Development Zone: New Pilbara North Iron

Name: New Pilbara North

Number: 1100

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Disclaimer

This research is designed to highlight prospective locations of space resources, that can be registered by select clients via our Lunar Resources Registrations as a Service Platform, and included in our Public Registry.

Resources Profile

Mare basalts have the biggest potential of hosting iron. The concentration of iron in the regolith is on average 15 wt% (the maximum measured was 17 wt%). Native iron in the regolith is usually in the form of grains of 1 – 100 μm size and is found in all lunar breccias. The source of the metal iron is usually other than from the lunar rocks – possibly from asteroidal meteorites. This type of iron consists of alloys containing several percent of nickel and some cobalt.

There are several potential ways of extracting iron from the lunar regolith. It can be produced e.g. during the process of hydrogen reduction of ilmenite, which will produce metallic iron, but also titanium oxide, which would require further processing. Another way would require using a magnet which would allow the meteoritic metals to be extracted from the regolith. There is also an idea to extract lunar iron microbially with use of self – reproducing bacteria Shewanella oneidensis. Finally, another method could be electrolysis of molten silicates.

Further reading:

1. https://www.biorxiv.org/content/10.1101/2020.11.15.382614v1.full
2. https://www.lpi.usra.edu/meetings/lpsc2013/pdf/2276.pdf
3. https://www.lpi.usra.edu/publications/books/lunar_bases/LSBchapter07.pdf
4. “Lunar Minerals”, James Papike, Lawrence Taylor, Steven Simon, 2012

New Pilbara North (NPN) is named after the Pilbar region in Western Australia, an area rich in iron ore.

NPN is located in Mare Serenitatis, the Sea of Serenity.

NPN is one of a few distinct locations in the Sea of Serenity where an asteroid or meteorite has impacted, and dispersed thick layers of sub-surface material around the crater.

NPN has been separated into 80 individual Registrations. The easter side, nearer to the crater, have a thicker layer of crater ejecta.

We infer these as high value locations.

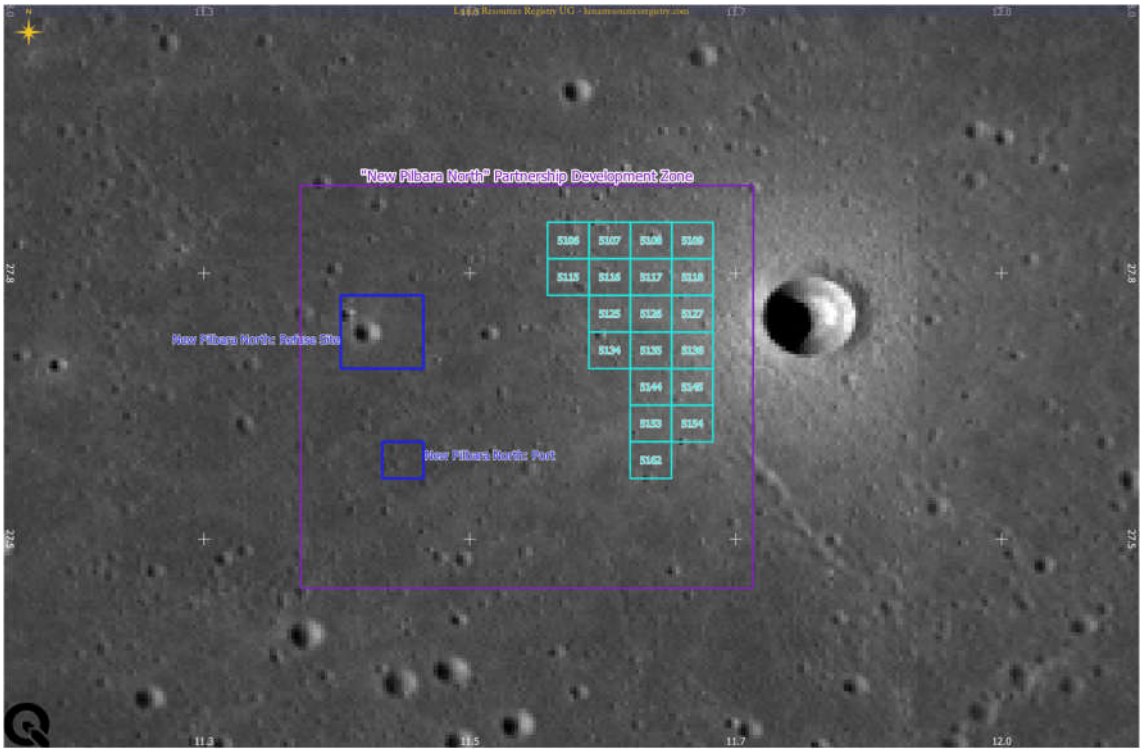
Registration Development Status

Lunar Resources Registry and Lunar Station Corp have signed a Partnership Agreement to provide Registrations to selected clients in relation to this Development Zone.

Select Registrations

These Registrations are on the website:

https://lunarresourcesregistry.com/development-zones/new-pilbara-resources-site-iron/



Type	Overview
	Qty: 18 Potential Iron Resources Registrations Registrations plots, 1km²

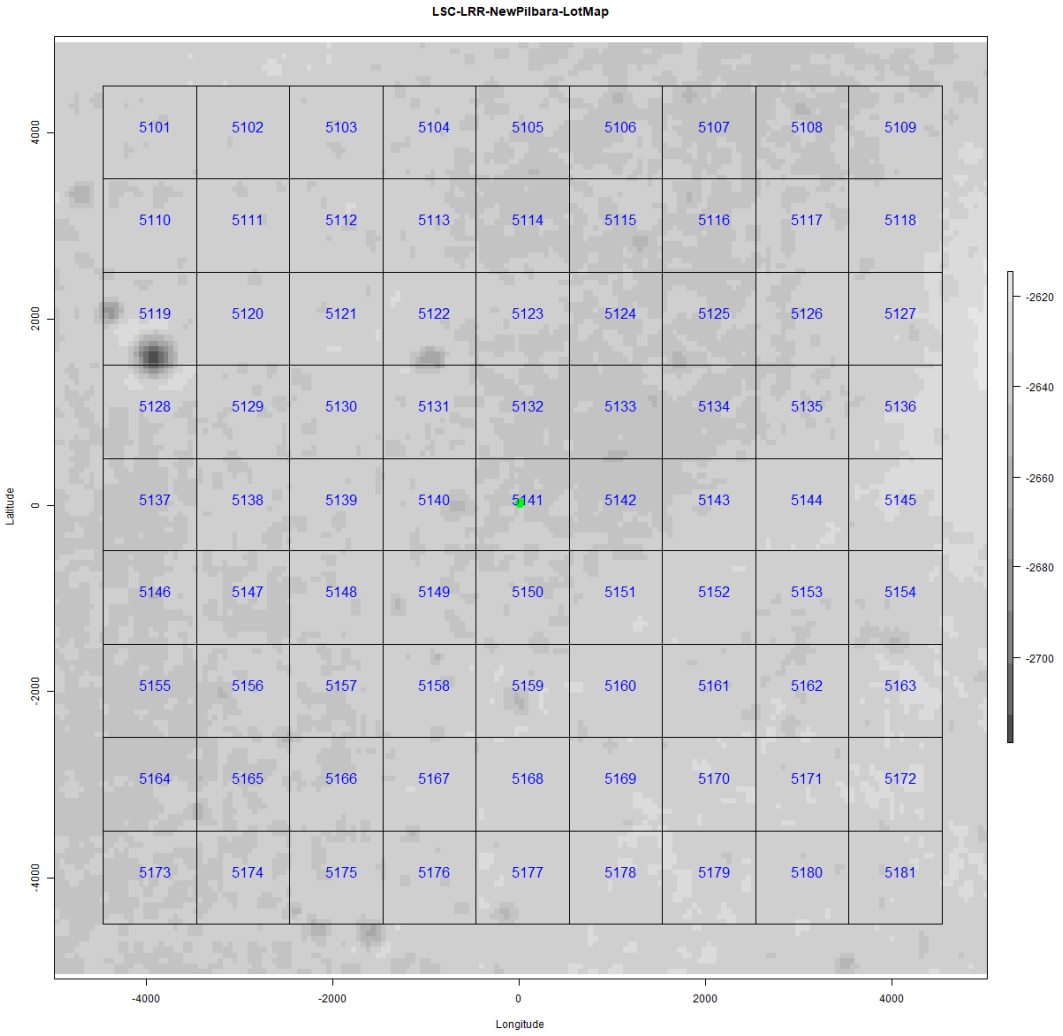
	Qty: 2 1 x Crater as a Refuse Site (West) – 1 x 16km^2 1 x Port Facility (South) – 1 x 1km^2

Registrations Available

Registrations plots, 1km^2

Source: Lunar Station - https://lunarstation.space/

Qty: 80



Maps

NPN with Base Map. Source: LRR