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# Report on Infill VLF-EM Survey

Nikos Explorations Ltd.

Borden Lake Extension Project, Chapleau, Ontario



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## 1. Summary

During the period 2015 to 2015 Nikos Explorations Ltd. (Nikos) carried out an infill (VLF-EM) survey on its Borden Lake Extension Project near Chapleau, Ontario. This survey aimed to follow up on a successful VLF-EM survey carried out in 2014 to ground truth magnetic lineaments interpreted from results of a 2013 airborne magnetic and VTEM survey. The lineaments are oriented northeast-southwest and northwest-southeast and appear to intersect in the area where the follow up work was done.

Initial geological mapping in 2013 was hampered by lack of outcrop in the area. Very few outcrops were found and most of the rock on the property appears to be glacial float and includes many large boulders. Further follow up work aimed to check for responses through the overburden. Initial soil sampling and analysis for soil gas hydrocarbons (SGH) was successful in delineating an anomaly over two lines across the northwest-southeast trending lineaments (Sutherland, 2013). Several conductors were identified by the 2014 VLF-EM survey, the longest of which stretches for 2.2km along the northwest-southeast trend.

The infill VLF-EM survey covered 6.23 line kilometres and confirmed the presence of conductors found in the earlier survey and extended the conductors further to the northwest.

Further work should be carried out to follow up on the cause of the VLF conductors. Given the lack of outcrop and the widespread occurrence of glacio-fluvial sand on the property, geophysics will most likely be the best way to follow up the work to date. In particular, line cutting and induced polarization to determine potential drill targets are recommended.

## 2. Introduction

This report is intended to summarize the work carried out on the Borden Lake Extension project of Nikos for assessment purposes. Work was carried out during a field visits during July 2015. The author conducted the VLF-EM survey.

No previous recorded exploration activity is known on the property, which was staked following the discovery of the Borden Lake gold deposit in 2010. Most of the available information is in the form of government maps and reports.

## 3. Property Access, Description, Location and Title

The property is located approximately 18 kilometres east of Chapleau, Ontario in the Timmins Mining District (Figure 1). Access is via paved Highway 101 that runs between Chapleau and Timmins followed by a gravel logging road that runs approximately north-south through the western part of the property.

It consists of 20 unpatented claims covering an area of 3,584 hectares (Table 1).

Table 1. List of claims making up the Borden Lake Extension property

Claim No.	Claim Units	Area (ha)
4260528	9	144
4260529	16	256
4260530	9	144
4259806	12	192
4259807	8	128
4259808	12	192
4259809	4	64
4259810	15	240
4256761	15	240
4275410	15	240
4275422	15	240
4275423	15	240
4275424	6	96
4275425	6	96
4270214	9	144
4274028	12	192
4274029	14	224
4274030	9	144
4274031	15	240
4274032	8	128
Total	224	3584

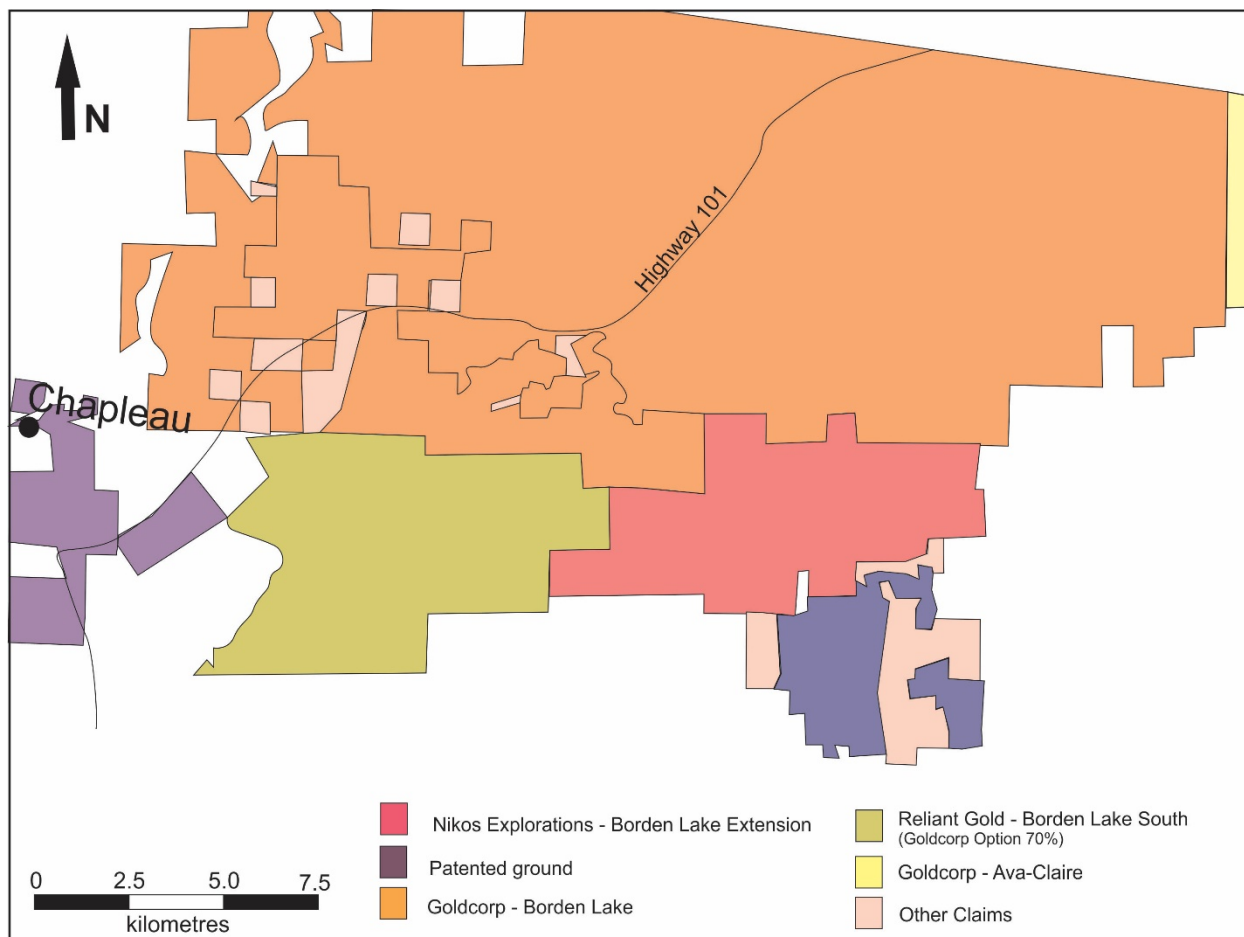


Figure 1. Location of the Borden Lake Extension Property

Nikos has signed two option agreements to earn 100% in all claims comprising the property. The first agreement, signed in December, 2012, gives Nikos the right to acquire a 100% interest in claims 4260528 to 4260530 and 4259806 to 4259810 under the following conditions:

Issue a total of 1,000,000 Nikos shares and pay \$100,000 cash to the Vendors as follows:

- 250,000 Nikos Shares and \$3,000 cash on TSX-V acceptance of the agreement (completed)
- 250,000 Nikos shares and \$15,000 cash on or before 14 December, 2013 (renegotiated and completed by a cash payment of \$6,000 and the issuance of 850,000 Shares)
- 250,000 Nikos shares and \$27,000 cash on or before 14 December, 2014 (completed)
- 250,000 Nikos shares and \$55,000 cash on or before 14 December, 2015.

Incur cumulative exploration expenditures in the amounts and dates as set out below:

- \$40,000 on or before 14 December, 2013 (completed)
- \$100,000 on or before 14 December, 2014 (completed) and
- \$200,000 on or before 14 December, 2015.

The vendors retain a 2% NSR royalty, half of which may be bought back by Nikos for \$1 million at any time.

The second agreement was signed on May 13, 2014, and Nikos entered into an option agreement to earn a 100% interest in six claims 4275410, 4275422 to 4275425 and 4270214 under the following terms:

On receipt of TSX-V approval: payment of \$6,000 and issuance of 75,000 Shares (completed);  
On or before May 13, 2015: payment of \$15,000 and issuance of 105,000 Shares (completed);  
On or before May 13, 2016: payment of \$24,000 and issuance of 150,000 Shares;  
On or before May 13, 2017: payment of \$36,000 and issuance of 180,000 Shares;

A 2% NSR, half of which may be bought back for \$1,000,000 and  
On receipt of a National Instrument 43-101 compliant report showing an indicated resource of at least 1 million ounces of gold a payment of \$600,000.

## **4. Geological Setting and Mineralization**

### **4.1 Regional Geology**

The property is located in the Archean –aged Superior Province of the Canadian Shield and covers variably metamorphosed rocks of the Kapuskasing Structural Zone (KSZ). The KSZ is over 300km long and strikes north east, separating rocks of the Abitibi Subprovince to the east from those of the Wawa Subprovince to the west (Figure 2). The KSZ is separated from the Swayze greenstone belt to the east by the Ivanhoe Lake fault zone. Rocks include mafic gneiss and paragneiss, tonalite gneiss and metaconglomerate as well as intrusions of tonalite, anorthosite and diorite (Heather et al. 1995). In addition three alkali intrusives occur in the region (Percival, 1981).

### **4.2 Property Geology**

Published maps of the area covered by the property show it to be underlain predominantly by metasedimentary gneiss, with minor mafic gneiss and tonalitic gneiss (Percival, 1981). The Lackner Alkalic complex occurs immediately south of the property (Figure 3). The Borden Lake Belt occurs to the northwest and runs for approximately 35km east-west. It is primarily comprised of metasedimentary, including a metaconglomerate, and metavolcanic rocks (Heather et al., 1995).

### **4.3 Mineralization**

There is currently no known mineralization on the Borden Lake Extension property. However, gold mineralization was discovered in 2010 by Probe Mines Ltd. on the adjacent Borden Lake Property held by Goldcorp Inc. Current resources on the property total 4.3 million ounces of gold (Probe Mines Corporate Presentation September 2014). In addition, IAMGOLD's Cote Lake and Jerome deposits, located along the Ridout shear zone in the Swayze Greenstone Belt to the east, contain 8.2 and 1.3 million ounces of gold, respectively (see Figure 2).

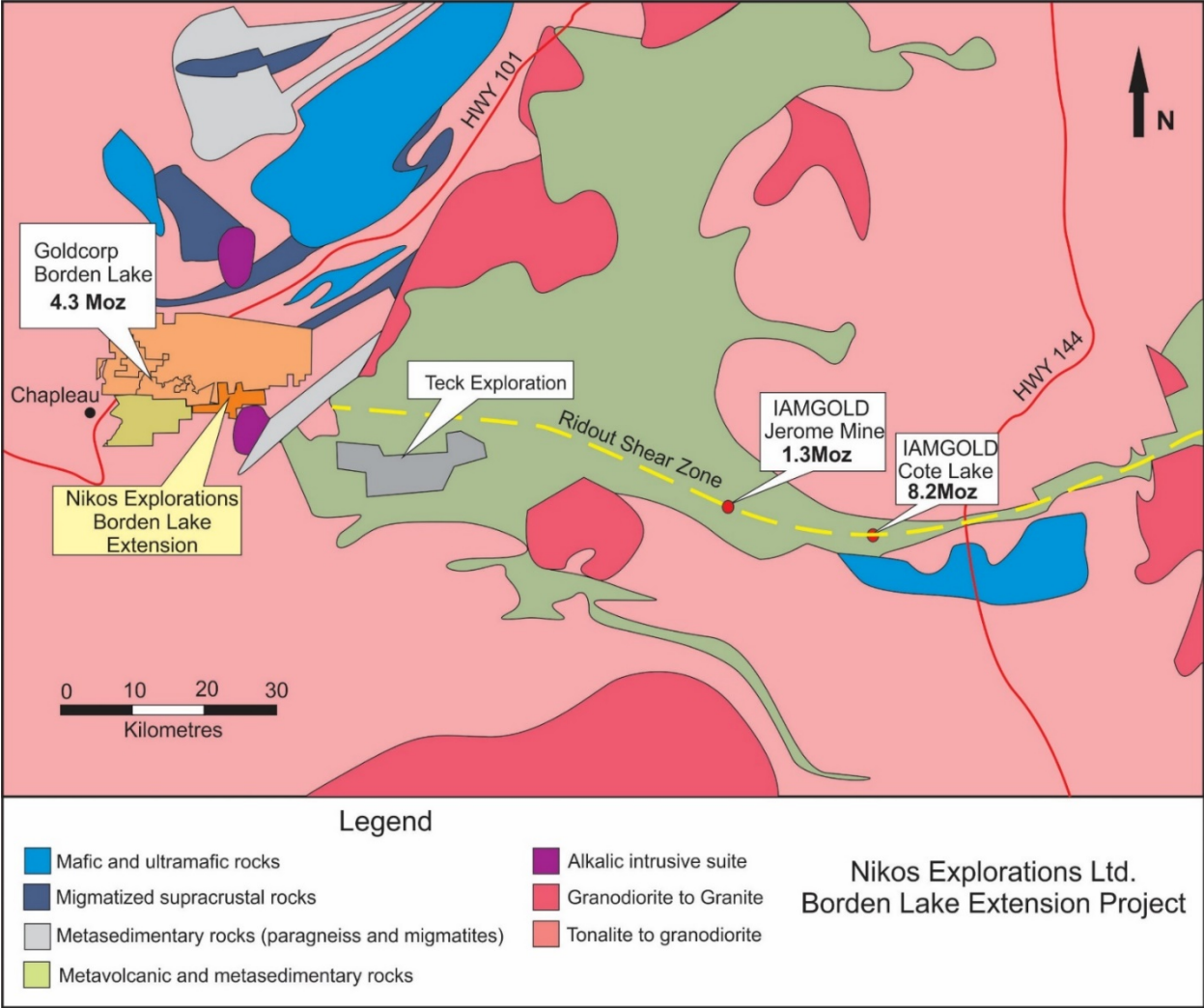


Figure 2. Regional Geology of the area around the Borden Lake Extension project



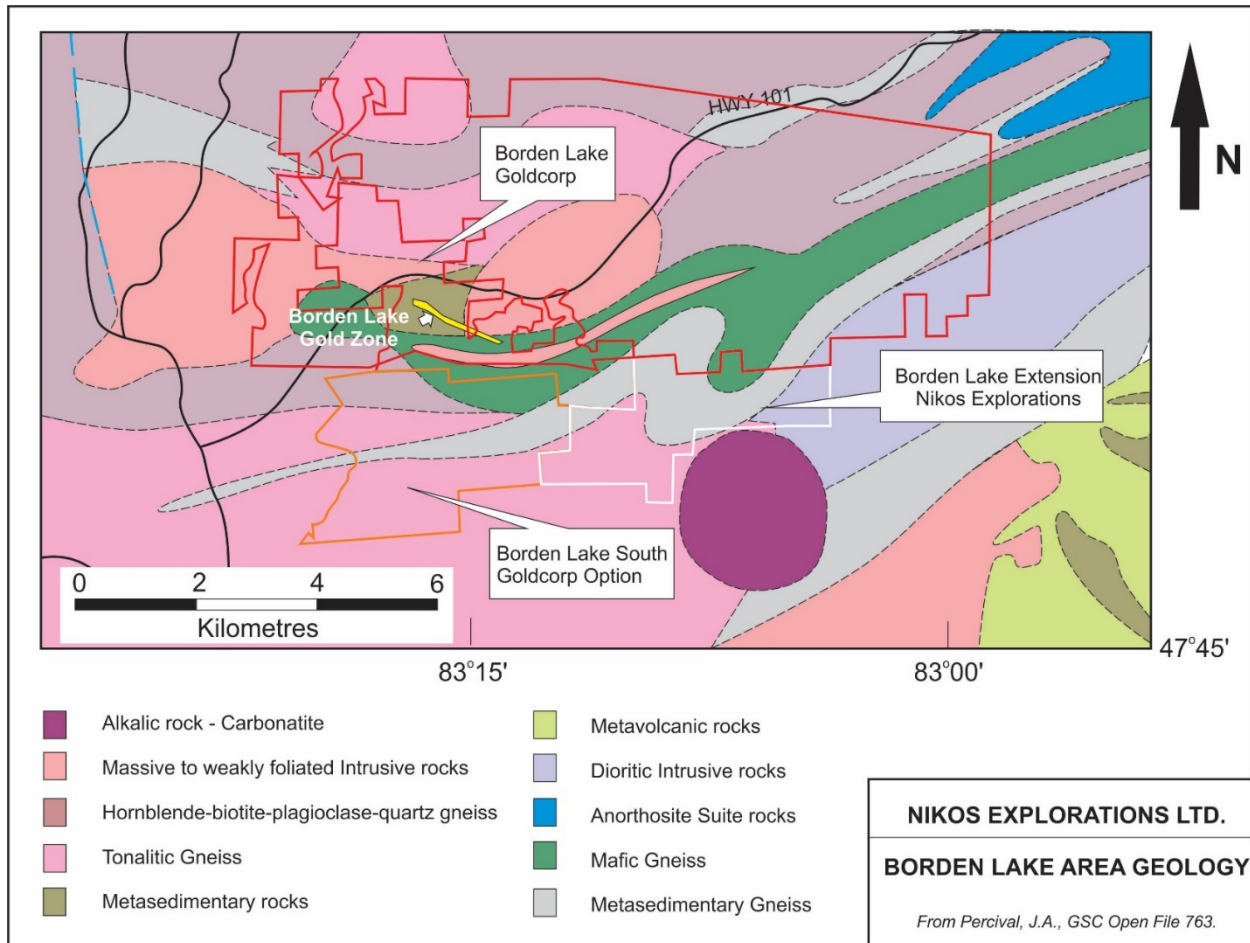


Figure 3 Detailed Geology of the Borden Lake extension area (from Percival, 1981).

## 5. Exploration

### 5.1 VLF-EM

Initially two lines of VLF-EM were run across the SGH anomaly in the north of claim 4260529 in the spring of 2014 to test the potential of the technique to pick up structures related to northwest-southeast trending lineaments. Several conductors were found on both lines and a larger survey was carried out to test the ground to the southeast. A total of 25 line kilometres of VLF-EM was carried out on lines oriented at 020° at a spacing of 200m and 20m station intervals along the lines (Moss, 2014).

The infill program described here covered 6.23 line kilometres between lines 3+00W and 6+50E which resulted in 100m line coverage in this area. Readings were taken every 20 metres along the lines. The location of the lines is shown in Figure 4.

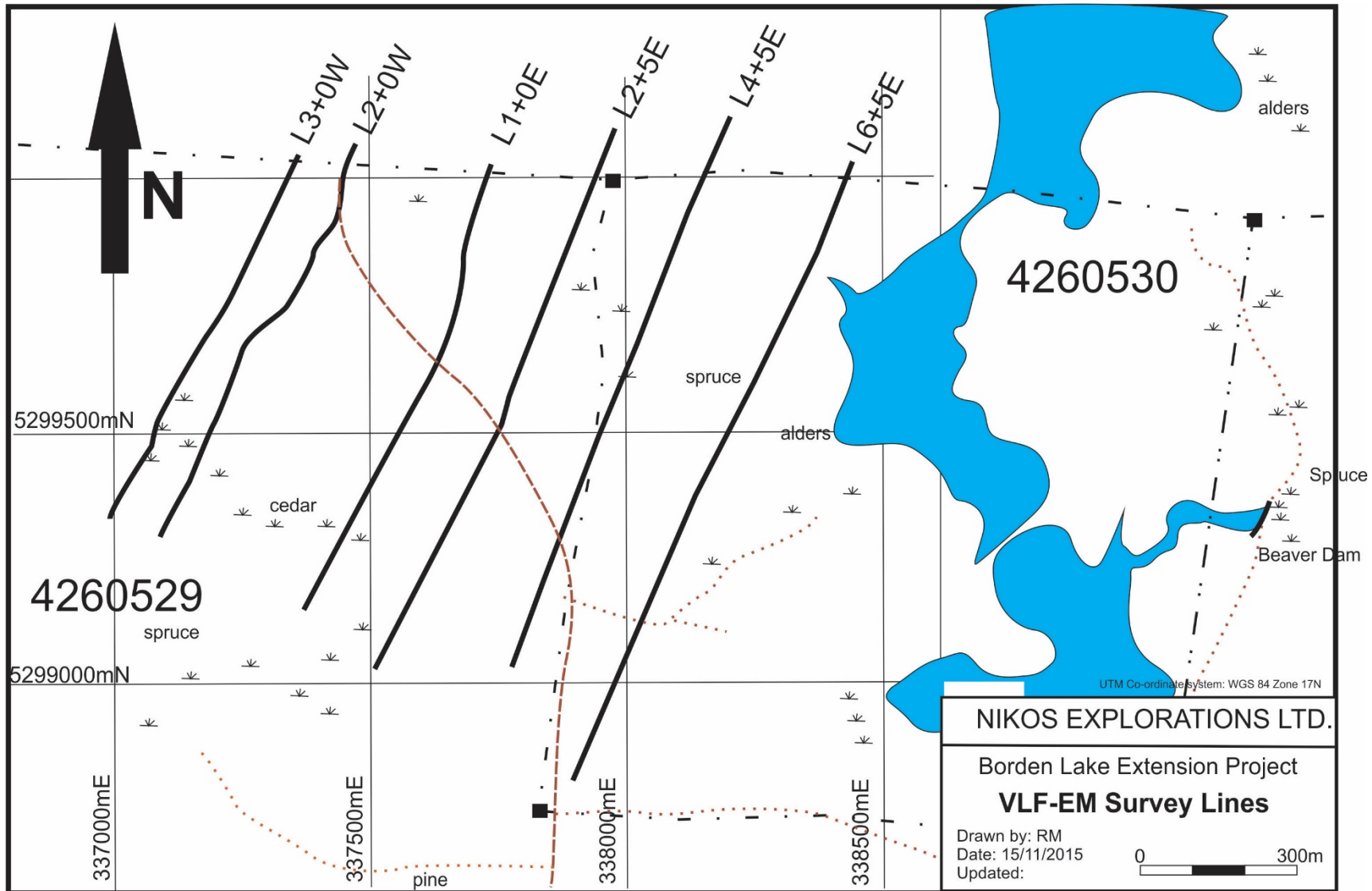


Figure 4. Location of VLF-EM lines for infill survey.

At each line station, 2 transmitter stations were read using a Geonics VLF-Em-16 receiver. The following parameters were used throughout the survey:

**VLF Transmitters Used**—NAA-24.0 Hz. Cutler, Maine. NML-25.2 Hz. La Moure, N. Dakota

**VLF survey direction** -The VLF Em-16 receiver was facing a 200 azimuth along the surveys

**VLF survey stations** -All readings were taken at approximately 20 meter stations along survey lines

**Parameters of Measurement** -In-phase and Quad-phase components of vertical magnetic field as a percentage of horizontal primary fields. (Tangent of tilt angle and ellipticity). VLF transmitter NAA was to the east. The transmitters are chosen so that the direction to the transmitting station is as close to the orientation of the bedrock strike.

### 5.1.1 VLF Data Profiles

All VLF data collected was processed to produce line profiles of the in phase and quadrature for both NAA and NML. The raw data for each frequency was plotted for each line surveyed and the resulting plots of the raw data are shown in Appendix 1.

### 5.1.2 Results

Four multi-line VLF anomalies are interpreted over the survey area and summarized in Table 2 and illustrated in Figure 5. The anomalies mostly have a west northwest- east southeast trend except anomaly E that runs approximately east-west.

The northwest-southeast trend of the anomalies is similar to the orientation of previously identified magnetic and topographic lineaments in the area (Figure 6).

Table 2: Location of VLF-EM Anomalies

Anomaly	Line #	Station #	Easting	Northing
A	3+0W	2+20S	337312	5299928
A	2+0W	2+20S	337422	5299906
	2+0W	7+00S	337172	5299469
D	2+0W	8+60S	337107	5299328
A	1+0W	2+20S	337491	5299840
B	1+0W	6+40S	337353	5299462
A	0+0	1+60S	337605	5299850
B	0+0	6+00S	337438	5299438
	1+0E	1+80S	337686	5299800
C	1+0E	4+60S	337585	5299539
B	1+0E	6+40S	337499	5299381
D	1+0E	8+80S	337382	5299166
A	1.5E	1+40S	337732	5299770
B	1.5E	6+40S	337542	5299307
	2+5E	0+80S	337849	5299777
C	2+5E	4+00S	337736	5299480
B	2+5E	6+40S	337629	5299265
	2+5E	7+40S	337583	5299179
D	2+5E	8+20S	337549	5299105
A	3.5E	1+60S	337936	5299757
B	3.5E	8+60S	337675	5299105
A	4+5E	1+40S	338054	5299738
C	4+5E	4+60S	337926	5299453
B	4+5E	8+40S	337797	5299093
A	5.5E	1+80S	338147	5299735
B	5.5E	8+20S	337909	5299139
A	6+5E	0+60S	338309	5299729
C	6+5E	4+40S	338144	5299387
	6+5E	6+20S	338063	5299227
	6+5E	7+20S	338028	5299133

*Shaded anomalies from 2014 survey. UTM System WGS84 Zone 17N*

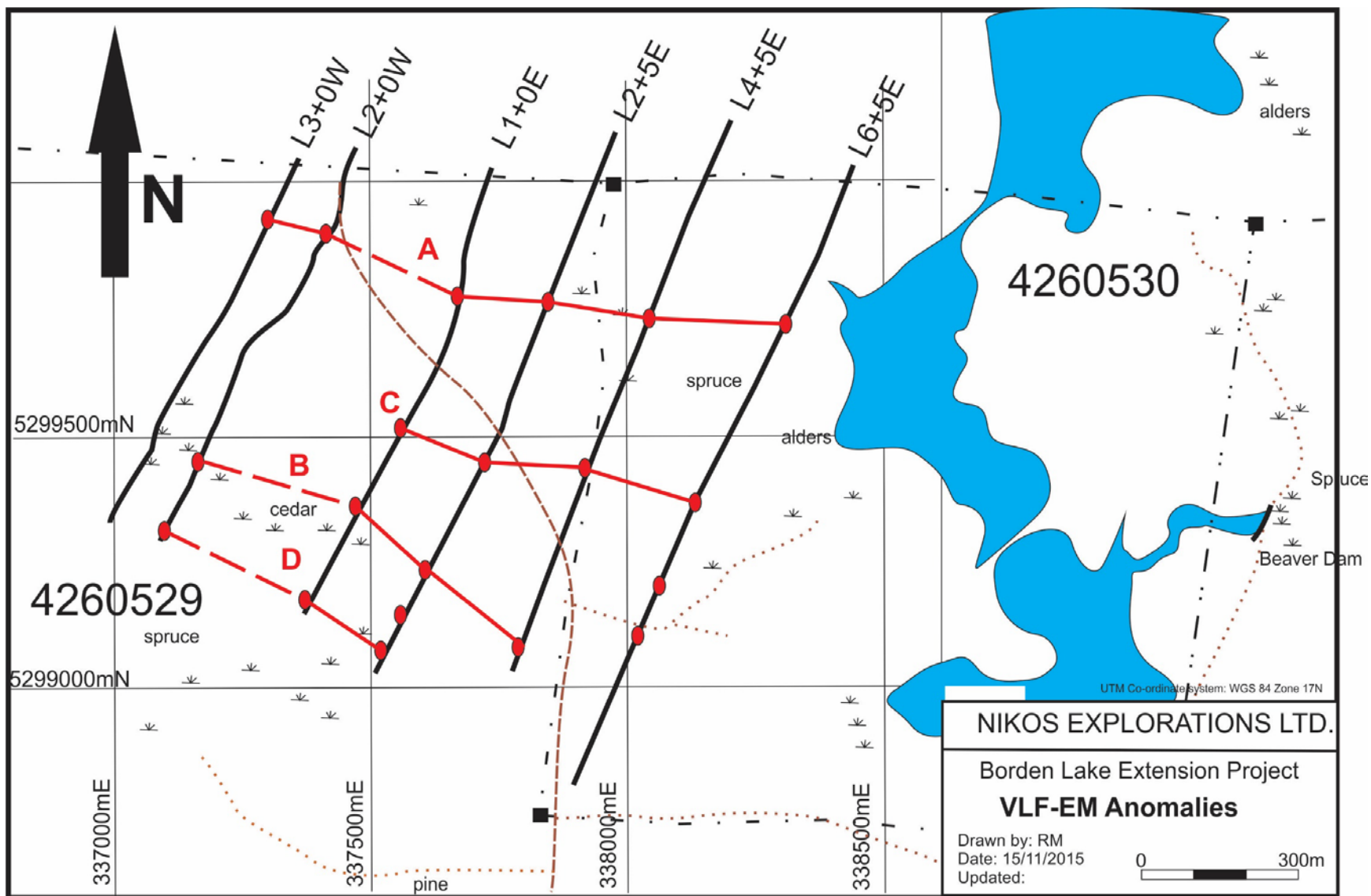


Figure 5. Location of VLF anomalies (red dots) and interpreted conductors (red lines).

Figure 6. Magnetic and shaded relief lineaments in the area of VLF-EM and SGH anomalies.

## 6. Conclusions and Recommendations

Exploration on the Borden Lake Extension project over the last three years has focussed on an area in the western portion of the claims where magnetic and topographic lineaments indicate the potential for structural trends that may have potential to host gold mineralization.

Lack of significant outcrop on the property has resulted in attempts to find techniques that can be cost effectively used for reconnaissance scale exploration. Two techniques, VLF-EM and SGH have resulted in anomalies in the area. Initial results of a VLF-EM survey indicated seven conductors of varying strength, the longest of which stretches over 2.6km in a northwest-southeast direction. The current survey confirms the presence of conductors in the northwestern most portion of the property.

Further work is recommended for the property to follow up on the results of the VLF-Survey. Prospecting should be undertaken along conductors to attempt to find the cause, although with the scarce outcrop it is likely that further geophysical techniques will be necessary. Line cutting and an induced polarization survey to determine potential drill targets are recommended.

## 7. References

- Heather, K.B., Percival, J.A., Moser, D., Bleeker, W. 1995, Tectonics and metallogeny of Archaean crust in the Abitibi-Kapuskasing-Wawa region, Geological Survey of Canada Open File 3141.
- Moss, R., 2014, Report on Exploration Activities Nikos Explorations Ltd. Borden Lake Extension Project, Chapleau, Ontario, Unpubl. Assessment File Report, 36p.
- Percival, J.A., 1981. Preliminary Map, Geology of the Kapuskasing Structural Zone in the Chapleau-Foleyet Area, Ontario, Geological Survey of Canada, Open File 763.
- Sutherland, D., 2013, 3D – SGH A spatial temporal geochemical hydrocarbon interpretation, Nikos Exploration Ltd., Borden Lake Extension Project. Internal report, 66p.

**Appendix 1**  
VLF Profiles

Raw Data



