



PALADIN ENERGY LTD

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1 SUMMARY

The Angela Uranium Project is located approximately 25km south of Alice Springs and consists of a single Exploration Licence (EL25758) encompassing the Angela and Pamela uranium deposits.

Exploration Licence 25758 was granted over an area of 21 blocks on 3 October 2008. The licence is currently registered to Paladin NT Pty Ltd (100%).

Cameco Australia Pty Ltd operated and managed the Project to August 2011 when Paladin NT Pty Ltd took over management of the Project.

The Northern Territory Government made an announcement on 28 September 2010 that it would not support the development of a mine at Angela, therefore a substantially reduced program has been undertaken during the current and recent reporting periods.

An application to renew EL25758 was lodged over the full 21 blocks prior to expiry on 2 October 2014.

During the 2013-2014 reporting period work focussed on transferring drill core, samples and pulps from the warehouse space in Alice Springs to Summit Resources warehouse in Mount Isa, Queensland. Prior to the transfer of the samples it was first necessary to audit and consolidate the samples as they had been poorly archived since their acquisition in 2009 and 2010.

Some samples were not transferred to Mount Isa and instead these were either disposed of in a sample pit at Angela in a manner approved by the Department of Mines and Energy or provided to the NTGS core library in Alice Springs.

Other work undertaken during the tenement year was a review of the technical work conducted to date, verification of geological logging, construction of a revised 3D model, thin section preparation and rehabilitation.

2 INTRODUCTION

The Angela Uranium Project (the Project) comprises both the Angela and Pamela uranium deposits located approximately 25km south of Alice Springs in the Northern Territory.

Cameco Australia Pty Ltd (Cameco) and Paladin Energy Minerals NL, the “Angela Project Joint Venture” were 50:50 partners in the Angela-Pamela Project over EL 25758, which was granted on 3 October 2008.

Exploration drilling commenced in 2009 and continued through into 2010 with the Project being operated and managed by Cameco under the Cameco/Paladin Joint Venture agreement.

Paladin Energy Ltd assumed the role of operator and manager in August 2011.

The Angela Project Joint Venture was dissolved during 2013 and Cameco’s 50% interest was transferred to Paladin NT Pty Ltd, a wholly owned subsidiary of Paladin Energy Ltd (Paladin).

2.1. Location

Exploration Licence 25758 is located approximately 25km south of Alice Springs, and straddles the Old South Road, the historic Ghan Railway Line, the Old Telegraph Line and the Central Australian Railway (see **Figure 1**).

The historic Ghan railway line is not currently operational. The Central Australian Railway passes through the tenement on the western extremity. This railway line is in operation and passes the Brewer Industrial Estate just north of the licence.

Apart from the abovementioned, the only existing infrastructure is a minor gravel road passing through the centre of the licence in a northeast-southwest direction that extends south to the No.3 Dam. This road crosses a subsidiary track running in an east-west direction that comes off the Old South Road and continues west to the Stuart Highway.

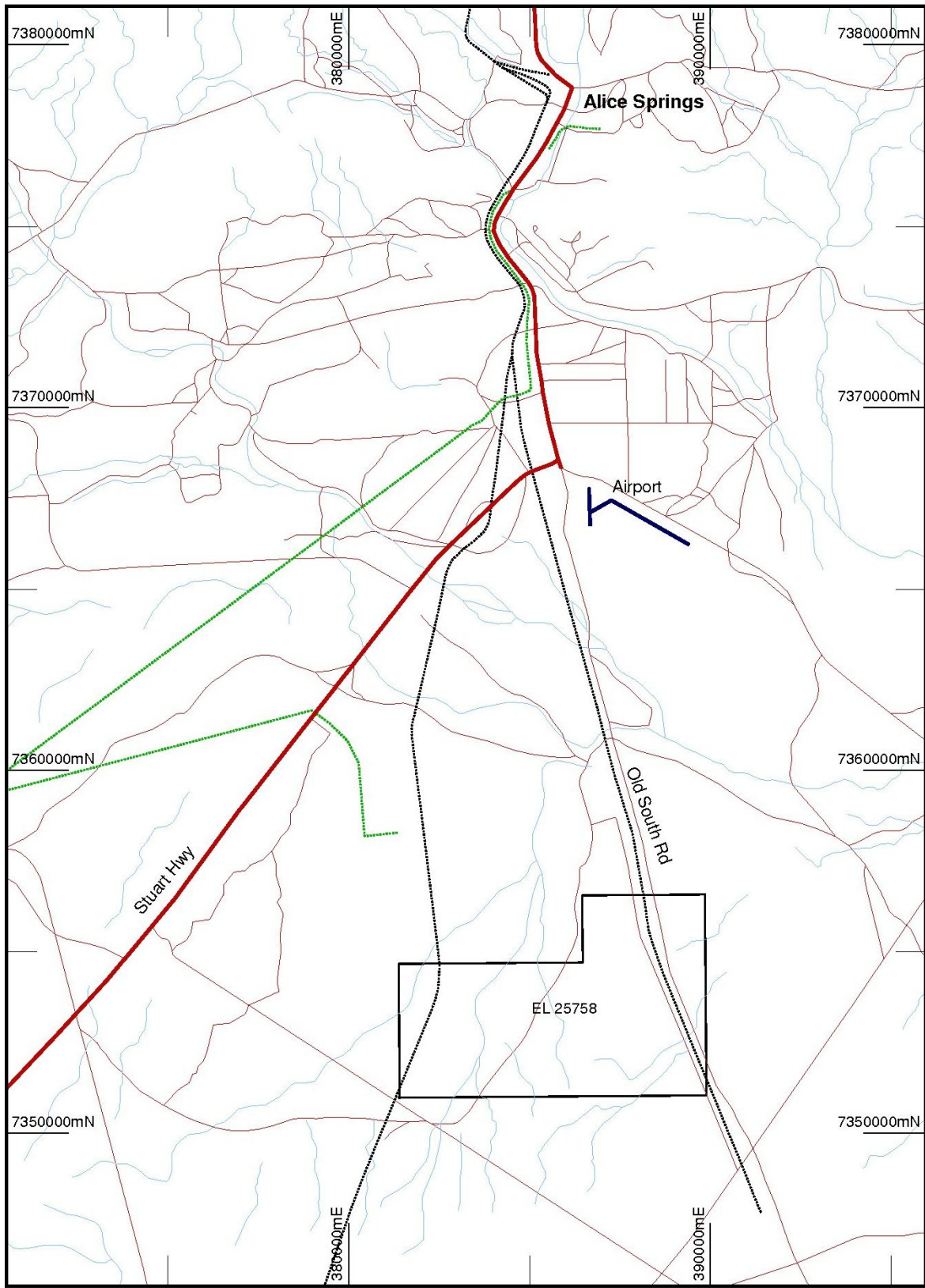


Figure 1 - Location of EL25758

2.2. Tenure

Uranerz Australia Ltd worked extensively on the Angela deposit between 1972 and 1983. In 1990 the company requested the ground be Reserved from Occupation (RO) pending an improvement in the uranium price.

Following a review of all ROs in the Northern Territory, the intent to revoke the RO for the Angela-Pamela area was publically announced and subsequently enacted.

Cameco and Paladin Energy Minerals NL submitted an Exploration Licence application covering the Angela and Pamela uranium prospects south of Alice Springs for a total of 37.67km². On 3 October 2008, Exploration Licence 25758 was granted to the Cameco Australia Pty Ltd (50%) / Paladin Energy Minerals NL (50%) Joint Venture for a period of six years (expiring on 2 October 2014).

Following grant of EL 25758, Paladin Energy Minerals NL transferred its 50% interest to Paladin NT Pty Ltd, a wholly owned subsidiary of Paladin Energy Ltd.

Paladin assumed the role of operator and manager of the Project in August 2011 and Cameco's 50% interest in EL25758 was transferred to Paladin NT Pty Ltd during 2013.

An application to renew EL25758 was lodged over the full area of 21 blocks prior to expiry on 2 October 2014. The application for renewal is still pending.

3 GEOLOGICAL SETTING

3.1. Regional Geology

The Angela and Pamela deposits are hosted within the Undandita Sandstone Member of the late-Devonian to early-Carboniferous Brewer Conglomerate. The Brewer Conglomerate is the youngest geological unit within the Amadeus Basin and was deposited as a wedge-shaped, molasse deposit in a foreland basin setting in response to southwards thrusting of the Arunta Block (to the north) over the Amadeus Basin.

Continued deformation during the latter stages of the Alice Springs Orogeny subsequently deformed the Brewer Conglomerate, producing a series of broad, east-west trending, doubly-plunging synclines within the Amadeus Basin.

Uplift occurred along the northern margin of the Amadeus Basin and progressed from west to east through the later stages of the Alice Springs Orogeny. The lower part of the Undandita Sandstone Member was derived from Upper Proterozoic to Lower Palaeozoic sediments of the basin. With increasing uplift in the Alice Springs Orogeny, the Lower Proterozoic granitic and gneissic Arunta Complex to the north became exposed and contributed increasingly to the upper parts of the Undandita Sandstone Member, providing an intrastratal source for uranium.

The Brewer Conglomerate was deposited as a series of coalescing alluvial fans developed on the southern flanks of the proto-MacDonnell Ranges by southwards draining, braided fluvial channels fed into a large-scale, generally east-west trending, longitudinal drainage system. Depositional environments are interpreted to be environments including braided fluvial channel, abandoned channel, to overbank and possibly lacustrine settings.

Stream gradient decreased away from the ranges (southwards) and the Brewer Conglomerate inter-fingers with, and passes laterally into, the finer-grained, more distal Undandita Sandstone Member. The Brewer Conglomerate reaches a maximum thickness of 3000m within the Missionary Syncline, 15km southeast of Alice Springs where the largely oxidised Undandita Sandstone Member contains a wedge of reduced sediment between regionally planar upper and lower redox boundaries. Uranium mineralisation is concentrated at these redox boundaries.

3.2. Project Geology

Uranium mineralisation at the Angela and Pamela deposits is hosted within the Undandita Sandstone Member which ranges from fine- to coarse-grained lithic arenite, and from medium- to coarse-grained lithic arkose, intermixed with subordinate conglomerate and pebbly sandstone horizons, and thin, poorly developed limestone and mudstone units deposited under waning flow conditions and within abandoned channels. Most of the mineralisation is hosted by medium to coarse grained feldspathic lithic arenites, which although finer, are better sorted.

Mineralisation is considered to have been emplaced during the early-Carboniferous (during diagenesis) and has been preserved by extensive calcite cementation of the host rock. Structural deformation during the Alice Springs Orogeny has subsequently folded and exposed the mineralisation at surface. The main Angela I mineralisation crops out near the eastern margin of the licence, close to the Old South Road, and dips $\sim 9^\circ$ to the west. Mineralisation is known to extend westwards for at least 5km to depths of ~ 900 m.

The target in the area is sandstone hosted uranium mineralisation formed at geochemical (redox) boundaries by deposition of uranium from groundwater. Redox boundaries in the upper part of this reduced zone typically show uranium accumulations. The major accumulations are located in irregularities or steps, mainly on the upper regional redox boundary in the Missionary Syncline. These accumulations were previously identified in the Angela area (Borshoff & Faris, 1990).

4 PREVIOUS EXPLORATION

4.1. Historical Exploration

Uranerz explored the Alice Springs Project (which extended across the current EL25758) for over 10 years from 1972 to 1983 and the tenements were held until 1990. The following summary is adapted from Uranerz reports as detailed in the Bibliography.

A detailed airborne radiometric survey over the tenements was carried out in 1973 and airborne spectrometry located three anomalies. Trenching and drilling of these anomalies in 1973-1974 led to the recognition of the Angela and Pamela prospects. In 1974, shallow vacuum drilling on a regional grid, together with reconnaissance mapping indicated that these prospects were regionally located along the boundary between oxidised and reduced sandstones.

From 1974 onwards exploration was divided into two broad phases; the first involved diamond/percussion drilling of the known mineralised bodies to test size, grade and establish mineralisation controls; the second involved regional exploration along the reduced zone and its margins. Detailed drilling at the Angela and Pamela prospects in 1974-1975 defined the main outline of the mineralisation. Ore resources for the part of the Angela I deposit that was drilled amounted to about 1500t U₃O₈. From 1975 to 1977 percussion drilling was carried out along strike of the upper or northern margin of the reduced zone to test the potential of mineralisation at depth in the zone between the Pamela and Angela prospects. The redox boundary was tested by holes drilled approximately 500m apart to a maximum depth of 150m. Drilling was continued southwest from the Angela I deposit.

In 1978 recalculation of ore resources based on results of the latest investigations confirmed a resource of 1,500t U₃O₈ using a cut-off of 500 ppm over 2m for the Angela I deposit, and it was also concluded that considerable resources could occur further down-dip and in separate zones immediately north and south of the Angela I deposit. Detailed drilling of the Angela I deposit in 1979 indicated a 30-40m change in the stratigraphic level of the redox boundary with which the mineralisation is associated. This “step” marks a complex zone of stacked oxidised and reduced lobes and tongues. In plan, this multi-lobed zone plots as a distinct east-west trend.

Drilling between the Angela I deposit and the Pamela prospect delineated a group of spatially and genetically related step zones containing inter-digitated mineralisation. These are referred to as Angela II, Angela III and IV prospects. Close-spaced drilling at 10m intervals on the 800W section over the Angela I deposit provided detailed lithology but hole-to-hole lithological correlations could not be demonstrated.

In 1980, the eighth year of project operations, the Angela I deposit was confirmed over a 4,900m strike length and remained open to the west at depth. Infill percussion and diamond drilling upgraded the integrity of defined resources. Angela II-IV satellite prospects were defined as thinner ore zones with similarities to the Angela I deposit. The Angela V satellite prospect was delineated as a new ore zone south of Angela I, similar to the Angela II and III prospects.

All prospects have good potential down-dip to the west. Exploration in 1981 concentrated on establishing the style, continuity and potential of the Angela prospects, flanking the Angela I deposit. A data review was carried out, which included recalculation of all gamma log eU₃O₈ values using the high-resolution deconvolution methodology. Regional sedimentological studies established a sedimentary history for the basin, which led to improved genetic concepts for redox processes and allowed a better evaluation of prospectivity.

Investigations in 1982 were confined to re-logging drill core and data studies of prospects in the East Missionary Syncline. Detailed re-logging allowed more meaningful sedimentological profiles to be constructed. Correlation of sedimentary features was achieved using downhole resistivity logs. Ore distribution profiles from deconvolved down-hole gamma logging were compiled.

Data studies showed individual lenses of ore are related to a regionally continuous 30m stratigraphic sandstone package with a prominent coarse-grained basal unit.

In 1983, Uranerz completed a pre-feasibility study that indicated the Alice Springs Project, comprising the Angela and Pamela deposits, would not be economically viable at the prevailing and predicted short to mid-term uranium price and the project was placed on care and maintenance. In 1990, Uranerz, applied to the Northern Territory Government to have the project area converted to a Reservation from Occupation (RO) to protect the resource.

4.2. Previous Exploration

Work conducted on EL 25758 during year ended **2009** included a drilling program comprising 103 diamond holes for 10,333 with 16,684 metres of RC pre-collars and 8 geotechnical holes. All holes were probed for gamma and resistivity. A total of 1,924 samples were sent for assay.

During the **2010** reporting year a total of 59 percussion pre-collared diamond holes were drilled for 5,683 metres with downhole gamma and resistivity probing conducted on all holes. Geochemical analysis was conducted on a total of 1,948 samples.

Activities on the project were scaled back during the **2010-2011** reporting period following NT Government's announcement that it would not support the development of a mine at Angela. Work included drilling of 3 rotary mud holes for 690 metres and baseline environmental studies.

Work conducted during the **2011-2012** reporting period was restricted to completion of the baseline studies, environmental management and rehabilitation monitoring.

Work completed during the **2012-2013** reporting year was limited to completion of the proposed rehabilitation program in order to obtain a Certificate of Closure in respect of Authorisation No. 0493/01. All holes from the 2009, 2010 and 2011 programs were rehabilitated and a report was submitted to the Department of Minerals and Energy in October 2013.

5 2013/2014 PROGRAM

Work completed during the year ended October 2014 included an audit of all drill core, completion of a comprehensive review of all technical work, re-logging of selected core, thin section preparation, creation of an updated 3D geological model and completion of rehabilitation requested by Mining Compliance Division.

Drill Core Audit

During February and March 2014 an audit was completed of all drill core acquired during the Angela Joint Venture. Core was sorted into core for retention, lodgement with NTGS or disposal. The warehouse space at 3/41 Ghan Rd was audited and then vacated. Paladin retained all drill core from drill holes that were complete. Drill core that was incomplete due to no mineralised intervals remaining, from half core geochemical sampling and half core metallurgical sampling, was either disposed of in a manner approved of by the Department of Mines and Energy or lodged with the NTGS core library in Alice Springs. The current location of drill core is detailed in Appendix 1.

Comprehensive Review of all Technical Work

A comprehensive review was undertaken of all technical work conducted by both the Angela Joint Venture and subsequent work completed by Paladin. The main findings of the review were:

- The design of company's data repository limits the extent to which value can be extracted from the database;
- A large amount of the mineralogy available for Angela was acquired in the 1970s and it is expected, with the progression of technology, that analysis with modern day techniques would significantly increase the understanding of ore and gangue mineralogy; and
- Techniques other than drilling, that will permit a better understanding of the continuity of ore for less cost, should be pursued. These include a trial IP survey and biogeochemical and partial leach geochemical surveys.

Re-logging of Selected Core

Paladin's geologists spent a week re-logging drill core in March 2014. The exercise was undertaken to validate the methodology employed by the geologists logging the core in 2009 and 2010. Therefore the data from 2009 and 2010 that has been previously provided to the Department of Mines and Energy is consistent with Paladin's understanding of the factors that are important to comprehending the geology and mineralisation at Angela, so no further data need be submitted.

Thin Section Preparation

A total of 17 samples were sent to GeochemPet in Brisbane for the preparation of 19 thin sections. Table 1 contains the details of the created thin sections. At the time of writing this report the thin sections had not been described.

Table 1: Details of the thin sections created in 2014

SampleID	SITE_ID	DEPTH_FROM	Hand Sample Lithology	CPS
AP010-30a	AP010	30	Hematitic Sandstone	80
AP010-30b	AP010	30	Hematitic Sandstone	30
AP060-78.3	AP060	78.3	Hematitic Sandstone	150
AP060-78.4	AP060	78.4	Oxidised mud clast conglomerate	150
AP029-127	AP029	127	Mottled sandstone	60
AP007-35.6	AP007	35.6	Hematitic Sandstone	85
AP007-35.6	AP007	35.6	Very hematitic (and friable) sandstone	125
AP058-36.3	AP058	36.3	Weakly hematitic sandstone	20
AP058-40.3	AP058	40.3	Weakly hematitic sandstone	20
AP058-45.5	AP058	45.5	Weakly hematitic sandstone	15
AP058-55.4	AP058	55.4	Weakly hematitic sandstone	20
AP058-48.8	AP058	48.8	Very hematitic sandstone	60
AP058-62.3	AP058	62.3	Weakly hematitic sandstone	20
AP058-69	AP058	69	Carbonate-cemented sandstone	50
AP058-76.3	AP058	76.3	Weakly hematitic sandstone	20
AP058-78.2	AP058	78.2	Reduced sandstone	20
AP058-86.8	AP058	86.8	Reduced sandstone	20
AP058-49	AP058	49	Contact between reduced & hematitic sandstone	450
AP058-48.9	AP058	48.95	Hematitic Sandstone	1500

Creation of an updated 3D geological model

An updated geological model was constructed using Leapfrog and Leapfrog attributed mesh files (.msh). The files are attached in Appendix 2.

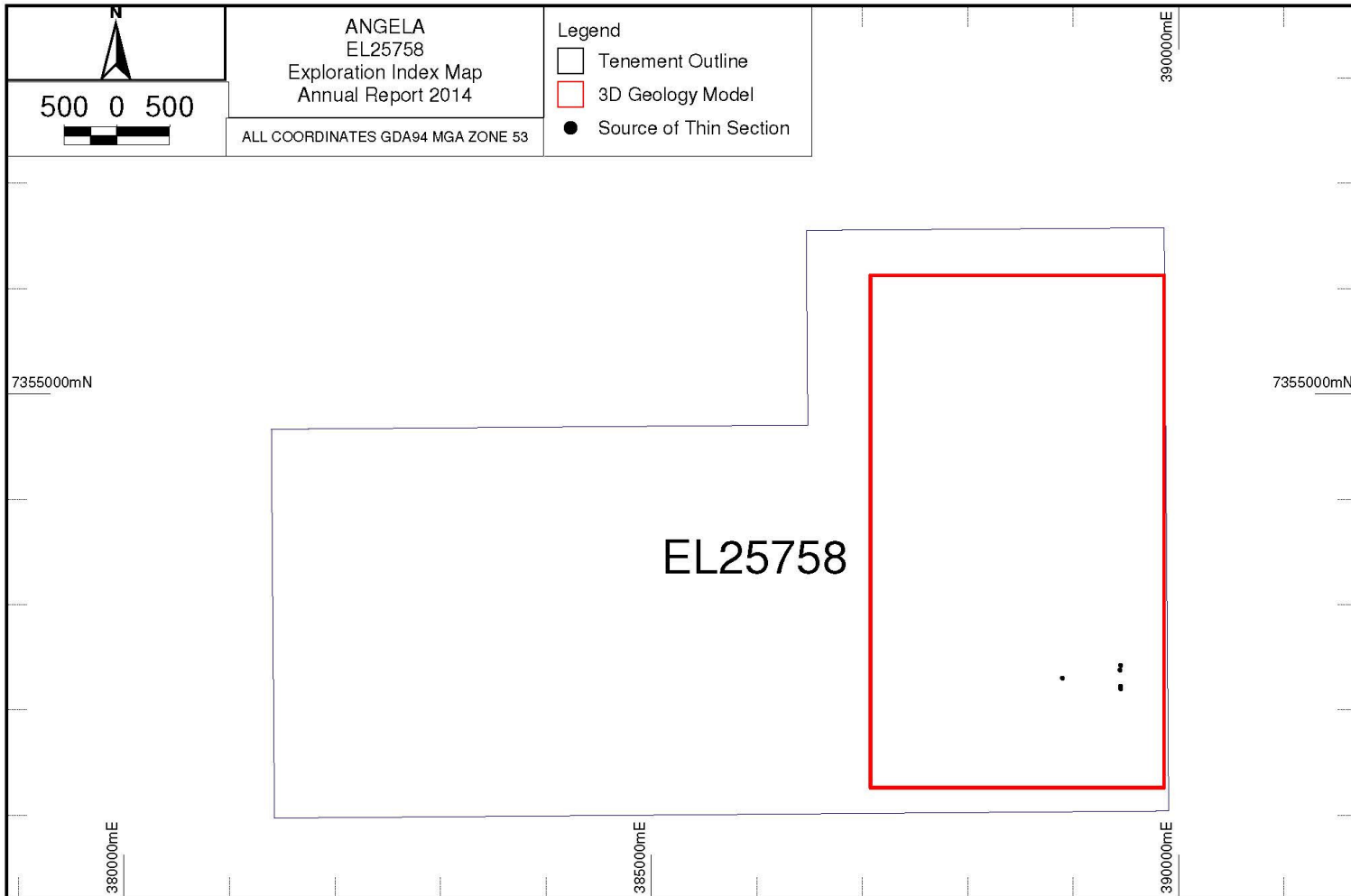


Figure 2: Exploration Index Map

6 REHABILITATION

Following lodgement of Rehabilitation Report by Paladin, Mining Compliance Division conducted a field inspection in October 2013 and requested completion of some additional work in their report dated 14 March 2014.

Rehabilitation work undertaken included; removal of a dust monitor, investigation of an 'unknown scientific experiment', rehabilitation of 25 historical drill collars and securing water bore caps to prevent fauna ingress.

The work was undertaken in August 2014. A copy of the rehabilitation report provided to Mining Compliance is attached as Appendix 3.

Rehabilitation continues to be conducted in accordance with the guidelines contained in the relevant advisory notes (AA7-008 and AA7-027) issued by the Department of Mines and Energy.

7 COMMUNITY RELATIONS

No community consultation activity occurred in the period from October 2013 to October 2014 as no exploration work was planned or conducted, due in significant part to the Northern Territory Chief Minister's announcement on 28 September 2010 that the Government would not support the development of the Angela mine.

8 EXPENDITURE

Eligible expenditure for the reporting period on EL25758 totalled \$169,725 and is detailed in the Mineral Exploration and Mining Expenditure Form (Form 17 under the *Mineral Titles Act 2010*) which was lodged on 31 October 2014.

9 2014 - 2015 PROPOSED WORK PROGRAM AND BUDGET

The proposed work program for the Angela Project for 2014-2015 reporting period will be limited to hyperspectral/XRD analysis of selected pulps/core. The newly acquired data will then be compared with existing data. Details of the potential work and estimated expenditure are included on the above-mentioned Mineral Exploration and Mining Expenditure Form.

10 APPENDICES

Appendix 1: Final location of drill core transferred from 3/41 Ghan Rd Alice Springs

Appendix 2: 3D geological model as created in Leapfrog (.msh file)

Appendix 3: Rehabilitation report August 2014

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