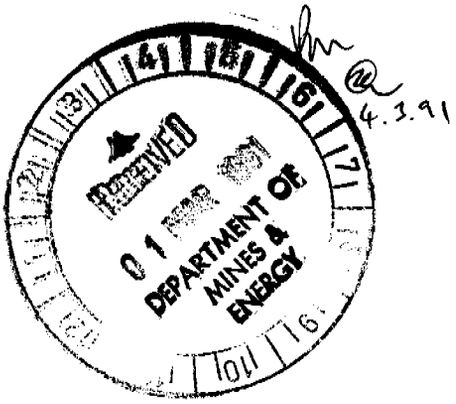


CRA EXPLORATION PTY. LTD.

EL 6571 N.T. WILD COW CREEK

ANNUAL REPORT FOR
YEAR ENDING 30th JANUARY 1991

Submitted by : P.D. Agnew .....

Accepted by : W.H. Johnston ... for W.H.J.

Date : February 1991.

Copies to : N.T. Department of Mines and Energy
: CRAE Library, Canberra
: CRAE Library, Darwin

Map reference : SE 53-12 Mount Drummond 1:250 000 sheet.

Report No. : **17114**

CONTENTS

LIST OF APPENDICES

1. SUMMARY AND CONCLUSIONS

Wild Cow Creek EL 6571, comprising 484 blocks (approx 1568 km^2), was granted to CRA Exploration on the 31st January 1991. Title was secured to explore for diamondiferous diatremes, base metals and precious metals.

In the period to 30th January 1991, during the first year of tenure, the following samples were collected within EL 6571:
- 16 Reconnaissance -2mm drainage gravel samples.
- 15 Reconnaissance -80# stream sediment samples.
- 20 Follow-up -80# stream sediment samples.
- 2 Follow-up -30# stream sediment BLEG samples.
- 6 Follow-up rock samples.

All gravel samples were processed for the detection of kimberlitic indicator minerals and microdiamonds. Multi-element geochemical analysis was carried out on -80# stream sediment and rock samples. -30# stream sediments were assayed for Bulk Leach Extractable Gold, (BLEG).

Open file literature review and interpretation of open file aeromagnetic data was also carried out.

Re-interpretation of the aeromagnetic data by CRAE failed to locate any previously untested magnetic features possibly indicative of diatremes. No further follow-up of previously tested magnetic features was justified.

Two microdiamonds were recovered from the reconnaissance gravel samples. Microdiamonds are known to be widely distributed throughout the region and isolated occurrences unsupported by other kimberlitic indicators are not considered significant.

Anomalous gold (up to 300ppb) was reported in reconnaissance -80# stream sediment samples from two creeks within the EL. Detailed follow-up -80# stream sediment, -30# BLEG and rock sampling in both creeks failed to repeat or enhance the results.

One ironstone float sample collected during follow-up assayed 37.80 ppm U and 7.20ppm Sb. The result is supported by weakly anomalous U (3.12ppm) in a stream sediment sample collected 1.2km up-stream. The source or significance of the results has yet to be determined.

The diamond potential of EL 6571 has been adequately tested, without encouraging results. Evaluation of all data collected during the first year of tenure led to the voluntary partial surrender of the southern half (242 blocks) of EL 6571 effective from 11th January 1991.

Stream sediment geochemical surveys have failed to locate outcropping mineralisation. However, stratigraphic correlations and gross lithological similarities with host stratigraphy of recently discovered base metal mineralisation in the region suggest portions of the Carrara Range Inlier remain prospective for buried base metal mineralisation. As such, the northern half of EL 6571 will be retained for further exploration.

2. INTRODUCTION

Wild Cow Creek EL 6571, comprising 484 blocks (approx 1568 km^2), was granted to CRA Exploration on the 31st January 1991. It is located 350km east-northeast of Tennant Creek on the Mitchiebo and Carrara 1:100,000 sheets (Mt. Drummond 1:250,000 sheet), see plan NTd 4804. Title was secured to explore for diamondiferous diatremes, base metals and precious metals.

The Proterozoic Carrara Range Inlier outcrops in the northeast corner of EL 6571 . The oldest rocks present are Lower Proterozoic quartz sandstone, conglomerate and shale of the Carrara Range Formation. This is overlain by the Carpentarian McNamara Group, consisting predominantly of quartz sandstone and siltstone with lesser conglomerate and dolomitic sediments. Siltstones, claystones and dolomitic lithologies within this Group are considered prospective for base metals.

Most of EL 6571 is covered by Cainozoic black soil or sand which totally obscure underlying sediments of the Georgina Basin. Outcrops of Mid-Carpentarian Constance Sandstone (South Nicholson Group) occur along the northern boundary of the EL. These represent basal sediments of the South Nicholson Basin which extends into the north of the EL.

Drainage within the EL is poorly developed except for the northeast corner where drainage is well developed over the Carrara Range Inlier.

This report includes a full description of all work undertaken within the tenement during the period 31st January 1990 to 30th January 1991.

3. RECOMMENDATIONS

The lack of magnetic features possibly indicative of diatremes, combined with a lack of positive kimberlitic indicator mineral results from the drained portion of the EL suggests diamond potential is minimal. No further diamond exploration is recommended for EL 6571.

Stratigraphic correlations and gross lithological similarities with host stratigraphy of recently discovered base metal mineralisation in the region suggest strata outcropping in the northeast of the EL is prospective for base metals. Geochemical stream sediment surveys have failed to locate any mineralisation, greatly reducing the possibility of outcropping mineralisation. Further base metal exploration directed towards the detection of a buried target is recommended.

The black soil covered portion of the Georgina Basin in the southern half of the EL is not considered prospective for base or precious metals. A recommendation for voluntary partial surrender of the southern half (242 blocks) of EL 6571 was made towards the end of the first year of tenure and the area was surrendered

effective from 11th January 1991. The surrendered area is shown on plan NTd 5092. The northern half of EL 6571 has been retained for further base metal exploration.

4. DIAMOND EXPLORATION

4.1 - Reconnaissance Gravel Sampling

A total of sixteen -2mm gravel samples were collected from within the tenement area and observed for kimberlitic indicator minerals and microdiamonds at CRAE's Belmont laboratory. Sample locations are shown on plan NTd 5144 and results are tabulated in Appendix 1. Positive results were as follows:

- 1080810 - 1 microdiamond (0.27mm x 0.17mm)
- 1080819 - 1 microdiamond (0.40mm x 0.35mm)

Microdiamonds are known to be widely distributed throughout the region and isolated occurrences unsupported by other kimberlitic indicators are not considered significant.

4.2 - Aeromagnetic Data Interpretation

The entire area of EL 6571 was covered by a detailed aeromagnetic survey flown in 1985 by Ashton Mining. 1:25,000 scale residual magnetic profiles, magnetic contours and flight path maps were acquired from N.T.G.S open file reports. Radiometric data were not available.

Ashton Mining delineated four magnetic anomalies within the EL, however follow-up sampling produced no positive results. Re-evaluation of the data by CRAE located no further anomalies and disappointing drilling results from similar anomalies in adjacent EL's failed to justify further follow-up of the Ashton anomalies.

5. BASE AND PRECIOUS METAL EXPLORATION

An open file literature review was carried out to assess the extent and effectiveness of previous exploration within the Carrara Range Inlier. Stream sediment geochemical surveys covering areas within EL 6571 have been carried out by CRA Exploration in 1972, and Afmeco in 1979. Both surveys were directed towards the detection of uranium and/or base metal mineralisation and neither returned any anomalous results from within EL 6571. Neither survey assayed for gold.

5.1 Reconnaissance Stream Sediment Sampling

A total of fifteen -80# stream sediment samples were collected at reconnaissance gravel sample sites. All samples were assayed for F, Mg, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Mo, Pd, Ag, Ba, Pt, Au, Pb and U. Assay results are presented in Appendix II and sample

locations are shown on plan NTd 5144. Molybdenum assay results should be disregarded as the laboratory has reported that the samples were accidently contaminated. The following anomalous results were returned:

1080783 - 300ppb Au
1080806 - 32.2ppb Au
1080808 - 33.3ppb Au
1080810 - 34.0ppb Au
1080012 - 20.0ppb Au
1080832 - 101ppm Cu

No other elements were anomalous. All anomalous creeks drain the Carrara Range Inlier.

During the 1979 Afmeco geochemical survey ten -80# stream sediment samples were collected up-stream of CRAE's sample containing 101 ppm Cu. None of these samples contained anomalous Cu or any other element. As such the result can be substantially downgraded.

5.2 Follow-up Stream Sediment Sampling

Detailed follow-up sampling was carried out in the catchments containing the 300ppb and 33.3ppb Au results as well as the catchment adjacent to the 300ppb result. The other anomalous creeks could not be accessed by vehicle. -80# stream sediment samples were collected at approximately 1km intervals up-stream in anomalous creeks and all tributaries were sampled. In addition, a -30# Bulk Leach Extractable Gold (BLEG) sample was collected at the original sample site and any potentially mineralised float or outcrop in the creeks was sampled. Total samples from follow-up were as follows:

-80# stream sediment - 20
-30# BLEG - 2
Rocks - 6

All -80# stream sediment and rock samples were analysed for Mg, V Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Mo, Pd, Ag, Cd, Sb, Ba, Pt, Au, Pb and U. BLEG samples were assayed for Au only. Assay results are presented in Appendix III and sample locations are shown on plan NTd 5144. Rock sample ledgers are presented in Appendix IV.

Results from the follow-up were disappointing with the peak Au assay from -80# samples being 2.5ppb. Check samples taken at the 300ppb Au sample site returned only 1.64ppb Au in -80# stream sediment and 0.2ppb Au in BLEG. The second BLEG sample taken from the 33.3ppb Au site returned weakly anomalous Au (4.4ppb). The result was not supported by another six -80# stream sediment samples taken up-stream.

Gold contamination during reconnaissance sampling appears to be the only explanation for the initial anomalous results.

One ironstone float sample (2657873) collected during follow-up assayed 37.80 ppm U and 7.20ppm Sb. The result is supported by weakly anomalous U (3.12ppm) in a stream sediment sample collected 1.2km up-stream. This is the highest U result returned from follow-up stream sediment samples. Afmeco and prior CRAE -80# samples in the same creek did not return any anomalous results. The source and significance of the result has yet to be determined.

6. REFERENCES

Afmeco Pty. Ltd., 1980 - Exploration Licence 2112, Carrara Range, N.T. Annual Report, 1979. **N.T.G.S Open File Report CR80/096**

Ashton Mining Ltd., 1986 - Annual Report E.L. 4374, 9th December 1984 to 8th December 1985. **N.T.G.S Open File Report C86/013.**

CRA Exploration Pty. Ltd., 1972 - Mt. Drummond P.A. 3392, Final Report. **CRA Report Number 3985.**

Smith, J.W., Roberts, H.G. 1963 - 1:250 000 Geological Series Explanatory Notes; Mt. Drummond, N.T. SE53-12, **BMR Publication.**

7. KEY WORDS

microdiamond, kimberlitic indicators, drainage gravel sampling, Carrara Range Inlier, Georgina Basin, gold, base metals, diatreme, geochemistry, BLEG.

8. LOCATION

Mount Drummond SE53-12 1:250,000
Mitchiebo 6360 1:100,000
Carrara 6460 1:100,000

9. LIST OF DPO'S

37695, 49064, 49066, 49067, 49068, 49182,

7. LIST OF PLANS

Plan No	Title	Scale
NTd 4804	Wild Cow Creek EL 6571 Location Plan	1:250 000
NTd 5144	Wild Cow Creek EL 6571 Sample Locations	1:100 000
NTd 5092	Wild Cow Creek EL 6571 Location Plan (Reduced Area)	1:250 000

APPENDIX I

RECONNAISSANCE GRAVEL SAMPLING RESULTS

RECONNAISSANCE GRAVEL SAMPLE
INDICATOR RESULTS

	SAMPLE	Diamonds	Microdiamonds	Chromites
1	1080783	0	0	0
2	1080795	0	0	0
3	1080805	0	0	0
4	1080806	0	0	0
5	1080807	0	0	0
6	1080808	0	0	0
7	1080809	0	0	0
8	1080810	0	1	0
9	1080812	0	0	0
10	1080819	0	1	0
11	1080820	0	0	0
12	1080831	0	0	0
13	1080832	0	0	0
14	1080833	0	0	0
15	1080834	0	0	0
16	1080854	0	0	0

APPENDIX II

RECONNAISSANCE STREAM SEDIMENT ASSAY RESULTS

RECONNAISSANCE -80# STREAM SEDIMENT
RESULTS

	SAMPLE	F ppm	Mg ppm	U ppm	Cr ppm	Mn ppm	Fe %
1	1080783	-20	1728	70	79	394	3.40
2	1080795	-20	1728	80	147	470	4.30
3	1080805	90	518	40	39	281	1.69
4	1080806	-20	719	50	67	369	1.86
5	1080807	-20	1451	60	95	737	2.45
6	1080808	-20	856	40	83	85	1.29
7	1080809	-20	1888	60	96	133	2.55
8	1080810	•	1527	84	19	152	2.33
9	1080812	•	1802	67	16	815	2.42
10	1080820	-20	1653	70	116	405	3.09
11	1080831	-20	1706	50	94	154	1.93
12	1080832	-20	2454	60	214	744	2.79
13	1080833	-20	1005	60	88	101	1.22
14	1080834	-20	2529	50	104	533	2.32
15	1080854	•	1159	73	63	791	2.55

	Co ppm	Ni ppm	Cu ppm	Zn ppm	As ppm	Mo ppm	Pd ppb
1	11	16	16	9	-100	13	1.22
2	14	17	20	14	-100	58	1.96
3	-5	8	8	2	-100	18	-.50
4	6	14	12	2	-100	23	1.28
5	9	16	14	6	-100	22	1.53
6	-5	11	8	-2	-100	23	1.34
7	-5	19	14	5	-100	33	1.38
8	7	-5	15	15	2	5	1.24
9	10	5	15	25	2	5	1.08
10	8	24	19	15	-100	49	1.48
11	-5	18	10	2	-100	41	1.17
12	11	17	101	5	-100	53	-.50
13	-5	12	9	-2	-100	35	1.08
14	8	15	17	26	-100	35	1.35
15	11	20	15	15	4	15	1.07

	Ag ppm	Ba ppm	Pt ppb	Au ppb	Pb ppm	U ppm
1	-1.00	220	.97	300.00	-5	-100.00
2	-1.00	282	2.16	-1.00	-5	-100.00
3	-1.00	107	-.50	1.82	-5	-100.00
4	-1.00	135	.93	32.20	-5	-100.00
5	-1.00	186	1.55	-1.00	-5	-100.00
6	-1.00	135	1.00	33.30	-5	-100.00
7	-1.00	196	1.07	-1.00	-5	-100.00
8	.45	174	.89	34.00	5	1.85
9	.26	208	.91	20.00	10	1.75
10	-1.00	244	1.30	-1.00	7	-100.00
11	-1.00	168	1.08	-1.00	-5	-100.00
12	-1.00	247	-.50	-1.00	-5	-100.00
13	-1.00	165	1.03	-1.00	-5	-100.00
14	-1.00	229	1.23	-1.00	8	-100.00
15	.37	187	-.50	4.50	15	1.42

APPENDIX III

FOLLOW-UP STREAM SEDIMENT AND ROCK ASSAY RESULTS

FOLLOW-UP -80# STREAM SEDIMENT RESULTS

	SAMPLES	Mg ppm	U ppm	Cr ppm	Mn ppm	Fe %	Co ppm
1	2657857	1943	88	38	371	3.57	16
2	2657859	885	36	19	206	1.59	6
3	2657860	2333	76	37	475	2.78	14
4	2657861	856	47	23	244	2.10	6
5	2657862	528	28	11	170	1.90	-5
6	2657863	500	25	10	131	1.70	-5
7	2657866	1748	60	27	281	2.97	8
8	2657867	740	40	18	162	1.98	5
9	2657869	702	33	18	193	3.08	-5
10	2657870	837	34	16	160	2.02	-5
11	2657874	2011	71	33	175	2.97	7
12	2657875	2021	58	25	318	2.83	8
13	2657876	760	28	14	181	1.61	-5
14	2657878	711	33	13	113	1.91	-5
15	2657879	528	35	14	108	1.88	-5
16	2657880	760	40	13	172	2.04	-5
17	2657881	904	45	25	190	2.40	5
18	2657882	943	34	16	185	1.84	-5
19	2657883	•	•	•	•	•	•
20	2657884	683	35	32	92	1.71	-5

	Ni ppm	Cu ppm	Zn ppm	As ppm	Mo ppm	Pd ppb	Ag ppm
1	20	20	25	5.0	-10	1.01	.30
2	5	15	10	3.0	-10	-.50	-.10
3	15	30	30	4.0	-10	.52	.83
4	5	15	15	2.0	-10	-.50	.30
5	5	10	10	-1.0	-10	.82	.19
6	5	10	5	-1.0	-10	.63	.23
7	10	20	25	4.0	-10	1.16	.32
8	10	10	10	4.0	-10	.88	.14
9	10	10	10	6.0	-10	.77	.11
10	10	10	10	4.0	-10	.71	.13
11	15	25	15	6.0	-10	1.05	.38
12	15	20	25	4.0	-10	.77	.30
13	5	5	10	1.0	-10	.76	.25
14	10	5	10	3.0	-10	.86	.30
15	5	5	10	3.0	-10	-.50	.56
16	10	5	10	2.0	-10	.94	.35
17	5	10	10	4.0	-10	1.15	.11
18	15	5	10	5.0	-10	1.13	.30
19	10	10	10	4.0	•	•	•
20	10	5	10	5.0	-10	.59	.18

	Cd ppm	Sb ppm	Ba ppm	Pt ppb	Au ppb	Pb ppm	U ppm
1	.05	.57	257	-.50	1.64	10	2.71
2	.27	.17	174	-.50	1.10	5	1.55
3	.25	.94	332	-.50	1.19	15	2.60
4	.27	.61	128	-.50	.50	5	1.27
5	.05	.68	99	-.50	1.53	-5	1.11
6	.27	.46	97	-.50	1.46	-5	1.32
7	.23	.68	338	-.50	2.07	10	2.62
8	.22	.29	128	-.50	2.04	5	1.55
9	.19	.49	113	-.50	2.48	-5	1.80
10	.43	.39	144	-.50	1.93	-5	1.67
11	.20	.55	251	-.50	2.50	10	3.12
12	.27	.42	308	-.50	1.87	10	2.74
13	.21	.89	116	-.50	2.26	5	.99
14	.26	.54	134	-.50	1.50	-5	1.76
15	.17	.82	108	-.50	.50	5	1.30
16	.15	.63	137	-.50	2.29	-5	1.52
17	.18	.61	144	-.50	1.95	-5	1.70
18	.21	.46	142	-.50	2.01	5	1.58
19	•	•	•	•	•	10	•
20	.30	.19	100	-.50	1.78	5	1.33

FOLLOW UP BLEG RESULTS

	Sample No	Au ppb
1	2657858	.2
2	2657877	4.4

FOLLOW-UP ROCK SAMPLE ASSAY RESULTS

	SAMPNO	Mg ppm	U ppm	Cr ppm	Mn ppm	Fe %	Co ppm
1	2657864	202	45	-10	106	2.77	-5
2	2657865	1350	128	29	514	38.13	39
3	2657868	577	410	73	258	19.29	12
4	2657871	451	33	22	85	4.56	-5
5	2657872	77	31	-10	87	1.49	-5
6	2657873	1485	329	33	698	53.05	15

	Cd ppm	Sb ppm	Ba ppm	Pt ppb	Au ppb	Pb ppm	U ppm
1	-.10	.51	178	-.50	1.61	-5	1.02
2	.22	1.59	178	1.20	1.13	-5	2.40
3	.19	1.61	134	.93	1.23	20	2.62
4	.15	.77	502	.76	1.31	-5	2.15
5	.11	1.03	747	-.50	-1.00	15	1.83
6	1.56	7.20	74	1.65	2.78	5	37.80

	Ni ppm	Cu ppm	Zn ppm	As ppm	Mo ppm	Pd ppb	Ag ppm
1	5	5	5	6	-10	1.02	-.10
2	10	80	165	48	-10	2.58	.18
3	15	25	20	53	-10	1.14	.25
4	0	5	5	14	-10	.65	-.10
5	0	5	5	7	-10	-.50	.88
6	65	40	130	83	-10	1.60	.45

APPENDIX IV

ROCK SAMPLE LEDGERS

C.R.A. EXPLORATION PTY. LTD. - ROCK SAMPLE FIELD DATA SHEET.

Area: Wild Cow Creek Collected: P.D.A. Analysed by: Lab. report no:
Map ref: Date collected: Date anal. rec:
Photo name: Date to lab: Plan no:
Run No: D.P.O. No: C.R.A. report no: 1714

Less than detection limit [-]

Sample Type: 1. Chip. 2. Float 3. Channel. 4. Panel.
Test: 1. Chemistry 2. Duplicate 3. Thin section 4. Polished section.

	ANALYSIS METHOD												
	DETECTION LIMIT (ppm)												

Sample Number	COORDINATES AM.G/~~Long./Lat./Local~~ EAST	NORTH	SAMPLE TYPE	WIDTH (m)	AREA (sq.m)	No. CHIPS	TEST		Metal Content (ppm)
2657864	766500	7926750	1				1	Outcrop grab sample from ridge on ↑ LHS of tributary on which 2657863 (-80# ss) was taken. Strongly Fe-stained quartz sandstone - very distinct unit on air photos.	
2657865	766500	7926750	2				1	Location as for 2657864. Massive hematite scree - Fairly common component of scree shedding from ridge.	
2657868	766550	7924200	1				1	Laterite cemented gravel. Quartz sandstone / quartzite clasts from grit to boulder size / cemented by hard laterite. Outcrops extensively in active portion and banks of the creek.	
2657871	767250	7924500	2				1	Bleached, brecciated fg. sandstone. 2-5 mm angular fragments in a porous ? clay and Fe-oxide matrix.	

C.R.A. EXPLORATION PTY. LTD. - ROCK SAMPLE FIELD DATA SHEET.

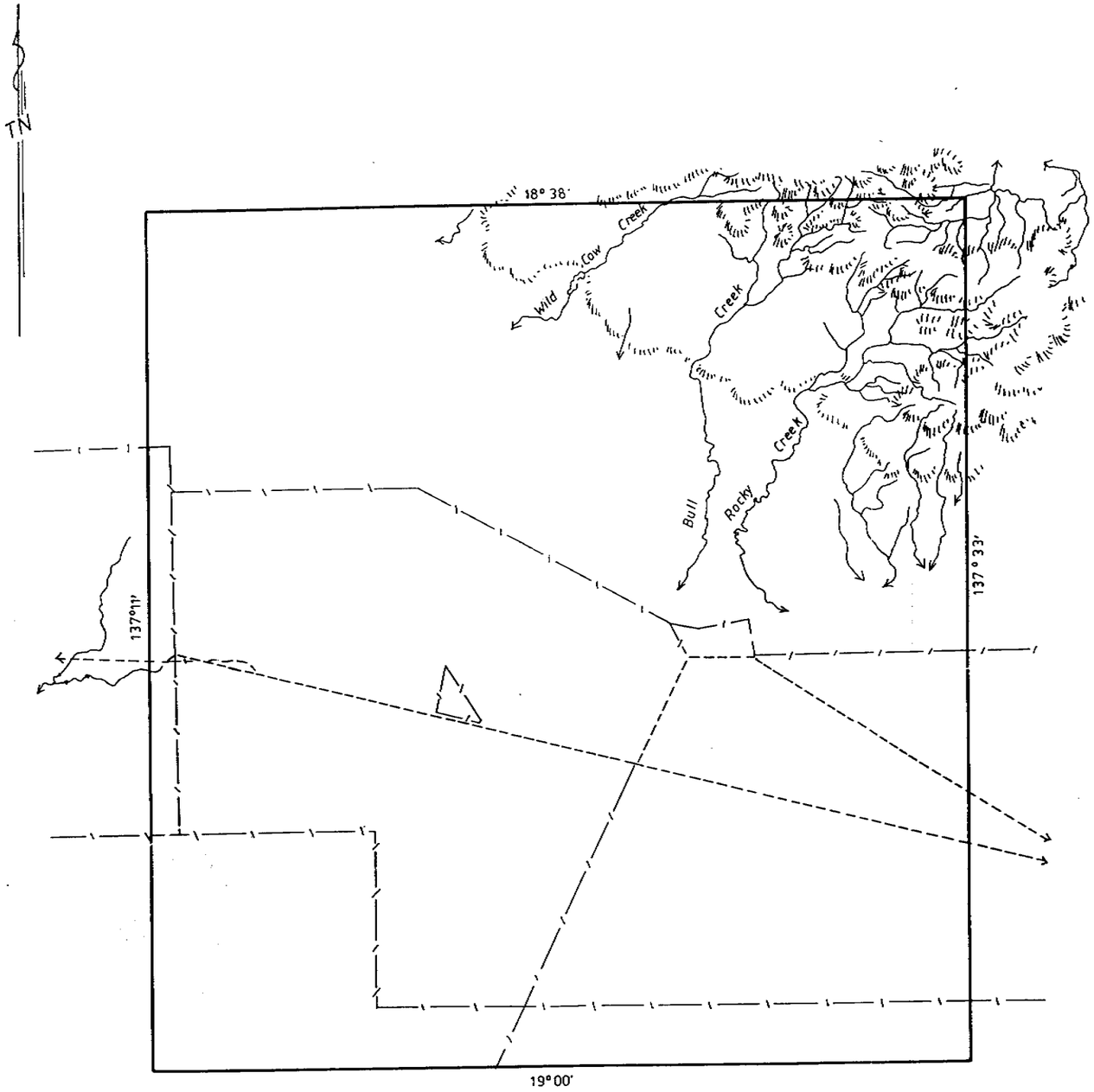
Area: Wild Cow Creek Collected: P.D.A. Analysed by: Lab. report no:
Map ref: Date collected: Date anal. rec:
Photo name: Date to lab: Plan no:
Run No: D.P.O. No: C.R.A. report no: 17114

Less than detection limit [-]

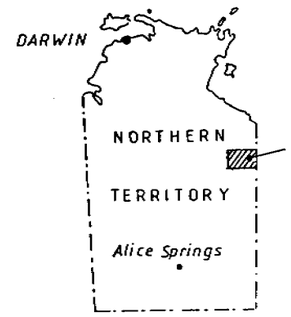
Sample types: 1. Chip. 2. Float 3. Channel. 4. Panel.
Test: 1. Chemistry 2. Duplicate 3. Thin section 4. Polished section.

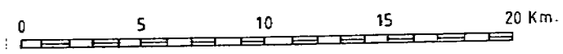
	ANALYSIS METHOD												
	DETECTION LIMIT (ppm)												

Sample Number	COORDINATES AM.G/~~Long./Lat./Local~~ EAST	NORTH	SAMPLE TYPE	WIDTH (m)	AREA (sq.m)	No. CHIPS	TEST		Metal Content (ppm)
2657872	767450	7924550	2				1	Strongly brecciated creamy grey chert. 2-10mm angular clasts in a sandy siliceous matrix. Makes up 10% of float in the creek.	
2657873	767450	7924550	2				1	Dense massive hematite, deep red to black. Makes up 15% of float in the creek.	



AREA: 484 BLOCKS
1568·644 sq. km.





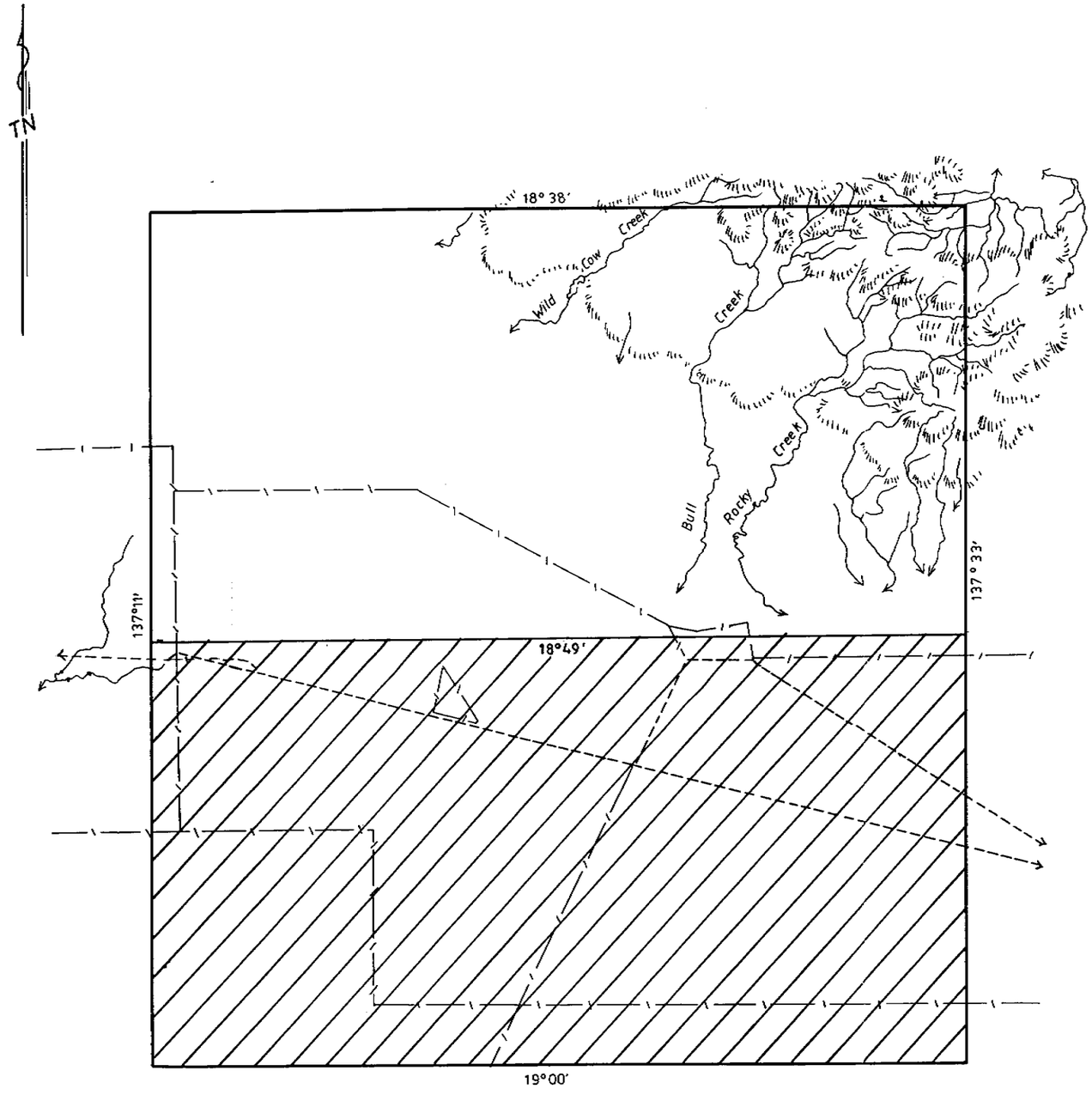
CRA EXPLORATION PTY. LIMITED

EL 6571

WILD COW CREEK

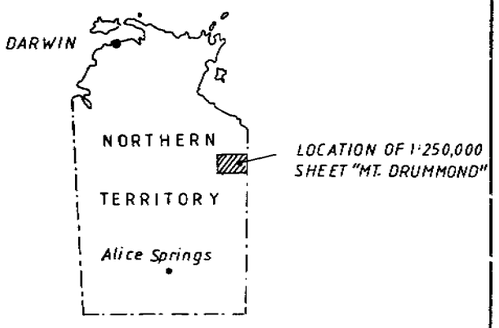
LOCATION PLAN

Ref. SE 53-12 MT. DRUMMOND	
Scale 1:250,000	Drawn SRJ
Author	Report No.
Date APRIL 1989	Plan No. NTd 4804



SURRENDERED AREA

AREA TO BE RETAINED
242 blocks
approx. 785 sq. km.



CRA EXPLORATION PTY. LIMITED

EL 6571

WILD COW CREEK

LOCATION PLAN
(Reduced Area)

Ref. SE 53-12 MT. DRUMMOND	
Scale 1:250,000	Drawn SRJ
Author PDA	Report No. 17115
Date DEC. 1990	Plan No. NTd 5092

18°38'

19°00'

137°11'

137°33'

T N

Wild Cow Creek

Bull Creek

Rocky Creek

1080812
1080854
1080834
1080810
1080833
1080832
1080809
1080807
1080831
1080808
1080806
1080870
1080805
1080819
1080783

2657883
2657882
2657880
2657881
2657879
2657878
2657877 BSB(BLEG)
2657876 BSB(BLEG)
2657884
2657861
2657862
2657860
2657859
2657867
2657869 B71(R)
2657868(R)
2657863
2657866
2657875
2657874
2657870 B72(R) B73(R)
2657854(R) B53(R)
1080795

Boundary of EL 6571 WILD COW CREEK.

LEGEND

- Creeks
- Track
- Fence
- Dam
- 1080809 X — Gravel Drainage Sample
- 2657866 — Stream Sediment
- 2657868 (R) — Rock Sample check field sheet for type
- BSB (BLEG.) — Bulk Leach Extractable Gold Sample

SCALE 1:100,000

Kilometres 0 1 2 4 6 8 10 12 Kilometres

CRA EXPLORATION PTY LIMITED

EL 6571 - WILD COW CREEK

SAMPLE LOCATION PLAN

REFERENCE SE 53-12 MT Drummond	
SCALE 1:100,000	DATE FEBRUARY 1991
AUTHOR P.D.A.	REPORT 17114
DRAWN T.T.N.	PLAN No NTd 5144