Annual Report
EL 26055
Barkly Region, Northern Territory

Fertoz Pty Ltd
19 Livingston Ave.
Baulkam Hills
NSW 2153

Barkly Project
1:100 000 Mapsheet: Wonarah
1:250 000 Mapsheet: Alroy
Commodity: Phosphate

WA Jettner B.Sc (Geol.)
Minesite Services Australia
November 2010
Contents

1. Executive Summary
2. Contact Details
3. Introduction
4. Tenure
   a. Mining
   b. Real Property
   c. Other Stakeholders
5. Location and Access
6. Regional Geology
7. Licence Geology
8. Previous Exploration
   a. Field Work
   b. Desktop Surveys
   c. Exploration Targeting
   d. Prospect Generation
11. Expenditure Covenants
12. References

List of Figures

Figure 1. Location Map
Figure 2. Tenure
Figure 3. Licence Access
Figure 4. Regional Geology
Figure 5. Regional Stratigraphy
Figure 6. Outcrop Geology
Figure 7. Historical Exploration Licences
Figure 8. Georgina Basin Phosphate Prospectivity

List of Tables

Table 1. Lithostratigraphy of the southern Georgina Basin
Table 2. Historical Exploration Reports

List of Appendices

1. **EXECUTIVE SUMMARY**

In the latter part of October 2010 EL 26055 was purchased by Fertoz Pty Ltd from the previous titleholders FSL World Holdings Pty Ltd. The EL consists of 499 graticular blocks, (1647 km²) located in the Barkly Region of the Northern Territory. The new titleholders consider the licence area to be favourable for the discovery of phosphate deposits of a similar nature to that to the north Alroy, 14Mt @ 20% P₂O₅, and Alexandria 15Mt @ 10% P₂O₅ and to the south, Wonarrah and Arruwurra, 1258Mt @ 12% P₂O₅. The giant Wonarrah Phosphate project of Minemakers Ltd is located immediately to the south of EL26055 and will extend to the north into the Fertoz exploration licences here. Fertoz Pty Ltd has commissioned Minesite Services Australia to report on this and other licences purchased as part of the newly purchased tenement package which consists of 17 granted ELs and 12 EL applications.

2. **CONTACT DETAILS:**

**Tenement Holder:**
Fertoz Pty Ltd  
19 Livingston Ave  
Baulkham Hills  
NSW 2153  
Contact: Mr James Chisholm  
Email: chisholmj@bigpond.com

**Tenement Manager:**
Complete Tenement Management  
PO Box 2515  
Darwin NT 0801  
Contact: Mrs Wendy Jettner  
Tel: 08 8981 1880  
Email: contact@completetenement.com.au

**Geological Consultant:**
Minesite Services Australia  
19 Flametree Cct  
Rosebery NT 0832  
Contact: Mr Andrew Jettner  
Email: andrewjettner@yahoo.com.au
3. **INTRODUCTION**

EL 26055 was granted on the 5th of October 2008 for a period of 6 years and this annual report covers work done in the second licence year (5/09/2009 – 4/09/2010). During this period there was effectively no field work done on the licence. The work done by this author has consisted of the identification of historical work in the area, documentation of current exploration thinking for the exploration of phosphate deposits in the Georgina Basin and generation of exploration targets for further investigation. This report will have a lot of similarities to the reports on EL26054 which is located immediately to the east of this licence and will be explored in conjunction with this licence to minimise costs and maximise efficiencies.

Figure 1. EL 26055 Location Map
4. **Tenure**

a. **Mining**
Exploration Licence 26055 was granted to FSL World Holdings on 5th of September 2008 for a period of 6 years, expiring on 4th September 2014.
Fertoz Pty Ltd purchased the licence in late October 2010.
The exploration licence consists of 499 graticular blocks (1076km²) and is located wholly within the Alroy 1:250 000 Mapsheet.

b. **Real Property**
The licence is located within PPL988 “Dalmore Downs Station” which is owned by the Channel Cattle Co Pty Ltd, (c/ Cridlands Lawyers, 59 Mitchell St, Darwin, NT).

c. **Other Stakeholders**
Other stakeholders in the licence area consist of the Wunara peoples who are the identified traditional owners of this area. They are located to the southwest of EL 26055 on a large freehold landholding.

![Figure 2. Tenure](image-url)
5. **LOCATION AND ACCESS**

EL 26055 is located adjacent and to the north of the sealed Barkly Highway, the main road access from the Northern Territory to the east coast of Australia. Rail access is north-south along the Darwin to Adelaide railway, located some 280km to the west near Tennant Creek, or to the east coast via the Mt Isa to Townsville railway which is located approximately 400km to the east at Mt Isa Queensland.

The licence is located 290km east of Tennant Creek along the Barkly Highway, the closest roadhouse/accommodation/fuel depot is the Barkly Homestead, a substantial roadhouse located some 65km to the west of EL 26055.

Access throughout the licence area is via well developed station tracks and fence lines which make traversing the area relatively easy.

Figure 3. EL 26055 Access
6. **Regional Geology**

The South Nicholson Group is the oldest exposed unit in the region and constitutes the regional basement for the Georgina Basin. It is correlated with the Roper Group of the MacArthur Basin. Rawlins, *et al* subdivided this group into the Wild Cow and overlying Accident sub-groups. The Accident subgroup consists of the Mittiebah Sandstone and can be either conformable or disconformable with the Wild Cow subgroup and has an uncertain but probably lateral relationship with the Constance Sandstone and is possibly conformably overlain by the Mullera Formation, these latter two units are also constituents of the Accident subgroup.

On the Alexandria-Wonarah basement high the basement is represented by the Helen springs Volcanics, an extrusive volcanic of basaltic affinity. In this location the absence of the Thorntonia Limestone and overlying Arthur Creek Formation has the basal unit of the Wonarah Formation, (which contains the phosphorite) resting directly on the volcanic basement, (Helen Springs Volcanics).

To the west into the Barkly sub-basin the Wonarah Formation laterally correlates with the Anthony Lagoon Beds. From the basement high to the west the Gum Ridge Formation may well correlate with the basal Wonarah Formation. To the east of the basement high the Wonarah Formation is overlain by the Camooweal Dolostone as it dives below the surface in the Undilla sub-basin.

| CAMBRIAN | | | | |
|---|---|---|---|
| Arrinburunga Formation (<Eua) 975 m | Dolostone, limestone; minor quartz sandstone, siltstone, shale | Peritidal, restricted shallow subtidal marine | Conformable on Cnd, Cma | Stromatolites, thrombolites, nodular evaporites, gypsum crystals, fenestral |
| Camooweal Dolostone (<Cma) 167 + m, 7200 m | Dolostone; minor marl and quartz sandstone; basal intraclast, ooid and oncoid dolostone and quartz sandstone | Basal high-energy peritidal to shallow subtidal barrier, passing upward into restricted to epicontinental barrier | Conformable on Cnk, Cnw, Currant Bush Limestone | Spheronidal chert concretions, cross-beds, flat-pebble conglomerate, planar to crinkly or wavy microbial lamination, stromatolites |
| Ranken Limestone (<Cnk) 74 + m | Bioclast, bioclast-ooid and bioclast-intraclast rudstone, bioclast wacke/floatstone; minor calcimudstone | Marine ramp seaward of high-energy shallow subtidal barrier | Conformable on Cnw | Red-brown silicification, abundant fossils |
| Wonarah Formation (<Cnw) 191 + m | Siltly dolostone, calc/dolomudstone and siliciclastic mudstone interbeds, micaceous siltstone; minor intraclast and bioclast wacke-to-grainstone; basal carbonaceous marly laminite | Subtidal marine | Disconformable on Cnd; unconformable on Cib, Pa | Planar to wavy siliciclastic laminations, siliciclastic chert concretions, phosphorite, evaporites, disseminated pyrite, fossils; minor detrital glauconite and biogenic phoscoils |
| Arthur Creek Formation (<Eua) 457 m | Upper: dolostone, limestone; lower: foxtail pyrite-carbonaceous black shale, laminated dolostone | Upper: open to restricted subtidal marine; lower: deeper anoxic marine | Disconformable on Cnd; unconformable on Pa | Nodular evaporite, shredded to brecciated texture, fossils, disseminated pyrite |
| Thorntonia Limestone (<Ent) 121 m | Dolostoparticle; minor bioclast and oncoid dolostoparticle and intraclast dolowackestone to dolograinsstone; basal dolomitic quartz sandstone and conglomerate | Subtidal marine | Unconformable on Pa | Pervasive recrystallisation, carbonate concretions, nodular evaporite, silicified interbeds, disseminated pyrite, hydrocarbons |
| Helen Springs Volcanics (Cib) 34 m | Basalt, trachyte, microdolerite; minor dolerite; basal pebbly mudstone, sandstone and conglomerate | Extrusive volcanic | Unconformable on Pa | Alteration, amygdalae |
| CALYMMIAN | | | | |
| Mittiebah Sandstone (Pa) 2200 + m | Quartzose to sublithic sandstone; minor allitstone and conglomerate | Marine | Disconformable on Crow Formation | Medium to thick bedding, quartz granules and pebbles, ripples, mudcracks, crossbeds |

Table 1. Lithostratigraphy of the southern Georgina Basin
Figure 4. Regional Geology

Figure 5. Regional Stratigraphy  (Kruse PD and Radke BM)
7. **Licence Geology**

The geology of EL 26055 consists of the sediments of the South Georgina Basin which are overlain by Cainozoic soils. The licence area covers the Alexandria-Wonarah Basement High, which separates the Undilla Sub-basin which extends to the east into Queensland from the Barkly Sub-basin to the west. The presence of this basement high is extremely important as it represents a basinal edge where the prospective Wonarah Formation outcrops. Its proximity to the sealed Barkly Highway also adds to the prospectivity of the licence area.

The EL is located between NTGS Hole No AY06DD01 and NTGS00/1 and these holes provide an excellent stratigraphic section through the underlying geology. This work indicates that the Cainozoic soils are 3-4m thick and overly the prospective Wonarah Formation in the licence area. The Wonarah deposit has been defined to the southern boundary of ELs 26055 and 26055 and so provides immediate targets to the north of this drilling.

In the licence area the Wonarah Formation overlies the Gum Ridge Formation which overlies the Helen Springs Volcanics. The Gum Ridge Formation pinches out between the above mentioned drill holes and by drill hole No NTGS00/1 the Wonarah Formation overlies the Helen Springs Volcanics. The Wonarah Formation outcrops directly to the south of the licence area and dives under the soil in the licence area.

The licence and its sister licence 26054 are located at the eastern edge of the Georgina Basin and examination of figure 8 shows that deposits in general occur on the eastern and north-eastern margins in the component sub-basins of the Georgina Basin, (the Barkly sub-basin to the west and the Undilla sub-basin to the east).

To the north of ELs 260054 and 26055 two phosphate deposits, Alroy (14Mt @ 20% P\textsubscript{2}O\textsubscript{5}) and Alexandria (15Mt @ 10% P\textsubscript{2}O\textsubscript{5}), EL 25600 owned by Phosphate Australia, occur and to the south of the ELs Wonarah and Arruwurra, (1258Mt @ 12% P\textsubscript{2}O\textsubscript{5} SELs 26451, 26452 and ML27244), owned by Minemakers Ltd.

Also to the north, a gypsum deposit, the 6 mile waterhole deposit (1Mm\textsuperscript{3} of gypsum, on MCCs 205-208 and MCCs 983-990, owned by Northern Cement), occurs.

The early Cambrian extrusion of continental basalt and associated volcanic rocks of the Helen Springs Volcanics alng an existing or newly forming Alexandria-Wonarah Basement High generated the oldest Georgina-Basin related rocks. In an initial regional marine transgression followed cessation of volcanism. A second marine transgression overtopped the high and deposited an extensive blanket of carbonate and siliciclastic sediments across the Undilla sub-basin during the remainder of the middle Cambrian. Phosphatic sediments were deposited on the basement high during the initial transgression, ((Kruse & Radke).
Figure 7. Outcrop Geology
8. **Previous Exploration**

Historical exploration in this area has been sparse. In recent years this area, as with large parts of the Northern Territory has had renewed exploration interest for bulk commodities due to the construction of the Darwin to Adelaide railway. The rail link with its ability to go both north and south has made a number of these deposits viable, including Wonarah Phosphate, Bootu Creek Manganese, Francis Creek Iron Ore and Nolans Bore Rare Earths.

The Wonarah Phosphate deposit was found by IMC Development Corporation in the late 1960s. The deposit was identified by regional mapping, geophysics and open hole drilling, which located ore grade phosphorite between 12 and 50m depth in 1967. This drilling program consisted of 294 noccored holes, totalling 11,660m. Howard (1989) characterised the deposit as two successive phosphorite beds comprising phosphatic mudstone, silty mudstone and grainstone (of reworked mudstone clasts). Six partially cored holes were drilled in 1968 by BMR to elucidate the stratigraphic context of the deposits.

CRA flew a low level (80m) aeromagnetic survey over the area in 1983-84 aimed at defining the volcanic basement to the Wonarah phosphate, this survey highlighted the potential of the then identified deposit. CRA terminated exploration activities due to low world phosphate prices and a lack of local infrastructure. 

A Rio Tinto - AKD Limited joint venture explored for large tonnage phosphorite in the Wonarah area between 1999 and 2003, employing photo interpretation, geological mapping, rock chip sampling ground gravity surveys and also drilled 136 holes. An ore-grade (>15% P2O5) ‘phosphorite horizon’ was delineated almost directly overlying the Helen Springs Volcanics. Rio Tinto withdrew from the joint venture in late 2002, following a negative internal economic evaluation.

Cored drillholes NTGS00/1 and NTGS01/1 were included in a larger phosphate survey centred around the exposed Tennant Creek Region.

Stratigraphic drillholes were also drilled by the NTGS on both sides of EL 26055 and indicated that the Wonarah Formation outcrops in the licence area.

Minemakers Ltd acquired title to the Wonarah deposit in 2006. This deposit is currently in preproduction and is planned to commence full production in 2011. (Kruse PD and Radke BM)

### EL 26055

<table>
<thead>
<tr>
<th>Licence No</th>
<th>Tenure Period</th>
<th>Open File Company Reports</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP 1802</td>
<td>14/08/67 – 13/08/68</td>
<td>CR1968-0030</td>
<td>IMC Development</td>
</tr>
<tr>
<td>AP 2161</td>
<td>12/12/68 -</td>
<td>CR1968-0032</td>
<td>IMC Development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CR1969-0022</td>
<td>IMC Development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CR1970-0036</td>
<td>IMC Development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CR1970-0038</td>
<td>IMC Development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CR1970-0040</td>
<td>IMC Development</td>
</tr>
<tr>
<td>EL 1084</td>
<td>6/05/76 – 5/05/82</td>
<td>No reports</td>
<td>?</td>
</tr>
<tr>
<td>EL 22168</td>
<td>4/08/00 – 27/09/07</td>
<td>CR2003-0389</td>
<td>AKD Limited</td>
</tr>
<tr>
<td>EL 22979</td>
<td>18/09/02 – 21/07/03</td>
<td>CR2004-0044</td>
<td>De Beers Aust. Exploration</td>
</tr>
<tr>
<td>EL 22981</td>
<td>18/09/02 – 21/07/03</td>
<td>CR2004-0044</td>
<td>De Beers Aust. Exploration</td>
</tr>
</tbody>
</table>

Table 2. Historical Exploration Reports
Figure 7. Historical Exploration Licences

a. **Field Work**
There was no field work done on the licence in the second year of tenure.

b. **Desktop Surveys**
Office work in the second year of tenure consisted of desktop surveys covering the various topics outlined in this technical report. Primarily they consisted in examining historical exploration in the area and cross-referencing this where possible with the current thinking on phosphate deposition in the Georgina Basin to generate valid exploration targets for follow up in the third year of tenure.

c. **Exploration Targeting**
Exploration models target organic-rich carbonate rocks on depositional basin margins and areas of onlap onto basement highs where upwelling and favourable palaeogeography would have bought cold phosphate-rich waters onto the shelf. Francolite formation takes place close to the sediment-water interface during times of low overall sedimentation and is intimately connected with the dynamics of diagenetic redox fronts, (Dunster, Kruse et al 2007).
The southern portion of the Georgina Basin contains several loci prospective for phosphorite deposition. Historical exploration work indicates that there are prospective targets within the Fertoz licences to the north of the Wonarah deposit.

d. **Prospect Generation**
Target generation immediately to the north of the Minemakers drilling would be priority 1, probably drilling a number of sections to elucidate the geology to basement. This work would continue to the north in the first year with the plan of locating continuations and repetitions of the Wonarah deposit.

Generally speaking the two exploration licences owned by Fertoz are highly prospective for phosphate development, being located between 4 phosphate deposits in a geological and structural environment that is conducive to phosphorite development.
Figure 8. Georgina Basin phosphate prospectivity (Dunster JN, Kruse PD, et al.)

The proposed work program for the third year of tenure (2010-2011) will consist of the following:

**Site Orientation Visit**: introduction and familiarisation to the property owners, exploration licence examination, preliminary examination of desktop targets, 4 men, 2 vehicles, 4 days

**First pass exploration program**: rockchip survey, mapping activities, (incl. assays) - 4 men, 2 vehicles, 7 days

**Exploration Reporting** – 1 man, 3 days

**Second pass exploration program**: follow-up geochemical survey, follow-up rockchip survey, first pass drilling – 4 men, 2 vehicles, 1 RC drill rig (500m), 14 days

**Exploration Reporting** – 1 man, 3 days

**Preparation of the third annual report** – 1 man, 4 days
11. **Expenditure Covenants**


The expenditure report for year 2 (2009 – 2010) is included as Appendix 1 to this annual report.

b. **Proposed Expenditure for Year 3 (2010 – 2011)**

The proposed expenditure for Year 3 is as follows:

- **Site orientation visit** $12,000
- **First pass exploration program** $35,000
- **Exploration reporting** $3,500
- **Second pass exploration program** $65,000
- **Exploration reporting** $4,500
- **Annual report preparation** $6,000

**Total Proposed Expenditure** $125,000
12. **REFERENCES**

**Open File Company Reports**


Lindsay-Park K. (2009), Annual Report Exploration Licence 26055, FSL World Holdings Pty Ltd, unpublished company report


**Published Reports**


Khan M, Ferenczi PA, *et al*, (2007), Phosphate testing of waterbores and diamond drillcore in the Georgina, Wiso and Daly Basins, Northern Territory


Kruse PD and Radke BM, (2009), Ranken - Avon Downs 1:250 000 map series Explanatory Notes