LIST OF INFORMATION - RE: EL.241, 242, 749 AP.3171
SECTION 38 [O] (3)

1. Arunta Progress Report - Draft only.


4. Project Cost Summary

5. Dennison Plans (a) Photo interpretation and Ground Reconnaissance Results
   (b), Sample Locations
   (c) Geology

6. Reynolds Range Plans as for (a) above
   (b) "
   (c) "

7. Tea Tree Plans as for (a) above
   (b) "
   (c) ✓ "

8. Mt. Peake Plans as for (a) above
   (b) "
   (c) "

This report outlines progress during the initial reconnaissance exploration of exploration licences held by Tanganyika Holdings Pty. Limited within the Arunta area. These comprise a total area of approximately 1600 square miles. They include Exploration Licence numbers 241, 191, 749, 359, 210, held by Tanganyika Holdings and Exploration Licence numbers 508, 705, 725 held under a joint venture agreement with Ténneco.

Exploration activities were confined to a seven-week period during September and October. The party consisted of two men and a four-wheel drive vehicle.

The aim of this first phase of reconnaissance was to produce a rapid geological assessment of the region. In the course of this a large number of vehicle miles were covered and points of possible interest were visited. These included air photograph features and known mineral occurrences. Additional information was gained en route, both geologically and radiometrically, and this was augmented with stream sediment heavy mineral samples and selected rock samples.

**METHOD**

A complete air photograph cover of the area was obtained, partly from a Commonwealth aerial photograph survey and completed by Southbank Aviation for Tanganyika Holdings. The air photographs were in colour and at a scale of 1:24,000. Base maps were produced on this scale from these
air photographs, allowing accurate direct plotting of data. This was subsequently drafted and photo-reduced to half scale (1:48,000). The mosaic produced from the air photographs was uncontrolled.

An outline photogeological interpretation of the area was produced by a consultant photo-geologist. This did not include a complete air photograph geological interpretation, emphasis being placed on linear features, fractures and faults. Anomalous colour effects, indicative of basic and amphibolitic intrusives, or calcrete outcrop, were also selected as targets for ground reconnaissance examination.

When completed, this interpretation provided a large number of targets, each with an order of priority dependent on its photogeological expression. These were widely dispersed and the programme, as set out, provided fairly uniform coverage of a large area.

Additional targets were provided by the combined radiometric-magnetic airborne survey completed by the B.M.R. in 1953.

**GEOLOGY**

Regionally, the geology consists of sodic granites and gneisses, folded metasediments and intruded metabasics. The various lithologies were discussed in a report by Evans and Glibson (1969) and a large number of petrological descriptions were provided in this report. A wide range of
metamorphic grades affecting all members was indicated and field evidence supported this.

Major shears trending in a north-west direction cut the series. The largest occurs in the Lander valley and is associated with large quartz intrusives. A similar but smaller shear runs along the Blue Bush More-Saltcreek Valley and its course is similarly indicated by numerous barren quartz reefs.

Metasediments within the area show considerable variation in intensity and direction of folding. Some are gentle basinal or domed structures, others have steeply dipping limbs and/or steeply plunging axes. An ENE trend was sometimes noted and this contrasted sharply with the regional trend and may have been the result of an earlier tectonism.

The following brief geological description of the area is based on information gained from field traverses and photo-interpretation. An overlay plot of information is provided to supplement the base map data.

Acid Intrusives

Much of the area is occupied by little-altered granite intruded both as large-scale batholiths and smaller intrusives. This ranges from fine- to coarse-grain with a composition of microcline with or without plagioclase, quartz and mica—usually muscovite. Specular haematite was occasionally
abundant, producing a grey metallic matrix. Reldspar
phenocrysts often obtain large dimensions producing a
strongly porphyritic rock. Characteristic jointing,
fracturing and shearing occur throughout, and where
examined, these were with few exceptions unmineralised.

The granite margins are often sheared and gneissose.
These probably represent zones of structural discordance.

Orthogneiss constitutes a widespread lithology, especially
in the eastern section of the area. The direction of flow-
banding appears dominantly parallel to the regional
schistosity. The photogeological texture clearly
resembles unmetamorphosed granite. Mineralogically, it
also resembles the granite and is probably its metamorphic
equivalent.

A transition into a more mafic granodiorite-gneiss was
sometimes observed, with an associated increase in biotite
and amphibole. This probably represents mafic differentiation
or contamination - the latter being the case along
amphibolite-granite-gneiss contacts.

Aenolithic fragments, partly digested or unaltered, were
contained within the granite and larger roof pendants often
formed trains in the direction of schistosity and structure.
These were most numerous within the granite/gneiss close to
major granite-metasediment contacts.
These features suggest limited erosion of the batholith masses and exposure of the upper levels only. These would be rich in fugitive constituents and give a coarsely porphyritic texture with an abundant pegmatitic fraction.

The coarse to very coarse grained pegmatites have the composition quartz-feldspar (microcline-microperthite)-muscovite with tourmaline, sometimes forming a significant proportion of the pegmatite. Quartz-tourmaline dykes were noted, though these were not a common occurrence. They consisted of euhedral tourmaline crystals in a granular quartz matrix. Very coarse pegmatites occurred in association with the small tantalum deposits (Denison) and the Mount Stafford tin lode. Those associated with the tin deposit at Mount Stafford contained coarse anhedral quartz masses and large books of white mica. These may be the result of late-stage greisenizing, a characteristic of "tin granites".

Large areas of intruded pegmatite occur west of Blackfell Creek (Reynolds Range) in high-grade metamorphics and schist.

Mafic and basic intrusives

These constitute a very minor part of the intrusive sequence. They comprise amphibolites, diorites, tremolite schists and pyroxene-chlorite rocks and chlorite schists.
Veins of epidote and quartz within these intrusives indicate the occurrence of late metasomatic processes.

A late stage intrusive origin is suggested for most, if not all, of them as they do not appear to be altered by the high-grade metamorphics that affect the area. At Cockatoo Creek (Denison), rocks of granulite facies are invaded by post-granulite minor intrusives of fine-grained dolerite composition.

The amphibolites occur as discreet intrusive masses or as trains of amphibolitic rock within the granite gneiss. Their shape is lenticular or irregular and any linear trend parallels the regional trend. A composition of quartz and amphibole - mainly green hornblende - is dominant, with significant quantities of biotite and plagioclase also being present.

Composition suggests the amphibolites may be a more acid differentiate of a basic magma or a metamorphosed and metasomatised basic rock. Field evidence dictates against a metasediment origin.

Adjacent to the granite a more feldspar-rich amphibolite composition is normal, testifying to some assimilation.

In the Lander Valley near Agamba More, a number of basic to intermediate intrusives exist. One consisted of ultramafic pyroxene rock, but most had substantial quantities of
plagioclase feldspar. The former contained 80% actinolite and oligoclase-andesine plagioclase with minor chlorite and was probably a metadolerite.

Dyke-like intrusives were not common. North of the Lander valley a number of medium-grained quartz dolerite dykes were intruded into gneiss. The largest of these had a strike length exceeding 8000 feet. They cut across the regional structure and were clearly a later event.

A pale-green tremolite rock occurred within the Benison area. This had a distinct radiating fibrous structure and a narrow elongate outcrop. An intrusive origin seems more likely than one involving the low-grade metamorphism of calcium magnesium shales.

A chlorite schist containing subordinate biotite and rutile occurred within gneiss south-east of Mintabrinna more. It was of uncertain origin, the absence of quartz and white mica made a sedimentary derivation appear unlikely.

Granulites

This high-grade metamorphic facies is limited in distribution. The isolated series of granulites outcropping east of Cockatoo Creek consists of quartz-feldspar (probably both plagioclase and orthoclase) and varying mafics including biotite and amphibole. Granulites were also recorded north and west of Blackfellner Creek in the Lander Valley. They
sometimes show gneissose flow-banding and varying mafic content sometimes gives light and dark tonal effect on air photographs.

The presence of little-altered basic and pegmatitic intrusives indicates that the granulites are the product of an early metamorphism.

*metasediments*

The area covered by the exploration licences contain a wide range of sediment types. These range in grade from pelites to psammites and sephites. Varying grades of metamorphism have been superimposed on these.

The finer-grained sediments include black shales with minor cherts, green and brown shales, siltstones and fine detrital sandstones. These are well developed in the Lander Valley where they occupy much of the valley floor. Metamorphic effect varies from low-grade green schist facies with some chlorite development, to phyllite and schist grade seen in the arcuate range of hills south of Nintabrinna Bore (Reynolds Range). Outcrops of silicified quartz intruding quartz-sericite rock were fairly common within low-lying granite-free areas. These were probably metsediments affected by regional shear movements and subsequently quartz mineralised.
In contrast to the generally detrital metasediments, a number of outcrops of fairly pure quartzites and quartz sandstones exist. These were well-exposed west and south-west of Nanci Hill (Tea Tree) and near Naval Action Bore (Denison) a laminated calc-silicate assemblage was noted. This comprised quartz, labradorite, epidote, garnet and accessory sphene and apatite. Coarse euhedral magnetite was sporadically abundant. The abundant lime contained within this rock suggests metamorphism of lime-rich sediments. The assemblage and texture indicates medium-grade metamorphism. Interbedded schists provided zones along which some kinetic metamorphism and shearing occurred.

Nanci Hill consists of a sequence of westerly-dipping poorly-sorted siltstones, sandstones and quartzites with conglomerate bands. These contain angular to sub-rounded and often faceted pebbles of varying size distribution. They rest with marked angular discordance on basement siltstones, shales and sandstones demonstrating considerable terruginisation and silicification, a result of surface leaching and weathering. The Nanci Hill sequence is of glacial origin.

A similar but steeply dipping sequence north of Leichhardt Bore contains detrital siltstones and faceted poorly-sorted conglomerate bands. This may have a similar origin to the Nanci Hill beds.
A Tertiary-Recent cover of lateritic sands and clays, calcrete and ferricrete, and brecciated "billy" obscures outcrop in much of the low-lying areas. More logs show that this sometimes obtains a depth of several hundred feet in some of the basins.

Large outcrops of white chalcedonic silcrete occur west of Tea Tree Station. This may be the result of secondary silicification of original calcrete material.
The area had been surveyed in 1958 by the B.M.R. using an airborne fluxgate magnetometer and scintillometer. This provided a number of magnetic and radiometric anomalies within E.L.’s held by Tanganyika Holdings. An accurate plot of these was not obtained and little success was experienced in locating these. Several plotted out on
on a more systematic basis. This will be supplemented with ultra-violet light examination of stream deposits for scheelite, calcite and fluorite.

The Arunta area lies on the 'Adelaide zone', a deep subcrustal suture extending from Adelaide to the Canning Basin. Along this occur the Terowie kimberlites, the Strangeways carbonatite and several alluvial diamond discoveries. The E.L.'s held by Tanganyika Holdings are regarded as prospective areas for kimberlitic intrusives and a search for these will be incorporated in the general reconnaissance programme.

The area is prospective for secondary uranium deposits. A number of highly anomalous zones and localities within the E.L.'s have already been delineated. It is considered that leaching of background and anomalous uranium could result in significant uranium concentrations. Values as high as 660 ppm (1.3 lbs/L.T.) of uranium were obtained from shears in the E.L.'s and uranium mineralisation over a considerable strike length was defined in the Blue Bush Bore valley.

The next phase of exploration will emphasise the assessment of the uranium potential of the area, both as a primary and secondary occurrence.

All available well-log data is currently being acquired. This should yield information pertaining to the thickness
and lithologies of the cover within the Tertiary-Recent basins in the area. This will be supplemented by systematic bore-water sampling of the area with assays for radon or uranium.

In addition a ground radiometric survey will be conducted to accurately delineate known zones of uranium mineralisation and to detect others that might exist in areas not previously examined. This will be supported by selective rock sampling to determine actual uranium content of mineralised zones, and also background uranium content of the various country rock lithologies.

An airborne radiometric survey of selected priority areas within the E.L.'s is currently under consideration.

On completion of this second phase of exploration, assessment of the primary and secondary basinal uranium potential of the area will be made.

Signed: H. Davies
areas of lateritic cover and all were associated with areas of granite intrusion. A maxima of 400 c.p.m. (uranium, thorium and potassium) was obtained from one anomaly, but minor quantities of uranium were detected.

**Ground Radiometric Data**

Initially radiometric measurements were obtained with a scintillometer giving total counts only. Readings in counts per second (c.p.s.) were obtained. Later improvement in data quality was obtained from a McPhar TV36 spectrometer. Readings were then recorded in counts per minute (c.p.m.).

Readings were taken continuously during ground traverses, both in the vehicle and on foot. Any radioactivity regarded as being significantly higher than background for the area was inspected in detail. Radiometric values for all air photographsanomalies visited were also obtained.

**General Radiometric Data**

Most of the granite and gneiss throughout the area was not highly radioactive and gave low counts for uranium. A background of 250 c.p.m. was average for granite and gneiss. Quartz reefs associated with major fractures were also unmineralised, with average channel readings of 150 c.p.m. and negligible uranium.

The metasediments and schists of the Lender Valley, and the
conglomerate of Nanci Hill and the Mt. Leichhardt area
gave readings in the order 150 - 250 c.p.m. on channel T1.
Uranium counts were again low. The quartzites examined in
the Denison, Reynolds Range, Tea Tree and Mt. Peak regions
gave fairly low T1 counts with negligible uranium.

Anomalous Radiometric Data

With few exceptions, high radiometric readings were confined
to shear zones, suggesting secondary enrichment along these
more permissive shears. A major shear paralleling the
Lander Valley lineament traverses the Hawkswest Bore/Blue
Bush Bore Valley. This gave a number of highly anomalous
counts. A maximum of 1400 c.p.m. on channel T1 was obtained
at one locality with a total of 940 c.p.m. of uranium.

Anomalous radiometric counts were obtained over a strike
length of 14 miles. Detailed traversing might increase the
extent of this belt of uranium mineralisation.

The higher counts were predominantly on the south-west side
of the Valley and associated mainly with a fairly pure
quartz-sericite schist. The contact of the granite mass
adjacent to the schist also gave anomalous readings. This
was sheared, probably by the same movement that affected
and/or produced the schist. Mineralisation was probably
related to the shearing rather than an individual lithology.
Traverses across the sheared granite to more massive granite
invariably gave a drop off in anomalous readings.
In the Denison area a T1 reading of 4000 c.p.m. was obtained with 610 c.p.m. of uranium. This was at one point only in a 4,000 foot-long shear in granite.

Anomalous readings of a lower order were detected over ferruginous lateritic capping the Blue Bush More area.

Calcrete Deposits

With the possibility of uranium enriched calcrete deposits, and with C.R.A.'s prospecting activities to the east, particular attention was paid to radiometric readings over calcrete outcrop. With the exception of one reading of 280 c.p.s. (north-west Tea Tree), calcrete outcrops appeared to be unmineralised. Ground water circulation is at some depth below the surface, and shallow calcrete formations might well exist in a zone of leaching rather than uranium precipitation. Lack of surface expression of uranium mineralisation is regarded as inconclusive evidence for the lack of uranium mineralisation at depth.

MINERALISATION

A number of mineral occurrences are known within the E.L.'s held by Tanganyika Holdings. These included copper, tungsten, tantalum, lead, tine and gold mineralisation.

A number of apparently undiscovered mineral occurrences were located during the initial reconnaissance. These, in
character with other documented metallic mineral occurrences, are of limited extent and have no potential. They include:

1. A small copper mineralised shear approximately 3½ miles north-west of the Reward Mine. Mineralisation was confined to a small shear and consisted of malachite and azurite in quartz-mineralised quartz-sandstone. It is of hydrothermal origin and is probably associated with the 'Copper Cave' mineralisation to the south.

2. An isoclinally folded structure several miles north-west of Coniston Station and near the Boundary Dam plunged steeply to the north and contained abundant iron oxide after pyrite. Arsenic values were low (<20 ppm) and gold values of 0.41 dwts were obtained. Base metal values were also low.

3. A small but very gossanous quartz reef outcropped in the Denison area and assayed only 200 ppm copper and 0.1 dwt/ton of gold with low arsenic and zinc values.

4. A number of uranium mineralised shears exist within the area. A rock sample collected from a locality giving 610 c.p.m. of uranium assayed 660 ppm uranium (approx. 1.3 lbs/LT). A sample from the Reward Mine assayed almost 1 lb/LT. Within the Blue Bush Bore-White Tree Bore shear, several readings of over 200-300 c.p.m. were obtained with a maxima of 900 c.p.m. of uranium.
Initial reconnaissance has demonstrated that the area is not prospective for base metals. There appears to be a lack of syngenetic, volcanogenic, replacement and metasomatic environments within the region and any base metals as yet undiscovered would probably be associated with shearing, brecciation and hydrothermal emplacement.

Similarly the area is not regarded as prospective for precious metals. These occur in negligible quantities and the environment is not favourable to their occurrence.

Base metal mineralisation associated with pegmatites appears to be minor. The chance of an undiscovered large tin, tungsten or tantalum deposit existing within the E.L.'s is similarly regarded as small, but not altogether ruled out. It is considered that there is some justification for a continuation of the heavy mineral stream sediment sampling...
Our Job No. 72/370E.


Invoice No. 5273.

Tanganyika Holdings Ltd.,
Stock Exchange House,
351 Collins Street,
MELBOURNE VIC. 3000.

ASSAY REPORT.

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METHODS - Au by fire assay
U by Bromo-Fadap spectro-photometric
Other elements by AAS after total attack.

For and on behalf of,
DANIEL C. GRIFFITH (VIC) PTY. LTD.

B.V. Jones,
Chief Chemist.
7th December, 1972

Our Ref: 136/73 Part 2.

Tanganyika Holdings Ltd.,
22 Emerald Terrace,
WEST PERTH W.A.  6005

PREPARATION OF 7 THIN SECTIONS AND PETROGRAPHIC DESCRIPTIONS.
PREPARATION OF 2 POLISHED SECTIONS AND MINERALOGIC DESCRIPTIONS.

R. TOWNEND

8 DEC 1972

THIN AND POLISHED SECTIONS, BEACH SAND INVESTIGATIONS, PETROLOGICAL RESEARCH, LITERATURE SURVEYS
This slaty green rock is a chlorite schist containing subordinate biotite and rutile as its main constituents. As is evident from the hand specimen schistocity is fairly marked with the main texture, fine oriented chlorite flakes. At the same time however, a coarser grain cross cutting chloritic material is not uncommon associated with the subordinate mica. Rutile tends to occur in a closely packed aggregates which are probably of secondary origin. Apatite and rare zircon are accessories. This greenschist cannot be categorized without field data as it may have a number of distinctive derivations. The lack of quartz and white mica suggests that the source material was not a sediment.

This appears to be a metamorphosed basic rock retaining its igneous texture but now composed largely of metamorphic actinolite (80%) enclosing finer grained ophitically distributed plagioclase of intermediate composition. Opaque material has an altered ilmenite appearance and the rock is nonmagnetic. The amphibole occurs primarily as coarse sub-xenoblastic crystals between 1 and 3mm enclosing .5 to 1mm length zoned plagioclase laths. There is a second generation of fine grained actinolite enclosed within the feldspar. A little chlorite is associated with the opaques. Probably is a hypabyssal dolerite.

This is a copper mineralized quartzite. The host rock is a inequigranular polygonally crystalline monomineralic quartzite with individual grains varying from .25 to 1mm diameter. Copper mineralization is largely in the form of
RRR6 RS7682 (Cont)

azurite with subordinate quantities of malachite and perhaps a trace of chrysocolla. This mineralization is distributed regularly throughout, concentrated mainly at the quartz grain boundaries although veining of them is also evident. The major copper veins are associated with muscovite and clay development and locally opaque concentrations may possibly represent oxidized sulphide. Traces of tourmaline are apparently associated with this mineralization. Some pseudomorphous relationships occur with the copper replacing rectangular shapes and the clay more acicular minerals. The development of muscovite and the probable kaolin indicates a potential hydrothermal environment.

RRR6 11/2012 Anon 4 RS7683

This is a probable metagabbro consisting principally now of an intermediate igneous plagioclase feldspar and a green actinolite hornblende. There are minor quantities of quartz, biotite, opaques and accessory apatite. Grain sizes for the principal constituents which are of about equal quantity, are in the mm range. The amphibole tends to be rather poikiloblastic due to inclusions of other minerals particularly quartz and feldspar. Grain shapes are xenoblastic and most constituents are fresh. The plagioclase is well twinned and probably shows slight soda enrichment from a labradorite although retaining its igneous character. Quartz is interstitial to the feldspar. The very weak magnetic character suggests that the opaques are largely titaniferous as suggested by their shapes.

DNR2 55.3/25 RS7686 PB3559

A number of rocks present under this sample number show some variations. The one sectioned was of a bottle green and white banded nature. In thin section it was found to consist of a calc silicate assemblage comprising quartz,
plagioclase feldspar (labradorite), epidote, garnet, sphene, and apatite. The rock has a banded nature due to alternations of the light and heavy minerals. Quartz and the plagioclase tend to be of a mm diameter with rather smooth almost granuloblastic outlines. Epidote is closely associated with the epidote in .1 mm grains surrounded by a coarse xenomorphic rather deeply coloured red garnet. Apatite and sphene are accessories. The essential feature of this metamorphosed assemblage is the presence of lime which may be due to a regional metamorphism of a lime bearing sediment or perhaps contact metamorphism of a lime rich rock by an acid intrusion. Rare opaque porphyroblasts are euhedral magnetite, showing minor martite formation.

This coarse grained rock has a deceptive hand specimen appearance being essentially of felsic composition apart from the iron oxides present. It is composed principally of coarse porphyroblasts of microcline feldspar up to a cm or more in length intergrown with fine grained often highly strained quartz, medium grained muscovite and specular hematite. Alteration to fine white mica is locally prevalent. No plagioclase was identified. The composition of the rock and its coarseness of texture suggests a pegmatitic environment. There is some evidence of recrystallization and perhaps dynamic metamorphism in the texture of the interstitial quartz. The microcline shows some cloudiness along certain twin planes. The specularite is characteristically intergrown with the muscovite. There are a few small rounded isotropic high refractive index grains tentatively identified as garnet.
A fine grained amphibolitic rock with poorly developed foliation. The principle constituents are a green hornblende and plagioclase feldspar of oligoclase composition. It also contains significant quantities of biotite and quartz, and locally potash feldspar as evidenced by staining. Opaques are abundant, only partly magnetite. Accessories are relatively uncommon and consist only of apatite. Grain sizes for the principle constituents tend to be less than a mm with the amphibole in particular often poikiloblastic containing quartz inclusions. The fairly indistinct foliation is due to alternation of discontinuous felsic and mafic layers. Mineral orientation parallel to these layers is not marked. The rock is generally fresh apart from some local alteration of the plagioclase. Grain shapes are tending to be subidioblastic for the mafics to xenoblastic for the felsics although plagioclase may also be columnar.

The relatively high alkali content of this greenschist suggests either a metamorphosed basic rock that has been metasomatized, or a basic rock that was differentiated towards an acid type. The possibility of a metasediment must also be considered, in view of the high quartz content.
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**AILERON, North**

**Flight Plan**

**National Mapping - Canberra**

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**FILM REGISTRATION PREFIX** CAG

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**AREA COVERED BY ONE PHOTOGRAPH**

- **Scale:**
  - 0
  - 5
  - 10
  - 15
  - 20

- **Legend:**
  - Short Overlap: [Illustration]
  - Gap: [Illustration]
  - Smoke or Cloud: [Illustration]
  - Control Strips: [Illustration]
Trend lines - Strike of bedding or lineations (where dip is uncertain)

- Fault
- Lineament
- Fracture trace, joint set

- Vertical
- Steep
- Medium
- Low

Estimated dip of bedding or lineation

- Colour, vegetation, texture anomalies
- Point of interest (described in Annex 2)
- Area of interest (described in letter)
- Fossil drainage: low, elongated ridges, probably composed of indurated river alluvium
- Travertine
- Very interesting point of interest
- Important

Index

1

Structural Features

Aileron Sheet
In Aileron the most interesting features are:

1 - The large number of colour anomalies in an area covered by the following photos: 8/77 to 79 (southern part); 7/70 to 64; 6/12 to 10 (northern part).

2 - Two fairly large colour anomalies associated with intense fracturing in 5/46.
AILERON AREA

Run 8

✓ 1 Photo 77 - 1: Area with several colour anomalies, prob. qtz veins
    79 - 1: Area with several colour anomalies, prob. qtz veins
    81 - 1: Colour anomalies
      2: Colour anomalies, prob. qtz veins

Run 7

✓ 1 Photo 70 - 1 to 10: Colour anomalies, prob. qtz veins
    11: Large colour anomaly
    68 - 1, 2: Colour anomalies, prob. qtz veins
      3, 4: Strong colour anomalies
      5: Colour anomaly, prob. qtz vein
    66 - 1: Colour anomaly, prob. qtz vein
      2: Strong colour anomalies
      3: Long, linear colour anomaly, prob. qtz vein
      4: Colour anomalies, prob. qtz veins
      5: Colour anomaly
      6 Colour anomaly, prob. qtz vein
      7: Circular pattern

✓ 1 64 - 1, 2: Strong colour anomalies
      3: Colour anomaly, prob. qtz vein
      4: Colour anomaly along fracture

✓ 1 62 - 1
Photo 62 - 1: Colour anomaly, prob. qtz vein

Run 6

Photo 14 - 1: Colour and texture anomaly  
2, 3: Colour anomalies, prob. qtz veins  
12 - 1: Colour anomaly  
2: Dyke?  
3: Colour anomaly  
4: Large colour anomaly  
10 - 1, 2, 3: Colour anomalies, prob. qtz veins  
08 - 1, 2, 3: Colour anomalies, prob. qtz veins  
06 - 1: Qtz? vein  
04 - 1: Colour anomaly

Run 5

Photo 46 - 1: Large, strong colour anomalies associated with intense fracturing  
2, 3: Colour anomalies  
4: Dyke  
42 - 1: Qtz? dykes  
2, 3: Colour anomalies, prob. qtz veins  
40 - 1: Colour and texture anomaly along fault  
2: Dykes  
36 - 1: Colour anomalies  
34 - 1: Dykes.

1 = Very interesting point
**Flight Plan**

**National Mapping - Canberra**

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**FILM REGISTRATION PREFIX** CAG

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* Run 6 - 15,600', Runs 7, 9 - 14,650'

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**AREA COVERED BY ONE PHOTOGRAPH**
Trend lines - Strike of bedding or lineations (where dip is uncertain)

Fault

Lineament

Fracture trace, joint set

Vertical
Steep
Medium
Low

Estimated dip of bedding or lineation

Colour, vegetation, texture anomalies

Point of interest (described in Annex 2)

Area of interest (described in letter)

Fossil drainage: low, elongated ridges, probably composed of indurated river alluvium

Travertine

very interesting point of interest

important.

Index
of
Structure Features.

Tea Tree
Sheet
I suggest you to have a close look to the large travertine outcrops in the area covered by Run 13 photo 23 and Run 12 photos 53 - 55, as well as to the other small travertine outcrops listed in the Annex.

The legend used for runs 5, 11 and 12 is the same as for the other Tea Tree photos.

On airphotos, the Tea Tree area seems to have fewer points of interest than the other areas interpreted so far. However some interesting features do exist:

1 - The most interesting area appears to be that outlined on run 2 photos 77 to 81 and run 3 photos 35 to 39, where there are several dykes and colour anomalies.

2 - An interesting complex of dykes appears in run 10, photos 44 to 46.

3 - In run 13 photo 25' point 1 and in run 14 photo 00 point 5, low and elongated ridges can be interpreted as the remnants of old river channels in which indurated alluvium appears in relief above the surface after the action of differential erosion. In other areas, this fossil drainage has concentrated minerals in economical quantities.

4 - The joint sets annotated on the airphotos could be a very interesting guideline to exploration if, after field work, one or more of these sets is found to be related to the presence of mineral deposits.
ANNEX - POINTS OF INTEREST

Tea Tree, Runs 5, 11, 12

Run 5

Photo 76 - 1: Colour anomalies parallel to strike, prob. qtz. veins
68 - 1: White alluvium, possibly from travertine
66 - 1: Quartz? dyke
62 - 1: Outcrop of unidentified whitish rock
2: Quartz? dyke
1: Travertine outcrops?

Run 11

Photo 02 - 1: Colour anomaly along fracture, prob. qtz. vein
2: Colour anomalies, maybe travertine outcrops or qtz. veins
3: Quartz? dyke
00 - 1: White patches, probably travertine outcrops
2: Quartz? dykes
1: White patches, maybe travertine outcrops or qtz. veins
4: Dyke.

Run 12

Photo 65 - 1, 2: White patch, probably travertine outcrop
3: Dyke
63 - 1, 2: Quartz? dykes
55 - 1: Colour anomaly
2: Large travertine outcrops
53 - 1: Large travertine outcrops
51 - 1: White patches, probably travertine outcrops.

1 = Important
II = Very important
Photo 83 - 1: Quartz? dykes
81 - 1: Quartz? dykes
79 - 1: Quartz? dykes
75 - 1: Vegetation anomaly: dense vegetation, probably water table close to surface

Run 6
Photo 28 - 1: Quartz? dykes
32 - 1: Quartz? dyke

Run 4
Photo 19 - 1: White lineament, probably quartz vein
2: Quartz? dyke
21 - 1: Colour anomaly along fault
23 - 1, 2, 4, 5: Colour anomalies associated with fractures
3: Quartz? dyke
27 - 1: Area with several colour anomalies

Run 3
Photo 39 - 1, 2, 3, 4: Quartz? dykes
5: Thin quartz vein
6, 7: colour anomalies associated with fractures
37 - 1: Colour anomalies
2: Colour anomalies associated with fractures
3: Quartz? dykes and associated colour anomalies
35 - 1: Colour anomaly associated with fracture
2: Dykes

Run 2
Photo 81 - 1, 2, 3: Dykes
79 - 1: Dykes
2: Large colour and texture anomaly
3: Colour and texture anomaly associated with fracture

1 = Very interesting point
ANNEX 2 - POINTS OF INTEREST
TEA TREE AREA

Run 14
Photo 02 - 1, 2, 3, 4, 5: Colour anomalies
00 - 1: Quartz? dyke
2, 3: Colour anomalies
4: Vegetation and colour anomaly
5: Fossil drainage
98 - 1: Colour anomaly

Run 13
Photo 27 - 1, 2: Colour anomalies
25 - 1: Fossil drainage
2: Colour anomalies
23 - 1: Quartz? dyke
21 - 1, 2: Quartz? dykes

Run 10
Photo 46 - 1: Complex of sub-parallel quartz? dykes
2, 3, 4, 5, 6, 7: Quartz? dykes
44 - 1, 2, 3: Quartz? dykes
42 - 1: Dyke
40 - 1, 2, 3: Quartz? dykes
4: Colour anomaly

Run 9
Photo 27 - 1, 2, 3, 4: Dykes
5: Linear colour anomaly (Quartz vein?)
25 - 1, 2: Colour anomalies
23 - 1: Colour anomaly

Run 8
Photo 99 - 1, 2, 3, 4: Colour anomalies
97 - 1: Colour anomaly
2: Large strong colour anomaly
95 - 1: Dyke and associated colour anomaly
2: Isolated rounded hill, dark reddish brown
93 - 1, 2: Isolated rounded hills, dark reddish brown

Run 7
Photo 85 - 1: Dyke and associated colour anomaly
2: Complex of sub-parallel dykes, some associated
   with colour anomalies
3: Colour anomalies
TEA-TREE - SAMPLE LOCATIONS

25

24

23

22

21

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19