N.T. 88/1

GOLD FIELDS EXPLORATION PTY LTD

MOLINE WEST PROJECT AREA

EL 5194 EVELYN CREEK
EL 5195 McCARTHY'S WEST
EL 5196 McCARTHY'S EAST

(MOUNT EVELYN 1:250,000 SHEET SD 53-5)

ANNUAL REPORT

(17.03.87 - 17.03.88)

Distribution

- N.T. Mines Department
- G.F.E.L. Darwin
- G.F.E.L. Brisbane

John Vann

Darwin, N.T.
February 1988

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SUMMARY

Field work during 1987 was confined to track construction and initial 1:5,000 scale mapping of EL 5195 and EL 5196. No work was completed on EL 5194. Mapping and extensive sampling at EL 5195 (McCarthy's West) outlined the local structure and stratigraphy but located no significant gold mineralisation. Mapping and sampling at EL 5196 (McCarthy's East) revealed a complex structural setting. A zone of weakly anomalous gold assays (up to 0.394g/t Au over 6m) was located at Golden Spider. This zone outlines an anticlinal closure and includes samples of one probable "saddle reef". Unfortunately, assay quality control was poor and repeat determinations of all EL 5196 samples will be required.

1. INTRODUCTION

The Moline West Project Area consists of Exploration Licences (EL's) 5194, 5195 and 5196, which are referred to herein as follows:

EL 5194 : Evelyn Creek
EL 5195 : McCarthy's West
EL 5196 : McCarthy's East.

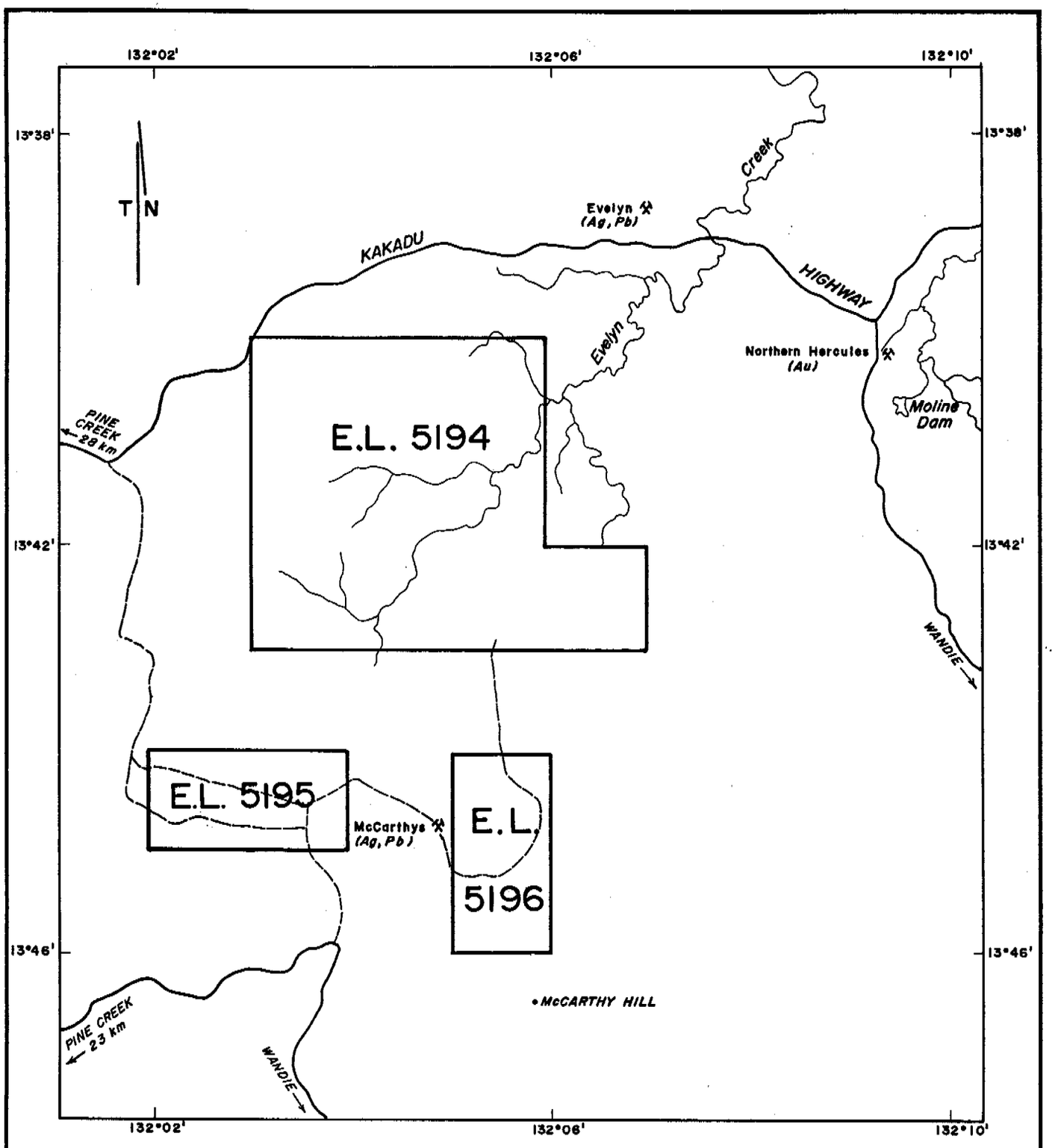
The location of these EL's is shown in figure 1. The project area is centred approximately 24 kilometres east-north-east of Pine Creek township, Northern Territory. The Kakadu Highway cuts the north west corner of EL 5194, however, there is no direct road access to the other EL's. Access to EL's 5195 and 5196 is via a four-wheel-drive track which leaves the Kakadu Highway about 31km from Pine Creek. This track, as shown on figure 1, accesses EL's 5195 and 5196, as well as allowing access to the old Pine Creek road and the southern part of EL 5194. EL 5194 is also accessible from Moline via a Telecom service track. This track is on the Ranford Hill 1:100,000 topographic sheet (5370).

The hornfelsed metasediments of the Mount Partridge and South Alligator Groups are resistant topographic features with deeply incised creeks generally paralleling either bedding and/or structure. Because of this, travel within about 1km of the granite contact is limited to the beds of larger creeks.

Most of the Project Area is inaccessible during the December-March wet season.

2. REGIONAL GEOLOGY

Proterozoic Pine Creek Geosyncline metasedimentary rocks, Cullen Batholith granitoids and Cainozoic/Quaternary cover units are exposed within the area. Pre-Cainozoic geology is shown in figure 2. Descriptions of regional geology may be found in Walpole et al. (1968) and Needham and Stuart-Smith (1984).



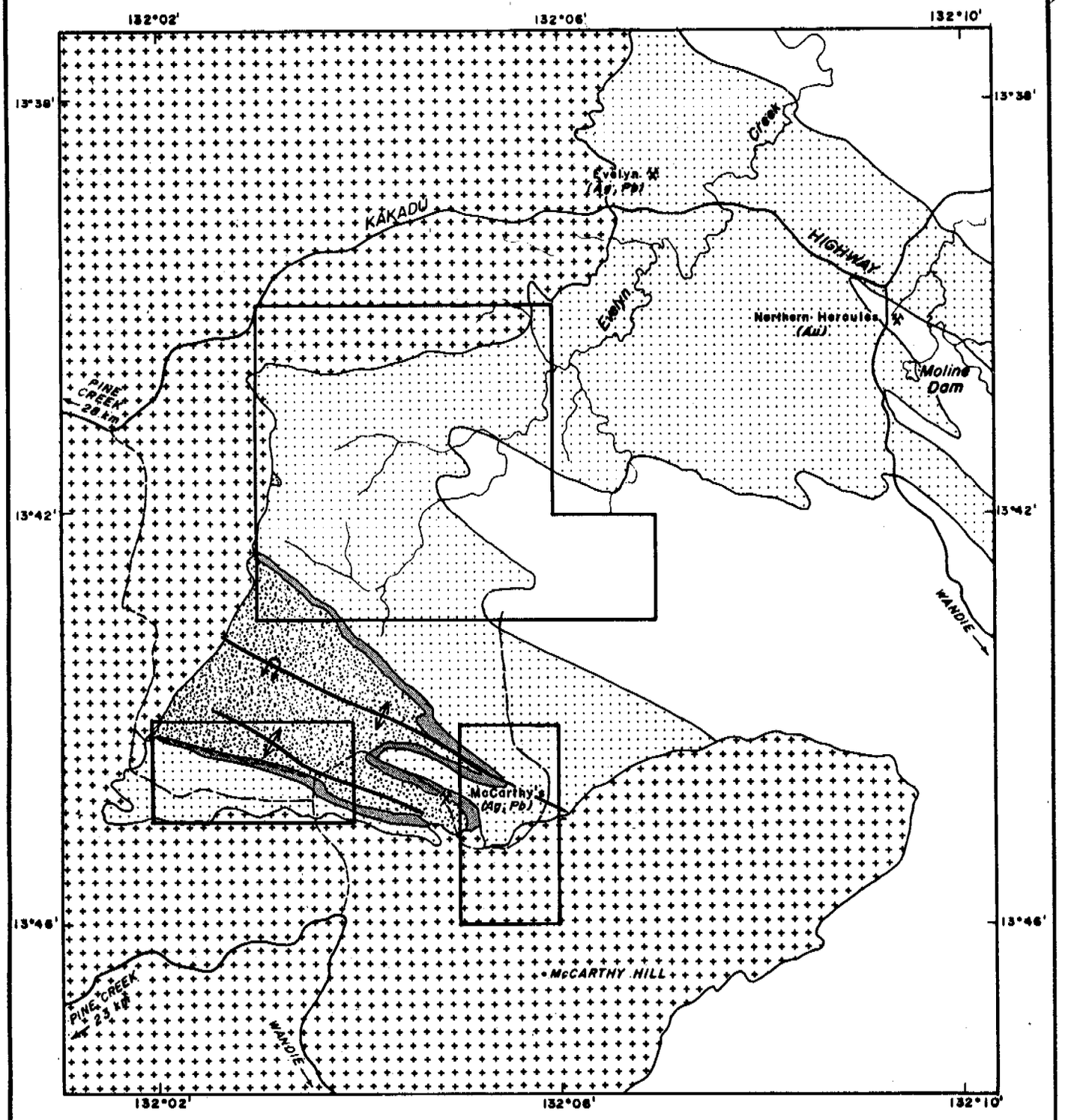
GOLD FIELDS EXPLORATION PTY. LIMITED
Incorporated in New South Wales

Geologist:	J. VANN
Drawn:	D. VANN
Date:	OCTOBER 1987
Checked:	
1,250,000 Reference:	SD 53-5

MOLINE WEST PROJECT AREA
LOCATION PLAN

SCALE: 1:100000 — 1 0 1 2 3 km

FIGURE 1



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MOLINE WEST PROJECT AREA
REGIONAL GEOLOGY

SCALE 1:100000 — 0 — 2 — 5 km

FIGURE 2

3. WORK COMPLETED

Work completed to March 1988 consisted of photogeological examination of EL's 5195 and 5196, followed-up by detailed (1:5,000) geological mapping and sampling. No work was undertaken on EL 5194. The geological mapping of EL 5195 and 5196 was undertaken with the aid of 1:5,000 stereopaired enlargements prepared from existing Commonwealth Government 1:25,000 colour airphotography. Details of this work are outlined below.

3.1. EL 5195 (McCarthy's West) Geological mapping and sampling program.

This exploration licence consists of two graticular blocks. It was mapped in detail at 1:5,000 scale (see plate 1.).

A total of 256 rock-chip samples were collected (see appendix 1), however, only five exceeded 0.1 ppm Au with a highest sample assay of 0.25 ppm. Many samples contain strongly anomalous base metals and arsenic. Anomalous samples generally represent either fault zones or ironstone units within the Koolpin Formation and Wildman Siltstone. An undocumented prospect, probably trenched and drilled by United Uranium in the late 60's - early 70's as part of an iron ore/basemetals search, has been located in the west of the EL (see plate 1). This prospect was tested by several diamond drill holes in addition to trenching. Drilling is oriented parallel to bedding-strike and appears to test a bedding-discordant gossanous ridge of hematitic Koolpin Formation. Observed secondary lead minerals in samples were confirmed by elevated Pb values in assays (up to 2.11%). Although silver is slightly elevated (up to 2 ppm) there is negligable Au and the prospect does not warrant further work.

Elevated basemetals in (?fault-related) breccias at the Wildman Siltstone/Mundogie Sandstone contact and within the Wildman Siltstone, are sporadically accompanied by weakly anomalous Au. Values for Zn were commonly >1000 ppm in breccias of this type and ranged up to 1.00% Zn. Lead values were also elevated with most in the range 500-5000 ppm, with a maximum of 1.30% Pb. Arsenic was less consistently anomalous but several assays of >3000 ppm were returned.

No anomalous gold results were recorded from comprehensive sampling of the Mundogie Sandstone, which in places is multiply quartz veined and visibly silicified.

Sampling of Zamu Dolerite, which consists mainly of (?deuterically) chloritised quartz-dolerite, also failed to detect significant gold.

The geology of the EL is basically as depicted on the B.M.R's 1:25,000 compilation sheets but the following should be noted:

1. The contact between the Wildman Siltstone and Mundogie Sandstone is probably faulted. The breccia formed at the faulted contact is up to 30m wide in places and is mineralised as noted above.

2. The general structural picture presented in figure 3 suggests that the Wildman Siltstone/Zamu Dolerite contact may also be faulted. Such a fault would be concealed beneath creek alluvium.

3. There is an anticlinal structure to the south of the major anticline (McCarthy's Anticline) which cuts the north-eastern corner of the EL. This parasitic anticline dies out to the east.

4. There is a minor, parasitic anticlinal closure on the southern limb of McCarthy's Anticline.

5. In the south-west corner of the EL an anticline inferred by the B.M.R. was mapped and is, infact, overturned.

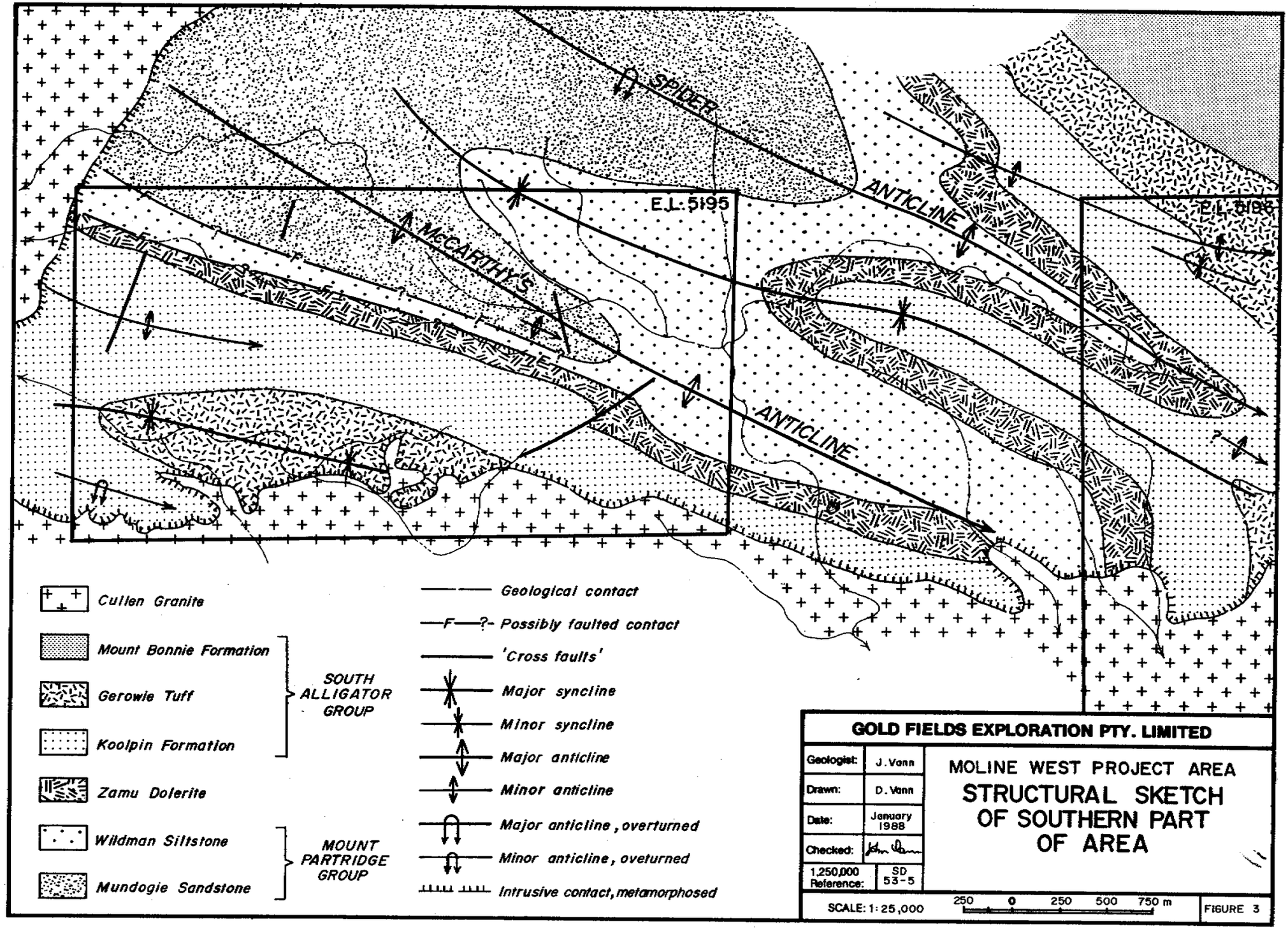
6. In the north-west of the EL there is a ridge of (?supergene) crystalline hematitic ironstone of similar style to the Francis Creek iron ore deposits near Pine Creek.

3.2. EL 5196 (McCarthy's East) mapping and sampling program.

This exploration licence consists of two graticular blocks. It was mapped and sampled in detail (see Plate 2) at 1:5,000 scale.

A total of 113 rock-chip samples were collected (see Appendix 2). Only a small number of samples returned anomalous gold assays. Most of these were from rock-chips taken about the axis of the Spider Anticline (see figure 3) in Wildman Siltstone-, and possibly Zamu Dolerite-hosted quartz veins. Four samples assayed better than 0.1g/t with a best assay of 0.314g/t.

Checking of standards revealed poor quality control and subsequent reassays (in some cases triplicate assays) revealed significant discrepancies. Although all samples from EL 5196 are to be reassayed by a different laboratory, some follow-up mapping and sampling is warranted at Golden Spider. No other areas of prospectivity were located.



GOLD FIELDS EXPLORATION PTY. LIMITED

Geologist:	J. Vann
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Date:	January 1988
Checked:	
1,250,000 Reference:	SD 53-5

MOLINE WEST PROJECT AREA

STRUCTURAL SKETCH OF SOUTHERN PART OF AREA

SCALE: 1:25,000 — 250 0 250 500 750 m

FIGURE 3

4. EXPENDITURE

The expenditure figures for the Moline West Project Area up to 30th December 1987 are listed below:

Item	$ Cost
Personnel costs (salaries, wages, on-costs, etc.)	14,779
Travel and accommodation	3,553
Consultants and contractors	3,269
Sample preparation and analysis	6,414
Stores and supplies	2,372
Vehicle costs	5,501
Stationery	10
Freight costs	29
Field equipment	277
Maps, reports and publications	1,251
Miscellaneous office costs	275
Administrative overheads	5,659
	$43,389

5. CONCLUSIONS

The geology of the southern part of the Project Area has been re-examined concommitant with a detailed sampling program. Numerous unmapped folds parasitic to known major closures were noted and these confirm that the area is structurally suited to hosting economic gold mineralisation. No significant mineralisation was located on EL 5195, however, one new prospect, Golden Spider, was located on a major anticlinal axis on EL 5196. The general stratigraphy of the area mapped so far is well understood, providing base-information for further exploration to the north (EL 5194) during the next 12 months.

6. RECOMMENDATIONS

Results from sampling of EL 5195 (McCarthy's West) were generally discouraging and no further work is warranted on the EL.

Sampling results obtained from EL 5196 (McCarthy's East) indicate a significant, low level gold anomaly over the area referred to above as Golden Spider. This prospect requires follow-up work, the following program is suggested:

1. Re-mapping of the prospect using a compass-and-tape grid.
2. Re-sampling and possibly costeaning to obtain better geochemical information.
3. Dependent upon results from 1 and 2 above; drilling of the prospect.

Further additional work programs for 1988/1989 will concentrate on geological mapping and sampling of EL 5194 (Evelyn Creek).

REFERENCES

1. Needham, R.S., and Stuart-Smith, P.G., 1984. The relationship between mineralisation and depositional environment in Early Proterozoic metasediments of the Pine Creek Geosyncline. Proc.Aus. I.M.M. Conference, Darwin, N.T., August 1984 : 201-211.

2. Walpole, B.P. et. al., 1968. Geology of the Katherine-Darwin Region, Northern Territory. B.M.R. Bulletin 82. (Canberra).

Appendix 1 : sampling results for EL 5195.

note: 1. Samples were assayed as per methods in Appendix 3.

2. Samples Q 56801 - 56900 : As by AAS101; detection limit @ 50 ppm
Q 55901 - 56000 : As by AAS101; detection limit @ 50 ppm
Q 57001 - 57044 : As by AAS101: detection limit @ 50 ppm
Q 57046 - 57077 : As by AAS114; detection limit @ 1 ppm.

3. (x) indicates sample contained element concentration below detection limit.

4. (-) indicates element not determined.

5. any abbreviations in descriptions are consistent with those used on Plate 1.

PROJECT: MOLINE WEST
GEOLOGIST: J. VANN

GOLDFIELDS EXPLORATION PTY LIMITED

DATE: SEPT. 1987

SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag	Pb_R	
Q56801	locally ferruginous, brecciated, qtz-clay veined 10m chip PSK, 2° Pb	0.025	—		300	335	2.00%	855	1.0	1.90%	
802	as per 801 ; 10m chip.	0.008	—		200	190	2.15%	740	2.0	2.07%	
803	as per 801 ; 5m chip.	0.008	—		100	185	6500	1040	2.0	7000	
804	silicified, ferruginous (?dolomitic) siltstone 5m chip.	0.032	—		700	65	3050	150	1.0	—	
805	FeSl, locally bx, quartz veinlets, locally carbonaceous	X	—		100	90	1200	320	0.5	—	
	5m chip across bedding (includes nc)										
806	quartz veined nodular chert (nc) ; 1m bed.	0.008	—		50	95	785	900	0.5	—	
807	locally ferruginous chert/sl ; 15m chip.	X	—		400	95	95	1700	1.0	—	
808	quartz veined chert/silicified sl, locally bx ; 10m chip.	0.032	—		400	30	145	225	0.5	—	
809	?chert : saccharoidal fgr silica ± qtz veins, vughs; 15m chip	0.025	—		50	35	115	60	0.5	—	
810	STD : PHY	0.032	—		x	380	x	255	x	—	
811	as per 809 ; 10m chip	x	—		x	20	75	15	x	—	
812	Kodpin siltstone, chert, nb : 2° Pb ; 10m chip	0.008	—		100	85	2300	670	x	—	
813	PSK FeSl, bx, qtz veins, 10m chip	0.050	—		450	70	4450	615	0.5	—	
814	Hematitic PSK ± minor chert, bx, qtz ; 8m chip.	0.017	—		350	95	3900	1200	x	—	
815	gossan, minor qtz, very hematitic and "frothy"	X	—		1700	70	150	1900	x	—	
816	?PpW ironstone, faulted, hydrothermal qtz breccia	X	—		3100	40	675	1.00%	x	—	
	includes milled qtz clasts, 10m NS chip.										
817	as per 816 ; 10m chip	0.058	—		3150	20	425	9000	x	—	
818	as per 816 ; 10m chip	0.032	—		950	85	2000	1900	x	—	
819	as per 816 ; 10m chip	0.032	—		1550	165	1.35%	1550	0.5	1.25%	

PROJECT: MOLINE WEST
GEOLOGIST: J. VANN

GOLDFIELDS EXPLORATION PTY LIMITED

DATE: SEPT 1987

SAMPLE	DESCRIPTION	Au	Au_R	As	Cu	Pb	Zn	Ag	Pb_R
~~Q~~6820	STD : CPD	0.458	—	1000	140	65	65	X	—
821	qtz-rich breccia, x-cutting qtz veins, locally gossanous	0.017	—	750	125	5500	740	0.5	5750
	steeply dipping; 5m EW chip.								
822	qtz veins in sandstone ; 6m chip	X	—	100	10	125	35	X	—
823	?Mundogie sst ± qtz veins: vertical, flat e-dipping & steep	0.032	—	250	15	150	20	0.5	—
	e-dipping; 10m N-S. chip.								
824	qtz veined sst as above, vems to 2m wide; 15m chip	0.050	—	1250	25	135	20	X	—
825	Ppw: carbonaceous hornfelsed siltstone, andalusite; 5m chip	X	—	X	25	780	65	X	—
826	Pgc: biotite-bearing acid dyke, biotite schlieren; 5m chip	X	—	X	20	220	70	X	—
827	Ppw: spotted, carbonaceous siltstone; 5m NS chip.	0.032	—	400	60	15	490	X	—
828	multiply qtz-veined ppm sst, grit; 4m chip along bed.	0.017	—	650	20	30	25	X	—
829	Ppw: fgr sst, siltstone; carbonaceous, well bedded; 10m chip	X	—	X	50	80	195	X	—
830	STD: GC6	0.875	—	550	180	20	110	X	—
831	breccia, very ferruginous, contains sub-oily qtz clasts;	0.167	—	5600	120	X	635	X	—
	? hydrothermal bx fault-fill; 7m NS chip.								
832	PsK: Ferruginous sl, locally cherty; minor n-c, qtz veins	0.017	—	200	60	185	180	X	—
833	as above, note sheared chert nodules, ? slump	X	—	200	30	60	60	X	—
	structures - x bedding ; 8m chip								
834	PsK: weakly veined silicified, carbonaceous sl; 7m chip	0.025	—	X	30	105	30	X	—
835	as per 833, but brecciated, more ferruginous &	0.083	—	100	75	105	95	X	—
	± abundant chert nodules; 8m NS chip.								

PROJECT: MOLINE WEST
GEOLOGIST: J. VANN

GOLDFIELDS EXPLORATION PTY LIMITED

DATE: SEPT 1987

SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag		
256836	as per 835; 4m chip	0.040	—		X	15	230	15	X		
837	poorly outcropping cherty ferrug sl ± minor qtz veins,										
	grab sample includes some float	0.025	—		100	70	140	115	X		
838	ferrug. sl, nodular chert, breccia, qtz veins; 5m chip	X	—		250	90	100	510	1.0		
839	silicified siltstone, vughy, cherty, cockade textures; 12m chip	X	—		500	35	105	75	X		
840	STD: CPC	3.820	—		1.90%	670	830	1250	1.5		
841	ferrug. sl / silicified sl as per 838, 839; 8m chip	X	—		850	60	175	595	X		
842	ferrug. sl as previously; 10m chip.	0.017	—		1100	110	135	120	X		
843	ferrug. sl, minor chert / nc, minor qtz veins; 10m chip	0.017	—		350	60	325	125	X		
844	PsK: "brecciated, qtz-veined" ironstone". Representative	0.040	—		1000	180	1550	190	0.5		
	sample of o/c; rb: carbonate → qtz textures; 10m chip.										
845	as per 844; 10m chip	0.025	—		500	80	3550	205	1.0		
846	PsK: "ironstone" ± common rexlised chert nodules	0.133	—		300	90	630	75	1.5		
	rb: small scale folding; 10m chip.										
847	ironstone as per 846 : chip along bed	0.017	—		500	105	325	55	X		
848	Massive, rubbly o/c PsK as per 844; 15m EW chip	X	—		750	165	2500	75	2.0		
849	PsK: silicified sl, minor Fe-sl; 5m NS chip.	0.017	—		100	55	2850	50	1.5		
850	STD: PNY	0.067	—		X	390	40	265	0.5	✓	
851	brecciated "ironstone", up to 90% limt, rb: qtz	0.025	—		3650	60	15	3930	X		
	clasts; 8m chip.										
852	gossanous, weakly bx sl, ± qtz veining locally	X	—		1500	70	190	2000	1.0		

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GOLDFIELDS EXPLORATION PTY LIMITED

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SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag		
856853	hmt "ironstone", minor bx, boxworks gossan (? Apy, Py)	0.017	—		4650	235	390	1660	X		
	Possibly fault-fill										
854	qtz veined, feldspathic, cgr Ppm sst; 5m chip	X	—		850	35	95	115	X		
855	as above; 6m chip	0.008	—		250	10	95	45	X		
856	as per 855; 10m chip	0.032	—		500	40	65	20	X		
857	fault fill bx up to 4m wide, qtz veined; chip along strike.	0.008	—		1650	65	725	415	0.5		
858	3m wide qtz veined, weakly ferrug. Ppm sst bed.	X	—		400	60	5	90	X		
859	2m wide sub-oily qtz vein, over 50m strike	X	—		X	5	15	X	X		
860	STD: GC6	0.842	—		600	185	X	100	X		
861	locally bx, ferrug, silicified weakly qtz veined Ppm	0.017	—		1300	105	35	135	X		
	sandstone										
862	qtz veined Ppm as previously; 10m chip	X	—		300	15	5	5	X		
863	as above; 10m chip	0.025	—		450	15	X	5	X		
864	vein qtz, oily, weakly ferrug; 5m chip	X	—		50	15	10	X	X		
865	weakly silicified/qtz veined arkosic Ppm sst.	0.008	—		300	60	35	75	X		
866	as above, minor qtz-breccia; 15m chip	0.025	—		500	45	210	5	X		
867	as per 866; 15m chip	0.083	—		1750	65	3020	5	0.5		
868	breccia, "ironstone"; very dense, hematitic some boxy	0.025	—		1000	475	3750	2040	X		
	? ex-sulphide gossan, 4m chip.										
869	breccia as above, poor o/c; 2m chip	0.008	—		650	555	175	3760	X		
870	STD: CPC	3.900	—		1951	685	950	1190	3.0		

PROJECT: MOLINE WEST
GEOLOGIST: J. VANN

GOLDFIELDS EXPLORATION PTY. LIMITED

DATE: SEPT 1987

SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag		
Q56871	gossanous, boxy, limonitic "ironstone"; locally bx, ob: qtz clasts, foliated (030/80E), ? fault-fill	0.258	—		4950	230	55	610	X		
872	Ppm: qtz veined; 6m chip	0.024	—		2100	110	115	125	X		
873	as per 872; 15m chip	0.008	—		500	15	40	20	X		
874	as per 872; cgr sst; 5m chip	X	—		50	10	5	10	X		
875	as per 874; 7m chip, ? axial to anticline	X	—		100	45	X	25	X		
876	grey, "sub-oily" qtz veining 1-2m wide, several veins.	X	—		X	5	10	20	X		
877	poorly veined Ppm sst/grit.	X	—		50	10	10	10	X		
878	poorly outcropping breccia; 5m chip	0.025	—		100	75	X	155	X		
879	Ppm sst, weakly iron stained; 8m chip	0.025	—		X	15	5	40	X		
880	STD: PHY	0032	—		X	400	20	260	X		✓
881	multiphase qtz veining in Ppm Sst; 15chip along vein (representative of extensive similar veining)	0.008	—		100	25	X	40	X		
882	qtz veined Ppm sst; 15m chip	X	—		X	30	X	25	0.5		
883	bedding parallel qtz veins up to 5cm wide; 4m chip	X	—		250	25	5	30	X		
	Samples 884 → 887 assigned elsewhere										
888	Opaline silica veining in PSK silicified carbonaceous siltstone, fine qtz veinlets, float sample	0.016	—		X	35	1.10%	240	X		*
889	Ppw, ferruginous + gossanous.	0.017	—		1550	200	1550	2750	0.5		
890	STD: CPC	3.980	—		2.30%	600	1000	1150	1.0		
891	Suboily qtz veining in Ferrug sst; 6m chip	0.034	—		550	45	165	110	X		

* Pb values possibly considerably overestimated in Q56898

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PROJECT: MOUNE WEST
GEOLOGIST: J. VANN

GOLDFIELDS EXPLORATION PTY LIMITED

DATE: OCT 1987

SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag		
R56892	Purple, ferrug. sst ± minor qtz veining; 6m chip	0.078	—		450	50	135	480	X		
893	grey/white qtz veining in sst. 3m chip	X	—		750	50	55	340	0.5		
894	sst, grit, qtz vened, fine stockworks, ?silicified; 8m chip	X	—		800	60	165	450	X		
895	as per 894; 8m chip	X	—		1000	85	85	600	X		
896	"swb-oily", saccharoidal qtz; minor bx, Fe-oxide o/c central vein up to 1.8m high; 5m chip	0.008	—		100	15	90	35	X		
897	as per 896, 6m chip.	0.037	—		1050	70	285	160	0.5		
898	as per 896, note: visible galena (trace amount)	0.054	—		1100	170	420	4000	X		
899	white brecciated quartz, >5m true width, steep dip (subvertical), gently bending strike over >100m, up to ½% visible galena; 5m chip	0.113	—		1750	450	1200	9000	5.5		
900	STD: CPD	0.479	—		850	140	40	60	X		
R55901	Ppm sst; 4m chip	X	—		100	55	1050	60	X		
902	qtz: "oily", weakly saccharoidal, 5m wide; 5m chip	0.008	—		50	30	100	115	X		
903	silicified Ppm	0.018	—		100	55	45	65	X		
904	hematitic, cherty, bx, qtz vened o/c (minor fault?)	0.059	—		1750	200	650	450	X		
905	swb-oily qtz blow, possibly axial; 10m chip	0.023	—		100	20	35	20	X		
906	very silicified ?Ppm, saccharoidal texture; 7m chip	0.008	—		100	20	30	20	X		
907	Silicified Ppm, gossanous joint coatings; 3m chip	X	—		50	70	5	35	X		
908	siliceous bx, qtz clasts, minor ?Apy, py, galena boxworks; "bread + butter knife" texture; 6m chip	0.027	—		200	90	6300	290	0.5		

PROJECT: MOLINE WEST
GEOLOGIST: J. VANN

GOLDFIELDS EXPLORATION PTY. LIMITED

DATE: OCT 1987

SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag	Fe	
955909	as per 908; sample includes qtz-veined, silicified Ppm wallrocks; 5m chip	0.013	—		250	65	1.0%	400	0.5	—	
910	STD: CPC	3.970	—		2.0%	650	1000	1200	1.0	—	
911	as per 909; 8m chip	0.039	—		550	110	3500	3400	0.5	—	
912	Ppm: multidirectional qtz veining in mgr sst; 5m chip	0.018	—		50	15	25	20	X	—	
913	"subcrop" qtz veins up to 1m wide in ppm sst/grit, mgr; sst has fine stockworks locally; 15m chip	0.010	—		X	10	5	15	X	—	
914	as per 913; 5m chip along strike	0.011	—		50	30	5	60	4.0	—	
915	as per 914	X	—		50	55	10	95	X	—	
916	Ppw: carbonaceous siltstone	0.014	—		50	20	15	50	X	—	
917	cherty, ferruginous siltstone	0.012	—		150	220	10	1450	X	—	
918	ferrug., locally hematitic siltstone; 5m chip	0.010	—		50	125	X	4250	X	—	
919	Crystalline hematite/siltstone, locally weathered. Very similar to Francis Ck iron deposit; 8m chip.	0.015	—		100	30	X	110	X	62.0%	
920	STD: GC6	0.843	—		350	180	10	105	X	3.81%	
921	as per 919; 8m chip	0.017	—		100	25	X	65	X	62.5%	
922	Ppm?: blocky mgr quartzite, minor sl.	X	—		X	40	15	45	X	—	
923	carbonaceous, weakly ferruginous sl, 5m chip along bed	0.009	—		150	65	10	80	X	—	
924	purple, phyllitic Fe rich siltstone, 15m chip along bed.	0.008	—		250	45	X	200	X	—	
925	phyllitic ironstone ± minor Xline hmt; 10m chip	0.013	—		100	50	50	170	X	—	
926	as per 919, adjacent to Ppw carb. sl; 6m chip	0.013	—		150	120	25	1800	X	54.7%	

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SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag	Fe	
955927	Ppw: carbonaceous siltstone; 6m chip	0.015	—		X	80	80	245	X	—	
928	Crystalline hematite dispersed in, and veined through, Ferrug./carbonaceous sl; 15m chip	0.008	—		50	50	X	100	X	—	
929	Reddish hmt, xline, ironstone, qtz vughs; 10m NS chip	X	—		X	40	X	40	X	31.5%	
930	STD: CPD	0.495	—		800	150	20	55	0.5	3.29%	
931	limonitic, sandy, ferrug. siltstone; rubbly o/c; 12m chip along strike	0.020	—		150	300	5	1400	X	—	
932	qtz veined, bx, ferrug. sl; adjacent to Pdz dyke; common "suboily" qtz veining; 6m chip	0.012	—		3150	150	X	55	X	—	
933	rubbly o/c of "suboily" qtz, minor sl, veins up to 1m wide +/- 5% of sample qtz; 10m chip	0.011	—		100	20	X	20	X	—	
934	as per 933; 10m chip	X	—		X	15	X	15	X	—	
935	as per 933; 10m chip	0.008	—		100	15	X	15	X	—	
936	as per 933; minor Fe ox/sericite; 10m chip	0.010	—		100	15	205	30	X	—	
937	white, saccharoidal qtz, locally vughy; ?fault; 2m chip	0.008	—		X	25	240	45	X	—	
938	as per 937, locally ?cherty, grab sample	0.161	—		350	130	3250	540	0.5	—	
939	locally carbonaceous sl; 10m chip	0.012	—		50	60	70	30	0.5	—	
940	STD: PHY	0.127	—		50	380	20	240	X	—	✓
941	chalky, sandy? siltstone, very white, no HCl reaction, some gossanous textures, minor Fe staining; Grab sample	0.015	—		X	90	20	60	0.5	—	

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SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag		
055942	Grey PsK, carbonaceous sl, <10% Fe-s; 10m chip	0.013	—		X	150	25	45	0.5		
943	?silicified carbonate, pinkish, sugary, platy; 15m chip	0.022	—		100	55	30	30	X		
944	lateritised cgr marginal phase of Pgc granite;	0.013	—		250	90	285	90	0.5		
	some crystalline/botryoidal hmt (Pgcm); 7m NS chip	0.011	—		50	10	5	15	X		
945	qtz vein in Pgcm, minor feldspar										
946	Pgcm, minor qtz veining; very degraded, biotitic; 7m chip	0.04	—		X	15	10	55	X		
947	as per 945; 10m chip along strike; vein 1m wide	X	—		X	15	580	100	X		
948	as per 947; 10m chip along strike.	0.013	—		X	10	20	55	X		
949	sample collected for petrography, no geochem. assay.										
950	STD: CPC	3760	—		2.0%	650	950	1300	0.5		
951	PsK: silicified sl and carbonaceous sl, nodular	0.049	—		X	100	25	160	X		
	chert beds, ?weakly hornfelsed; 6m chip										
952	PsK, silicified carbonaceous sl, nb andalusite; 5m chip	0.009	—		X	15	10	10	0.5		
953	as per 951, minor qtz veins, andalusite, 8m chip	0.038	—		X	300	685	70	X		
954	sample collected for petrography, no geochem. assay										
955	qtz blow in hornfelsed Psg; 3m grab	0.010	—		X	15	10	10	X		
956	white, locally milky, saccharoidal and bx qtz,	0.019	—		300	20	1150	25	100.0		
	nb: trace xline/botryoidal hmt; 2m chip across vein										
957	as per 956 (same vein); 2m chip	0.017	—		600	85	4250	85	88.0		
958	multiphase, fgr, saccharoidal qtz vein ± fine, white	0.013	—		X	50	1150	150	1.0		
	stockworks, visible galena, 1.5m chip across vein										

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SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag	Sn	
955959	grey, "suboily" qtz in Psg tuff/sl	0.012	—		X	10	10	10	X	—	
960	STD: GC6	0.801	—		350	175	20	100	X	—	
961	multiphase ("oily"-milky) qtz blow, feldspathic in parts; 4m chip	0.010	—		50	20	10	10	X	—	
962	as per 961 but associated with microgranite; 4m chip	0.009	—		X	30	135	150	X	—	
963	as per 959; 7m chip	0.009	—		X	10	X	10	X	3	
964	as per 959; 5m chip	0.010	—		X	10	X	15	X	—	
965	qtz adjacent to granite, suboily, minor limonite, 10m chip	0.008	—		X	10	5	10	X	—	
966	ferrug. qtz: K-spar-brg; grab over 10m strike of vein	0.009	—		X	10	115	70	X	—	
967	hornfelsed tuff/siltstone, biotitic, minor qtz vt; 6m chip	X	—		X	10	20	55	X	—	
968	as per 967	0.011	—		X	25	10	65	X	6	
969	?lateritised breccia (?fault fill, >5m wide); 5m chip	0.013	—		50	75	530	80	X	9	
970	STD: CPC	3.770	—		1.95%	650	1050	1200	0.5	5	
971	varied "suboily" → white qtz float on CK bank, trace Py	0.013	—		50	20	80	30	0.5	—	
972	Psk: carbonaceous siltstone, chert, ferrug. siltstone, minor qtz veinlets, rubbly o/c; 2.5m chip	0.016	—		200	100	770	70	X	—	
973	qtz veined, hornfelsed Psg, muscovite/sericite, veins up to 10cm, some minor aplitic microdykes; 10m chip	0.017	—		X	15	20	45	X	8	
974	as per 973, more veined/aplitic; 10m chip	0.013	—		X	15	10	65	X	—	
975	aplite material from 974	0.011	—		X	10	10	35	X	8	
976	hornfels as per 973, very minor veining; 4m chip	0.015	—		X	15	30	30	X	—	
977	heavy, iron rich ? calc-silicate hornfels; 2m chip	0.013	—		X	45	1050	1050	X	45	

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SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag	Sn	
Q55978	granular biotite-rich, hornfelsed, ?cordierite-brg tuff; 3.5m chip	0.016	—		X	40	70	60	X	—	
979	as per 977; 4m chip	0.009	—		X	20	20	50	X	5	
980	STD: GC6	0.771	—		600	200	50	110	X	3	
981	"sub-oily" → white qtz vein; 5m chip	X	—		50	15	X	10	X	—	
982	white/milky qtz vein; minor fe-oxides, comb-structures.	X	—		100	50	5	10	X	—	
983	as per 982; 8m chip along vein	X	—		100	130	115	70	0.5	—	
984	white/milky/saccharoidal qtz vein; 10m chip along vein	X	—		X	60	40	10	X	—	
985	silicified, iron-rich, qtz veined siltstone; 5m chip	X	X		X	15	10	15	X	—	
986	silicified carbonaceous sl, locally minor qtz veins; 5m chip	X	X		X	10	35	20	X	—	
987	as per 986, minor opaline silica; 7m chip	0.009	0.017		50	20	20	20	X	—	
988	as per 987; 5m chip	0.012	0.170		100	20	110	15	X	—	
989	as per 987; 5m chip	0.010	X		150	20	45	10	X	—	
990	STD: CPC	3.640	3.980		2.00%	640	1000	1250	1.5	—	
991	as per 987; 7m chip	0.014	X		X	15	5	15	X	—	
992	carbonaceous sl, silicified, opaline silica veinlets form open stockworks; 18m chip	0.008	0.008		X	10	X	10	X	—	
993	as per 992, weakly brecciated, 4m chip	0.009	0.008		50	20	25	30	X	—	
994	unsilicified carbonaceous siltstone, 10m chip	X	X		50	95	75	30	X	—	
995	silicified carbonaceous siltstone ± minor qtz veins, minor interbedded ferrug./brecciated sl; 4m chip	X	X		150	65	20	30	X	—	
996	as per 995; 5m chip	X	X		100	10	X	10	X	—	

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SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag		
Q55997	iron rich ?Cainozoic sedimentary bx	0.012	X		50	45	100	200	X		
998	ferrug. sl, nodular chert, chert ; 8m chip	0.020	X		150	65	30	120	X		
999	carbonaceous siltstone ; 7m chip	0.036	X		100	40	30	30	X		
Q56000	STD: CPD	0.472	0.517		900	140	X	55	X		
Q57001	as per 999, ± minor qtz vt & ferrug. sl ; 15m chip	0.021	X		150	10	X	10	X		
002	as per 001; 10m chip	0.012	X		150	5	X	X	0.5		
003	as per 001; 10m chip	0.016	X		100	5	15	10	X		
004	qtz vein, "sub oily"; up to 0.3m wide; trace Py	X	X		150	35	150	95	X		
005	as per 004	0.035	X		100	45	X	30	X		
006	as per 004, locally fibrous, several veins; 4m chip	0.057	X		100	10	X	15	X		
007	30cm wide "sub-oily" qtz vein	0.028	X		200	25	220	230	X		
008	white; locally ferruginous, bx; ?granite related qtz vein ± "bread + butter knife" texture; 5m chip	0.027	X		250	260	X	115	X		
009	as per 008, locally saccharoidal; 10m chip along vein	0.024	X		450	70	X	15	X		
010	STD: GC6	0.805	0.883		450	185	X	110	X		
011	PSK: silicified carbonaceous siltstone, hard, compact, black, v. minor qtz & opaline silica veinlets; 4m chip	0.022	X		X	10	15	10	X		
012	as per 011; 5m chip	0.019	X		50	5	X	10	0.5		
013	as per 011; minor fe-oxides in qtz veinlets ; 15m chip	0.014	X		X	5	X	10	X		
014	silicified carbonaceous siltstone, opaline silica vt, brecciated, bx cement = chacedonic silica; 5m chip	0.021	0.017		X	5	X	10	X		

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SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag		
Q57015	ferrug. siltstone, locally sandy, common red/yellow Fe-oxides	0.017	X		X	30	X	30	X		
016	as per 015, ē, asperoidal silicified sl, minor quartz veinlets & brecciation; 15m chip	0.023	0.008		X	35	X	25	X		
017	as per 016, but carbonaceous rather than ferrug.; 15m chip	0.021	0.008		X	15	X	15	X		
018	as per 017; 15m chip	0.023	X		X	40	X	20	X		
019	brecciated "ironstone"; locally carbonaceous, hematitic, quartz-veined; possibly fault fill; 10m chip along strike	0.017	X		150	60	375	30	X		
020	STD: PHY	0.044	0.033		X	400	5	230	X		
021	as per 019; 10m chip	0.016	X		100	120	800	70	X		
022	bleached, weakly bx carbonaceous sl, minor qtz vt; 10m chip	0.014	X		50	20	380	15	X		
023	aplitic Pgc; 10m chip	0.018	X		X	25	20	50	X		
024	white, grey and pink saccharoidal qtz veining in hornfelsed Psg; grab sample biased towards qtz	0.017	X		X	10	10	15	X		
025	very dark, nearly black, "oily" qtz vein, minor fe-oxides	0.014	X		X	5	5	60	X		
026	as per 025	0.015	X		X	10	5	50	X		
027	hornfelsed Psg siltstone/tuff; 10m chip	0.017	X		50	30	150	95	X		
028	Pdz dolerite, minor qtz; deuteric chloritisation; 10m chip	0.022	X		50	60	X	40	X		
029	as per 028; 10m chip	0.016	X		50	50	X	60	X		
030	STD: GC6	0.730	0.792		450	160	15	100	X		
031	as per 028; slightly weathered; 10m chip	0.013	X		X	50	X	50	X		
032	as per 028; 10m chip	0.018	X		X	40	X	60	X		

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SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag		
057033	"sub-oily" qtz vein, minor x-cutting white qtz, rare Py; 10m chip along vein.	0.015	X		X	15	X	30	X		
034	Psg hornfels adjacent to 033; 10m chip	0.018	X		X	20	10	50	0.5		
035	PsK carbonaceous sl, rb: andalusite; ?relict sulphide pits	0.023	X		X	15	15	25	X		
036	carbonaceous sl, brecciated in places, lesser nodular chert, qtz veins, opaline/drusperoidal veinlets; 12m chip	0.021	X		X	15	X	10	X		
037	as per 036 but more silicified; 10m chip	0.021	0.008		50	25	800	20	X		
038	as per 037; 15m chip	0.024	0.008		X	30	125	30	X		
039	qtz veined, ferrug. siltstone; 8m chip	0.019	0.017		250	130	140	110	X		
040	STD: PHY	0.041	0.033		50	380	X	245	X		✓
041	as per 039; qtz veining is white, limonitic; 6m chip	0.012	0.008		50	100	80	130	X		
042	as per 039; lesser qtz, minor fgr sandy sl; 15m chip	0.011	X		X	30	X	35	X		
043	ferruginous and carbonaceous siltstone;	0.018	X		X	185	110	70	X		
044	ferruginous siltstone + sandstone, carbonaceous sl, minor nodular chert beds, minor andalusite; fe-oxide vt	0.017	X		X	70	X	25	0.5		
045	"sub-oily" multiphase qtz veining (grey/white), ī minor Kspar, vughy xline qtz; 8m chip	0.008	0.024		16	15	5	70	X		
046	as per 045; includes Psg wallrocks; 6m chip	X	0.008		3	25	X	20	X		
047	qtz as per 045	0.011	X		2	10	5	20	1.0		
048	grey, bland qtz blow in hornfelsed Psg; 5m chip	0.012	0.025		1	10	5	15	X		
049	carbonaceous & ferrug. sl; minor vitreous, "rusty", white qtz	0.014	0.029		420	30	310	70	X		

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SAMPLE	DESCRIPTION	Au	Au_R	Au_1R_2	As	Cu	Pb	Zn	Ag		
257050	STD: CPC	4.780	3.366	—	—	—	—	—	—		
051	coarse marginal phase of granite (Pgcm)	0.012	0.031	—	120	45	80	40	0.5		
052	carbonaceous sl ± andalusite needles to 1.0cm; 7m chip	X	0.020	—	X	20	435	10	0.5		
053	as per 052; some noncarbonaceous sl; minor muscovite; 10m chip	X	0.010	—	18	15	240	10	X		
054	as per 053; 60m from PsK/Pgc contact; 15m chip	X	X	—	26	20	115	25	X		
055	as per 052; minor qtz veinlets, minor jasper; 10m chip	X	X	—	14	120	200	120	X		
056	white (? granite related) qtz vein, chip along 1m wide vein	X	X	—	67	30	655	30	X		
057	Carbonaceous/ferruginous andalusite-brg siltstone, minor specular hematite; 10m chip	X	0.009	0.017	64	25	520	20	X		
058	as per 057, locally brecciated, common hmt; 10m chip	0.037	0.038	0.042	1480	110	3650	40	10.5		
059	carbonaceous siltstone; 10m chip	0.060	0.060	0.067	190	240	780	30	X		
060	JTD: CPD	0.177	0.338	0.492	1180	140	10	55	X		
061	as per 059; 7m chip	0.084	0.018	—	X	20	50	10	X		
062	hornfelsed Psg tuff, sl, chert (minor); 10m chip	X	X	—	17	15	20	130	X		
063	hornfelsed Psg sl, ± minor <1cm qtz vein; 6m chip	X	X	—	25	15	20	50	X		
064	"sub-qtz" qtz veins, trace Py; 5m chip (several veins)	X	X	—	19	50	175	135	X		
065	Weakly ferrug. phyllitic siltstone, minor nodular chert, chert, locally weak fe-ox stockworks vt; 7m chip	X	0.156	—	18	105	1800	200	0.5		
066	Carbonaceous sl, andalusite, minor rc, ferrug sl, chert, ferruginous-micaceous phyllite; grab sample	0.069	X	—	20	40	245	135	X		
067	white, brecciated qtz, common fe-ox, ferrug sl wallrocks	0.011	0.052	—	350	230	4050	70	X		

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SAMPLE	DESCRIPTION	Au	Au_R	Au_{R_2}	As	Cu	Pb	Zn	Ag		
Q57068	Carbonaceous and ferruginous sl; minor chert; minor bedding // "siliceous" qtz; minor ?zeolites; 10m chip	0.021	0.008	—	310	170	1400	60	X		
069	as per 068, minor bx, no ?zeolite, minor py; 8m chip	0.196	0.111	0.583	260	75	1650	30	X		
070	STD: GC6	0.741	0.758	0.767	560	200	25	110	X		
071	as per 069, nb: veins minor & 'poddy' in 069/071; 8m chip	0.020	0.039	—	1400	100	1850	35	2.0		
072	carbonaceous sl, nodular chert, locally qtz veined; 10m chip; similar to 069/071	0.027	0.037	—	130	70	1850	30	0.5		
073	as per 072	0.016	0.014	—	10	40	135	20	X		
074	nodular chert on S-limb of overturned anticline; 6m chip	0.121	0.072	—	200	130	1150	40	0.5		
075	quartz-veined PsK andalusite-brg carbonaceous sl, ferruginous in places; 15m chip	0.030	0.003	—	220	190	550	20	X		
076	white, ferrug, bx, cherty quartz	0.011	0.026	—	360	80	3150	30	0.5		
077	ferruginous sl & lesser nodular chert and minor beds of carbonaceous sl; 12m chip	X	0.015	—	180	260	1450	50	3.0		

Appendix 2 : sampling results for EL 5196.

note:
1. samples were assayed as per methods in Appendix 3.
2. All As determinations by AAS114; detection limit @ 1 ppm.
3. All Au determinations were repeated because of poor results for control standards.
4. (x) indicates sample contained element concentration below detection limit.
5. (-) indicates element not determined.
6. any abbreviations in descriptions are consistent with those used on Plate 2.

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SAMPLE	DESCRIPTION	Au	Au_R	Au_{R_2}	As	Cu	Pb	Zn	Ag		
257078	grey, locally "sub-oily" qtz, lesser white qtz; 6m chip	X	0.016	—	10	40	110	110	X		
079	Agglomeritic Psg, bombs to 20cm; 4m chip	X	0.012	—	13	30	20	50	X		
080	STD : PHY	X	0.046	0.033	24	360	10	220	X		
081	locally bx, "oily", ferrug. qtz float/subcrop	X	X	—	37	20	5	20	X		
082	? silicified Psg	X	0.014	—	6	75	660	105	X		
083	qtz blow, "oily", ferrug., limonitic, sericite; 8m chip	X	X	—	34	15	60	120	X		
084	as per 083; bleached tuff wallrocks sampled too;	X	X	—	X	10	5	15	X		
	6m chip.										
085	as per 084; several veins (+ float); 15m chip	X	X	—	X	10	5	20	X		
086	"sub oily" qtz vein(s), poor o/c; 4m chip	X	X	—	1	10	X	10	X		
087	as per 086; some qtz quite "oily"; 3m chip	X	X	—	3	20	50	45	X		
088	as per 086; 11m chip	X	X	—	4	15	X	20	X		
089	silicified sandstone ± 5-15m qtz vt, minor sl + shale	X	0.024	—	1	20	25	55	X		
	? Mt. Bonnie Fmn.										
090	STD: CPC	3.969	3.464	4.030	21	630	1100	1250	2.5		
091	qtz as per 083; 10m chip along vein	X	X	—	4	5	50	55	X		
092	as per 091.	X	0.024	—	1	5	20	40	X		
093	"oily", "sub-oily", white qtz, several veins? 10m chip	X	X	—	7	10	50	50	X		
	along strike of vein(s)										
094	"oily" - "sub-oily", locally ferruginous qtz subcrop.	X	X	—	17	10	40	20	X		
095	qtz veined, ferrug, silicified sst/sl (wallrocks to 094)	0.029	0.039	—	190	80	670	150	0.5		

PROJECT: MOLINE WEST
GEOLOGIST: J. VANN

GOLDFIELDS EXPLORATION PTY LIMITED

DATE: OCT 1987

SAMPLE	DESCRIPTION	Au	Au_R	Au_{R2}	As	Cu	Pb	Zn	Ag		
Q57096	limonite-qtz vt in tuffaceous sl; 5m chip	0.012	0.053	—	10	60	140	65	X		
097	"oily" qtz blow >4m wide; 6m chip (includes float)	X	X	—	68	10	20	40	X		
098	as per 097; 10m chip along vein	X	X	—	17	10	10	10	X		
099	thick, silicified, qtz veined, carbonaceous sl float	X	X	—	70	40	5	20	X		
Q57100	STD: CPD	0.149	0.614	0.542	190	150	X	50	0.5		
Q57201	carbonaceous sl, minor "chalky" qtz vt; 8m chip	0.042	X	—	4	20	15	10	X		
202	weakly ferrug. carbonaceous sl, minor qtz vt; 8m chip	0027	X	—	8	30	20	10	X		
203	as per 202; 15m chip across anticlinal axis	X	0.074	—	12	40	40	10	X		
204	cherty, silicified ? siltstone, locally ferrug./qtz veined 15m wide bed (grab sample)	0.154	0.189	—	55	160	X	20	X		
205	as per 204 but less veined; 3m chip.	0.013	X	—	64	80	230	70	0.5		
206	bleached, carbonaceous Sl, locally qtz veined; 6m chip	X	X	—	67	50	220	115	X		
207	as per 206; float sample	0.027	X	—	57	47	115	175	X		
208	representative sample of "oily"-"suboily" qtz veins, up to 0.5m wide	0.033	0.023	—	4	20	25	30	X		
209	"ironstone"; locally cherty, weakly bx, minor nodular chert, qtz veining; 8m chip	0.613	X	—	120	85	100	30	X		
210	STD: PHY	0.040	—	—	37	350	X	225	X		
211	as per 209; 10m chip.	0.014	0.011	—	76	90	35	35	X		
212	hornfelsed Psg ⊥ bedding // qtz-Kspar veins; 10m chip	X	X	—	66	40	2100	225	X		

PROJECT: MOLINE WEST
GEOLOGIST: J.VANN

GOLDFIELDS EXPLORATION PTY LIMITED

DATE: NOV 1987

SAMPLE	DESCRIPTION	Au	Au_R	As	Cu	Pb	Zn	Ag
Q57213	tuffaceous sl & sl, minor chert; 4m chip	0.022	X	10	15	10	50	0.5
214	chert; pink to grey, blocky, weakly ferruginous	X	X	71	15	120	65	X
215	"sub-oily" to "oily", vitreous 60cm wide qtz vein(s?)	X	X	3	5	X	X	X
216	sl, tuffaceous sl, minor ferrug. sl, minor qtz vt; 7m chip	X	X	6	10	115	75	0.5
217	multiphase ("suboily"/white) qtz vein + chert, tuff, siltstone wallrocks. (? ladder vein, 50cm wide); 13m chip	X	X	14	15	15	50	0.5
218	as per 217 → qtz only (grab sample)	X	X	1	5	X	40	X
219	as per 218 (40cm wide)	X	X	X	5	X	10	X
220	STD: PMY	X	0.025	32	370	20	220	2.0
221	"oily" qtz blow, equidimensional o/c.	X	X	1	5	X	15	X
222	"oily" qtz vein, ~5m wide; 6m chip includes some float	X	X	2	X	5	5	X
223	grey-white qtz vein; grab sample	X	X	X	X	5	25	0.5
224	brecciated chert/siltstone bed, chert nodules, fe-ox vt, m? basal Psg; chip 10m along strike	X	X	110	230	190	145	X
225	Upper most Psk?: chert, nodular chert, siltstone, minor qtz vt, ferrug. siltstone; 6m chip	X	X	46	800	70	240	3.5
226	as per 225; 5m chip	0.011	0.017	71	205	50	275	1.5
227	cherty, bx, ferrug, bleached sl, Fe-ox/qtz vt; 6m chip	X	0.017	57	115	15	215	1.0
228	cherty, fgr, chalcedonic silica, py; chip 10m along strike	X	X	20	30	120	375	X
229	as per 228, nb: x-cutting white qtz, chip 10m // strike	X	X	6	15	5	5	X
230	STD: GC6	0.836	0.720	620	160	15	95	X

PROJECT: MOLINE WEST
GEOLOGIST: J.VANN

GOLDFIELDS EXPLORATION PTY LIMITED

DATE: NOV 1987

SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag		
Q57231	PSK: ferrug. sl; iron "nodules" up to 3cm in diameter	0.026	X		55	180	1600	210	1.5		
232	brecciated, ferrug. sl ± cherty/jaspery/qtz fragments	0.021	X		24	80	215	80	X		
233	"sub-oily" qtz veins in carbonaceous sl; 1?m chip	0.027	X		17	25	10	10	X		
234	PSK: carbonaceous sl, nb: small-scale folds; 20m chip	0.031	X		20	10	30	5	X		
235	?bleached, weakly alt^{d} (feox vt) sl, slightly sandy; 20m chip	0.012	X		20	X	50	5	X		
236	carbonaceous sl; minor chert, ferrug. sl, feox vt; 20m chip	0.021	X		120	25	15	15	X		
237	carbonaceous sl; very minor ?opaline SiO_2 veinlets; 20m chip	0.013	0.008		1	5	10	5	X		
238	carbonaceous sl; chert, nodular chert, poddy "sub-oily" qtz, includes ~1m wide ferrug. sl bed; 8m chip	0.012	0.008		110	90	35	25	X		
239	carbonaceous sl ± bedding // white qtz veins up to 25cm wide; 20m chip	0.019	0.017		7	10	90	15	X		
240	STD: CPD	0.046	0.454		790	140	20	55	X		
241	as per 239, but bleached/ferrug unows; 20m chip	0.015	0.033		72	70	65	80	X		
242	locally bx carbonaceous sl, fine qtz stockworks; 20m chip	0.025	0.017		220	120	65	65	0.5		
243	as per 239, locally ferrug/ bleached; 20m chip	0.019	0.008		48	40	40	15	X		
244	nodular chert, carbonaceous sl; qtz veined (bedding parallel & X-cutting; nb: discordant ?bleached pink zones; qtz is "oily", ferrug, some white, all poddy; 20m chip	0.283	0.017		110	75	50	30	X		
245	carbonaceous sl; minor white qtz vt; 20m chip	0.019	0.008		51	40	25	10	X		
246	ferrug., bleached carbonaceous sl; ± white, locally brecciated qtz veins to 1m wide	0.024	0.008		80	220	20	20	X		

PROJECT: MOLINE WEST
GEOLOGIST: J. VANN

GOLDFIELDS EXPLORATION PTY. LIMITED

DATE: NOV 1987

SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag		
057247	as per 246 c galer (020) bleached zones, locally gossanous	0.026	X		67	190	70	25	X		
248	deeply weathered clayey rock (? sl, ? dolerite)	0.019	0.017		430	885	X	305	0.5		
249	qtz "blow, possibly axial (saddle-reef?), locally very ferrug.;	0.016	X		25	30	X	10	X		
	mainly "sub-oily" c lesser "oily"/white qtz; 6m chip.										
250	STD: CPD	0.076	0.075		1130	135	15	55	0.5		
251	as per 249; 6m chip	0.394	0.008		290	270	X	200	0.5		
252	qtz as per 249; 10m chip along strike	0.027	0.008		18	30	X	10	0.5		
253	qtz as per 249; 10m chip	0.013	0.292		10	55	X	5	0.5		
254	qtz as per 249; >1 vein?; 5m chip	0.279	X		20	25	X	30	X		
255	qtz as per 252 (same vein?), >1 vein?, grab sample	0.013	0.008		6	10	5	5	X		
256	4 or 5 qtz veins as above; 20m chip	0.016	X		14	5	5	X	X		
257	"oily"/white multiphase qtz c diffuse white vt,	0.229	0.150		58	30	X	10	X		
	some botryoidal qtz (same vein as 254?); 8m chip										
258	as per 257; diffuse white qtz weakly banded?	0.013	X		19	30	5	5	X		
259	<50cm qtz vein as above, no banding.	X	X		25	15	X	5	X		
260	STD: CPC	3.640	—		2.38%	650	800	1200	3.5		
261	?basal PSK/upper Ppw ironstone; 20m chip along strike	X	X		1350	670	5	1100	2.0		
262	qtz subcrop/rubble as per 257, rep. of abundant qtz	X	X		120	35	5	20	X		
263	Ppw float: sl, ferrug. sl, carbonaceous sl, possibly PSK?	X	0.008		390	230	110	600	1.5		
264	PSK: carbonaceous sl c subvertical white, pyritic	0.036	X		4	10	15	5	X		
	(<1%) qtz veins										

PROJECT: MOUNE WEST
GEOLOGIST: J.VANN

GOLDFIELDS EXPLORATION PTY LIMITED

DATE: NOV 1987

SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag		
Q57265	carbonaceous sl ± minor bedding ∥ white qtz veins; 20m chip	X	X		20	25	15	15	X		
266	as per 265; no veins; 10m chip	0.024	X		9	5	20	10	X		
267	as per 265; minor white, opalline qtz veins; 9m chip	X	X		28	25	20	10	X		
268	as per 267 but minor nodular chert/ferrug. sl; 20m chip	0.009	X		45	25	15	10	X		
269	PsK carbonaceous sl, minor qtz/nodular chert (float)	0.024	X		9	5	5	5	X		
270	STD: GC6	0.668	—		510	185	25	110	X		
271	as per 269; 20m chip	X	X		120	50	10	25	X		
272	weakly qtz veined carbonaceous sl; ? near axial to	X	X		31	75	45	20	X		
	major 2nd order parasitic anticline; 10m chip										
273	"sub-oily" - white, locally ferrug qtz; 10m chip (sparse o/c)	X	X		20	60	60	15	1.0		
274	float & subcrop qtz as per 273, & bleached sl; 15m chip	X	X		27	20	185	15	0.5		
275	carbonaceous sl; rare, minor qtz veins; 10m chip	0.011	0.017		120	100	840	45	1.0		
276	qtz as per 275 in sandy sl (basal Psg/upper PsK)	0.010	X		23	15	470	30	X		
277	white, locally ferrug., qtz, only sparse sl subcrop.	0.042	X		270	20	3550	60	1.5		
278	complexly folded carbonaceous sl, minor qtz; 5m chip	0.013	X		170	50	90	105	0.5		
279	cherty, carbonaceous sl bed, minor nc; 3m chip	0.022	X		79	60	65	60	X		
280	STD: CPC	3.660	—		2.71%	670	800	1250	4.5		
281	carbonaceous sl, sl as per 279, orange stained opaline	0.026	X		390	15	35	10	X		
	silica veinlets; 3.5m chip										
282	carbonaceous sl, minor nodular chert & ferrug. sl;	X	0.008		8	15	5	10	X		
	minor bx; minor float collected also; 20m chip										

PROJECT: MOUNE WEST
GEOLOGIST: J. VANN

GOLDFIELDS EXPLORATION PTY LIMITED

DATE: NOV 1987

SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag		
057283	Psk carbonaceous sl, v. minor opalline vt; 10m chip	X	X		3	5	15	5	X		
284	nodular chert, carbonaceous sl, ferrug. sl, minor white qtz; chert nodulars hydrothermally re-xlsed to milky qtz; 15m chip	X	0.017		230	60	5	95	X		
285	multiphase grey/white/opalline qtz, rubbly s/c; 5m chip	X	X		13	15	5	5	X		
286	as per 285; grab sample from poor o/c, some s/c	0.023	0.025		420	105	X	10	X		
287	grey/"swb-oily" qtz vein, 1m thick; 10m chip along vein	0.174	0.092		130	5	145	10	X		
288	qtz as per 287, near Pgc contact	0.035	X		190	15	270	40	X		
289	subcrop and scree: grey-white qtz (? granite related); 6m chip	0.028	X		2	5	55	5	X		
290	STD: PHY	0.038	0.020		39	370	20	220	0.5		
291	as per 289; 7m chip (some float)	0.025	X		9	5	50	20	X		
292	poorly outcropping weakly carbonaceous & ferrug. sl, ± fe-ox veinlets, hematitic joint coatings.	0.022	X		22	35	740	105	X		
293	as per 291 (qtz) and 292 (sl); 6m chip	0.019	X		71	40	230	45	X		
294	hornfelsed Psg sl, tuff & 50cm "swboily" qtz vein; 10m chip	0.008	X		10	5	10	25	X		
295	"swb-oily" to "oily" qtz veins in Psk sl; 10m chip	X	X		22	15	60	85	X		
296	Psk: ferrug., silicified sl ± qtz veining, chloritic spotting, & minor, disseminated pyrite (fgr); 20m chip	0.014	X		17	10	80	60	X		
297	"oily"-"swb-oily" qtz vein in micaceous/friable Psk sl; 10m chip	0.009	X		13	10	80	45	X		
298	as per 297; qtz very ferrug.; 20m chip	X	X		12	15	110	45	X		

PROJECT: MOLINE WEST
GEOLOGIST: J. VANN

GOLDFIELDS EXPLORATION PTY LIMITED

DATE: NOV 1987

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SAMPLE	DESCRIPTION	Au	Au_R		As	Cu	Pb	Zn	Ag		
(57 299)	as per 298	X	X		27	15	85	30	X		
300	STD : CPD.	0.236	0.430		1230	130	10	55	X		
301	? Psk ferrug. sl; typical of whole ridge, float	X	X		40	40	920	110	X		
	Sumple; minor carbonaceous sl & nodular chert										
302	cherty qtz accessory to white (? granitic) qtz; 8m chip	X	X		18	5	140	25	X		
	along strike										
303	"sub-oily" to "oily" qtz, limited o/c; grab sample	X	X		10	5	10	35	X		

Appendix 3 : Analytical Methods.

All samples were prepared and split by ANALABS in Darwin, N.T., then assayed at either ANALABS in Perth, W.A. or ANALABS in Cairns, Queensland. The following elements were determined:

Element	Method	Detection limit	ANALABS stated Quality Parameter
Au	FA 309	0.008 ppm	± 15% @ 2ppm
As*	AAS101	50 ppm	± 10% @ 2000ppm
As	AAS101	5 ppm	± 10% @ 250ppm
As	AAS114	1 ppm	± 10% @ 50ppm
Cu	AAS101	5 ppm	± 10% @ 250ppm
Pb	AAS101	5 ppm	± 10% @ 250ppm
Zn	AAS101	5 ppm	± 10% @ 250ppm
Ag	AAS101	0.5 ppm	± 10% @ 25ppm

* Three different detection limits were employed at various times.

	Qa, Qs	Quaternary to Recent: alluvium, soil	CAINOZOIC
	Cz	Tertiary to Quaternary: sandstone, cemented quartz, granite fragments and tallus	CAINOZOIC
CULLEN GRANITE	Egc / Egca / Egcm	granitoids, mostly equigranular granite / aplite / coarse marginal phase	PROTEROZOIC
ZAMU DOLERITE	Edz	preorogenic quartz dolerite sills	PROTEROZOIC
SOUTH ALLIGATOR GROUP — GEROWIE TUFF	Esg	acid tuff, carbonaceous siltstone, minor sandstone and chert	PROTEROZOIC
SOUTH ALLIGATOR GROUP — KOOLPIN FORMATION	Esk	carbonaceous and ferruginous siltstone, chert, nodular chert, minor phyllite and dolomite	PROTEROZOIC
MOUNT PARTRIDGE GROUP — WILDMAN SILTSTONE	Epw	carbonaceous, ferruginous and phyllitic siltstone	PROTEROZOIC
MOUNT PARTRIDGE GROUP — MUNDOGIE SANDSTONE	EPm	fine to coarse quartz sandstone, grit, minor pebble conglomerate, phyllite and sandy siltstone	PROTEROZOIC

Geological boundary
Geological boundary, approximate
Geological boundary, inferred
Fault, inferred
Fault fill: breccia and quartz
Synclinal axis, approximate
Anticlinal axis, approximate
Overturned anticlinal axis, approximate
Dip and strike of joint
Dip and strike of fault, vein or dyke
Dip and strike of bedding
Bedding, subvertical
Bedding trend
Dip and strike of overturned bedding
Quartz veining, representative direction of vein set

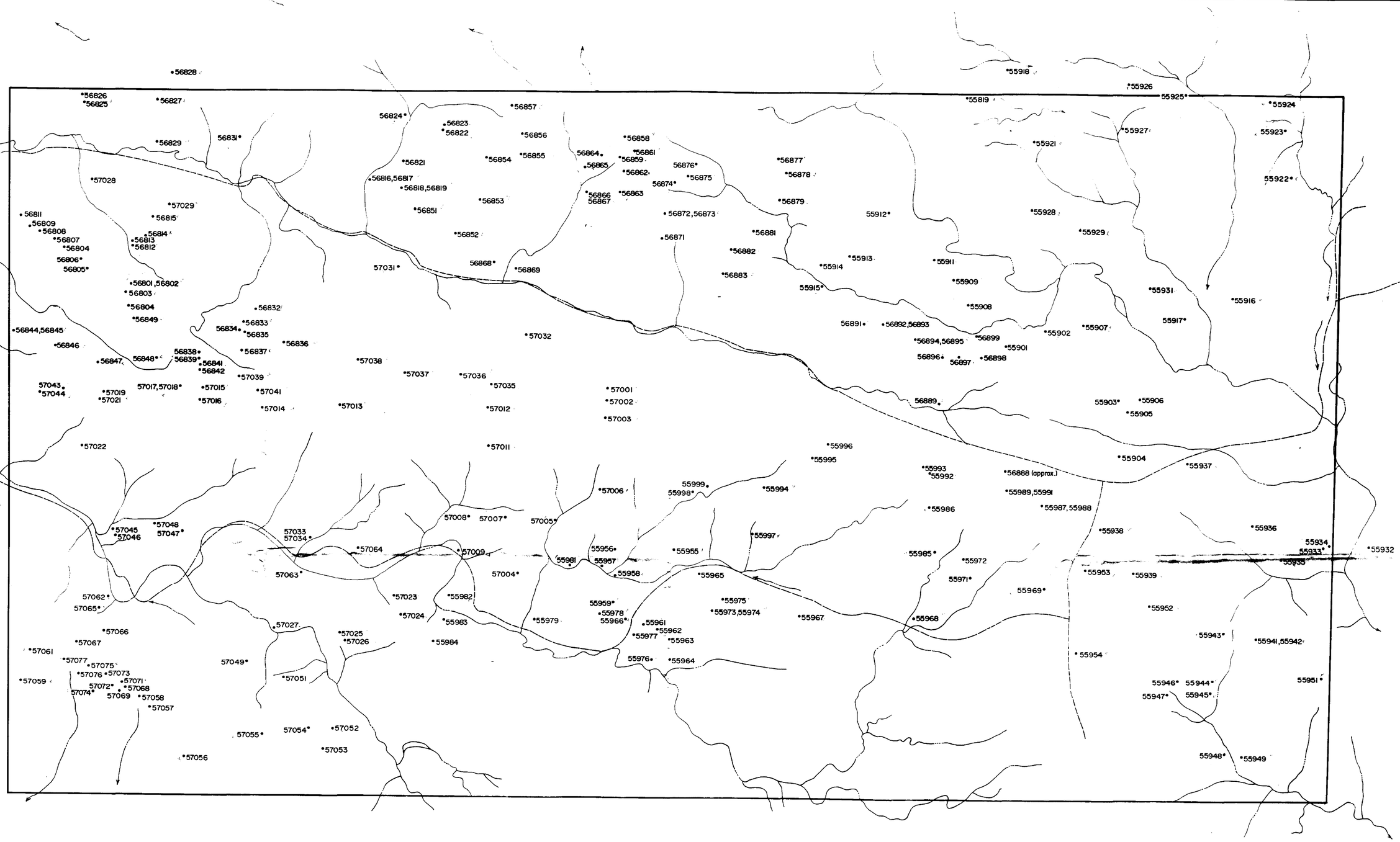
Outcrop mapped
Outcrop mapped and/or photo interpreted
Quartz veining
Brecciation
Creek
Bulldozed vehicle track
Exploration Licence boundary
Cliffs

ABBREVIATIONS

o/c	*outcrop*
s/c	*subcrop*
sl	*siltstone*
csl	*carbonaceous siltstone*
ss	*sandstone*
c	*chert*
nc	*nodular chert*
d	*dolomite*
Bx	*breccia*
Pbs	*galena*
py	*pyrite*
2°Pb	*secondary lead minerals*
qtz,q	*quartz*
s	*prefix for silicification (ssl, scsl)*
Fe	*prefix for ferruginous (Fesl, Fess)*
xlFe	*crystalline ironstone*
fgr	*fine grained*
mgr	*medium grained*
cgr	*coarse grained*

REVISIONS	GOLD FIELDS EXPLORATION PTY. LIMITED Incorporated in New South Wales	
GEOLOGIST:	J. Vann	MOLINE WEST PROJECT AREA EXPLORATION LICENCE 5195
DRAWN:	D. Vann	
DATE:	JANUARY 1988	**McCARTHY'S WEST GEOLOGICAL PLAN**
CHECKED:		
1:250,000 Reference:	Mt. Evelyn SD 53-5	
SCALE 1:5000	100 50 0 100 200 300m	PLATE I

GR66/227A



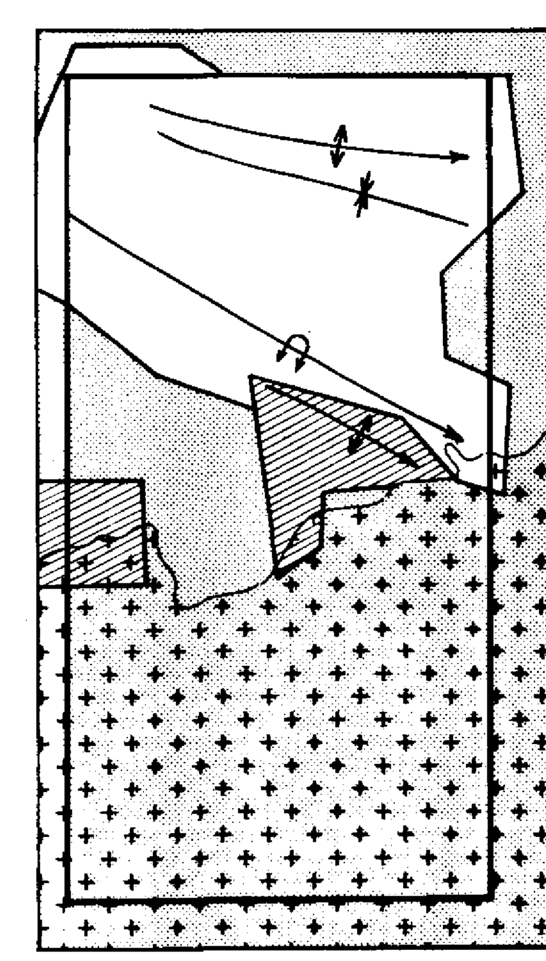
NOTES	GOLD FIELDS EXPLORATION PTY. LIMITED (Incorporated in New South Wales)		
1. All sample numbers are prefixed by Q 2. For geological information refer to Plate 1	GEOLOGIST: J. Vann	MOLINE WEST PROJECT AREA EXPLORATION LICENCE 5195	
	DRAWN: D. Vann		
	DATE: JANUARY 1988	**McCARTHY'S WEST ROCK CHIP SAMPLE LOCATIONS**	
	CHECKED:		
	1:250,000 Reference: Mt. Evelyn SD 53-5		
	SCALE 1:5000 100 50 0 100 200 300m		PLATE 2

	Qa, Qs	Quaternary to Recent: alluvium, soil	CAINOZOIC
	CULLEN GRANITE — Egc	granitoids, mostly equigranular granite	PROTEROZOIC
	ZAMU DOLERITE — Edz	preorogenic quartz dolerite sills	
SOUTH ALLGATOR GROUP	GEROWIE TUFF — Esg	acid tuff, carbonaceous siltstone, minor sandstone and chert	
	KOOLPIN FORMATION — Esk	carbonaceous and ferruginous siltstone, chert, nodular chert, minor phyllite and dolomite	
MOUNT PARTRIDGE GROUP	WILDMAN SILTSTONE — Epw	carbonaceous, ferruginous and phyllitic siltstone	

- Geological boundary
- Geological boundary, approximate
- Geological boundary, inferred
- Geological boundary, concealed - based on photo interpretation based on soil tones
- Fault, inferred
- Synclinal axis, approximate
- Overturned synclinal axis, approximate
- Anticlinal axis, approximate
- Oveturned anticlinal axis, approximate
- Shear zone, inferred
- Complex fold structures
- Quartz veining
- Brecciation
- Dip and strike of joint
- Dip and strike of bedding
- Bedding, subvertical
- Bedding trend
- Dip and strike of overturned bedding
- Outcrop mapped
- Outcrop mapped and/or photo interpreted
- Cliffs
- Creek
- Bulldozed vehicle track
- Abandoned mine workings and dump
- •093 Rockchip sample location and number (prefix Q57)

ABBREVIATIONS

o/c	outcrop	Pb	galena and secondary lead minerals
s/c	subcrop	py	pyrite
sl	siltstone	qtz	quartz
csl	carbonaceous siltstone	s	prefix for silicification (scsl, ssl)
ss	sandstone	Fe	prefix for ferruginous (Fesl, Fess)
c	chert	fgr	fine grained
nc	nodular chert	mgr	medium grained
Bx	breccia	cgr	coarse grained



- detailed ground mapping : many traverses (with photo interpretation)
- brief reconnaissance mapping : few traverses (with photo interpretation)
- no mapping
- Cullen Granite
- Boundary of Exploration Licence

1. 1:5000 enlargement of 1974 Commonwealth Govt. Ranford Hill 1:25,000 colour airphotos used as a photo-base
2. Refer to report for comments on structural interpretation

RELIABILITY DIAGRAM

REVISIONS	GOLD FIELDS EXPLORATION PTY. LIMITED (Incorporated in New South Wales)		
	GEOLOGIST:	J. Vann	MOLINE WEST PROJECT AREA EXPLORATION LICENCE 5196 McCARTHY'S EAST GEOLOGY AND SAMPLE LOCATIONS
	DRAWN:	D. Vann	
	DATE:	JANUARY 1988	
	CHECKED:		
	1:250,000 Reference:	SD 53-5	
	SCALE 1:5000	100 50 0 100 200 300	PLATE 3