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TECHNICAL REPORT ON THE WALKER GOSSAN PROJECT IN ARNHEM LAND, NORTHERN TERRITORY, AUSTRALIA, FOR GPM METALS INC.

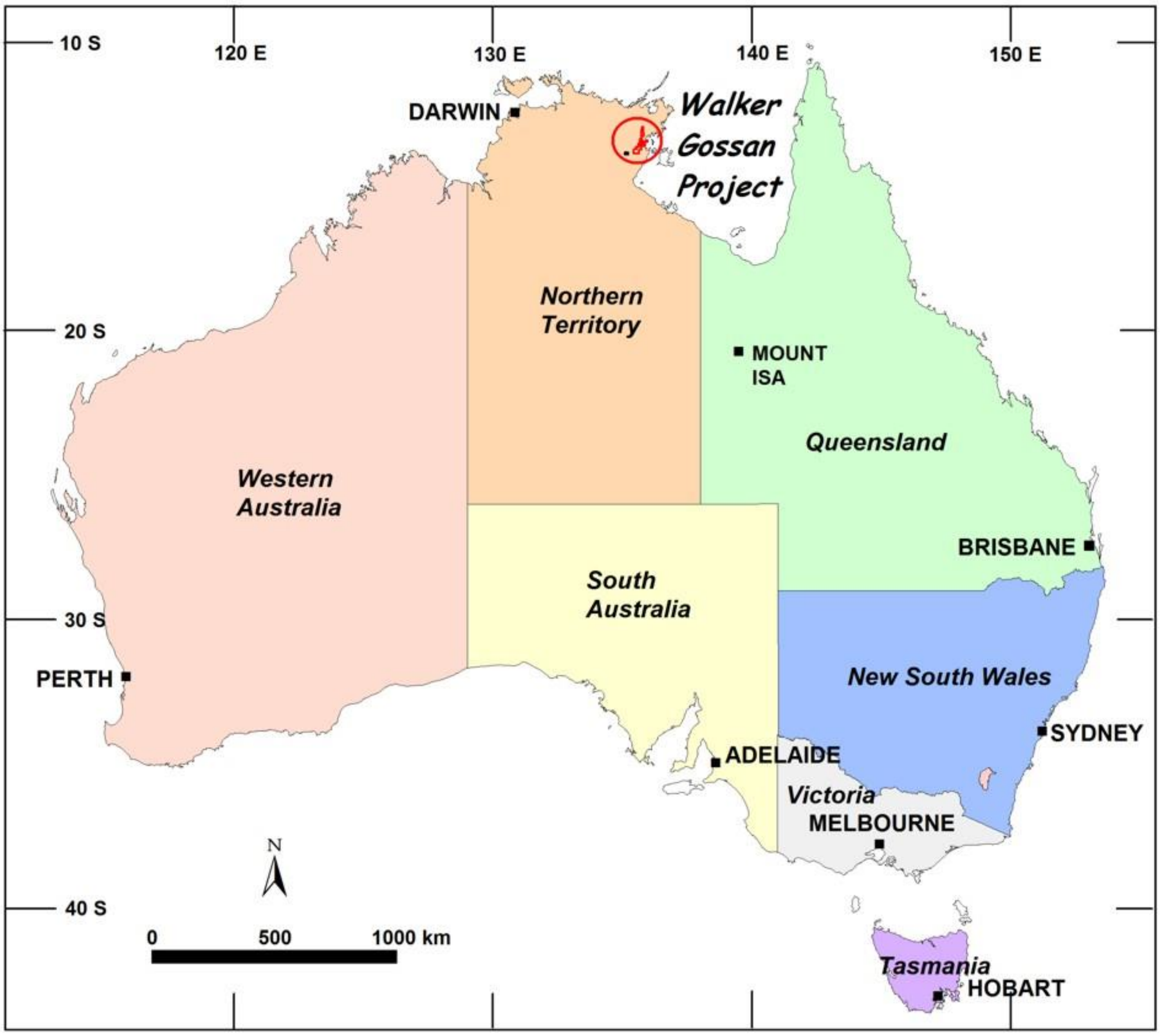

Figure 1: Location of Walker Gossan Project
Figure compiled by D G Jones

David G Jones
BSc., MSc., FAusIMM, FAIG

Effective Date: 16th September 2014

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1 SUMMARY

Purpose

To report on the Walker Gossan Project in eastern Arnhem Land, Northern Territory, Australia, for GPM Metals Inc.

Scope

At the request of Greg Duncan, Manager Business Development Australia for GPM Metals Inc. ("GPM"), I was commissioned in June 2014 to prepare a Technical Report on the Walker Gossan Project ("the Project") compliant with National Instrument 43-101.

GPM (GPM:TSXV) is a Canadian based mineral exploration and development company focused on acquiring large scale mineral properties in suitable jurisdictions on a worldwide basis.

The scope of the inquiries and of the report included the following:

- A review of available geological data relevant to the Project
- An opinion of the proposed program and budget for future work at the Project

I have not been requested to provide an Independent Valuation, nor have I been asked to comment on the Fairness or Reasonableness of any vendor or promoter considerations, and therefore no opinion on these matters has been offered.

Précis

The Walker Gossan property consists of 1,712 sq km of exploration tenements located in the McArthur Basin Mining District, Northern Territory, Australia. Exploration by CRA Exploration Pty Ltd ("CRAE") in 1970 discovered a gossanous zone with highly anomalous lead values at surface located within the Walker Fault Zone. According to the Northern Territory Geological Survey ("NTGS"), the Walker Fault Zone contains rift facies carbonates and is a direct analogue with the Batten Fault Zone which contains the HYC Pb-Zn deposits situated about 300 km to the south at McArthur River.

CRAE lodged Exploration Licence Applications ("ELAs") in 1972 but the applications were not granted due to a change of federal government policy protecting Aboriginal land rights in the Northern Territory. The federal government subsequently froze all applications for mining and exploration on aboriginal reserves. However, exploration was allowed to continue on existing granted titles and mining continued on existing titles. The granting of new exploration titles was delayed until the 1980s following implementation of the Aboriginal Land Rights Act ("ALRA") which came into effect in January of 1977. The work programme as submitted by CRAE in April 1972, and amended to provide more detail in August 1987, was rejected by the Traditional Owners in August 1988. The traditional owners consented to partial grant in 2003 with the Walker Gossan remaining in moratorium until the moratorium expired in November 2013. GPM has made an application for grant as the licence is no longer in moratorium.

By the late 1990's, various mining companies began to finalize land use agreements with Traditional Land Owners and their Land Councils.

In 2009, DPG Resources (a private company) was formed and funded with $1 million to acquire the Walker Gossan asset from Rio Tinto Ltd ("Rio"). Following extensive negotiations between Rio and DPG Resources, it was decided to advance the Rio negotiations with an existing capitalized publically listed company.

GPM and DPG had shareholders and management in common, and a DPG acquisition was approved and undertaken in August 2013. The company treasuries were combined for a balance of approximately $5 million.

In January 2014 the Earn-in / Joint Venture Agreement with Rio was executed.

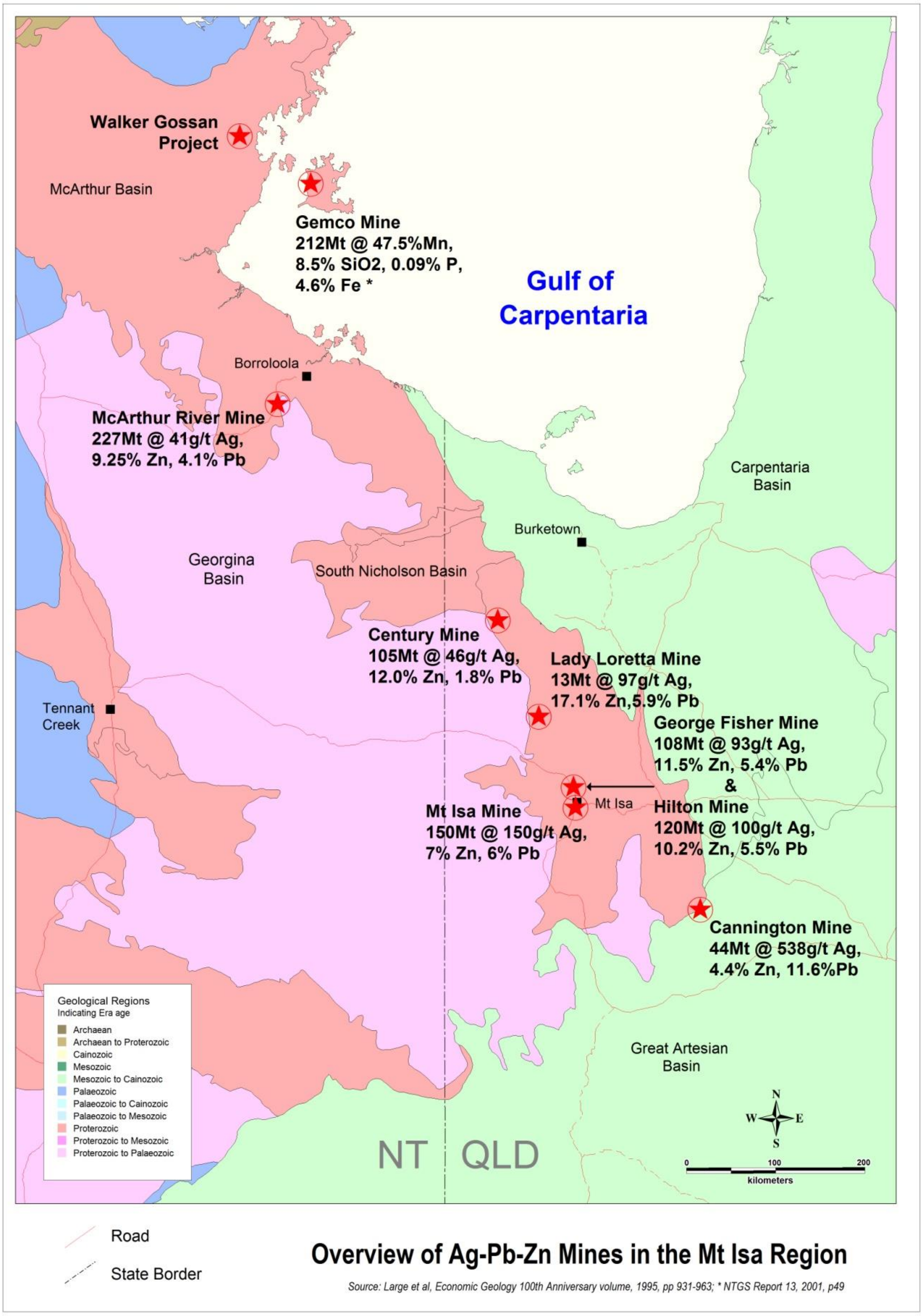

Figure 2. Major base metal mines in the Proterozoic basins of northern Australia

Figure supplied by GPM

Conclusions

- Late Paleoproterozoic rocks in northwest Queensland and the Northern Territory host five world-class stratiform sediment-hosted Zn-Pb-Ag orebodies (Mount Isa, Hilton, George Fisher, Century and HYC) and two smaller, but significant deposits (Lady Loretta and Dugald River). The gossanous outcrop of the Mount Isa Zn-Pb-Ag lodes was found in 1923, and since World War 2, geological exploration by mining companies has resulted in a significant discovery in every decade except the 1970s. The discoveries were the Hilton deposit at MIM's 'Northern Leases' in 1948, HYC in 1956, Lady Loretta in 1966, Hilton North (now renamed George Fisher) by MIM in the early 1980s, and Century in 1990. All these deposits had gossanous outcrop or, in the case of Century, a strong soil geochemical signature.

- All of the above deposits occur in intracontinental rift or rifted margin (marine) basins. The Walker Gossan is situated in the Walker Fault Zone, considered by the NTGS to be a direct analogue of the Batten Fault Zone, host to the HYC deposit located some 300 km south at McArthur River.

- Host rocks of the above deposits are carbonaceous and/or pyritic black and grey (dolomitic) siltstone, mudstone and shale, often with a significant clastic carbonate (dolomite) component. The same rocks occur in the Walker Gossan Project area, and are correlated by the NTGS and Geoscience Australia with the host rocks to the HYC deposit.

- Two highly anomalous (2.7% Pb and 1.1% Pb) rock samples taken by CRAE geologists in 1972 in the Walker Gossan zone provide evidence for potential Pb-Zn mineralization. The area has been closed to exploration since that time so this potential remains untested.

- A total budget of AUD$3,081,000 is proposed to be expended by GPM in 2 stages, subject to granting of ELA 24305 over the Walker Gossan area. Of this total some 80% would be dedicated to the Walker Gossan area, which is sensible given its dominant importance in the tenement package. Only 4% is allocated to EL 23565, which again is justified given the low prospectivity of this tenement.

- AUD$800,000 is budgeted for drilling, representing some 25% of the total budget, a reasonable proportion given the ancillary costs usually associated with exploration on Aboriginal land. Note that the majority of the project area at present consists of tenement applications, which until granted, have no expenditure obligations. Also, the second stage program may be modified depending on the results from the first stage.

Recommendations

- Thorough exploration by CRAE and its successor, Rio Tinto Exploration Pty Ltd ("RTE") in areas adjacent to the Walker Gossan has not located any mineralization of interest. Thus future exploration should be tightly focused on the Walker Gossan itself (Figure 3 below), with lesser attention to the extensions of the host Balbirini Dolostone to the north and south.

- During the ground inspection of EL 385 and the helicopter reconnaissance of the Balbirini Dolostone south of EL 385, I noted a reasonable abundance of sub-crop and float was present. This should provide a good opportunity for the use of grid rock-chip sampling in the initial phase of exploration, supported by use of a hand-held X-Ray Fluorescence ("XRF") spectrometer, to enable rapid focussing on areas with highest metal value.

- The new technique of slim-line reverse circulation ("RC") drilling could be applicable to exploration in the Walker Gossan area. The drilling rigs are much more compact and easily manoeuvrable than conventional RC rigs and minimise the environmental footprint, while still being powerful enough to offer good depth penetration. Slim-line RC uses an RC face-sampling hammer with the ability to sample basement during a RAB/Air Core program (prior to any further deep, large diameter RC program) without the need to change equipment, mobilise extra crews or provide improved surface access, all with the economies of scale inherent in RAB/Air Core drilling.

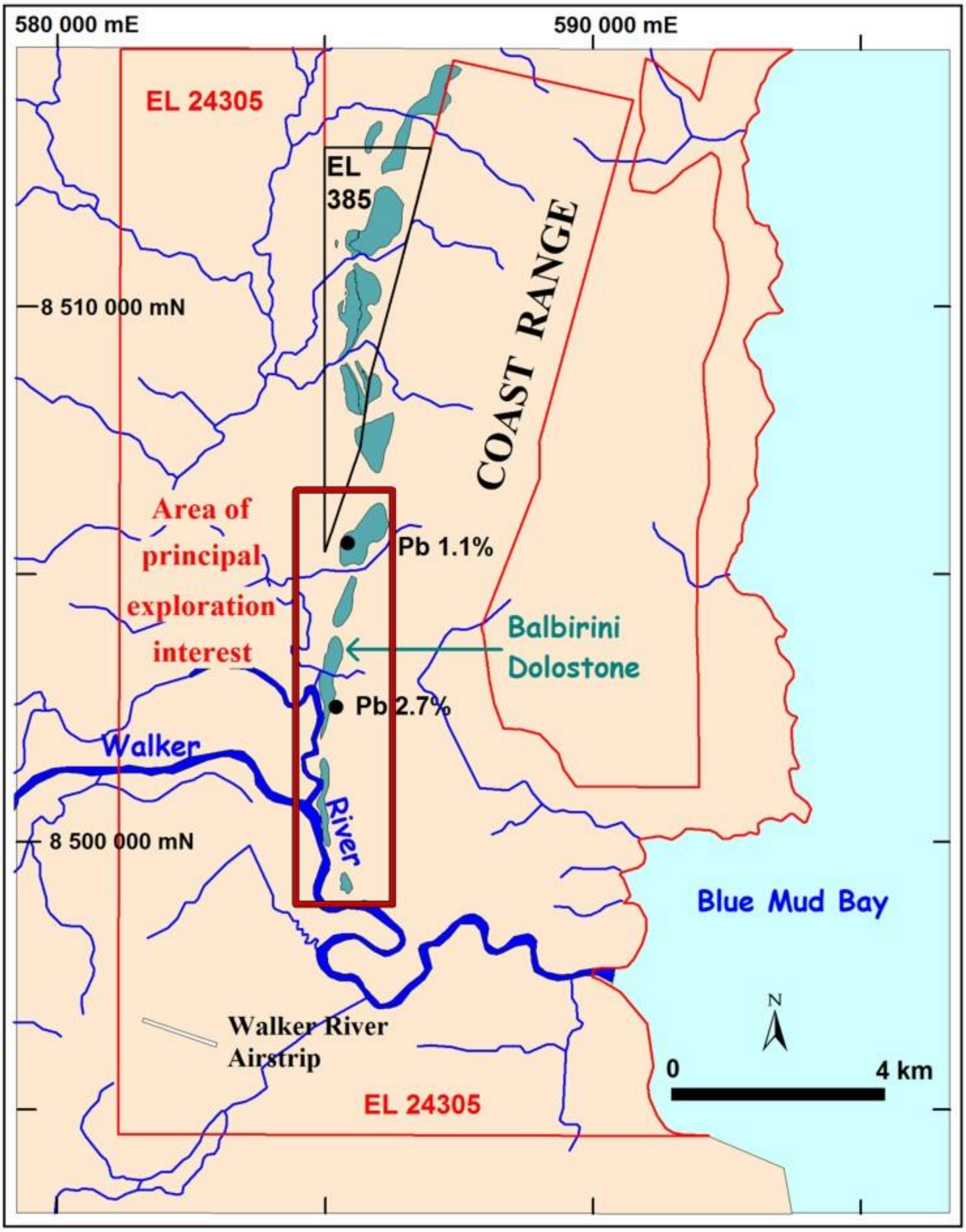

Figure 3. Priority area of exploration interest
Figure compiled by D G Jones

2 INTRODUCTION

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The scope of the inquiries and of the report included the following:

- A review of available geological data relevant to the Project
- An opinion of the proposed program and budget for future work at the Project

I have not been requested to provide an Independent Valuation, nor have I been asked to comment on the Fairness or Reasonableness of any vendor or promoter considerations, and therefore no opinion on these matters has been offered.

This report is based on technical data provided to me by GPM, as well as discussions with geologists on site during a field inspection of the property conducted in July 2014. GPM provided open access to all personnel and records necessary, in my opinion, to enable a proper assessment of the Project. GPM has warranted in writing to me that full disclosure has been made of all material information and that, to the best of GPM's knowledge and understanding, such information is complete, accurate and true. Readers of this report must appreciate that there is an inherent risk of error in the acquisition, processing and interpretation of geological and geophysical data.

Additional relevant material was acquired independently by me from a variety of sources. The list of references at the end of this report lists the sources consulted. This material was used to expand on the information provided by GPM and, where appropriate, confirm or provide alternative assumptions to those made by GPM.

Four weeks were spent on data collection and analysis and preparation of this report. I spent one day on site on 30th July 2014 carrying out a geological audit and examining key areas.

Appraisal of all the information mentioned above forms the basis for this report. The views and conclusions expressed are solely mine. When conclusions and interpretations credited specifically to other parties are discussed within the report, then these are not necessarily my views.

The maps in this report are compiled using Universal Transverse Mercator ("UTM") projection and the Grid Datum Australia 1994 ("GDA94"), which is essentially the same as the World Geodetic System 1984 ("WGS84). WGS84 is used by the Global Positioning Satellite ("GPS") instruments commonly used for navigation. The maps have been compiled using MapInfo software. They are for illustration purposes only and should not be relied upon for navigation.

3 RELIANCE ON OTHER EXPERTS

The opinions expressed in this report have been based on information supplied to me by GPM, its associates and their staff, as well as the additional information listed in the References. I have exercised all due care in reviewing the supplied information, including a visit to key sites in the Walker Gossan Project area in July 2014. Although I have compared key supplied data with expected values, the accuracy of the results and conclusions from this review are reliant on the accuracy of the supplied data. I have relied on this information and have no reason to believe that any material facts have been withheld, or that a more detailed analysis may reveal additional material information.

I have not relied on reports, opinions or statements of legal or other experts who are not qualified persons for information concerning legal, environmental, political or other issues and factors relevant to this report.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Property Details

The Walker Gossan Project comprises 2 granted Exploration Licences (“ELs”; total 111.56 sq km) and 6 Exploration Licence Applications (“ELAs”, total 1,600 sq km), centred 540 km ESE of Darwin, the capital of the Northern Territory.

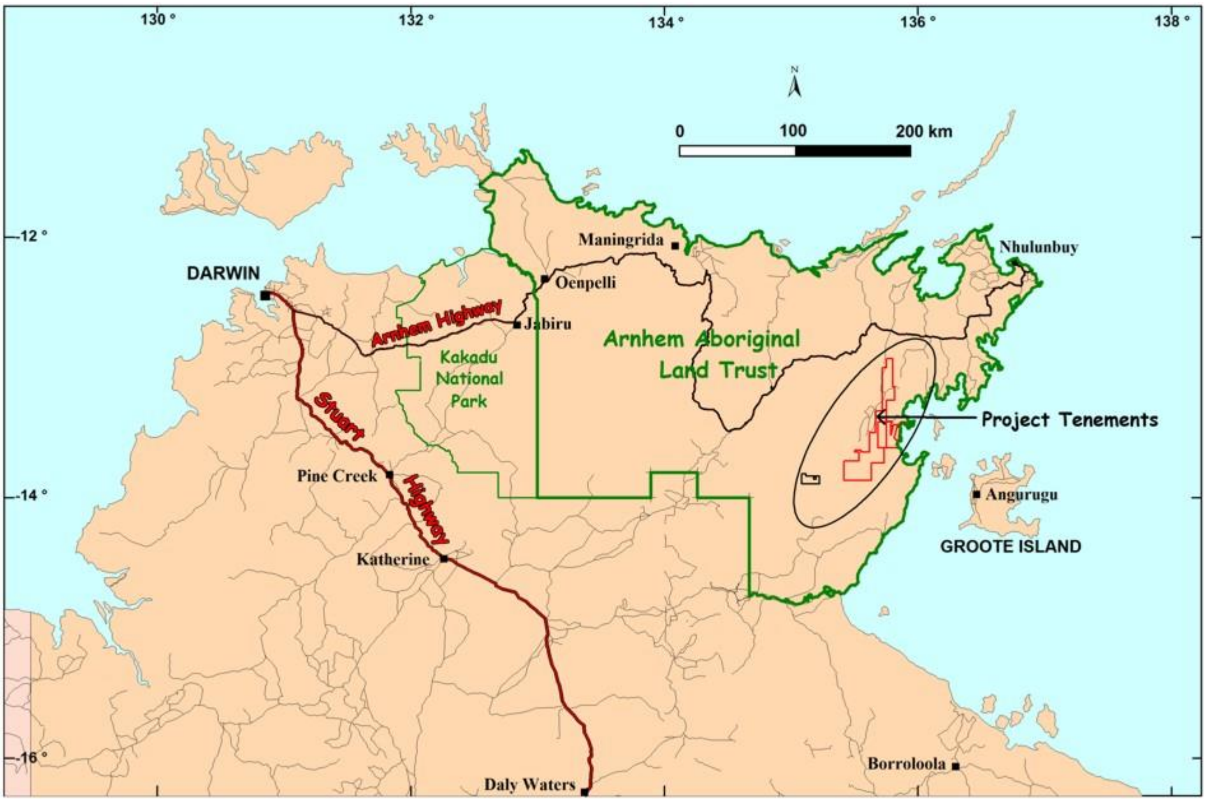


Figure 4. Location of Walker Gossan Project tenements showing major roads
Figure compiled by D G Jones

To the extent known to the author, there are no significant factors or risks, besides those noted in the sub-sections below that may affect title, or the right or ability to perform work on the property

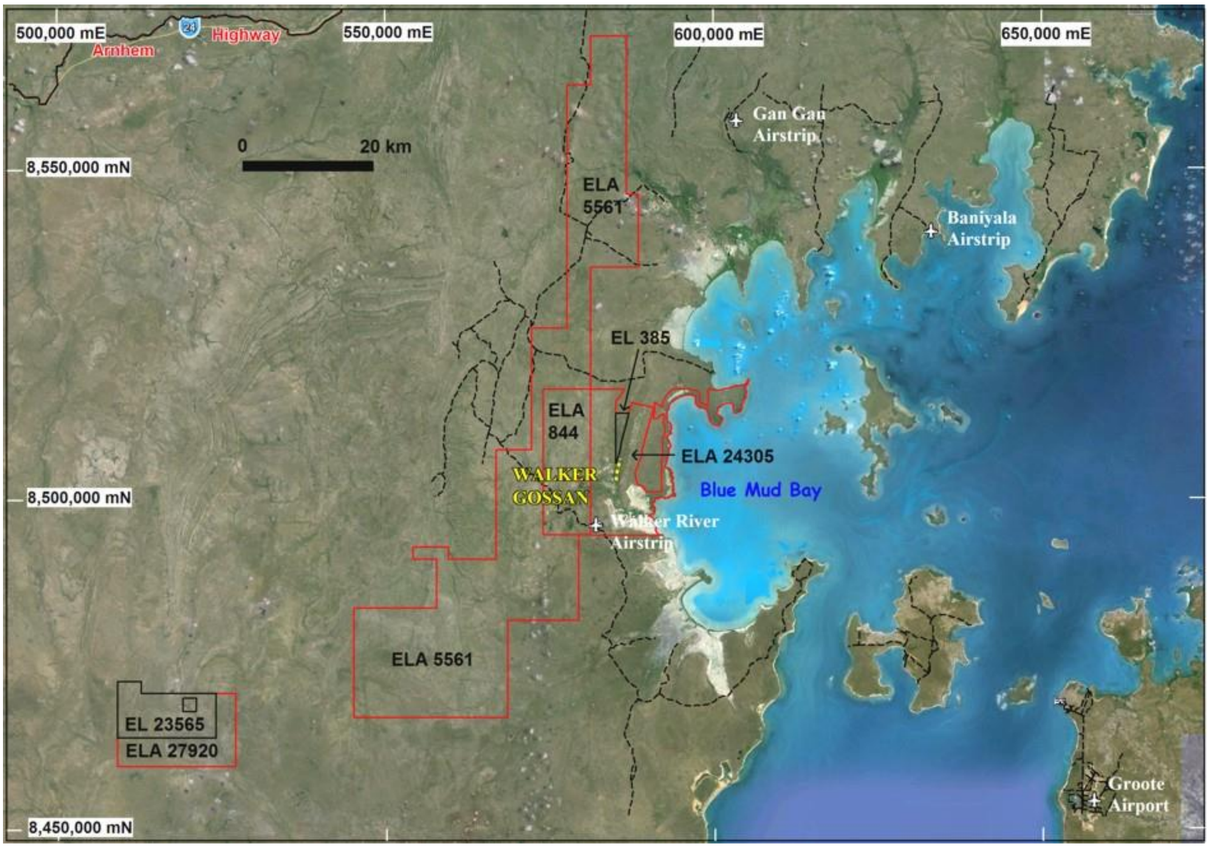


Figure 5. Walker Gossan Project ELs and ELAs. Local tracks as black dotted lines.
Figure compiled by D G Jones on Google Earth image

The Titles Information Service of the Northern Territory Department of Mines and Energy has supplied the following information on the Walker Project tenements as at 1st June 2014. All of the titles are held in the name of Rio Tinto Exploration Pty Limited.

4.1.1 EL 385

	Date	Period	Area	Expiry
		Years	Sq km	Date
Application Date	19 Jan 1972	6	36.46	
Area Variation	20 May 2004		63.46	
Grant Date	09 Jun 2004	6	63.46	08 Jun 2010
Reduction Application	09 Jun 2006	3	31.06	
Reduction Application	09 Jun 2007	4	21.64	
Reduction Application	09 Jun 2008	5	7.75	
Renewal Application	02 Jun 2010	2	7.75	
Renewal Grant	26 May 2011		7.75	08 Jun 2012
Renewal Application	16 Mar 2012	2	7.75	
Renewal Grant	22 Oct 2012		7.75	08 Jun 2014
Renewal Application	31 Mar 2014		7.75	

4.1.2 EL 23565

	Date	Period	Area	Expiry
		Years	Sq km	Date
Application Date	03 Apr 2002	6	206.70	
Area Variation	12 Jan 2010		103.81	
Grant Date	22 Apr 2010	6	103.81	21 Apr 2016
Reduction Deferral	01 Apr 2014	5	103.81	

4.1.3 ELA 844

	Date	Period	Area	Expiry
		Years	Sq km	Date
Application Date	26 Oct 1972	6	154.56	
Consent Date	08 Jun 1981	6	154.56	
Moratorium Start Date	25 Nov 2010	5	154.56	24 Nov 2015

4.1.4 ELA 5561

	Date	Period	Area	Expiry
		Years	Sq km	Date
Application Date	29 May 1987	6	1123.78	
Consent Date	18 Jan 1988	6	1123.78	
Veto Start Date	04 Jan 2000	5	1123.78	04 Jan 2005

4.1.5 ELA 24305

	Date	Period	Area	Expiry
		Years	Sq km	Date
Application Date	19 Jan 1972	6	218.70	
Consent Date	08 Jun 1981	6	218.70	
Veto Start Date	13 Nov 2008	5	218.70	13 Nov 2013

4.1.6 ELA 27919

	Date	Period	Area	Expiry
		Years	Sq km	Date
Application Date	03 Apr 2002	6	4.09	
Consent Date	08 Aug 2002	6	4.09	
Veto Start Date	11 Jun 2009	5	4.09	11 Jun 2014

4.1.7 ELA 27920

	Date	Period	Area	Expiry
		Years	Sq km	Date
Application Date	08 Apr 2002	6	98.83	
Consent Date	08 Aug 2002	6	98.83	
Veto Start Date	11 Jun 2009	5	98.83	11 Jun 2014

4.2 Joint Venture Terms

Rio Tinto and GPM have entered into a definitive Two Stage Earn-In / Joint Venture Agreement granting GPM an initial 51% interest under certain conditions that include:

STAGE ONE

1. Payment of AUD$1 million on signing
2. Minimum expenditure of AUD$2 million within 3 years of effective date
3. Combined expenditures of AUD$20 million over a 10 year period
4. Milestone payments within the combined expenditures as follows:
    (i) AUD$100,000 upon the grant of licences to all of the properties
    (ii) AUD$1 million upon the completion of the first drill hole on the Walker Gossan
    (iii) AUD$4 million upon the completion of a resource study that complies with the JORC Code and shows an indicated status for minimum 20 million tonnes of greater than 8% combined lead and zinc, or lead, zinc and silver, within the licence area or a Decision to Mine being made.

STAGE TWO

GPM may increase its interest to 75% by completing a Feasibility Study within 3 years of completing Stage One. Rio Tinto may elect to contribute pursuant to its participating share, not contribute and be diluted or convert its interest into a Net Smelter Royalty (2.5%).

There are rights of first refusal on purchase and sale of interest for both parties at fair market value.

GPM will be responsible for all negotiations with the Northern Land Council for consent to issue the exploration licence applications and work programs to be conducted by GPM under its sole rights or as operator.

4.3 Exploration Licence ("EL")

Exploration and mining in the NT is subject to the Mineral Titles Act and Regulations, which are administered by the Titles Division of the Department of Mines and Energy ("DME"). In addition to administering the Mining Act and Regulations, the Division manages the procedures associated with the Commonwealth *Aboriginal Land Rights (NT) Act* and the *Native Title Act*. Minerals and extractive minerals (sand, gravel, rocks and soil) may only be removed by miners who are authorised to do so under the Mining Act by the grant of a title.

Other laws that regulate the conducting of exploration and mining activities in the Territory include environmental laws and regulations such as the Environmental Assessment Act (NT) and the Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth); and laws regulating occupational health and safety in conducting exploration and mining activities, such as the Workplace Health and Safety Act 2007 (NT).

The new Mineral Titles Act commenced on 7 November 2011 and repealed the long standing Mining Act. According to the Explanatory Memorandum for the Mineral Titles Bill 2010, the aim of the Mineral Titles Act was to introduce a mineral titles regime that encourages active exploration, turnover of land and the active development of known mineral deposits in the Northern Territory, with a view to further strengthening the significant contribution of the resources industry to the Territory's economy.

A concept of "preliminary exploration" was introduced, with the intention of enabling the potential of land to be assessed for future mineral exploration. Explorers may now in certain circumstances conduct exploration activities on land without a mineral title. Preliminary exploration of land may include any of the following activities that do not involve significant ground disturbance:

- examination of geological characteristics;
- with the approval of the Minister, airborne geoscientific surveys;
- removal of small mineral samples for analysis; and
- marking boundaries for a proposed mineral title application.

There are notice requirements for conducting preliminary exploration in relation to pastoral leases, native title land and certain Crown land. Consent is required from the landowner or the Minister (as applicable) in relation to reserves and reserved land, private land, Aboriginal land and Aboriginal community living areas. A person who consents to preliminary exploration may impose reasonable conditions on the entry and use of the land.

An applicant for an EL may conduct preliminary exploration in the proposed title area after giving the landowner a preliminary exploration notice 14 days before entering the land to start the exploration.

ELs which previously could only be renewed for a maximum two terms of two years, may now be renewed for ongoing periods. Mineral titles generally can be renewed for ongoing periods subject to Ministerial approval. This allows bona fide proponents more time to complete their exploration and feasibility programmes before progressing to mining and development. This is balanced however by more stringent operational conditions, including tighter expenditure requirements and penalties for non-performance. EL applications may now be transferred.

An EL allows the holder to carry out an approved exploration program for minerals. The maximum area that can be sought under one application is 250 blocks where each block is 1 minute latitude by 1 minute longitude (1 block = average 3.22 square km).

To apply for an EL the applicant has to:

- hold an NT Miner's Right;
- check that the land is available;
- have a realistic exploration plan;
- have the financial and technical resources to undertake the plan; and
- comply with the *Mining Act* in respect of making a valid application.

The maximum term of an EL is six years. In order to renew an EL, the title holder must apply to the Minister using the prescribed form prior to the expiration of the EL. An EL may be renewed for a period of 2 years, and may be renewed more than once. This is a significant difference to the treatment of ELs under the old Mining Act, which only allowed 2 renewal periods of 2 years.

The annual rentals payable per block are set out in the following table:

Year	Rent per block A$
1	34
2	34
3	68
4	68
5	138
6	138
>6	194

Table 1. Annual EL rentals (inclusive of GST) from 1st July 2014

The area of an EL must be reduced every 2 operational years during the term of the EL and any renewal period of the EL. The title holder must nominate to reduce the number of blocks in the title area by at least 50%.

An EL holder may apply to the Minister for an exemption from the surrender requirements. If successful, the Minister may direct for the surrender requirements to be deferred or reduced or to exempt the EL holder from satisfying the requirements.

An EL authorizes the holder thereof, subject to the law in force in the NT, and in accordance with the conditions to which the licence is subject:

a) to enter and re-enter the licence area with such agents, employees, vehicles, vessels, machinery and equipment as may be necessary or expedient for the purpose of exploring for minerals in, on or under the licence area;
b) to explore for minerals and to carry out such operations and works as are necessary for that purpose on the licence area including digging pits, trenches and holes, and sinking bores and tunnels in, on or under the licence area and ascertaining the quality, quantity or extent of ore or other material by drilling or other methods;
c) to extract and remove from the licence area for sampling and testing an amount of ore, material or other substance reasonably necessary to determine its mineral bearing quality, or such greater amount as the Secretary, in writing, approves;
d) subject to the directions of the Minister, to take or divert water from any natural spring, lake, pool or stream situated on or flowing through the licence area and to sink a well or bore on the licence area and take water therefrom and to use the water so taken or diverted for his domestic use and for any purpose in connection with exploring for minerals on the licence area; and
e) subject to conditions, to obtain an exploration retention licence, mineral lease or mineral claim in respect of the licence area or any part of it.

The licensee is obliged to:

a) for the purposes of exploring for minerals, carry out geological, geochemical or geophysical surveys or any combination of those surveys, on the licence area;
b) not extract or remove from the licence area any amount of ore, material or other substance other than amounts for sampling purposes;
c) expend not less than the minimum amount of expenditure specified in the licence in carrying out exploration activities on the licence area;
d) within 28 days after confirmation of their discovery, report in writing to the Secretary all minerals of possible economic or scientific interest discovered on the licence area;
e) obtain and send to the Secretary such water samples and data on underground water encountered during exploratory drilling as the Secretary, in writing, directs;
f) conduct his exploration programmes and other activities in such a way as not to interfere with existing roads, railways, telephone or telegraph lines, power lines and cables, water pipelines or dams or reservoirs or gas, oil, slurry or tailings pipelines or storage containers, situated on the licence area, or the lawful activities or rights of any person on or in relation to land adjacent to the licence area; and
g) not interfere with any historical site or object, or any Aboriginal sacred site or object, declared as such under a law in force in the Territory, otherwise than in accordance with that law.

4.4 Royalties

Ownership of all minerals in the Northern Territory (apart from uranium) is vested with the Crown in right of the Northern Territory. Royalties are payments made to the Northern Territory Government, as the owner of the minerals.

The *Mineral Royalty Act* levies a royalty on recovery of mineral commodities from a mining tenement in the Northern Territory. Mineral royalties are payments made to the Northern Territory Government in consideration of a right granted to extract and remove minerals and are calculated in respect of the profit derived from minerals taken or produced. It is not a tax.

The Act levies royalty at a rate of 20% of the Net Value of mineral commodities sold or removed from a production unit, regardless of the type of mineral commodity or whether the mine is situated on Crown, freehold, leasehold or aboriginal land. Net Value for determination of royalty levies is based upon the value of minerals sold or removed from a production unit without sale. Generally, only expenditures essential to produce the mineral commodity are allowable as deductions against gross revenue from the sale or value of the saleable mineral commodity. The expenditures may include:

- A periodic deduction on capital investment at up-lifted rates
- Certain exploration costs
- Pre-production costs
- Eligible exploration expenditure

The royalty payer can nominate a cash or accrual accounting base to calculate the royalty profit or loss, and losses may be carried forward.

“Net Value” equals GR – (OC + CRD + EEE + AD) where:

- GR is the gross realised revenue from mineral sales from individual projects;
- OC represents operating costs;
- CRD is a Capital Recognition Deduction akin to depreciation, but incorporating an interest factor (long-term bond rate plus 2%) over asset lives of three, five or 10 years;
- EEE is any eligible exploration expenditure; and
- AD represents additional deductions as approved by the Minister.

The first $50,000 of Net Value is not liable to taxation, thus exempting very small mines. Where the Net Value is more than $50,000, the royalty otherwise payable is reduced by $10,000 (effectively maintaining the position that the first $50,000 in Net Value is royalty free). An annual return of the royalty liability is required to be lodged at the end of each royalty year with royalty payments made periodically through the royalty year. A provisional amount is payable six-monthly with annual reconciliations and penalties for under-payments below 80% of the actual annual liability.

This accounting profit based royalty/tax, which recognises the “ability to pay” of different mines, is a more economically efficient and equitable regime than those based on value or tonnage. As its impact on less profitable mines is proportionally lower, it does not discourage development of high-cost, low grade, hard-to-mine, and deeper or remotely located deposits. Because of the relative complexity of this profit based system, however, these benefits are gained at high administrative cost.

In 2009-10 the NT produced A$3.5 billion worth of minerals, and collected A$146.6 million in mineral royalties, excluding royalties collected on uranium oxide that are remitted to the Commonwealth government.

4.5 Environmental Regulations

General environmental rules and obligations in the NT are governed by the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (as amended – the “EPBC Act”). This Act covers almost 1,000 pages and a full discussion is outside the scope of this report. In the NT, the EPBC Act is overseen by the DOR on behalf of the Commonwealth. At the exploration stage, the environmental requirements are similar to those applying in most States.

Any proposal involving a “major disturbance” to the land, will require preparation of an Environmental Impact Statement (EIS) under the NT *Environmental Assessment Act (1982)* (EA Act). An acceptable EIS will satisfy assessment requirements under the EPBC Act.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Access

The Walker Gossan Project tenements are centred 540 km ESE of Darwin, the capital of the NT. Darwin is a modern city with a population of about 114,000, serviced by an international airport, standard gauge railway line connection to all Australian cities via Adelaide, and a power station fuelled by gas from the Timor Sea gasfields.

The nearest airport to the tenements that is serviced by regular public transport is on Groote Eylandt, the site of a major manganese mine operated by BHP Billiton. There is a small airstrip at Walker River, 4½ km south of the southern end of the Walker Gossan (see Figure 4). The nearest well-maintained road, the Arnhem Highway, is 75 km from the project site and there are no connecting roads. A network of poorly-maintained tracks, inaccessible during the Wet season, passes through some of the project area near the coast (see Figure 5).

The Aboriginal Land Rights (Northern Territory) Act was passed by the Commonwealth Parliament in 1976. This legislation granted freehold title to Aboriginal Land Trusts for most of the traditional lands in the Northern Territory. These grants extended to the mean high water mark and covered 80% of the Northern Territory coastline. The legal view at the time was that the grants did not extend to the waters overlying the intertidal land. In 2008 the High Court Blue Mud Bay ruling overturned that view and determined that the control and Aboriginal ownership did extend to waters overlaying Aboriginal Land to the mean low water mark, that is, they include the intertidal zone and parts of rivers and estuaries affected by the ebb and flow of tides.

With all Aboriginal owned land in the Northern Territory, access is restricted and visitors need a permit or permission to enter from traditional owners. As noted in Section 4.3 above, an EL is only granted on Aboriginal land when the owners have cpnsented to the grant, which includes access. Hence GPM is able to undertake work on the granted ELs.

5.2 Climate

Situated only 13^{o} south of the equator, the climate of the project area is typically tropical with little variation in mean monthly temperatures throughout the year. The nearest official weather reporting station to the project area with long-term continuous observation data is at Groote Eylandt airport. Complete climate data collection commenced in 1999.

The average maximum temperature for Groote Eylandt is 32.1°C while the average minimum is 20.7°C. There are two distinct seasons; the winter is warm and dry (average relative humidity about 60%) while the summer is wet and humid (average relative humidity 82-86%). Three-quarters of the annual precipitation falls from November through April. In August, average rainfall for the month is 0.9 mm, while in March the monthly rainfall exceeds 330mm. Rainfall intensity can be quite severe, particularly during cyclones, with 313mm being recorded in one day on 2nd March 2004.

The graphs below show climate data for Groote Eylandt airport. Annual rainfall average is 1,356mm.

Site details
Site name: GROOTE EYLANDT AIRPORT AWS **Site number:** 014518 **Commenced:** 1999
Latitude: 13.97 °S **Longitude:** 136.46 °E **Elevation:** 13 m **Operational status:** Still Open

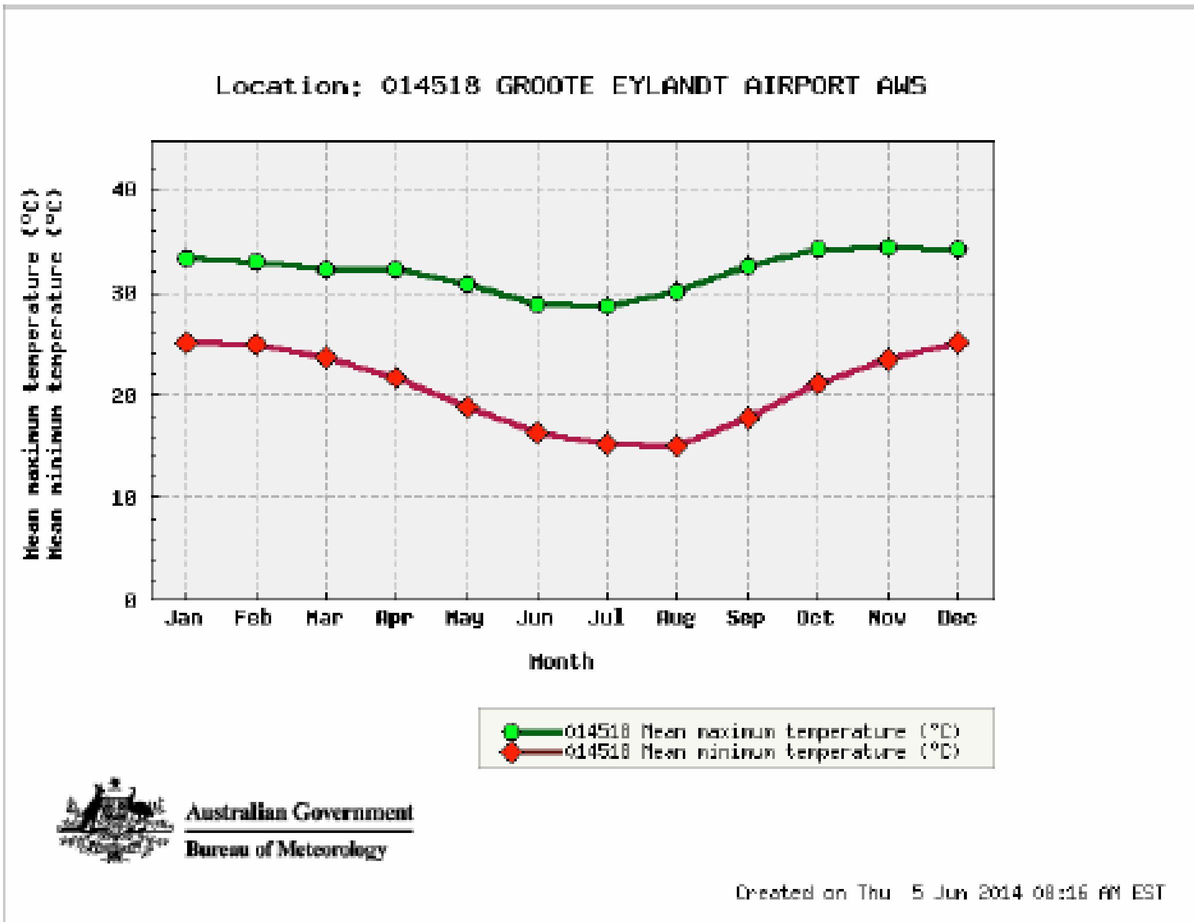


Figure 6. Average monthly temperature at Groote Eylandt airport
Image from the Australian Bureau of Meteorology

Exploration and mining can be conducted year round in Arnhem Land. The only disruptions to the current manganese mining on Groote Eylandt, 80 km east of the Walker Project, come from the rare short-lived tropical cyclones. Normally, though, exploration is carried out during the six-month dry season from May through October, when conditions are most comfortable, and GPM has designed its annual program to be completed in this period.

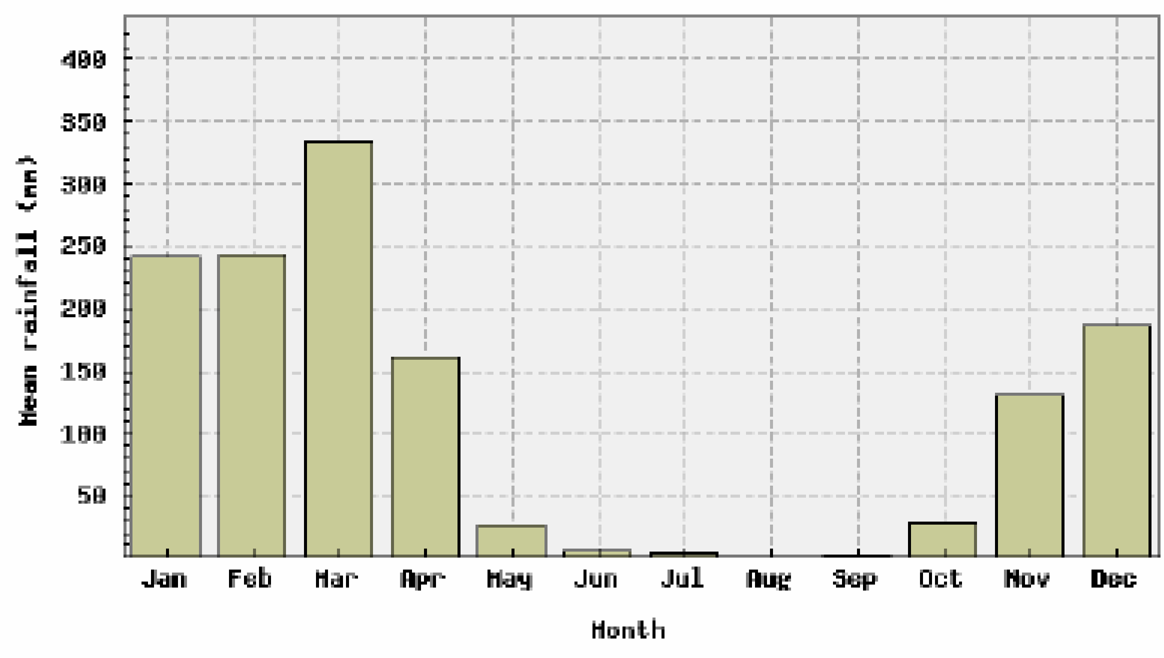


Figure 7. Average rainfall at Groote Eylandt airport
Image from the Australian Bureau of Meteorology

5.3 Local resources & Infrastructure

The economy of the region is heavily dependent on mining, principally from the Groote Eylandt manganese mine, and also the Gove bauxite mine on the east coast of Arnhem Land. Tourism is minor, owing to the difficulty in obtaining permits to enter Aboriginal land. Recreational fishing is not considered a valid reason for a permit application, despite the area being renowned for barramundi fishing in particular. Apart from the Arnhem Highway, there are no all-weather roads. Other tracks are open through the dry season but generally not accessible in the Wet. The sealed airstrips at Nhulunbuy and Groote Eylandt comprise the only other transport infrastructure in the area.

Nhulunbuy has a population of 4072 (2011 Census), many of whom are employed at the Gove alumina project, owned 100% by Rio Tinto Alcan. With 1400 employees and contractors, the Gove project was the largest private employer in the Northern Territory. In November 2013 Rio Tinto announced that it would suspend alumina production at Gove and focus on its bauxite operations after determining the refinery is no longer a viable business in the current market environment. The process of suspending production began in the first quarter of 2014 and is being phased in during the year. Rio's stated priority will be establishing long-term certainty for the bauxite operation and its 350 employees and contractors.

The principal township on Groote Eylandt, Angurugu, has a population around 835 (2011 Census). It is an indigenous community and a permit is required for entry to the township, as well as other indigenous lands. The island has until recently been open to the public only with permission, and the local Aboriginal Land Council did not encourage tourism. There is now a resort style hotel on the island.

In October 2013, BHP Billiton celebrated 50 years of manganese mining on Groote Eylandt. The operation employs 47 local indigenous people and produces 4.8 Mtpa of manganese ore. The Groote Eylandt deposit has so far produced 80 Mt @ 49% Mn and contains further total resources of 170 Mt @ 47.5% Mn. The deposit consists of stratiform, massive to disseminated ore in a sheet-like body averaging 3 m in thickness (Ferenczi, 2001).

Apart from the usual infrastructure associated with localized remote mining communities at Nhulunbuy and Groote Eylandt, there are no facilities of any kind in the vicinity of the Walker Gossan Project.

5.4 Physiography & Ecology

The Walker Gossan Project lies within the Blue Mud Bay ecological region. Blue Mud Bay was first named by Matthew Flinders on 22nd January 1803 during his circumnavigation of Australia: "The bottom here, and in most other parts of the bay, is a blue mud of so fine a quality, that I judge it might be useful in the manufactory of earthen ware; and I thence named this, Blue Mud Bay." "The main land rises very gradually from the water side into the country; and the wood upon it made a greater show of fertility than on any borders of the Gulph of Carpentaria we had before seen." (Flinders, 1814).

Blue Mud Bay is about 90 km in length and up to 35 km in width. Its 45 km wide mouth stretches from Cape Shield in the north-east to Cape Barrow in the south-west, with Woodah Island in between. It has a diverse inner coastline of many small bays and inlets, beaches, headlands and cliffs. The area has large saline flats with mangroves, which merge into the extensive freshwater floodplains associated with the rivers and creeks that discharge into the bay.

Extensive areas of tidal flats in this site support large numbers of shorebirds, and seabird breeding colonies are reported on rock and sand islands. Flooded coastal plains support vast numbers of water birds, dominated by magpie geese and wandering whistling-ducks. Large numbers of water buffalo live on the coastal floodplains around Blue Mud Bay and have a significant impact on the wetlands. Pigs are also present on the floodplains, although in smaller numbers. Land in the northern part of Blue Mud Bay is included within the Laynhapuy Indigenous Protected Area (IPA) and future extension of the IPA is planned to encompass the coastal waters and islands.

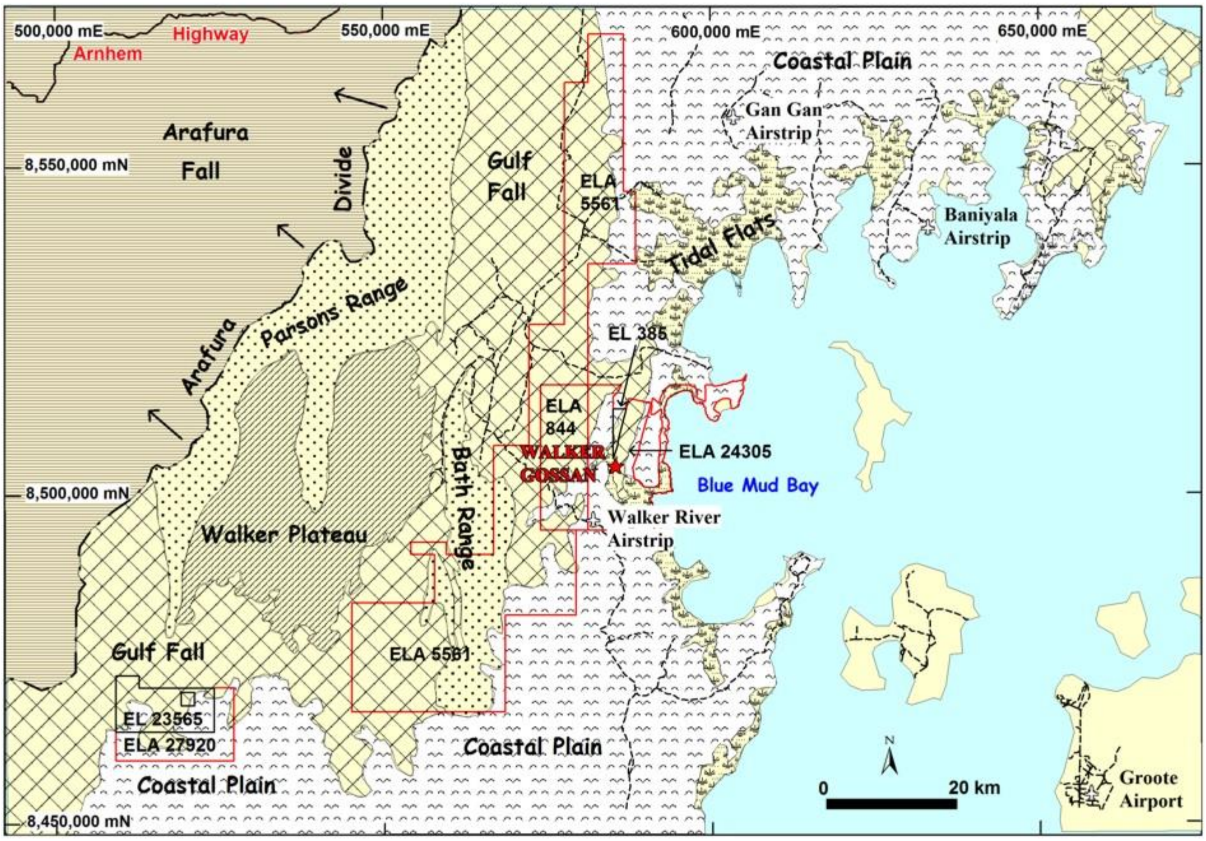


Figure 8. Physiographic units within the Blue Mud Bay ecosystem
Compiled by D G Jones from Plumb & Roberts (1964)

Blue Mud Bay is identified as an internationally important site for migratory shorebirds in the East Asian – Australasian Flyway. Birds Australia is also proposing Blue Mud Bay as an internationally recognised Important Bird Area, due to the occurrence of globally significant numbers of at least three water bird species.

Blue Mud Bay supports a number of species that are migratory, protected, endangered or vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Of the species recorded from this site, 44 are also listed under international conventions or bilateral agreements to protect migratory species. In addition, the diverse habitats within Blue Mud Bay encompass significant biodiversity value and support a wide range of invertebrates, amphibians, reptiles, fish, birds, and aquatic and marine mammals.

The Blue Mud Bay region contains 3 main physiographic sub-divisions: the Arafura Fall, the Gulf Fall, and the Coastal Plain. The Parsons and Mitchell Ranges lie along the major drainage divide separating the Arafura Fall (a region of dissected hilly country with drainage northwards towards the Arafura Sea) from the Gulf Fall (similar terrain with drainage southeastwards towards the Gulf of Carpentaria). The Coastal Plain is comprised of low-relief areas adjacent to the coast, extending up to 90 km inland along the southern edge of Blue Mud Bay. The sandy flats support scrubby vegetation with occasional small trees. The terrain is mainly flat or undulating (up to 200m relief), often containing extensive wetlands or coastal swamps. These areas are generally bordered by upland plateaus and ranges along their inland margins (Plumb & Roberts, 1964). Thick mangrove swamps border the edge of Blue Mud Bay.

Photo 1. Open eucalypt forest north of Laurie Creek
Photo taken by D G Jones on 30 July 2014 at UTM Zone 53: 577191 mE 8499287 mN

North of the Walker River in the Walker Gossan Project area, a prominent NNE-trending sandstone ridge runs for over 20 km. The ridge has a steep eastern escarpment about 100 m high and a gradual dip slope on the western side. It is covered by open eucalypt forest with intermittent patches of scrub and a general undergrowth of medium length grass. On the eastern escarpment the forest becomes thicker and the scrub and undergrowth more tightly packed (Dunlop & Dunlop, 1970).

The tidal flats along the Walker River are covered by short marsh and swamp grasses grading into taller plain grasses on the drier and sandier areas.

The dominant land surfaces found across the project area are quite thin, as they have only been accumulating since the Holocene sea level rise (Haines et al 1999).

Photo 2. Walker River mouth; tidal flats and Blue Mud Bay
Photo taken by D G Jones on 30 July 2014 at UTM Zone 53: 582900 mE 8496200 mN

6 HISTORY

The earliest reported exploration undertaken in the Walker Gossan area was carried out by BHP Ltd, who were granted an Authority to Enter for 12 months from 14th January 1964. A combined helicopter and ground follow-up reconnaissance survey was completed by 3 geologists and 6 support personnel and covered much of Arnhem Land. Numerous manganese occurrences were identified and sampled, and bauxitic material outcropping 30 km west of Gove was also sampled. BHP lodged an application for Authority to Prospect ("AP") 1138 on 14th May 1964, while CRA lodged a partially overlapping application for AP 1142 a few days later on 19th May 1964 (BHP Ltd, 1964).

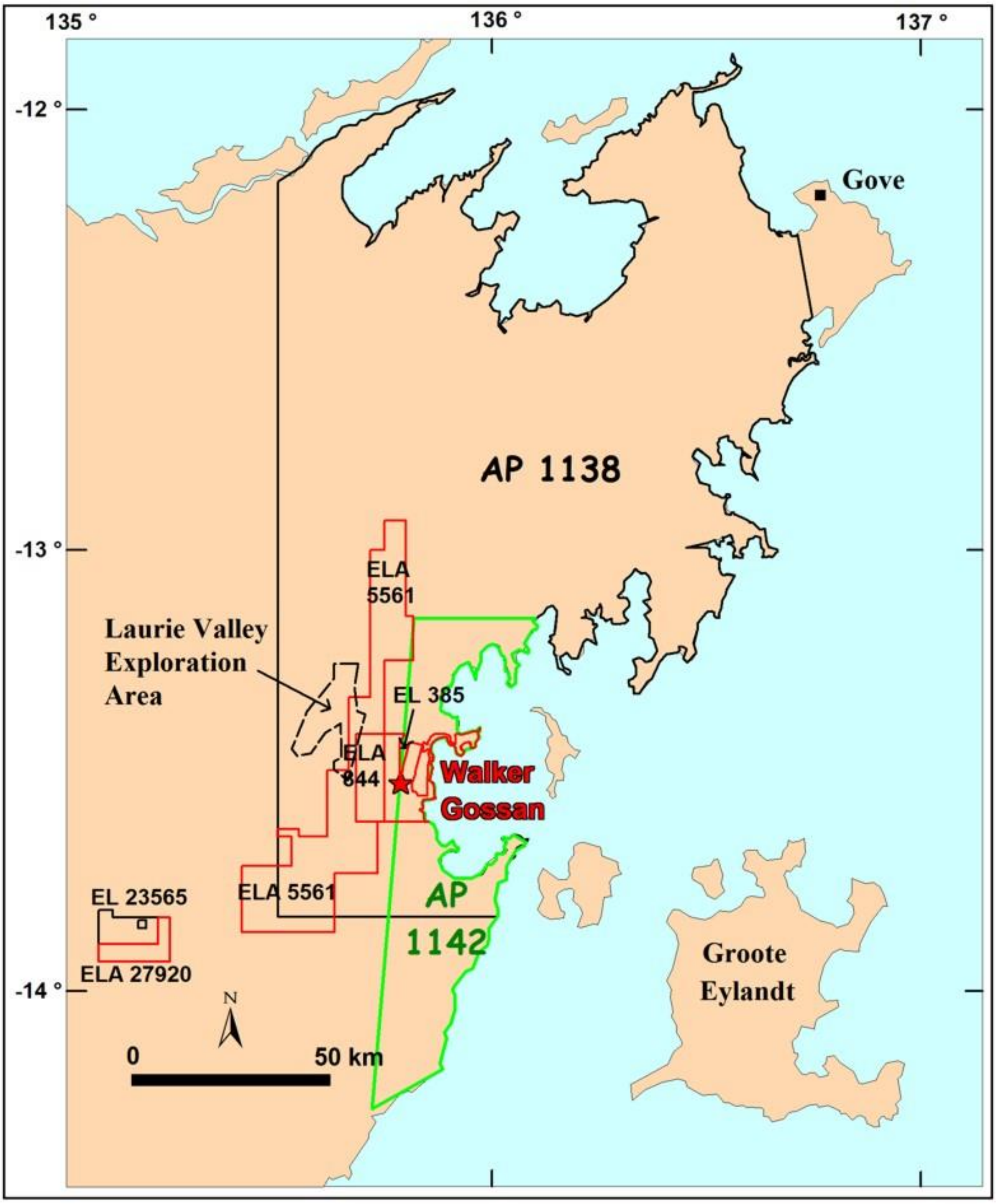


Figure 9. Location of AP 1138 in relation to GPM tenements
Compiled by D G Jones from Northern Territory titles database

There is no record that AP 1142 was ever issued and no reports pertaining to exploration within the application are held by the NTGS.

6.1.1 AP 1138 1965-1971

BHP was granted AP 1138 in January 1965 and completed a major program of regional exploration and scout testing on AP 1138 during 1965 and 1966, including prospecting and scout drilling for manganiferous minerals in the eastern part of the tenement. None of the manganese occurrences were found to have any economic significance. Stream sediment and soil profiling combined with geological mapping for structure and lithology was undertaken in McArthur Basin rocks for sediment-hosted base metal deposits in the Laurie Valley area (Figure 8). The work was conducted just outside the western boundary of the present GPM ELA 5561. Only weak anomalism was encountered. Lateritic bauxite was tested by shallow auger drilling at the Cato prospect. The work continued through 1967. The following year work was focused in the Mirarrmina Complex and Koolatong Creek areas, both well outside GPM's Walker Gossan Project area. During 1970 a shallow percussion drilling programme on prospects located in the Mitchell Ranges 20 km north of the Walker Gossan Project area was undertaken. No significant base metal mineralization was located. AP 1138 was relinquished in January 1971.

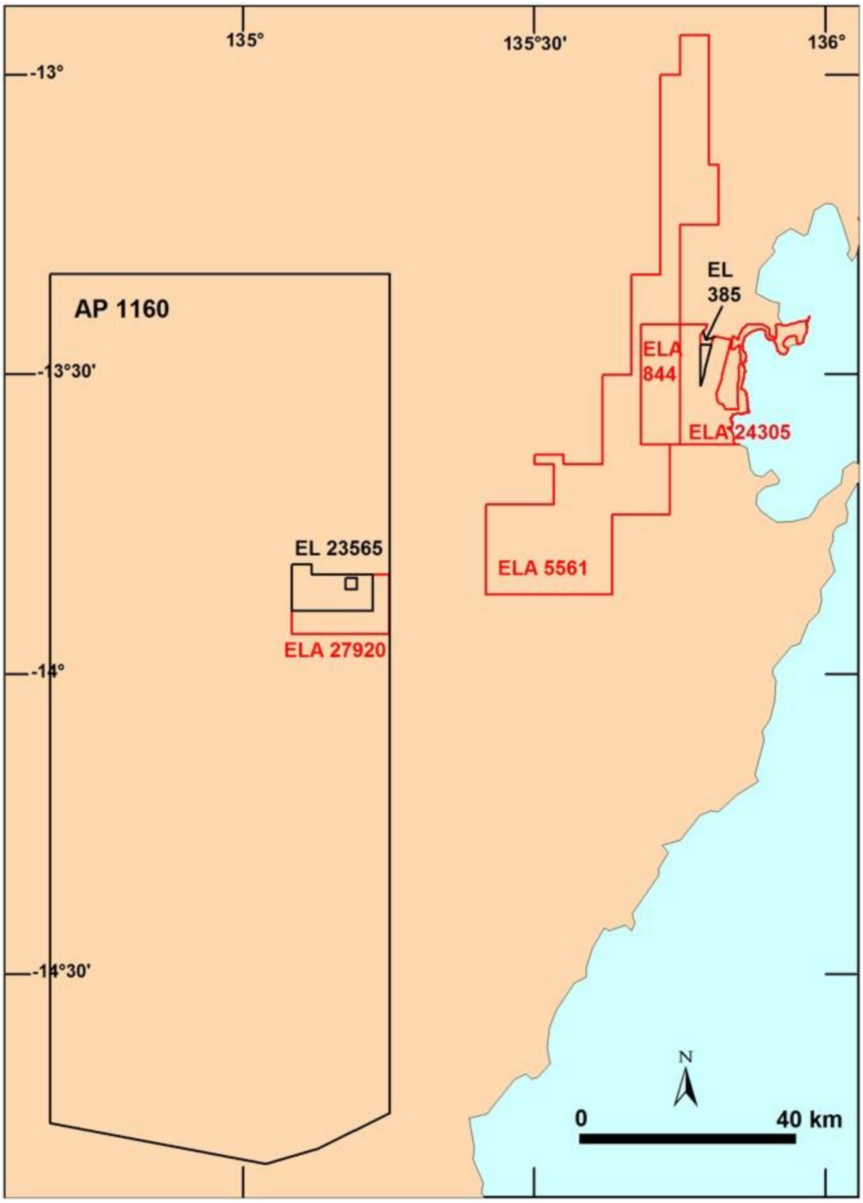


Figure 10. Location of AP 1160 in relation to GPM tenements
Compiled by D G Jones from Northern Territory titles database

6.1.2 AP 1160 1964-1969

AP 1160 was granted to Mineral Resources Australia Pty Limited ("MRA") in August 1964. Part of the tenement covers the present GPM EL 23565 and ELA 27920. A helicopter-supported stream sediment sampling program was proposed, to examine the potential for phosphate, iron, uranium and base metals in the Proterozoic rocks, and bauxite and manganese in the Cretaceous rocks. MRA sold the tenement to Western Nuclear (Australia) Pty Ltd ("WNA") in September 1965. WNA contracted Adastra Hunting Geophysics to carry out a combined airborne magnetic, electromagnetic ("EM") and radiometric survey along north-south lines 800 m apart in 1966. Twelve EM anomalies were followed up on the ground with no significant mineralization being discovered. A helicopter-supported stream sediment geochemical survey was completed between September 1965 and November 1967. Samples were analysed for Cu, Pb, Zn, Ag, Co and Ni. A few weak anomalies were followed up by grid soil sampling but no mineralization was detected. AP 1160 was relinquished in February 1969.

6.1.3 AP 1301 1965-1969

AP 1301 was granted to United Uranium NL ("UUNL") in February 1965. A small part of the tenement coincides with the SW corner of the present GPM ELA 5561. A target area in the NE of the licence was selected for rapid ground reconnaissance, but due to soft ground conditions the area could not be accessed. UUNL sold the tenement to WNA in September 1965. A helicopter-supported stream sediment geochemical survey was completed in 1967. Samples were analysed for Cu, Pb, Zn, Ag, Co and Ni. Several medium to strong geochemical anomalies were followed up by grid soil sampling and ground geophysics in 1968. No significant mineralization was detected. AP 1301 was relinquished in February 1969.

6.1.4 AP 1967 1968-1970

Late in 1967 geologists of Noranda Australia Limited ("Noranda") carried out a study to select areas within Australia which could possibly contain uranium mineralization. At that time most of the areas surrounding the known uranium occurrences were already held by other companies. AP 1967 was granted to Noranda Australia Limited in June 1968. The tenement covers ground now occupied by GPM's EL 385 and ELA 24305 (Figure 9).

The area was chosen because sandy sediments of the Proterozoic Groote Eylandt Group were regarded by Noranda as time equivalents of the uranium-bearing Westmoreland Conglomerate which outcrops some 320 km to the south. Moreover, the presence of the Bickerton Rhyolite within the Groote Eylandt Group was considered important because of the association of uranium mineralization with similar volcanics in other areas within the McArthur Basin and Arnhem Land (Battey, 1969).

An airborne radiometric survey was conducted over the tenement at a line spacing of 300 m and a mean terrain clearance of 90 m. Five moderate radiometric anomalies were identified and followed up with ground surveys in 1970. All but one are located within GPM's ELA 24305. No economic uranium mineralization was detected; the anomalous radioactivity was found to be due to thorium with minor uranium in quartz-filled fractures in rhyolite and also concentrated in laterite.

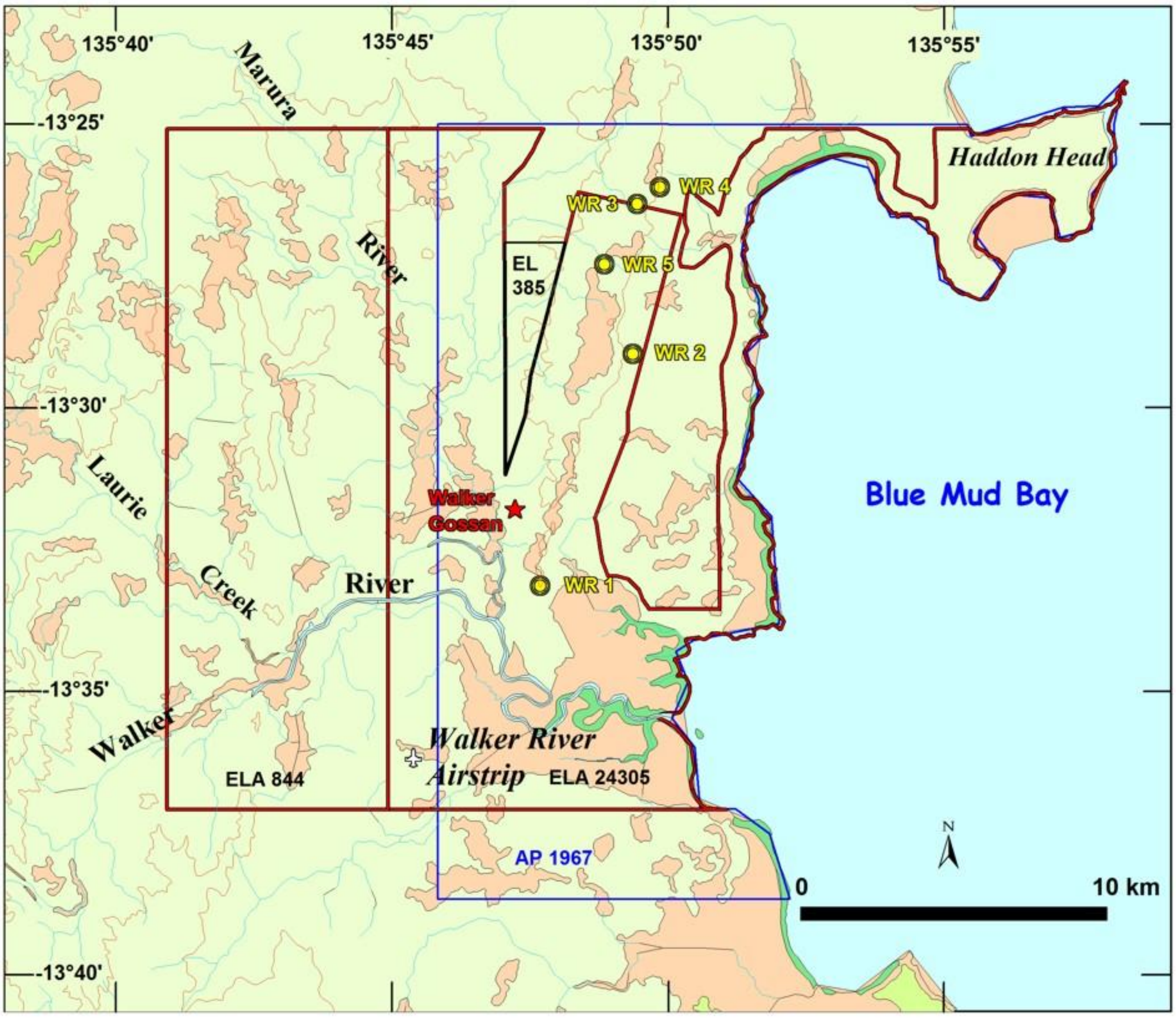


Figure 11. Location of AP 1967 radiometric anomalies in relation to GPM tenements
Compiled by D G Jones from Northern Territory titles database

AP 1967 was relinquished in June 1970.

6.1.5 AP 2586 1970-1972

AP 2586 was granted to Kratos Uranium NL ("Kratos") in September 1970. Part of the tenement covers the present GPM ELA 844, ELA 5561 and ELA 24305. Kratos commissioned Heinrichs Geoexploration (Australasia) Pty Ltd ("Heinrichs") to prepare a reconnaissance program of exploration on the tenement in January 1971. Despite months of negotiations with the NT Welfare Department, Heinrichs was unable to obtain permits to enter the area as the decision-making process in the department was completely paralyzed at the time.

A joint venture was formed in April 1971 between Kratos, Pechiney and Westinghouse to search for uranium ("PKW JV"). Three airborne radiometric surveys were carried out, followed up by helicopter-assisted ground inspection of 19 anomalies. None were considered to be significant and the tenement was relinquished in September 1972 (Lehmann, 1972).

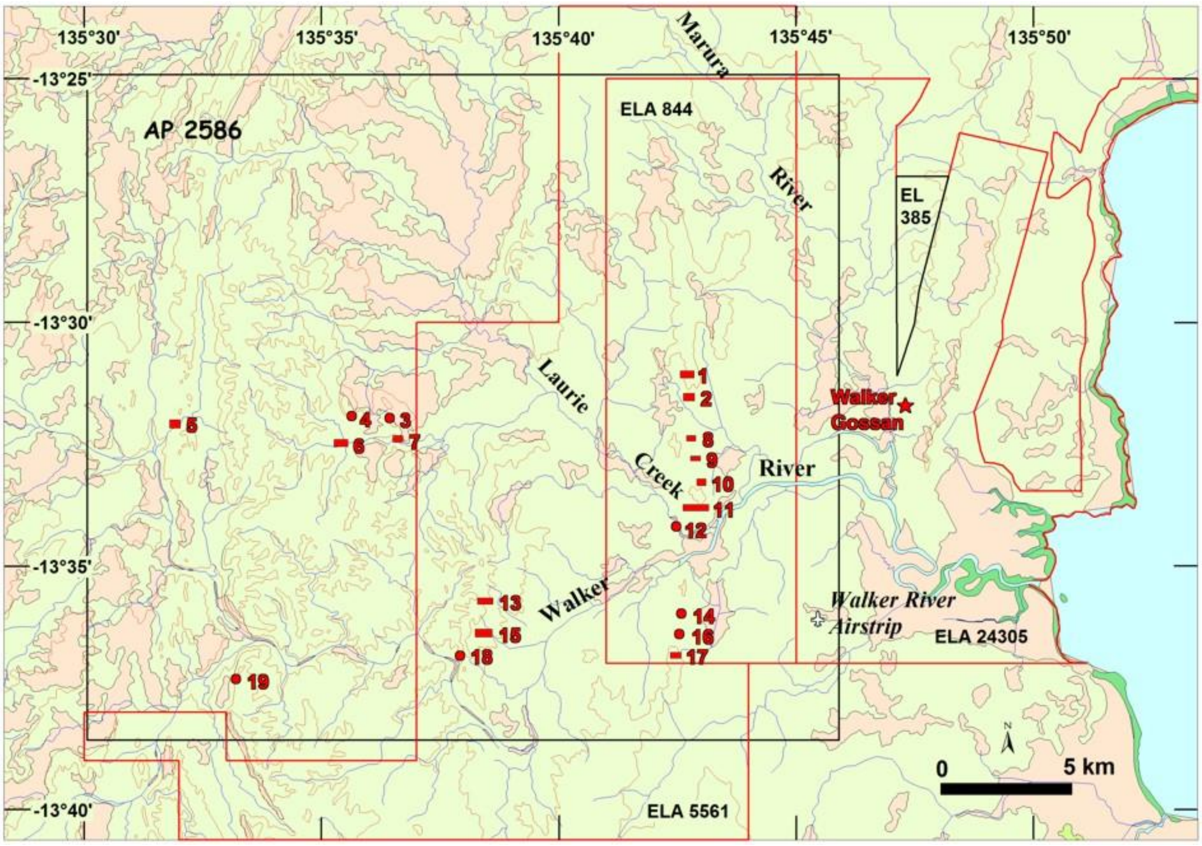


Figure 12. Location of AP 2586 radiometric anomalies in relation to GPM tenements
Compiled by D G Jones from Northern Territory titles database

6.1.6 AP 2595 1970-1972

AP 2595 was granted to CRAE in September 1970. Part of the tenement covers the present GPM ELA 5561. No open-file text reports on exploration are available from the NTGS. However, a map showing locations and assay results for reconnaissance drainage and soil samples taken on the tenement, and 5 maps showing airborne radiometric traverses with hand-annotated locations of anomalies, was lodged with the NTGS as company report CR1971-0019. The radiometric survey was to the west, outside the Walker Gossan Project area.

Samples were analysed for Pb, Zn, Cu and U. Peak values within the area now covered by GPM's tenements were Pb 17 ppm; Zn 23 ppm; Cu 3 ppm and U 3 ppm. AP 2595 was relinquished in September 1972.

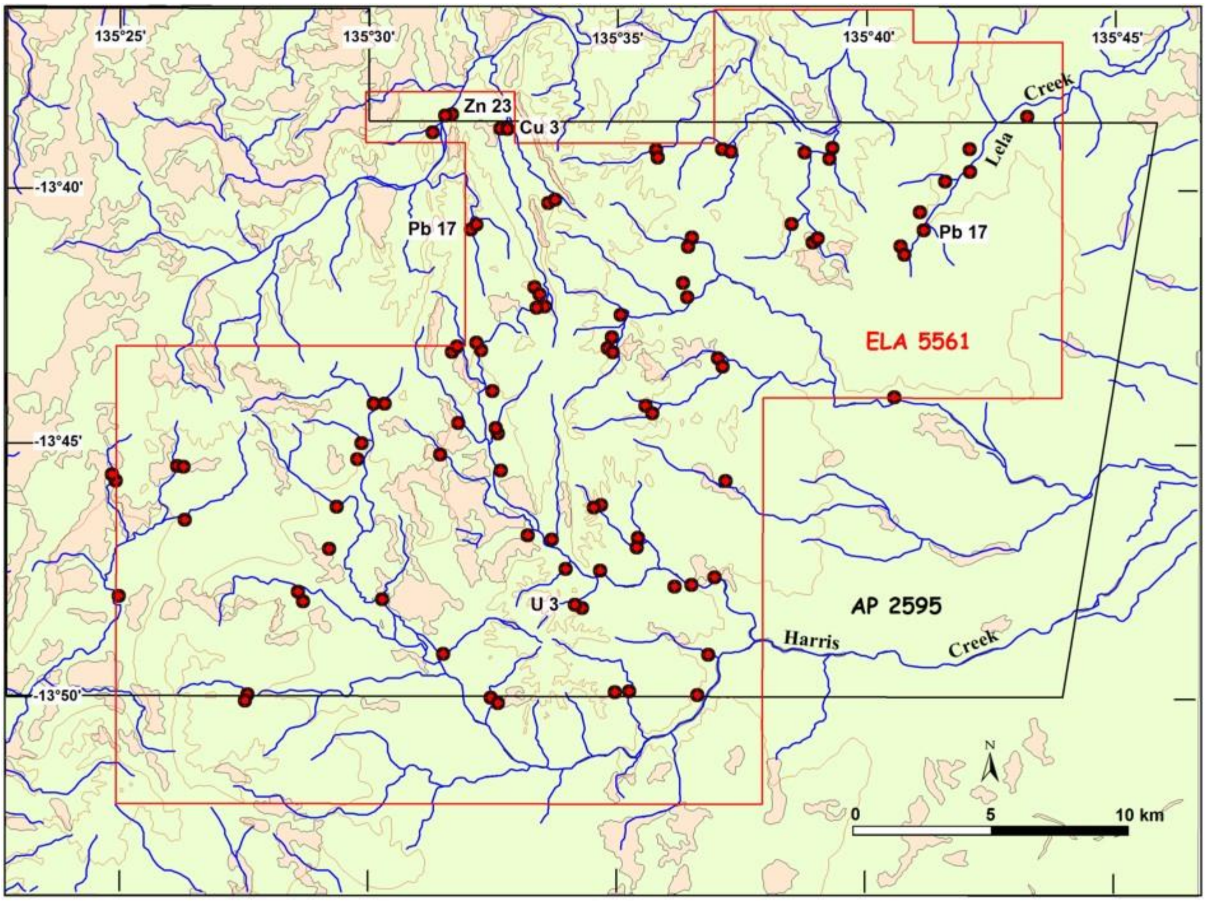


Figure 13. Peak drainage geochem values in AP 2595
Compiled by D G Jones from company report CR1971-0019

6.1.7 AP 2612 1970-1971

AP 2612 was granted to Stockdale Exploration Limited in December 1970. A fraction of the tenement covers the present GPM EL 23565, ELA 27920 and ELA 5561. Exploration by the company was primarily directed towards the search for diamonds and diamond source rocks. No sampling was undertaken within the present GML EL 23565, ELA 27920 and ELA 5561. AP 2612 expired in December 1971.

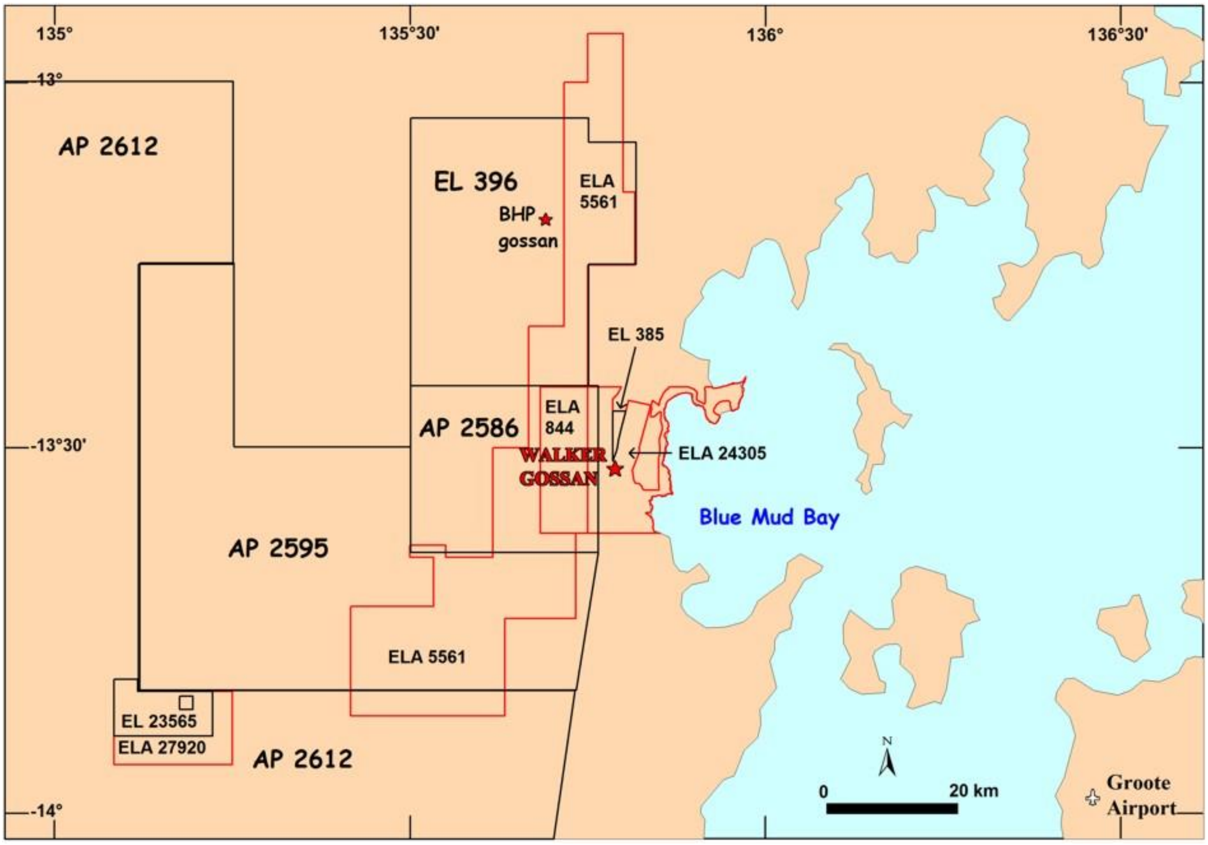


Figure 14. Location of AP 2586, AP 2595, AP 2612 & EL 396 in relation to GPM tenements
Compiled by D G Jones from Northern Territory titles database

6.1.8 EL 396 1972-1975

EL 396 was granted to BHP in August 1972. The eastern half of the tenement coincides with the northern half of the present GPM ELA 5561. The Vaughton Siltstone (part of the Balma Group) in the Strawbridge Creek-Koolatong River area was considered by BHP to be equivalent to the Barney Creek Formation of McArthur River that hosts the HYC lead-zinc orebody. The similarity includes the presence of black shales, siltstones, dolomitic siltstone and dolomite. Exploration work carried out between September and December 1972 included soil sampling, rock-chip sampling, and a limited IP and magnetic survey. No sampling was done inside the boundaries of the present GPM ELA 5561. Maximum soil values were: Cu 84 ppm; Zn 170 ppm and Pb 160 ppm. Maximum rock chip values in the Vaughton Siltstone were: Cu 40 ppm; Zn 200 ppm and Pb 86 ppm. Chip samples of a gossan in Strawbridge Breccia located at 574 800mE, 8 542 000 mN returned maximum values of: Cu 42 ppm; Zn 72 ppm and Pb 84 ppm.

During 1973 a total of 170 km of spot-testing of outcrops was carried out in 39 traverses. The spot test consisted of placing a few drops of 1:1 nitric acid on a piece of rock, waiting 60 seconds and then adding a few drops of potassium iodide solution containing 2% hydroxylamine hydrochloride. A yellow precipitate indicated the presence of lead. No positive results were obtained (BHP, 1973)

A combined airborne electromagnetic and magnetic survey was flown by Geoterrex Pty Ltd for BHP during November 1973. A total of 731 line-miles was flown in three sorties out of a base at Gove. Flight-lines were oriented E-W; at 1600 m spacing. The purpose of the survey was to explore for conductive massive sulphide mineralization. The whole area surveyed was found to be magnetically inactive. Six medium priority anomalies were recommended for ground follow-up with IP (Finney & Hansen, 1974).

Twenty-nine rotary open drill holes to bedrock were completed on three traverses totalling 779 m. Assays returned maximum values of: Cu 38 ppm; Zn 160 ppm and Pb 62 ppm. EL 396 was relinquished in August 1975

6.2 Discovery and Ownership

CRAE applied for EL 385 on 19 January 1972. The tenement was considered by CRAE to be prospective for base metal mineralisation, similar to that at the HYC deposit in the McArthur River area, as it contained McArthur Group equivalent sediments adjacent to the eastern margin of the Walker Fault Zone. Subsidiary targets were diamonds and bauxite (Hartshorn, 2006).

The Aboriginal Land Rights (Northern Territory) Act ("ALRA") was passed by the Commonwealth Parliament in 1976. This legislation granted freehold title to Aboriginal Land Trusts for most of the traditional lands in the Northern Territory. The application for EL 385 was processed in accordance with the ALRA.

The original application area was 36.46 sq km. Partial consent for the granting of this area was obtained in 2003. In May 2004 a Variation to the application area was made to increase the area to 63.46 sq km. The expanded area was granted to CRAE in June 2004 for an initial period of 6 years. As can be seen in Figure 13 below, the Coast Range hills were excluded from the granted area, as was the Walker Gossan.

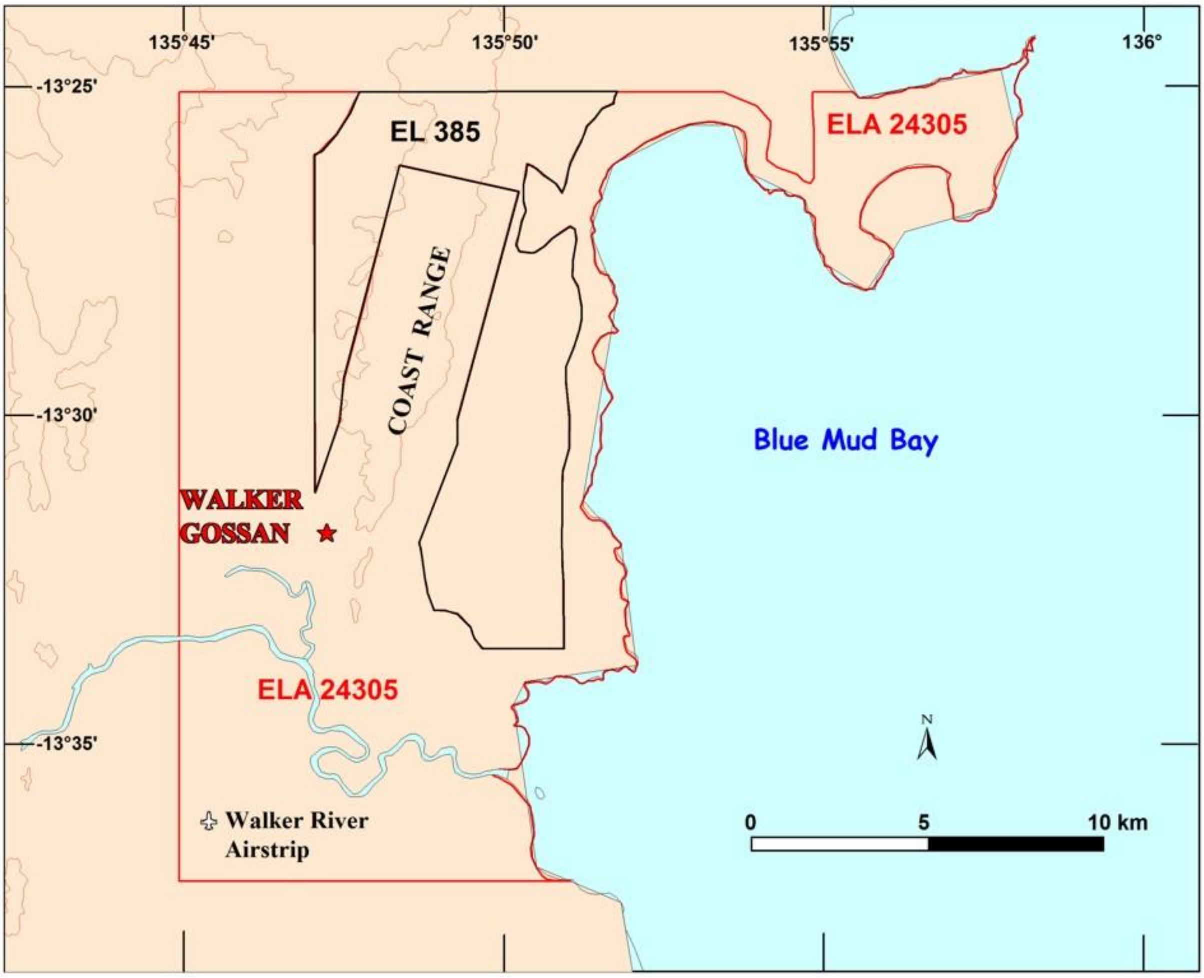


Figure 15. Original area granted under EL 385 in relation to GPM ELA 24305
Compiled by D G Jones from Northern Territory titles database

Three reports on exploration in the area are available on open file from the NTGS. These are Hartshorn (2006), Fry & Hartshorn (2006) and Pankhurst & Hartshorn (2007). None of them mention the Walker Gossan or any prior exploration that lead to the discovery of the Walker Gossan. Rio Tinto Exploration Pty Ltd ("RTE", the successor to CRAE) have not provided any reports that describe work leading to the discovery of the Walker Gossan or details of subsequent exploration of the gossan.

RTE provided an old CRAE plan No. NTd 164 dated October 1972 at a scale of 1:84,000 labelled "Walker River – ELA 384" that shows locations of stream sediment, soil and rock chip samples taken in the "Blue Mud Bay Beds" north of the Walker River. Registration of the map to geographic coordinates has been difficult due to lack of coordinate information, but a fair approximation has been achieved by empirical means using drainage as a reference. Although the map refers to ELA 385 the sampling was outside the boundaries of EL 385; the samples were taken within the boundaries of ELA 24305 for which an application was lodged by CRAE in January 1972. The application is still awaiting grant.

The samples plotted on the map show results for Pb analyses only. Two of the rock chip samples show assays of 1.1% Pb and 2.7% Pb. These results are very significant and could be considered to be the "discovery" of the Walker River Gossan. Unfortunately no additional information has been provided.

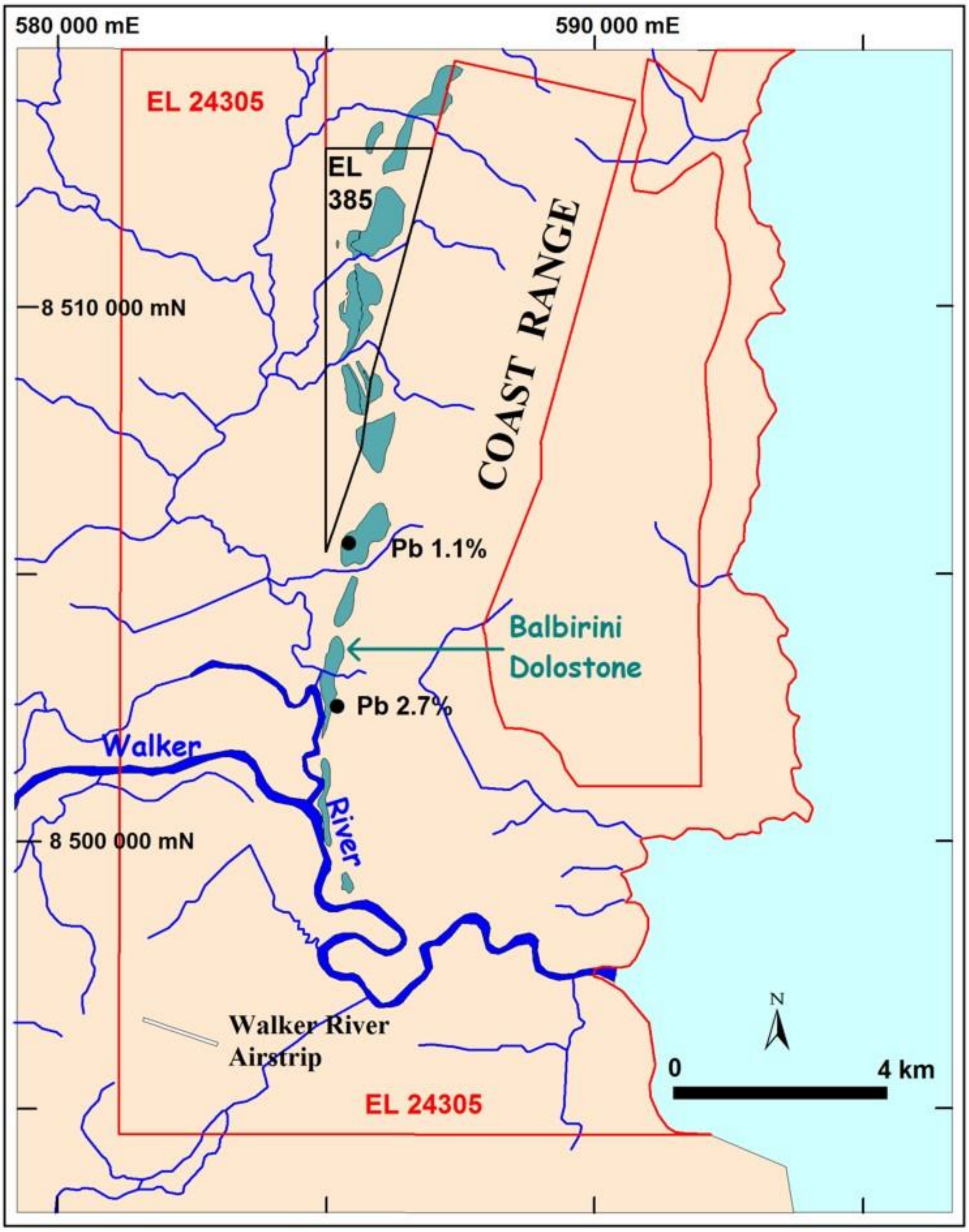


Figure 16. Discovery samples taken by CRAE in 1972
Compiled by D G Jones from CRAE map NTd 164

6.3 Previous Exploration

6.3.1 Topographic Mapping

The area is covered by the Geoscience Australia 1:250,000 scale topographic map "Blue Mud Bay" SD 5307, published in 2000, using UTM projection on the GRS80 ellipsoid. Horizontal datum is GDA94, equivalent to WGS84. National Mapping 1:100,000 topographic sheets "Blue Mud Bay" 6070 dated 1977 and "Koolatong" 6071 dated 1971 are also available. The following National Mapping 1:50,000 topographic sheets have been published and are available:

6070-1 Marura (1998)	6071-1 Gan Gan (1998)
6070-2 Waldnarr (1998)	6071-2 Kapui (1998)
6060-3 Anbali (1998)	6071-3 Bath Range (1998)
6070-4 Walker River (1998)	6071-4 Koolatong (1998)

6.3.2 Geological Mapping

The area is covered by the Geoscience Australia 1:250,000 scale geological map "Blue Mud Bay" SD 5307. The second edition was published in 1998, using UTM projection on the GRS80 ellipsoid. Horizontal datum is GDA94, equivalent to WGS84.

CRAE mapped the Walker Gossan Project area at 1:84,000 scale in 1972, using uncontrolled aerial photographs as a base. RTE produced an updated map in 2008, based largely on the Geoscience Australia mapping.

6.3.3 Geochemistry

The CRAE reconnaissance stream sediment, soil and rock chip geochemical sampling in 1972 that lead to the discovery of the Walker Gossan resulted in 14 stream sediment samples, 17 soil samples and 2 rock chip samples being sent for assay. Results for Pb analyses only are available (see Figure 15). The highest soil and stream sediment Pb values correspond with the locations of the high Pb values in rock chips. The source appears to be the Balbirini Dolostone.

The passing of the Aboriginal Land Rights (Northern Territory) Act by the Commonwealth Parliament in 1976 granted freehold title to Aboriginal Land Trusts for most of the traditional lands in the Northern Territory, including all of Arnhem Land. The federal government subsequently froze all applications for mining and exploration on aboriginal reserves. Access to such properties by resource companies was not permitted, and no further exploration work was carried out on this project by CRAE.

In 1995, CRA and Rio Tinto Zinc Corporation ("RTZ") merged into a dual listed company, in which management was consolidated into a single entity and share holder interests were aligned and equivalent, although maintained as shares in separately named entities. The merger precipitated a name change and in 1997 CRA became Rio Tinto Limited. CRAE became Rio Tinto Exploration Pty Ltd ("RTE").

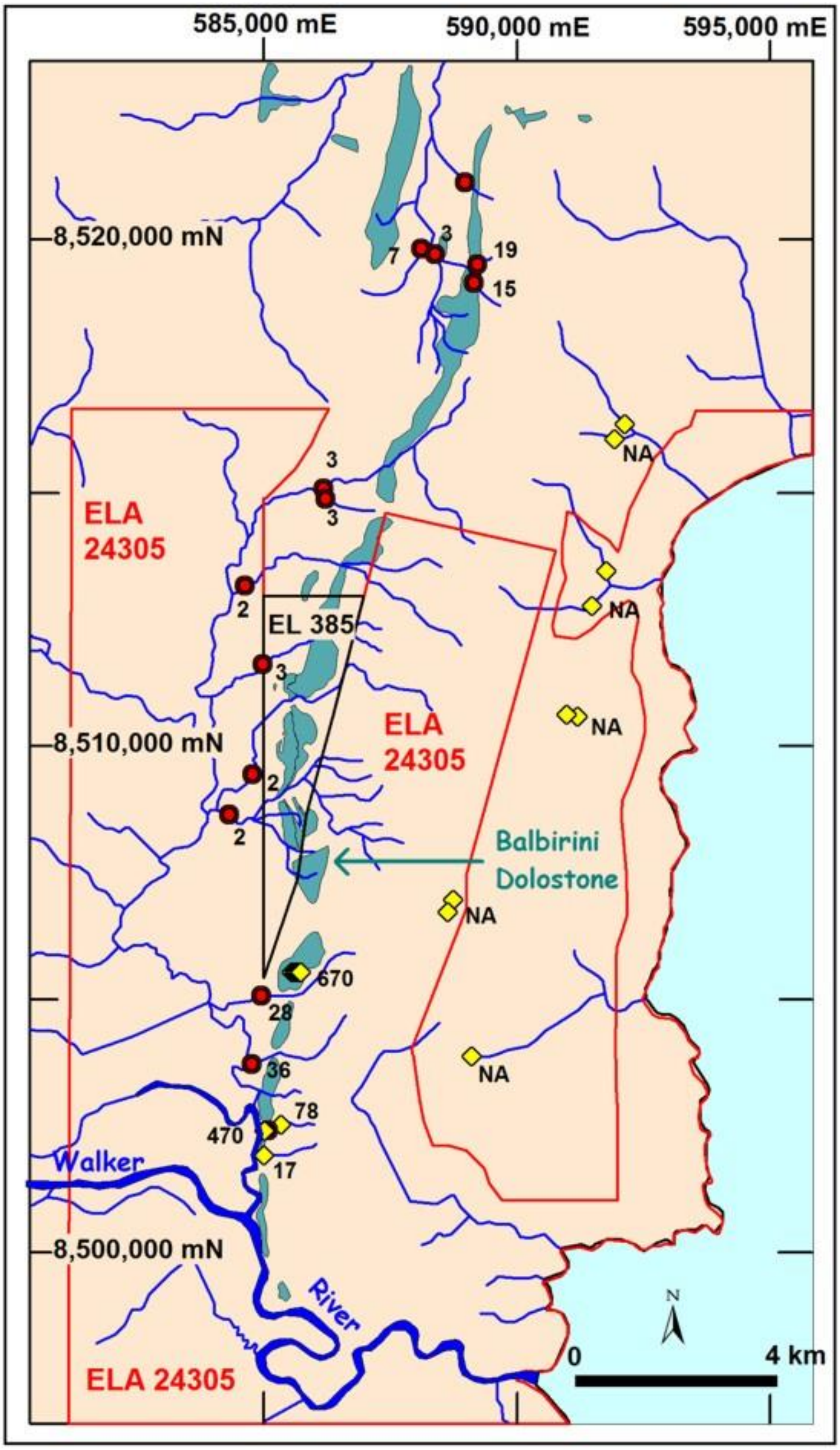


Figure 17. CRA 1972 stream sediment (red circles) & soil (yellow) Pb values in ppm
Compiled by D G Jones from CRAE map NTd 164 (NA = No Data)

Following the grant of EL 385 to RTE in 2004, exploration in the 2004 field season was directed at locating a stratabound base metal deposit and comprised:

- Rock chip sampling (7 samples)
- -80# stream sediment sampling (23 samples)
- -1 mm gravel sampling (7 samples)
- Soil sampling (274 samples)

The work programme was subject to a comprehensive work programme clearance facilitated by the Northern Land Council. During this clearance, the traditional owners requested that RTE avoid entering the portion of the Coast Range covered by the granted titles. Accordingly no work was done in this elevated terrain.

Results did not identify any anomalous metal levels in any of the samples. RTE considered that on the western side of the Coast Range, residual materials were sampled and that the results reflect the barren nature of the underlying sediment package. The eastern side of the Coast Range however, was found to be completely blanketed by a thin veneer of fine quartz sand that would likely obscure any in-situ geochemical signature. An auger sampling programme to sample the underlying bedrock was proposed for 2005.

Photo 3. Typical ferruginous dolostone
Source: Rio Tinto Exploration

Photo 4. Cherty ferruginous dolostone
Source: Rio Tinto Exploration

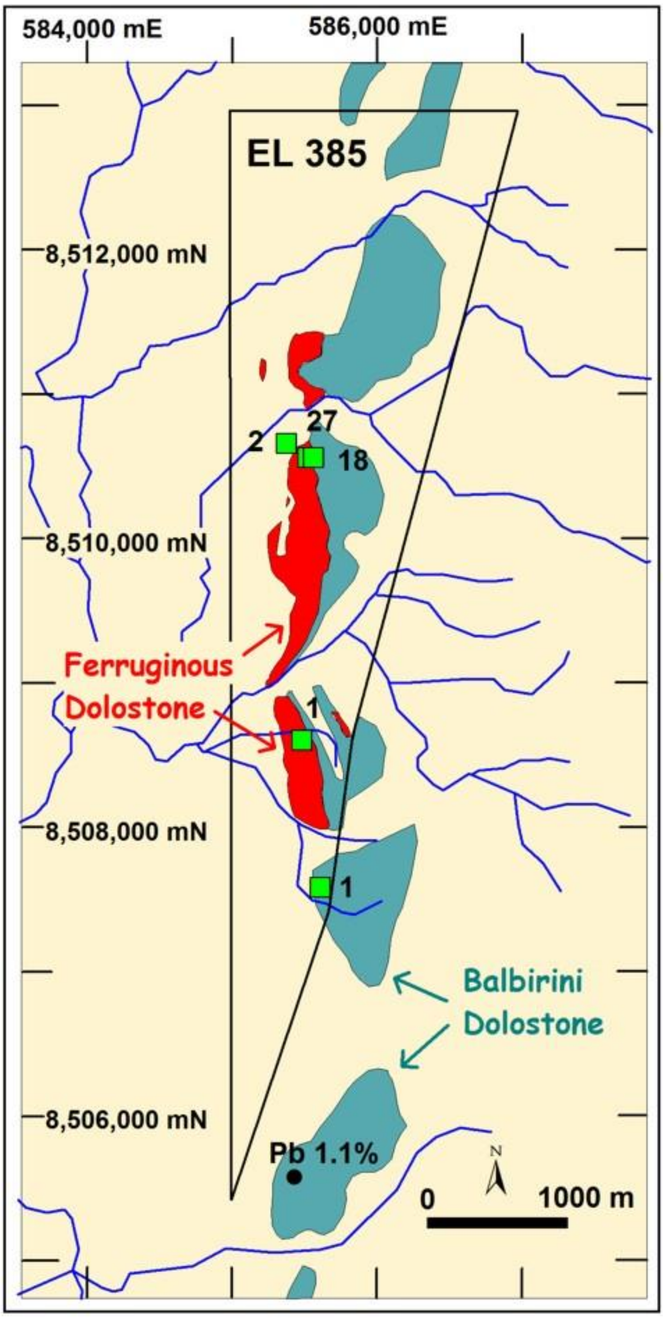


Figure 18. RTE 2004 rock chip samples (green squares) with Ag values in ppm
Compiled by D G Jones from RTE map pzn08-010

Number	Type	Date	East	North	Description
6023812	Outcrop	5/10/2004	592063	8515614	well bedded siltstone with stromatolites
6023813	Outcrop	5/10/2004	585367	8510686	ferruginous siltstone with quartz veins
6023814	Float	1/10/2004	591613	8511616	unconsolidated pisolite sample
6023815	Outcrop	5/10/2004	585530	8510585	possible Mn siltstone
6023816	Outcrop	5/10/2004	585531	8510586	possible Mn siltstone
6023817	Outcrop	5/10/2004	585601	8507614	Mesozoic ? iron cemented fragments of sste / siltstone
6023818	Outcrop	5/10/2004	585476	8508632	Stromatolitic - possible Mn

Table 2. RTE Rock Grab Sample Location & Descriptions 2004
Source: Rheinberger (2005)

Number	Ag	As	Au	Co	Cu	Mn	Mo	Pb	U	Zn
	ppm	ppm	PPB	ppm	ppm	ppm	ppm	ppm	ppm	ppm
6023812	<1	10	2	<2	14	41	<3	12	<10	6
6023813	2	44	3	92	8	15500	3	<5	<10	30
6023814	<1	72	<1	12	19	289	6	26	<10	4
6023815	27	31	1	586	315	<5	96	5	<10	67
6023816	18	52	<1	356	173	<5	67	36	<10	39
6023817	1	51	4	10	22	1810	6	23	<10	8
6023818	1	17	<1	7	17	3080	<3	15	<10	11
Number	**Ag**	**As**	**Au**	**Co**	**Cu**	**Mn**	**Mp**	**Pb**	**U**	**Zn**

Table 3. RTE Rock Grab Sample Analytical Results 2004
Source: Rheinberger (2005)

Number	East	North	Ag	As	Au	Co	Cu	Mn	Mo	Pb	U	Zn
			ppm	ppm	PPB	ppm	ppm	ppm	ppm	ppm	ppm	ppm
6023109	585235	8508068	0.7	7.2	<0.1	5	23	204	1.2	9.8	2.17	5
6023116	586064	8509580	0.6	6.6	<0.1	5	13	313	0.8	7.5	1.45	2
6023423	585531	8513730	1.0	12.4	<0.1	8	9	513	1.7	8.9	1.59	4
6023435	591887	8504799	0.9	8.7	<0.1	<2	3	66	5.6	6.8	1.42	4
6023436	590825	8513719	1.0	5.1	0	3	5	62	0.6	4.4	1.77	3
6023437	590885	8514441	0.9	2.8	0	5	3	109	0.8	3.8	2.57	3
6023438	586213	8510579	1.2	5.8	0	3	18	109	0.8	9.9	2.26	4
6023439	586330	8511079	1.0	13.8	1	2	108	144	1.6	10.7	3.05	4
6023448	585146	8510641	1.4	5.1	1	3	37	162	0.8	7.9	2.64	5
6023454	586695	8512287	0.8	11.5	0	5	59	160	0.9	8.0	2.00	3
6160884	592468	8511648	<0.1	6.0	0	3	10	140	1.7	7.0	1.25	5
6160926	592124	8516174	0.5	2.8	<0.1	<2	3	51	0.3	2.5	1.54	<2
6160927	591538	8509802	0.2	2.8	0	3	4	128	0.3	9.5	2.25	5
6160928	590044	8510590	<0.1	1.8	0	3	5	202	0.3	14.7	2.61	11
6160929	590017	8510470	0.3	1.9	0	<2	5	145	0.4	17.6	2.94	11
6160938	589500	8508912	<0.1	2.9	0	3	5	168	0.3	17.3	3.23	7
6160939	590605	8512264	0.4	4.2	0	3	5	85	0.2	8.7	1.80	3
6160941	591100	8514640	0.5	2.5	0	2	3	70	0.4	4.4	1.57	<2
6160942	585167	8511788	0.5	3.2	<0.1	7	44	206	0.6	12.7	2.19	4
6160947	585126	8514862	0.5	3.7	0	4	11	92	0.5	15.4	1.86	12
6160948	585986	8513696	0.6	4.5	<0.1	3	9	104	0.6	6.7	1.66	4
6160949	585251	8508954	0.7	5.8	0	4	39	174	0.6	8.3	1.96	4

Table 4. RTE Stream Sediment Sample Analytical Results 2004
Source: Rheinberger (2005)

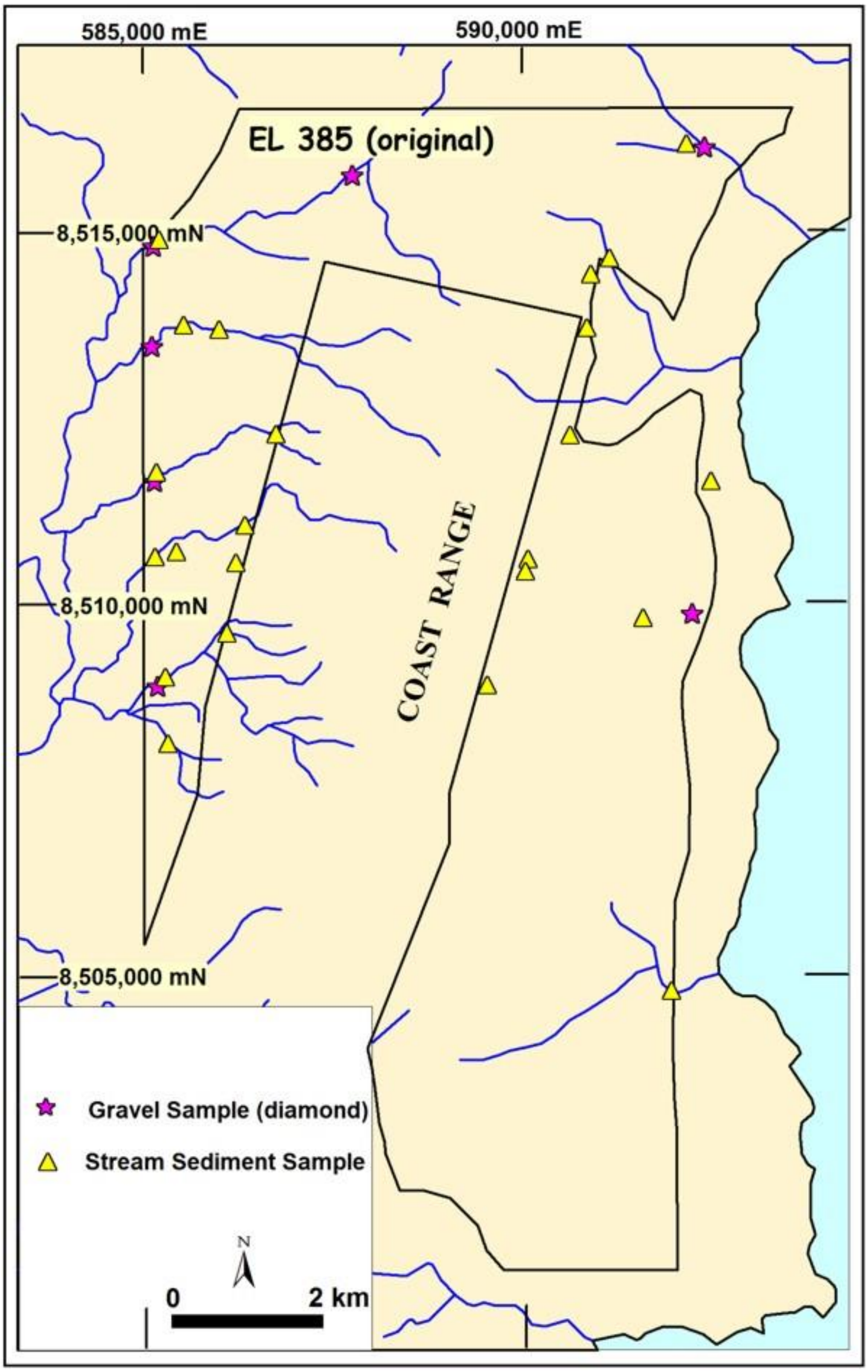


Figure 19. RTE 2004 stream sediment & gravel sample locations
Compiled by D G Jones from Rheinberger (2005)

Number	Latitude	Longitude	Date	Weight kg	Diamond count	Chromite count	Pyrope count	Diopside count
6023419	-13.443372	135.794217	4/10/2004	30	0	0	0	0
6023421	-13.432800	135.786266	4/10/2004	30	0	0	0	0
6023422	-13.443077	135.790133	4/10/2004	30	0	0	0	0
6160923	-13.460629	135.786781	7/10/2004	30	0	0	0	0
6160924	-13.478394	135.845746	7/10/2004	30	0	0	0	0
6160925	-13.420764	135.850956	7/10/2004	30	0	9	0	0
6160950	-13.48605	135.787853	7/10/2004	30	0	10	0	0

Table 5. RTE Gravel Sample Locations & Results 2004
Source: Rheinberger (2005)

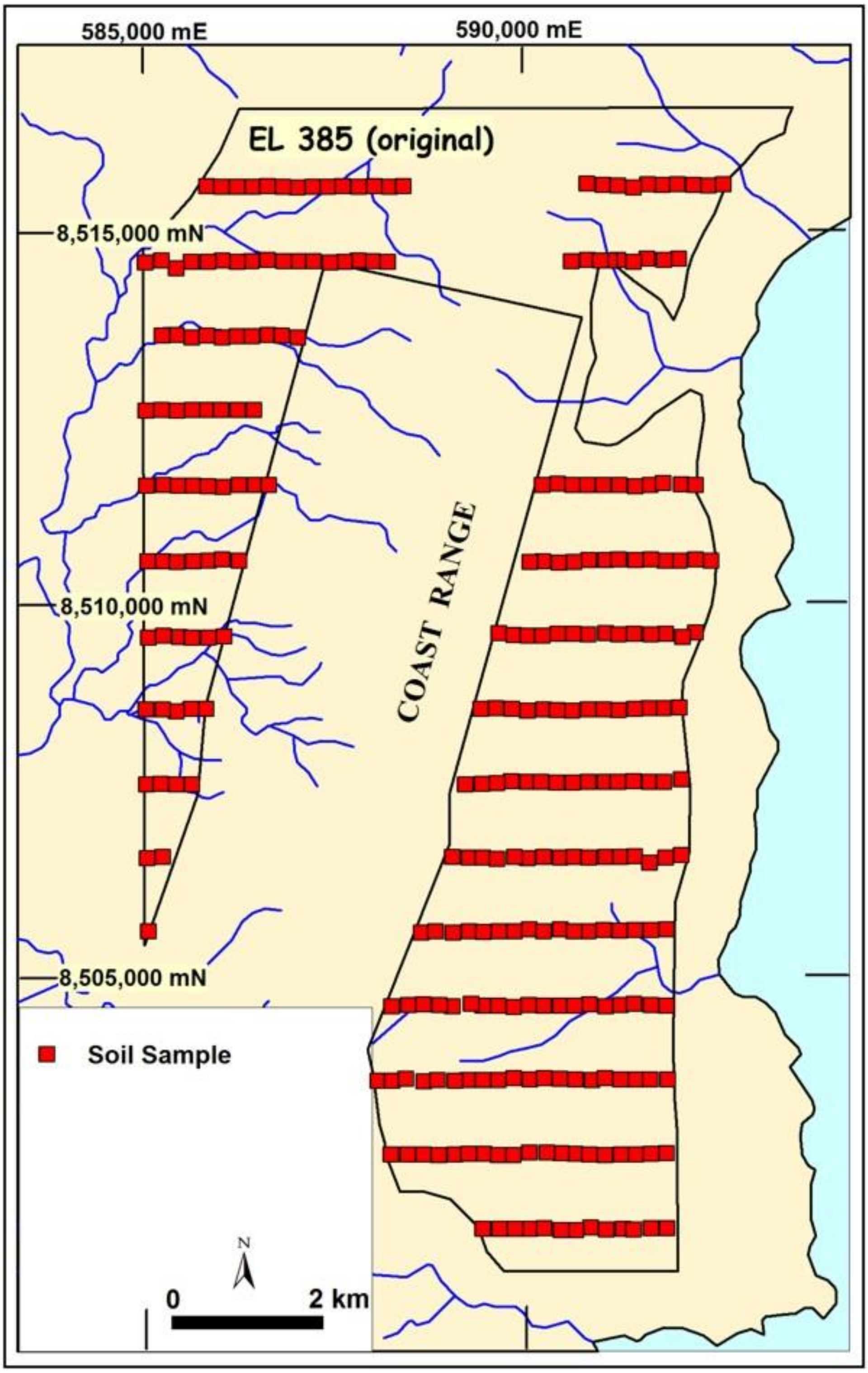


Figure 20. RTE 2004 soil sample locations
Compiled by D G Jones from Rheinberger (2005)

Detailed descriptions of the soil samples, and analytical results for key elements, are set out in Appendix 1 and Appendix 2.

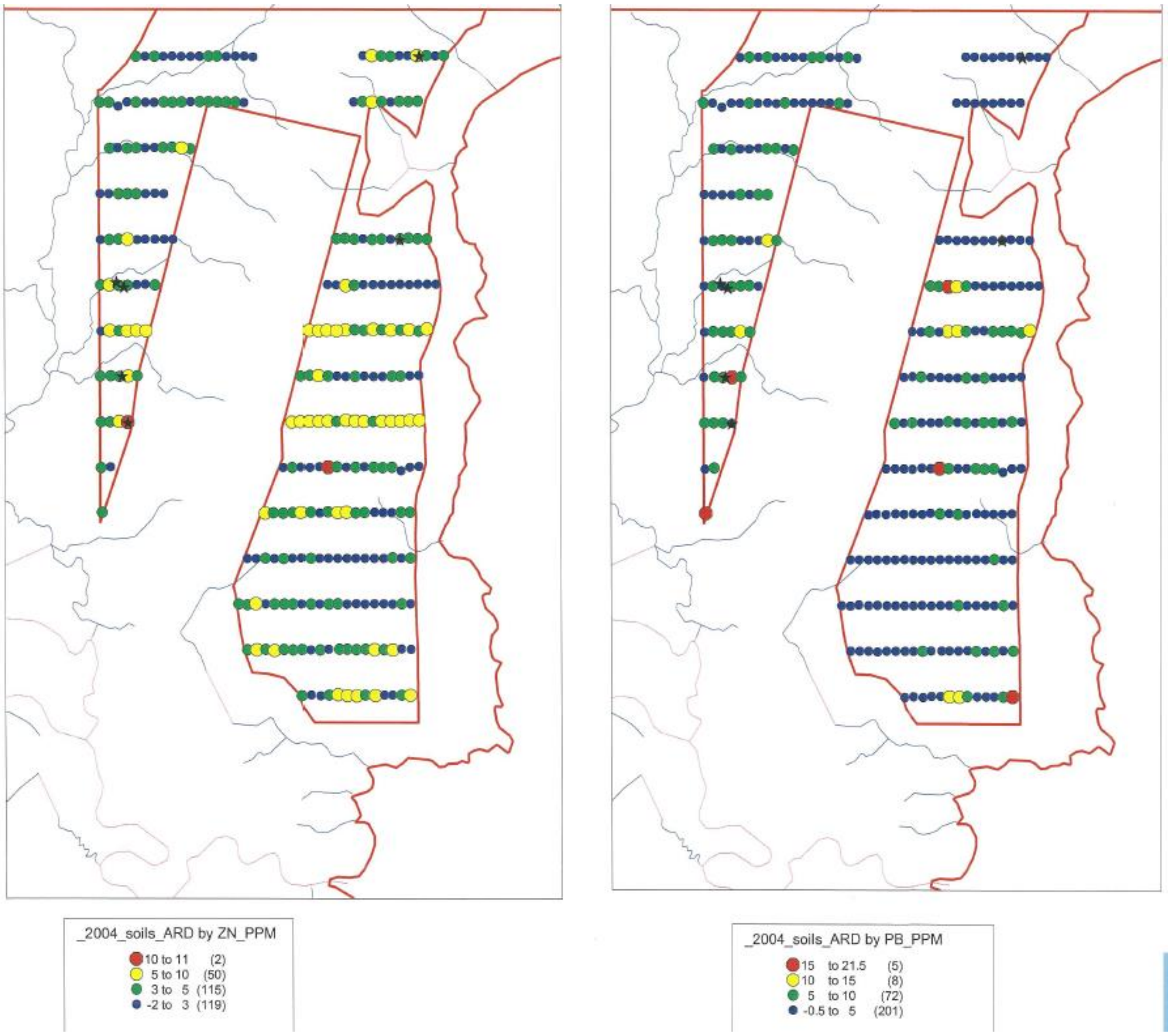


Figure 21. Schematic analytical results for Zn & Pb from RTE 2004 soil sampling
Source: Hartshorn (2006)

During 2005 RTE continued exploration directed at locating a stratabound base metal deposit by shallow auger drilling through sand cover. Results did not show any anomalous geochemistry for either zinc or bauxite mineralisation below the sand cover.

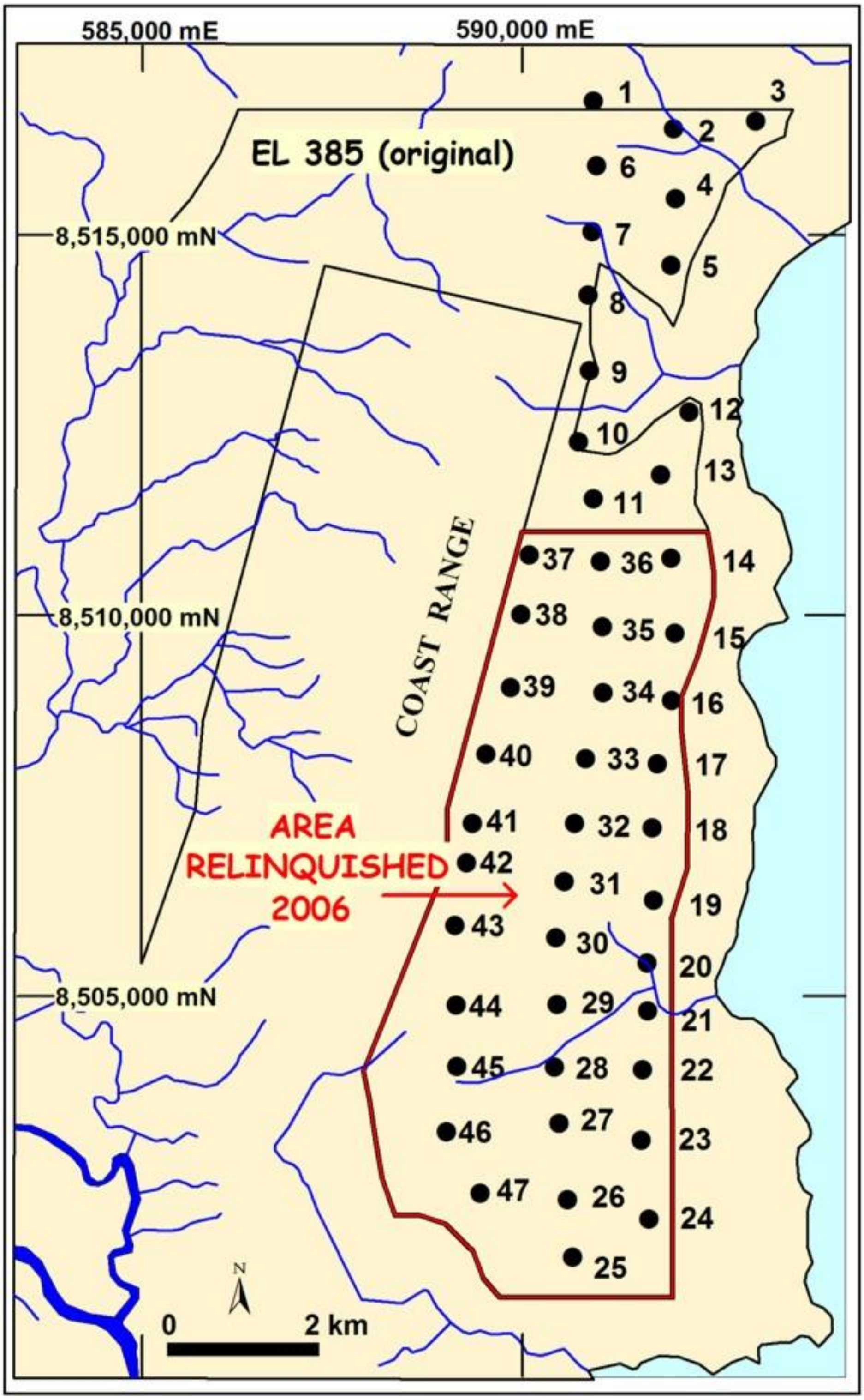


Figure 22. Location of RTE 2005 Auger drill holes
Compiled by D G Jones from Hartshorn (2006)

Approximately 50% of EL 385 was relinquished in 2006 following the lack of significant results from this auger sampling. Further reductions were made in 2007 and 2008, to the current triangular EL 385 of 7.75 sq km. No ground exploration work has been done on any of the tenements that make up the Walker Gossan Project since the 2005 field season.

02

Drill Hole No.	Sample Number	Ag ppm	As ppm	Au PPB	Co ppm	Cu ppm	Mn ppm	Mo ppm	Pb ppm	U ppm	Zn ppm
01	6072552	0.5	2.7	2	10.7	22.9	87	1.1	5.6	2.92	47.5
02	6072553	0.7	19.8	2	5.7	23.6	317	2.4	10.0	2.56	2.4
03	6072554	0.8	16.7	1	4.4	16.8	207	1.8	4.6	2.49	X
04	6072555	0.3	4.4	2	2.6	11.9	24	2.0	2.4	2.01	5.7
05	6072556	0.7	29.9	2	3.4	10.4	61	4.4	23.2	2.91	X
06	6072557	0.4	6.4	1	1.9	11.3	37	4.8	3.8	1.78	2.0
07	6072558	0.4	4.9	X	7.7	27.5	74	1.8	5.1	3.91	36.8
08	6072559	0.5	47.9	1	8.9	27.1	79	5.8	33.4	10.3	12.6
09	6072560	0.7	5.4	X	1.9	6.2	64	2.9	2.4	3.68	X
10	6072561	0.4	45.4	1	5.1	11.5	107	7.0	25.2	5.87	X
11	6072562	0.4	5.2	X	9.6	7.3	185	1.6	5.1	2.13	1.7
12	6072563	0.4	29.4	3	5.0	13.2	191	4.0	22.4	4.11	X
13	6072564	0.6	3.1	X	3.8	14.1	83	3.0	7.2	3.73	12.6
14	6072565	0.3	10.4	X	4.0	8.4	38	3.2	12.2	2.41	4.6
15	6072566	0.3	11.6	1	4.6	7.1	29	2.8	14.9	3.28	X
16	6072567	0.6	24.2	2	4.2	15.3	60	4.0	29.1	3.67	6.8
17	6072568	0.3	13.7	X	5.1	11.1	66	2.2	19.0	4.73	2.1
18	6072569	0.4	11.8	X	3.7	2.6	45	2.0	17.0	3.39	7.2
19	6072570	0.4	19.4	X	6.9	15.9	95	2.3	28.3	6.16	13.4
20	6072571	0.5	15.2	X	4.9	15.3	40	2.3	18.2	4.6	5.6
21	6072572	0.4	8.6	1	4.4	10.6	22	1.5	13.2	3.99	X
22	6072573	0.5	8.9	X	4.8	14.5	69	4.3	15.7	5.93	7.8
23	6072574	0.4	8.8	X	5.3	13.2	56	4.0	19.0	3.94	9.0
24	6072575	0.6	13.7	2	3.2	11.9	44	2.7	19.7	3.54	3.8
25	6072576	0.8	5.9	X	4.3	8.9	289	2.7	6.6	1.81	4.7
26	6072577	0.3	9.3	X	30.1	17.4	259	2.0	23.0	3.25	9.8
27	6072578	0.3	9.7	X	14.9	5.2	144	2.1	13.7	2.78	X
28	6072579	0.3	22.3	X	8.8	19.4	287	4.3	24.9	5.1	35.8
29	6072580	0.6	42.5	X	2.6	8.5	79	2.6	17.6	2.77	10.7
30	6072581	0.5	20.3	X	4.3	9.3	45	2.1	21.1	4.37	7.0
31	6072582	0.5	13.5	X	3.8	8.2	42	2.1	25.7	5.25	X
32	6072583	0.4	16.5	X	5.1	13.8	23	2.7	20.1	3.54	2.8
33	6072584	0.3	17.3	X	5.0	26.0	29	3.3	30.4	5.9	X
34	6072585	0.4	7.1	X	4.3	10.3	45	6.6	12.8	4.48	9.3
35	6072586	0.2	27.1	1	4.3	12.4	27	2.1	24.8	4.46	2.6
36	6072587	0.4	21.5	2	3.8	11.2	50	2.4	25.9	3.34	X
37	6072588	0.2	5.7	1	4.8	13.1	54	1.5	15.8	2.98	3.5
38	6072589	0.5	11.0	X	37.4	29.8	151	1.4	20.6	2.78	110.0
39	6072590	0.5	14.6	X	8.3	29.5	234	3.8	30.1	6.35	28.2
40	6072591	0.3	17.5	X	21.7	17.8	619	2.9	29.4	6.55	2.0
41	6072592	0.4	12.4	2	11.4	20.1	620	2.4	48.0	6.52	108.0
42	6072593	0.3	5.0	X	11.4	14.9	260	1.9	29.7	5.99	52.9
43	6072594	0.2	22.7	X	4.9	9.2	62	2.3	15.5	3.66	1.5
44	6072595	0.4	10.3	X	3.5	14.0	49	6.9	12.2	1.7	2.7
45	6072596	0.4	11.0	X	1.4	21.7	48	2.0	49.7	3.86	22.9
46	6072597	0.6	12.4	1	2.5	15.6	78	4.2	13.0	2.43	39.7
47	6072598	0.3	26.6	X	7.1	16.7	157	5.2	20.5	4.92	13.9

Table 6. Key element analyses from RTE 2005 auger drilling
Source: Hartshorn (2006)

6.3.4 Drilling

The project is at a very early stage of exploration, with only shallow auger drilling yet undertaken.

6.3.5 Sampling & Assaying

6.3.5.1 Rock Chip Sampling

In the 2004 field season, a total of 7 rock grab samples of between 1 kg and 3 kg of material were collected from depths of approximately 10-20 cm in predominantly "A" horizon. Analysis was undertaken at Amdel Laboratories in Adelaide using the protocols set out below:

Preparation	Digest	Method	Elements (lower detection limit)
Dry, crush and pulverise entire sample to nominal 97% passing 95µm	Lead fusion fire assay (50 g charge) Aqua regia digest	ICPMS /ICPOES	Au (1 ppb), Pt (5 ppb), Pd (1 ppb)
	HF/multi acid (0.5 g aliquot)	ICPMS /ICPOES	Ag (1 ppm), Al (10 ppm), As (3 ppm), Ba (10 ppm), Bi (5 ppm), Ca (10 ppm), Cd (5 ppm), Co (2 ppm), Cr (2 ppm), Cu (2 ppm), Fe (100 ppm), K (10 ppm), Mg (10 ppm), Mn (5 ppm), Mo (3 ppm), Na (10 ppm), Nb (5 ppm), Ni (2 ppm), P (5 ppm), Pb (5 ppm), S (50 ppm), Sb (5 ppm), Sr (2 ppm), Th (5 ppm), Ti (10 ppm), U (5 ppm), V (2 ppm), W (10 ppm), Zn (2 ppm) Zr (10 ppm)

Table 7. RTE Rock Grab Sample Analysis Protocols
Source: Rheinberger (2005)

Founded in 1960 when the Technical Services Section of the South Australian Department of Mines was reconstituted as the Australian Mineral Development Laboratories ("Amdel"), Amdel provides an independent comprehensive contract research service for the benefit of the mining industry. In 1989 the South Australian Government privatised the company.

Amdel provides a full range of mineral testing services (analytical, mineral processing, mineralogy) to a broad range of mining industry clients. Owned by the Bureau Veritas Group since May 2008, Amdel is supported through a global network of over 900 offices across 140 countries. Founded in 1828, Bureau Veritas is a world leader specialising in conformity assessment services related to Quality, Health, Safety & Environment (QHSE), and is certified to ISO 9001 for all of its activities globally. Bureau Veritas has no connection with Rio Tinto or GBM.

6.3.5.2 Soil Sampling

In RTE's 2004 exploration program, a total of 274, -40# soil samples were collected from depths of approximately 10-20 cm in predominantly "A" horizon. Analysis was undertaken at Amdel Laboratories in Adelaide using the protocols set out below. This work was followed up in 2005 with the collection of 147 soil samples following the same collection procedure and analytical protocols.

Preparation	Digest	Method	Elements (lower detection limit)
Dry, crush and pulverise entire sample to nominal 97% passing 95µm	HF/multi acid (0.5 g aliquot)	ICPMS /ICPOES (elements with asterisk by ICPMS)	Ag* (0.1 ppm), Al (10 ppm), As* (0.5 ppm), Ba (10 ppm), Ca (10 ppm), Cd* (0.1 ppm), Ce (0.5 ppm), Co (2 ppm), Cr (2 ppm), Cs (0.1 ppm), Cu (2 ppm), Bi* (0.1 ppm), Fe (100 ppm), Ga (0.1 ppm), K (10 ppm), In (0.05 ppm), La (0.5 ppm), Mg (10 ppm), Mn (5 ppm), Mo* (0.1 ppm), Na (10 ppm), Nb* (0.1 ppm), Ni (2 ppm), P (5 ppm), Pb* (0.5 ppm), Rb (0.1 ppm), Sb* (0.5 ppm), Se (0.5 ppm), Sr (2 ppm), Te (0.2 ppm), Th (0.2 ppm), Ti (10 ppm), Tl (0.1 ppm), U* (0.02 ppm), V (2 ppm), W* (0.1 ppm), Y (0.05 ppm), Zn (2 ppm), Zr (10 ppm)

Table 8. RTE Soil Analysis Protocols
Source: Hartshorn (2006)

6.3.5.3 Stream Sediment Sampling

In RTE's 2004 exploration program, a total of 23, -80# stream sediment samples were collected from the active channel of selected drainages. Analysis was undertaken at Amdel Laboratories in Adelaide using the protocols set out below. This work was followed up in 2005 with the collection of 5 stream sediment samples following the same collection procedure and analytical protocols.

Preparation	Digest	Method	Elements (lower detection limit)
Dry and pulverise entire sample	HF/multi acid (0.5 g aliquot)	ICPMS /ICPOES (elements with asterisk by ICPMS)	Ag* (0.1 ppm), Al (10 ppm), As* (0.5 ppm), Ba (10 ppm), Ca (10 ppm), Cd* (0.1 ppm), Ce (0.5 ppm), Co (2 ppm), Cr (2 ppm), Cs (0.1 ppm), Cu (2 ppm), Bi* (0.1 ppm), Fe (100 ppm), Ga (0.1 ppm), K (10 ppm), In (0.05 ppm), La (0.5 ppm), Mg (10 ppm), Mn (5 ppm), Mo* (0.1 ppm), Na (10 ppm), Nb* (0.1 ppm), Ni (2 ppm), P (5 ppm), Pb* (0.5 ppm), Rb (0.1 ppm), Sb* (0.5 ppm), Se (0.5 ppm), Sr (2 ppm), Te (0.2 ppm), Th (0.2 ppm), Ti (10 ppm), Tl (0.1 ppm), U* (0.02 ppm), V (2 ppm), W* (0.1 ppm), Y (0.05 ppm), Zn (2 ppm), Zr (10 ppm)

Table 9. RTE Stream Sediment Analysis Protocols
Source: Hartshorn (2006)

6.3.5.4 Gravel Sampling

In RTE's 2004 exploration program, a total of seven, -1mm gravel samples were collected from trap sites within active drainages across the tenement. Sample size was approximately 30 kg. Samples were processed at RTE's mineral processing laboratory in Perth and heavy mineral concentrates observed for diamonds and diamond indicator minerals. No diamonds were recovered in any sample. Grains selected as possibly chromite were micro-probed to determine their chemistry. No chromite or other kimberlitic / diamond indicator mineral was identified. A further single gravel sample was collected in 2005 following the same collection procedure and analytical protocols, with similar results.

6.3.5.5 Auger Sampling for Base Metals

In RTE's 2005 exploration program, a total of 34 samples were collected from variable depths depending on how far the 8 cm spiral auger could penetrate and the interpretation of weathered insitu bedrock. The samples were collected from an average of 6m depth with the maximum being 16m and minimum of 2m. Analysis was undertaken at Amdel Laboratories in Adelaide using the protocols set out below:

Preparation	Digest	Method	Elements (lower detection limit)
Dry, crush and pulverise entire sample to nominal 97% passing 95µm	Lead fusion fire assay (50 g charge) Aqua regia digest	ICPMS /ICPOES	Au (1 ppb), Pt (5 ppb), Pd (1 ppb)
	HF/multi acid (0.5 g aliquot)	ICPMS /ICPOES	Ag (1 ppm), Al (10 ppm), As (3 ppm), Ba (10 ppm), Bi (5 ppm), Ca (10 ppm), Cd (5 ppm), Co (2 ppm), Cr (2 ppm), Cu (2 ppm), Fe (100 ppm), K (10 ppm), Mg (10 ppm), Mn (5 ppm), Mo (3 ppm), Na (10 ppm), Nb (5 ppm), Ni (2 ppm), P (5 ppm), Pb (5 ppm), S (50 ppm), Sb (5 ppm), Sr (2 ppm), Th (5 ppm), Ti (10 ppm), U (5 ppm), V (2 ppm), W (10 ppm), Zn (2 ppm) Zr (10 ppm)

Table 10. RTE Auger Samples for Base Metals: Analysis Protocols
Source: Hartshorn (2006)

The results of the auger sampling did not show any significant anomalism in metals associated with lead zinc mineralisation. The auger drilling stopped in weathered material in all holes; however, this was interpreted to be mostly insitu and not a younger cover. The work was therefore considered effective in testing for bedrock geochemical anomalism.

Photo 5. RTE Auger sampling
Source: Hartshorn (2006)

Four drill holes that contained lateritic material that was possibly bauxitic were sampled and analysed by XRF. This material was shown to be lateritic weathered sandstone and not considered significant for bauxite.

Hole Number	Sample Numbers	Depth (m)	Al_2O_3 %	CaO %	SiO_2 %	TiO_2 %
AG 05 WR 15	6072610	0-1	1	17.8	0.02	33.7
AG 05 WR 16	6072611	1-2	2	8.9	0.02	71.2
AG 05 WR 24	6072612	0-1	1	8.6	0.06	56.7
AG 05 WR 33	6072613	0-1	1	10.8	0.02	55.8
AG 05 WR 43	6072615		1	11.5	0.02	57.7
AG 05 WR 43	6072616		2	14.3	0.02	54.1

Table 11. Auger samples analysed for bauxite
Source: Hartshorn (2006)

Preparation	Digest	Method	Elements (lower detection limit)
Dry, crush and pulverise entire sample to nominal 97% passing 95µm	Fused bead	XRF fused bead Thermo-gravimetric	Al_2O_3 CaO Fe_2O_3 K_2O MgO MnO $N_{a2}O$ P_2O_5 (0.001) SiO_2 SO_3 TiO_2 ZrO_2 V_2O_5 (0.001) LOI (detection limit 0.01% except as bracketed)

Table 12. RTE Auger Samples for Bauxite: Analysis Protocols
Source: Hartshorn (2006)

XRF is an analytical method using emission spectroscopy to identify the presence of specific elements in most materials. Every element has a unique emission signature, making it possible to quantify the presence of an element by the relative strength of the emission. While XRF is a very accurate and reliable instrumentation-based method for quantitative analysis of chemical elements, under certain circumstances (discussed below) it can be susceptible to errors.

XRF analyzers are generally classified as being either Energy Dispersive (EDXRF) or Wavelength Dispersive (WDXRF), WDXRF systems are generally slower, more expensive, and require more sample preparation than EDXRF systems, but generally have increased sensitivity and lower detection limits.

The main advantages of utilizing XRF over the digestion/ICP method are that XRF is often non destructive and the element content can be tested in situ on the item, and little sample preparation is required which greatly reduces the analysis time and cost. Pressed pellet XRF is a suitable method for determining certain elements that are not easily solubilized by acid digestion techniques. A finely ground sample powder is mixed with a few drops of liquid binder, compressed in a pellet press then analysed by XRF spectrometry.

The principal disadvantage is that XRF is matrix sensitive. Spectral and matrix interferences must be taken into account during analysis, especially from the underlying substrates. XRF measurements are typically particularly susceptible to errors from metal substrates.

6.3.6 Analytical Quality Control

RTE inserted a standard sample about every 10^{th} sample on average. Every 25^{th} sample was split and each half submitted (with a different sample number) for duplicate assay testing. No variations in results for samples of any type (soil, stream, rock chip, auger etc) were detected.

6.4 Previous Resource and Reserve Estimates

The project is at a very early stage of exploration, with no drilling yet undertaken, so no mineral resource or reserve estimate has been made.

7 GEOLOGICAL SETTING & MINERALIZATION

7.1 Regional Geology

The Walker Gossan Project area lies within the McArthur Basin, which covers some 10.5% (140,000 sq km) of the surface area of the mainland Northern Territory. The basin extends from the Murphy Ridge at the Queensland border, for some 800 km northwest to western Arnhem Land.

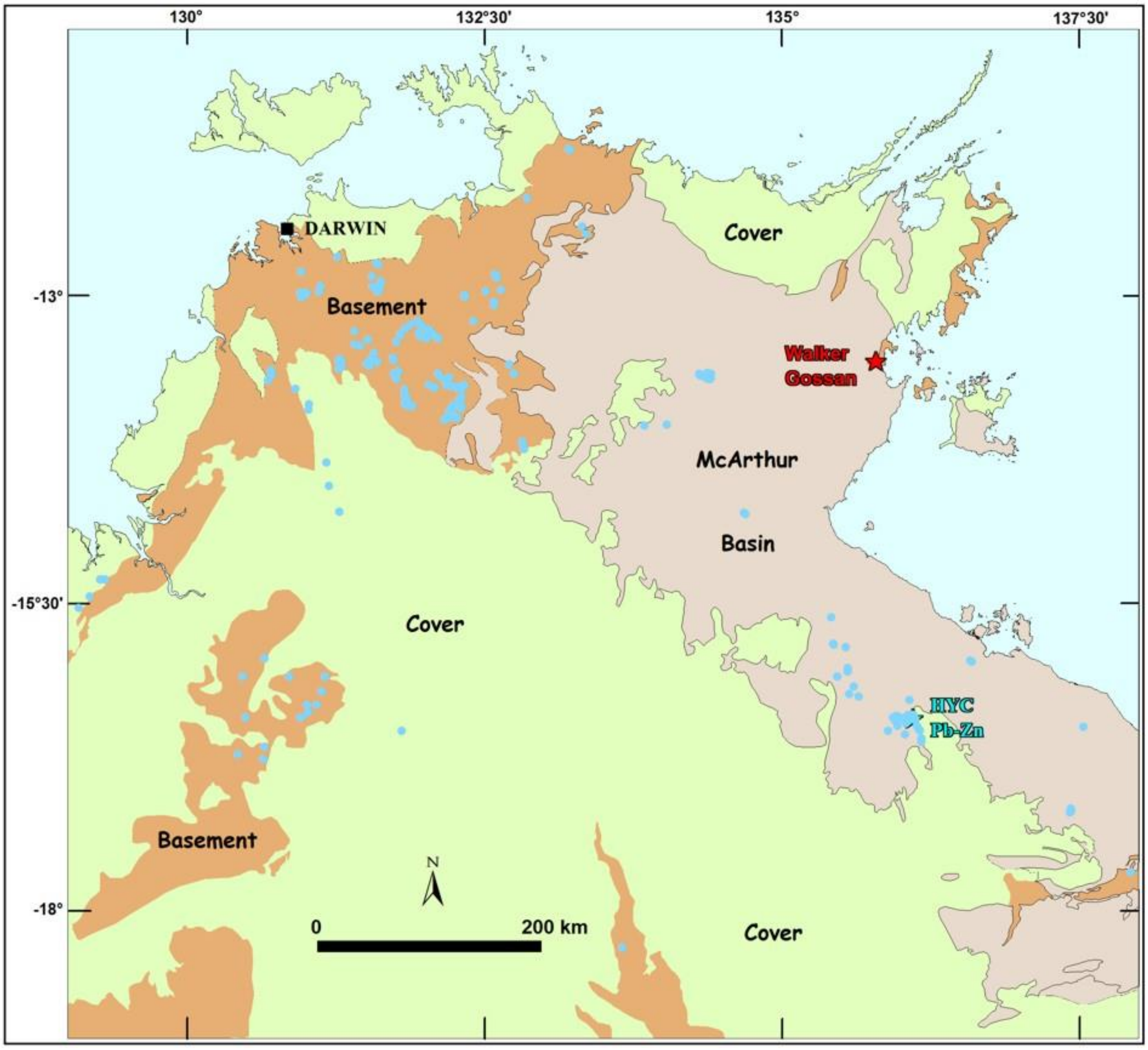


Figure 23. Simplified regional geology, McArthur Basin. Blue dots are Pb deposits.
Figure compiled by D G Jones

The McArthur Basin formed in a continental setting as a sag, resulting from crustal thinning due to stretching of the overriding plate at a major subduction zone (Betts et al, 2003) during the Mesoproterozoic. Anoxic sub-basins developed over a long period, from 1650 to 1590 Ma, with coincident elevated heat flow which drove the migration of hydrothermal fluids. The fluids exploited extension-related normal and strike-slip fault systems. Nevertheless the majority of the sediments in the basin are unmetamorphosed and relatively undeformed with a total thickness of some 10,000 m (Ahmad et al, 2013).

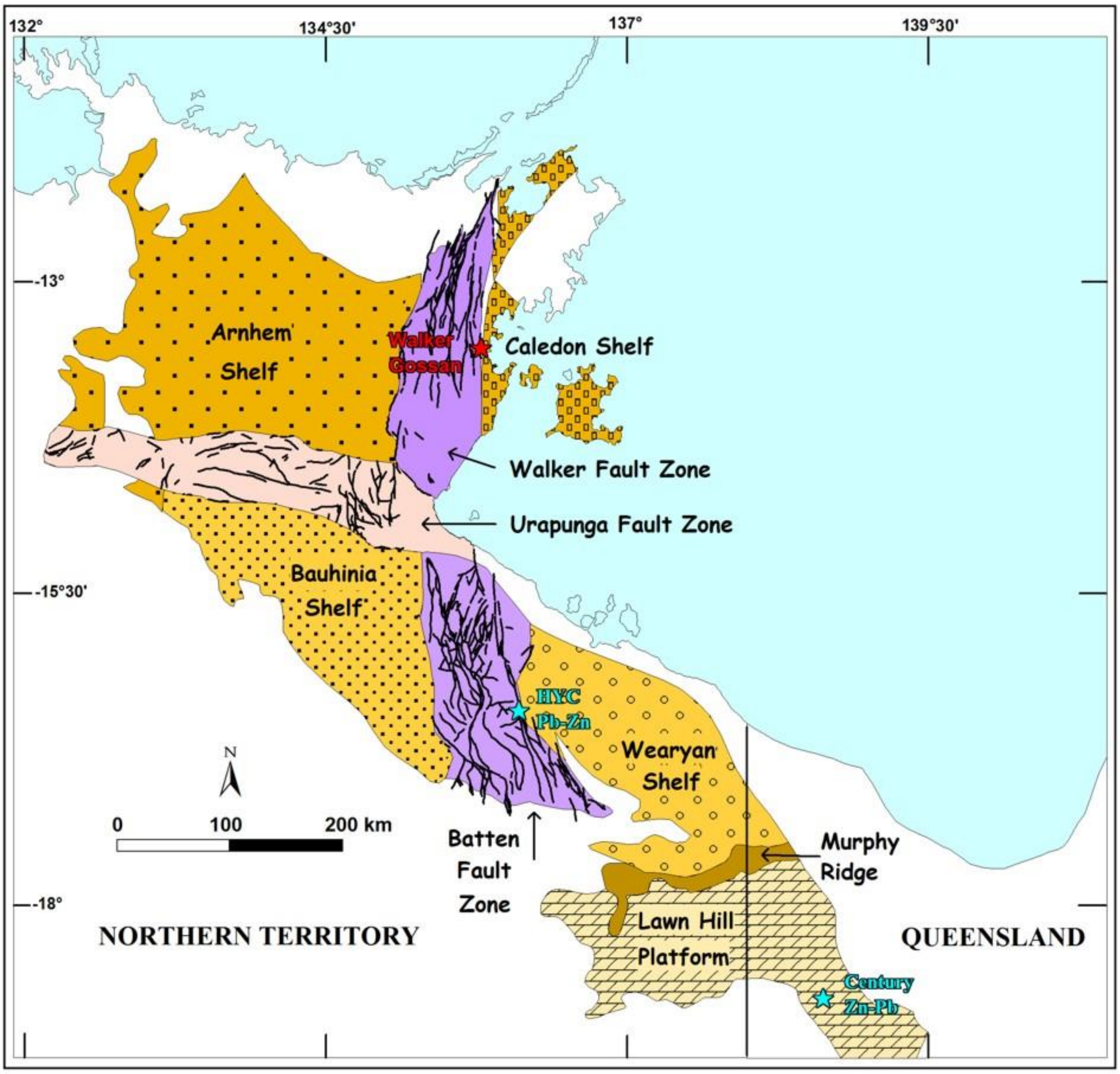


Figure 24. Tectonic elements of the McArthur Basin
Compiled by D G Jones from Betts et al (2003)

Sediments within the McArthur Basin appear to have been deposited in mostly shallow environments on the continental shelf at the edge of the North Australian Craton. A prominent north-south aligned eastward-deepening half-graben, the northern half of which was initially named the Walker Fault Trough and the southern half the Batten Fault Trough, contains up to 8 km of predominantly horizontal sediments that gradually thin across the flanking shelves to about 4 km of sediment thickness. The two fault “troughs” are separated by the east-west trending Urapunga Fault Zone (formerly the Urapunga Tectonic Ridge).

The sediments are dominated by shallow-water sandstones and evaporitic, stromatolitic carbonates. The fault “troughs” were originally thought to be composed of a series of pull-apart style sub-basins related to major northwest-trending right-lateral wrench faulting (Jackson et al, 1987). However, more recent studies (Rawlings 1999) have suggested that the “troughs” represent zones of faulting. This has been confirmed by deep seismic evidence (Rawlings et al, 2004) so they have been re-named the Walker Fault Zone (“WFZ”) and the Batten Fault Zone (“BFZ”). The former Urapunga Tectonic Ridge has similarly been re-interpreted as a major fault zone.

7.1.1 Regional Stratigraphy

According to the National Geological Provinces Online Database managed by Geoscience Australia, "The McArthur Basin sequence comprises five "packages", which are stratigraphic groups with similar ages, stratigraphic positions, rock types, and style and composition of volcanic rocks. Each package defines a distinctive basin-fill geometry which is related to a restricted depocentre or depoaxis, and is the depositional and magmatic response to the regional stress field at that time."

Package	Age (Ma)	Thickness (m)	Tectonic Element			
			South Basin	Caledon Shelf	Walker Fault Zone	Arnhem Shelf
UNCONFORMITY						
Wilton	1500-1400	1000-5000	Roper Group		Roper Group	
Favence	1600-1570	50-1600	Nathan Group			Mt Rigg Group
Glyde	1670-1600	4500	McArthur Group		Balma Group Habgood Group	
Goyder	1710-1670	6000	Masterton Sandstone	Spencer Creek Group	Parsons Range Group	
Redbank	1815-1710	2000-6000	Tawallah Group	Groote Eylandt Group	Donydji Group	Katherine River Group
UNCONFORMITY						
Arnhem Inlier	1867-1833				Grindall Formation	
	1867-1845		Scrutton Volcanics		Bradshaw Complex	
	1875				Mirarrmina Complex	

Table 13. Major rock "packages" of the McArthur Basin
Table compiled by D G Jones from National Geological Provinces Online Database

The Redbank Package is made up of sheet-like sandstone, lutite, conglomerate, and dolostone laid down in fluvial to intertidal shallow-marine to lesser lacustrine environments in a broad subsidence basin with no known depocentres. It contains widespread bimodal volcanic and shallow intrusive rocks.

The Goyder Package comprises shallow-marine to fluvial monotonous quartz sandstone with minor lutite and dolostone. It is found mainly in the central north-south fault trough, as is the Glyde Package, containing moderately deep- to shallow-water (?marine) stromatolitic and evaporatic dolostone and fine-grained siliciclastics; minor tuffaceous material in lutites.

The Favence Package consists of shallow-water marginal marine peritidal shelf and/or continental sabkha stromatolitic dolostone, sandstone, conglomerate and local basalt. It is distributed across the whole basin with no thickening in the central troughs and no depocentre.

The Wilton Package is made up of widely distributed shallow-marine near-shore cyclical fine and coarse-grained siliciclastics with minor conglomerate and carbonate rock. The depocentre is located in the southwestern Bauhinia Shelf, and it thins towards the central troughs.

7.1.2 Regional Structure

Several schemes for tectonic development and deformation of the basin have been published, and summarised in Rawlings et al (2004). Some of schemes have completely different sequences of events and orientations of stress fields. Interpretation of the results of a 2002 deep seismic survey concluded that:

1. The Batten Fault Zone is a thrust belt that propagated east and formed an imbricated duplex; displacement on thrust faults was greatest in the west, and decreased to the east.

2. The Roper Group was deformed by the thrusting, forming a monocline above the western thrust ramp, and hence the thrusting occurred after 1430 Ma

3. Compression was oriented generally in an arc from E-W to NE-SW.

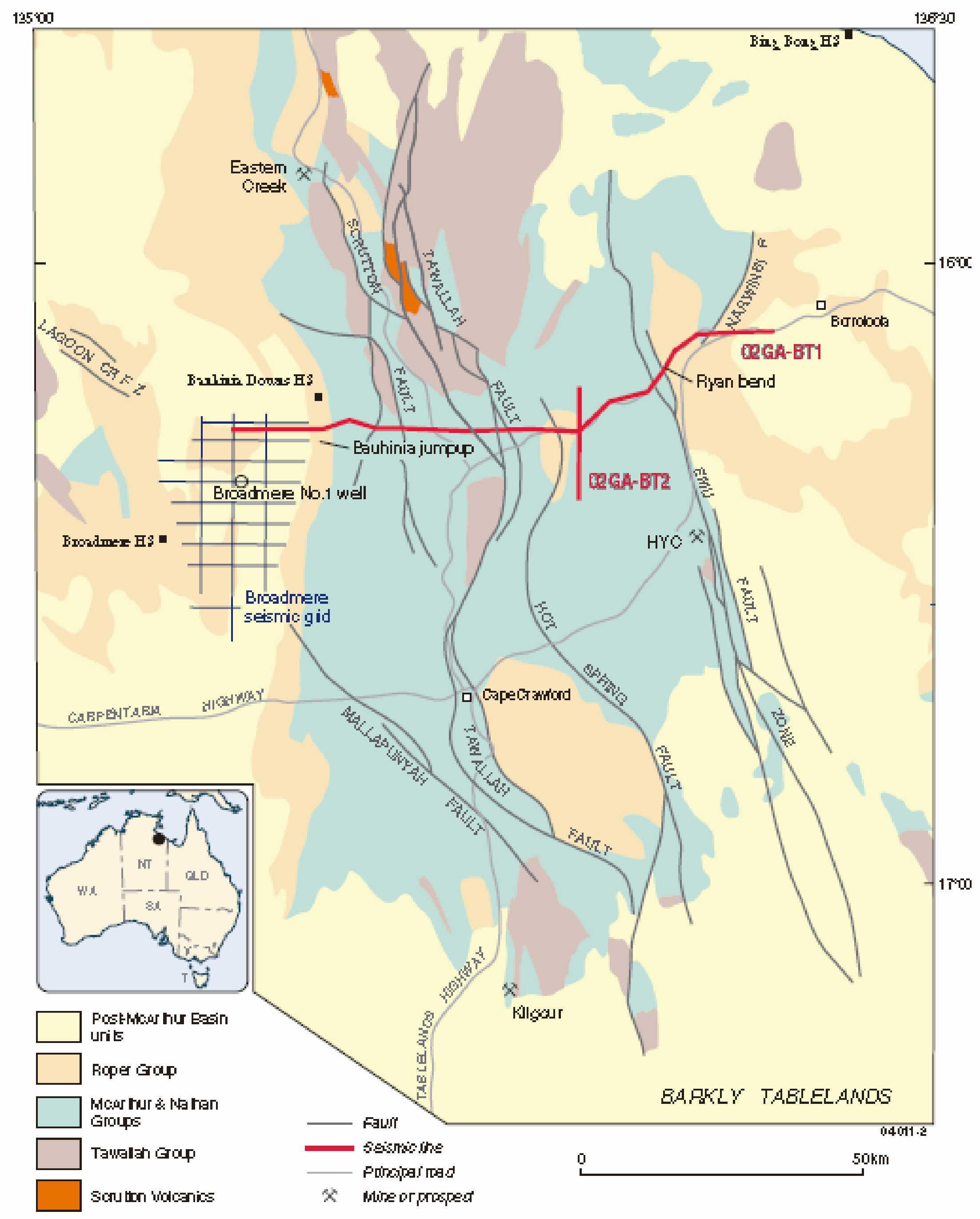


Figure 25. Location of southern McArthur Basin deep seismic reflection lines
Figure 2 in Rawlings et al (2004)

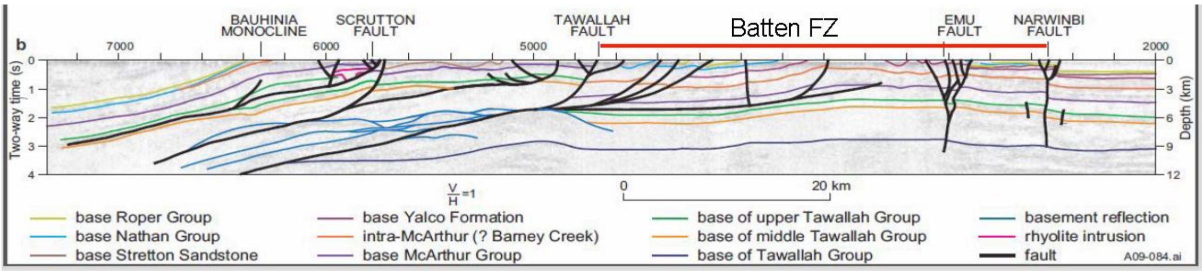


Figure 26. Interpreted structure from west to east along main seismic line
Figure 9 in Rawlings et al (2004)

4. The Emu Fault, on the east side of the BFZ, is a near-vertical strike-slip fault with a widening-upward flower structure wherein the strata have subsided relative to the surrounding strata. Faulting began around the time the middle McArthur Group was being deposited (~1635 Ma), with sinistral movement causing strata growth at transtensional bends in the fault; renewed movement in post-Roper group time (<1430 Ma) was dextral.

It is a reasonable assumption that the Walker Fault Zone and adjacent “shelves” present a similar structural pattern.

7.2 Regional Geophysics

7.2.1 Regional Gravity

The regional gravity compilation image of the Northern Territory shows the boundaries of the basement (Proterozoic and older) rocks but provides little detailed structural information.

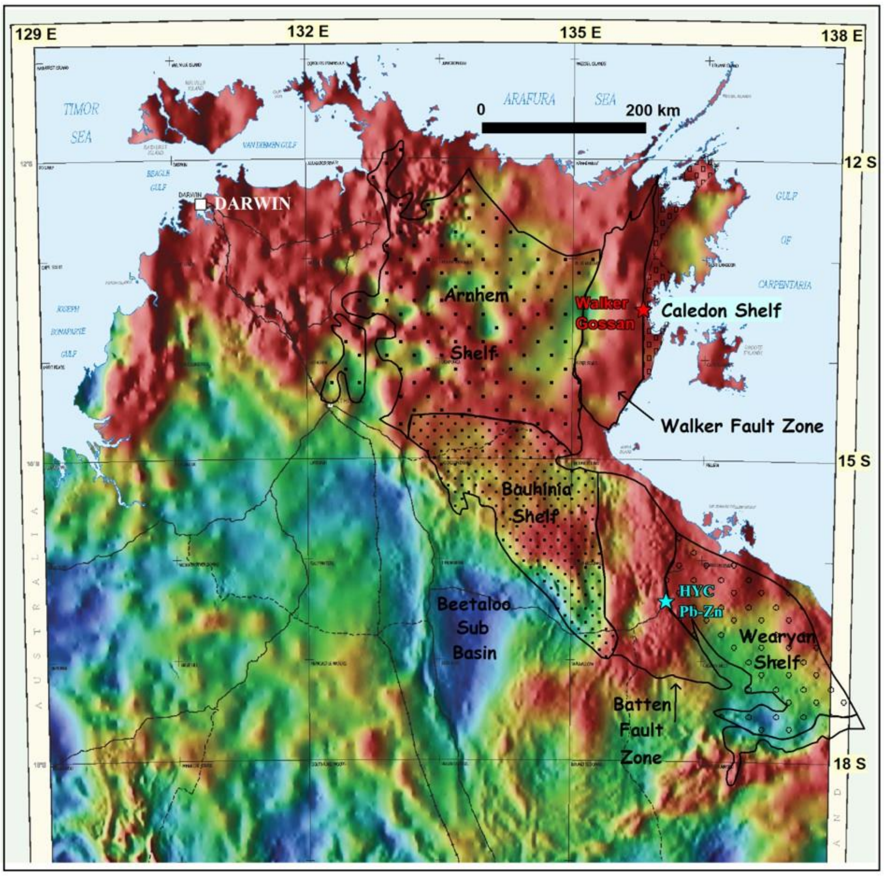


Figure 27. Regional gravity and tectonic elements of the McArthur Basin
Compiled by D G Jones on to NT Geol Survey gravity map

Similarly, there is insufficient resolution in the regional magnetic and radiometric imagery to provide any more than the most rudimentary structural and geological information.

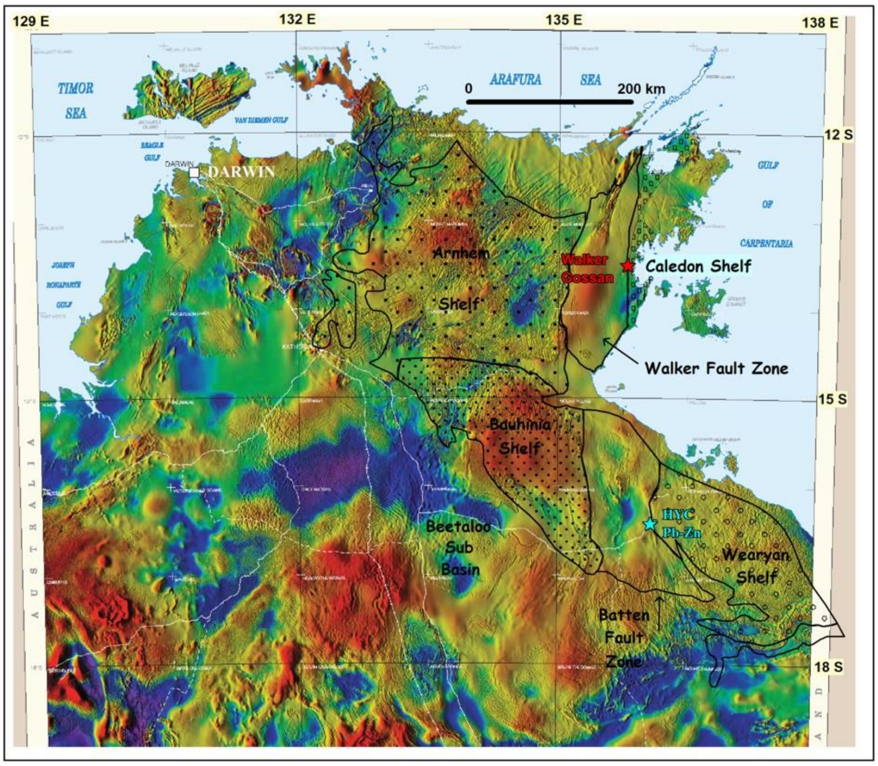


Figure 28. Regional magnetic and tectonic elements of the McArthur Basin
Compiled by D G Jones on to NT Geol Survey magnetic map

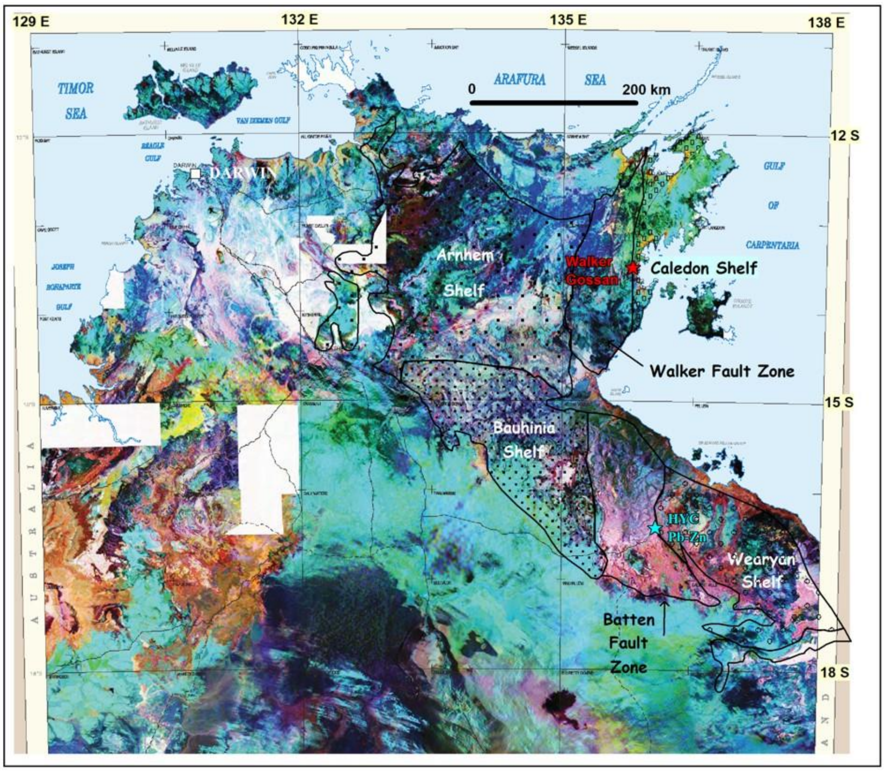


Figure 29. Regional radiometric and tectonic elements of the McArthur Basin
Compiled by D G Jones on to NT Geol Survey radiometric map

7.3 Walker Fault Zone

7.3.1 Stratigraphy

Minor outcrops of the basement Arnhem Inlier are exposed near the coast within the Walker Gossan Project area. The Grindall Formation is a turbiditic succession that was intruded by felsic granites of the Bradshaw Complex dated at 1870 Ma and the similar Mirarrmina Complex to the northwest. These units were deformed and metamorphosed during the Barramundi Orogeny around 1850 Ma. The resulting structural framework controlled subsequent structural development (Rawlings 1999). Various fundamental basement influences have been identified, with northeast, north-northwest and northwest trends being the most common (Haines et al, 1999). These have been repeatedly reactivated during the evolution of the McArthur Basin by a succession of extension, thermal subsidence and compression regimes.

The Arnhem Inlier is unconformably overlain by the Groote Eylandt Group and Coast Range Sandstone, representing the basal succession of the McArthur Basin. The lower Groote Eylandt Group contains rhyolite dated at 1836 Ma. The Donydji Group disconformably overlies the Groote Eylandt Group; rhyolite dykes of the Fagan Volcanics dated at 1706-1707 Ma are considered to correlate with a widespread phase of igneous activity throughout the McArthur Basin that comprises the upper Donydji Group.

The Parsons Range Group conformably overlies the upper Donydji Group, and has a maximum thickness of 5000-6000 m. The rocks are composed of quartz arenite with minor mudstone and carbonate units.

	Age (Ma)	Thickness (m)	Group	Formation
Cretaceous				Walker River Formation
UNCONFORMITY				
McArthur Basin	1500-1400	500	Roper Group	Arnold Sandstone
				Crawford Formation
				Limmen Sandstone
	UNCONFORMITY			
	1613-1589	1500	Nathan Group	Balbirini Dolostone
	UNCONFORMITY			
	1670-1600	4500	Balma Group	Bath Range Formation
				Baiguridgi Formation
				Yarrawirrie Formation
				Zamia Creek Siltstone
				Conway Formation
				Vaughton Siltstone
				Strawbridge Breccia
				Koolatong Formation
	1710-1670	6000	Parsons Range Group	Jalma Formation
				UNCONFORMITY
		40		Coast Range Sandstone
	UNCONFORMITY			
	1706-1707	600	Donydji Group	Fagan Volcanics
	DISCONFORMITY			
	1815-1710	50-60	Groote Eylandt Group	Woodah Sandstone
UNCONFORMITY				
Arnhem Inlier	1867-1845			Bradshaw Complex
	1885-1870	1000		Grindall Formation
	1875-1865			Mirarrmina Complex

Table 14. Stratigraphic Units in the Walker Fault Zone
Table compiled by D G Jones from National Geological Provinces Online Database

The conformably overlying Balma Group has a maximum thickness of 4500 m. The group is comprised of mudstone, stromatolitic and evaporitic carbonates, sandstone and minor conglomerate. Outcrop is generally poor and the rocks are strongly altered by surface leaching and silicification. Tuff beds within the upper part of the Balma Group have been dated at 1621-1600 Ma.

Scattered silicified outcrops of the Balbirini Dolostone, a formation within the Nathan Group, are found west of the Coast Range. Maximum thickness is about 1500 m. Unconformably overlying the Balbirini Dolostone is the Roper Group, the youngest succession in the McArthur Basin. Maximum thickness of the Roper Group in the Walker Fault Zone is about 500m. It is composed of a cyclic marine succession intruded by thick mafic sills prior to the final deformation of the McArthur Basin in the Neoproterozoic (Haines et al, 1999).

Relatively thin (maximum thickness 100 m) and predominantly flat-lying marine and terrestrial sediments of the Cretaceous Walker River Formation occur as scattered erosional relics mantling the older rocks (Haines et al, 1999). The Walker River Formation is host to numerous deposits of pisolitic manganese.

7.3.1.1 Grindall Formation

Small outcrops of the Grindall Formation are found just north of the Walker River. The sediments have been metamorphosed to greenschist facies and are characteristically massive quartzites, fine to medium-grained thin to thick-bedded graded metasandstone and interbedded chloritic schists (metamorphosed mudstones)..

7.3.1.2 Bukudal Granite

A massive, medium to coarse-grained high-level pink hornblende biotite granite outcrops just north of the Walker River. It has been dated at 1835-1837 Ma and intrudes the Bradshaw Complex elsewhere in the Arnhem Inlier. The Coast Range Sandstone unconformably overlies the granite.

7.3.1.3 Groote Eylandt Group

Groote Eylandt Group sandstones form a prominent NNE-trending ridge east of the Walker Gossan.

7.3.1.3.1 Woodah Sandstone

A massive basal conglomerate passes upwards into red micaceous siltstone and quartzite, overlain by coarse cross-bedded white sandstone. The unit is about 60 m thick.

7.3.1.3.2 Bickerton Rhyolite

A narrow belt of massive pink porphyritic (K feldspar) rhyolites outcrop east of the Walker Gossan. Large ovoid orthoclase crystals up to 2½ cm in diameter occur. Included within the rhyolites are numerous lenticular volcanic breccia bands. The rhyolite has been dated at 1814 Ma.

7.3.1.4 Balma Group

7.3.1.4.1 Koolatong Siltstone

The Koolatong Siltstone is the basal formation of the Balma Group and lies conformably on the Parsons Range Group. BHP divided the unit into three horizons:

Unit a: Lowest is dominantly siliceous siltstone and dolomitic siltstone, grey to straw coloured, often thinly bedded and commonly slumped. Minor sandstone.

Unit b: Middle consists of a number of resistant horizons of siliceous siltstone, white to dark-grey often thinly bedded, slumped and brecciated in horizons, and containing thin mature conglomerate bands in places with pebbles to 10 cm. The unit is ferruginous in a number of localities which are probably faulted. The main horizon appears to be continuous for the most part, however in the south western and northern parts of EL 396 may be discontinuous as certainly are the subsidiary units.

Unit c: Upper - Very rare outcrop and limited drilling suggest that the upper horizon is essentially composed of grey and pink siltstone and dolomite with occasional local horizons of breccia.

7.3.1.4.2 Strawbridge Breccia

The Strawbridge Breccia is a massive siliceous breccia consisting of angular fragments of siliceous dolomite or banded chert. Ferruginous zones are common, usually confined to a particular horizon locally which may grade or abruptly change to siliceous breccia along strike. In these localities the structure is unaltered, but the angular fragments are either altered to red chert, goethite or white/yellow porous siliceous material while the matrix is altered to limonite, goethite, hematite (and mixtures of all three) or occasionally manganese.

Small scale slump structures are common. Within the ferruginous zone a variety of box works are thought to be present although drilling below the oxidized zone indicates the presence of pyrite only. The unit forms an almost continuous marker horizon for distances of over 20 km.

7.3.1.4.3 Vaughton Siltstone

This unit exhibits considerable facies change throughout the Walker Fault Zone. In the Strawbridge Creek area, outcrops in creek banks indicate that it is basically composed of fissile grey shale, grey/green and buff coloured siltstone, dolomitic siltstone and dolomite in the lower part, with a distinctive carbonaceous shale (or siltstone) interbedded with cherty and calcareous siltstone and occasional sandstone in the upper part.

7.3.1.4.4 Conway Formation

The Conway Formation contains algal chert, cherty siltstone and dolomitic siltstone. Two or three algal chert beds are persistent and form useful marker horizons.

7.3.1.4.5 Zamia Creek Siltstone

The Zamia Creek Siltstone is made up of chert, cherty siltstone and dolomitic siltstone with minor algal chert.

7.3.1.4.6 Yarrawirrie Formation

The Yarrawirrie Formation consists of blocky coarse-grained chert sandstone and quartz sandstone, flaggy chert, dolomitic siltstone, algal chert and botryoidal quartz. The sandstone is ripple marked and forms prominent outcrops. It has been dated at 1620 Ma.

7.3.1.4.7 Baiguridji Formation

Conformably overlying the Yarrawirrie Formation, the Baiguridji Formation contains flaggy grey-green and purple fine-grained cherty sandstone and siltstone, flaggy micaceous fine-grained sandstone and siltstone. Outcrop is poor. The maximum thickness is about 400 m.

7.3.1.4.8 Bath Range Formation

The Bath Range Formation is composed of massive white feldspathic siltstone; laminated dolomitic siltstone, feldspathic chert sandstone, chert breccia and pelletal dolomite. It forms prominent outcrops.

7.4.5 Nathan Group

7.4.5.1 Balbirini Dolostone

The Balbirini Dolostone outcrops west of the Walker Gossan. It consists of stromatolitic dololutite, dolarenite, dolomitic siltstone and shale, silty dololutite, and can be distinguished by other dolostone units in the sequence by the presence of silicified ooid beds; pink tuff; and conical, large columnar, stratiform and domical stromatolites

7.4.6 Cretaceous

7.4.6.1 Walker River Formation

Relatively thin (maximum thickness 100 m) and predominantly flat-lying marine and terrestrial sediments of the Cretaceous Walker River Formation occur as scattered erosional relics mantling the older rocks (Haines et al, 1999). White and yellow claystone and massive quartz sandstones overlie a basal ferruginous sandstone. The Walker River Formation is host to numerous deposits of pisolitic manganese.

7.3.2 Structure

North–south extension during deposition of the Donydji Group was interrupted by an east–west compressional event in mid-Donydji Group time (Bull and Rogers 1996). Overall regional flexure and strike-slip deformation, resulting from compressive stresses applied by orogenies at the southern edge of the North Australian Craton, subsequently continued, in the course of which the Balma Group was deposited (Scott et al 2000). Extension causing block faulting was apparently superimposed on regional subsidence at the commencement of Nathan Group deposition, resulting in NNW–SSE- and east–west-trending half-grabens to the west of the Coast Range Fault, which may have been active as a transfer fault at this time. The McArthur Basin then experienced inversion, due to a northwest–southeast compressional event (Rogers 1996). Relatively quiescent, dynamic long-wavelength and thermal subsidence then appears to have been the main influence on basin development, at least until Roper Group deposition.

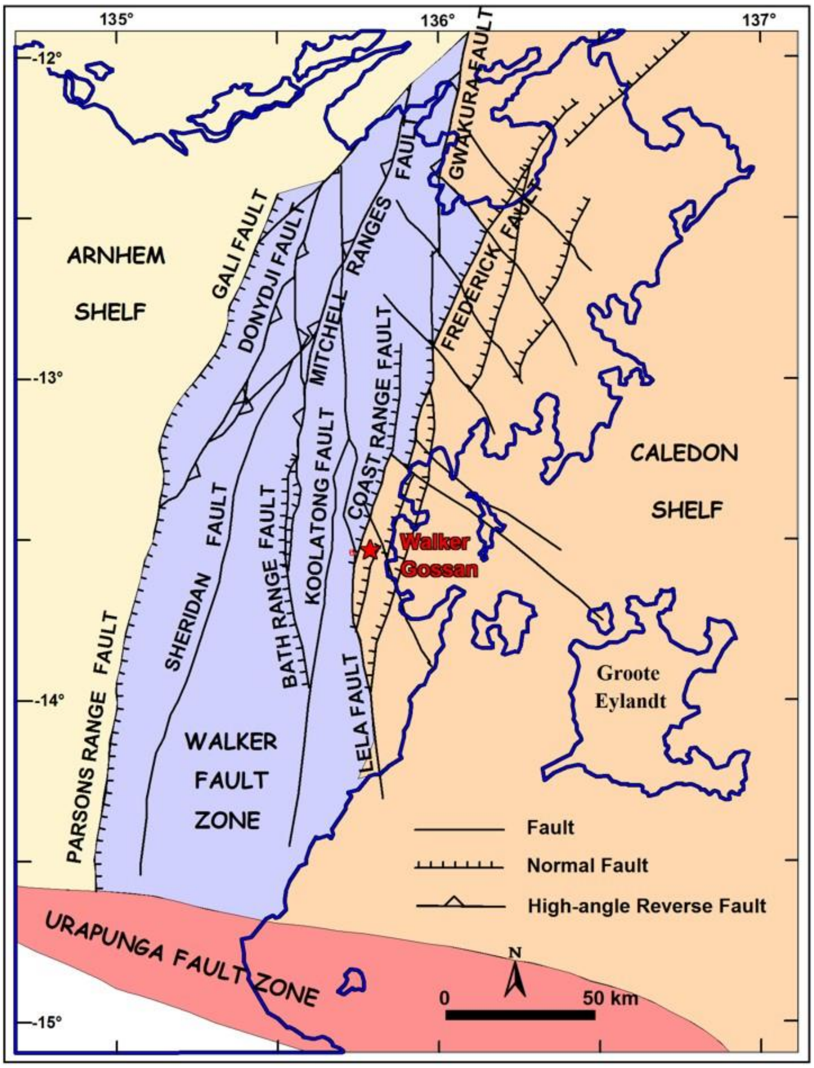


Figure 30. Simplified structural elements, Walker Fault Zone
Compiled by D G Jones from Figure 14 in Haines et al (1999).

The final major structural event in the McArthur Basin was northeast–southwest-directed shortening, which affected all Proterozoic units, including the Roper Group (Rogers 1996). In spite of a long structural history, strata in the Walker Fault Zone are generally only gently folded with shallow dips. Some exceptions exist near faults, where bedding often steepens to 20–40°, and occasionally up to 70° (Pietsch *et al* 1991).

7.4 Local Geology – Walker Gossan

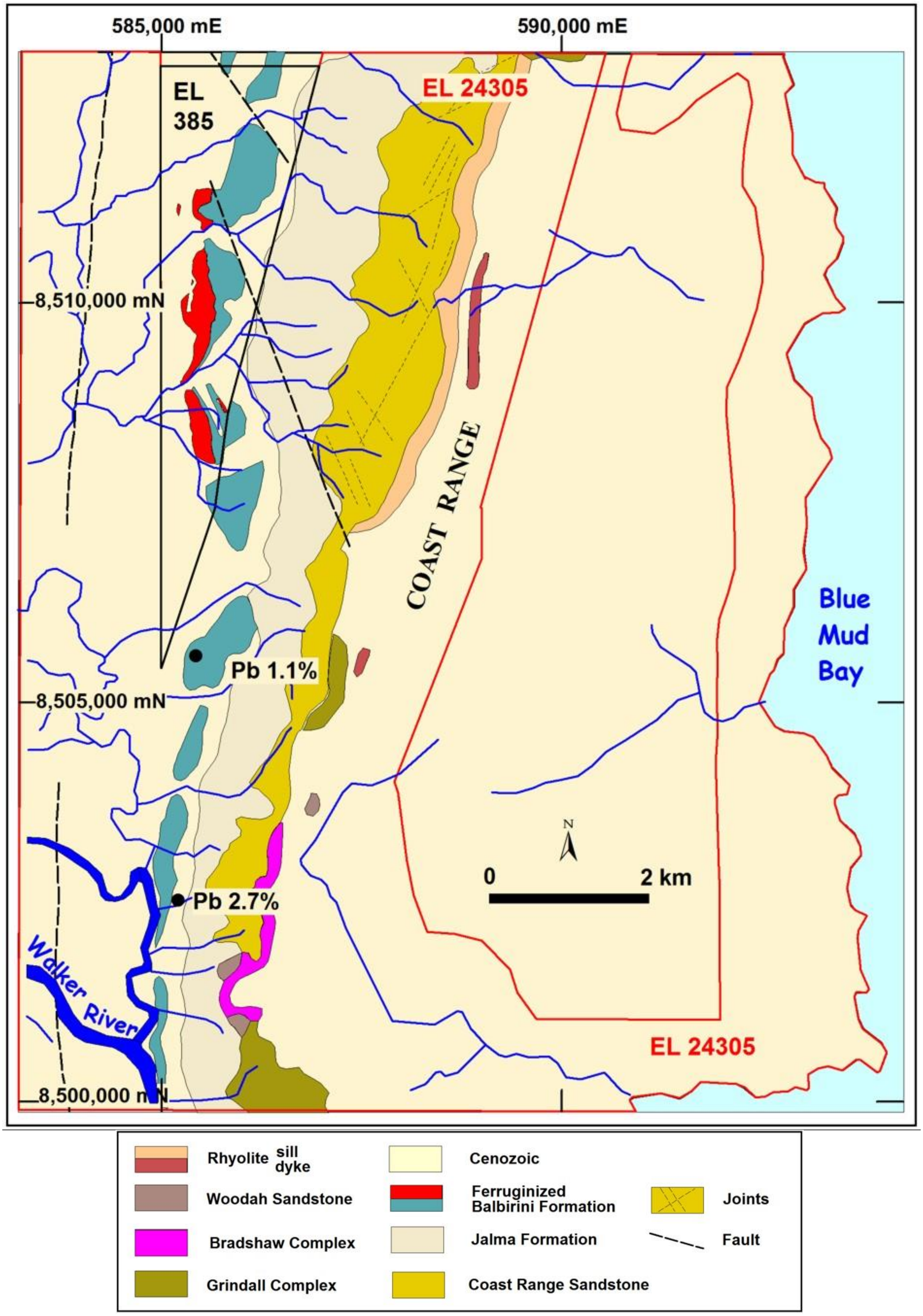


Figure 31. Local geological map, Walker Gossan Project
Compiled by D G Jones from NTGS 1:250,000 scale Blue Mud Bay Geological Map

	Age (Ma)	Thickness (m)	Group	Formation
McArthur Basin	1613-1589	1500	Nathan Group	Balbirini Dolostone
	UNCONFORMITY			
	1710-1670	70-130	Parsons Range Group	Jalma Formation
				UNCONFORMITY
		40		Coast Range Sandstone
	UNCONFORMITY			
	1706-1707	15-150	Donydji Group	Fagan Volcanics
	DISCONFORMITY			
	1815-1710	50-60	Groote Eylandt Group	Woodah Sandstone
UNCONFORMITY				
Arnhem Inlier	1867-1845			Bradshaw Complex
	1885-1870	1000		Grindall Formation

Table 15. Local stratigraphy, Walker Gossan Project
Compiled by D G Jones from NTGS 1:250,000 scale Blue Mud Bay Geological Map

7.4.1 Grindall Formation

The Grindall Formation outcrops on the eastern flank of the Coast Range. The oldest unit in the Walker Gossan Project area, it is a deformed and locally metamorphosed turbidite sequence (Haines et al, 1999). Both low-grade regional and local contact metamorphism can be seen in the Coast Range outcrops, with meta-sandstone interbedded with phyllite and quartz-sericite schist. The sequence is tightly folded and the pelitic rocks have developed a steeply-dipping NW-trending foliation. Quartz veins are common.

7.4.2 Bradshaw Complex

The Bradshaw Complex outcrops in the Walker Gossan Project area as rounded boulders of equi-granular, massive to banded, biotite-quartz-K feldspar-garnet rock, interpreted to be granite and migmatite (Haines et al, 1999). It probably represents partial melting and re-injection of the Grindall Formation.

7.4.3 Woodah Sandstone

The Woodah Sandstone is the basal unit of the Alyangula Subgroup of the Groote Eylandt Group. A thin, white to reddish pebble to cobble conglomerate at the base unconformably overlies the Bradshaw Complex and contains clasts of Grindall Formation and granite, set in a matrix of unsorted coarse-grained sand (Haines et al, 1999). The conglomerate is overlain by medium to thin-bedded, medium to fine-grained ferruginous pebbly sandstone interbedded with red mudstone. The sandstone displays small-scale trough cross-bedding. This passes up into a blocky, medium to thick-bedded, white to pink quartz sandstone.

7.4.4 Fagan Volcanics

A grey, coarsely porphyritic rhyolite sill or extrusive is found at the base of the steep eastern slope of the Coast Range, unconformably overlain by the Coast Range Sandstone. It is 150-250 m thick, and considered to be part of the Fagan Volcanics, a member of the Donydji Group. Thin dykes of pink to brown, coarsely porphyritic rhyolite with phenocrysts of K feldspar and quartz also outcrop at the base of the eastern Coast Range.

7.4.5 Coast Range Sandstone

The Coast Range Sandstone is a thin unit the forms the bulk of the Coast Range. It is a white, medium to coarse-grained, thick-bedded quartz sandstone. Lenticular pebble or cobble conglomerates occur at the base, unconformably overlying the Grindall and Bradshaw complexes and the Proterozoic rhyolite dykes and extrusives.

7.4.6 Jalma Formation

The Jalma Formation is a sequence of sandstone, mudstone and minor carbonate restricted to the western flank of the Coast Range. The basal pebble to cobble conglomerate lies unconformably on the Coast Range Sandstone and is unconformably overlain by the Balbirini Dolostone. The lower moderately resistant unit crops out as low undulating ridges of ferruginous sandstone. It is composed of medium-grained, thin to medium-bedded, brown, purple and white sandstone with varying ferruginization, interbedded with silicified and leached carbonate and ooidal ironstone. Fine-grained, thin-bedded sandstone is exposed near the base, while interbeds of coarse-grained sandstone and granule conglomerate occur near the top (Haines et al, 1999). Sedimentary structures include flat-bedding, minor cross-bedding and wave ripples. Ferruginization takes the form of abundant goethite patches which are concentrated in layers defining bedding, probably after original pyrite.

7.4.7 Balbirini Dolostone

Light grey, interbedded, clean silicified cherty dolomite gently dips (~5 degrees) to the WNW and forms the range of low hills to the west of the southern Coastal Range. The eastern edge of this low range (max 15m relief) often exhibits slopes greater than 30 degrees. Towards the top of the hill the unit becomes increasingly stromatolitic. The appearance of cauliflower chert, rectilinear mud cracking, and vuggy interbedded dolomite increases overall up section, although this could be a function of better outcrop on the higher slopes. On the western side of the range, the slope is more gentle (~5 degrees), and is considered to largely follow the geologic dips. On the majority of these western slopes the dolomite is intensely ferruginised. Manganese oxide is very common in these areas, and occasional secondary quartz infill is observed. This package of dolomite contains the fossil stromatolite *Balbirini Prima*

Photo 6. Stromatolitic textures in ferruginised dolostone of the Balbirini Dolostone
Photo taken by D G Jones on 30 July 2014 at UTM Zone 53: 585525 mE 8510586 mN

The environment of deposition is interpreted as shallow marginal marine or continental sabkha environment with evaporitic conditions and distal volcanic influence.

7.5 Local Structure – Walker Gossan

The area is situated on the edge of a basement high just to the east of the Koolatong Fault. The basement high is composed of tightly folded rocks of the Grindall Formation. These have been intruded by granites of the Bradshaw Complex and metamorphosed to greenschist facies. The younger Proterozoic sediments are only mildly deformed on the eastern side of the Koolatong Fault and dip gently to the west at 5-10^{o}. The cross-bedded sandstones of the Coast Range Sandstone display a well-developed joint system.

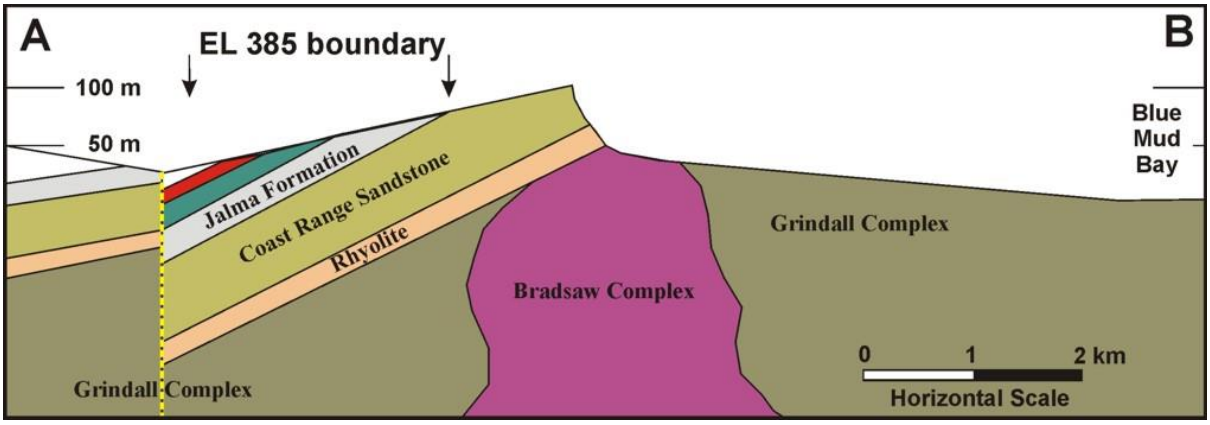


Figure 32. Cross-section along line 8 510 000 mN in Figure 28
Compiled by D G Jones

7.6 Local Geophysics – Walker Gossan

In 1989 the NTGS contracted Kevron Geophysics to fly a combined aeromagnetic/radiometric survey over the Mitchell Ranges. A small portion of this survey covered the northern half of the Walker Gossan Project area. The following year the NTGS contracted Aerodata to fly a contiguous survey over Marumba to the south of the Mitchell Ranges survey. This covered the southern half of the Walker Gossan Project area. Both surveys had similar specifications: east-west lines 500 m apart with 100 m terrain clearance. The resulting imagery is of high quality.

The Total Magnetic Intensity ("TMI") image shows a prominent NW-trending feature, probably a Proterozoic dyke, passing through the Project area. The dyke appears to be offset by a north-south fault just east of the Walker Gossan (Figure 30). A series of NE-trending lineaments can also be discerned on the image.

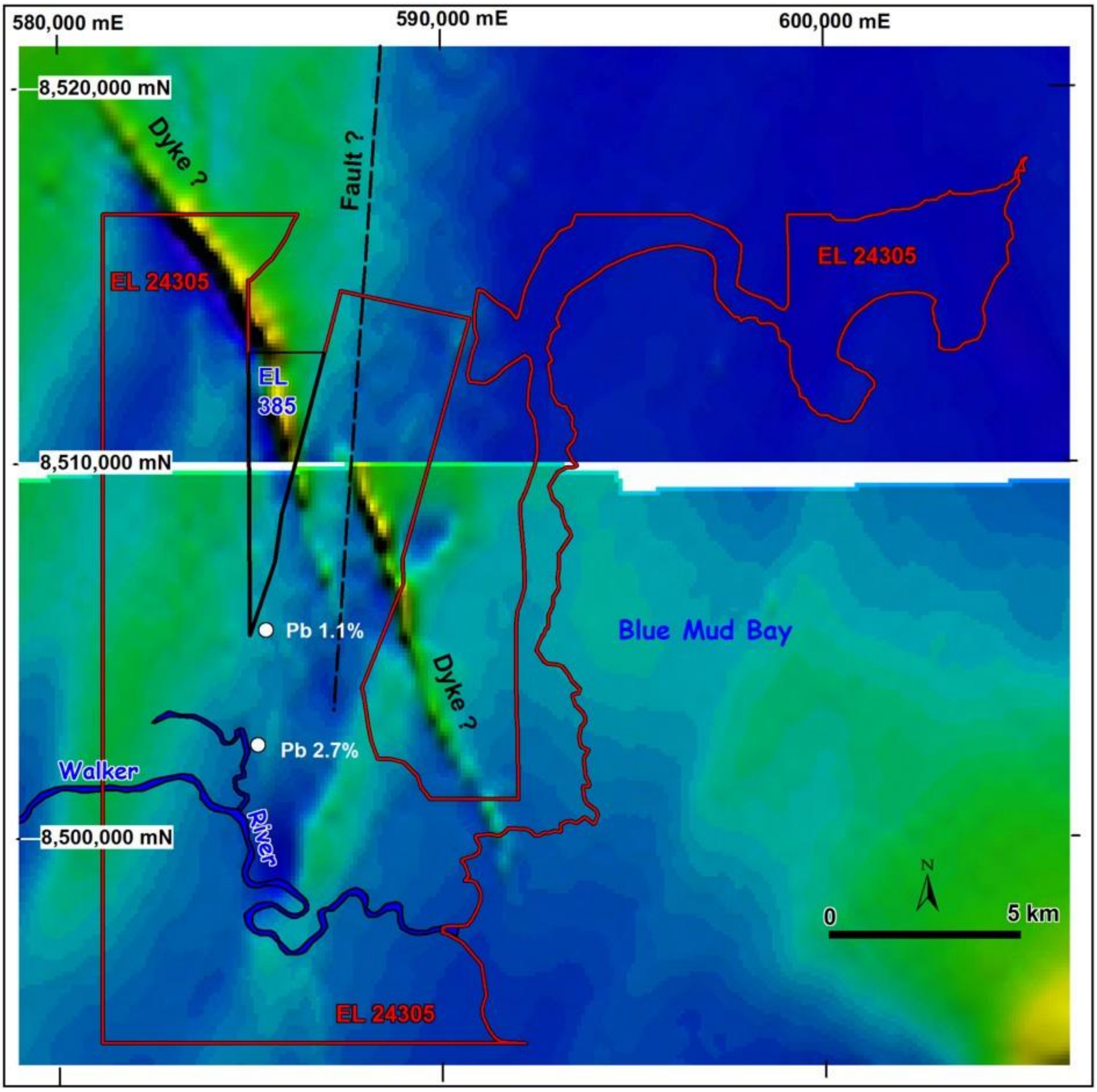


Figure 33. Composite TMI image of the Walker Gossan Project area
Compiled by D G Jones from NTGS images

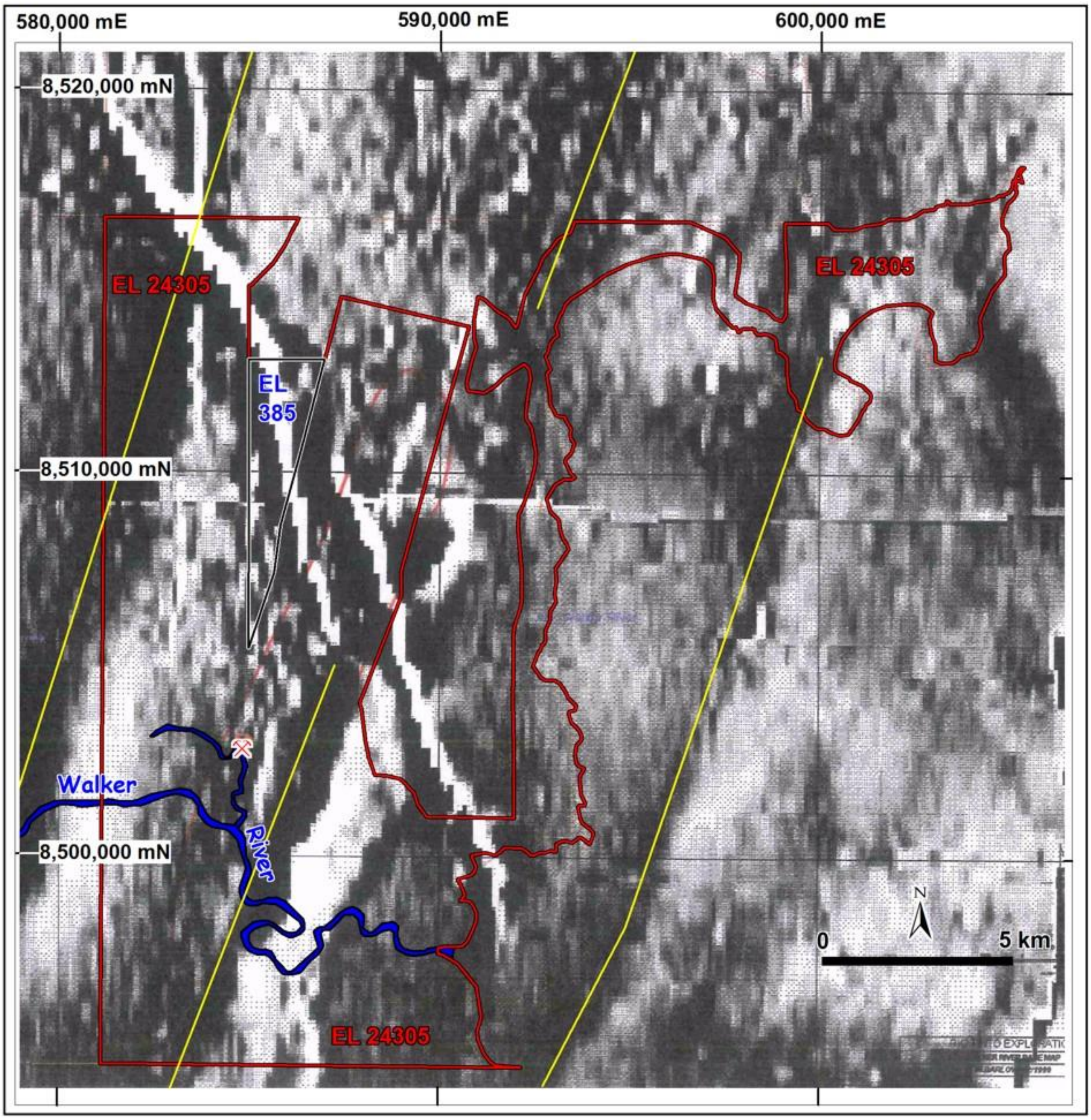


Figure 34. RTE 1st Vertical Derivative TMI image 1999
Compiled by D G Jones from image provided by RTE

RTE provided an image, presumably the 1st vertical derivative of Total Magnetic Intensity, produced by Barlow in 1999. The image was annotated with a mine symbol, presumed to be the Walker Gossan, and some lines tracing NE-trending lineaments evident on the image. The image also displays the faulted NW-trending dyke shown on Figure 30.

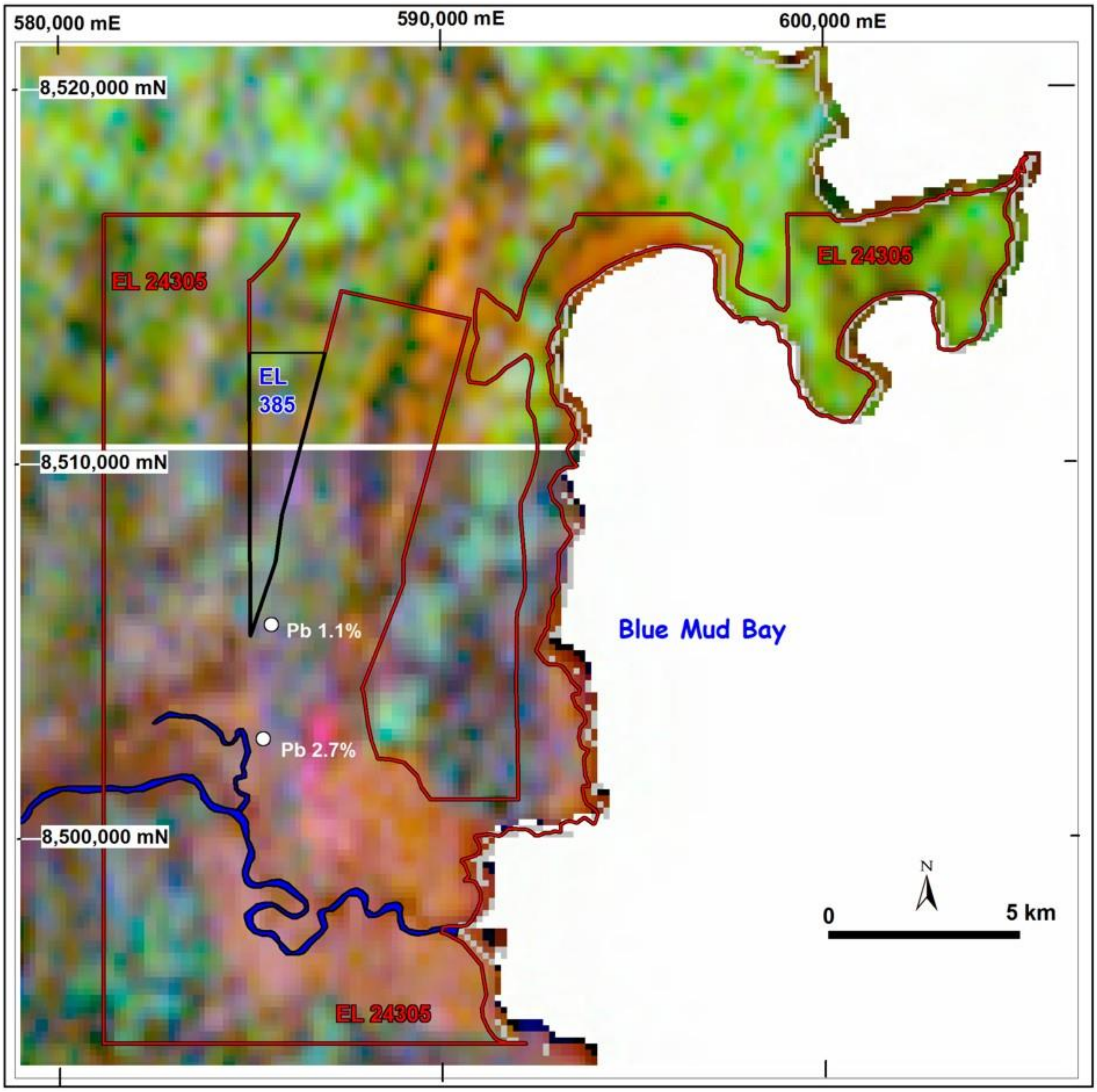


Figure 35. Linear ratio of K Th U radiometric response, Walker Gossan Project area
Compiled by D G Jones from NTGS images

Less useful is the radiometric imagery, which is too coarse to be of value at this scale (see Figure 32).

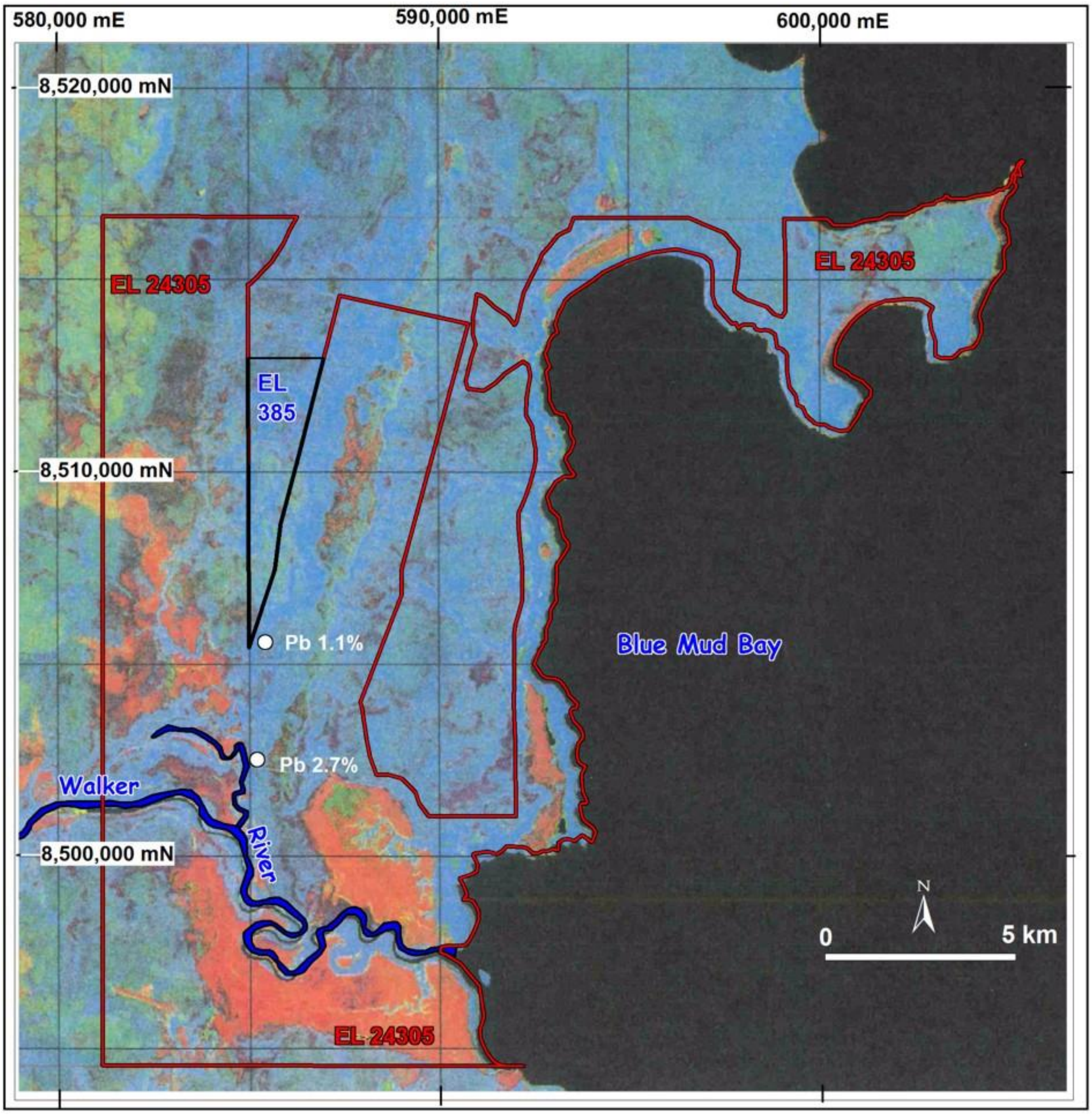


Figure 36. Band ratio of LandSat image, Walker Gossan Project area
Compiled by D G Jones from image provided by RTE

In 1990 RTE commissioned GeoImage to process then-available LandSat imagery using band ratio techniques. A number of images at various band ratios were produced, of which Figure 33 above is a better example. In this image the ratios are Band 5 over Band 7; Band 4 over Band 7, and Band 4 over Band 2. Moisture-rich sandy areas and the Coast Range Sandstone are highlighted but there is little other information of value.

7.7 Local Geology – EL 23565 "Zamia Creek"

EL 23565, ELA 27919 and the adjacent ELA 27920 are situated some 80 km SW of the Walker Gossan. Exploration Licence 23565 was applied for on 3 April 2002. Partial consent of the application area resulted in the granting of exploration licence 23565 to RTE on 22 April 2010. The areas of non-consent were assigned as ELA 27919 and ELA 27920. Granted EL 23565 covers units of the Balma Group, including outcrops of the Zamia Siltstone, considered to be the equivalent of the Barney Creek Formation, host to the HYC Pb-Zn mineralization at McArthur River. Much of the area is under Cenozoic cover. Apart from the work done in the 1960s by Western Nuclear described in Section 8.1.3, no exploration has been carried out in this area.

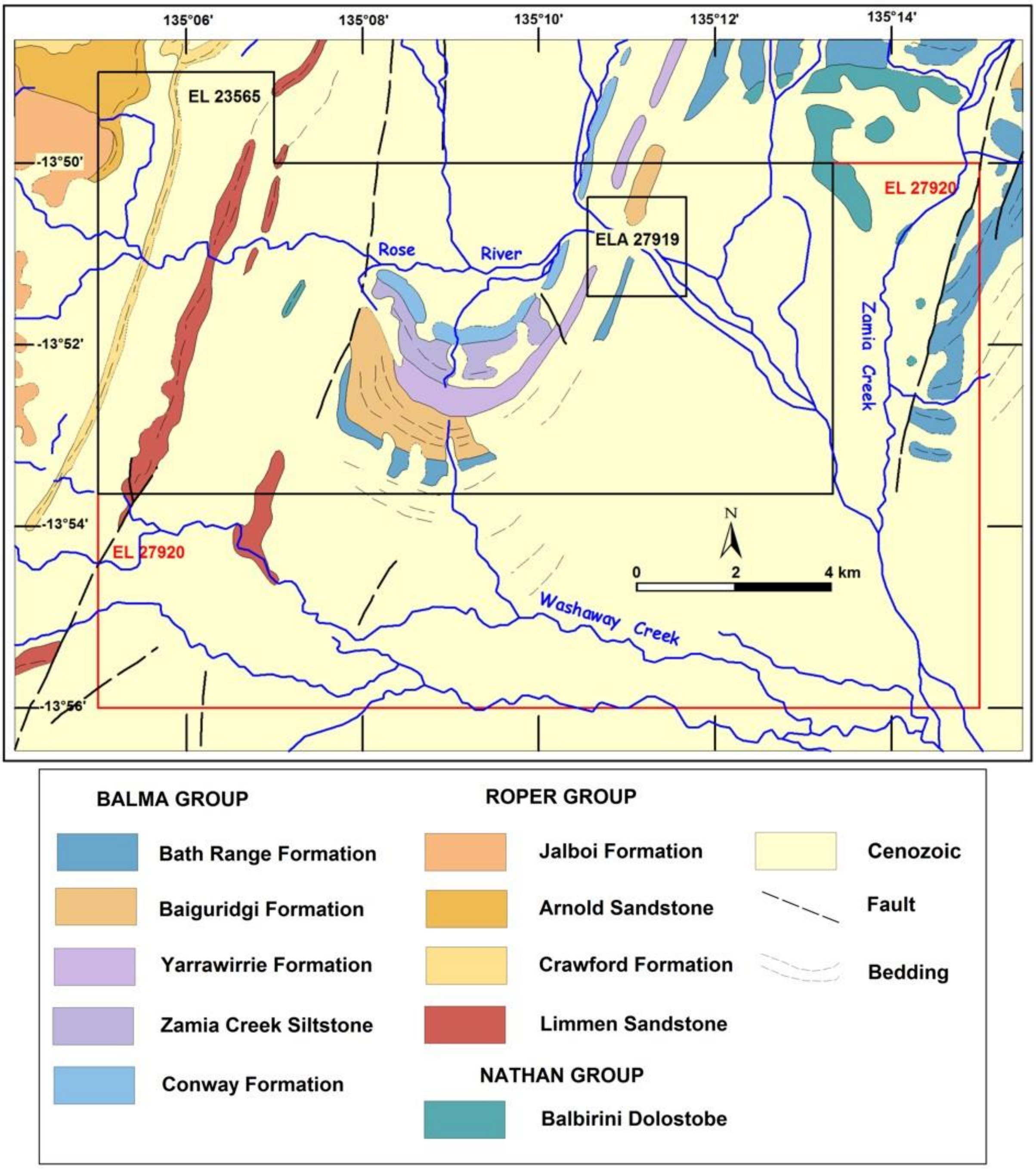


Figure 37. Local geological map, EL 23565 & ELA 27920
Compiled by D G Jones from NTGS 1:250,000 scale Blue Mud Bay Geological Map

7.8 Local Geophysics – EL 23565 "Zamia Creek"

The 1989-90 combined aeromagnetic/radiometric surveys over the Mitchell Ranges and Marumba areas show prominent NS-trending features, probably Proterozoic dykes, passing through EL 23565, ELA 27919 and ELA 27920, similar to those at the Walker Gossan (Figure 36). A series of very faint NE-trending lineaments can also be discerned on the image.

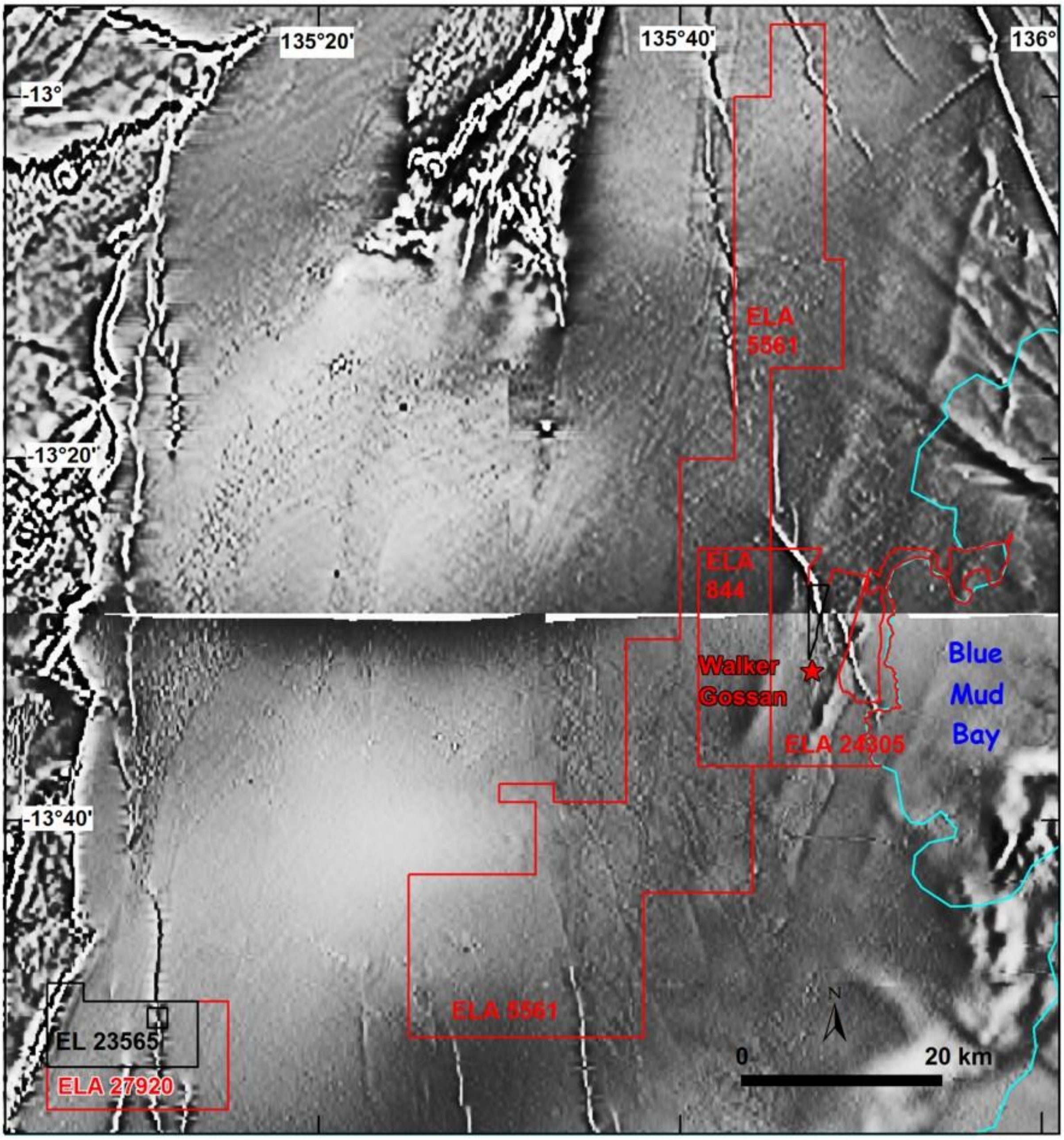


Figure 38. NTGS 1st Vertical Derivative TMI image 1989-90
Compiled by D G Jones from image provided by NTGS

7.9 Mineralization

No information is available as to the nature of the mineralization in the Walker Gossan that is responsible for the highly anomalous Pb in samples taken by CRAE in 1972 (1.1% Pb and 2.7% Pb). However, given the close correlation between the sedimentary units within the Walker Fault Zone and the Batten Fault Zone (host to the HYC Pb-Zn deposit), as described by Rawlings (2005), it is likely that the source of the Walker Gossan anomalous Pb is similar to the mineralization at the HYC deposit.

Batten Fault Zone				Walker Fault Zone
Group	**Sub-Group**	**Formation**	**Member**	**Formation**
				Walker River Formation
UNCONFORMITY				
McArthur	Batten	Balbirini Dolostone		Balbirini Dolostone
		UNCONFORMITY		
		Looking Glass Formation		Bath Range Formation
		Stretton Sandstone		Baiguridji Formation
		Yalco Formation		
		Lynott Formation		Yarrawirrie Formation
	UNCONFORMITY			
	Umbolooga	Reward Dolostone		Zamia Siltstone
		Barney Creek Formation	Cooley Dolostone	
			HYC Pyritic Shale	
			W-Fold Shale	
		Teena Dolostone	Coxco Dolostone	Conway Formation
		Mitchell Yard Dolostone		
		Mara Dolostone		Vaughton Siltstone
		Myrtle Shale		
		Tooganinie Formation		
		Tatoola Sandstone		Strawbridge Breccia
		Amelia Dolostone		
		Mallapunyah Formation		Koolatong Siltstone
		Masterton Sandstone		
Tawallah				

Table 16. Stratigraphic correlation, Batten Fault Zone & Walker Fault Zone
Compiled from Rawlings (2005)

The Pb-bearing gossan discovered and drilled by BHP in the early 1970s at their Mitchell Range prospect, adjacent to the Walker Gossan Project, was located in the Strawbridge Breccia. Petrological examination indicated (BHP, 1973) that the boxworks in the gossan could have been after galena and pyrite. Associated limonitic shale contained numerous small, angular cavities was interpreted to have resulted from the leaching of halite and gypsum from the sediment. A hyper-saline environment may be a favourable indicator for the formation of SEDEX deposits.

Core recovered from drilling by BHP of a quartz vein in Mirarrmina Complex rocks in the upper reaches of the Koolatong River, north of the Walker Gossan Project, showed that the low-grade mineralization found in the vein consisted of pyrite, pyrrhotite, chalcopyrite, galena and sphalerite. Occasional veinlets of fluorite were also noted. The base metal sulphides occur in the vein as disseminated specks, and patches up to several millimeters, and occasional massive pyrrhotite and pyrite veins are found up to 5 cm wide.

8 DEPOSIT TYPES

8.1 Stratiform Sediment-Hosted ("SEDEX") Base-Metal Deposits

SEDEX deposits are characterized by single or multiple lenses of laminated or massive sphalerite and galena, which are usually accompanied by large amounts of pyrite. Each lens is of the order of several tens of metres thick (McGoldrick and Large 1998). Australian Proterozoic examples are hosted within carbonaceous shales and siltstones. These host successions are interpreted to have been deposited in a range of settings from shallow (<10 m) evaporitic lagoons to deep (sub-photic zone), extensive (>20 km) water bodies.

All the Australian Proterozoic SEDEX deposits discovered thus far have been situated on, or near major regional faults, but these have not necessarily been active during deposition of the ore host succession. Notwithstanding this, these faults have regularly been invoked in genetic models as conduits for mineralising hydrothermal fluid flow (eg McGoldrick and Large 1998). The timing of base metal mineralisation with respect to its host sediments has been the subject of controversy for many decades. However, with some variations involving early diagenetic replacement, essentially syn-depositional mineralisation has remained the generally preferred model for most Australian Proterozoic SEDEX deposits.

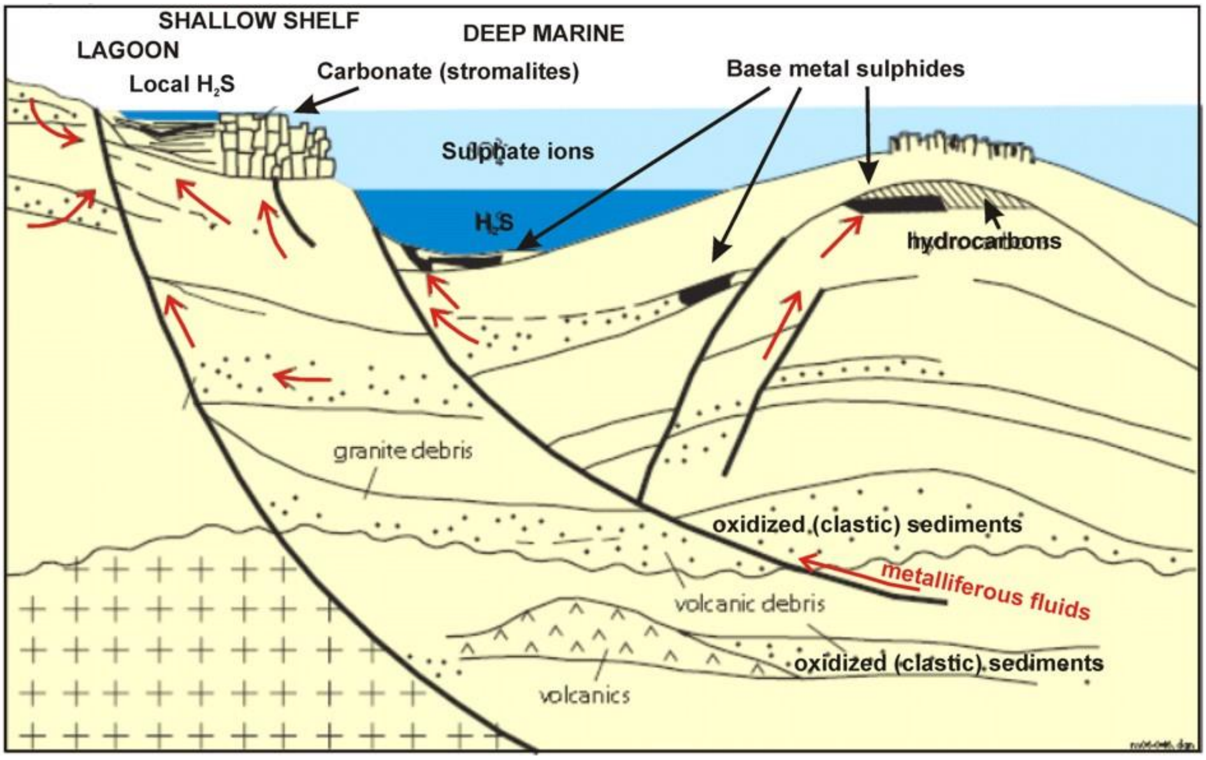


Figure 39. Schematic metallogenic model for SEDEX deposits
Compiled by D G Jones from Figure 2 in McGoldrick & Large (1998)

8.2 HYC Pb-Zn Deposit, McArthur River, Northern Territory

8.2.1 Discovery & Development

The HYC deposit of McArthur River Mining Pty Ltd ("MRM") is located 60 km SW of the township of Borroloola in the Gulf Region of the Northern Territory, approximately midway between Darwin and Mt Isa. The major open-cut operation is mining one of the largest known SEDEX Zn-Pb-Ag deposits in the world.

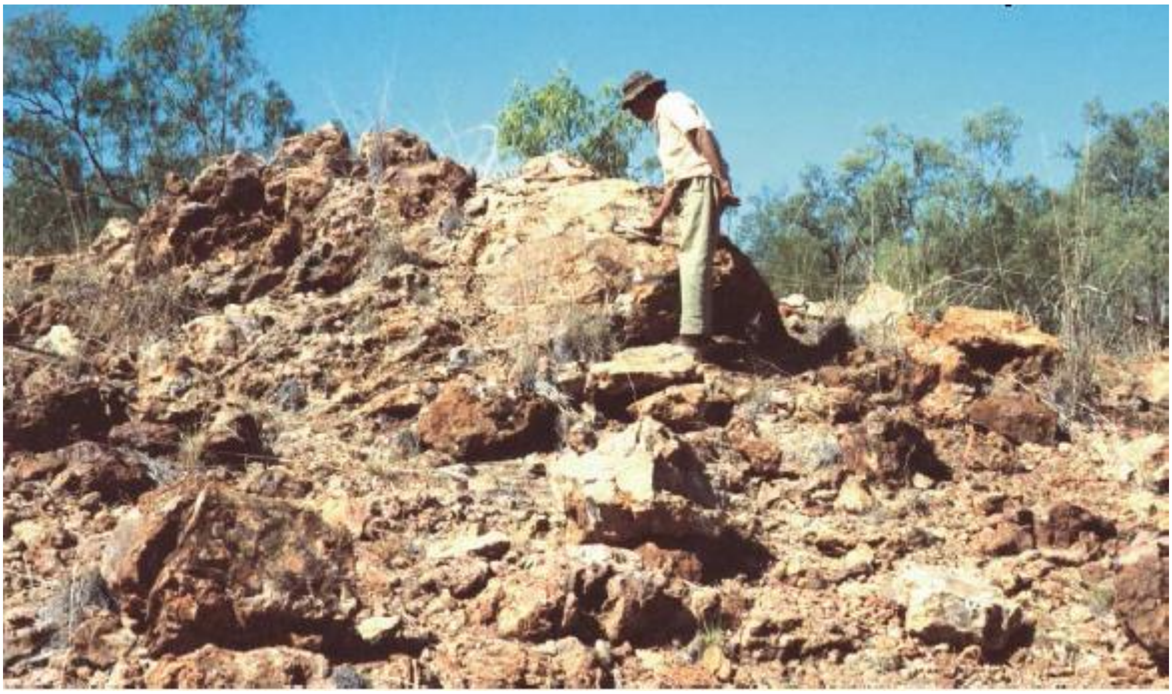


Photo 7. Discovery gossan, HYC deposit
Source: NTGS

The gossan above the orebody was discovered in 1955 by geologist David Crabb and field assistant Ron Beresford of Carpentaria Exploration Company Pty Ltd (“CEC”), a wholly-owned subsidiary of Mt Isa Mines Ltd (“MIM”). They were prospecting on McArthur River cattle station in the Northern Territory. Crabb collected a large boulder from the gossan, which rolled around in the back of his Land Rover for some weeks until it was sent to the laboratory in Mt Isa for analyses. The assay showed it was almost pure cerussite, grading >30% Pb. An excited Crabb exclaimed “If this becomes a mine, I wonder if I’ll get to name it?” The reply from MIM’s Chief Geologist was “Here’s your chance, Dave” and so the deposit became known as the HYC (pers. comm from David Crabb in 1966).

Development did not commence until 1995, partly because of the unusual structure and extensive faulting of the mineralization, but primarily because the extremely fine-grained mineralogy reduced metallurgical recovery below economic levels using available technology. Test work continued throughout the 1960s, 1970s and 1980s but failed to develop an economically feasible method of beneficiation.

Improvements in fine-grinding technology and the emergence of a market for high-grade bulk concentrate for use in the new Imperial Smelting Process (“ISP”) in the 1990s made the HYC deposit feasible. Construction of the project commenced in 1994, with the first shipment of concentrate loaded in 1995. In 2005, MRM announced its intention to convert the HYC mine from an underground operation to open-cut. The pit came on line in 2008 and extended the mine life by 21 years to 2027 (Xstrata, 2011).

8.2.2 Geology

The sediment hosted stratiform HYC deposit is located within the Batten Fault Zone, a component of the Proterozoic McArthur Basin (see Figure 22). It is similar to the Pb-Zn orebodies at the Mt Isa and Hilton mines. The deposit is about 1500 m long and 1000 m wide, with an average thickness of 55 m.

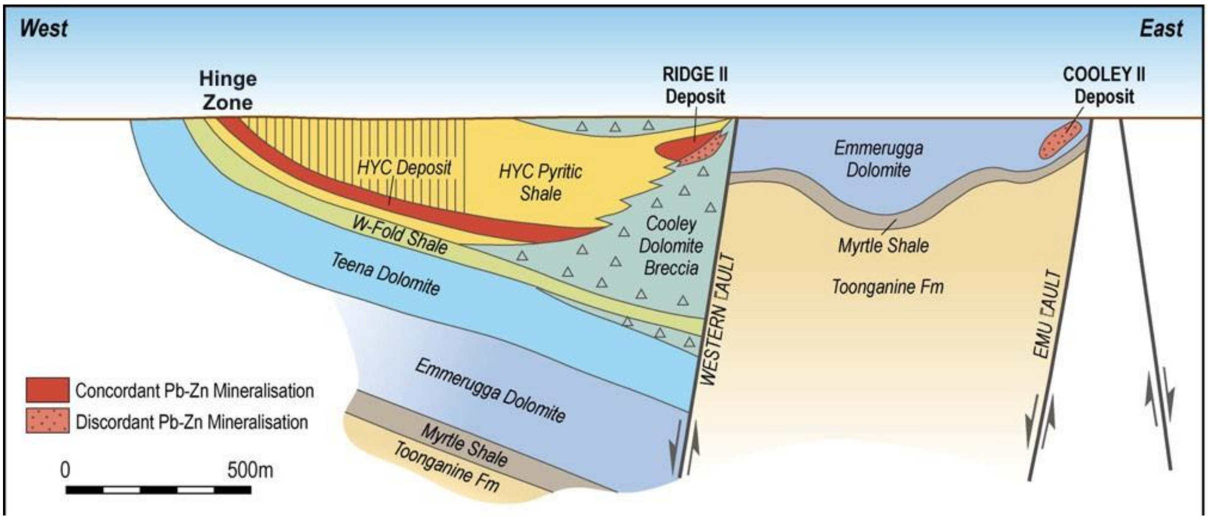


Figure 40. East-west cross-section through the HYC Deposit
Figure 4 in Williams (1978a)

The mineralization occurs near the base of the HYC Pyritic Shale Member, comprising a sequence of inter-bedded pyritic bituminous dolomitic siltstones, sedimentary breccias and volcanic tuffs. The HYC deposit has been folded and eroded along its western margin, which is covered with 30 m of soil. This western margin contains the Hinge ore zone, which is sub-vertical with a strike length of 1000 m and vertical height of 200 m. The northern margins interfinger with sedimentary breccias and the southern margin grades into thinned nodular barren pyritic siltstone. On the eastern margin the mineralization thickens and is folded to form the Ridge II deposit, which has a strike length of over 600 m. The SE corner is down-faulted by the NE-trending Woyzbun Fault.

Photo 8. Hinge Zone mineralization at the HYC deposit
Photo supplied by MRM

Various models for the deposition of the HYC deposit have been developed. Currently, the source of metals is thought to be from a fault system tapping these at depth in the Earth's crust (Ireland et al, 2004) as shown in Figure 35 below. The metal ions are circulated into a marine basin (~600-1,200 m) with restricted circulation, and precipitate to form sulphide minerals (ZnS and PbS) at a depth below the Redox front (where free oxygen no longer exists).

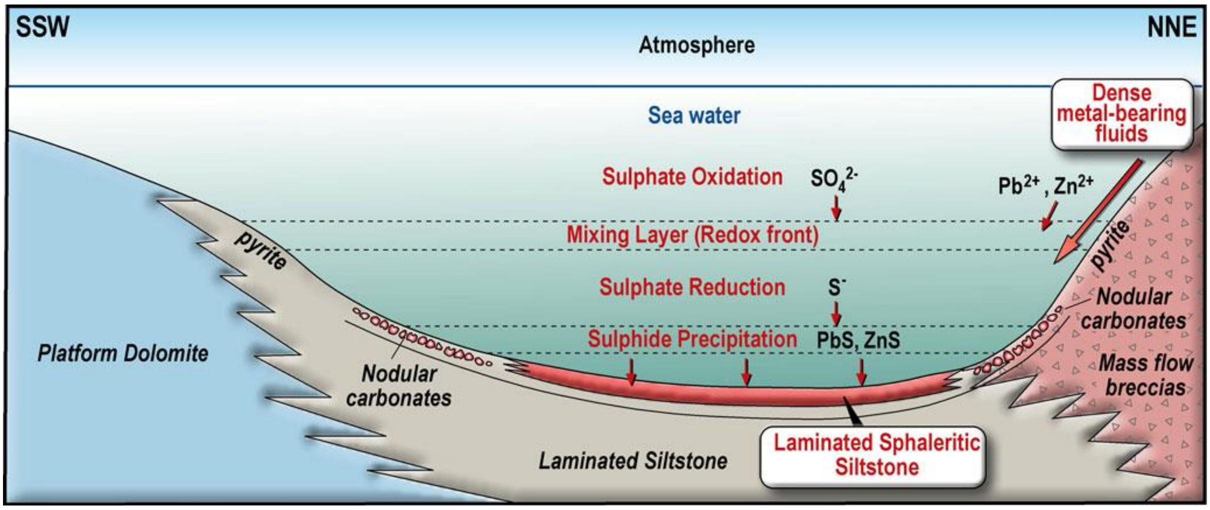
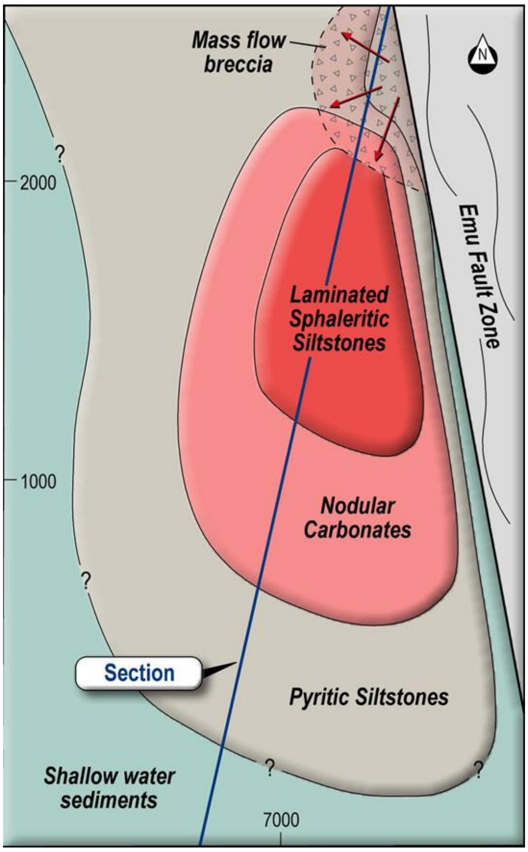


Figure 41. Postulated formation of the HYC mineralization
Figure 18 in Ireland et al (2004)



The development of a low-grade fringe zone of nodular carbonates at shallower depths where some oxygen still exists in the form of sulphate ions can provide a useful guide for exploration. This nodular carbonate zone at the HYC deposit contains zinc mineralisation in the 5-7% grade range, surrounding the higher grade zone (Ireland et al, 2004).

Figure 42. Schematic plan through the HYC mineralization
Figure 13 in Ireland et al (2004)

9 EXPLORATION

No exploration has been conducted at the Walker Gossan Project since the historical exploration discussed in detail in Section 8.3:

10 DRILLING

The project is at a very early stage of exploration, with no drilling yet undertaken by GPM Metals Inc.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

Until my visit, as far as I am aware no sampling has been undertaken at the Walker Gossan Project since the historical exploration discussed in detail in Section 6.3:

Given the short time available to collect samples, attention was focused on the Balbirini Dolostone within EL 385 where permission had been granted by the Northern Land Council for limited sampling to be undertaken. The principal area sampled was in the centre of EL 385 where ferruginized dolostone was exposed, the samples being taken as close as could be determined to sampling reported by CRAE in 1972. A total of 3 sites were sampled, with a duplicate sample being taken at each site.

One set of odd-numbered samples (Tables 17 & 18 below) was taken by me in my luggage by air to Brisbane immediately after the field visit, and delivered by me to the laboratory of ALS-Chemex in Brisbane for analysis using ALS method ME-MS61. The other set of duplicate samples was shipped to the same laboratory separately and analysed as a separate batch using ALS method ME-ICP61 which has a slightly higher detection limit and lower level of accuracy than ME-MS61. To provide complete traceability throughout the chain of custody, the samples were logged into the ALS-Chemex proprietary global information management system and given a barcode at log-in.

Each sample was weighed and then underwent preliminary coarse crushing until >70% passed through a 6 mm screen. The entire sample was then pulverized using “ring and puck” style low-chrome steel grinding mills until >85% passed a 75 µm screen. The sample was then riffle split down to <100 g portions and a representative 0.25 g taken and digested with perchloric, nitric, hydrofluoric and hydrochloric acids providing near-total dissolution. The residue was topped up with dilute hydrochloric acid and the resulting solution was analyzed by inductively coupled plasma-atomic emission spectrometry. The results were corrected for spectral inter-element interferences.

Four standard samples, two blanks and three duplicate samples were inserted into each sample batch to provide Quality Control. No deviations from the norms were detected.

The ALS-Chemex laboratory in Brisbane is certified to International Standards ISO/IEC 17025:2005 and ISO 9001:2008. From my personal inspection of their facilities and staff I believe their sample preparation, security and analytical procedures meet the highest industry standards. The company was first established in Queensland in 1863, and since listing on the Australian Stock Exchange in 1952, ALS has grown to be an international testing, inspection and certification company employing in excess of 13,000 staff. The company has no connection with GBM.

12 DATA VERIFICATION

I reviewed a large volume of published data. These publications are listed in the References. This independent material did not conflict with the information supplied by GPM. I believe the data discussed in this report was adequate to meet the purposes of the report.

I visited the area as part of the project review for the preparation of this report. The geology was examined in and around granted EL 385. No conflict was found with the published mapping by the NTGS.

A total of 6 rock samples were taken by me from various outcrops of the Balbirini Dolostone. Emphasis was placed on the ferruginised dolostone. No true gossan was observed, but some outcrops of bleached dolostone contained leached cubic cavities that may have been after cubic pyrite or galena. The analyses of the odd-numbered samples were of the same order as the corresponding even-numbered duplicate (Table 18).

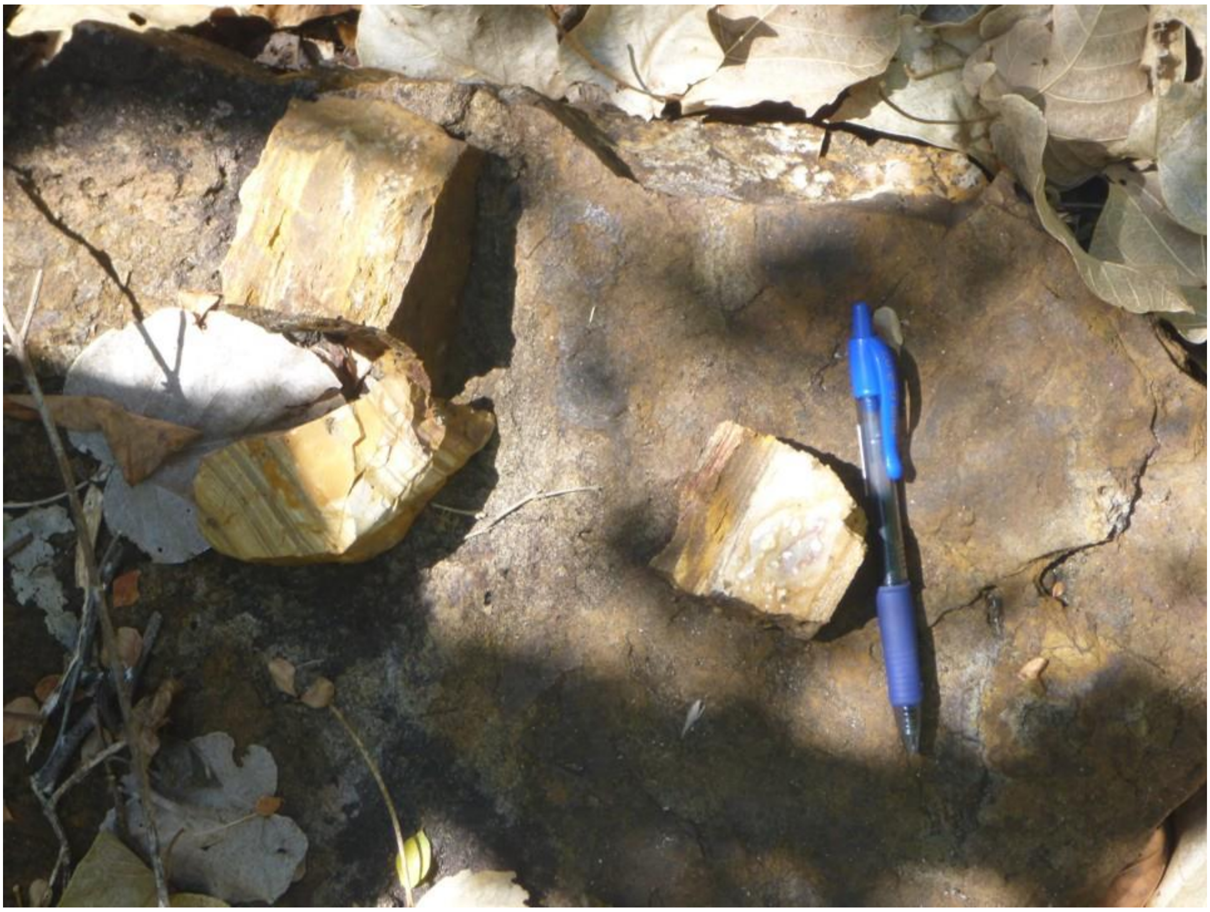


Photo 9. Bleached dolostone containing small cubic cavities
Photo taken by D G Jones on 30 July 2014 at UTM Zone 53: 584984 mE 8502323mN

Sample Number	Easting m	Northing m	Elevation m asl
W 01	585525	8510581	43
W 02	585525	8510583	
W 03	585525	8510581	43
W 04	585527	8510588	
W 05	585438	8510304	39
W 06	585527	8510600	

Table 17. Sample locations, verification sampling
Samples taken by D G Jones

Sample Number	Method	Ag ppm	As ppm	Co ppm	Cu ppm	Mn ppm	Mo ppm	Pb ppm	U ppm	Zn ppm
W 01	ME-MS61	0.49	69.2	23.6	26.4	13300	10.1	57.2	5.3	14
W 02	ME-ICP61	0.90	52.0	25.0	28.0	9670	7.0	36.0	<10	12
W 03	ME-MS61	2.17	24.1	9.3	17.1	3540	2.5	11.8	3.4	17
W 04	ME-ICP61	2.70	27.0	10.0	15.0	3780	2.0	17.0	<10	10
W 05	ME-MS61	0.53	78.2	39.1	29.4	22700	10.1	48.4	6.2	14
W 06	ME-ICP61	0.80	81.0	44.0	38.0	18400	8.0	74.0	<10	12

Table 18. Selected key analyses, verification sampling
Samples taken by D G Jones

The assay results from the verification samples are consistent with the RTE rock chip samples taken from the same area in 2004 (Table 19 below).

Number	Ag	As	Co	Cu	Mn	Mo	Pb	U	Zn
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
6023812	<1	10	<2	14	41	<3	12	<10	6
6023813	2	44	92	8	15500	3	<5	<10	30
6023814	<1	72	12	19	289	6	26	<10	4
6023815	27	31	586	315	<5	96	5	<10	67
6023816	18	52	356	173	<5	67	36	<10	39
6023817	1	51	10	22	1810	6	23	<10	8
6023818	1	17	7	17	3080	<3	15	<10	11
Number	**Ag**	**As**	**Co**	**Cu**	**Mn**	**Mp**	**Pb**	**U**	**Zn**

Table 19. RTE Rock Grab Sample Analytical Results 2004
Source: Rheinberger (2005)

13 MINERAL PROCESSING AND METALLURGICAL TESTING

The project is at a very early stage of exploration, so no metallurgical test work has been undertaken.

14 MINERAL RESOURCE ESTIMATES

The project is at a very early stage of exploration, with no resource drilling yet undertaken, so no mineral resource or reserve estimate has been made.

15-22 ADVANCED PROPERTY INFORMATION

The Project is not an Advanced Property and Items 15-20 specified in NI43-101 are not appropriate to this report.

23 ADJACENT PROPERTIES

23.1 BHP's Koolatong River Prospect

EL 396 was granted to BHP in August 1972. The eastern half of the tenement coincides with the northern half of the present GPM ELA 5561. The Balma Group sediments in the Strawbridge Creek-Koolatong River area were considered by BHP to possibly contain units equivalent to the Barney Creek Formation of McArthur River that hosts the HYC lead-zinc orebody. The similarity includes the presence of black shales, siltstones, dolomitic siltstone and dolomite. Exploration work carried out between September and December 1972 included soil sampling, rock-chip sampling, and a limited IP and magnetic survey. No sampling was done inside the boundaries of the present GPM ELA 5561. Maximum soil values were: Cu 84 ppm; Zn 170 ppm and Pb 160 ppm. Maximum rock chip values were: Cu 40 ppm; Zn 200 ppm and Pb 86 ppm. Chip samples of a gossan in Strawbridge Breccia located at 574 800mE, 8 542 000 mN returned maximum values of: Cu 42 ppm; Zn 72 ppm and Pb 84 ppm.

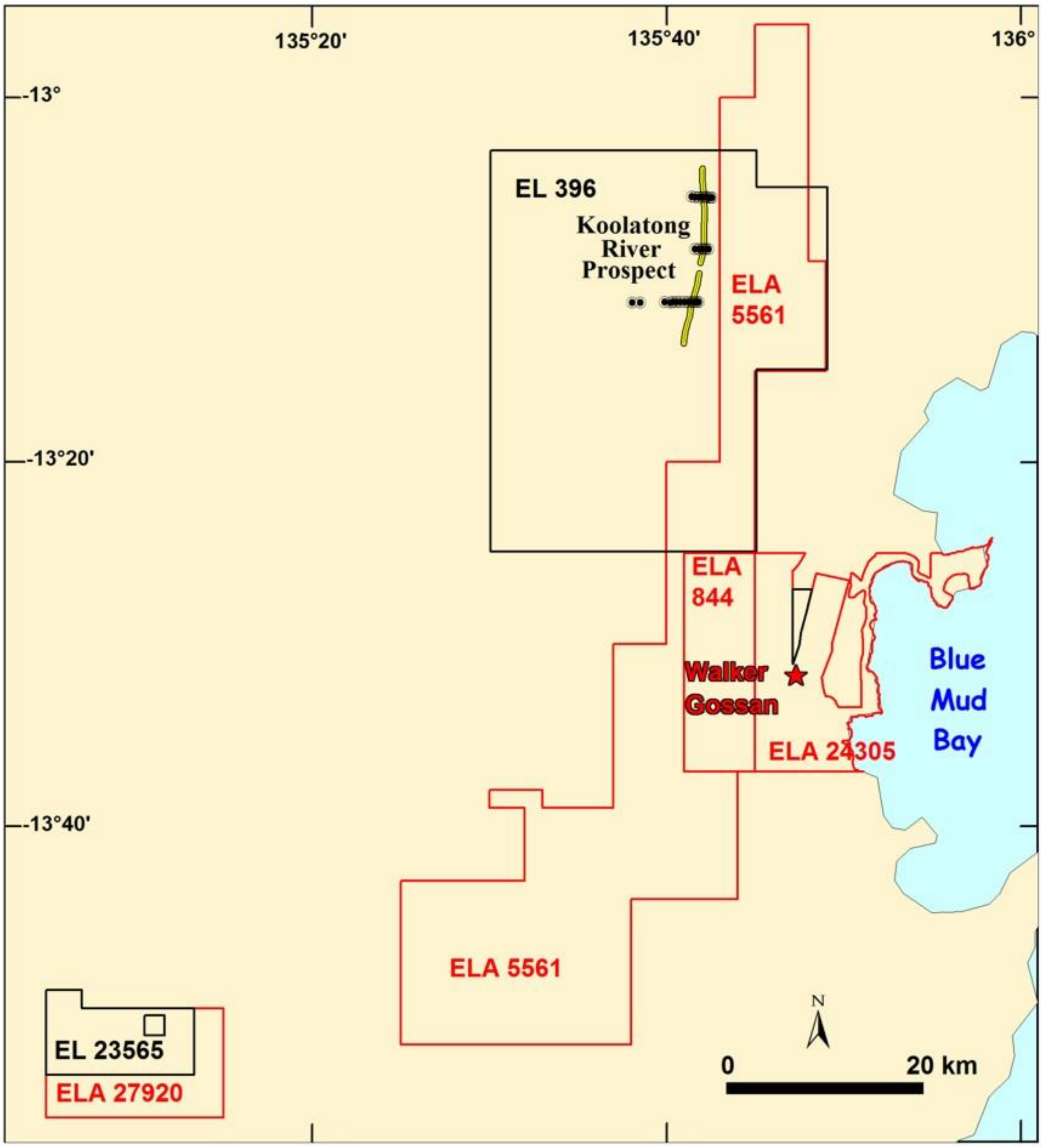


Figure 43. Location of BHP's Koolatong River prospect
Compiled by D G Jones

Twenty-nine rotary open drill holes to bedrock were completed on three traverses totalling 779 m (see Figure 43 below). The target was a prominent ferruginized fault breccia in the Strawbridge Breccia unit, extending for a distance of almost 20 km north-south. The fault may coincide with the axis of an anticline in the folded Strawbridge Breccia.

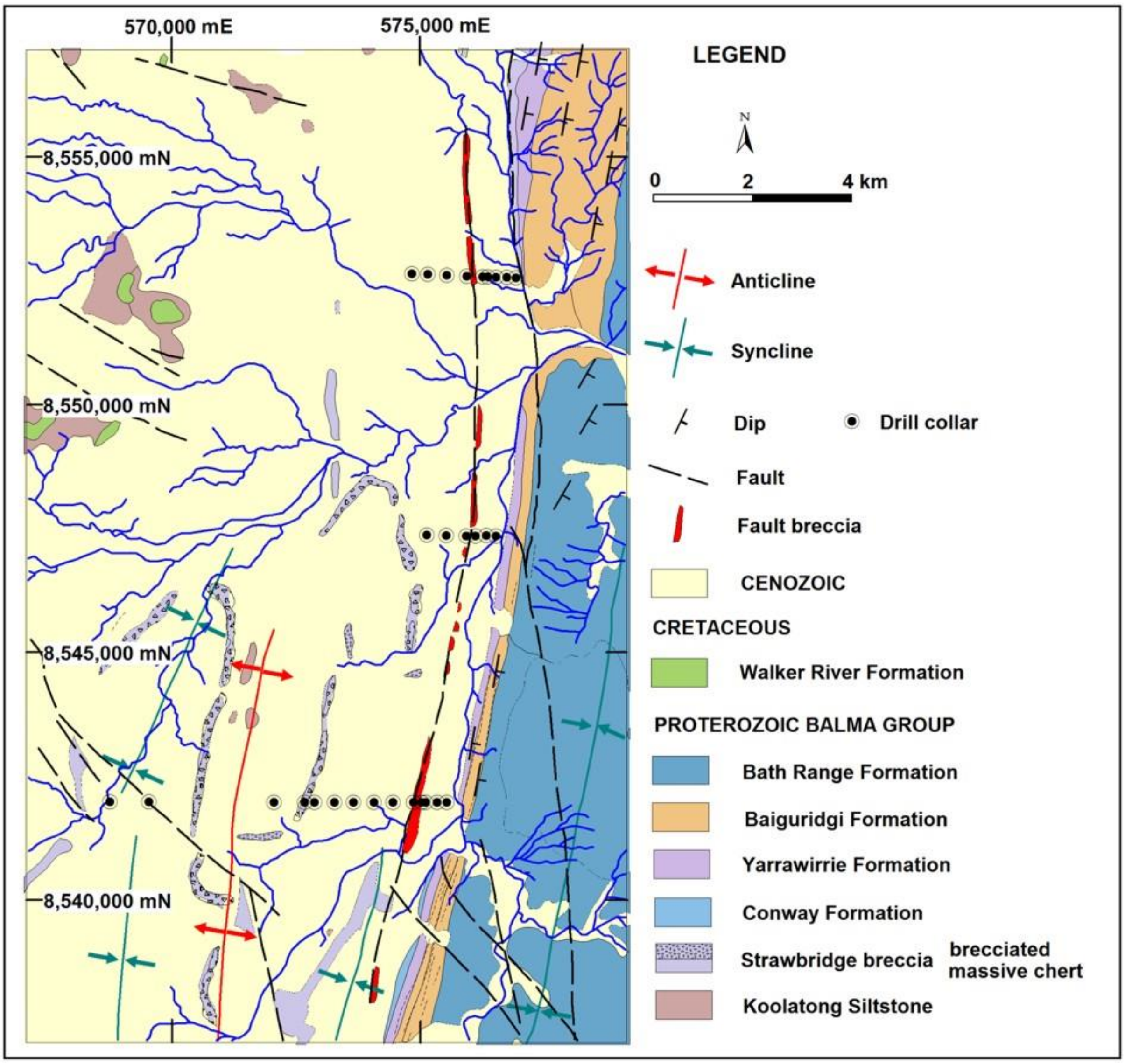


Figure 44. Local geology and drill traverses, BHP Koolatong River prospect
Compiled by D G Jones from map sheets in BHP (1974)

The Strawbridge Breccia at this locality is a massive siliceous breccia consisting of angular fragments of siliceous dolomite or banded chert. Ferruginous zones are common, usually confined to a particular horizon locally which may grade or abruptly change to siliceous breccia along strike. In these localities the structure is unaltered, but the angular fragments are either altered to red chert, goethite or white/yellow porous siliceous material while the matrix is altered to limonite, goethite, hematite (and mixtures of all three) or occasionally manganese.

Small scale slump structures are common. Within the ferruginous zone a variety of box works were thought to be present although drilling below the oxidized zone indicated the presence of pyrite only. The unit forms an almost continuous marker horizon throughout the length of EL 396 (BHP, 1974).

The best intersection was in hole B20 on the southernmost traverse, where from 15-20 m down hole in Strawbridge Breccia the 5 m section assayed 28 ppm Cu, 260 ppm Zn and 94 ppm Pb. EL 396 was relinquished in August 1975. Given the passage of time since 1975, and the location of the prospect outside the ELs granted to GBM and therefore not open to inspection, I am unable to verify the information in BHP's reports to the Northern Territory government. The mineralization described may not necessarily be indicative of the mineralization expected on the Walker Gossan property.

24 OTHER RELEVANT DATA AND INFORMATION

I believe all relevant data and information has been provided in the preceding sections of this report.

25 INTERPRETATION AND CONCLUSIONS

- Late Paleoproterozoic rocks in northwest Queensland and the Northern Territory host five world-class stratiform sediment-hosted Zn-Pb-Ag orebodies (Mount Isa, Hilton, George Fisher, Century and HYC) and two smaller, but significant deposits (Lady Loretta and Dugald River). The gossanous outcrop of the Mount Isa Zn-Pb-Ag lodes was found in 1923, and since World War 2, geological exploration by mining companies has resulted in a significant discovery in every decade except the 1970s. The discoveries were the Hilton deposit at MIM's 'Northern Leases' in 1948, HYC in 1956, Lady Loretta in 1966, Hilton North (now renamed George Fisher) by MIM in the early 1980s, and Century in 1990. All these deposits had gossanous outcrop or, in the case of Century, a strong soil geochemical signature.

- All of the above deposits occur in intracontinental rift or rifted margin (marine) basins. The Walker Gossan is situated in the Walker Fault Zone, considered by the NTGS to be a direct analogue of the Batten Fault Zone, host to the HYC deposit located some 300 km south at McArthur River.

- Host rocks of the above deposits are carbonaceous and/or pyritic black and grey (dolomitic) siltstone, mudstone and shale, often with a significant clastic carbonate (dolomite) component. The same rocks occur in the Walker Gossan Project area, and are correlated by the NTGS and Geoscience Australia with the host rocks to the HYC deposit.

- Two highly anomalous (2.7% Pb and 1.1% Pb) rock samples taken by CRAE geologists in 1972 in the Walker Gossan zone provide evidence for potential Pb-Zn mineralization. The area has been closed to exploration since that time so this potential remains untested.

- In my opinion, the AUD $3.1M budget for initial exploration of the Walker Gossan Project proposed by GPM is sensible and justified.

26 RECOMMENDATIONS

The proposed initial program and budget for the Project is set out in the following tables:

Activity	AUD $		
	Phase 1	Phase 2	Total
Airborne magnetics, radiometrics & EM	200,000	0	200,000
Detailed geophysics	0	150,000	150,000
Rock chip geochemistry	10,000	0	10,000
Gridded soil geochemistry	10,000	0	10,000
Petrology	5,000	15,000	20,000
Geological mapping	15,000	0	15,000
Data processing & compilation	50,000	100,000	150,000
Diamond drilling (1500m total)	0	300,000	300,000
RC drilling (5000m)	0	500,000	500,000
Transport, meals, equipment, accommodation	100,000	250,000	350,000
Personnel	140,000	300,000	440,000
Administration	50,000	100,000	150,000
Access meetings & Deed costs	50,000	40,000	90,000
Heritage surveys	50,000	20,000	70,000
TOTALS:	**$680,000**	**1,775,000**	**$2,455,000**

Table 20. Summary of budget proposed by GPM for ELA 24305 when granted

Activity	AUD $		
	Phase 1	Phase 2	Total
Satellite imagery	4,000		4,000
Data processing & compilation	50,000	5,000	55,000
Access meetings & Deed costs	30,000	20,000	50,000
Helicopter hire	20,000	10,000	30,000
Gridded soil geochemistry	4,500	5,000	9,500
Rock chip sampling	2,500	5,000	7,500
Geological mapping	10,000		10,000
Transport, meals, equipment, accommodation	80,000	25,000	105,000
Personnel	80,000	25,000	105,000
Administration	20,000	10,000	30,000
TOTALS:	**$301,000**	**$205,000**	**$506,000**

Table 21. Summary of budget proposed by GPM for EL 385

Activity	AUD$
Data processing & compilation	20,000
Access meetings & Deed costs	20,000
Helicopter hire	10,000
Stream, soil & rock chip geochemistry	10,000
Transport, meals, equipment, accommodation	25,000
Personnel	25,000
Administration	10,000
TOTALS:	**$120,000**

Table 22. Summary of budget proposed by GPM for EL 23565

A total budget of AUD$3,081,000 is proposed to be expended by GPM in two phases, subject to granting of EL 24305 over the Walker Gossan area. Of this total some 80% would be dedicated to the Walker Gossan area, which is sensible given its dominant importance in the tenement package. Only 3.5% is allocated to EL 23565, which again is justified given the low prospectivity of this tenement. Note that the majority of the project area at present consists of tenement applications, which until granted, have no expenditure obligations. Also, the second stage program may be modified depending on the results from the first phase.

AUD$800,000 is budgeted for drilling, representing some 25% of the total budget, a reasonable proportion given the ancillary costs usually associated with exploration on Aboriginal land.

Signed

David G Jones
Effective Date: 16th September 2014

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GLOSSARY OF TECHNICAL TERMS

This glossary comprises a general list of common technical terms that are typically used by geologists. The list has been edited to conform in general to actual usage in the body of this report. However, the inclusion of a technical term in this glossary does not necessarily mean that it appears in the body of this report, and no imputation should be drawn. Investors should refer to more comprehensive dictionaries of geology in printed form or available in the internet for a complete glossary.

AAS *Atomic absorption spectroscopy - an analytical technique whereby a sample is vaporized and its nonexcited atoms are identified and quantified by the electromagnetic radiation they absorb at characteristic wavelengths.*
aeromagnetic survey *Systematic measurement and collection, from an aircraft, of the earth's magnetic field at regular intervals.*
Ag *The chemical symbol for gold.*
alluvial deposit *A mineral deposit consisting of recent surface sediments laid down by water.*
alteration *The change in the mineral composition of a rock, commonly due to hydrothermal activity.*
alteration zone *A zone in which rock-forming minerals have been chemically changed.*
amphibole *A silicate mineral with a crystal structure characterized by a double chain of linked silicate tetrahedra with the general formula* $(Ca, Na, K)_2(Mg, Fe, Al, Ti)_5(Si,Al)_8O_{22}(OH)_2$.
andesite *A fine-grained, dark-coloured extrusive rock.*
anomaly *A departure from the expected or normal background.*
arsenopyrite *A mineral with the chemical composition FeAsS.*
As *The chemical symbol for arsenic.*
Au *The chemical symbol for gold.*
AusIMM *Australasian Institute of Mining and Metallurgy.*
basalt *A dark-coloured igneous rock.*
base-metal *A non-precious metal, usually referring to copper, lead and zinc.*
basic *Used to describe an igneous rock having relatively low silica content.*
biotite *A dark-coloured mica.*
breccia *A rock composed of angular rock fragments.*
bulk sample *A large volume of soil or rock obtained for examination or analysis.*
Ca *The chemical symbol for calcium.*
Cenozoic *An era of geological time from the end of the Mesozoic to the present.*
calcalkaline *Igneous rocks containing calcium-rich feldspar.*
Cambrian *A period of geological time approximately from 506 Ma to 544 Ma.*
Carboniferous *A period of geological time approximately from 295 Ma to 355 Ma.*
chalcopyrite *A mineral of copper with the chemical formula* $CuFeS_2$.
chert *Crypto-crystalline silica.*
chlorite *A generally green or black talcose layered mineral with the formula* $(Mg,Fe,Al)_6(Si,Al)_4O_{10}(OH)_8$, *often formed by metamorphic alteration of primary mafic minerals.*
clastic *A rock composed principally of fragments derived from pre-existing rocks.*
comagmatic *A set of igneous rocks that are regarded as being derived from a common parent magma.*
complex *An assemblage of rocks of various ages and origins intricately mixed together.*
conglomerate *A sedimentary rock formed by the cementing together of water-rounded pebbles, distinct from a breccia.*
costean *A trench excavated in the surface for the purpose of geological investigation.*
Cu *The chemical symbol for copper.*
craton *A major part of the Earth's crust that has been stable and little deformed for a long time.*
Cretaceous *A period of geological time approximately from 65 Ma to 135 Ma.*
crosscut *A level driven across the main direction of underground mine workings.*
crypto- *A prefix meaning hidden or invisible to the naked eye.*
dacite *A fine-grained extrusive rock composed mainly of plagioclase, quartz and pyroxene or hornblende or both. It is the extrusive equivalent of granodiorite.*
dilution *The proportion of material which is inadvertently included during mining operations, and which is generally of a significantly lower grade than the ore zone of interest.*
diorite *A coarse-grained intrusive rock consisting mostly of plagioclase and dark mafic minerals.*
dip *The angle at which any planar feature is inclined from the horizontal.*

dolerite *An intrusive rock consisting mostly of dark mafic minerals.*
dolomite *A rock containing >15% magnesium carbonate.*
dyke *A tabular igneous intrusion that cuts across the bedding or other planar structures in the host rock.*
eluvial *Material derived from decomposed exposed rocks that may have been washed, fallen, or blown by the wind for a short distance*
EM survey *Electromagnetic survey. A method of measuring the alternating magnetic fields associated with electrical currents artificially or naturally maintained in the subsurface. A technique often used to identify massive sulphide deposits.*
Eon *Two or more Eras form an Eon, the largest sub-division of geological time.*
epigenetic *Originating at or near the Earth's surface; mineral deposits formed later than the enclosing rocks.*
Epoch *The smallest, most basic unit of geological time is the Age. An epoch comprises two or more Ages.*
Era *Two or more Periods comprise a geological Era.*
euhedral *A term applied to grains displaying fully-developed crystal form.*
ex- *A prefix meaning without.*
exhalative *A rock formed from the solidification of volcanic gases or vapours, often on the sea floor.*
extrusive *Igneous rock that has been erupted on to the surface of the earth.*
Fe *The chemical symbol for iron.*
feldspar *A group of abundant rock-forming minerals with the general formula $M(Al,Si)_3O_8$, where M can be Na or K.*
felsic *Light coloured rocks containing an abundance of feldspars and quartz.*
foliation *A planar arrangement of features in any type of rock.*
Ga *Billion years ago.*
gabbro *A coarse-grained intrusive igneous rock composed chiefly of plagioclase feldspar and pyroxene.*
gneiss *A banded rock formed during high-grade regional metamorphism.*
gossan *A ferruginous deposit remaining after the oxidation of the original sulphide minerals in a vein or ore zone.*
graben *An elongate, relatively depressed crustal unit or block that is bounded by faults on its long sides.*
granitoids *A general term to describe coarse-grained, felsic intrusive plutonic rocks, resembling granite*.
granodiorite *A coarse-grained granitic rock containing quartz, feldspar and biotite.*
granular *Used to describe a rock composed of grains of approximately equal size.*
granulite *A metamorphic rock with a granular texture.*
gravity survey *Systematic measurement and collection of the earth's gravitational field at the surface at regular intervals. Used to discern different rock types based on associated variations with differences in the distribution of densities, and hence rock types.*
greenschist *A schistose metamorphic rock which owes its green color and schistose to abundant chlorite and lesser epidote and/or actinolite.*
greywacke *A poorly sorted, fine to coarse-grained rock composed of angular to sub-angular particles that are mainly fragments of other rocks.*
hematite *A mineral that is the main source of iron, with the chemical formula Fe_2O_3. The crystals form in the rhombohedral system (like a stretched and skewed cube).*
hematitic *Containing hematite.*
idiomorphic *A grain bounded by perfect crystal faces.*
ignimbrite *The rock formed by the widespread deposition and consolidation of volcanic ash flows (=welded tuff).*
intermediate *Igneous rocks whose composition is intermediate between felsic and mafic rocks.*
intracratonic *Within a large, stable mass of the earth's crust.*
Jurassic *A period of geological time approximately from 135 Ma to 203 Ma.*
K *The chemical symbol for potassium.*
komatiite *A mantle-derived igneous rock with a high content of magnesium.*
LandSat imagery *Reflective light data of the earth's surface collected by the LandSat satellite and commonly processed to enhance particular features. Includes the visible and invisible light spectrums.*
lithic tuff *A tuff containing fragments of previously formed non-pyroclastic rocks.*
Ma *Million years ago.*

mafic *A dark-coloured rock composed dominantly of magnesium, iron and calcium-rich rock-forming silicates, and for rocks in which these minerals are abundant.*
magma *Naturally occurring molten rock, generated within the earth.*
magnetic anomalies *Zones where the magnitude and orientation of the earth's magnetic field differs from adjacent areas.*
magnetic survey *Systematic collection of readings of the earth's magnetic field. The data are collected on the surface or from aircraft.*
magnetite *A magnetic ore of iron with the chemical formula* Fe_3O_4. *The crystals are octahedral, like two four-sided pyramids joined at the base.*
manganiferous *Containing manganese.*
mantle *The zone in the earth between the crust and the core.*
martite *A mineral that results from the oxidation of magnetite* (Fe_3O_4) *to haematite* (Fe_2O_3) *but which retains the octahedral crystal shape of magnetite.*
massive sulphides *Rock containing abundant sulphides that constitutes close to 100% of the rock mass.*
Mesoproterozoic *An era of geological time approximately from 1000 Ma to 1600 Ma.*
mesothermal *Mineral deposits formed (precipitated) at moderate temperatures.*
Mesozoic *An era of geological time approximately from 65 Ma to 248 Ma.*
meta- *A prefix denoting metamorphism of the rock so qualified.*
metamorphism *The mineral, chemical and structural adjustment of solid rocks to new physical and chemical conditions that differ from those under which the rocks originated.*
meteoric water *Water derived from the earth's atmosphere.*
Mg *The chemical symbol for magnesium.*
mica *A common mineral composed of a three-layered silicate lattice having a perfect cleavage.*
micaceous *Containing mica.*
migmatite *A metamorphic rock with a granular texture.*
Mo *The chemical symbol for molybdenum.*
molybdenite *The main ore of molybdenum; a lead-grey hexagonal mineral with composition* MoS_2.
monzogranite *A granular plutonic rock with a composition between monzonite and granite.*
muscovite *A common mica that is essentially transparent.*
Na *The chemical symbol for sodium.*
nappe *A sheet-like block of rock that has moved predominantly horizontally.*
Neoproterozoic *An era of geological time approximately from 544 Ma to 1000 Ma.*
O *The chemical symbol for oxygen.*
olivine *A silicate mineral with the general formula* R_2SiO_4, *where R can be Mg, Fe, Mn or Ca.*
Ordovician *An era of geological time approximately from 435 Ma to 500 Ma.*
orogen *Linear, deformed belts of rocks that form mountain chains.*
orogenic *Originating with, or related to, an orogeny.*
orogeny *The process of mountain-building.*
Ortho- *A prefix meaning straight or regular.*
ortho-gneiss *A gneiss presumed to have formed from an igneous rock.*
oxide *Pertaining to weathered or oxidized rock.*
Paleoproterozoic *An era of geological time approximately from 1600 Ma to 2500 Ma.*
Paleozoic *An era of geological time approximately from 248 Ma to 544 Ma.*
pelite *A sediment or sedimentary rock composed of the finest detritus (clay or mud-sized particles).*
penecontemporaneous *Formed at almost the same time.*
percussion *A method of drilling where the rock is broken into small chips by a hammering action.*
peridotite *An ultramafic rock consisting mostly of olivine.*
Permian *An era of geological time approximately from 248 Ma to 295 Ma.*
Period *The basic unit of geological time in which a single type of rock system is formed.*
Phanerozoic *The eon of geological time extending from 542 Ma to the present.*
phenocryst *One of the relatively large and conspicuous crystals in a porphyritic rock.*
phyllite *A metamorphosed rock, intermediate between slate and schist. Micaceous minerals impart a sheen to the cleavage surfaces, which are commonly wrinkled.*
phyllitic *An adjective describing a rock that has the structure of a phyllite.*
placer *A Spanish word meaning "sand bank" used to refer to sand and gravel in modern or ancient stream beds that contain precious metals.*
plagioclase *A sub-group of the feldspar minerals with the general formula* $M(Al,Si)_3O_8$, *where M can be K, Na, Ca, Ba, Rb, Sr or Fe.*

plunge *The attitude of a line in a plane which is used to define the orientation of fold hinges, mineralized zones and other structures.*
pluton *A body of igneous rock presumed to be of deep-seated origin.*
podsol *A group of zonal soils having a very thin organic-mineral layer overlying a gray, leached horizon and a dark brown, horizon enriched in iron oxide, alumina, and organic matter developed under coniferous or mixed forests.*
poikioblastic *A granitic texture in which large crystals contain smaller crystals of other minerals.*
porphyritic *Descriptive of igneous rocks containing relatively large crystals set in a finer-grained groundmass.*
porphyroblast *A large, more or less euhedral crystal, that has grown during the process of metamorphism.*
ppb, ppm *Parts per billion, parts per million (quantitative equivalent of g/t).*
Precambrian *Geological time extending from 542 Ma to 4500 Ma.*
Proterozoic *An eon of geological time approximately from 542 Ma to 2500 Ma.*
pyrite *A common iron sulphide mineral with the chemical formula* FeS_2.
pyrrhotite *A common iron sulphide mineral with the chemical formula* $Fe_{1-x}S$ *where x varies from zero to 0.2.*
quartz *A common silica mineral with the chemical formula* SiO_2.
RAB drilling *Rotary Air Blast drilling - a method of rotary drilling in which sample is returned, using compressed air, to the surface in the annulus between drill-rod and the drill-hole. This is a relatively inexpensive but less accurate drilling technique than RC or diamond coring.*
radiometric survey *Systematic collection of radioactivity emitted by rocks at or near the earth's surface; usually collected by helicopter or fixed wing aircraft.*
RC drilling *Reverse Circulation drilling - a method of rotary drilling in which the sample is returned to the surface, using compressed air, inside the inner-tube of the drill-rod. A more accurate drilling technique than simple percussion drilling, the RC technique minimizes contamination.*
refractory *Descriptive of ore difficult to treat for recovery of valuable minerals.*
rhyolite *A volcanic rock composed chiefly of potassium feldspar and quartz.*
rift basin *A large fault-bound depression, in-filled with volcanic and/or sedimentary material.*
RL *Relative Level – usually used in relation to height above sea level or some other datum.*
S *The chemical symbol for sulphur.*
schist *Strongly foliated crystalline metamorphic rock. Elongate minerals tend to be aligned in parallel.*
schistose *A rock that has the structure of a schist.*
scintillometer *An instrument that measures ionising radiation by counting the flashes of light*
sericite *A white, fine-grained mica, usually formed as an alteration product of various silicates in metamorphic rocks and the wall rocks of ore deposits.*
shear zone *A zone in which rocks have been deformed primarily in a ductile manner in response to applied stress.*
sheetwash *A widely distributed, thin blanket of sediment deposited in a broad, poorly defined drainage.*
Si *The chemical symbol for silicon.*
silicified *The alteration or replacement of primary minerals by silica.*
skarn *A thermally metamorphosed impure limestone.*
slate *Metamorphosed shale that can be split into slabs and thin plates.*
soil sampling *The collection of soil specimens for mineral analysis.*
stockwork *A network of (usually) quartz veinlets produced during pervasive brittle fracture.*
stratabound *Occurring within and parallel to the rock strata, but not necessarily deposited at the same time.*
stratiform *Occurring within and parallel to the rock strata, and deposited at the same time.*
stratigraphic column *A depiction of the layers of rocks in the sequence in which they were formed.*
stream sampling *The collection of stream sediments for mineral analysis.*
strike *The direction or bearing of a geological structure on a level surface, perpendicular to the direction of dip.*
stringer *A small, thin discontinuous or irregular veinlet.*
subduction *The process where one slab of the Earth's crust descends beneath another.*
syncline *A basin-shaped fold.*
syntectonic *Occurring or forming at the same time as deformation and metamorphism.*
t, tpa *Metric tonne, tonnes per annum.*
tectonics *The processes that create the broad architecture of the surface of the earth.*
tectonism *A general term for all movement of the crust produced by tectonic processes.*

Tertiary *Applied to the first period of the Cenozoic era, 1.8Ma to 65Ma.*
tholeiitic *A term applied to mafic or ultramafic rocks composed predominantly of magnesium-rich feldspar and pyroxene minerals.*
tonalite *A diorite containing >20% quartz.*
tourmaline *A complex silicate mineral containing aluminum and boron with varying quantities of many other elements.*
Transamazonian Orogeny *An orogeny that built a mountain chain in South America about 2100 Ma.*
trench *A long, narrow depression in the sea floor.*
trondjhemite *A granodiorite in which K feldspar is absent.*
tuff *General term for all consolidated volcanic rocks derived from volcanic explosions into the air.*
turbidite *A sediment resulting from an underwater landslide.*
ultramafic *Igneous rocks consisting essentially of ferro-magnesium minerals with trace quartz and feldspar.*
vesicular *Term for an igneous rock containing small cavities, caused by small bubbles being trapped during the solidification of the rock.*
volcaniclastic *A sedimentary clastic rock containing volcanic material.*
volcanogenic *Of volcanic origin.*

APPENDIX 1

RTE 2004 Soil Sample Locations and Descriptions

RTE 2004 Soil Sample Locations and Descriptions

Number	Date	East	North	Depth	Description
				m	
6023101	5/10/2004	585027	8505642	0.20	Silt/sand and ferruginous fragments
6023103	5/10/2004	585016	8506616	0.15	Sand & silt and ferruginous fragments
6023104	5/10/2004	585217	8506636	0.15	Silt & sand rare small ferruginous fragments
6023105	5/10/2004	585604	8507612	0.10	Ferruginous fragments & silt/sand outcrop sample
6023106	5/10/2004	585415	8507626	0.10	Ferruginous fragments & pisolites and sand/silt yellow brown
6023107	5/10/2004	585212	8507624	0.15	Large ferruginous fragments sand & silt
6023108	5/10/2004	585014	8507626	0.15	Large ferruginous fragments sand & silt laterite surface
6023110	5/10/2004	585820	8508628	0.10	Interbedded siliceous siltstone & coarse poorly sorted sandstone
6023111	5/10/2004	585613	8508628	0.20	Fine sandstone & dirty sandstone with clasts & carbonate?
6023112	5/10/2004	585423	8508618	0.10	Near outcrop of Mn stromatolite siltstone subcrop of same
6023113	5/10/2004	585232	8508630	0.10	Siltstone chips
6023114	5/10/2004	584999	8508630	0.10	Silty soil
6023115	5/10/2004	586014	8509614	0.10	Silty sand
6023117	5/10/2004	585804	8509630	0.10	Siltstone fragments and silty soil
6023118	5/10/2004	585600	8509622	0.10	Mn & Fe stromatolite, siltstone outcrop & rubble
6023119	5/10/2004	585420	8509622	0.15	Siltstone Mn and stromatolite
6023120	5/10/2004	585214	8509630	0.10	Mn siltstone fragments
6023121	5/10/2004	585021	8509608	0.10	Silty soil
6023122	6/10/2004	587000	8513600	0.15	Silty loam between 2 channels
6023123	6/10/2004	586815	8513622	0.10	Silty loam between 2 channels/main & very minor
6023124	6/10/2004	586605	8513634	0.15	Silty loam between 2 channels/main & very minor
6023125	6/10/2004	586406	8513626	0.15	Silty loam at edge (above) of major creek (>10m deep)
6023126	6/10/2004	586218	8513632	0.15	Silty loam south side of main creek
6023127	6/10/2004	588198	8514612	0.20	Fe fragments & pisolites fine silty sand
6023128	6/10/2004	588006	8514614	0.15	Ferruginous fragments of dolomitic siltstone with stromatolites
6023129	6/10/2004	587807	8514620	0.10	Fine sand and silt, rare ferruginous chips
6023130	6/10/2004	587614	8514622	0.15	Fine sand, lots ferruginous siltstone chips rare Mn pisolites
6023131	6/10/2004	587416	8514626	0.10	Ferruginous fragments, gravel & fine sand
6023132	6/10/2004	587219	8514626	0.10	Ferruginous fragments, gravel & fine sand
6023133	6/10/2004	587020	8514628	0.10	Ferruginous fragments, gravel & fine sand
6023134	6/10/2004	586817	8514626	0.15	Ferruginous, silt & siltstone subcrop/scree
6023135	6/10/2004	586615	8514614	0.15	Ferruginous siltstone, chips/fragments
6023136	6/10/2004	588404	8515600	0.10	Ferruginous sandstone fragments rare quartzite subcrop
6023137	6/10/2004	588211	8515620	0.10	Minor ferruginous fragments only silty sand
6023138	6/10/2004	588014	8515618	0.10	Grey silty sand (fine)
6023139	6/10/2004	587811	8515616	0.10	Grey silty sand (fine)
6023140	6/10/2004	587606	8515622	0.10	Silty sand hard swampy minor paperbark
6023141	6/10/2004	587416	8515622	0.10	Silty sand hard swampy minor paperbark
6023142	6/10/2004	587224	8515618	0.10	Silty sand
6023402	2/10/2004	599014	8514617	0.20	As above
6023441	3/10/2004	586211	8510620	0.10	Red brown sand and ferruginous fragments quartzite float
6023442	3/10/2004	586003	8510636	0.20	Dirt no rock fragments
6023443	3/10/2004	585818	8510626	0.20	Quartzite subcrop/scree on gentle hill slope
6023444	3/10/2004	585615	8510610	0.20	Quartzite with clay ovoids - mud balls? Possibly carbonate clasts
6023445	3/10/2004	585408	8510618	0.20	Possible scree from Mn outcrop
6023446	3/10/2004	585210	8510622	0.20	Hard red soil minor Mn modules
6023447	3/10/2004	585014	8510622	0.15	Sand and silt
6023449	3/10/2004	585824	8511619	0.20	Sandy with small rocks
6023450	3/10/2004	586009	8511621	0.20	Sandy with small rocks
6023451	3/10/2004	586218	8511623	0.20	Sandy with small rocks
6023452	3/10/2004	586419	8511624	0.20	Yellow browny sand with small rocks
6023453	3/10/2004	586617	8511623	0.20	Brown sand with lots of small rock
6023455	5/10/2004	586417	8512621	0.20	White fine sand with small rocks in small dry billabong
6023456	5/10/2004	586218	8512624	0.20	White fine sand with small rocks in small dry billabong
6023457	5/10/2004	586017	8512622	0.20	As below
6023458	5/10/2004	585814	8512621	0.20	Yellow sand with small rocks
6023459	5/10/2004	585617	8512620	0.20	As below
6023460	5/10/2004	585419	8512620	0.20	As below
6023461	5/10/2004	585214	8512622	0.20	As below. Fairly thick scrub
6023462	5/10/2004	585017	8512625	0.20	As below
6023463	6/10/2004	586011	8513621	0.20	A fine yellow sand
6023464	6/10/2004	585813	8513623	0.20	Thick scrub. Fine yellow sand
6023465	6/10/2004	585616	8513615	0.20	As above
6023466	6/10/2004	585411	8513623	0.20	White fine sand. Thick scrub
6023467	6/10/2004	585232	8513619	0.20	Next to small creek. Thick scrub

RTE 2004 Soil Sample Locations and Descriptions

Number	Date	East	North	Depth	Description
				m	
6023469	6/10/2004	586420	8514626	0.20	fine yellow sand with small rocks
6023470	6/10/2004	586210	8514619	0.20	fine white sand
6023471	6/10/2004	586019	8514620	0.20	fine yellow sand thick scrub
6023472	6/10/2004	585815	8514621	0.20	Fine white sand
6023473	6/10/2004	585619	8514626	0.20	Fine white sand
6023474	6/10/2004	585417	8514532	0.20	Fine grey sand grit
6023475	6/10/2004	585213	8514622	0.20	Fine grey sand grit
6023476	6/10/2004	585012	8514620	0.20	Fine grey sand grit
6023477	6/10/2004	587212	8515623	0.20	A fine grey sandy dirt
6023478	6/10/2004	587016	8515620	0.20	A fine white sand
6023479	6/10/2004	586819	8515618	0.20	A fine grey sand
6023480	6/10/2004	586614	8515624	0.20	A white dirt with small rocks
6023481	6/10/2004	586415	8515622	0.20	A yellow white dirt
6023482	6/10/2004	586220	8515619	0.20	A white grey dirt
6023483	6/10/2004	586022	8515619	0.20	A grey fine dirt
6023484	6/10/2004	585816	8515617	0.20	A fine grey dirt with small rocks
6160602	27/09/2004	592211	8509646	0.20	Paperbark & pandanus 27/9
6160603	27/09/2004	592028	8509600	0.20	Pisolites + silty sand pisolites not rounded
6160604	27/09/2004	591810	8509630	0.20	Pale buff brown quartz sand minor small pisolite
6160605	27/09/2004	591621	8509622	0.20	Pale buff brown quartz sand ferruginous pisolites
6160606	27/09/2004	591413	8509626	0.20	Pale buff brown quartz sand ferruginous pisolites
6160607	27/09/2004	591207	8509638	0.20	Pale buff brown quartz sand ferruginous pisolites
6160608	27/09/2004	591021	8509640	0.20	Pale buff brown quartz sand ferruginous pisolites
6160609	27/09/2004	590814	8509622	0.20	Very pale almost white quartz sand very rare pisolites
6160610	27/09/2004	590617	8509636	0.20	Thick grass & scrub sand & silt no visible pisolites
6160611	27/09/2004	590411	8509630	0.20	Very thick grass/scrub sand & silt
6160612	27/09/2004	590211	8509610	0.20	Pinky grey quartz sand
6160613	27/09/2004	590005	8509624	0.20	White/pink quartz sand possible feldspan
6160614	27/09/2004	589814	8509614	0.20	Quartz sand rare ferruginous nodules
6160615	27/09/2004	589615	8509622	0.20	Pink/brown/white quartz sand very rare ferruginous nodules
6160616	28/09/2004	591823	8502624	0.10	Quartz sand. Minor grevillea
6160617	28/09/2004	591610	8502634	0.20	Quartz sand minor silt
6160618	28/09/2004	591409	8502614	0.10	Quartz sand - grey silt. Buffalo swamp (hard)
6160619	28/09/2004	591214	8502618	0.20	Quartz sand. Latorite fragments (Fe cemented quartz)
6160620	28/09/2004	591016	8502618	0.10	(Hard) minor quartz sand. Grey silt
6160622	28/09/2004	590815	8502632	0.20	(Quartz sand) & silt - powdery not gritty sample
6160623	28/09/2004	590614	8502626	0.20	Quartz sand. Grey silt
6160624	28/09/2004	590413	8502628	0.20	Quartz grains in ferruginous cement fragments. Silty sand
6160625	28/09/2004	590238	8502628	0.20	Quartz (white & pinky) + grey silt
6160626	28/09/2004	590004	8502630	0.20	Fine white quartz sand minor silt
6160627	28/09/2004	589816	8502620	0.20	Ferruginous fragments (quartz sand + Fe cement) very angular
6160628	28/09/2004	589610	8502618	0.20	Very fine quartz sand and silt
6160629	28/09/2004	589417	8502626	0.20	Coarse quartz sand & ferruginous fragments/nodules
6160630	28/09/2004	589216	8502622	0.20	Coarse quartz sand some ferruginous fragments
6160631	28/09/2004	589015	8502626	0.20	Ferruginous pisolites (sub rounded) + coarse quartz sand
6160632	28/09/2004	588812	8502606	0.20	Quartz sand and ferruginous fragments
6160633	28/09/2004	588611	8502628	0.20	Quartz sand and ferruginous fragments
6160634	28/09/2004	588416	8502624	0.20	Quartz sand and ferruginous fragments
6160635	28/09/2004	588213	8502626	0.20	Ferruginous fragments and quartz sands more pisolite
6160637	28/09/2004	592028	8507644	0.20	Quartz sand + Fe fragments
6160638	28/09/2004	591817	8507640	0.20	Quartz sand and silt
6160639	28/09/2004	591610	8507626	0.20	Very thick shifty scrub quartz sand + Fe fragments
6160640	28/09/2004	591407	8507630	0.20	Quartz sand & ferruginous fragments
6160642	28/09/2004	591203	8507630	0.20	Fine quartz sand with silt. Minor Fe fragments
6160643	28/09/2004	591013	8507624	0.20	Fe fragments with pisolites + quartz sand
6160644	28/09/2004	590809	8507624	0.20	Fe fragments + quartz sand
6160645	28/09/2004	590613	8507630	0.20	Quartz sand dominant. Buff brown minor Fe fragments
6160646	28/09/2004	590408	8507648	0.20	Fe fragments & quartz sand
6160647	28/09/2004	590208	8507624	0.20	Adjacent to quartzite outcrop (Prot) Fe fragments + fine quartz sand
6160648	28/09/2004	590018	8507628	0.20	Quartz sand + Fe fragments - pisolites
6160649	28/09/2004	589815	8507626	0.20	Quartz sand + Fe fragments - pisolites
6160650	28/09/2004	589606	8507624	0.20	Quartz sand (pinky) + very rare Fe pisolite (very small)
6160652	28/09/2004	589422	8508624	0.20	
6160653	28/09/2004	589619	8508634	0.20	
6160654	28/09/2004	589816	8508631	0.20	

RTE 2004 Soil Sample Locations and Descriptions

Number	Date	East	North	Depth	Description
				m	
6160655	28/09/2004	590022	8508619	0.20	
6160656	28/09/2004	590224	8508617	0.20	
6160657	28/09/2004	590419	8508608	0.15	
6160658	28/09/2004	590618	8508607	0.10	
6160659	28/09/2004	590821	8508611	0.20	
6160660	28/09/2004	591023	8508610	0.20	
6160661	28/09/2004	591220	8508609	0.20	
6160662	28/09/2004	591424	8508615	0.20	
6160663	28/09/2004	591622	8508615	0.20	
6160664	28/09/2004	591820	8508622	0.20	
6160665	28/09/2004	592023	8508626	0.20	
6160666	28/09/2004	591818	8503623	0.20	Find sand edge of dry paperbark swamp
6160667	28/09/2004	591620	8503621	0.20	Fine sand middle of dry paperbark swamp
6160668	28/09/2004	591416	8503618	0.20	Fine sand
6160669	28/09/2004	591219	8503621	0.20	Fine sand
6160670	28/09/2004	591020	8503622	0.20	Fine sand
6160672	28/09/2004	590813	8503617	0.20	Fine sand. Thick scrub
6160673	28/09/2004	590616	8503623	0.20	Sandy with small rocks
6160674	28/09/2004	590418	8503622	0.20	Sandy edge of paperbark swamp
6160675	28/09/2004	590215	8503623	0.20	Sandy
6160676	28/09/2004	590016	8503616	0.20	Sandy thick scrub
6160677	28/09/2004	589816	8503623	0.20	Thick scrub. White grey sand
6160678	28/09/2004	589620	8503619	0.20	Thick scrub
6160679	28/09/2004	589417	8503620	0.20	Thick scrub
6160680	28/09/2004	589221	8503618	0.20	Yellow sand with rocks
6160681	28/09/2004	589020	8503621	0.20	Sandy with small stones
6160682	28/09/2004	588816	8503623	0.20	Sandy with small stones. Thick scrub
6160683	28/09/2004	588617	8503620	0.20	Sandy with small rock
6160684	28/09/2004	588409	8503636	0.20	Sandy with rock
6160685	28/09/2004	588221	8503609	0.20	Sandy with rock. Thick scrub
6160686	28/09/2004	588022	8503624	0.20	Sandy with rock. Thick scrub
6160688	27/09/2004	592417	8510622	0.20	Fine white sand. Thick scrub
6160689	27/09/2004	592221	8510622	0.20	Fine white sand & small rocks
6160690	27/09/2004	592018	8510622	0.20	Fine sand with small rocks
6160692	27/09/2004	591824	8510620	0.20	Fine sand. Thick scrub.
6160693	27/09/2004	591619	8510630	0.20	Fine sand. Thick scrub with small rocks.
6160694	27/09/2004	591425	8510618	0.20	Fine sand. Small rocks. Thick scrub
6160695	27/09/2004	591220	8510623	0.20	As Below
6160696	27/09/2004	591023	8510625	0.20	As below with thick grass
6160697	27/09/2004	590816	8510622	0.20	Brown sand near small creek
6160698	27/09/2004	590607	8510604	0.20	Next to small creek. Thick scrub
6160699	27/09/2004	590420	8510601	0.20	Thick scrub
6160700	27/09/2004	590208	8510611	0.20	Next to small dry creek
6160851	28/09/2004	589413	8507618	0.20	Pinky/grey quartz minor silt
6160852	28/09/2004	589216	8507612	0.10	Grey silty soil hard + quartz sand
6160853	29/09/2004	591811	8505626	0.20	Quartz sand + ferruginous fragments
6160854	29/09/2004	591610	8505626	0.15	Poorly soiled quartz sand
6160855	29/09/2004	591403	8505620	0.15	Quartz sand and silt on edge of creek 15m wide flat
6160856	29/09/2004	591216	8505624	0.15	Quartz sand and silt
6160857	29/09/2004	591029	8505634	0.15	Ferruginous fragments & coarse sand
6160858	29/09/2004	590809	8505620	0.15	Ferruginous fragments & fine quartz sand
6160859	29/09/2004	590618	8505618	0.15	White sand
6160860	29/09/2004	590417	8505634	0.15	White sand & silt
6160861	29/09/2004	590216	8505624	0.20	Fine sand and silt
6160862	29/09/2004	590006	8505644	0.20	Quartz sand rare small ferruginous fragments
6160863	29/09/2004	589829	8505616	0.15	Quartz sand and silt
6160864	29/09/2004	589623	8505632	0.15	Quartz sand + small ferruginous fragments
6160865	29/09/2004	589409	8505624	0.10	Ferruginous fragments + quartz sand
6160866	29/09/2004	589227	8505630	0.15	Ferruginous fragments minor, quartz sand
6160867	29/09/2004	589017	8505614	0.15	Ferruginous fragments minor, quartz sand
6160868	29/09/2004	588804	8505622	0.15	Ferruginous fragments minor, quartz sand
6160869	29/09/2004	588621	8505610	0.15	Ferruginous fragments + quartz sand
6160870	30/09/2004	591803	8501624	0.10	Black soil. Hard sample
6160872	30/09/2004	591605	8501622	0.10	Quartz sand and silt - silty
6160873	30/09/2004	591397	8501622	0.10	Ferruginous fragments (Fe & quartz) and quartz sand

RTE 2004 Soil Sample Locations and Descriptions

Number	Date	East	North	Depth	Description
				m	
6160874	30/09/2004	591225	8501626	0.10	Ferruginous fragments rare pisolites quartz sand and silt
6160875	30/09/2004	591024	8501622	0.10	Hard yellow silty. Swamp
6160876	30/09/2004	590806	8501628	0.10	Hard yellow silty & Fe fragments. Swamp
6160877	30/09/2004	590624	8501614	0.10	Hard yellow silty & Fe fragments
6160878	30/09/2004	590410	8501622	0.10	Hard yellow silty & Fe fragments
6160879	30/09/2004	590209	8501636	0.10	Grey silt
6160880	30/09/2004	590010	8501634	0.10	Grey silt minor quartz grit. Swamp
6160881	30/09/2004	589826	8501614	0.10	Quartz sand and Fe fragments
6160882	30/09/2004	589613	8501630	0.20	Quartz sand and ferruginous fragments
6160883	30/09/2004	589409	8501612	0.15	Quartz sand and ferruginous fragments
6160885	30/09/2004	592218	8511614	0.10	Grey silt
6160886	30/09/2004	592014	8511624	0.10	Quartz sand & grey silt
6160887	30/09/2004	591806	8511640	0.10	Grey silt & quartz sand
6160888	30/09/2004	591618	8511618	0.10	Ferruginous fragments & quartz sand
6160889	30/09/2004	591409	8511618	0.10	Ferruginous fragments & quartz sand
6160890	30/09/2004	591211	8511616	0.10	Quartz sand minor ferruginous fragments
6160891	30/09/2004	591011	8511610	0.10	Ferruginous fragments & quartz sand
6160892	30/09/2004	590806	8511624	0.20	Ferruginous fragments & quartz sand
6160893	30/09/2004	590609	8511616	0.20	Ferruginous fragments & quartz sand
6160894	30/09/2004	590407	8511636	0.20	Quartz sand minor Fe fragments
6160895	30/09/2004	590225	8511626	0.20	Quartz sand minor Fe fragments
6160912	1/10/2004	592603	8515622	0.10	Qtz sand and silt
6160913	1/10/2004	592414	8515618	0.10	Quartz sand minor ferruginous fragments
6160914	1/10/2004	592225	8515624	0.15	Quartz sand minor ferruginous fragments
6160915	1/10/2004	592012	8515626	0.15	Ferruginous fragments - qtz sand & silt subcrop stromatolite
6160916	1/10/2004	591806	8515622	0.15	Ferruginous fragments - quartz sand & silt subcrop stromatolite
6160917	1/10/2004	591617	8515628	0.15	Quartzlite float/subcrop well bedded
6160918	1/10/2004	591421	8515612	0.15	Quartzlite subcrop rounded - could be scree
6160919	1/10/2004	591223	8515616	0.15	Fine quartz sand and silt
6160921	1/10/2004	591016	8515624	0.10	Fine quartz sand and silt
6160922	1/10/2004	590818	8515626	0.10	Fine quartz sand and silty
6160930	2/10/2004	592024	8514626	0.20	Quartz sand and very fine ferruginous fragments (<1mm)
6160931	2/10/2004	591819	8514622	0.20	Ferruginous fragments & quartz sand
6160932	2/10/2004	591613	8514630	0.20	Ferruginous fragments & quartz sand
6160933	2/10/2004	591422	8514614	0.20	Ferruginous fragments & quartz sand
6160934	2/10/2004	591221	8514624	0.20	White quartz sand/silt outcrop - quartzite minor Fe fragments
6160935	2/10/2004	591017	8514616	0.20	White quartz sand/silt
6160936	2/10/2004	590813	8514624	0.15	Sand silt ferruginous fragments crossed vein quartz outcrop
6160937	2/10/2004	590611	8514620	0.15	Quartz sand and silt
6160943	3/10/2004	585614	8511626	0.20	Heavy vegetation
6160944	3/10/2004	585417	8511628	0.15	Moderate vegetation
6160945	3/10/2004	585215	8511620	0.15	Moderate vegetation
6160946	3/10/2004	585017	8511620	0.15	Heavy vegetation
6160951	27/09/2004	590019	8510623	0.20	As Below
6160952	29/09/2004	592019	8506626	0.20	Sand - vegetation heavy - big tan termite moulds
6160953	29/09/2004	591816	8506616	0.20	Medium timber - vegetation heavy - sand
6160954	29/09/2004	591618	8506540	0.20	Medium timber - heavy vegetation - sand
6160955	29/09/2004	591419	8506614	0.20	Medium timber - heavy vegetation - sand
6160956	29/09/2004	591216	8506608	0.20	Medium timber - heavy vegetation - sand - no rocks
6160957	29/09/2004	591018	8506620	0.20	Medium timber - heavy vegetation - sand - no rocks
6160958	29/09/2004	590817	8506622	0.20	Medium timber - heavy vegetation - sand - termite mound
6160959	29/09/2004	590622	8506618	0.20	Medium timber - heavy vegetation - sand - rocks
6160960	29/09/2004	590416	8506618	0.20	Tall timber - medium vegetation - soil next to creek
6160961	29/09/2004	590216	8506624	0.20	Tall timber - medium vegetation - soil next to creek
6160962	29/09/2004	590017	8506624	0.20	Medium timber - medium vegetation - sand
6160963	29/09/2004	589822	8506628	0.20	Medium timber - medium vegetation - sand
6160964	29/09/2004	589608	8506610	0.20	Tall timber - medium vegetation - sand
6160965	29/09/2004	589418	8506618	0.20	Heavy vegetation - sand - rocks - tall timber
6160966	29/09/2004	589220	8506616	0.20	Heavy vegetation - no rocks - tall timber
6160967	29/09/2004	589018	8506618	0.20	Heavy vegetation - sand - medium timber
6160968	30/09/2004	591815	8504623	0.20	Next to paperbark swamp
6160969	30/09/2004	591617	8504622	0.20	Middle dry paperbark swamp
6160971	30/09/2004	591418	8504631	0.20	As Below
6160972	30/09/2004	591221	8504620	0.20	Grassy clear. Flat area
6160973	30/09/2004	591017	8504623	0.20	Back in the scrub again

RTE 2004 Soil Sample Locations and Descriptions

Number	Date	East	North	Depth	Description
				m	
6160974	30/09/2004	590818	8504621	0.20	Grassy, paperbark trees
6160975	30/09/2004	590617	8504620	0.20	Amongst paperbark trees
6160976	30/09/2004	590420	8504622	0.20	As Below
6160977	30/09/2004	590217	8504622	0.20	Thick scrub
6160978	30/09/2004	590013	8504620	0.20	As Below
6160979	30/09/2004	589817	8504620	0.20	Tall trees. Long grass
6160980	30/09/2004	589619	8504622	0.20	As Below
6160981	30/09/2004	589416	8504629	0.20	As Below
6160982	30/09/2004	589217	8504623	0.20	As Below
6160983	30/09/2004	589015	8504617	0.20	Find sand with small rocks
6160984	30/09/2004	588819	8504622	0.20	Find sand. Thick scrub
6160985	30/09/2004	588622	8504625	0.20	As Below
6160986	30/09/2004	588417	8504623	0.20	As Below
6160987	30/09/2004	588219	8504621	0.20	As Below
6160988	30/09/2004	598021	8515620	0.20	In thick scrub
6160989	30/09/2004	598217	8515626	0.20	As Below
6160991	30/09/2004	598413	8515625	0.20	As Below
6160992	30/09/2004	598620	8515621	0.20	As Below
6160993	30/09/2004	598818	8515622	0.20	As Below
6160994	30/09/2004	599016	8515621	0.20	As Below
6160996	1/10/2004	598010	8514624	0.20	In thick scrub
6160997	1/10/2004	598214	8514624	0.20	Fine sand with small rocks
6160998	1/10/2004	598421	8514619	0.20	As above with thick scrub
6160999	1/10/2004	598614	8514624	0.20	As above
6161000	1/10/2004	598822	8514623	0.20	As above

APPENDIX 2

RTE 2004 Soil Sampling: Analyses of Key Elements

RTE 2004 Soil Analyses of Key Elements

Number	Ag	As	Au	Co	Cu	Fe	Mn	Mo	Pb	U	Zn
6023101	0.1	1.5	0.001	3	24	11700	240	0.4	15.5	1.30	4
6023103	0.2	4.5	0.004	3	9	12800	115	0.2	3.5	0.98	3
6023104	0.3	2.0	0.001	4	8	17900	190	0.7	9.0	1.60	<2
6023105	<0.1	2.0	<0.001	<2	2	16900	240	<0.1	3.5	0.82	10
6023106	0.4	2.5	<0.001	3	5	16000	230	1.1	8.5	1.05	6
6023107	0.1	1.5	<0.001	<2	14	16300	100	0.2	6.5	1.25	3
6023108	0.1	4.5	<0.001	<2	15	32200	120	0.7	7.0	1.45	4
6023110	0.4	7.5	0.001	<2	5	23300	210	0.8	9.5	1.30	3
6023111	0.9	10.5	0.001	<2	23	26800	550	2.5	21.5	2.30	5
6023112	0.2	2.0	<0.001	<2	3	35400	480	0.6	6.0	1.10	4
6023113	0.1	2.0	<0.001	5	17	41700	900	1.2	6.0	1.90	4
6023114	0.1	0.5	<0.001	3	19	15500	270	0.3	4.0	1.25	4
6023115	0.1	5.5	<0.001	9	11	26900	900	1.1	9.5	1.50	5
6023117	0.6	5.5	0.002	5	16	17700	550	0.9	11.0	3.30	7
6023118	0.2	9.5	0.002	4	9	88900	1350	2.7	7.5	1.65	7
6023119	0.1	5.5	<0.001	3	9	43500	800	1.0	8.0	1.75	3
6023120	0.2	5.0	<0.001	9	23	40900	1400	1.6	6.5	2.00	5
6023121	0.2	1.5	<0.001	<2	3	5450	68	0.1	3.0	0.98	<2
6023122	0.3	1.5	<0.001	3	19	16500	420	0.9	5.0	1.15	4
6023123	0.3	2.0	<0.001	3	<2	11700	220	0.4	4.5	1.00	5
6023124	<0.1	2.5	<0.001	3	6	14300	300	1.1	5.5	1.15	3
6023125	0.1	2.5	<0.001	6	10	13100	230	0.6	6.5	1.30	3
6023126	0.2	0.5	<0.001	<2	18	13300	115	0.9	4.0	0.99	2
6023127	0.1	1.0	<0.001	<2	<2	6100	66	0.3	2.0	0.67	<2
6023128	0.1	3.0	<0.001	3	16	20200	76	1.4	5.5	1.25	4
6023129	0.1	2.5	<0.001	2	8	13800	110	0.2	4.5	0.97	4
6023130	0.1	2.0	<0.001	2	13	17300	150	0.7	4.5	1.15	3
6023131	<0.1	<0.5	<0.001	3	9	9050	230	<0.1	3.5	0.92	3
6023132	<0.1	1.0	<0.001	<2	16	10600	150	0.3	3.0	1.00	3
6023133	<0.1	2.0	<0.001	3	11	12800	90	0.5	4.0	1.30	2
6023134	<0.1	4.5	<0.001	4	13	32100	135	1.0	6.5	1.55	4
6023135	<0.1	0.5	<0.001	<2	<2	9700	98	0.1	4.0	1.30	3
6023136	<0.1	2.0	<0.001	2	11	19100	170	1.2	4.0	0.78	<2
6023137	<0.1	2.0	<0.001	4	4	13800	92	0.5	6.0	1.30	2
6023138	0.2	1.5	<0.001	2	16	13300	125	1.2	3.5	0.86	<2
6023139	0.1	1.0	<0.001	<2	11	4800	84	0.1	3.5	0.65	2
6023140	0.1	3.0	<0.001	6	24	21000	350	0.7	7.5	1.60	4
6023141	0.2	1.0	<0.001	7	14	9350	550	0.1	8.0	1.70	3
6023142	-0.1	0.5	<0.001	<2	16	11700	100	0.7	3.0	0.77	<2
6023402	-0.1	2.5	0.002	<2	4	10800	84	0.3	4.0	0.00	1
6023441	0.3	6.5	0.002	6	23	36100	650	2.2	3.5	1.45	4
6023442	0.5	5.0	0.001	10	43	15500	1200	0.5	5.5	2.20	<2
6023443	0.9	2.0	<0.001	7	28	19500	500	1.7	9.0	2.90	<2
6023444	0.8	5.5	<0.001	2	13	14300	270	0.6	7.0	2.60	3
6023445	0.5	4.5	<0.001	8	17	33500	850	1.3	4.5	1.50	3
6023446	0.5	5.5	<0.001	8	19	26700	1100	1.4	6.0	2.20	5
6023447	0.3	3.5	<0.001	9	32	17800	800	0.6	3.0	2.00	4
6023449	0.3	<0.5	<0.001	2	6	15800	125	0.4	<0.5	1.05	<2
6023450	0.2	3.0	<0.001	2	13	22400	175	0.9	<0.5	1.15	<2
6023451	0.3	1.0	<0.001	<2	15	6800	80	<0.1	1.5	0.95	<2
6023452	0.7	3.0	<0.001	10	24	16700	400	1.2	10.5	2.20	<2
6023453	0.4	11.5	<0.001	6	39	27300	550	1.1	5.0	1.55	<2

RTE 2004 Soil Analyses of Key Elements

Number	Ag	As	Au	Co	Cu	Fe	Mn	Mo	Pb	U	Zn
6023455	0.5	2.0	<0.001	<2	15	12400	98	1.6	8.0	1.35	<2
6023456	0.3	1.5	<0.001	<2	5	5300	74	0.4	7.0	1.15	<2
6023457	0.3	2.5	0.001	<2	14	12700	125	1.5	2.5	1.10	<2
6023458	0.3	7.0	<0.001	<2	<2	22700	60	0.9	5.0	1.20	3
6023459	0.2	6.0	<0.001	<2	10	23900	145	1.4	4.5	1.00	3
6023460	0.3	3.0	<0.001	<2	<2	15000	115	0.5	4.0	1.45	3
6023461	0.4	2.0	<0.001	<2	9	15900	140	1.8	3.5	1.00	<2
6023462	0.4	1.5	<0.001	<2	3	6350	88	0.4	3.0	0.89	<2
6023463	0.3	2.5	0.002	3	15	12700	140	1.1	4.5	1.20	2
6023464	0.2	2.5	<0.001	2	3	12200	40	0.6	4.5	1.15	3
6023465	0.2	2.0	<0.001	6	19	12500	260	1.0	5.0	1.35	4
6023466	0.2	1.5	<0.001	2	7	5050	150	0.4	3.5	0.84	2
6023467	0.3	4.0	<0.001	<2	17	18200	155	1.6	5.5	0.90	3
6023469	0.2	4.0	0.001	3	<2	14100	80	0.5	4.5	1.50	3
6023470	0.3	2.0	<0.001	<2	5	11800	84	1.4	2.5	0.84	<2
6023471	0.1	1.5	<0.001	<2	10	7700	48	0.3	6.5	1.15	2
6023472	0.3	2.0	<0.001	<2	4	9050	68	0.9	4.0	0.90	3
6023473	0.3	0.5	<0.001	<2	<2	5450	38	0.2	4.0	0.91	<2
6023474	0.3	1.0	<0.001	3	11	12000	155	1.0	4.0	1.00	<2
6023475	0.2	2.0	<0.001	<2	6	6000	60	0.4	3.5	0.94	4
6023476	0.3	1.5	<0.001	3	7	6350	94	0.3	5.5	1.10	4
6023477	0.2	1.0	0.002	<2	21	14600	125	1.6	2.5	0.83	<2
6023478	0.3	<0.5	<0.001	<2	10	4900	46	0.3	3.0	0.93	<2
6023479	0.2	1.0	<0.001	<2	17	12800	105	1.1	2.5	0.83	<2
6023480	0.3	1.0	<0.001	<2	13	4900	70	<0.1	2.0	0.71	2
6023481	0.2	1.5	<0.001	4	19	13500	125	1.3	5.0	1.05	<2
6023482	0.2	1.0	<0.001	2	<2	4750	32	0.2	3.0	0.69	4
6023483	0.3	<0.5	<0.001	5	10	12200	220	0.9	5.5	1.45	2
6023484	0.2	1.0	<0.001	<2	<2	7050	44	0.4	3.5	0.74	3
6160602	0.3	3.0	0.001	<2	18	22200	155	2.4	12.0	3.60	8
6160603	0.2	0.5	<0.001	<2	2	7300	86	0.2	5.5	0.92	4
6160604	0.3	1.0	<0.001	2	8	13100	160	0.9	6.0	1.05	6
6160605	0.2	1.0	<0.001	<2	<2	8100	130	0.2	5.0	0.86	4
6160606	0.3	2.5	<0.001	2	7	15200	160	1.5	5.0	0.90	7
6160607	0.2	1.0	<0.001	<2	5	8150	80	0.2	3.5	0.71	3
6160608	0.2	0.5	<0.001	3	14	13000	165	1.0	4.5	0.86	5
6160609	0.3	1.0	0.002	<2	7	8300	72	0.3	6.0	0.77	4
6160610	0.2	2.5	<0.001	4	17	20200	270	1.6	10.0	1.65	4
6160611	0.2	3.5	<0.001	4	<2	16000	185	0.3	10.0	1.85	5
6160612	0.5	1.0	0.002	<2	16	15600	155	0.4	4.5	0.56	5
6160613	0.3	0.5	<0.001	<2	8	10600	175	<0.1	5.5	0.64	5
6160614	0.2	0.5	<0.001	<2	<2	8050	200	<0.1	4.5	0.91	7
6160615	0.2	0.5	<0.001	<2	3	10300	160	<0.1	4.0	0.61	7
6160616	0.2	2.5	<0.001	3	15	17000	155	1.0	5.0	0.50	2
6160617	0.3	2.5	<0.001	3	7	12300	64	<0.1	3.0	0.61	<2
6160618	0.2	1.5	<0.001	5	18	18800	170	0.9	6.5	1.55	9
6160619	0.3	1.5	<0.001	<2	9	10900	105	<0.1	2.5	0.52	3
6160620	0.2	1.5	<0.001	11	18	16900	800	<0.1	7.5	1.65	5
6160622	0.2	2.5	0.001	2	3	10700	92	<0.1	4.5	0.78	3
6160623	0.2	1.5	<0.001	<2	10	14700	125	<0.1	4.5	0.73	4
6160624	0.2	1.5	<0.001	<2	12	8100	58	<0.1	2.5	0.58	4
6160625	0.3	1.5	<0.001	<2	14	12000	96	0.6	2.0	0.31	3

RTE 2004 Soil Analyses of Key Elements

Number	Ag	As	Au	Co	Cu	Fe	Mn	Mo	Pb	U	Zn
6160626	0.3	1.5	<0.001	<2	<2	6200	46	<0.1	2.0	0.27	2
6160627	0.2	1.5	<0.001	4	17	17400	290	0.2	5.5	0.71	4
6160628	0.3	1.0	<0.001	3	5	10000	72	<0.1	3.0	0.56	2
6160629	0.2	1.0	<0.001	<2	5	4200	38	<0.1	2.5	0.48	4
6160630	0.2	1.0	<0.001	<2	8	10400	150	<0.1	3.5	0.70	4
6160631	0.2	1.5	<0.001	2	9	3550	64	<0.1	2.0	0.49	3
6160632	0.3	1.0	<0.001	2	17	10800	105	<0.1	2.5	0.66	6
6160633	0.2	<0.5	<0.001	<2	<2	6900	62	<0.1	2.5	0.78	4
6160634	0.2	<0.5	0.001	2	22	19100	185	<0.1	3.0	0.88	5
6160635	0.2	<0.5	<0.001	<2	-2	4700	50	<0.1	2.0	0.70	4
6160637	0.2	2.0	0.001	3	18	11800	100	<0.1	4.5	0.68	5
6160638	0.1	1.5	<0.001	<2	<2	5050	46	<0.1	5.5	0.76	5
6160639	0.2	1.0	<0.001	2	23	15200	135	<0.1	3.5	0.71	6
6160640	0.1	1.0	<0.001	4	12	8500	90	<0.1	7.0	1.10	5
6160642	0.2	3.0	0.001	3	23	20100	210	<0.1	6.5	1.40	9
6160643	0.2	1.0	<0.001	<2	3	4600	68	<0.1	4.0	0.74	3
6160644	0.2	0.5	<0.001	2	11	15700	170	<0.1	5.5	1.20	7
6160645	0.2	<0.5	<0.001	<2	7	8100	60	<0.1	4.5	0.89	5
6160646	0.2	0.5	<0.001	<2	17	18800	180	<0.1	5.0	1.15	9
6160647	0.2	1.0	0.002	<2	8	7500	78	<0.1	3.5	0.92	4
6160648	0.1	1.0	<0.001	4	18	10300	240	<0.1	4.5	1.10	7
6160649	0.3	0.5	<0.001	3	9	6100	175	<0.1	4.5	0.82	6
6160650	0.1	1.0	0.002	6	16	10400	210	<0.1	5.0	0.73	5
6160652	0.1	2.0	0.001	<2	4	5000	58	<0.1	4.5	0.59	3
6160653	0.2	1.0	0.001	<2	16	8600	115	<0.1	4.0	0.78	4
6160654	0.1	0.5	<0.001	2	4	6700	125	<0.1	5.0	0.91	5
6160655	0.3	1.0	<0.001	4	14	11100	140	0.2	4.5	0.99	3
6160656	<0.1	<0.5	<0.001	<2	6	4900	54	<0.1	4.5	0.68	<2
6160657	<0.1	<0.5	<0.001	<2	18	10700	100	0.1	4.0	0.81	<2
6160658	-0.1	<0.5	<0.001	<2	13	6950	140	<0.1	3.5	0.77	3
6160659	0.1	<0.5	<0.001	3	22	11100	220	0.5	6.0	1.00	2
6160660	<0.1	0.5	<0.001	<2	<2	3250	30	<0.1	2.0	0.39	<2
6160661	<0.1	0.5	<0.001	6	14	12400	140	0.6	6.0	0.93	<2
6160662	<0.1	1.0	<0.001	3	8	8050	90	<0.1	4.5	0.69	3
6160663	0.1	0.5	<0.001	5	13	9900	140	0.3	3.5	0.53	3
6160664	<0.1	<0.5	<0.001	3	10	6950	200	<0.1	4.5	1.20	2
6160665	<0.1	0.5	0.001	3	4	8700	140	0.3	3.5	0.72	<2
6160666	<0.1	1.5	<0.001	2	<2	6900	66	0.1	4.0	0.86	<2
6160667	0.2	1.5	<0.001	-2	3	9250	76	1.5	6.5	0.63	4
6160668	<0.1	1.0	<0.001	-2	10	6100	40	0.3	4.0	0.63	<2
6160669	<0.1	1.5	<0.001	2	8	11500	72	0.6	2.5	0.53	<2
6160670	<0.1	1.5	<0.001	<2	17	5650	36	0.1	2.5	0.49	<2
6160672	<0.1	2.5	<0.001	<2	7	11500	96	0.3	3.5	0.71	2
6160673	<0.1	1.5	<0.001	11	15	8900	300	<0.1	5.5	1.35	2
6160674	0.1	1.5	<0.001	<2	9	10300	66	0.6	3.5	0.56	<2
6160675	<0.1	1.5	<0.001	2	5	6200	40	<0.1	3.5	0.75	4
6160676	<0.1	1.5	<0.001	<2	15	10600	64	0.6	2.5	0.60	4
6160677	<0.1	2.0	<0.001	3	4	5950	30	0.1	2.5	0.56	<2
6160678	<0.1	2.0	<0.001	<2	11	9900	66	0.7	2.5	0.48	3
6160679	<0.1	0.5	<0.001	<2	4	4350	30	<0.1	2.5	0.50	<2
6160680	<0.1	1.0	<0.001	<2	18	10500	115	0.4	2.5	0.62	3
6160681	<0.1	0.5	<0.001	<2	7	6650	78	<0.1	2.5	0.69	3

RTE 2004 Soil Analyses of Key Elements

Number	Ag	As	Au	Co	Cu	Fe	Mn	Mo	Pb	U	Zn
6160682	0.1	<0.5	<0.001	3	21	13000	165	0.7	2.0	0.70	3
6160683	<0.1	<0.5	0.002	<2	<2	5000	66	<0.1	2.0	0.71	<2
6160684	0.1	<0.5	<0.001	6	12	11500	340	0.3	4.5	1.50	6
6160685	<0.1	<0.5	<0.001	2	2	6150	125	<0.1	4.5	1.20	4
6160686	<0.1	<0.5	<0.001	3	9	12200	115	0.7	3.5	0.98	3
6160688	<0.1	2.5	<0.001	<2	9	4700	34	<0.1	3.5	0.69	<2
6160689	<0.1	1.0	<0.001	2	3	7500	56	0.1	3.0	0.65	<2
6160690	<0.1	0.5	<0.001	<2	3	4000	60	<0.1	3.0	0.68	<2
6160692	<0.1	3.0	<0.001	<2	13	10700	86	0.5	3.0	0.79	<2
6160693	<0.1	1.0	<0.001	2	<2	5150	46	<0.1	2.0	0.54	<2
6160694	<0.1	0.5	0.001	3	6	9650	115	0.3	2.5	0.65	<2
6160695	<0.1	0.5	<0.001	<2	9	4450	74	<0.1	2.5	0.63	<2
6160696	<0.1	1.0	<0.001	2	8	8500	76	0.2	3.0	0.76	<2
6160697	<0.1	2.5	<0.001	3	9	8600	60	<0.1	7.0	1.25	<2
6160698	0.7	3.0	<0.001	2	14	15400	155	1.1	14.5	2.10	4
6160699	0.4	3.0	<0.001	6	19	13200	410	0.3	17.5	2.90	5
6160700	0.2	<0.5	<0.001	<2	8	10600	180	0.7	9.5	1.15	2
6160851	0.2	1.0	<0.001	<2	5	5500	50	0.2	4.0	0.61	6
6160852	0.2	1.0	<0.001	<2	17	11300	100	1.1	5.0	1.15	5
6160853	0.2	2.5	<0.001	2	7	8900	100	0.4	3.5	0.71	4
6160854	0.1	1.0	<0.001	<2	4	7350	70	0.3	2.0	0.64	3
6160855	0.1	1.5	<0.001	<2	10	5250	40	0.4	2.0	0.65	<2
6160856	0.1	1.5	<0.001	<2	10	11300	90	1.3	2.0	0.64	<2
6160857	0.1	0.5	<0.001	<2	5	5750	135	0.2	3.5	0.99	2
6160858	0.1	<0.5	<0.001	<2	6	8000	64	0.3	1.5	0.59	3
6160859	0.1	<0.5	<0.001	<2	<2	3750	36	<0.1	5.0	0.63	4
6160860	0.3	<0.5	<0.001	<2	26	7550	115	0.4	3.5	1.10	7
6160861	0.1	<0.5	<0.001	<2	8	7150	64	<0.1	5.0	1.50	5
6160862	<0.1	<0.5	0.001	3	6	8950	88	0.5	3.0	0.88	4
6160863	<0.1	<0.5	<0.001	<2	<2	6050	68	0.2	3.0	0.93	2
6160864	0.1	<0.5	<0.001	<2	12	7500	56	0.3	1.5	0.61	4
6160865	0.1	0.5	<0.001	<2	<2	7700	88	<0.1	1.5	0.78	5
6160866	0.1	0.5	<0.001	<2	10	16400	110	0.7	2.5	0.83	4
6160867	0.1	0.5	<0.001	<2	5	6100	96	<0.1	1.5	0.73	4
6160868	<0.1	<0.5	<0.001	<2	15	12500	195	0.6	1.5	0.93	3
6160869	0.3	1.0	<0.001	<2	7	4150	62	0.9	4.0	0.74	5
6160870	0.1	8.5	0.003	5	4	31400	400	1.1	16.5	6.00	6
6160872	0.1	8.0	0.001	<2	<2	25300	84	1.6	5.0	0.91	3
6160873	<0.1	1.5	<0.001	<2	6	6850	145	0.3	2.0	0.61	<2
6160874	<0.1	2.0	0.003	6	7	14000	230	0.8	4.5	0.99	2
6160875	0.1	7.0	<0.001	10	10	42300	140	2.3	3.5	2.00	5
6160876	0.1	3.0	<0.001	6	10	26400	150	1.5	6.0	1.75	4
6160877	0.1	8.5	<0.001	44	8	63100	550	3.3	10.5	3.00	8
6160878	0.1	8.0	<0.001	42	11	61900	850	2.9	12.0	3.20	7
6160879	<0.1	1.5	<0.001	<2	<2	7950	64	0.4	1.5	0.59	6
6160880	0.9	1.0	<0.001	<2	8	10800	86	0.5	3.0	0.87	4
6160881	0.1	1.0	<0.001	7	3	6700	210	<0.1	3.5	1.10	2
6160882	<0.1	0.5	<0.001	<2	6	7700	84	0.4	1.5	0.58	<2
6160883	<0.1	0.5	<0.001	<2	4	10800	135	0.1	3.5	0.64	4
6160885	<0.1	0.5	<0.001	<2	7	5750	52	<0.1	2.0	0.78	3
6160886	<0.1	1.5	<0.001	<2	3	11900	86	0.9	2.0	0.73	3
6160887	<0.1	1.0	<0.001	<2	6	9200	66	<0.1	3.0	1.05	3

RTE 2004 Soil Analyses of Key Elements

Number	Ag	As	Au	Co	Cu	Fe	Mn	Mo	Pb	U	Zn
6160888	<0.1	1.5	<0.001	<2	11	14600	120	0.9	2.5	0.83	3
6160889	<0.1	1.0	<0.001	<2	6	6900	54	<0.1	1.5	0.73	2
6160890	<0.1	<0.5	<0.001	2	6	12700	145	0.7	2.5	0.84	3
6160891	0.5	1.0	<0.001	4	5	7500	135	0.3	4.0	1.05	3
6160892	0.1	1.0	<0.001	<2	17	10900	115	1.0	3.0	0.85	2
6160893	<0.1	1.0	<0.001	<2	6	4900	82	<0.1	2.0	0.60	4
6160894	<0.1	1.0	<0.001	<2	10	11900	105	1.0	3.0	0.58	3
6160895	<0.1	1.0	<0.001	<2	6	5300	76	1.7	2.0	0.67	3
6160912	<0.1	1.0	<0.001	<2	9	4650	40	0.1	3.0	0.77	4
6160913	0.2	1.5	<0.001	<2	18	8150	52	0.6	2.0	0.48	2
6160914	<0.1	1.0	<0.001	<2	16	5450	58	<0.1	2.0	0.50	3
6160915	0.1	1.5	<0.001	<2	19	12800	125	1.2	4.0	0.82	7
6160916	<0.1	0.5	<0.001	<2	7	4600	62	<0.1	2.0	0.47	<2
6160917	<0.1	1.0	<0.001	<2	18	7200	52	0.6	1.5	0.39	2
6160918	<0.1	1.0	<0.001	<2	25	4350	150	<0.1	2.5	0.62	3
6160919	<0.1	1.5	<0.001	<2	10	9650	82	0.7	2.0	0.59	4
6160921	<0.1	2.5	<0.001	<2	8	5400	40	0.2	3.0	1.00	5
6160922	<0.1	1.5	<0.001	<2	15	11300	78	0.9	2.5	0.81	2
6160930	<0.1	1.5	<0.001	<2	10	7600	36	0.2	2.5	0.53	3
6160931	<0.1	1.0	<0.001	<2	12	8450	150	0.3	3.5	0.61	3
6160932	<0.1	1.0	0.001	<2	7	4650	84	<0.1	2.0	0.51	3
6160933	<0.1	2.0	<0.001	<2	13	10500	100	0.8	2.5	0.56	<2
6160934	<0.1	2.0	<0.001	<2	10	7450	60	0.3	2.5	0.64	4
6160935	<0.1	2.0	<0.001	<2	11	9450	58	0.7	2.0	0.80	5
6160936	<0.1	1.5	0.001	<2	9	7850	54	0.8	2.5	0.85	4
6160937	<0.1	1.5	<0.001	<2	8	8750	46	0.8	2.0	0.81	2
6160943	0.3	7.0	0.001	6	33	18900	98	1.1	9.5	2.50	5
6160944	0.2	2.0	0.001	4	17	10500	320	0.8	5.0	1.55	4
6160945	0.2	1.0	<0.001	4	15	6050	310	<0.1	5.0	1.60	4
6160946	0.5	1.0	<0.001	4	27	8750	270	0.5	4.0	1.20	<2
6160951	0.2	1.0	<0.001	2	7	6900	78	0.4	8.5	1.10	<2
6160952	0.1	1.0	<0.001	4	5	10600	110	0.9	4.5	1.25	2
6160953	<0.1	1.5	<0.001	<2	8	5950	38	0.4	2.5	0.57	<2
6160954	0.1	0.5	<0.001	4	9	9750	90	0.9	4.5	0.77	<2
6160955	0.1	1.0	<0.001	6	8	7850	50	0.4	5.5	1.10	4
6160956	0.1	1.5	<0.001	5	14	12100	270	0.9	6.0	1.10	3
6160957	0.1	0.5	<0.001	<2	3	7650	86	0.3	5.0	0.83	4
6160958	0.1	0.5	<0.001	3	6	7050	70	0.6	3.0	0.63	<2
6160959	<0.1	<0.5	<0.001	<2	9	5200	80	<0.1	3.0	0.60	3
6160960	0.2	2.0	<0.001	6	13	16600	220	1.3	8.5	1.60	2
6160961	0.3	1.5	<0.001	3	16	8150	86	0.1	20.0	1.55	4
6160962	0.1	1.0	<0.001	<2	15	7800	66	0.7	2.5	0.38	11
6160963	<0.1	0.5	<0.001	2	<2	4300	34	<0.1	3.0	0.60	2
6160964	<0.1	1.0	<0.001	3	12	9200	68	0.9	3.0	0.55	<2
6160965	<0.1	<0.5	<0.001	<2	4	4950	96	<0.1	3.0	0.74	<2
6160966	0.1	<0.5	<0.001	<2	7	7250	115	0.5	3.0	0.70	3
6160967	<0.1	0.5	<0.001	<2	13	5450	36	0.1	4.0	0.71	<2
6160968	<0.1	2.0	<0.001	3	9	10700	110	0.9	3.5	0.59	3
6160969	0.1	1.5	<0.001	<2	12	7050	34	0.6	3.5	1.05	2
6160971	0.1	4.5	<0.001	3	10	17700	80	1.9	6.5	2.10	3
6160972	0.4	3.5	<0.001	4	4	14000	115	0.7	4.5	1.05	<2
6160973	<0.1	1.5	<0.001	<2	9	9350	66	1.2	2.5	0.60	<2

RTE 2004 Soil Analyses of Key Elements

Number	Ag	As	Au	Co	Cu	Fe	Mn	Mo	Pb	U	Zn
6160974	<0.1	2.0	<0.001	3	10	6100	34	0.6	3.0	0.45	<2
6160975	<0.1	1.0	<0.001	2	<2	4800	26	0.5	2.5	0.46	<2
6160976	<0.1	1.0	<0.001	<2	6	3950	30	0.1	2.0	0.41	<2
6160977	<0.1	1.0	<0.001	4	-2	4650	34	0.3	3.0	0.59	<2
6160978	<0.1	1.0	<0.001	4	4	7800	62	0.7	3.0	0.80	<2
6160979	<0.1	1.5	<0.001	3	4	8050	56	0.6	3.0	0.74	2
6160980	<0.1	1.0	<0.001	3	17	6300	44	0.3	2.0	0.44	3
6160981	<0.1	1.0	<0.001	3	<2	4450	46	<0.1	2.0	0.81	<2
6160982	<0.1	1.0	<0.001	4	16	7250	98	0.5	2.0	0.95	<2
6160983	<0.1	0.5	<0.001	<2	11	12200	155	0.6	2.5	1.25	3
6160984	<0.1	1.0	<0.001	5	8	4850	130	0.2	4.0	1.90	<2
6160985	<0.1	1.0	<0.001	3	13	10100	88	1.0	4.5	1.65	3
6160986	<0.1	1.0	<0.001	4	<2	3000	24	0.1	3.5	0.81	<2
6160987	0.1	2.0	<0.001	4	2	8850	88	0.6	4.0	0.96	<2
6160988	<0.1	1.0	<0.001	5	6	5450	100	0.3	3.5	0.00	0
6160989	0.1	2.0	<0.001	6	4	9550	140	0.9	3.5	0.00	1
6160991	<0.1	3.0	0.001	<2	17	7800	110	0.5	4.0	0.00	1
6160992	<0.1	1.5	0.001	<2	-2	7150	78	0.3	3.5	0.00	0
6160993	0.2	1.0	<0.001	<2	10	11800	94	1.0	3.0	0.00	0
6160994	<0.1	12.0	<0.001	<2	10	11400	66	0.9	3.0	0.00	0
6160996	<0.1	1.0	<0.001	<2	3	8400	84	0.3	3.0	0.00	0
6160997	0.1	<0.5	<0.001	<2	13	14300	130	1.0	3.5	0.00	0
6160998	<0.1	<0.5	<0.001	4	<2	8900	125	0.3	3.5	0.00	0
6160999	0.4	1.0	0.001	6	11	17000	310	0.8	6.0	0.00	0
6161000	<0.1	1.0	<0.001	3	3	10300	42	0.2	6.0	0.00	0