FINAL REPORT- EL 20/95 - CATOS CREEK, SCAMANDER

for

Lefroy Gold Mines P/L
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by

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2 May 1996

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1. INTRODUCTION

Exploration Licence 20/95 of 25 square kilometers is held by Lefroy Gold Mines P/L, a subsidiary of Central Kalgoorlie Gold Mines NL. The area lies in NE Tasmania, 10 km west of Scamander township, and covers the catchment of Catos Creek which runs north from Dublin Town to meet the Avenue River. The land classification is mostly State Forest- both Multiple Use and Deferred Forest- with Private Property, mostly around Dublin Town but also in the north near the Avenue River. The area is deeply dissected by the drainage with the relative relief ranging from 100m in the north to 200m in the south as the ridge tops gradually fall north to the Avenue River from the Nicholas Range behind Dublin Town. The terrain is clothed in open dry sclerophyll forest with little understorey except in the deeper watercourses allowing easy access for foot-based exploration. Good all-weather forestry roads provide access to the area and 4WD vehicles can penetrate along the open ridges.

2. EXPLORATION PHILOSOPHY

During the course of a recent Mines Department evaluation of the St. Marys Porphyrite for high level gold deposits as part of the NETGOLD Project, the area of Catos Creek dyke was found to have some potential for gold mineralisation. The evaluation comprised a reconnaissance stream sediment survey, the most significant result of which was a Pancon anomaly of 2.18 ppm Au at MR 595,900mE; 5,408,950mN on Catos Creek about 10km west of Scamander (Duncan, 1994).

Catos Creek and tributaries (in a catchment of about 20 sq. km) drain the area of Catos Creek dyke and its flanking Mathinna Group sediments- the Scamander Beds. Catos Creek dyke is a porphyritic, biotite-hornblende, micro-granodiorite and part of the volcanic feeder of the extrusive St. Marys Porphyrite, adjacent and to the south. The dyke is intrusive into the Mathinna sediments with a thermal aureole over 1km wide on the western side but on the eastern side has no hornfelsing and appears faulted and sheared. The eastern side has been considered as a subsidence fault, an extension of the boundary between the feeder and the extrusive volcanics to the south. Early intrusive breccias, up to 10m wide, are recorded along this contact (Turner and Calver, 1987).

No gold mineralisation has been recorded in the Catos Creek dyke or in the flanking sediments or anywhere in the catchment of Catos Creek to explain the prominent Pancon anomaly. Minor alluvial gold has been recorded in tributaries of the Avenue River which drain the hornfelsed Mathinna sediments about 2km west of the Pancon sample site (Henderson,1939). The Golden Ridge goldfield lies some 8km to the NNW as auriferous quartz veins mainly in thermally metamorphosed Mathinna sediments and also in the adjacent adamellite. Production has been small as the veins are thin and impersistent with the gold being patchy but reliable assays of up to 50g/t gold are recorded (McClenaghan et al, 1992). The goldfield and surrounds are currently being explored under EL 12/93 by MPI. The Scamander mineral field, zoned from tungsten and tin lodes to base metal and silver lodes moving out from the granitoids, lies open some 5-10 km to the north and east of the Pancon sample site.

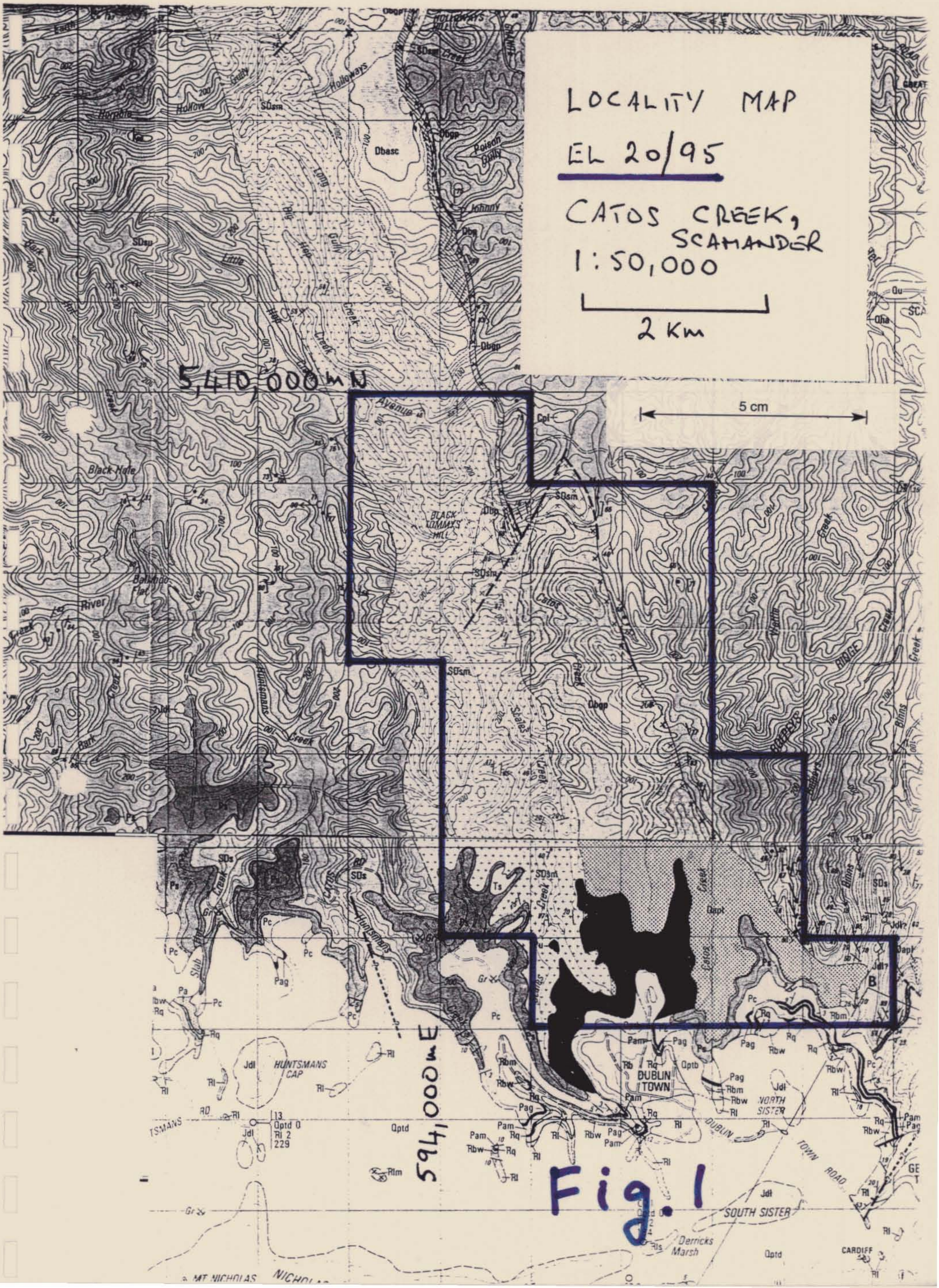
LOCALITY MAP
EL 20/95
CATOS CREEK, SCAMANDER
1:50,000
2 Km
5 cm
5,410,000mN
594,000mE
Black Hole
BLACK TOMMYS HILL
HUNTSMANS CAP
DUBLIN TOWN
NORTH SISTER
SOUTH SISTER
Derricks Marsh
CARDIFF

Fig. 1

In recent tectonic models of NE Tasmania (Keel et al, 1994), it is proposed that Catos Creek dyke has intruded along a major E-directed thrust which has juxtaposed Silurian against Devonian sediments with an estimated 3km uplift on the western block. This raises the importance of the fault along the east side of the dyke to a major regional thrust and possible conduit for the entry of gold-bearing fluids to this neighbourhood.

The possible gold deposits giving rise to the Pancon anomaly could cover a number of styles depending on their position in the various rock units. They could be disseminated types in the dyke; stockwork or sheet-vein styles in the aureole; or mesothermal quartz lodes in the eastern sediments. Breccia, vein-style or shear-related gold deposits cannot be ruled out for the dyke considering the mapped evidence for deformation along the eastern contact and the new tectonic models for the region.

The main features of the area can be summarised as follows-

- a grassroots prospect with no modern exploration,

-a known gold-bearing region,

-no explanation for a substantial Pancon anomaly,

-could be a variety of styles of gold mineralisation,

-could be localised by possible large structures, and

-capable of being tested cheaply by stream sediments without large expenditures.

In view of the above, the area was taken out as Exploration Licence 20/95 by Lefroy Gold Mines P/L and issued on 5 January 1996 (Figure 1).

3. EXPLORATION PROGRAM

The exploration program on EL 20/95 Catos Creek was carried out between 15 January and 13 February, 1996. The work consisted of reconnaissance geological mapping and rock chip sampling followed by stream sediment sampling throughout the licence area. Twelve chip samples of quartz microveining were submitted for gold assay and arsenic scanning and nineteen drainage sites were sampled with a BLEG (bulk leach extractable gold) and a Pancon (pan concentrate) sample taken at each site (Figure 2). Details of the field sampling and analytical methods are described in the Appendix.

The geological mapping traverses and chip sampling were not systematic but were restricted to the main target zone which was the eastern contact between the Catos Creek dyke and the Mathinna sediments - the possible major fault structure - as

CATOS CREEK

STREAM SEDIMENT LOCS
630,001 - 038
add numbers - BLEGS
even numbers - Pancon
ROCK CHIP LOCS
406,878 - 891

one km

EL20/95

Base map
Sheet 5840
1:25,000

Geology
Sheet 8515 S
Sheet 8514 N
Mines Dept.

"Cicada Creek"

5 cm

329006

Fig. 2

well as targets of opportunity found during the drainage sampling where quartz veining seemed to be developed more than normal.

The contact zone was visible in only three places visited - in the informally named Cicada Creek (596,000mE; 5,407,400mN), on a forestry track (596,300mE; 5,406,650mN) and in Binns Creek (598,600mE; 5,403,350mN).

In Cicada Creek, quartz veining and brecciation are exposed intermittently over 10-20m in Mathinna sediments adjacent to the dyke contact confirming deformation and quartz mobility (samples 406883-887). On the forestry track, minor quartz veining up to 4mm thick is found in ferruginous sandstone within 1-2m of the dyke contact (samples 406878-879). In Binns Creek, the upstream dyke contact is intrusive against the sediments with no shearing, faulting or veining and with a (flow?) foliation in the granodiorite. Minor veining in shales occurs, several tens of metres upstream, composed of quartz, carbonate and sulphides producing ferruginous staining on weathering (sample 406881).

The drainage sampling has been designed to systematically include all catchments covering the licence lithologies and structures to reveal the presence of any major gold deposit in the area, whether outcropping or in subcrop and regardless of style (Figure 2).

4. RESULTS

The results were received from ANALABS, Burnie on 13 March 1996 and are listed in Tables 1 and 2 the originals being in the Appendix.

The gold values in the rock chips were all below the detection limit of 5ppb except for three of the five samples from Cicada Creek which recorded 25, 9 and 5 ppb gold (samples 406885, 406887 and 406883 respectively) and 64, 50 and 10 ppm arsenic. These samples were of quartz microveining or stockworks in Mathinna Group quartzites. The other two samples in this zone (406884 and 406886) were of brecciated quartzite or shale fragments in a sugary quartz or porphyry matrix and of sugary (coarse grained) quartz and feldspar (pegmatitic or granodiorite?) veins up to 3cm thick in quartzite and were barren.

Sample 406889 from Black Tommy's Hill Quarry was of altered granite with silica "flooding" and with vugs and cavities and coarse mica but was barren of gold (arsenic content 45ppm).

The highest arsenic value of 87ppm (but less than 5ppb Au) was recorded from a ferruginous-stained shale or siltstone (sample 406881) in Binns Creek with microveining containing quartz, carbonate and sulphides (pyrite).

The analyses of the Pancon samples for gold and 28 other elements are listed in the Appendix. Only one sample (630002) registered above the 5ppb detection limit for gold at 53ppb (BLEG result for this site is 0.27ppb) and came from the headwaters of Scales Creek where the catchment lithologies are hornfels, Permian sediments, Triassic

TABLE 1- Results from rock chip samples, EL 20/95

Sample No	Au ppb	As ppm	Metres East	Metres North	Description
406878	-5	29	596300	5406650	quartz microveins (up to 2mm thick) in feruginous sandstone
406879	-5	20	ditto		quartz microveins (up to 4mm thick) in sandstone; with black qtz selvages and white qtz core
406880	not	analysed	598600	5403350	(flow ?) foliated granodiorite porphyry
406881	-5	87	598600	5403300	quartz (+ or - carbonate) and sulphide microveins in shales/siltstones
406882	-5	5.4	598800	5403800	quartz microveins (parallel, 3 to 4 over 10cm) and sugary quartz blow in sediments
406883	5	10	596000	5407400	Cicada Creek quartz microveins in quartzite
406884	-5	4.4	ditto		Cicada Creek brecciated quartzite/shale fragments in sugary quartz or porphyry matrix
406885	25	64	ditto		Cicada Creek quartz microveins or stockwork in quartzite
406886	-5	20	ditto		Cicada Creek sugary quartz veinlets(to 3cm thick) in quartzite
406887	9	50	ditto		Cicada Creek quartz stockwork in quartzite
406888	not	analysed	594750	5408250	Black Tommys Hill Quarry altered granite with black films and crusts of botryoidal manganese
406889	-5	45	ditto		altered, bleached granite with silica "flooding" in vugs and cavities with coarse white mica
406890	-5	16	595850	5408050	quartz microveins or stockwork in quartzite
406891	-5	4.2	594200	5409600	coarse quartz veins (inc white mica) in sediments

TABLE 2- Results from stream sediment samples, EL 20/95

	A	B	C	D	E	F	G
1	Sample No	BLEG Au ppb	PC Au ppb	Metres East	Metres North	Catchment;lithos	Comments at site
2							
3	630001	0.27		595200	5404700	Scales Creek; hornfels,	several generations qtz microveining on
4	630002		53		ditto	PTr seds,bas, J dol	entrance ridge in seds
5	630003	0.15		595250	5406050	Scales Creek;	grano bedrock with sed xenoliths
6	630004		-5		ditto	hornfels, grano	
7	630005	0.24		595100	5406000	trib Scales Creek;	sed bedrock, creek choked with boulders and
8	630006		-5		ditto	hornfels	coarse rubble (forestry clearing up stream)
9	630007	0.22		598750	5405100	Binns Creek; Math sed	sandstone with shale partings, beds N-S strike,
10	630008		-5		ditto	grano, target contact	77E dip, qtz tension gashes up to 5cm thick
11	630009	-0.05		595250	5407050	Catos Creek;grano,	grano bedrock, in creek boulders up to 0.5m of
12	630010		-5		ditto	Math seds, target cont	seds,complexely veined and stockworked -qtz
13	630011	0.13		595150	5406900	Scales Creek;	grano bedrock with enclaves
14	630012		-5		ditto	hornfels, grano	
15	630013	0.1		596500	5405850	Catos Creek;Math sed,	grano bedrock with enclaves (contact with seds
16	630014		-5		ditto	grano, target cont	not exposed)
17	630015	-0.05		596400	5405700	trib Catos Creek;grano	grano bedrock
18	630016		-5		ditto	P seds, Tr bas	
19	630017	0.12		596950	5404650	Catos Creek;grano,	grano bedrock with enclaves
20	630018		-5		ditto	PTr seds, bas, J dol	
21	630019	0.06		598250	5406000	Bolpeys Creek;Math sd	sandstone bedrock with qtz tension gashes and
22	630020		-5		ditto	grano, target cont, Psd	pyritic slate (165 strike, 60W dip- beds)
23	630021	0.06		597300	5408800	trib Wattle Creek;	sed bedrock
24	630022		-5		ditto	Math seds	
25	630023	0.13		595850	5408050	trib Catos Creek;Math	sed bedrock with qtz stockwork + coarse white
26	630024		-5		ditto	sed, grano, target cont	qtz tension gashes(parallel and across ck resp)
27	630025	-0.05		596050	5408800	trib Catos Creek;	sed bedrock, (1/4 inch mesh for this site and the
28	630026		-5		ditto	Math sed	site above, creeks flooding -seds wet)
29	630027	0.46		593550	5407050	trib Avenue Riv;	sed bedrock with some deformed qtz tension
30	630028		-5		ditto	hornfels	gashes, (sampled on bank fines)
31	630029	1.02		592900	5408850	trib Avenue Riv;	sed bedrock (1/4 inch mesh)
32	630030		-5		ditto	hornfels, Math sed	
33	630031	1.43		593000	5409050	trib Avenue Riv;	sed bedrock
34	630032		-5		ditto	hornfels, Math sed	
35	630033	0.33		594000	5409650	trib Avenue Riv;	sed bedrock with some folded qtz veins
36	630034		-5		ditto	hornfels	1/4 inch mesh (alluvial gold reported, 1939)
37	630035	0.22		595400	5409400	trib Avenue Riv; grano,	no exposed bedrock
38	630036		-5		ditto	Math sed,hfels, targ ct	
39	630037	0.12		595900	5408950	Catos Ck, grano,Math	sed bedrock (ck flooding during sampling),
40	630038		-5		ditto	sed, hfels,targ cont	original sample site(+2ppm Au in pancon)

sediments and basalts and Jurassic dolerite. The Pancon anomaly of 2180ppb Au defined in an earlier survey at sample point 630038 on Catos Creek did not repeat.

A scan of the ranges of the 28 other elements shows that granodiorite catchments tend to have higher iron, hafnium, sodium, thorium, uranium, cerium and tungsten and lower arsenic, barium and antimony when compared with sediment (including hornfels) catchments.

The BLEG results were subdued ranging from below detection limit (0.05ppb) up to 1.43ppb gold. The values of the range (0.24ppb and above) correlate with the catchments covering the hornfels to the west of the porphyry with the higher values occurring in the north where traces of alluvial gold have been reported historically in tributaries of the Avenue River (Henderson, 1939). Sample 630023 from the catchment which contains the Cicada Creek veins and breccias had an extremely low BLEG result at 0.13ppb gold and did not register on the Pancon technique. None of these values would be considered anomalous when compared with the results from known gold-bearing areas in northeastern Tasmania.

5. CONCLUSIONS

The low values for gold in the stream sediments are a downgrading factor in the area. They suggest the absence of any substantial gold deposits eroding into the drainage. With the well developed, active, drainage pattern, there is no reason to suppose that the sampling techniques would be ineffective in revealing significant gold mineralisation.

The best gold response came from the hornfelsed Mathinna sediments on the western flank of the Catos Creek dyke with the highest BLEG results in the north and the best Pancon value in the south. The northern values in the tributaries of the Avenue River correspond with the previous reports of traces of alluvial gold in that area. It is concluded that the gold originates from quartz veining present in the hornfels- the same association giving rise to some of the deposits of the Golden Ridge goldfield 8km to the NNW. The relatively low gold response in this licence area suggests that this occurrence is of academic rather than economic interest.

The low level of gold in some of the chip samples of quartz veining in Cicada Creek suggests that mineralising fluids have been active along this target contact (fault?) but not enough to produce a measureable response in the drainage. The tenor of gold in the samples is once again of academic interest only and does not provide great incentive to further explore this contact with techniques such as soil sampling.

The non repeatability of the original Pancon value of 2180ppb Au remains a mystery and it may have been due to contamination or some other unknown factor.

It is recommended that the area be relinquished.

REFERENCES

Duncan, D. McP. 1994. Geochemical reconnaissance of the Four Mile Creek Exempt Area. Report Mineral Resources Tasmania 1994/04.

Keele, R.A., Taylor, B., and Davidson, G. J. 1994. Relationships between Devonian thrusting and gold mineralisation in northeast Tasmania. In Contentious issues in Tasmanian geology. Geological Society of Australia Symposium. 1994

Henderson, Q. J. 1939. Report on the geological survey of the country between Scamander and Mathinna. Unpubl. Rep. Dep.Mines Tasm. 1939:53-60

McClenaghan, M.P.; Turner, N.J.; Everard, J.L. 1992. Geological atlas 1:50,000 series. Sheet 41(8515S). St Helens Explan. Rep. geol Surv. Tasm.

Turner, N.J. and Calver, C.R. 1987. Geological atlas 1:50,000 series. Sheet 49(8514N). St. Marys Explan. Rep. geol. Surv. Tasm.

APPENDIX

: Sampling and analytical details

: Original results from ANALABS and Becquerel Labs

CATOS CREEK, SCAMANDER EL 20/95-LEFROY GOLD MINES P/L SAMPLING AND ANALYTICAL DETAILS

1. The reconnaissance stream sediment and geological mapping program was carried during 15 January to13 February, 1996

2. A total of 19 drainage sites were sampled with a BLEG and a Pancon sample taken at each site.

3. The creeks were running due to unseasonable heavy rain. Despite this, it was possible to sample good material for both BLEG and Pancon with the former being available from one, or at the most two, sites and the latter always being available from four sites along a 10-20m section of each creek and taken together should overcome the nugget effect of gold.

4. The BLEG samples averaged 5kg each and were passed through a 1/8 inch sieve in all cases except four (samples 630023, 25, 29 and33) where the scarcity of fine grained material made it necessary to accept minus 1/4 inch sieving. The Pancon samples resulted from four full pans in each case and were reduced to about 50gms by panning on site. The samples are considered to be a coherent sample set and should be a reliable test for gold in the drainage catchments.

5. Twelve chip samples of quartz microveining were submitted for gold assay (and arsenic scanning). These were collected where the development of quartz micro-veining seemed to be more than just background on the ridges or creeks or on the target contact of the porphyry and Mathinna sediments. This contact, in the places visited, is mostly not exposed except for three instances. In one case, in Binns Creek, the contact can be seen to be intrusive with no visible shearing or faulting or quartz veining. In a second case, in Cicada creek, a complex of quartz veining and brecciation is developed over 10-20m in Mathinna sediments and testifies to structural movement and repeated quartz mobility. Five of the above twelve chip samples have been taken here (samples 406883-887). In a third case, on a forestry track, minor quartz veining is found close to the contact (samples 406878,879).

6. The samples were delivered to ANALABS, Burnie on Thursday 15 February.

7. The BLEG samples were dried and subjected to bottle roll cyanide extraction with solvent extraction and graphite furnace AAS finish to a 0.05ppb Au detection limit. The Pancon samples were dried and sent to Becquerel Laboratories, Lucas Heights for neutron activation analysis on a 30 gram sample to a 5ppb Au detection limit (28 other elements were also reported on). The rock chips were dried, jaw crushed and pulverised and a 50 gram charge was treated with fire assay fusion and AAS finish to a detection limit for gold of 5ppb. An arsenic scan was run on 0.3 gram splits with aqua regia/perchlorate digestion and AAS determination to a detection limit of 50ppm. Those samples below 50ppm were subject to hydride generation and AAS finish to 0.5ppm detection limit.

329014

Analabs

Analabs Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. CODEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. 103380.60.11648

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

Central Kalgoorlie Gold Mines NL
P O Box 7752
Cloister Square
PERTH WA 6850

ORDER No.	PROJECT
19.02.96	

DATE RECEIVED	RESULTS REQUIRED
16/02/96	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	13/03/96	1	50

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
630001/037/2	BL Prep : GP005	Au/GG342
630002/38/2	PC Prep : GP005	Au/GN801
406878/79,406881/887,406889/91	RC Prep : GP033	Au,Au(R),Au(S)/GG313
406878/79,406881/887,406889/91	RC Prep : GP033	As/GA140

REMARKS

Au + 28 elements /GN801 results are attached

RESULTS TO

Murray Kornweibel
Central Kalgoorlie Gold Mines NL
P O Box 7752
Cloister Square
PERTH WA 6850

RESULTS TO

Mr Dave Duncan
5 Old Summerleas Road
KINGSTON TAS 7150

RESULTS TO

AUTHORISED OFFICER

329015

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	103380.60.11648	13/03/96	19.02.96	1 OF 2

	SAMPLE No.	As	As	Au	Au	Au(R)	Au(S)			
METHOD		GA140	HA140	GG342	GG313	GG313	GG313			
1	630001	-	-	0.27	-	-	-			
2	630003	-	-	0.15	-	-	-			
3	630005	-	-	0.24	-	-	-			
4	630007	-	-	0.22	-	-	-			
5	630009	-	-	<0.05	-	-	-			
6	630011	-	-	0.13	-	-	-			
7	630013	-	-	0.10	-	-	-			
8	630015	-	-	<0.05	-	-	-			
9	630017	-	-	0.12	-	-	-			
10	630019	-	-	0.06	-	-	-			
11	630021	-	-	0.06	-	-	-			
12	630023	-	-	0.13	-	-	-			
13	630025	-	-	<0.05	-	-	-			
14	630027	-	-	0.46	-	-	-			
15	630029	-	-	1.02	-	-	-			
16	630031	-	-	1.43	-	-	-			
17	630033	-	-	0.33	-	-	-			
18	630035	-	-	0.22	-	-	-			
19	630037	-	-	0.12	-	-	-			
20	406878	<50	29.0	-	<0.005	-	-			
21	406879	<50	20.0	-	<0.005	-	-			
22	406881	87	-	-	<0.005	-	-			
23	406882	<50	5.4	-	<0.005	-	-			
24	406883	<50	10.0	-	0.005	-	-			
25	406884	<50	4.4	-	<0.005	-	-			

Pes··s in ppm unless otherwise spec·fied IS insufficient sample

329016

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No	PAGE
	103380.60.11648	13/03/96	19.02.96	2 OF 2

	SAMPLE No.	As	As	Au	Au	Au(R)	Au(S)			
METHOD		GA140	HA140	GG342	GG313	GG313	GG313			
1	406885	64	-	-	0.025	-	-			
2	406886	<50	20.0	-	<0.005	-	-			
3	406887	50	-	-	0.009	-	-			
4	406889	<50	45.0	-	<0.005	-	-			
5	406890	<50	16.0	-	<0.005	-	-			
6	406891	<50	4.2	-	<0.005	<0.005	<0.005			
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21	DETECTION	50	0.5	0.05	0.005	0.005	0.005			
22	UNITS	ppm	ppm	ppb	ppm	ppm	ppm			
23										
24										
25										

Results in ppm unless otherwise specified IS Insufficient sample

329017

N E U T R O N A C T I V A T I O N A N A L Y S I S

NEUTRON ACTIVATION ANALYSIS REPORT Date: 08-03-96

ANALABS TASMANIA. JOB No: 11648

BECQUEREL JOB # 803 Page 1 of 2

NOTE:- A NEGATIVE SIGN INDICATES "LESS THAN".

- RESULTS ARE IN PARTS PER MILLION (ppm) UNLESS OTHERWISE INDICATED.

****

- ELEVATED DETECTION LIMITS FOR Mo IN SOME SAMPLES DUE TO URANIUM FISSION.

****

PANCON samples

ELEMENT	DL	# 360002	# 360004	# 360006	# 360008	# 360010	# 360012	# 360014	# 360016	# 360018	# 360020
ANTIMONY	.2	.33	.33	.60	1.96	.31	.35	.34	-.20	.53	.81
ARSENIC	1.0	4.76	3.42	4.78	16.20	1.68	3.19	3.08	-1.00	2.51	4.73
BARIUM	100.0	391.0	371.0	425.0	516.0	381.0	385.0	303.0	243.0	281.0	532.0
BROMINE	2.0	22.50	32.80	28.70	23.90	21.90	54.80	22.20	20.60	27.60	28.70
CERIUM	2.0	75.00	56.60	64.70	40.80	67.60	89.80	72.10	66.00	107.00	42.50
CAESIUM	1.0	2.67	3.64	8.66	6.21	2.75	3.29	2.41	3.25	1.98	4.57
CHROMIUM	5.0	293.0	184.0	118.0	103.0	218.0	370.0	303.0	33.3	470.0	60.7
COBALT	1.0	24.00	18.90	7.65	13.60	10.20	14.10	13.50	7.08	18.30	6.11
EUROPIUM	.5	1.15	.98	.79	.78	.75	.69	.86	.56	.97	.79
GOLD, ppb	5.0	53.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0
HAFNIUM	.5	26.20	16.60	23.80	10.00	65.90	48.60	43.40	227.00	64.70	9.81
IRIDIUM, ppb	20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
IRON, %	.05	6.00	4.57	2.23	4.90	3.50	3.68	2.77	8.33	3.09	2.64
LANTHANUM	.5	33.90	27.10	28.80	17.50	29.40	38.80	31.60	25.70	47.70	20.40
LUTETIUM	.2	.48	.39	.41	.36	.92	.67	.62	2.55	.82	.40
MOLYBDENUM	5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-20.0	-10.0	-5.0
POTASSIUM, %	.2	.80	.92	1.46	1.75	1.46	1.05	1.21	1.09	1.36	1.93
RUBIDIUM	20.0	39.5	37.0	105.0	94.0	65.7	61.5	48.4	62.0	40.1	112.0
SAMARIUM	.2	6.26	4.97	4.70	3.64	5.81	6.87	5.77	6.69	7.93	3.52
SCANDIUM	.1	16.00	13.90	8.00	13.70	14.00	11.70	13.10	26.80	14.70	6.79
SELENIUM	5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0
SILVER	5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0
SODIUM, %	.01	1.080	1.060	.404	.802	1.120	1.310	1.050	.847	1.110	.973
TANTALUM	1.0	2.45	1.88	-1.00	1.96	5.28	3.19	3.36	17.40	2.41	1.32
THORIUM	.5	10.30	7.10	11.70	8.53	14.10	16.60	12.50	23.70	20.60	9.20
TUNGSTEN	2.0	9.55	17.70	4.62	-2.00	24.70	6.85	-2.00	223.00	-2.00	-2.00
URANIUM	2.0	2.86	-2.00	2.10	-2.00	4.10	3.12	3.76	14.60	5.27	-2.00
YTTERBIUM	.5	3.14	2.48	2.78	2.47	5.12	4.05	3.94	14.10	5.26	2.65
ZINC	100.0	150.0	131.0	110.0	118.0	-100.0	119.0	-100.0	185.0	153.0	-100.0

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329018

NEUTRON ACTIVATION ANALYSIS

BECQUEREL JOB # 803

ELEMENT	DL	# 360022	# 360024	# 360026	# 360028	# 360030	# 360032	# 360034	# 360036	# 360038
ANTIMONY	.2	1.24	.54	1.21	.91	6.11	2.87	.75	.68	.26
ARSENIC	1.0	7.61	4.13	8.60	4.11	6.87	4.44	4.59	5.54	2.03
BARIUM	100.0	375.0	392.0	397.0	300.0	389.0	393.0	420.0	256.0	363.0
BROMINE	2.0	25.90	21.30	29.90	23.70	54.70	25.10	29.80	25.50	21.60
CERIUM	2.0	48.40	24.50	50.20	48.40	59.00	70.80	63.50	293.00	56.90
CAESIUM	1.0	3.78	3.31	4.69	11.90	10.00	11.70	11.70	4.68	2.71
CHROMIUM	5.0	145.0	135.0	131.0	109.0	143.0	73.8	58.9	31.9	182.0
COBALT	1.0	7.54	5.22	10.30	5.98	9.39	9.53	9.00	5.11	8.44
EUROPIUM	.5	.59	-.50	.63	-.50	.79	.92	.73	-.50	.69
GOLD, ppb	5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0
HAFNIUM	.5	13.30	33.00	8.66	10.00	21.30	9.90	6.19	18.00	44.70
IRIDIUM, ppb	20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
IRON, %	.05	2.57	3.38	2.47	1.66	2.09	2.01	1.88	2.00	3.18
LANTHANUM	.5	21.70	10.60	22.20	22.00	26.80	32.20	29.10	107.00	24.80
LUTETIUM	.2	.32	.48	.29	.29	.38	.34	.33	2.82	.72
MOLYBDENUM	5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-10.0	-5.0
POTASSIUM, %	.2	1.28	1.57	1.06	1.46	1.69	1.74	2.04	1.50	1.19
RUBIDIUM	20.0	74.1	90.0	65.0	113.0	98.3	133.0	125.0	90.4	66.9
SAMARIUM	.2	3.46	2.17	3.70	3.63	4.37	5.35	4.99	28.20	5.07
SCANDIUM	.1	6.06	12.50	6.00	5.95	7.61	7.33	7.37	8.16	12.40
SELENIUM	5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0
SILVER	5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0
SODIUM, %	.01	.375	.650	.439	.338	.740	.397	.417	.657	.953
TANTALUM	1.0	1.01	4.97	-1.00	-1.00	1.94	1.40	1.24	2.29	4.16
THORIUM	.5	8.58	6.57	8.42	7.90	9.52	10.60	9.79	54.50	10.90
TUNGSTEN	2.0	-2.00	12.70	-2.00	-2.00	-2.00	-2.00	58.40	57.10	8.73
URANIUM	2.0	-2.00	3.06	2.12	-2.00	-2.00	-2.00	2.28	8.26	4.96
YTTERBIUM	.5	2.05	2.77	1.90	1.88	2.46	2.20	2.10	18.40	4.18
ZINC	100.0	108.0	-100.0	-100.0	-100.0	139.0	-100.0	-100.0	-100.0	-100.0

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