

**Piper Preston Pty Ltd**  
**(Wholly owned subsidiary of Wildhorse Energy Ltd)**

**Annual Report**

**EL 29787**

**For the Period**  
**08 July 2014 to 07 July 2015**

## Title Page

**Name of Title Holder:** Piper Preston Pty Ltd

**Name of Project Operator:** Wildhorse Energy Pty

**Report Title:** EL29787 "Lake Lewis" Annual Report for the period 08 July 2014 to 07 July 2015

**Reporting Period:** 08 July 2014 to 07 July 2015

**Project Name:** Lake Lewis Project, Northern Territory

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**Target Commodities:** Sulphate of Potash (SOP); Sulphate of Potassium Magnesia (SOPM); Sulphate of Magnesia (Epsomite)

**Ref. Map Sheets:**  
**1:100,000:** Mount Wedge (5352); Napperby (5452)  
**1:250,000:** NAPPERBY (SF 53-9)

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## Abstract

Lake Lewis Project, incorporating the EL 29787, is situated about 200 km west-northwest of Alice Springs on the NAPPERBY 1:250,000 Geological Series Map Sheet, SF 53-9 map sheet. The EL 29787 is comprised of 48 blocks and was granted on July 8<sup>th</sup> 2013 to Piper Preston Pty Ltd (now a wholly-owned subsidiary of Wildhorse Energy Ltd). The prime commodity sought is Sulphate of Potash (SOP); however, as this mineral does not naturally or directly crystallise from salt lake brines the exploration rationale is based on systematic exploration, evaluation and confirmation of replenishable brine resources contained in the tenement proper, prior to mineral process engineering evaluations and establishment of recoverable SOP from mineral brine resources. As the definition of groundwater recharge capacity of the lake is a prime importance for mineral brine resource evaluations, work carried out by the Company on the EL 29787 during this reporting period was primarily focused on a data review.

## Copyright

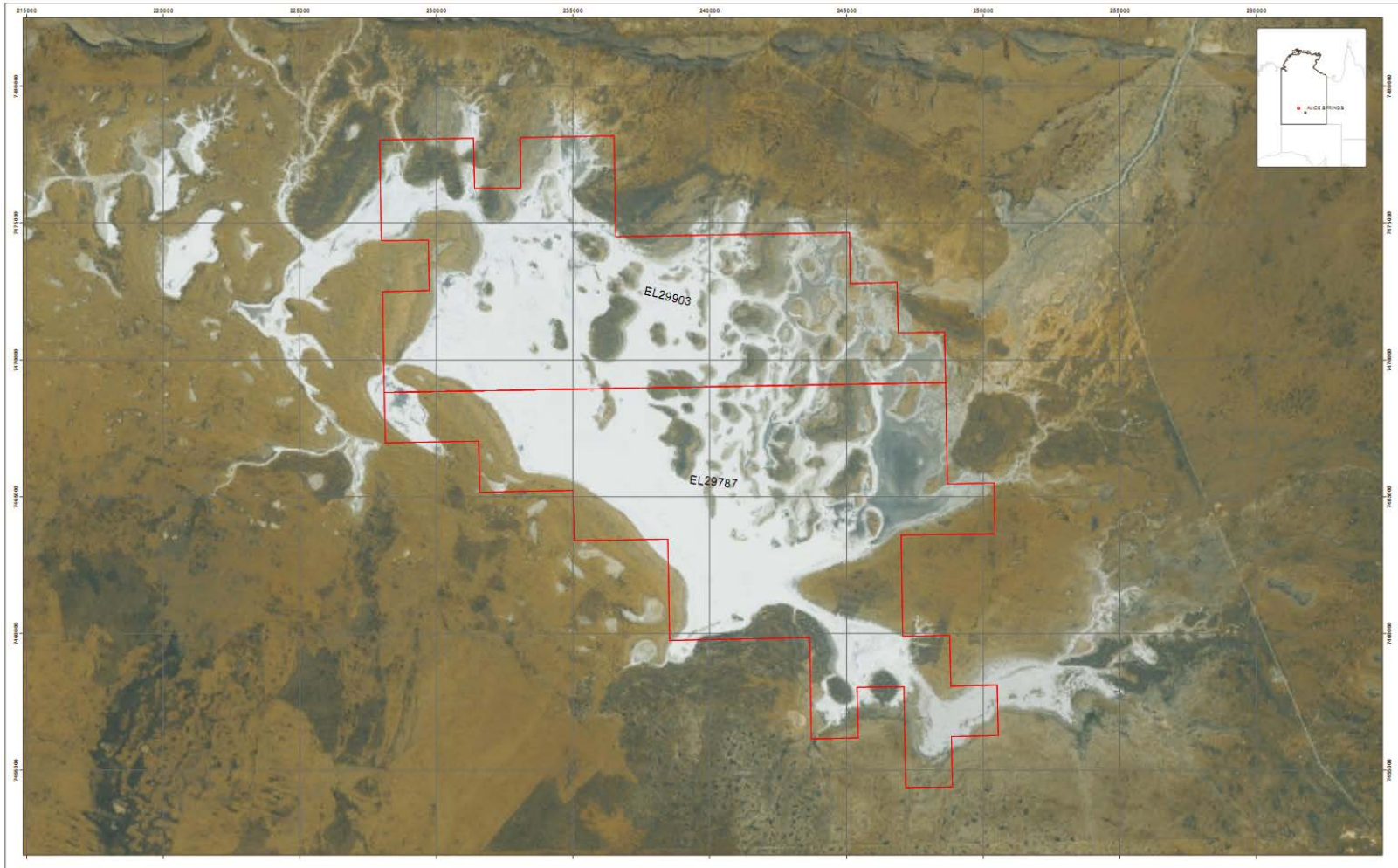
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## Introduction

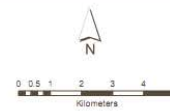
This report documents exploration activities carried out by Wildhorse Energy Ltd (WHE) on EL 29787 during the period 8 July 2014 to 7 July 2015. Title to the EL is held by Piper Preston Pty Ltd, a wholly owned subsidiary of WHE. The Lake Lewis Project, incorporating the EL 29787, is situated about 200 km west-northwest of Alice Springs on the NAPPERBY 1:250,000 Geological Series Map Sheet, SF 53-9 map sheet and the 1:100 000 Nappery and Mount Wedge map sheets (Figure 1).

The prime commodity sought is Sulphate of Potash (SOP). Considering that SOP does not naturally or directly crystallise from salt lake brines and requires evaporation of salt lakes brines for the production of intermediate salt (Sulphate of Potassium Magnesia, SOPM) followed by mineral processing and conversion step, and target resources are mineral brines in the in the playa sediments of the Lake Lewis. Accordingly the exploration objective is to assess mineral brine resources of the EL for production of SOP. This requires successive stages of geological and hydrological evaluations and mineral processing studies leading to establishment of the feasibility of commercial production of SOP and associated salt minerals from brine resources identified in the tenement areas. This report provides an outline work exploration work completed during the reporting period and summary outcomes and follow up work planned for more advance exploration work in the EL area.



**Lake Lewis Project**  
**Tenement Map**  
 EL29787 & EL29903

**Legend**  
 Wildhorse Energy Tenements



Scale (A3): 1:125,000  
 Datum: Geocentric Datum of Australia 1994  
 Projection: Map Grid Australia, Zone 53  
 Drawn by: Justine Hodgins  
 Checked by: Justine Hodgins  
 Date: 03/08/2015  
 File: WHE\_Lake Lewis\_P1\_RevA\_Tenement Map.mxd

**Figure 1 Location of the Lake Lewis Project EL29787**

## Tenure History

EL 29787 is comprised of 48 blocks and was granted on 8<sup>th</sup> July 2013 to Piper Preston Pty Ltd - now a wholly-owned subsidiary of Wildhorse Energy Ltd.

Tenement Number	Holder	Related Party	Granted	Area (Blocks)
EL 29787	Piper Preston Pty Ltd	Australia Salt Lake Potash Pty Ltd	8/07/2013	48 Blocks

**Table 1 Lake Lewis EL 29787 Tenure Details**

The tenement has entered its second year of grant. An application to waiver reduction requirements was lodged with the Department of Mines and Energy on 17 June 2015.

## Location, Physiography and Access

The Lake Lewis Potash Project (EL 29787) is located a lake Lewis approximately 160km west-northwest of Alice Springs.

Access to the project is via road north from Alice Springs on the Stuart Highway and west on the Tanami Road. The Tanami Road passes directly north of Lake Lewis. The two nearest runways are located at Tilmouth Well Roadhouse and Mount Wedge Airport.

Access is prohibited to areas that have special significance to the traditional owners these sites include Wirrbrandt Rock (South of lake) parts of Stuart Bluff Range and an area to the south of Mr Chapple around Woody Bore.

The physiography of the project is dominated by the Lake Lewis playa and its surrounding lacustrine plain, broad alluvial plains, mountain ranges and inselbergs surrounding the lake.



**Figure 2 Access to Lake Lewis**

## Geological and Hydrogeological Setting

Lake Lewis is a large hydrologically closed intermontane basin, situated about 200 km west-northwest of City of Alice Springs in the Northern Territory. The basin has a catchment area of 14,075km<sup>2</sup> and was developed during the Cainozoic Era (English, 2001). It overlies and is surrounded by geologic units of the Lower Proterozoic Arunta Complex and the Late Proterozoic –Palaeozoic Amadeus and Ngalia basin successions. Basement outcrops in the Lake Lewis area are commonly excellent as a result of the steep nature and resulting high relief of the mountain ranges, consequently, the geology of the region encompassing Lake Lewis has been well mapped.



According to Australian government seismic surveys the depth to the basement beneath Lake Lewis ranges between 30m and 80m, and geological literature and exploration reports point to up to 200m of Cainozoic sedimentation in the southern part of the basin. Mineral exploration drilling records indicate that the drainage channels incised into the Tertiary sands and palaeosols are filled in with Quaternary fluvial and lacustrine sediments. With the onset of a major phase of aridity, the drainages in the region, including that of Lake Lewis progressively contracted and silted up, eventually giving way to the development of internal drainage system (Arakel, 1986).

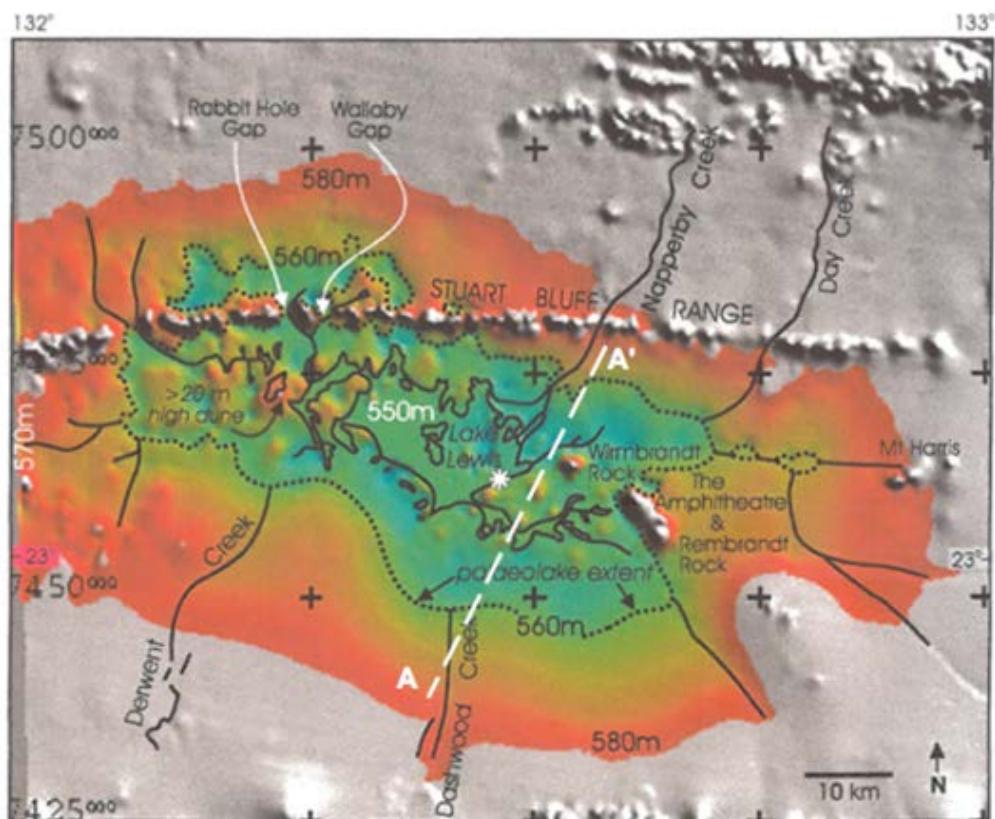


Figure 3 DEM of Lake Lewis basin showing playa (solid black) and 560m topographic contour (English2001)

## Work Completed

During the reporting period WHE undertook a data review of the project. Additional time has been spent planning future exploration activities focusing on a mapping and a water sampling program. This information has been prepared in preparation of lodgment of the AAPA.

## General Observations and Recommendations

Lake Lewis is one of the few Australian salt lakes that is known as an “amplifier lake” system where in the hydrological balance in the lake playa system is primarily controlled by a continuous aquifer recharge. The continuity of recharge is most probably because of the lake’s high catchment/lake area ratio and the physiographic setting as reflected in the characteristic centripetal groundwater flow pattern, towards the lake’s central depression (Geoscience Australia, 2013).

The closed hydrological setting of the lake, together with significant recharge capacity and elevated concentration of potassium, magnesium and sulphate elements in the lake’s brine pool collectively point to the high prospectivity of the Lake Lewis Project and thus warrant for detailed follow-up field investigations, exploratory drilling and experimental evaporation trials.

A systematic exploration program is planned and recommended for implementation, subject to securing APPA permit. Work will involve systematic geological mapping and a grid-based pit water sampling campaign to evaluate the lateral extent and chemistry of near surface brine field identified in the Lake Lewis playa lake, in the exploration license areas. Water samples collected will be analysed by an independent external laboratory and results used in the follow up desktop hydro-chemical modeling and preparation of scientific reports by WHE’s technical team.

## References

Arakel, A.V., 1986. Evolution of calcrete in palaeodrainages of the Lake Napperby area, Central Australia. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 54, 1283-303.

English, P. (2001). Cainozoic evolution and hydrogeology of Lake Lewis Basin, central Australia. PhD Thesis, Australia National University

Geoscience Australia (2013). A Review of Australian Salt Lakes and Assessment of their Potential for Strategic Resources. Record 2013/39.