

BILLITON AUSTRALIA - E.Z. COMPANY
FARRELL JOINT VENTURE
REPORT ON ACTIVITIES TO 30TH SEPTEMBER, 1987

Author : J.G. Purvis

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5. J.G.Purvis, Tasmania

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Appendix 1 : Drill logs for holes 1F, 3F, F46, F48

PLANS

	<u>Scale</u>
Farrell Lease Location & Local Geology	1:20,000
Drillhole F46, Section 9,950'N	1:500
Drillhole F48, Section 10,050'N	1:500
Drillhole 1F, Section 10,900'N - <i>MISSING</i>	1:1,000
Drillhole 3F, Section 8,200'N	1:1,000
Farrell Mines Longitudinal Projection showing sampling carried out by Billiton Australia, 1987.	1:1,200

1. SUMMARY

This report details the results of exploration by Billiton Australia since the inception of the Joint Venture with the EZ Company on the Mine Leases covering the old Farrell silver-lead mines at Tullah, on the west coast of Tasmania.

Billiton's primary aim was to test the Farrell mine environs for gold, the principal target being stratiform and/or stockwork-style gold mineralisation along the untested length of the Henty Fault immediately west of the old mines.

The results of Billiton's gold testing are discouraging. There appears to be no gold at all associated with the silver-lead mineralisation. Several minor gold values obtained from this material in earlier sampling by EZ are considered to be spurious and probably due to laboratory contamination.

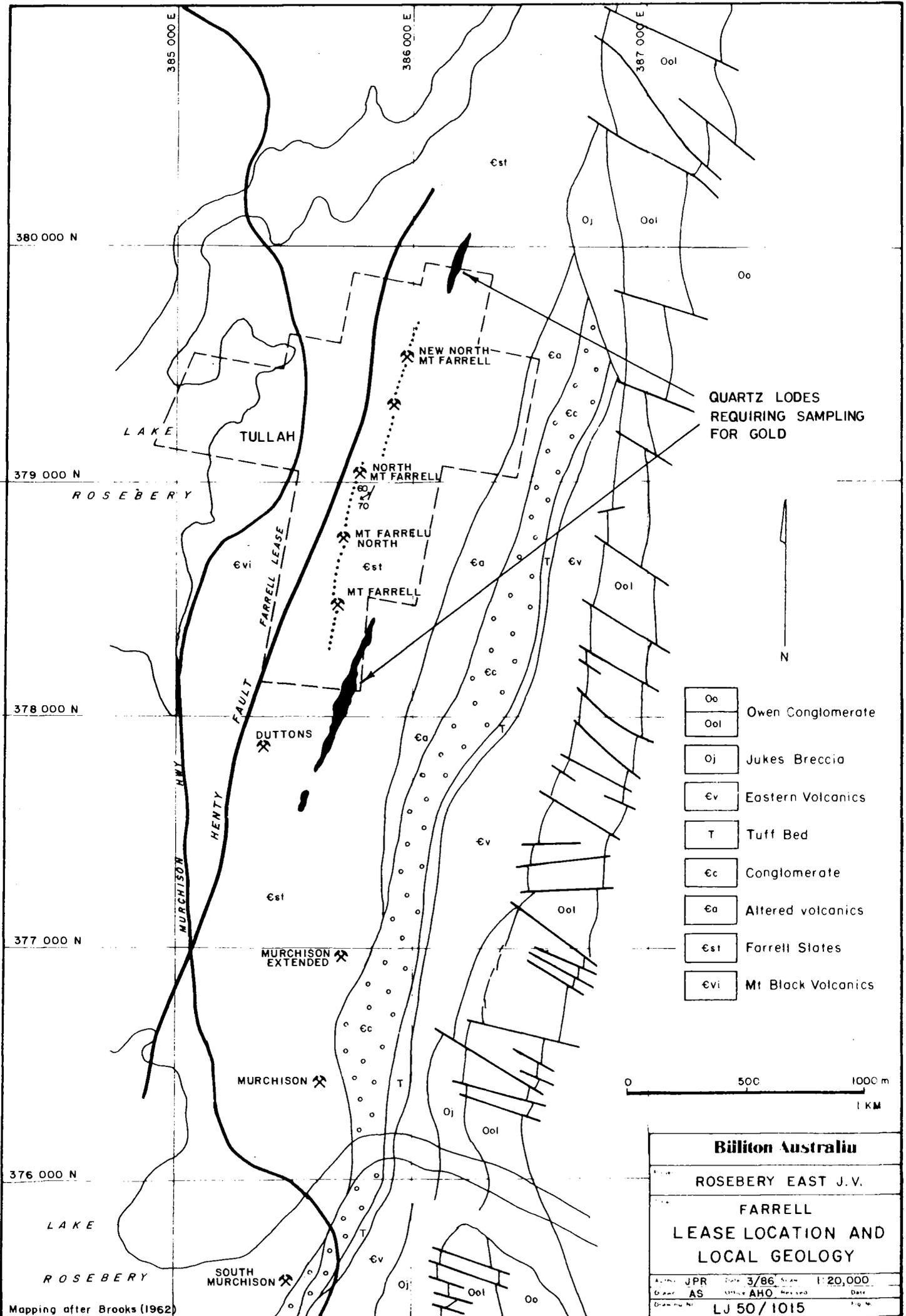
Only two drillholes intersect the Henty Fault within the Farrell ML's. Holes 1F and 3F are spaced 750m apart and effectively cover the entire length of the Henty Fault within the Farrell leases. Billiton's gold testing of the fault environs was largely restricted to the sampling of these two holes, and delineated the only gold obtained during the exploration programme - 8.5m @ 0.37 g/t Au, 0.26% Cu, in weak quartz-sulphide veining within altered dacitic volcanics

immediately west of the Henty Fault in hole 3F. The other hole, 1F, was essentially barren of gold.

In both holes there was a distinct lack of precious or basemetal values in the poorly-sulphidic, unaltered, grey and black tuffaceous shales of the Farrell Slate sequence which occupy the interval between the Henty Fault and the Farrell lode position 80-90m to the east.

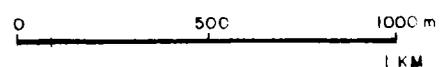
While confirming the Henty Fault as a locus of auriferous fluids, the weak gold mineralisation in hole 3F is not regarded as significant. More importantly, the unaltered and poorly-sulphidic nature of the sediments lying in the most prospective zone to the east of the fault, downgrades the potential for gold mineralisation within the Farrell leases. Until the shale facies give way to more-siliceous altered and sulphidic sediments, such as cherts, the chances for significant stratiform gold mineralisation are extremely low.

The only remaining zone with potential for gold mineralisation is the "Quartz Lode" position to the east of the silver-lead lodes. There is no recorded gold testing of this zone of quartz blows and veins, and sampling is recommended.



QUARTZ LODES
REQUIRING SAMPLING
FOR GOLD

- Oo Owen Conglomerate
- Ool Owen Conglomerate
- Oj Jukes Breccia
- Ev Eastern Volcanics
- T Tuff Bed
- Ec Conglomerate
- Ea Altered volcanics
- Est Farrell Slates
- Evi Mt Black Volcanics



Biliton Australia	
ROSEBERY EAST J.V.	
FARRELL LEASE LOCATION AND LOCAL GEOLOGY	
Author: JPR	Date: 3/86
Drawn: AS	Checked: AHO
Scale: 1:20,000	Date:
Drawing No: LJ 50/1015	Fig. No:

Mapping after Brooks (1962)

2. INTRODUCTION

On 1st May 1986, Billiton Australia entered into a Joint Venture with the EZ Company on EZ's Mine Leases 11065M and 91M/74 (134 ha), covering the old Farrell silver-lead mines at Tullah, Western Tasmania. The Joint Venture does not cover the remaining reserves of 71,000 tonnes of ore lying below 9 level in the New North Mount Farrell Mine.

The Farrell mines operated from 1899 to 1973, producing 730,700 tonnes of ore grading 13% Pb and 430 g/t Ag. The ore also contained 7% Zn but this was not recovered. The main mines were the North Mount Farrell (1899-1933: 432,000 t produced), and the New North Mount Farrell (1934-1973: 298,700 t produced). The two mines were on separate orebodies within the same lode channel and were serviced by main shafts 350m deep and 750m apart.

The Farrell Pb-Zn-Ag mineralisation is developed in structurally-controlled lodes within the Cambrian Farrell Slates - a sedimentary unit within the Mt. Read Volcanics, lying immediately east of the Henty Fault. The lodes follow a single major fissure or breccia zone which is essentially stratiform, being broadly parallel to the strike and dip of the host black graphitic shales (and the adjacent Henty Fault). Strike is NNE and dips around 60-65° to the west. The ore shoots plunge steeply south and average around 1.6m in width.

During all the mining activity at Farrell very little attention was paid to testing for gold. The 85 or so face and drillcore samples that were assayed for gold all returned nil values, with the exception of three adjacent face samples in the Main North Drive on 10 Level in the New North Mount Farrell Mine, and three samples from drillhole F48. The maximum value obtained was 2.9 g/t Au over 0.6m in a face sample. However, all these results now appear to be spurious - see Section 4.

No attention at all was given by the miners to the Henty Fault, 80-90m west of the Pb-Zn-Ag lodes. Of the 70 or so holes drilled underground in the New North Mount Farrell Mine none penetrated the fault, although several were collared in the shales close to it and drilled eastwards away from the fault.

In 1965-67, EZ put down two deep holes from surface to test beneath the New North Mount Farrell Mine (hole IF), and the North Mount Farrell Mine (hole 3F). Both holes passed through the Henty Fault, but the core from the vicinity of the fault was not sampled in either hole.

3. WORK COMPLETED

The best medium for testing the gold potential of the Farrell leases is the old drilleore. Surface sampling is largely ruled out by a veneer of glacials and cultural disturbance, including mine dumps.

Between 1964 and 1974, EZ drilled 59 underground diamond drillholes (F1 - F59) within and beneath the lower levels of the New North Mount Farrell Mine. Core from 43 of these holes is stored at Rosebery, although for many of the holes the core is incomplete.

Holes F46 and F48 were selected for gold testing and were sampled from top to bottom for Au, Cu, Pb, Zn, Ag, As and Sn. Both holes were drilled beneath the southern end of 9 Level and were chosen for gold assay because:

- a) Both holes were collared in the 9 Level Western Hangingwall Drive very close to and just east of the Henty Fault, thus providing a good test across the prospective sequence and through the Farrell lode position.
- b) For both holes, complete core existed through the prospective section.

c) The only gold values recorded by EZ from their entire underground drilling programme were in hole F48 - up to 1.1 g/t Au over 0.45m.

Within the Farrell Leases only two holes provide a complete section through the Henty Fault and the rock sequences to the west and east. These holes, 1F (483m) and 3F (626m), were drilled from surface between 1965-67. 1F was drilled beneath the New North Mount Farrell Mine, and 3F 750m further south beneath the North Mount Farrell Mine.

In both holes the prospective zone around the Henty Fault was relogged and sampled (in neither hole had this zone been sampled by EZ). The holes were assayed for Au, Cu, Pb, Zn, Ag, As and Bi, while 3F was additionally assayed for Mo, Ba and Sn.

In addition to the gold sampling, a general compilation and study of all data on the Farrell mines was made. The drillsections of the assayed holes were replotted showing the new geological and geochemical information (see Plans at back of report). Errors were found in the original plots of holes 1F and 3F, especially on the longitudinal section, and these have been adjusted.

Note, all gold determinations were by 30 gm fire assay.

4. DISCUSSION OF RESULTS

The results of the gold testing programme were extremely disappointing. The only values in excess of 0.1 g/t Au occurred in hole 3F, as discussed below. All gold results in the two underground holes, F46 and F48, were below the limit of detection (<0.01 g/t Au). No values above 0.06 g/t Au were obtained from the principal prospective unit - the sedimentary sequence east of the Henty Fault. Result details are given in Appendix 1 and shown on the Plans at the back of the report.

In hole 3F, low level gold values are present in silicified dacitic lavas and tuffs immediately west of the Henty Fault. The gold is associated with weak, diffuse, quartz-pyrite-chalcopyrite veins and patches. The best sample interval was 1.5m @ 0.73 g/t Au, 0.47% Cu; being part of a zone of 8.5m @ 0.37 g/t Au, 0.26% Cu and 3 g/t Ag.

There is no comparable zone in hole IF, 750m further north.

Sampling of underground holes F46 and F48 detected no gold at all, either in the Farrell Pb-Zn-Ag lode or in the Farrell Slates sequence closer to the Henty Fault. Hole F48 was the only hole in which the original EZ sampling had detected gold. However, the Billiton fire-assaying over the same sample intervals shows clearly that the original assays were spurious.

This result raises doubts about the reliability of the only other EZ samples to return detectable gold - three face samples from the 10 Level Main Drive North in the New North Mount Farrell Mine. These three adjacent samples were taken across widths from 0.6m to 1.5m over a 4.3m length of the drive and returned gold values from 0.7 to 2.9 g/t Au. Nearby face samples were all barren.

The gold-bearing samples were the first three in a batch of face samples from the New North Mount Farrell Mine which were prepared and assayed at EZ's Rosebery laboratory. It would seem highly probable that the gold in these three samples was from insufficiently-cleaned sample preparation equipment contaminated by the auriferous Rosebery ore.

The sampling and relogging programme, apart from demonstrating the lack of gold in the Farrell Slates east of the Henty Fault, also showed that these black and grey tuffaceous shales are essentially unaltered; generally poorly sulphidic, (although with local development of vein-style Pb-Zn-Ag mineralisation in association with ankerite-siderite-quartz gangue); and lack development of siliceous units such as cherts or quartose sediments, or even silicification. Stratiform gold mineralisation elsewhere along the Henty Fault Zone is associated with the development of such siliceous rocks within facies-equivalents of the Farrell Slates.

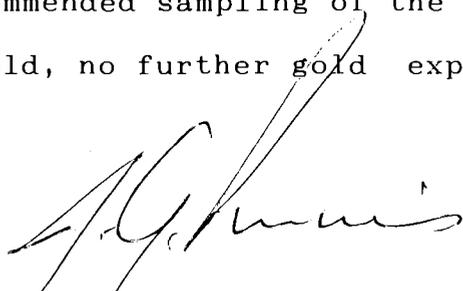
It was also evident during the relogging that the Farrell Pb-Zn-Ag lode position lies within a unit of disturbed and brecciated black shale which is much more highly graphitic than the adjacent shales and siltstones.

A short distance to the east of the Pb-Zn-Ag lodes the old miners delineated what they called the "Quartz Lode" - a line of patchily - developed quartz veins and blows within the Farrell Slates. These appear in several of the drill logs as thin zones of quartz veining generally less than 1 metre wide, but at least two large quartz blows have been mapped on surface in the "Quartz Lode" position (shown diagrammatically on the Lease Location plan.

There are no recorded sample results from the "Quartz Lode", although it appears to be non-sulphidic and the early miners clearly regarded it as barren as there are no pits or old workings on it. The gold sampling programme has not yet tested the "Quartz Lode" and should do so before being considered completed.

5. CONCLUSIONS AND RECOMMENDATIONS

1. The weak gold mineralisation (8.5m @ 0.37 g/t Au), located in dacitic volcanics immediately west of the Henty Fault near the old North Mount Farrell Mine, is not regarded as significant. The auriferous quartz-sulphide veining does, however, serve to again emphasize the Henty Fault as a locus for gold mineralisation.
2. The unaltered, non-siliceous and poorly-sulphidic nature of the sediments of the Farrell Slate sequence east of the Henty Fault severely downgrades the potential for stratiform gold mineralisation in these rocks within the Farrell leases. These geological observations are confirmed by the near-total absence of gold values in samples of these sediments.
3. There is a total lack of gold in the Farrell Pb-Zn-Ag mineralisation.
4. The "Quartz Lode" position, east of the Pb-Zn-Ag lodes, is the only remaining target for gold sampling at Farrell. This is based on it being an untested and unusual feature of the local geology rather than any evidence it contains mineralisation. If the recommended sampling of the "Quartz Lode" proves negative for gold, no further gold exploration is warranted at Farrell.



J.G. PURVIS, October, 1987

APPENDIX 1

Drill logs for holes IF, 3F, F46, F48

SHEMET SYSTEM
METRIC
DECIMAL POINTS AS REQUIRED

The Shell Company of Australia Limited
METALS DIVISION

DRILL LOG SHEET

HEADINGS SHEET

COLLAR NO.	DATA TYPE	COLLAR CO-ORDINATES			COLLAR SURVEY			MOUSE MARKS	TOTAL DEPTH	HOLE TYPE	DESE CODE	REMARKS
		EASTING	NORTHING	ELEVATION	AZIMUTH	DIP						
1	WHOLE	385573	037959	2	112.9	101.30	-83	11	1585			

SURVEY INFORMATION	DISTANCE FROM COLLAR		AZIMUTH	DIP	REMARKS
	TO TOP	TO BOTTOM			
1	100			-88	AZIMUTH IN ANG (+MAG + 1°30')
2	200			-85	
3	300			-79	
4	400			-75	
5	500		086° 30'	-66	
6	600			-58	
7	700			-48	
8	800			-37	
9	900			-30	

PLOWING KEY					
SYMBOL	INTERVAL		SYMBOL	INTERVAL	
	DE. CODE	G/LOG		DE. CODE	G/LOG
	FROM	TO		FROM	TO

PROJECT	FARRELL	HOLE NAME	IF
LOGGED BY	J.G. PURVIS	TOTAL DEPTH	1585'
CONTRACTOR	129-14116	RIG	
CREW		DATE STARTED	20.4.65 FINISHED 8.9.65
CORE STORAGE		SAMPLE STORAGE	
LOCATION		DESPATCH	
EZ, ROSEBERY		SHELL, DEVONPORT. 9A 11521	
MAP LAB		ASSAY LAB	
COMLABS, ADELAIDE			
DESC.	SIZE	FROM	TO
HOW CORE			TOTAL
CORE	NO		REMARKS
	NO		
	DXWL	0	1585' 1585'
CASING			
CASING LEFT			(B) steel (P) plastic

ASSAY INFORMATION	DISTANCE FROM COLLAR		AZIMUTH	DIP	SAMPLE NO.	CORE ANGLE	ROCK TYPE	DIAM.	OCBC CODE	GRAPHIC LOG	DESCRIPTIVE LOG
	TO TOP	TO BOTTOM									
	1000										1129' - 1274' 3": DEFORMED ANDESITIC AND DACITIC TUFFACEOUS VOLCANICLASTICS AND LAMAE Qtz phytic and feldspar-phytic. Some bedded zones. Strongly schistose, sericitized. v minor py.
	1100										1274' 3" - 1311': BRECCIATED AND DEFORMED GRAPHITIC SHALE AND SANDSTONE Henty fault at 1274' 3", marked by 10mm qtz-carb vein brecciated beds of qtz-carb set in graphitic matrix 1-5% py.
	1200										1311' - 1416': TUFFACEOUS, PARTLY CHERTY SILTSTONE AND FINE SANDSTONE Gen regularly bedded Minor to 2% py, trace sp-gr - latter often in carb residues.
ASSAY INFORMATION:											
	1386	1393	10.01	165	20000	980	14	40			

DRILLING OBJECTIVES / SUMMARY **OBJECTIVE:** TO TEST FOR MINERALISATION BENEATH THE NEW NORTH MOUNT FARRELL MINE
SUMMARY: NO MINERALISATION ASSOCIATED WITH HENTY FAULT (UNLIKE HOLE 3F), EITHER IN THE DACITIC VOLCANICS TO THE WEST OR FARRELL SLATES TO THE EAST. SOME MINOR Pb-Zn-Ag IN FARRELL SLATE SEQUENCE 110' EAST OF FAULT. SOME MINUTE TRACES OF GOLD - MAXIMUM 0.06 g/t. (NR: 10' OF 4% Pb, 1% Zn, 137 g/t Ag INTERSECTED 110' EAST OF FAULT - THE FARRELL LODE, 300' BELOW 9 LEVEL - SEE EZ LOG)

REPORT REFERENCES:

SHL MET SYSTEM
METRIC
DECIMAL POINTS AS REQUIRED

Gold determined by 30 gm fire assay
at Comlabs, Adelaide.

The Smil Company of Australia Limited
METALS DIVISION

DRILL LOG SHEET

CONTINUATION SHEET

PROJECT FARRELL	HOLE NAME IF
LOGGED BY J.G. PURVIS	TOTAL DEPTH 1585'

DISTANCE FROM COLLAR	TO TOP	TO BOTTOM	Au	Cu	Pb	Zn	Ag	As	Bi	SAMPLE NO	CORE ANGLE	ROCK TYPE	DIAM	DESC CODE	GRAPHIC LOG	DESCRIPTIVE LOG			
																	1	2	3
																NOTES MADE ON EXAMINATION OF CORE 1129'-1411'6"			
																1129'-1214'6": FINE TUFFACEOUS VOLCANICLASTIC			
																Strongly schistose and deformed, with banding and textural variations. Some zones appear sedimentary.			
																Others could be deformed lavas.			
																Qtz-phytic.			
																Fin. fragments in tuffaceous matrix.			
																Med-stng sericification with chloritic intervals.			
																Common dark and qtz-carb veins.			
																V. minor persistent py - as stringers and dissem.			
																1214'6" - 1251'6": DEFORMED ANDESITIC(?) LAVA OR			
																VOLCANICLASTIC			
																Holocryst-phytic, with deformed green sericified glass			
																or plagioclase crystals!			
																Strongly schistose.			
																Med sericification, lower chloritization.			
																Numerous qtz-carb veins.			
																No sulfides.			
																1251'6" - 1274'3": STRONGLY DEFORMED TUFFACEOUS			
																VOLCANIC			
																Pale fawn-green, fig. V strongly schistose + deformed			
																Vitic volcanic with abundant carbonate and fig			
																qtz-carb pods, augea and bands.			
																Sericitic.			
																Traces of fuchsite in unannealed breccia zones 1265'-1268'			
																V. minor dissem. py.			
																At base, very "quiet" Healy fault 80°/LCA. No breaking			
																just above change to Farrell slate sequence, marked			
																by a 10mm qtz-carb vein and v. strong schistosity.			
																1274'3" - 1285': BRECCIATED AND DEFORMED			
																SANDSTONE AND SHALE			
																Brecciated frag and deformed beds of poorly ribbed			
																qtz-carb fine silt, in graphitic matrix after deformed			
																black shale.			
																Most of the deformation possibly of soft-sediment type.			
																Schistosity + deformed bedding 80°/LCA near fault, lower			
																down at all angles.			
																1% py.			
																1285' - 1301': DEFORMED HIGHLY GRANITIC SHALE AND			
																SANDSTONE			
																Schistose bedding varies from 90°/LCA to 80°/LCA, av. 75°/LCA			
																rather and more, below than out above, due to lack of ribbed			
																Some clay partings.			
																1285' - 1302': 1-5% py, some in semi-massive pods.			
																1302' - 1311': 1% py.			

ASSAY INFORMATION

SILMET SYSTEM
METRIC
DECIMAL POINTS AS REQUIRED

THE SHAL COMPANY OF AUSTRALIA LIMITED
METALS DIVISION

DRILL LOG SHEET

CONTINUATION SHEET

PROJECT	FARRELL	HOLE NAME	IF
LOCATED BY	J.G. PURVIS	TOTAL DEPTH	1585'

DISTANCE FROM COLLAR		Au	Cu	Pb	Zn	Ag	As	Bi	SAMPLE #	CORE ANGLE	ROCK TYPE	DIAM	DESC COOC	GRAPHIC LOG	DESCRIPTIVE LOG
TO TOP	TO BOTTOM														
1313	1320	<0.01	110	80	75	1	<2	14	13238						1311'-1393': TOFFACEOUS, PARTLY CHESTY SILTSTONE
1320	1327	0.02	3	8	8	1	4	12	13239						Grey, sericitic.
1327	1333	<0.01	2	50	18	<1	6	18	13240						Minor shales and fine silt with occ small qtz grains in
1333	1338	<0.01	3	220	185	1	<2	14	13241						lithiferous and glaucous matrix
1338	1343	<0.01	3	230	280	1	5	20	13242						Bedding more regular than above, but still varies. Bedding
1343	1347	<0.01	6	175	145	1	2	6	13243						below 1345' to 75'/cent.
1347	1353	<0.01	3	46	65	<1	3	6	13244						Med schistose.
1353	1359	<0.01	6	190	690	1	<2	16	13245						Broken 1335'-1345' and again below 1364'. Inc broken
1359	1364	<0.01	6	270	290	1	6	16	13246						below 1376' with stronger schistosity, minor chlorite alt
1364	1369	<0.01	2	140	125	1	3	14	13247						and inc sericitization
1369	1374	0.03	<2	85	28	1	6	10	13248						1311'-1345': 1% dissem py.
1374	1380	<0.01	2	65	16	1	5	10	13249						1345'-1376': Minor py. Below 1364' trace sp-gr in carb
1380	1386	0.06	3	190	32	1	4	20	13250						swamp-alt (some chloritic)
1386	1393	<0.01	165	20000	980	14	40	20	13251						1376'-1393': 1-2% dissem py. Rare sp-gr, except 3"
1393	1396	<0.01	6	380	185	1	<2	12	13252						siderite-gr-py-gr-sp band 70'/cent at 1392.9'
1396	1404	<0.01	18	75	1450	1	5	10	13253						1393'-1411.6': SILTSTONE AND FINE SANDSTONE
															Minor shales
															Grey, regularly bedded (avg 65'/cent), with occ qtz grains
															and lithic frags. Sericitic (after lithiferous component),
															locally cherty in places.
															Leopards dispersed and in small swamp-alt - some c
															siderite and dolomite.
															Minor qtz veins
															Bedding deflected by int schistosity and minor soft-sediment
															direction.
															Minor dissem py. (locally 1% at top of interval. Trace qtz sp
															1393'-1396.

ASSAY INFORMATION

SPLMET SYSTEM
METRIC
DECIMAL POINTS AS REQUIRED

The Shell Company of Australia Limited
METALS DIVISION

DRILL LOG SHEET

WFO088 SHEET

DATA TYPE	COLLAR CO-ORDINATES				COLLAR SURVY		HOLE NAME	TOTAL DCFTM	HOLE TYPE	OCSC CODE	REMARKS
	EASTING	NORTHING	ELEVATION	AZIMUTH	DIP						
8	385286	437832	1.6	177	810	30	3F	2054			

SURVEY INFORMATION	DISTANCE FROM COLLAR		AZIMUTH	DIP	REMARKS	
	TO TOP	TO BOTTOM				
8	100			-84	45	AZIMUTH IN MAG (= MAG + 1130)
	200			-85	30	
	300			-82	45	
	400			-82	15	
	500			-81	15	
	600		066	30	-81	00
	700			-77	30	
	800			-73	00	
	900		071	70	00	

PLOTTING KEY					
SYMBOL	INTERVAL	SYMBOL	INTERVAL	SYMBOL	INTERVAL
M & C	G/LOG	FROM	TO	DCA	C/LOG

PROJECT	FARRELL	HOLE NAME	3F
LOGGED BY	J.G. PURVIS 1987	TOTAL DEPTH	2054'
CONTRACTOR	1501'6" - 1670'	RIG	
CREW		DATC STARTED	A.3.66
		FINISHED	3.2.67
CORE STORAGE		SAMPLE STORAGE	
LOCATION		DISPATCH	
EZ, ROSEBURY		SHELL, DEVONPORT 4N 11520	
HAP LAB		ASSAT LAB	
COMLABS, ADELAIDE			
DCSC	SIZE	FROM	TO
NON CORE			
CORE	NO		
	NO		
	BXLW	0	2054'
			2054'
CASING			
CASING LEFT			

SURVEY INFORMATION	DISTANCE FROM COLLAR		AZIMUTH	DIP	SAMPLE NO	CORE ANGLE	ROCK TYPE	DIAM	DESC CODE	GRAPHIC LOG	DESCRIPTIVE LOG
	TO TOP	TO BOTTOM									
8	1000			-61	00						1501'6" - 1604': DACITIC LAVAS WITH TUFFACEOUS ZONES Mod sericitised and silicified. Tuffaceous zones resorted - some bedding partly cherty. Locally strong py-cp mineralisation mainly below 1591', up to 1570' py-cp 1598' - 1604'. This mineralisation associated with qtz veins and diffuse qtz patches. Elsewhere, gen minor py, locally conc in sediment bands.
	1100			-45	30						
	1200			-36	30						
	1300			-24	30						
	1400			-22	00						
	1500			-18	00						
ASSAY INFORMATION	ASSAY										
	INFORMATION:										
	1576	1604	0.37	2600	3						1604' - 1616': GRAPHITIC BRECCIA ZONE Abrupt upper contact (the Randy fault). Thin qtz-veined black slates. Minor py + cp.
INCLUSIONS:											
1596	1601	0.73	4750	5							1616 - 1670': BLACK GRAPHITIC SHALE Tightly bedded. Abund laminae, veins and pods of qtz-carb. 2-3% py 1642' - 1656', otherwise minor.

DRILLING OBJECTIVES / SUMMARY **OBJECTIVE:** TO TEST FOR DEPTH CONTINUATION OF THE FARRELL LORE AT THE NORTH MOUNT FARRELL MINE
SUMMARY: MINOR Cu-Ac MINERALISATION ASSOCIATED WITH QUARTZ VEINS AND PATCHES IN DACITIC LAVAS AND TUFFS IMMEDIATELY WEST OF THE HENRY FAULT. NO MINERALISATION IN GRAPHITIC SHALES TO EAST OF FAULT. MINE LORE CHANNEL REPRESENTED BY ZONE OF CONTORTED SLATES WITH UNECONOMIC SULPHIDE MINERALISATION, 700' BENEATH 10 LEVEL.

REPORT REFERENCE: _____
SHEET OF

SMLMET SYSTEM
METRIC
DECIMAL POINTS AS REQUIRED

The Shell Company of Australia Limited
METALS DIVISION
DRILL LOG SHEET
CONTINUATION SHEET

PROJECT	FARRELL	MOLE NAME	3F
LOGGED BY	J.G. PURVIS	TOTAL DEPTH	2054'

DISTANCE FROM COLLAR	TO TOP		Au	Cu	Pb	Zn	Ag	As	SAMPLE NO	CORE ANGLE	ROCK TYPE	QI/M	DESC CODE	GRAPHIC LOG	DESCRIPTIVE LOG	
	TO TOP	TO BOTTOM														
11	11	11														tuffaceous shale, with abundant laminar, pods, veinlets and occ larger veins, of gti-carb. Many of these are bedded and clearly of sweat-act type. Bedding 80-90°/UCA. Fault around 1635'. 1616'-1642': Minor py locally 2%. 1642'-1656': 2-3% dissems py - some in gti-carb veinlets. 1656'-1670': Approx 1% py - patchy.
12	12	12														

ASSAY INFORMATION

SHEMET SYSTEM
METRIC
DECIMAL POINTS AS REQUIRED

The Shell Company of Australia Limited
METALS DIVISION
DRILL LOG SHEET

HEADING SHEET

COLLAR INFORMATION	DATA TYPE	COLLAR CO-ORDINATES			COLLAR SURVEY			HOLE NAME	TOTAL DEPTH	HOLE TYPE	DESC CODE	REMARKS
		EASTING	NORTHING	ELEVATION	AZIMUTH	DIP						
1	BHOLE	385771.1	6379282.9	-33.3	099	-44	F46	171				

SURVEY INFORMATION	DISTANCE FROM COLLAR		AZIMUTH	DIP	REMARKS
	TO TOP	TO BOTTOM			
1	170				AZIMUTH NOT RECORDED

BLOTTING KEY							
SYMBOL		INTERVAL		SYMBOL		INTERVAL	
DES. CODE	G/LOC	FROM	TO	DES. CODE	G/LOC	FROM	TO

PROJECT	FARRELL	HOLE NAME	F46 (UNDERGROUND)		
LOGGED BY	ROUGHAN BY S.E. RIVIS, 1987	TOTAL DEPTH	171'		
CONTRACTOR		RIG			
CREW		DATC STARTED	9:7:70		
		FINISHED	23:7:70		
CORE STORAGE		SAMPLE STORAGE			
NO OF TRAYS		LOCATION			
EZ, ROSEBURY		SHELL, DEVONPORT DEPTN 11545			
M & P LAB		ASSAY LAB			
		COMLABS, ADELAIDE			
DESC.	SIZE	FROM	TO	TOTAL	REMARKS
NON CORE	NO				
CORE	NO				
	BOX	0	171'	171'	
CASING					
CASING LEFT					(S) steel (P) plastic

ABBAY INFORMATION	DISTANCE FROM COLLAR		Au	Cu	Pb	Zn	Ag	As	Sn	SAMPLE NO	CORE ANGLE	ROCK TYPE	DIAM	DESC CODE	GRAPHIC LOG	DESCRIPTIVE LOG
	TO TOP	TO BOTTOM														
1	135	139	<0.01	3800	3200	5950	60	450	115							0-115'6": GREY TUFFACEOUS SHALES (FARRELL SLATES)
																115'6" - 125': GREY AND BLACK SHALES WITH STRONG SHEAR 122'-124'6"
																14-20-SP mineralisation centered on shear.
																125'-146': ZONE OF SULPHIDES AND QTZ-ANKERITE VEINING IN HIGHLY GRAPHITIC SHALE
																Sulphides (py-sp-qa-cr=ajp) centered 135-139'
																CORE 146'-171' MISSING

DRILLING OBJECTIVE / SUMMARY: OBJECTIVE: TO DELINEATE ORE LENS BELOW 9 LEVEL.
SUMMARY: LOW-GRADE Pb/Zn/Cu MINERALISATION INTERSECTED IN ZONE OF QTZ-ANKERITE VEINED GRAPHITIC SHALE. NO GOLD VALUES DETECTED. NB: SHELL ASSAY VALUES FOR Pb, Zn + Cu ARE MUCH LOWER THAN ORIGINAL EZ SAMPLE VALUES.

REPORT REFERENCE: _____
SHEET OF

SILMET SYSTEM
METRIC
DECIMAL POINTS AS REQUIRED

Analyses by Comlabs, Adelaide.
Gold determined by Fire Assay (30gm).

The Shell Company of Australia Limited
METALS DIVISION

DRILL LOG SHEET

CONTINUATION SHEET

PROJECT	FARRELL	HOLE NAME	F46
LOGGED BY	J.E. PURVIS	TOTAL DEPTH	171'

DISTANCE FROM COLLAR		Au	Cu	Pb	Zn	Ag	As	Sn	SAMPLE NO	CONE ANGLE	ROCK TYPE	DIAM	DESC COC	GRAPHIC LOG	DESCRIPTIVE LOG
TO TOP	TO BOTTOM														
0	22	<0.01	12	44	105	<1	18	<4	14131						<p>GEOLOGICAL NOTES MADE DURING SAMPLING MAY 1987. FOR FULL DETAILS SEE ORIGINAL EZ LOG</p> <p>0-115'6": Fairly ordinary looking grey tuffaceous shales of the FARRELL SLATE SEQUENCE, with barren qtz-$carb$ (some ankerite) veins, some up to 300mm.</p> <p>115'6"-125': Grey and black shales with strong shear zone 122'-124'6" (some core loss here). Pb-Zn-sp sulphide mineralization, centered on shear zone.</p> <p>125'-146': Zone of qtz-ankerite veining in black graphitic shales, with veins and massive patches of sp-sp-$carb$-cp assay. Veining of qtz-ankerite centered 127'6"-146'; sulphides centered 125'-139'.</p> <p>Core 146'-171' Missing</p>
22	30	<0.01	9	48	48	<1	14	<4	14132						
30	40	<0.01	8	36	60	<1	12	<4	14133						
40	44.6	<0.01	12	110	40	<1	16	<4	14134						
44.6	51	<0.01	7	160	195	<1	16	<4	14135						
51	61	<0.01	9	185	60	<1	12	<4	14136						
61	71	<0.01	55	450	410	1	46	<4	14137						
71	81	<0.01	12	115	90	<1	20	6	14138						
81	91	<0.01	8	120	280	<1	8	8	14139						
91	101	<0.01	8	100	160	<1	8	14	14140						
101	110	<0.01	9	125	240	<1	6	10	14141						
110	115.6	<0.01	12	100	165	<1	12	<4	14142						
115.6	125	<0.01	60	1200	580	2	210	4	14143						
125	129.6	<0.01	620	1800	1850	5	230	22	14144						
129.6	135	<0.01	910	390	3950	5	450	46	14145						
135	139	<0.01	3800	3200	5950	60	450	115	14146						
139	144	<0.01	540	390	1450	3	260	16	14147						

ASSAY INFORMATION

SMLMET SYSTEM
METRIC
DECIMAL POINTS AS REQUIRED

The steel Company of Australia Limited
METALS DIVISION

DRILL LOG SHEET

HEADINGS SHEET

COLLAR INFORMATION	DATA TYPE	COLLAR CO-ORDINATES			COLLAR SURVY		HOLE NAME	TOTAL DEPTH	HOLE TYPE	DESC CODE	REMARKS
		EASTING	NORTHING	ELEVATION	AZIMUTH	DIP					
8	BHOLE	3457776	2379312	7	-33	-2	098	-45	F48	192	

SURVEY INFORMATION	DISTANCE FROM COLLAR		AZIMUTH	DIP	REMARKS
	TO TOP	TO BOTTOM			
8	100			-34	AZIMUTH NOT RECORDED
	200			-25	15

PLOTTING KEY									
SYMBOL	INTERVAL		SYMBOL	INTERVAL					
	DIA. CODE	C / LOG		FROM	TO	MR. CODE	C / LOG	FROM	TO

PROJECT	FARRELL	HOLE NAME	F 48 (UNDERGROUND REX)		
LOGGED BY	ROUGH NOTES BY J.G. PURVIS, 1987	TOTAL DEPTH	192'		
CONTRACTOR		RIG			
CRCW		DATE STARTED	18.8.70 FINISHED 28.8.70		
CORE STORAGE		SAMPLE STORAGE			
NO OF TRAYS		LOCATION	DEWATCH		
	EZ, ROSEBERY	SHELL, DEVONPORT.	OH: 11545		
M & P LAB		ASSAY LAB	COMLABS, ADELAIDE		
OESC.	SIZE	FROM	TO	TOTAL	REMARKS
NON CORE					
CORE	NO				
	NO				
	BXLWL	0	192'	192'	
CASING					
CASING LEFT					(S) steel (P) plastic

ASSAY INFORMATION	DISTANCE FROM COLLAR		Au	Cu	Pb	Zn	Ag	As	Sn	SAMPLE NO	CORE ANGLE	ROCK TYPE	DIAM	DESC CODE	GRAPHIC LOG	DESCRIPTIVE LOG
	TO TOP	TO BOTTOM														
8	138	146	<0.01	1955	83500	72000	280	11695	34							25'-115': GREY AND BLACK SHALES AND SILTSTONES (FARRELL SLATES)
																115'-127': GRAPHITIC SHALE WITH DISRUPTED BEDDING Shale of mineralized zone - some sp in anticline veinlets
																127'-132': BRECCIATED GRAPHITIC SHALE Sulfides in breccia matrix and anticline veins
																132'-146': MINERALISED ZONE Breccia with shale fragments in qtz-carb-sulfide matrix Sulfides centered 138'-146'. Structure centered 142'-146'
																146'-152': S' SHALE RECOVERED (Structure)
																152'-192': GREY AND BLACK SHALE Minor qtz-carb-sulfide veining, dec rapidly e depth

DRILLING OBJECTIVES / SUMMARY OBJECTIVE: TO DELINEATE ORE LENS BELOW 9 LEVEL
SUMMARY: 8' of 8.4% Pb, 7.2% Zn, 280 g/t Ag INTERSECTED IN STRUCTURALLY-DISTURBED ZONE IN GRAPHITIC SHALE. NO GOLD VALUES DETECTED. SHELL ASSAY RESULTS ARE GENERALLY SLIGHTLY LOWER THAN ORIGINAL EZ SAMPLE RESULTS, HOWEVER GOLD VALUES (UP TO 0.7 PPM/TON) RECORDED BY EZ WERE NOT CONFIRMED.

REPORT REFERENCE: _____

SHEET _____ OF _____

SMLMET SYSTEM
METRIC
DECIMAL POINTS AS NECESSARY

Analyses by Comlabs, Adelaide.
Gold determined by 30gm fire assay.

The Shell Company of Australia Limited
METALS DIVISION

DRILL LOG SHEET

CONTINUATION SHEET

PROJECT FARRELL	HOLE NAME F 48
LOGGED BY J.G.PURVIS	TOTAL DEPTH 192'

DISTANCE FROM COLLAR	TO TOP		Au	Cu	Pb	Zn	Ag	As	Sn	SAMPLE NO	CORE ANGLE	ROCK TYPE	DIAM	DESC CODE	GRAPHIC LOG	DESCRIPTIVE LOG
	TO TOP	TO BOTTOM														
25	31	<0.01	4.4	135	300	<1	<1	14	4	14148						<p>GEOLOGICAL NOTES MADE DURING SAMPLING MAY 1987. FOR FULL DETAILS SEE ORIGINAL EZ LOG.</p> <p>25' - 115': Ordinary-looking grey and black shales/siltstones of the FARRELL SLATE SEQUENCE. Scleritic after toaceous component, felsic in places. Below 75' barren qtz > carb veins to 400mm. Some of the carb is antlerite.</p> <p>115' - 127': Start of mineralized zone. Black graphitic shale with disrupted bedding (some LCA), 2 veins of antlerite - some in semi-massive sp.</p> <p>127' - 132': Black, brecciated graphitic shale with frags & veins of antlerite and/or qtz. Rock is of silt. Some semi-massive sp in antlerite. Sulph also in breccia matrix.</p> <p>132' - 146': Mineralized zone. Patches and veins of xylite antlerite with lesser qtz in graphitic matrix after deformed black shale. Sulphides throughout - incl patches of massive xylite qtz-sp in qtz gangue with lesser carb, absent below 138'. Some cp visible 142-146'. Essentially a breccia of rock frags in qtz > carb gangue & sulphides. Sulphide min centred 138-146'. E structure centred 142-146' (152').</p> <p>146' - 152': Only 5' of shale recovered.</p> <p>152' - 192': Below zone of mineralization. Grey and black shale with minor qtz-carb veining with sulphides, rapidly tailing off to depth.</p>
31	41	<0.01	9	100	130	<1	<1	10	4	14149						
41	48	<0.01	10	105	110	<1	<1	12	4	14150						
48	56	<0.01	10	24	26	<1	<1	9	6	14151						
56	65	<0.01	16	530	390	<1	<1	8	10	14152						
65	75	<0.01	6	260	350	<1	<1	8	4	14153						
75	85	<0.01	8	130	60	<1	<1	8	6	14154						
85	95	<0.01	42	310	930	<1	<1	18	4	14155						
95	105	<0.01	12	220	720	<1	<1	7	10	14156						
105	115	<0.01	65	135	1600	<1	<1	7	8	14157						
115	123	<0.01	65	290	3650	<1	<1	5	6	14158						
123	127	<0.01	32	180	2850	<1	<1	12	12	14159						
127	132	<0.01	185	260	4100	<1	200	28	28	14160						
132	138	<0.01	1350	140	3950	<1	110	24	24	14161						
138	142	<0.01	810	79500	48000	<1	2600	24	24	14162						
142	146	<0.01	3100	87500	96000	<1	350	790	44	14163						
146	160	<0.01	90	980	950	<1	3	65	4	14164						
160	168	<0.01	110	570	1000	<1	2	48	6	14165						
168	173	<0.01	80	560	1400	<1	2	65	3	14166						
173	183	<0.01	80	210	880	<1	2	46	8	14167						
183	192	<0.01	95	95	185	<1	11	24	4	14168						

ASSAY INFORMATION

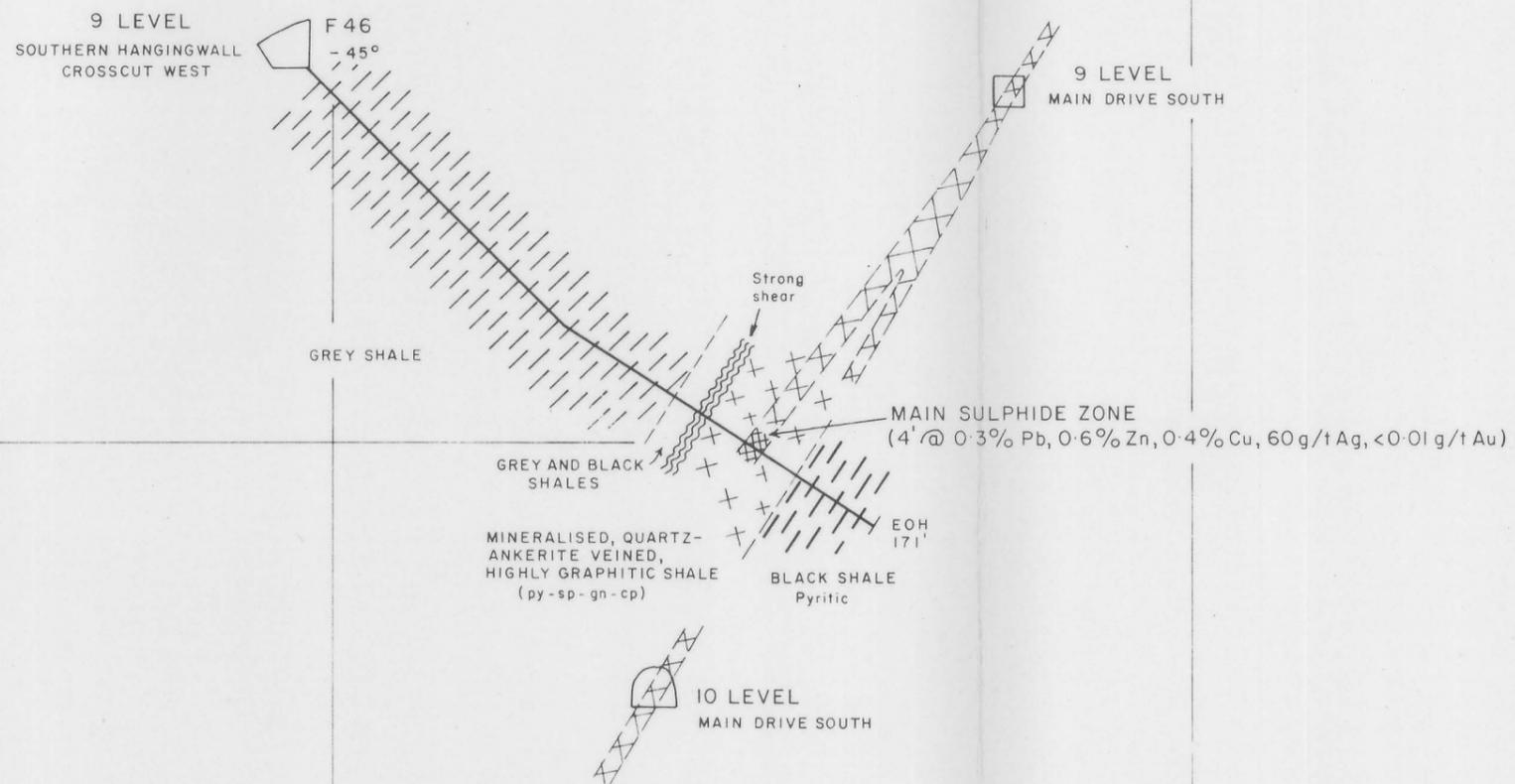
WEST
10 000' RL
(00m RL)

EAST

10 000' E
385 775 m E
AMG

10 200' E

10 400' E



9 800' RL

12_6420

Farrell Joint Venture report on activities to 30th September, 1987
Billiton Australia; E.Z. Co. of Australasia Ltd*
Purvis, J.G. 11065M

5 cm

9 600' RL

Billiton Australia
The Metals Division of the Shell Company of Australia Limited

Project FARRELL J.V., TASMANIA

Title NEW NORTH MOUNT FARRELL MINE
9 LEVEL - SOUTH END
DRILLHOLE F 46
SECTION 9,950' N
(LOOKING NORTH)

Author JGP Date 9/87 Scale 1:500

Drawn AS Office AHO Revised Date

Drawing No. LJ 60/1003 Fig. No.

WEST

EAST

10 000' RL
(00m RL)

9800' RL

9600' RL

385 775 mE
AMG
10 000' E

10 200' E

10 400' E

9 LEVEL
SOUTHERN HANGINGWALL
CROSSCUT WEST

F48
-45°

9 LEVEL
MAIN DRIVE SOUTH

GREY AND BLACK
SHALE / SILTSTONE

Disrupted bedding

Very strong shear zone

MAIN SULPHIDE ZONE
(8' @ 8.4% Pb, 7.2% Zn, 280 g/t Ag, <0.01 g/t Au)

MINERALISED, BRECCIATED,
GRAPHITIC SHALE
Rock frags in qtz-ankerite-
sulphide matrix (gn-sp-py)

GREY AND BLACK
SHALE

EOH
192'

10 LEVEL
MAIN DRIVE SOUTH

12_6420

Farrell Joint Venture report on activities to 30th September, 1987
Billiton Australia; E.Z. Co. of Australasia Ltd*
Purvis, J.G. 11065M

5 cm

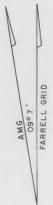
Billiton Australia
The Metals Division of the Shell Company of Australia Limited

Project
FARRELL J.V., TASMANIA

Title
NEW NORTH MOUNT FARRELL MINE
9 LEVEL- SOUTH END
DRILLHOLE F48
SECTION 10,050'N
(LOOKING NORTH)

Author	JGP	Date	9/87	Scale	1:500
Drawn	AS	Office	AHO	Revised	Date
Drawing No.	LJ60/1004				Fig.No.

PLAN



28' @ 0.37g/t Au
0.26% Cu, 3g/t Ag

HENTY FAULT

EOH 3F
2054'

WEST

3 F
8203' N
8662' E
(FARRELL GRID)

EAST

8200' N FARRELL GRID

SECTION

3 F

-85°

3' N

NORTH MOUNT FARRELL MINE
MAIN ADIT LEVEL

10,500' RL

10,000' (100m)

9,500'

28' @ 0.37 g/t Au,
0.26% Cu, 3g/t Ag

HENTY FAULT

EOH
2054'
518' N

BACTE LAMAS WITH
SUFFRACON
Clastic zone
after erosion
GRAPHIC BRECCIA ZONE
BLK. GRANITIC
Lenses of
451-cob

150' @ 0.37 g/t Au,
0.26% Cu, 3g/t Ag
Zone of
EOH 2054'
518' N
EOH 2054'
518' N
EOH 2054'
518' N
EOH 2054'
518' N

EOH 2054'
518' N

EOH 2054'
518' N

EOH 2054'
518' N

EOH 2054'
518' N

EOH 2054'
518' N

EOH 2054'
518' N

EOH 2054'
518' N

EOH 2054'
518' N

EOH 2054'
518' N

EOH 2054'
518' N

EOH 2054'
518' N

EOH 2054'
518' N

EOH 2054'
518' N

EOH 2054'
518' N

- Bedding
- Schistosity
- Geological contact
- Fault

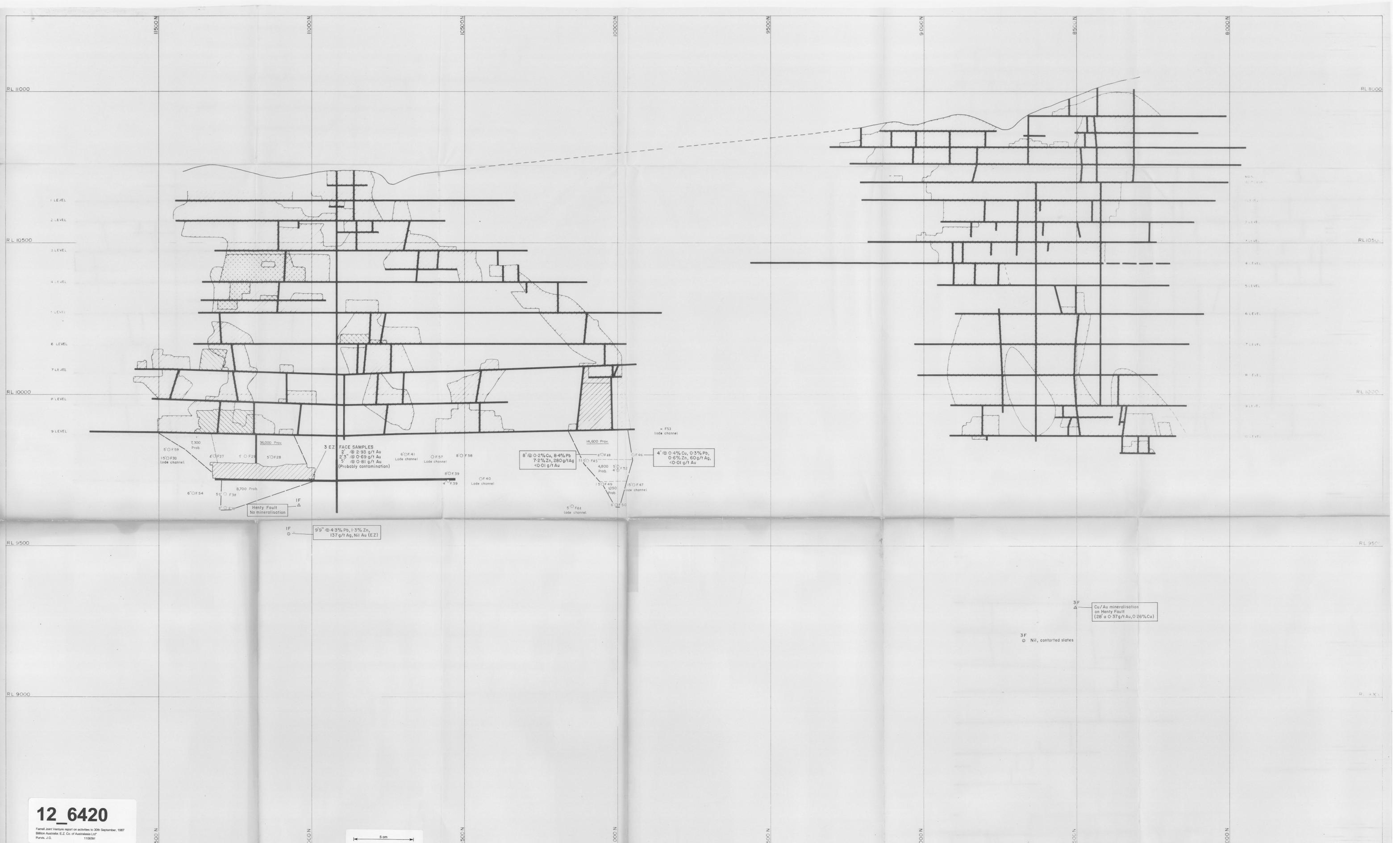
NOTE: Drillhole projected onto section

12_6420

Farrell Joint Venture report on activities to 30th September, 1987
Billiton Australia, E.Z. Co. of Australasia Ltd*
Purvis, J.G. 11065M



Billiton Australia The Metals Division of the Shell Company of Australia Limited			
Project FARRELL J.V. TASMANIA			
Title NORTH MOUNT FARRELL MINE DRILLHOLE 3F SECTION 8,200' N LOOKING NORTH			
Author	JGP	Dept.	TAS
Scale	1:1000		
Drawn	AS	Date	9/87
Revised	Date		
Checked	Date	S'ceded	Date
Sheet No.	Drawing No. LJ 60/1001		



12_6420

Farrell Joint Venture report on activities to 30th September, 1987
 Billiton Australia, E.Z. Co. of Australasia Ltd
 Perth, W.A. 110600

FARRELL MINES
LONGITUDINAL PROJECTION
 SCALE 1" = 100' (1:1200)

SHOWING SAMPLING CARRIED OUT BY
BILLITON AUSTRALIA, 1987
 J.G. PURVIS, SEPT. 1987



Dwg. No. Lj 60/1000