.01	0.07

COVER 1. Hole 3. Unit 2.

ASSAYS CONTINUED.

Sample	Assayed Section metres	Type	Au gm/mt	Cu%	Bi%	Ag gm/mt	Pb%	Zn%	Co%
F12350	576 - 577m	B/C	11.7	1.83	0.77	8	0.18	0.01	0.03
F12351	577 - 578m		8.1	7.60	0.19	8	0.07	0.01	0.10
F12352	578 - 579		3.4	5.29	0.09	8	0.04	0.01	0.10
F12353	579 - 580		0.6	1.06	0.05	4	<0.01	0.01	0.04
F12354	580 - 581		2.4	0.40	0.04	4	<0.01	0.01	0.03
F12355	581 - 582		1.7	0.33	0.05	4	<0.01	0.01	0.03
F12356	582 - 583		15.3	0.46	0.05	4	<0.01	0.01	0.02
F12357	583 - 584		21.5	0.20	0.09	6	0.03	0.01	0.02
F12358	584 - 585		1.4	0.18	0.06	6	0.03	0.01	0.02
F12359	585 - 586		11.0	0.37	0.05	4	<0.01	0.01	0.01
F12360	586 - 587		4.0	0.57	0.06	3	<0.01	0.01	0.01
F12361	587 - 588		0.4) 0.4)	0.85	0.04	<1	0.01	0.02	0.02
F12362	588 - 589		0.4) 0.3)	0.39	0.02	<1	0.01	0.02	0.02
F12363	589 - 590		0.4) 0.4)	1.05	0.03	<1	<0.01	0.01	0.02
F12364	590 - 591		0.8) 0.7)	1.19	0.03	<1	0.01	0.01	0.01
F12365	591 - 592		11.8) 9.8)	1.05	0.12	<1	0.01	0.01	0.02
F12366	592 - 593		17.1) 13.0)	1.80	0.09	7	0.02	0.02	0.02
F12367	593 - 594		9.8) 8.5)	1.69	0.07	<1	0.01	0.02	0.02
F12368	594 - 595		6.6) 7.8)	1.23	0.10	<1	0.02	0.02	0.01
F12369	595 - 596		6.1) 6.3)	0.26	0.08	<1	0.01	0.01	0.01
F12370	596 - 597		39.8) 40.1)	1.15	0.38	7	0.02	0.02	0.02
F12371	597 - 598		10.7) 11.2)	0.64	0.06	<1	0.01	0.02	0.01
F12372	598 - 599		1.3) 1.3)	0.43	0.03	<1	0.01	0.01	0.01
F12373	599 - 600		0.7) 0.8)	0.78	0.03	<1	0.01	0.01	0.01
F12374	600 - 601		<0.1) 0.3)	0.37	0.02	<1	0.01	0.01	0.01
F12375	601 - 602		0.4) 0.3)	0.21	0.02	<1	0.01	0.01	0.01

ROVER 1 Hole 2 RR02.

ASSAYS CONTINUED.

Sample	Assayed Section metres		Type	Au g/m/mt	Cu%	Bi%	Ag gm/mt	Pb%	Zn%	Co%
F12376	602	- 603	H/c	0.7) 0.6)	0.38	0.02	<1	0.01	0.02	0.03
F12377	603	- 604		1.1) 0.8)	0.25	0.03	<1	0.01	0.02	0.03
F12378	604	- 605		3.1) 2.7)	0.16	0.14	5	0.02	0.01	0.04
F12379	605	- 606		1.3) 1.5)	0.17	0.07	<1	0.02	0.01	0.06

ROVER 1 DDH2 WRO2.

ASSAYS.

Sample	Assayed Section	Type	Au g/mt	Cu%	Bi%	Ag g/mt	Pb%	Zn%	Co%
F13223	516 - 517	H/C	<0.1	<0.01	0.01	3	0.01	<0.01	0.01
F13224	517 - 518		<0.1	<0.01	0.01	3	0.01	<0.01	0.01
F13225	518 - 519		0.15	<0.01	0.01	3	0.01	0.01	0.01
F13226	519 - 520		<0.1	<0.01	0.01	3	0.01	0.01	0.01
F13227	520 - 521		<0.1	0.01	0.01	3	0.01	0.01	0.01
F13228	521 - 522		<0.1	<0.01	0.01	5	0.01	0.01	0.01
F13229	522 - 523		0.25	0.23	0.01	12	0.01	0.01	0.03
F13230	523 - 524		<0.1	0.09	0.01	12	0.01	0.01	0.03
F13231	524 - 525		<0.1	<0.01	0.01	3	0.01	0.01	0.04
F13232	525 - 526		<0.1	<0.01	0.01	3	0.01	0.01	0.01
F13233	526 - 527		<0.1	<0.01	<0.01	3	0.02	0.01	0.01
F13234	527 - 528		<0.1	0.01	0.01	4	0.01	0.01	0.01
F13235	528 - 529		0.15	0.01	0.01	3	0.01	0.01	0.01
F13236	529 - 530		0.15	0.01	0.01	1	0.01	<0.01	0.01
F13237	530 - 531		0.45	<0.01	0.01	1	0.01	<0.01	0.01
F13238	531 - 532		0.4	0.01	0.01	3	0.01	0.01	0.01
F13239	532 - 533		0.15	0.01	0.01	3	0.01	<0.01	0.01
F13240	533 - 534		0.1	0.03	0.01	3	0.01	0.01	0.01
F13241	534 - 535		<0.1	0.19	0.01	3	0.01	0.01	0.01
F13242	535 - 535.5		<0.1	0.71	0.08	4	0.02	0.01	0.01
F13243	550 - 551		<0.1	0.35	0.01	3	0.01	0.01	0.01
F13244	551 - 552		0.1	0.03	0.01	3	0.01	0.01	0.02
F13245	552 - 553		0.15	<0.01	0.01	3	0.01	0.01	0.01
F13246	553 - 554		<0.1	<0.01	0.01	3	0.01	0.01	0.01
F13247	554 - 555		<0.1	<0.01	0.01	3	0.01	0.01	0.01
F13248	555 - 556		<0.1	<0.01	0.01	3	0.01	0.01	0.01
F13249	556 - 557		<0.1	<0.01	0.01	3	0.01	0.01	0.01
F13250	557 - 558		<0.1	<0.01	0.01	3	0.01	0.01	0.01
F13251	558 - 559		0.1	<0.01	0.01	1	<0.01	0.01	0.01
F13252	559 - 560		0.15	<0.01	0.01	1	<0.01	<0.01	0.01
F13253	560 - 561		0.35	<0.01	0.01	2	<0.01	0.01	0.01
F13254	561 - 562		0.15	<0.01	0.01	2	<0.01	0.01	0.01
F13255	562 - 563		0.2	0.12	0.03	4	0.01	0.01	0.18
F13256	563 - 564		<0.1	0.02	0.01	3	0.01	0.01	0.03
F13257	564 - 564.4		<0.1	0.01	0.02	3	0.01	0.01	0.02

COVER 1 DDH2 WRO2.

ASSAYS.

Sample	Assayed Section	Type	Au g/mt	Cu%	Bi%	Ag g/mt	Pb%	Zn%	Co%
F13258	606 - 607	H/C	0.15	0.14	0.04	4	0.01	0.01	0.04
F13259	607 - 608		0.1	0.05	0.02	3	0.01	0.01	0.02
F13260	608 - 609		0.6	0.02	0.01	3	<0.01	0.01	0.02
F13261	609 - 610		0.7	0.02	0.01	3	0.01	0.01	0.02
F13262	610 - 611		0.5	0.02	0.02	3	0.01	0.01	0.07
F13263	611 - 612		0.1	0.01	0.01	1	0.01	0.01	0.03
F13264	612 - 613		<0.1	0.01	0.06	1	0.01	0.01	0.04
F13265	613 - 614		<0.1	0.01	0.02	1	0.01	<0.01	0.04
F13266	614 - 615		0.1	.01	0.01	2	<0.01	0.01	0.04
F13267	615 - 616		0.1	0.44	0.02	3	0.01	0.01	0.10
F13268	616 - 617		0.15	1.00	0.03	5	0.01	0.01	0.13
F13269	617 - 618		0.1	0.05	0.02	4	0.01	0.01	0.18
F13270	618 - 619		<0.1	<0.01	0.01	3	<0.01	0.01	0.04
F13271	619 - 620		0.15	0.01	0.01	2	<0.01	0.01	0.01
F13272	620 - 621		<0.1	<0.01	<0.01	1	0.01	<0.01	<0.01
F13273	621 - 622		<0.1	<0.01	0.01	1	<0.01	<0.01	<0.01
F13274	622 - 623		0.1	<0.01	0.01	1	<0.01	<0.01	<0.01
F13275	623 - 624		<0.1	0.01	0.01	1	<0.01	<0.01	<0.01
F13276	624 - 625		<0.1	<0.01	0.01	1	<0.01	<0.01	<0.01
F13277	625 - 626		<0.1	<0.01	0.01	1	<0.01	<0.01	<0.01
F13278	626 - 627		<0.1	0.01	0.01	1	<0.01	0.01	<0.01
F13279	627 - 628		<0.1	0.01	0.01	1	K0.01	<0.01	<0.01
F13280	628 - 629		0.1	0.02	0.01	1	<0.01	0.01	<0.01
F13281	629 - 630		<0.1	0.02	<0.01	1	<0.01	<0.01	<0.01
F13282	630 - 631		<0.1	<0.01	0.01	1	<0.01	0.01	<0.01
F13283	631 - 632		<0.1	<0.01	<0.01	1	<0.01	<0.01	<0.01
F13284	632 - 633		0.1	<0.01	<0.01	1	<0.01	0.01	<0.01
F13285	633 - 634		<0.1	0.01	0.01	1	<0.01	0.01	<0.01
F13286	634 - 635		0.15	0.01	0.01	2	<0.01	0.01	<0.01
F13287	635 - 636		<0.1	<0.01	0.01	1	<0.01	0.01	<0.01
F13288	636 - 637		<0.1	<0.01	0.01	1	<0.01	0.01	<0.01
F13289	637 - 638		<0.1	<0.01	0.01	1	<0.01	0.01	<0.01
F13290	638 - 639		0.2	0.02	0.01	1	<0.01	0.01	<0.01
F13291	639 - 640		0.1	<0.01	0.01	1	0.01	0.01	<0.01
F13292	640 - 641		0.35	0.09	0.01	1	0.01	0.01	<0.01

[illegible].2

The wedge run commenced at 163m and cored sediments of Warramunga Group, i.e. sandstones, siltstones and hematite shale to 564.35, where ironstone lode was intersected. The lode was generally magnetite-hematite, and quartz magnetite-hematite carrying sulphide namely chalcopyrite and pyrite. The ironstone continued from 564.35m to 575.65m and mineralised sediment followed and carried pyrite and chalcopyrite to 621m. A zone of choritic sediments was intersected from 532.4 - 535.4. The centre point of the lode intersection was 1140/E 876N of -523m RL.

Assay values of the lode zone were,

	570 - 579m, 9m @	3.09%Cu
	576 - 577m, 1m @	11.7 gm/mt Au
	582 - 586m, 4m @	12.3 gm/mt Au 0.3%Cu
	586 - 591m, 5m @	1.1 gm/mt
	591 - 598m, 7m @	14.2 gm/mt, 1.1%Cu
overall	582 - 598m, 16 @	9.6 gm/mt 0.8%Cu

ROVER 1. #W02.

GEOLOGICAL LOG. by M. Mechl.

183m #W02 Commenced - Hall Rowe wedge
183 - 167m No core recovered - ballmoco bit run off.
167 - 209.50m Sheared and jointed sedimentary rock; sandstones generally medium grained. Minor quartz and chlorite veining is noted 167.3 to 168.1m. Joints to core axis are 80°. Some thin irregular quartz veins are also noted.

174.7 - 176.2m Sheared rock, with minor irregular quartz veining. Green chlorite is on the planar surfaces.
Minor shearing persists from 176.2m through to 180.4m.

184.4 - 188m Sheared sedimentary rock; subnormal joints noted where shearing is minor.

188 - 191.4m Very sheared and fractured ground and generally iron stained; fault ?.

191.4 - 195.35m Sandstones medium grained, cut by thin irregular quartz veins have also small augens of quartz. Subnormal joints are also present.

195.35 - 199m Badly sheared and broken ground, iron stained and green chlorite is also present; fault ?.

199 - 203.8m Medium grained sandstones showing minor thin irregular quartz veins and subnormal joints.

203.8 - 204.7m Fractured and jointed sediments.

204.7 - 209.5m Medium grained sandstones showing minor thin quartz veins, subnormal joints.

209.50 - 221m Hematite shale, generally chocolate coloured containing quartz and chlorite veins.

210.1m Bedding to CA = 20°

213.1 - 215.6m Quartz chlorite vein, 20mm thick, angle to CA = 2°. Vein also includes fragments of hematite shale.

220.6m Bedding to CA = 30°.

GEOLOGICAL LOG. CONTINUED.

221.1 - 227.9m		Sedimentary rock composed of medium grained sandstones cut by minor quartz veins. Fracturing and jointing is again present. Joints 80° to CA, and fractured generally parallel the hole direction.
227.9 - 233m		Hematite shale, generally chocolate coloured and cut by thin quartz veins.
	229.2m	Bedding to CA = 15°
233 - 234.2m		Medium grained sandstone.
234.2 - 236.1m		Hematite shale, generally fractured, with fracture planes lined with green chlorite.
236.1 - 245m		Medium grained sandstones generally fractured, ext parallel to core direction and cut by joints 80° to CA. Thin irregular quartz veins are also present.
	241.1 - 243m	Badly fractured and jointed ground.
245 - 280m		Sandstone and siltstone sequence. Sandstones grey in colour and show signs of grading up to siltstone laminated tops. Sandstone grainsize is usually medium to fine.
	248m	Bedding to CA = 15° and grainsize possible fining up the hole.
	251.7m	Bedding to CA = 10°
	253.7m	Bedding to CA = 5°
	256.8m	Bedding to CA = 1°
	274.8m	Quartz chlorite vein, 10cm thick
	274.8m	Sandstones and siltstones, redder in appearance, with hematite shale affinities. Bedding 20° to CA.
280 - 284.6m		Sheared and fractured sandstones. Green chlorite is present on the fracture planes. Quartz veining with chlorite and feldspar.is present from 282.6 to 284.6m. Leek green chlorite is also present.

GEOLOGICAL LOG. CONTINUED.

284.6 - 289.2m		Hematite shale with bedding to CA = 2°
	288m	Bedding to CA = 12°
289.2 - 291.7m		Sandstones generally fine to medium grained with siltstone tops.
	290.2m	Bedding to CA = 15°
		From 291.2 to 291.5m base of sandstone beds contain pink feldspar ?.
291.7 - 293m		Hematite shale
	292.6m	Bedding plane to CA = 15°
293 - 315m		Bedded medium grained sandstone that fines to luminal silts, grey green in colour.
	293.8m	Bedding to CA = 20°
	295.7m	" " " = 2°
	296.7 - 300/8m	No core
	301m	Pyrite smears are noted on the bedding planes.
	304m	Bedding to CA = 5°
	312m	Bedding to CA = 10°
	313.5m	" " " = 10°
315 - 338.4m		Hematite shale with minor green chlorite along the bedding
	317.7 - 325.5m	No core
	323.0m	Bedding to CA = 10°
	326.5m	" " " = 2°
	328.5 - 328.9m	Small zone of medium grained sandstone.
	332.6m	Bedding to CA = 10°
		Hematite shale composed of fine red bands up to 2mm thick, usually less than 1mm separated by interbeds of coarser grey silt or a very fine sand. Thin irregular quartz veins are noted cutting the shale.
338.4 - 338.3m		Sandstone siltstone sequence grey in colour. Interbedded in a hematite shale sequence ?.
	337.6m	Bedding to CA = 10°

GEOLOGICAL LOG. CONTINUED.

338.3 - 343.5m		Hematite shale sequence as above
	339.7m	Bedding to CA = 15°
	341 - 343.5m	Grey green bleached hematite shale, cut by quartz-chlorite veins. Sequence is very chloritic and includes green and leek green chlorites.
343.5m		Quartz containing green and leek green chlorite. Joints 60° and 75° to CA are present. Minor feldspar may also be present.
	346.8 - 348m	Green to leek green chlorite
	348 - 348.4m	Quartz with minor green chlorite.
348.4 - 390m		Bedded sandstones and siltstones Sandstones are grey in colour, tend to a graded nature with siltstone tops. Bedding from 348.4 to 369m is parallel to the core direction. Jointing is common usually 60°-65° to CA.
	369m	Bedding to CA = 25°
	370.3 - 374.70m	Badly broken and fractured ground
	374.70 - 375.4m	Core is more competent.
	375.4 - 378.4m	Badly broken and fractured ground. In both cases above quartz and chlorite veining is present, up to 10mm in width.
	381m	Bedding to CA = 5°
	383.5m	Bedding to CA = 20° In this case sandstone resting on siltstone as disturbed and eroded part of the upper surface of the siltstone bed. Youngging away from the collar ?.
	393m	Bedding to CA = 20° The laminated shale horizon has been eroded and disturbed leading to load casting and minor flame structures in the silt. Youngging direction indicated is away from collar. Grading in sandstone tends to indicate this also
	395m	Bedding to CA = 15°
395 - 411.3m		Hematite shale, with bedding from 5° to 10° to CA. Shale is composed of thin hematite rich laminae (1-2mm) separated

GEOLOGICAL LOG. CONTINUED.

		by thicker (2-4mm) interbeds of grey clastics i.e. fine sand and silt. From 420m hematite shale becomes an almost homogeneous chocolate colour with bedding parallel to hole direction. Minor thin quartz veins are noted some 70° - 80° to CA, and some thin chlorite venation usually parallel to bedding.
411.3 - 424.9m		Medium grained sandstones and siltstones; difficult to estimate younging directions.
	414.9m	Bedding to CA = 30°
	415.65m	Minor zone of chloritization and folded quartz veining in sandstone. Quartz veining is folded and cut by microfaulting. Siltstones are a minor constituent, sequence tend more a sandstone beds. Minor thin quartz veins are present generally parallelling bedding. Minor silification of sediments is noted.
	423.0m	Quartz feldspar vein, 20mm thick 40° to CA. Prior to the vein feldspar is noted disseminated throughout the sediments to 423.6m.
	423.6m	Pyrite and chalcopyrite is noted smeared on a joint face.
424.9 - 430m		Hematite shale sequence.
	426.7m	Bedding to CA = 55°
	427.8m	" " " = 85° Sequence has thin hematite laminae separated by grey to grey red fine grained clastics. Joint to CA =
430 - 443.2m		Bedded medium sandstones and siltstones, showing grading and bedding bottom features.

GEOLOGICAL LOG. CONTINUED.

	431m	Bedding to CA = 55°
	433.4m	" " " = 55°, younging up to the collar indicated by sandstone grading.
	434.5m	Bedding to CA = 50°
	439m	Bedding to CA = 65°, younging in core indicated by flame structures and load casts to be to the collar.
	441 - 441.2m	Zone of quartz chlorite veins cutting sediment. Pyrite is noted in the quartz. Sediments adjacent to this zone and within it are bleached.
443.2 - 443m		Hematite shale sequence. Some green chlorite is noted on the bedding
	443.6m	Bedding to CA = 30°
443 - 447.90m		Graded grey sandstone sequence in which the siltstone tops contain some hematite.
	446.8m	Bedding to CA = 45° Some green chlorite veins are noted paralleling the bedding
447.80 - 451m		Hematite shale sequence
	448m	Bedding to CA = 45°
451 - 457.4m		Graded sandstone siltstone sequence. Sandstones generally medium grained and grade to siltstone tops. Usually grey although pink beds are noted.
	451.8m	Bedding to CA = 45° younging to the collar. Minor green chlorite is noted, generally if present along bedding.
457.4 - 458.5m		Hematite shale sequence which is micro folded, contains chlorite vein along bedding and has been bleached in part.
	457.5m	Bedding to CA = 35°

GEOLOGICAL LOG. CONTINUED.

458.5 - 460.4m		Very chlorite fractured and broken rock, possible hematite shale. Bedding is just visible. Minor veins of quartz and chlorite is also present.
460.4 - 462.7m		Hematite shale sequence, with bedding showing minor open folds.
	460.6m	Bedding to CA = 35°
		Some thin irregular quartz veining is present, disrupting the bedding
	462.4m	Two thin (1-2mm) carbonate veins parallel bedding
462.7 - 480.5m		Bedded sandstones that grade up to siltstones. Sandstones generally medium to fine grained.
		Colour generally grey although slight pinkness is present.
	463.2m	Bedding to CA = 45°; grading indicates younging to collar.
	464.5m	Bedding to CA = 30°, grading indicates young to collar.
	467.7m	Bedding to CA = 35°
	468.7m	Quartz-chlorite vein
	471.7m	Bedding to CA = 40°
	472.2m	Quartz-chlorite vein approx 20cm in width. Micro thin irregular veinlets lead off approx. normal to the bedding.
	473.30 - 473.50m	Siltstone laminae accentuated by chlorite and introducted quartose leaficles.
		Minor thin quartz veins are noted particularly at 476.7 - 478.4m
	478m	Bedding to CA = 42°
480.5 - 481.2m		Sediments become increasing chloritic, pink and quartzose. Minor thin quartz veins are apparent irregular in fashion.

ROVER 1. 1982.

GEOLOGICAL LOG. CONTINUED.

481.2 - 485m		Hematite shale sequence showing hematite laminae and grey fine grained interbedded Fine irregular quartz veining is also noted. cutting the bedding.
	482.2m	Bedding to CA = 40°
		Carbonate is present and the laminae in which it is contained tend to be swell and pinch having a lenticle like appearance.
485 - 490.5m		Chlorite sediments showing green and lack green chlorite, chlorite quartz veins, thin quartz veins and zones of silicification. Some chlorite is present paralleling and accentuating the bedding. Bedding in some cases is just visible.
	488.7 - 490.5m	Zone of extreme silicification where replacement of sediments is almost complete. Thin quartz veins are noted and green rounded chlorite spots are present in "chert". From 490.4 to 490.5m the bedding becomes visible. Several specks of sulphride, pyrite were noted.
490.5 - 494.5m		Bedded graded sandstones and siltstones which are siliceous in part.
	491.9m	Quarry veining.
	491.5m	Small accumulates of pyrite.
	493m	Bedding to CA = 21°
	492.7 - 493m	Quartz chlorite vein.
		Minor thin green chlorite veins are noted, most tend to parallel bedding.
	494.05 - 494.1m	Quartz vein containing minor chlorite. Some thin quartz veins extend into the sediments either side which have been chloritized.
494.50 - 498.70m		Hematite shale sequence. Minor chlorite is developed along the cleavage.

ROVER 1. HOLE.

GEOLOGICAL LOG. CONTINUED.

481.2 - 485m		Hematite shale sequence showing hematite laminae and grey fine grained interbedded Fine irregular quartz veining is also noted. cutting the bedding.
	482.2m	Bedding to CA = 65°
		Carbonate is present and the laminae in which it is contained tend to be small and pinch having a lenticle like appearance.
485 - 490.8m		Chlorite sediments showing green and leek green chlorite, chlorite quartz veins, thin quartz veins and zones of silicification. Some chlorite is present paralleling and accentuating the bedding. Bedding in some cases is just visible.
	488.7 - 490.2m	Zone of extreme silicification where replacement of sediments is almost complete. Thin quartz veins are noted and green rounded chlorite spots are present in "chert". From 490.4 to 490.8m the bedding becomes visible. Several specks of sulphide, pyrite were noted.
490.8 - 494.8m		Bedded graded arenitemes and siltstones which are siliceous in part.
	491.0m	Quarry veining.
	491.8m	Small accumulates of pyrite.
	493m	Bedding to CA = 21°
	492.7 - 493m	Quartz chlorite vein.
		Minor thin green chlorite veins are noted, most tend to parallel bedding.
	494.05 - 494.1m	Quartz vein containing minor chlorite. Some thin quartz veins extend into the sediments either side which have been chloritized.
494.50 - 495.70m		Hematite shale sequence. Minor chlorite is developed along the cleavage.

GEOLOGICAL LOG. CONTINUED.

	493m	Bedding to CA = 32°
493.70 - 508.4m		Bedded sandstones and siltstones silicified in parts, with chloritization noted mainly paralleling the bedding.
	495.6m	Bedding to CA = 35°
	498m	Bedding to CA = 33°
	499.1 - 499.4m	Pink siliceous sediment zone, near "chert" and cut by white quartz veins.
	498.6m	Pink siliceous sediment zone cut by thin quartz veins. Green chlorite is also present.
	496.4m	Sediment breccia zone, extends from 496.4 to 496.45m. Breccia fragments are up to 0.8cm long, sited in a matrix of fine hash and green chlorite.
	502.4m	Bedding to CA = 30°
	503.1 - 503.4m	Sediments are chloritic and minor scattered amounts of sulphide is noted. Pyrite and chalcopyrite are both present in blob forms or as smears on chloritic fracture faces.
	506.9 - 508m	Sandstone medium grained containing breccia fragments of siltstone and of quartz. Some are large 2 to 3cm in length e.g. 507.8m.
508.40 - 516.3m		Hematite shale sequence Bedding to CA = 30°. Bedding is accentuated by chlorite in some sections.
	509m.	Breccia sediment vein 3cm wide cross cutting the bedding. Fragments of hematite shale and chloritized sediment up to .5cm long are set in a matrix of carbonate and quartz
	510m	Bedding to CA = 35°
	510.4 - 511.4m	Hematite shale is chloritized

GEOLOGICAL LOG. CONTINUED.

	512.8 - 513m	Minor quartz veining and jasper ?.
	513.8m	Quartz vein 2.5 - 3.0cm wide cutting normal to bedding
	514m	Bedding to CA = 32°
		Minor thin irregular quartz veins are noted. From 514.2 to 514.8m quartz veins are larger in more instance in number. Chlorite is noted as being present along the bedding planes from 514m. The grey laminae tend to lenticular form from 512m onwards.
	515.3m	Bedding to CA = 40°
516.3 - 521.8m		Sediments showing bedding but fine grained, laminate and extremely chloritised with some quartz and jasper veining. Could be chloritized hematite shale. Silicification and chloritization replacement still reflects the original bedding e.g. 517 - 517.6m.
	518m	Bedding to CA = 35°
	518.3m	Quartz and jasper veins with some chlorite 1.0cm in width parallel with bedding.
	520m	Quartz and jasper veining with minor chlorite up to .05cm in width parallels the bedding.
	519m	Bedding to CA = 25°
	521.6m	Bedding to CA = 40°
521.8 - 523.25m		Quartz and jasper, which itself is cut by quartz veins. The quartz-jasper contains minor amounts of chlorite, pyrite and chalcopyrite blebs.
	521.35 - 521.65m	Chloritized and silified sediments contain minor blebs of pyrite and chalcopyrite.
		From 521.65m again quartz-jasper this time strongly layered; reflecting bedding ?. and contain green chlorite, pyrite and chalcopyrite blebs. A vein of hematite containing sulphidis (pyrite and chalcopyrite) cuts the quartz-jasper at 15° to CA.

ROVER 1, WR03.

GEOLOGICAL LOG. CONTINUED.

Vein is 0.8cm wide at 522.8m

523.22m — Chloritized sediments in which bedding planes are hard to distinguish and several quartz chlorite veins are noted.

523.7m — Quartz-chlorite veining.

524.6m — " " "

527.33m — Quartz-jasper chlorite vein

531.4m — Bedding ? to CA = 80°

532.4 - 532.8m — Chlorite sediments containing dissemin-ated carbonate.

From 533m sediments are more chloritic and tend to break into shorter lengths. Some fracturing normal to the core is also evident.

533.3m — Bedding to CA = 70°

535m — Chalcopyrite blebs with thin chlorite rims are noted. Prior to this to pyrite and chalcopyrite smears are noted on the chlorite fracture planes.

535.1 - 535.40m — Thin irregular quartz veins are noted cutting the sediments until the lode contact.

Iron stone contact is very chloritic

535.40 - 537.93m — Magnetite-sulphide contain minor quartz and jasper i.e. at 535.53m. Sulphides pyrite and chalcopyrite are present normally as veins, thin veinlets and blebs. Contact at 535.4m to sediments is, 45° to CA. Hematite is also present scattered throughout.

537 - 537.2m — Chlorite is noted in the ironstone. This zone is almost a chlorite magnetite.

537.4 - 537.7m — Quartz jasper magnetite zone. Sulphides are still present.

ROVER 1. WR02.

GEOLOGICAL LOG. CONTINUED.

537.93 - 549.5m		Chlorite and bleached sediments cut by magnetite veins containing chalcopyrite blebs and pyrite. Hematite is also present. Concentration of sulphide and iron is not sufficient to class this zone as a heavily mineralized sediment.
	540.5 -540.8m	Magnetite-hematite vein with chlorite and chalcopyrite. Lineation of veins approx. 50° to CA.
	539m	Lineation bedding ? to CA = 40°
549.50 -551.4m		Chlorite sediments, containing very minor quartz magnetite/hematite and chalcopyrite.
551.4 - 564.4m		Chloritic sediments that contain trace sulphide. Core is very broken to 552.2m
	553m	Lineation to CA = 45°, bedding
	555.4m	Lineation to CA = 35° cleavage, and bedding is 45° to CA strike angle between them is approx. 20° Chlorite is generally noted more accentuating the bedding.
	561. 564.4m	Sediments become more chloritic and broken as lode is approached. Minor irregular quartz veining is noted occurring cutting the sediments.
564.4 - 569m		Quartz magnetite with hematite. Contact with chloritic sediments is 50° to CA. Sulphides present are dominantly pyrite and minor amounts of bleb chalcopyrite. Minor amounts of jasper and carbonate is noted also.
	566.4m	Hematite content increases with hematite noted also as veins and vughy concentrations.
	568.4m	Quartz and carbonate (dolomite) content increases to about 60%.

GEOLOGICAL LOG. CONTINUED.

569 - 573.65m.		Magnetite-hematite, containing veins, veinlets and blebs of chalcopyrite throughout to ore grade proportions. Also associated is pyrite as aggregated and cumulates. Several thin irregular carbonate, dolomite ?. Hematite is also present as thin irregular veins associated with quartz.
	572.8m	From here hematite noted more as veins and veinlets.
	574.25m	Vugh lined by dolomite contain crystals of chalcopyrite
	573.4m	From here veins up to 2.5cm wide 60° to CA compose of dolomite and carrying minor chalcopyrite and chlorite.
	575.4m	From here chlorite becomes more prevalent.
573.65 - 601m		Heavily mineralized sediments containing pyrite, vein and bleb chalcopyrite and vein and nodular magnetite. Also present is cherty quartz (578.35 - 576.70m) and at 577m. Mineralization tends to be lineated i.e. 60°/70° to CA.
	580m	Chalcopyrite content lessens and pyrite becomes the dominant sulphide. Lineation of pyrite to CA = 60°. Minor carbonate veins
583.3 - 584.3m		Magnetite content increases, to make lithology almost a chlorite-magnetite.
584.3 - 585.8m		Mineralized chloritic sediments containing magnetite veins, nodular magnetite, veins of pyrite and pyrite aggregates and minor amounts of chalcopyrite, generally as blebs.
585.8m		Chloritic sediments mineralized with minor veins of magnetite, pyrite and chalcopyrite. Lineation of veining to CA = 60°.

GEOLOGICAL LOG. CONTINUED.

		Green chlorite is noted on the margins of the veins.
		From 587m magnetite and hematite is in very minor amounts with pyrite being the dominant sulphide found in veins or aggregates. Chalcopyrite is associated in the veins with the pyrite as veinlets or blebs. Green chlorite is present in vein margins.
	588.5m	Lineation of veining to CA = 55°
	591.60 -595.6m	Core becomes fractured and broken with minor silicifications at 592.4m
	596.7 to 601m	Magnetite and hematite become more noticeable and sulphide content lessens. Green chlorite still present on vein margins. From 587.7m altered and bleached sediments are cut by the mineral veining.
601 -	601m	From 601m sulphide and hematite/magnetite mineralization lessens greatly. Sulphide is mainly pyrite and is present as aggregates. Chloritization is still evident.
	603.4 - 603.5m	Quartz-chlorite vein with hematite aggregates. Vein to core angle is 60° to CA.
	603.6 - 603m	Quartz-chlorite vein.
	606.5 - 606.6m	" " "
	606.8m	" " "

HOLE 1 PART 2 SHEET 2

GEOLOGICAL LOG

609.5-670	Quartz-chlorite containing a minor hematite and pyrite. Sediments containing disseminated fine grained pyrite irregular thin quartz veins and veins of chlorite continue. Chalcopyrite blebs are rare.
615.5-616.5	Sediments become more chloritic containing veins and blebs of pyrite and chalcopyrite.
616.5-617	Chloritic sediments that are partly replacedby quartz resulting in a mottled effect.
617-621	Chloritic sediments, fractured and core is in short length along cleavage. Pyrite is present as fine dispersed grains, chlorite is also present.
631-641	Fine to medium grained sandstones and siltstones showing bedding and cleavage. Fine grained pyrite is dispersedthrough the core, but some times is concentrated at the base of beds.
623.6	Bedding 55° to CA Cleavage 65°-70° to CA
626-627.2	Reddish chert and in part a silicified sandstone
633	Generally a finer grained siltstonesequence.
639.5	Cleavage to CA = 65°.
	From 627.1 core is in part silified to 633 showing"cherty " bands and increases inchlorite.
638-639	Between 633 to 639 60% core loss. Core is moderatly broken and fractured.
	To estimate youngingis hard due to the chloritisation.

DP

7.12.73

APPENDIX 2

Core Log of Rover 1

DDH2 WR03

GEOPEKO LIMITED

TENNANT CREEK
Northern Territory

PROSPECT/MINE : Rover 1.

Log of Hole : 2 WR03

Location : EL 228, South West of Tennant Creek.

Purpose of Hole : To test Western margin of the lode.

Proposed By : W. Maehl. Date : 30.11.73

Proposed Target : 1120 E : 875 N : -.518 R.L.

Hole Planned By : R. Maher Date : 2.1.74 Checked : W. Mayer.

Hole Approved By : B.T.Williams

Hole Logged By : W. Mayer.

Collar Co-Ordinates :

Proposed : NA E : NA N : NA R.L.

Surveyed : E : N : R.L. Surveyed in By : Date :

Actual : E : N : R.L. Picked up By : Date :

Collar Bearing :

Proposed : NA Grid : NA Magnetic :

Surveyed : Grid : Magnetic : Surveyed in By :

Actual : Grid : Magnetic : Picked up By .

Collar Inclination :

Proposed : NA

Surveyed : Surveyed in By :

Actual : Picked up By :

Target Depth : 500 m.

Proposed Final Depth : 625 m.

Actual Final Depth : 608 m. Hole Terminated By : B.T. Williams

Reason for Termination :

Drilling :- Date Commenced : 9/1/74 Date Completed : 12/3/74

Drilled By : Geopeko Drilling Division.

Wedges Placed At :

Remarks : Van Ruth Plug placed at 387m. Drilled off at 385m.

BX Clappison wedge placed at 402m.

Economic Summary Result : See Page 7

x BX Clappison wedge placed at 402m.

xx 14.3.74 Temperature measurement in hole.

xxx 18.3.74 Cemented from 508 - 608m.

S.McD. 11937/1073

ROVER 1. DDH2. NBO3.

SURVEYS.

Date.	Depth	Type	Dip Read	Dip Corr.	Bearing Read	Bearing Mag.	Grid.	Remarks.
11.2.74	397m	Photo	77°	77°	010°m	010°	014.5°	BX Hall Rowe Wedge placed at 387m.
11.2.74	412m	Photo	76°	76°	007°	007°	011.5°	
20.2.74	419m	Photo	72°	72°	001.5°	001.5°	006°	BX Clappison Wedge placed at 402m.
20.2.74	434m	Photo	69°	69°	000°	000°	004.5°	
20.2.74	449m	Photo	65°	65°	000°	000°	004.5°	
20.2.74	464m	Photo	55°	55°	359°	359°	003.5°	
20.2.74	479m	Photo	45°	45°	356.5°	356.5°	001°	
13.3.74	500m	Photo	39°	39°	350°	350°	354.5°	
13.3.74	530m	Photo	30°	30°	314°	~~352.5°~~	(352.5°)	affected by magnetics
13.3.74	560m	Photo	29°	29°	340°		(350.5)	possibly affected by magnetics.
13.3.74	590m	Photo	26°	26°	340°		(348.5)	possibly affected by magnetics.
13.3.74	605	Photo	25°	25°	343°	343°	347.5	END OF HOLE 605m.

Figures in brackets are assumed or interpolated.

ROVER 1, DDH2, #203.

ASSAYS.

Sample	Assay Section metres.	Type	Au g/mt	Cu%	Bi%	Ag g/mt	Pb%	Zn%	Co%
F12606	510 - 511	H/C	0.1	0.41	0.01	<1	<0.01	<0.01	0.01
F12606	511 - 512		0.2	2.04	0.01	<1	<0.01	<0.01	0.10
F12607	512 - 513		<0.1	0.45	0.01	<1	<0.01	<0.01	0.03
F12608	513 - 514		0.2	0.01	0.01	<1	<0.01	<0.01	0.01
F12609	530 - 531		0.1	0.01	<0.01	<1	<0.01	<0.01	0.01
F12610	531 - 532		0.2	0.02	0.01	<1	<0.01	<0.01	0.01
F12611	532 - 533		0.2	0.11	0.01	<1	<0.01	<0.01	0.01
F12612	533 - 534		0.2	0.60	0.04	<1	<0.01	<0.01	0.07
F12613	534 - 535		0.2	0.75	0.24	<1	<0.01	<0.01	0.03
F12614	535 - 536		20.3	2.20	0.34	<1	0.01	<0.01	0.01
F12615	536 - 537		2.6	1.68	1.24	<1	<0.01	<0.01	0.02
F12616	537 - 538		0.4	1.48	0.12	<1	<0.01	<0.01	0.01
F12617	538 - 539		0.6	0.67	0.24	<1	<0.01	<0.01	0.02
F12618	539 - 540		0.8	0.70	0.13	<1	<0.01	<0.01	0.12
F12619	540 - 541		0.3	2.08	0.02	<1	<0.01	<0.01	0.04
F12620	541 - 542		0.4	0.70	0.01	<1	<0.01	<0.01	0.02
F12621	542 - 543		0.2	1.10	<0.01	<1	<0.01	<0.01	0.04
F12622	543 - 544		0.2	0.75	0.01	2	<0.01	0.01	0.05
F12623	544 - 545		<0.1	0.17	0.01	1	<0.01	0.01	0.02
F12624	545 - 546		0.4	2.06	0.02	3	<0.01	<0.01	0.14
F12625	546 - 547		0.4	0.46	0.02	3	0.01	0.01	0.14
F12626	547 - 548		0.3	0.03	0.02	3	0.01	0.01	0.18
F12627	548 - 549		0.4	0.05	0.02	6	0.01	0.01	0.31
F12628	549 - 550		0.9	0.02	0.02	6	0.01	0.01	0.55
F12629	550 - 551		0.5	0.08	0.02	3	0.01	0.01	0.12
F12630	551 - 552		0.3	0.03	0.01	2	0.01	0.01	0.02
F12631	552 - 553		0.3	0.03	0.01	3	0.01	0.01	0.01
F12632	553 - 554		0.3	<0.01	0.01	2	<0.01	<0.01	0.01
F12633	554 - 555		0.1	0.02	0.01	2	<0.01	<0.01	0.01
F12634	555 - 556		0.1	0.02	0.01	2	0.01	<0.01	0.01
F12635	556 - 557		0.1	0.23	0.01	1	0.01	<0.01	0.01

ROVER 1 DDH2 WH03

ASSAYS

Sample	Assay Section metres	Type	Au g/mt	Cu%	Bi%	Ag g/mt	Pb%	Zn%	Co%
F12636	557 - 558	H/C	0.1	0.03	0.01	1	<0.01	<0.01	0.02
F12637	558 - 559		0.1	0.02	0.01	2	0.01	<0.01	0.03
F12638	559 - 560		1.2	0.02	0.02	6	0.01	<0.01	0.23
F12639	560 - 561		1.0	0.03	0.02	7	0.01	<0.01	0.29
F12640	561 - 562		0.8	0.05	0.02	4	0.01	<0.01	0.17
F12641	562 - 563		0.9	0.03	0.01	2	0.01	<0.01	0.09
F12642	563 - 564		0.4	0.01	0.02	3	0.01	<0.01	0.13
F12643	564 - 565		0.7	0.01	0.02	3	0.01	<0.01	0.23
F12644	565 - 566		0.2	<0.01	0.01	2	0.01	<0.01	0.03
F12645	566 - 567		0.4	0.10	0.01	3	0.01	0.01	0.09
F12646	567 - 568		0.4	0.01	0.01	6	0.01	0.01	0.04
F12647	568 - 569		0.5	<0.01	0.01	1	<0.01	0.01	0.03
F12648	569 - 570		0.5	0.09	0.01	2	0.01	0.01	0.03
F12649	570 - 571		0.4	0.19	0.02	4	0.02	0.01	0.05
F12650	571 - 572		0.5	0.01	0.02	6	0.02	0.01	0.03
F12651	572 - 573		0.6	0.27	0.02	7	0.02	0.01	0004
F12652	573 - 574		0.5	0.96	0.02	6	0.01	0.01	0.03
F12653	574 - 575		1.4	3.96	0.05	5	0.02	0.01	0.04
F12654	575 - 576		0.5	0.88	0.02	1	0.01	0.01	0.02
F12655	576 - 577		0.6	1.38	0.05	2	0.01	<0.01	0.02
F12656	577 - 578		0.7	0.09	0.01	<1	<0.01	<0.01	0.01
F12657	578 - 579		1.0	0.45	0.01	<1	<0.01	0.01	0.01
F12658	579 - 580		0.5	0.61	0.02	<1	0.01	<0.01	0.01
F12659	580 - 581		0.8	0.75	0.07	<1	0.01	<0.01	0.01
F12660	581 - 582		1.0	0.63	0.02	<1	0.01	<0.01	0.01
F12661	582 - 583		1.0	0.59	0.10	2	0.01	0.01	0.02
F12662	583 - 584		0.4	0.29	0.04	3	0.01	0.01	0.03
F12663	584 - 585		0.5	0.03	0.02	3	0.01	0.01	0.03
F12664	585 - 586		0.5	0.34	0.02	4	0.01	0.01	0.03
F12665	586 - 587		0.2	0.34	0.01	1	0.01	%0.01	0.02
F12666	587 - 588		1.5	0.02	0.01	2	<0.01	<0.01	0.01

HOVER 1 DDH2 W803

ASSAYS

Sample	Assay Section metres	Type	Au g/mt	Cu%	Bi%	Ag g/mt	Pb%	Zn%	Co%
F12667	588 - 589	H/C	1.0	0.02	0.01	<1	<0.01	<0.01	001
F12668	589 - 590		2.0	0.03	0.02	3	0.02	0.01	0.06
F12669	590 - 591		1.0	0.03	0.01	<1	0.01	<0.01	0.02
F12670	591 - 592		1.4	0.04	0.02	1	0.01	<0.01	0.04
F12671	592 - 593		2.1	0.20	0.01	2	0.02	<0.01	0.04
F12672	593 - 594		2.5	0.10	0.02	6	0.01	<0.01	0.06
F12673	594 - 595		0.8	0.04	0.01	1	<0.01	<0.01	0.01

ROVER 1 DDH2 WRO 3.

ASSAYS.

Sample	Assayed Section	Type	Au g/mt	Cu%	Bi%	Ag g/mt	Pb%	Zn%	Co%
F13131	507 - 508	H/C	0.1	<0.01	0.01	3	<0.01	0.01	0.01
F13132	508 - 509		<0.1	0.01	0.01	3	<0.01	0.01	0.01
F13133	509 - 510		0.1	0.03	0.01	3	<0.01	0.01	0.01
F13134									
F13134	514 - 515		<0.1	<0.01	0.01	3	<0.01	0.01	0.01
F13135	515 - 516		0.1	<0.01	0.01	3	<0.01	0.01	0.01
F13136	516 - 517		<0.1	<0.01	0.01	4	0.01	0.01	0.01
F13137	517 - 518		0.1	0.01	0.02	3	0.01	0.01	0.02
F13138	518 - 519		0.15	<0.01	0.01	3	<0.01	0.01	0.01
F13139	519 - 520		0.1	<0.01	0.01	3	<0.01	0.01	0.01
F13140	520 - 521		0.1	<0.01	0.01	3	<0.01	0.01	0.01
F13141	521 - 522		<0.1	<0.01	0.01	2	<0.01	0.01	0.01
F13142	522 - 523		0.1	0.01	0.01	3	<0.01	0.01	0.01
F13143	523 - 524		0.1	<0.01	0.01	3	<0.01	0.01	0.01
F13144	524 - 525		0.1	<0.01	0.01	<1	<0.01	0.01	0.01
F13145	525 - 526		0.1	0.01	0.01	3	<0.01	0.01	0.01
F13146	526 - 527		0.35	<0.01	0.01	3	<0.01	0.01	0.01
F13147	527 - 528		0.1	<0.01	0.01	3	<0.01	0.01	0.01
F13148	528 - 529		0.15	<0.01	0.01	3	<0.01	0.01	0.01
F13149	529 - 530		0.1	<0.01	0.01	3	<0.01	0.01	0.01
F13150	595 - 596		0.15	0.01	0.01	3	<0.01	0.01	0.01
F13151	595 - 597		0.2	<0.01	0.02	4	<0.01	0.01	0.02
F13152	597 - 598		<0.1	0.01	0.01	3	<0.01	0.01	0.01
F13153	598 - 599		0.2	<0.01	0.01	3	<0.01	0.01	0.01
F1315	599 - 600		0.2	<0.01	0.01	3	0.01	0.01	0.01
F13155	600 - 601		<0.1	0.01	0.02	3	0.01	0.01	0.01
F13156	601 - 602		<0.1	<0.01	0.01	5	0.01	0.01	0.01
F13157	602 - 603		0.2	<0.01	0.01	4	<0.01	0.01	0.01
F13158	603 - 604		0.15	0.03	0.01	3	0.01	0.01	0.01
F13159	604 - 605		<0.1	0.01	0.01	5	0.01	0.01	0.01
F13160	605 - 606		0.15	0.03	0.01	4	<0.01	0.01	0.01
F13161	606 - 607		0.15	<0.01	0.01	3	<0.01	0.01	<0.01
F13162	607 - 608		0.65	<0.01	0.01	3	<0.01	0.01	<0.01

NOVA 1 DDH2 WR03

TECHNICAL DATA

Drilled from 9.1.74 to 12.3.74
Start at 387.0m, Actual Final Depth: 608.0m

Van Ruth Plug placed at 387.0m
BX Hall Howe Plug (wooden) at 387.0m
BX Clappison Wedge placed at 402.0m

14.3.74 Temperature measurement in hole
18.3.74 WR03 cemented from 508 - 608m.

Drilling Fluids: Nytilus B Grease Bromus B Oil

ROVER 1 DDH2 WR03

GEOLOGICAL SUMMARY.

WR03 commenced at 387.0m and cored a sequence of bedded Warramunga- Group sediments, i.e. mainly shales, hematite and chlorite shales and siltstones. A lode-stringer of quartz-jasper-hematite with rich pyrite and chalcopyrite was intersected from 510.95 - 513.0m; the main-lode was intersected from 531.4 - 594.0m with a central ironstone-sulphide (pyrite) body from 545.6 - 566.5m. The centre point of the lode intersection is 1116.5m E/851.5m N/ - 513m rl. Rich pyrite, massive in places, occurs almost completely throughout the lode and is the main mineralisation in the mineralised sediment - section of the lode. Chloritic shales and siltstones with minor disseminated pyrite were cored from 594.0 to 606.0m (= E.O.H.). No major faults were intersected.

ASSAY VALUES OF THE LODE ZONE:

	511 - 512m	: 2.04% Cu	
	535 - 536m	: 2.20% Cu,	20.3 g/mt Au.
	540 - 541m	: 2.08% Cu	
	545 - 546m	: 2.06% Cu	
	574 - 575m	: 3.96% Cu	
overall:	533 - 546m	: 1.15% Cu	
	573 - 577m	: 1.79% Cu.	

ROVER 1 DOME WR03

GEOLOGICAL LOG. by W. Mayer.

Core size : BQ

387.0 - 395.3m		Fairly uniform sequence of greenish chloritic siltstone to very fine chloritic greywacke and chloritic shale; usually fine bedded to laminated, very even bedding-planes, no contortions; practically no veins; very even joint-planes; good core, only in one section broken up.
	387.8m	bedding angle to core axis : 8°
	388.8m	" " " " " : 10°
		joint angle to core axis : 60°, a few 1.4mm quartz veins.
	389.0m	joint angle to core axis : 30°
	389.3m	" " " " " : 45°, 55°
	390.6 - 390.8m	core broken up.
	390.9m	bedding angle to core axis : 12° (contact green chloritic siltstone/ brown cherty siltstone)
	390.0 - 391.0m	3cm bed brown cherty siltstone (true width)
	391.5m	joint angle to core axis : 5°, 80°, 0°.
	391.9m	bedding angle to core axis : 12°
	392.6m	" " " " : 12°
		joint angle to core axis : 60°
	393.0m	bedding angle 15°
		joint angle to core axis : 4°
	393.2 - 393.4m	FAULT-plane, angle to core axis r 1°, dislocation: 7cm.
		bedding angle to core axis : 13°
		joint angle to core axis : 55°
	394m	bedding to core axis : 10°, very good bedding;
	394.4m	joint angle to core axis : 70°
	395.1m	bedding angle to core axis : 10°, very good bedding.
395.3 - 404.0m		Basically as 387.0 - 395.3m but country rock is now greyish-purple, well bedded - laminated shale with thin hematite beds.
	395.5m	bedding angle to core axis : 8°
		joint angle to core axis : 15°

ROVER 1 DDH2 WR03

GEOLOGICAL LOG CONTINUED.

	395.8m	bedding angle to core axis : 5°
	396.1m	joint angle to core axis : 70°, 2mm quartz-joint
	396.6m	bedding angle to core axis : 5°
		joint angle to core axis : 40°
	397.3m	joint angle to core axis : 50°
	397.8m	bedding angle to core axis : 5°
		joint angle to core axis : 45°
	398.0m	joint angle to core axis : 70°
	398.2, 398.3m	joint angle to core axis : 45°
	398.6m	joint angle to core axis : 35°
	398.8m	bedding angle to core axis : 8°
		joint angle to core axis : 35°
	399.0 - 340.0m	bedding angle to core axis : 5°
		6 x 2-5mm quartz joints, joint angle to core axis : 55 - 70°
	340.3m	bedding angle to core axis : 0 - 5°
		joint angle to core axis : 4[illegible]
	341.4m	bedding angle to core axis : 5°
		joint angle to core axis : 30°
	401.5 - 403.0m	joint angle to core axis : 50°, 60°, 70°.
	404.0m	bedding angle to core axis : 8°
		joint angle to core axis : 45°
404.0 - 412.0m	=395.3 - 404.0m	but bedding less distinct.
412.0 - 414.0m	=	drilling with bullnose-bit, NO CORE RECOVERY.
414.0 - 415.5m	=387.0 - 395.3m	
	404.0 - 406.0m	(= 0.8m recovery, perfect core, possible driller's error).
	405.7m	bedding angle to core axis : 5°
	405.9m	joint angle to core axis : 60°
	406.15, 406.19m	" " " " " : 30°
	407.0m	" " " " " : 45°, 25°
	407.4 - 407.6m	" " " " " : 3 x 60°
	407.3m	bedding angle to core axis : 0°
	408.3 - 408.7m	" " " " " : 1°
		several 0.5 - 3mm quartz veins, angle to core axis : 45 - 60°

ROVER 1. DDH2 #803

GEOLOGICAL LOG CONTINUED.

	409.0 - 410.2m	bedding angle to core axis : 0 - 2°
	409.0m	joint angle to core axis : 20°
	409.5m	" " " " " : 25°
	410.0 - 410.2m	3 x joint angles to core axis : 70°
	411.0 - 412.0m	bedding angle to co re axis : 0 - 2°
	411.5m	joint angle to core axis : 17°
	411.7m	" " " " " : 10°
	414.0 - 414.15m	½ core chloritic siltstone -> shale, ½ core red feldspar- quartz- aplite?, medium grained, contact plane angle to core axis : 0 - 5°
	414.1m	joint angle to core axis : 10°
	414.15m	" " " " " : 45°
	414.2m	5mm dark chlorite band with red feldspar, bedding angle to core axis : 10°
	414.4m	small FAULT, angle to core axis : 50°, hangingwall: brown cherty shale, Footwall: siliceous chloritic shale
	414.45m	bedding angle to core axis : 30° joint angle to core axis : very little pyrite on joint
	414.5 - 414.8m	contorted 0.3 - 1cm quartz veins, approximately parallel to core axis.
	415.0 - 415.5m	bedding angle to core axis : 30°
415.5 - 423.4m	=387.0 - 395.3	but bedding only occasionally visible
423.4 - 423.6m		red feldspar-quartz-chlorite rock, medium grained (?= aplite)
	415.5	bedding angle to core axis : 27°
	416.1 - 416.4m	some ill defined 0,5 - 1cm contorted layers, rich in red feldspar, firm grains
	416.0, 416.1m	joint angle = ? bedding to core axis : 30°
	416.8 - 417.2m	contorted bedding in siliceous shale; bedding angle to core axis : 0 - 30° 2 x joint angles to core axis : 45°
	417.2 - 417.4°	5cm true width bed of equigranular coarse grained = fine crystalline red feldspar - quartz rock (= ? aplite) joint angle = ? bedding to core axis : 20°

ROVER 1 DDH2 WRO3

GEOLOGICAL LOG CONTINUED.

	417.4 - 417.5m	3mm quartz vein and 2 x 3mm feldspar-quartz rock (= ? aplite) parallel to bedding, bedding angle to core axis : 25°
	417.5 - 418.3m	3 x joint angle to core axis : 50°
	418.8m	bedding angle to core axis : 40°
	419.0 - 419.2m	very contorted 0,2 - 0.5cm quartz vein
	419.6m	bedding angle to core axis : 30°
	410.45 - 420.5m	2cm bed feldspar-quartz-rock (? aplite)
	422.4m	joint angle to core axis : 20°
	423.1 - 423.2m	1 + 1.5cm quartz vein with little pyrite, angle to core axis : approximately 90°
	423.2 - 423.3m	4 x joint angle to core axis : 80 - 90°
	423.4m	contact to feldspar-quartz rock (= ? aplite) angle : 25° to core axis.
423.6 - 424.3m	=423.4 - 423.6m	
	424.0 - 424.3	: ½ core as hangingwall, ½ core as footwall, slightly uneven contact, angle to core axis :0 -5°
429.2 - 431.6m	=396.3 - 404.0m	mainly well bedded -> laminated except : 424.3 - 425.5m and 430.8m
	424.6m	bedding = joint angle to core axis : 40°
	427.0 - 427.3m	joint angle to core axis : 0 - 5°
	425.7m	wormlike contorted 2mm quartz vein
	425.9m	bedding angle to core axis : 30° joint angle to core angle : 18°
	426.3 - 426.5m	core very broken up
	426.5 - 426.9m	a few contorted 1 - 3mm quartz veins, angle to core axis : 0 - 15°
	426.8m	approximately 1cm APLITE vein, contorted, with specks of pyrite, with apophyses into adjacent Ch. Shale
	427.2 - 427.7m	bedding angle to core axis : 60°
	427.9m	1.5cm quartz-chlorite vein; angle to core axis: 55° = angle bedding to core axis.
	428.3, 428.5m	2 joints with typical greenish blue coating (Cu ?); joint angle to core axis : 30°, 50°.
	428.5m	bedding angle to core axis : 50°
	428.9m	" " " " " : 45° joint angle to core axis : 60°
	429.0m- 430.0m	bedding angle to core axis : 40°

ROVER 1 DDH2 WRC3

GEOLOGICAL LOG CONTINUED.

431.6 - 440.0m		SILTSTONE & SHALE appears generally slightly silicified, greyish brown, usually bedded; a few chloritic beds a nd thin quartz-chlorite veins; fairly uniform sequence; perfect core.
	431.6 - 432.5m	well bedded, 1-5cm beds, bedding angle to core axis : 35°, joint angle to core axis :0-5° (= mini-fault; displacement : 1 - 3mm)
	432.7m	3mm quartz chlorite vein, angle to core axis:40°
	433.3m	joint angle to core axis : 20°
	433.5m	bedding angle to core axis : 5°, joint angle to core [illegible] : 60°
	434.3m	joint angle to core axis : 20°, 35°; a few 1 - 2mm quartz-chlorite veins
	434.4m	PYRITE - coating on joint
	434.7 - 435.0m	bedding angle to core axis : 30°
	434.9m	3mm quartz-chlorite vein, angle to core axis: 30°, anti-bedding.
	435.2 - 436m	a few 1 - 3mm quartz-chlorite veins and slightly disturbed bedding [illegible] joint angle to core axis : 55°, 35°
	436.4m	joint angle to core axis : 20°
	436.6 - 437.0m	bedding angle to core axis : 30°
	437.5 - 437.8m	bedding angle to core axis : 25 - 35°; some 1-2mm quartz-chlorite veins, angle to core axis : 10-20°
	438.0 - 439.0m	joint angle to core axis : 60°, 70°, 90°.
	439.0 - 440.0m	silicified siltstone to fine grained impure quartzite, no bedding visible . 439.5 - 439.65m: 1cm diameter pyrite crystals, elongated parallel shearing, with white feldspar ? - rims and centres.
440.0 - 444.0m		SILTSTONE & SHALE as 431.6 - 440.0m
	440.0 - 441.4m	silicified siltstone to quartzite as 439.0 - 440.0m 441.05m 1mm quartz-chlorite vein, angle to core axis : 40° 441.2m joint angle to core axis : 90° (very rough striated surface).
	442.7 - 443.0m	bedding angle to core axis : 35-40°

ROVER 1 DDH2 WR03

GEOLOGICAL LOG CONTINUED.

	444.0 - 444.1m	2mm pink quartz vein, angle to core axis : 55° anti-bedding. bedding angle to core axis : 25°
	444.2 - 444.9m	GR becomes more pelitic and chloritic, gradational boundary/footwall.
444.9 - 445.31m		CHLORITIC SHALES TO CHLORITE, light olive green, disturbed section; some 2-5mm quartz-chlorite veins, which are contorted and minifaulted; angle veins to core axis : 25°
445.3 - 445.5m		SILTSTONE & SHALE as 444.2 - 444.9m
445.5 - 445.7m		20cm [illegible] = CHLORITE VEIN : central 10cm quartz and dark green chlorite; both margins 5cm light olive green chlorite; irregular veining from centre into margins.
445.7 - 447.0m		SHALE minor SILTSTONE, very well bedded; purple-grey; to be regarded as transition - section between hangingwall and footwall- GR; gradational boundary to footwall, bedding angle to core axis : 25 - 40°
447.0 - 448.2m		BANDED HEMATITIC SHALE, excellent bedding (laminated : 1-5mm hematite beds, red, interbedded with approximately ~~ever~~ ≥ 0.5cm of purple-grey beds; bedding angle to core axis : 30 - 45°
	447.1	447.1 = 2mm red siltstone bed with small-scale load cast.
	447.3	447.3 : joint angle to core axis : 35° ~~syn-G~~
448.2 - 449.2m		BANDED HEMATITIC SHALE as 447.0 - 448.2m; gradational boundary/footwall. bedding angle to core axis : 35 - 40°; minor irregular 1mm calcite veins in places
449.2 - 450.2m		SHALE & minor SILTSTONE as 445.7 - 447.0m; gradational boundary/footwall.
450.2 - 451.7m		SILTSTONE & SHALE as 431.6 - 440.0m; gradational boundary/footwall. bedding angle to core axis :45°
451.7 - 453.2m		BANDED HEMATITE SHALE as 447.0 - 448.2m; gradational boundary/footwall. bedding angle to core axis : 40 - 50°
	453.1m	2 x 1-3mm quartz-chloritic vein approximately parallel to bedding.

ROVER1 DDH2 WH03

GEOLOGICAL LOG CONTINUED.

453.2 - 456.4m		SILTSTONE & SHALE as 431.6 - 440.0m; some beds show graded bedding, bedding angle to core axis : 38 - 45°
	455.6 - 456.4m	siltstone to quartzite as 439.0 - 440.0m
	455.7 - 455.9m	silicified shale to chert-lenses, maximum 2cm long, parallel shearing
456.4 - 464.6m		SILTSTONE & SHALE ± as 431.6 - 440.0m, but better bedded and with a higher degree of silification : some chlorite shale is almost like chert
	456.4 - 458.0m	bedding angle to core axis : 45 - 50°
	458.0 - 458.45m	silicified siltstone to quartzite as 439.0 - 440.0m
	458.45 - 458.7m	bedding disturbed by irregular 1-2mm quartz-chlorite veinlets, brecciation 2mm quartz-chlorite in zone in places.
	459.25m	FAULTPLANE, angle to core axis : 30° syn-G. bedding angle to core axis : 45°
	460.5m	joint angle to core axis : 50°, anti-bedding; bedding angle to core axis : 45°
	461.7 -462.1m	1mm & 3mm quartz dolomite chlorite vein parallel to bedding.
	462.8m	3mm dolomite vein parallel to bedding.
	462.0 - 463.0m	bedding angle to core axis : 40 - 50°
	463.7 - 463.8m	3.5cm bed of lenticular light olive chlorite layers.
	463.0 - 464.8m	bedding angle to core axis : 30 - 40°
	462.9 - 464.8m	some beds of very silicified shale to chert.
464.6 - 465.15m		SILTSTONE & SHALE as 456.4 - 464.6m
	464.8 - 465.05m	quartzitic sandstone, fine-medium grained, with 0.5mm diameter grains of red feldspar; 464.90 1cm carbonate bed; 465.15m = 2cm quartz-chlorite veins parallel to bedding.

ROVER1 DDH2 (RG3

GEOLOGICAL LOG CONTINUED.

465.15 - 466.80m		BANDED HEMATITE SHALE; gradational boundary footwall, bedding angle to core axis : 45°
	465.85 - 466.0m	3 - 5mm quartz-dolomite vein parallel to joint; joint angle to core axis : 15° agns. bedding
	466.55m	1.5cm quartz-dolomite-chlorite vein parallel to bedding.
466.8 - 473.1m		SILTSTONE & SHALE as 456.4 - 464.6m; a few rare 0.5 - 2mm quartz veins; bedding angle to core axis : 40 - 50°
	466.9 - 467.1m	
	468.5 - 469.0m	
	470.68- 470.95m	silicified siltstone to quartzite as 439.0 - 440.0m
	469.0 - 469.2m	1cm wide fault zone, with brecciated sediment.
	472.55	2cm quartz-chlorite vein parallel to bedding.
473.1 - 481.2m		SILTSTONE & SHALE as 456.4 - 464.6m; bedding to core axis = 45 - 55° gradational boundary footwall.
	473.4 - 473.9m	many irregular 1 - 3mm quartz-chlorite veinlets
	475.6 - 476.0m	3 - 15mm quartz-chlorite vein (fault) with a few specks of chalcopyrite, angle to core axis : 0 - 20°; maximum 4cm displacement.
	476.0 - 476.9m	mainly silicified siltstone to quartzite
	476.4 - 476.5m	1 - 3mm dolomite vein, bedding angle to core axis : 20°.
	477.7 - 479.0m	tiny irregular quartz dolomite chlorite veinlets, contortions and minor dis[illegible]ions in places.
	480.95 - 481.0m	Zone of 1.5mm quartz-chlorite-dolomite veins approximately parallel to bedding
481.2 - 483.1m		SLIGHTLY HEMATITIC SHALE, banded, greyish-purple, silicified; bedding angle to core axis : 50 - 55°
	482.0 - 482.35m	4mm chloritic minifault, displacement = 5mm
483.1 - 484.3m		huge QUARTZ - RED JASPER minor CHLORITE VEIN, quartz and red jasper occurs both as 5 - 20cm wide sections; 1-3mm quartz-veins occur in the red jasper, very irregular blackgreen veins and blebs occur only in the quartz sections;

ROVER1 DDH2 NR03

GEOLOGICAL LOG CONTINUED.

		hangingwall contact : 10cm zone of light green chlorite with veins and blebs of blackgreen chlorite and quartz, very disturbed to brecciated in places; shearing parallel to angle, bedding angle to core axis : 50°; footwall contact : 2cm zone of light green chlorite and siltstone - beds, very disturbed.
484.3 - 485.4m		core mostly very broken up: FAULT ?, mainly silicified SILTSTONE with many quartz and chlorite veinlets.
	484.5 - 484.6m	red.jasper with irregular 1-3mm quartz veins.
	485.3 - 485.4m	sheared chlorite with silicified siltstone fragments, contact to footwall: angle to core axis : 25°.
485.4 - 487.1m		RED JASPER, original bedding indicated in places, rich 1 - 10mm quartz veins in places; bedding angle to core axis : 485.6 : 65°, 486.6 : 45°, gradational boundary footwall
	486.6m	joint angle to core axis : 30°
487.1 - 488.2m		VERY SILICIFIED QUARTZITE, some sections may be silicified siltstone; bedding indicated in places; 487.2 : bedding angle to core axis : 45°.
	487.2m	1cm long cherty fragments aligned parallel to bedding.
	487.5 - 488.2m	set of1 - 10mm quartz veins, bedding angle to core axis : 40 - 55°.
488.2 - 489.5m		SILTSTONE & CHERTY SHALE ± as 486.4 - 484.6m; bedding parallel to core axis : 40 - 65°
	488.2 - 488.3m	2cm chlorite beds interbedded with 0.5cm beds fine grained arkose sandstone.
	489.0 - 489.5m	mainly cherty shale with 2 different sets of rich 1-5mm quartz veining; 489.0m quartz veins in cherty shale.extend only a few mm into silicified siltstone.
	489.3m	6mm pyrite crystals.

NOVERI DDH2 WRK3

GEOLOGICAL LOG. CONTINUED.

489.5 - 489.6m		CHERTY SHALE as 489.0 - 489.5m
489.6 - 491.2m		SLIGHTLY HEMATITIC SHALE as 491.2 - 493.1m; bedding angle to core axis : 45° - 55°; gradational boundary Footwall.
491.2 - 497.7m		SILTSTONE & CHERTY SHALE some sections are slightly chloritic; bedding angle to core axis : 40 - 50°
	493.35, 493.5m	5 - 10mm zone of quartz-chlorite layers
	494.5 , 496.15	parallel to bedding
	493.8 - 494.0m	minifault; displacement : 1cm; 1-2mm quartz chlorite vein, bedding angle to core axis : 5°
	496.5 - 497.4m	irregular 0.5 - 1mm quartz-chlorite veinlets and blebs in places
	497.7 - 498.3	CHERTY SHALE & minor SILTSTONE
	497.95 -498.15	cherty shale with rich irregular 1-50mm quartz veins
	498.15 - 498.20	very silicified light green chlorite with dykes and blebs into hangingwall and footwall.
498.3 - 499.6m		CHLORITIC SILTSTONE, greyish green, well bedded, with typical beds of cherty shale-lenses perfectly aligned parallel to bedding; lenses : 1-5mm thick, 3-20mm long, bedding angle to core axis : 45°, gradational boundary Footwall.
	499.3 - 499.6m	a few 1-2mm quartz veins parallel to bedding, 3 x 1-2mm contorted quartz veins, bedding angle to core axis : 30°, causing small disruptions in the well-bedded sediment; 0.5cm wide hematite pocket; 2 x 2cm hematite beds close to footwall.
499.6 - 501.7m		HEMATITIC SHALE, very well bedded - banded, g gradational boundary Footwall. bedding angle to core axis : 45°. N.B. 499.0 - 500.0m : bedding angle to core axis : 55-60°
	500.4 - 500.6m	5mm-10-30m gritty shale beds.
501.7 - 502.45m		CHERTY SHALE, slightly chloritic, bedded; bedding angle to core axis : 40 - 50°

ROVER1 DDH2 WR03

GEOLOGICAL LOG. CONTINUED.

	501.9m	0.5cm quartz layer parallel to bedding.
502.40 - 506.3m		BANDED HEMATITE SHALE, bedding angle to core axis : 30 - 50°
	503.3 - 503.4m	quartzitic sandstone, cut by irregular 1-5mm blackgreen chlorite-quartz- veins and blebs with small hematite prisms.
	503.4 - 503.7m	set of 1-4mm quartz veins, subnormal to core axis, displacing beds by up to 4mm; 503.63m: minifault, angle to core axis : 40°, displacing beds and quartz vein approximately 0.5cm.
	504.0 - 504.45m	some 2-20mm quartz-chlorite veins, subnormal to core axis, 504.35 - 504.40m : quartz-chlorite vein, subnormal to core axis, with many veins and blebs penetrating into footwall.
	505.0 - 506.3m	laminated bedding, beds approximately under ≤ 1mm.
506.3 - 507.1m		BANDED HEMATITE SHALE as 505.0 - 506.3m; gradational boundary Footwall, bedding angle to core axis : 45 - 50°.
	507.05m	3mm red jasper bed, cut off by 1-3mm quartz vein (= fault), bedding angle to core axis : 40°.
507.1 - 507.5m		CHLORITIC SILTSTONE TO SHALE, well bedded, gradational boundary Footwall, bedding angle to core axis : 45°, 507.1 - 507.2: joint angle to core axis : 0°.
507.6 - 508.2m		CHLORITIC CHERTY SHALE, gradational boundary
	507.6 - 507.8m	Footwall. 507.6 - 507.8m joint angle to core axis : 6-10°, 1mm pyrite crystals on joint.
	507.8 - 507.9m	mainly olive green and blackgreen chlorite as 2-10mm sheared beds.
508.2 - 510.2m		mainly CHLORITE SHALE, some cherty sections, gradational boundaries footwall. angle bedding to core axis : 45 - 55°
	509.0 - 509.05m	irregularly banded quartz-red jasper- bed, parallel to bedding, cut by set of 1mm quartz veins normal to bedding; silification 5cm penetrating into footwall.

ROVER1 DDH2 WH03

GEOLOGICAL LOG. CONTINUED.

509.45 - 509.65m laminated pink shale, with a few 1-2mm quartz veins, 2mm lens parallel to bedding, with pyrite aggregates; little chalcopyrite as crack filling.

510.2 - 510.95m CHLORITE, massive, no bedding visible, sheared, shearing appears to be parallel to bedding of hangingwall; core broken up in places; some irregular quartz veins and pockets in places, shearing angle to core axis : 30 - 45°;, footwall contact contorted, angle to core axis : 45°

L O D E : 510.95 - 513.0

510.95 - 511.6m QUARTZ - RED JASPER with RICH MINERALISATION ; complete replacement - structure, marble like
hematite : medium amounts only as very irregular veinlike pockets at 511.5m
pyrite : rich, as big irregular veinlike pockets together with chalcopyrite.
chalcopyrite : rich, as medium or big irregular veins and pockets together with pyrite and as 2-3mm crystals on joint 510.95 - 511.7m; joint angle to core axis : 20°

511.6 - 511.95m QUARTZ - VERY little MINERALISATION, small hematite pocket.

511.95 -511.95m massive blackgreen chlorite, broken up.

511.95 - 512.6m QUARTZ- RED JASPER- HEMATITE - MAGNETITE, complete replacement structure, gradational boundary footwall.
hematite:rich, as big irregular pocket with specular hematite at 517.45 - 511.55m.
magnetite : rich, as small - medium very irregular veinlike pockets throughout,
pyrite and chalcopyrite medium, as small-medium veinlike pockets.

ROVER1 DDH2 W803

GEOLOGICAL LOG. CONTINUED.

512.6 - 513.0m		mainly VERY HEMATITE SHALE, minor RED JASPER, gradational boundary Footwall, almost completely replaced sediment, but with bedding still present; bedding angle to core axis : 40°. jasper as inconsistent : - 3mm beds parallel to bedding, 2 x cherty blebs near top, where bedding is rather disturbed and rich veining is pr esent; some quartz-chlorite pockets; 513.18-513.28m ‖ hematite : extremely rich, as hematite beds. pyrite and chalcopyrite : little to medium, as veinlike blebs ± parallel to bedding.
513.0 - 513.5m		CHLORITE SHALE, well bedded, bedding angle to core axis : 45-50°, gradational boundary footwall.
513.5 - 513.8m		CHLORITE, blackgreen, massive, sheared, silification increases strongly towards footwall. gradational boundary Footwall; core broken up.
513.8 - 513.9m		CHLORITIC CHERTY SHALE, core broken up.
513.9 - 514.5m		CHLORITIC CHERTY SHALE, core broken up; tiny crystals on some joints (chlorite covered quartz crystals ??); gradational boundary with footwall.
514.5 - 519.35m		CHLORITE SHALE; bedded, in places bedding only indicated; rather strong silification throughout; bedding angle to core axis : 40 - 50°.
	514.95m	joint angle to core axis : 20° syn-bedding.
	517.35 - 517.6m	bedded section of 2.5-3cm red jasper beds and chloritic cherty shale ; rich 1-3mm quartz-veins, normal to bedding.
	517.9 - 519.25m	some 1-3mm quartz veins parallel to bedding and quartz as irregular veins and pockets in places.
519.35 - 522.2m		VERY CHLORITIC PELITE massive, blackgreen, silicified, bedding ? indicated in places (could be shearing), shearing now only slightly developed, but very even shearing planes which appear to be parallel to hangingwall bedding; shearing angle to core axis : 35° - 45°.

HOVgx1 DDH2 #403

GEOLOGICAL LOG CONTINUED.

	520.4 - 520.55m	contorted wormlike 2mm quartz vein
	520.65 - 520.70m	5cm quartz vein, subnormal to CA
	521.85m	joint angle to core axis : 90°
522.2 - 527.7m		VERY CHLORITIC PELITE, mainly massive, bedding indicated only in a few places, silicified; a few 1 - 2mm quartz-chlorite veins some sections only faintly chloritic.
	523.4m	bedding angle to core axis : 65°
	523.8m	bedding angle to core axis : 40°, 45° joint angle to core axis : 30°, 75°.
	524.3m	? bedding angle to core axis: 30°, other ? bedding (illdefined); 70°
	525.05 - 525.15m	quartz vein with minor chlorite
	526.1 - 526.25m	fine bedded contorted chloritic shale, silicified, bedding could be Liesegang-type.
	526.1	minifault: bedding angle to core axis: 60°
	526.6 - 527.7m	chloritic siltstone and shale, gradational boundary to hangingwall.
	526.6m	bedding angle to core axis ; 30° (shale with 1mm chloritic interbeds), 1cm chlorite quartz veins, bedding angle to core axis:20°
	527.5m	bedding angle to core axis: 40°, joint angle to core axis: 25°
527.7 - 528.6m		QUARTZ-CHLORITE VEINS & POCKETS irregular, hangingwall contact: 20° to core axis,
	527.7 - 527.85m	3-5mm quartz chlorite veins parallel to contact
528.6 - 530.3m		CHLORITIC SHALE bedded, silicified, a few quartz chlorite veins parallel bedding joint, bedding angle to core axis: 35° - 45°; slight contortions in places.
	528.75 - 528.85m	1 - 10mm quartz chlorite veins.
530.3 - 531.4m		CHLORITIC SHALE as 528.6 - 530.3m, gradational boundary with footwall, bedding angle to core axis : 35 - 40° small pockets of pyrite in places.
	503.5 - 503.8m	bedding very disturbed by many 1-5mm quartz veins parallel to bedding

ROVER1 DDH2 WRC3

GEOLOGICAL LOG CONTINUED.

531.4 - 533.75m START OF LODE.

CHLORITIC CHERTY SHALE with some max. 20cm magnetite- hematite sections, which are ± parallel to bedding and are bedded themselves; gradational boundary with footwall.
bedding angle to core axis: 40°; some small veins and pockets of pyrite and chalcopyrite throughout.

531.7 - 531.9m)
532.25 - 532.45m) 100% magnetite-hematite, bedding indicated

532.45 - 532.7m brecciation in matrix, some bedding, 0.5 - 2cm veins of magnetite (centre) and hematite (margins) with small- medium chalcopyrite pockets

533.2, - 533.45m 2 x 2-3cm magnetite-hematite beds.

533.75 - 533.95m ± 100% min. MAGNETITE-HEMATITE (90 - 95%), rich small veins and blebs of chalcopyrite, little pyrite, little quartz and chlorite

533.95 - 534.6m MINERALISED CHERT, contorted, brecciated and richly mineralised; this section is to be regarded as transition from hangingwall to footwall.
magnetite and minor hematite: as irregular veins and blebs.
chalcopyrite: many thin veinlets and small blebs.

534.6 - JASPER QUARTZ- HEMATITE- MAGNETITE.
Richly mineralised lode, typical jasper-lode, ± complete replacement structure, a few relict-blebs of cherty sediment still present; some 1-5mm quartz-hematite veins throughout, angle to core axis : 30°.
core breaks usually normal - subnormal to core axis.
hematite > magnetite: very rich in certain sections/mainly 534.6 - 538.0m/
chalcopyrite: rich, as small - medium irregular veins and blebs.//

ROVER1 DDH2 #RG3

GEOLOGICAL LOG CONTINUED.

		pyrite: very minor, as medium blebs in places together with chalcopyrite.
	534.6 - 536.0m	quartz- red jasper prevailing.
	536.0 - 537.2m	hematite - magnetite prevailing
	537.2 - 538.4m	Red jasper - quartz prevailing
	538.4 - 538.7m	magnetite- hematite prevailing
	536.6m	joint angle to core axis: 20°, rich spiculoid or hematite on joint.
538.7 - 540.0m		RED JASPER - MAGNETITE- QUARTZ; complete replacement structure, mainly very irregular bleblike veins.
		Magnetite: very rich, ± massive at 539.9 - 540.0, very little hematite
		chalcopyrite & pyrite: rich in certain sections; as small-medium [illegible]lar veins and blebs.
540.0 - 545.6m		CHLORITIC CHERT, mainly massive, but fractured throughout, heavily fractured - brecciated in places, bedding indicated in places.
		rich to very rich chalcopyrite as medium bleblike veins in short chlorite sections.
	540.4 - 540.6m)	
	540.8 - 541.1m)	
	542.3 - 542.4m)	chalcopyrite- rich chlorite- magnetite
	542.5 - 542.55m)	sections.
	542.7 - 542.8m)	
	543.2 - 543.4m)	
	543.4 - 544.0m	many irregular quartz- chlorite veins and blebs, heavy fracturing to brecciation throughout.
	544.35 - 544.4m	quartz - chlorite vein, broken up.
	544.7 - 545.0m	chloritic pelite, unbedded, silicified.
	545.0 - 545.6m	very fractured, some 1-3mm irregular pink quartz veins - blebs.
		545.2 - 545.22m 2cm fine chert - breccia (= broken up bedding).

ROVER1 DDH2 WR03

GEOLOGICAL LOG. CONTINUED.

545.6 - 545.9m		MAGNETITE - HEMATITE - PYRITE- CHALCOPYRITE- CHLORITE; very heavily mineralised core. chalcopyrite & pyrite: very rich, as large 1cm bloblike veins and as intergrowth
	545.85 - 545.90m	3cm irregular pink quartz vein with chlorite and chalcopyrite veinlets.
545.9 - 546.25m		PYRITE-HEMATITE, ± 100% mineralisation. pyrite : 90 - 95% chalcopyrite: medium, as small irregular veins. hematite: 5 - 10%; as bloblike veins in the pyrite.
546.25 - 546.7m		CHLORITE SHALE - SHALE with rich irregular small to large bloblike quartz veins, a few specks of pyrite.
546.7 - 547.6m		CHLORITE- SHALE, no bedding indicated, wormlike contorted 3mm quartz veins at 546.75m
	546.85 - 547.0m	hematite shale, minor pyrite throughout.
	547.0 - 547.05m	brecciated quartz vein with chlorite pockets and some pyrite.
	547.4 - 547.6m	rich pyrite as large (1-5mm diameter) grains in illdefined layers.
547.6 - 548.35m		MAGNETITE- PYRITE; 100% mineralisation: 80% magnetite, 10 - 20% pyrite as irregular bloblike veins, often interbedded with magnetite; minor hematite as 1-3mm veins.
548.35 - 548.6m		CHLORITE, blackgreen, unbedded, rich pyrite as large grains abd blebs.
548.6 - 550.2m		PYRITE, massive, 95% of core, 5% magnetite and hematite as irregular veins and blebs; pyrite slickensides in places, sheared footwall contact, approximately 25° to core axis.
	549.1m	joint angle to core axis: 15°
	549.95 - 550.2m	joint angle to core axis: 0°. 15°.

ROVER1 DDH2 NRG3

GEOLOGICAL LOG. CONTINUED.

550.2 - 552.0m		CHLORITIC SHALE, HEMATITIC SHALE AND CHLORITE with gradational boundary with each other; bedding mostly disturbed, faulted and contorted; some large fractured and contorted quartz chlorite veins in places. minor pyrite as grains layered in places.
	550.3 - 550.4m	rich pyrite as irregular 0.5 - 1cm beds parallel to contact.
	550.4 - 550.45	Magnetite.
	550.5, 551.6m	bedding angle to core axis : 70°
552.0 - 554.8m		MAGNETITE (40%) - HEMATITE (30%) - QUARTZ (25%) - PYRITE (5%), complete replacement structure: very irregular small - large veins and blebs; hematite is main mainly specular hematite; pyrite as very large (max. 5mm diameter) crystals in illdefined layers; some chlorite and dolomite as pockets near hangingwall. Hangingwall contact ; 75° to core axis.
	554.4m	joint angle to core axis: 40°
554.8 - 558.8m		MAGNETITE (50%) - HEMATITE (30%) - QUARTZ (20%) some pyrite as grains and veinlike blebs; some chalcopyrite as small veinlike blebs. some chlorite as filling in places.
558.8 - 559.0m		CHLORITE, massive, blackgreen, with minor pyrite, gradational boundary with footwall.
	558.8 - 558.85m	dolomite like vein with marginal chlorite veins and blebs.
559.0 - 561.7m		PYRITE (55%) - MAGNETITE (45%) - HEMATITE (10%); both pyrite and magnetite prevail in certain sections; gradational boundary with footwall; pyrite occurs as aggregates of small - large crystals within magnetite.
	559.0 - 559.5m	95% pyrite.
	559.95 - 560.35m	80% pyrite.
561.7 -562.5m		MAGNETITE (85%) - PYRITE (5-10%) - HEMATITE (5-10%); gradational boundary with footwall.

ROVER1 DDH2 WR03

GEOLOGICAL LOG. CONTINUED.

562.5 - 563.2m — HEMATITE (80%) - MAGNETITE (15%) - PYRITE(5%)

pyrite as crystals max. 1cm diameter.

562.8 - 562.9m — 2cm hematite - quartz vein, angle to core axis: 30°

563.2 - 566.5m — MAGNETITE (93%) - PYRITE (5%)

section is ± pure massive pyrite with a few thick dolomite-hematite-chalcopyrite veins and a few pyrite rich sections;

564.5 - 565.7m — 80% pyrite

little chalcopyrite as small blebs in dolomite veins

566.5m — contact angle to footwall: 60° to core axis;

2cm quartz-dolomite vein, angle to core axis: 30°

566.5 - 571.1m — CHLORITE-SHALE and CHLORITE. Bedding visible in places.

little pyrite throughout; rich pyrite in places; bedding angle ? to core axis: 70 - 80°.

566.5 - 569.5m — mainly chlorite, unbedded, but with some distinct 3mm pyrite layers (? replaced beds)

566.5 - 568.1 medium to rich pyrite

568.1 - 569.5m very little pyrite, finely disseminated.

569.5 - 571.1m — mainly chlorite shale, bedding often indicated, rich - very rich pyrite throughout as 1 - 3mm layers parallel to bedding; a few thin chalcopyrite veins.

570.0 - 570.4m — 95 - 100% pyrite replacing chloritic sediment.

571.7 - 573.4m — CHLORITE - SHALE, bedding? indicated by 1 - 20mm pyrite beds throughout, very rich pyrite (30 - 40% of core) as beds and irregular lenses parallel to bedding throughout; some chalcopyrite as small veins and blebs in places

? bedding angle to core axis: 60 - 70°

ROVER1 DDH2 WR03

GEOLOGICAL LOG CONTINUED.

573.4 - 579.0m — SILT CHLORITIC SANDSTONE, silicified, bedding hardly indicated, rich to very rich pyrite and medium chalcopyrite throughout; quartz veins almost throughout;

574.3 - 574.5m — ± massive pyrite >> grading in chalcopyrite core.

574.55m — ? bedding angle to core axis: 55°

574.7 - 575.3m — some 3-5cm sections of very rich pyrite >> grading in chalcopyrite.

575.8 - 576.2m — very rich (30 - 40% of core) pyrite >> chalcopyrite.

576.5 - 576.7m — rich magnetite, pyrite and chalcopyrite, remainder, chlorite pockets.

576.8 - 577.0m — many 1 - 3mm quartz - dolomite veins with medium pyrite and chalcopyrite.

577.75 - 577.9m — 3cm hematite layer with some pyrite and chalcopyrite, angle to core axis : 30°

578.3 - 578.5m — rich pyrite > chalcopyrite, hematite, as very rich irregular veins, remainder: chlorite.

579.0 - 583.5m — CHLORITIC SILTSTONE, silicified, bedding hardly indicated; a few 1 - 3mm quartz veins, many 0.5 - 3cm sections with rich pyrite and chalcopyrite and chlorite as veins and blebs; gradational boundary with footwall.

581.6m — joint angle to core axis; 20°

583.5 - 586.4m — CHLORITE SHALE <--> CHLORITE, bedding indicated almost throughout; very strong pyritisation (30 - 40% of core) throughout, which occurs as replacement of chloritic beds (fine disseminated and as bedded layers of max. 3mm diameter crystals); little chalcopyrite as small blebs within pyrite

? bedding angle to core axis: 60 - 80°

ROVER1 DDH2 MR03

GEOLOGICAL LOG, CONTINUED.

586.4 - 587.2m — CHLORITIC SILTSTONE, silicified, bedding not visible, many 1 - 3mm quartz veins, contorted and brecciated at 586.4 - 586.45m; a few 1 - 2cm sections, with rich pyrite - hematite - chlorite veins; a few small blobs of chalcopyrite.

587.2 - 592.5m — CHLORITIC SILTSTONE, silicified, minor SILTSTONE <----> VERY FINE GRAINED QUARTZITE no bedding visible, many 1-3mm quartz veins throughout; many 0.3 - 2cm pyrite veins and a few larger ± pure pyrite sections; whole section is rather disturbed, fractured and minifaulted; little chalcopyrite as small - medium veins and blebs in places.

588.4 - 588.45m — rich pyrite - chlorite veins, pyrite as bulky aggregates forming an inconsistent layer, vein angle to core axis : 55°.

588.75 - 588.8m — rich pyrite - dolomite - hematite veining.

588.45 - 588.65m — ± massive pyrite, very little chlorite and dolomite, joint angle to core axis : 0°

588.45m — joint angle to core axis : 20°, contact angle to core axis: approximately 60°

588.65m — contact angle to core axis : approx. 50°

589.8 - 590.0m — very rich large pyrite veins.

590.0 - 592.0m — slightly chloritic siltstone <----> very fine grained quartzite, gradational boundary with footwall and hangingwall.

591.85 - 591.9m — rich 2 - 5mm pyrite veins in chlorite matrix.

591.9m — joint angle to core axis : 40°

591.9 - 592.1m — 2 x 2mm quartz veins with medium chalcopyrite as veinlike blobs, angle to core axis : 15%; quartz vein displaces 5mm pyrite - chlorite vein for 5mm; very rich pyrite-chlorite veins, angle to core axis : 65-70°

592.1 - 592.5m — very fractured; abundant fine - medium pyrite veins; but solid core.

ROVER1 DDH2 MR03

GEOLOGICAL LOG, CONTINUED.

592.5 - 594.0m		CHERTY SHALE <---> SILTSTONE, very disturbed and fractured ---> brecciated throughout, but solid core; abundant quartz veins and pockets have replaced much of the sediment, little pyrite throughout, rich in places, some chalcopyrite as pockets in places.
	592.5 - 592.7m	contorted bedding visible.
	END OF LODE.	
594.0 - 594.2m		CHERTY CHLORITE , very broken up core, approximately 30% RECOVERY
594.2 - 594.5m		CHERTY CHLORITE, broken up core, fractured with quartz veins and pockets; approximately 50% RECOVERY.
594.5 - 595.6m		CHLORITIC SHALE, silicified, bedding visible in places; only traces of pyrite, ± undisturbed, no veining, no fractures.
	595.0m	bedding angle to core axis: 60°
	595.4 - 595.6m	bedding angle to core axis : 50°
595.6 - 596.6m		CHLORITIC SHALE, bedded, undisturbed, bedding angle to core axis: 50°
	595.6 - 595.9m	many 1mm pyrite cubes disseminated throughout
596.6 - 597.0m		CHLORITE, greenblack, slightly silicified, tiny (< 0.1mm diameter) specks of pyrite finely disseminated throughout
597.0 - 601.3m		CHLORITIC SHALE minor CHLORITIC SILTSTONE, silicified, bedded in places, mainly undisturbed; a few 1-3mm pyrite veins, contorted, in places.
	597.1 - 597.2m	bedding angle to core axis: 45 - 50°
	598.03 - 598.05m	2cm quartz-chlorite vein, angle to core axis: 55°
	598.1 - 598.2m	joint angle to core axis: 0°
	599.7 - 600.0m	joint angle to core axis: 0°, some pyrite coating on joint.

ROVER1 D.H2 W803

GEOLOGICAL LOG. CONTINUED.

601.3 - 601.8m		CHLORITE, greenblack, slightly silicified, very finely disseminated pyrite throughout
601.8 - 603.6m		CHLORITIC SHALE, minor CHLORITIC SILTSTONE, mainly bedded; bedding angle to core axis; 45 - 60°
	601.8 - 602.8m	some pyrite as 1 - 10mm layers parallel to bedding, also very finely disseminated throughout.
	602.77 - 602.90m	very fine conglomerate (pebbles max. 2mm diameter) in chlorite matrix.
	603.1 - 603.2m	cherty siltstone with rich quartz veins ——> pockets, many small chalcopyrite blebs.
	603.4 - 603.5m	chloritic shale, lenticular [illegible] beds, [contorted], with quartz veins and blebs.
603.6 - 606.75m		CHLORITIC SHALE, minor CHLORITIC SILTSTONE silicified, chlorite content changes throughout the section; mainly massive unbedded,
		603.8 - 604.3m bedding angle to core axis : 40 - 45°.
		little pyrite, occurs as small - medium lenses and blebs and finely disseminated in more chloritic sections; joint mainly subnormal to core axis.
	605.7m	joint angle to core axis : 30°
606.75 - 607.15m		QUARTZITE, very fine grained, brownish pink, no bedding visible; hangingwall contact angle to core axis: 65°; some 2 - 5mm quartz veins subnormal to core axis
	606.75 - 606.85m	set of abundant quartz veinlets, angle to core axis : 20°
607.15 - 608.0		SHALE <——> SILTSTONE, light grey-brown, bedded in places, bedding angle to core axis; 45 - 50°.
		little pyrite finely disseminated throughout.
	607.15 0 607.35m	chloritic shale, silicified, gradational boundary with footwall.
	607.7m	joint angle to core axis: 35°.

ms 17.5.74.

END OF HOLE.

APPENDIX 3

Core Log of Rover 1

DDH2 ~~WR02 and~~ WR04 WR05

GEOPEKO LIMITED

TENNANT CREEK
Northern Territory

PROSPECT/MINE : ROVER 1

Log of Hole : 2 #R05 + WR04

Location : 21228, South west of Tennant Creek

Purpose of Hole : To test lode 20m E of lode-intersection in DH2 #R02

Proposed By : W. Maehl Date : 30.11.73

Proposed Target : 1160 E : 892 N : - 500 R.L.

Hole Planned By : R. Maher Date : 28.3.74 Checked : W. Mayer

Hole Approved By : B.T. Williams

Hole Logged By : W. Mayer

Collar Co-Ordinates :

Proposed : N.A. E : N : R.L.

Surveyed : E : N : R.L. Surveyed in By : Date :

Actual : E : N : R.L. Picked up By : Date :

Collar Bearing :

Proposed : N.A. Grid : Magnetic :

Surveyed : Grid : Magnetic : Surveyed in By :

Actual : Grid : Magnetic : Picked up By . R. Maher

Collar Inclination :

Proposed : N.A.

Surveyed : Surveyed in By :

Actual : Picked up By :

Target Depth : 560 m.

Proposed Final Depth : 625 m.

Actual Final Depth : 631 m. Hole Terminated By : B.T. Williams

Reason for Termination : Too strong deviation to the east - hole would not have intersected the lode.

Drilling :- Date Commenced : 3.4.74 Date Completed : 16.5.74

Drilled By : Geopeko Drilling Division

Wedges Placed At : BX Hall Rowe wedge at 275.0, BX Clappison wedge at 294.0 and 357.0

Remarks :

Economic Summary Result : No lode intersection.

S.McD. 11937/1073

ROVER 1 DDH2 WR05

SURVEY

Date	Depth	Type	Dip Read	Dip Corrected	Bearing Read	Bearing Mag.	Bearing Grid	Remarks.
8.4.74	284m	Photo	84°	84°	034°	034°	38.5°	Hall Rowe wedge at 275m.
8.4.74	294m	Photo	84e	84°	035.5°	035.5°	40°	BX clappison wedge at 294m.
10.4.73	298m	Photo	84°	84°	056°	056°	60.5°	
10.4.73	304m	Photo	84°	84°	058°	058°	62.5°	
18.4.74	313m	Photo	84°	84°	059°	059°	63.5°	
18.4.74	328m	Photo	84°	84°	057°	057°	61.5°	
18.4.74	343m	Photo	83.5°	83.5°	061°	061°	65.5°	
18.4.74	358m	Photo	83°	83°	060°	060°	64.5°	
	370m	Assumed	-	81.5°	-	-	80.5°	
25.4.74	385m	Photo	79.5°	79.5°	061°	061°	65.5°	
25.4.74	400m	Photo	78.5°	78.5°	059°	059°	63.5°	
25.4.74	415m	Photo	76.5°	76.5°	056°	056°	60.5°	
14.5.74	430m	Photo	76°	76°	056°	056°	60.5°	
14.5.74	445m	Photo	75.5°	75.5°	056°	056°	60.5°	
14.5.74	470m	Photo	71.5°	71.5°	055°	055°	59.5°	
14.5.74	485m	Photo	69°	69°	055°	055°	59.5°	
14.5.74	500m	Photo	67°	67°	056.5°	056.5°	61°	
14.5.74	515m	Photo	64°	64°	058°	058°	62.5°	
14.5.74	530m	Photo	62°	62°	060°	060°	64.5°	
14.5.74	545m	Photo	59°	59°	059.5°	059.5°	64°	
8.5.74	545m	Acid	63.5°	57°	-	-	-	
14.5.74	560m	Photo	56°	56°	059°	059°	63.5°	
14.5.74	575m	Photo	54°	54°	058°	058°	62.5°	
14.5.74	590m	Photo	52.5°	52.5°	060°	060°	64.5°	
14.5.74	604m	Photo	51°	51°	061°	061°	65.5°	

ROVER1 DDH2 WR05

GEOLOGICAL LOG. by W. Mayer.

275.3 - 278.8m		PHYLLITIC SHALE bedding indicated in places, many minia contortions and minifaults; brownish-grey; thin (1-3mm) irregular quartz-chlorite veinlets in places.
	275.5m	joint angle to core axis : 50°, bedding angle to core axis; 0°
	276.3m	bedding angle to core axis: 5-10°, joint angle to core axis: 0 - 10°
	276.4m	joint angle to core axis : 35°
	277m	joint angle to core axis: 60°
	277 - 277.8m	bedding angle to core axis: 0-10°(undulating contacts)
	278m	joint angle to core axis: 55°
	278 - 278.8m	bedding angle to core axis: 5°, 20°, 10° (inconsistent over short sections)
	278.8m	joint angle to core axis: 0°, 45°
278.8 - 280.4m		Basically as 278.3 - 278.8m but with some small siltstone - sandstone lenses and more disturbed; bedding angle to core axis: 0-10°
	279.8 - 280.4m	joint ?- and bedding angle to core axis: 0°; chloritic coating with slickensides.
280.4 - 281.0m		HEMATITIC PHYLLITIC SHALE, purple; bedding not visible, shiny chloritic shearing-planes; many contortions and mini-faults;
	280.8 - 280.85m	quartz-vein, pink, with minor sediment-pockets
281.0 - 282.5m		PHYLLITIC SHALE as 278.8 - 280.4m; core broken up; 282.0 - 282.3m 1-2cm fragments.
	281.75 - 282.0m 282.3 - 282.4m	)pinkish quartz vein with light olivegreen chlorite)veins and pockets; joint angle to core axis : 0 - 10°.
282.5 - 284.5m		PHYLLITIC SHALE bedding mainly clearly visible, very little contortions;
	282.5 - 283.0m	bedding angle to core axis: 10 - 15°
	284.5m	2cm quartz-chlorite vein, angle to core axis: 60°

ROVER1 DDH2 NR03

GEOLOGICAL LOG. CONTINUED.

284.5 - 287.0m		HEMATITIC PHYLLITIC SHALE
		PURPLE; bedding visible in places; a few approx. 1mm quartz veinlets in places; bedding to core axis : 5°, thin pyrite coatings on some joints.
	285.1m	joint angle to core axis: 45°
	285.4m	joint angle to core axis: 60°
	286.6 - 287m	bedding angle = joint angle to core axis: 0 - 5°
287.0 - 289.6m		HEMATITIC PHYLLITIC SHALE
		uncontorted bedding clearly visible throughout;
	287 - 288m	bedding angle to core axis: 0 - 5°
	288.1m	5mm quartz-chlorite vein, angle to core axis: 45°
	289 - 289.6m	bedding angle to core axis: 15°
289.6 - 291.7m		CHLORITIC SHALE TO SILTSTONE
		appears to be silicified; bedding visible in places; a few 1-2mm quartz veinlets, bedding angle to core axis; 25-35°
291.7 - 292.0m		FINEGRAINED GREYWACKE?
		consisting from approx. 20% 1-3mm dia. red feldspar grains in 80% chloritic matrix, bedding slightly indicated; hangingwall & footwall contact angle to core axis; 20°
	291.9m-	joint angle to core axis: 55°
292.0 - 293.6m		HEMATITIC PHYLLITIC SHALE
		purple; fine laminated bedding; no contortions, but some mini-faults; a few 1 - 2mm quartz veinlets in places; gradational boundary with footwall; bedding angle to core axis: 20°
	292.1m	2cm quartz-chlorite vein, subnormal to core axis.
	293.3m	joint angle to core axis; 55°
	293.6m	joint angle to core axis: 60°
293.6 - 294.0m		PHYLLITIC SHALE
		bedding visible in places; core broken up
294.0 - 296.8m		PHYLLITIC SHALE & CHLORITIC SILTSTONE
		pencil core
296.8 - 298.0m		CHLORITIC QUARTZITE
		0.45m recovery; massive, bedding not visible;
	297 - 297.1m	joint angle to core axis: 0°

ROVER1 D.H2 W#05

GEOLOGICAL LOG. CONTINUED.

298.0 - 298.6m		CHLORITIC SILTSTONE TO SANDSTONE
		no bedding visible, little pyrite on joint at 298.5m
298.6 - 306.8m		PHYLLITIC SHALE
		with a few SILTSTONE & SANDSTONE sections; bedding visible in places; a few 1-2mm quartz veinlets in places;
	299.2m	bedding angle to core axis: 10°
	299.8m	joint angle to core axis: 55°
	300.35 0 300.4m	quartz-light and dark green chlorite-red feldspar vein, angle to core axis: 60°
	301.4m	irregular 1-3mm quartz-dolomite vein.
	301.6m	joint angle to core axis: 50°
	301.7m	joint angle to core axis: 70°
	302.1 - 302.2m	joint angle to core axis: 0°
	302.3m	5-10mm dolomite vein, subnormal to core axis.
	302.4m	bedding = joint angle to core axis: 0-5°
	302.9m	2 x 0.5cm quartz veins, contorted.
	303.2 - 304m	bedding angle to core axis: 15-20°
	304.1 - 304.25m	joint angle to core axis: 60°
	304.8 - 305.1m	joint angle = bedding angle to core axis: 5°
	306 - 306.1m	joint angle to core axis: 85°
	306.2m	joint angle to core axis: 75°
	306.6m	bedding angle to core axis: 10°
306.8 - 314.3m		PHYLLITIC SILTY - SANDY WITH A FEW SILTSTONE TO SANDSTONE SECTIONS (SHALE)
		bedding mostly visible; little contortions, some mini-faults; gradational boundary with footwall;
	307.2 - 307.5m	joint angle to core axis: 0-5°, 1-3mm dolomite vein in places.
	307.3m	joint angle to core axis: 70°
	307.9 - 309.3m	joint angle to core axis: 0 -5°; appears to be minor fault with 1-3mm quartz-dolomite veinlets
	308.0 - 309.0m	bedding angle to core axis: 10°
	310m	bedding angle to core axis: 5°
	310.9m	bedding angle equals joint angle to core axis: 5°
	311.1m	joint angle to core axis: 65°
	312,313,314.3m	bedding e joint angle to core axis: 10°

ROVER 1 DDH2 WR05

GEOLOGICAL LOG. CONTINUED.

314.3 - 315.0m		HEMATITIC PHYLLITIC SHALE
		purple, bedded; bedding angle to core axis: 10°
315.0 - 317.8m		HEMATITIC PHYLLITIC SHALE
		purple, bedded; gradational boundary with footwall; some mini-faults in places.
	315.2m	joint angle = bedding angle to core axis: 10°
	316.4m	joint angle = bedding angle to core axis: 15°
	316.5m	joint angle to core axis: 55°, 75°; minor calcite & pyrite coating on joint.
	317.5m	joint angle = bedding angle to core axis: 10°
317.8 - 318.3m		PHYLLITIC SHALE
		bedded; some 3 - 5mm quartzitic beds; some contortions and irregular thin quartz veinelts; core broken up; gradational boundary with footwall.
	318m	joint angle = bedding angle to core axis: 10°
318.3 - 321.3m		HEMATITIC PHYLLITIC SHALE
		purple, bedded, gradational boundary with footwall; some mini-faults and 1-5mm quartz-dolomite veins in places.
	318.3 - 319m	bedding slightly contorted.
	319.1m	joint angle = bedding angle to core axis: 10°
	319.4 - 319.6m	1-3mm quartz-dolomite vein, angle to core axis:5°
	319.5m	joint angle to core axis: 80°, calcite & pyrite coating on joint.
	320m	5mm quartz-dolomite vein, angle to core axis:70°
	321m	bedding angle to core axis; 10°, joint angle to core axis: 80°
321.2 - 322.8m		PHYLLITIC SHALE WITH A FEW SILTSTONE SECTIONS.
		bedding visible in places: thin calcite coatings on some joints.
	322.1 - 322.5m	bedding angle = joint angle to core axis: 0-5°
	322.5 - 322.7m	set of 1-5mm quartz-dolomite veins; angle to core axis: 45 - 80°
322.8 - 323.5m		SILTSTONE
		bedded, with shiny bedding= cleavage planes; bedding angle to core axis: 10°

REVMARI DDH2 - R05

GEOLOGICAL LOG. CONTINUED.

323.5 - 323.9m		PHYLLITIC HEMATITIC SHALE bedded, but well disturbed by irregular 1-3cm quartz-chlorite veins and pockets; gradational boundary with footwall.
323.9 - 324.4m		QUARTZ VEIN massive, with minor dark green chlorite pockets and veinlets; a few quartz crystals - filled vughs.
324.4 - 324.7m		PHYLLITIC HEMATITIC SHALE as 323.5 - 323.9m
	324.4 - 324.5m	broken up core; breccia-type rock; quartz fragments in chlorite (light & dark green) matrix.
324.7 - 326.6m		PHYLLITIC HEMATITIC SHALE bedded, joint angle equals bedding angle to core axis: $0 - 10^{o}$
	325.5m	joint angle to core axis: 35^{o}
	326.1m	0.5cm quartz-dolomite-chlorite vein, faulted, angle to core axis: 30^{o}
326.6 - 330.6m		PHYLLITIC SHALE with some siltstone beds; bedding mostly visible, bedding angle = joint angle to core axis: $0-3^{o}$
	326.6 - 326.65m	very contorted disturbed sediment, minor FAULT-zone, both footwall and hangingwall beds are cut off;
	328.6 - 328.7m	3mm quartz veins, angle to core axis: 55^{o}
	330.4m	joint angle to core axis: 65^{o}
330.6 - 338.5m		PHYLLITIC SHALE GRADING INTO SANDSTONE (SILTSTONE) SECTIONS. phyllitic shale is chloritic in some sections, bedding visible in places; some 1-2mm quartz veins in places; some contortions and mini-faults and silicification in places.
	332m	bedding angle to core axis: 10^{o}
	332.2 - 333m	joint angle = bedding angle to core axis: 5^{o}
	334.3 - 334.5m	set of 1-5mm quartz veins, 5mm displaced by minifault
	335 - 336m	siltstone - sandstone; 335.3 - 335.7: 5mm quartz chlorite vein, angle to core axis: 5^{o}
	336.8m	bedding angle = joint angle to core axis: 175^{o}
	337.6 - 338m	Phyllitic hematitic shale, well bedded, bedding angle to core axis: $3-5^{o}$

ROVER1 DDH2 WR05

GEOLOGICAL LOG. CONTINUED.

338.5 - 343.2m		PHYLLITIC SHALE WITH SILTSTONE TO SANDSTONE SECTIONS.
		bedding mostly visible.
	339m	bedding angle equals joint angle to core axis: 5°
	339.5 - 340.2m	phyllitic hematitic beds prevailing.
	340.2 - 340.5m	siltstone to sandstone; joint angle equals bedding angle to core axis; 15°
	340.5 - 340.8m	chloritic shale with some 1-10mm contorted quartz veins.
	340.8 - 341.1m	quartz-chlorite vein; dark green chlorite occurs as veinlets and pockets: footwall contact angle to core axis: 20° (contorted)
	342.1m	bedding angle to core axis: 10°
	342.3 - 342.8m	siltstone to sandstone; joint subnormal to core axis
	343.1 - 343.2m	2cm bed of chloritic shale with 2-3mm quartz-chlorite veins parallel to bedding; bedding angle to core axis: 10°
343.2 - 346.2m		SILTSTONE TO SANDSTONE
		bedding visible in places; a few 1-2mm quartz veinlets and minifaults in places; silicification in places; thin pyrite-manganese-calcite coatings on most joints.
	344m	bedding angle to core axis: 20°
	344.7m	joint angle equals ? bedding angle to core axis: 10°
	345m	joint angle to core axis: 75°
346.2 - 351.1m		PHYLLITIC SHALE TO SILTSTONE
		bedding visible in places.
	348.5 - 348.9m	many 1mm hematite beds; bedding angle to core axis; 15°
	350m	bedding angle = joint angle to core axis: 10°
351.1 - 351.35m		QUARTZ VEIN
		with minor chlorite veinlets, footwall contact angle to core axis: 25°
351.35 - 353.2m		PHYLLITIC CHLORITIC SHALE
		bedding visible in places: core broken up
	352.1m	bedding angle to core axis: 25°

NOVER1 DDH2 #R06

GEOLOGICAL LOG. CONTINUED.

353.2 - 353.7m		QUARTZ VEIN with irregular chlorite and red feldspar veinlets; core broken up into 3cm pieces; hangingwall contact angle to core axis: 20°
353.7 - 354.5m		CHERTLIKE SHALE bedding not visible, greenish grey; joint angle to core axis: 0-5°; thin pyrite coatings on joint, uneven joint subnormal to core axis.
354.5 - 354.8m		CHERTLIKE SHALE as above; contact angle to footwall 10°
354.8 - 355.5m		PHYLLITIC SHALE bedding not visible
	355.05m	joint angle to core axis: 60°
	355.1 - 355.3m	lens of chloritic chert (= 1/3 core)
355.5 - 355.8m		QUARTZ-FELDSPAR(red) - CHLORITE (olive green) VEINS very disturbed, rather pockets than veins; angle of shearing to core axis: 45°, 0°; a few 1-2mm fibrous chlorite veins.
355.8 - 356.6m		PHYLLITIC CHLORITE SHALE core very broken up; angle of shearing to core axis: 0 - 5°
356.6 - 357m		QUARTZ VEIN with minor dark green and olove chlorite, red feldspar and dolomite.
357.0 - 358.0m		CHERTYLIKE SHALE with a 3cm wide interbedding of reddish quartzite; bedding angle to core axis: 10°
358.0 - 361.0m		NO CORE RECOVERY: WEDGE.
361.0 - 363.1m		SILICIFIED SHALE & SILTSTONE mostly bedded; bedding angle to core axis; 12°
	362.1 - 362.3m	brownish-pink shale with dirty-purple shades; oxidation colours ?.
	362.3 - 362.4m	2cm zone of 1-2mm veins of quartz-dolomite and chlorite, conformable with bedding; bedding angle to core axis: 15°
	362.9 - 363.1m	core very broken up.

ROVER1 DH2 #R05

GEOLOGICAL LOG. CONTINUED.

363.1 - 363.5m		CHLORITE with 2cm QUARTZ-CHLORITE VEIN with hematitic pockets; vein angle to core axis; 0-10°
363.5 - 365.5m		SILTSTONE AND SHALE mainly bedded,
	364.6 - 364.7m	micro folded phyllitic shale
	364m	bedding angle = joint angle to core axis: 5°
	365.2m	bedding angle = joint angle to core axis: 15°
365.5 - 373.65m		MAINLY SILTSTONE, MINOR PHYLLITIC SHALE bedding mostly indicated, bedding often slightly contorted, lenticular and disrupted by minor dislocations,
	365.8 - 366.1m	some irregular 1-5mm quartz-chlorite veinlets
	366.5m	bedding angle to core axis: 15°
	370.6m	joint angle to core axis: 15°
	371.5m	bedding angle to core axis: 5°
	372.1 - 372.3m	1-2mm dolomite-chlorite vein, angle to core axis:5°, cut off by mini-dislocation; bedding angle to core axis; 0-5°; joint angle to core axis; 65°, 75°.
	372.6m	joint angle to core axis: 25°
	373m	bedding angle to core axis: 5°
373.65 - 375.5m		SILTSTONE bedding indicated in places; whitish 1-5mm thick, 1-3cm long wide, carbonaceous lenses aligned parallel to bedding throughout, but rich at 374.2 - 374.6; 373.65; bedding angle to core axis: 15°
375.5 - 379.0m		PHYLLITIC SHALE bedding mostly indicated; gradational boundary with footwall; a few irregular veinlets and minifaults in places.
	375.6m	bedding to core axis; 10°
	376.85m	1cm dia. pyrite bleb
	377m	bedding angle to core axis: 0-5°
	377.6 - 377.8m	joint angle to core axis: 5°
	378.5m	bedding angle to core axis: 5°

ROVER1 DDH2 WR05

GEOLOGICAL LOG. CONTINUED.

379.0 - 382.0m		SILTSTONE
		bedding indicated in places; joint subnormal and parallel to core axis.
	379.3 - 380.1m	½ to 1/3rd core is cherty shale, bedding angle to core axis: 0°
	380.2m	joint angle to core axis: 45°
	381.3m	bedding angle to core axis: 10°
382.0 - 383.3m		SILTSTONE
		as above; gradational boundary with footwall; bedding angle = joint angle to core axis: 5°
383.3 - 388.3m		Mainly PHYLLITIC SHALE, minor SILTSTONE; bedded.
	384.0m	bedding angle = joint angle to core axis: 5°
	385.5 - 387.1m	½ to 1/7th core is siltstone; bedding angle = joint angle to core axis: 0 - 5°
388.3 - 388.6m		BANDED CHLORITE - SHALE with QUARTZ VEIN(388.45 -388.55) veinlets and pockets of dark green chlorite occur in chlorite-shale and 1cm quartz vein.
388.6 - 389.2m		SILTSTONE
	388.6 - 388.8m	set of 1-5mm quartz veins subnormal to core axis; chlorite pockets marginal on core.
389.2 - 390.0m		HEMATITIC SHALE
		bedded, with a 2-10mm pink quartz-feldspar-dolomite-chlorite vein parallel to bedding; bedding angle to core axis: 0-5°; gradational boundary with footwall and hangingwall
390.0 - 390.5m		PHYLLITIC SHALE,
		bedded; bedding angle to core axis; 10°
390.5 - 392.0m		PHYLLITIC SHALE
		bedded; bedding angle = joint angle to core axis: 3-5°
	390.7m	5mm quartz vein, angle to core axis; 70°
392.0 - 392.7m		2-3cm wide zone of 3-5mm slightly boudinage affected QUARTZ-CHLORITE VEINS (1/2- 2/3 core), remainder is SHALE; contact angle to core axis: 0 - 5°

ROVER1 DDH2 #RG5

GEOLOGICAL LOG. CONTINUED.

392.7 - 394.6m		PHYLLITIC SHALE mostly bedded, a few minor contortions and dislocations.
	392.7 - 393.4m	purple- brownish
	393.4 - 394.6m	mainly chloritic
	393.5m	bedding angle to core axis: 0°
	394.6m	bedding angle to core axis: 25°
394.6 - 394.7m		10cm zone of QUARTZ-CHLORITE (light and dark green) veins and pockets, disturbed, hangingwall and footwall contact subnormal to core axis.
394.7 - 396.0m		SILTSTONE with some 1-10mm quartz veins in places; core rather broken up, gradational boundary with footwall.
396.0 - 397.4m		PHYLLITIC SHALE mostly bedded; 396.5: bedding angle to core axis; 5-15°.
397.4 - 397.6m		20cm zone of QUARTZ-CHLORITE (light to dark green) veins and pockets, very disturbed.
397.6 - 398.5m		PHYLLITIC CHLORITIC SHALE with some 1-2cm quartz-chlorite veins;
	397.7m	bedding angle = joint angle to core axis: 0-5°
398.5 - 403.0m		Mainly SILTSTONE, minor PHYLLITIC SHALE bedding indicated in places; minor contortions and dislocations in places; 1-2mm quartz veinlets throughout; 399.5: bedding angle to core axis; 25°
	399.3 - 399.35m) 401.1 - 401.15m)	quartz chlorite veins and pockets, disturbed
	402.95m	1cm quartz-chlorite vein, displaced 1cm; mini-fault plane, angle to core axis: 5°
403.0 - 405.0m		SHALE bedded, minor contortions and dislocations and 1-2mm quartz veinlets in places.
	403.0 - 405.0m	1mm bed of impure sandstone throughout; bedding angle = joint angle to core axis; 0-5°.
405.0 - 405.9m		SILTSTONE bedding not visible; joint angle to core axis; 0-5°
405.9 - 406.25m		BEDDED CHLORITE with 1cm QUARTZ-CHLORITE-DOLOMITE VEINS, very contorted and disturbed zone.

ROVER1 DDH2 AT05

GEOLOGICAL LOG. CONTINUED.

406.25 - 406.35m — SHALE
silicified; bedded; bedding angle to core axis: 20°

406.35 - 407.0m — FINEGRAINED QUARTZITE
bedding not visible; chloritic joint plane; joint angle to core axis: 3-5°

407.0 - 414.75m — PHYLLITIC SHALE and SILTSTONE
slightly silicified, mostly bedded; minor dislocations in places.

- 407.6m — joint angle to core axis: 30°
- 409.3m — bedding angle = joint angle to core axis: 5°
- 409.8 - 409.85m — 5mm quartz-dolomite-chlorite vein; angle to core axis: 10°
- 410.1 - 410.3m — 3 x 3mm wide silicified shale lenses aligned parallel to core axis
- 410.3m — joint angle to core axis: 30°
- 410.8m — broken up to breccia by 3mm shale bed; bedding angle to core axis: 15°
- 412.0 - 412.9m — bedding angle to core axis: 0°
- 413.0m — bedding angle to core axis: 5°
- 414.3 - 414.75m — bedding angle = joint angle to core axis: 0°

414.75 - 422.6m — Mainly PHYLLITIC SHALE, minor SILTSTONE; bedding mostly indicated, bedding = joint angle to core axis: 0 - 5° throughout; minor contortions and dislocations in places.

- 421.7 - 422.6m — core very broken up; possibly FAULT?.
- 417m — 2mm quartz-dolomite vein, angle to core axis : 70°

422.6 - 430.8m — Mainly PHYLLITIC SHALE, minor SILTSTONE; mostly bedded, rather extensive contortions and dislocations in places; some sections with extensive veins; 1-2mm quartz veinlets in places.

- 422.6 - 422.75m — 1.5cm wide zone of 2-3mm quartz-dolomite and chlorite veins; angle to core axis: 0-10°
- 423.7 - 423.9m — sandy siltstone with some 1-2mm dolomite veinlets
- 424.3m — joint angle to core axis : 0-5°
- 424.7 - 424.9m) 425.2 - 425.25m) — extensive 3-10mm quartz-dolomite and 1-2mm chlorite veins, contorted and minifaulted.
- 425.25 - 425.8m — dirty purple phyllitic shale.

ROVER1 DDH2 WR05

GEOLOGICAL LOG. CONTINUED.

	425.8 - 426.0m	2cm zone of 3-5mm quartz dolomite and 1-2mm chlorite veins, conformable to bedding, angle to core axis: 20°.
	426.1 - 427.5m	purple brownish-phyllitic shale with many 1-2mm reddish beds, bedding angle to core axis: 0-10°.
	429.6 - 430.0m	0.5cm zone of 1mm siltstone-shale interbeddings, mini-contorted, bedding angl to core axis: 0-5° = joint angle.
430.8 - 431.5m		PHYLLITIC SHALE bedded, bedding angle to core axis: 10°
431.5 - 433.0m		QUARTZITIC SILTSTONE, bedding not visible; set of 2-3mm quartz veins, angle to core axis: 70°
433.0 - 435.6m		PHYLLITIC SHALE with some 3-5mm SILTSTONE beds; bedding angle = joint angle to core axis: 5-10°
435.6 - 436.0m		QUARTZITIC SILTSTONE bedding not visible.
436.0 - 438.85m		PHYLLITIC SHALE with some SILTSTONE beds in places
	436.1	joint angle to core axis: 5°
	436.7m	bedding angle = joint angle to core axis: 10°, a few 5mm diameter augens of red feldspar aligned parallel to shearing.
	438.4 - 438.7m	minifault plane angle to core axis: 8°
	438.8m	bedding angle to core axis: 15°, 5mm quartz-dolomite vein, angle to core axis: 50°.
438.85 - 441.8m		PHYLLITIC SHALE with SILTSTONE section, bedding visible in places; some contortions and minifaults in places.
	439.3 - 439.4m	set of 1-3mm quartz veinlets subnormal to core axis, 5mm displaced by minifault parallel to core axis.
	439.45m	a few 5mm diameter red feldspar augens aligned parallel to bedding, bedding angle to core axis; 20°, joint angle to core axis; 30°.
	439.9m	bedding angle = joint angle to core axis: 10°, beds appear to be identical with 438.8m
	440.8 - 441.05	quartzite siltstone, bedding not visible; hangingwall contact = bedding angle = joint angle to core axis: 10°.

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GEOLOGICAL LOG. CONTINUED.

	441.05 - 441.8m	cherty shale; joint angle to core axis: 0°
441.8 - 442.7m		CHLORITIC SILTSTONE with a few 1mm quartz veinlets, angle to core axis: 25°; footwall bedding angle = joint angle to core axis: 15°.
442.7 - 445.3m		Mainly SHALE minor SILTSTONE; some medium contortions and dislocations in places; bedding indicated;
	442.7 - 443.0m	cherty shale
	443.7 - 444.3m	joint angle to core axis: 0 -5°
	444.3 - 444.8m	lenticular 2-3mm wide beds, probably as result of shearing;
	444.5 - 444.7m	FAULT plane: angle to core axis: 8°; unconformable bedding on the 2 limbs; footwall has 3mm pyrite cubes aligned parallel to bedding.
	445.05m	1-2cm zone subnormal to core axis with disrupted bedding.
445.3 - 447.2m		SHALE and SILTSTONE WITH BIG (max 10cm long) CLAY PEBBLES, aligned parallel to shearing; claypebbles are cherty and appear to represent disrupted beds.
447.2 - 454.0m		Mainly PHYLLITIC SHALE, minor SILTSTONE; bedded; shale silidified in some sections;
	447.6m	bedding angle to core axis: 5-10°; joint angle to core axis: 0°, 60°.
	449.0 - 450.7m	siltstone; 449.6m: joint angle to core axis: 10°
	450.7 - 450.9m	½ core: siltstone, ½ core: cherty shale; contact angle to core axis 0°, set of 1-3mm quartz veinlets; angle to core axis : 60°.
	451.3m	2cm quartz chlorite vein; angle to core axis; 70°.
	451.5 - 451.7m	set of 1-5mm quartz veins, subnormal to core axis; veins are 3mm displaced by a flexure along shale-siltstone contact
	451.8m	bedding angle to core axis: 15°
	451.9 - 454.0m	mainly chloritic shale; cherty shale in places, rather extensively disturbed and disrupted; some irregular 1-3mm quartz veinlets in places; 452.5m: bedding angle to core axis; 5°

ROVER1 DDH2 WR05

GEOLOGICAL LOG. CONTINUED.

454.0 - 455.0m		SHALE WITH BIG (approx.) ≤ 10cm long) CLAYPEBBLES: elongated and aligned parallel to bedding: claypebbles are cherty shale and probably represent disrupted beds; 454.45m; claypebbles with indentation into another claypebble; 454.9m; joint angle to core axis; 30°.
455.0 - 457.6m		FINE GRAINED SILTSTONE, bedding visible in a few places; minor contortions and dislocations in places;
	455.15 - 455.25m	2 quartz-chlorite veins; angle to core axis: 45°, 30°
	455.5m	joint angle to core axis: 35°.
457.6 - 461.4m		CHERTY SHALE greenish, bedding indicated in places, talcy chlorite on joint planes; contortions, dislocations and quartz veining mainly in bottom half; hm
	457.6m	Faulted hangingwall contact with quartz veinlets.
	458.3m- 459.0m	joint angle to core axis: 0-5°; bedding angle to core axis 0-5°.
	460.6 - 461.4m	Abundant contorted 1-5mm quartz veins and pockets, subparallel to core axis; joint angle to core axis: 0-10°.
461.4 - 463.0m		FINEGRAINED SILTSTONE bedding indicated in places, hangingwall contact; angle to core axis: 10°. 1-2mm quartz veinlets and pockets (angle to core axis 5-15°) throughout.
	461.4 - 461.7m	2cm bed of 0.5 -1cm long cherty shale lenses in silty matrix; bedding angle to core axis: 5°.
463.0 - 471.5m		Mainly QUARTZITIC SILTSTONE AND FINEGRAINED SANDSTONE, BROWN , MINOR CHERTY SHALE bedding indicated only in a few places; medium-rich 1-2mm quartz veinlets throughout ; angle to core axis mainly 15 - 25°.
	464.4m	1mm quartz vein, joint angle to core axis: 55°.

ROVER1 DDH2 WR05

GEOLOGICAL LOG. CONTINUED.

	465.55 - 465.75m	Cherty shale, greenish; faulted hangingwall contact angle to core axis: 70°, gradational boundary with footwall: bedding angle to core axis: 20°.
	466.7m	1cm bed of 0.5 - 1cm long cherty shale lenses aligned in silty matrix, bedding angle = joint angle to core axis: 15°
	468.35m	3cm cherty shale lens with 3mm displacement
	469.35	set of minifaults; angle to core axis: 65°
	469.5 - 470.15m	cherty shale, greenish (469.5 - 469.8) and brown (469.8 - 470.15), gradational boundary with footwall,
	469.9	faulted contact; joint angle to core axis: 45°.
		470.0m illdefined bedding: bedding angle to core axis: 10°.
471.5 - 472.5m		SILTSTONE
		brown, bedding indicated at 471.6: angle to core axis: 20°.
472.5 - 477.7m		Mainly CHERTY SHALE, greenish, minor SILTSTONE, brown; some contortions and dislocations in places; 1-2mm quartz veinlets in places. 473.2m: bedding angle to core axis: 5°
		474.3m: bedding angle to core angle: 10°
	475.1 - 476.1m	siltstone, brown; hangingwall contact with indentations; possibly "intrusion" of siltstone into unlithified cherty shale; some 1-3cm long cherty shale lenses near contact; gradational boundary with footwall.
	476.7 - 477.1m	spotted cherty shale; with 3-5mm long elongated black-green chlorite spots; TYPICAL- POSSIBLY MARKER BED; Footwall contact; bedding angle to core axis: 10°; a few 2-3mm pyrite cubes;
	477.7m	Footwall contact; bedding angle to core axis: 25°
477.7 - 479.6m		SILICIFIED SILTSTONE, brown
479.6 - 480.7m		SILTSTONE brown, bedding visible, 479.8m: bedding angle to core axis: 0-5°; indentated footwall contact: bedding angle to core axis: 10°.

ROVER1 DDH2 «RO5

GEOLOGICAL LOG. CONTINUED.

480.7 - 482.0m — SILTSTONE WITH CHERTY SHALE LENSES (5cm long, 0.5cm wide) aligned parallel to bedding; probably diarupted beds; bedding angle to core axis: 0°.

482.0 - 483.4m — CHERTY SHALE; Hangingwall contact with 0.5cm quartz dolomite vein, angle to core axis: 15°, chaotic, indentated footwall contact.

483.4 - 484.8m — SILTSTONE WITH CHERTY SHALE LENSES (1-5cm long, 1-10mm wide) aligned parallel to bedding; bedding angle to core axis: 10-15°;

484.0 - 484.8m — only a few cherty shale lenses. footwall contact bedding angle to core axis: 70°, 5mm wide sheared disintegrated cherty shalebed marginal on contact.

484.8 - 486.0m — CHERTY SHALE bedding indicated in places; gradational boundary with footwall.

486.0 - 486.8m — SHALE, bedded, upper half disturbed and faulted, with 1-5mm vermiculated quartz dolomite veins; gradational boundary with footwall;
486.2m; bedding angle to core axis: 25°
486.6m; bedding angle to core axis: 10°

486.8 - 487.65m — HEMATITE SHALE, well bedded, 3-5mm laminated beds, red, interbedded with dirty purple beds;

486.9m — bedding angle to core axis: 10°, minifault

487.0 - 487.1m — a few 0.5 - 2cm quartz dolomite chlorite veins, slightly contorted and minifaulted.

487.5m — bedding angle to core axis: 5
joint angle to core axis: 25°

487.65 - 491.35m — HEMATITE SHALE as above; faulted footwall contact; fault plane angle to core axis: 40°; beds slightly contorted and dislocated in places; bedding angle to core axis: 0-5°, in places up to 40°.

489.3 - 491.35m — extensive 1-5mm quartz dolomite chlorite veining mainly parallel to bedding; 489.3 - 489.5m, 490.1 - 490.4m: set of approx. 1mm quartz veinlets, angle to core axis: 25°.

NOVER1 DDH2 WR05

GEOLOGICAL LOG. CONTINUED.

491.35 - 492.2m		PHYLLITIC SHALE bedded, with contortions and minifaults throughout;
	491.35 - 491.6m	typical reddish 0.5 - 1cm quartzitic siltstone bed, slightly contorted; probably same beds as 492.2-492.9m; bedding angle to core axis: 0-5°.
492.2 - 494.0m		HEMATITIC SHALE, dirty purple, bedded; contortions and dislocations throughout; some 0.3 - 0.5cm thick lenticular siltstone beds in places;
	492.2 - 492.9m	typical reddish 0.5 - 1cm quartzitic siltstone bed, contorted and minifaulted; probably same bed as 491.35 - 491.6; bedding angle to core axis:0-5°
	492.9m	joint angle to core axis: 20°
	492.9 - 493.4m	some 2-10mm quartz dolomite chlorite veins, contorted and minifaulted; angle to core axis: 10-15°.
494.0 - 495.5m		SHALE bedded, slightly contorted in places; gradational boundary with footwall;
	494.4m	bedding = joint angle to core axis: 15°
	495.0 - 495.5m	typical reddish 0.5cm quartzitic siltstone bed, contorted; 0.3 - 0.5cm quartz chlorite vein, with boudinage
495.5 - 496.0m		HEMATITE SHALE well bedded; contortions and dislocations and 1-2mm quartz veins throughout;
	495.7m	joint angle to core axis: 45°; minifault plane angle to core axis: 70°.
	495.8m	joint angle to core axis: 25°; bedding angle to core axis: 10°
496.0 - 497.4m		HEMATITE SHALE as above; some big 0.5 - 1cm slightly contorted quartz chlorite dolomite veins parallel to bedding; bedding angle to core axis: 15°
497.4 - 500.9m		Mainly SHALE minor CHERTY SHALE and FINEGRAINED QUARTZITE; mostly bedded;
	497.4 - 497.8m	bedding = joint angle to core axis: 0-5°.
	498.35m	2cm wide MARKER BED; very typical: central 1cm bed appears to be broken up in situ to 1-3mm dia. fragments of ? dolomite; marginal 3-5mm beds have many 1mm dia. dolomite spots; bedding angle to core axis: 30°.

ROVER1 DH2 #R05

GEOLOGICAL LOG. CONTINUED.

	499.0 - 500.0m	Cherty chloritic shale; disrupted footwall and hangingwall contacts;
	499.2m	joint angle to core axis: 0°
	500.0 - 500.3m	finegrained quartzite with some 0.5cm long cherty shale fragments, footwall contact subnormal to core axis, faulted parallel to core axis;
	500.25m	joint angle to core axis: 45°; joint plane with pyrite coating
	500.3 - 500.6m	cherty chloritic shale.
500.9 - 501.0m		3cm wide zone of 0.3 - 1cm FINEGRAINED SILICIFIED GREYWACKE; 1-2mm quartz(?and feldspar) fragments in chloritic matrix.
501.0 - 503.0m		FINEGRAINED QUARTZITE reddish, bedding indicated in places; thin healed fractures and 1-2mm dolomite veinlets throughout; footwall contact: bedding angle to core axis: 10°;
	501.6 - 502.3m	illdefined 2-3mm dia. spots, greenish grey, similar to spotted hornfels.
	502.7m	joint to core axis: 20°
503.0 - 503.5m		CHERTY CHLORITIC SHALE; many 1mm calcite veinlets in places;
	503.4m	2cm quartz calcite chlorite vein, faulted hangingwall contact
503.5 - 504.1m		SHALE INTERBEDDED WITH FINEGRAINED GREYWACKE; silicified; medium contortions and minifaults; a few 1mm calcite veins; bedding to core axis: 5°
504.1 - 505.0m		QUARTZITIC SILTSTONE TO FINEGRAINED QUARTZITE bedding indicated in places
505.0 - 505.2m		CHLORITIC CHERT; bedding not indicated; very disrupted hangingwall contact * chert beds are broken up into chert lenses; undisturbed footwall contact: bedding angle to core axis: 10°

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GEOLOGICAL LOG. CONTINUED.

505.2 - 509.15m QUARTZITIC SILTSTONE TO FINEGRAINED QUARTZITE; bedding indicated in places; contertions and dislocations in places;

505.9 - 506.0m disturbed zone with rich 1-3mm quartz dolomite chlorite veining, angle = joint angle to core axis: 35°.

506.1 - 506.2m joint angle to core axis: 20°, set of 1mm calcite veins parallel to joint.

506.25 - 506.8m tectonic fish; a 2.5cm wide whitish beaded ~~chloritic~~ dolomite bed is antithetically faulted ~~xxxx~~ several times and lensed out; displacement along faultplane: several cm: faultplane angle to core axis: 5-15°.

506.8 - 507.1m 2x1-2cm broken up and contorted cherty shale bed looks conglomerate like.

509.15m footwall contact: bedding angle to core axis: 15°.

509.15 - 512.3m Mainly CHLORITIC CHERTY SHALE, minor SILICIFIED SILTSTONE; bedding indicated in places; strong disruptions almost throughout; some 1-2mm calcite veins in places.

509.6 - 509.8m joint angle to core axis: 0-5°, chloritic joint.

510.6 - 510.8m joint angle to core axis: 5°

510.9 - 511.2m) illdefined 3-5mm beds of silicified grit
512.6 - 512.8m)

511.95m bedding angle to core axis: 5°

512.3 - 513.1m CHERTY CHLORITIC SHALE, bedding indicated in places; bedding angle = joint angle to core axis: 10°

512.5 - 512.7m set of 1-2mm quartz calcite veins, angle to core axis: 40-60°.

513.1 - 514.0m CHERTY SHALE, greyish brown, bedding indicated, gradational boundary with hangingwall and footwall.

513.4m bedding angle = joint angle to core axis: 25°.

514.0 - 515.7m CHERTY CHLORITIC SHALE with a few siltstone sections; some disruptions in places; footwall contact = bedding angle to core axis: 5-10°.

515.7 - 517.3m VERY FINEGRAINED CHLORITIC GREYWACKE

1-2mm dia. quartz and red feldspar grains in chloritic matrix; no bedding visible, footwall contact 517.1-517.4m with minor disruptions; bedding angle to core axis: 5°.

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GEOLOGICAL LOG. CONTINUED.

517.3 - 518.4m		CHLORITIC SHALE, some contertions, many dislocations; gradational boundary with footwall
	517.6 - 517.8m	1.5cm quartz chlorite vein, angle to core axis: 5-10°
518.4 - 520.3m		HEMATITIC SHALE, bedded, some contortions and dislocations in places; 1mm calcite veinlets throughout;
	518.5m	bedding angle to core axis: 10°
	519.85 - 520.3m	very fractured, in places brecciated zone with many irregular 1-2mm calcite veinlets.
520.3 - 520.45m		SLIGHTLY HEMATITIC SHALE, several antithetic minifaults.
520.45 - 524.0m		SLIGHTLY HEMATITIC SHALE, mostly bedded, minor contortions and dislocations in places; approx. 1mm calcite veinlets almost throughout; gradational boundary with footwall.
	521.0, 522.0	bedding angle to core axis: 0-5°
	522.7m	bedding angle = joint angle to core axis: 35° (locally anomalous angle)
524.0 - 526.8m		SANDY SILTSTONE AND SILICIFIED (CHERTY) SHALE bedding visible in places; whole section is very disturbed: many dislocations and 1-2mm quartz veinlets
	526.1 - 526.8m	cherty shale, brownish
526.8 - 528.85m		CHERTY CHLORITIC SHALE AND CHLORITE SHALE bedding contacts fairly disrupted;
	528.7 - 528.85	completely disrupted and broken up cherty shale bed with chloritic matrix between fragments
528.85 - 531.6m		Mainly CHERTY CHLORITIC SHALE, minor CHLORITE SHALE bedding visible in places; some contortions and dislocations; gradational boundary with footwall.
	528.85 - 529.2m	disrupted and sheared cherty shale bed; fragments aligned parallel to core axis;
	529.2 - 529.5m	chlorite shale, olive green
	529.5 - 529.65m	2cm bed of red feldspar (60%) quartz (40%) arkose bedding angle to core axis: 10°
	529.7 - 530.0	several 0.5 - 1cm wide chloritic veins with gritty material and 2-3mm long black spots (chlorite)
	531.1 - 531.6m	contorted and minifaulted contact of cherty shale with olivegreen chlorite shale with approx. 1mm red feldspar grains.

ROVER1 DDH2 WR05

GEOLOGICAL LOG. CONTINUED.

531.6 - 532.7m		Very FINEGRAINED GREYWACKE, with approx. 1mm red feldspar grains, a few small cherty fragments in places; bedding only clearly visible at footwall contact; 5cm bed with rich (50%) red feldspar grains bedding angle to core axis: 30°
532.7 - 537.0m		Mainly SHALE, minor SILTSTONE and HEMATITIC SHALE; well bedded in places, dislocations and thin (approx 1mm) quartz or calcite veinlets almost throughout.
	533.35m	joint with calcite and tiny pyrite crystals; joint angle to core axis: 60°, bedding angle to core axis angle: 40°
	533.4 - 533.5m	zone of calcite quartz chlorite veining, angle to core axis: 25°, is cut off by 2.5cm calcite quartz chlorite vein, angle to core axis: 55°
	533.5 - 534.5m	hematitic shale with approx. 1mm calcite veinlets disturbed footwall contact.
	535.0 - 536.3m	siltstone, bedding not visible, undisturbed footwall contact, bedding angle to core axis angle: 15°
	536.8m	bedding angle to core axis: 30°.
537.0 - 545.2m		SHALE, well bedded and almost throughout undisturbed some beds are silicified.
	537.7m	very small pyrite smears on joint; joint angle = bedding angle to core axis: 30°
	541.0m	bedding angle to core axis: 25°
	543.05 - 543.25	disturbed zone: 3cm on top are brecciated with white dolomite as matrix: very shapp undisturbed hangingwall contact. bedding angle to core axis:20°
	544.5m	bedding angle so joint angle to core axis: 30°
545.2 - 551.5m		Mainly SHALE, silicified, minor SILTSTONE; bedded in places; a few dislocations and 1-2mm quartz veinlets;
	546.0m	bedding angle = joint angle to core axis angle: 25°
	547.3 - 548.4m	quartzitic siltstone; bedding not visible.
	548.5 - 548.6m	silicified shale with 1-2mm black spots (chlorite?) aligned parallel to shearing: shearing angle to core axis: 15°, bedding angle to core axis: 35°.
	548.65m	joint angle to core axis: 10°
	549.3 - 550.0m	quartzitic siltstone; 551.1m footwall contact;

ROVER1 DDH2 W805

GEOLOGICAL LOG. CONTINUED.

	550.2m	bedding angle to core axis: 30°
	551.4 - 551.5m	sheared section of shale with many chlorite veinlets parallel to shearing; angle of shearing = angle beddin at footwall contact to core axis: 30°
551.5 - 553.65m		RED JASPER with many 3-10mm quartz veins;
	551.5 - 552.2m	intense red jasper, with very minor pyrite coatings on some cracks;
	552.2 - 552.3m	massive quartz chlorite vein, subnormal to core axis.
	552.3 - 553.65m	jasper with patchy fine disseminated black chlorite and black chlorite coatings on joints;
	553.0 - 553.02m	1cm dia. quartz jasper fragments.
553.65 - 553.95m		FINEGRAINED GREYWACKE, with 30 - 40% 1mm dia. red feldspar grains; this bed is only 4cm wide; at hangingwall contact is a 1cm wide chlorite bed. and jasper is sheared to thin lenses; bedding angle to core axis: 15°.
553.95 - 554.0m		CHERTY SHALE brownish, with 1mm dia. pyrite coatings on joint
554.0 - 554.2m		RED JASPER with 0.5cm quartz chlorite veins.
554.2 - 557.4m		JASPERLIKE FINEGRAINED QUARTZITE, pink, bedding indicated in places; set of 1-5mm quartz veins, angle to core axis: 50-65°, gradational boundary with footwall:
	554.8 - 555.05m	shale and siltstone; footwall and hangingwall contact; bedding angle to core axis: 25-30°.
557.4 - 558.4m		VERY FINEGRAINED CHLORITIC GREYWACKE, grainsize approx. 1mm.; bedding indicated;
	558.2 - 558.4m	joint angle = bedding angle to core axis: 5-10°; faulted footwall contact: fault angle to core axis: 35°.
558.4 - 560.7m		SHALE with a few 0.5 - 3cm siltstone beds; well bedded, only a few minifaults.
	558.4 - 559.0m	slightly hematitic shale
	559.0 - 560.68m	cherty chloritic shale
	560.68 - 560.7m	2cm breccia; brown cherty shale with calcite and chlorite matrix (as veins); faulted hangingwall contact: fault angle to core axis: 35°.

ROVER1 DDH2 «RO5

GEOLOGICAL LOG. CONTINUED.

560.7 - 562.0m		HEMATITIC SHALE, well bedded, with 0.3 - 0.5cm limestone beds; some flexures and minifaults; approx. 1mm calcite veinlets throughout; bedding angle to core axis: 15°
562.0 - 565.2m		HEMATITIC SHALE as above: limestone beds show often boudinage and occur as lenses; gradational boundary with footwall.
	562.3m	1cm calcite chlorite vein parallel to bedding; bedding angle to core axis: 20°
	564.0m	2mm calcite chlorite vein as joint: joint angle to core axis: 30°; bedding angle to core axis: 15°
565.2 - 567.8m		SHALE with a few siltstone beds; gradational boundary with footwall.
	566.65 - 566.75	many cherty shale fragments aligned parallel to bedding.
	567.45m	siltstone bed with graded bedding; bedding angle to core axis: 20°
567.8 - 570.4m		HEMATITIC SHALE as 560.7 - 565.2m
	568.2m	0.5cm limestone beds with graded bedding to bed not overturned; bedding angle to core axis: 20°
	569.0 - 569.5m	shale, very well bedded.
	569.5 - 569.6m	5cm wide zone of 2-5mm chlorite calcite veins parallel to bedding: bedding angle to core axis: 20°
570.4 - 572.9m		HEMATITIC SHALE as 560.7 - 565.2m; limestone beds up to 1.5cm wide (average 0.3 - 0.5cm); gradational boundary with footwall;
	572.5m	bedding angle to core axis: 25°
572.9 - 578.2m		SLIGHTLY CHLORITIC SILTSTONE and SHALE, mostly bedded; most sections are silicified to cherty; some approx. 1mm calcite veinlets throughout.
	574.5, 577.1	bedding angle to core axis: 35°
	574.8m	1cm wide calcite lens parallel to bedding.
	578.1m	bedding angle to core axis: 40°
578.2 - 578.6m		CHERT, brown and greenish, rather fractured, with many irregular 1-2mm quartz veinlets.

MOVER1 DDH2 WR05

GEOLOGICAL LOG. CONTINUED.

578.6 - 586.35m CHERTY QUARTZITE AND CHERT mainly pinkish brown a few sections of silicified shale; bedding visible in places; many fractures and minifaults and 1-2mm quartz veinlets throughout; core rather broken up in places;

578.9 - 579.0m quartz dolomite chlorite vein minifaulted, with joint angle to core axis: 35°.

579.0 - 580.2m core broken up into 2cm fragments, joints subparallel to core axis

580.0m 1mm dolomite vein with joint angle to core axis: 35°

580.3m bedding angle to core axis: 30°

581.0 - 581.8m joint angle to core axis: 0-5° (chloritic joints)

581.9 - 582.3m well bedded, bedding angle to core axis: 30°, 5cm bed mottled quartzite at 582.2m

582.6 - 583.0m flexure-like minifault subparallel to core axis: set of 1mm quartz veins, angle to core axis: 25-35°

583.8 - 584.1m quartzitic siltstone and silicified chlorite, many minifaults, faulted footwall and hangingwall contact.

584.0 - 584.9m joint angle to core axis: 0°

585.2 - 586.35m unsharp 1-3mm black (chloritic?) beds in pink cherty quartzite; bedding angle to core axis: 15° many approx. 1mm irregular calcite veinlets.

586.35 - 594.3m CHERT AND CHERTY QUARTZITE as above, minor silicified quartzitic siltstone and chloritic shale; bedding visible in places, many fractures, minifaults, and 1-2mm quartz veinlets almost throughout;

586.4m 1cm chloritic shale bed; bedding angle to core axis: 30°

586.6 - 586.9m bedding angle = joint angle to core axis: 35°

587.0 - 587.9m core broken up into 2-5cm fragments, irregular quartz veining and chloritic joints, partly with thin pyrite coatings

588.2 - 589.2m chertlike jasper, dirty pink with many 1-10mm quartz veins and pockets; many minifaults; faulted (indentated) footwall and hangingwall contact.

ROVER1 DDH2 WR05

GEOLOGICAL LOG. CONTINUED.

589.2 - 589.6m silicified chloritic shale and quartzite siltstone; faulted hangingwall anf footwall contact; angle to core axis: 10-15°

590.3 - 590.6m 2cm wide zone of many 1-3mm quartz veins, with many minifaults; vein angle to core axis: 10°

590.7 - 591.4m silicified quartz siltstone and shale, distinct bedding. bedding angle = joint angle to core axis: 25°

592.0 - 592.2m 4cm wide zone of 1cm dolomite chlorite (2-10mm dia. fragments) and 3cm of 1-2mm calcite wining;

592.2 - 592.5m cherty quartzite with many spots of calcite (possibly pore fillings)

592.8 - 593.2m silicified quartz siltstone and shale; bedded; bedding angle = joint angle to core axis: 25°

594.3 - 595.2m SILICIFIED CHLORITIC SHALE bedding indicated, gradational boundary with footwall.

595.2 - 595.8m SILICIFIED QUARTZITIC SILTSTONE ; joint angle to core axis; gradational boundary footwall

595.8 - 596.6m CHERT AND CHERTY QUARTZITE; faulted and brecciated footwall boundary; minifault angle to core axis: 50°

596.6 - 598.1m SILICIFIED CHLORITIC SHALE; gradational boundary with footwall.

598.1 - 602.5m CHERTY QUARTZITE and CHERT; mainly dirty-pink; bedded in places; 1-2mm calcite and quartz veinlets throughout

599.0m bedding angle = joint angle to core axis: 30°

600.4 - 600.6m fine bedded cherty quartzite with many 1-2mm dia. fragments aligned parallel to bedding: gradational boundary with footwall.

600.6 - 601.1m cherty breccia; 0.5 - 2cm long chert fragments aligned and elongated parallel to bedding; red cherty quartz matrix; 600.85m; 1cm breccia with angular - subangular 3-10mm fragments; bedding angle = joint angle to core axis: 30°; silicified chlorite footwall contact;

601.1 - 601.4m pink and grey cherty quartzite, faulted and brecciated contacts with each other.

601.4 - 601.6m mottled cherty quartzite; 2-5mm dia. red spots in black matrix

601.6 - 601.75m salmon red cherty quartzite, faulted and brecciated, footwall contact

ROVER1 DDH2 WR05

GEOLOGICAL LOG. CONTINUED.

601.75 - 602.15m pinkish-pale cherty quartzite, with many breccia zones and pockets (tectonic breccia!); faulted and brecciated footwall contact

602.15 - 602.4m mottled cherty quartzite, aggregations of red 2mm dia spots in black matrix; aggregations slightly elongated parallel to bedding and shearing at footwall; undisturbed gradational boundary with footwall; angle to core axis: 15°

602.4 - 602.5m cherty quartzite; bedding indicated; slightly mottled.

602.5 - 610.2m CHERTY QUARTZITE TO CHERT; mainly dirty pinkish; bedding only in a few placed visible; 1-2mm calcite to quartz veinlets throughout.

602.5 - 603.9m chert, pink, mottled zones at; 602.7 - 603.0, 603.7 - 603.9; gradational boundary with footwall;

602.5 - 602.7m 1mm chlorite joint; joint angle to core axis; 0-5°

602.9m joint with chlorite calcite manganese coating; joint angle to core axis: 10°

603.0 - 603.9m set of approx. 1mm calcite veinlets, angle to core axis: 30°.

603.6m bedding angle to core axis: 12°

603.9 - 610.2m cherty quartzite, minor silty quartzite.

604.45 - 604.55 set of 1-2mm quartz calcite veinlets, angle to core axis: 35°

604.8 - 605.1m 2-3mm slightly contorted calcite vein, angle to core axis: 5-10°

605.0m faulted contact between 2 types of quartzite; contact angle to core axis: 20°; footwall; bedded quartzite:

605.1m bedding angle to core axis; 25°

605.3 - 605.5m mottled quartzite

606.3m bedding angle = joint angle to core axis: 40°

606.8 - 607.12m mottled quartzite

607.4 - 608.3m a few lenticular fragments of cherty shale and illdefined chlorite lenses and blebs aligned parallel to bedding.

608.7 - 610.05m purple quartzite with calcite pore filling and 1-2mm calcite veinlets, 609.2 - 609.4 faulted contact with big lump of pink quartzite

610.05 - 610.2m pink quartzite with 0.5 - 2cm long subrounded

ROVER1 DDH2 #R05

GEOLOGICAL LOG. CONTINUED.

		cherty quartzite fragments with chloritic reaction rims; aligned parallel to shearing.
610.2 - 610.45m		SILICIFIED SHALE, purple, with 2-50mm dia. lenticular cherty shale fragments aligned parallel to shearing; sheared hangingwall contact: angle to core axis: 20°, gradational boundary with footwall.
610.45 - 610.65m		QUARTZITE
610.65 - 614.5m		QUARTZITE AND QUARTZITIC SILTSTONE; bedding indicated in places; gradational boundary with footwall;
	610.65 - 612.2m	mainly cherty quartzite, pink with 2-50mm long lenticular shale fragments aligned parallel to shearing; very gradational boundary with footwall.
	612.2 - 614.5m	mainly quartzitic siltstone, greenish grey brown, with broken up cherty shale beds and fragments in places.
	613.8m	1cm wide brecciated zone with calcite matrix, angle to core axis: 15°
	614.0m	shearing angle to core axis: 10°
614.5 - 619.0m		HEMATITE SHALE with typically disrupted bedding: 0.2 - 1cm thick light purple limestone beds (extremely reactive) and light redbrown shale beds are usually broken up to 3-5cm long fragments, aligned parallel to shearing and often lensed out; many minifaults;
	614.7m	bedding angle to core axis: 10°
	615.1m	faulted contact; angle to core axis: 20°
	615.5 - 616.0m	2cm wide contorted bed of gritty shale, red brown, angle to core axis: 0-10°
	617.5m	alignment of fragments parallel to shearing angle to core axis: 25°
	618.6m	shearing angle = bedding angle to core axis: 20°
619.0 - 627.3m		HEMATITE SHALE ± as 614.5 - 619.0 , but disrupted beds decrease and contorted beds increase towards footwall.
	620.5m	bedding angle = shearing angle to core axis: 15°
	621.2 - 621.5m	contorted and brecciated zone of cherty shale with quartz chlorite calcite matrix.
	623.2 - 623.3m	5cm wide zone of pink gritty shale with faulted and brecciated contacts.

ROVER1 DD82 WR05

GEOLOGICAL LOG. CONTINUED.

	623.9 - 625.5m	bedding angle = shearing angle to core axis: 0-5° (contorted)
	626.4m	bedding angle to core axis: 15°
627.3 - 629.3m		HEMATITE SHALE slightly contorted bedding and only a few lenticular fragments; gradational boundary with footwall.
	627.5m	bedding angle = shearing angle to core axis: 18°
	628.6m	bedding angle to core axis: 10°
629.3 - 630.3m		SLIGHTLY CHLORITIC SHALE bedded.
	62 .3m	bedding angle to core axis: 70°
630.3 - 631.0m		QUARTZITIC SILTSTONE TO QUARTZITE, pink, bedding indicated, chloritic shearing planes.
	631.0m	bedding angle equals shearing angle to core axis: 15°
		END OF HOLE.

ROVER1 DDH2 WR05

GEOLOGICAL LOG. CONTINUED.

TECHNICAL DATA

Drilled from 3.4.74 to 16.5.74

Start at 275.0m Actual Depth. 631.0m

Wedges: BX Hall Rowe wedge placed at 275.0m
BX Clappison Wedge placed at 294.0m
BX Clappison wedge placed at 357.0m

Drilling Fluids: Mytilus B Grease, Dromus B Oil

GEOLOGICAL SUMMARY

DDH2 WR05 was planned to intersect the lode 20m East of the lode-intersection in DDH2 WR02 at a RL of -525m. Due to unexpected strong deviation to the East the hole went far off the target zone and had to be abandoned.

WR05 commenced at 275.0m and cored a sequence of Warrawunga Group sediments, mainly phyllitic shale, hematite shale, shale and siltstone, minor quartzite, jasper and chert. A fairly strong silicification mainly of the shale sections can be realised in the bottom half of the hole. Unfortunately no marker beds have been found and correlation with other wedgeruns appears not possible. Neither the lode nor any major faults have been intersected. No economic or significant mineralisation was found. Assays were therefore carried out.

ROVER 1, DDH2 [illegible]RO 4.

GEOLOGICAL LOG. By W. Mayer.

331.0 - 335.8 HEMATITE SHALE

A few sections of Chloritic Shale; bedding slightly contorted in places; a few 1-2mm quartz-veinlets in places; gradational boundary with Footwall.

331.0, 332.0 bedding angle to Core Axis: 0-3°

333.2, 334.0 bedding angle to Core Axis: 5°

334.2 joint angle to Core Axis: 10°

335.0 - 335.4 bedding angle to Core Axis 25-30° (contorted)

335.8 - 339.1 SILICIFIED SHALE

Mostly slightly chloritic; bedding usually slightly contorted

336.1 joint = mini-fault: angle to core axis: 30°.

336.2 bedding angle to Core Axis: 10°

337.3, 339.0 joint angle = bedding angle to Core Axis: 10°.

339.1 - 340.8 HEMATITE SHALE

Well bedded, gradational boundary Hangingwall, bedding angle = joint angle to Core Axis: 5-10°.

340.8 - 340.9 QUARTZ - DOLOMITE - VEIN

With some veinlets of d-green chlorite, Hangingwall contact angle to Core Axis: 35°.

340.9 - 342.0 CHLORITE

Olive green, bedding indicated in places, but generally very disturbed and broken up core; many veins and pockets of dark green chlorite and quartz.

341.7 - 341.85 sandy siltstone, conformable bedding - contact with Hangimwall: angle to Core Axis: 15°; 341,75, 341.85: Joint ~~bedded~~ angle to Core Axis: 60°, 50°.

ROVER 1, DDH2, WRO 4.

GEOLOGICAL LOG. By. W. Mayer.

342.0 - 342.7	QUARTZ - CHLORITE - VEIN Dark green chlorite prevails olive green layered chlorite, which appears in bottom-half; red aggregates - veinlets of feldspar? occur preferably on margins of olive green chlorite.
342.7 - 343.3	CHLORITE SHALE Bedded, with graded bedding at 342.7; bedding angle to Core Axis: 20^{o}, core very broken up at 343.1 - 343.3 343.0 joint angle to Core Axis: 0^{o}
343.3 - 343.8	QUARTZ - VEIN With minor dark green chlorite (vermiculated veinlets) and dolomite; only 2/3 core (wedge)

approximately 1m of pencil - core: PELITIC SHALE

E.O.H. ~~343.8~~

Remarks: DDH2 WRO4 (329.0 - 349.0) had to be abandoned at 349.0m (stuck gear). Neither surveys nor assays were carried out.

APPENDIX 4

Core Log of Rover 1

DDH3 Parent, WRO1 & WRO2

MB

GEOPEKO LIMITED

TENNANT CREEK
Northern Territory

PROSPECT/~~MINE~~ : Power 1

Log of Hole : 3 Parent (NRO 1, NRO 2)

Location : EL 228 South West of Tennant Creek

Purpose of Hole : To test residual anomaly (IP80 body)

Proposed By : R.Richardson Date 28.11.73

Proposed Target : 830 E : 930 N : -360m R.L.

Hole Planned By : R.Maher Date : 2.1.74 Checked : W.Mayer

Hole Approved By : B.T.Williams

Hole Logged By : W.Mayer

Collar Co-Ordinates :

Proposed : 810 E : 834 N : R.L.

Surveyed : 810 E : 824 N : R.L. Surveyed in By : B.T.Williams Date : 22.12.73

Actual : 810.4 E : 833.6N : 1000. R.L. Picked up By : B.Harding Date :
91

Collar Bearing :

Proposed : 10° Grid : 5.5° Magnetic :

Surveyed : 10° Grid : 5.5° Magnetic : Surveyed in By :

Actual : 10° Grid : 5.5° Magnetic : Picked up By .

Collar Inclination :

Proposed : -75°

Surveyed : -75° Surveyed in By :

Actual : -78° Picked up By :

Target Depth : 378 m.

Proposed Final Depth : 450 m.

Actual Final Depth : 256.0 m. Hole Terminated By : B.T.Williams

Reason for Termination : Violent deviation to the W - hole would not have intersected target

Drilling :- Date Commenced : 9.1.74 Date Completed : 12.3.74

Drilled By : Geopeko Drilling Division

Wedges Placed At : RC - Clappison Wedge at 178.0m

Remarks : NRO1 and NRO2 were drilled from DDH3P

Economic Summary Result : DDH3P : No lode intersection
NRO1 : No lode intersection
NRO2 : 340-341m : 2.18% Cu) MAINLY QUARTZ-CHLORITE
overall 332-346m : 0.34% Cu)
367-368m : 1.74% Cu)
375-376m : 1.06% Cu) QUARTZ-HEMATITE-MAGNETITE-LODE
overall 365-378m : 0.35% C)
The Au-values are negligible.

S.McD. 11937/1073

ROVER 1 Hole No. 3

DRILLING PARTICULARS.

Drill Method	Machine	Size	Parent From	Parent To	WRO1 From	WRO1 To	WRO2 From	WRO2 To
Roller	LY44	4½"	0	55				
Diamond Core	LY44	NQ	55	169			148.0	235.0
Diamond Core	LY44	BQ	169	256.0	174.0	193.0	235.0	460.3

Drilling Time: 9.3 - 13.3.74; 26.3-28.3.74; 10.4-4.7.74

Casing placed	Size	Depth	Recovered
NW + Black Pipe	4"	0-55m	0-55m
BX-Casing	BX	0-169m	0-169m

Drilling Fluids Used: Dromus B Oil, Super Gel Mud

Water Loss at:

Remarks: WRO 3 was plugged by cement from 345-360.3m

Wedges Placed:

Position	Branch	Type	Purpose	Result.
178.0	WRO1	BX Clappison	to cut WRO1	Successful
152.0	WRO2	NX Hall Rowe	to cut WRO2	"
178.0	WRO3	NX Clappison	diversion towards target	"
196.0	WRO2	NX "	"	"
226.0	WRO2	NX "	"	"
243.0	WRO2	BX "	"	"
256.0	WRO2	BX "	"	"
265.0	WRO2	BX "	"	"
277.0	WRO2	BX "	"	"
295.0	WRO2	BX "	"	"
313.0	WRO2	BX "	"	"

ROVER 1 HOLE NO. 3

SURVEYS

Date	Depth Metres	Type	Dip Read	Dip Corr.	Bearing Mag.	Bearing Grid.	Remarks.
17.1.74	53	Photo	81½	81½	-	-	Surveyed inside casing collared @ -78°
17.1.74	67	"	81½	81½	-	-	Surveyed inside casing
17.1.74	82	"	81½	81½	015	019½	
11.2.74	110	"	82	82	-	-	Survey inside casing
11.2.74	134	"	82	82	015	019½	
12.3.74	180	"	82½	82½	-	-	
12.3.74	195	"	84	84	340	344½	
12.3.74	210	"	81	81	323	327½	
12.3.74	225	"	79	79	306	310½	
12.3.74	240	"	73	73	305	309½	
12.3.74	255	"	65	65	305	309½	

ROVER 1 DDH3 Parent

GEOLOGICAL LOG

By W.Mayer.

SUMMARY

DDH3P cored sediments of the Mid-Cambrian Merrima-Beds from 55.65 to 138.1m, where the angular unconformity between the Merrima-Beds and the Warramunga-Group was intersected.
The intersected M-Cambrian sequence can be sub-divided into 3 lithological units:

55.65-88.5	Siltstones and mudstones (partly dolomitic)
88.5-105.1	Dolomite (including algal dolomite)
105.1-138.1	Coarse sandstones and conglomerates (partly dolomite)

The Warramunga Group sediments intersected were phyllitic shale (138.1-184.8, 210.5-256.0) and chloritic and cherty chloritic shale (184.8-210.5).
The hole had to be abandoned at 256.0m due to violent deviation to the West. No lode or major faults were intersected.

ROVER 1 DDH3 PARENT.

GEOLOGICAL LOG: By W.Mayer.

SILTSTONE.

55.65-63.9 Siltstone, light-ochre, oxidised; in places interbedded with sandy siltstone - fine silty sandstone.

55.65-58.0 0.35m recovery; fine silty sandstone, light-ochre, oxidised; bedding indicated.

58.0-61.0 2.5m recovery

58.0-59.35 Siltstone - mudstone, light-ochre, bedding indicated; liesegang-type pattern in places; angle bedding to core axis = 80°; some bedding planes with 1-3mm white layer.

59.35-60.0 0.2m recovery; broken core; as above, but some beds are leached; joint angle to core axis = 5°, joint with Fe-stains.

60.0-63.9 2.9m recovery; silty sandstone interbedded with siltstone; light-ochre, a few hard sandstone beds are white, some bedding-planes and all joints have 2-3mm bleached white zones; angle bedding to core axis = 80 - 85°. Joint angle to core axis: 3x10 cm - joint = 15°.

62.0-63.9 Some very decomposed clayrich sections.

63.9 - 67.0 FINE GRAINED SILTY SANDSTONE

A few siltstone-sections, light ochre/oxidised, some massive sandstone beds are pinkish-grey, hard, ± fresh; liesegang-structur in places; load-casts in places; bedding angle to core axis - 75-80°.

65.0 - 65.4, 66.2 - 66.3 = ± fresh pinkish-grey fine grained hard sandstone.

65.7 - 65.8 = joint angle to core axis = 15°, small Fe or Mn - dendrites on joint.

67.0 - 70.0 (4.7) SILTSTONE INTERBEDDED WITH FINEGRAINED SANDSTONE.

(=2.75m Rec), 70.0 - 74.7 (= 4.25 Rec) Well bedded sequence of siltstone: olive-brown; sandstone; pinkish-grey; siltstone appears still slightly oxidised, sandstone ± fresh; a few 1-10cm (av. 2-3 cm) clayrich siltstone-sections are very decomposed; bedding angle to core axis = 70° - 75°

joint angle to core axis: = 67.2 - 67.25 : 20°
74.0 - 74.1 : 25°
74.1 - 74.4 : 0-5°
74.4 - 74.6 : 25°

74.7 - 77.8 SILTSTONE.

basically as 67.0 - 74.7, but mainly siltstone, olive brown, only

ROWER 1 DDH3 PARENT

GEOLOGICAL LOG

minor silty fine grained sandstone, olivebrown; bedding indicated; liesegang-structures in places;
bedding angle to core axis : 75° - 80°.
joint angle to core axis : 75.1 - 75.2 : 30°
75.6 - 75.8 : ≈10°, 75.8-76.0 : 25°

77.8 - 81.0 SILTY CLAY

(≈1.2m recovery) Whitish and yellowish clay = extremely decomposed mudstone - siltstone/core badly disintegrated, only as relict in places.

81.0 - 82.1 DOLOMITE

Massive, light grey, fresh, gradational boundary with Footwall;
+ BOUNDARY OF OXIDATION
81.0 - 81.1 : silty sandy dolomite, broken core
81.65 - 82.0 : many small + medium vughs (from leaching)

82.1 - 83.5 DOLOMITIC SILTSTONE

Bedding indicated in places;
82.1 - 82.2 : ochre bleaching along joint; joint angle to core axis : 82.1 - 82.4 : 10 - 15°
82.2 - 83.0 : bluish grey, fresh.
83.0 - 83.5 : light chocolate brown ; 83.1 : joint angle to core axis : 30°, fresh joint without bleaching or stains.

83.5 - 85.4 VERY DOLOMITIC SILTSTONE

83.5 - 84.8: light chocolate brown, gradual colour change to Footwall; ill defined bedding : lenticular beds and uneven bedding planes between clayrich and siltrich beds; ochre stains on some joints
84.6: 1cm finebedded dolomite, hard, silicified.
84.76 - 84.80: " " " "
83.7: joint angle to core axis : 30°
83.7 - 83.9: joint angle to core axis : 10°
84.4: joint angle to core axis : 45°
84.80-84.88: massive dolomite, joint angle to core axis : 20°
84.88-85.5: mit light bluish grey;
84.88-85.02 : very distrubed and broken beds; veins (clay) and fragments (dolomite) rather than beds.

85.5-85.55 DOLOMITIC CLAY-SILT LAYER

broken up.

ROVER 1 DDH3 PARENT

GEOLOGICAL LOG

85.55 - 86.9 DOLOMITE

mostly with many small + medium vughs

86.4 - 86.8 core very broken.

86.8 - 86.9 bedded dolomite; bedding angle to core axis : 75°

86.1 - 86.2 : uneven joint angle to core axis : approx 10°

86.9 - 88.15 DOLOMITIC AND VERY DOLOMITIC SILTSTONE.

minor dolomite and dolomitic siltstone - clay, joint with ochre-stains.

87.3 - 87.4, 87.9 - 88.0, 88.3 - 88.4, 88.45 - 88.5 : dolomitic silt - clay,

88.0 - 88.3 : light ochre dolomite, with several 0,2-1cm cherty lenticular beds ; joint angle to core axis : 70°

88.5 - 91.0 DOLOMITE

(=1m recovery) core extremely broken in places; joint with ochre stains, joint to core axis : 0-5°; probably fault

91.0 - 93.0 DOLOMITE, bedded,

(=0.6m recovery) core very broken, except 92.7 - 93.0 (good core); laminated light brown sections interbedded with 1-3 cm white dolomite-beds; undulating bedding planes; bedding angle to core axis : 80°

93.0 - 99.0 DOLOMITE

different types of dolomite, but all dolomite.

93.0-94.0 massive dolomite, dark grey with white 2-3cm thick dolomite nodules; some coquinous sections towards Footwall; gradational boundary with Footwall; 93.1-93.3: uneven joint angle to core axis : 15°

94.0-94.5 dolomite - coquina, dark grey with some white dolomite beds, very rich calcite-filled fossil-cones - cylinders in coquin gradational boundary with Footwall.

94.5-95.4 massive dolomite, re crystallised, crystals diameterd : approx 1 mm; medium - big vughs parallel bedding, with 1 mm dolomite crystals, gradational boundary with Footwall.

95.4-96.4 inhomogenous dolomite: uneven beds and lenses of grey dolomite, coquina and veinlike beds of dark clayrich ? dolomite; early stage stylolites; a few big dolomite crystals filled vughs; 95.9: vugh with a tarnished chalcopyrite crystal, 4mm diameter; gradational boundry with Footwall.

ROVER 1 DDH3 PARENT

GEOLOGICAL LOG

96.4-97.2 massive dolomite recrystallised, 7mm diameter crystals, minor fossil fragments throughout; some 1-3mm ~~overlide~~ veinlike dark beds, early stage stylolites; a few big vughs; gradational boundary Footwall.

97.2-99.0 bedded "dolomite; light grey coarser nodular dolomite - beds (with undulating bedding planes)" interbedded with dark grey fine dolomite beds (sometimes veinlike); typical nodular dolomite; bedding angle to core axis: approx 80°; 98.0 : big vugh with white 2mm quartz crystals and ? pyrite crystals, altered to limonite ?

98.5 : joint angle to core axis : 35°

99.0 - 105.1 DOLOMITE

different types but all dolomite.

99.0 - 100.9 = 97.2 i-99.0; gradational boundary Footwall

100.9 - 103.0 basically as 99.0 - 100.9 but not such distinct nodules and less diffemence in dolomite - grainsize; early stage sty. stylolites in places; 101.5: big vugh, filled with 2mm diameter dolomite crystals + 1 chalcopyrite crystal

103.0 - 105.1 massive dolomite, recrystallised, 1 mm diameter crystals; many small - medium vughs throughout; very strong leading in places; medium stage stylolites; 103.4, 104.4: joint angle to core axis: approx 30°

105.1 - 105.65 VERY DOLOMITIC SILTSTONE

bluish-grey, very ill defined bedding; 2-3mm layer of pyrite (tiny grains) approx parallel bedding at 105.6; 105.45 : joint angle to core axis : 40°

105.65 - 106.6 VERY DOLOMITIC SILTSTONE

as 105.1 - 105.65; small pyrite grains in small pockets - lenses at 105.65 - 106.0

106.6 - 107.2 DOLOMITE

bedded ; bedding angle to core axis: 85°

107.2 - 109.1 DOLOMITE AND VERY DOLOMITIC SILTSTONE

mainly pinkish brown, bedded in places, small - big vughs in places; gradational boundary with Footwall; bedding angle to core axis: 80-85°

ROVER 1 DDH3 PARENT

GEOLOGICAL LOG

109.1 - 109.5 VERY DOLOMITIC FINEGRAINED SANDSTONE.
(sandy dolomite) mainly unbedded; 109.10 - 109.13 lenticular beds; 3-5mm diameter quartz and red feldspar detritus, very fresh.

109.5 - 110.25 DOLOMITIC MEDIUM TO COARSE GRAINED SANDSTONE
pink.
109.5-109.9 very coarse (quartz + pink feldspar) grit to fine breccia with a few rock fragments (max. 2 cm diameter).

110.25 - 115.15 FINE GRAINED DOLOMITIC SANDSTONE - VERY COARSE QUARTZ FELDSPAR-GRIT
110.25-110.35 very coarse quartz pink feldspar grit
110.35-110.55 very dolomitic fine grained sandstone, bedding indicated.
110.55-111.0 medium grained sandstone with a few coarse - very coarse grit.sections, grit very porous.
111.0 - 112.6 coarse - very coarse quartz-pink feldspar grit (quartz subrounded, max. 3cm diameter).
112.6-114.7 several sections of grit, medium grained sandstone and fine grained very dolomitic sandstone; bedding indicated.
114.7-115.15 fine - medium grained dolomitic sandstone, bedding indicated, bedding angle to core axis : 80°

115.15 1-116.2 114.7 - 115.15, gradational boundary with Footwall
115.? -116.2 some 1-2mm red + green clay interbeddings, big vughs at 116.1.

116.2 - 116.9 DOLOMITIC FINE - MEDIUM GRAINED SANDSTONE.
well bedded section of dolomitic fine-medium grained sandstone, light red brown, decreasing towards Footwall and DOLOMITIC SILTSTONE; increasing towards Footwall, some medium vughs in places; bedding angle to core axis : 80-85°, gradational boundar with Footwall.

116.9 - 117.7 VERY DOLOMITIC SILTSTONE
well bedded section of very dolomitic siltstone, light greenish-grey; gradational boundary with Footwall, some distinct 1-2mm dark clay ? beds and a few 1 cm dolomite beds; 117.55(1 cm bed : broken up dolomite-bed with dark clay veins (brecciated in situ Hangingwall dolomite bed has undulating bedding plane. Bedding angle to core axis : 80°

ROVER 1 DDH3 CURRENT.

GEOLOGICAL LOG

117.7-119.9 DOLOMITIC SANDY SILTSTONE
chocolate brown, mainly massive, very ill defined bedding from 119.2 - 120.1, gradational boundary with footwall.
joint angle to core axis : 118.4 - 118.6 : 15°, 40°

119.9 - 120.1 DOLOMITIC SILTY FINEGRAINED SANDSTONE.
chocolate brown with grey ill defined sand lenses

120.1 - 120.7 basically as 119.9-120.1, but with a few beds of very dolomitic sandstone, grey; gradational boundary with Footwall.

120.7 - 121.3 MEDIUM-COARSE GRAINED VERY DOLOMITIC SANDSTONE
(or calcitic ?, strong HCl reaction !) with small rock fragments in places.

121.3 - 121.8 SANDY SILTSTONE
small sand lenses and pockets in silt matrix, very ill defined bedding; mainly greenish - grey ; gradational boundary with Footwall
joint angle to core axis : 25°, 35°; 0,3-1cm chocolate brown zone along joint

121.8 - 122.8 QUARTZ CONGLOMERATE
subangular - subrounded quartz fragments (approx diameter 0,5cm, max diameter 2cm) and smaller slaty rock fragments in very coarse quartz matrix ; gradational boundary with Footwall;
very porous, many big calcite-filled vughs.

122.8-123.1 MEDIUM GRAINED DOLOMITIC SANDSTONE.

123.1 - 124.1 FINE GRAINED DOLOMITIC SILTY SANDSTONE
gradational boundary with Footwall
123.4 : 1cm silty clay bedding parallel

124.1-124.6 VERY COARSE SANDSTONE - GRIT
very porous; pores are probably calcite filled.

124.6 - 125.0 = 124.1 - 124.6 gradational boundary with Footwall.
125.0 - 125.6 MEDIUM - COARSE GRAINED DOLOMITIC SEDIMENT (SANDSTONE), bedding indicated, grain size decreasing towards Footwall.
125.6 - 127.0 FINE - MEDIUM GRAINED DOLOMITIC SANDSTONE
interbedded sequence of fine - medium grained dolomitic sandstone and CHOCOLATE BROWN MUD- SILTSTONE; uneven bedding planes, gradational boundary with Footwall, bedding angle to core axis :

ROVER 1 DDH3 PARENT.

GEOLOGICAL LOG

approx 80-85°; 126.3: joint angle to core axis : 20°

127.0 - 129.4 COARSE QUARTZ CONGLOMERATE

subangular - subrounded quartz, quartzite and other rock fragments in very coarse gritty matrix;
127.0 - 127.5 grain and fragment diameter increasing towards Footwall.

129.4 - 131.2 COARSE QUARTZ CONGLOMERATE

same as 127.0 - 129.4

131.2 - 131.8 VERY COARSE GRITTY QUARTZ SANDSTONE

with a few conglomerate beds

131.8 - 132.1 COARSE QUARTZ CONGLOMERATE

same as 127.0 - 129.4

132.1 - 134.05 VERY COARSE GRITTY QUARTZ SANDSTONE

as 131.2 - 131.8; 132.9: joint angle to core axis approx 30°, joint with ochre stains

134.05 - 135.9 MEDIUM - COARSE GRAINED SANDSTONE

with conglomerate beds at 135.10 - 135.15 and 135.5 - 135.8; bedding indicated in places 134.7 : joint angle to core axis: 30°

135.9 - 136.9 FINE-MEDIUM GRAINED DOLOMITIC SANDSTONE

in places interbedded with 0,3-2cm siltstone beds; 136.7 - 136.9 : joint angle to core axis : 30°

136.9 - 137.3 COARSE GRITTY SANDSTONE

with minor conglomerate beds, 2 cm light green mud - siltstone bed at Footwall boundary.

137.3 - 137.4 CONGLOMERATE BED

quartzite, greenstone and quartz in sandy yellow matrix;
fragments mainly subangular, 0,5 - 2 cm diameter

137.4 - 137.8 PHYLLITIC SHALE BRECCIA

0,3 - 2cm diameter phyllitic fragments (purple) in sandy matrix (yellow brown); sections with either fragments or matrix prevailing

UNCONFORMITY AT 137.8

ROVER 1 DDH3 PARENT

GEOLOGICAL LOG

137.8 - 137.95 PHYLLITIC SHALE BRECCIA

angular fragments approx 1-2 cm diameter, very little pelitic matrix

137.95 - 138.1 BRECCIA

1-3 cm pink silicified siltstone fragments in little hematitic pellitic matrix.

138.1 - 138.45 PHYLLITIC SHALE BRECCIA

brecciated +/- in situ, phyllitic clay matrix (vein-filling); fragments 1-5 cm diameter

138.45 - 140.2 PHYLLITIC SALE BRECCIA

138.1 - 138.45; core broken up in places

140.2 - 143.35 ± UNDISTURBED WARRAMUNGA ROCK

PHYLLITIC SHALE purple - grey; minor contortions, many fissure and small (1-2mm) quartz veins, irregular and contorted, many mini faults; shearing planes slightly talcy; bedding usually not visible ; some 0,3 - 0,5cm chloritic and silicified siltstone beds in the phyllitic shale

shearing angle to core axis: 141.7 : approx 10° 141.2: 20°

bedding angle to core axis : 141.7 : approx 10°

bedding = shearing angle to core axis: 142.6: approx 15°; some 0,5 cm siltstone beds, contorted

143.35 - 147.8 PHYLLITIC SHALE

140.2 - 143.35, but appears slightly silicified

143.35-143.6: shearing angle to core axis: 0-5°

143.8: bedding = shearing angle: approx 10°

145.1: contorted bedding = shearing angle: 0 - 45° - 0°.

145.5: bedding = shearing angle to core axis: 0-5°

146.7: bedding = shearing angle to core axis: 5-10°

147.4: bedding = shearing angle to core axis:0-5° joint angle to core axis: 50°

147.7: joint angle to core axis: 60°, bedding = shearing angle to core axis: 0-5°

147.8 - 152.0 PHYLLITIC SHALE

143.35 - 147.8, core broken in places

148.0: 1-3mm quartz-chlorite vein, angle to core axis: 50°

ROVER 1 DDH3 PARENT

GEOLOGICAL LOG

148.1 : 1cm quartz-chlorite vein, angle to core axis : 50°
148.4: shearing = bedding angle to core axis: approx 10°, 3-5mm chloritic quartzite bed with isoclinal folding
148.5 - 148.7 : bedding = shearing angle to core axis : 0.10°; set of joint = mini faults (cm dislocation) : angle to core axis : 35°; antithetic steps
149.0 : 1-5m chlorite quartz vein, angle to core axis: approx 50°, joint angle to core axis: 25°
149.3: bedding = shearing angle to core axis: 0-5°
150.8: " " " " " " " 0-5°
joint angle to core axis: 55°
151.5: bedding = shearing angle to core axis: 15°. rather disturbed and faulted in the small scale: 2 faults: angle to core axis : 30°, 45°.
151.9: bedding = shearing angle to core axis: 25°

152.0 - 156.35 PHYLLITIC SHALE

152.3: bedding = shearing angle to core axis : 10°
152.4 : 1mm quartz chlorite vein, angle to core axis : 50°, joint angle to core axis : 30°.
152.7 : bedding = shearing angle to core axis: 15°; joint angle to core axis: 20°
153.0: 5mm quartz chlorite vein parallel bedding = shearing angle to core axis: 0-10°
153.4 - 153.7: disturbed section, some 0,5 1cm contorted quartz veins with minor dark green chlorite and red feldspar.
153.3: calcite coatings on joint, joint angle to core axis: 15°
153.9: 1-5mm quartz feldspar chlorite vein, angle to core axis: 35°
154.2: joint angle to core axis: 20°
154.2 - 156.2: many thin irregular quartz veins
155.2: joint angle to core axis: 60°
155.4: joint angle to core axis: 45°
155.8: bedding angle shearing angle to core axis: 0 - 10°
156.0: joint angle to core axis: 50°
156.1: joint angle to core axis : 10°
156.3 : 2mm quartz vein, angle to core axis : 60°

ROVER 1 DDH3 PARENT

GEOLOGICAL LOG

156.35 - 161.0 PHYLLITIC SHALE
as 143.35-147.8

156.5 - 156.6: joint angle to core axis: 60°
156.7: bedding = shearing angle to core axis:10°
1-2mm quartz-chlorite-vein, angle to core axis: 10°
157.0: joint angle to core axis: 45°
157.3: bedding = shearing angle to core axis: 0-5°
abundant small scale tectonics, a few 0,5cm dislocations
157.6: joint angle to core axis: 25°, thin calcite coating on joint.
157.7 - 158.0: joint angle to core axis: 50°
158.5 - 159.3: 1-5mm chlorite feldspar quartz vein, contorted, angle to core axis : 0.5°
158.6: joint angle to core axis: 50°
159.8: 3mm red feldspar quartz vein, contorted angle to core axis : 20°
159.8: bedding angle to core axis: 10°
160.2: joint angle to core axis: 60°, thin calcite coating on joint.
160.0 - 161.0 : bedding angle to core axis: 0-5°, some contortions.
160.9: joint angle to core axis: 45°.

161.0 - 165.5 PHYLLITIC SHALE.
as 143.35 - 147.8
161.1: joint angle to core axis: 55°, calcite on joint.
161.0 - 162.0: bedding = shearing angle to core axis:0-5°
162.2 - 162.3: joint angle to core axis : 15°
162.6: 2mm quartz-chlorite-feldspar-vein, contorted; angle to core axis: 50°
162.9 : joint angle to core axis: 20°
162.0 - 163.0: bedding = shearing angle to core axis: 0-5° (locally more)
163.1 : joint angle to core axis: 55°
163.7 - 164.0: 1-5mm quartz-chlorite-feldspar-vein, contorted, angle to core axis: 8°
163.8: 1mm quartz-feldspar-veins - mini faults (1cm dislocation), angle to core axis: 60°,
163.8: 0,3cm pink quartzite-bed antithetically faulted and folded.

164.2-164.4: 0,5cm quartz-chlorite-vein, contorted, angle to core axis: 0-5°

ROVER 1 DDH3 PARENT

GEOLOGICAL LOG

164.5: joint angle to core axis: 40°

165.0 - 165.5: bedding = shearing angle to core axis: 0-10° (locally more) beds contorted

165.5 - 168.0 PHYLLITIC SHALE

as 143.35-147.8

165.6: joint angle to core axis: 8°

165.8: " " " " " 10°, 65°

166.0: bedding = shearing angle to core axis: 0-5°

165.9 - 166.2: 2-3mm quartz-chlorite-vein, angle to core axis: 15°

166.4 - 166.8: 1 cm quartz-chlorite-feldspar-vein, angle to core axis: 5°, parallel bedding.

167.0 - 168.0: bedding=shearing angle to core axis: 0-5°

167.9: joint angle to core axis: 55°

168.0: joint angle to core axis: 30°

168.0 - 172.7 PHYLLITIC SHALE

bedding visible in places, a few 3-5mm silty sandy beds in places minor - medium contortions and dislocations almost throughout; 1-2mm irregular quartz-veinlets almost throughout

170.5: bedding angle = joint angle to core axis: 0-5°

170.8: some 3mm diameter quartz-dolomite-spots along shearing; bedding angle = joint angle to core axis : 15°

172.7 - 173.9 DOLOMITE-CHLORITE-QUARTZ-VEINING - pink -

$\frac{1}{4} - \frac{1}{1}$ core, zone of 1-10 mm lenticular and disturbed, angle to core axis: 0°, remainder is phyllitic shale.

173.9 - 176.4 PHYLLITIC SHALE

as above.

175.2 - 175.4 : bedding angle to core axis: 10°, joint angle to core axis: 3°.

176.4 - 184.8 PHYLLITIC SHALE

as above.

180.5-181.0 : joint angle to core axis: 0-5°

181.3: bedding angle to core axis : 10°

183.7 - 184.8: slightly chloritic and silicified shale; many joints subnormal to core axis.

184.3 joint plane with specular hematite coating; joint

BOVER 1 DDH3 PARENT

GEOLOGICAL LOG

184.8 - 185.7 SLIGHTLY CHLORITIC SHALE
many small dislocations;
185.3 - 185.6: impure sandstone bed, bedding angle to core axis : 5°
185.6: joint angle to core axis: 0°

185.7 - 186.1 QUARTZ-CHLORITE-VEINS and POCKETS,
very contorted and disturbed.

186.1 - 187.3 SLIGHTLY CHLORITIC SHALE
as above, gradational boundary with Footwall; 187.3: bedding angle = joint angle to core axis: 10°

187.3 - 192.25 CHLORITIC SHALE
bedding visible in places; many contortions and small dislocations, many 1-2mm quartz-veinlets, core rather broken up parallel to core axis; 188.2 : bedding angle = joint angle to core axis: 10°
188.7 - 189.0 some very contorted 1-3mm quartz veins.
190.0 - 192.25 slightly silicified chloritic shale
192.1 - 192.25 rich 111 defined 3-5mm quartz veins

192.25 - 199.6 CHERTY CHLORITIC SHALE
minor chloritic shale, bedding visible in places; many small dislocations and 1-2mm quartz veinlets in places; core rather broken up parallel to core axis in places
193.8 joint angle = bedding angle to core axis: 5°
195.0 - 195.4 chloritic shale; joint angle = bedding angle to core axis : 0 - 5°
196.4 - 197.0 dirty purple shale; joint angle to core axis 0°, bedding angle to core axis : 5°
197.2 bedding angle to core axis 10°
198.0 bedding angle to core axis 10°

199.6 - 207.2 CHERTY CHLORITIC SHALE
(5-10cm pieces) and CHLORITIC SHALE (broken up to 5cm - pieces)
199.7 bedding angle = joint angle to core axis 15°

207.2 - 208.0 CHERTY SHALE.
partly jasper like, with many 1-10mm quartz veins; core

ROVER 1 DDH3 PARENT.

GEOLOGICAL LOG

rather broken up

208.0 - 210.5 CHLORITIC SHALE

bedding visible in places ; contortions and small dislocations, core very broken up from 209.7-210.5

208.5 bedding angle to core axis 5°, joint angle to core axis 0°

210.5-214.75 PHYLLITIC SHALE.

greyish purple,bedding not visible, many contortions and small dislocations, a few irregular 1mm quartzveinlets in places

210.6 joint angle to core axis : 0°

213.5 joint angle to core axis : 60°

214.1, 214.7 joint angle to core axis : 10 - 15°

213.75 - 222.6 PHYLLITIC SHALE.

greyish purple, bedded in places, some 3-5 mm silty sandy beds occur throughout; extremely contorted in places irregular 1-2mm quartz veinlets throughout

214.75 - 214.9 fractured brecciated zone, possibly minor fault.

216.5 1mm contorted sandy bed, bedding angle to core axis 25°

216.6 joint angle to core axis 10°, 60°

217.9 bedding angle to core axis 45°

218.3 bedding angle to core axis 70°

218.4 2 cm quartz-chlorite-vein, angle to core axis 25°

218.9 bedding angle to core axis 75°(contorted sandy bed)

220.2 bedding angle to core axis 40°

220.5 bedding angle to core axis 35°

220.7 bedding angle to core axis 20°

222.2 bedding angle to core axis 25°

222.6 - 230.75 PHYLLITIC SHALE

grey, bedding visible in places, a few 3-5mm siltstone beds, contortions and dislocations almost throughout

223.0 bedding angle = joint angle to core axis 25°

224.0 - 224.2 ½ core phyllitic shale , ½ core brecciated quartz-vein in phyllitic matrix, angular 1-10mm diameter fragments; fault plane, angle to core axis 0-5°

ROVER 1 DDH3 P ARENT.

GEOLOGICAL LOG

224.6 - 225.4 core with many veinlike fractures, broken up sub parallel to core axis, chlorite on joints.
225.8 bedding angle = joint angle to core axis 20°
229.0 - 229.05 contorted and brecciated section with irregular 3mm quartz veins and pockets
230.4 bedding angle ± = joint angle to core axis = 15°

230.75 - 238.0 PHYLLITIC SHALE

grey, bedding visible in places; contortions and dislocations almost throughout, very thin spicular hematite coating on joints throughout, 230.75 - 236.0 : irregular 1-2 mm quartz-veinlets; appear in many cases as 1-3cm wide zones.
231.9 : 3mm quartz-chlorite-vein with joint angle to core axis: 20°
232.5 : bedding angle to core axis : 25°
234.05 : set of joints : angle to core axis : 30°
234.95 : bedding angle to core axis : 20°
235.0 - 235.1 : core broken up, fractured to brecciated, minor fault ?
235.7: a few vermiculated 2mm quartz veins

238.0 - 238.4 QUARTZ-CHLORITE-VEINS

zone of 1-5 mm layered, contorted and faulted HW contact, vein angle to core axis : 5-10°

238.4 - 238.5 QUARTZ-CHLORITE-VEINING

as above, FW contact - angle to core axis : 15°

238.5 - 246.7 PHYLLITIC SHALE

grey, bedding visible in places, a few 0,5 - 1 cm siltstone beds, contortions and dislocations in places; a few 1-2 mm quartz veinlets in places; very thing spicular hematite coating on joints throughout;
238.5 - 238.6 faulted - brecciated section
239.3 : bedding angle = joint angle to core axis 15°
240.7 : bedding angle = joint angle to core axis 10°
243.5 - 244.5 : bedding angle = joint angle to core axis35
246.2-246.4 : core very broken up ; minor fault?

ROVER 1 DDH3 PARENT

GEOLOGICAL LOG

246.7 - 253.0 PHYLLITIC SHALE

grey, bedding visible in places, contortions and dislocations in places, very thin specular hematite coating on joints throughout.

247.3 - 247.7 core broken up to 2-5 cm pieces.

249.0 : bedding angle to core axis 15°, joint angle to core axis 55°

249.8: bedding angle = joint angle to core axis 15°

252.3: bedding angle to core axis 25°

252.4: joint angle ? bedding angle to core axis 40°

250.0 - 253.3 QUARTZ-CHLORITE-VEIN,

vermiculated 1-3mm quartz-veins in chloriteblob near hangingwall, disturbed footwall and hangingwall contacts.

253.3 - 254.7 CHLORITE-SHALE

no bedding visible, but rather extensive uncontorted shearing

253.6: shearing angle to core axis 35°

254.15 - 254.3: slightly chloritic shale, shearing angle = bedding angle to core axis 25°

254.7: shearing angle to core axis 15°

254.7 - 255.4 CHLORITIC SHALE

bedding indicated, gradational boundary to with footwall, bedding angle = shearing angle to core axis 15-20°, minor pyrite coating on joint at 255.3.

255.4 - 256.0 PHYLLITIC SHALE

dark grey, bedding indicated in places; a few minor contortions;

bedding angle = shearing angle to core axis : 20-25°

E.O.H.

ROVER 1 HOLE no. 3 WRO1.

SURVEYS.

Date	Depth Metres	Type	Dip Read	Dip Corr	Mag.	Grid.	Results
28.3.74	183	Photo	84	84	351	355.5	Hall Rowe Wedge at 174m.
28.3.74	188		84	84	339	343.5	
28.3.74	193		84	84	330	334.5	Hole stopped 193m.

ROVER 1 DDH3 WR01

GEOLOGICAL LOG

174.0 - 179.8 NO CORE - WEDGE) approx 0,5m pencil - core PHYLLITIC SHALE

179.8 - 184.7 PHYLLITIC SHALE

bedding visible in places , many contortions and disruptions throughout, irregular in 1-2mm quartz-veinlets to pockets throughout very thin hematite coating on many joints, gradational boundary with footwall.

180.0 : 1 cm quartz-chlorite-vein with joint angle to core axis : 55°, bedding angle to core axis : 20°

180.5 - 180.7 joint angle to core axis : 0°

182.0 bedding angle to core axis : 20°

183.4 heavily folded and contorted 3 mm chlorite vein

184.4 - 184.7 contorted Footwall contact, bedding angle to core axis 5 - 10°

184.7 - 184.9 CHLORITIC PHYLLITIC SHALE

core rather broken up

184.9 - 185.5 CHLORITIC PHYLLITIC SHALE & GREYWACKE

~~½ core (Hangingwall)~~ STET - very finegrained chloritic greywacke with less than or equal to 1mm red feldspar - grains; rather even, possibly faulted, contact with footwall, bedding angle = joint angle to core axis 0-5°

½ core (Footwall) Chloritic phyllitic shale, bedding indicated.

185.5 - 187.85 SLIGHTLY CHLORITIC PHYLLITIC SHALE,

bedded in places; many contortions and disruptions

185.65 - 186.0 zone with many vermiculated 1-3mm quartz veins.

186.9 - 187.6 joint angle to core axis : 0° (mini fault).

187.85 - 189.5 CHLORITIC PHYLLITIC SHALE

bedding not visible, contortions and disruptions, gradational boundary with Footwall; joint angle to core axis : 0-5°

188.7 - 189.0 rich 1-3mm quartz-minor dolomite-chlorite-veins to blobs.

198.4 - 189.5 rich 1-3mm quartz-dolomite-chlorite veins to blobs.

ROVER 1 DDH3 WRO1

GEOLOGICAL LOG

189.5 - 193.0 **SILICIFIED CHLORITIC SILTSTONE & CHLORITIC CHERTY SHALE**

minor chloritic shale, bedding visible in few places; many contortions and minor disruptions; rich in irregular 1-2mm quartz-veinlets almost throughout

189.9 - 190.3 faulted joint angle to core axis 0°

190.3 - 190.5 silicified zone of quartz-chlorite-veining

191.5 bedding angle to core axis 15°

EOH

ROVER 1 HOL NO. 3 WRO2

SURVEY.

Date	Depth Metres	Type	Dip Read	Dip Corr	Mag	Grid	Remarks
16.4.74	144	Photo	82	82	015	019.5	
16.4.74	159		83	83	016.5	021	NX Hall Rowe wedge at 152metres
18.4.74	166		84	84	010.5	015	
18.4.74	176		84	84	005	009.5	
18.4.74	181		83	83	010.5	015	Wedge placed 178m.
22.4.74	196		84	84	008	012.5	
29.4.74	200		84.5	84.5	004.5	009	
29.4.74	210		84.5	84.5	002.5	007	
29.4.74	225		83	83	354	358.5	
14.5.74	235		82.5	82.5	350	354.5	
14.5.74	240		82	82	346	350.5	
14.5.74	244		81	81	345	349.5	BX Clappison wedge at 245m
16.5.74	247		80	80	342	346.5	
16.5.74	BX 256		79	79	339	343.5	
20.5.74	259		79	79	341	345.5	Wedge at 256m.
20.5.74	265		78	78	339	343.5	
22.5.74	275		76	76	336	340.5	
27.5.74	280		76	76	342	346.5	
27.5.74	285		75.5	75.5	342	346.5	
27.5.74	295		74	74	341.5	346	
4.6.74	314		71	71	338	342.5	
11.6.74	307		72	72	340	344.5	
11.6.74	314		71	71	338	342.5	
11.6.74	322		70	70	346	~~350.5~~ 350.5	
11.6.74	337		68.5	68.5	350	354.5	
13.6.74	345		68	68	345	349.5	
13.6.74	355		67.5	67.5	343	347.5	
26.6.74	368		67	67	100	~~104.5~~	Affected by magnetics
26.6.74	383		65	65	344.5	349	
26.6.74	398		61.5	61.5	344.5	349	
26.6.74	413		56	56	345	349.5	
3.7.74	440	Acid	57	~~57~~ 50	-	-	
4.7.74	460		46	46	338	342.5	

ROVER 1 DDH3 WRO2.

ASSAY.

Sample	Assayed Section Metres	Type	Co %	Au g/mt	Cu %	Bi %	Ag g/mt	Pb %	Zn %
F 12829	320 - 321	H/C	<0.01	0.25	<0.01	0.01	1.0	<0.01	0.01
F 13830	321 - 322		<0.01	0.1	<0.01	<0.01	1.0	<0.01	0.01
F 12831	322 - 323		<0.01	0.1	<0.01	<0.01	1.0	<0.01	0.01
F 12832	323 - 324			<0.1	<0.01	<0.01	<1.0	<0.01	0.01
F 12833	324 - 325		<0.01	0.15	<0.01	0.01	<1.0	<0.01	<0.01
F 12834	325 - 326		0.01	<0.1	0.01	<0.01	1.0	<0.01	0.01
F 12835	326 - 327		0.01	<0.1	0.04	<0.01	1.0	<0.01	<0.01
F 12836	327 - 328		0.01	<0.1	0.01	0.01	<1.0	<0.01	<0.01
F 12837	328 - 329		<0.01	0.15	0.01	0.02	<1.0	<0.01	<0.01
F 12838	329 - 330		0.01	0.1	0.06	0.01	1.0	<0.01	0.01
F 12839	330 - 331		0.01	0.1	0.04	<0.01	<1.0	<0.01	<0.01
F 12840	331 - 332		0.01	0.1	0.02	0.01	1.0	<0.01	<0.01
F 12841	332 - 333		0.01	0.2	0.39	0.03	<1.0	<0.01	0.01
F 12842	333 - 334		<0.01	0.1	0.12	<0.01	<1.0	<0.01	0.01
F 12843	334 - 335		<0.01	0.1	0.05	<0.01	<1.0	<0.01	<0.01
F 12844	335 - 336		<0.01	<0.1	0.09	<0.01	<1.0	<0.01	0.01
F 12845	336 - 337		<0.01	<0.1	0.01	0.01	<1.0	<0.01	0.01
F 12846	337 - 338		0.02	<0.1	0.31	0.01	2.0	<0.01	0.01
F 13847	338 - 339		0.01	<0.1	0.06	0.01	2.0	<0.01	0.01
F 12848	339 - 340		0.01	<0.1	0.13	0.01	2.0	<0.01	0.01
F 12849	340 - 341		<0.01	<0.1	2.18	0.02	2.0	<0.01	<0.01
F 12850	341 - 342		<0.01	<0.1	0.10	0.01	<1.0	<0.01	0.01
F 12851	342 - 343		<0.01	<0.1	0.05	0.01	1.0	<0.01	0.01
F 12852	343 - 344		0.01	0.1	0.21	0.01	1.0	<0.01	0.01
F 12853	344 - 345		<0.01	<0.1	0.20	0.01	<1.0	<0.01	0.01
F 12854	345 - 346		<0.01	<0.1	0.11	<0.01	<1.0	<0.01	0.01
F 12855	346 - 347		<0.01	<0.1	0.01	0.01	2.0	<0.01	0.01
F 12856	347 - 348		0.01	<0.1	0.04	<0.01	1.0	<0.01	0.02
F 12857	348 - 349		0.01	<0.1	<0.01	<0.01	2.0	<0.01	<0.01
F 12858	349 - 350		0.03	0.15	0.02	<0.01	2.0	<0.01	0.01
F 12859	350 - 351		0.01	<0.01	0.02	<0.01	2.0	<0.01	0.01
F 12860	351 - 352		<0.01	<0.1	0.05	<0.01	1.0	<0.01	0.01

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ASSAY.

Sample	Assayed section Metres	Type	Co %	Au g/mt	Cu %	Bi %	Ag g/mt	Pb %	Zn %
F 12861	352 - 356	R/C	<0.01	0.1	0.05	<0.01	1.0	<0.01	<0.01
F 12862	356 - 357		0.02	<0.1	0.07	<0.01	1.0	<0.01	0.01
F 12863	357 - 358		0.02	<0.1	0.05	0.05	1.0	<0.01	0.01
F 12864	358 - 359		<0.01	0.15	0.07	<0.01	<1.0	<0.01	0.01
F 12865	359 - 360		0.01	0.1	0.01	0.01	<1.0	<0.01	<0.01
F 12866	360 - 361		0.03	0.2	0.08	0.01	1.0	<0.01	<0.01
F 12867	361 - 362		0.02	0.1	0.02	<0.01	1.0	<0.01	<0.01
F 12868	362 - 363		0.02	<0.1	0.02	<0.01	<1.0	<0.01	<0.01
F 12869	363 - 364		0.01	0.1	0.03	0.03	<1.0	<0.01	<0.01
F 12870	364 - 365		0.01	0.1	0.04	<0.01	1.0	<0.01	<0.01
F 12871	365 - 366		0.14	<0.1	0.19	0.03	2.0	0.01	<0.01
F 12872	366 - 367		0.01	0.1	0.16	<0.01	<1.0	<0.01	<0.01
F 12873	367 - 368		<0.01	<0.1	1.74	<0.01	1.0	0.01	0.01
F 12874	368 - 369		0.06	<0.1	0.33	<0.01	<1.0	<0.01	<0.01
F 12875	369 - 370		0.06	<0.1	0.14	<0.01	<1.0	<0.01	<0.01
F 12876	370 - 371		0.13	0.1	0.15	<0.01	~~<1.0~~ 2.0	<0.01	<0.01
F 12877	371 - 372		0.07	<0.1	0.35	<0.01	2.0	<0.01	<0.01
F 12878	372 - 373		0.28	<0.1	0.13	<0.01	3.0	<0.01	<0.01
F 12879	373 - 374		0.01	<0.1	0.03	<0.01	1.0	<0.01	<0.01
F 12880	374 - 375		0.02	0.15	0.12	<0.01	2.0	<0.01	<0.01
F 12881	375 - 376		0.14	0.55	1.06	0.03	4.0	0.01	<0.01
F 12882	376 - 377		0.01	0.1	0.01	<0.01	2.0	<0.01	0.01
F 12883	377 - 378		0.13	<0.1	0.09	<0.01	3.0	0.01	0.01
F 12884	378 - 379		0.01	0.2	<0.01	<0.01	2.0	<0.01	0.01
F 12885	379 - 380		<0.01	0.15	<0.01	<0.01	1.0	<0.01	<0.01
F 12886	380 - 381		0.01	0.25	<0.01	<0.01	2.0	<0.01	<0.01
F 12887	381 - 382		<0.01	0.25	<0.01	<0.01	2.0	<0.01	<0.01
F 12888	382 - 383		0.01	<0.1	<0.01	<0.01	1.0	<0.01	<0.01
F 12889	383 - 384		<0.01	0.2	<0.01	<0.01	1.0	<0.01	0.01
F 12890	384 - 385		<0.01	<0.1	<0.01	<0.01	1.0	<0.01	0.01
F 12891	385 - 386		<0.01	0.15	<0.01	0.01	2.0	<0.01	0.01

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ASSAY

Sample	Assayed Section Metres	Type	Cu %	Au g/mt	Cu %	Bi %	Ag g/mt	Pb %	Zn %
F 12892	386 - 387	R/C	<0.01	0.2	<0.01	0.01	2.0	<0.01	0.02
F 12893	387 - 388		<0.01	0.1	<0.01	<0.01	1.0	<0.01	0.01
F 12894	388 - 389		<0.01	0.25	<0.01	<0.01	1.0	<0.01	0.01
F 12895	389 - 390		<0.01	0.4	<0.01	<0.01	<1.0	<0.01	0.01
F 12896	390 - 391		<0.01	<0.1	<0.01	<0.01	14.0	<0.01	<0.01
F 12897	391 - 392		<0.01	<0.1	<0.01	<0.01	2.0	<0.01	<0.01
F 12898	392 - 393		<0.01	0.1	<0.01	<0.01	1.0	<0.01	0.01
F 12899	393 - 394		0.01	<0.1	<0.01	<0.01	2.0	<0.01	0.01
F 12900	394 - 395		0.01	0.25	<0.01	0.01	2.0	<0.01	0.01
F 12901	395 - 396		0.01	0.1	<0.01	<0.01	<1.0	<0.01	0.01
F 12902	396 - 397		0.01	0.25	<0.01	<0.01	1.0	<0.01	0.01
F 12903	397 - 398		0.01	0.2	<0.01	0.03	3.0	<0.01	0.01
F 12904	398 - 399		0.01	0.25	<0.01	<0.01	1.0	<0.01	0.01
F 12905	399 - 400		0.01	0.1	<0.01	<0.01	1.0	<0.01	0.01
F 12906	400 - 401		<0.01	0.3	<0.01	<0.01	<1.0	<0.01	<0.01
F 12907	401 - 402		<0.01	0.2	<0.01	<0.01	1.0	<0.01	<0.01
F 12908	402 - 403		<0.01	0.15	<0.01	<0.01	1.0	<0.01	<0.01
F 12909	403 - 404		<0.01	0.3	<0.01	<0.01	1.0	<0.01	<0.01
F 12910	404 - 405		<0.01	0.2	<0.01	<0.01	<1.0	<0.01	<0.01
F 12911	405 - 406		<0.01	0.25	<0.01	<0.01	1.0	<0.01	<0.01
F 12912	406 - 407		0.01	0.3	<0.01	<0.01	2.0	<0.01	<0.01
F 12913	407 - 408		<0.01	0.25	<0.01	<0.01	2.0	<0.01	<0.01
F 12914	408 - 409		<0.01	<0.1	<0.01	<0.01	1.0	<0.01	<0.01
F 12915	409 - 410		<0.01	~~<0.1~~ 0.1	<0.01	<0.01	2.0	<0.01	<0.01
F 12916	410 - 411		<0.01	0.2	<0.01	<0.01	5.0	<0.01	<0.01
F 12917	411 - 412		<0.01	0.25	<0.01	<0.01	1.0	<0.01	<0.01
F 12918	412 - 413		<0.01	0.25	<0.01	<0.01	2.0	<0.01	0.01
F 12919	413 - 414		<0.01	0.15	<0.01	<0.01	2.0	<0.01	0.01
F 12920	414 - 415		0.01	0.25	<0.01	<0.01	1.0	<0.01	<0.01
F 12921	415 - 416		<0.01	<0.1	<0.01	<0.01	1.0	<0.01	0.01
F 12922	416 - 417		<0.01	0.25	<0.01	<0.01	2.0	<0.01	0.01
F 12923	417 - 418		<0.01	0.3	<0.01	<0.01	2.0	<0.01	<0.01
F 12924	418 - 419		<0.01	0.25	<0.01	<0.01	1.0	<0.01	<0.01

GEOPEKO LIMITED

CENTRAL AUSTRALIA

ANNUAL REPORT

ON

EXPLORATION LICENCE NO. 228

Compiled

by

P. L. Katto

Volume 2 of 2

TENNANT CREEK, N.T.

AUGUST, 1974

ROVER 1 DDH3 R02

ASSAY

Sample	Assayed Section Metres	Type	Co %	Au g/mt	Cu %	Bi %	Ag g/mt	Pb %	Zn %
F 12925	419 - 420	B/C	<0.01	0.2	<0.01	<0.01	<1.0	<0.01	<0.01
F 12926	420 - 421		<0.01	0.15	<0.01	<0.01	<1.0	<0.01	<0.01
F 12927	421 - 422		0.01	<0.1	0.01	<0.01	1.0	<0.01	<0.01
F 12928	422 - 423		<0.01	<0.1	<0.01	0.06	2.0	<0.01	0.01
F 12929	423 - 424		<0.01	0.35	<0.01	<0.01	1.0	<0.01	<0.01
F 12930	424 - 425		<0.01	0.2	<0.01	<0.01	<1.0	<0.01	<0.01
F 12931	425 - 426		0.01	<0.1	<0.01	<0.01	<1.0	<0.01	<0.01
F 12932	426 - 427		<0.01	0.25	<0.01	<0.01	<1.0	<0.01	<0.01
F 13060	427 - 428		0.01	<0.1	<0.01	<0.01	1.0	<0.01	0.01
F 13061	428 - 429		0.01	<0.1	<0.01	<0.01	1.0	<0.01	0.01
F 13062	429 - 430		0.01	0.1	<0.01	<0.01	1.0	<0.01	0.01
F 13063	430 - 431		0.01	0.1	<0.01	<0.01	1.0	<0.01	0.01
F 13064	431 - 432		0.01	<0.1	<0.01	<0.01	1.0	<0.01	0.01
F 13065	432 - 433		0.01	<0.1	<0.01	<0.01	1.0	<0.01	<0.01
F 13066	433 - 434		0.01	0.15	<0.01	<0.01	1.0	<0.01	<0.01
F 13067	434 - 435		0.01	<0.1	<0.01	<0.01	1.0	<0.01	<0.01
F 13068	435 - 436		0.01	<0.1	<0.01	<0.01	1.0	<0.01	<0.01
F 13069	436 - 437		0.01	<0.1	<0.01	<0.01	1.0	<0.01	<0.01
F 13070	437 - 438		0.01	<0.1	<0.01	<0.01	1.0	<0.01	<0.01
F 13071	438 - 439		0.01	0.15	<0.01	<0.01	1.0	<0.01	<0.01
F 13072	439 - 440		0.01	<0.1	<0.01	<0.01	1.0	<0.01	<0.01
F 13073	440 - 441		0.01	<0.1	<0.01	<0.01	1.0	<0.01	<0.01
F 13074	441 - 442		0.01	0.25	<0.01	<0.01	3.0	<0.01	<0.01
F 13075	442 - 443		0.01	0.2	<0.01	<0.01	1.0	<0.01	<0.01
F 13076	443 - 444		0.01	0.25	<0.01	<0.01	1.0	<0.01	<0.01
F 13077	444 - 445		<0.01	0.5	<0.01	0.01	3.0	<0.01	0.01
F 13078	445 - 446		<0.01	0.3	<0.01	<0.01	3.0	<0.01	0.01
F 13079	446 - 447		<0.01	0.2	<0.01	<0.01	2.0	<0.01	0.01
F 13080	447 - 448		<0.01	1.5	<0.01	0.01	2.0	<0.01	0.01
F 13081	448 - 449		<0.01	<0.1	<0.01	<0.01	2.0	<0.01	0.01
F 13082	449 - 450		<0.01	<0.1	<0.01	<0.01	2.0	<0.01	0.01
F 13083	450 - 451		<0.01	0.1	<0.01	<0.01	2.0	<0.01	<0.01

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ASSAY.

Sample	Assayed section Metres	Type	Co %	Au g/mt	Cu %	Bi %	Ag g/mt	Pb %	Zn %
F 13084	451 - 452	B/C	<0.01	0.15	<0.01	<0.01	2.0	<0.01	0.01
F 13085	452 - 453		<0.01	0.25	<0.01	<0.01	2.0	<0.01	0.01
F 13086	453 - 454		<0.01	0.15	<0.01	<0.01	2.0	<0.01	0.01
F 13087	454 - 455		<0.01	0.25	<0.01	<0.01	2.0	<0.01	0.01
F 13088	455 - 456		<0.01	<0.1	<0.01	<0.01	3.0	<0.01	0.01
F 13089	456 - 457		<0.01	<0.1	<0.01	<0.01	3.0	<0.01	0.01
F 13090	457 - 458		<0.01	<0.1	<0.01	< 0.01	3.0	<0.01	0.01
F 13091	458 - 459		<0.01	0.1	<0.01	<0.01	2.0	<0.01	0.01
F 13092	459 - 460		<0.01	<0.1	<0.01	<0.01	2.0	<0.01	0.01

ROVER 1 DDH3 WRO2.

GEOLOGICAL LOG — BY: W.Mayer.

SUMMARY. — WRO2 commenced at 148.0m and cored a sequence of Warramunga Group sediments and lode-rock as following:

148.0 - 184.1	Phyllitic shale
184.1 - 213.7	Chloritic, cherty chloritic and cherty shales

199.0 213.7 Fault Zone.

213.7 - 316.7	Chloritic and silicified chloritic shale and several 1-8m sections of quartz-chlorite-veining.
316.7-355.85	Phyllitic shale.
355.85 - 375.6	hematite-quartz-magnetite-pyrite-lode, medium chalcopyrite
375.6 - 460.3	Chlorite, chloritic, silicifed chloritic and hematitic shale.

EOH

The centrepoint of the lode is: 810.3m E/892.9mN/356.5m RL 365.7m depth.

Assay values of the lode and quartz-chlorite-sections are:

340 - 341m : 2.18% Cu)
Overall 332 - 346 : 0.34% Cu) Mainly quartz-chlorite

367 - 368m : 1.74% Cu)
375 - 376m : 1.067% Cu) Quartz-hematite-magnetite-lode

Overall : 365 - 378 : 0.35% Cu

The Au - assays have negligible values.

ROVER 1 DDH3 WR02

GEOLOGICAL LOG

148.0 - 151.2 WEDGE-NO CORE RECOVERY

151.2 - 157.8 PHYLLITIC SHALE

greyish purple, bedding visible in places, many disruptions and contortions throughout; irregular 1-2mm quartz veinlets almost throughout; 2 big quartz veins;

151.7 - 151.95 quartz veins, contain 1-5cm diameter pockets of phyllitic shale and 1-3mm veinlets to pockets of brick red calcite- Hangingwall contact angle to core axis 30°, Footwall contact angle to core axis 60°

153.0 - 153.4 quartz veins

153.6 - 154.0 faulted joint angle to core axis 30°

154.9 shearing angle to core axis 10°

156.9 - 157.2 shearing angle to core axis 0°

157.8 - 163.6 PHYLLITIC SHALE

as 151.2 - 157.8

159.1 - 159.5 zone of prevailing quartz brick red calcite - dmk chlorite - veins to pockets, with relict blobs of phyllitic shale, all very disturbed to brecciated

159.8 bedding angle to core axis 25°

160.0 shearing angle to core axis 5°

162.0 - 162.4 shearing angleto core axis 0-5°

162.7 - 163.6 bedding angle to core axis 0-5°

163.6 - 169.65 PHYLLITIC SHALE

basically as 151.2 - 157.8, but with a few interbedded rather contorted

0,5-1cm siltstone beds; irregular 1-3 mm quartz brick red calcite veins almost throughout

164.3 - 164.5 shearing angle =? bedding angle to core axis 10°

168.0 - 169.65 contorted bedding angle to core axis 0-10°

169.65 - 176.2 PHYLLITIC SHALE

basically as 151.2 - 157.8 but purplish-grey and richer in silt$; hematitic clay coatings on many joints

165.65-170.0 2x 1cm pink calcite veins parallel shearing, shearing angle to core axis 0-10°

170.6 shearing angle to core axis 15°

171.6 shearing angle = bedding angle core to axis 15°

ROVER 1 DDH3 MR02

GEOLOGICAL LOG

172.0 - 172.2 a few 1-2mm brickred calcite-veinlets
172.5 - 172.9 core broken up to 2-5cm pieces; shearing angle to core axis 0-10°.
173.0 - 174.0 joint angle to core axis 0-15°
174.9 - 175.0 zone with many irregular 1-3mm quartz and brickred calcite veinlets.
175.2 - 176.2 bedding angle to core axis 0-10° (contorted)
175.5 - 175.6 irregular 0,5-1cm calcite vein and chlorite veinlets parallel to core axis.

176.2 - 178.0 PHYLLITIC SHALE
as 151.2 - 157.8
177.1 shearing angle to core axis 20°

178.0 181.05 WEDGE-NO CORE RECOVERY

181.05 - 181.7 PHYLLITIC SHALE
as 151.2 - 157.8
181.4 - 181.6 2x 1-2mm siltstone beds heavily contorted.

181.7 - 184.1 PHYLLITIC SHALE
basically as 151.2 - 157.8 but contortions and disruptions only in places; only a few 1-2mm quartz veinlets; gradational boundary MM with Footwall.
181.7 - 182.5 almost uncontorted bedding; bedding angle to core axis 20°
184.0 joint angle to core axis 25°.

184.1 - 185.2 CHLORITIC SHALE.
bedded, with 1-2 cm brownish purple shale beds
185.0 bedding angle to core axis 15°

185.2 - 185.35 VERY FINEGRAINED CHLORITIC GREYWACKE
true width of bed 5 cm, 0,5 cm of top and bottom contain 40% - 50%. less than or equal to 1mm red feldspar - grains; minifaulted Hangingwall contact , bedding angle to core axis 20°, POSSIBLY MARKERBED !

185.35 - 187.3 SLIGHTLY CHLORITIC PHYLLITIC SHALE
bedded in places, minor contortions and distruptions in places ; gradational boundary with Footwall.

ROVER 1 DDH3 WR02

GEOLOGICAL LOG

187.3 - 188.25 CHLORITIC SHALE
bedded, with 1-3cm purplish and yellowish shale beds; only minor contortions and disruptions; bedding angle to core axis 20°

188.25 - 194.55 SILICIFIED AND CHERTY CHLORITIC SHALE
with minor shale, bedded in places, contortions and disruptions in places,
188.45 3 cm wide shale-bed, bedding angle to core axis 40°
188.75 - 188.9 purplish shale-bed with heavily folded and faulted Footwall and Hangingwall contacts
190.4 - 191.0 cherty chloritic shale with many irregular 1-2mm quartz veinlets
191.0 - 191.4 creamy shale, Footwall contact angle to core axis 20°
193.0 194.55 faulted joint angle to core axis 0-5°.

194.55 - 195.0 SILICIFIED AND CHERTY CHLORITIC SHALE,
mainly bedded, bottom half is rather broken up core : shearing angle = bedding angle to core axis 0-10°

195.0 -195.4 SILTY SHALE,
purplish brown no bedding visible, shearing angle to core axis 0-10°.

195.4 - 196.0 CHERTY CHLORITIC SHALE.
bedded faulted joint angle to core axis 0-5°
fault is 0,5 cm wide silicified chlorite-zone; bedding angle to core axis 10°

196.0 - 199.0 WEDGE-NO CORE RECOVERY

199.0 - 205.75 CORE RECOVERY approx 3m core very broken up almost throughout
SILICIFIED & CHERTY CHLORITIC SHALE,
bedded in a few places, shearing angle to core axis 0-5°; thin hematitic coatings on many joints.
202.4 bedding angle to core axis 20°
202.5 - 202.8 5cm wide zone of 3-5mm quartz-chlorite-veins angle to core axis 10° appears conformable with bedding.

ROVER 1 DDH3 WR02.

GEOLOGICAL LOG

205.75 - 206.7 SILICIFIED & CHERTY CHLORITIC SHALE

1-2mm quartz-veinlets throughout, core rather broken up; 206.4 - 206.7 cherty shale, purplish-brown with lighter & bleaching colours along joints

206.7 - 208.8 HIGHLY SILICIFIED ZONE : CHERTY SHALE - CHERTY QUARTZITE

very rich 1-5mm irregular quartz veins throughout, contorted and displaced, can prevail sediments in short sections, core is broken up to 1-3cm rolls; hematitic coating on joints throughout; fault ?

207.2 - 207.6 joint angle to core axis 70-80°

207.8 - 208.0 joint angle to core axis 0°

208.8 - 210.1 SILICIFIED & CERTY CHLORITIC SHALE

bedded in a few places, no hematite-coatings on joints, core rather broken up in places

209.0 shearing angle to core axis 15°

210.1 - 210.3 CHLORITIC SHALE

very fractured to brecciated in situ; quartz-breccia (1-5mm diameter fragments) occurs as contorted vein filling; core rather broken up; probably fault.

210.3 - 210.55 CHLORITE SHALE

core very broken up along shearing, shearing angle to core axis 0-5°

210.55- 210.8 CHLORITE SHALE

as 210.3-210.55

210.8
~~210.8~~ - 211.3 CHERTY CHLORITIC SHALE

211.3: 5 cm pocket of red jasper breccia (1-5mmdiameter fragments)

211,3 - 212.2 HIGHLY SILICIFIED ZONE

very similar to 206.7 - 208.8 CHERTY QUARTZITE-JASPER with many 1-10mm quartz veins (often displaced) many small medium vaughs, filled with spec@lar hematite; all joints with hematite-coatings.

ROVER 1 DDH3 NRG2

GEOLOGICAL LOG

212.2-213.7 SLIGHTLY SILICIFIED CHLORITIC SHALE

bedded many contortions and mm - cm dislocations throughout, but decreasing towards Footwall;
212.2-212.5 core very broken up due to shearing angle to core axis 0-5°
212.5 - 212.6 3 cm wide zone with contorted 3-5mm quartz and chlorite-veins; faulted joint angle to core axis 5°
212.9 - 213.0 quartz-chlorite vein fractured with medium vughs with specular hematite;faulted Footwall -contact angle to core axis 40°
213.0 - 213.3 set of parallel faults (cm displacement) angle to core AE axis 18°

199.0 - 213.7 FAULT ZONE (wide limits)

206.7 - 213.0 FAULT ZONE (central part)

213.7 -216.35 PHYLLITIC SHALE

greyish-purple bedded, with a few contorted 3-5mm siltstone beds; contortions and disruptions throughout; a few 1-2mm contorted quartz veinlets throughout
214.0 bedding angle = joint angle to core axis 30°
215.6 - 215.7 quartz vein with small chloritic pockets
216.2 bedding angle to core axis 20°

216.35 - 222.2 PHYLLITIC SHALE

basically as 213.7 - 216.35 but bedding visible only in places.
216.7 - 217.0 1-2 mm quartz chlorite vein slightly contorted, angle to core axis 0-5°, bedding angle to core axis 25°.
218.0-218.5 joint angle to core axis 0-5°
219.0 joint angle to core axis 20°
219.4 bedding angle to core axis 25°
221.3 - 221.9 faulted joint angle to core axis 0°
222.0 joint angle to core axis 10°

222.2 - 231.7 PHYLLITIC SHALE

as 213.7 - 216.35
222.4 - 222.5 isoclinally folded 2mm quartzite - bed, bedding angle to core axis 30°

ROVER 1 DDH3 WR02

GEOLOGICAL LOG

	isoclinal axial plane = shearing angle to core axis 25° (antithetic to bedding)
	222.7 shearing angle to core axis 15°
	224.1 shearing angle to core axis 5-10°
	224,7 to 225,4 shearing angle to core axis 20-25°
	225.4 bedding angle to core axis 45°
	225.95 bedding angle to core axis 40° shearing angle to core axis 15°
226.0 - 229.0	WEDGE-NO CORE RECOVERY
	230.4 bedding angle = joint angle to core axis 25° 230.95 bedding angle = joint angle to core axis 20° 231.3 joint angle to core axis 10° 231.65 - 231.7 silicified zone with contorted 1-5mm quartzveins and minor brecciation.
231.7 - 232.0	PHYLLITIC SHALE basically as 213.7 - 216.35 but slightly silicified.
232.0 - 232.7	CHLORITIC SHALE silicified gradational boundary with Hangingwall and Footwall, bedded 232.2 faulted joint angle to core axis 12°
232.7 - 238.2	PHYLLITIC SHALE as 231.7 - 232.0 233.2 bedding angle to core axis 30°, joint angle to core axis 20° 235.4 - 235.5 quartz-chlorite-veins and blobs with 2-3cm fragments of bedded cleritic shale 235.8 2 cm wide quartzchlorite-vein, angle to core axis 45° 236.0 bedding angle = joint angle to core axis 10° 236.4 - 236.45 brecciated zone of 3-10mm diameter chloritic shale fragments and contorted broken up quartz-veins. 236.75 - 236.83 brecciated zone of 0,5-3cm diameter bedded chloritic shale fragments and quartz-black chlorite-matrix. 237.9 - 238.0 0,5cm and 1 cm quartz-chlorite-vein.
238.2-249.8	PHYLLITIC SHALE as 231.7 - 232.0 238.3 - 238.45 6 cm wide zone of shale with many contorted 1-3mm quartz-veins, conformable with bedding, Footwall and Hangingwall-contact angle to core axis 25° 240.7 bedding angle = joint angle to core axis 30°

ROVER 1 DDH3 WR02

GEOLOGICAL LOG

244.0 - 247.0 WEDGE - PENCIL CORE: PHYLLITIC SHALE AS ABOVE
247.1 1mm vermiculated quartz-vein, 4 cm displaced by mini fault: angle to core axis 15°
247.3 bedding angle to core axis 30°
249.8 bedding angle to core axis 20°, joint angle to core axis 25°

249.8 - 261.0 PHYLLITIC SHALE
as 213.7 - 216.35, some irregular - less than or equal to - 1 mm quartz-veinlets in places
250.4 - 250.85 quartz chlorite pocket with a speck of chalcopyrite
251.0 set of 2-3mm quartz veins
251.1 shearing angle to core axis 15°
252.6 shearing angle = ? bedding angle to core axis 12°
a few specks of chalcopyrite.
253.3 1 medium speck of chalcopyrite.
253.9 - 253.95 contorted quartz chlorite vein and pockets
254.9 shearing angle to core axis 15°

256.0 - 259.0 WEDGE - PENCIL CORE PHYLLITIC SHALE

261.0 - 270.7 PHYLLITIC SHALE
as 213.7 - 216.35
261.5 bedding angle to core axis 35°
264.5 shearing angle to core axis 10°

265.0 - 268.0 WEDGE - PENCIL CORE PHYLLITIC SHALE
268.9 shearing angle to core axis 7°
269.0 - 269.5 joint angle to core axis 0°
269.8 - 269.9 zone with irregular contorted 1-2mm quartz veinlets

270.7 - 272.0 QUARTZ CHLORITE
rather disturbed, dark green chlorite occurs as little veinlets and pockets - filling in big quartz blebs, core rather broken, 271.7 - 272.0 chlorite, sheared, core broken up to 1-3 cm pieces.

ROVER 1 DDH3 WR02

GEOLOGICAL LOG

272.0 - 272.9 — QUARTZ (2-3mm) CHLORITE (less than or equal to 1mm) -VEINS

sub parallel to core axis, banded appearance, slightly contorted, with big pockets of chlorite and phyllitic shale.

272.9 - 274.5 — PHYLLITIC SHALE

as 213.7 - 216.35

272.9 shearing angle to core axis 10°

274.0 shearing angle to = ? bedding angle to core axis 20°

274.5 Footwall contact angle to core axis = shearing angle to core axis 23°

274.5 - 275.5 — QUARTZ CHLORITE

mainly as blobs, minor contorted as veinlets, 2 types of chlorite

1) light olive green often banded 2) black green, structureless; some pockets of phyllitic shale in this vein zone ; 1 speck of chalcopyrite

275.5 - 277.0 — PHYLLITIC SHALE

as 273.7 - 216.35 with sections of quartz chlorite veins and blobs

276.0 - 276.2, 276.8 - 277.0

276.5 shearing angle to core axis 10°

277.0 - 280.0 — WEDGE-NO CORE RECOVERY

280.0 - 280.9 — PHYLLITIC SHALE

as 213.7 - 216.35

280.3 set of 1mm planar quartz veinlets angle to core axis 18°

280.9 - 283.0 — QUARTZ CHLORITE

mainly as large blobs and small contorted veins and pockets 2 types of chlorite as 274.5 - 275.5; core rather broken up in sections with chlorite or phyllitic shale prevailing.

283.0 - 290.75 — PHYLLITIC SHALE

as 213.7 - 216.35 but appears to be more fractured (brecciated in situ in places) than usually, core is very broken up in some short sections

ROVER 1 DDH3 WR02

GEOLOGICAL LOG

some
283.0 - 283.3/contorted 3-5mm quartz chlorite veins
283.5 shearing angle to core axis 18°
284.3 bedding angle to core axis 0-3°(contorted)
286.6 a few contorted 1-2mm quartz veins with a few specks of chalcopyrite
286.9 - 287.1 quartz chlorite blobs and veinlets, a few specks of chalcopyrite
287.55 - 287.7 a few 2-5mm crystals of pyrite
289.3 shearing to angle to core axis 18°
290.0 - 290.75 some contorted 1-2mm quartz veinlets
290.4 - 290.% joint angle =?shearing angle to core axis0-

290.75 - 298.45 PHYLLITIC SHALE.
as 273.7 - 216.35
291.0 - 291.6 faulted joint angle to core axis 0-5°
291.9 bedding angle to core axis 35°
292.1 joint angle to core axis 45°, chalcopyrite crystals on joint
293.3 - 293.4 zone of rich 3-5mm quartz chlorite veins, contorted, angle to core axis 70°
292.9 1-2cm quartz vein with unusual faulting, vein angle to core axis 60°
293.3 1-2 cmquartz chlorite vein contorted
294.0 - 294.2 joint angle to core axis 25°
294.5 Shearing angle to core axis 23°
294.7 - 294.85 rich 3-10mm quartz veins and chlorite pockets
296.5 - 297.0 shearing angle = bedding angle to core axis 25°
297.8 bedding angle to core axis 25°

298.45 - 300.5 PHYLLITIC SHALE
as 213.7 - 216.35
298.5 heavily contorted 3-5mm quartz chlorite veins
298.8 - 299.05 0,3-1cm quartz chlorite veins contorted with veinlike relicts of phyllitic shale.
299.1 shearing angle to core axis 15°.
299.8 bedding angle to core axis 18°.

300.5 - 302.3 CHLORITIC SILTSTONE - FINEGRAINED SANDSTONE.
bedding indicated, gradational boundary with Footwall

ROVER 1 DDH3 WRO2

GEOLOGICAL LOG

301.3 bedding angle to core axis 10°
301.7 - 302.0 some 1mm diameter pyrite crystals aligned on bedding = shearing planes, angle to core axis 20°
302.2 - 302.3 chloritic chert with set of less than or equal to 1mm quartz veins, subnormal to core axis, a speck of chalcopyrite.

302.3 - 306.5 PHYLLITIC SHALE
greyish purple mostly well bedded, many 1-3mm siltstone interbeds, mostly even uncontorted bedding planes, very few less than or equal to 1mm quartz veinlets in places only a few mini faults
302.3 - 302.5 cherty shale with irregular less than or equal to 1mm quartz veinlets
302.7 bedding angle to core axis 25°
303.6 bedding angle to core axis 30°
305.1 bedding angle to core axis 28°
306.0 bedding angle to core axis 30°

306.5 - 317.45 PHYLLITIC SHALE
greyish purple bedding visible in places, some 3-5mm siltstone interbeds, minor contortions and dislocations throughout.
307.9 bedding angle = shearing angle to core axis 32°
309.2 - 309.3 3 cm wide quartz chlorite vein
309.6 bedding angle = shearing angle to core axis 20°
311.5 bedding angle to core axis 33°, shearing angle to core axis 10°, bedding angle to shearing 13°
313.1 bedding angle to core axis 33°
313.5 bedding angle to core axis 25°

313.7 - 316.7 WEDGE-PENCIL CORE: PHYLLITIC SHALE

316.7 - 317.45 SHALE
mainly bedded, minor contortions and dislocations;
317.1 bedding angle to core axis 20°

317.45 - 318.2 SLIGHTLY CHLORITIC SHALE
bedded; 317.8 bedding angle to core axis 30°

318.2 - 321.2 SLIGHTLY HEMATITIC SHALE
bedded, some shale sections

ROVER 1 DDH3 WRC2

GEOLOGICAL LOG

318.6 - 318.7 slightly chloritic shale; bedding angle to core axis 30°
" " " " " "
319.3 - 319.6 (3cm quartz chlorite vein sheared)
320.05-320.9 " " " " "
320.7 bedding angle to core axis 15°
321.2 heavily contorted 3-5mm quartz vein

321.2 - 325.4 CHLORITIC SHALE

slightly silicified, mostly bedded; a few short sections of broken up core; contortions and dislocations in places, rather abundant quartz chlorite veining in places.
321.9 bedding angle to core axis 27°
322.1 a few slightly contorted 3mm quartz veins parallel shearing, shearing angle to core axis 22°
323.3 bedding angle = shearing angle to core axis 20°
324.0 bedding angle to core axis 25°
324.3 bedding angle to core axis 30°
324.5 - 324.55 4cm wide zone of 2-5mm quartz and chlorite veins parallel bedding
324.55 - 325.4 silicified and cherty chloritic shale
325.0 bedding angle = shearing angle to core axis 25°
325.1 - 325.3 zone of rich quartz chlorite veins and blobs

325.4 - 328.2 SILICIFIED, minor CHERTY CHLORITIC SHALE

mostly bedded, some dislocations and 1-10mm quartz and chlorite veins in places, increasing towards Footwall. A few specks of pyrite in places.
325.6 bedding angle = shearing angle to core axis 25°
326.15 - 326.2 3 cm wide chlorite quartz vein sub parallel to shearing
326.4 shearing angle to core axis 30°
327.0 2-5mm chlorite vein (black green) with medium chalcopyrite pockets
327.1 - 327.25 rich quartz chlorite veining with some shale relicts

328.2 - 331.3 QUARTZ CHLORITE as VEINS and BLOBS

some relicts of cherty shale; both quartz and chlorite prevail in places; veins rather contorted, any disruptions; core rather broken up in places; a few small pockets of chalcopyrite

330.0 - 331.3 65cm RECOVERY (=80%)

ROVER 1 DDH3 WRO2

GEOLOGICAL LOG

331.3 - 331.9 — SILICIFIED SLIGHTLY CHLORITIC SILTSTONE.
bedding indicated, relatively undisturbed, bedding angle = shearing angle to core axis 35-40°; minor pyrite coatings on 3mm joint.

331.9 - 333.1 — QUARTZ & CHLORITE AS VEINS AND BLOBS
small chalcopyrite pockets throughout, pyrite as less than or equal to 1mm diameter grains in veins in places
332.1ft - 332.2 big chalcopyrite pocket, some relicts of cherty shale

333.1 - 334.0 — CHLORITE.
sheared, with slickensides; shearing angle sub parallel to core axis
334.0 2mm diameter pyrite coatings on joint = shearing angle to core axis 12°

334.0 - 338.0 — CHLORITIC SHALE
bedded, with several 5-20cm sections of quartz chlorite veining, core rather broken up in places; a few small pockets of chalcopyrite
335.9 bedding angle to core axis 38°, shearing angle to core axis 29°, bedding angle shearing 15°
334.5 - 334.55, 335.0 - 338.4, 335.5, 336.6 - 336.8, 337.3 - 337.6, 337.8 - 338.0, abundant quartz chlorite veins and blobs
336.8 - 337.0 5 cm diameter quartz fragments (broken up vein) with chloritic matrix

338.0 -341.0 — QUARTZ AND CHLORITE AS VEINS & BLOBS
complete replacement of sediment, quartz usually prevails chlorite, small medium veinlike pockets of chalcopyrite throughout, a few gt big pockets of chalcopyrite at 338.0 338.35, rich veinlike pockets of chalcopyrite with minor pyrite in quartz section at 340.2 - 340.25 and 340.45 - 340.8

341.0 - 341.85 — CHLORITIC SHALE
sheared, extensive quartz chlorite veining at 2ft 341.6 - .85 with small - medium pockets of chalcopyrite, core rat broken up.

ROVER 1 DDH3 WRO2

GEOLOGICAL LOG

341.85 - 349.3 QUARTZ & CHLORITE

as very irregular veins andblobs, almost complete replacement of sediment which still occurs in short sections, both quartz and chlorite prevail in certain sections, small veins and mm blobs of chalcopyrite in places, pyrite as less than or equal to 1mm diameter crystals mm disseminated in a few chlorite sections, core broken in places

342.28 - 342.9 cherty chloritic shale, sheared and faulted angle shearing to core axis 25°

343.5 - 343.7 silicified chloritic shale, with ? relict bedding ?

344.5 - 345.4 milky quartz with only minor chlorite as veinlike blobs.

346.6 - 347.7 chlorite, blackgreen slightly sheared.

347.1 - 348.8 mm-cm fragments of cherty chloritic shale occur within the quartz chlorite, some sections are mm breccia like

349.3 - 350.5 SILICIFIED CHLORITE

with abundant quartz chlorite veins and blobs, slightly sheared mm, gradational boundary with Footwall, small blobs and grains of pyrite in places

350.5 - 352.0 CHLORITE SHALE

with 2 quartz chlorite sections (350.8 - 351.1, 351.5 - 351.6) rather sheared, core very broken up in places, many mini faults, seharing angle to core axis 25-30° sub parallel to core axis

352.0 - 355.85 approx. 0.5m CORE RECOVERY, uncertain where core loss;

352.0 - 352.3 SILICIFIED CHLORITE SHALE, slightly sheared many minifaults.

352.3 - 352.85 QUARTZ CHLORITE as veinlike blobs, chalcopyrite as small - medium pockets.

LOD#1 355.85 - 375.6

355.85 - 358.5 QUARTZ CHLORITE HEMATITE MAGNETITE

complete replacement structure, brecciated looking appearance (abundant small fragments, blobs and veinlets) medium pyrite as 1-3mm diameter crystals and chystal aggre-

ROVER 1 DDH3 WR[illegible]

GEOLOGICAL LOG

GAP

gates;

358.5 - 359.3 MILKY QUARTZ

jointed with a few hematite pockets; joint angle to core axis 55-60°

359.3 - 367.65 HEMATITE(~40-50%)QUARTZ (50-60%)

complete replacement structure, brecciation in situ with healed fractures throughout; small-medium vughs, filled with specular hematite and chalcopyrite crystals in places rich pyrite (2-3%?) as thick veins and 2-3mm diameter crystals and aggregates throughout; medium chalcopyrite as medium veinlike blobs in places.

366.4 - 367.65 quartz (95%) - hematite (5%) a few medium to big dark green chlorite veins blobs occur together with hematite or alone; medium chalcopyrite as medium-big veinlike pockets in close relationship to chlorite blobs (367.0 - 367.65)

367.65 - 375.6 HEMATITE (70-80%) MAGNETITE (5-10%) QUARTZ (10-15%) PYRITE (5%)

complete replacement structure (veinlets, blobs, intergrowth) healed fractures-brecciation in some sections; many small-medium vughs, filled with specular hematite at 370.0-370.8; rich pyrite as assemblages of 3-10mm diameter aggregates; medium chalcopyrite as small-medium veins and blobs.

367.65 - 368.05 milky quartz

368.1 - 368.5 joint angle to core axis 0°

375.35 - 375.6 almost pure magnetite with rich pyrite pockets and some hematite and medium chalcopyrite.

375.6 - 376.0 CHLORITE

dark green, sheared; core very broken up; no mineralisatio visible, probably sharp Hangingwall contact.

376.0 - 377.9 CHLORITE

slightly silicified, sheared; shearing angle to core axis 30-35° , core rather broken up, gradational g boundary with Footwall, pyrite as less than or equal to 1mm diamete crystals disseminated and as medium pockets in places, chalcopyrite 1 medium pocket at 377.0

ROVER 1 DDH3 WRO2

GEOLOGICAL LOG

377.9 - 383.4 CHLORITE SHALE

slightly silicified mostly bedded; planar bedding planes, few mini faults; no mineralisation visible.

378.0 ? bedding angle or ? shearing angle to core axis 30°

379.1 bedding angle to core axis 28°

380.0 bedding angle to core axis 40°

380.45 3cm zone with set of 1-3mm quartz veins, angle to core axis 20° ?= shearing angle, bedding angle to core axis 35°

382.1 bedding angle to core axis 28°, shearing angle to core axis 23°, bedding angle shearing 5°

382.4 - 382.8 abundant 1-5mm quartz veins,contorted, angle to core axis 5-10°

383.4 - 385.5 CHLORITE SHALE

slightly silicified, bedding visible in places, core rather broken up; apart from 2x 2cm zones of quartz veining vodd of quartz veins; little pyrite as coating on joints

383.8 bedding angle to core axis 23°

385.5 - 387.4 CHLORITE

with extensive big quartz veins and blebs, core broken up

387.4 - 390.5 SLIGHTLY CHLORITIC QUARTZITIC SILTSTONE.

bedding not visible, core rather broken up

387.4 - 389.3 many medium large contorted quartz chlorite veins and blebs.

390.5 - 392.6 SLIGHTLY CHLORITIC QUARTZITIC SILTSTONE

bedding not visible, gradational boundary with Footwall

392.5 shearing angle to core axis 27°

392.6 - 397.6 SILICIFIED CHLORITIC SHALE

bedding not visible, mainly good core, 2 sections rather broken up (396.5-396.9, 397.3-397.6); very minor pyrite as less than or equal to 1mm diameter mhm crystals in places= minor quartz veinlets throughout (= healed fractures

397.6 - 398.7 SILICIFIED CHLORITIC SHALE

bedding not visible; joint angle to core axis 0°

ROVER 1 DDH3 WRO?

GEOLOGICAL LOG

398.7 - 399.9	QUARTZ CHLORITE as contorted veins and blebs, some relicts of silicified shale, core rather broken up.
399.9 - 400.6	SILICIFIED CHLORITIC SHALE specular hematite on joints; core very broken up
400.6 - 400.8	IN SITU BRECCIA 2-30mm silicified shale - fragments in chloritic clay matrix; fault?
400.8 - 404.3	SILICIFIED SLIGHTLY CHLORITIC SHALE ? bedding visible in places; core rather broken, very broken at 400.8 - 401.3, specular hematite on some joints; 403.1 ? bedding angle to core axis 30°
404.3 - 412.5	SILICIFIED SLIGHTLY CHLORITIC SHALE bedding not visible, rock shows in places schistosity without breaking up along shearing, 404.3-405.6 core rather broken up; 408.0 - 409.5 many healded fractures and mm displacements, massive core 411.2 shearing angle to core axis 38° 411.95 shearing angle / ? bedding angle to core axis 35°
412.5 -414.2	CHLORITIC SHALE bedding indicated in places, gradational boundary with footwall. 413.0 bedding angle to core axis 38° 413.7 - 414.0 conglomerat 5-20mm long grey cherty shale fragments aligned and lensed out parallel shearing in chlorite-matrix; 2 cm gritty bed at 413.9, bedding angle = shearing angle to core axis 40°
414.2 - 415.9	SLIGHTLY CHLORITIC SHALE with 0,5-5cm beds of cherty shale, siltstone and gritty very finegrained chloritic greywacke; cherty shale beds often disrupted and separated, little pyrite as veinlets, parallel bedding in places; slightly hematitic shale of 414.7 - 414.8, 415.05 - 415.3

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GEOLOGICAL LOG

415.9 - 420.5 CHLORITIC & SLIGHTLY CHLORITIC SHALE

slightly chloritic quartzitic siltstone and cherty shale, bedding indicated in places, a few 1-3mm quartz veins in places

417.2 shearing angle to core axis 30°

420.5 - 423.7 CHERTY SLIGHTLY CHLORITIC SHALE

minor slightly chloritic shale, bedding indicated in places, a few quartz veins throughout

422.5 - 422.7 quartz chlorite as veins and blobs, some pyrite in quartz veins.

423.3 bedding angle to core axis 25°

423.7 - 427.5 SILICIFIED CHLORITE - CHLORITE SHALE

bedding in places; several 5-20cm sections of quartz-chlorite veining, very thin hematite coating on a few joints

425.85, 425.9-426.1, 426.18-426.2, 426.35-426.45, 427.3-427.5, quartz chlorite, both as 1-3mm veins parallel shearing and as very contorted veins and blobs

425.4 bedding angle to core axis 25°

427.5 - 430.2 CHLORITE - CHLORITE SHALE

several sections of abundant quartz-chlorite-veins and blobs (427.5-427.6, 428.85-429.0, 429.55-429.8)

428.6 - 428.85 phyllitic chloritic shale, many disruptions.

430.2 - 431.2 PHYLLITIC CHLORITIC SHALE

bedding not visible, many disruptions, shearing angle to core axis 22

431.2 - 435.5 SILICIFIED CHLORITIC SHALE

and slightly chloritic, bedding in places; a few sections are phyllitic; a few disruptions in places

431.4 bedding angle to core axis 40°, shearing angle to core axis 20°

434.8 shearing angle to core axis 30°

435.05 - 438.2 some contorted quartz chlorite veins with some pyrite

435.5 - 443.5 SILICIFIED VERY SLIGHTLY CHLORITIC SHALE

bedding visible in a few places; sequence appears rather

GEOLOGICAL LOG

undisturbed, a few quartz veinlets, in places.
438.3 shearing angle to core axis 37°
437.8 bedding angle to core axis 53°, shearing angle to core axis 42°
43.9 disrupted and lensed out 1cm bed of cherty shale
440.4 shearing angle to core axis 40°

443.5 - 445.25 SILICIFIED CHLORITIC SHALE
bedding only visible at 445.1, bedding angle to core axis 28° a few 1mm quartz veinlets parallel shearing.

445.25 - 446.35 SILICIFIED SLIGHTLY HEMATITIC SHALE
bedded, greyish purple
445.25 bedding angle to core axis 40°
445.7 - 445.8 slightly chloritic shale with 1,5 cm gritty bed at 445.7, bedding angle to core axis 48°

446.35 - 447.0 SILICIFIED VERY SLIGHTLY CHLORITIC SHALE
bedding invisible in places, some disruptions of cherty shale beds.
447.0 1-2cm gritty bed, probably faulted Footwall contact

447.0 - 451.65 HEMATITIC SHALE
purple, mainly bedded several quartz chlorite sections; sequence rather distrubed by very contorted veining, some minifaults and disruptions; core very broken up at
448.9 - 449.0
447.6 - 448.0 zone of several 1-2 cm quartz chlorite veins sub parallel bedding
448.7 - 449.1, 449.7 - 449.75, 450.2 - 450.41 quartz chlorite sections
449.3 - 449.6 several very contorted 1-5mm quartz veins
450.45 minifault plane angle to core axis 28°
451.3 - 451.4 very disturbed zone of mylonitised chlorite and broken up quartz blebs.

451.65 - 453.15 HEMATITIC SHALE
purple mainly bedded, a few contortions and disruptions
451.9 bedding angle to core axis 36°
452.2 - 452.7 bedding angle to core axis 0-5°(locally anomalous value)
452.8 bedding angle to core axis 28°

ROVER 1 DDH3 WR02

GEOLOGICAL LOG

453.15 - 453.4 QUARTZ CHLORITE

as very contorted veins and blobs

453.4 - 454.3 SILICIFIED CHLORITIC SHALE

with 2x5cm beds, possible marker beds, of finegrained chloritic greywacke (with 40% red 1mm feldspar-grains) at 453.9 and 454.15; many 1-2 contorted quartz veins, some disruptions.

454.3 - 457.4 SILICIFIED VERY SLIGHTLY CHLORITIC SHALE

bedded, planar bedding planes, only a few slight contortions and disruptions, a few 1-5 mm quartz veins in places.
454.8, 456.6 bedding angle to core axis 45°

457.4 - 458.3 HEMATITE SHALE

well bedded - laminated; 1-2mm red hematite-rich beds interbedded with 2-10 mm purple hematite poor beds, slight contortions in places
457.7 bedding angle to core axis 45°
457.9 2 cm wide zone of quartz chlorite veining parallel bedding

458.3 - 458.95 SLIGHLY HEMATITIC SHALE

bedded with several 2-10 mm quartzitic siltstone-beds; minor contortions and disruptions near Hangingwall boundary

458.95 - 460.3 SLIGHTLY CHLORITIC SHALE

well bedded, thin chlorite rich beds interbedded with wide chlorite poor beds; 460.0 bedding angle to core axis 38°, a few mini faults
495.75 3 cm wide zone of ill defined quartz chlorite blebs parallel to bedding.

E.O.H.

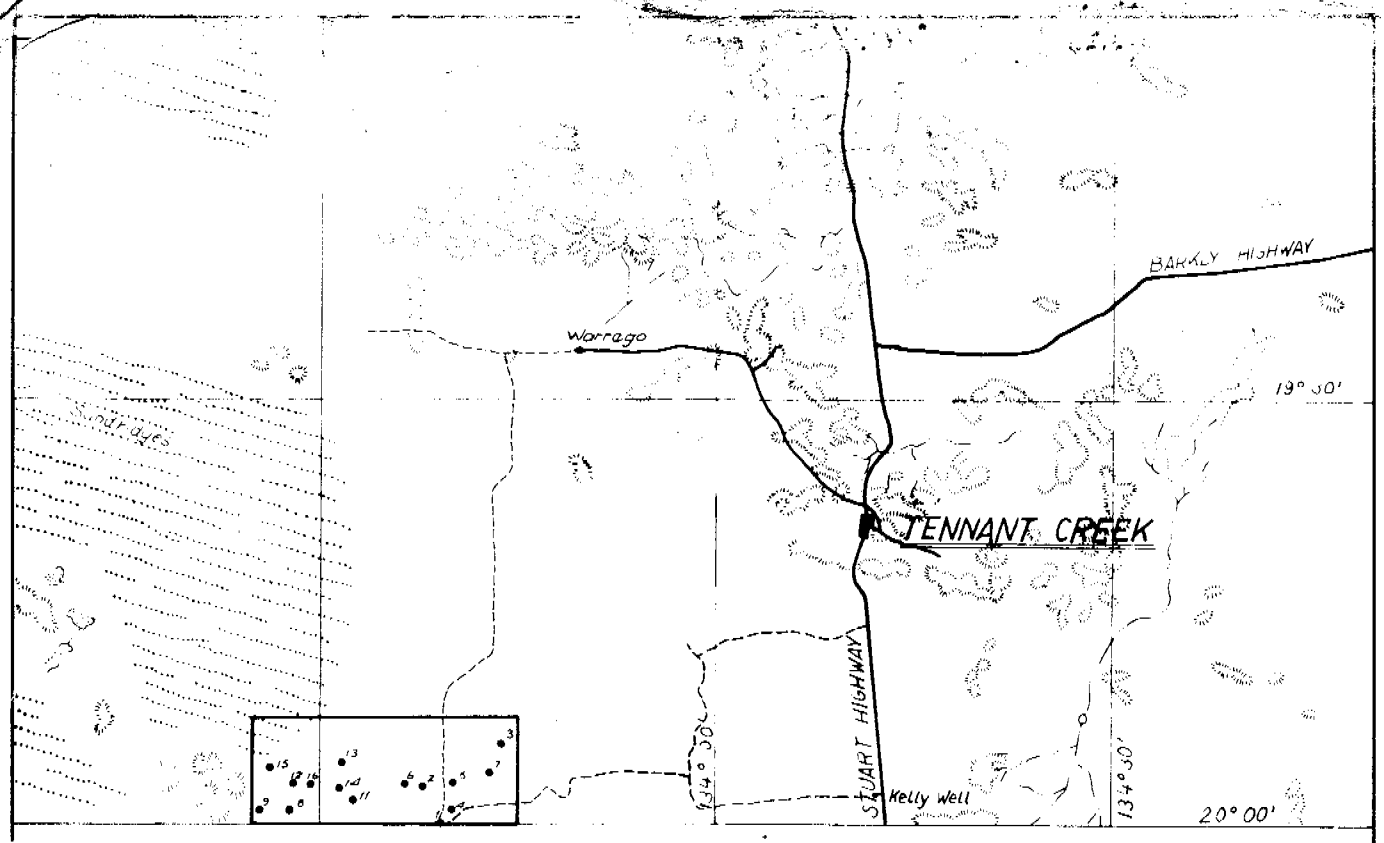


Fig. 1

LOCALITY PLAN SHOWING E.L. 228 SCALE: 1:1 000 000 10 0 Km 10 20 30 40 50 60

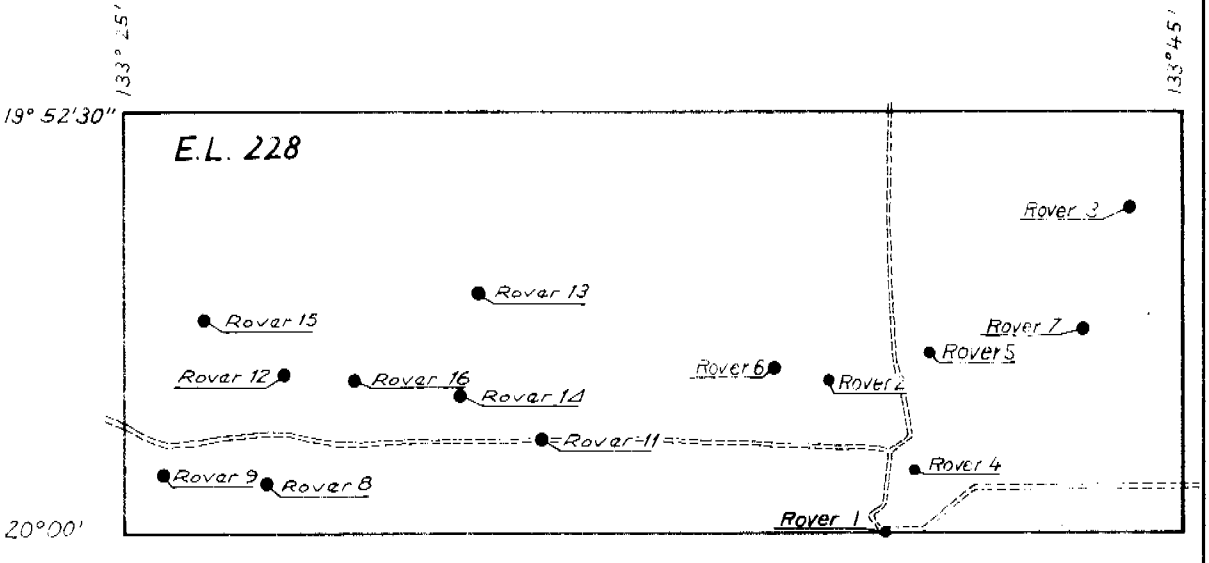


Fig. 2

AMENDED Date / Geologist	GEOPEKO LTD. CENTRAL AUSTRALIA TENNANT CREEK		
14/8/74 Drn. FW.T	Scale: 1 250 000	2.5 0km 2.5 5 7.5 10 12.5	
	DATE: 15-8-74	PLAN Showing Approximate Position of Rovers within E.L. 228	
	GEOLOGIST		
	DRAWN		TF 1138
	CHECKED	Fig's 1 & 2	

700E 800E 900E 1000E 1100E 1200E 1300E

1000 RL
900 RL
800 RL
700 RL
600 RL
500 RL
400 RL
300 RL
200 RL
100 RL

DDH 3 W RO2
320
329.5
341
350
351.5
359
375.5
392.5
405

DDH 1
395
420
425
450
475
500
515

DDH 2 W RO1
380
400
425
450
475
500

DDH 2 W RO3
500
502.5
525
550
575
600
605 EOH

DDH 2 W RO2
500
502.5
540
550.5
565
617.5
630

DDH 2 W RO6
540
545
560.5
575
587.5
602.5
617.5
635
655
657 EOH

TWO ASSUMED GEOPHYSICAL BODIES

ASSUMED GEOPHYSICAL BODY OF BEST FIT

- UNDIFFERENTIATED SEDIMENT
- SHALE
- PHYLLITIC SHALE
- CHLORITE SHALE / CHLORITIC SHALE / SLIGHTLY CHLOR SHALE
- CHERTY SHALE / SILICIFIED SHALE
- HEMATITE SHALE / HEMATITIC SHALE / SLIGHTLY HEM SHALE
- (QUARTZITIC) SILTSTONE
- QUARTZITE / SPOTTED QUARTZITE
- GREYWACKE, GRIT
- CONGLOMERATE
- BRECCIA
- DOLOMITE (SEDIMENT) / DOLOMITE RECRYSTALLISED
- CHERT / JASPER
- CHLORITE
- QUARTZ
- QUARTZ _ CHLORITE _ VEINING
- QUARTZ _ MAGNETITE
- CHLORITE _ MAGNETITE
- MAGNETITE _ MINOR SULPHIDE
- MAGNETITE _ SULPHIDE
- HEMATITE _ MAGNETITE
- QUARTZ _ HEMATITE
- CHLORITE _ HEMATITE
- HEMATITE _ MINOR SULPHIDE
- HEMATITE _ SULPHIDE
- SULPHIDE _ ROCK
- MINERALISED SEDIMENT
- LODE, ARROW SHOWS PLANE OF SECTION
- MINERALISED SEDIMENT
- DDH SOUTH OF PLANE OF SECTION
- DDH NORTH OF PLANE OF SECTION
- DDH MANUAL PLOT
- UNCONFORMITY
- BEDDING / OVERTURNED BEDDING
- TOP OF BED
- CLEAVAGE
- JOINT
- FAULT
- SMALL SCALE FOLDING
- CONTORTIONS

DATE 29/7/74
GEOLOGIST W.K.M.
DRAWN L.C.
SCALE 1:1000

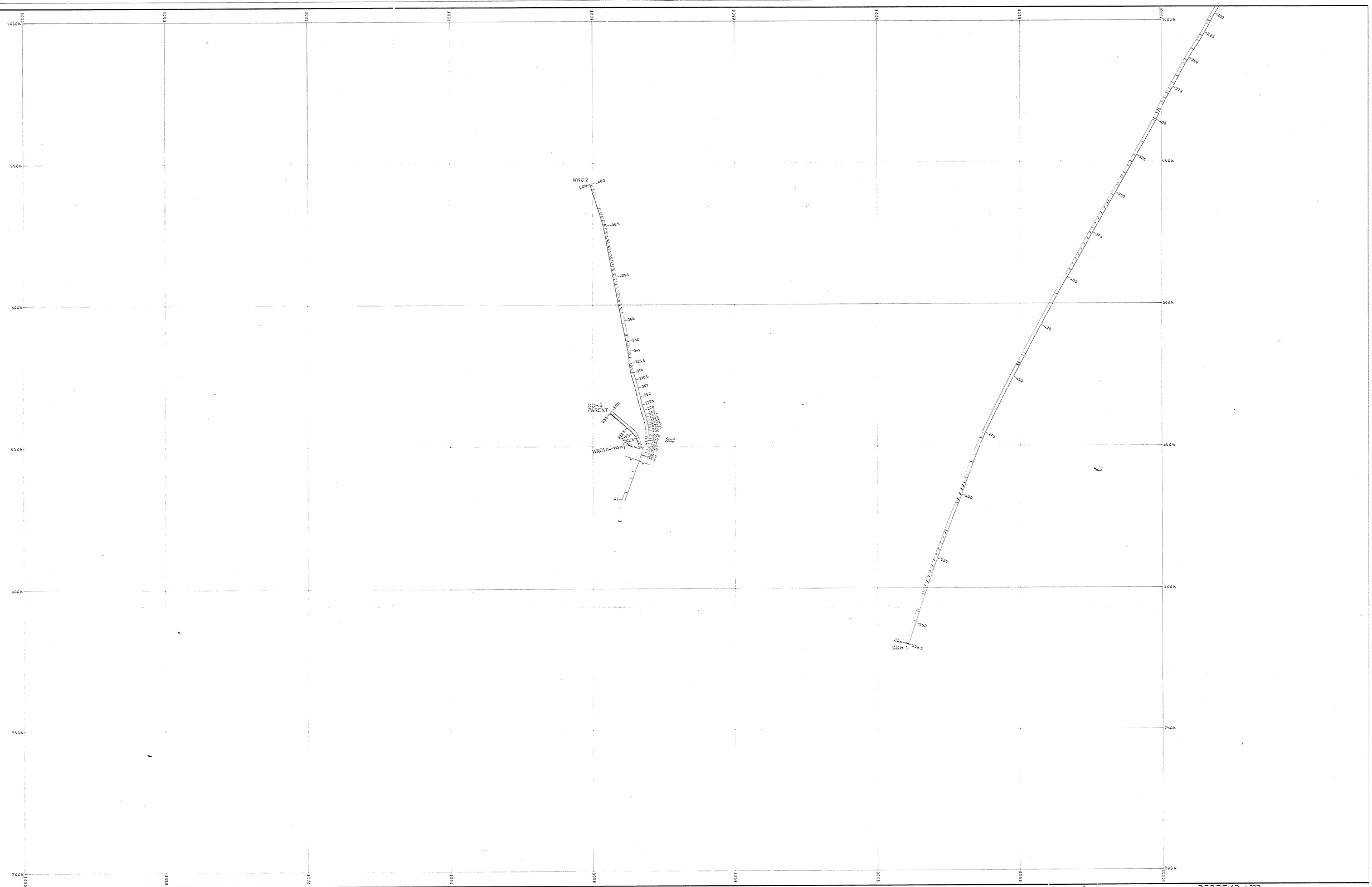
GEOPEKO LTD.
NORTHERN TERRITORY GROUP TENNANT CREEK

40m 20 0 20 40m

No. TF-R1/LS-900

ROVER 1
GEOLOGICAL LONG SECTION
900 N

Fig.3

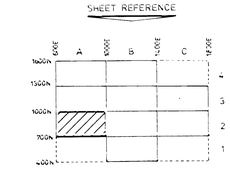


- Unditterentiated Sediment
- Shale
- Phyllitic Shale
- Chlorite-Shale / Chloritic Shale; Slightly Chlor
- Cherty Shale / Silicified Shale
- Hematite-Shale/Hematitic Shale, Slightly Hem
- (Quartzitic) Siltstone
- Quartzite / Spotted Quartzite
- Conglomerate
- Greywacke, Grit
- Breccia
- Dolomite(sediment) / Dolomite(recrystallised)
- Chert / Jasper
- Chlorite
- Quartz
- Quartz-Chlorite veining
- Mineralised Sediments
- Sulphide Rock
- Quartz-Magnetite
- Chlorite-Magnetite
- Magnetite-Minor Sulphide
- Magnetite-Sulphide
- Hematite-Magnetite
- Chlorite-Hematite
- Quartz-Hematite
- Hematite-Minor Sulphide
- Hematite-Sulphide

- 15/20° Dip & strike of bedding
- Overturned bedding
- Vertical bedding
- Top of bed indicated by graded bedding
- Top of bed showing facing
- Trace of prominent bed
- Lithologic contact (known)
- Lithologic contact (approximate)
- Cleavage
- Jointing
- 40° Foliation

- Lineation
- 50° Fault-zone
- 50° Dip & strike of shear-zone
- Unconformity

SHEET REFERENCE



GEOPEKO LTD
CENTRAL AUSTRALIA TENNANT CREEK

0 10 20 30 40 50m

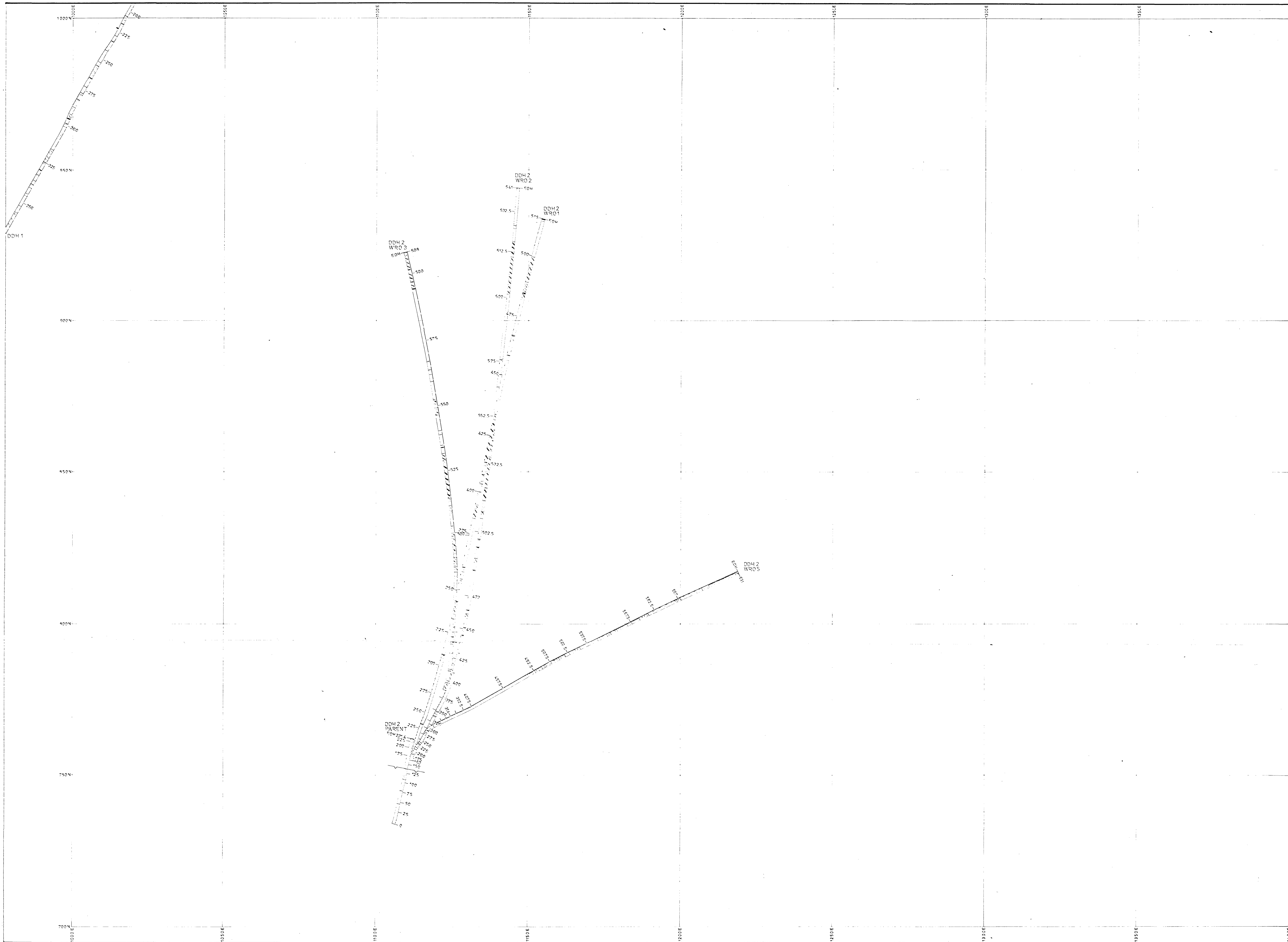
No. TF-R1./SP-A2

DATE 24/7/74
GEOLOGIST W.K.M.
DRAWN F.W.T.
SCALE 1:500

ROVER 1
SURFACE PLAN

GEOLOGY & DRILL HOLES projected to 1000mRL.
Co-ordination by computer. (DDH1)

Fig.4

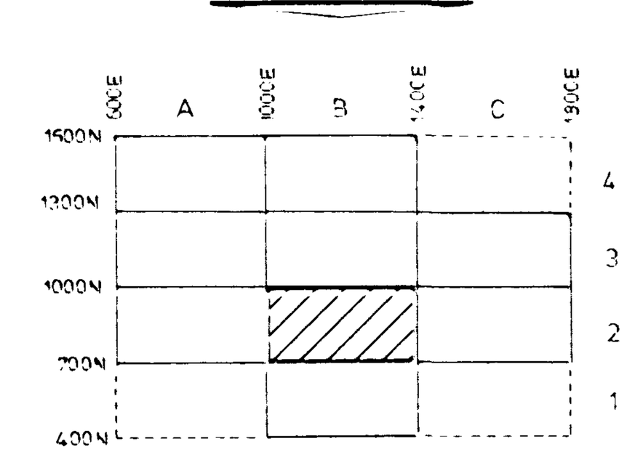


Undifferentiated Sediment	Greywacke, Grit	Quartz-Magnetite
Shale	Breccia	Chlorite-Magnetite
Phyllitic Shale	Dolomite (sediment) / Dolomite (recrystallised)	Magnetite-Minor Sulphide
Chlorite-Shale / Chloritic Shale / Slightly Chlor	Chert / Jasper	Magnetite-Sulphide
Cherty Shale / Silicified Shale	Chlorite	Hematite-Magnetite
Hematite-Shale / Hematitic Shale / Slightly Hem	Quartz	Chlorite-Hematite
(Quartzitic) Siltstone	Quartz-Chlorite veining	Quartz-Hematite
Quartzite / Spotted Quartzite	Mineralised Sediments	Hematite-Minor Sulphide
Conglomerate	Sulphide rock	Hematite-Sulphide

Dip & strike of bedding
Overturned bedding
Vertical bedding
Top of bed indicated by graded bedding
Top of bed showing facing
Trace of prominent bed
Lithologic contact (known)
Lithologic contact (approximate)
Cleavage
Jointing
Foliation

Lineation
Fault-zone
Dip & strike of shear-zone
Unconformity

SHEET REFERENCE



GEOPEKO LTD
CENTRAL AUSTRALIA TENNANT CREEK

0 10 20 30 40 50m

No. TF-R1/SP-B2

DATE 29.7.74
Amended: 9/8/74

GEOLOGIST W.K.M.

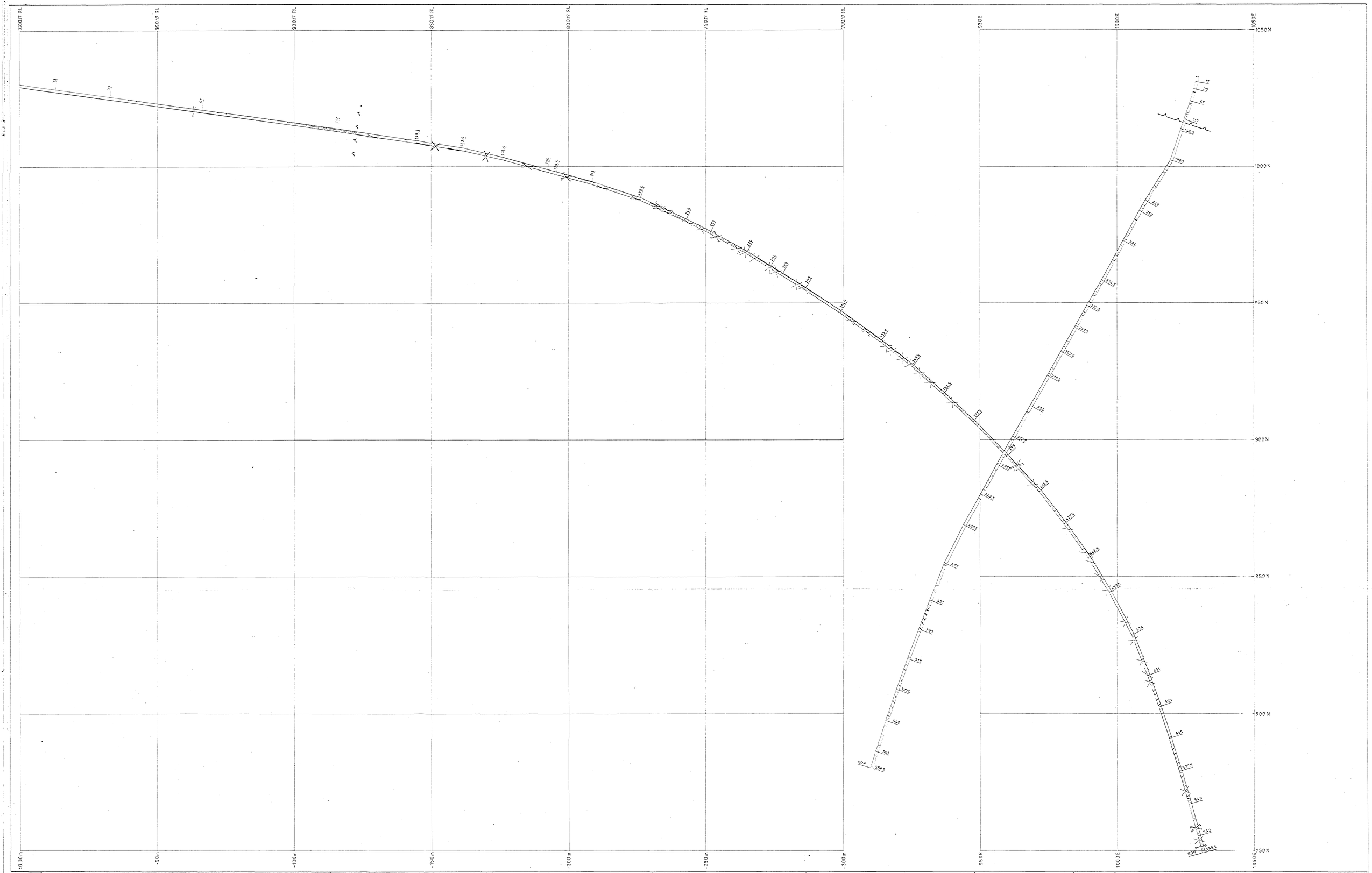
DRAWN F.W.T.

SCALE 1:500

ROVER 1 SURFACE PLAN

Fig.5

GEOLOGY & DRILL HOLES projected to 1000mRL.
Co-ordination by computer. (DDH1, DDH2P, WR01, WR03)



- Undifferentiated Sediment
- Shale
- Phyllitic Shale
- Chlorite-Shale/Chloritic Shale/Slightly Chlor.
- Cherty Shale/Silicified Shale
- Hematite-Shale/Hematitic Shale/Slightly Hem.
- (Quartzitic) Siltstone
- Quartzite/Spotted Quartzite
- Conglomerate
- Greywacke, Grit
- Breccia
- Dolomite(sediment)/Dolomite(recrystallised)
- Chert/Jasper
- Chlorite
- Quartz
- Quartz-Chlorite veining
- Mineralised Sediments
- Sulphide rock
- Quartz-Magnetite
- Chlorite-Magnetite
- Magnetite-Minor Sulphide
- Magnetite-Sulphide
- Hematite-Magnetite
- Chlorite-Hematite
- Quartz-Hematite
- Hematite-Minor Sulphide
- Hematite-Sulphide

- Dip & strike of bedding
- Overturned bedding
- Vertical bedding
- Top of bed indicated by graded bedding
- Top of bed showing facing
- Trace of prominent bed
- Lithologic contact (known)
- Lithologic contact (approximate)
- Cleavage
- Jointing
- Foliation
- Lineation
- Fault-zone
- Dip & strike of shear-zone
- Unconformity

UPDATED / Date / Geologist	AMENDED / Date / Geologist
22.7.74 L.W.K.M.	

DATE 12/..../ 19.74
GEOLOGIST W.K.M.
DRAWN K.W.T.
CHECKED

GEOPEKO LTD
CENTRAL AUSTRALIA
TENNANT CREEK

10 0 metres 10 20 30 Scale 1:500

№ TF .1009.....

ROVER 1
DDH 1

PLAN & PROFILE

Fig.6

Undifferentiated Sediment
Shale
Phyllitic Shale
Chlorite-Shale / Chloritic Shale / Slightly Chlor.
Cherty Shale / Silicified Shale
Hematite-Shale / Hematitic Shale / Slightly Hem.
(Quartzitic) Siltstone
Quartzite / Spotted Quartzite
Conglomerate
Greywacke, Grit
Breccia
Dolomite (sediment) / Dolomite (recrystallised)
Chert / Jasper
Chlorite
Quartz
Quartz-Chlorite veining
Mineralised Sediments
Sulphide rock
Quartz-Magnetite
Chlorite-Magnetite
Magnetite-Minor Sulphide
Magnetite-Sulphide
Hematite-Magnetite
Chlorite-Hematite
Quartz-Hematite
Hematite-Minor Sulphides
Hematite-Sulphide

20 Dip & strike of bedding
Overturned bedding
Vertical bedding
Top of bed indicated by graded bedding
Top of bed showing facing
Trace of prominent bed
Lithologic contact (known)
Lithologic contact (approximate)
Cleavage
Jointing
40 Foliation
50 Lineation
30 Fault-zone
Dip & strike of shear-zone
Unconformity

UPDATED / AMENDED	
Date / Geologist	Date / Geologist
12/8/74 : W.K.M	

DATE: 7/.8.1974
GEOLOGIST W.K.M.
DRAWN ...F.W.T.
CHECKED ....

GEOPEKO LTD.
CENTRAL AUSTRALIA TENNANT CREEK

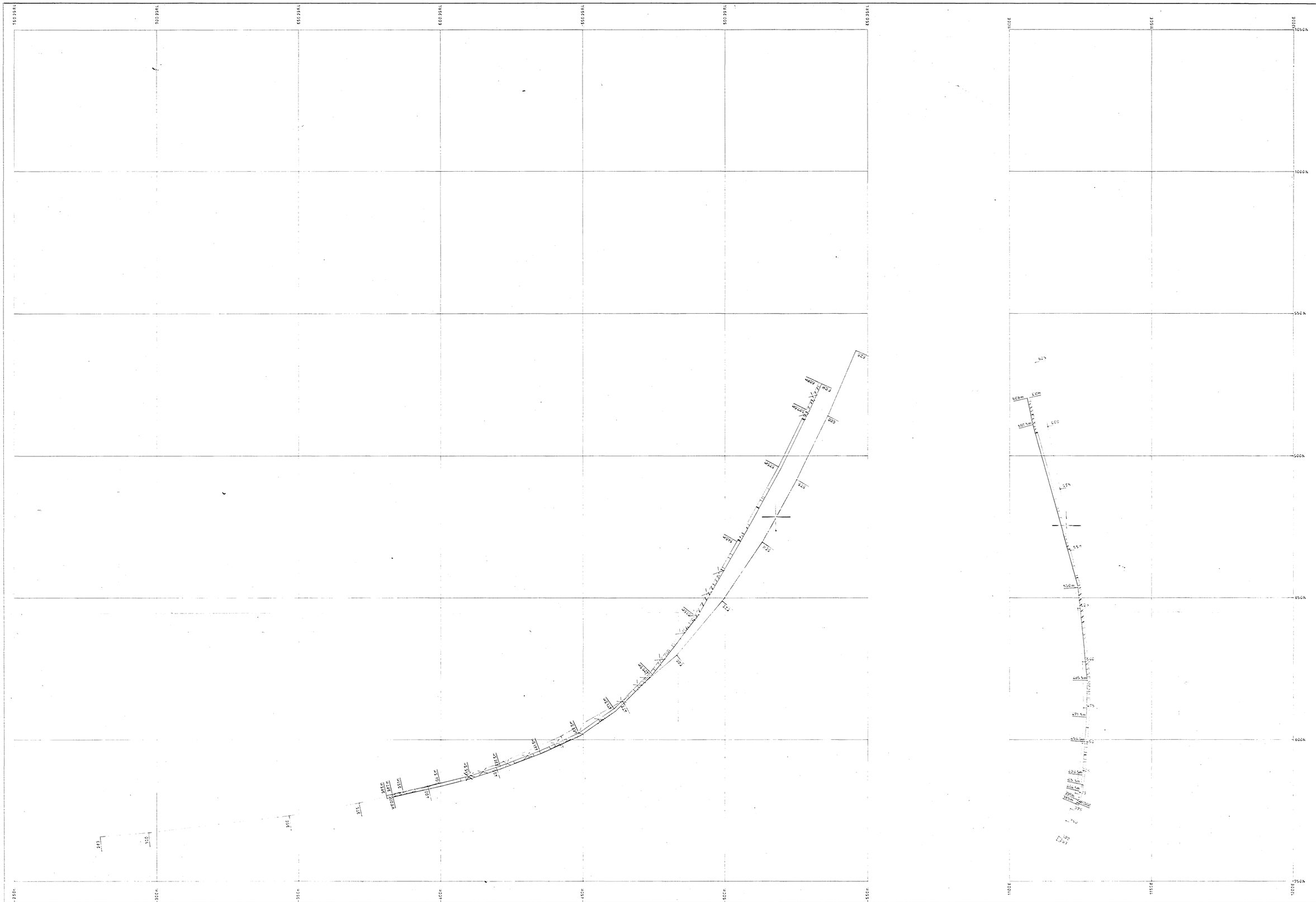
10 0 metres 10 20 30 Scale: 1:500

№ TF 1195........

ROVER 1
DDH 2 WRO 1&2

PLAN & PROFILE from 163m on DDH2 PARENT

Fig.7



- ▨ Undifferentiated Sediment
- ▨ Shale
- ▨ Phyllitic Shale
- ▨ Chlorite-Shale/Chloritic Shale/Slightly Chlor.
- ▨ Cherty Shale/Silicified Shale
- ▨ Hematite-Shale/Hematitic Shale/Slightly Hem.
- ▨ (Quartzitic) Siltstone
- ▨ Quartzite/Spotted Quartzite
- ▨ Conglomerate
- ▨ Greywacke, Grit
- ▨ Breccia
- ▨ Dolomite (sediment)/Dolomite (recrystallised)
- ▨ Chert/Jasper
- ▨ Chlorite
- ▨ Quartz
- ▨ Quartz-Chlorite veining
- ▨ Mineralised Sediments
- ▨ Sulphide rock
- ▨ Quartz-Magnetite
- ▨ Chlorite-Magnetite
- ▨ Magnetite-Minor Sulphide
- ▨ Magnetite-Sulphide
- ▨ Hematite-Magnetite
- ▨ Chlorite-Hematite
- ▨ Quartz-Hematite
- ▨ Hematite-Minor Sulphide
- ▨ Hematite-Sulphide

- 20 Dip & strike of bedding
- Overturned bedding
- Vertical bedding
- Top of bed indicated by graded bedding
- Top of bed showing facing
- Trace of prominent bed
- Lithologic contact (known)
- Lithologic contact (approximate)
- Cleavage
- Jointing
- 40 Foliation
- 30 Lineation
- Fault-zone
- Dip & strike of shear-zone
- Unconformity

UPDATED / AMENDED Date / Geologist	Date / Geologist
23.7.74. W.K.M.	

DATE: 21.1.1974
GEOLOGIST W.K.M.
DRAWN F.W.T.
CHECKED ....

GEOPEKO LTD.
CENTRAL AUSTRALIA TENNANT CREEK

0 10 metres 20 30 40 Scale: 1:500

№ TF 1191

ROVER 1
D.D.H. 2 W.R.C. 3

PLAN & PROFILE from 385 m. (on W.R.C. 2)

Fig. 8

Undifferentiated Sediment	Greywacke, Grit	Quartz-Magnetite
Shale	Breccia	Chlorite-Magnetite
Phyllitic Shale	Dolomite (sediment) / Dolomite (recrystallised)	Magnetite-Minor Sulphide
Chlorite-Shale / Chloritic Shale / Slightly Chlor	Chert / Jasper	Magnetite-Sulphide
Cherty Shale / Silicified Shale	Chlorite	Hematite-Magnetite
Hematite-Shale / Hematitic Shale / Slightly Hem	Quartz	Chlorite-Hematite
(Quartzitic) Siltstone	Quartz-Chlorite veining	Quartz-Hematite
Quartzite / Spotted Quartzite	Mineralised Sediments	Hematite-Minor Sulphide
Conglomerate	Sulphide rock	Hematite-Sulphide

- Dip & strike of bedding
- Overturned bedding
- Vertical bedding
- Top of bed indicated by graded bedding
- Top of bed showing facing
- Trace of prominent bed
- Lithologic contact (known)
- Lithologic contact (approximate)
- Cleavage
- Jointing
- Foliation
- Lineation
- Fault-zone
- Dip & strike of shear-zone
- Unconformity

UPDATED / AMENDED Date / Geologist	Date / Geologist
10.7.74 WRO 6 added 24.7.74, WKM	

DATE: 28/.3.19.74
GEOLOGIST W.K.M.
DRAWN ...E.W.T...
CHECKED ....

GEOPEKO LTD.
CENTRAL AUSTRALIA TENNANT CREEK

10 0 metres 10 20 30 SCALE 1:500 № TF-1192

ROVER 1
DDH 2 WRO 4, 5 & 6
PLAN & PROFILE from 275m (on WRO 2)

Fig. 9

Undifferentiated Sediment	Greywacke, Grit	Quartz-Magnetite
Shale	Breccia	Chlorite-Magnetite
Phyllitic Shale	Dolomite (sediment) / Dolomite (recrystallised)	Magnetite-Minor Sulphide
Chlorite-Shale / Chloritic Shale / Slightly Chlor	Chert / Jasper	Magnetite-Sulphide
Cherty Shale / Silicified Shale	Chlorite	Hematite-Magnetite
Hematite-Shale / Hematitic Shale / Slightly Hem	Quartz	Chlorite-Hematite
(Quartzitic) Siltstone	Quartz-Chlorite veining	Quartz-Hematite
Quartzite / Spotted Quartzite	Mineralised Sediments	Hematite-Minor Sulphide
Conglomerate	Sulphide rock	Hematite-Sulphide

- Dip & strike of bedding
- Overturned bedding
- Vertical bedding
- Top of bed indicated by graded bedding
- Top of bed showing facing
- Trace of prominent bed
- Lithologic contact (known)
- Lithologic contact (approximate)
- Cleavage
- Jointing
- Foliation
- Lineation
- Fault-zone
- Dip & strike of shear-zone
- Unconformity

UPDATED / AMENDED Date / Geologist	Date / Geologist
10.7.74 : WRO 2 added	
8/8/74 , W.K.M.	

DATE: 16.1.1974
GEOLOGIST H.W.R.M. W.K.M.
DRAWN F.W.I.T.
CHECKED

GEOPEKO LTD.
CENTRAL AUSTRALIA TENNANT CREEK

0 10 metres 20 30 40 Scale: 1:500

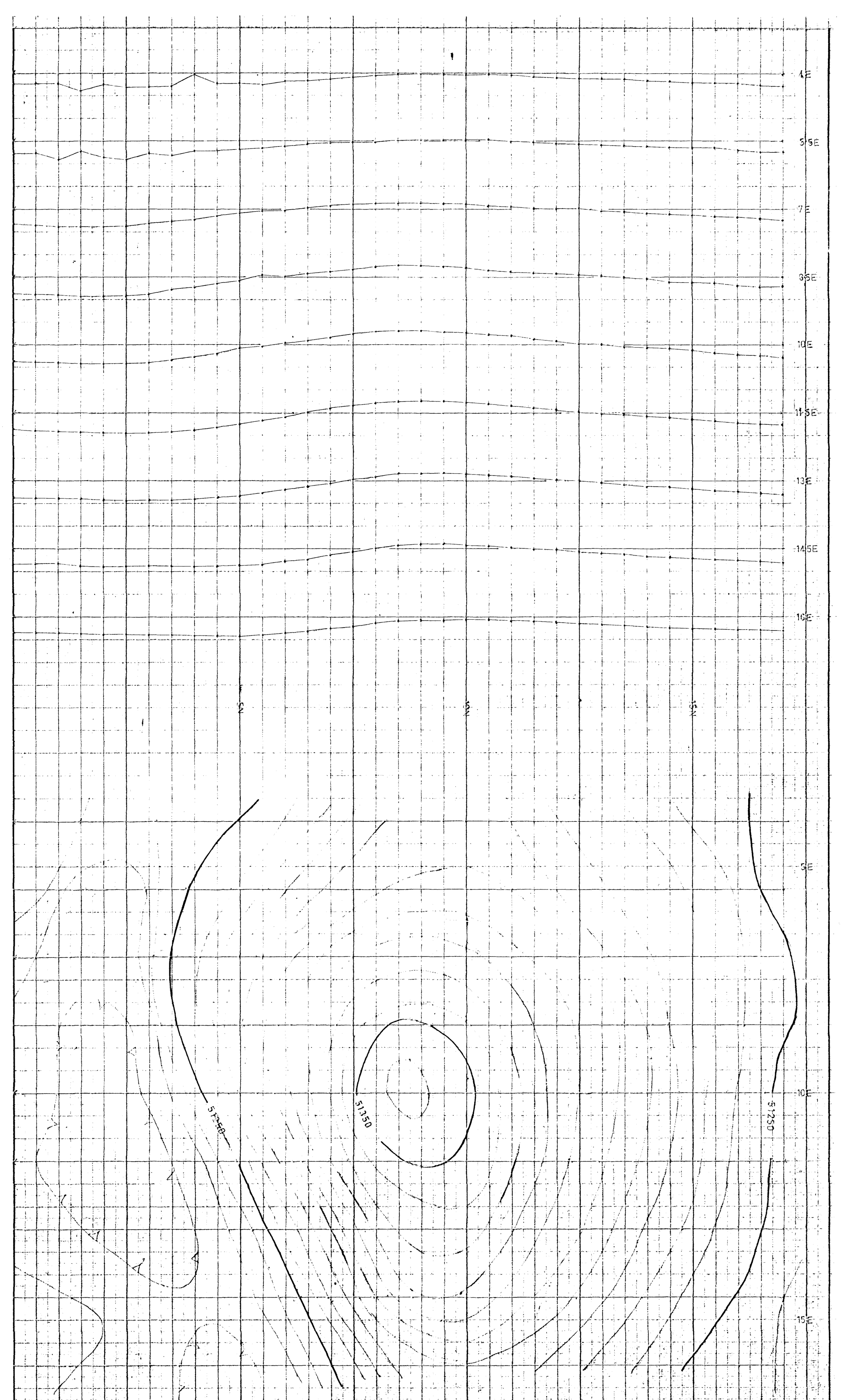
№ TF 1189

ROVER 1, RESIDUAL ANOMALY
PLAN & PROFILE
D.D.H. 3

Fig.10

GEOPEKO LTD Geophysical Surveys. Plan No. TF 1245	Instrument	Geometrics ENS 66	Datum	Contours-0 Profiles 5100	Hor Scale	1:5000	AREA	Tennant Creek N.T.	TF 1245
	Observer	L.J. Farrar S.B. Ilton R.C. Deakin	Base / Tag	2400E / 0700N	Vert. Scale	100 nTeslas / cm	PROSPECT	ROVER 5	
	Scale Fact.		Date	November 1973	Cont. Int.	20 nTeslas	PLAN SHOWS	Geomagnetic Total Force Profiles and Contours	

Fig. 11



GEOPEKO LTD. Geophysical Surveys.	Instrument	Geometrics	Datum		Hor. Scale	1:5000	AREA	Tennant Creek N.T.	TF 1246
	Observer	J.D.Fenton	Base Peg	10000E/10000N	Vert. Scale	100n Teslas	PROSPECT	ROVER 8	
Plan No. TF 1246	Scale Face		Date	December '72	cont. int.	10n Teslas	PLAN SHOWS	Geomagnetic Total Force Profiles & Contours	

Fig. 12

2000W

1500W

1000W

500W

00

500E

1000E

1500E

2000E

1400W

1300W

1200W

1100W

1000W

900W

800W

700W

600W

500W

400W

300W

00

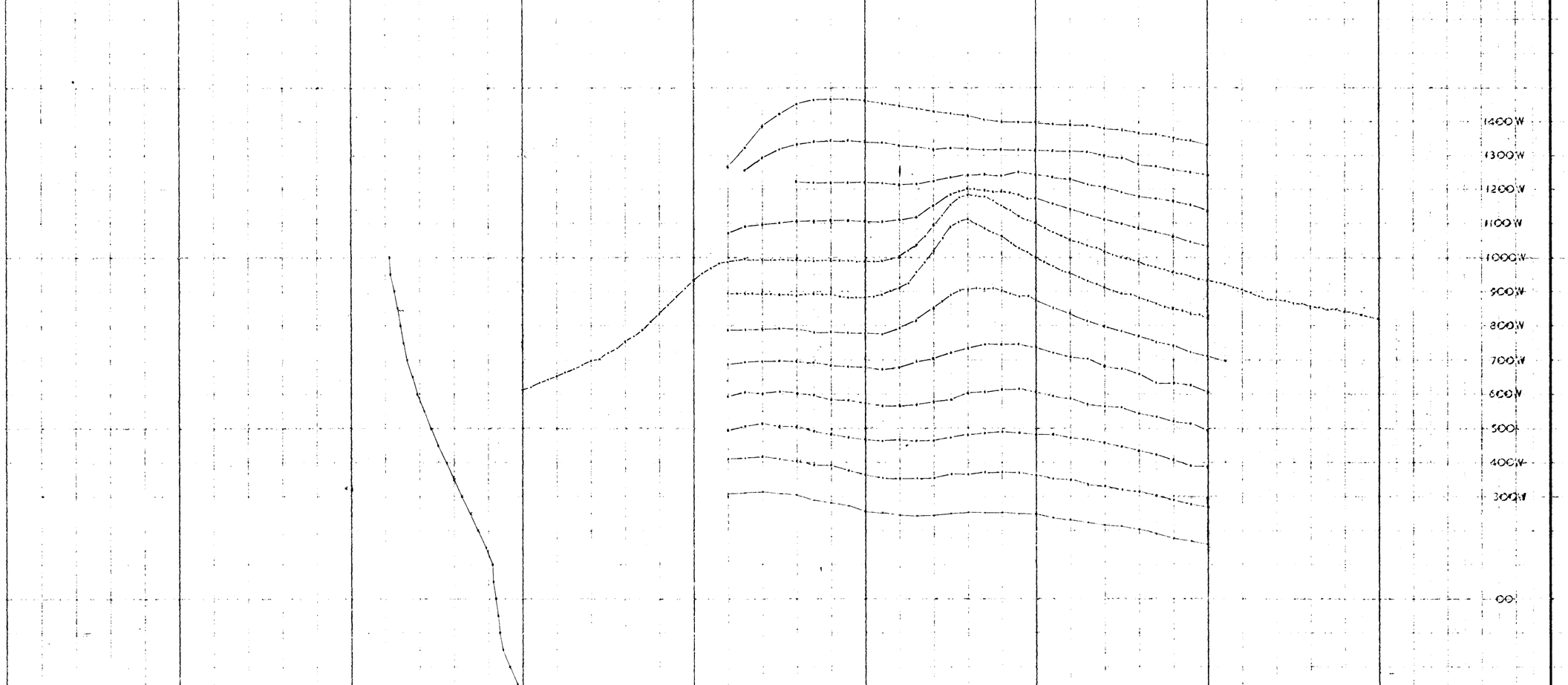
600E

800E

1000E

1200E

1400E



GEOPEKO LTD
Geophysical Surveys.
Plan No. TF 1250

Instrument	GEOMAGNETICS SN565	Datum	51250 nTeslas	Hor Scale	1:10000	AREA	TENNANT CREEK
Observer	L.J.D. FARRER	Base Pog	1000 E 1000 N	Vert. Scale	50 nTeslas/cm	PROSPECT	ROVER 11 & ROVER 14
Scale Fact.		Date	NOVEMBER 1973 APRIL 1974	Cont Int		PLAN SHOWS	GEOMAGNETIC TOTAL FORCE PROFILES

TF 1250

Fig. 13

0000 N

1000 N

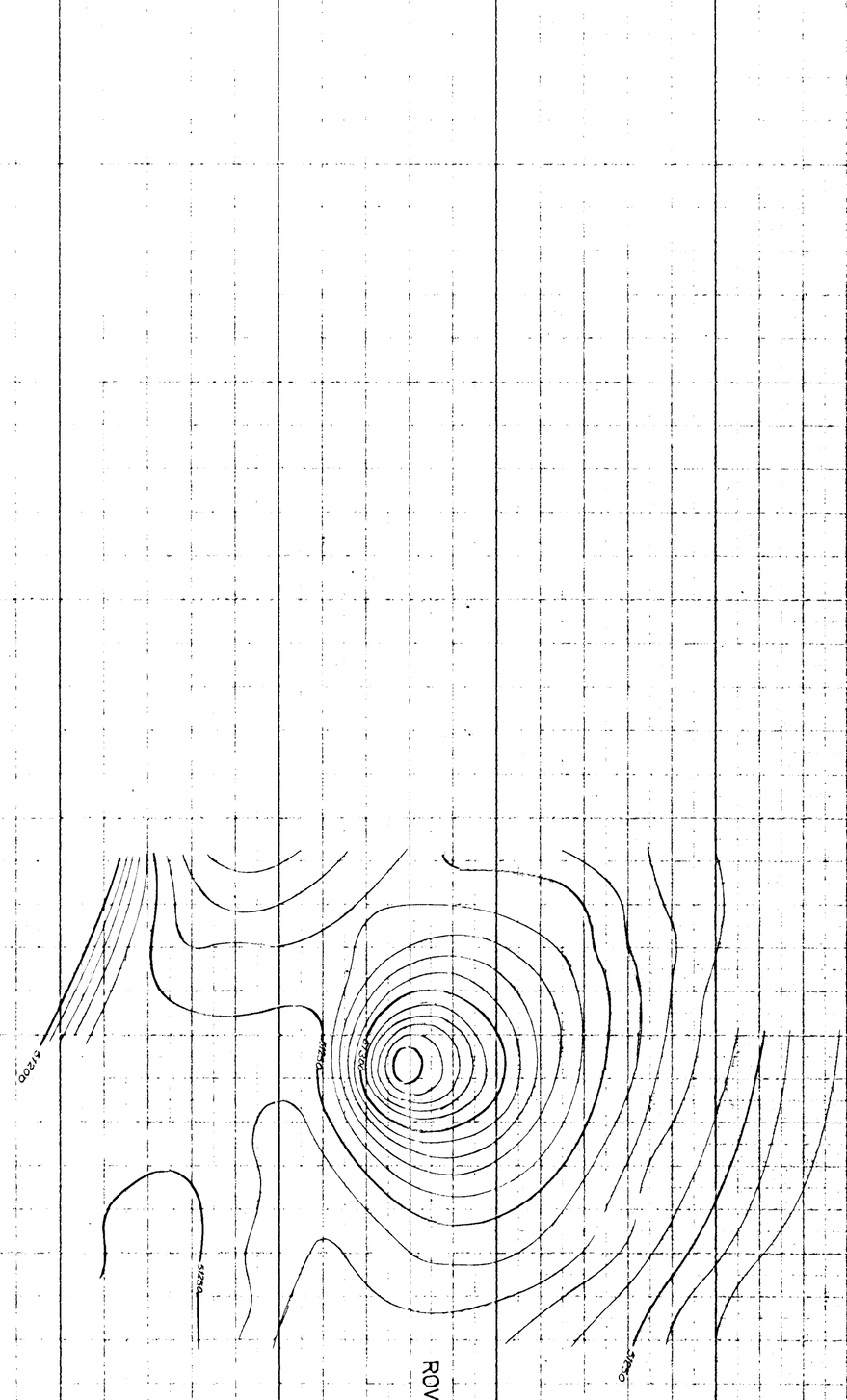
2000 N

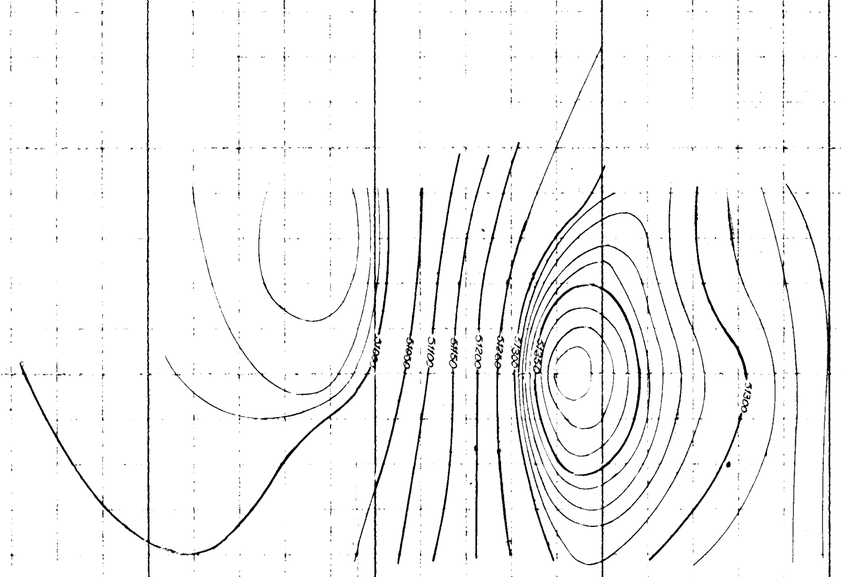
3000 N

1000 W

00

1000 E





GEOPEKO LTD
Geophysical Surveys.
Plan No. TF 1251

Instrument	GEOMETRICS SN 565	Datum	0	Hor Scale	1:10000	AREA	TENNANT CREEK
Observer	L.J.O. FARRAR	Base Reg	1000 E/1000 N	Vert Scale		PROSPECT	ROVER 11 & ROVER 14
Scale Fact		Date	NOVEMBER 1973 APRIL 1974	Cont Int	10 nTeslas	PLAN SHOWS	GEOMAGNETIC TOTAL FORCE CONTOURS

TF 1251

Fig. 14