PHOSPHATE AUSTRALIA LIMITED
ABN 51 129 158 550

HIGHLAND PLAINS PROJECT
& PHOSPHATE / IRON EXPLORATION TARGETS

EXPLORATION LICENCES: EL25068, EL25600 & EL25972

GROUP ANNUAL GEOLOGICAL REPORT
FOR THE PERIOD ENDED AUGUST 2008

Tenement(s): EL25068 / EL25600 / EL25972
Owner: Phosphate Australia Limited (100%)
Operator: Phosphate Australia Limited
Prepared by: Lisa Wells & Andrew James
Date: September 2008
Distribution: Phosphate Australia Limited (1)
            NT Department of Primary Industry, Fisheries and Mines (1)
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SUMMARY

Tenements EL 25068, EL 25600 & EL 25972 occur within the Barkly Tablelands of the Northern Territory on the Mount Drummond, Alroy, Ranken and Brunette Downs 1:250,000 map sheets. The area undergoes a sub-tropical climate with the wet season occurring from November to February every year. During this time, the area may be difficult to access by vehicle because the access roads may become flooded. In the dry season, the area is accessible by 4WD vehicle via pastoral tracks from the western and eastern sides of the tenements.

Phosphate Australia Limited acquired the tenements through precursor companies between November 2005 and March 2007 further to a target analysis of the area using publicly available remotely sensed data. The ground was chosen because of its numerous Uranium channel radiometric anomalies coupled with the existence of published phosphate and iron occurrences. All granted tenements are 100% owned by Phosphate Australia Limited.

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Work conducted on the tenements has included a total of three field trips to the tenements for the reporting period. The first field trip was a helicopter-assisted reconnaissance and target ground truthing trip in January 2008.

A second trip was conducted between late June and July in 2008 to inspect the project for the purpose of understanding field logistics for the forthcoming drilling program and to build relationships with local communities. In addition to this, the western occurrences of Alexandria, Alroy and Buchanan Dam occurring on tenement EL25600 were visited to analyse their potential phosphate prospectivity and to plan for a future exploration program.

The final trip was conducted towards the end of the reporting period between late July and August in order to begin mobilisation of drilling equipment to the Highland Plains
project and included helicopter support to further the work of a prospectivity analysis carried out by a geomorphological consultant on the tenements for phosphate and iron.

The Highland Plains project has an historical estimate for phosphate mineralization (an exploration target) of between 80 and 85 Million Tonnes @ 20% P₂O₅. This estimate has been gained from past drilling in the late 1960s. The work conducted to date by Phosphate Australia Limited has been planning work towards a drilling program aimed at bringing the historical estimate up to a JORC compliant resource.
1. INTRODUCTION
This annual report details all exploration activities carried out on tenements EL 25068, EL 25600 & EL 25972 between 7 September, 2007 and 7 September, 2008. These tenements were pegged by Phosphate Australia between November, 2005 and March 2007 as a result of Uranium channel radiometric highs and the presence of known mineral occurrences occurring within. The tenements are 100% owned by Phosphate Australia Limited.

Tenement EL 25068 contains a known historical phosphate occurrence in the east, Highland Plains, as well as numerous iron occurrences in the west. The Highland Plains occurrence is coincident with a Uranium channel radiometric high, and contains a historical estimate reported from previous exploration activities in the 1960s. This occurrence is the focus of Phosphate Australia’s 2008 exploration program.

In the west of tenement EL25068 are numerous iron occurrences. These are prospective oolitic Clinton iron style deposits which Phosphate Australia intends to explore in 2009. During the reporting period, these were visited on the initial reconnaissance trip and later by a geomorphological consultant as part of a prospectivity review. This report is included in Appendix 1.

Tenement EL25600 is prospective for phosphate and contains the Alexandria, Buchanan Dam and Alroy historical occurrences. A visit was made to these tenements on the second reconnaissance and logistics field trip to the site. The area consists of black soil plains in a topographically featureless basin.

2. LOCATION, ACCESS AND PHYSIOGRAPHY
EL25068 is located 275 km south southeast of the McArthur River lead-zinc-silver mine in the Gulf of Carpentaria region and 320 km east northeast of Tennant Creek, on the Northern Territory - Queensland border (Figures 1 & 2). Access is via the Tablelands Highway and Calvert Road to a track southeast through Benmara Station to the Murun Murula Community. The Licence lies on the Mount Drummond 1:250,000 (SE53-12) and Mittiebah / Mitchiebo / Carrara (6260 / 6360 / 6460) 1:100,000 scale topographical and geology sheets.
Figure 1: Location Map.

Within the area, access is difficult and helicopter support is required to access areas away from the two major tracks located in the western and eastern parts of the tenement area. In the south, west striking ridges of the Carrara Range and Bluff Range rise 50 to 90 metres above the level of the surrounding country. Vegetation is sparse consisting of spinifex grass and scattered small eucalyptus trees and shrubs. Stands of larger trees are concentrated along watercourses where water supply is assured. Climate is semi-arid tropical and characterised by a wet season from November to March and a dry season from April to October. Rainfall averages about 450 mm per year, and mean daily maximum temperatures range from about 27°C in July to 38°C in January - February.
Figure 2: Permit Access Map.
3. TENEMENT STATUS

The Highland Plains tenement EL25068, was pegged on 24 November 2005 by Nicholson Iron Pty Ltd. The tenement was granted on August 8, 2006 and is 1574 km² in extent. Tenements EL25600 and EL 25972 were applied for on 14 September 2006 and 14 March 2007 and granted on 23 August, 2007 and 22 November 2007 respectively. Tenement EL25600 is 1614 km² while tenement EL25972 is 682 km² in extent. A summary of the tenement details are presented in Table 1. All tenements are 100% owned by Phosphate Australia.

Table 1: Tenement Schedule.

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4. REGIONAL GEOLOGY

4.1 Iron Potential

The tenement area covers Proterozoic rocks of the South Nicholson Basin, which hosts the Constance Range ironstone deposits to the east in Queensland. In the Constance Range at least fifteen iron deposits have been identified associated with resistant ironstone formations, exposed around the rims of major and minor structural basins. The deposits, extensively explored and drilled by BHP between 1956 and 1963, consist of oolitic hematite, siderite and chamosite beds of Neoproterozoic age and are broadly classified as sedimentary Clinton Type.

The iron horizons, 2 to 8 m thick, occur as gently dipping beds over a strike length of more than 30 km. Within these horizons, higher concentrations of iron form lenticular, stratabound iron deposits. Potential tonnes and grade in five of the Constance Range iron deposits has been stated as 365 Mt at grades ranging between 42 and 57% Fe containing 0.01 to 0.015% P and 7.4 to 9.6% SiO₂. The largest deposit potentially contains 245 million tonnes grading 51.3 % Fe and 9.6% SiO₂.
Sedimentary iron deposits occur as banded iron formation (“BIF”) beds, oolitic beds, paleochannel deposits and bog iron. BIF deposits, such as those of the Brockman and Marra Mamba formations in the Hamersley Ranges and at Mt Newman in the Pilbara of Western Australia, contain the bulk of the world’s iron ore resources. They are generally of Precambrian Age and are classified into two types: the Superior-type which formed in near-shore continental –shelf environment in association with dolomite, quartzite and shale, and the Algoma-type associated with volcanic rocks. Post depositional hydrothermal processes have most likely been significant in enrichment of the iron in BIF to form high-grade hematite orebodies.

Oolitic iron ore deposits are Proterozoic to Cretaceous in age and formed in shallow marine environments where they accumulated along continental margins. They are generally of lower grade than the BIF hosted deposits and occur as deep red to purple ores composed of hematite, chamosite and siderite (Clinton type) or as dark greenish brown deposits composed mainly of siderite and iron silicates (Minette type).

Placer deposits and channel iron deposits (“CIDs”) occur as iron-rich sedimentary deposits infilling river channels incised into an old land surface. The source of iron in the CIDs is usually iron-rich laterite, derived from nearby iron formation, which was eroded and transported into the palaeo drainage system where they were subsequently enriched and cemented by iron-bearing groundwater. Constituent materials vary from goethitic mudstone to fine hematite-goethite gravel and pisolitic goethite, with abundant coarse ferruginised wood fragments, and intraformational conglomerate in a variety of massive, bedded and altered types. In general iron ore material has a pisolitic texture made up of rounded hematite pisoliths (‘pea stones’), usually less than 5 mm in diameter, and rimmed with hydrated iron oxides (goethite and/or limonite) cementing the ore together. The hydrated oxides give CIDs a higher loss on ignition (LOI) of around 10% than most bedded ores and result in variable iron grades often lower than in bedded ores at about 57 to 58.5% Fe.

The mesas that outcrop along the Robe River Valley in the Hamersley Ranges of Western Australia, host channel iron deposits mined by Robe River Iron Associates containing measured, indicated and inferred resources of 1920 Mt grading 59.4% Fe. This particular type of deposit supplies about 40-50% of the iron currently mined in
Australia. In the Hammersley Range province, CIDs occupy Early Tertiary palaeochannels several kilometres to tens of kilometres long, typically less than 1 km in width and up to 100 m thick. As an example, the Yandi and Yandicoogina deposits of BHP Billiton and Hamersley Iron Pty Ltd, are part of a single continuous high grade, low phosphorous, pisolithic goethite body which is over 80 km long. The average width of the deposits is 500 to 600 m and they are about 70 m thick in the channel centre.

Of the sedimentary types of iron ore deposits discussed above, enriched bedded deposits and channel iron deposits were the most likely types considered to potentially occur in the tenement area. Although the iron ore prospectivity of the South Nicholson Group has been recognised for some time and the Constance range deposits in Queensland have been assessed and are well documented, limited data on iron occurrences or deposit descriptions exist for the South Nicholson Basin. Northern Territory Geological Survey (“NTGS”) has identified primary synsedimentary, hydrothermal fault related and lateritic supergene enriched iron occurrences in the project area and surrounding region. Geochemical data from these occurrences indicated hematite contents range from 42.5% Fe203 to 84.7% Fe203.

4.2 Stratigraphy
The South Nicholson Basin is the northwestern extension into the Northern Territory of the Lawn Hill Platform in Queensland. The basin is flanked to the north by Palaeo-Proterozoic turbidites, volcanics and granitic rocks of the Murphy Inlier which forms the basement in the region. These rocks are overlain unconformably by coarse siliciclastic rocks, volcanics, mudstone and carbonate of the Paleoproterozoic Lawn Hill Formation, Mesoproterozoic coarse siliciclastic formations and mudstone of the South Nicholson Basin and onlapped to the south by Late Neoproterozoic to Cambrian carbonate and volcanic rocks of the Georgina Basin. Scattered outliers of Mesozoic sediments and Cainozoic black soil plains form a thin cover throughout the region. Recent work on the Mount Drummond geological sheet by David Rawlings and Ian Sweet of the Northern Territory Geological Survey has substantially revised the stratigraphic nomenclature for the area and their revision, although still in draft, is used here.

The project tenements cover mainly sedimentary rocks of the Mesoproterozoic South Nicholson and McNamara Groups and sedimentary rocks and mafic and felsic volcanic
rocks and intrusives of the early Mesoproterozoic Carrara Range Group. Basement in the project area is represented by the Paleoproterozoic Murphy Inlier, which forms a large east-northeast trending belt on the northern margin of the project area. These basement rocks, consisting of the Murphy Metamorphics, the Nicholson Granite Complex and the Cliffdale Volcanics, formed an intrabasinal high separating the McArthur Basin from the Lawn Hill Platform and South Nicholson Basin throughout the Mesoproterozoic.

The Carrara Range Group constitutes the basal portion of the western Lawn Hill Platform and outcrop is confined to the Carrara Range most of which is covered by EL25068. It is exposed as a narrow east-west, 50 km long, belt of resistant steeply dipping sandstone ridges with recessive valleys. The group is dominated by sandstone with lesser conglomerate and mudstone units in some formations and contains volcanic rocks of basalt to rhyolite composition and high level intrusive rocks up to 2,500 m thick. The Carrara Range Group rests unconformably on basement units of the Murphy Inlier and, in the project area, is unconformably overlain by the McNamara Group.

In the project area, the McNamara Group is represented by the Drummond and Brumby Formations, the Shady Bore Quartzite, Bullrush Conglomerate, Plain Creek and Lawn Hill Formations. The Drummond Formation sandstone forms resistant ridges and undulating terrain in the Carrara Range and Maloney Creek Inlier in the southern half of the tenement area. In the Maloney Creek Inlier the Drummond Formation is characterised by pink, medium to thick bedded, fine to medium sandstone with reddish mudstone, siltstone and sandstone interbeds. Depositional environment for the Drummond Formation is interpreted to include shallow marine intertidal shoreline and peritidal mudflats. The Brumby Formation consists of siltstone, shale, sandstone and granule conglomerate, laminated and stromatolitic chert, dolostone and chert-clast conglomerate and breccia. The formation outcrops as subdued ridges flanking the more resistant ridges of the underlying Drummond Formation throughout the Carrara Range. It is absent in the Maloney Creek Inlier where the Bullrush Conglomerate unconformably overlies the Drummond Formation. The Shady Bore Quartzite overlies the Brumby Formation throughout the Carrara Range. It consists of a white, thin to thick bedded, fine to medium grained lithic and sublithic sandstone displaying some cross bedding and ripple marks. The Bullrush Conglomerate exhibits a broad range of rock types from massive carbonate interbeds in sandstone and siltstone to matrix and clast supported
pebble and boulder conglomerate. It is overlain by the Plain Creek Formation, consisting of siltstone, shale and several sandstone units, all containing films and veins of manganese iron oxides. The Plain Creek Formation forms a series of ridges and valley in outcrop which distinguish it from the overlying more subdued Lawn Hill Formation, a greyish red to brown micaceous fine to coarse grained sandstone. Thin films and veins of manganese and iron oxides are common throughout the Plain Creek Formation which hosts a number of iron occurrences noted by the NTGS in the Carrara Range.

The South Nicholson Group unconformably overlies the McNamara Group in the Carrara Range region. In the project area it is represented by the siltstone and sandstone of the Crow Formation (Wild Cow Subgroup) and the Accident Sub Group which incorporates the Constance Sandstone at its base and the overlying, recessive shaly Mullera Formation.

Mapping by the NTGS has indicated that extensive iron mobilisation and secondary enrichment has occurred over a strike length of 10 km in the upper part of the Crow Formation north-north east of Mitchiebo Waterhole (formerly Mullera Formation in this area). A sample from one of the iron occurrences in this area returned assay values up to 41.6% Fe2O3. Thirty km along strike to the northeast, in what is now mapped as the Wallis Siltstone Member of the Constance Sandstone, several ironstone beds, up to 7 metres thick outcrop in the southern limb of a syncline. These beds grade into ferruginous sandstone to the west. Although both the Crow Formation and Constance Sandstone ironstone beds are thought to be equivalents to the Train Range Ironstone Member to the east in Queensland where the Constance Range iron deposits are located, they more likely represent separate iron rich horizons lower in the stratigraphic succession.

The Constance Sandstone varies considerably in thickness from less than 100 up to 1000 m in the vicinity of the project area and consists of several members (Table 2). Two facies types dominate the formation, namely thick bedded trough or planar cross bedded quartz rich sandstone and laminated thinly bedded micaceous fine grained sandstone and shale with minor interbeds of shale and coarser sandstone.
The Mullera Formation lies conformably on the Constance Sandstone. The formation is about 400 m thick and composed mostly of shale, siltstone and minor fine to medium grained sandstone. The lower Mullera Formation also contains several ironstone intervals up to 10 m thick which can be correlated to the Train Range Ironstone Member in Queensland.

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Table 2: Stratigraphy.

Near Benmara station homestead, the conformable lower contact of the Mullera Formation with the Constance Sandstone is exposed. It consists of claystone of the Mullera Formation below the base of the of the Middle Creek Sandstone Member and in this area, it is white but changes upward through various shades of purple to deep maroon into a highly ferruginous rock. This dark hematitic rock constitutes the lower ironstone unit in this area, separated by 10 to 20 m of cover from a 4 to 5 m thick upper ironstone bed. These ironstone units are informally referred to as the Benmara Ironstones. Mudstones are notably ferruginous immediately below the Middle Creek Sandstone Member at a number of localities and contain horizons of ironstone concretions.

The Middle Creek Sandstone Member consists of medium to thick beds of silicified sublithic and ferruginous sandstone. It is contains mudclasts and distinctive trough
cross beds in which the laminae are defined by hematitic grains. The hematite is interpreted to be an alteration product of glauconoite grains. Laterally, the thickness and iron content of the Middle Creek Sandstone Member vary markedly and the highly ferruginous beds may be correlated with the Train Range Ironstone Member to the east.

Cambrian formations of the Georgina Basin occur in the southwest and south east corners of the tenement area. In the southwest corner of the project area they comprise Helen Springs Volcanics consisting of basalt, trachyte and minor dolerite and basal quartz sandstone and Wonarah Formation chertified limestone, shale and siltstone and minor phosphorite and basal sandstone. In the southeast corner, they comprise Border Waterhole Formation rocks consisting of siliceous shale, siltstone, cherty limestone, chert, chert breccia and conglomerate, Currant Bush Limestone and Camooweal Dolostone.

Cainozoic deposits formed on the Cretaceous and Proterozoic land surface where the topography is relatively flat, are widespread and include pisolitic and massive ferricrete deposits which have may have formed from ironstone units within the Proterozoic formation described above. Alluvial gravel, sand, silt and clay of Quaternary age are found in active drainage channels.

The structural fabric of the project area is most noticeable in the Carrara Range which exhibits an east to east northeast fabric. Abundant faulting in this orientation juxtaposes Carrara Range, McNamara and South Nicholson Groups and the Georgina Basin is in fault contact with Proterozoic rocks at the southern margin of the Range. The main faults all show northside up displacement. The Maloney Creek Inlier, an elliptical shaped antiform of McNamara Group sediments within the South Nicholson Group, is partly fault bounded.

5. PREVIOUS EXPLORATION

In 1959 the Bureau of Mineral Resources, Geology and Geophysics ("BMR") mapped the Mount Drummond Sheet in which most of the project area is situated. Prior to that time little was known of the geology of the area. Five iron occurrences and ironstone units were noted in the Mullera Formation and other formations of the Bluff Range and Carrara Range in the southern part of the project area. At the time the BMR concluded
that the ironstones might be too rich in silica for industrial value, but stated that a
detailed sampling program was needed to confirm this conclusion. However no exploration for iron ore has been carried out in the project area since that time.

Limited prospecting was carried out principally for base metals, phosphate and uranium during the period from 1958 to 1975 and in 1979, Afmeco Pty Ltd began a concerted exploration effort in the Carrara Range for uranium mineralisation. Afmeco’s work included airborne magnetic and radiometric surveys, geological mapping, stream sediment and rock sampling. Selected uranium channel anomalies, identified from airborne radiometrics were ground checked and sampled. Although the radiometric surveys revealed high uranium and potassium counts coincident with acid volcanics, sampling gave relatively low uranium values with a maximum value of 7 ppm recorded. Lateritic rocks in the northeastern part of the Carrara Range revealed uranium levels up to 10 ppm and ferruginous bodies in the Murphy Metamorphics were anomalous in uranium, copper and lead with maximum values of 140 ppm, 2700 ppm and 385 ppm respectively. Acid volcanics from the area around Mt Drummond gave weakly anomalous lead values to a maximum of 800 ppm. Cellular hematitic ironstone from the Drummond Formation gave values of 260 ppm Cu, 1350 ppm Zn and 95 ppm Co and surficial black ironstone returned up to 985 ppm Cu, and 165 ppm Co. None of the samples were assayed for iron.

In 1980 Afmeco drilled 10 holes on the southern margin of the Carrara Range south and southeast of Mt Drummond, using a multipurpose drilling rig for aircore, percussion and diamond core. All holes were probed for gamma activity. Scintillometer readings were taken of all drill samples and samples showing anomalous radioactivity were analysed for uranium, thorium, phosphorus, copper and lead. In general anomalous values were considered to be confined to superficial accumulations and no further work was carried out.

In 1983 Anaconda Australia Inc. explored the Carrara Range for base metals. Sampling over Drummond Formation showed elevated arsenic and copper values and a highest copper value of 1200 ppm was found in laterite over Carrara Range volcanics proximal to a fault. No further work was recommended and the tenement was relinquished. Between 1983 and 1987, Stockdale Prospecting Limited undertook extensive stream
sediment sampling programs. The program was aimed at testing the area for kimberlite indicator minerals. Limited vehicle and helicopter loam sampling programs were also carried out and some rock sampling by foot traverses for primary source identification was undertaken. Both fixed wing and helicopter aeromagnetic surveys were flown over much of the area to determine the likelihood of a primary diamond source beneath recent sand and soil cover. Several magnetic anomalies detected and were examined on the ground with magnetic surveys and stream and loam sampling. However, results were negative and the tenements were relinquished and exploration efforts focused elsewhere.

During 2001 and 2002 Rio Tinto Exploration Pty Limited explored for stratiform base metal mineralisation in the McNamara Group and for kimberlitic diamond pipes. Exploration consisted of stream sediment sampling, RAB drilling and IP surveying. No near surface indications of large stratiform Pb-Zn deposit were detected in RAB drilling and IP data was monotonously low throughout the area surveyed suggesting an absence of sulphide-bearing shales. It was recommended that no further work be undertaken and the property was relinquished.

Recent work carried out by the NTGS included collecting rock samples for whole rock analysis within the more accessible portions region. Selected isolated samples were taken from a variety of lithologies including a number of ferruginous occurrences. Although some of these samples contained high iron contents, they are not considered to be entirely representative of the geochemistry or iron deposit potential of the identified iron horizons within the area.

5.1 Phosphate Exploration at Highland Plains

In 1968, Australian Geophysical Pty Ltd (AG) undertook extensive phosphate exploration over their Highland Plains prospect with activities including geological mapping, soil sampling, shallow percussion drilling and finally deep rotary percussion drilling. This drilling consisted of 36 holes for 1,184 metres (Figures 3 & 4, Table 3).
Figure 3: Highland Plains Historical Drilling.
Figure 4: Highland Plains Historical Section.
Table 3: Highland Plains Phosphate Project Drill Results Highlights.

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NB: Data includes all holes, bottom cut of 15%, no top cut.

Two major tabular phosphatic zones (Basal and Upper Phosphate Zones) were delineated within the Lower Border Water Hole Formation with narrow discontinuous
phosphatic lenses above and between the two main zones. The Basal Zone was at the base of the Cambrian Border Water Hole formation immediately unconformably overlying the Proterozoic Bluff Range formation.

The Basal Zone reportedly ranged in thickness from 1.5m to 17m with grades ranging from 1.6% to 30% P_2O_5 while the Upper Phosphate Zone ranged in thickness from 1.5m to 11m with grades of 1.6% to 34% P_2O_5. The base of the Upper Phosphate Zone varied between 8m to 17m above the top of the Basal Zone. The phosphate was identified as being of primary origin, occurring as granular pellets of collophane dispersed within friable siltstones and fine-grained sandstones with occasional thin interbeds of chert.

AG observed that all potentially economic phosphatic ore bodies occurred in the Lower Border Waterhole Formation north of the Lancewood Creek fault zone as the Lower Border Waterhole Formation was interpreted as being conformably overlain by Bush Limestone south of the fault zone.

Using a polygonal system assuming uniform tabular phosphorite horizons, AG estimated what they referred to as “indicated and inferred reserves” in long tons. On today’s reporting standards as set out by the Joint Ore Reserve Committee (JORC) AG’s figures represent estimates of in-situ bulk mineralisation as follows, in tonnes (conversion factor of 1 long ton = 1.02 tonnes).

Basal Zone: 44,900,000 tonnes at 20.5% P_2O_5.
Upper Phosphatic Zone: 23,000,000 tonnes at 21.7% P_2O_5.
Basal Zone Extrapolation to Eastern Margin of A to P: 14,800,000 tonnes at 20.5% P_2O_5.
The Total Bulk Mineralisation Estimates: 82,600,000 tonnes at 20% P_2O_5.

Further work was strongly recommended but there is none on record. The AG report also stated that “it is strongly stressed that all calculated reserves are conservative and that a future program of detailed drilling and surveying would considerably increase these.”
5.2 Phosphate Exploration at Alexandria-Alroy-Buchanan Dam

Recorded phosphorite exploration began in 1967 on the Alexandria and Wonarah prospects when IMC Development Corporation (IMC) commenced a drilling program which intersected phosphorite horizons on the margins of the Precambrian.

From the results IMC noted that on the Alexandria Authority the main phosphorite horizon in one drill hole averaged 6.1 m @ 15.6% $\text{P}_2\text{O}_5$ from 48.8 m that includes up to 18% $\text{P}_2\text{O}_5$ in parts. While IMC’s reports indicated that further work was planned, there are no records of further exploration.

In 1968, Pickands Mather and Co International (PMI) commenced reconnaissance drilling program in the Alroy area (A to P 1874) and identified two prospects, Area No1 and Area No2 (since named Buchanan Dam). After limited follow-up drilling, PMI reported thickness and grade averages as follows:

**Alroy Area No 1 (two holes):**
Reported as weakly calcareous to non-calcareous.

Hole A2-2A:
6.1m @ 10.0% $\text{P}_2\text{O}_5$ from 18.3m
Includes - 1.8m @ 14.5% $\text{P}_2\text{O}_5$ from 18.3m
Reported as weakly calcareous to non-calcareous

Hole A-10-70:
6.4m @ 12.0% $\text{P}_2\text{O}_5$ from 16.2m
Includes – 4.6m @ 15.5% $\text{P}_2\text{O}_5$ from 17.4m

**Buchanan Dam (Alroy Area No 2 (one hole)):**
Hole A-12-70
6.1m at 25% $\text{P}_2\text{O}_5$ from 12.2 m.
Reported as carbonate rich
PMI also gave substantial bulk mineralisation estimates which would require far more drilling to meet today’s reporting standards. The higher grade phosphorites were hosted by calcic mudstones and claystones and minor limestone.

In 1971, Minoil Services Pty Ltd (Minoil) completed further broad spaced drilling in the Alroy area (A to P 1874) Area No1 prospect mainly to investigate phosphatic horizons for sedimentary base metal mineralisation.

One hole that had a 3m intersection in “dark shale” recorded the following maximum base metal values: Ag-5 ppm, As-700 ppm, Cd-50 ppm, Co-2000 ppm, Cu-1500 ppm, Mn-17.0%, Pb-8000 ppm and Zn-8000 ppm. No high grade phosphate was intersected in the hole but the interval with the high base metal mineralization also had a high radioactive count. In another hole 800 m to the south, higher than average base metal levels were recorded in the phosphatic zone.

Minoil concluded that the area had the potential for a sedimentary deposit of base metal mineralization but did not deem the phosphorites as requiring further exploration. From the open records, it appears that Minoil conducted no further exploration.

In 1976, ICI Australia Limited (ICI) drilled nine rotary/percussion drill holes for a total of 219.5 m at Alroy on EL 1081 which covered the old PMI Prospecting Authority 1874 (Areas No 1 and 2). Again the drilling was broad spaced with a number of holes being drilled one kilometre away from PMI discovery holes. ICI had difficulty correlating the mineralised horizons and listed three possibilities as to why:

- The high grade material formed in very small depositional basins.
- The high grade material developed in narrow but presently undefined inter-reef channels 0.5-1 km wide.
- That diagenetic concentration has led to local high grade patches, following general leaching from the surrounding siltstones.

From 1976 to 1977, ICI explored the Alexandria area for extensions to the low grade phosphorite deposits located by I.M.C. in 1968-70. Seven rotary/percussion holes were drilled in this zone but only very low grade phosphate was intersected. ICI ceased exploration in 1977
6. CURRENT EXPLORATION RESULTS
The 2008 field trips and the compilation and digitisation of the historic drilling results on Highland Plains have positioned Phosphate Australia to commence resource drilling at the end of 2008. It is expected that this program, in conjunction with metallurgical studies, will allow the calculation and publication of a JORC-complaint resource estimate in early to mid-2009.

![Figure 5: Highland Plains Embayment.](image)

7. 2009 WORK PROGRAM & BUDGET
The three month drilling program (Project Authorisation and Aboriginal Areas Protection Authority Clearance Certificate are copied in Appendices 2 & 3 respectively) with associated metallurgical studies, assay work and resources consultants has a budgeted commitment of $1.5M on Highland Plains. Additionally, a ground based EM survey is
programmed for late September 2009 ($70,000) to help delineate the basement-carbonate interface.

After the receipt of the JORC-complaint resource estimate it is expected that a further drilling program and a bulk sample would be committed to for the mid-2009 field season. Although a budget for this work has not yet been set it is expected that in excess of $1M would be required.
APPENDIX 1

Consultants Report: Prospectivity Analysis
APPENDIX 2

Highland Plains Project Authorisation
Mr Andrew James
Phosphate Australia Limited
PO Box 590
VICTORIA PARK WA 6979

Dear Mr James

RE: Highland Plains Project Authorisation 0445-01

I refer to your application for an Authorisation for the Highland Plains Project under section 35 of the Mining Management Act (MMA).

The application and the supporting Mining Management Plan (MMP) has been reviewed by the Department and the requested security of $15,000.00 has been received (receipt no. 982334). I am pleased to inform you that this MMP and additional information supplied (ref: MDoc2008/2362) is acceptable to the department.

Authorisation 0445-01 has been granted and is attached for your records. Please note that section 39 of the MMA requires that you comply with the Authorisation and pursuant to the Mining Act activities are only to occur on granted tenement. Section 37 (2) of the MMA and Condition 1 of the Authorisation requires that you comply with the activities and commitments contained in the accepted plan.

Pursuant to section 9 of the MMA the operator is responsible for control and management of the site and must maintain an appropriate health, safety and environmental management system for the site (MMA s16(2c)). As per section 18 (1) of the MMA, contractors must comply with the management system for the site.

In addition please note that in accordance with Mining Management Regulations section 3 you are required to provide to the department monthly reports on employment and injuries. This information is to be reported against the project area for which this Authorisation is issued. Please find the relevant forms attached for your reference. Avenues for reporting these requirements are included on these forms.

I trust that your mining operation proves successful. Enquiries regarding this project should now be directed to the Compliance Division who manage ongoing activities. Compliance Division can be contacted on (08) 89996528 or via emailing mineral.info@nt.gov.au if any advice or assistance is required.

Yours sincerely

GILLIAN JAN
Director of Mining and Petroleum Authorisations and Evaluations

August 2008

Originator: K Johnston
Team Leader: G Fairclough
Date: 09/08/2008
NORTHERN TERRITORY OF AUSTRALIA

Mining Management Act

AUTHORISATION 0445-01

TO: Phosphate Australia Limited

I, AILEEN GILLIAN JAN, Director of Mining and Petroleum Authorisations and Evaluations, as delegate of the Minister for Mines and Energy, in pursuance of section 36(1) of the Mining Management Act and with reference to section 37 of the Act, having regard to the matters referred to in section 34 of the Act and being satisfied about the matters referred to in section 36(2) of the Act, grant you this Authorisation to carry out mining activities –

(a) on the mining site known as the Highland Plains Project situated within EL25068 granted under the Mining Act;

(b) for the period of the grant and any renewal of the titles specified under section (a); and

(c) subject to the conditions specified in the Schedule.

Dated 1 AUGUST 2008.

[Signature]

Director of Mining and Petroleum Authorisations and Evaluations
as delegate of the Minister for Mines and Energy
SCHEDULE
CONDITIONS OF AUTHORISATION NUMBER 0445-01

1. Phosphate Australia Limited ("the Operator") must comply with the activities and commitments contained in the current mining management plan in respect of the Highland Plains Project ("Mining Management Plan") as accepted by the Minister.

2. For the purposes of section 41(1) of the Act and subject to clause 3, the intervals at which the Operator must review and amend (if necessary) the Mining Management Plan, and submit an amended Mining Management Plan, are as follows:

   (a) Intervals not exceeding 12 months after the anniversary of the Authorisation; or

   (b) Intervals not exceeding 12 months after a date nominated in writing by the Operator and approved by the Minister.

3. If at any time the Operator proposes to make significant changes to the mining activities or management system on the mining site, the Operator must review and amend the Mining Management Plan and submit the amended Mining Management Plan for acceptance by the Minister.

4. For the purposes of section 43 of the Act the Operator must provide an initial security in the amount of $15,000.00 in the form of an unconditional bank guarantee or cash.
5. The security provided under clause 4 will be reassessed, and may be revised, following each submission of an amended Mining Management Plan for acceptance by the Minister. The Operator must provide the revised security, in the form and amount and on the terms as required.

6. The security referred to in clauses 4 and 5 is to be provided to the Director of Mining and Petroleum Authorisations and Evaluations, Department of Primary Industry, Fisheries and Mines, Darwin NT.

This Authorisation is to be read in conjunction with the Mining Management Act and Mining Management Regulations.
APPENDIX 3

Aboriginal Areas Protection Authority Clearance Certificate
Phosphate Australia Limited
PO Box 500
VICTORIA PARK  WA  6979

Attention: Andrew James

RE: ISSUE OF AUTHORITY CERTIFICATE FOR PART OF EL 25068

I refer to your application for Authority Certificate received on the 15th May 2008 for the above location.

Accordingly, under the powers delegated to me under Section 19 of the Northern Territory Aboriginal Sacred Sites Act 1989 I am pleased to issue the attached Authority Certificate.

Please read carefully the conditions outlined in the Certificate. In particular, you should note that it has been issued for an indefinite period of time, providing that the works covered by the Certificate start within the period stipulated in condition 3.

You should also note that the Authority has issued you with two identical copies of digitised maps attached. One copy should be retained with your original Certificate. The second is supplied for use by contractors to avoid unnecessary photocopying of a colour coded document.

Please note that the cost of this Authority Certificate will be $11970.00 and an invoice will be issued to you by the Department of Corporate and Information Services (DCIS). The terms and conditions of the invoice will require you to make payment within 30 days of receipt.

If you have any further queries regarding this Authority Certificate please contact Gareth Lewis on 89814700.

Yours faithfully,

DR BEN SCAMBARY
Chief Executive Officer

1st September 2008
ABORIGINAL AREAS PROTECTION AUTHORITY

AUTHORITY CERTIFICATE

Issued in accordance with Section 22 of the Northern Territory Aboriginal Sacred Sites Act 1989

REFERENCE: D89/199; 89/1203 (Doc: 63267) C2008/176

APPLICANT: Phosphate Australia Limited
PO Box 590
VICTORIA PARK WA 6979

SUBJECT LAND: Part of Exploration Licence EL 25068, as shown on the map which is annexure 'A' hereto.

PROPOSED WORK OR USE: Mineral exploration activities including drilling

CONDITIONS:

1. The applicant shall ensure that the conditions of this Certificate are included in any subsequent contract or tender documents for the works or use described herein.

2. The applicant shall ensure any agent, contractor or employee is aware of the conditions of this Certificate and the obligations of all persons (who enter on, or carry out works or use land on which there is a sacred site) under Part IV of the Northern Territory Aboriginal Sacred Sites Act 1989.

3. This Certificate shall lapse and be null and void if the works in question or the proposed use is not commenced within 24 months of this Certificate.

4. The applicant shall ensure any agent, contractor or employee is aware of the content of section 40(1) of the Northern Territory Aboriginal Sacred Sites Act 1989 which provides that this Certificate does not negate the need for consent, approval or permission for the subject works or use of the land which may be required under another statute.

5. Works of any kind including access, usage of water or camping are not permitted within Restricted Works Area 1 associated with sacred site 6460-05 as shown on the map which is annexure 'A' hereto.

6. Works of any kind including access, usage of water or camping are not permitted within Restricted Works Area 2 associated with sacred site 6460-07 as shown on the map which is annexure 'A' hereto.

7. The applicant shall notify Aboriginal custodian Mr Jack Hogan (via mobile telephone 0447791110) regarding the commencement of works.

The COMMON SEAL of the
ABORIGINAL AREAS PROTECTION AUTHORITY
was hereto affixed on the 1st day of September 2008

DR BEN SCAMBARY
Chief Executive Officer