

# WESTERN AREAS NL



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## **2009 TECHNICAL REPORT, EAST BULL LAKE PROPERTY** (to accompany Assessment Work Performed on Mining Lands (form # 0241E & 0290E))

**Report for the Period 1st May 2009 to 1st August 2009**

**Author:** Western Areas NL (Robert E Barwick)

**Date:** 1<sup>st</sup> Feb 2010

**Report No:** Report No: WSA-EBL FEB10-01

**Keywords:** VTEM, Magnetics, Nickel, Copper, PGE's.

**Location:** BOON TOWNSHIP, SUDBURY MINING DIVISION, ONTARIO, CANADA.

**Sheet Name:** NTS 41J/08

**UTM Co-ordinates:** UTM 410400E, 5142500N, Zone 17N, NAD27 (Centre of work area)

**Geographic Co-ordinates:** 46° 26' N Lat, 82° 10' W Long (Centre of work area)

### **Distribution:**

1. Provincial Mining Recorder Office , Ministry of Northern Development and Mines, Sudbury, ONTARIO
2. Western Areas NL.
3. Mustang Minerals Corp.

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## **1 Executive Summary.**

In September 2008, Western Areas NL (“WSA”), an exploration & mining company based in Perth Western Australia, entered into a Joint Venture (“JV”) with Mustang Minerals Corp., a Canadian exploration company based in Toronto, Ontario (“Mustang”) to earn a 65% interest on their East Bull Lake Platinum Group Element Property. The East Bull Lake Property (“property”) covers 90% of the Paleoproterozoic East Bull Lake gabbro- anorthosite intrusion (“EBLI”), located 90 km west of Sudbury, Ontario. The EBLI is 22 km in length, and up to 4.5 km in width, and covers an area of 44 square km.

Widespread PGE-Cu-Ni mineralisation occurs in the basal portion of the intrusion. Similar mineralisation has also been identified in the interior of the intrusion at a higher stratigraphic level; here the basal stratigraphy is structurally duplicated.

The property is comprised of 450 mining claim units comprising 121 contiguous mining claims and one isolated mining claim (1016959), totalling 7170 ha.

## **2 Introduction.**

The EBLI is a large, layered, mafic igneous complex located approximately 90 km west of Sudbury, Ontario. The EBLI is one of seven similar intrusive complexes that are collectively termed the East Bull Lake Intrusive Suite. The 2.49 to 2.47 billion year old intrusions of the EBLI occur within an east-northeast trending discontinuous belt along the boundary between the Archaean Superior Province and overlying Paleoproterozoic Southern Province rocks. Work completed on the Property consists of in-house geological assessment, data compilation and reinterpretation of geophysics.

Mustang acquired the property in 1998 in order to explore the EBLI for economic concentrations of contact-type PGE-Cu-Ni disseminated sulphide mineralisation. Work carried out between 1998 and 2009 included line cutting, geological mapping, litho-geochemical sampling, induced polarization and magnetometer surveys, two airborne geophysical surveys, and several diamond drilling programs. This report is to accompany Form 0241E, (Assessment Work Performed on Mining Lands) and Form 0290E, (a Schedule to Form 0241E) for the period 1<sup>st</sup> May 2009 through to 1<sup>st</sup> August 2009. The mining Claims covered by this assessment work are shown in Figure 7 on page 22 towards the end of this report.

## **3 Property details.**

### **3.a Location and Access.**

The East Bull Lake property occurs in NTS 41J/08 and is centred at UTM 410400E, 5142500N, Zone 17N, NAD27. Excellent all year round access to most of the property can be gained from Sudbury by driving west on Highway 17 to Massey, and then north on Highway 533, an all weather gravel and partially paved road (Figure 1).

Limited services, supplies, and accommodations are provided in Massey. The town of Espanola, located on Hwy 17 approximately 25 km east of Massey can provide the most essential items such as fuel, service stations, and most supplies.

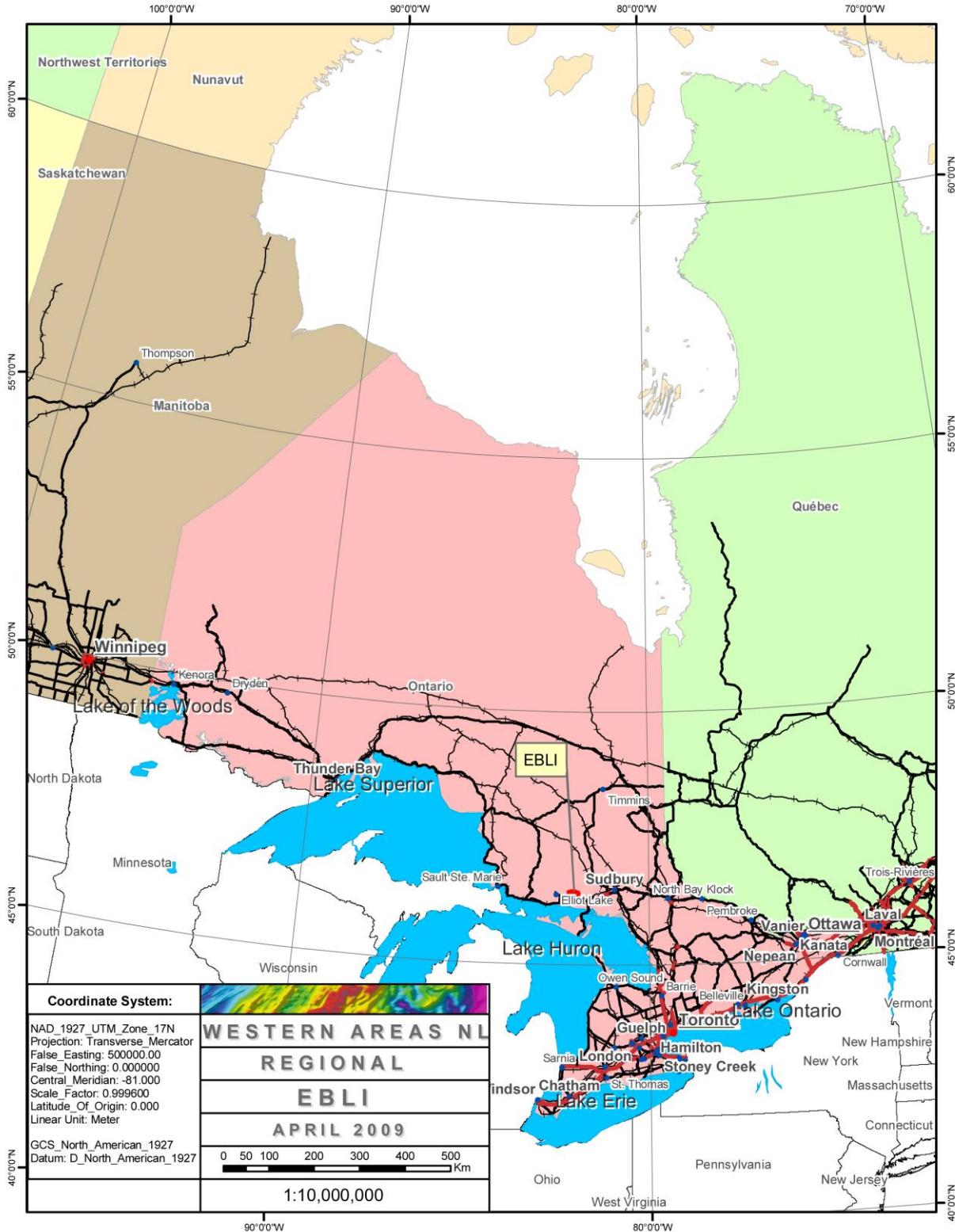
### **3.b Topography and Vegetation.**

The local terrain is typical of the Precambrian Shield, with low rolling hills and marshy areas. Vegetation on higher ground consists of a variety of hardwoods such as maple, birch, and poplar, with coniferous trees that include red and white pines, balsam fir, and white spruce. In the lower ground, typically more wet in character, black spruce, tamarack, alder swales, and cedar

predominate. Water for exploration purposes is available from beaver ponds, marshes, and small streams that typically follow geological structures.

Snowfall generally begins in November and extends into late March to early April. Lakes are usually passable with adequate ice thickness from late December through to late March. Between 50 and 100 mm of monthly rainfall is normal from April to October. The mean temperature is 13°C in January and 19°C in July.

Figure 1: Location of the East Bull Lake Property.



### 3.c Claims.

The East Bull Lake Property consists of 121 mining claims, totalling 450 mining claim units, and covering a total area of 7170 ha. The claims are located in Gerow, Boon, Mandamin, Lockeyer and Shibananing townships in the Sudbury Mining Division, Ontario (Figure 2).

Mustang assembled the property between 1998 and 2000 through seven option agreements and staking. Mustang is the recorded holder of the claims and has the right to earn 100% undivided interest in the property subject to 1 to 3% net smelter returns in favour of the original vendors.

Figure 2: East Bull Lake Land Tenure.

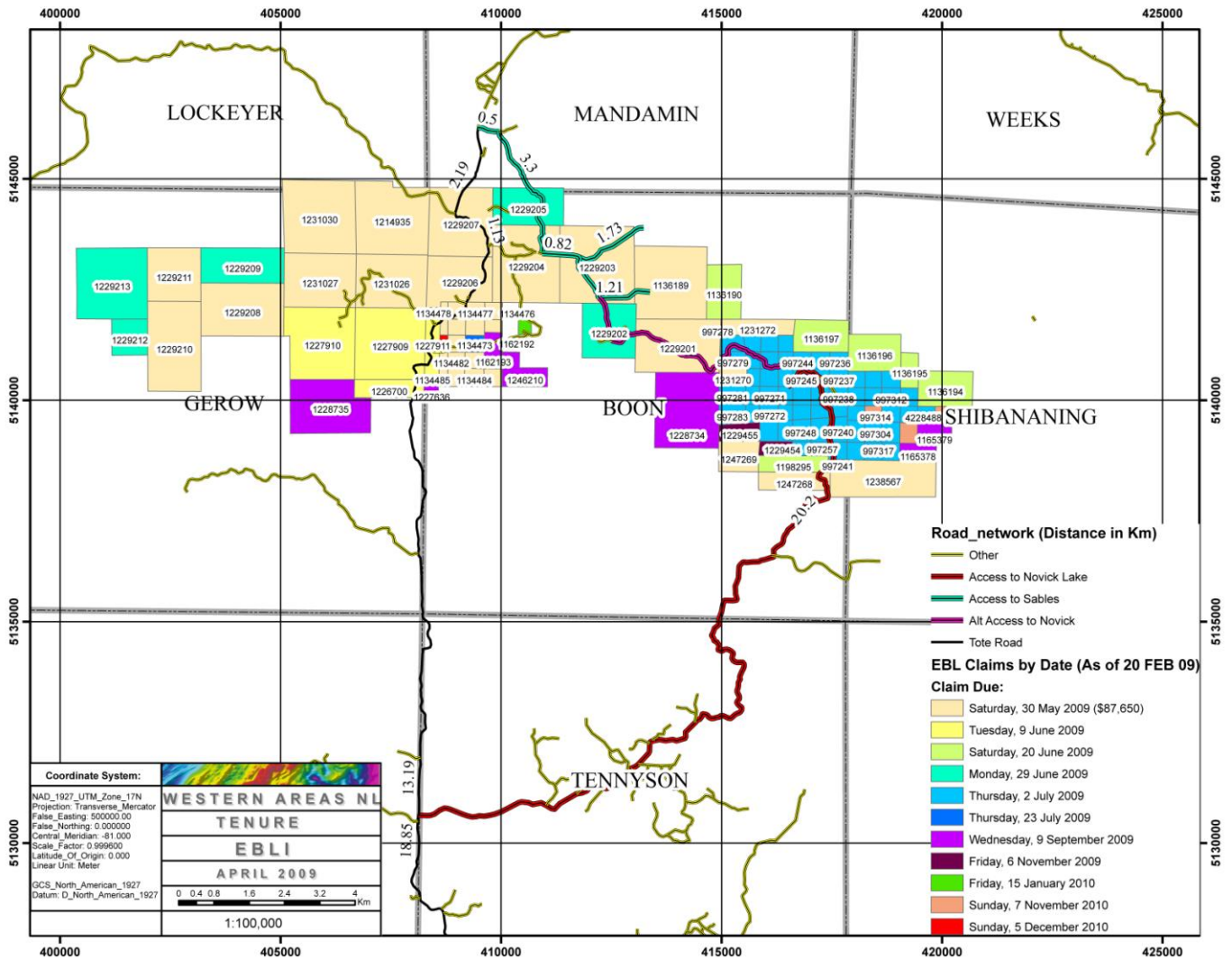




Table 1: Claim details of the East Bull Lake Property.

Township/Area	Claim Number	Claim Due Date	Status	Work Required	Total Applied	Total Reserve	Claim Bank	Units
BOON	<a href="#">997236</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997237</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997238</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997239</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997240</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997241</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997244</a>	2010-Jul-02	A	\$400	\$8,800	\$140	\$0	1
BOON	<a href="#">997245</a>	2010-Jul-02	A	\$400	\$8,800	\$140	\$0	1
BOON	<a href="#">997246</a>	2010-Jul-02	A	\$400	\$8,800	\$141	\$0	1
BOON	<a href="#">997247</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997248</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997249</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997253</a>	2010-Jul-02	A	\$400	\$8,800	\$141	\$0	1
BOON	<a href="#">997254</a>	2010-Jul-02	A	\$400	\$8,800	\$141	\$0	1
BOON	<a href="#">997255</a>	2010-Jul-02	A	\$400	\$8,800	\$141	\$0	1
BOON	<a href="#">997256</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997257</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997258</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997261</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997262</a>	2010-Jul-02	A	\$400	\$8,800	\$141	\$0	1
BOON	<a href="#">997263</a>	2010-Jul-02	A	\$400	\$8,800	\$141	\$0	1
BOON	<a href="#">997264</a>	2010-Jul-02	A	\$400	\$8,800	\$141	\$0	1
BOON	<a href="#">997265</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997266</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997268</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997269</a>	2010-Jul-02	A	\$400	\$8,800	\$141	\$0	1
BOON	<a href="#">997270</a>	2010-Jul-02	A	\$400	\$8,800	\$141	\$0	1
BOON	<a href="#">997271</a>	2010-Jul-02	A	\$400	\$8,800	\$141	\$0	1
BOON	<a href="#">997272</a>	2010-Jul-02	A	\$400	\$8,800	\$175	\$0	1
BOON	<a href="#">997273</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997274</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997275</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997276</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997277</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997278</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997279</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">997281</a>	2010-Jul-02	A	\$400	\$8,800	\$308	\$0	1
BOON	<a href="#">997282</a>	2010-	A	\$400	\$8,800	\$325	\$0	1

		Jul-02						
BOON	<a href="#">997283</a>	2010-Jul-02	A	\$400	\$8,800	\$325	\$0	1
SHIBANANING	<a href="#">997301</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997302</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997303</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997304</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997305</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997307</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997308</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997311</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997312</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997313</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997314</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997315</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997316</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997317</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997319</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997320</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
SHIBANANING	<a href="#">997323</a>	2010-Jul-02	A	\$400	\$8,800	\$0	\$0	1
BOON	<a href="#">1134473</a>	2010-Jul-23	A	\$400	\$7,200	\$77,577	\$0	1
BOON	<a href="#">1134474</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134475</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134476</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134477</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134478</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134479</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134480</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134481</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134482</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134483</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134484</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134485</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134486</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134487</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134489</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1134490</a>	2010-Mar-31	A	\$400	\$6,800	\$0	\$0	1
BOON	<a href="#">1136189</a>	2010-Mar-31	A	\$6,400	\$76,800	\$0	\$0	16
BOON	<a href="#">1136190</a>	2010-Jun-20	A	\$2,400	\$31,200	\$0	\$0	6
SHIBANANING	<a href="#">1136194</a>	2010-Jun-20	A	\$2,400	\$31,200	\$0	\$0	6
SHIBANANING	<a href="#">1136195</a>	2010-Jun-20	A	\$800	\$10,400	\$0	\$0	2
SHIBANANING	<a href="#">1136196</a>	2010-Jun-20	A	\$2,400	\$31,200	\$0	\$0	6

BOON	<a href="#">1136197</a>	2010-Jun-20	A	\$2,400	\$31,200	\$0	\$0	6
BOON	<a href="#">1162192</a>	2010-Aug-31	A	\$400	\$7,200	\$0	\$0	1
BOON	<a href="#">1162193</a>	2010-Aug-31	A	\$400	\$7,200	\$0	\$0	1
SHIBANANING	<a href="#">1165378</a>	2010-Aug-16	A	\$800	\$13,600	\$0	\$0	2
SHIBANANING	<a href="#">1165379</a>	2010-Aug-16	A	\$800	\$13,600	\$0	\$0	2
BOON	<a href="#">1198295</a>	2010-Jun-20	A	\$1,600	\$20,800	\$0	\$0	4
LOCKEYER	<a href="#">1214935</a>	2010-Mar-31	A	\$6,400	\$57,600	\$0	\$0	16
GEROW	<a href="#">1226700</a>	2010-Jun-09	A	\$1,600	\$16,000	\$0	\$0	4
BOON	<a href="#">1227636</a>	2010-Sep-01	A	\$400	\$4,000	\$0	\$0	1
GEROW	<a href="#">1227909</a>	2010-Jun-09	A	\$6,400	\$64,000	\$0	\$0	16
GEROW	<a href="#">1227910</a>	2010-Jun-09	A	\$6,400	\$64,000	\$0	\$0	16
BOON	<a href="#">1227911</a>	2010-Jun-09	A	\$1,600	\$16,000	\$0	\$0	4
BOON	<a href="#">1228734</a>	2010-Sep-09	A	\$6,400	\$64,000	\$0	\$0	16
GEROW	<a href="#">1228735</a>	2010-Sep-09	A	\$4,400	\$44,000	\$0	\$0	11
BOON	<a href="#">1229201</a>	2010-Mar-31	A	\$6,000	\$54,000	\$0	\$0	15
BOON	<a href="#">1229202</a>	2010-Jun-29	A	\$3,600	\$32,400	\$0	\$0	9
BOON	<a href="#">1229203</a>	2010-Mar-31	A	\$6,400	\$51,200	\$0	\$0	16
BOON	<a href="#">1229204</a>	2010-Mar-31	A	\$6,400	\$51,200	\$0	\$0	16
BOON	<a href="#">1229205</a>	2010-Jun-29	A	\$3,200	\$28,800	\$0	\$0	8
BOON	<a href="#">1229206</a>	2010-Mar-31	A	\$4,800	\$43,200	\$0	\$0	12
MANDAMIN	<a href="#">1229207</a>	2010-Mar-31	A	\$6,400	\$51,200	\$0	\$0	16
GEROW	<a href="#">1229208</a>	2010-Mar-31	A	\$6,000	\$54,000	\$0	\$0	15
GEROW	<a href="#">1229209</a>	2010-Jun-29	A	\$4,000	\$40,000	\$0	\$0	10
GEROW	<a href="#">1229210</a>	2010-Mar-31	A	\$6,000	\$54,000	\$0	\$0	15
GEROW	<a href="#">1229211</a>	2010-Mar-31	A	\$3,600	\$32,400	\$0	\$0	9
GEROW	<a href="#">1229212</a>	2010-Jun-29	A	\$1,600	\$16,000	\$0	\$0	4
GEROW	<a href="#">1229213</a>	2010-Jun-29	A	\$6,400	\$64,000	\$0	\$0	16
BOON	<a href="#">1229454</a>	2010-Nov-06	A	\$800	\$8,000	\$0	\$0	2
BOON	<a href="#">1229455</a>	2010-Nov-06	A	\$800	\$8,000	\$0	\$0	2
GEROW	<a href="#">1231026</a>	2010-Mar-31	A	\$4,800	\$43,200	\$0	\$0	12
GEROW	<a href="#">1231027</a>	2010-Mar-31	A	\$4,800	\$43,200	\$0	\$0	12
LOCKEYER	<a href="#">1231030</a>	2010-Mar-31	A	\$6,400	\$57,600	\$0	\$0	16
BOON	<a href="#">1231270</a>	2010-Mar-31	A	\$400	\$3,600	\$0	\$0	1
BOON	<a href="#">1231272</a>	2010-Mar-31	A	\$1,600	\$14,400	\$0	\$0	4
SHIBANANING	<a href="#">1238567</a>	2010-Mar-31	A	\$4,800	\$33,600	\$0	\$0	12
BOON	<a href="#">1246210</a>	2010-Aug-22	A	\$1,600	\$12,800	\$0	\$0	4
BOON	<a href="#">1247268</a>	2010-Mar-31	A	\$1,600	\$11,200	\$0	\$0	4
BOON	<a href="#">1247269</a>	2010-Mar-31	A	\$1,600	\$11,200	\$0	\$0	4
SHIBANANING	<a href="#">4219118</a>	2010-Nov-07	A	\$400	\$0	\$0	\$0	1
SHIBANANING	<a href="#">4219124</a>	2010-Nov-07	A	\$400	\$0	\$0	\$0	2
SHIBANANING	<a href="#">4228488</a>	2010-Nov-07	A	\$800	\$0	\$0	\$0	2



BOON	<a href="#">4241969</a>	2010- Dec-05	A	\$400	\$0	\$0	\$0	1
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#### 4 Previous Work.

**1925: Douglas** produced the first government geology map of the area. He interpreted the EBLI as part of the Whiskey Lake Archaean greenstone belt.

**1943: Moore and Armstrong**, Ontario government geologists produced a revised geological map of the East Bull Lake area on which the EBLI was recognized as a post Archaean intrusion. They described trenching and sampling of Cu- and Ni- bearing sulphide showings done by Belanger and Ritchie 1 km southeast of East Bull Lake on the Parisien Lake Deformation Zone, ("PLDZ").

**1952: Silcross Copper Mines Ltd.** drilled nine diamond drill holes, (SIL01 to SIL09) totalling 104.8m. The holes were collared north of the PLDZ in the southeast end of the West Lobe. Patchy chalcopyrite, pyrrhotite, and pyrite occurred throughout all holes. The best assays from the work included 1.65% Cu and 8.81% Ni. Silcross did not test for PGE's.

**1956: El-Pen Ray Oil and Mines Ltd.** completed geological mapping, EM surveys, and drilled fourteen diamond drill holes, totalling 2383.8m along the Moon Lake Zone. The work was designed to explore for base metal massive sulphide deposits. The best assay was 0.49% Cu and 3.93% Ni over 0.46m in drill hole E-6. Disseminated chalcopyrite and pyrrhotite are commonly mentioned in the drill logs but no assaying for PGE's was done. Borehole EM surveys were completed in holes E-2, E-3, E-4, and E-7 to E-12 inclusive. Only one weak conductor was recorded between drill holes E-2 and E-3. Two weak conductors defined by surface surveys were interpreted to be due to topography.

**1958: Noranda Mines Ltd.** performed line cutting, geological mapping, and a JEM survey. Mapping targeted historic sulphide showings along the PLDZ. Only weak, discontinuous conductors were recorded in the EM surveys.

**1962: Mining Corporation of Canada** completed magnetic and JEM surveys, mapping, trenching, and drilled a single diamond drill hole for 122.3m adjacent to the previous Silcross holes. This work was targeted on sulphide showings on the PLDZ. Enhanced magnetic responses mapped diabase dykes and magnetite-bearing syenite. The EM survey only detected weak, discontinuous conductors. No assays were recorded on the drill log.

**1963: Silcross Copper Mines Ltd.** reported additional assays of 1.63% Cu and 1.49% Ni in a prospectus.

**1979: Peter Born** completed a M.Sc. thesis at Laurentian University, titled *Geology of the East Bull Lake Layered Complex, District of Algoma, Ontario*. He provided the first detailed litho-stratigraphy for the West Lobe but did not discuss the economic potential of the intrusion.

**1982-89: Atomic Energy of Canada Ltd. (AECL)** completed gridding, mapping, sampling, stripping, ground and airborne geophysics, road building, four diamond drill holes (EBL-1 to EBL-4) totalling 2,617.5m, and 19 percussion holes for hydrologic studies. The AECL work on the EBLI was conducted to test if the gabbro-anorthosite intrusions were suitable sites for radioactive waste storage/disposal.

Three of the four diamond drill holes penetrated through to underlying basement rocks. EBL-1 was collared to intersect the thickest section through the EBLI West Lobe as inferred from interpretation of gravity data. EBL-1 and -2 intersected granite at approximately 770m vertical depth. EBL-4

intersected granite at 450m vertical. Holes EBL-1, -2, and -4 all intersected disseminated sulphides in “Basal Anorthosite”.

Core length intersections of this unit in the three holes ranged from 136m to 449m. AECL describes it as consisting of anorthosite, leucogabbro, gabbro, and pyroxenite. This unit’s position immediately above the mixed zone/footwall contact in all three holes correlates with the Lower Series. AECL did not assay for PGE’s but subsequent sampling by Mustang identified significant anomalous PGE values in all three holes.

**1987-90: Gallo, Hauseux and Surmacz** were the first to test the PGE potential of the EBLI. They completed two airborne magnetics and VLF-EM surveys along the PLDZ and over a large portion of the East Lobe. Trenching was also completed on the PLDZ. Moderately to strongly magnetic features on the airborne magnetic maps correspond to northwest-trending diabase dykes, Nipissing gabbro, syenite, and gabbro. In contrast, the EBLI is characterized by a low to moderate magnetic response.

Maximum magnetic relief is 500 gammas. Numerous weak to strong VLF-EM conductors were recorded. Most of these were reported to correlate with topography and/or with faults interpreted from topographic and magnetic lineaments. Contact type mineralisation exposed in trenches yielded values up to 1.3ppm Pt and 4.2ppm Pd. Structurally-controlled, semi-massive sulphides within the deformation zone yielded up to 0.8ppm Pt, 3.9ppm Pd, 0.68ppm Au, 33.9ppm Ag, 9.4% Cu, and 5.3% Ni.

**1990-95: The Ontario Geological Survey and Laurentian University** conducted a detailed study of the geology, metallogenic and petrogenesis of the EBLI. Three styles of mineralisation were identified, and up to 5ppm PGE were obtained from grab samples. Dr. David Peck was the lead researcher.

**1991-92: Inco Exploration and Technical Services Inc. (IETS)** completed gridding, mapping, sampling, and drilled five diamond drill holes totalling 1511.5m. Grab samples yielded values up to 0.20ppm Pt, 0.95ppm Pd, 0.22% Ni and 0.57% Cu in magmatic mineralisation, and up to 0.35ppm Pt, 3.08ppm Pd, 0.18ppm Au, 98.9 ppm Ag, 0.49% Ni and 14.7% Cu in structural-hydrothermal mineralisation.

**1994: Peter Chubb** completed a M.Sc. thesis at Laurentian University, titled *Petrogenesis of the Eastern Portion of the Early Proterozoic East Bull Lake Gabbro- Anorthosite Intrusion, District of Sudbury/Algoma, Ontario*. He described the litho-stratigraphy, geochemistry, and PGE-Cu-Ni mineralisation in the East Lobe. Using mass balance calculations, Chubb compared theoretical and observed sulphide abundances and concluded that there is potential for the intrusion to host a multimillion ounce PGE deposit.

**1995: WMC International Ltd.** completed gridding, mapping, and rock, soil, and till sampling. WMC reported a continuous zone of up to 5% blebby sulphides along the contact between inclusion-bearing gabbro-norite and nodular anorthosite in the “neck” that joins the two lobes. The sulphides were reported to occur across a width of 2 to 8m for up to a 1km strike length. The best assay from this zone was 0.91ppm Pt, 4.45ppm Pd, 0.39ppm Au, 0.53% Cu, and 0.11% Ni. The zone they described correlates with the mineralized zone that occurs along the south contact of the neck between Gallo’s and James’ ponds on the Peck Grid. No follow-up drilling was completed.

WMC also notes that disseminated and blebby sulphides occur in the southwest portion of the East Lobe. The soil and till surveys were limited to orientation surveys on known sulphide showings in the PLDZ. They were designed to sample up and down ice of the showings along the dominant 185° trend of glacial striae. The WMC report suggests these surveys were not effective at detecting

sulphides, but that pebble counts appeared to give a fairly reliable indication of the underlying bedrock geology.

**1998: Ministry of Northern Development and Mines** released the claims that were withdrawn from staking, which were then staked by Bailey, Luhta, and Orchard. Mustang optioned these claims, the Gallo et. al. property, and added infill blocks to form a large, contiguous property.

**1998-2000: Freewest Resources Canada Inc.** staked the Folsom Lake property in the southwest end of the West Lobe in the spring of 1998. This property covers 2km string length of the prospective Lower Series rocks between Mustang's Folsom Lake and Bullfrog grids. A new mineralized showing, the Valhalla showing, was identified during staking. The best grab sample returned 1.35ppm Pt, 3.15ppm Pd, 0.23ppm Au, 3.4ppm Ag, and 0.7% Cu. Along with their partner, Sparton Resources Inc., they carried out prospecting, stripping, blasting, ground geophysics, and diamond drilling.

A total of 27 diamond drill holes for 2901.8m were completed from 1998 to 2000. All holes intersected anomalous PGE values (up to 1.96ppm PGE's over 24m).

**2000: Aquiline Resources Inc.** completed 11.8km of line cutting, geological mapping, induced polarization and magnetometer surveys, collected 179 grab samples, and drilled 1287.1m in 10 diamond drill holes in the southeast end of the EBLL West Lobe. The property covers 1.8km of the PLDZ and adjacent prospective Lower Series units of the EBLL. Anomalous PGE values were reported.

**1998 – 2007: Mustang** completed gridding, prospecting, mapping, ground and airborne geophysics, trenching, channel sampling, and diamond drilling. In 1998, 17.5km of gridding, mapping, induced polarization and magnetometer surveys were completed in the area east of Moon Lake. Eight Diamond drill holes (ME98-01 to - 08), totalling 1198m defined two mineralized zones 10 to 30m apart in drill core over a strike length of 400m. The best reported assay from the program were 5.65ppm combined Pt+Pd+Rh+Au over 1.5m within a lower grade, and a wider zone of 1.07ppm over 13.5m in hole ME98-01.

In 1999, Mustang acquired the core from four of the drill holes that were drilled by AECL in 1983. The core was partially re-logged and sampled. Holes EBL-1, -2, and -4 confirmed the presence of a zone of PGE mineralisation that was very similar to that intersected in the Mustang drilling at Moon Lake.

Also in 1999, Mustang carried out 25km of gridding and magnetometer surveys, and 10.3km of induced polarization on the Bullfrog Grid. The magnetic survey extended from L30W on the Bullfrog grid to L0 on the Twin Towers Grid. Three additional holes (ME99-09 to ME99-11) were drilled on the Moon Lake grid in order to test the zone's strike and continuity and grade. The best intersection returned 1.17ppm combined Pt+Pd+Rh+Au over 6.5m (ME99-11).

Preliminary mapping and sampling on the Bullfrog grid in 1999 indicated that the Valhalla showing mineralisation that had been defined by Freewest property to the west, extended to the east onto Mustangs property. Grab samples collected along the north shore of Bullfrog Pond returned PGE assays of up to 16.48ppm with many samples in the 2 to 10ppm PGE range. Eleven diamond drill holes (ME99-12 to ME99-15, ME00-16 to ME00-22) were drilled between November 1999 and April 2000.

The drilling program defined a mineralized zone over a 600m strike length, open to the east and west. In 2000, gridding and several ground geophysical surveys were completed on the Bailey, Fire Tower, Peck, and Folsom Lake, and Parisien Lake, South, and East Lobe Grids. Prospecting and

geological mapping targeted these grids and three contact-type mineralized zones were identified and sampled on the Peck, East Lobe, and Parisien Lake (Kidd Zone) grids, with best assays of up to 3.83ppm, 2.09ppm, and 4.98ppm combined Pt+Pd+Au respectively.

Follow up diamond drilling by Mustang (1207m in holes ME00-26 to ME00-30) in the vicinity of Gallo's Pond indicated that the unmineralised nodular anorthosite becomes more predominant with depth and consequently the mineralised IBZ appears to pinch out. Drilling intersected wide zones of lower grade PGM's.

Three holes (ME00-23 to ME00-25) totalling 614m were drilled to the east of James Pond in the East Lobe area to test two potential deep IP chargeability anomalies. However, these anomalies were not explained and the holes intersected unmineralised, Main Series rhythmically layered leucogabbros.

An additional hole totalling 150m (ME00-31) was completed on the north shore of James Pond to test the Peck Showing at depth. Best assays from this hole were 0.40ppm PGM, 0.14% Cu, and 0.07% Ni over 7.2m.

In 2001, Mustang and Falconbridge Ltd. completed line cutting, prospecting, geological mapping, trenching, channel sampling and ground and fixed wing airborne geophysical surveys.

In 2002, Mustang and Falconbridge Ltd completed 6 diamond drill holes totalling 860m (ME02-32 to -37) in the Central Zone. Significant PGE values were intersected in all of the holes. In 2007, Mustang completed a helicopter airborne geophysical survey over the EBLI property. The survey identified several shallow to deep EM conductors across the property.

**2008: Mustang** commenced diamond drilling on April 30th, 2008. This was completed by May 11th, 2008. A total of 1050.0m was drilled in six drill holes. The drilling program was designed to test the PLDZ for remobilized Cu-Ni and for PGE potential at the structurally emplaced basal contact at the Parisien Lake and Kid Zones. Anomalous platinum-group element, copper and nickel values were intersected. The most significant intersection in terms of PGE and base metal mineralisation was 12.5ppm combined Pt+Pd+Au, 9.3% Cu & 0.4% Ni over 1.1m in diamond drill hole EB08-02.

**2009: Mustang/WSA** approximately 11km of grid was cut in the Novick Lake Project area. Due to difficult terrain and inclement weather conditions, the proposed grid at the Sables Project was not completed.

In March 2009, a Moving In-Loop Transient Electromagnetic (MLEM) and Fixed-Loop (FLEM) survey was commissioned over the Novick Lake prospect at EBL. The surveys were undertaken by Abitibi Geophysics for Western Areas NL and were designed by Newexco Services Pty Ltd, Australia, to follow-up on and constrain the anomalous responses identified by the VTEM airborne geophysical survey completed in May of 2007 by Geotech for Mustang Minerals Corp.

The MLEM survey covering the Novick Lake grid was completed successfully with six lines, one kilometre in length, surveyed. The identification of two poorly defined anomalies prompted the design of a FLEM survey to better constrain the identified sources. Five line km of FLEM was completed at Novick Lake, however, the FLEM survey failed to define the two anomalies any further.

## 5 Geology.

### 5.a Regional Geology.

The EBLI is one of several Paleoproterozoic (2.44-2.49Ga; e.g., Krogh et. al., 1984; Ashwal and Wooden, 1989; Prevec, 1993; Vogel, 1996; Vogel et. al., 1998, 1999) layered mafic complexes that are collectively known as the East Bull Lake Intrusive Suite (“EBL”).

With the exception of the River Valley Intrusion (“RVI”), they occur in a linear belt within the Archaean Superior Province along its margin with the Paleoproterozoic Southern Province to the south. The RVI occurs in metamorphosed equivalents of these rocks in the Grenville Province east of Sudbury.

The EBL intrusions slightly pre-date volcanic rocks in the basal portion of the Paleoproterozoic Huronian Supergroup. The EBLI and the nearby Agnew (Shakespeare-Dunlop) intrusion have U/Pb zircon and baddeleyite ages of 2480  $\pm$ 10/-5Ma and 2491  $\pm$ 2/-1Ma (Heaman in Hrominck, 2000). Copper Cliff Formation rhyolite near the base of the Huronian Supergroup at Sudbury has a distinctly younger U-Pb zircon age of 2450  $\pm$ 25/-10Ma (Krogh et. al., 1984).

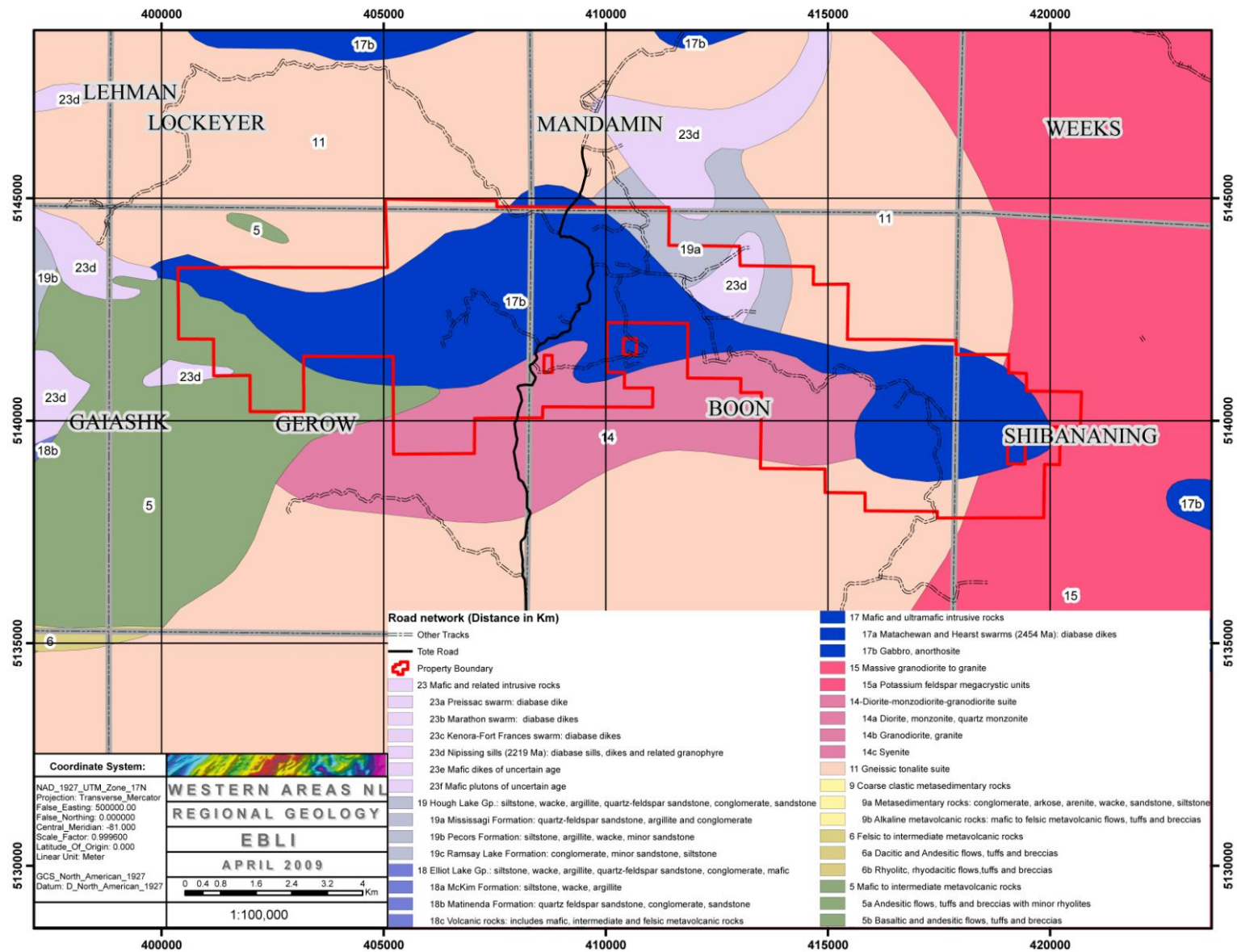
Matachewan swarm diabase dykes cut the EBLI, but at 2473  $\pm$ 16/-9Ma (Heaman, 1988) are only slightly younger. The EBLI Intrusive Suite, Matachewan diabase dykes, and lower Huronian Supergroup volcanic rocks are all interpreted to be components of 2490 to 2440Ma rift-related magmatism that coincided with initial development and infill of the Huronian basin along the southern margin of the Superior craton.

The EBLI was emplaced near the contact between three different Archaean domains. The intrusion is in contact with the Whiskey Lake greenstone belt to the southwest. This mafic to intermediate metavolcanic package has not been dated. Comparable rocks within the southern part of the Abitibi Sub province, of which the Whiskey Lake greenstone belt is a component, have ages that range from 2750 to 2675Ma (Jackson and Fyon, 1991).

Ramsey-Algoman Granitoid Complex intermediate to felsic plutonic rocks occur to the northeast, northwest, and southeast. The 2665  $\pm$ 1.6/-1.4Ma (Krogh et. al., 1984) Parisien Lake syenite borders the EBLI to the south. The EBLI not only post dates these Archaean rocks, but also the 2647 to 2642Ma metamorphism that affected them (Easton, 2000). The contact between the EBLI intrusion and outliers of Huronian sedimentary rocks to the north are not exposed, (Figure 3).



Figure 3: Regional Geology of the East Bull Lake Area.





Several younger magmatic, structural, and metamorphic events post-date the EBLI and have left imprints on it. Nipissing diabase and gabbro with a 2150 +/- 50Ma Rb-Sr whole rock age forms cliff bounded plateaus north of the EBLI but has not been observed to cut the EBLI (Fahrig and Wanless, 1963; Van Schmus, 1965). Sudbury Breccia dykes related to the 1850 +/- 1Ma (U-Pb zircon age for norite; Krogh et. al., 1984) Sudbury impact event, cut the EBLI (Chubb et. al., 1994). Olivine diabase of the 1250 +/- 50Ma Sudbury Swarm are the youngest significant intrusions to cut the EBLI. They strike west-northwest and dip steeply northeast (Fahrig and Wanless, 1963).

### 5.b Local Geology.

The stratigraphy of the EBLI can be subdivided into the Marginal, Lower, Main, and Upper Series. Figure 4 displays the property geology of the East Bull Lake intrusion.

**The Marginal Series** is a variably developed transition from Archaean footwall rocks to the Lower Series rocks. The Marginal Series is further subdivided into the Border Zone and the overlying Gabbro-norite Zone. The Border Zone is developed as a breccia a few metres to tens of metres thick. It is composed of locally derived, Archaean footwall blocks (granite, tonalite, syenite, basalt) within fine to coarse grained leucogabbro, gabbro, melanogabbro, and anorthosite. Abundance and size of footwall xenoliths generally increases upwards where a breccia texture is developed.

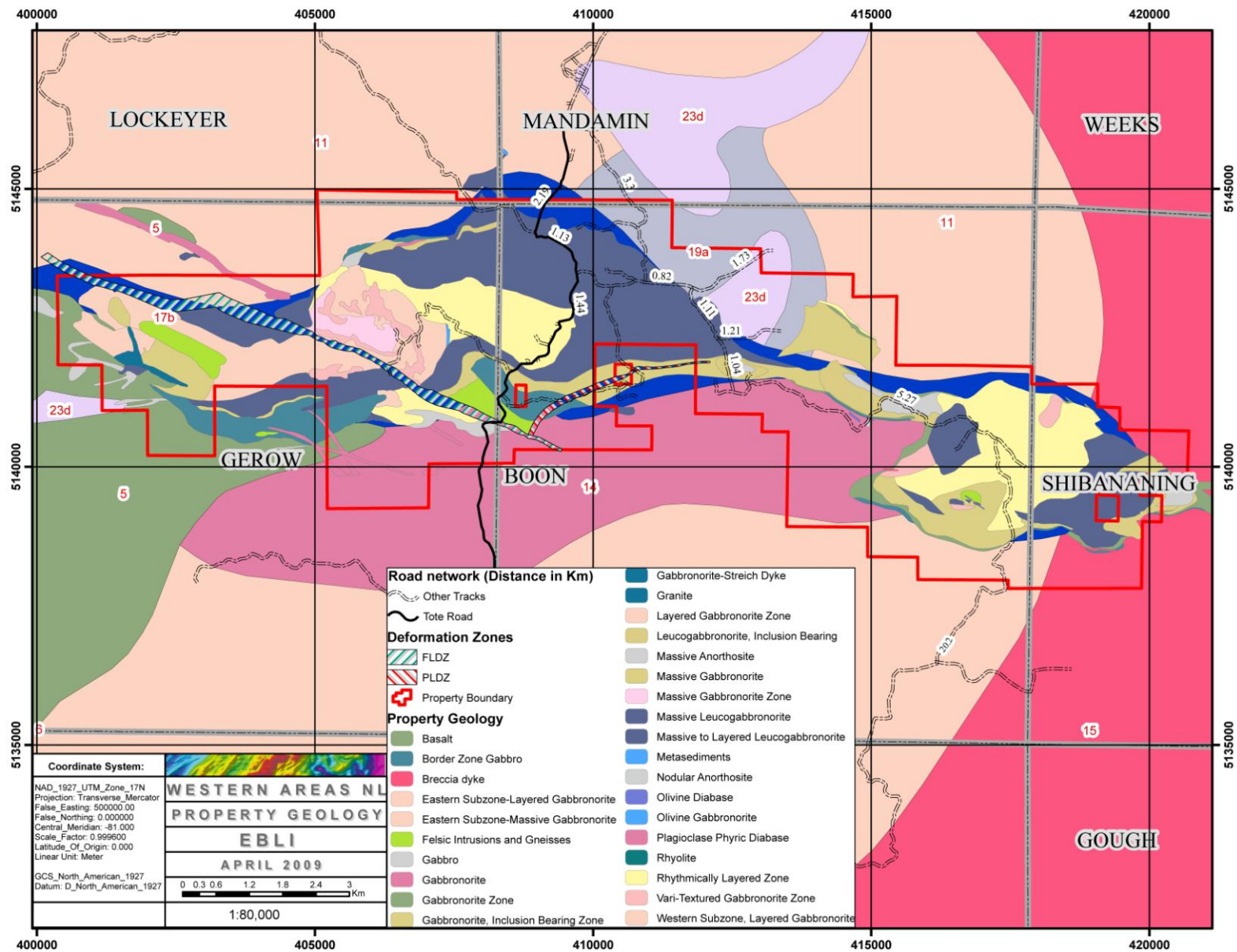
Granophyric xenomelts that occur in and adjacent to xenoliths are evidence of in-situ melting (Peck et. al., 2001). The Border Zone is locally overlain by a narrow gabbroic unit known as the Gabbro-norite Zone. This interval, typically a few metres thick, may have developed as a chilled margin to the EBLI (Peck et. al., 2001) or from late injections of mafic magma that were unable to penetrate the overlying Lower Series rocks (Chubb, 1994). The Marginal Series may be absent with the Lower Series rocks in direct contact with the Archaean footwall.

**The Lower Series** is composed of a lower xenolith and autolith-bearing unit (Inclusion Bearing Zone), and an overlying Anorthositic Gabbro Zone. The Lower Series hosts almost all known contact style PGE-rich sulphide mineralisation in the EBLI. The Inclusion Bearing Zone (IBZ) can be represented by a chaotic, multistage breccia, or a distinctive blue quartz-eye bearing gabbro, or a relatively massive leucogabbro or gabbro with rare inclusions. The composition of the IBZ is typically more mafic than the overlying anorthositic gabbro zone. The heterolithic inclusion population with the IBZ includes:

- 1) xenoliths of Archaean granite, tonalite, syenite, or basalt.
- 2) anorthosite, anorthositic gabbro, leucogabbro, gabbro, and melanogabbro autoliths.
- 3) irregular pods and bands of melanogabbro and pyroxenite.

The Anorthositic Gabbro Zone (AGZ) comprises the upper portion of the Lower Series. It is the most plagioclase-rich unit within the EBLI, and is composed mostly of leucogabbro and anorthositic gabbro.

Figure 4: Property Geology (Superimposed on Regional Geology).



*The Main Series* is composed of, from bottom to top, the Leucogabbronorite Zone, the Rhythmically Layered Zone, and the Olivine Gabbronorite Zone. The Leucogabbronorite Zone is composed of massive leucogabbros. Poorly developed layering occurs in the upper part of the zone. Centimetre to tens of metres thick gabbro and leucogabbro layers typify the Rhythmically Layered Zone. Peck et al. (2000) noted that plagioclase abundances increases towards the top of the modally graded layers. They interpreted this as the separation of high temperature, buoyant plagioclase phenocrysts from a denser Fe and Mg-rich residual magma.

*The Upper Series* is composed of the Layered Gabbronorite Zone characterized by common irregular textural and modal layering, and the overlying Massive Gabbronorite Zone. The Massive Gabbronorite Zone is comprised of a massive to vari-textured gabbro. It is characterized by grain size textural heterogeneity, pegmatoidal pods, and dendritic pyroxene masses. Similar vari-textured gabbros occur throughout the EBLI as metre-size pods and as discontinuous intervals up to several metres in thickness.

### **5.c Structure.**

The EBLI is transected by several deformation zones and numerous WNW trending dike swarms. The largest and most extensive deformation zone is the Folsom Lake Deformation Zone (“FLDZ”) that forms a 115°-120° regional structure, and extends for over 45km (Figure 4). The FLDZ displays a dextral strike slip movement of approximately 3km, but evidence of both sinistral and sub vertical displacements are also present (McCrank et al., 1989). Another important structure is the less extensive Parisien Lake Deformation Zone (“PLDZ”) that is a 080° oriented shear zone which is up to 50m wide and extends for approximately 4km.

Chubb (1994) reports that air photo lineaments are oriented in all directions but display a preferred orientation ranging from 110° to 140°. During the mapping program, layering was only observed on the Peck and East Lobe grids. At these locations isomodal layering occurs in the upper stratigraphy and typically ranges from cm- to m-scale rhythmic layers. Observed dips were generally moderate to shallow to the northwest. To date, empirical observations suggest that PGM enrichment could be related in part to approximately east-west (080°) trending lineaments (conjugate faults?) and related deformation (e.g. the Bullfrog Zone and the Kidd Zone on the Parisien Lake grid).

### **5.d Metamorphism.**

The rocks of the EBLI have attained up to lower epidote-amphibolite to upper greenschist facies (McCrank et al., 1989; Chubb, 1994). The main group of stable metamorphic minerals that occur within the EBLI consist of a variety of calcic-amphiboles, quartz, biotite, chlorite, titanite and epidote group minerals. The calcic-amphiboles typically pseudomorphically replace primary magmatic pyroxenes and olivine. Plagioclase is the only igneous mineral in the EBLI to escape complete alteration, although most crystals have undergone varying degrees of recrystallisation and saussuritisation.

### **5.e Mineralisation.**

The sulphide occurrences that occur in the EBLI can be broken down into three main types, based on stratigraphic position, structural setting and PGM tenor (Peck et al., 1993, 1995, 2000 and 2001):

*1. Contact-type*, PGM-rich disseminated sulphide mineralisation is erratically distributed throughout the Lower Series rocks and underlying Marginal Series, but exhibits excellent lateral continuity, having a minimum estimated strike length of >25km. This mineralisation is best developed in the Inclusion-Bearing Zone, within a few tens of metres of the footwall contact. However, it is also erratically disseminated throughout the Anorthosite Zone and, rarely, in the overlying Leucogabbronorite Zone at a distance of up to 400m stratigraphically above the margin of the intrusion (Peck et al., 2000). Individual zones locally contain up to 10% sulphide, but more typically sulphides vary from <0.1% to 1% and rarely exceed 2%.

The sulphides consist of finely disseminated grains and coarser blebs up to 5cm in diameter with roughly equal parts pyrrhotite and chalcopyrite that appear to have co-precipitated. Primary magmatic sulphide blebs are rounded to elliptical shaped in which chalcopyrite commonly rims rounded pyrrhotite cores. Late stage pentlandite is observed as exsolved flames and rims on both the pyrrhotite and chalcopyrite (Peck et al., 1993). Most sulphides have been typically recrystallised resulting in a grain size reduction and complex intergrowths of secondary sulphides and silicates (Peck et al., 2000). Locally the sulphides have also been remobilized into late fractures and veinlets. On Mustang's East Bull Lake Property, PGM concentrations from grab samples that were collected from the IBZ range from <100ppb up to a high of 16.48ppm at the Bull Frog Zone.

**2. Structurally-controlled**, hydrothermal mineralisation occurs in several high strain zones that transect the EBLI. The PLDZ is the best example of this type of mineralisation, where pods of semi-massive to massive sulphide and magnetite in amphibolite schists. Most of the pods are pyrrhotite and/or pyrite- rich, but massive chalcopyrite has also been observed (Peck et al., 2000). This sulphide mineralisation is postulated to have formed as the result of fluid circulation within a shear zone that cuts a PGM-enriched Contact-Type sulphide zone.

**3. Disseminated sulphides** are very rare in the Main and Upper Series rocks, and when present are typically pyrrhotite-rich with lower PGM tenors. However, Peck et al. (1995) note that anomalously high PGM concentrations (up to 1ppm) occur in the Olivine Gabbro-norite Zone cumulates. Sulphides are rarely visible in this unit, but Peck et al. (1995) report that very small amounts of PGM-rich sulphides are indicated by a positive correlation between Se, Cu and PGM abundances.

## 6 Exploration Completed, (1<sup>st</sup> May 2009 – 1<sup>st</sup> August 2009).

### 6.a Drilling.

During the reported period, two diamond drill holes for a total of 810m of NQ2 was completed on the EBL Project by Logan Drilling. Staff based in Toronto supervised the drilling. The main objectives being to airborne & ground VTEM anomalies at Novick and Sables.

Table 2: Drill collars.

DH Number	Easting*	Northing*	Dip	Azimuth	Length m	Prospect	RL+
N1	416602	5140288	-62.5	000	491	Novick	387
S1	413619	5142325	-50	340	154	Sables	335

\* Datum and projection: NAD27, UTM Zone 17N  
+ Relative level above msl.

Northern Exploration Services was contracted to provide ground support and to construct drill pads. Wendake Helicopters was contracted to facilitate drill moves and crew changes.

### 6.b Down hole Geophysics.

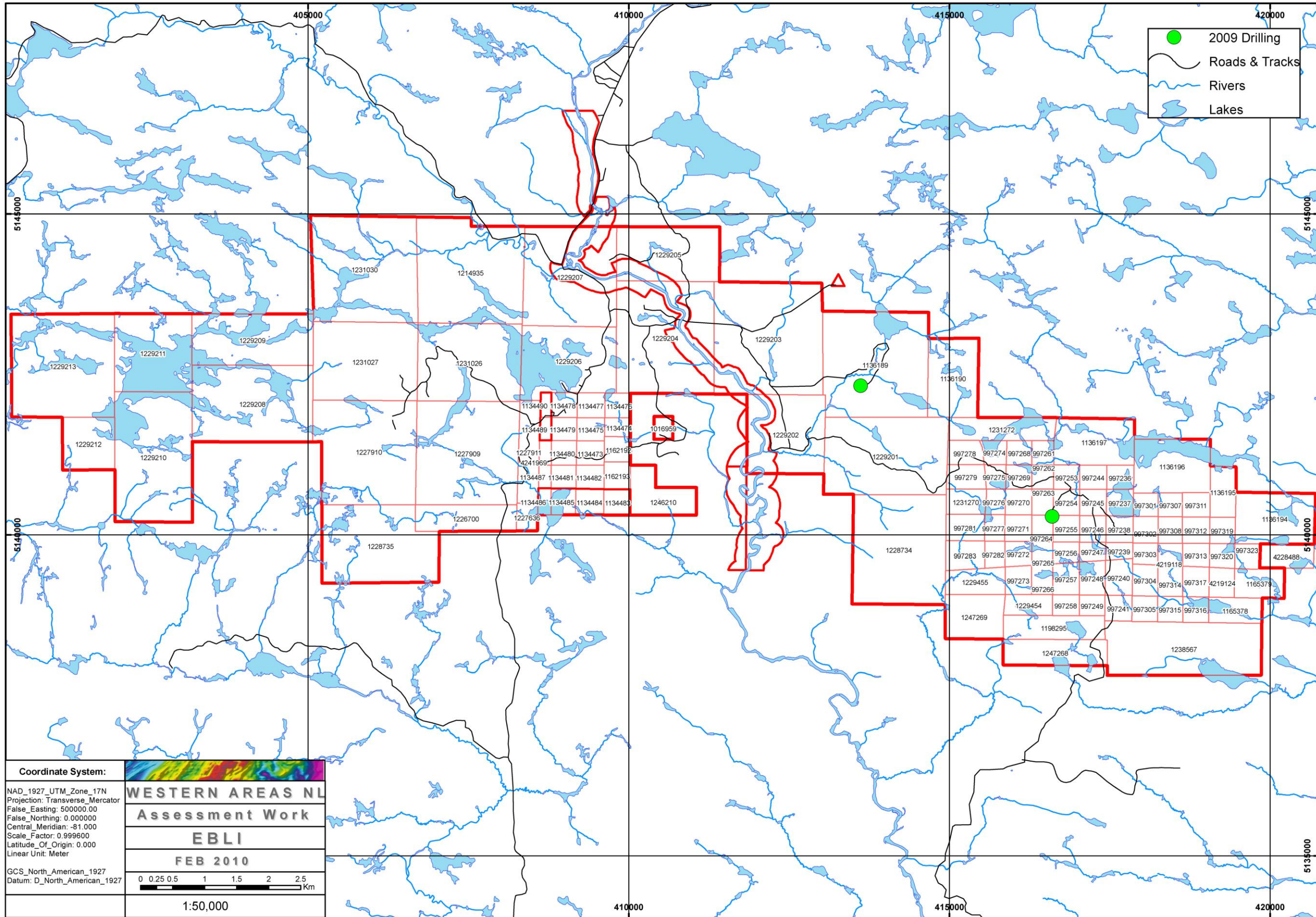
Crone Geophysics & Exploration Ltd completed down hole EM in both drill holes. Their work and interpretation of results is presented in Appendix II.

## 7 Interpretation and Conclusions.

The two drill holes completed, and subsequent down hole geophysics, failed to identify any economic mineralisation in the work areas. Further work, such as airborne geophysics is recommended.



Figure 5: Contiguous claims, (2009 assessment work).





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## 9 CERTIFICATE OF AUTHOR

I, Robert E Barwick, am a Professional Geoscientist. (Overseas Exploration Manager for Western Areas NL) of 65 Queen Street West, Suite 1105, Toronto in the province of Ontario. I am a full time employee of Western Areas NL.

I am a member of the Australasian Institute of Mining and Metallurgy (AusIMM) and the Australian Institute of Geoscientists (AIG).

I graduated from The Royal Melbourne Institute of Technology (RMIT) in the state of Victoria Australia, with a Bachelor of Applied Science (Applied Geology) in 1984. I have practiced my profession continuously since 1984.

Since 1984 I have been involved in: mineral exploration and evaluation of deposits for gold, PGE's, copper, lead-zinc, nickel, coal and uranium in Australia, China, Finland, Russia and Canada.

As a result of my experience and qualification I am a Qualified Person as defined in N.P. 43-101.

This report was prepared by me. I have worked at the property and supervised the work programs and have had access to all data and personnel that have worked on the project.

I am not aware of any material fact or material change with respect to the subject matter of this technical report which is not reflected in this report, the omission to disclose which would make this report misleading.

I have read National Instrument 43-101, Form 43-101FI.

Dated at Rautavaara, Finland, this Monday, 1<sup>st</sup> FEB 2010



Robert E Barwick

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## **APPENDIX II**

Crone Geophysics Interpretation by Newexco Pty Ltd.

For:

### **2009 TECHNICAL REPORT, EAST BULL LAKE PROPERTY** (to accompany Assessment Work Performed on Mining Lands (form # 0241E & 0290E))

**Report for the Period 1st May 2009 to 1st August 2009**

**Author:** Western Areas NL (Robert E Barwick)

**Date:** 1<sup>st</sup> Feb 2010

**Report No:** Report No: WSA-EBL FEB10-01

**Keywords:** VTEM, Magnetics, Nickel, Copper, PGE's.

**Location:** BOON TOWNSHIP, SUDBURY MINING DIVISION, ONTARIO, CANADA.

**Sheet Name:** NTS 41J/08

**UTM Co-ordinates:** UTM 410400E, 5142500N, Zone 17N, NAD27 (Centre of work area)

**Geographic Co-ordinates:** 46° 26' N Lat, 82° 10' W Long (Centre of work area)

#### **Distribution:**

1. Provincial Mining Recorder Office , Ministry of Northern Development and Mines, Sudbury, ONTARIO
2. Western Areas NL.
3. Mustang Minerals Corp.



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## Memorandum

<b>To:</b> CW, RB	<b>Client:</b> WSA
<b>From:</b> Nicholas Ebner	<b>Project:</b> East Bull Lake
<b>c.c:</b> WJA	<b>Prospect:</b> Novick Lake
<b>Subject:</b> Preliminary N1 DHEM Interpretation	<b>Date:</b> 3 February 2010

This memo concerns the interpretation of the down-hole electromagnetic survey performed in hole N1 at Novick Lake on the 5<sup>th</sup> June, 2009.

### Survey Specs

- Contractor: Crone
- Operator: ISMAIL Ali
- System: Crone
- Components: AUV
- From / To: 100 – 470 m
- Base Freq: 5 Hz
- Datum/Proj: NAD27, NUTM 17

### Tx loop for N1:

Vertice	East	North	RL	Vertice	East	North	RL
LV1	416909	5140673	355	LV17	416500	5140932	369
LV2	416907	5140718	347	LV18	416509	5140858	373
LV3	416904	5140775	347	LV19	416510	5140811	369
LV4	416903	5140829	347	LV20	416520	5140747	370
LV5	416899	5140892	349	LV21	416526	5140663	369
LV6	416895	5140973	352	LV22	416540	5140583	366
LV7	416892	5141002	352	LV23	416598	5140584	369
LV8	416855	5141041	349	LV24	416666	5140599	376
LV9	416797	5141037	349	LV25	416694	5140601	367
LV10	416737	5141034	350	LV26	416728	5140602	354
LV11	416689	5141028	353	LV27	416747	5140602	352
LV12	416630	5141031	357	LV28	416798	5140611	357
LV13	416561	5141024	348	LV29	416836	5140613	359
LV14	416532	5141024	349	LV30	416912	5140611	363
LV15	416502	5141018	360	LV31	416909	5140655	354
LV16	416503	5140991	359				

**Results:**

Polarity of each component was checked to ensure the system was set up correctly. This ensures the data are displaying the conventional orientation. The hole position was corrected for trajectory using orientation survey data. Data quality is good; the noise envelope is visible at early times (ch 10, 0.5 ms) due to the high resistivity of the ground. All recorded components are displayed on a log-lin plot, Figure 1.

No anomalous response has been recorded in Novick Lake hole N1. The local geology displays such a resistive response that it is very unlikely that a conductive source, present in the vicinity of the hole, would not respond adequately to be recognised. A monotonic increase in the axial component response is associated with the orientation of the hole toward the Tx loop and is not anomalous.

**Interpretation:**

Hole N1 was drilled to test the deep anomalous response identified in the 2007 EBL VTEM survey and subsequently followed-up and further constrained by the MLEM survey conducted by Abitibi Geophysics earlier this year. Supporting evidence in both these surveys provided sufficient evidence to warrant the follow up despite the absence of a response in the FLEM survey also covering the area.

The N1 drillhole intersected no sufficiently conductive horizon which would identify the EM response and so a Crone DHEM survey was conducted in order to locate the anomalous source. The DHEM is similarly absent of any anomalous response.

The results of forward modelling, to produce the synthetic DHEM response to the MLEM modelled target, are provided in Figure 3 and Figure 2. Clearly, no such response associated with the MLEM interpreted conductor is present.

The Tx loop was laid out in slightly the wrong place; due to its size however, there is little impact this geometrical error would have on the data or coupling with the target horizon.

**Conclusion:**

Hole N1 was logged from 100 to 470 using the Crone probe and downhole receiver. Data quality is good although late time channels show noisy data associated with the local resistive geology. No anomalous response has been recorded. No further work is recommended. A final update will be provided as soon as the loop position has been confirmed (possible Datum/Proj uncertainty).

An explanation to the source of the VTEM and MLEM anomaly is unknown. Comparison of this VTEM anomaly with other well defined VTEM anomalies with known conductive sources is underway to establish a possible justification for the lack of a DHEM

response.

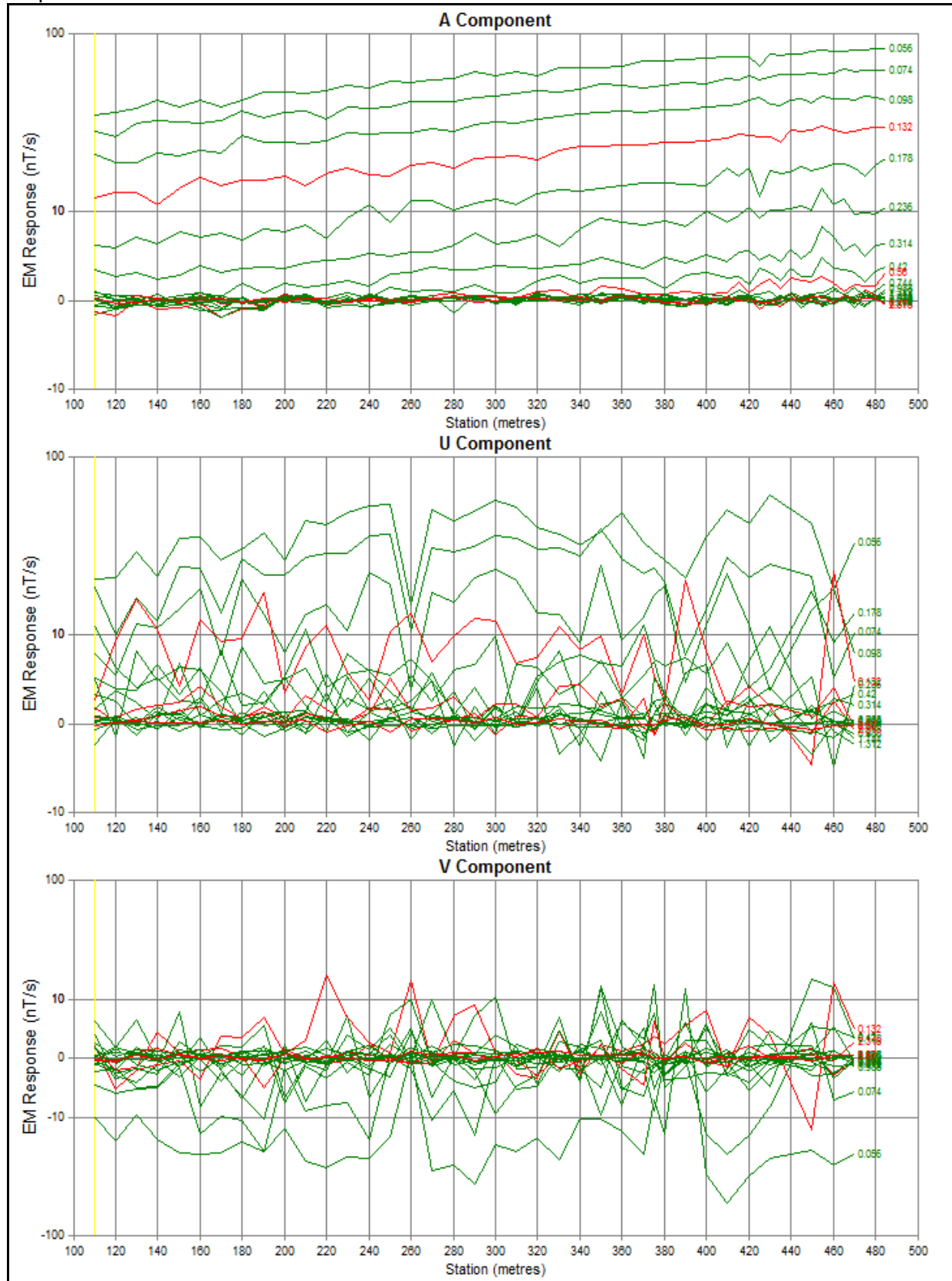


Figure 1: N1 logarithmic amplitude versus depth showing AUV components, channels 2 - 10.

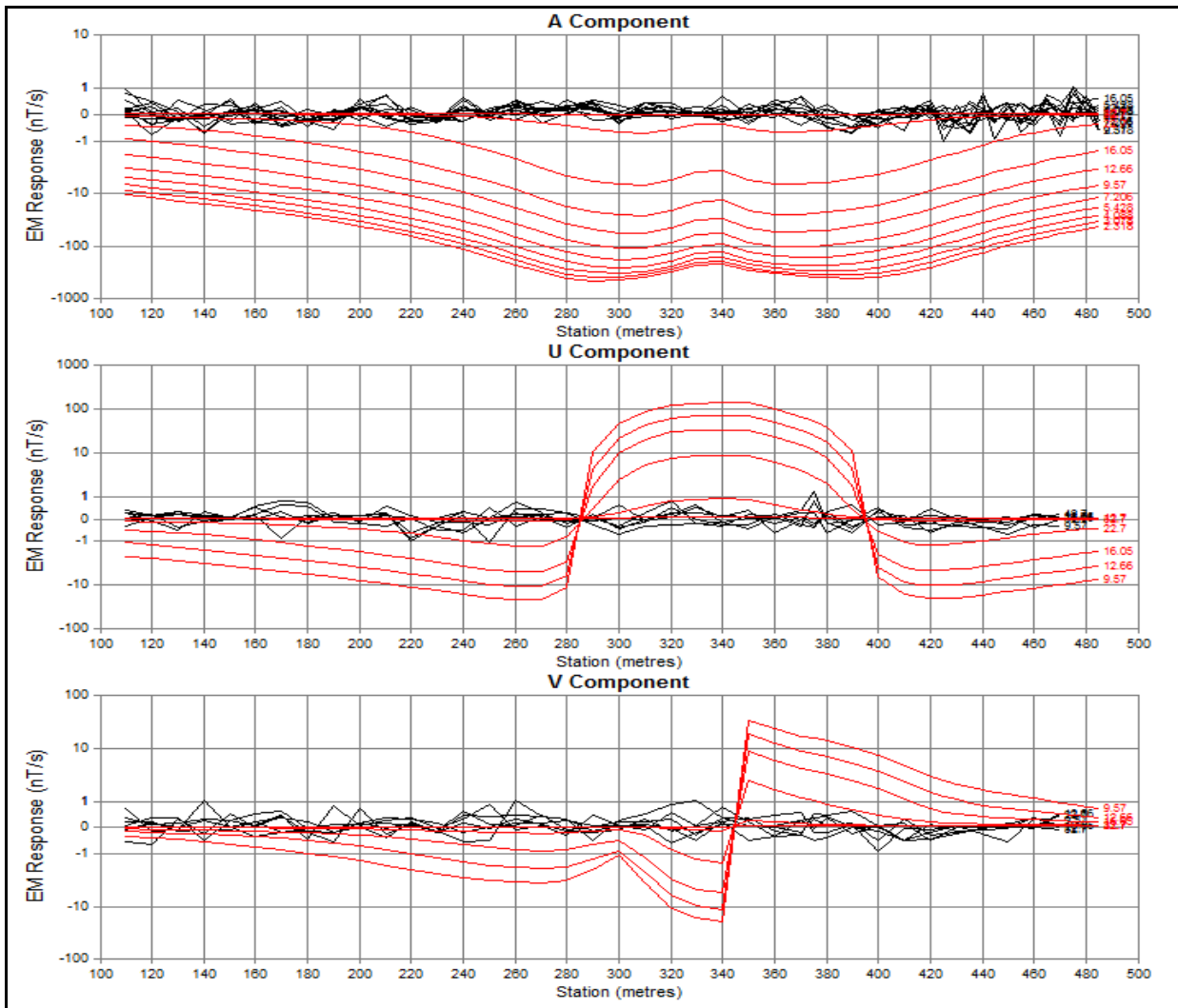


Figure 2: N1 logarithmic profiles of channels 15 – 25 (9.6 – 42.7 ms). Black and red profiles represent field and modelled responses respectively.

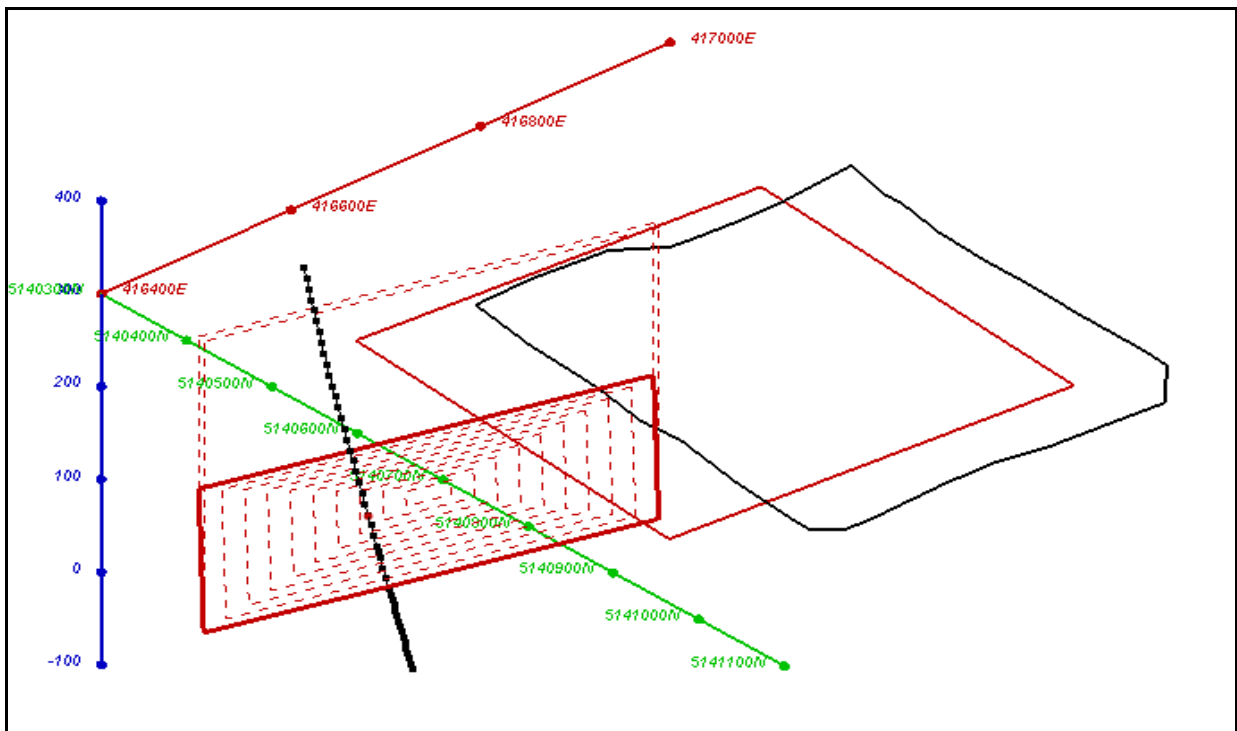


Figure 3: Novick Lake N1 drillhole and MLEM modelled plate. Final loop position shown in black; proposed loop in red.





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## Memorandum

<b>To:</b> CW, RB	<b>Client:</b> WSA
<b>From:</b> Nicholas Ebner	<b>Project:</b> East Bull Lake
<b>c.c:</b> WJA	<b>Prospect:</b> Sables
<b>Subject:</b> S1 DHEM Interpretation	<b>Date:</b> 3 February 2010

This memo concerns the interpretation of the down-hole electromagnetic survey performed in hole S1 at Sables – East Bull Lake on the 1<sup>st</sup> July, 2009.

### Survey Specs

- Contractor: Crone
- Operator: ISMAIL Ali
- System: Crone
- Components: AUV
- From / To: 30 – 150 m
- Base Freq: 5 Hz
- Datum/Proj: NAD27, NUTM 15

### Tx loop for S1:

Vertice	East	North	RL	Vertice	East	North	RL
LV1	413569	5142340	329	LV13	413656	5142213	357
LV2	413601	5142363	330	LV14	413615	5142219	359
LV3	413678	5142375	331	LV15	413576	5142214	358
LV4	413725	5142404	336	LV16	413534	5142220	356
LV5	413747	5142381	339	LV17	413495	5142216	363
LV6	413796	5142365	354	LV18	413489	5142238	359
LV7	413836	5142312	359	LV19	413476	5142266	355
LV8	413858	5142255	355	LV20	413469	5142296	335
LV9	413861	5142210	344	LV21	413485	5142291	333
LV10	413816	5142221	345	LV22	413548	5142309	332
LV11	413775	5142231	358	LV23	413567	5142311	325
LV12	413707	5142237	351				

EM Coupling was a concern in the beginning due to restrictions on the placement of the loop because of the proximity to a lake. Crone, under instruction to push the north-west loop edge as far away from the hole as possible, successfully achieved good coupling to the target conductor as demonstrated in Figure 1.

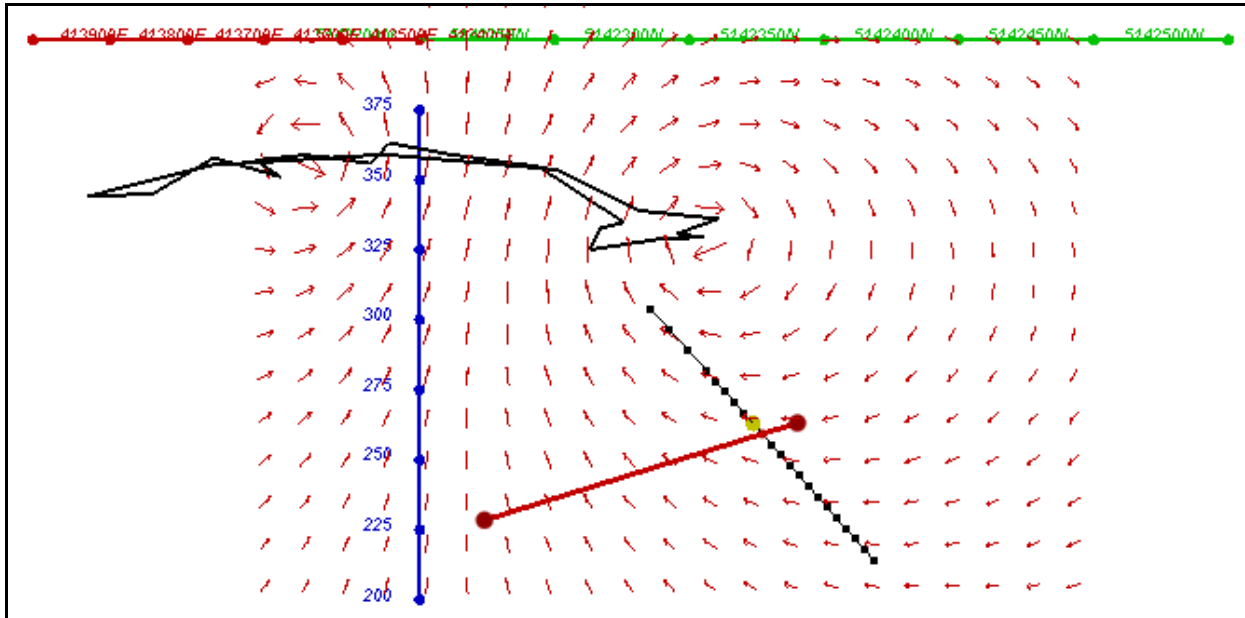


Figure 1: Hole position and primary field coupling vectors, viewed from the east.

### Results:

Polarity of each component was checked to ensure the system was set up correctly. This ensures the data are displaying the conventional orientation. The hole position was corrected for trajectory using orientation survey data. Data quality is good. The noise level is approached at channel 19 (7.2 ms) due to the resistive ground and weakness of the identified conductor. All recorded components are displayed on a log-lin plot, Figure 2.

A well defined perturbation of moderate amplitude has been recorded in hole S1 centred at 90 m downhole. The axial component displays a clear single peak indicative of an on-hole source. The positive to negative cross-over in both radial components indicates the bulk of the response originates from below and right of hole; however, based on the coupling of the primary field, Figure 1, this would be expected. It is therefore interpreted that the source originally identified from the VTEM survey, has been centrally targeted.

### Interpretation:

Modelling of the response confirms the position of the conductor to lie below and right of hole. The VTEM modelled response, displayed as blue plates in Figure 3, agrees better than expected with the DHEM modelled response; red plate, Figure 3. Consequently, hole S1 was successfully positioned. Unfortunately, the DHEM has ruled out the existence of a high-conductance source associated with the S1 anomaly in the vicinity of the hole.

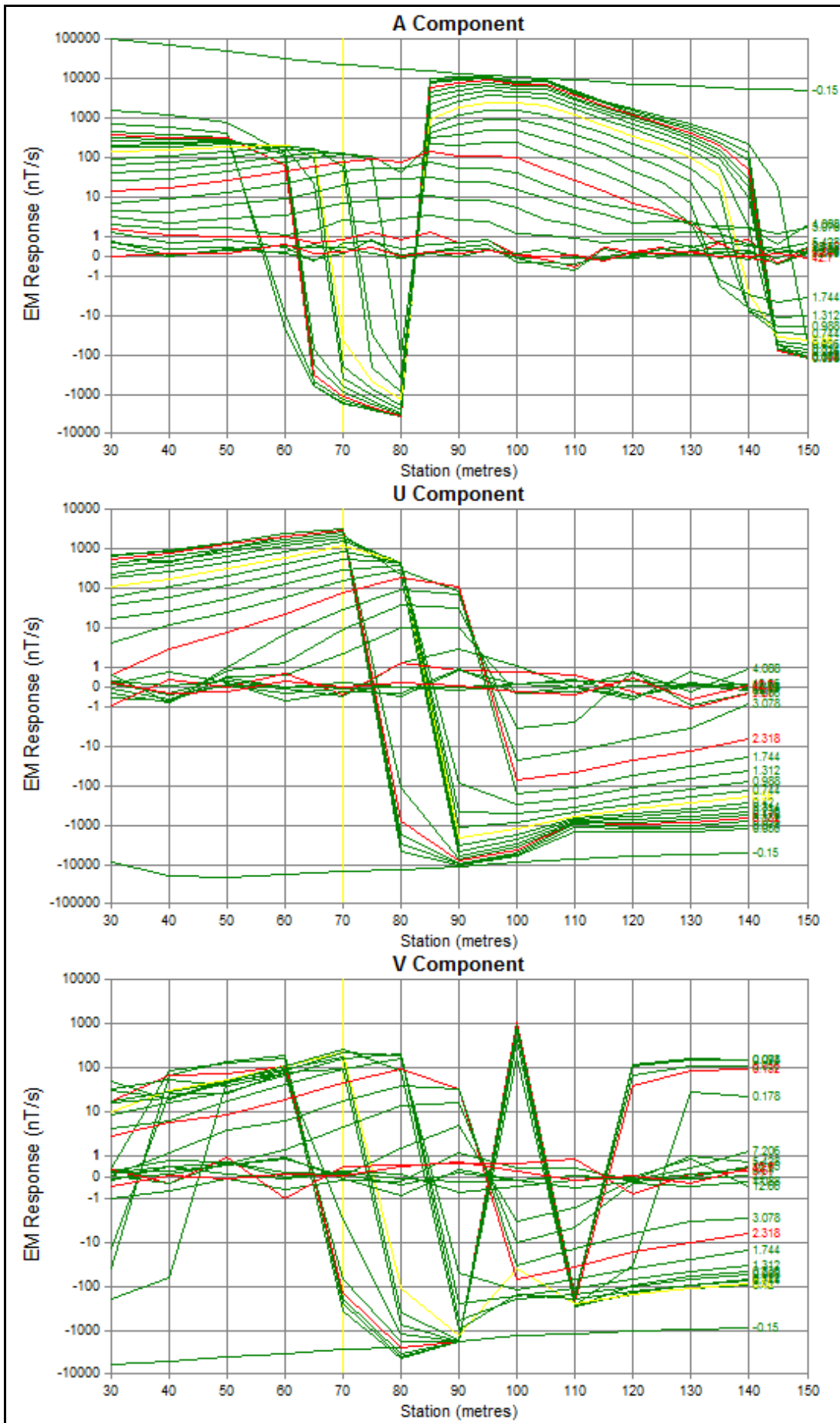
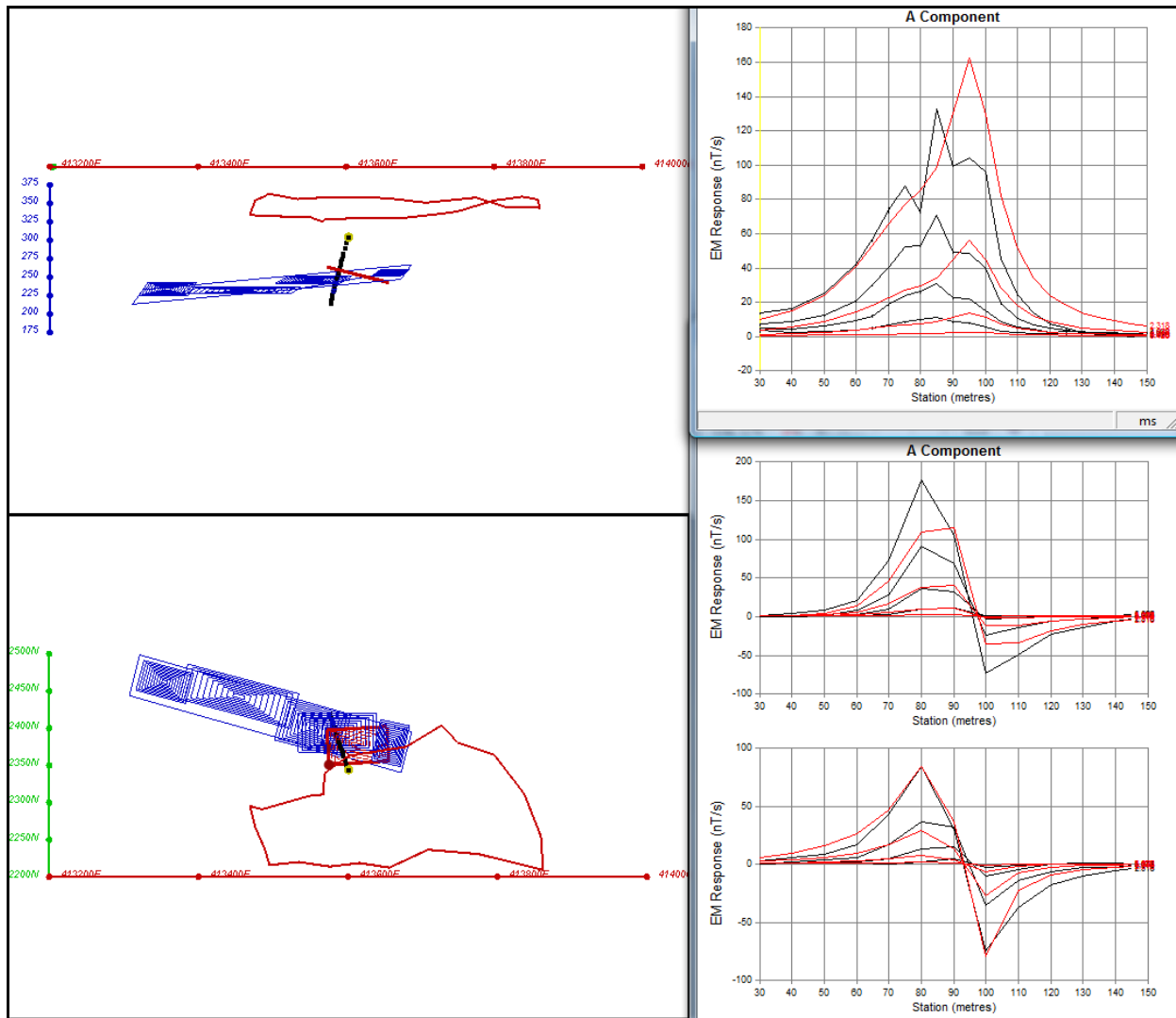


Figure 2: S1 logarithmic amplitude versus depth showing AUV components.



**Figure 3: S1, DHEM modelled plate (red) with associated linear profiles of channels 15 – 18 (2.3 – 5.4 ms). Black and red profiles represent field and modelled responses respectively. The blue plates illustrate the position of the VTEM modelled source.**

**Conclusion:**

Hole S1 was logged from 30 to 150 m using the Crone probe and downhole receiver. Data quality is good although late time channels are noisy due to the high resistance of the local geology.

An on-hole anomaly is located below and right of hole at 90 m exhibiting a 1.5 ms time-constant in good agreement with predictions based on modelling of the VTEM data. The DHEM in hole S1, rules out the presence of ‘sought after’ high conductance sources in the vicinity of the hole. No further work is recommended.

# WESTERN AREAS NL



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# APPENDIX I

Drill Logs

For:

## **2009 TECHNICAL REPORT, EAST BULL LAKE PROPERTY** (to accompany Assessment Work Performed on Mining Lands (form # 0241E & 0290E))

**Report for the Period 1st May 2009 to 1st August 2009**

**Author:** Western Areas NL (Robert E Barwick)

**Date:** 1<sup>st</sup> Feb 2010

**Report No:** Report No: WSA-EBL FEB10-01

**Keywords:** VTEM, Magnetics, Nickel, Copper, PGE's.

**Location:** BOON TOWNSHIP, SUDBURY MINING DIVISION, ONTARIO, CANADA.

**Sheet Name:** NTS 41J/08

**UTM Co-ordinates:** UTM 410400E, 5142500N, Zone 17N, NAD27 (Centre of work area)

**Geographic Co-ordinates:** 46° 26' N Lat, 82° 10' W Long (Centre of work area)

### **Distribution:**

1. Provincial Mining Recorder Office , Ministry of Northern Development and Mines, Sudbury, ONTARIO
2. Western Areas NL.
3. Mustang Minerals Corp.

General Drilling Form A		WESTERN AREAS N.L. EBL JV														Hole No.		WSA09-01					
PROJECT:		EBL		DRILL TYPE:		NQ2		GRID DATUM:		NAD_27 ZONE 17N		Mag Azi:		350.63		B.O.X.							
CLAIM #		997264		DRILL Co.		Logan Drilling		NORTHING:		5140288		mN		Dip:		-62.5		W.T.					
PROSPECT :		NOVICK LAKE		LOGGED BY:		Robert Barwick		EASTING:		416602		mE		Grid Azim:		000		E.O.H. 491					
Start Date:Time		Sunday, 7 June 2009		LAB:		ALS		JOB No:				RL:		367									
End Date:Time		Monday, 15 June 2009																					
Sample	Sam.	Sam.	Lith	Lith	Mag.	Colour	Weath	Grain	Texture	Struct.	Lith	Lith	Alteration				Veining		Sulphide Minerals				Comments
Number	From	To	From	To	Sus.	Int / Hue	Int.	Size		Fabric	Code1	Code2	Min 1	Int.	Min 2	Int.	Min1 %	Min2%	py %	po %	pn %	cp %	
			0.00	33.18		DGN	F	cg	mv		Mg												Magnetic Declination = 9.37 deg (Decimal Degrees)
			33.18	33.20		WH	F	fg	mv	vn	qtz												
			33.20	46.60		DGN	F	cg	mv		Mg												
			46.60	46.70		DGN	W	cg	mv	Fit	Mg		Pot										
			46.70	50.20		DGN	F	cg	mv		Mg						qz	pf					minor 1mm qz/fd veining
			50.20	52.36		KH	F	cg	mv		Mg		Pot										silica pf alt
			52.36	97.00		DGN	F	cg	mv		Mg												
			97.00	98.60		KH	T	mg	mv	B	M		Cl				qz	pf					minor 2mm qz/fd veining
			98.60	117.34		DGN	F	cg	mv		Mg												
			117.34	117.40		KH	T	cg	mv	Fit	Mg		Cl				qz	pf					minor 2mm qz/fd veining
			117.40	126.20		DGN	F	cg	mv		Mg												Drilling stoped. Collar moved 0.5m to West. Dip changed to -63.5
			126.20	126.30		GY	F	fg	mv	vn	qtz												
			126.30	128.10		DGN	F	cg	mv	B	Mg												
			128.10	129.00		DGN	W	cg	mv	B	Mg												
			129.00	164.00		DGN	F	cg	mv		Mg												small speck cp at 154m
			164.00	164.55		DGN	F	vsg	pg		Mg						fd						
			164.55	184.75		DGN	F	cg	mv		Mg		qz		ga								+/- grey garnets?
			184.75	184.90		GY	F	vsg	pg		Mg												contact, alteration zone
			184.90	186.53		DGN	F	cg	mv		Mg												
			186.53	193.00		DGN	F	cg	mv		Mg		qz		bi								garnet? Plus biotite
			193.00	200.10		DGY	F	cg	pg		Mg												
			200.10	202.00		DGN	F	cg	mv		Mg												
			202.00	204.90		DGY	F	cg	pg		Mg												
			204.90	206.40		DGN	F	cg	mv		Mg												
			206.40	210.00		DGY	T	vsg	mv	B	Mvt												mafic tuf? Some granite xenoliths?
			210.00	217.60		DGY	F	vsg	mv		Mvt												mafic tuf? Some granite xenoliths?
			217.60	224.30		DGY	F	cg	mv		Mg												
			224.30	229.00		DGY	F	cg	pg		Mg												
			229.00	246.00		DGY	F	cg	mv		Mg												
			246.00	246.27		DGY	T	vsg	pg		M												
			246.27	251.40		DGY	F	vsg	pg		M												
			251.40	253.10		DGY	F	mg	mv		M												
			253.10	259.28		DGY	F	vsg	pg		M												cumulate texture
			259.28	260.22	vm	DBN	F	fg	mv		M												very magmatic chill margin
			260.22	272.30		DGN	F	vsg	pg		M												cumulate texture
			272.30	272.32							qtz												
			272.32	280.90							Mg												
			280.90	281.10							Mg												
			281.10	283.00							Mg												
			283.00	283.10							Mg												



General Drilling Form A										WESTERN AREAS N.L. EBL JV										Hole No.		WSA09-01					
PROJECT:		EBL								DRILL TYPE:		NQ2		GRID DATUM:		NAD_27 ZONE 17N		Mag Azi:		350.63		B.O.X.					
CLAIM #		997264								DRILL Co.:		Logan Drilling		NORTHING:		5140288		mN		Dip:		-62.5					
PROSPECT :		NOVICK LAKE								LOGGED BY:		Robert Barwick		EASTING:		416602		mE		Grid Azim:		000					
Start Date:Time		Sunday, 7 June 2009								LAB:		ALS		JOB No.:				RL:		367		E.O.H.		491			
End Date:Time																											
Sample	Sam.	Sam.	Lith	Lith	Mag.	Colour	Weath	Grain	Texture	Struct.	Lith	Lith	Alteration				Veining		Sulphide Minerals				Comments				
Number	From	To	From	To	Sus.	Int / Hue	Int.	Size		Fabric	Code1	Code2	Min 1	Int.	Min 2	Int.	Min1 %	Min2%	py %	po %	pn %	cp %					
			283.10	287.00																							
			287.00	289.50																							
			289.50	293.40																							
			293.40	295.10																							
			295.10	303.20																							
			303.20	303.90																							
			303.90	312.00																							
			312.00	312.70																							
			312.70	341.18																							
			341.18	353.50																							
			353.50	353.65																							
			353.65	354.50																							
			354.50	358.00																							
			358.00	361.50																							
			361.50	368.40																							
			368.40	371.00																							
			371.00	378.05																							
			378.05	378.10																							
			378.10	378.55																							
			378.55	378.60																							
			378.60	389.90																							
			389.90	390.00																							
			390.00	391.46																							
			391.46	392.00																							
			392.00	394.06																							
			394.06	394.07																							
			394.07	395.16																							
			395.16	400.10																							
			400.10	400.85																							
			400.85	401.20																							
			401.20	405.00																							
			405.00	409.20																							
			409.20	416.10																							
			416.10	418.10																							
			418.10	427.00																							
			427.00	434.50																							
			434.50	435.50																							
			435.50	440.17																							
			440.17	440.34																							
			440.34	440.60																							



General Drilling Form A		WESTERN AREAS N.L. EBL JV														Hole No.		WSA09-02							
PROJECT:		EBL																							
CLAIM #		1136189		DRILL TYPE:			NQ2			GRID DATUM:		NAD_27 ZONE 17N		Mag Azi:		330.63									
PROSPECT :		SABLES		DRILL Co.			Logan Drilling			NORTHING:		5142325		mN		Dip:		-50		B.O.X.					
Start Date:Time		#####		LOGGED BY:			Robert Barwick			EASTING:		413619		mE		Grid Azim:		340		W.T.					
End Date:Time		Saturday, 20 June 2009		LAB:			ALS			JOB No:				RL:		367		E.O.H.		154					
Sample	Sam.	Sam.	Lith	Lith	Mag.	Colour	Weath	Grain	Texture	Struct.	Lith	Lith	Alteration				Veining		Sulphide Minerals				Comments		
Number	From	To	From	To	Sus.	Int / Hue	Int.	Size		Fabric	Code1	Code2	Min 1	Int.	Min 2	Int.	Min1 %	Min2%	py %	po %	pn %	cp %			
			0.00	4.50		BN	F	cg	mv		Xnt														
			4.50	4.80		LBN	F	mg	mv	B	Mg														
			4.80	13.70		LBN	F	cg	mv		Mg														
			13.70	14.30		LBN	F	cg	mv		Mg														
			14.30	15.30		LPK	F	mg	mv		Sdstf														
			15.30	15.70		LPK	F	mg	mv		Sdstf														
			15.70	15.90		LPK	F	mg	mv		Sdstf														
			15.90	16.00		LPK	F	mg	mv		Sdstf														
			16.00	20.10		LPK	F	mg	mv		Sdstf														
			20.10	20.70		LPK	F	mg	mv	B	Sdstf														
			20.70	20.71		LPK	F	mg	mv		Sdstf								5						
			20.71	23.33		LPK	F	mg	mv		Sdstf														
			23.33	26.00		GY	F	mg	mv		Sdmu(\$)														
			26.00	28.00		LPK	F	mg	mv		Sdstf														
			28.00	31.90		GY	F	mg	mv		Sdmu(\$)														
			31.90	31.95		GY	F	mg	mv		Sdmu(\$)								5						
			31.95	35.55		GY	F	mg	mv		Sdmu(\$)								2						
			35.55	36.50		GY	F	mg	mv		M														
			36.50	39.00		GY	F	mg	mv		Sdmu(\$)														
			39.00	40.60		DGN	F	cg	mv		Sdmu(\$)														
			40.60	43.00		GY	F	mg	mv		Sdmu(\$)														
			43.00	45.60		DGY	F	cg	mv		Sdmu(\$)														
			45.60	45.85		DGY	F	cg	mv		Sdmu(\$)														
			45.85	46.12		DGN	F	cg	mv		Sdmu(\$)														
			46.12	46.26		LGY	F	vcg	mv		Sdmu(\$)														
			46.26	46.95		DGY	F	vcg	lm		Sdmu(\$)														
			46.95	47.65		DGY	F	mg	mv		Sdmu(\$)														
			47.65	47.75		DGY	F	mg	lm		Sdmu(\$)														
			47.75	49.41		DGY	F	cg	mv		Sdmu(\$)														
			49.41	49.42		KH	F	vcg	mv		M								5						
			49.42	50.00		KH	F	vcg	mv		M								tr						
			50.00	94.81		DGY	F	mg	lm		Sdmu(\$)								1	1		1			
			94.81	110.10		DGY	F	vcg	mv		Scch														
			110.10	114.90	vm	DGY	F	mg	mv		M														
			114.90	115.25		DGY	F	mg	mv		M								5						
			115.25	118.40		DGY	F	mg	mv		M														
			118.40	119.65		DGY	F	mg	mv		M														
			119.65	123.25		DGY	F	mg	mv		M														
			123.25	129.10		DGY	F	mg	mv		M														
			129.10	130.60		DGY	F	mg	mv		M														

General Drilling Form A													WESTERN AREAS N.L. EBL JV										Hole No.		WSA09-02			
PROJECT:		EBL											DRILL TYPE:		NQ2		GRID DATUM:		NAD_27 ZONE 17N		Mag Azi:		330.63					
CLAIM #		1136189											DRILL Co.		Logan Drilling		NORTHING:		5140288		mN		Dip:		-50			
PROSPECT :		SABLES											LOGGED BY:		Robert Barwick		EASTING:		416602		mE		Grid Azim:		340			
Start Date:Time		Wednesday, 17 June 2009											LAB:		ALS		JOB No:				RL:		367					
End Date:Time		Saturday, 20 June 2009																					E.O.H.		154			
Sample Number	Sam. From	Sam. To	Lith From	Lith To	Mag. Sus.	Colour Int / Hue	Weath Int.	Grain Size	Texture	Struct. Fabric	Lith Code1	Lith Code2	Alteration				Veining		Sulphide Minerals				Comments					
													Min 1	Int.	Min 2	Int.	Min1 %	Min2%	py %	po %	pn %	cp %						
			130.60	130.70		DGY	F	cg	br		M																	
			130.70	135.90		DGY	F	mg	mv		M																	
			135.90	136.10		DGY	F	mg	mv		M																	
			136.10	140.20		DGY	F	cg	mv		M																	
			140.20	141.40		DGY	F	mg	sh		M																	
			141.40	142.00		DGY	F	mg	mv		M																	
			142.00	142.90		DGY	F	mg	br		M							cl										
			142.90	153.80		DCR	F	vcg	mv		MgGraM																	
			153.80	154.00		DCR	F	cg	mv		MgGraM																	
			EOH																									