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Constraints on the magmatic evolution of the Lower Main Zone and Platreef on the northern limb of the Bushveld Complex as inferred from the Moordkopje drill core

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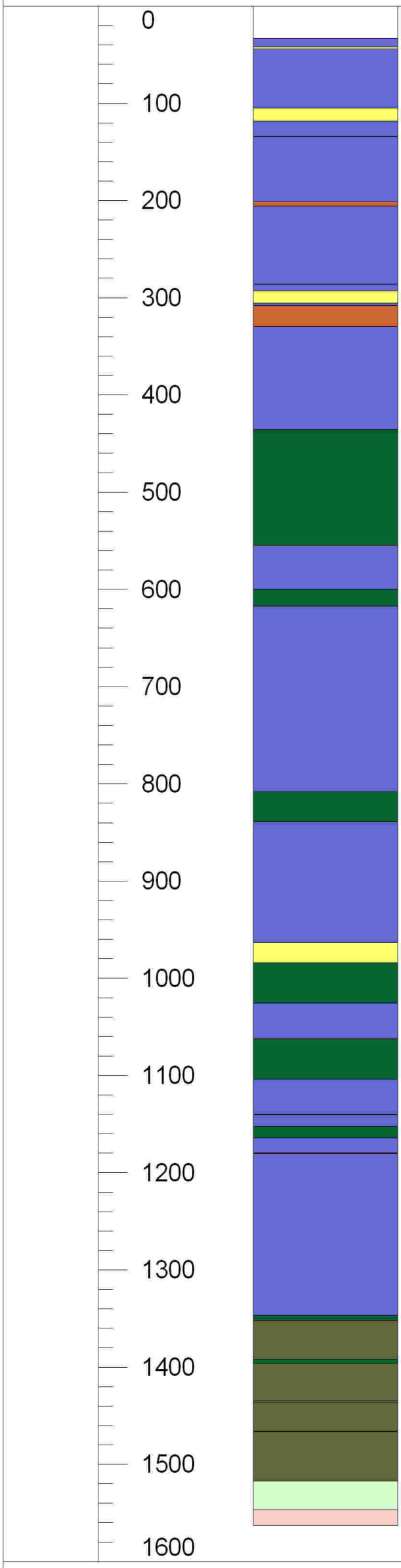
APPENDIX A – Core log as adapted from log supplied by Anglo Platinum.



No core drilled

Medium to fine-grained dark grayish gabbro [sic]. Apparent alignment of crystals evident in core at 70-75° to core axis. Rock type continuous with minor textural and compositional variation.
Paler more anorthositic phase

Medium to fine-grained dark grayish gabbro [sic]. Apparent alignment of crystals evident in core at 70-75° to core axis. Rock type continuous with minor textural and compositional variation.

More anorthositic phase, comprising in the main a pinkish/greenish tinted mottled anorthosite from 108 to 118 with thin pinkish granite vein at 110.50 and minor mafic zones

Medium to fine-grained dark grayish gabbro [sic]. Apparent alignment of crystals evident in core at 70-75° to core axis. Rock type continuous with minor textural and compositional variation.
Partly serpentinised [sic] more pyroxenite phase

Medium to fine-grained dark grayish gabbro [sic]. Apparent alignment of crystals evident in core at 70-75° to core axis. Rock type continuous with minor textural and compositional variation.

Greenish mottled anorthosite from 202.6-207

Medium to fine-grained dark grayish gabbro [sic]. Apparent alignment of crystals evident in core at 70-75° to core axis. Rock type continuous with minor textural and compositional variation.

More anorthositic with more marked variations
A partly serpentinised [sic] anorthositic unit with several thin subvertical serpentinite veins and some irregular quartzo-serpentinite veins towards the base
See interval 286-293.03
A unit comprising in the main pale greenish mottled and semi-mottled anorthosite with some thin quartz veining and minor "inclusions" of underlying unit

Medium grained, fairly dark noritic [sic] unit with few if any elongated crystals and no evidence of layering. Unit shows little variation, being a hyperite [sic] with a pyroxene cumulate phase. Minute rare BMS observed in more pyroxene rich phases and minor zones with a semi-mottled texture. Minor phases tending to spotted anorthosite

Fairly abrupt change to a fine to medium grained dark norite [sic]. Below 503.6 more anorthositic phases present. Alternating units of dark pyroxenitic norite [sic] and anorthositic norite [sic] continue from 503.6-554.95. Some of the darker phases containing biotite and very minor BMS specks

Alterations of pale anorthositic norite [sic] and mottled and spotted anorthositic norite [sic].

Alternating units of fine grained dark pyroxenitic norite [sic] and thin pyroxenitic zones, being predominantly pyroxenitic below 606.22 to base of unit. The fine grained pyroxenitic zones contain biotite and specks of BMS mineralization

Medium to fine grained, darkish norite [sic] with numerous and rapid textural variations to mottled and semi-mottled norite [sic], frequently with a greenish tinge. 714.36-722.60 : Alternating units of pyroxenitic norite [sic] and minor semi-mottled norite [sic] with some thin serpentinite [sic] veining. 735.47-740 : Darker, finer grained noritic phase. 756.6-785.65: Generally fine to medium grained norite [sic] with minor textural variation. 785.65-808.45 : A unit comprising predominantly mottled norite [sic] that has been partly serpentinised

A fairly uniform unit comprising fine-grained, dark, pyroxenitic norite [sic] with subtle textural variations, becoming more feldspathic and medium grained towards the base. 836.6-838.48 : A finer grained pyroxenitic phase

Medium grained pale norite [sic] with minor textural variations and localized mottling. 914.87-938.68 : Fine to medium grained fairly dark norite [sic] with zones large mottled norite [sic], particularly down to 927.15. Below 927.15 unit becomes paler.

Predominantly mottled anorthosite but also medium to coarse grained, pale norite [sic]

Finer grained, dark, pyroxenitic unit with traces of disseminated BMS mineralization. Unit tends to be more feldspathic with depth, with several small semi-mottled horizons between 1020.20-1025.50

Medium grained, much paler norite [sic] with zones of more mottled norite [sic] below 1049. More pyroxenitic zone below 1061-1062.40, with some disseminated BMS mineralization

Fine to medium grained, fairly dark, pyroxenitic norite [sic] with minor textural changes.

Medium grained, pale norite [sic] with very minor textural changes. Below 1131, unit becomes coarser grained, with a greenish tinge to the feldspars. Below 1133.5 unit shows numerous mottled zones

A pegmatitic feldspathic pyroxenite [sic] with some disseminated BMS. Unit appears to be dyke-like in form with contact at 70° to core axis. Mineralization continues into lower unit slightly.
A semi-mottled, partly serpentinised norite [sic]. Abrupt lower contact

Essentially a medium grained, slightly serpentinised norite [sic]
Pinkish quartz-feldspar serpentinite inclusion (vein)

Essentially a medium grained, slightly serpentinised norite [sic]

Medium grained, partly serpentinised pyroxenitic norite [sic]
Hanging wall contact. Variable suit comprising basically medium grained feldspathic pyroxenite with rapid textural variations including amount of feldspar, grain size and BMS mineralization. Below 1365.70 several small concentrations of fairly coarse-grained chromitite and several small, contaminated, serpentinised pyroxenitic zones. Below 1379.32 unit is medium to coarse grained and feldspar poor

Abrupt contact to a fine / medium grained highly feldspathic, hybrid norite [sic] with well saussuritised feldspars. Unit appears to be intrusive with top contact between 45° to 10° to core axis and basal contact at 70° to core axis
Variable unit comprising medium to coarse grained feldspar poor pyroxenite from 1395.97-1398.23. Also medium grained feldspathic pyroxenite with some rapid variations in grain size. Below 1402.47 the unit shows some very minor feldspar poor zones with fair BMS mineralization. From 1411.41-1411.96 unit is highly serpentinised with a fine grained highly feldspathic unit with biotite from 1411.96-1412.57. From 1417.61-1420.39 a medium grained serpentinised contaminated pyroxenite and from 1420.39-1431.04 a medium grained, partly serpentinised feldspar free pyroxenite. From 1431.04-1432.86 a more feldspathic phase with highly variable grain size and for the remainder a highly serpentinised pyroxenite
Quartzofeldspathic material with graphic texture at top and serpentinised pyroxenitic inclusions towards the base
From 1435.82-1437.56 a brecciated fine grained feldspathic pyroxenite with granofelsic material. To 1444.36 a partly serpentinised, medium to coarse-grained contaminated pyroxenite with marked serpentinisation near the top. To 1445.92 a finer grained feldspathic pyroxenite with a serpentinite inclusion. To 1455.93 a medium to coarse grained feldspar poor pyroxenite with local concentrations of feldspathic pyroxenite. From 1450.95-1451.36 and 1451.76-1451.92 fine grained contaminated hybrid norite intrusive veins, with biotite. To 1465.70 a fine to medium grained porphyritic feldspathic pyroxenite frequently showing a mottled texture.
Pegmatoidal feldspathic pyroxenite
Unit showing a highly variable texture with numerous small inclusions of metasediment (pyroxene hornfels) and small zones of pegmatoidal feldspathic pyroxenite and thin quartzofeldspathic veins. From 1475.95-1479.34 a zone of alternating quartzofeldspathic granofels and fine grained pyroxene hornfels with numerous thin serpentinite veins. To 1517.39 a fine grained highly feldspathic pyroxenite with fine grained, feldspar poor pyroxenitic inclusions, quartz inclusions and veins of remobilized metasedimentary material.
A fine grained black pyroxene hornfels unit with fine grained feldspathic pyroxenite from 1521.30-1525.85. Unit contains minor quartzofeldspathic graphic veins
Pale pinkish white medium grained remobilized and metamorphosed granite. With minor zones of concentration of more mafic material, hornblende rich zones and with white quartz porphyroblasts.