

## SUMMARY OF PAST EXPLORATION - LOST CHINAMAN

MCNs 1661, 1663, 1665-1667

### 1. Introduction

This group of titles is located between the Annie and Charlotte Rivers at the head of Bynoe Harbour, 35 kilometres south-south-west of Darwin. As much of the intervening area between Darwin and the prospect is covered by the waters of Port Darwin, the distance from Darwin to the titles by road is about 95 kilometres. The route follows the Stuart Highway for 45 kilometres, the Cox Peninsular/Bynoe Road for 36 kilometres and the Finnis River Station Road for 9.5 kilometres. A bush track then leads for 4-5 kilometres to the prospect area.

The northern part of the titles covers a flat lateritised surface about 20 metres above sea level. The top of this surface is characterised by a 1-3 metre thick sheet of ferricrete which obscures much of the basement rocks. The mineral claims in the south cover a mildly undulating area along the side of the Annie River which is tidal where it passes through the titles.

The Lost Chinaman prospect is for the most part contained within MCNs 391 and 392 which abut the titles presently being reviewed to the south and west. It is one of the western-most tin prospects in a 15 kilometre wide belt of more than 90 tin prospects and mines which stretches in a north-north-east trending direction over a distance of 75 kilometres from Mount Tolmer in the south to Kings Table (near Port Darwin) in the north. Despite the number of mines in the area the recorded cumulative production between 1894 and 1985 has been only 615 tonnes of tin and 15 tonnes of tantalum. The mines have also produced 17.4 kilograms of gold.

### 2. Geological Setting

According to the published geological map of the area, the Lost Chinaman tenements are for the most part covered by a veneer of laterite and unconsolidated sand and gravel which are related to the Tertiary land surface. Basement rocks are only exposed near the Annie River mainly within MCNs 391 and 392. These consist mainly of pink, red and brown mica schists which contain porphyroblasts of cordierite or andalusite up to eight millimetres across. These are assigned to the Early Proterozoic Burrell Creek Formation of the Finnis River Group though the metamorphic grade is more consistent with them being assigned to the Welltree Metamorphics which are considered to be metamorphic equivalents of the Burrell Creek Formation. There is not sufficient exposure to determine the structural geometry of these basement metasediments but there is evidence in the form of a contorted quartz vein to suggest that more than one episode of penetrative structural deformation have affected these rocks.

The nearest exposures of granite are 6-7 kilometres to the north and concealed granite is interpreted to be present a similar distance away to the south-west. These are assigned to the Two Sisters Granite of the late Early Proterozoic age (ie. syn- to post-orogenic).



As stated above, the titles lie on the western edge of a 75 x 15 kilometre belt of tin-tantalum deposits. This mineralisation is associated with veins and lenticular bodies of quartz-feldspar-muscovite pegmatites which exhibit sharp intrusive contacts with the host metasediments. Within the titles, and especially within MCNs 391 and 392, there is a large body of quartz-muscovite (-feldspar) pegmatite (or greisen) several hundred metres long and over a hundred metres wide. This contains accessory tourmaline, cassiterite and tantalite. Large blows of nearly massive quartz are scattered through the pegmatite. These appear to be silica-rich variations of the pegmatite rather than later quartz reefs as has been suggested by some explorers. Much of the mica and feldspar has been converted to kaolinite, probably by weathering processes.

### **3. Mineralisation Style/Exploration Model**

The pegmatites which dominate the area of the titles constitute the prime target of economic interest. Attention to date has been focussed on the location of concentrations of cassiterite and/or tantalite in the pegmatite and despite the results to date this still constitutes the primary target.

In recent years, some attention has been directed towards the gold potential of the pegmatites, or more precisely, the contact areas with the metasediments. The basis for this model is unclear though it receives some support from the historical production figures. Unfortunately there is no record of whether the historical gold production was from hard rock or alluvial operations.

It is possible that hard rock gold mineralisation, if present, may be unrelated to the pegmatites and may instead be related to earlier quartz-vein development similar to the contorted vein observed in the basement metasediments at one site. It is also possible that quartz-stockwork-type vein mineralisation may be present in the area though this seems unlikely given the vast expanse of non-auriferous sediments of the Burrell Creek Formation to the east of Lost Chinaman.

### **4. Previous Exploration and Mining History**

It is not clear from the available literature whether there has in fact been any actual production from Lost Chinaman though there is evidence of early pitting operations and of milling activity on the banks of the Annie River in the form of old foundations, stamp battery remains, water storage dams and tailings. Extensive recent costeaning also makes it difficult to identify any early mining activity.

Documented exploration of the area is restricted to the period since 1987 when UODC joined Kakadu initially to explore MCNs 391 and 392 and later the surrounding area (EL5687 and EL5664). In fact because of the initial disappointing results from the mineral claims UODC withdrew from the venture shortly after the licences were granted.

UODC excavated a total of seven costeans (approximately 1000 metres) across the pegmatite zone in MCNs 391 and 392 and collected 203 channel samples each over intervals of 5 metres. These were analysed for tin, tantalum, yttrium, lanthanum, cerium, neodymium, terbium and thorium. The only significant result was 0.75% tin over one sample interval. Only four other tin values exceeded 100 ppm (maximum 290 ppm). The high tin value was accompanied by 70 ppm tantalum which was the only result above 25 ppm. There were no economically significant results for the



other elements. Kakadu resampled this costean in 1988 but obtained only 90-95 ppm tin over the high grade zone identified by UODC. They did achieve results of 300-400 ppm tin in the adjacent samples where UODC samples had previously assayed 200-290 ppm tin. This highlighted the erratic character of the cassiterite distribution in the pegmatite.

Kakadu also sampled the alluvial gravels in the Annie River in the area now covered by MCNs 2575-2579. Encouraging levels of black concentrate, which included cassiterite and tantalite were panned but the actual grades of tin and tantalite in the gravels was not reported. Traces of gold were identified in two samples.

In 1990, Kakadu directed their attention to the potential for gold and conducted rock-chip sampling and BLEG soil sampling in the area of the present titles. All of the rock chips assayed less than 0.01 g/t gold. The soil samples, which were collected from colluvial debris on top of the laterite surface, returned a result of 87 ppb gold (among 9 samples 0.6-4.1 ppb gold) on a traverse in the north-east corner of EL5687 and returned consecutive results of 13.5, 7.9, 11.3, 14.0, 12.0 and 8.9 ppb gold over a 250 metre traverse to the south of the Annie River (area now relinquished).

These results appeared anomalous and were followed up in 1991 by wide-spaced systematic soil sampling over part of the current titles. Unfortunately on this occasion the samples were analysed by a fire assay/AAS technique (10 ppb detection limit) and the results are not directly comparable with those of the earlier survey. In addition, the later survey did not cover the initial traverse in the north-east of EL5687, and the area south of the Annie River returned results below the detection limit in the second survey. An anomalous gold zone (1200 x 200 metres) was defined along the eastern margin of EL5687 through the area of the mineral claims. Results included 0.14, 0.17, 0.71, 0.83 and 0.98 g/t (ie. ppm) gold which are anomalous. It does appear that several of these anomalous results are from *in situ* soil over exposed basement whereas the bulk of the survey was over laterite and the significance of the data is therefore questionable.

(Prepared by John Goulevitch BSc (Hons) MSc of Eupene Exploration Enterprises Pty Ltd, 15th September, 1993)







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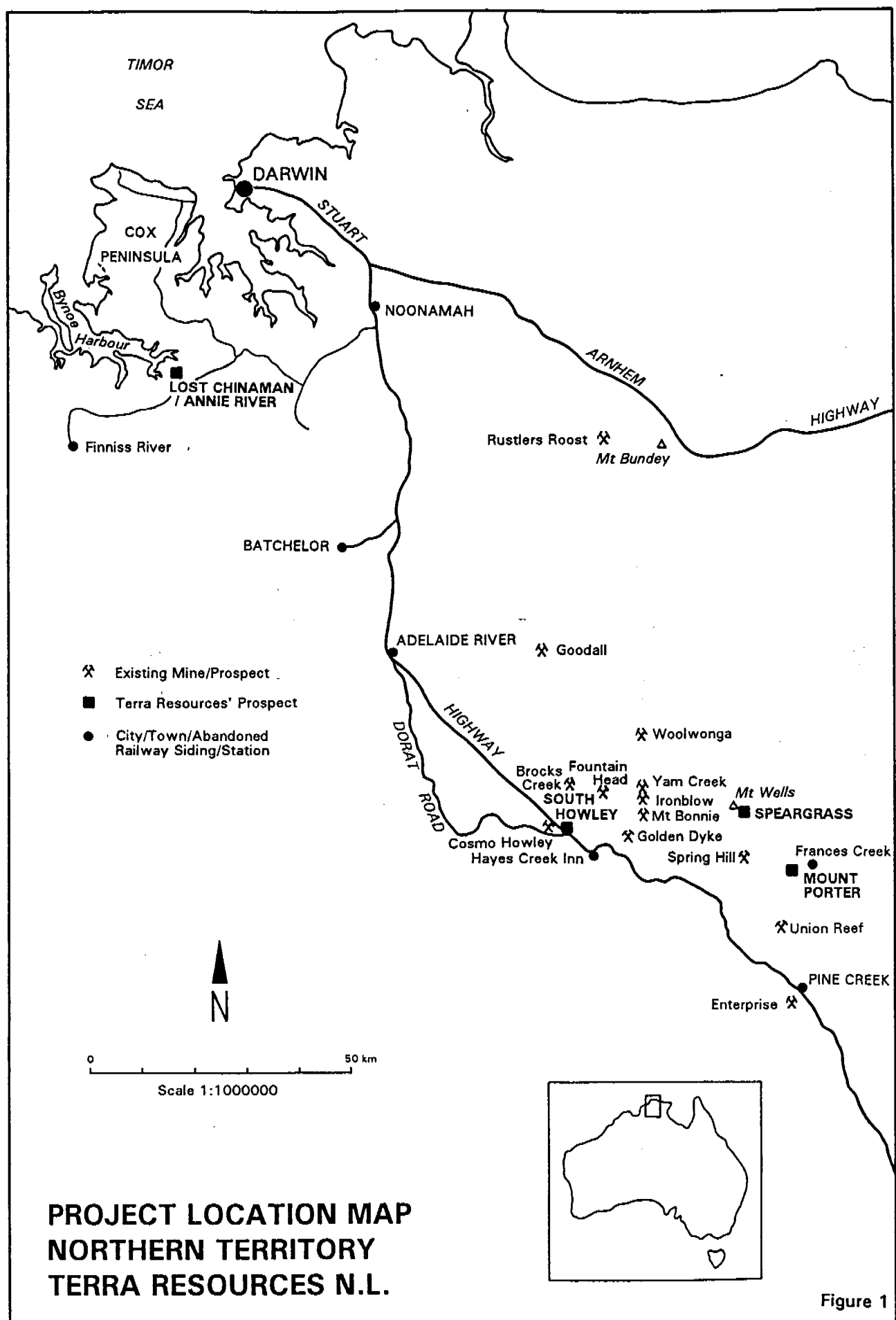
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Cont

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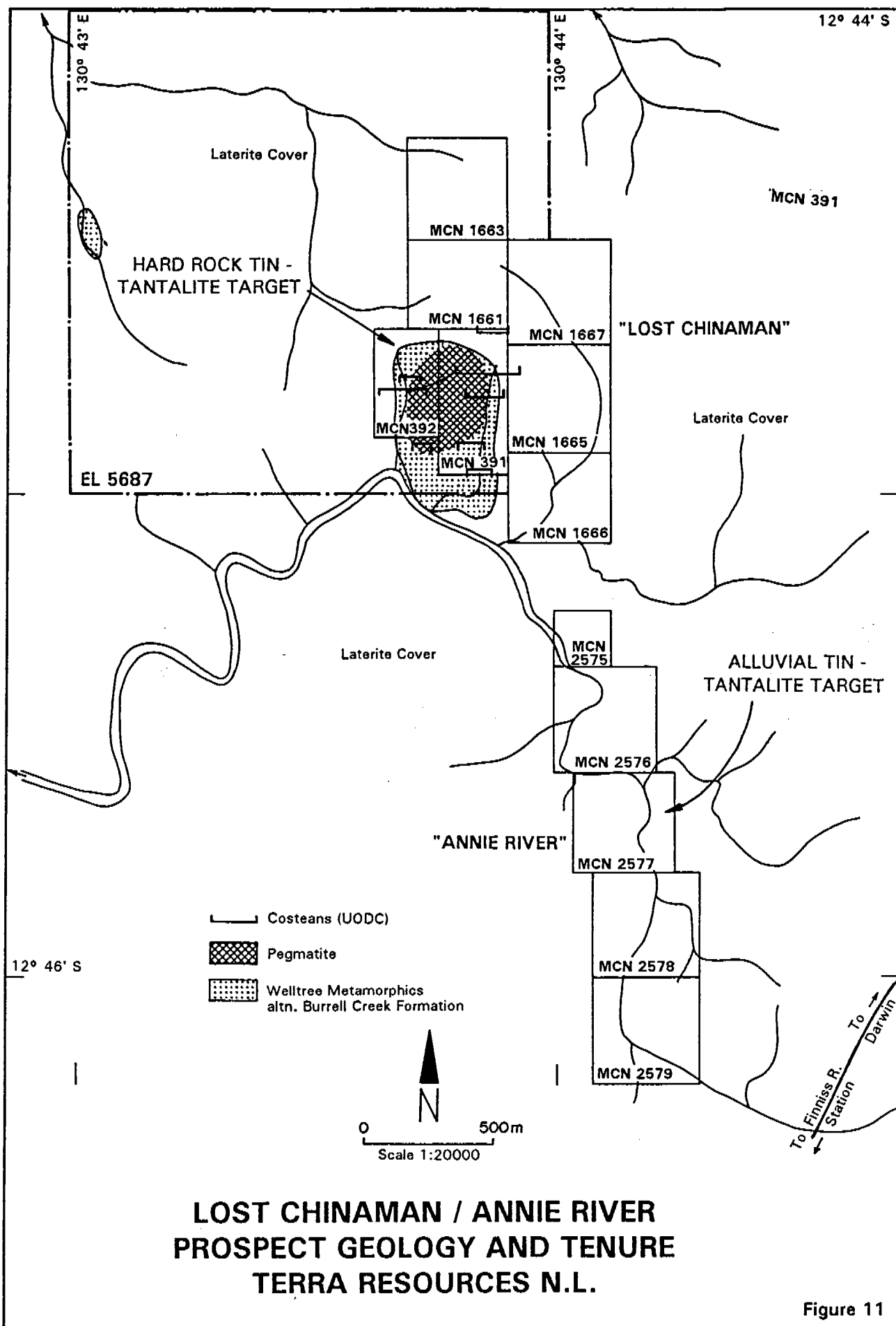


Figure 11



(Additional Information AS Requested)

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4(B) . . Exploration Activities

During the first year of the renewal, exploration work comprised air photo mapping, reconnaissance sampling (including pan concentrate surveys), and petrological studies. A number of pan concentrates from trap sites on the small tributaries were found to contain moderate quantities of cassiterite and tantalite, and occasionally gold.

Detailed work on the Lost Chinaman, which included trenching and channel sampling, gave conflicting results for tin and tantalum, and negative results for rare earth metals.

An initial costeaning programme, involving a total of seven costeans, was completed over the two mineral lease areas. The costeans were channel sampled using a 5 metre sampling intervals and all samples (total 203) were analyzed by AMDEL for Sn, Ta, Nb, Y, La, Ce, Nd, Tb and Th using XRF techniques.

Prior to costeaning, an east-west oriented grid was established using a 100 metre line spacing and the outcrop geology of the area was recorded.

Analytical results for tantalum, tin and yttrium are shown in Appendix 1. Generally the results obtained were disappointing.

In the second year of the Licence exploration work included a review of all relevant data, and field reconnaissance to map out the main trend and extent of the pegmatite intrusive zone.

During the 1990/91 season activities were re-directed towards evaluating the possible gold potential of the area, bearing in mind records of alluvial gold, and of gold values in the contact zones of pegmatites.

Enlarged aerial photographs at a scale of about 1:6,000 were acquired covering the area of interest, and these were used to prepare a photogeological base map, and for location during traversing in the field. Geological traversing was carried out mainly along the laterite break-aways at the edges of the mangroves, since this is the best situation to find outcrop in this type of terrain. Rock chip samples were taken of favourable looking quartz or ironstone and were analysed for gold by fire assay.

Additionally, two east to west traverse of soil samples were run across the laterite interfluvies in areas possibly underlain by the zone of pegmatite injection. Samples consisting of about 500 gm of minus 2 mm material were collected at 50 m spacings along the traverse lines. Soil samples were assayed for gold by bulk cyanide leach.



4(B)

Samples locations are shown in Figure , and analytical results are given in Appendix II.

Cont

The results of rock chip sampling were negative, all reported values being below the detection limit of 0.01 g/t Au.

The soil samples reported values in the range 0.15 to 87 ppb Au. In this context values exceeding 10 ppb are regarded as probably anomalous.

A secondary programme of rock chip sampling and soil sampling for gold has been undertaken over the general area. Ten east-west traverses of soil and rock sampling were run across the Exploration Licence 5687 and included MCN 391 - 392. Samples consisted of approximately 1 kg of material collected at 150 metre samples were assayed for gold by 50 gm fire assay. Samples locations are shown in Figure 5 and analytical results in Appendix I. Anomalous values in soils appear to confirm that trace gold mineralisation is associated with the pegmatites. However the economic significance of the results is unknown. They need to be regarded with caution since the sampled material was essentially colluvial debris overlying disintegrated laterite.



## References

CHAN K M, GOLDNER P T, 1987. Evaluation of the Lost Chinaman Tantalum-Tin Prospect, Northern Territory. Unpublished report by Peter Goldner & Associates.

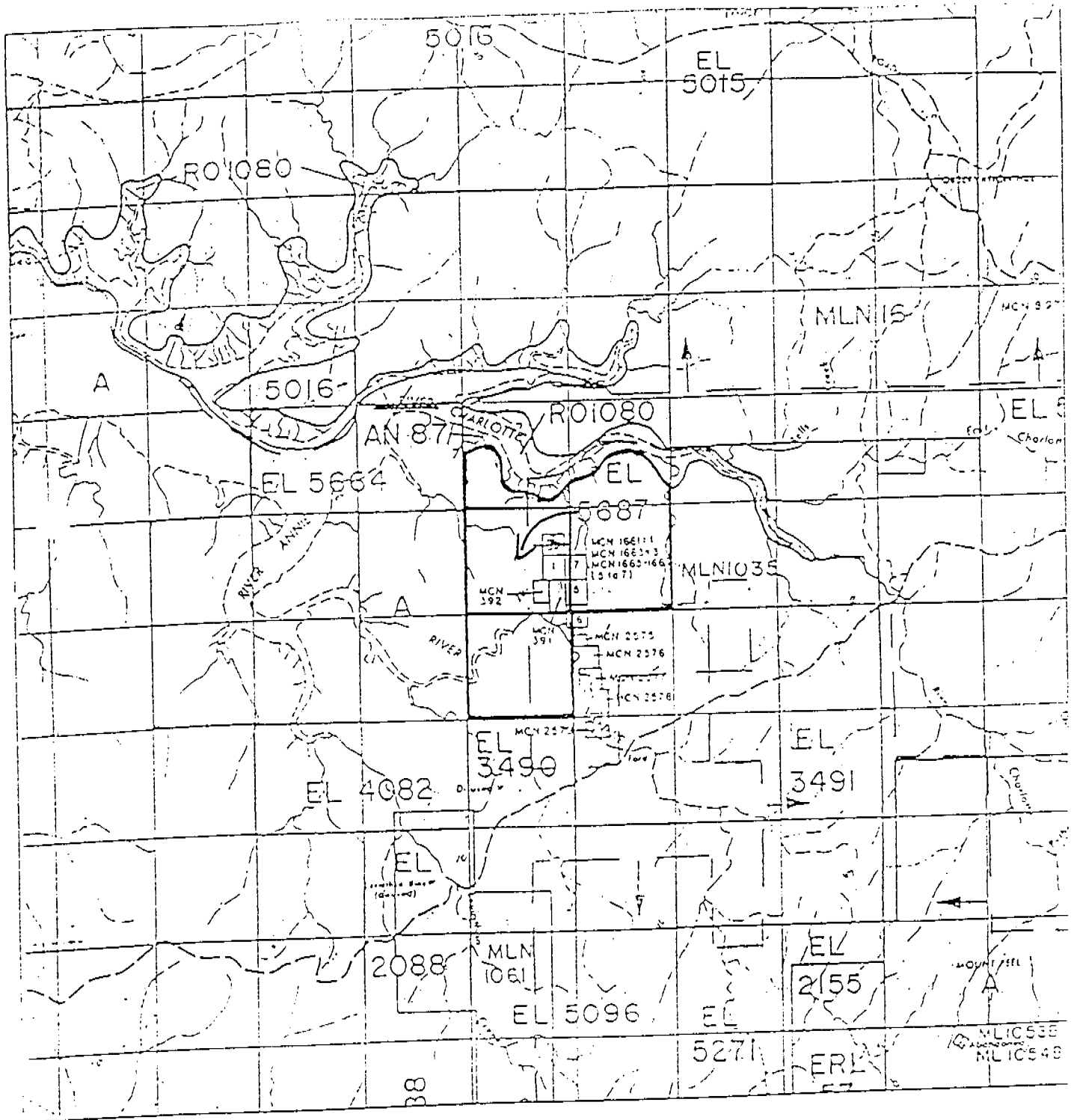
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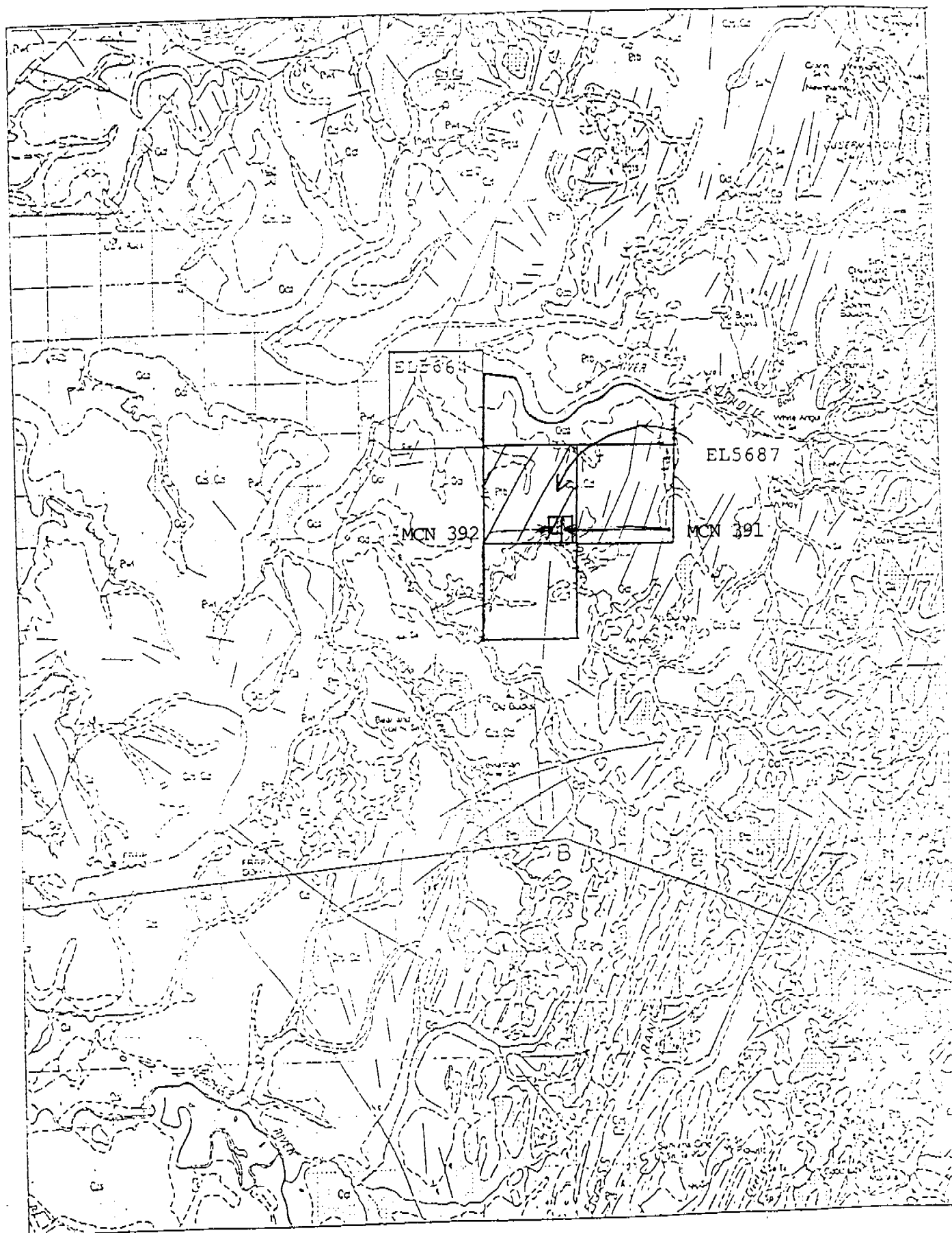




TENEMENT MAP

scale 1 : 100,000





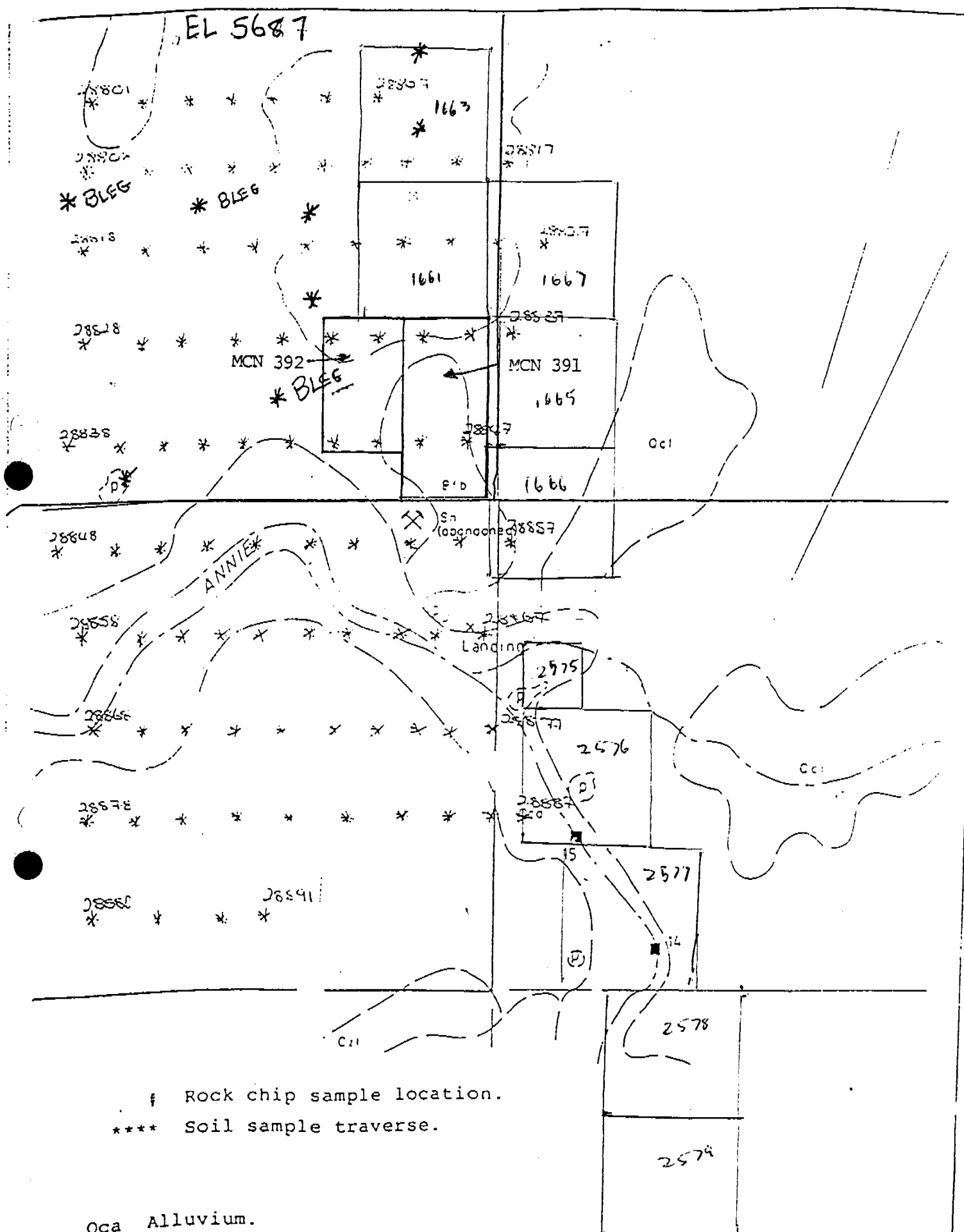
QUATERNARY	Qca	Intertidal marine alluvium.
	Qct	Beach sands and cheniers.
CAINOZOIC	Czs	Soil.
	Czl	Laterite and ferricrete.
MESOZOIC	Kld	Bathurst Island Formation.
PROTEROZOIC	Pgts	Two Sisters Granite.
	Pwt	Welltree Metamorphics.
	Pfb	Burrell Creek Formation.

REGIONAL GEOLOGY

1 : 100,000

FIGURE 4





GEOLOGY & SAMPLE LOCATIONS



APPENDIX I



## ANALYSIS

SAMPLE MARK	Ce ppm	La ppm	Y ppm	Sn ppm	Ta ppm	Nb ppm
40305	50	75	15	55	<10	10
40313	60	70	25	90	<10	15
40315	60	70	20	10	<10	10
40316	65	60	20	15	10	10
40319	<20	25	15	15	<10	6
40320	55	70	20	15	<10	8
40337	<20	20	20	35	<10	15
40339	75	65	30	40	10	10
40341	80	90	20	120	15	35
40344	90	80	35	10	<10	10
40345	85	70	30	8	<10	10
40346	75	65	30	10	<10	10
40348	60	60	25	60	<10	10
40376	35	70	30	10	<10	10
40377	225	160	60	4	<10	10
40379	75	95	45	4	<10	10
40380	75	75	25	4	<10	10
40382	25	40	15	15	<10	10
40388	25	35	25	10	10	10
40390	<20	55	20	10	<10	8
40396	20	30	15	15	<10	8
40397	<20	45	15	15	<10	10
40398	45	30	20	6	<10	8
40400	60	50	15	10	<10	8
40401	50	55	20	10	<10	10
40403	90	65	30	10	<10	15
36491	30	30	25	15	<10	10
36493	30	40	25	10	<10	10
36495	<20	20	8	4	<10	6
36497	<20	<20	15	4	<10	10

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METHOD : X3



## ANALYSIS

SAMPLE MARK	Tb ppb	Nd ppm
36491	400	23
36493	400	27
36495	200	10
36497	140	7.7
40305	400	29
40313	560	32
40315	540	34
40316	540	35
40319	240	17
40320	500	36
40337	240	15
40339	600	32
40341	440	29
40344	680	38
40345	640	38
40346	420	19
40348	900	37
40376	780	36
40377	1500	82
40379	980	50
40380	620	38
40382	280	17
40388	500	28
40390	340	21
40396	300	18
40397	300	17
40398	460	28
40400	200	13
40401	380	28
40403	700	48

METHOD : Acid digest/ICP-MS



ANALYSIS

SAMPLE MARK	Tb ppb	Nd ppm
40301	280	17
40302	240	13
40303	200	8.0
40304	300	18
40306	380	24
40307	240	15
40308	180	11
40309	40	1.6
40310	40	2.4
40311	60	4.4
40312	380	28
40314	440	27
40317	240	14
40318	160	8.9
40321	460	29
40322	120	4.9
40323	100	4.3
40324	<20	0.4
40325	120	6.7
40326	380	25
40327	500	34
40328	40	2.2
40329	<20	1.1
40330	40	3.9
40331	200	6.9
40332	160	9.1
40333	140	7.5
40334	<20	0.5
40335	20	0.9
40336	280	14
40338	320	19
40340	840	39
40342	880	45
40343	660	34
40347	760	35
40349	200	8.3
40350	20	0.7
40351	40	1.5
40352	60	2.2
40353	40	1.0

METHOD : Mixed acid digest/ICP-MS



## ANALYSIS

SAMPLE MARK	Tb ppb	Nd ppm
40354	80	3.2
40355	120	5.4
40356	100	4.7
40357	<20	1.0
40358	80	3.8
40359	<20	1.5
40360	60	4.2
40361	460	16
40362	280	12
40363	160	4.2
40364	120	4.8
40365	780	48
40366	260	18
40367	180	8.7
40368	140	7.1
40369	160	10
40370	140	8.2
40371	120	6.7
40372	240	25
40373	120	19
40374	460	32
40375	820	60
40378	1100	60
40381	420	33
40383	680	25
40384	380	20
40385	760	47
40386	680	40
40387	640	39
40389	400	24
40392	80	2.2
40393	40	4.8
40394	60	6.4
40395	80	3.8
40399	360	20
40402	420	30
40404	800	55
40405	360	19
40406	360	22
40407	180	9.1
40408	80	4.3

METHOD : Mixed acid digest/ICP-MS



## ANALYSIS

SAMPLE MARK	Tb ppb	Nd ppm
40409	280	9.0
40410	240	8.7
40411	140	5.5
40412	100	5.2
40413	240	8.2
40414	160	6.9
40415	60	2.6
40416	120	4.8
40417	80	4.0
40418	100	3.0
40419	180	8.7
40420	240	8.7
40421	180	7.5
40422	360	15
40423	280	11
40424	180	8.0
40425	140	5.3
40426	160	3.8
40427	120	4.4
40428	160	7.1
40429	160	5.9
40430	60	2.2
40431	200	4.5
40432	160	4.6
40433	200	7.5
40434	140	5.2
40435	160	5.8
40436	160	7.7
40437	220	8.5
40438	200	7.5
40439	140	5.5
40440	160	5.4
40441	120	3.1
40442	320	12
40443	120	3.1
40444	180	8.2
40445	180	5.8
40446	300	14
40447	300	11
40448	140	4.1

METHOD : Mixed acid digest/ICP-MS



## ANALYSIS

SAMPLE MARK	Tb ppb	Nd ppm
40449	160	6.4
40450	140	3.6
40451	40	3.4
40452	180	3.7
40453	100	5.2
36451	400	24
36452	260	15
36453	180	12
36454	600	37
36455	300	22
36456	180	15
36457	120	7.2
36458	160	7.1
36459	120	4.4
36460	220	6.0
36461	100	4.3
36462	100	5.0
36463	140	6.7
36464	80	7.4
36465	100	7.8
36466	120	11
36467	80	4.8
36468	80	7.2
36469	180	7.0
36470	120	6.7
36471	200	12
36472	100	5.0
36473	140	8.4
36474	100	6.2
36475	200	7.8
36476	140	5.7
36477	140	3.1
36478	180	11
36479	180	9.9
36480	140	5.0
36481	140	6.8
36482	220	12
36483	140	7.8
36484	120	4.0
36485	100	3.6

METHOD : Mixed acid digest/ICP-MS



## ANALYSIS

SAMPLE MARK	Tb ppb	Nd ppm
36486	180	5.2
36487	140	6.9
36488	160	6.5
36489	280	14
36490	420	25
36491	300	16
36492	460	26
36493	<20	0.1
36494	360	24
36495	<20	<0.1
36496	260	14
36497	<20	<0.1
36498	260	13
36499	120	4.9
36500	320	20

METHOD : Mixed acid digest/ICP-MS





## Classic Laboratories Ltd.

Analysis code X3

Report AC 24219

Page X1

Under No. D198/88

Results in ppm

Sample	Th
40305	10
40313	20 -
40315	15
40316	10
40319	10
40320	15
✓40337	✓20
40339	15
40341	6
40344	10
40345	15
40346	10
40348	10
✓40376	✓20
40377	10
40379	15
40380	10
40382	<4
40388	15
40390	15
✓40396	✓20
40397	15
40398	10
40400	8
40401	15
✓40403	25
✓36491	✓20
36493	20
36495	4
36497	6
Detn limit	(4)





## Classic Laboratories Ltd.

Analysis code X3

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Order No. D324/88

Results in ppm

Sample	Th
40301	10
40302	<4
40303	<4
40304	8
40306	8
40307	6
40308	6
40309	<4
40310	<4
40311	6
40312	15
40314	15
40317	10
40318	8
40321	15
40322	<4
40323	<4
40324	<4
40325	10
40326	8
40327	15
40328	<4
40329	<4
40330	<4
40331	<4
40332	<4
40333	<4
40334	<4
40335	<4
40336	15
40338	15
40340	10
40342	10
40343	15
40347	15
40349	<4
40350	<4
40351	<4
40352	<4
40353	<4

Detn limit. (4)





# Classic Laboratories Ltd.

Analysis code X3

Report AC 24219

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Order No. D324/88

Results in ppm

Sample	Th
40354	<4
40355	<4
40356	<4
40357	<4
40358	<4
40359	<4
40360	<4
40361	<4
40362	<4
40363	<4
40364	<4
40365	15
40366	15
40367	<4
40368	<4
40369	<4
40370	<4
40371	<4
40372	<4
40373	<4
40374	10
40375	15
40378	15
40381	15
40383	15
40384	6
40385	10
40386	10
40387	15
40389	15
40392	20
40393	<4
40394	8
40395	10
40399	15
40402	10
40404	30-
40405	8
40406	6
40407	<4
Detn limit	(4)





Analysis code X3

Report AC 24219

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Order No. D324/88

Results in ppm

Sample	Th
40408	<4
40409	<4
40410	10
40411	<4
40412	<4
40413	<4
40414	<4
40415	<4
40416	<4
40417	<4
40418	6
40419	4
40420	4
40421	<4
40422	<4
40423	<4
40424	<4
40425	<4
40426	<4
40427	<4
40428	<4
40429	<4
40430	<4
40431	<4
40432	<4
40433	<4
40434	<4
40435	<4
40436	<4
40437	<4
40438	<4
40439	<4
40440	<4
40441	<4
40442	<4
40443	<4
40444	<4
40445	<4
40446	<4
40447	<4

Detn limit (4)





## Classic Laboratories Ltd.

Analysis code X3

Report AC 24219

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Order No. D324/88

Results in ppm

Sample	Th
40448	<4
40449	<4
40450	<4
40451	<4
40452	<4
40453	<4
36451	8
36452	8
36453	<4
36454	20 -
36455	8
36456	<4
36457	<4
36458	<4
36459	<4
36460	<4
36461	<4
36462	<4
36463	<4
36464	<4
36465	<4
36466	<4
36467	<4
36468	<4
36469	<4
36470	<4
36471	4
36472	<4
36473	<4
36474	<4
36475	<4
36476	<4
36477	<4
36478	<4
36479	<4
36480	<4
36481	<4
36482	<4
36483	<4
36484	<4
Detn limit	(4)



# Classic Laboratories Ltd.

Analysis code X3

Report AC 24219

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Order No. D324/88

Results in ppm

Sample	Th
36485	<4
36486	<4
36487	<4
36488	<4
36489	10
36490	20
36491	20
36492	15
36494	15
36496	8
36498	15
36499	<4
36500	8
Detn limit	(4)



## APPENDIX II



IC LABORATORIES LTD

Preliminary  
 Job Number: 1PE7353  
 O/N : 0088

## ANALYTICAL REPORT

SAMPLE	AU Dp1	AU Dp2	AU Dp3	
28801	0.08	--	--	
28802	0.01	--	--	
28803	<0.01	--	--	
28804	<0.01	--	--	
28805	<0.01	--	--	
28806	<0.01	--	--	
28807	<0.01	--	--	1663 MCW
28808	<0.01	--	--	
28809	<0.01	--	--	
28810	<0.01	--	--	
28811	<0.01	--	--	
28812	<0.01	--	--	
28813	<0.01	--	--	
28814	<0.01	--	--	
28815	0.17	--	--	1663 MCW
28816	0.02	--	--	
28817	0.98	--	--	
28818	<0.01	--	--	
28819	0.02	--	--	
28820	<0.01	--	--	
28821	<0.01	--	--	
28822	<0.01	--	--	
28823	<0.01	--	--	1661
28824	<0.01	--	--	
28825	<0.01	--	--	
28826	<0.01	--	--	1667 MCA
28827	<0.01	--	--	1667 MCW
28828	<0.01	--	--	
28829	0.02	--	--	
28830	<0.01	--	--	
28831	<0.01	--	--	
28832	<0.01	--	--	
28833	<0.01	--	--	MCN 392
28834	<0.01	--	--	
28835	0.02	--	--	MCN 391
28836	0.71	--	--	MCN 1665
28837	0.83	--	--	
28838	<0.01	--	--	
28839	<0.01	--	--	
28840	0.02	--	--	
UNITS	ppm	ppm	ppm	
SCHEME	FA1	FA1	FA1	



CLASSIC LABORATORIES LTD

Preliminary  
Job Number: 1PE7333  
O/N : 0088

## ANALYTICAL REPORT

SAMPLE	Au Dp1	Au Dp2	Au Dp3	
28841	0.02	--	--	
28842	<0.01	--	--	
28843	<0.01	--	--	
28844	<0.01	--	--	
28845	<0.01	--	--	MCN 392
28846	<0.01	--	--	
28847	0.04	--	--	MCN 391
28848	<0.01	--	--	
28849	<0.01	--	--	
28850	<0.01	--	--	
28851	<0.01	--	--	
28852	<0.01	--	--	
28853	<0.01	--	--	
28854	<0.01	--	--	
28855	0.04	--	--	
28856	<0.01	--	--	
28857	<0.01	--	--	MCN 1666
28858	<0.01	--	--	
28859	<0.01	--	--	
28860	<0.01	--	--	
28861	<0.01	--	--	
28862	<0.01	--	--	
28863	0.02	--	--	
28864	<0.01	--	--	
28865	0.02	--	--	
28866	0.04	--	--	
28867	0.14	--	--	
28868	<0.01	--	--	
28869	<0.01	--	--	
28870	<0.01	--	--	
28871	0.02	--	--	
28872	<0.01	--	--	
28873	<0.01	--	--	
28874	<0.01	--	--	
28875	<0.01	--	--	
28876	<0.01	--	--	
28877	<0.01	--	--	2876 MCN
28878	<0.01	--	--	
28879	<0.01	--	--	
28880	<0.01	--	--	

UNITS  
SCHEMEppm  
FA1ppm  
FA1ppm  
FA1



IC LABORATORIES LTD

Preliminary  
Job Number: 1PE7333  
O/N : 0088

## ANALYTICAL REPORT

SAMPLE	Au Dp1	Au Dp2	Au Dp3
28881	<0.01	--	--
28882	<0.01	--	--
28883	<0.01	--	--
28884	<0.01	--	--
28885	<0.01	--	--
28886	<0.01	--	--
28887	<0.01	--	--
28888	<0.01	--	--
28889	<0.01	--	--
28890	<0.01	--	--
28891	<0.01	--	--
UNITS	ppm	ppm	ppm
SCHEME	FA1	FA1	FA1

MEN 2576