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PARTIAL RELINQUISHMENT REPORT FOR EXPLORATION LICENCE 8604 WOODCUTTERS AREA NORTHERN TERRITORY 25.07.95 TO 24.07.98

Project Name: WOODCUTTERS

Map Sheets: DARWIN SD 52-04 1:250,000

Commodities: COPPER, LEAD, ZINC, GOLD

Author: K. A. Williams

Date: 17 August, 1998

Volumes: VOLUME 1 OF 1

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1. NT Department of Mines and Energy
2. Woodcutters Mine, NT
3. Normandy Exploration

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Report No: 23462

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Author: K.A. Williams

Date: 17 August, 1998

LOCATION MAP

SUMMARY

Prior to the granting of Exploration Licence 8604 exploration was conducted by Nicron Resources Ltd within the mining leases covering the same area. This work involved aeromagnetic/radiometric surveys and costeaning. The Huandot base metal prospect was generated from this work.

Results of follow-up exploration for base metals and gold, involving soil sampling, costeaning, RAB drilling, Diamond drilling and a gravity survey were disappointing. The area, however, remains prospective at depth for base metal mineralisation along strike from the Woodcutters deposit.

WORK SUMMARY

TENEMENT NUMBER	MAPPING	DIAMOND DRILLING	GEOPHYSICS
EL 8604	1:50,000	1 hole for 1,277.2m	Gravity

TENEMENT NUMBER	SOIL SAMPLING	COSTEANING	RC DRILLING
EL 8604	173	5 costeans for 585m	2 holes for 176m

Note: For details of mapping, soil sampling, costeaning and RC drilling, refer to the 1996 Annual Reports for EL 8604 (Report No: 11879).

1. CONCLUSIONS AND RECOMMENDATIONS

1.1 Costeaning has outlined siliceous and ferruginous zones with weakly anomalous gold interpreted to be a surface expression of strike slip faults which host the Woodcutters base metal deposits along strike to the north.

1.2 The coincident gold and arsenic geochemistry with associated base metals at the Huandot Prospect reflects the highest portion in a zoned mineralised system similar to the Woodcutters L5 orebodies.

1.3 The gold anomaly tested by costean 2800N is sourced from material transported from the adjacent Flaming Fury anomaly.

1.4 The area is prospective for deep Woodcutters type base metal mineralisation.

1.5 The structural information gained from deep diamond drilling was used in the reinterpretation of the geology of the Woodcutters Mine.

2. INTRODUCTION

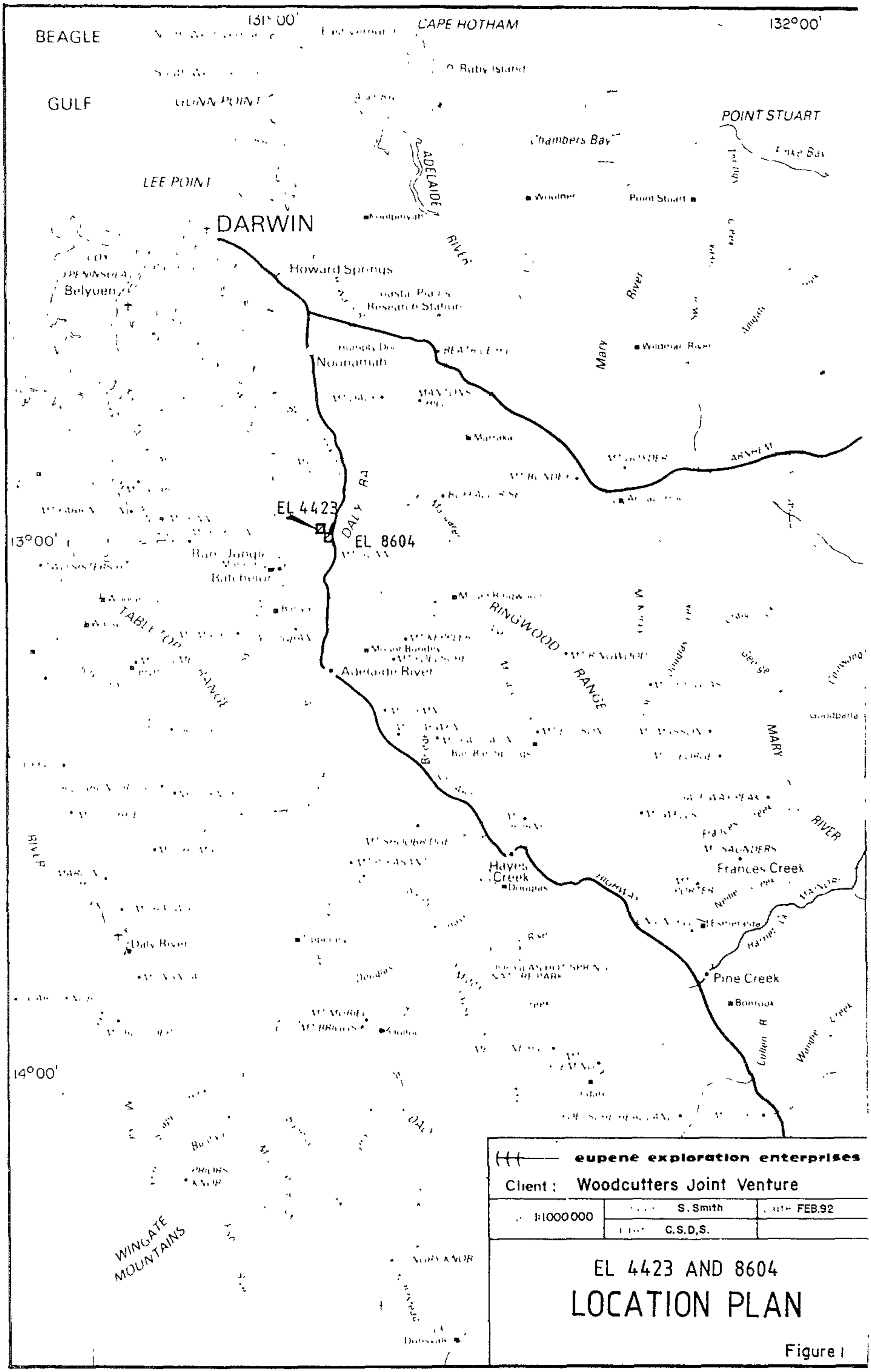
Most of the area covered by EL 8604 is also held as Mining Leases. The Exploration Licence was taken out primarily to include unpegged ground east of the highway, which would provide access for deep diamond drilling back towards Woodcutters.

The licence is considered prospective for base metal and gold mineralisation. Nicron Resources have explored within the area to be relinquished prior to the granting of the EL. This work outlined the Huandot base metal prospect.

The purpose of this report is to outline the work conducted within the relinquished block from July 1995 to July 1998.

3. LOCATION AND ACCESS

Exploration Licence 8604 is located immediately to the south of Woodcutters Mine, adjacent to the Great Northern Highway and approximately 80 km south of Darwin (see Figure 1).



eupene exploration enterprises

Client : Woodcutters Joint Venture

1:1000000	S. Smith	FEB.92
	C.S.D.S.	

EL 4423 AND 8604
LOCATION PLAN

Figure 1

4. TENURE

Exploration Licence 8604 was granted to Nicron Resources Limited on 25 July 1995 for a period of six years. The licence was comprised of 2 blocks and the compulsory 50% reduction after 2 years was waivered for 12 months. Mineral leases cover a majority of the licence (see Figure 2 for the location of the block to be relinquished).

5. PREVIOUS EXPLORATION

A brief chronology of exploration in the Woodcutters area is presented in Table 1.

Table 1

Early 1950's	Territory Enterprises excavated shallow costeans at Area 44 after surface radiometric prospecting.
1957	BMR airborne radiometric survey found two anomalies on the Woodcutters structure.
1962	BMR surface radiometrics and EM over Area 44.
1964-1968	Intensive geochemical sampling, mapping and geophysics outlined distinct base metal anomalies at Area 44 and L1-L6. These were drilled, but only L5 produced ore-grade intersection.
1969-1971	Detailed drilling and other geochemical and geophysical exploration at L5 by Geopeko defined over 0.7 million tonnes of ore reserve.
1974-1977	Further geochemical and geophysical surveys by Geopeko at Area 44 and Huandot defined earlier anomalies.
1977-1083	Magnum Exploration and then CSR outlined anomalous Pb mineralisation at Flaming Fury.
1980-1982	L5 open cut resource was defined and RC drilling north of L5 and to the north of Area 44 confirmed the extent of the anomalies but did not intersect ore-grades.
1987, 1989	Woodcutters Mine intersected minor Pb-Au mineralisation at Flaming Fury in diamond drill holes, then found significant low grade Pb-Au in costeans.
1989-1990	Deep drilling at L5 revealed large resource.

Prior to the discovery of Woodcutters, exploration interest was centred on Rum Jungle, 12 km to the west. Mineralisation at Rum Jungle first became known during the construction of the overland telegraph line in the 1870's and later the North Australian ?Railway which passed through what is now Batchelor. Copper minerals were seen and identified and a green mineral, probably torbernite, was reported. It was not until 1949 that uranium mineralisation was identified at Rum Jungle and intensive exploration then located three uranium orebodies, two copper orebodies and one large sub-economic lead-cobalt deposit (Walpole et al, 1968).

In conjunction with this local exploration, regional work by the Bureau of Mineral Resources (BMR) and Territory Enterprises Pty Ltd (the operator of the Rum Jungle mines) identified many areas of uranium and base metal anomalism. A regional "C" horizon geochemical sampling programme by the BMR in 1964 outlined a linear anomaly over what is known to be the Woodcutters structure and significant anomalies in Area 44.

Initial drilling of the major geochemical anomalies in the Woodcutters area in 1966-67 produced ore grade intersections of lead-zinc-silver mineralisation only at L5, where efforts were then concentrated. In 1968, L5 was put up for tender by the Commonwealth and a consortium of Electrolytic Zinc Company of Australia (EZ) and Peko Wallsend was successful. Intensive drilling and detailed geochemical sampling were successful in outlining a resource, but exploration ceased in 1971 when a feasibility study by the Joint Venture showed that further development work was not justified due to the size of the deposit.

Between 1972 and 1979 the Joint Venture acquired ground covering Area 44 and the Woodcutters structure to the north (towards Manton Dam) and south (Huandot). Intermittent surface exploration was carried out with no positive results. Between 1977 and 1983 work by Magnum Exploration and then CSR identified the Flaming Fury anomaly, east of L5. Further development of the L5 deposit occurred from 1980 when shallow drilling, designed to test for precious metal rich bodies in oxidised zones, delineated the pod which formed the open cut resource. In 1983, Nicron Resources purchased the tenements and through the formation of the Woodcutters Joint Venture, proceeded to develop L5 on the basis of an ore reserve of 1,073,000 tonnes at 7.9% Pb, 17.9% Zn and 170 g/t Ag. The open cut pre-strip commenced in December 1984 followed by mill and site infrastructure construction and upgrading of concentrate storage and handling facilities at Darwin Port. The first ore was milled in August 1985.

6. *GEOLOGY AND MINERALISATION*

The Woodcutters mineral field lies to the east of the Rum Jungle Complex. The rocks of the Rum Jungle Complex are Archaean in age and act as basement to Lower Proterozoic sedimentary rocks of the Pine Creek Geosyncline. The Lower Proterozoic sediments are unconformably overlain by minor pockets of Middle Proterozoic sandstone and karstic deposits. Tertiary alluvial deposits and laterite cover low lying areas.

The following are descriptions of the stratigraphic units in order of decreasing age:

Rum Jungle Complex
Lithologies consist of granite, gneiss, schist and iron formation.

Beestons Formation (Batchelor Group)
This unit consists of conglomerate, arkose and sandstone and is 100 to 200 metres thick.

Celia Dolomite (Batchelor Group)

Massive crystalline dolomite and magnesite are the main lithologies, with minor interbeds of chert and mudstone. The unit is 100 to 400 metres thick.

Crater Formation and Coomalie Dolomite (Batchelor Group)
These formations are very similar in lithology and thickness to the Beestons Formation and Celia Dolomite respectively.

Whites Formation (Namoona Group)
This unit has a thickness of at least 500m and predominantly comprises carbonaceous dolomitic slate with minor interbeds of impure carbonate (dololutite) and rare thin tuffs. Dololutite units and thin tuff marker beds can be correlated over distances of 2-3km to the north and west of Woodcutters Mine.

Wildman Siltstone (Mount Partridge Group)
Carbonaceous meta-pelite is the predominant lithology with lesser interbedded quartzite. some intervals of carbonaceous slate contain 20-30% pyrite and lesser pyrrhotite. An amphibolite unit 50-100 metres thick occurs at the base of the Wildman Siltstone or at the top of the Whites Formation. The BMR have mapped this unit to the south of Woodcutters and subsequent diamond drilling indicates it is probably an intrusive sill.

The Acacia Gap Quartzite member
The Acacia Gap Quartzite Member occurs about 200 metres above the base of the Wildman Siltstone. It is 50-200 metres thick and comprises several 3-20 metre thick beds of quartzite. Outside the Woodcutters Area the Wildman Siltstone is overlain by the South Alligator and Finniss River Groups.

Sink holes and karstic surfaces have formed over the carbonate sequences, probably during Middle Proterozoic time. Depressions were filled with clay, gossan-sulphide-quartz breccia and sandstone. The sandstone probably correlates with the Depot Creek Sandstone of the Tolmer Group.

Two main types of base metal mineralisation are recognised within the Woodcutters area:

- Vein-replacement base metal mineralisation (L5)
- Stratiform base metal mineralisation (Rum Jungle type)

The L5 vein replacement mineralisation consists of numerous irregular lenses of sulphides which generally fill the steeply dipping north-south axial plane faults within the Woodcutters structure. Thicker sections of the lenses and sometimes the actual presence of mineralisation are controlled by the intersection of these faults with dololutite rich intervals and cross faults. the mineralisation thickness may change rapidly, both in the vertical plane and along strike. The orebodies show replacement textures as well as vein-like features. A number of chemical/mineralogical types of ore can be distinguished, but the most common sulphide minerals in the lenses are pyrite, arsenopyrite, sphalerite, galena and lead-antimony sulphosalts.

Diamond drilling has intersected stratiform chalcopyrite, sphalerite and galena mineralisation associated with manganese rich stratigraphic intervals in the

Lower Whites Formation close to the basal contact into Coomalie Dolomite at Area 44. Highly anomalous Pb, Zn, Cu, Ni and Co levels have also been recorded from shallow drilling and surface sampling in the same area as the deeper stratiform mineralisation intersections.

7. *WORK CARRIED OUT DURING REPORTING PERIOD*

All of the work carried out during 1996 was conducted within the relinquished graticular block, hence the annual report referenced below is applicable to this report.

7.1 1996

Refer to Annual Report, Exploration Licence 8604, Woodcutters Area, Northern Territory, 25.07.95 to 24.07.96 by I.K. Butler (Report No. 11879).

7.2 1997

7.2.1 Diamond Drilling

The focus of near mine exploration has been on expanding the known base metal resources at Woodcutters. As part of this programme one deep diamond hole was drilled on the relinquished portion of EL 8604.

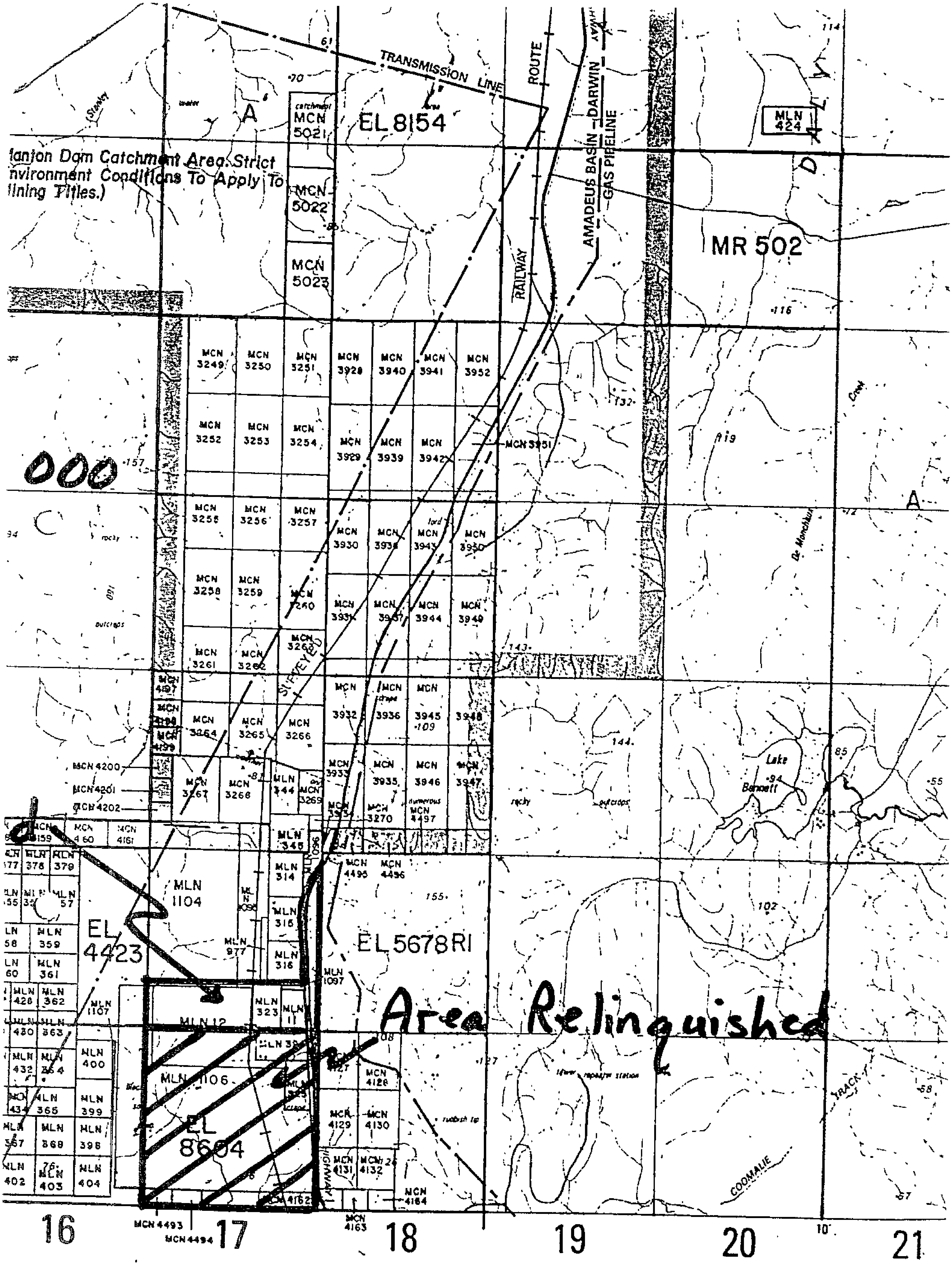
Diamond hole S1216 was planned to intersect a gossanous structure coincident with high gold and lead geochemistry and the "C5" dololutite horizon within the Lower Whites Formation. No mineralisation was intersected and the hole was stopped at 1277.2m (see Figure 3, Appendix 1).

Structural information obtained from S1216 and other diamond holes was used in the development of a new model for Woodcutters Mine. This model identifies significant low angle to steep laminated shears as part of a thrust system.

7.2.2 Gravity Survey

Prior to the diamond drilling, a detailed ground gravity survey was undertaken along the Woodcutters' structure (see Figures 3 and 4).

This survey was used as part of the process of determining the optimum sites for the diamond holes drilled.



TRANSMISSION LINE
ROUTE
AMADEUS BASIN – DARWIN GAS PIPELINE
RAILWAY
EL 8154
MCN 5021
MCN 5022
MCN 5023
MLN 424
MR 502
lanjon Dam Catchment Area. Strict
nvironment Conditions To Apply To
lining Titles.)
000
MCN 3249
MCN 3250
MCN 3251
MCN 3928
MCN 3940
MCN 3941
MCN 3952
MCN 3252
MCN 3253
MCN 3254
MCN 3929
MCN 3939
MCN 3942
MCN 3951
MCN 3255
MCN 3256
MCN 3257
MCN 3930
MCN 3943
MCN 3950
MCN 3258
MCN 3259
MCN 3260
MCN 3944
MCN 3949
MCN 3261
MCN 3262
MCN 3263
SURVEYED
MCN 4197
MCN 3264
MCN 3265
MCN 3266
MCN 3932
MCN 3936
MCN 3945
3948
MCN 4200
MCN 4201
MCN 4202
MCN 3267
MCN 3268
MLN 344
MCN 3269
MCN 3933
MCN 3935
MCN 3946
MCN 3947
MCN 3270
MCN 4497
MCN 4160
MCN 4161
MLN 345
MLN 378
MLN 379
MLN 314
MCN 4495
MCN 4496
MLN 1104
EL 4423
MLN 359
MLN 361
MLN 316
MLN 977
EL 5678RI
MLN 1097
MLN 362
MLN 1107
MLN 323
MLN 12
MLN 363
MLN 400
MLN 1106
MCN 4128
MLN 365
MLN 399
MCN 4129
MCN 4130
EL 8604
MLN 368
MLN 398
MLN 402
MLN 403
MLN 404
MCN 4131
MCN 4132
MCN 4162
MCN 4164
MCN 4493
MCN 4494
MCN 4163
HIGHWAY
Area Relinquished
Lake Bennett
De Monchaux
COOMALIE
TRACK
16
17
18
19
20
21

SCALE 1: 50 000

Kilometres 1 0 1 2 3 4 5 6 Kilometres

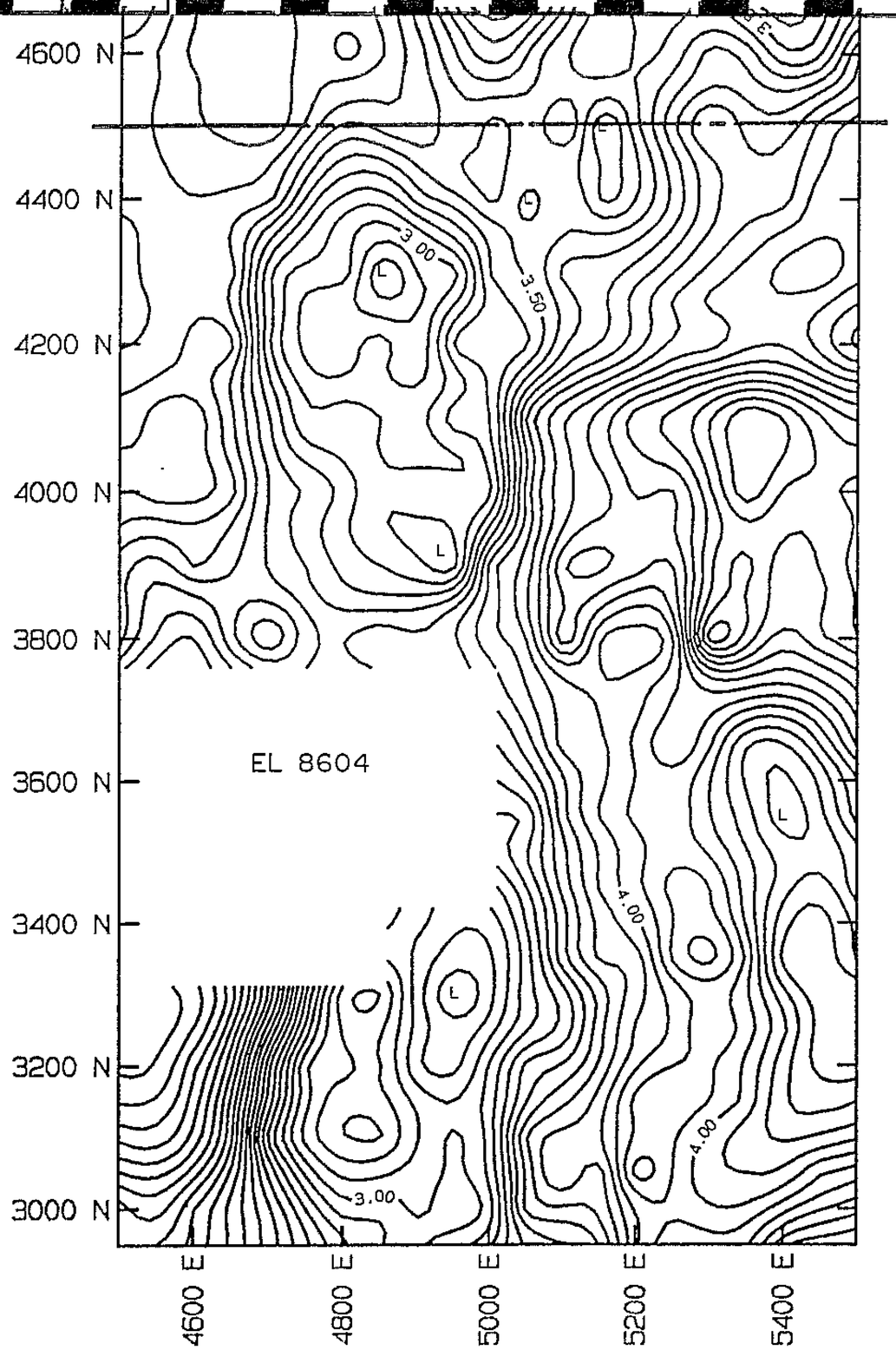
FULL LATITUDE AND LONGITUDE VALUES ARE SHOWN AT THE SHEET CORNERS, WITH EVERY 5' VALUE BEING LABELLED AROUND THE NEATLINE
10 000 METRE INTERVALS OF THE UNIVERSAL TRANSVERSE MERCATOR GRID, ZONE 52 (AUSTRALIAN MAP GRID) ARE ALSO SHOWN EXTERNALLY
CONTOUR INTERVAL 20 METRES

Figure 2

MCN 3258
MCN 3259
MCN 3260
MCN 3931
MCN 3937
MCN 3944
MCN 3949
MCN 3261
MCN 3262
MCN 3263
MCN 4197
MCN 3932
STUART HIGHWAY
MCN 3936
MCN 3945
MCN 3948
MCN 4198
MCN 4199
MCN 3264
MCN 3265
MCN 3266
MCN 3933
MCN 4200
MCN 4201
MCN 4202
MCN 3267
MCN 3268
MLN 344
MCN 3269
MCN 3935
MCN 3946
MCN 3947
MCN 3934
MCN 4158
MCN 4159
MCN 4160
MCN 4161
MLN 345
MCN 3270
MCN 4495
MCN 4496
MCN 4497
12°58'
MLN 377
MLN 378
MLN 379
MLN 1096
MLN 1095
MLN 314
MLN 355
MLN 356
MLN 357
8 565 000mN
MLN 1104
MLN 315
SHAFT
OPEN PIT
EL 4423
MLN 358
MLN 359
MLN 977
EL 5678
MLN 316
ADMIN
MLN 360
MLN 361
MLN 427
MLN 428
MLN 362
OLD TAILINGS DAM
MILL
MLN 323
MLN 11
12°59'
MLN 429
MLN 430
MLN 363
MLN 12
MLN 324
MLN 1107
MLN 400
MCN 4127
MCN 4128
MLN 431
MLN 432
MLN 364
NEW TAILINGS DAM
MLN 325
MLN 433
MLN 434
MLN 365
MLN 399
8 563 000mN
MCN 4129
MCN 4130
MLN 366
MLN 367
MLN 368
MLN 398
MLN 1106
EL 8604
MLN 401
MLN 402
MLN 403
MLN 404
MCN 4131
MCN 4132
MCN 4493
MCN 4494
MCN 4162
MCN 4163
MCN 4164
13°00'
MLN 1147
STUART HIGHWAY
ERL 128
BATCHELOR ROAD
8 561 000mN
13°01'
131°05'
131°06'
728 000mE
131°07'
730 000mE
131°08'
ABORIGINAL FREEHOLD LAND
0
500m
1km
2km
1 : 25,000
N

WOODCUTTERS MINE AREA
TENEMENT PLAN

Figure 2



DATA ACQUISITION

Operator :	P. Walton
Gravimeter :	Lacoste & Romberg G1007
Navigation :	Grid
Station Spacing :	50m
Line Spacing :	100m

DATA PRESENTATION

Contour Interval :	0.1 mGals
Contour Levels :	0.1 mGals - Green
	0.5 mGals - Black

N

0 200 400 600 M

SCALE 1: 10000

NICRON RESOURCES LTD.

WOODCUTTERS EXPLORATION

CONTOURED BOUGUER ANOMALY MAP (D=2.4g/cc)

Author: K.Tucknott
Date: 17/10/96

FIGURE 4

7.3 1998

Refer to Annual Report for Year Three, Exploration Licence 8604, Woodcutters Area, Northern Territory, 25.07.97 to 24.07.98 by K.A. Williams, Report No. 23461.

8. ENVIRONMENTAL/REHABILITATION REPORT

All rehabilitation has been completed in accordance with Sections 24(e) and 166(1)(a) of the Mining Act. This included back filling of all sumps and costeans and capping all drill holes.

This area also falls within the environmental rehabilitation plan for the entire Woodcutters Mine site.

9. REFERENCES

Butler, I.K., 1996. Annual Report Exploration Licence 4423, Woodcutters Area, Northern Territory. *Unpublished Report for the Northern Territory Department of Mines and Energy Library.*

Butler, I.K. 1996. Annual Report Exploration Licence 8604, Woodcutters Area, Northern Territory, 25 July 1995 to 24 July 1996. *Unpublished Report for the Northern Territory Department of Mines and Energy Library.*

Williams, K.A. 1997. Annual Report for Year Two, Exploration Licence 8604, Woodcutters Area, Northern Territory, 25 July 1996 to 24 July 1997. *Unpublished Report for the Northern Territory Department of Mines and Energy Library.*

Williams, K.A., 1998. Annual Report for Year Three, Exploration Licence 8604, Woodcutters Area, Northern Territory, 25 July 1997 to 24 July 1998. *Unpublished Report for the Northern Territory Department of Mines and Energy Library.*

BIBLIOGRAPHIC DATA SHEET

REPORT NUMBER:	**23462**
REPORT TITLE:	Partial Relinquishment Report for EL 8604, Woodcutters Area, Northern Territory, 25 July 1995 to 24 July 1998.
PROSPECT NAME:	Huandot
TENEMENT NUMBERS:	EL 8604
OWNER/JV PARTNERS:	Normandy Woodcutters Limited - 100%
COMMODITIES:	Gold, Zinc, Lead
TECTONIC UNITS:	Pine Creek Geosyncline.
STRATIGRAPHIC UNITS:	Whites Formation
1:250,000 MAP SHEET:	Darwin SD 52-04
1:100,000 MAP SHEET:	Noonamah 5172
KEYWORDS:	RC drilling Regional geology Prospect geology Geological mapping Literature reviews Aerial magnetic surveys Aerial radiometric surveys Costeaning Diamond drilling Gravity surveys Soil sampling

APPENDIX I

DIAMOND DRILL HOLE LOGS

ENTERED

WOODCUTTERS JOINT VENTURE
CORE LOGGING SHEET

Date: 24/10/90 Hole: 5216

Logged by: KENT WILLIAMS Page No. 1 of 8

Distance from collar	Recovery %	RQD	Weathering	Structure	Cleavage	Bedding	Sense	Stratigraphy	Rock type	Dolomitic slate %	Dololutite %	Mineral Percentages: Galena	Sphalerite	Sulphosalts	Pyrite	Chalcopyrite	Stibnite	Arsenopyrite	Pyrrhotite	Quartz	Carbonate	HMR	Sample Number	Comments
201.7																								
208					20	15	0		2															well cleaved slate. C5's
214									2															
215.8									2															
216.3									8															DOLOMITIC DYKE, pyritic? pink cc uns OOLITIC.
221.8					25	60	S		2															
223.2									3?															DOLOLUTITE (OOLITIC).
227.2									2															
232.6									3															DOLOLUTITE (OOLITIC)
235.7									2															
240.2				SV/AAA					2/3															sheared fault zone, breccia, graphitic slicks, pink calc + DOLOLUTITE BEDS
242.8				SV/AAA					8													7		DOLOMITIC DYKE, calcuns, w graphitic slicks,
246.6					5	20	S		2															well cleaved > bedded fine slate
248.7									3															DOLOLUTITE (OOLITIC)
250.9									2															
256				B1 AAA/SV					2/3															257.2 → 276.7 OOLITIC BROKEN CORE. DOLOLUTITE
262																								257.2 - 260.3 fault brecc, graphitic slicks, calc veins
268				AAA/V1																				260.3 → 262.5 bleached → calc vn & brecc, broken core & graphitic slicks.
274				V2/					↓															Broken core & graphitic slicks
280				V2					.2															slate with dolomitic alteration halos associated with early veins
286					10	30	S		2/2															+ iron rich fluids (originally halos truncated by late calc qtz vns
292									2/3															cleavage destroyed during the alteration process.
298									2/3															
303									2/11															slate & altered dolomitic horizons. mineralisation
309					30	60	0		2															well cleaved
315				V3/S3					2															313 - 314.7 Subset of calcuns & LAM SULPH graphitic shears @ 47°
321				V3/S3	10	60	0		2															317.6 - 320.6 as above 324 - 327 " "

1. Spotted slate
2. Slate
3. Dololutite
4. Laminated dololutite
5. Tuff marker bed
6. Massive sulphides
7. Calcareous dyke
8. Dolomite dyke
9. Breccia
10. Leached slate
11. Dolomitic slate
12. Cream dololutite
13. Stromatolitic dololutite
14. Massive vein quartz

Dip angles measured with respect to long core axis, sense measured with respe to cleavage

WOODCUTTERS JOINT VENTURE
CORE LOGGING SHEET

Date:
Logged by: KENT WILLIAMS

Hole: S1/2/6

Distance from collar	Recovery %	RQD	Weathering	Structure	Cleavage	Bedding	Sense	Stratigraphy	Rock type	Dolomitic slate%	Dololutite %	Galena	Sphalerite	Sulphosalts	Pyrite	Chalcopyrite	Stibnite	Arsenopyrite	Pyrrhotite	Quartz	Carbonate	HMR	Sample Number	Comments
327.? 328.7				S1	30	20	S		2															327.9 5cm LAM SHEAR @ 30°
334									3															laminated DOLOLUTITE. 30 333 20cm qtz carb vn + fault brecc.
340					10	40	S		2															
346				V3/Δ ΔS3					2															some qtz carb vns to 2cm @ 45 345.4 10cm carb breccia LAM SHEAR
350									2															@ 45° ∥ to bedding (not all qtz
352									2															slate altered by carb? fluids + minor hematisation.
552				S3/Δ					2/11															353.5 10cm carb breccia fault + associated carb vn
357									3 ?															354-357 altered hematised dolomitised slate.
363									2															sericised
369				V3/ΔS3	15	40	O		2															363-365 shear zone c graph slicks, qtz carb vns & brecc. well cleaved, c [illegible] sta
375				V3/S3					2															as above.
381				V3	20	5	S		2															well cleaved slate c minor qtz carb vns.
386				S3/Δ					2															382.5 → 384 graphitic, carb, brecc fault zone + carb vns.
386.5									8															DYKE
391.2				V1					2															386.5 - 387.3 qtz carb vn, brec + graphitic shears
397									8															DYKE cse grained, chl?, ha
400.2									8															DYKE
402.8				S/Δ					2															brecc fault zone, v. graphit c slicks
408.8									2/3															laminated dololutites.
414				S3/Δ ΔV3	30	60	O		2															409 ~10cm qtz carb vn + 10cm carb brecc c graph slicks 45
420									2															
422									2															
428									4															DOLOLUTITE (laminated)
430									4															DOLOLUTITES
436					30	60	O		2															
440																								

1. Spotted slate
2. Slate
3. Dololutite
4. Laminated dololutite
5. Tuff marker bed
6. Massive sulphides
7. Calcareous dyke
8. Dolomite dyke
9. Breccia
10. Leached slate
11. Dolomitic slate
12. Cream dololutite
13. Stromatolitic dololutite
14. Massive vein quartz

388

Dip angles measured with respect to long core axis, sense measured with respe to cleavage

WOODCUTTERS JOINT VENTURE
CORE LOGGING SHEET

Date:
Logged by: KENT WILLIAMS

Hole: S1216
Page No. 3 of 5

Distance from collar	Recovery %	RQD	Weathering	Structure	Cleavage	Bedding	Sense	Stratigraphy	Rock type	Dolomitic skate%	Dololutite %	Mineral Percentages: Galena	Sphalerite	Sulphosalts	Pyrite	Chalcopyrite	Stibnite	Arsenopyrite	Pyrrhotite	Quartz	Carbonate	HMR	Sample Number	Comments
440																								
446				1'					3															distinct dlt marker, some brecciation
447.2					40	10	0		2															slate, dolomitic near marker.
455.2					35	25	0		2															well cleaved mdst.
461.2				1'	10	45	0		2															455 → 463.2 lam carbonate shears zone, breccia in place
462.2					30	35	0		2															thin carb vns, varying from to 30° ie // to bedding
468.2									2															also py zone
474.2					20	25	0		11															thin scraggy dlt py bed. to dolomitic slate
480.2					35	25	0		2															mdst.
486.2					35	25	0		2															mdst, minor carb. vns // edge
493					48	20	0		2															zoned
495.2				lam shears S2					2/3 - dark / dll beds or not?														⊕	LAM SHEARS // to bedding @ 2 carb vns & mosaic brecc.
501					58	10	0		2															mdst.
507					30	15	0		2															
512.2					25	15	0		2															
514.2									3/2															dll bed, pyritic, prob thin // to core axis.
519.2					55	80	0		2/3															
521.2									2/3															
526.6					30	30	0		4															laminated dll. some beds sub // to core axis.
531.2				B3	25	60	0		2/4															
537.2				S3 AND	20	20	0		2/3															START of hemitization/ potassic alteration. lam sh @ 533.5 // to minor mosaic brecc.
542.2					35	30	0		2/3															partially pervasive mdst + py replaced by hem
549.2					35	20	S		2															
555.2					15	35	0		2															
557.5				S3&2					2															lam shear, minor mosaic brecc carb vns, // to beds @ 15
558.2									2															hem alteration & band hem xtals after py.
564.2					25	15	0		2															mdst.

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9. Breccia
10. Leached slate
11. Dolomitic slate
12. Cream dololutite
13. Stromatolitic dololutite

Dip angles measured with respect to long core axis, sense measured with resp to cleavage

WOODCUTTERS JOINT VENTURE
CORE LOGGING SHEET

Date:
Logged by:

Hole: S12/6
Page No. 4 of 8

Distance from collar	Recovery %	RQD	Weathering	Structure	Cleavage	Bedding	Sense	Stratigraphy	Rock type	Dolomitic slate %	Dololutite %	Galena	Sphalerite	Sulphosalts	Pyrite	Chalcopyrite	Stibnite	Arsenopyrite	Pyrrhotite	Quartz	Carbonate	HMR	Sample Number	Comments
564.2																								
570.2					35	2	S		2															
576.2					30	2	O		2															
582.2					30	10	O		11															partial alteration c hem rich beds sub // to core ax…
588.2					30	0			11															as above.
594.2					40	?			11															cleavage is destroyed by alteration - as above
600.2									11															as above
606.2				S QZ		10			11	lam shear sub // to beds @ 15° (2 cm wide)														600.5 → 601.2 + 604 → 605 - 3 c… breccia zones in dol. c hem alt + … clasts alt to hem
614.2				V4 V2	40	8	S		11															partial alteration, minor c… veining.
620.2					30	10	S		2/3															dolomitic slate - no al…
627.2				C3	40	10	S		2/3															lam shear 4 cm wide, c… @ 10° i.e. // to bedding (62…
633.2					40	10	S		2/3															dolomitic slate.
639.2					25	5	O		2/3															as above c minor fold…
645.2									2/3															dol. slate c some py hor… not altered to hem
651.2					30	0	-		2/3															dol slate c alt. hem from…
657.2					25	5	O		2/3															649.2 → partial alteration dol slate c thin hem beds
663.5									2/3															complete alteration of sl…
669.2									2/3															as above.
675.2					35	0	-		2/3															as above
681.2									11															complete alteration & sta… of ubiquitous hemitisation
687.2				V3	55	10	O		11															as above, graphitic she… to bedding, hemitisat…
693.2				V3	?	10			11															dol slate, complete alte… + hemitisation, graph sh… to bedding
699.2									11															as above / c cont shears.
705.2									11															altered dol. slate
708.2									11															as above.
711.2									2/3															dol slate c partial altera…
714.2					25	?			2/3															dol slate - complete alt…

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11. Dolomitic slate
12. Cream dololutite
13. Stromatolitic dololutite

Dip angles measured with respect to long core axis, sense measured with res… to cleavage

WOODCUTTERS JOINT VENTURE
CORE LOGGING SHEET

Date:
Logged by: Kent Williams

Hole: S12/6
Page No. 5 of 8

Distance from collar	Recovery %	RQD	Weathering	Structure	Cleavage	Bedding	Sense	Stratigraphy	Rock type	Dolomitic slate%	Dololutite %	Galena	Sphalerite	Sulphosalts	Pyrite	Chalcopyrite	Stibnite	Arsenopyrite	Pyrrhotite	Quartz	Carbonate	HMR	Sample Number	Comments
714.2 720.2					35	5	0		11															complete alteration + hemi- tion
726.2									11															as above
732.2									11															" "
738.2									11															" "
747.2				Sten	?	45			11															742.5 → 743.2 - shear zone c̄ graph
753.2				S2	60	20	S		2															Shale c̄ carb uns, some hyo breccia, carb/lam, shears @ 752 & 753
757.2				S2	40	70	0		2															broken core, shear zone, graph carb uns, minor hem in
762.2				S2					2															continueing complete altera
768.2					?	25			11															complete alteration + hemi tion in dol slate.
774.2									11															as above. 768.6 graphitic shear + dy material 2cm wide. @ 15°
777.2				V2					11															complete alteration of slate carb uns
781.2						30			11															altered slate.
783.2				////					8?															DYKE - green (chl?) hemat some slate breccia 30-40° co
789.2									11															altered slate becoming hematitic.
795.2									11															as above
801.2					25	35	0		11															as above
807.2					40	25	0		11															altered pinkish slate hemitisati confined to isolated carb be
813.2									11															as above
819.2					30	15	0		11															as above
825.2									11															" "
831.2									11															" "
837.2						0			11															as above - bedding s // to core axis
843.2									11															altered pinkish slate + hemitisat
849.2				V3		25			11															as above c̄ minor 0.5c lam shear @15°
855.2									11															as above
861.2									11															as above.

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12. Cream dololutite
13. Stromatolitic dololutite

Dip angles measured with respect to long core axis, sense measured with resp to cleavage

WOODCUTTERS JOINT VENTURE
CORE LOGGING SHEET

Date: —
Logged by: Kate Williams
Hole: S1216
Page No. 6 of 8

Distance from collar	Recovery %	RQD	Weathering	Structure	Cleavage	Bedding	Sense	Stratigraphy	Rock type	Dolomitic skate %	Dololutite %	Mineral Percentages: Galena	Sphalerite	Sulphosalts	Pyrite	Chalcopyrite	Stibnite	Arsenopyrite	Pyrrhotite	Quartz	Carbonate	HMR	Sample Number	Comments
861.2									11															altered slate & some
867.2																								hemitisation.
873.2									11															as above
879.2									11															as above
885.2									11															as above
891.2									11															as above
897.2					20				11															as above
903.2									11															as above
907.4									11															907.4 contact between complete & partial alteration
912.2					30	25	S		11															
918.2					40	25	S		2															
924.2			1cm VN		40	15	S		2															925m 1cm wide 1cm shear @ 15° à // to beds.
931.8					40	15	S		2															partially altered slate & some hemitisation
932.5								C2	3															DOLOLUTITE MARKER Scraggy
939.2									2/3															935.2 dll horizon 10cm in in slate.
945.2				V2	35	25	O		2/3															943.5 → 944.4 shear zone, 1cm in parts, stratigraphic 45° 25° - in part // to bedding
951.2					35	10	S		2/3															945.2 → 945.8 calcite veins to 1cm thick @ 30°
957.2					45	0			2															partial alteration in slate. NO alteration beyond 955
963.2					45	10	S		2/3															thin dll band subparallel to core axis
969.2					50	25	S		2															well cleaved
975.2					50	30	S		2															
981.2					45	15	S		2															
986.8					45	S	S		2															
993.2									2/3															2x40cm wide bands scraggy dll in slate
999.5					35	35	S		3															pale scraggy dll in bro core
1005.2				V3					2/3					tr										1003.4 - breccia unit & sphalerite 0.1cm calcite veins - well clea
1011.2					45	15	S		2															

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11. Dolomitic slate
12. Cream dololutite
13. Stromatolitic dololutite

Elmore Jones

Dip angles measured with respect to long core axis, sense measured with respe to cleavage

WOODCUTTERS JOINT VENTURE
CORE LOGGING SHEET

Date:
Logged by: —

Hole: S1216

Distance from collar	Recovery %	RQD	Weathering	Structure	Cleavage	Bedding	Sense	Stratigraphy	Rock type	Dolomitic slate%	Dololutite %	Mineral Percentages: Galena	Sphalerite	Sulphosalts	Pyrite	Chalcopyrite	Stibnite	Arsenopyrite	Pyrrhotite	Quartz	Carbonate	HMR	Sample Number	Comments
1011.2																								fine gab uns c brittle fract textures, some breec + graphitic shears. 1020.5 2cm law shear @ 35°
1017.2									2															
1023.2				law shear	35	10	0		2															
1026.8									2/11															slate more dolomitic c depth.
				51					0						tr									MAJOR SHEAR - strong carb uns, brittle struct textures, graphitic sheets @ 40-50°
1029.6									2															brecciated, 15cm pyritic horizon
1036.2				51	20	30	0		2															1031-0 graphitic shear pyritic+carb uns, stylolites
(9.0									3/11															PALE DOLOLUTITE c pyr clots grading to dolomitic slate, dar
1046.2				law shear	42	17	0		2															LAM SHEAR - 1042.9m - 8cm w @ 23° to sub // to bedding
1050.0					40	35	0		2															1cm law shear @ 148m @ 60° // to bedding.
1056.2				51	25	20	0		2							next closer 1cm shear on								1cm sh 25cm wide "blue" rubble breec @ 1050m @ 30°
1062.2					40	10	S		2															1058.5 - 1062.2 sheared c carb uns, mosaic breec, graphitic sh sub // to core axis
1068.2									2															minor carb uns.
1074.2					45	15	S		2															1070.2 - 1072.2 series carb uns c some graphitic shears, cracks loose.
1080.2					45	15	S		2															minor carb uns
1086.2					50	20	S		2															
1091.7					40	27	S		2															
(8.1					40	18	S		2/3															CONTACT - laminated DOLOLUTITE BANDS-
1105.4					45	25	S		11/3															pale laminated dll DOLOLUTITE.
1110.6					45	30	S		2															
1116.1									3															pale grey DOLOLUTITE
1122.1					35	20	S		2/3															well cleaved, wdst.. 117.8 - 3/2 contact.
1128.1				43	40	10	S		2						tr									minor thin carb uns, some pyritic.
1134.1					30	25	S		2															
1140.1									2						tr									minor carb uns - 1-2cm thic tr py.
1146.1					35	20	S		2															
1152.1					42	15	S		2															

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10. Leached slate
11. Dolomitic slate
12. Cream dololutite
13. Stromatolitic dololutite
14. Massive vein quartz

Dip angles measured with respect to long core axis, sense measured with respec to cleavage

WOODCUTTERS JOINT VENTURE
CORE LOGGING SHEET

Date: – Hole: S1216

Logged by: Kate Williams Page No. 8 of 8

Distance from collar	Recovery %	RQD	Weathering	Structure	Cleavage	Bedding	Sense	Stratigraphy	Rock type	Dolomitic slate%	Dololutite %	Mineral Percentages: Galena	Sphalerite	Sulphosalts	Pyrite	Chalcopyrite	Stibnite	Arsenopyrite	Pyrrhotite	Quartz	Carbonate	HMR	Sample Number	Comments
1152.1															tr									1156 - @ 50cm partial crushing assoc w 1cm lens (3cm wide)
1158.1					35	10	S		2															
1164.1					40	10	S		2															very thin (1cm) carb vns
1170.1					30	5	S		2															
1176.1					35	5	O		2															fine bedding, well cleaved
1182.1					25	10	O		2															" " " "
1188.1					40	O	–		2															slate ± thin pyritic dll
1.5.1				AP/S3	43	5	S		2															1192.1 3cm qtz vn. + shearing @ 57° brecciated
1201.1					55	25	O		2															well cleaved
1206.1				lam/shear	35	75	S		2															well cleaved. lam. shear 10cm wide @ 1203.2m @ 45°
1209.1					35	70	S		2															
1215.5					65	80	S		2/3															laminated dll.
1223.1					40	70	S		2															well cleaved, carb vns, some brecciated
1224.1				AP/S1V					2/1															MAJOR SHEAR - well cleaved carb vns to 35cm (brecciated (rubble & massive) graphitic
1231.0				V25	45	75	S		2															slate with 1-50cm calc vein + mino graphitic shearing
1233.0									3															DOLOLUTITE MARKER light grey laminated.
1239.1				lam/shear	0	35	–		2															well cleaved 1237.2 lam shear @ 30° // to c
1245.1					40	5	O		2															
1250.8					50	60	O		2/3															well cleaved 1249.2 - brec 2cm carbon @
1252.1				S1					2															PROMINENT SHEAR well cleaved graphitic, brecc ± some qtz len
1255					45	30	S		2															1254.1 5cm carbonate vn. lam shear // to bedding
1255.6									3															DOLOLUTITE MARKER brecc carbon, laminated - silicified
1260.1				S1V/ S1V2					2/1															MAJOR SHEAR ZONE, well cleaved brecc, carbons
1264.5									2															graphitic 1cm LAM SHEAR @ 1261.1
1267.3					80	60	S		2															1266.1 3cm lam shear @ 80°
1272.1									2/3															
1276.5									2															MAJOR STRUCTURE similar to above.
1277.2 EOH									C5? 2/3															OOLITIC DLL, BRECC

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Dip angles measured with respect to long core axis, sense measured with respe to cleavage