

Honeymoon Well Nickel Project

by

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Introduction

The Honeymoon Well Nickel Project is located at the northern end of the Agnew–Wiluna greenstone belt, about 45 km south of Wiluna (Fig. 1). This portion of the belt hosts significant nickel and gold mineralization, including the Mount Keith, Cosmos, Perseverance, and Six Mile nickel deposits, and the Wiluna gold deposits. Mineralization at Honeymoon Well was first identified in the early 1970s, and subsequent resource evaluation by CRA from that period to the late 1990s led to the definition of five disseminated deposits and one associated massive sulfide deposit.

Ownership

The Honeymoon Well tenements were recently acquired by MPI Nickel Pty Ltd, is a joint venture between MPI Mines Ltd (80%) and the OM Group (20%), which owns and operates the Cawse Laterite Project. MPI Nickel also operates the Black Swan nickel mine northeast of Kalgoorlie. The company has established access to the contiguous Albion Downs and Honeymoon Well tenements in the Wiluna region, which comprise a 43 km strike length of the Agnew–Wiluna greenstone belt. Drilling activity commenced in September 2003, and included exploration and resource drill evaluation of massive sulfide deposits in conjunction with re-evaluation of all previous disseminated sulfide studies. Scope exists for depth extensions to existing resources, as well as discovery of new massive sulfide mineralization.

The previous owners of the Honeymoon Well project established an endowment of more than 1 Mt of nickel contained within four major disseminated deposits over a total strike length of 12 km. They committed some A\$60 million on exploration and feasibility work to establish this endowment, using data from over 800 drillholes.

The 2004 program at Honeymoon Well includes A\$5 million on exploration and A\$3 million on feasibility studies. Most of this expenditure is focused on Wedgetail, with continuing exploration for further massive sulfide

resources at Harrier and elsewhere along the contact zone. Exploration targets within the Honeymoon Well ultramafic rocks have been defined, and will be explored by surface and downhole electromagnetic (EM) surveys, and follow-up drilling.

Geological setting

In the Honeymoon Well project area, the greenstone belt is some 6–7 km wide and contains an ultramafic sequence varying up to 3.0 km in width. The sequence contains a complex suite of metamorphosed and structurally modified komatiites similar to the Mount Keith sequence and comprising olivine orthocumulates, mesocumulates, and adcumulates, and spinifex-textured rocks.

There is minimal outcrop in the project area, and early exploration was achieved by ground magnetometer surveys combined with shallow rotary percussion drilling to depths of 30 m. Multi-element geochemistry from drill samples provided an important tool for geological and mineralization discrimination. Early drilling programs initially planned to test the entire extent of the ultramafic body but, reportedly on the basis of early results combined with the discovery of the Perseverance deposit at Agnew, the program was modified to focus on the margins of the body.

Over the life of the project, diverse geophysical techniques have been used to help identify geological and mineralization boundaries, with mixed success. Detailed aeromagnetic imagery has been particularly useful for the broad-scale identification and targeting of footwall ultramafic positions. However, the use of traditional surface electrical geophysical methods such as transient EM (TEM) has been hindered by geophysically noisy cover materials, and saline groundwater within the saprock profile, at least over parts of the tenement area.

The ultramafic succession at Honeymoon Well has undergone multiple phases of deformation to result in the present arrangement, whereby a mainly thin-flow mineralised sequence is distributed around the periphery of a volumetrically larger and unmineralized dunite. The overall geometry is reminiscent of a south-plunging synform that has been complicated by thrust repetition and later strike faulting.

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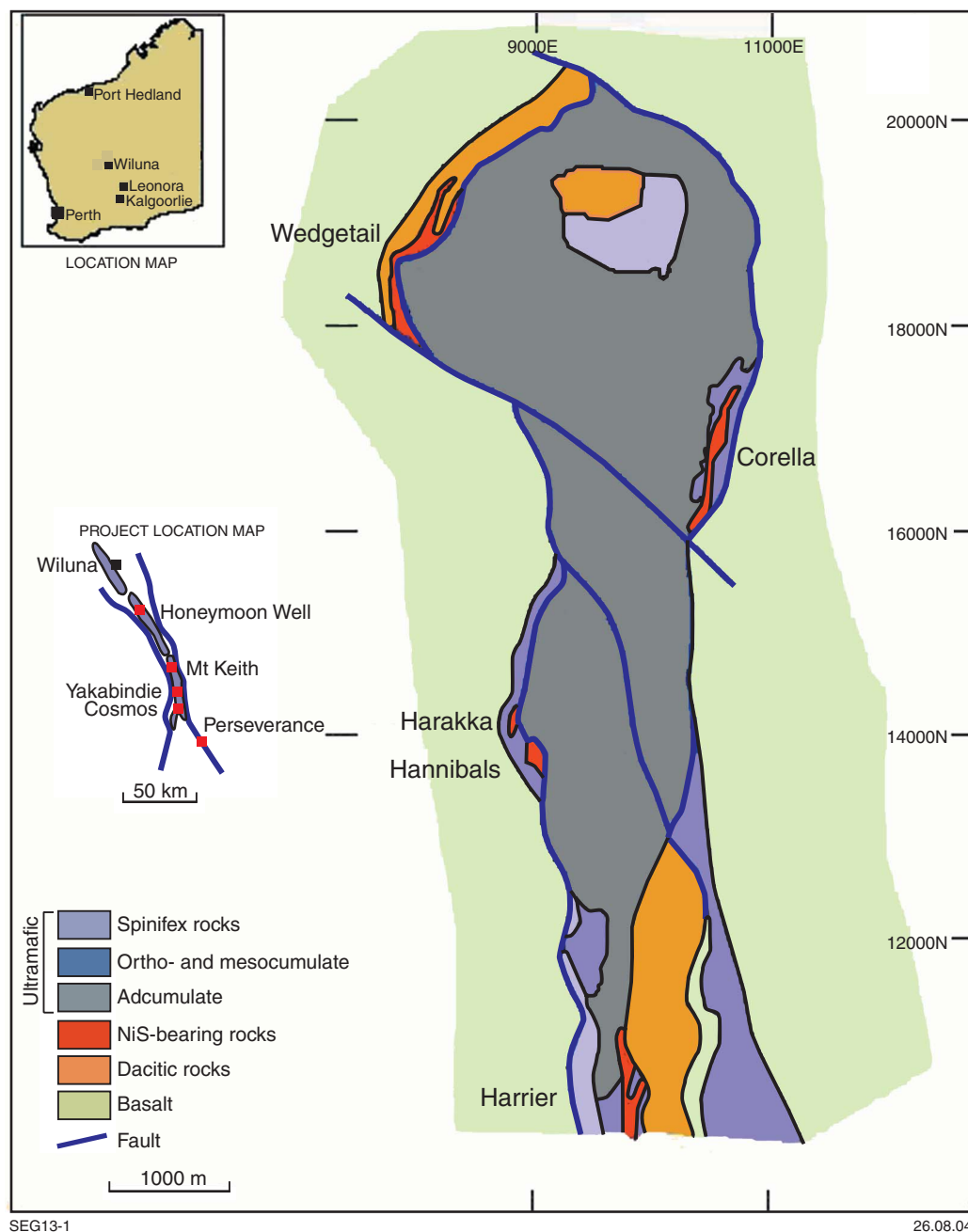


Figure 1. Location and geology of the Honeymoon Well project (local grid)

The surrounding rocks are dominantly andesitic to dacitic volcanic and volcanoclastic units separated by thin black shale and reworked volcanosedimentary horizons. The sequence has been intruded by dolerite, gabbro, and, locally, felsic dykes and sills.

All rocks have undergone lower greenschist facies regional metamorphism. Ultramafic rocks preserve evidence of sea-floor metasomatic processes, and local talc–carbonate–magnesite alteration along structures. In places, surrounding felsic volcanic rocks have focused a later gold-related silica–sericite–pyrite–arsenopyrite alteration event.

The ultramafic package generally dips steeply to the east and facing directions, documented in spinifex-textured

komatiite flows, are generally to the west, suggesting that much of the belt is overturned. At the Wedgetail deposit, facing within the mineralized flow package is clearly to the west and, therefore, presents an intriguing and much-discussed spatial relationship with the massive sulfide distributed along the adjacent western felsic contact.

Mineralization

Nickel mineralization comprises mainly disseminated sulfides and lesser massive sulfide occurrences, in addition to extensive laterite deposits developed over many of the ultramafic rocks. Most of the previous drilling programs were testing for disseminated sulfides suitable for open

Table 1 Mineral resources as outlined by previous owners in 1995 feasibility study document

	Million tonnes	Ni %	Ni tonnes
Indicated Mineral Resources			
Hannibals	27.1	0.77	—
Harrier	37.5	0.65	—
Wedgetail	23.4	1.06	—
Corella	43.1	0.65	—
Total Indicated Resources	131.5	0.75	986 000
Inferred Mineral Resources			
Harraka	3.7	0.8	—
Total Inferred Resources	3.7	0.8	30 000

pit mining, similar to the Mount Keith deposit. As such, deeper drilling to test extensions to the mineralizing systems has not been systematically carried out. The mineralogy of the nickel sulfides is mainly pentlandite, with lesser amounts of millerite, violarite, and heazlewoodite.

Disseminated mineralization has been outlined in four main deposits — Hannibals, Harakka, Harrier, Corella, and Wedgetail. Economic studies by previous owners outlined a total Indicated Mineral Resource of 132 Mt at 0.75% Ni using a 0.5% cutoff (Table 1). Recent drilling by MPI Nickel has defined a separate massive sulfide resource at Wedgetail comprising Indicated and Inferred

Mineral Resources of >1 Mt at 6.9% Ni. A feasibility study of the Wedgetail resource is ongoing.

Exploration

Exploration activity aims to infill and extend the Wedgetail massive sulfide resource, as well as explore for new sulfide targets elsewhere in the tenements.

The massive sulfide resource definition drill program at Wedgetail is targeted at defining an Indicated Mineral Resource to support a final feasibility study for a potential underground operation. Good lateral continuity has been demonstrated within several subhorizontal, massive sulfide channel horizons. Additional, structurally modified, high nickel tenor sulfide accumulations are developed locally along the channel flanks.

Some of the better results include 5.3 m at 10.12% Ni in 04HWD880; 9.7 m at 5.50% Ni in 04HWD890; 7.7 m at 5.54% Ni in 04HWD902; and 6.0 m at 9.43% Ni in 04HWD904. Significant mixed disseminated, vein, and matrix sulfide intercepts included 29.0 m at 2.51% Ni above massive sulfide in 04HWD880; and 19.0 m at 3.86% Ni in 04HWD889.

Drilling is now focused on testing the down-plunge continuity of defined channels, with success achieved at several locations (Fig. 2). Massive sulfide intercepts of 4.3 m at 7.2% Ni from 372 m, and 2.1 m at 11% Ni from 450 m have been made. A result of 0.2 m at 12.6% Ni from 527 m was returned from one of the deepest holes at 100 m step-out intervals, and strong downhole

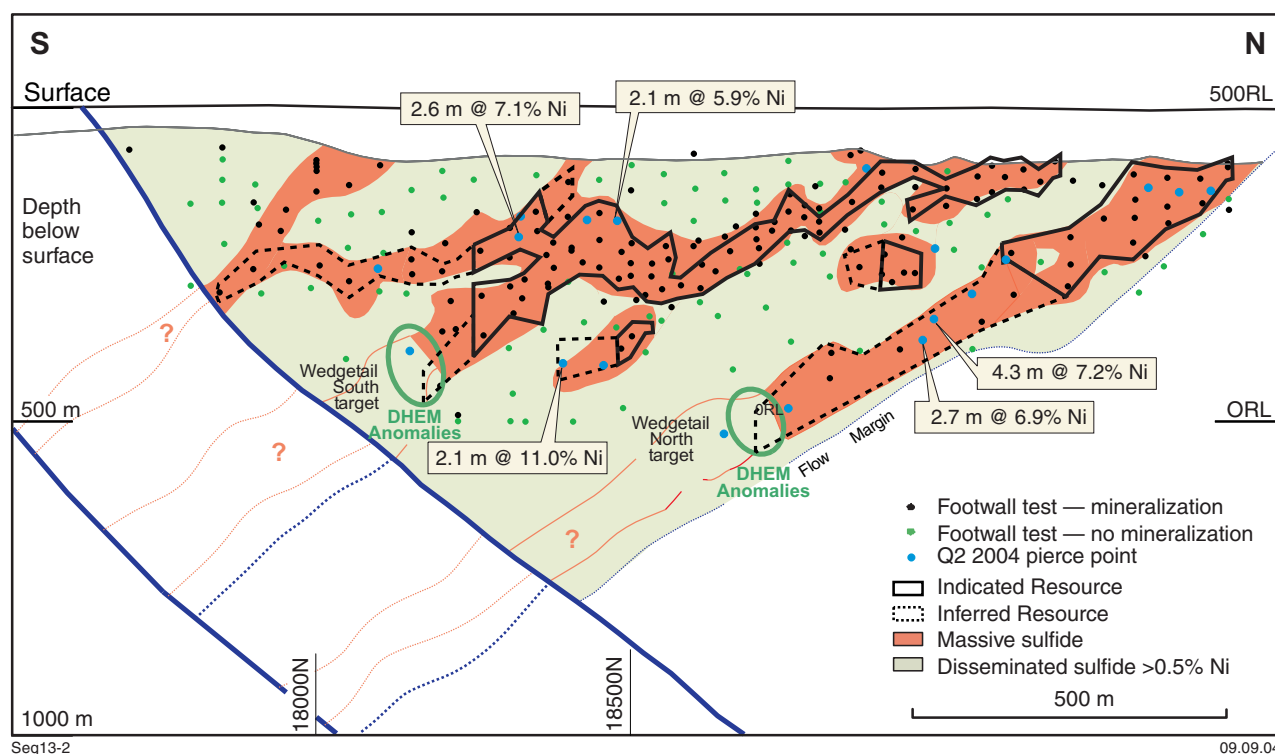


Figure 2. Schematic long section of Wedgetail showing higher grade drill intercepts as at June 2004

geophysical support was demonstrated. Indications are that additional massive sulfide resources will be defined as drilling progresses.

Trial EM surveys were carried out at Wedgetail to develop more effective depth penetration in the soil-covered portions of the Honeymoon Well and Albion

Downs tenements, and this testwork continues. Exploration targets elsewhere at Honeymoon Well are being assessed, with several targets earmarked for drilling and downhole EM surveys.