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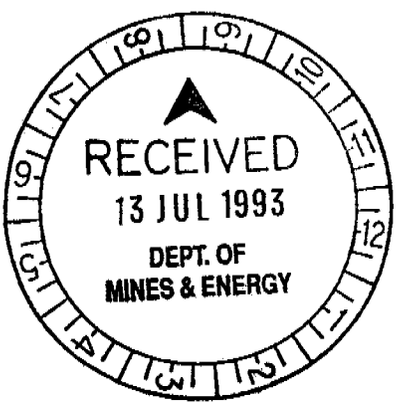
NT EXPLORATION LICENCE 6013
CATTLEWATER PASS

FINAL EXPLORATION REPORT
July 1988 through to June 1991



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15.1.93

Contents

Including the cover, 11 pages total this report.

1. SUMMARY

From day one at Cattlewater Pass, a commitment was made to conduct a stream sediment sampling program of adequate coverage and produce a data base. This coverage was completed in various stages, mostly within the first year, with great enthusiasm and an energetic approach. Surface samples were also collected after identifing contrasting geological features within the regional patterns, selected as possible mineralization sites. Multi-element geochemistry data indicated several areas anomolous in base metals, gold, and rare earths. A copper/cobalt prospect was individually discovered from field work investigation. Subsequent follow-up field work which included further samples taken, did not in some cases substantiate the anomolies previously discovered in phase 1, and in other instances failed to indicate target enrichment.

The second years activities were taken up with a great deal of prospecting following up the anomolies and data gained in the first year. Extra stream sampling was necessatated through drainage not shown on 1:100.000 sheet. Faults near to and west of the Cattlewater Pass, showing up as retrograde zones were given special attention, sampled and resampled but collectively all assay results disappointingly failed to produce enriched mineralization. East of Cattlewater Gap a promising looking siliceous gossan was discovered, sampled and then field examined. This unit shortly pinched out north and south, no other mineralization co-related or otherwise was found in the vacinity.

Work undertaken in year 3 comprised selected area air photo interpretation, ie; "magnetite hill" and "magnetite gossan". Also field checks including sampling, prospecting and an access survey from Red Ochre Dam into magnetite hill. At this point the devastating Australia wide financial recession had taken its toll, not only on the country but the operator too. No further work could be afforded by the operator, even though the property entered into a year 4 tenement term, EL6013 was surrended to the Department of Mines and Energy.

2. INTRODUCTION

The licence area was selected and taken up following above background signals of rare earths and copper mineralization north-east from Arltunga. During several phases of sample collection, a helicopter was necessary to cover the steep and inaccessable country. Machines used were a Bell 47 and Hughes 300 for recovery of approx. 75% of the samples. Quite a broard range of targets were sought by stream sediment multi-element geochemistry and by prospecting on foot with some access gained by motor bike.

Multi-element channel sediment geochemistry analyses were made for the following; arsenic, chromium, silver, lead, tin, zinc, nickle, niobium, manganese, cobalt, copper, gold, tantalum, tungsten, iron, zircon, cerium and lanthanum.

Rare earth anomolous areas to the north-east, identified with XRF and ICP analyses from drainage sediment, were investigated further and confirmed by scintillation counter. Detection of radioactive small concentrations within channel drainage revealed after further development that surface accumulations of radioactivity in granite and pegmatite existed.

3. WORK UNDERTAKEN

3.1 Stream Sediment Sampling

Sediments were collected from the tributaries of streams which were of sufficient size to warrent representation on the 1:100,000 scale sheet (from which they were chosen). The collection sites were then tallied up into groups consisting of approx. 12 sample collections for each group and assigned flight run numbers. The flight runs generally followed the watercourse/s in such fashon that a maximum coverage were possible to specific areas of sample collection with a minimum of ferry flight. Flight coverage zones were set by overlay from 1:50,000 air photo sheets, detailing stream trace and other surface faults plotted from the geological sheet. Each overlay was then photostat transfeered after the stream sample site was plotted and assigined its number. Each flight sheet included two flight runs generally, the back up of an interchange or collecting remote stragglers proving most benificial at times. After each sample was collected and stowed on board, the printed number is ticked off and site identification circle of the run closed in flight to next sample site. The author pre numbered all sample bags and arranged in individual run bundles numbers up, worked well. Samples were collected near the downstream end of stream segments and not necessarily at points shown by their number. At each channel site, approx. 2 kg. of unsieved sediment was collected across the stream bed and into the bank material of both sides where practicable. Cobbles larger than 25 mm. were rejected. The dry samples were then reduced to approx. -3 mm. in the authors rolls crusher, then forwarded to the laboratory for pulverising. A good coverage was made in year 1 of collecting stream sediments, some 340 or more came to hand. Off this amount, approx. 10% were rockchip samples collected along faults, etc. The samples were collected and prepaired by the author as described above. The first 250 were repacked in new bags and forwarded for assay. Remainder of samples were collected and roll crusher prep same, then clay fractioned of which 50g. were forwarded for assay. Clay fractions were then seperated from all further stream sediments collected, including some friable rockchip samples.

3.2 Analysis

Geochemistry determination typically FAAS Aqua Regia Au, Detn 0.001 ppm., AAS - base metals, XRF or ICP for Ce and Nb, As group. Laboratory usually advised XRF or ICP scheme depending on number of other base elements read with lanthanide series.

3.3 Stream Sampling Results

Histograms of individual metals assayed were prepaired and showed groupings of areas of enrichment and when combined to the data set showed a pattern of multi-element anomolies. Most of the areas field checked were either visually inspected only or resampled, the results added to the data set. In an unhurried time framework the author and Burton Murrell (geologist) failed to locate the sourse of any of the anomolies exept for two anomolous zones.
(CODE 3.3-A) Stream CP 2 and CP 3, just south of the Mt Shaefer granite located mid north north-west, 1000mts. or less from the northern boundry. Ce analyses from XRF determination were 460 and 380 ppm respectively, above a background of say 65 ppm. CP 3 Au 0.004 ppm, Cu 22 ppm, Zn 18 ppm, Cr 110 ppm (CP 2 & 3), Ni 27 ppm.
(CODE 3.3-B) Stream CP 55, located mid east, a minor tributary to the Tug creek. Ce analysis 180 ppm, Au 0.004 ppm, Cu 28 ppm, Zn 26 ppm, Cr 90 ppm, Ni 34 ppm.
Gold headgrade of all stream sediments; 0.10 ppm from stream CP 200, (clay fraction), located mid north, close to the northern boundry, a tributary to the Cadney creek.

3.4 Fault Sampling Results

Surface sampling and collecting rockchip at faults failed to generate any economic grades. A second round of fault sampling in the north-west of the property and covering the same fault systems moderately raised the level of values. This second round of samples collected and clay fractioned by contrast reflected a slight increase above that of unprepaired samples previously ***(CODE 3.4-A)*** CP 218F Au 0.01 ppm, Fe 3.94 %, CP 219F Au 0.013 ppm, Fe 3.22 %, CP 220F Au 0.015 ppm, Fe 3.80 %. (Both phases airborne traverse).

3.5 Prospecting

As mentioned in the summery and too 3.3, Re; ***(CODE 3.3-B)***. Stream sampling data set indicated a weak anomoly surrounding stream site CP 55, and from follow-up work, the author with Burton Murrell prospected this zone and examined float in an unsampled side creek. Prospecting further led to the discovery of a copper/cobalt bearing magnetite zone within gnisses, south of CP 55. Headgrades of rockchip assays collected across strike, east to west, Viz; CPRC 1 Au 0.005 ppm, Cu 2.05 %, Co 265 ppm, Fe 31.8 %.
CPRC 2 Au 0.025 ppm, Cu 3.95 %, Co 210 ppm, Fe 52.2 %.
CPRC 5 Au 0.015 ppm, Cu 1590 ppm, Co 1320 ppm, Fe 48.3 %.
CPRC 6 Au 0.020 ppm, Cu 4400 ppm, Co 1170 ppm, Fe 28.5 %.
Extensive prospecting over much of this region together with more rockchip, silts and clay sampling indicated a definate downturn in values from geochemistry analyses. Only the exposed magnetite outcrop retained signatures as above, the immediate downslope grades, channel and surface sampling failed to indicate any linear enrichment. The bulk of these extra samples, or at least the surface samples, taken south (catchment zone slope alluvium & colluvium) collected in varying distances up to 900 mts. from the outcrop exposure.

Re ***(CODE 3.3-A)***; Regional stream sampling indicated a rare earths anomoly at CP 2, CP 3 location. Subsequent follow-up prospecting retraced the lanthanum/niobium anomolies which extended from an initial stream sediment discovery to the mid slopes of a highly metamorphised prominent granite (Mt Shaefer), north - east of Cattlewater Pass. Assays of stream pan heavy concentrates exiting the south-west slope;

CP 2 Pan Ce 1.3 %, Nb 54 ppm, As 30 ppm, Fe 37.8 %, Zr 1.18%
CP 3 Pan Ce 3750, Nb 110ppm, As 12 ppm, Fe 30.7 %, Zr 6200

Concentrations of radioactive minerals mainly monazite and biotite were found associated with small zones of bleaching and post-tectonic muscovite formation. Radioactivity was found also in small local areas, to the same extent (usually a couple of square metres), associated with allanite and monazite enrichment in granite and pegmatite. These quite small poddings were detected with the author's Scintrex Scintillation Counter, model BGS-1. Both the author and Murrell covered the southern and western slopes on foot from the plain to the higher elevations east to west, then north, the readings of concentrations detected were 10 to 20 times radioactive above background. The distances between anomolies varied from 20 to 300 mts., a total of perhaps some 15 to 20 very small areas identified.

Re "magnetite gossan" (Summary). Appearing promising, the siliceous gossan located 2,000 mts. east of Cattlewater Gap after being detected from regional prospecting, was revisited by the author and Murrell for further examination. The unit pinched out north and south into a carbonate rich sequence, and despite further surface sampling adjacent and across strike, no evidence of gold or base metal mineralization targets was found Geochemistry analyses from rockchip lines through the gossan strike collected east to west;

CP 223A Au 0.028 ppm, Cu 250 ppm, Cr 200 ppm, Mn 230 ppm
CP 223B Au 0.044 ppm, Cu 32 ppm, Cr 260 ppm, Mn 160 ppm
CP 223C Au 0.016 ppm, Cu 21 ppm, Cr 370 ppm, Mn 310 ppm
CP 223D Au 0.008 ppm, Cu 15 ppm, Cr 210 ppm, Mn 2600 ppm

4. CONCLUSIONS

(CODE 3.3A) A comprehensive stream sampling program conducted specifically to the Mt Shaefer watercourse drainage, of total coverage, and additionally sampling other features in contrast with the regional and precinct settings, indicated no further or enriched anomolies. Field inspection of those down-slope concentrations of rare earths showed post tectonic muscovite associated with each of these features. All northern tributaries indicated a negative response to the lanthanide series elements, and with multi-element geochemistry

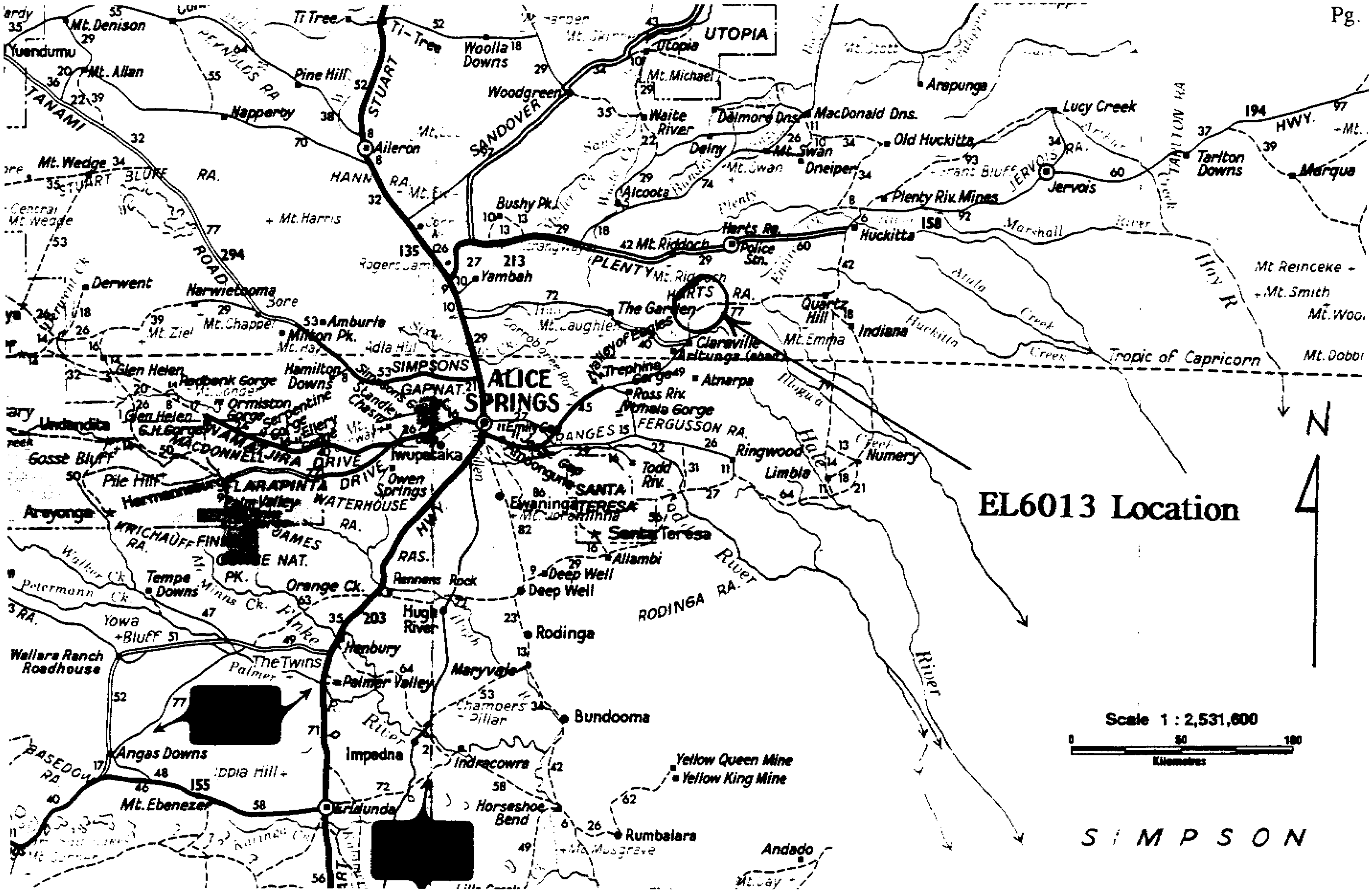
indicating no further presence of thorium extending from the central south-west slopes, (the only producer of low level radioactivity). The zone offered the operator very little encouragement to persist with further development.

(CODE 3.3B) "Magnetite Hill" has offered some hope for better results but confined only to the copper/cobalt unit propper. Quite reasonable coverage has been given to the surrounding landform, surface - silt - clay and rockchip samples have not indicated any enrichment off the immediate magnetite exposure. Burton Murrell concluded the anomoly had potential to be classified as a drilling target only if other targets within range demanded the presence of a rig. The operator, towards the latter part of the tenement licence, contacted Wakelin Exploration Contractors to examine colour photos relative to this area. ie; Alice Springs Regional, 1:50,000 Run 12, photo sheet 101. Ms. G. Wakelin-King's air photo interpretation concluded that the V shaped outcrop of magnetite-bearing rock dips north, angles somewhat from a north-south direction in V formation as explained, continuously but sharply swinging somewhat east-west, symetrically almost of equal proportion, the north-south arm being the longer. Wakelin-King suggested the best drill sites as being north of the outcrop, suggesting also that the limited surface outcrop of the magnetite may not extend deeply underground. The author had noticed several areas to the west of CP 55 and magnetite hill with contrasting colour changes. They all trended north-east, and Wakelin-King reported these "pale coloured areas" to be a strong colour difference between outcrops of gneiss, detailing it was due to a slightly thicker-than-normal sequence of calcsilicate rock, (the paler). This is not significantly different from the other rocks in the area, the report said. The author investigated and flag taped an access route back to Red Ochre Dam but no further development took place. Magnetite hill represents a moderate gamble to accept the featuring of unsubstantiated sulphide enrichment at this zone - (Author).

Magnetite Gossan (CP 223) Gold indications offered were only localised geochemical signatures elevating the data base set from an outcrop 20 mts. long by 3 mts. wide anomolous zone. With motor bike access reasonable to the surrounding country, a survey was completed covering this location over a 1000 to 1500 mts. radius east west and south, proving unsuccessful in locating any targets. Burton Murrell assesed the gossan to be a siliceous solution-collapse replacement associated with a prior landsurface level, and downgraded to a potential drilling prospect. Wakelin-King's air photo interpretation reported the outcrop to be a band of magnetite rock, partially hidden by a modern siliceous deposit, strongly red in colour but probably not containing much iron.

(CODE 3.4-A) A series of faults in somewhat parallel configeration, bearing north-west, and located to the west of Cattlewater Pass, in the north-west of the property, consumed much effort in testing their potential. Originally tested from surface sampling (Phase 1 helicopter traverse), samples were bulk batch forwarded for assay. As a result of elevated gold values coming to hand a second test similar was undertaken (Phase 2 helicopter traverse) with notably the difference to be a clay fraction prepaired and forwarded for analysis. Gold values as mentioned in 3.4 were raised probably because of a combined patent-balancing to base metals and rare earth element heavys from clay fraction seperation. By seperating clay fractions, samples were placed at a much lower risk of contamination susceptibility. It has been the belief that heavyweight background contamination has overridden correctional functions within geochemistry instrumentation at the laboratories. The faults show up clearly as retrograde zones on 1:50,000 aerial photograph A/S Run 12 sheet 099. Another two seperate traverses gained by motor bike access were made by the author and Murrell, sampling drainage, down-slope surface and rockchip along the zones of alteration. Assay results indicated very low level weak gold signals. "And to conclude, no metalization appears to be associated with these hydrothermally altered faults in this area" - (Murrell).

No mineralization appart from local enrichments in rare earths and thorium appear to be associated with the hydrothermal alteration zones. These appear to be co-relatives of the hydrothermal alteration zones surrounding the major pegmatites such as White Hill and the White Lady to the north, with which mica mining was connected - (Murrell).

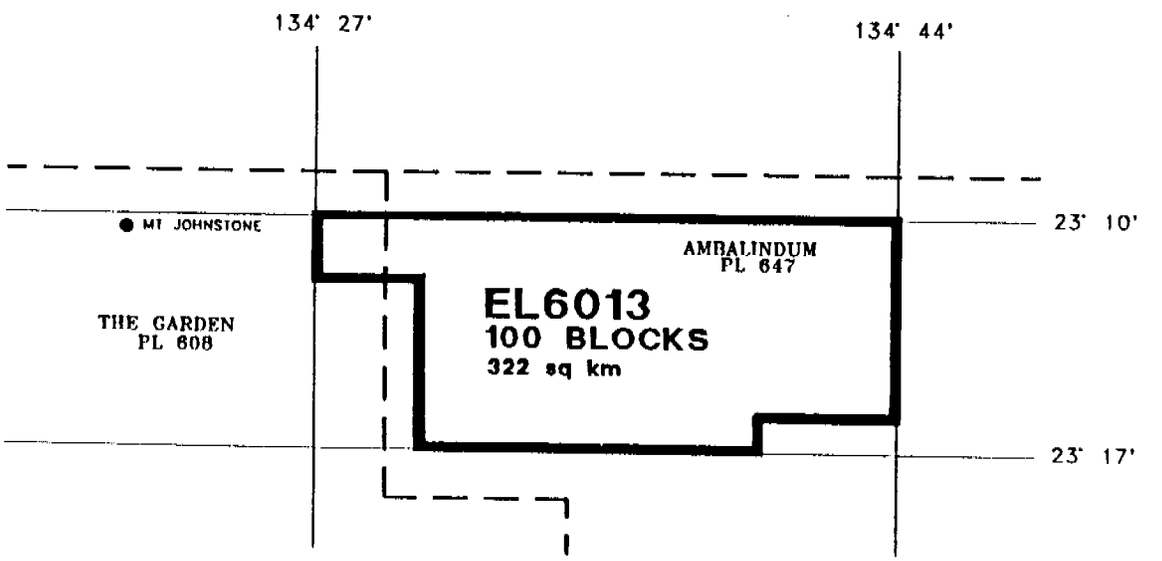

EL6013 Location
N
Scale 1 : 2,531,600
Kilometres
ALICE SPRINGS
UTOPIA
Ti Tree
Woolla Downs
Utopia
Mt. Denison
Yuendumu
Mt. Allan
Pine Hill
Napperby
Aileron
Woodgreen
Waite River
Delmore Dns.
MacDonald Dns.
Arapunga
Lucy Creek
Old Huckitta
Jervois
Tarlton Downs
Marqua
Plenty Riv. Mines
Huckitta
Harts Ra. Police Stn.
Mt. Riddoch
Alcoota
Delny
Mt. Swan
Dneiper
Mt. Wedge
Bushy Pk.
Yambah
The Garden
Quartz Hill
Indiana
Claraville
Arltunga
Mt. Emma
Tropic of Capricorn
Derwent
Narwietooma
Amburla
Milton Pk.
Hamilton Downs
Glen Helen
Redbank Gorge
Ormiston Gorge
Gosse Bluff
Pile Hill
Hermannsburg
Areyonga
Tempe Downs
Owen Springs
Iwupataka
Emily Gap
Trephina Gorge
Ross Riv.
Atnarpa
N'Dhala Gorge
Ringwood
Numery
Limbla
Todd Riv.
Santa Teresa
Allambi
Deep Well
Rodinga
Orange Ck.
Rennens Rock
Hugh River
Hanbury
Maryvale
Palmer Valley
Bundooma
Wallara Ranch Roadhouse
Angas Downs
Mt. Ebenezer
Erldunda
Impedna
Indracowra
Horseshoe Bend
Rumbalara
Yellow Queen Mine
Yellow King Mine
Andado
S I M P S O N

5. Expenditure

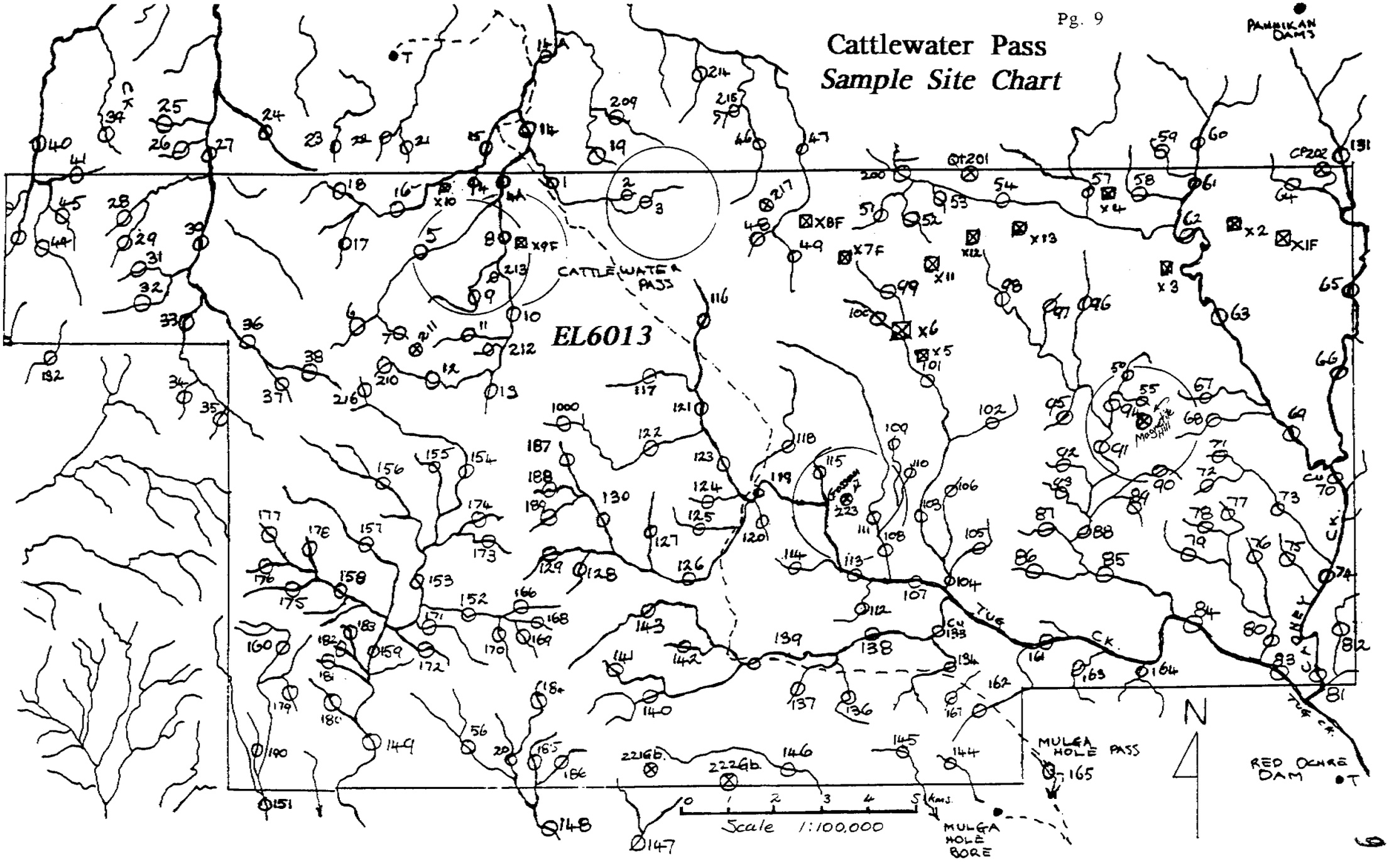
Year 1.	*$31,438*
Year 2.	*$31,883*
Year 3.	*$10,525*
Total	*$73,846*

Cattlewater Pass

7. *Area Plan*



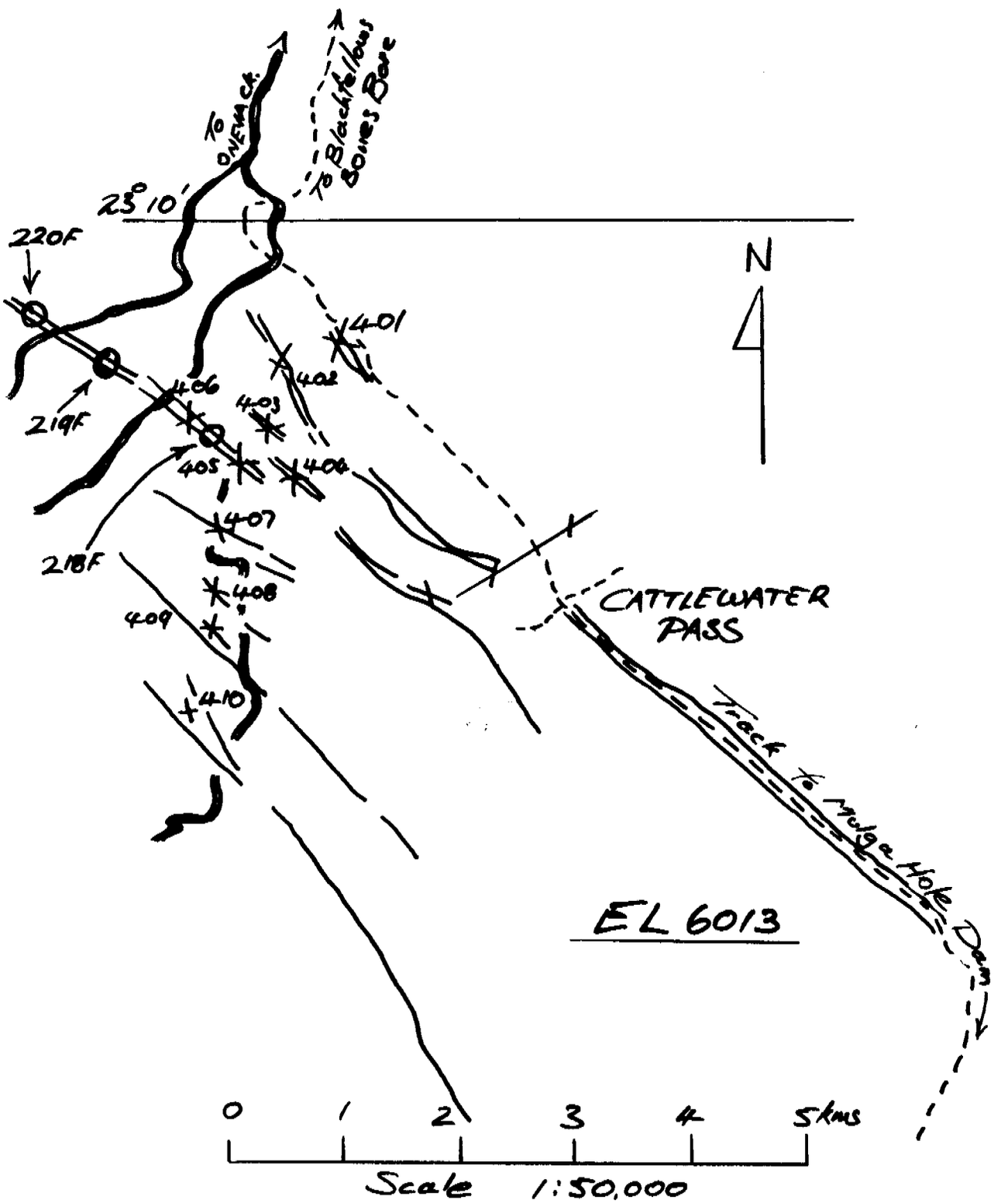
Cattlewater Pass
Sample Site Chart



10

Cattlewater Pass

9. *Hydrothermal Zone Fault Site Chart*

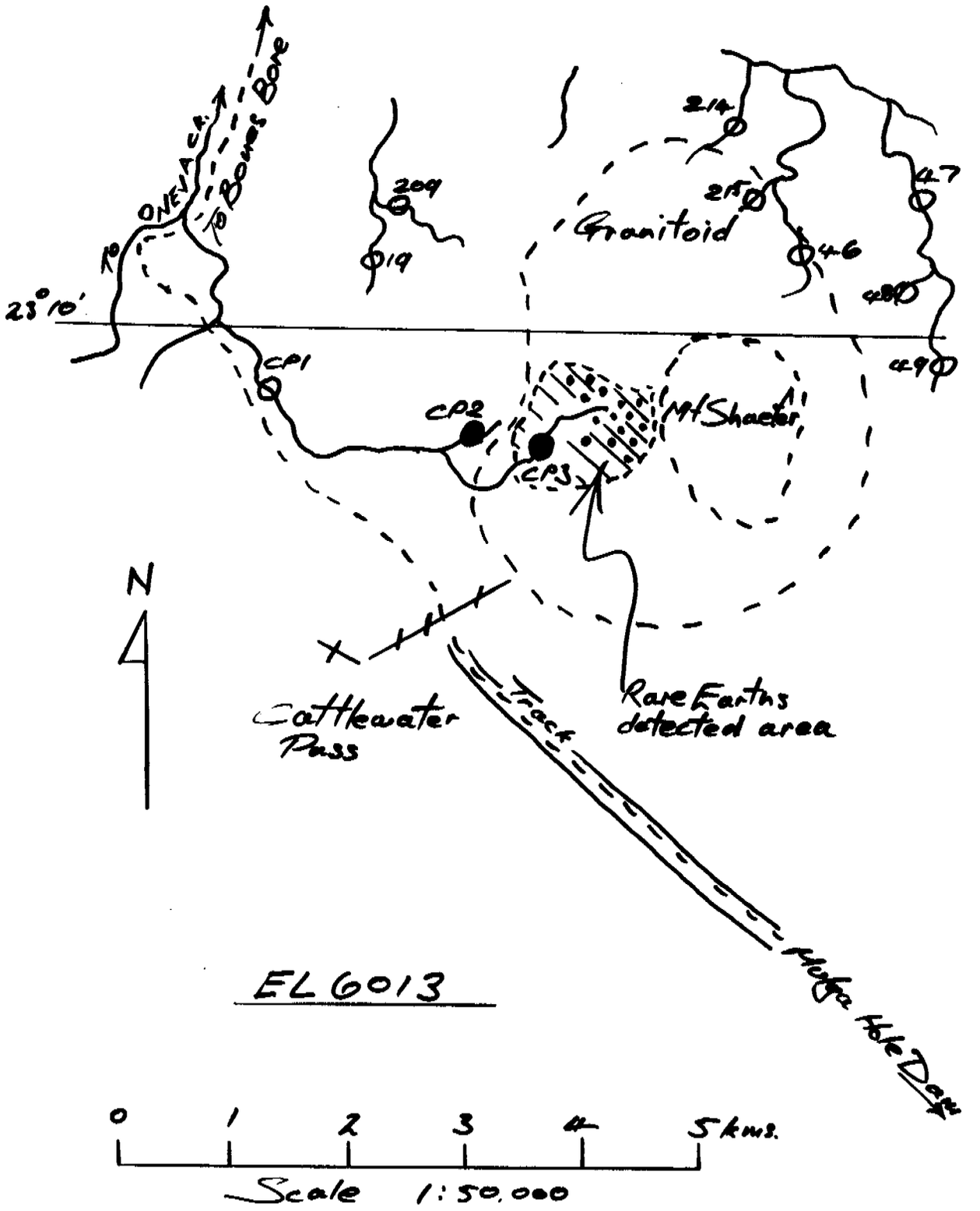


Re photo A/S run 12 067-140 map sheet 048

11

Cattlewater Pass

10. Rare Earths Site & Samples Location



Re photo A/S 067-140 Run 12, map sheet 099