EL23684

Western Creek Project

Annual Report

17 June 2004 to 16 June 2005

Cover Photo: Low outcrops of breccia along Avago boundary fence

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Tenure Holder: ACN 099 478 074 Pty Ltd
Submitter of Report: Crossland Mines Pty Ltd

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(Source of Geophysical Images: NTGS)

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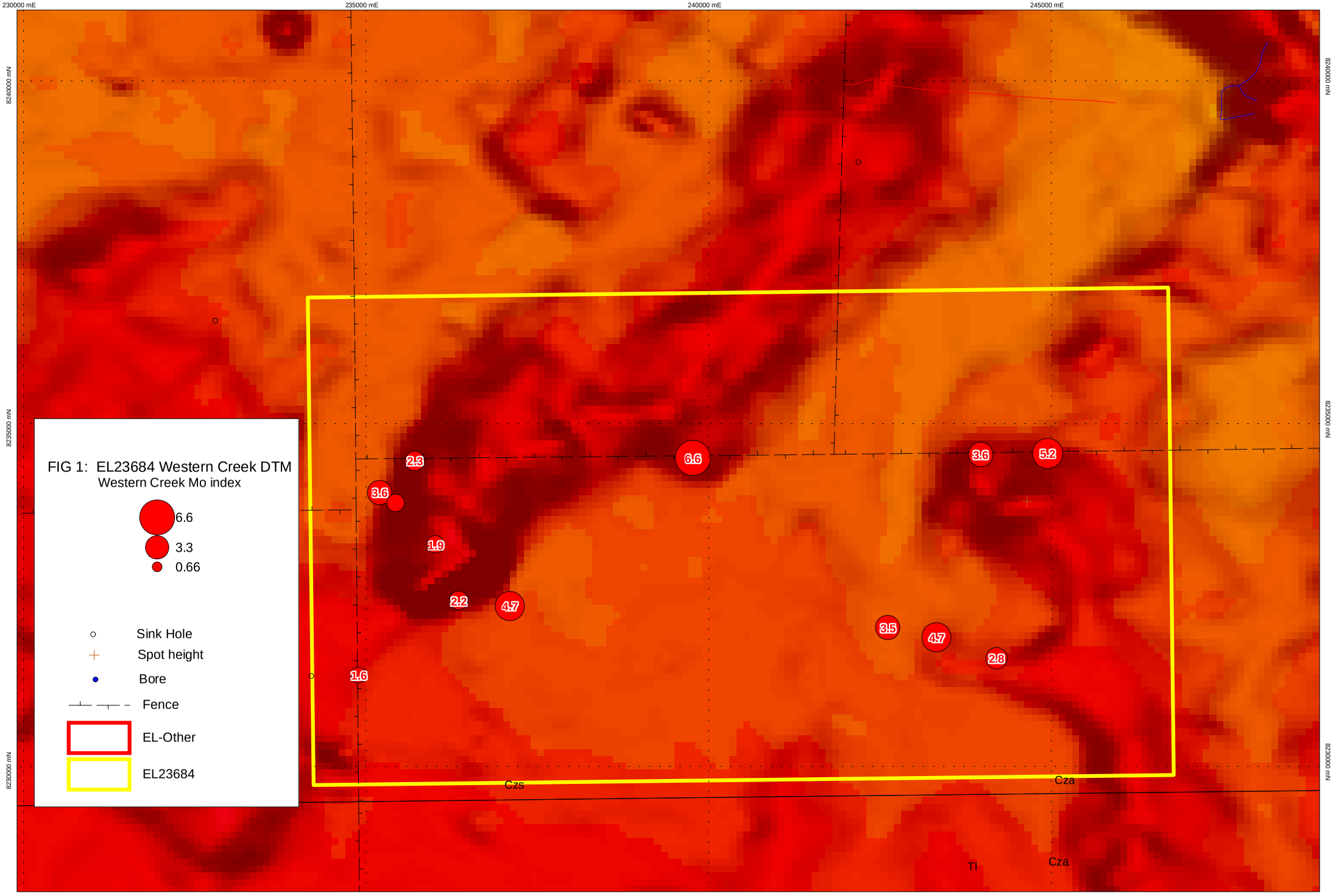
230000 mE
235000 mE
240000 mE
245000 mE
8240000 mN
8235000 mN
8230000 mN
FIG 1: EL23684 Western Creek DTM
Western Creek Mo index
6.6
3.3
0.66
Sink Hole
Spot height
Bore
Fence
EL-Other
EL23684
2.3
6.6
3.6
5.2
3.6
1.9
2.2
4.7
3.5
4.7
2.8
1.6
Czs
Cza
Tl
Cza

1 Summary

The Western Creek project (EL23684) is located 78km south west of Larrimah. The area is relatively unknown geologically and is believed to lie in the middle of the Palaeozoic Daly Basin, overlain by shallow Cretaceous sediments, and younger surficial deposits. Only surficial deposits are mapped in the area. .

During the initial phase of exploration of EL23684, work consisted of:

- Literature research of previous exploration, geological survey and geophysical survey over the EL and surrounding district.
- Data compilation.
- Acquisition and interpretation of departmental geological and airborne geophysical data sets.
- Planning for upcoming field program.
- Field geological reconnaissance and collection of rock samples.
- Analysis by low level scans for 63 elements including precious metals and platinoids.
- Interpretation of results.
- Planning and budgeting.

In addition, visits to other stakeholders in the area for introduction purposes were completed, and the Sacred Sites register was searched.

In year 2, a visit to the area was made in company with the Company's diamond expert consultant to inspect possible sample sites identified from studies of imagery and airborne geophysics. It was decided that it would be necessary to do shallow drilling of drainage channels to collect suitable material for heavy mineral analysis.

Additional rock chip samples were collected and these returned anomalous metal values consistent with those previously obtained.

The results of rock samples are broadly anomalous for a range of metals associated with a wide range of mineralisation types. Further work is warranted to characterise the target and locate a centre to the widespread elevated values.

Shallow sampling of drainage channels, and more extensive rock geochemistry is planned for the next term of the licence. Efforts will be made to interest joint venture partners in stratigraphic drilling to evaluate the intriguing setting, which seems at odds with the conventional interpretation of the regional geology.
Expenditure in the initial term of the EL has been $13,529, and is requested at $17,500 for the next term.

2 Introduction

2.1 Background

The Western Creek area has been selected as a Primary Hub using confidential technology supplied by Paradigm Geoscience. The aim of the technology is to identify targets for mineral exploration with the same signatures as major mineral deposits.

The method offers a means to identify important mineral resources without the need to acquire title to broad areas, with the resultant demanding access and land use challenges. Because of the restricted areas selected, more intensive exploration than would be normal in greenfields exploration can be focussed on the limited area by even junior mineral explorers such as the holders.

The Hubs have responded to the selection process in a similar fashion to major mineral deposits. It is to be expected that in most cases the target deposit does not outcrop, or it would already have been discovered, and that it will be necessary to penetrate the overburden to make discoveries. The selection technique does not permit identification of target commodities, and these must be determined by consideration of regional metallogenic factors and field reconnaissance.

During this initial period of the Licence, the aims of exploration were:

- the identification of likely target commodities,
- determination of local exploration constraints,
- establishment of broad exploration models, and
- development of plans for cost effective future exploration
-

The first year's program therefore concentrated on research of past exploration in the area, followed by acquisition of available maps, geochemical, and geophysical data, planning of field reconnaissance, and then brief field visits to the localities for collection of orientation and reconnaissance samples, meetings with local stakeholders, and familiarisation with local field conditions.
The second year's program centred on fresh attempts to find suitable sampling sites for heavy minerals, and more geological reconnaissance and sampling of the ferruginous breccia sub outcrops scattered throughout the more elevated areas of the EL.

2.2 The Target Area

The Western Creek Target Area (EL 23684) is the least known of any of those in Crossland's portfolio of targets. The available geological mapping would suggest that the Target Area is close to the centre of the Daly Basin. In the centre of the Daly Basin we would expect a Cretaceous sediment cover over a thick sequence of Palaeozoic sediments, mainly limestones, with basal Antrim Plateau Volcanics at least several hundred metres below the surface. On available maps, only laterite and alluvium are mapped in the area, while a zone of sink holes, indicative of limestone at shallow depth, occurs north of the area. On the magnetic maps, the Target Area lies on the northern edge of a profound and unexplained magnetic high, which occupies most of the Daly Waters Sheet. The overall geological setting suggests that it is possible that the Daly Basin sediments are thin in the area, draped over a basement rise. Apart from the probability that this has brought the Antrim Plateau Volcanics closer to the surface, other features of the district are virtually unknown. The broad magnetic feature looks to be quite deep. There are a few bores in the EL, and these seem to have intersected sediments.

2.3 Tenure

EL23684 was granted for a six-year term on 17 June 2003 (expiring 16 June 2009). The title covers an area of 28 sub-blocks (92.46km2. The area included in the title extends between 132°31'E and 132°38'E, from 15°56'S to 16°00'S. The EL is held by ACN 099 478 074 Pty Ltd, a wholly owned subsidiary of Crossland Mines Pty Ltd. An application to defer reduction of the EL for 12 months has been granted by the Minister.

2.4 Location and general description

The Western Creek area is 78km south west of the small NT town of Larrimah on the Stuart Highway, about 484km south of Darwin. A gravel road runs west from Larrimah 46km to the North Australian Railway, and the area is accessed via the track along the railway line, a distance of 42km to the Avago Station gate, which provides access to most of the title. This road is presently unmaintained and impassable during the wet season. The Target Area also includes a small portion of Gilnockie Station along its western boundary, and Western Creek along the northern side. These properties were not entered during the reconnaissance. A Native Title Claim, D6009/02 Dry River was lodged on 20 May 2002, and has NNTT number DC02/008.

2.5 Exploration Rationale and Work Completed

The expected geological setting of the Target Area might suggest that deposit styles would be limited to either base metal accumulations in the Palaeozoic sediments, or diamonds. However, like the target selection methodology, the exploration program itself makes few assumptions. A general pattern for the program has proceeded as follows in the initial term of the EL:

- Literature research of previous exploration, geological and geophysical surveys over the EL and surrounding district
- Data compilation
- Acquisition and interpretation of departmental geological and airborne geophysical data sets
- Research on the geology and exploration signature of potential target deposits
- Planning for field program and liaison with stake holders
- Geological reconnaissance of the area and surrounds; collection of appropriate rock samples for geochemistry or petrography
- Collection of reconnaissance drainage sediment samples for diamond exploration
- Collection of reconnaissance drainage sediment samples for geochemical scanning
- Processing and interpretation of results
- Planning of additional fieldwork.

All geochemical samples were prepared by North Australian Laboratories of Pine Creek, and Fire assayed for gold. Pulps were forwarded to NT Environmental Laboratories for analysis by ICP OES and MS for a wide range of elements. Later a second firing was prepared at NAL and analysed for trace levels of Au and platinoids by ICPMS at NTEL.

The results of the first year's work revealed that there was limited potential for heavy mineral sampling for diamond indicator minerals, but that there was a surprising

amount of sub outcrop of ferruginous breccia, which contain elevated values of a broad range of elements.

In the second term of the EL, a renewed effort to locate suitable sites for either gravel or loam sampling was made, in conjunction with the company's diamond exploration consultant, Mr. D. C. Lee. In conjunction with this, further reconnaissance of the distribution of the breccia was completed and the range of rock chip sampling was extended.

2.6 Results of Literature Search

The Previous exploration within the district has focused on the potential for diamonds, and the only formal reporting covers work done by the ADE Joint Venture in the mid-1980s. Because of poorly developed drainage, the majority of samples were either loam or gravel samples. The closest recorded samples are about 15km to the south of EL23684. Two cubic microdiamonds were found in different gravel samples 25- 30km to the south. These would most likely have been sourced from the south, ie. further away from the EL. There has been no known sampling within the area of the EL

3 Geological Data

The EL lies on the boundary of the Larrimah and Daly Waters 1:250,000 geological map sheets. Only surficial deposits are mapped in the vicinity, and stratigraphic drill holes are well removed from the area. Based on available information it is expected that Cretaceous sediments underlie the area, over early Palaeozoic sediments of the Daly Basin. Numerous sinkholes are shown on topographic maps of the district, including two on the western boundary of the EL. They also were noted during reconnaissance within the EL (Fig.), probably indicating that carbonate is present at fairly shallow depth. Newly completed station bores were checked and where observed had intersected ferruginous clastic sediments.

Fig 2: Mr. D.C Lee inspects a sink hole located within EL23684.

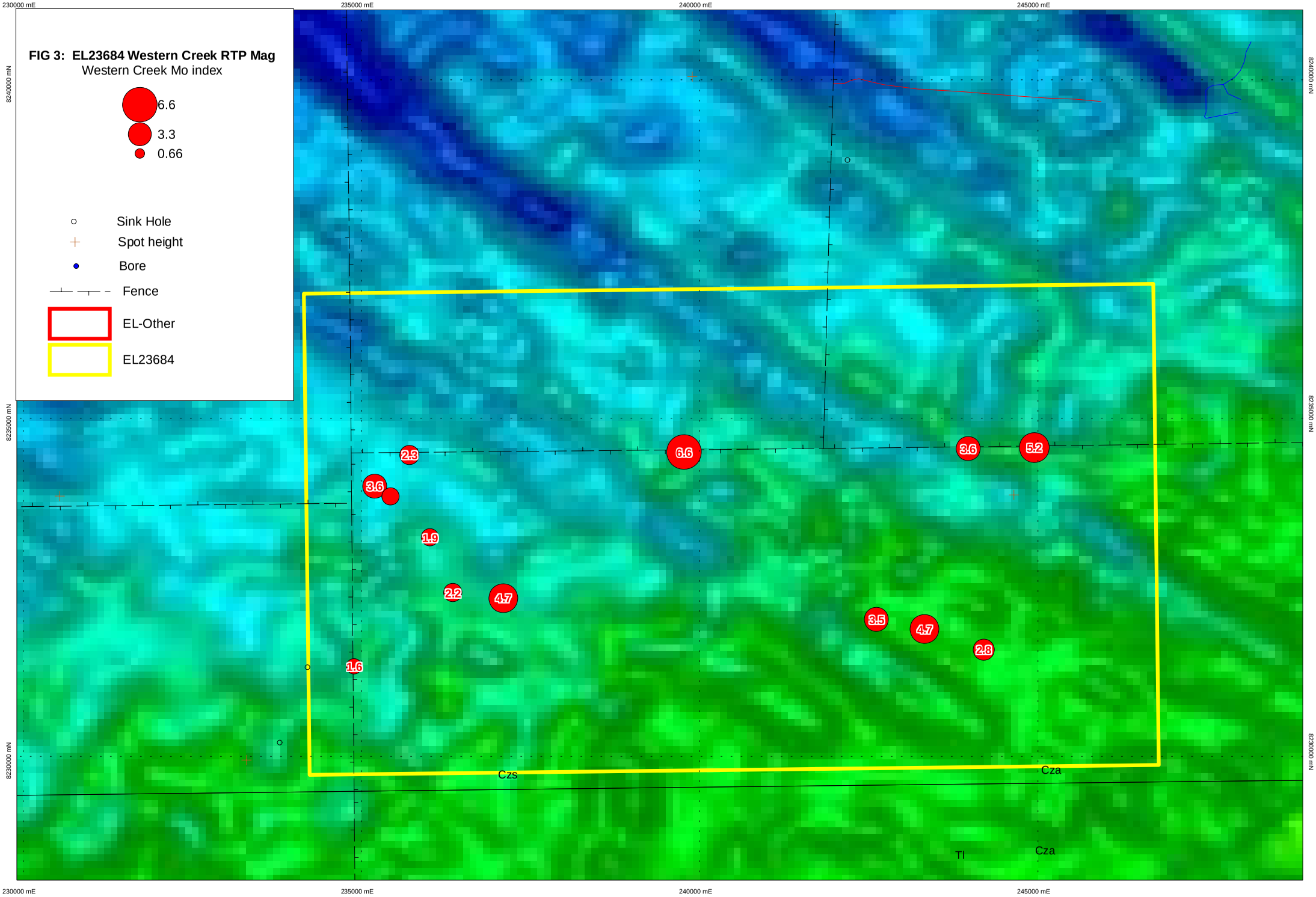
FIG 3: EL23684 Western Creek RTP Mag
Western Creek Mo index
6.6
3.3
0.66
Sink Hole
Spot height
Bore
Fence
EL-Other
EL23684
230000 mE
235000 mE
240000 mE
245000 mE
8240000 mN
8235000 mN
8230000 mN
2.3
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4 Geophysical Data

Geophysical data covering the Tenement was acquired from NT Geological Survey. A regional aeromagnetic map is included as Figure, and detailed aeromagnetic images of the area are included as Figure. The regional magnetic pattern is dominated by a deep seated continental scale magnetic high to the south of the EL, which occupies much of the Daly Waters Sheet, while shallow north- west/ south- east trending linear features, probably representing a dyke swarm, dominates the EL itself. It is possible these might be associated with brecciation and elevated geochemical values, as these appear to be relatively shallow seated features. It is not known what igneous event they would relate to, as they must be younger that the Antrim Plateau basalts if they intrude Daly Basin sediments.

5 Field Program

Within the tenement area, young surficial rocks are believed to cover the more prospective older rocks, and apart from the discussion and geological and geophysical data above, there is no other information on the area. These data would lead to the conclusion that the area would be underlain by a thick sedimentary sequence of Daly Basin Sediments, cut by a dyke swarm.

Fieldwork by Crossland Mines commenced in the area in late 2003 with a reconnaissance expedition to collect baseline geochemical samples, and for familiarisation and meetings with stakeholders. The area of the tenement was inspected at a reconnaissance scale with the aim of determining if the area would respond to the normal reconnaissance methods of drainage sampling. There was some scepticism that this would be possible. This proved to be the case on inspection and no stream sediment samples were collected for either diamond or geochemical reconnaissance. However it was found that there was quite extensive suboutcrop throughout the EL, and 5 rock chip samples were collected of highly brecciated rocks.

In the second term of the EL, a renewed effort to locate suitable sites for either gravel or loam sampling was made, in conjunction with a more widespread search of the EL with the company's diamond exploration consultant, Mr. D. C. Lee. In conjunction with this, further reconnaissance of the distribution of the breccia was completed and the area covered by rock chip sampling was extended.

6 Results of Crossland Mines Target Reconnaissance

6.1 DIAMOND SAMPLING

Because of the paucity of stream development in the EL, no suitable alluvial traps are developed. This has made it impracticable to collect samples during the reconnaissance. This was established by field inspection. Further diamond exploration would follow more detailed exploration. This has now been confirmed by two separate inspections of the area at different times of the year.

6.2 -80# STREAM SEDIMENT SAMPLING

For the same reasons, no reconnaissance stream sediment samples were collected.

6.3 ROCK CHIP SAMPLING (APPENDIX 1)

The 13 rock chip samples collected showed evidence of brecciation with a heavily ferruginous matrix, which in places appeared to be gossanous. The most common rock type was similar throughout, which probably supports the most likely interpretation that the rock is a Cretaceous claystone, similar to the "porcelainites" around Darwin. However it contains evidence of silica remobilisation and also resembles an acid tuff in texture. In the south western quadrant of the area, some of the rocks were less brecciated and resembled ferruginised arenites, possibly of the Jinduckin Formation. Further work is needed to understand the geological setting. The results of geochemical analyses are presented in Appendix 1 and ratios of these results to their crustal abundance, or where it is higher, the detection limit of the analytical method, are presented in various combinations in Appendix 2. Some or all of the samples show elevated levels of As, Bi, Ce, Cr, Eu, Fe, Gd, Ge, In, La, Mo, Nd, Pb, Pd, Pr, Pt, S, Sb, Se, Sm, Sn, Te, V, and W. These include surprising levels of As, Bi, and Mo for the region.

7 Geological Observations

Appendix 2 contains a preliminary attempt to determine the metal associations of the geochemical patterns from the Targets to assist in model generation, and these have been ranked across the whole sample suite collected during the expeditions in 2003 and 2004 to gather reconnaissance background on the various target areas. The samples are surprisingly enriched in a range of metals, and have five samples in the top ten of all 287 reconnaissance samples collected from various Targets across north Australia. The geochemical response does not strongly indicate one particular deposit model, though the area has a stronger response to granite- skarn type metal association than the other areas. We regard the finding as quite surprising and not in keeping with the expected setting. One possible explanation is that the response is due to accumulation of a range of metals in a basal sediment, at the beginning of a sedimentary cycle. The lithologies encountered do not completely support this, and this offers no explanation of the magnetic pattern.

8 Recommendations for Follow-up

Clearly the strong geochemical response warrants continued follow up. What can be done without drilling is however limited and the characterisation of the setting presents an enigma. Furthermore, the area has potential for diamonds which has not yet been evaluated.

The probable approach to the third year of the Licence will be to test the drainage channel visible in imagery and DTM through the centre of the EL to try to obtain samples for heavy mineral studies. Negotiations are under way to obtain a light rig capable of sampling the basal alluvium in the channel. So far the search for a rig for a relatively small programme like this has proved unsuccessful. Further opportunities to test the alluvium are being pursued.

While further reconnaissance of the sub outcropping anomalous breccias will be done in conjunction with any shallow drilling program, a deeper understanding of the setting will be necessary to understand the real significance of the geochemical response. It may be possible to interest a joint venture partner in testing the broader concept with some stratigraphic drilling to establish the real regional context.

Expenditure in the current term of the licence will be at least $17,500.

9 Expenditure Statement

During the reporting period, expenditure has been as follows:

Geological Services:	$7,920
Analytical Services	$702
Travel and Accommodation	$1,982
Consumables	$365
Sacred Sites	
Office Expenses	$2,560
TOTAL	**$13,529**

10 References

AOG Minerals Ltd/ ADE Joint Venture, 1984. Annual Report EL 4273. NTGS CR84/268.

Ashton Mining Limited/ ADE Joint Venture, 1984. Annual Report, EL 4270. NTGS CR84/266.

APPENDIX 1

ASSAY RESULTS OF SAMPLES COLLECTED IN 2003 & 2004 RECONNAISSANCE

SampNo	North	East	Prospect	Altitude	Zone	Stype	Date Collected	Comments	Ag	Al	As	Au ppb	Au(R) ppb	Au (R)ppb	Au ICP ppb	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Fe	Ga	Gd	Ge	Hf	Ho	In	K	La	Li
165726	**8234565**	**244947**	**Western Creek**	**221**	**53**	**Rock Chip**	**19/10/2003**	**Breccia Sub O/C**	**0.1**	**33700**	**43.5**	**0.333333**	**0.333333**		1	**316**	**1.1**	**0.46**	**880**	**0.016667**	**108**	**3.05**	**200**	**0.53**	**16**	**1.72**	**0.73**	**1.2**	**180100**	**14.5**	**4.36**	**2**	**2.78**	**0.29**	**0.07**	**2100**	**54.6**	**4.9**
165727	**8234550**	**243969**	**Western Creek**	**218**	**53**	**Rock Chip**	**Wes**	**19/10/2003**	**Breccia Sub O/C**	**0.1**	**61500**	**35.5**	**1**			0.033333333	**444**	**0.9**	**0.12**	**510**	**0.016667**	**186**	**2.6**	**270**	**0.48**	**9.6**	**2.78**	**0.64**	**2.82**	**160400**	**11.8**	**8.79**	**3**	**1.96**	**0.35**	**0.07**	**2050**	**83.7**	**3.6**
165728	**8234500**	**239768**	**Western Creek**	**216**	**53**	**Rock Chip**		**19/10/2003**	**Breccia Sub O/C**	**0.15**	**28200**	**86**	**0.333333**			0.033333333	**339**	**1.2**	**1.26**	**700**	**0.016667**	**41.4**	**3.55**	**240**	**0.53**	**18**	**1.04**	**0.57**	**0.55**	**169100**	**20.7**	**1.69**	**0.033333**	**1.02**	**0.2**	**0.12**	**1800**	**23.2**	**6.6**
165729	**8234455**	**235708**	**Western Creek**	**236**	**53**	**Rock Chip**		**19/10/2003**	**Breccia Sub O/C**	**0.1**	**29900**	**80**	**0.333333**			0.033333333	**157**	**0.9**	**2**	**500**	**0.016667**	**74.5**	**1.7**	**230**	**0.53**	**15.4**	**1.2**	**0.47**	**1.17**	**308000**	**16.3**	**3.5**	**0.4**	**0.9**	**0.19**	**0.13**	**1500**	**39.3**	**2.6**
165730	**8231332**	**234891**	**Western Creek**	**224**	**53**	**Rock Chip**		**19/10/2003**	**Breccia Sub O/C**	**0.15**	**30900**	**46.5**	**0.333333**			0.033333333	**267**	**0.9**	**1.52**	**610**	**0.016667**	**57.2**	**2.25**	**190**	**0.73**	**8.6**	**1.17**	**0.64**	**0.79**	**182300**	**15.5**	**2.34**	**0.1**	**1.42**	**0.22**	**0.07**	**2600**	**34.3**	**4.8**
318901	8233995	235197	Western Creek	219	53	Rock Chip		30/07/2004	Ferrug. Sed. Breccia	0.15	26300	101				**1**	277	1.1	0.28	1000	0.016667	60.6	2.3	295	0.4	16.4	1.23	0.54	1.08	299400	13.4	3.4	7.7	2.05	0.19	0.15	1500	30.7	4.5
318902	8233844	235430	Western Creek	222	53	Rock Chip		30/07/2004	Ferrug. Sed. Breccia	0.016667	44300	51.5				**0.333333**	243	1	1.12	740	0.016667	83.2	2.3	225	0.48	12	1.32	0.49	1.28	184100	12.2	3.97	4.5	2.42	0.18	0.1	1800	40.9	3.8
318903	8233239	236012	Western Creek	231	53	Rock Chip		30/07/2004	Ferr. Sed. from sink ho	0.05	28900	22.5				**0.333333**	222	1.1	0.46	1210	0.016667	25.2	2.35	170	1.23	16.6	1.25	0.91	0.39	231800	19.1	1.41	3.8	3.87	0.25	0.13	6350	15.5	5.1
318904	8232423	236351	Western Creek	220	53	Rock Chip		30/07/2004	O/C flat sandy sed. - les	0.016667	46400	12.5				**0.333333**	447	0.5	0.34	720	0.016667	129	1.4	120	0.47	10.4	1.19	0.59	0.85	80500	12.1	2.36	1	2.8	0.19	0.06	2300	69.2	4.2
318905	8232339	237097	Western Creek	217	53	Rock Chip		30/07/2004	Highly ferrug. sed.	0.05	24300	177				**0.333333**	304	1.3	0.34	1360	0.016667	88.2	2.7	390	0.47	12.4	2.36	0.72	3.07	294800	13.8	11.6	6.9	1.91	0.27	0.16	1450	53.6	3.4
318906	8232025	242611	Western Creek	215	53	Rock Chip		30/07/2004	Mildly brecc. & ferrug. s	0.15	40400	30				**0.333333**	360	0.9	0.3	3850	0.016667	52.6	8.35	195	0.51	15.8	1.67	0.89	0.74	149200	15.1	2.45	2.9	2.96	0.29	0.07	2150	30.6	7.4
318907	8231884	243323	Western Creek	218	53	Rock Chip		30/07/2004		0.05	24100	50.5				**2**	478	1.3	0.68	740	0.016667	184	1.6	215	0.46	12	3.09	0.76	1.96	144500	13	8.5	3.4	1.14	0.32	0.08	2050	99	3.2
318908	8231577	244199	Western Creek	216	53	Rock Chip		30/07/2004	Brecc. Sed	0.016667	47400	15.5				**0.333333**	464	0.7	0.3	1470	0.016667	150	1.95	160	0.46	7.8	1.55	0.7	1.15	91600	14.8	3.73	1.3	3.13	0.23	0.07	2550	71.5	4.5

*Below detection limit expressed as one third of detection limit

APPENDIX 1

ASSAY RESULTS OF SAMPLES COLLECTED IN 2003 & 2

SampNo	North	East	Prospect	Lu	Mg	Mn	Mo	Na	Nb	Nd	Ni	P	Pb	Pdppb	Pr	Ptppb	Rb	Re	Ru	S	Sb	Sc	Se	Sm	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
165726	**8234565**	**244947**	**Western Creek**	**0.11**	**630**	**217**	**7.85**	**200**	**5.65**	**44**	**6.2**	**860**	**31**	0.033333	**13.6**	1	**13.9**	**0.016667**	**0.016667**	**300**	**0.2**	**6**	**2**	**6.56**	**1.8**	**167**	**0.46**	**0.65**	**0.1**	**14.2**	**2150**	**0.07**	**0.11**	**1.86**	**340**	**0.85**	**4.78**		**11.5**	**91.5**
165727	**8234550**	**243969**	**Western Creek**	**0.08**	**330**	**172**	**5.4**	**200**	**4.8**	**92**	**6.6**	**880**	**16.4**	0.033333	**25.9**	2	**13.5**	**0.016667**	**0.016667**	**300**	**0.1**	**7**	**4**	**15.9**	**1.8**	**168**	**0.42**	**1.25**	**0.033333**	**9.79**	**1840**	**0.07**	**0.1**	**3.37**	**280**	**0.85**	**4.42**		**6.5**	**64.7**
165728	**8234500**	**239768**	**Western Creek**	**0.09**	**520**	**342**	**9.85**	**200**	**6.25**	**18**	**17.6**	**560**	**26.4**	0.033333	**5.41**	1	**12.6**	**0.016667**	**0.016667**	**340**	**0.45**	**6**	**6**	**2.94**	**2**	**83**	**0.06**	**0.28**	**0.3**	**11.8**	**2200**	**0.07**	**0.1**	**1.95**	**660**	**1.4**	**3.74**		**25**	**51.1**
165729	**8234455**	**235708**	**Western Creek**	**0.06**	**300**	**136**	**3.5**	**150**	**6.1**	**30**	**4.6**	**1140**	**69**	0.033333	**8.66**	2	**10.9**	**0.016667**	**0.016667**	**520**	**0.85**	**5**	**6**	**6.01**	**1.8**	**104**	**0.12**	**0.45**	**0.3**	**13.3**	**1880**	**0.06**	**0.08**	**2.21**	**780**	**0.7**	**2.94**		**13.5**	**44.1**
165730	**8231332**	**234891**	**Western Creek**	**0.11**	**520**	**215**	**2.4**	**200**	**7.95**	**19.5**	**13.6**	**460**	**30.2**	0.033333	**6.28**	2	**17.4**	**0.016667**	**0.016667**	**400**	**0.55**	**3**	**4**	**3.69**	**2.4**	**100**	**0.14**	**0.33**	**0.3**	**12.2**	**2600**	**0.11**	**0.11**	**1.35**	**530**	**1.4**	**4.37**		**6**	**66.4**
318901	8233995	235197	Western Creek	0.08	600	250	5.35	300	3.75	32	11.6	1420	16.2	0.033333	7.82	3	10.5	0.016667		540	0.95	10.2	2	6.03	1.4	80.5	0.32	0.33	0.3	10.9	1700	0.08	0.07	2.17	564	18	3.72		20.5	73.1
318902	8233844	235430	Western Creek	0.08	390	124	2.85	300	5.6	31	8	880	34.4	0.033333	8.17	2	10.9	0.016667		400	0.7	7.2	2	6.59	1.8	100	0.4	0.35	0.3	12.1	2220	0.06	0.07	1.31	470	2.85	3.39		19	87.3
318903	8233239	236012	Western Creek	0.16	950	80.5	2.9	450	8.3	10.5	5.8	920	12.2	0.033333	2.94	1	39	0.016667		320	0.3	14.1	0.666667	2.02	4.4	40	0.6	0.2	0.033333	13.5	4590	0.14	0.13	2.04	198	1.85	5.87		21.5	137
318904	8232423	236351	Western Creek	0.09	310	101	3.25	300	5.75	39	8.8	640	29.6	2	12	0.033333	12.2	0.016667		380	0.4	6.7	0.666667	4.99	2.2	161	0.36	0.28	0.033333	12.2	2910	0.05	0.08	1.02	138	1.95	3.96		21.5	98.1
318905	8232339	237097	Western Creek	0.1	420	200	7	250	4.2	52.5	13	1400	19.4	3	12	2	10.1	0.016667		640	0.95	9.2	10	14.3	2	188	0.32	0.88	0.3	9.86	1650	0.05	0.1	2.58	960	1.75	5.04		19.5	67.5
318906	8232025	242611	Western Creek	0.13	700	465	5.2	300	5.8	22	16.4	340	15	0.033333	6.07	1	12.1	0.016667		300	0.45	8.2	0.666667	3.92	2	62.5	0.46	0.32	0.033333	7.66	2720	0.08	0.14	1.96	324	1.5	6.6		28.5	104
318907	8231884	243323	Western Creek	0.1	380	86	7.1	250	4.2	65	10.8	1340	55.8	1	19.2	2	12.4	0.016667		500	0.4	10	0.666667	10.8	1.8	250	0.2	0.99	0.2	14	2490	0.04	0.09	1.82	284	1.65	5.32		25.5	35.5
318908	8231577	244199	Western Creek	0.11	680	450	4.15	300	5.1	53.5	5.4	660	23.8	0.033333	15.4	1	14.5	0.016667		380	0.3	7.8	0.666667	7.9	2.4	189	0.36	0.39	0.033333	13.3	2940	0.11	0.09	1.53	178	1.05	4.7		21.5	108

*Below detection limit expressed as one third of detection limit

APPENDIX 2

PARADIGM NORTH RECONNAISSANCE SAMPLING 2003- 2004: INDICES BASED ON RATIO OF ANALYTIC RESULT TO AVERAGE CRUSTAL ABUNDANCE (Levinson, 1974)

SampNo	North	East	Prospect	Altitude	Zone	Stype	Date Collected	Comments	Ag	Al	As	Au ppb	Au(R) ppb	Au (R)ppb	ICP ppb	Ba	Be	Bi	Ca
Crustal Abundance ppm									0.07	81000	1.8	4			4	425	2.8	0.17	36000
Det. Limits (used for ratio if DL>crustal abundance)																			
165726	**8234565**	**244947**	**Western Creek**	**221**	**53**	**Rock C**	**19/10/2003**	**Breccia Sub O/C**	1.4	0.4	24.2				0	1	0	3	0
165727	**8234550**	**243969**	**Western Creek**	**218**	**53**	**Rock C**	**19/10/2003**	**Breccia Sub O/C**	1.4	0.8	19.7				0	1	0	1	0
165728	**8234500**	**239768**	**Western Creek**	**216**	**53**	**Rock C**	**19/10/2003**	**Breccia Sub O/C**	2.1	0.3	47.8				0	1	0	7	0
165729	**8234455**	**235708**	**Western Creek**	**236**	**53**	**Rock C**	**19/10/2003**	**Breccia Sub O/C**	1.4	0.4	44.4				0	0	0	12	0
165730	**8231332**	**234891**	**Western Creek**	**224**	**53**	**Rock C**	**19/10/2003**	**Breccia Sub O/C**	2.1	0.4	25.8				0	1	0	9	0
318901	8233995	235197	Western Creek	219	53	Rock C	30/07/2004	Ferrug. Sed. Breccia	2.1	0.3	56.1				0	1	0	2	0
318902	8233844	235430	Western Creek	222	53	Rock C	30/07/2004	Ferrug. Sed. Breccia	0.2	0.5	28.6				0	1	0	7	0
318903	8233239	236012	Western Creek	231	53	Rock C	30/07/2004	Ferr. Sed. from sink hole	0.7	0.4	12.5				0	1	0	3	0
318904	8232423	236351	Western Creek	220	53	Rock C	30/07/2004	O/C flat sandy sed. - less ferrug	0.2	0.6	6.9				0	1	0	2	0
318905	8232339	237097	Western Creek	217	53	Rock C	30/07/2004	Highly ferrug. sed.	0.7	0.3	98.3				0	1	0	2	0
318906	8232025	242611	Western Creek	215	53	Rock C	30/07/2004	Mildly brecc. & ferrug. sed.	2.1	0.5	16.7				0	1	0	2	0
318907	8231884	243323	Western Creek	218	53	Rock C	30/07/2004	"	0.7	0.3	28.1				1	1	0	4	0
318908	8231577	244199	Western Creek	216	53	Rock C	30/07/2004	Brecc. Sed	0.2	0.6	8.6				0	1	0	2	0

SampNo	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Fe	Ga	Gd	Ge	Hf	Ho	In	K	La	Li	Lu	Mg
Crustal Abundance ppm	0.2	60	25	100	3	55	3	2.8	1.2	50000	15	5.4	1.5	3	1.2	0.1	26000	30	20	0.5	21000
Det. Limits (used for ratio if DL>crustal abundance)																0.01					
165726	0	2	0	2	0	0	1	0	1	4	1	1	1	1	0	1	0	2	0	0	0
165727	0	3	0	3	0	0	1	0	2	3	1	2	2	1	0	1	0	3	0	0	0
165728	0	1	0	2	0	0	0	0	0	3	1	0	0	0	0	1	0	1	0	0	0
165729	0	1	0	2	0	0	0	0	1	6	1	1	0	0	0	1	0	1	0	0	0
165730	0	1	0	2	0	0	0	0	1	4	1	0	0	0	0	1	0	1	0	0	0
318901	0	1	0	3	0	0	0	0	1	6	1	1	5	1	0	2	0	1	0	0	0
318902	0	1	0	2	0	0	0	0	1	4	1	1	3	1	0	1	0	1	0	0	0
318903	0	0	0	2	0	0	0	0	0	5	1	0	3	1	0	1	0	1	0	0	0
318904	0	2	0	1	0	0	0	0	1	2	1	0	1	1	0	1	0	2	0	0	0
318905	0	1	0	4	0	0	1	0	3	6	1	2	5	1	0	2	0	2	0	0	0
318906	0	1	0	2	0	0	1	0	1	3	1	0	2	1	0	1	0	1	0	0	0
318907	0	3	0	2	0	0	1	0	2	3	1	2	2	0	0	1	0	3	0	0	0
318908	0	3	0	2	0	0	1	0	1	2	1	1	1	1	0	1	0	2	0	0	0

SampNo	Mn	Mo	Na	Nb	Nd	Ni	P	Pb	Pd	Pr	Pt	Rb	Re	Ru	S	Sb	Sc	Se	Sm	Sn	Sr	Ta
Crustal Abundance ppm	950	1.5	28000	20	28	75	1000	12.5	1	8.2	2	90	0.0005	0.0004	50	0.2	16	0.05	6	2	375	2
Det. Limits (used for ratio if DL>crustal abundance)													0.05	0.05				2				
165726	0	5	0	0	2	0	1	2	0	2	1	0	0	0	6	1	0	1	1	1	0	0
165727	0	4	0	0	3	0	1	1	0	3	1	0	0	0	6	1	0	2	3	1	0	0
165728	0	7	0	0	1	0	1	2	0	1	1	0	0	0	7	2	0	3	0	1	0	0
165729	0	2	0	0	1	0	1	6	0	1	1	0	0	0	10	4	0	3	1	1	0	0
165730	0	2	0	0	1	0	0	2	0	1	1	0	0	0	8	3	0	2	1	1	0	0
318901	0	4	0	0	1	0	1	1	0	1	2	0	0	0	11	5	1	1	1	1	0	0
318902	0	2	0	0	1	0	1	3	0	1	1	0	0	0	8	4	0	1	1	1	0	0
318903	0	2	0	0	0	0	1	1	0	0	1	0	0	0	6	2	1	0	0	2	0	0
318904	0	2	0	0	1	0	1	2	2	1	0	0	0	0	8	2	0	0	1	1	0	0
318905	0	5	0	0	2	0	1	2	3	1	1	0	0	0	13	5	1	5	2	1	1	0
318906	0	3	0	0	1	0	0	1	0	1	1	0	0	0	6	2	1	0	1	1	0	0
318907	0	5	0	0	2	0	1	4	1	2	1	0	0	0	10	2	1	0	2	1	1	0
318908	0	3	0	0	2	0	1	2	0	2	1	0	0	0	8	2	0	0	1	1	1	0

Clearly there also needs to be an upper limit on the ratios e.g. S.

Ratios rounded to nearest integer
Total: Sum of all element ratios
All Metal: Sum of all economic or indicator elements
Granite Skarn Index: Sum(W+U+Th+Ta+Sn+Nb+Mo+Li+Be)
Base Metal Index: Sum(Zn+Sb+S+Pb+Mn+Cu+Cd+Bi+Ba+As+Ag)
Precious Metal Index Sum(Te+Sb+Au+Ag+As)
UltraBasic Index Sum(V+Ti+Pt+Pd+Ni+Cr+Cu+Co)
VHMS Index Sum(Zn+Sn+Sb+S+Pb+P+Mn+Cu+Cd+Bi+Ba+Au+As+Ag)
Goldfields Total: Sum of Rankings
Total_Rank: Ranking of Totals

APPENDIX 2

PARADIGM NORTH RECONNAISSANCE SAMPLING 2003- 2004: INDICES B

Crustal Abundance ppm							0.9	0	10	5700	0.36	0.48	2.7	135	1.5	30	3	70	165																
Det. Limits (used for ratio if DL>crustal abundance)								0.1																											
SampNo	**North**	**East**	**Prospect**	**Altitude**	**Zone**	**Stype**	**Tb**	**Te**	**Th**	**Ti**	**Tl**	**Tm**	**U**	**V**	**W**	**Y**	**Yb**	**Zn**	**Zr**	**TotalIndex**	**TIDX_Rank**	**AllMetalIdx**	**All MetalIDX rank**	**Granite SkarnIndex**	**SkarnIDX rank**	**BMIDX**	**BMIDX_Rank**	**PrecMIDX**	**PrecMIDXRank**	**UBasIDX**	**UBasIDXRank**	**VMSIDX**	**VMSIDXRank**	**Goldfields Total**	**Total_Rank**
165726	**8234565**	**244947**	**Western Creek**	**221**	**53**	**Rock C**	1	1	1	0	0	0	1	3	1	0	0	0	1	**81**	24	**53**	18	**10**	**12**	**39**	**35**	**28**	**19**	**6**	**46**	**41**	35	189	**13**
165727	**8234550**	**243969**	**Western Creek**	**218**	**53**	**Rock C**	1	0	1	0	0	0	1	2	1	0	0	0	0	**82**	23	**43**	23	**8**	**30**	**31**	**46**	**22**	**24**	**6**	**37**	**33**	46	229	**16**
165728	**8234500**	**239768**	**Western Creek**	**216**	**53**	**Rock C**	0	3	1	0	0	0	1	5	1	0	0	0	0	**112**	10	**92**	7	**12**	**8**	**70**	**13**	**55**	**7**	**9**	**14**	**72**	14	73	**5**
165729	**8234455**	**235708**	**Western Creek**	**236**	**53**	**Rock C**	1	3	1	0	0	0	1	6	0	0	0	0	0	**123**	8	**95**	6	**7**	**71**	**79**	**9**	**53**	**8**	**10**	**9**	**81**	9	120	**7**
165730	**8231332**	**234891**	**Western Creek**	**224**	**53**	**Rock C**	0	3	1	0	0	0	1	4	1	0	0	0	0	**87**	21	**64**	14	**6**	**76**	**51**	**20**	**34**	**16**	**8**	**22**	**53**	21	190	**14**
318901	8233995	235197	Western Creek	219	53	Rock C	0	3	1	0	0	0	1	4	12	0	0	0	0	**137**	7	**104**	5	**19**	**1**	**78**	**10**	**66**	**5**	**10**	**11**	**81**	10	49	**2**
318902	8233844	235430	Western Creek	222	53	Rock C	0	3	1	0	0	0	0	3	2	0	0	0	1	**92**	18	**64**	15	**7**	**59**	**51**	**22**	**35**	**13**	**8**	**23**	**53**	22	172	**12**
318903	8233239	236012	Western Creek	231	53	Rock C	0	0	1	1	0	0	1	1	1	0	0	0	1	**61**	51	**38**	29	**9**	**22**	**26**	**61**	**15**	**36**	**5**	**62**	**29**	59	320	**26**
318904	8232423	236351	Western Creek	220	53	Rock C	0	0	1	1	0	0	0	1	1	0	0	0	1	**55**	65	**29**	48	**7**	**65**	**23**	**69**	**10**	**69**	**5**	**58**	**25**	70	444	**35**
318905	8232339	237097	Western Creek	217	53	Rock C	1	3	1	0	0	0	1	7	1	0	0	0	0	**189**	3	**146**	1	**10**	**16**	**122**	**4**	**107**	**2**	**16**	**3**	**124**	4	33	**1**
318906	8232025	242611	Western Creek	215	53	Rock C	0	0	1	0	0	0	1	2	1	0	0	0	1	**65**	43	**42**	27	**8**	**33**	**32**	**44**	**21**	**25**	**6**	**40**	**34**	43	255	**17**
318907	8231884	243323	Western Creek	218	53	Rock C	1	2	1	0	0	0	1	2	1	0	0	0	0	**101**	15	**61**	16	**10**	**17**	**51**	**21**	**33**	**17**	**7**	**29**	**54**	19	134	**9**
318908	8231577	244199	Western Creek	216	53	Rock C	0	0	1	1	0	0	1	1	1	0	0	0	1	**59**	54	**29**	46	**7**	**57**	**24**	**68**	**11**	**56**	**4**	**88**	**26**	68	437	**33**

Clearly there also needs to be an upper limit on the ratios e.g. S.

Ratios rounded to nearest integer
Total: Sum of all element ratios
All Metal: Sum of all economic or indicator elements
Granite Skarn Index: Sum(W+U+Th+Ta+Sn+Nb+Mo+Li+Be)
Base Metal Index: Sum(Zn+Sb+S+Pb+Mn+Cu+Cd+Bi+Ba+As+Ag)
Precious Metal Index Sum(Te+Sb+Au+Ag+As)
UltraBasic Index Sum(V+Ti+Pt+Pd+Ni+Cr+Cu+Co)
VHMS Index Sum(Zn+Sn+Sb+S+Pb+P+Mn+Cu+Cd+Bi+Ba+Au+As+Ag)
Goldfields Total: Sum of Rankings
Total_Rank: Ranking of Totals