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Monday, 4 November 2002

EXPLORATION POTENTIAL, KOOLENDONG, EL 8040.

Background.

A review of previous work carried out on the prospect is contained in "Assessment of Koolendong EL 8040" dated 8th September 1998.

During the 2001 field season, a short program of drilling was carried out along the base line across peak of the ground magnetic anomaly. Nine holes were drilled to bedrock and five of these were completed with diamond core. The bottom hole samples were assayed for a spectrum of elements and four samples were submitted to Amdel for petrology. Preliminary evaluation of this assay and petrographic data did not identify any geological or geochemical features of significant economic interest.

A review of the accumulated data was undertaken in September-October 2002 to reconcile the available data with the range of models which had been proposed to account for the Gazelle Magnetic anomaly. Dr. Doug Mason, consultant petrologist, was requested to look again at the thin sections of the drill hole samples in the context of the possible geological models. From the work undertaken on the four drill samples available for study Dr. Mason concluded that the gabbroic rocks intersected in the drilling were relatively fractioned, displayed an incipient composition or mineralogical layering or banding, and contained traces of primary sulphide. Dr. Mason's report is available in electronic form if required (4,733KB).

Data.

The information forming part of this review are :

Gazelle Prospect. Interpretation of the Gazelle Mafic Intrusive. Showing the geology of the prospect area taken from CEC mapping, the location of the Corporate Developments soil geochemical and magnetics grid, an overlay of the ground magnetic contours, and an interpreted outline of the extent of the Gazelle Mafic Intrusive based on the geochemistry, magnetic, bedrock drill samples and airphoto patterns. A critical element in the air photo interpretation is the record of boulders of peridotite scree located about the southern margin of the escarpments of Moyle River Formation to the west of the Gazelle magnetic anomaly (Orridge, 1994).

Long Sections along line 9600E. This line passes over the peak of the ground located magnetic anomaly and has been sampled with conventional soil geochemistry, partial leach extraction geochemistry, and was the site of the drilling referred to above. Sections are provided for

- ground magnetic data with annotations showing the location of the drill holes (and petrographic descriptions), the location of interpreted contacts or shears, and the division of the profile into 4 domains. Note that holes were drilled at 100-meter intervals but petrographic samples were not obtained from all holes. The geochemical profiles plot the location of the drill holes.
- iron in soil profile (conventional –80# geochemistry) with annotations showing the location and iron assay of the drill hole samples and the position of 4 interpreted domains. It is notable that the highest iron-in-soil results do not correlated with the peak of the magnetic response – the inferences are (1) that the magnetic anomalies are not related to maghematite in soil as suggested by Geopeko (2) the iron-in-soil response is the result of weathering of an iron-rich rock type which does not contain major magnetite.
- phosphorous in soil profile (conventional –80# geochemistry) with annotations showing the location and iron assay of the drill hole samples and the position of 4 interpreted domains.
- chromium in soil profile (conventional –80# geochemistry) with annotations showing the location and iron assay of the drill hole samples and the position of 4 interpreted domains.
- yttrium in soil profile (mobile-metal-ion determination) with annotations showing the location and iron assay of the drill hole samples and the position of 4 interpreted domains.
- lanthanum in soil profile (mobile-metal-ion determination) with annotations showing the location and iron assay of the drill hole samples and the position of 4 interpreted domains.

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Note. A range of elements were common to both the conventional –80# geochemical and mobile-metal-iron geochemical profiles. Comparison of the results shows that both methodologies give closely comparable profiles, though with significantly differing values. Similar conclusions to those presented above can be drawn from either data set.

Geological interpretation.

Examination of the ground magnetic profile in conjunction with the geochemical data indicates the presence of four geochemically and magnetically distinct domains along the section. Each domain has a distinct signature and is sharply delimited from its neighbours. The boundary between domain 1 and domain 2 corresponds with an interpreted shear or contact in the magnetic profile but the other domain boundaries, while quite sharp and distinct, do not have associated interpretable features. A step in the magnetic profile within domain 3 is interpreted as a contact or shear and corresponds quite well with Mason's described bedrock alteration.

Over and above the magnetic and geochemical domain signatures, there are two generalised trends

- the magnetic signature shows a step-wise increase from south to north.
- the population of rare earth elements shows a generalised, irregular and step-wise, increase from north to south.

Conventionally, both magnetite and rare earth elements are assumed to increase with fractionation.

The step-wise and broadly opposed trends in magnetic response and rare earth element content in the profile indicate that the individual domains, while probably part of the same fractionation series, are located out of sequence. The most obvious mechanisms for out of sequence juxtaposition are (1) post emplacement structural movement and (2) injection of separate phases of magma through a single conduit. Given the pronounced concentric form of the magnetic and geochemical signatures it is probable that the step-wise domain boundaries result from intrusion rather than structural dislocation.

The air photo interpretation of the size and extent of the southern and western portion of the Gazelle Mafic Intrusive relies heavily on the reported occurrence of peridotite in the southern and western portion of the area. The southern and western area has a subdued aeromagnetic signature in sharp contrast to the strongly zoned magnetic response characterising the northeastern margin where all of the fieldwork has been concentrated (above). Several of the ground magnetometer and soil geochemical lines do extend into portion of the southern area and low amplitude, east-west oriented linear features are present. The interpretation is that this area of the Gazelle Mafic Intrusive (the southern and western portion) is underlain by relatively primitive mafic rocks with an east-west oriented compositional banding.

The field relationships and petrographic observations indicate the Gazelle Mafic Intrusive predates the Koolendong Granite. From the aeromagnetic and geochemical patterns and the distribution of rock-types encountered in the drilling it appears that, during granite intrusion, sections of the Gazelle Mafic Intrusive have stoped off the northern margin, and other portions have been digested to varying extents.

Conclusion.

The Gazelle Mafic Intrusive is a composite, pipe-like, body consisting of a southern and western body of relatively un-fractioned mafic rocks incestuously intruded in its north-eastern sector by a highly fractionated, concentrically zoned stock derived from the same tholeiitic parent. Primary sulphides are present in the fractionated rocks. The step-wise juxtaposition of concentric, distinct geochemical and magnetic domains within the northeastern stock indicate that the GMI was emplaced as a series of intrusive phases.

Given its primary tholeiitic composition, fractionation history, presence of primary sulphide and emplacement as multiple phases, a range of exploration models can be proposed for the Gazelle Mafic Intrusive.

The northwestern portion of the interpreted extent of the Gazelle Mafic Intrusive is unconformably overlain by rocks of the Moyle River Formation. A classic site for the development of unconformity mineralisation is at the interface between sequences permissive for the circulation of descending oxidised solutions and

sequences permissive for the reduction of such solutions either by rock geochemistry or ascending reducing solutions.

District wide exploration of the basal Moyle River Formation by CEC did not discover any outcropping mineralisation, but did report a concentration of anomalous rock-chip geochemical results from this area. Concurrent mapping identified several areas of brecciation in the Moyle River Formation overlying the now interpreted extent of the GMI – these were not followed up in the fieldwork.

References.

Dr. Doug. Mason Petrographic Descriptions and Interpretations for Five Rock Samples from the Koolendong Project. Report No. 2790. October 2002.

John Earthrowl. Eighth Annual report for the period 8th August 2000 to February 2002. Report to NTDME for Centrex Resources NL.

Amdel. Petrology of Five Samples. Report G175PE01. November 2001.

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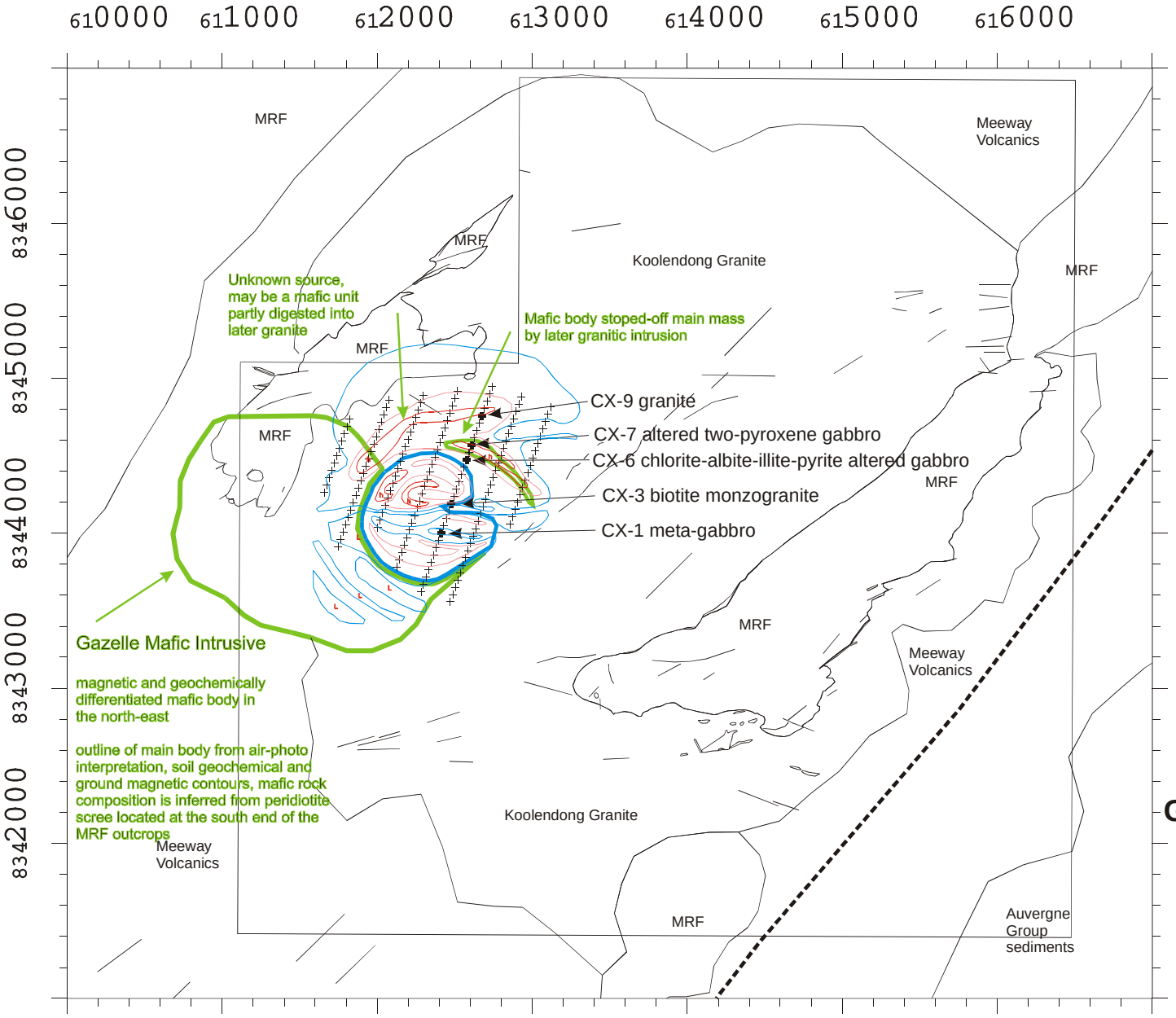

GAZELLE PROSPECT

Interpretation of the Gazelle Mafic Intrusive

Geology after CEC, ground mag and other data from Corporate Developments

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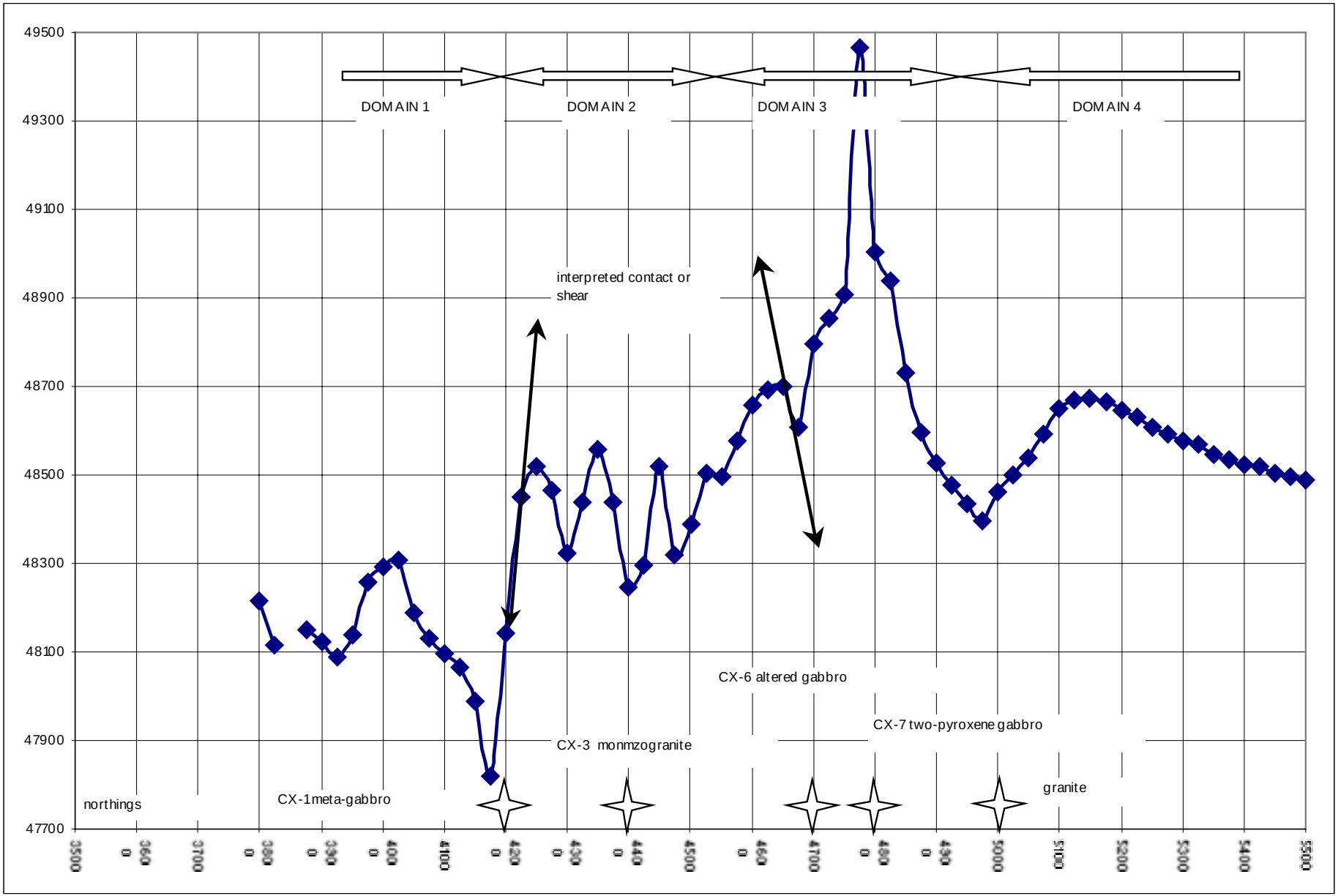

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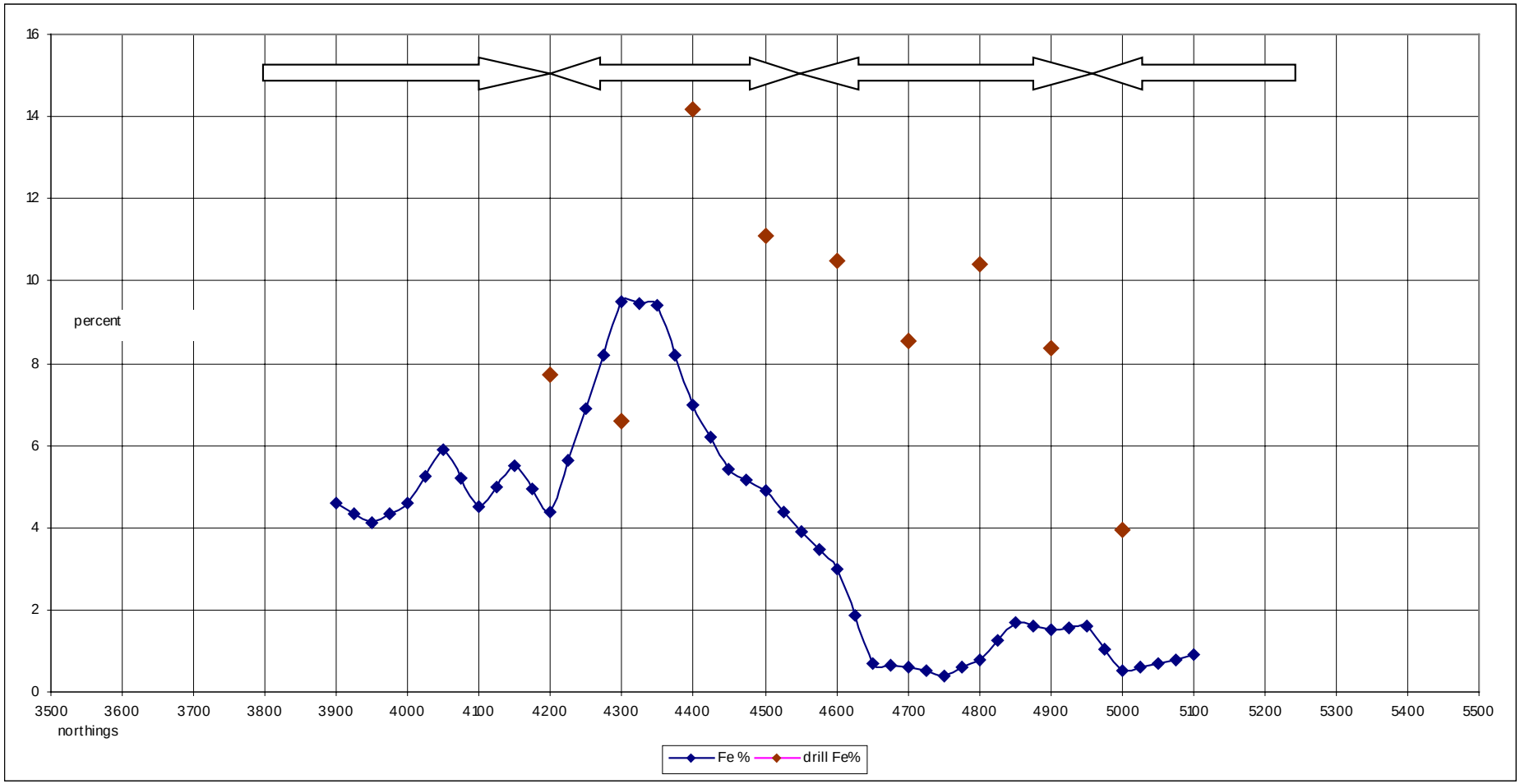

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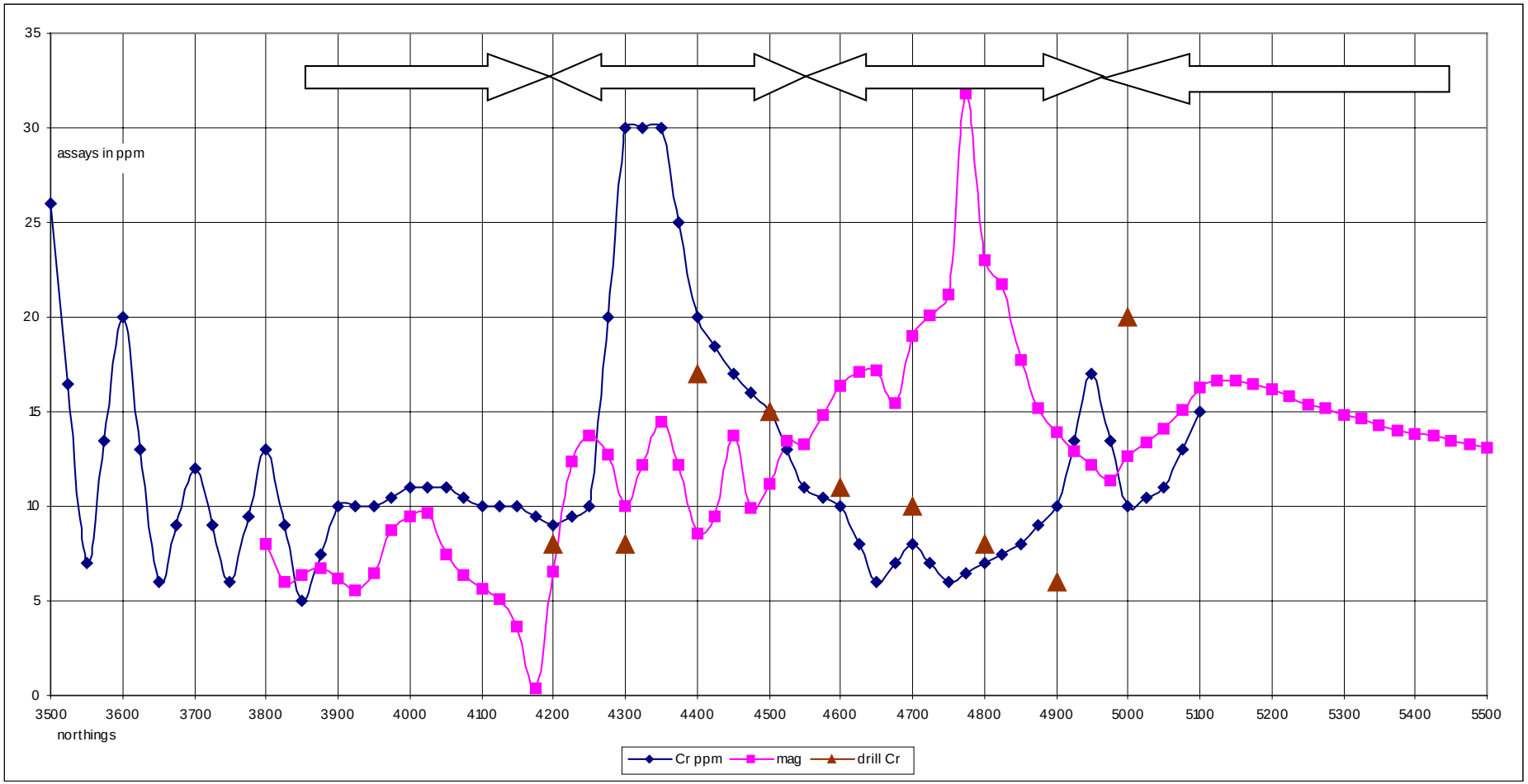

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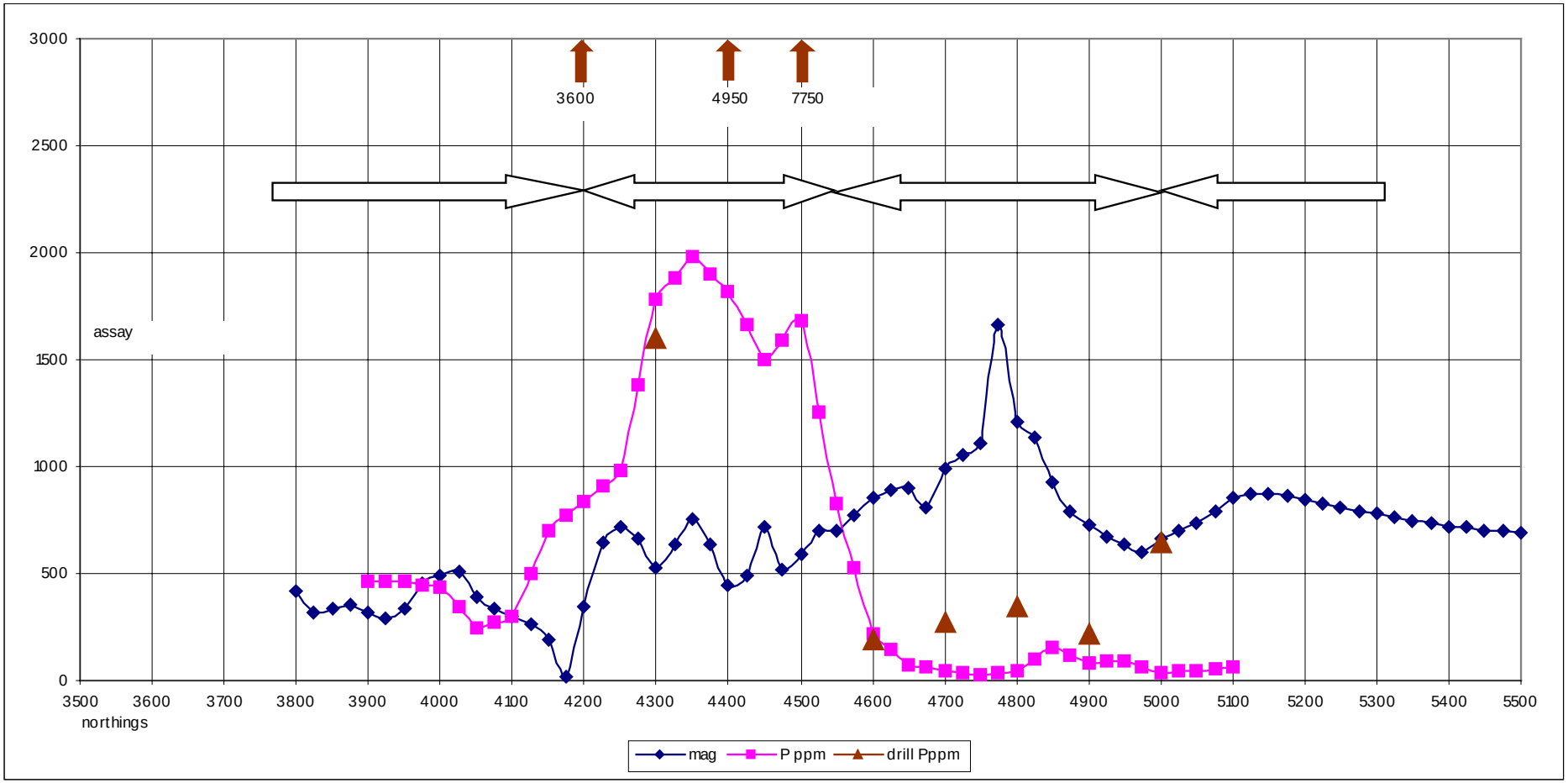

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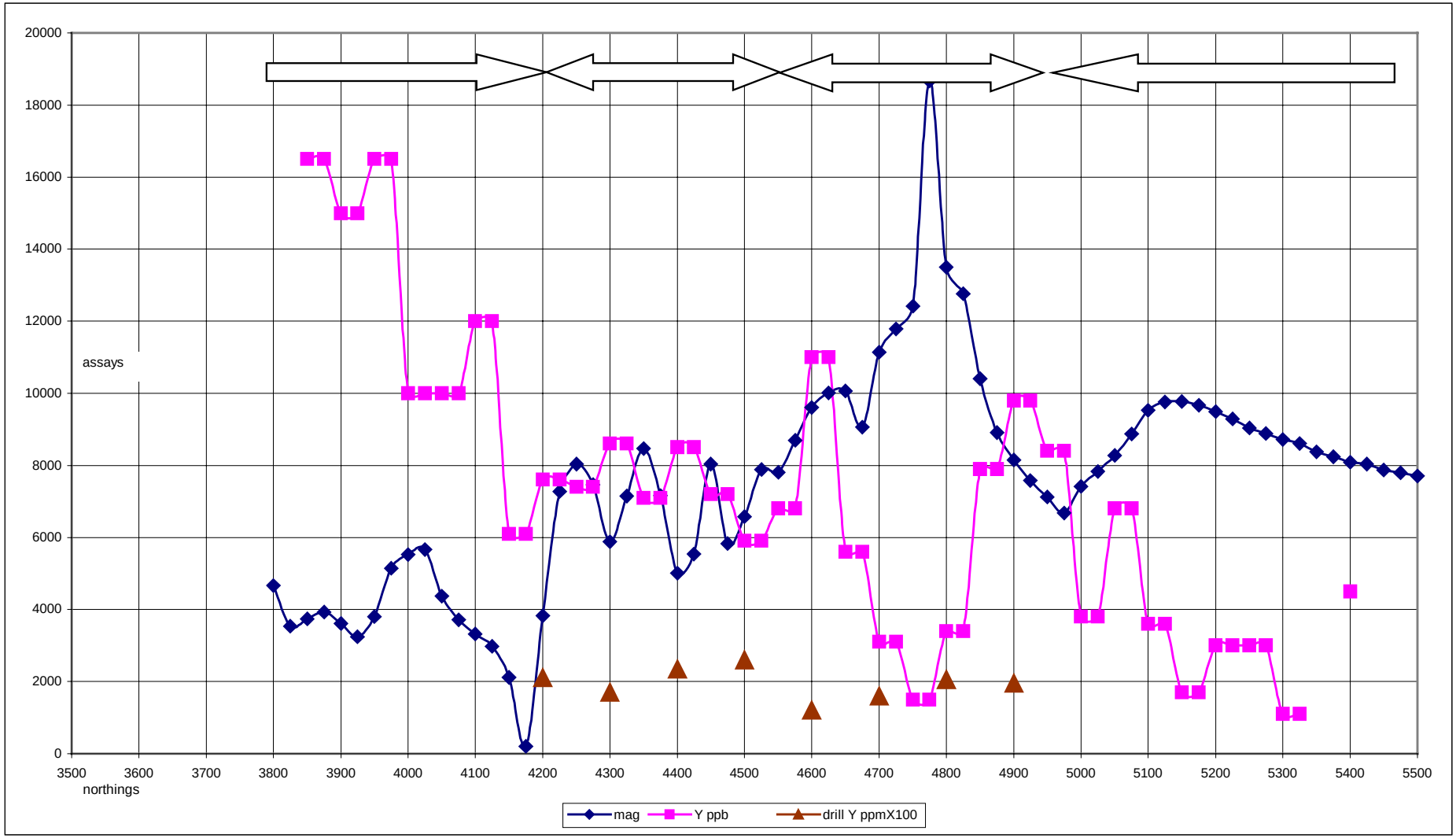

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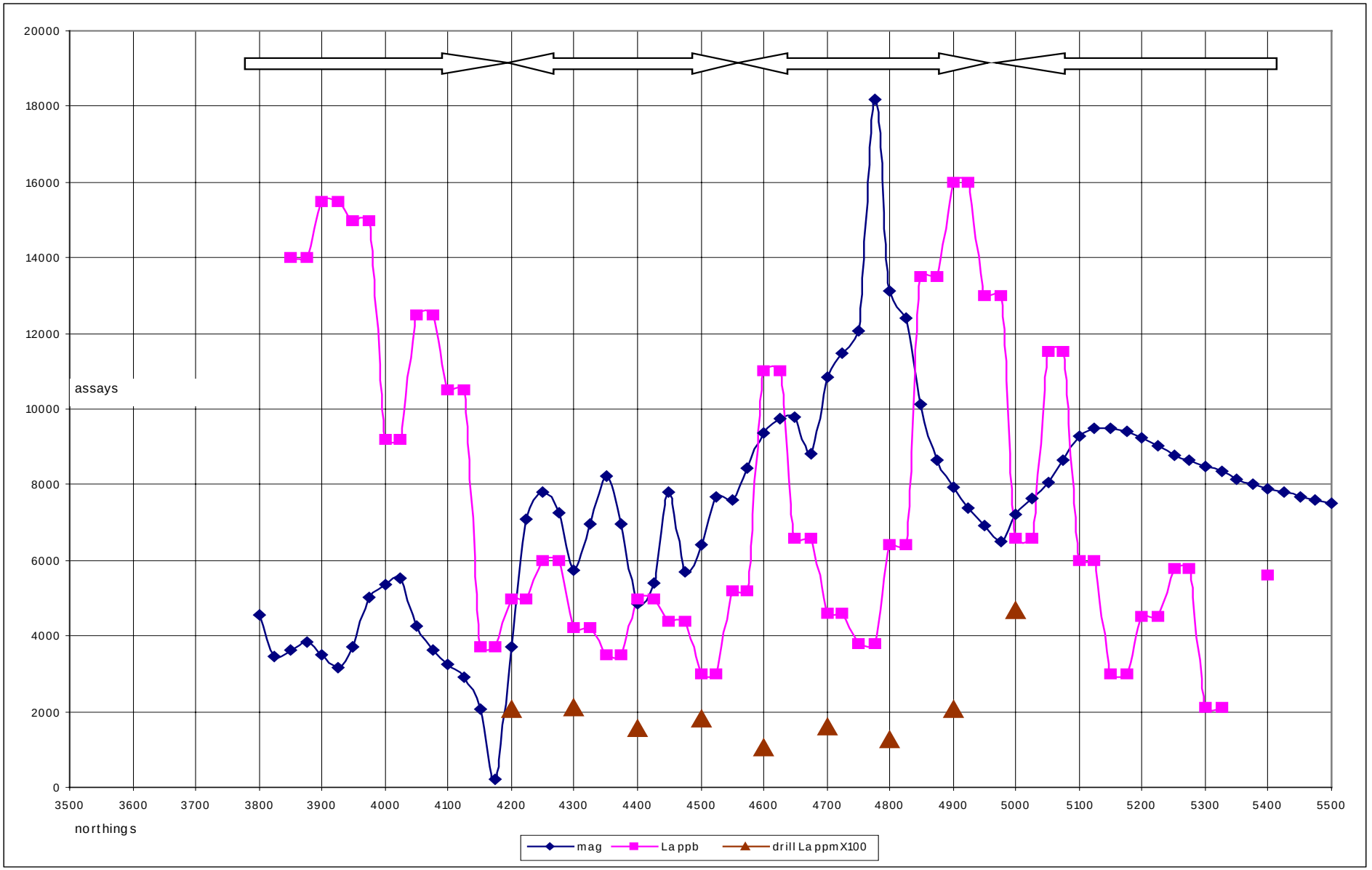

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