# **Information Memorandum Ingellina Gap Tenement Group.**

Lease	Name	Licence Holder/ Applicant	Interest	Lease Status	Sub Blocks	Area km2	Grant Date	Expiry Date	\$Rent 2009	Commitment 2009
EL 26704	Ingellina Gap	Toro Energy Ltd	100%	granted	303	942.5	24/10/2008	23/10/2014	\$3333.00	\$128,000.00 1 <sup>st</sup> year
EL 26438	Lander River	Toro Energy Ltd	100%	granted	74	233.8	06/05/2008	05/05/2014	\$814.00	\$39,000.00 1 <sup>st</sup> year
EL 26265	Haverson Pass	Toro Energy Ltd	100%	granted	43	136.6	07/04/2008	31/03/2014	\$473.00	\$45,000.00 2 <sup>nd</sup> year

## **Location and Access**

The areas lie within the Reynold's, Anmatjira and Yundurbulu Ranges in central Northern Territory predominately on the Napperby SF5309 250k map sheet. The northern half of EL 26704 Ingellina Gap is on the Mt Peake SF5305 250k map sheet. Access to the region is via Alice Springs or Tennant Creek along the Stuart Highway, 150km north or 350km south respectively. Access to the tenement is approximately 50km northwest along a minor unsealed road further access is via a comprehensive network of minor tracks.

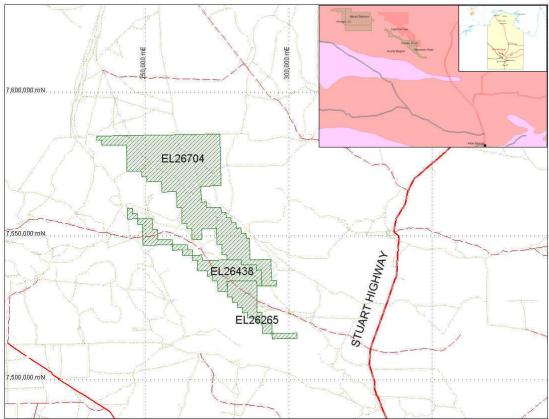


Figure 1. Location and access, Ingellina Gap tenement group, Reynolds Range project, central Northern Territory.

Map Datum: Map Grid of Australia 1994 UTM zone 53.

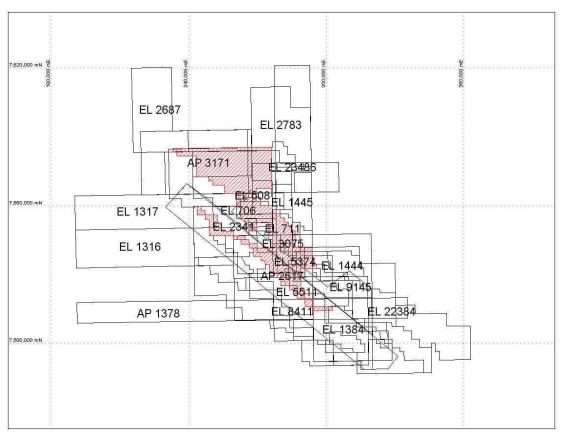


Figure 2. Location of Toro applications relative to historical tenements. Map Datum: Map Grid of Australia 1994 UTM zone 53.

**Historical Exploration Summary.** 

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TenNum	coverage	Company	Reports	Commodity	GRANTED	CEASED	Exploration	Comments	Relevance 1 to 5	Report Number
Terrivarii	coverage	Company	Reports	Commodity	CIVAINTED	OLAGED	Exploration	Work is to the	10 3	report rumber
							Manager (ID/dril	west of the		
							Mag.survey/IP/dril			
							ling/scintillometer	tenure. Anom		
							traverses	radioactivity &		
							targeting qtz-	40-50ppm U		CR1966-0036
		Trans Pacific					haem Tennant	detected in		CR1967-0046
		Petroleum/Central Pacific					Creek style	Vauhan.Springs		CR1967-0053
AP 1378	20%	minerals	4	Au/U	19650811	19680818	mineralisation.	conglom.	4	CR1968-0013
								Follow up		
							Reconnaissance	explains source		
							mapping and	of weak		
							drainage sampling	anomalies no		
							auger sampling	further work		
							areas of cover	recommended.		
							Bore water	U in solution		
							sampling for U.	indicates		
				Base metal			follow up of	prospectivity of		
				Ni			anomalies with	adjacent		
AP 2617	80%	CRA	1	Ü	19700422	19711101	field investigation.	basins.	5	CR1971-0134
				-				combined rpt 4	_	
								ELs licence		
								considered		
								prospective for		
							Ground Follow up	unconformity		
							of radiometric,	type uranium.		
							airphoto and air-	This license is		
AP 3171							mag anomalies,	granted as		
AI JITI	40%	Tanneco	1	U	19710530	19720830	with focus on U.	EL767.	4	CR1973-0005
	7070	14111500	<del>                                     </del>		137 10330	13120030	Comments on	II	+	OK 1070-0000
							results of drilling.	mineralisation		
							The drilling is not	coincident with		
							reported in this	carbonate or		
							document and it	calcrete at		
							appears missing	surface, and		
							documents may	reports to		
								carbonate and		
EL 707							be assigned to			
EL 767	400/	T	_	l	10720224	40740000	other tenement	goethitic clays	_	CD4074 0040
	40%	Tanneco	1	U	19730224	19740223	numbers.	in drill cuttings.	5	CR1974-0019

EL 903 EL 508, EL 705- EL 717, EL 720, EL 241	50%	Tanganyika	1	U	19730217	19740816	Uranium exploration drilling and assessment of Bore hydrochemistry	Ingellan Creek considered best target for U mineralisation	5	CR1973-0105 CR1974-0019 CR1974-0003 CR1974-0155 CR1973-0068
	80%	CSR	1	unknown	19760907	19800906	Not yet read		1	CR19790198
EL 1294	10%	Central Pacific Minerals	2	Pb,Zn,Cu Sn,W U	19761215	19781214	Carbonate and Skarn exploration models explored by soil, rock chip stream, pan con geochemistry and minor scintillometer	Disappointing base metal anomalism. radiometric anomalies are followed to small granites. W anomalism in pan concentrate is	4	CR1978-0009 CR1978-0099
EL 1384	adjacent	Otter	4	U	19770315	19800314	Ground follow up. of airborne radiometric anom. With application of scint.traverses rockchip and bore water geochem.	not followed up. gneiss Unit comprising 50% monazite give 1000ppm U.  Numerous bore water anomalies summarised on map.	5	CR1979-0021 CR1980-0056 CR1980-0252 CR1978-0198
EL 1445	10%	Otter	6	U	19770315	19820314	As above followed by track etch surveys and RAB drilling on this license and the following	Track etch highlighted modern drainages. Interpreted to be actively transporting U. No significant mineralisation encountered in drilling.	5	CR1979-0022 CR1980-0057 CR1983-0025 CR1980-0252 CR1981-0038
EL 2228	15%	Otter	2	U	19800102	19820101	RAB follow up of track etch survey  Auger program centred on dam U occurrence.	Secondary autunite mineralisation encountered in dam excavation demonstrated 300 x 100m zone with 50- 100ppm average U peak of 330ppm U.	5	CR1980-0222 CR1982-0383
EL 3127	adjacent E	Otter	1	U/calcrete hosted	19811123	19821122	reconnaissance drilling, targeting U similar to that encountered at Anzac Dam. Scintillometer traverses	Poor results from drilling and traverses	5	CR1983-0112
EL 3076	15%	Otter	1	U	19811123	19821122	100 cup track etch survey	Radon gas anomalies similar to those elsewhere associated with drainages. no follow up warranted	5	CR1983-0113
EL 1316 EL 1317	5%	Central Pacific Minerals/ANZEC	2	U	19780419	19800419	geophysics (?)	scheelite/Sn worth a look	3	CR1979-0103 CR1978-0108
EL 2686 EL 2687 EL 2783	30%	Alcoa	1	tert.basins U project	19801117	19811116	Resistivity and drilling 37 regional holes. Tertiary isopach.	Weakly U anomalous sediment encountered no follow up.	5	CR1982-0012

	5%	Arafura Resources	1		20011218	20030922	No on ground exploration	No exploration reported	0	
EL 22384										
EL 2341	60%	unknown	3	diamonds	19810127	19840126	drilling mag anoms, bulk stream sample for kimberlite indicators	mag anoms.due to maghemite	1	CR1982-0134 CR1983-0041 CR1983-0291
EL 2601	5%	Jay's Exploration Pty Ltd	1	Sn, Ta (alluvial eluvial)	19820327	19830326	Pegmatite sampling. Pan concentrates of SN. Visual estimation of alluvial/elluvial material at Mt Stafford.	Visual estimate of 10,000 LCM at 0.3kg/m³ at Mt Stafford and 2,000 LCM at 0,07kg/ m³ at Tinfield bore eluvial workings. Assay results of pegmatites indicate no significant U concentration in pegmatites.	2	CR1981-0285
EL 2001	376	Jay's Exploration Fty Ltu		eluviai)	19620321	19630320	Station.	pegmantes.		UN 1901-0203
EL 2942 EL 3075 EL 3084 EL 3088 EL 3556	70%	The Broken Hill Proprietary Co.	2	diamonds	19811208	19871207	Heavy mineral stream sediments collected regionally for diamond host rock indicator minerals. Simultaneous collection of geochemical sample	No significant results. Licenses relinquished.	2	CR1983-0015 CR1983-0289
EL 5288	5%	McMahon Constructions	1	Au	19871023	19900214	Field visit to known mineral occurrences. Rock chips. Percussion grid drilling over reward mine approximately 50m spacing assay of visibly interesting intervals.	Limited significant results. 1 hole intercepts approximately 3m @ 1.48g/t Au 85.0g/t Ag 1.77% Cu 2.17% Zn 0.94% Pb 1.69% As	2	CR1989-0007
EL 5374	20%	Sabminco	1	Au	19871211	19881031	stream seds sampled for base metals and bulk cyanide leach	No significant results reported on tenement however a 1150ppt Au stream sed. Occurs at the northeast corner and warrants follow up on adjacent ground. Along with a number of lower order anomalies.	3	CR1988-0418
EL 5511	70%	Colchis Mining/Aquarius Expln.	2	Au/Base metals	19871119	19900219	Rockchips, mostly orientation around known occurrences. Regional rock chips and 201 stream seds.	Results are reportedly disappointing.	3	CR1989-0020 CR1990-0366
EL 5558	1%	Range Resources/Balfin	1	Au/Base metals/REE	19871211	19881212	Literature review. No direct on ground exploration		2	CR1989-0356
EL 5980	50%	Stockdale	2	diamonds	19880701	19900315	Loam and stream samples for kimberlite indicators	2 samples returned interesting chromites follow-up unable to reproduce results.	1	CR1989-0481 CR1990-0311

EL 241	10%	Tanneco Minerals	3	U	19720521	19730520	Initial airphoto interpretation and anomaly identification.	Map sheet is not included in the report from mines department. The follow up is described below.	5	CR1972-0063 CR1973-0005 CR1973-0068
EL 7343 EL 7344 EL 7345	25%	Normandy/Exodus	14	Au/base metals	19910430	20010429	Geochem incl.  stream seds/LAG/ rock chips/soils/ costeaning/VAC/ RAB/ RC/ diamond  Geophysics. Aeromag/IP gradient array/ IP dipole –dipole/ gravity	Au ± Sb ± Pb mineralisation. 20km zone of anom in broad structural zone in Lander Beds Some highly significant Au mineralisation, widths and grades eg 30m at 2.5g/t Au associated with sericite altered rocks with stockwork pencil quartz sulphide veining within a chlorite altered envelope. There is limited strike extension of higher grade mienralisation. Down plunge is not tested.	3	CR1992-0238 CR1993-0411 CR1994-0494 CR1994-0350 CR1995-0403 CR1995-0542 CR1997-0350 CR1998-0483 CR1998-0864 CR1999-0225 CR1999-025 CR2000-0246 CR2001-0270
EL 9277 EL 9278	5%	Normandy/Exodus	3	Au base metals	19951003	19980821	gravity/ RAB/VAC/geomor phology/ minor soils and lags	gravity defined boundary of meta seds. and granite. Confirmed by RAB. Some weak anomalism in RAB on EL9278 no significant work completed as focus lay in EL 7343.	2	CR1997-0763 CR1997-0304 CR1997-0302 CR1997-0751 CR1998-0769 CR1998-0767 CR1998-0768 CR1999-0514
EL 8363	60%	North Flinders Mines	1	all	19940322	20010412	Detailed systematic multi- disciplinary exploration strategy	Numerous high grade Au anomalies defined requiring data assessment	4	CR1995-0317 CR1996-0189 CR1997-0172 CR1998-0303 CR1998-0456 CR1999-0109 CR1999-0278 CR2000-0184 CR2000-0259 CR2001-0229
EL 8411	20%	PNC	2	U?	19940315	19960220	geol.mapping/radi ometrics/rockchip s/petrology/magn etics	U in felsic rocks and secondary surficial U in metasomatised qtz/tourm rock.second and gneiss. Apatite veins system at Nolans bore has potential economic size and grade for REE, U, P deposit.	4	CR1995-0266 CR1996-0187
EL 9145	5%	Aberfoyle	1	Au	19960819	19990816	aeromag/radiomet rics acquired over tenure.	Data used for targeting anomalies for geochem follow up. No further work completed	4	CR1997-0689 CR1998-0687 CR1998-0725

EL 9672	80%	Homestake/exlpormin	2	Au	19961125	20021124	stream seds.BLEG	Detailed results are reportedly in CR 1998-0817 and CR 1997-0791 (open file) however not yet available. The results are likely disappointing	3	CR1999-0031 CR2002-0350	
EL 23486	Adjacent NE	Tanami Exploration NL.	4	Au	20021223	20051122	desktop study/feild visit/1 rockchip	from limited reporting. Tenement covers an interpreted regional structural contact however tertiary cover prevented on ground exploration	1	CR2004-0191 CR2004-0693 CR2005-0077 CR2005-0616	

#### **Salient Geological Features**

The Geology comprises sodic granites, gneisses and minor amphibolites, folded metasediments and intruded metabasic rocks. Major northwest shears cut the sequence and are associated with barren quartz intrusion and Au basemetal mineralisation associated with sulphide-quartz veining and sericite alteration. The two most prominent structures are located along the Lander Valley and along the Salt Creek – Blue Bush Bore Valley.

The granites batholiths are interpreted to be shallowly eroded and exposure is of their roof pendants and upper levels only, resulting in an abundance of pegmatite outcrop typically of quartz-feldspar-muscovite-tourmaline composition. Some very coarse examples and greisens occur in association with minor tantalum or tin mineralisation that has in places been mined and is a source of U, Th and REE's.

The metasediments, comprising meta shales, cherts, siltstone and fine sandstone range in grade from low greenschist to schist facies and are common in the Lander valley. Some exhibit quartz sericite alteration.

Tertiary to recent cover comprising lateritic sands and clays, calcrete and ferricrete is common in low lying areas and exhibits depths in the order of 70m in drilling. Some calcrete shows replacement by chalcedonic silica and this silcrete has been demonstrated to be uraniferous, with a chip sample grading 500ppm.

The present static watertable is significantly below the base of calcrete in drilling and thus is older than the present hydrogeological scheme. This is likely to have an influence on both the preservation and appropriate media of trap sites for secondary mineralisation, and the recognition of palaeo flow directions and source rocks.

In the Hann Range, the Vaugn Springs Quartzite, which unconformably overlies the Arunta paleoproterozoic rocks, preserves the basal conglomerates of that sequence. These have been shown to be anomalous in uranium 40-50ppm at surface, where leaching is to be expected.

Bores in the vicinity of Pine Hill are extremely uraniferous, these drain to the east into the Tea Tree area, which has been explored for U by CRA in the early 1970's. Of note is the occurrence of lignite in their drill results, however no significant U was encountered and it is likely that if mineralisation occurs it is towards the hinterland between areas of Tea Tree drilling and Pine Hill.

## **Executive Summary**

## **Ingellina Gap and Lander River**

A Large proportion of the ground covered by the Ingellina Gap and Lander River tenements cover outcropping Paleoproterozoic terrains that have been thoroughly explored in the near surface environment for hard rock hydrothermal and intrusive related styles of uranium mineralisation. It is unlikely that a significant body of this style of mineralisation has been missed at surface, and the areas covering outcropping ground can be safely relinquished at the appropriate anniversary.

The areas that may still hold hard rock mineralisation are in the filled valleys of the Lander River, which is a strongly structurally controlled feature. The depth of Cenozoic cover is unlikely to exceed 70m in this valley though at this depth systematic exploration would be expensive and high risk. If this is the target then airborne EM can be acquired and processed to locate both paleochannel and basement shear zones. Some wildcat holes can be drilled to intersect basement as a secondary target when drilling other styles of mineralisation.

The recent sediments covered by the Lander River and Ingellina Gap tenements are within the head waters of the Lander river valley and are likely to be relatively shallow. The prospectivity is for valley fill grit or sandstone hosted mineralisation. The area demonstrates suitable source rock material however elsewhere in the basin the surface sediments have proved highly oxidised. These valley head areas may be younger and less oxidised. There has been no previous uranium exploration in this area. Ground reconnaissance followed by a 2 x 1 km spaced broad aircore (aircore is recommended due to expected drilling conditions) drilling program would test the ground with approximately 50 holes to less than 25m depth, however this is of lower priority than the testing of the Haverson Pass tenement. The ground can possibly be assessed by locating the abundant Poseidon drilling and assaying spoil to determine if the previously recommended program is warranted.

#### **Haverson Pass**

The northern Haverson Pass ground covers significant areas of tertiary to recent alluvial terrain and likely conceals numerous paleochannels and prospective terrain for secondary uranium mineralisation. This is a prospective tenement that should be given priority over Ingellina Gap and Lander River which can be rationalised. The ground should be flown with EM and some initial scout aircore drilling traverses should be undertaken to assess which models of mineralisation are most applicable, before undertaking systematic exploration of selected areas. The combination of both grid drilling and track etch on a selected area may prove a useful orientation to determine if track etch can be a cost effective targeting tool.

The tenement appears prospective for Au and demonstrates sulphidic shear and vein hosted Au mineralisation (North Flinders Mines).

#### PREVIOUS WORK

Previous work has been carried out as summarised in Table 2. Historical tenements are displayed in figure 3.

## AP 1378 Transpacific Petroleum 1965-1968

CR1966-0036 Preliminary Report on Geological Work in the Stuart's Bluff Region details early reconnaissance and exploration planning for Tennant Creek style quartz haematite Cu Au systems. Pilot soil geochemistry and petrological samples were collected in the vicinity of an early government aeromagnetic survey and known haematite "lode" occurrences. No assay results are reported, nor is the data adequately located, but the bodies are described as significantly pyrite mineralised from petrology and analogous with Cu Au mineralised occurrence at Tennant Creek.

CR1967-0046 Activities Report June, 1968. Reports the progress of drilling on the quartz-haematite bodies and further pilot work including acquisition of IP and EM in the area of the earlier Grid. The work can be demonstrated to lie significantly west of Toro current tenure.

CR1967-0053 Magnetic Survey details the results of a ground magnetic survey, in the Stuart's Bluff area and various observations in both the Stuart's Bluff and Reaphook areas which lie significantly west of the Toro Tenure. Some Geiger counter reconnaissance was conducted in the area, including the Hann Ranges which intersect EL26265 Harverson Pass. No significant radioactivity readings were obtained from pegmatites on the south of the Hann Range and no sign of radioactive minerals was found. Much of the scanned report is unreadable and Black.

CR1968-0013 Central Pacific Minerals report on prospecting and drilling to 31.12.68. details all work undertaken on the area. In the western Hann Range, the basal conglomerate member the Vaugn Springs Quartzite was observed in scattered outcrop. The 1-2 foot thick conglomerates were shown to be 50% above background in what is a high background area owing to the abundance of hot granites. Subsequent assaying showed the conglomerates contain 40-50ppm U in surface rock chips.

#### AP 2617 CRA 1970-1971

CR1971-0134 Report on investigations shows that initial systematic stream sampling generated a small number of weak base metal anomalies. These were followed up by field reconnaissance and increasing the stream sample density in these target areas. The results led to the conclusion that no further exploration for base metals was warranted. A number of regional auger holes are used to test through areas of consolidated sand cover. Difficulty in penetration led to numerous holes no sampling basement. Drainage sites, drill sites, bores assay results and geological observations are included in map and table forms. Two haematite breccias occurrences are observed and sampled without significant results.

Anomalous U in solution was determined in a number of water bores in the region. This is attributed to a source in the granite intrusives and leads to a conclusion

that there may be prospectivity for U in adjacent sedimentary basins. The Bore water sampling map has been registered. Best results of 568ppb U occurs at Gidyea Bore near Napperby and Pine Hill H.S. 353ppb U. There are numerous other significant results.

#### EL 241 Tanneco 1973-1974

*CR1972-0063* is the first report on exploration by Tanneco and details the results of airphoto interpretation, however a map of the interpretation was not available.

#### AP 3171 Tanneco 1971-1972

CR1973-0005 An Untitled draft dated 11<sup>th</sup> January 1972, indicates that significant attention was paid towards uranium exploration despite that not being the stated target commodity. Ground scintillometer passes were made whenever calcrete was encountered during reconnaissance of air-photo, airborne radiometric and magnetic anomalism. Calcrete is reportedly of low radioactivity at surface except at one location where 280 c.p.s was detected. This is not significantly higher than the background 250 c.p.s determined for the granites and gneisses. The explorers hypothesised that the unusual depth to the watertable has likely resulted in a U depleted zone at surface and not representative of the calcrete U prospectivity at depth.

Outcropping high grade to granulite facies metamorphic rocks described as various gneisses, granites and metasediments were recconnaisance mapped and sampled. Numerous shears within the granites and gneisses were observed to have very high radioactivity up to 4000c.p.s and a rock sample returning 610 U c.p.m assayed 660ppm U. These basement shears are located in the outcropping terrains of the Lander and Blue Bush valleys. Basement is observed to have an overlying angular unconformable sequence comprising conglomerates and quartz sandstones interpreted to be of glacial origin. These units are only observed in scattered outcrops at Nanci Hill and Mt Leichardt areas and have mostly been eroded. The units which exhibit ferruginisation and silicification had 150-250 c.p.s T and did not return significant U counts.

## EL 767 Tanneco 1973-1974

CR1974-0019 Sixth Progress Report (by Amdel) on MP 4976/73 indicates that considerable further work was undertaken in the pursuit of U mineralisation on AP 3171 by Tanneco, which became EL 767 however this history has not been successfully captured by departmental records against this tenement. It is apparent that numerous drill holes were completed and sampled in the search for secondary U mineralisation associated with the present drainage systems. Some of the collars mentioned have been captured in the NT drill database, and the drilling is a regional reconnaissance strategy using broad kilometre spaced drill lines transecting present drainages. It was observed that elevated U background is ubiquitous in the area, but rare mineralisation is restricted to areas with carbonate or calcrete visible at surface.

The mineralisation observed in drill cuttings is associated with either of goethitic clays and or calcrete. Assay results are available in CR1974-0003.

A regional assessment and development of a geochemical exploration by Amdel based on geology, topography, radiometric results and hydrogeology from government bore data lead to speculation that the Ingallan Creek drainage is their best target. The details of that program are discussed with the following group of tenements.

## EL 903, EL 508, EL 705, EL 706, EL 707, EL 708, EL 709, EL 710, EL 711, EL 712, EL 713, EL 714, EL 715, EL 716, EL 717, EL 720.

#### Tanneco 1973-1974

CR1973-0105 provides a detailed assessment by Amdel of the exploration regime and analysis of the results.

Initial assessment of outcropping areas is by ground mapping and multichannel scintillometry. All major quartz veins and shear zones as identified by photogeological interpretation were ground truthed, thus it can be interpreted that nearly all outcropping primary mineralisation occurrences have been identified by the earlier study. Calcrete in these areas appears barren to radiometric methods (at surface), however some granites are shown to be highly anomalous particularly from northwest of Blue Bush Bore to Blackhill Creek. A further granite area of anomalism occurs southwest of Mt Treachery.

Follow up geochemical exploration for primary U mineralisation is directed towards shear/vein zones showing radiometric anomaly and particularly at granite margins and in adjacent meta-sediments. Primary granite, pegmatite and vein styles of mineralisation are not considered to be able to meet the company's economic objectives, however further geochemical and mineralogical work is directed at the anomalous granites as potential sources for secondary mineralisation.

CR1973-00068 Report on Reconnaissance Exploration Program details the initial work done on the Tanneco tenements described above and includes high quality figures, photogeological interpretation and overlayed ground truthing results. These figures have been registered.

Of note is the sampling at the Reward copper mine, which occurs in the Lander valley  $(275,000 \text{mN}\ 7,545,000 \text{mE}\ \text{MGA94\_53})$  in a polymetallic mineralised shear in shale and phyllites which are pyritic and carbonaceous. An ore sample assayed 430ppm U, 8.18% Cu, 2.2% Pb.

CR1974-0003 Report on 1973 drilling and bore water analyses reports results of drilling to the shallower of water table or basement and analyses of both water and drill spoil from both drill holes and regional bores. Results are summarised in map form, however the scanned resolution is inadequate. A request for rescanning at higher resolution should be made to the department. The drilling which did not penetrate to potentially reduced depths of the watertable encountered no significant U mineralisation. Results of water chemistry indicate U is being transported in the current ground waters, with some dispersed precipitation likely. There is possibly an

accumulation of U in an area downstream of the Ingallan creek headwaters based on the consistent downstream loss of U and radon in solution and its sudden elevation at the downstream Limestone Bore, suggesting an alternative source. The current drainage suggests water at Limestone Bore is also receiving ground waters from a small area to its east on EL 25735 held by WHITVISTA PTY LTD. This area also has a map name suggestive of swamp (Mount Rennie Swamp Dam) and contains a Pb occurrence. All the results in this report warrant further spatial examination.

#### EL 1384 Central Pacific Minerals 1976-1978

CR1978-0009 Annual report December, 1977. reports the results and analysis of an exploration program for carbonate hosted and skarn base-metal and tin tungsten mineralisation by soil, rock chip, stream, and pan con geochemistry. During reconnaissance Fe-stone bodies were identified and became a secondary focus of base-metal exploration. Multi element analysis gave uniformly low results.

An area to the west of Mt Dunkin generated a W anomaly in pan concentrate having a peak of 30-40 times background.

Follow up of anomalies in BMR airborne radiometric surveys indicated anomalies were due to small granites intruding the Lander beds that gave up to 800c.p.s.

CR1978-0099 Final report May, 1978. indicates no further follow up work was conducted. This report provides the maps and data collected during the earlier campaigns. No follow up of the W anomaly is conducted.

## EL 1444 Otter 1977-1980

*CR1978-0198 Progress report, September 15 – December 15, 1978* is a preliminary report the results of which are restated in the following annual report.

CR1979-0021Annual Report Feb, 1979. details follow up of airborne radiometric anomalies generated by a new 1977 survey. 41 new anomalies were recognised occurring on both granite, gneiss terrains (26 anoms.) and on Quaternary alluvial sands (15 anoms.). 11 of the anomalies received ground follow up, with no anomalous uranium or thorium concentrations delineated on the ground. Of note are two anomalies found during reconnaissance. A monazite occurrence, where monazite was the dominant mineral in a gneiss assayed 1000ppm U and 6.7% Th. This occurs immediately upstream of the Pine Hill Stock Bore. The second occurrence was due to thorium alone.

Bore waters in the area were sampled and yielded a number of highly anomalous results, with Pine Hill Stock Bore giving 720ppb. The results are presented along with other historical results in a map that has been registered. A general observation is that bore waters in the vicinity and due east of Pine Hill are highly anomalous in U, which has implication for the sedimentary basin in which they lie.

CR1980-0252 1979 Report is a group report outlining work completed on the Huckitta, Napperby, Rodinga and Hale River exploration licenses. Work consisted of follow up of airborne radiometric anomalies with ground scintillometer traversing and sampling of unconformities. The use of track etch surveys is also applied. A number of anomalies are defined and the report is of value for project generation.

Within EL 1444 the monazite occurrence was excavated and shown to be a pod only 1m in length conformable with the foliation in the gneiss. Gridding at 100 x 100 failed to identify any further mineralisation. Seven additional airborne anomalies were investigated, and these, where located coincided with gneiss lithologies likely to be enriched in monazite. It was concluded that no further follow up work should be conducted on the license.

CR1980-0056 Final report on exploration EL 1444 retiterates the above summarised work and contains a number of maps showing the locations of anomalies visited and geochemical results obtained. A petrographic report on the monazite rocks indicate they are metasomatic in origin and gneiss may be an inappropriate use of nomenclature. The mineral is confirmed as monazite and davidite is excluded by XRF.

#### EL 1445 Otter 1977-1982

CR1979-0022 White Tree Bore details the same exploration process as described above with EL 1444. Airborne Surveys yield 39 anomalies 19 ground truthed, all occur in granite, with sampling indicating very high background (mean U 24ppm, mean Th 53ppm). Only one anomaly showed significant U mineralisation from a biotite schist within a granite hosted shear zone. The sample assayed 190ppm U, 440ppm Th, 1000ppm Ta, 500ppm Nb and petrology indicated the presence of heavy minerals such as xenotime. The heavy minerals were interpreted to be of detrital origin.

Sn, W was prospected for by stream sediment and rock chip sampling. Results within the license area were disappointing except a metasediment sample with 1500ppm tin.

CR1980-0057 1979 annual report discusses the results of bore water sampling that is captured in registered maps. It concludes that very high U values from bores such as Nitabrinna (802ppb U) fall rapidly in adjacent bores such as Limestone (60ppb) suggest the precipitation of U. This is tested by two thoron filtered track etch surveys. The results of the track etch gave 3 anomalies, however these are interpreted to be of low order and repeatability. The image has been registered, and the resultant anomalies give excellent coincidence with the extant drainages. Follow up soil and stream sampling indicates that U and Th are probably not concentrated in recent stream sediments.

Stream sediment results indicate highly anomalous tin results up to 2340ppm tin in a cluster draining the western slope of the north Ennugan Mountains.

CR1981-0038 annual report Jan 198, details results of rotary drilling the track etch anomalies with 12 holes gamma logging, and assaying U both in cutting and groundwater. No significant U mineralisation was encountered. Some shallow calcrete was encountered and this gave the best results of the program of 50ppm U. It was observed that the highest U in ground water occurs where calcrete is encountered up hole and it was hypothesised that calcrete is being actively leached. It is concluded that good potential exists for calcrete style mineralisation following the discovery of mineralisation in a dam on an adjoining license. Calcreted regolith, where developed, reportedly occurs at depth between 2-14m.

Follow up stream sampling was completed for tin with best result of 4330ppm tin. Results are reported to define a 2km x 500m zone northwest striking zone. The bedrock values were considered too low (100ppm order) to warrant significant further investigation, and the drainages are considered of too low volume to warrant development of an alluvial tin operation. No further work is reported.

#### EL 2228 Otter 1980 - 1982

CR1980-0222 Annual Report Nov 1980 details the work conducted in the area adjoining EL 1445. Three Rab holes were drilled on this tenement following the track etch surveys previously reported to approximately 40m. Interval assaying is directed by gamma logs and routine water sampling occurs. No significant results reported, with a best result of 40ppmU. The conclusion is that the track etch survey captured the effects of the uranium being actively transported in ground water. Peak water result was 1700ppb U.

Secondary U mineralisation was discovered in the excavations made for Anzacs Dam, described as autunite coatings on greisenised and kaolinised granite. A sample graded 860ppm U. This was followed up by auger drilling to 2m depth on a 50 x 25m grid. Best result of 330ppm U from a pear shaped zone 300 x 100m with nominal average grades in the range 50 -100ppm U. The depth of the mineralisation is untested, however they infer that it does not exceed 4m, the depth of the watertable. This may not be the case as the autunite could also be locally derived from the weathering of a primary monazite or autunite bearing greisen.

A program of 100m x 500m reconnaissance auger centred on the dam was implemented and failed to identify any further mineralisation. The extent of the program is not detailed.

No further work is reported and the license is relinquished.

#### EL 3127 Otter 1981 - 1982

CR1983-0112 Final report indicates 11 holes of unknown type were drilled to a nominal 16m depth on this license targeting a regional reconnaissance for the "Anzac Dam" style mineralisation encountered on EL 2228. A map locating the drilling is not provided. No anomalism is reported and drill cuttings were not analysed due to low gamma counts. The mineralisation at the dam is in this report described as a carnotite occurrence in shallow calcretes developed above and within weathered greisen/granite. A sample of water from one hole gave 375ppb U and 0.1ppm V.

A follow up regional ground scintillometer study is performed and a contoured map is included this has been registered. During the study a number of discrete anomalies were encountered, with one corresponding with a silicifed calcrete that was drill tested with disappointing results. A detailed scintillometer grid was made in the area as this was an area also highlighted by previous airborne radiometric surveys. Results were relatively low, 130 -180c.p.s. with best results correlating with creek banks and anomalism interpreted to result from granite derived sand.

No further work was completed and the tenement was surrendered.

## EL 3076 Otter 1981 - 1982

CR1983-0113 Final report details a 100 cup 500m x 1km track etch survey and ground scintillometer reconnaissance in the Ingellan Creek, Big Bore area. Track

etch best result of 435T/sq.mm is similar to results obtained near Anzac Dam. It is concluded that no follow up work is warranted as the results are consistent with the elevated U in ground water and extant drainages as tested previously on adjacent leases. No further work is conducted and the ground is relinquished.

## **EL 1316, 1317 Central Pacific Minerals 1978-1980**

CR1978-0108 Annual report EL 1316, details Sn, W greenfields geochemical prospecting utilising soils and streams. The details of carborne scintillometer traverse are reported with no significant results.

CR1979-0103 Report on exploration May 1979 details the following up of BMR generated airborne radiometric anomalies with inspection and scintillometer. Two prospects, one comprising apatite bearing schists at sharp contact with granite, where the U mineral was demonstrated to be apatite. The second prospect occurring on a tributary of Crown Creek, contained a fracture in syenite where visible autunite occurred. The initial grab sample assayed 0.29% U subsequent samples range up to 100ppm. Two trenches were dug to bedrock, which was encountered at 1.5m and it was noted that localised elevations in radiometric response occur in the surficial nodular calcrete which in places penetrates upper bedrock. It was concluded that there was minimal potential for economic U mineralisation at the prospects.

## EL 2687, 2653, 2783 Alcoa 1980-1982

CR1982-0012 Final Report on Uranium Exploration Barkly Basin 1981. Aerial photo and collection and inversion of resistivity surveys optimised the planning of 37 rotary mud holes designed to regionally assess the undercover tertiary basin topography for uranium prospective areas. Holes were drilled to basement (where possible) and were gamma logged. Selective intervals, based on gamma and sedimentological features were assayed for U and a suite of associated elements. Highest U assays reported of 14ppm and 12ppm came from a basement and sandy clay interval respectively. The resultant isopach and resistivity maps have been registered. Drilling experienced difficulty with consolidated tertiary sediments. Evidence of reducing sediments only occurred in 3 holes. The location of these holes has been captured in a tab file. One of these occurrences described as pyritic sand grading through arkose into weathered granite is at the base of what can be interpreted as the outflow region of a paleochannel tributary from the isopach map. A nearby hole (800m away) records unconsolidated oxidised sands at similar depth and ?stratigraphical position below a well developed silcrete where a peak result of 16ppm U occurs in the drill logs. This is the highest U result in their exploration and is not mentioned in the text body. A number of other holes have been drilled in the vicinity, however they failed to penetrate the silcrete. See figure 3.

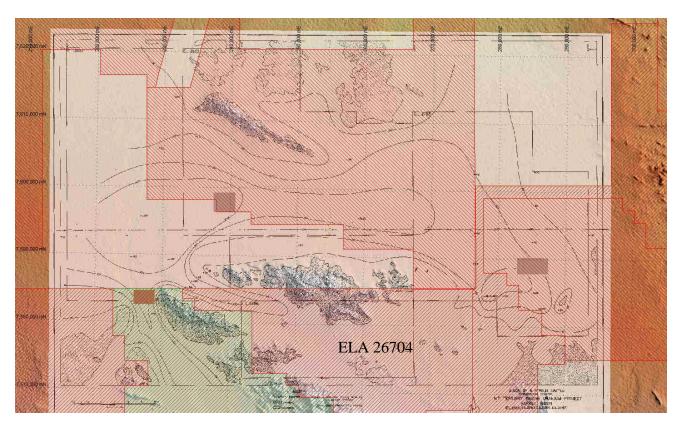


Figure 3. Location of Toro tenements (red) relative to Tertiary Isopachs and locations with reduced sediments in drilling. Under layer is recent NT Government DTM image.

Map Datum: Map Grid of Australia 1994 UTM zone 53.

## EL 5374 Sabminco 1987 - 1988

*CR1988-0418 Final report* details results of a 44 sample bulk cyanide leach stream sediment program. One result is reported as significant being 1150ppt, however there are two other low order anomalies (600ppt Au) that also warrant follow up. The map showing assay results has been registered.

One anomaly (two drainages 300ppt and 600ppt) occurs directly along strike 5.5km SE from the Reward Mine and received no further work during the Poseidon exploration period. These anomalies are of significant tenor and remain untested.

## EL 7343, EL 7344, EL 7345

## Normandy/Exodus 1991 - 2001

CR1992-0238 Annual Report on Exploration to 29/5/92 includes a soils orientation program over the Reward Copper mine, regional stream sampling and rock chips from key base-metal occurrences. No significant U anomalism is detected.

The optimum soil size fraction is determined to be the -6mm to +1mm. A 10ppb threshold, 35ppb peak Au anomaly with peak 100ppm Pb and 120ppm Zn over a 1.5km x 500m is discovered within the survey on EL 7343.

EL 7343 is retained EL's 7344, 7345 are relinquished without further work.

CR1992-0238 Annual Report on Exploration 30/5/92 to 29/5/93. A regional stream sampling program for base-metal, pathfinder elements and Au BLEG defined 2 base metal anomalous areas at the northeast base of the Reynolds Range accompanied by Au BLEG anomalism. Two additional BLEG anomalies occur and the areas are targeted for infill work.

Regional Lag sampling was conducted over outcropping and sub-cropping Lander Beds for a base metal and pathfinder suite including U. Two broad base metal anomalies occur along with 10 spotty elevated Au values with a maximum of 36ppb are targeted for follow up.

Follow up RAB drilling was used to infill the lag base metal anomalies and test areas for depth of cover. Only basement is assayed for an Au and base metal pathfinder suite. The results confirm the base metal anomalies, however the program was not completed due to heavy rainfall.

CR1994-0350 Report on exploration activities 30/5/93 to 29/5/94 details a geomorphological mapping program intended to better understand the regolith sampling media encountered in the lag program. The RAB programs were completed and it was determined that base metal values were not significantly elevated in bedrock relative to lag and do not warrant further work, however Au results were encouraging. The Au RAB anomaly on line 40 was contiguous with elevated Sb in lags and these were followed up with further angled RAB and 3 costeans. Significant results are tabulated and not mapped and range up to 440ppb with numerous results above 100ppb.

The costeans revealed chloritic altered various meta-sediments with development of slatey cleavage, and on one line an altered structure with Fe-oxides possibly after sulphide. Best result 3.5m @ 4.43g/t Au.

CR1995-0403 Report on exploration activities 30/5/94 to 29/5/95 details a further 17 costeans. A number of significant intervals are reported, which are here interpreted to represent a broad envelope of low grade Au mineralisation nominally 20m wide grading 0.5 – 1.5g/t Au within which a narrow 2-5m high grade zone at 1.5-3g/t Au occurs, with a 150m strike length. A single 1m interval graded 18g/t au, however this does not appear representative. The mineralisation is accompanied by white clay alteration and ferruginous quartz stringers.

Twenty-two RC and 2 diamond holes were drilled on fences to follow up the costeans and appear to have tested the mineralisation at over 100m depth. The best result is 26m at 2.16g/tAu in diamond, plans are inadequate to determine the relative

positions of drill holes. Excluding the previous intercept, the results are similar to that obtained in the costeans and the anomaly appears adequately tested.

It is concluded that the area is highly prospective and work is planned to test for under cover extensions utilising RAB. A further 397 vertical RAB holes are drilled along strike in covered areas to basement at a 50 to 100m spacing along 1km line spacing. No geochemistry is reported.

CR1996-0475 Report on exploration activities 30/5/95 to 29/5/96 detail a number of RAB and vacuum drilling programs, however the reporting is difficult to understand and results could only be interpreted if the data was digitised and independently assessed. It is apparent that an extensive and systematic exploration program is in progress. An accompanying map shows the location of drilling to date and the previously reported high grade results all occur in the "Sabre" prospect. See figure 4.

A further number of RC and diamond holes are drilled into the Sabre prospect with similar results to earlier costeaning, returning numerous intervals of 6m width at 1.5g/t Au.

Applications are made for southern adjoining licenses EL 9277 and EL 9278.

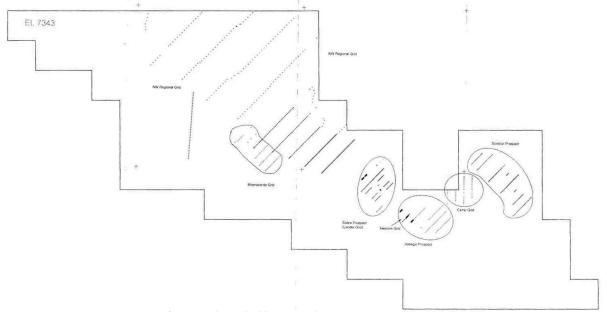


Figure 4. Location of Poseidon drilling and prospect names relative to tenement EL 7343 outline.

CR1997-0350 Annual Report of Exploration Activities 30/4/96 to 29/4/97 lists further lag, rockchip, drilling including aircore, vacuum, RAB, RC and diamond and geophysics including dipole – dipole and gradient array IP, helimag and prospect scale gravity.

The IP results indicate that a chargeable structure can be demonstrated to occur coincident with the trend of mineralisation and this is supported by a gravity ridge suggesting a thrust/reverse structure at this location. Dipole - Dipole spreads are reportedly able to target the better mineralisation.

Eight prospects are defined by geochemical anomalism and three are prioritised for follow up RC and diamond drilling by the multi-disciplinary approach. Results from two of these indicate extensive strike with significant mineralisation of up to 1.5ppm Au. See table 2.

The overall results indicate that Poseidon is systematically exploring a significant mineralised shear system within the Lander Beds of the Lander Valley, however no U assaying has occurred

Faichion Prospect	Yataghan Prospect
6m @ 1.14g/t Au from 21m	6m @ 0.33 g/t Au from 57m
9.8m @ 1.62 g/t Au from 52.Sm	21m @ 0.30 g/t Au from 6m
6m @ 0.36 g/t Au from 39m	6m @ 0.55 g/t Au from 51m
3m @ 0.49 g/t Au from 24m	9m @ 0.52 g/t Au from 1 2m
1 2m @ 0.22 g/t Au from 48m	18m @ 0.51 g/t Au from 36m
3m @ 0.38 g/t Au from 3m	_
<u> </u>	

Table 2. Normandy/Poseidon significant results from new prospects.

CR1998-0483 Annual Report Reynold's Range for the period 30 May 1997 to 29 May 1998. The tenement is entered into a farm-out arrangement with Exodus Minerals. They embark on a complete review of the exploration to date and complete a major orientation soil sampling survey in the existing prospects. The soil sampling indicated that better anomaly definition than shallow drilling can be more efficiently achieved with soils in certain regolith. A further 166 RAB hole is drilled on the prospects. Standout results occur at the original prospect Sabre and at Faichion. Sabre is said to remain open through various reinterpretations of the steep plunge. Significant results are tabulated in table 3, and the relative location of prospects is shown in figure 5.

## Faichion Prospect

RRB2119 5 metres from 43 metres @ 1.9g/t Au, 0.4% Sb, 3.3g/t Ag RRB2120 12 metres from 4 metres @ 3.9g/t Au, 4.2% Sb, 1.8g/t Ag including 3 metres from 4 metres @ 10.98g/t Au, 4.2% Sb, 2.4g/t Ag including 2 metres from 28 metres @ 4.8g/t Au

## Sabre Prospect

RRB2043 30 metres from 21 metres @ 2.5g/t Au including 6 metres from 29 metres @ 4. 2g/t Au including 2 metres from 44 metres @ 15.lg/t Au RRB2047 16 metres from 45 metres @ 2.2g/t Au(EOH) including 3 metres from 53 metres @ 5.6g/t Au, 2.3% Sb, 0.9g/t Ag RRB2048 15 metres from 1 metre @ 2.lg/t Au RRB2060 9 metres from surface @ 1.7g/t Au RRB2071 10 metres from 35 metres @ 1.0g/t Au RRB2055 10 metres from 16 metres @ 1.0g/t Au

Table 3. Exodus/Poseidon significant results from infill and extension RAB drilling.

CR1999-0359 Annual Report Reynold's Range for the period 30 May 1998 to 29 May 1999 indicates that programs continued as per earlier seasons. No new prospects defined and extensions to mineralisation were demonstrated albeit at insignificant grades. Results are reportedly disappointing. No further work is reported to 2001, when the ground is relinquished.

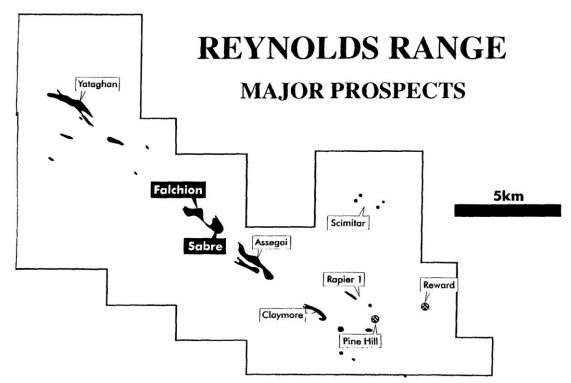


Figure 5. Location of Poseidon prospects with outline of mineralised occurrences in drilling relative to tenement EL 7343 outline.

## EL 9277, EL 9278 Normandy/Exodus 1995 - 1998

These tenements were explored for repetitions of the Lander Beds and mineralised structure in undercover areas west of the outcropping terrains at the base of the Reynold's range in EL 7343. Gravity and minor RAB drilling to confirm the interpretation led to reduced priority on EL 9277 and it was relinquished without significant work completed. EL 9278 had some minor indications of weak Au anomalism in the early RAB. Follow up soils and lag failed to detect anomalism in this undercover area and the tenement suffered the same fate of relinquishment to focus on EL 7343.

#### **EL 8363 North Flinders Mines 1994 - 2001**

CR1995-0317Annual report details early data mining and preliminary field work of a multi-disciplined systematic exploration program primarily focussed on Au. Numerous Fe rich quartz veins described as epithermal in texture fail to return Au anomalism, but do show multi-element base element anomalism. Preliminary blegs return some anomalous results, however these are not supported by the multi-element sample. Bore water from Bore 13530 returned a highly anomalous Au results of 52ng/L.

Bore water is analysed for a number of elements including V and excluding U.

CR1996-0189 Annual report details the extensive stream sediment, bleg, rockchip, lag, RAB and vacuum drilling of the Lander valley area of the tenement. The area has over 15km of strike with elevated Au occurring between the Lander

River and the Yundurbulu Range. Two higher levels within the zone are identified as the prospects Troutbeck and Bowness.

At Troutbeck a 5 x 2km vaccum drilling bleg >1.8ppb Au anomaly occurs, within which two parallel NW striking zones > 2ppb Au were detected in bedrock.

At Bowness a more diffuse 5 x 2km vaccum drilling bleg >1.8ppb Au anomaly occurs, with several zones of bedrock anomalism detected.

Follow-up of Au anomalous bore water confirmed the water anomaly and pattern vacuum drilling identified a low order bleg anomaly that was interpreted to not explain the bore water anomaly.

Bailey's Creek, a known Au occurrence returns numerous significant results in streams. Follow up rock chips return results to 5.65g/t Au with over 1.2km of anomalous rock chip >0.5g/t Au. RAB drilling of 2 holes returns a number of significant results. Summarised in the following table.

Hole	Metres	Cu (ppm)	As (ppm)	Bi (ppm)	Au AAS (ppm)	Au fire(ppm)
BCRB001	0-4	804	17	61	0.170	None
BCRB002	37-40	386	160	11	0.451	0.493
BCRB002	43-46	1.03%	2740	214	0.271	0.322
BCRB002	79-82	762	190	20	0.302	0.286

*CR1997-0172 Annual report* as above. Continued systematic exploration yields mixed encouraging results. Highlight occurs at Troutbeck, where trout1 area vacuum drilling returned 7.4g/t Au 6160ppm As and costeaning gave 8m at 5.6g/t Au including 1m at 29.4g/t Au.

*CR1998-0303Annual report.* As above. Troutbeck continues to yield the standout results. Trout 1 remains open with the area described as 3 parallel zones of 100m x3m grading greater than 0.2g/t Au. There are numerous new significant results to 1m at 1.98g/t Au, however they fail to repeat the high grade and width of the previous intersection.

CR1999-0109 Annual report. As above with addition of ground magnetic traverses in order to determine whether the dolerite intrusive contacts can be mapped at depth as their contacts are perceived to be a locus of mineralisation at Bowness and Troutbeck. They do not appear to have contrast with the surrounding rocks.

Minor RC and diamond drilling are implemented to test targets at depth at Black knight. Results are reportedly disappointing, however a number of intervals at approximately 1g/t Au including a 10m interval at 1.0g/t from 59m occur in sericitised rocks with disseminated pyrite and arsenopyrite.

*CR2000-0184 Annual Report* details RC drilling of the Trout prospects. Results were generally low order Au anomalism (0.2-0.6g/t Au), however a best result of 8m at 9.42 g/t including 1m at 70.1g/t Au from 32m occurs, associated with quartz veining and sulphide mineralisation.

CR2001-0229 Final report indicates no further work has been completed on the tenements and they remain prospective for Au mineralisation. A complete digital dataset is available.

#### EL 8411 PNC 1994 - 1996

CR1995-0266 Annual report 1994 field season describes the early reconnaissance (1993) prior to license grant along with the work conducted during 1994. This report is an excellent reference to U mineralisation and geology of the area west of Ingellina and towards Napperby.

Work comprises ground magnetics, scintillometry and rock chip geochemistry from known U occurrences, focussing on Napperby Creek and areas west of Toro tenure.

Notable geochemistry from the Mt Freeling U occurrence is identified as a metasomatised calcareous meta-sediment with secondary U to 650ppm from a grab sample.

*CR1996-01871995 Annual report* details geological mapping and ground geophysics over the Nolans Bore, Mt Freeling and Napperby creek areas, along with the ground follow up of 180 airborne radiometric anomalies.

The radiometric anomalies were determined to be predominately felsic intrusives n=88 (Napperby Gneiss) along with soils, U rich gravel banks of minor drainages, quartz veins, calcrete (n=5) and calc-silicate.

The calcrete anomalies, which returned assays in the range 500 - 1700ppm U were determined to not require further work owing to lack of aerial extent. Best U (U>1000ppm) results are consistently from calcrete.

At Nolan's Bore 2 REE mineralised apatite vein zones are shown to occur with extents in excess of  $600 \times 100 \text{m}$  and indicative grades of 28-32% P2O5 and 7-10% REO. The veins have consistent 400-500 ppm U and these are demonstrated not to occur in the apatite lattice.

Costeaning at Mt Freeling and Napperby creek prospects demonstrates that the variably metasomatised metamorphic rocks, previously ascertained to have secondary U mineralisation only occur at surface.

No further work is reported.

## EL 9145 Aberfoyle 1996 -1999

CR1997-0689 Annual report on exploration details the acquisition of airborne magnetic and radiometric data, with complex patterns in the magnetics requiring and receiving infill. The exploration strategy is to use geochemistry to test magnetic features for Au mineralisation. No further on ground work was completed in 1998 and there is no further reporting available.

## EL 23486 Tanami Exploration 2002-2005

CR2004-0191 First combined annual report Napperby project details Tanami Explorations first year of exploring the region for Au mineralisation. One rock chip is taken in the tenement of interest with no significant results. No further work was completed and the tenement was subsequently relinquished.