PILBARA MINERALS
LIMITED

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QUARTERLY ACTIVITIES REPORT: QUARTER ENDED 30 SEPTEMBER 2011

HIGHLIGHTS

- Reconnaissance geological mapping and geochemical sampling carried out over an area of exposed Archaean mafic and ultramafic rocks in exploration licence E47/1097.
- Geological mapping shows that VTEM anomaly PMVA 4 corelates directly with a carbonated, locally banded ultramafic body. This appears to be a potentially mineralised tectonically dissected layered intrusion that probably extends at least 2,000m northeastward to VTEM anomaly PMVA 5.
- Pilbara has obtained sole access to proprietary geological mapping of the Fortescue Group and is using this database to develop exploration targets in major igneous complexes of the Fortescue Group.

CORPORATE

TENEMENTS (refer Figure 1, attached)

Subsequent to surrenders made during this August 2011 quarter, Pilbara Minerals Limited holds 100% interests in 12 granted exploration licences totalling 380 blocks (approximately 1,216 km^2) in the West Pilbara Mining District, northwestern Western Australia.

The Company is the 100% applicant for three exploration licences in the same district; in December 2010, Application for Exploration Licence 47/2261 was recommended for granting. This application (area 41.7 km^2) includes a 3.5 km section of the eastern extension of the magnetic feature associated with the Mount Oscar iron deposit.

EXPLORATION ACTIVITIES

WEST PILBARA PROJECT (W.A.)

Geological Survey of exposed Archaean rocks with associated VTEM Anomalies

During September, reconnaissance geological mapping and geochemical sampling was carried out over the Archaean greenstone sequence that hosts VTEM anomalies PMVA 4 and 5. This area is in the southern part of exploration licence E47/1097 and located approximately 30km north of Pannawonica township. This 5 km^2 area of Archaean rocks is exposed through a window in overlying basalts of the lower Fortescue Group (see Figure 2).

Recent geological mapping shows that the PMVA 4 area comprises strongly deformed Archaean mafic to ultramafic rocks that are inferred to extend northeastward under Fortescue River alluvium to

the area of PMVA 5. A sequence of metabasalt and lesser metasediment was intruded by granite, then intruded by a layered mafic to ultramafic body which was subsequently deformed and tectonically segmented. Quartz veins occupy late-stage shears.

The SPM interpretation notwithstanding, the PMVA 4 VTEM anomaly coincides directly with a carbonated, locally banded ultramafic body. This appears to be a potentially mineralised tectonically dissected layered intrusion that probably extends at least 2,000m northeastward to VTEM anomaly PMVA 5.

A total of 28 stream sediment samples were collected within the Archaean window, together with rock samples for PGM and Au analysis; geochemical analysis results are awaited.

Assessment of Airborne VTEM Geophysical Anomalies

During this quarter, a further three anomalies that had been selected for ground EM surveys were reviewed geophysically and rejected as survey artefacts arising from supraparamagnetism (SPM) caused largely by the VTEM loop being too close to the ground in semi-rugged terrain.

Geological interpretation of a number of other VTEM anomalies suggest that primarily, VTEM contoured plans pick out major bedrock lithologies, particularly basal Fortescue Group units.

Several low order VTEM anomalies considered of potential geological interest were rejected on geophysical grounds as the result of SPM effects.

The conclusion drawn from of this programme of ground surveys, geological appraisals and further geophysical interpretation is that the helicopter-borne VTEM survey has been ineffective in locating potential mineralisation in Archaean rocks underlying the sub-horizontal Fortescue Group cover sequence. In general, the VTEM survey appears not to have penetrated into Archaean basement to any worthwhile extent. Geologically, this is due in part to the regional extent of the slightly to moderately conductive sediments that occur at the base of the Fortescue. As well, the survey frequently encountered areas where parasupramagnetism generated apparently spurious geophysical anomalies.

New Target Concepts and Geological - Geophysical Interpretations

The Company is progressing its interpretation of proprietary un-published geological information relating to the Fortescue Group rocks of the Pilbara region.

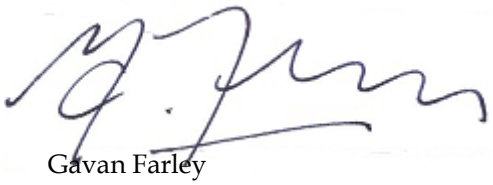
New and developing geological insights into the Fortescue Group, are being integrated with the Company's proprietary multi-source geophysical survey data. There is excellent potential to generate a second set of economically significant base and precious metal exploration targets within the existing tenement package.

NEW PROJECTS

Pilbara continues to seek to acquire interests in mineral projects having good prospects for near-term development. This would support and complement the Company's greenfields exploration programmes in the Pilbara Region.

The Company continues to receive and appraise a range of offerings from a variety of sources both local and international.

At this time, Pilbara's principal commodity focus is on base metals, particularly copper, and gold-silver. Regions of significant interest include Western Australia, South America and southern Africa.



Gavan Farley
Director

The information pertaining to the technical content of this announcement has been compiled by Robert (Bob) Adamson, B.Sc., M.Sc. (Hons Geol), MAusIMM, CP (Geo). Mr Adamson is the principal of Robert G Adamson Consultants and a director of Pilbara Minerals Limited and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the December 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (The JORC Code). Mr. Adamson consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

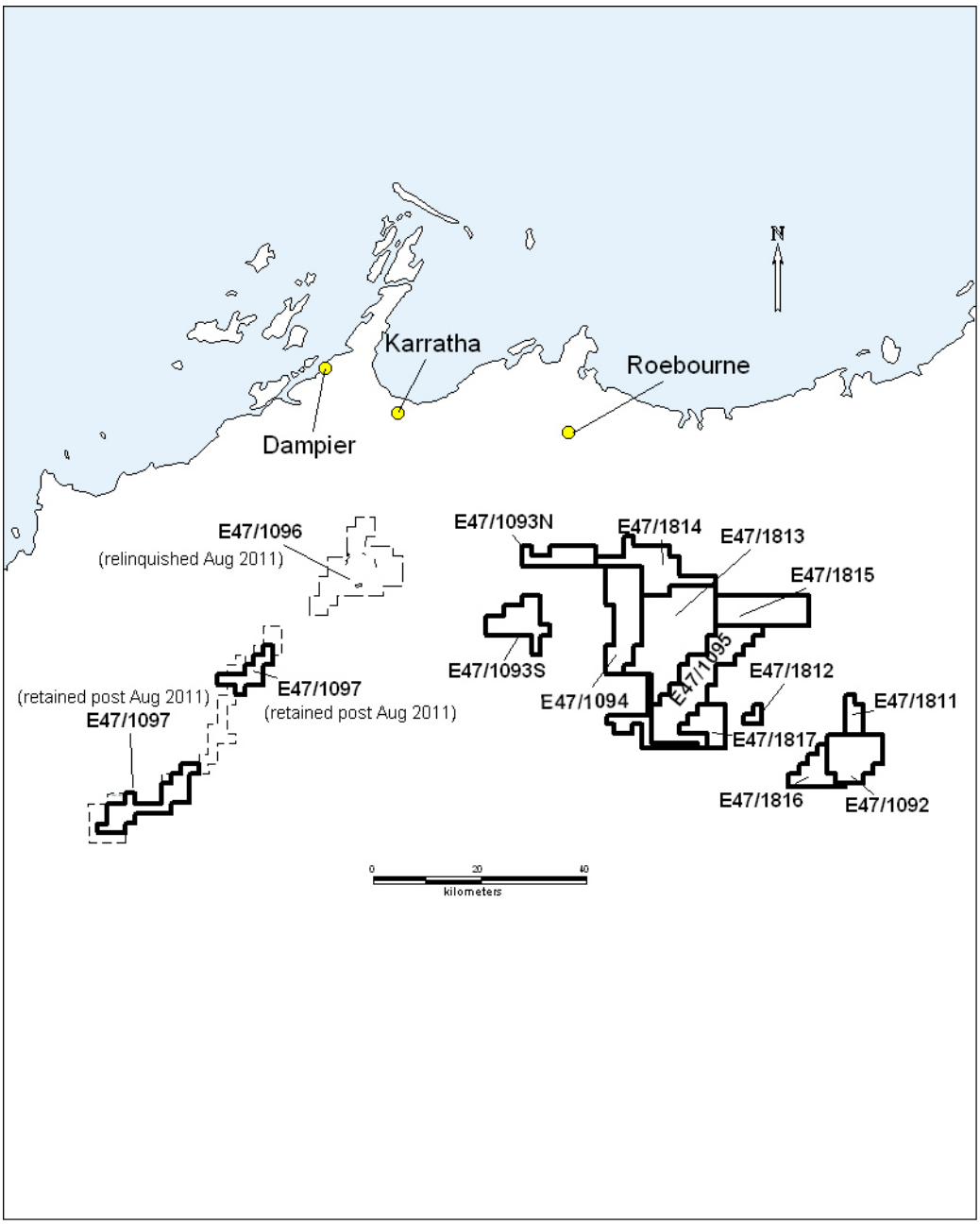

N
Karratha
Roebourne
Dampier
E47/1096
(relinquished Aug 2011)
E47/1093N
E47/1814
E47/1813
E47/1815
E47/1093S
E47/1095
E47/1812
E47/1094
E47/1811
E47/1817
E47/1816
E47/1092
(retained post Aug 2011)
E47/1097
(retained post Aug 2011)
E47/1097
0
20
40
kilometers

FIGURE 1

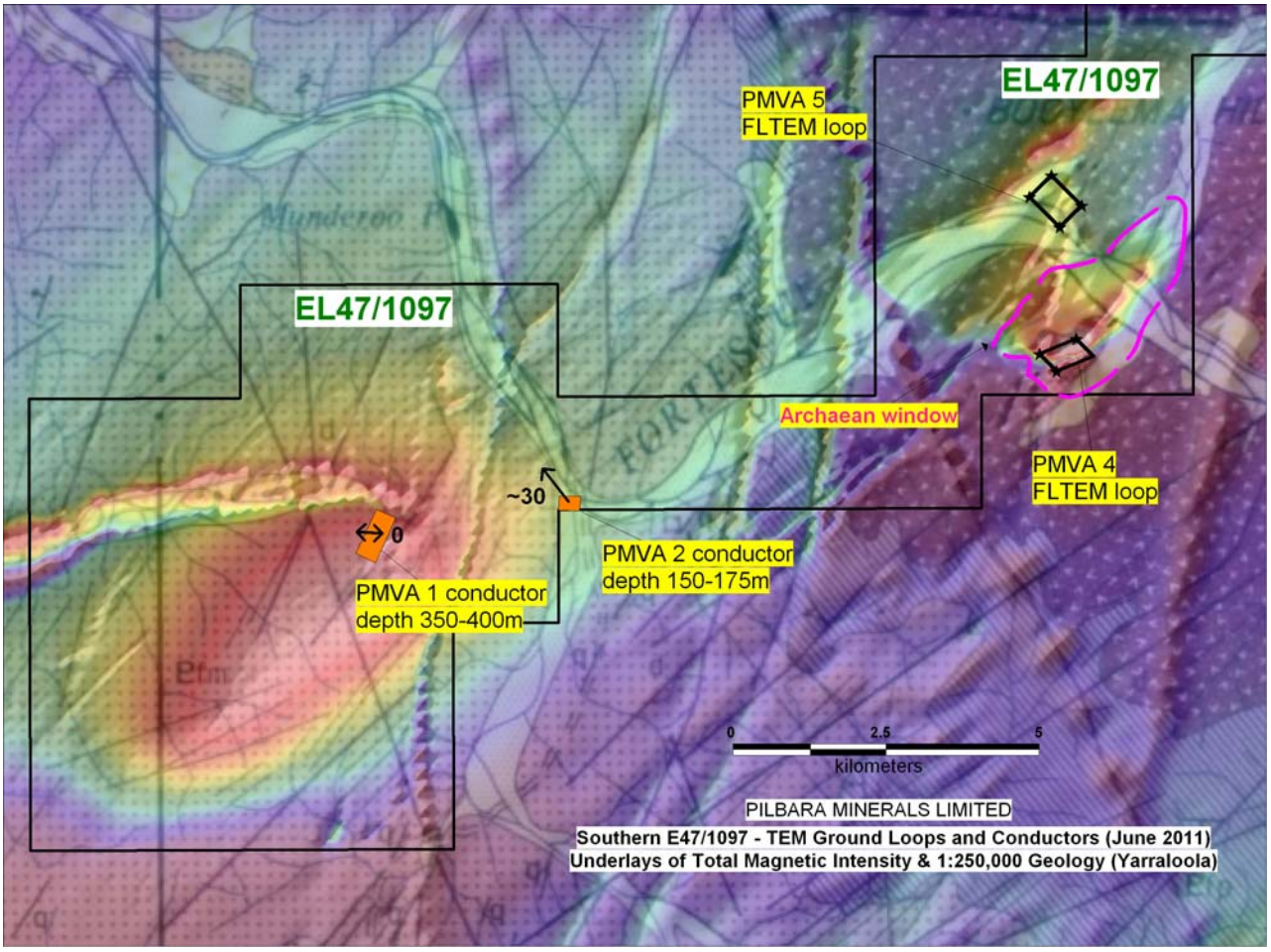

EL47/1097
PMVA 5
FLTEM loop
EL47/1097
Archaean window
PMVA 4
FLTEM loop
~30
0
PMVA 2 conductor
depth 150-175m
PMVA 1 conductor
depth 350-400m
0
2.5
5
kilometers
PILBARA MINERALS LIMITED
Southern E47/1097 - TEM Ground Loops and Conductors (June 2011)
Underlays of Total Magnetic Intensity & 1:250,000 Geology (Yarraloola)

FIGURE 2