## 2006 Assessment Report

CHONO ASSAULT

## on the

# AW Claims, Tyner Lake Property

## Kamloops and Nicola Mining Divisions

5,575,000 m N, 649,000 m E

UTM NAD 83, Zone 10 NTS map sheet 092I/07 TRIM map sheet 092I036

prepared for

TNR Gold Corp. #620-650 West Georgia Street Vancouver, BC V6B 4N9

by

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May 20th, 2007



### SUMMARY

In 2006, TNR Gold Corp. (TNR) optioned the AW 1-9 claims from M. Moore, geologist and prospector. The claims consist of nine contiguous units with a total of 2910.115 hectares located approximately 15 km southeast of the Highland Valley porphyry Cu-Mo mine in southwestern BC. The property is accessible from the nearest large community with infrastructure (Merritt, 50 kilometres away) by tarmac and dirt roads.

The Guichon Batholith hosts several porphyry style mineral deposits in the region, including British Columbia's largest producing copper deposit, Highland Valley. The Tyner Lake property is underlain by various phases of the same batholith and also resides in the same regional structural domain present in the Highland camp a few kilometres to the northwest. Quaternary glacial cover is extensive and variable and the percentage of outcrop is low. Geophysical techniques were therefore chosen for geological evaluation of the property.

TNR commissioned SJ Geophysics Ltd. to conduct a three dimensional induced polarization (3D IP) survey over a part of the claim group. The purpose of the survey was to identify areas of anomalous chargeability and/or resistivity in the subsurface which, when combined with the local geology, would provide potential analogues to the Highland Valley/Lornex exploration model and subsequent diamond drill targets. A total of 27.6 line km were surveyed on a 2300 x 1200 m grid with 100m line spacing.

Overall, the IP response of the substrate was low; however, two distinct zones of elevated resistivity and coincident chargeability anomalies were identified these coincide on a second order basis with potential northwest trending structures. These conform to the structural pattern described by two previous studies.

Despite the weakness of the geophysical response, the signature is similar to that observed in similar studies of the Highmont deposit, part of the Highland Valley suite. A small drill programme is recommended to test the weak chargeability anomaly in the northern part of the grid.

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## INTRODUCTION

In August-September 2006, TNR Gold Corp. commissioned SJ Geophysics Ltd. to conduct a three dimensional induced polarization (3D-IP) survey over the AW claims. The claims, located north-northwest of Merritt, B.C., are prospective for Highland Valley Cu-Mo mineralization. The purpose of the survey was to identify subsurface geophysical anomalies characterised by anomalous chargeability or conductivity and interpretable as potential drill targets. The 28 day program comprised construction of a 27.6 line kilometre geophysical grid, followed by the geophysical survey. The work was carried out by a field crew based in Merritt.

## MINERAL TENURE AND PROPERTY LOCATION

#### **Mineral tenure**

The property consists of nine contiguous claims, AW-1 to AW-9, which were electronically staked by M. Moore in 2006 and subsequently optioned to TNR Gold Corp.. They straddle the boundary between the Nicola and Kamloops Mining Divisions and cover 2910.12 hectares (Figs. 1 and 2). A list of the tenures is given in Table 1.

Table 1. Mineral tenure

Name	Tenure No	Owner	Area (ha)	Good To Date
AW-1	529189	206012 (100%)	474.549	2012/mar/01
AW-2	529190	206012 (100%)	495.31	2012/mar/01
AW-3	529231	206012 (100%)	474.671	2012/mar/01
AW-4	529368	206012 (100%)	123.769	2012/mar/01
AW-5	529369	206012 (100%)	247.742	2012/mar/01
AW-6	529408	206012 (100%)	41.272	2012/mar/01
AW-7	529418	206012 (100%)	515.916	2012/mar/01
AW-8	529419	206012 (100%)	516.24	2012/mar/01
AW-9	529420	206012 (100%)	20.646	2012/mar/01



Figure 1. Property location map.

#### **Property location and access**

The Tyner Lake property is approximately 50 kilometres northwest of the town of Merritt, in the southwest interior of British Columbia (Fig. 1). It is located on NTS map sheet 092I/07 at 649,000 m E, 5,575,000 m N. Maps in this report are based upon the Universal Transverse Mercator (UTM) projection (Zone 10) using the 1983 North American Datum (NAD 83).

The nearest town is Merritt, which is approximately 50 kilometres to the south-southeast of the property. The AW claims can be accessed by four wheel drive vehicle via a combination of tarmac and active logging roads. Access may be restricted during the winter months owing to snow pack and in the spring owing to soft logging road surfaces during snowmelt.

From Merritt, access is west via Highway 8, turning right (north) onto Aberdeen Road in the village of Lower Nicola. Aberdeen Road heads north, past the Craigmont copper-iron mine and, at the end of the tarmac (Kilometre 7) becomes the Pimainus Main forestry access road. At kilometre 16.5, the Harvey Lake Forest Service Road branches (right) from Pimainus Main; the grid area begins at (roughly) the 19 km mark on this road, 3.5 kilometres to the east. Logging is active in the area, and trucks frequent the Pimainus-Aberdeen road system; 4 wheel drive and two-way radio communication are required.

# PHYSIOGRAPHY, CLIMATE, VEGETATION, LOCAL RESOURCES AND INFRASTRUCTURE

### Physiography, climate and vegetation

The Tyner Lake property is located in the southwest interior of British Columbia, in the southern portion of the Intermontane tectonostratigraphic belt. This area forms part of the interior plateau, with average elevations ranging from 1,000 to 1,500 m. Topography is typically rolling, with subdued drainages and small, scattered waterbodies with adjacent wetland. Timber consists of lodgepole pine, aspen, spruce and fir; the vegetation is fairly open and allows for relatively easy traversing. Logging is active and extensive in this area, and numerous cut blocks exist.

The climate is subcontinental, with dry warm summers and long winters. Precipitation occurs primarily in the late autumn and winter. In this elevated region snow is dominant over rain and can begin in October and last until late April- May. Snowpack at this elevation averages three feet in depth.



Figure 2. Topographic map of the property showing local MINFILE occurrences and 2006 grid.

#### HISTORY

Since the first discovery of the disseminated mineralization at Highland Valley in 1899 (Hanula and Longo 1982) and the advent of mining technology to exploit these large-tonnage low-grade deposits, exploration in the area has focused on the Guichon Batholith. Indeed all MINFILE occurrences of any size are ascribed to Mineral Deposit Profile L04 (porphyry Cu  $\pm$  Mo  $\pm$  Au). Two past producers in the immediate area of the Tyner Lake property are the Aberdeen Mine, collared on high-grade, *en echelon* lenses of chalcocite, specularite, minor native copper, chalcopyrite, pyrite and bornite and the Vimy Mine which exploited disseminations and veinlets of bornite, native copper, chalcocite, chalcopyrite and minor covellite and cuprite, concentrated in a zone of intense brecciation and alteration at the intersection of north and northwest trending faults (structures at the Aberdeen Mine strike 310).

The centre of the Tyner Lake property has hitherto escaped detailed exploration, although several assessment reports describe exploration peripheral to or encroaching on ground now covered by the AW tenures. Of particular interest are reports covering the eastern boundary of the property. Carr (1971) discovered a number of moderate Cu anomalies in soil which apparently extended beyond the surveyed area and to the northwest. A report by Kerr (1981) duplicates part of the work carried out by Carr, albeit with less consistent results. Both grids cover an area immediately to the east of the geophysical grid surveyed in this report. Fulton's (1962) mapping for the Geological Survey of Canada defines an ice transport direction from the north-northeast, therefore the source of these anomalies lies on or to the northeast of the geophysical grid.

Hainsworth, in his preliminary report on the geophysical exploration of the CROWN-ABERDEEN group (Hainsworth 1969) defined a number of geophysical conductors, the most northwesterly of which underlie the ground at the northern end of the Tyner Lake 2006 grid. The properties of these conductors are similar to those of narrow, sulphide hosting fractures. This coincidence of geochemical and geophysical anomalies led Michael Moore to acquire the AW tenures in 2006.

## **GEOLOGICAL SETTING**

## **Regional geology**

The Tyner Lake area lies at the southern end of the Guichon Batholith, a large polyphase calc-alkaline felsic intrusion with an associated, pronounced magnetic low (Figure 3). The younger Bethlehem and Bethsaida phases of the batholith are intimately associated with the Highland Valley porphyry Cu  $\pm$  Mo  $\pm$  Au deposits. Economic deposits discovered to date all lie above the keel of the batholith, but the structural styles of the Highland camp persist over its entire outcrop area, particularly the AW property.





## Property geology

The property is underlain by intrusive rocks assigned to the Early Jurassic calc-alkaline Guichon Batholith, which hosts the porphyry  $Cu \pm Mo \pm Au$  deposits of the Highland Valley, including Bethlehem, Lornex, Valley Copper and Highmont (McMillan et al. 1996). Among the features these economic deposits have in common are their location at fault intersections proximal to the "keel" or "root" of the batholith, inferred from geophysical studies and their explicit association with the younger Bethsaida and Bethlehem phases of the batholith.

The Tyner Lake property lies near the southern edge of the Guichon Batholith, distal from the inferred keel. Previous mapping, summarised in Massey *et al.* (2005) indicates that the property is underlain entirely by the older Highland Valley phase of the batholith. Nevertheless, structural studies carried out by Ruck (1981) and Sookochoff (1995) indicate the presence of distinct fracture sets; the latter publication shows prominence of northwesterly, northerly and northeasterly sets, similar to those at Highland Valley. These sets are all amenable to testing by east-west orientation of the lines in the 3D IP survey. Several previously detected conductors (Hainsworth 1969) have a northerly or northwesterly strike (Figure 4), although their exact location is uncertain, given the difficulty of reconciling the hand-drafted maps with recent, precise topographic information.

A survey which can be correlated with existing geographically co-ordinated topographic data with more confidence is that described by Carr (1971). A consensus of 55-70 ppm Cu in soil has been established by previous workers in the area; this author lacks the raw data from which to draw statistical support for this range. Nevertheless, values of Cu in soil at the northwest end of Carr's grid are consistently elevated above this range; the southeasterly ice transport direction established by Fulton (1962) implies that the source(s) of these anomalies could lie on the AW group. It was this coincidence of geophysical and geochemical anomalies which led to establishment of the 2006 geophysical grid.

## 2006 GEOPHYSICAL SURVEY

The 2006 geophysical survey is described in detail in Appendix II



Figure 4. Immediate area of the 2006 grid, showing previously discovered anomalies.

## 2006 EXPLORATION RESULTS

The results of the geophysical survey are discussed in detail by a qualified geophysicist in Appendix II. The interpretation therein is made independently from any detailed knowledge of the property and therefore under no constraints of prejudice to a pre-existing exploration model.

Figure 5 is reproduced from the layer corresponding to that shown in Appendix II, Fig.3, but at a shallower level (25 m below surface). Superimposed are three rose diagrams representing absolute strike directions of fractures taken at locations to the north (Ruck 1981), east (Sookochoff 1995) and south Ruck *ibid*.). All three patterns have features in common; that acquired to the east is closest to the Tyner Lake grid and bears the closest resemblance to the observed geophysical patterns.

### CONCLUSIONS AND RECOMMENDATIONS

The geophysical data is interpreted as consistent with an occurrence of weakly disseminated sulphide mineralization at relatively shallow levels below surface in the northerly part of the grid. The pattern of resistive and conductive zones is consistent with fracture patterns observed by previous authors. While the anomaly is weak, the geophysical response is consistent with that observed during the exploration of the Highmont deposit (M.J. Moore pers. comm. to P. Metcalfe, 2007). The results are sufficient to warrant testing with a small drill program.

It is recommended that a small drill programme be established to test the northern coincident chargeability and conductivity anomaly. Holes should be angled at the minimum feasible angle (45°) and directed along westerly or northwesterly azimuths. The initial drill programme can utilise existing roads and skidder trails pending discovery of porphyry style mineralization, which would justify more extensive disturbance by future exploration. A budget of \$150,000 is proposed for the initial phase of drilling.



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Figure 5. Chargeability at 25 m depth with structural rose diagrams (Ruck 1981, Sookochoff 1995)

#### REFERENCES

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- Ruck, P. 1981: Geology, Percussion Drilling and Geochemical Analyses, SKUHUN group of mineral claims; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 9792, 42p., 2 maps.
- Sookochoff, L. 1995: Geological assessment report on the CAPER Claim; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 23944, 42p.

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## STATEMENT OF COSTS

### Table 2. Statement of costs

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	Amount	Unit	Rate	Total
1. Field Personnel	· · ·			
Project Co-ordinator	5.00	man-days	\$650.00	\$3,250.00
Sr.Geotechnician	2.00	man-days	450.00	900.00
Jr. Geotechnician	3.00	man-days	350.00	1,050.00
Line Cutting Manager	7.00	man-hours	<del>9</del> 3.50	654.50
Line Cutter	172.00	man-hours	40.00	6,880.00
Line Cutter	161.75	man-hours	37.50	6,065.63
Geophysical Processor	16.00	man-days	375.00	6,000.00
Helpers	63.00	man-days	250.00	15,750.00
Helpers	43.00	man-days	225.00	9,675.00
2. IP Survey				
IP System w/qualified operator and	16.00	man-days	\$1,775.00	\$28,400.00
Mob- and Demobilization		<b>_</b>		1,582.07
Food and Accomodation				9 <u>,751.71</u>
Vehicle Rentals				5,890.00
Vehicle Expenses				661.95
Backup Receiver	20.00	days	50.00	1,000.00
Backup Transmitter	20.00	days	75.00	1,500.00
Field Equipment				3,053.20
Field Supplies				640.11
Freight				116.06
Maps and Sections				2,845.00
Liability Insurance				1,400.00
Inversions		4		2,325.00
Modeling				292.50
3. Assessment Report	 			
Geologist	2.00	man-days	\$500.00	\$1,000.00
PROJECT TOTAL				\$110,682.73

## STATEMENT OF QUALIFICATIONS

I, Paul Metcalfe, do hereby state:

- 1. That I am a resident of British Columbia, with a business address of 420 North Road, Gabriola Island, BC.
- 2. That I am a member, in good standing, of the Association of Professional Engineers and Geoscientists of the Province of British Columbia;
- 3. That I am a graduate of the University of Durham (B.Sc. Hon., 1977);
- 4. That I am a graduate of the University of Manitoba (M.Sc. 1981);
- 5. That I am a graduate of the University of Alberta (Ph.D. 1987);
- 6. That I was employed as a postdoctoral research fellow by the Mineral Deposits Research Unit at the University of British Columbia and at the Geological Survey of Canada and:
- 7. That I have been employed in geology or geological research since graduation from Durham.
- 8. That I have been retained by Coast Mountain Geological Ltd, a British Columbia corporation with a business address of 620-650 West Georgia Street, Vancouver, B.C., V6B 4N9, to complete this report for TNR Gold Corp.

DATED in Vancouver, B.C., this 22nd day of May, 2007.

Paul Metcalfe, B.Sc. (Hon. Dunelm.) M.Sc. PhD. P.Geo

## APPENDIX I: A NOTE ON COORDINATE SYSTEMS

Grids are the co-ordinate systems used to identify field locations uniquely in notes and on maps. These are systems of easting and northing values or **co-ordinates**, which are displacements of distance or angle measured from defined zero-lines or **origins**. The geographic co-ordinate system is the best-known of these systems, where meridians (north-south lines of longitude) and parallels (east-west lines of latitude) are measured in degrees, from the Greenwich zero meridian and from the equator, respectively. For a unique combination of values (e.g. 49°N, 123°W, there is a corresponding, unique location on the Earth's surface.

As noted above, the geographic system uses angles to measure location and is therefore not based upon a rectangular grid. Moreover, this system is a direct representation of the Earth's curved surface and translates poorly onto a flat sheet of paper, making it difficult to use in many applications unless a **projection** is carried out.

A **projection** is a mathematical method for converting the curved surface of the earth to a flat surface, tangential to the earth's surface at a particular point. An **ellipsoid** is a model for the shape of the earth's globe used in the projection calculation. A **datum** identifies the location(s) where the ellipsoid is fixed to specific geographic locations and from which the resulting grid is measured or surveyed. This grid is therefore rectangular or **Cartesian** and can be represented by a distance X (easting) and a distance Y (northing) from an origin point; elevations are measured as distance above (or below) the geoid's surface.

National and regional grid systems and their associated maps that are based on the earth's shape require all three components in their definition: a projection, an ellipsoid and a datum. All three should be specified, or co-ordinates given in a report or map will be ambiguous. Frequently a particular datum implies the use of a specific ellipsoid, which is therefore not necessarily mentioned.

Maps of small areas that do not need to account for the curvature of the earth or irregularities in its shape are based on simple, non-earth co-ordinate systems. These are usually called local grids and are commonly used for geological data collection. A local grid may be oriented arbitrarily and the conversion from local grid co-ordinates to a national or regional grid is simply treated as a shift and rotate operation.

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# APPENDIX II: 3D INDUCED POLARIZATION ON THE TYNER LAKE PROPERTY FOR TNR GOLD CORPORATION

# **GEOPHYSICAL REPORT**

# **3D INDUCED POLARIZATION**

## <u>ON THE</u>

# TYNER LAKE PROPERTY

## <u>FOR</u>

# TNR GOLD CORPORATION

Approximately 50° 18' N , 120° 53' W Location: Lower Nicola, British Columbia, Canada NTS Sheet: 092/I02 Mining Zone: Nicola Mining Division

> SURVEY CONDUCTED BY SJ GEOPHYSICS LTD. August - September 2006

REPORT WRITTEN BY LOGISTICS:SEAN SUTTIE GEOPHYSICS:BRIAN CHEN

S.J.V. CONSULTANTS LTD. January 2007

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Plate C-4	Interpreted Chargeability – 100m Below Surface
Plate R-5	Interpreted Resistivity – 150m Below Surface
Plate C-5	Interpreted Chargeability – 150m Below Surface
Plate R-6	Interpreted Resistivity – 200m Below Surface
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Plate R-7	Interpreted Resistivity – 250m Below Surface
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Plate R-8	Interpreted Resistivity – 300m Below Surface
Plate C-8	Interpreted Chargeability – 300m Below Surface

# LIST OF PLATES AND CROSS SECTIONAL MAPS

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Line Numbers	Cross Sectional Maps
1700N, 1800N, 1900N, 2000N,	3D Interpreted Resistivity / Interpreted
2100N, 2200N, 2300N, 2400N,	Chargeability
2500N, 2600N, 2700N, 2800N,	
2900N, 3000N, 3100N, 3200N,	
3300N, 3400N, 3500N, 3600N,	
3700N, 3800N, 3900N, 4000N	

## 1. INTRODUCTION

A 3D Induced Polarization survey was undertaken for TNR Gold Corporation on its Tyner Lake property on the north-west part of the *Nicola* mining division in B.C., Canada by SJ Geophysics Ltd. in August and September 2006. This report describes the field logistics and discusses the chargeability and resistivity responses based on the inverted models of the survey.

The intention of the survey was to assist in the geological mapping and to identify specific anomalies consistent with the exploration model.

This report is written as an addendum to a more complete report; therefore, this does not cover items such as previous exploration work, discussion of the background geology, or costs associated with the survey.

## 2. LOCATION AND LINE INFORMATION

From Merritt head west to the village of Lower Nicola. The project area is located approximately17km northwest of Lower Nicola following Hwy 8. Figure 1 shows the location of Tyner Lake property.

The northern half of the grid was dominated by clear cut logging and the southern half was densely forested. Vegetation included coniferous trees underlain by moss and lichen; outcropping to the southwest made navigation of the terrain difficult.



Figure 1: Location of the Tyner Lake Property in British Columbia. (Base image, Google Earth)

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The IP survey was conducted on a 2300 x 1200 metre grid, which consisted of 23 east-west oriented lines with line spacing of 100m. The lines were labeled from 1700N to 4000N while the stations were placed and flagged every 25m along the lines. The stations were labeled from 400E to 1600E. See Figure 2 below and the table in Appendix 2 for more information on the survey lines.

SJ Geophysics Ltd. / S.J.V. Consultants Ltd. 11762-94<sup>th</sup> Ave., Delta, BC Canada Tel: (604) 582-1100 Fax: (604) 589-7466 E-mail: <u>sydv@sjgeophysics.com</u> 2



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## 3. FIELD WORK AND INSTRUMENTATION

#### 3.1. Field Logistics

Four SJ Geophysics Ltd. employees, Mas Akalu (Geophysicist), Mike Seguin, Kyle Reynolds, Franzi Unterberger mobilized from Delta on August 30<sup>th</sup> by vehicle. Upon their arrival and the next day, the crew started checking and designing the survey grid with geological consultants Chris Basil and Bernie Dewonck (from Coast Mountain Geological Ltd.). Accommodation for the IP crew was provided by TNR Gold Corp. at the Ramada Inn in Merritt.

SJ Geophysics Ltd. was responsible for the flagging and chaining of the grid. The crew spent three weeks preparing the grid prior to and throughout the IP survey by using GPS units, compasses and chains. Throughout the survey, two local members of the Nicola Band Native Reserve assisted SJ Geophysics Ltd. crew with line cutting. Location data was obtained during the griding process using clinometers and hand-held GPS units. GPS measurements were taken in WGS84 coordinates every 25m for most of the grid, and converted in the GPS software to NAD83.

Sean Suttie and Ryan Nelson mobilized from Delta B.C. on September 6<sup>th</sup> to join the crew. IP survey set up was started on the following day. IP data collection was carried out from September 8<sup>th</sup> to September 26th. Josh Mayall (helper) arrived from Delta on the 13<sup>th</sup> of September. Ryan Nelson and Kyle Reynolds returned to Delta on September 17<sup>th</sup>. Marvin Skulsh (helper) mobilized from New Hazelton while Chris Thornton (helper) mobilized from Delta via bus on the 20<sup>th</sup> and 23<sup>rd</sup> of September respectively.

Although production started slowly, performance increased significantly mid-way through the survey, eventually averaging 2400m per day. Minor logistical problems arose throughout the survey, from animals gnawing through wires and cables to severe weather conditions, causing significant delays.

IP and location data processing took place on site, while final data quality check and inversion took place at S.J.V. Consultants Ltd. in Delta, BC.

#### 3.2. Survey Parameters and Field Instrumentation

A modified pole-dipole 3D-IP configuration array was used with 12 dipoles with a combination of 50m, 100m and 200m separations. The IP data was collected using SJ Geophysics' Full Waveform receiver. The current was injected with a 2 seconds on, 2 seconds off duty cycle into the ground via a transmitter. A single GDD Tx II 3.6 KW transmitter was utilized for the duration of the survey.

The potential array was implemented using specialized 8 conductor IP cables configured with 50m takeouts for the potential pots/rods. At each current station, electrodes consisted of two 1.0m stainless steel rods, 15mm in diameter. For most potential lines, the electrodes consisted of 10mm stainless steel "pins" of .5m in length. For the potential lines 3700N and 3500N, the electrodes consisted of ceramic pots filled with copper sulphate (CuSO<sub>4</sub>), with a copper electrode submerged in the pot. A shallow hole was dug for each pot and partially refilled with water to ensure good contact with the bottom of the pot. After surveying was finished on an individual line, pots were removed from the ground cleaned, and left overnight in a bath of new copper sulphate solution. While in the bath, the leads of each pot were connected together to stabilize the voltage potentials before deployment.

Four IP remotes were used, as shown on figure 2. Remotes "RemE" and "RemE1" were located off the eastern end of the grid, while remotes "RemW" and "RemW1" were located off the western side. In an effort to achieve better depth penetration and cleaner data, the western remotes were used when surveying the eastern side of the lines, and vice versa. Gradient shots were also taken using a western and eastern remote at the two current injection locations. The remote current electrodes consisted of five 1m stainless steel rods, 15mm in diameter. The exact locations of the remote currents were acquired by GPS for use in the geophysical calculations.

The IP readings from each day's surveying were downloaded to a computer and entered into a database archive every evening. The database program allows the operator to display the IP decay curves in an efficient manner, and this provides a visual review of the data quality on site.

## 4. **Geophysical Techniques**

### 4.1. IP Method

The time domain IP technique energizes the ground surface with an alternating square wave pulse via a pair of current electrodes. On most surveys, such as this one, the IP/Resistivity measurements are made on a regular grid of stations along survey lines.

After the transmitter (Tx) pulse has been transmitted into the ground via the current electrodes, the IP effect is measured as a time diminishing voltage at the receiver electrodes. The IP effect is a measure of the amount of IP polarizable materials in the subsurface rock. Under ideal circumstances, IP chargeability responses are a measure of the amount of disseminated metallic sulfides in the subsurface rocks.

Unfortunately, there are other rock materials that give rise to IP effects, including some graphitic rocks, clays and some metamorphic rocks (serpentinite for example). So from a geological point of view, IP responses are almost never uniquely interpretable. Because of the non-uniqueness of geophysical measurements it is always prudent to incorporate other data sets to assist in interpretation.

Also, from the IP measurements the apparent (bulk) resistivity of the ground is calculated from the input current and the measured primary voltage.

IP/resistivity measurements are generally considered to be repeatable to within about five percent. However, they will exceed that if field conditions change due to variable water content or variable electrode contact.

IP/resistivity measurements are influenced, to a large degree, by the rock materials nearest the surface (or, more precisely, nearest the measuring electrodes), and the interpretation of the traditional pseudosection presentation of IP data in the past has often been uncertain. This is because stronger responses that are located near surface could mask a weaker one that is located at depth.

### 4.2. 3D-IP Method

Three dimensional IP surveys are designed to take advantage of the interpretational functionality offered by 3-D inversion techniques. Unlike conventional IP, the electrode arrays are no longer restricted to in-line geometry. Typically, current electrodes and receiver electrodes are located on adjacent lines. Under these conditions, multiple current locations can be applied to a single receiver electrode array and data acquisition rates can be significantly improved over conventional surveys.

In a common 3D-IP configuration, a receiver array is established, end-to-end along a survey line while current electrodes are located on two adjacent lines. The survey typically starts at one end of the line and proceeds to the other end. A typical 8 dipole array normally consists of a two 100m dipoles, followed by four 50m dipoles and then two more 100m dipoles at the end of the array. In some areas these spacings are modified to compensate for local conditions such as inaccessible sites, streams, and overall conductivity of ground. Current electrodes are advanced along the adjacent lines, starting at approximate 200m from the centre of the array and advances approximately 400m through the array at 50m increments. At this point, the receiver array is advanced 400m and the process is repeated down the line. Receiver arrays are typically established on every second line (200m apart) thereby providing subsurface coverage at 100m increments.

### 4.3. Inversion Programs

"Inversion" programs have recently become available that allow a more definitive interpretation, although the process remains subjective.

The purpose of the inversion process is to convert surface IP/Resistivity measurements into a realistic "Interpreted Depth Section." However, note that the term is left in quotation marks. The use of the inversion routine is a subjective one because the input into the inversion routine calls for a number of user selectable variables whose adjustment can greatly influence the output. The output from the inversion routines do assist in providing a more reliable interpretation of IP/Resistivity data, however, they are relatively new to the exploration industry and are, to some degree, still in the experimental stage.

## Tyner Lake 3D IP Geophysical Project 2006

The inversion programs are generally applied iteratively to evaluate the output with regard to what is geologically known, to estimate the depth of detection, and to determine the viability of specific measurements.

The Inversion Program (DCINV3D) used by the SJ Geophysical Group was developed by a consortium of major mining companies under the auspices of the UBC-Geophysical Inversion Facility. It solves two inverse problems. The DC potentials are first inverted to recover the spatial distribution of electrical resistivity, and, secondly, the chargeability data (IP) are inverted to recover the spatial distribution of IP polarizable particles in the rocks.

The interpreted depth section maps represent the cross sectional distribution of polarizable materials, in the case of IP effect, and the cross sectional distribution of the resistivity, in the case of the resistivity parameter.

## 5. DATA PRESENTATION

### 5.1. Cross Sections

As described above, the IP data is processed through an inversion program that outputs one possible subsurface distribution of resistivity and polarizable materials that would produce the observed data. These results are presented in a false-colour cross section and these displays can be directly interpreted as geological cross sections.

Cross sections are created as 1:5000 scale plots and provided to the clients in digital PDF format files. Cross section maps of page size are also produced and included in Appendix 4.

## 5.2. Plan Maps

False colour contour maps of the inverted resistivity and chargeability results can be produced for selected depths. Data is positioned using UTM coordinates gathered during the field work. This display illustrates the areal distribution of the geophysical trends, outlining strike orientations and possible fault offsets.

Plan maps are created for both resistivity and chargeability at depths of 25m, 50m, 75m, 100m, 150m, 200m 250m and 300m below surface at a 1:5000 scale and provided to the clients in digital PDF format files. Plan maps of page size are also produced and included in Appendix 4.

## 5.3. Inversion Model

With computer technology that exists today, the 3D inversions results can be easily viewed using a 3D visualization program such as UBC-GIF's dicer3d program or open-source software packages such as Paraview. These programs use a block model format to manipulate the data and allow a user to view the model from infinite viewing angles, or to create infinite cross-sections or plan maps. In addition, these visualization programs allow the user to isolate different isosurfaces to facilitate interpretation of the data.

## 6. **DISCUSSION OF RESULTS**

The interpretation of the IP results within this report are solely based on this geophysical program, as little knowledge of the property geology was known by the author.

The Tyner Lake property is underlain by a variety of volcanic intrusive rocks including quartz diorite and granodiorite rock types. Previous exploration on the property included geological and geochemical surveying.

Figure 3 below shows the inverted resistivity false color map at 150 m depth below topography. It exhibits the resistivity features on the grid. The background inverted resistivity value is about 350 Ohm-m. Two series of NE and NW trending resistivity contacts are identified and annotated as bold dashed lines in white color on Figure 3 and 5. These resistivity contacts outline one NS elongated resistive zone with width about 600m running through the whole grid. It's split into two resistive units by an obvious resistivity contact on the south portion of the grid.



Figure 4 shows more views of the 3D resistivity model by displaying the isosurfaces with the resistivity value of 450 Ohm-m in pink color and viewing from different angles

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The IP responses revealed from the inversion are distinctive and characterized by low values (< 3 ms) (See Figure 5). The IP data is clean and with low background electrical noise, therefore, it's possible to pick up the weak response. The weak IP response starts from the north central portion of the grid and fades to south like a shadow. The center of the weak IP response is situated on the east edge of the resistive unit. Figure 6 exhibits more views of the weak IP response by showing the isosurfaces with inverted chargeability values of 2 and 2.5ms respectively on the 3D IP inversion model from different viewing angles. The strength of the IP response on the survey area is noticeable low. The size and shape of the weak IP response are sensitive to the inverted chargeability values. Within 0.5ms of chargeability value variation which may exceed the resolution of the equipment, the IP response changes its geometry rapidly. Therefore, it's difficult to outline the weak IP anomaly by its chargeability values.

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### 7. CONCLUSIONS AND RECOMMENDATIONS

Two NE and NW series of resistivity contacts are identified from the resistivity inversion model. One NS trending elongated resistive feature runs through the whole grid. A weak IP response zone is revealed on the north central portion of the grid. The strength of the IP response is noticeable low. It's difficult trying to delineate the anomalies in the model with every low chargeability values. The outline of the weak IP response may not be accurate.

The follow up exploration work or detail interpretation based on the integrated information of geology, geochemistry and other geophysical data on the weak IP response is suggested. Drills are suggested in both the center and fringe of the IP anomalies to find out the relationship of the IP response and the mineralization if it's still unknown.

The following locations for drills are suggested:

- 1. Around line 3800N, station 1200E: centre of the weak IP response, near linear resistivity contact.
- 2. Around line 3300N, station 1300E: in the south portion of the weak IP response, near linear resistivity contact.
- 3. Around line 3800N, station 800E: in the west portion of the weak IP response, centre of the resistive unit.
- 4. Around line 2000N, station 1000E (lowest priority, assist in delineating the south extension of the weak IP response): in the south portion of the grid, with low resistivity, associated with faults.

Respectfully Submitted, per S.J.V. Consultants Ltd.

Brian Ihm

Brian Chen, M.Sc. Geophysics

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## 8. APPENDIX 1 - STATEMENT OF QUALIFICATIONS - BRIAN CHEN

I, Brian Chen, of the city of Delta, Province of British Columbia, hereby certify that:

- 1. I graduated from the University of Science and Technology of China in 1989 with a Bachelor of Science degree in geophysics and from South China Sea Inst. Of Oceanology, CAS in 1992 with a Master of Science degree in Mathematical geology.
- 2. I have been working in geophysics since 1992.
- 3. I have no interest in TNR Gold Corporation, or in any property within the scope of this report, nor do I expect to receive any.

Signed by: Brian Chen

Brian Chen, M.Sc. Of Geophysics

Date: Jan. 30th, 2007

Line	L.Series	Start Station	End Station	Туре	Surveyed Length
4000	N	400	1600	Tx	1200
3900	N	400	1600	Rx	1200
3800	N	400	1600	Tx	1200
3700	N	400	1600	Rx	1200
3600	N	400	1600	Tx	1200
3500	N	400	1600	Rx	1200
3400	N	400	1600	Тx	1200
3300	N	400	1600	Rx	1200
3200	N	400	1600	Tx	1200
3100	N	400	1600	Rx	1200
3000	N	400	1600	Tx	1200
2900	N	400	1600	Rx	1200
2800	N	400	1600	Tx	1200
2700	N	400	1600	Rx	1200
2600	N	400	1600	Tx	1200
2500	N	400	1600	Rx	1200
2400	N	400	1600	Tx	1200
2300	N	400	1600	Rx	1200
2200	N	400	1600	Tx	1200
2100	N	400	1600	Rx	1200
2000	N	400	1600	Tx	1200
1900	N	400	1600	Rx	1200
1800	Ν	400	1600	Tx	1200

# 9. Appendix 2 – Summary Tables

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*Total Line Metres = 27,600 metres* 

## **10.** Appendix 3 – Instrument Specifications

## 10.1. GDD Tx II IP Transmitter

Input voltage:	120V / 60 Hz or 240V / 50Hz (optional)
Output power:	1.4 kW maximum.
Output voltage:	150 to 2000 Volts
Output current:	5 ma to 10Amperes
Time domain:	Transmission cycle is 2 seconds ON, 2 seconds OFF
Operating temp. range	-40° to +65° C
Display	Digital LCD read to 0.001A
Dimensions (h w d):	34 x 21 x 39 cm
Weight:	20kg.

## 10.2. Full-Waveform Digital IP Receiver

Technical:	
Input impedance:	10 Mohm
Input overvoltage protection:	up to 1000V
External memory:	Unlimited readings
Number of dipoles:	4 to 16 +, expandable.
Synchronization:	Software signal post-processing user selectable
Common mode rejection:	More than 100 dB (for Rs =0)
Self potential (Sp):	Range: $-5V$ to $+5V$
	Resolution: 0.1 mV
	Proprietary intelligent stacking process rejecting
	strong non-linear SP drifts
Primary voltage:	Range: $1\mu V - 10V$ (24bit)
	Resolution: 1µV
	Accuracy: typ. <1.0%
Chargeability:	Resolution: 1µV/V
	Accuracy: typ. <1.0%
General (4 dipole unit):	
Dimensions:	18x16x9 cm
Weight:	l.1 Kg
Battery:	12V External
Operating temperature range:	-20°C to 40°C

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11. APPENDIX 4 - DEPTH PLAN MAPS AND CROSS SECTION MAPS(PAGE SIZE)

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650500 650000 849000 >1736 1240-1736 886-1240 5576500 633-886 452-633 323-452 1000E 200 600E × 300E 231-323 4000N 165-231 × . 118-165 4000N 84-118 60-84 . x . . . . x . . 8900N× . . 3900N <60 • X • Q. 3800N× ... \*\*\*\* 3800N 3700N×+++ . . x . . 5576000 Sec. 1 700N 3600N 3600N 1. x ...... N 3500N BEOON×. 3400N . . . 3400N 33000 3300N 5575500 . . . ZOON ... . 4 a de la como . . . . 3200N× 3100N× -3100N Legend 0 Survey Stations
Contour Lines
Rivers BOOON 3000N× . 2900N - Roads 2900N× -Lakes 2800N 2700N 2800N× 5575000 3D IP Array n=12 a=50m to 200m INSTRUMENTATION RECEIVER: SJ-24 Full-Waveform Digital IP Receiver TRANSMITTER: GOD Tx II and Walker Tx9000 2700N -× 2600N Survey by: SJ Geophysics Ltd. 3D Inversion by: S.J.V. Consultants Ltd. Processing Date: Oct., 2006 2600N× 2500N× · × . . . × 2500N Projection: UTM meters NAD83 Zone 10 NT5 09207 Base Map: TRM-BC Data Boucce - scale 1:20000 Mapping Date: Cot. 30 Mapping Date: Cot. 30 100 M 2400N× × 2300N 2300N× · · 5574500 · · · × · . 2200N 0 2200N J. 2100N× L. 2100N 20 OOON 2000N ... 1900N TNR GOLD CORP **Tyner Lake Property** 1800N Lower Nicola, British Columbia - Canada 1800N× 5574000 **3D Inversion Model** \* · · · · · · × 1700N ..... ( xt ... ) 1700N× · · · · Interpreted Resistivity (Ohm-m) NOE 1400 8 False Color Contour Map 40 SOOE C Depth 100m Below Topography sh Ge Plate R-4 GRASS 6 3

650000 650500 9500 49000 >1736 1240-1736 886-1240 5576500 633-886 452-633 10005 323-452 200 SOOE 231-323 4000N × 800E 165-231 118-165 × 4000NX 1 84-118 × (\* \* 8900N 60-84 3900N <60 3800N× 3700N× 3800N · · × . 5576000 1978 700N • \* 3600N BEDON N 3500N× · × 3500N 1 3400N . . . X 3400N x · 3300N 3300NX 7.00 5575500-. . 2 \$200N × . . . . . . . . .... 3200N× 3100N× • 3100N Legend 0 Survey Stations
Contour Lines
Rivers 3000N 3000N× \* 900N - Roads 2900N× . 2800N Lakes \* 2700N 2800N 5575000 30 IP Array n=12 a=50m to 200m · · × ...... Q . . 100 INSTRUMENTATION RECEIVER: SJ-24 Full-Waveform Digital IP Rec TRANSMITTER: GDD Tx II and Walcer Tx9000 2700N× .× 2600N Survey by: SJ Geophysics Ltd. 3D Inversion by: SJ.V. Consultants Ltd. Processing Date: Oct., 2006 26000 × 2500N× . 2500N Projection: UTM meters NAD83 Zone 10 NT5 09287 Base Majo: TRM-BC Data Source - scale 1:20000 Mapsheets 92038 / 035 Nicola and Karnfoops Mining Districts Mapping Date: Oct., 08 • × × 2400N 2400N× ..... × 2300N 2300N× . 5574500 12 -• • • • × • 2200N× . . . N0055 0 · · · · · 2100N× . 2100N NOOO 1900N 900N TNR GOLD CORP Tyner Lake Property X1800N Lower Nicola, British Columbia - Canada BOONX 5574000 **3D Inversion Model** ----×1700N 1700N× · · · . Interpreted Resistivity (Ohm-m) 4001 False Color Contour Map 100 6005 C Depth 150m Below Topography -Plate R-fi









650000 650500 >4.5 4-4.5 3.5-4 5576500 3-3.5 DOE 2.5-3 000E 2-2.5 12001 600E 1.5-2 100E 4000N 1-1.5 4000N× × 0.5-1 <0.5 8900N× . - -3900N ........... . . x . . . 3800N× 3700N× 3800N 5576000 · \* \* • • • • 100N 3600N× BEGON N 1002 350 3400N 3400N 3300N 33000 5575500 200N 32001 3100N 3100N Legend 0 \* Survey Stations — Contour Lines TOOON 30001 - Rivers - Roads 2900N 29001 2800N -Lakes 700N 2800N 3D IP Array n=12 a=50m to 200m 5575000 1000 INSTRUMENTATION RECEIVER: SJ-24 Full-Waveform Digital IP Rec TRANSMITTER: GDD Ts II and Waker Ta9000 2700N OON Survey by: SJ Geephysica Ltd. 3D Inversion by: SJ V. Consultants Ltd. Processing Date: Oct., 2006 2600N 250DN 500N Projection: UTM meters NAD83 Zone 10 NT5 092107 Base Map: TRM-DC Data Source - scale 1:20000 Mapping Date: 52036 / 025 Mapping Date: Oct., 05 NOO 2400 N0053 2300 5574500 1.1. \*\*\* 2200 2200N 0 2100N 100N OCON 2000 900N TNR GOLD CORP Tyner Lake Property Lower Nicola, British Columbia - Canada 1800N 1800 5574000 **3D Inversion Model** 700N 17 Interpreted Chargeability (ms) 1400 False Color Contour Map 400 600 Depth 50m Below Topography G **N** \$60 ORASS 6. Plate C-2



650000 650500 AGOOD >4.5 4-4.5 3.5-4 5576500 3-3.5 SOOF 2.5-3 1000E 2-2.5 1200 SOOE 1.5-2 4000N 3008 1-1.5 4000N× × 0.5-1 25 <0.5 · · · X · · 8900N\* 3900N 3800N× 3700N× 3800N • x• 5576000 TOON 3600N× BEGON N 350 500N 3400N 3400N 33000 3300N 5575500 200N \* . . . . 3200N 3100N 3100N Legend 0 Survey Stations
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Roads BOOON 30001 2900N 29001 2800N - Lakes 700N 2800N 3D IP Array n=12 a=50m to 200m 5575000 INSTRUMENTATION RECEIVER: SJ-24 Full-Waveform Digital IP Receiver TRANSMITTER: GDD Tx II and Water Tx9000 2700N OON Survey by: SJ Geophysics Ltd. 3D Inversion by: SJ.V. Consultants Ltd. Processing Date: Oct., 2005 2600N> 2500N 500N Projector: UTM meters NAD83 Zone 10 NTS 09207 Base Mai: TRM-BC Data Source - scale 1:20000 Massheets 92036 / 026 Nocle and Kamloops Mining Districts Mapping Date: Dct., 06 . . NOO 2400 100ES 2300 5574500 · 1. . x . 0 2200 2200N 2100N 100N OOON 2000 9000 TNR GOLD CORP Tyner Lake Property Lower Nicola, British Columbia - Canada 1800N 1800 5574000 **3D Inversion Model** 700N 17 Interpreted Chargeability (ms) 14001 False Color Contour Map 400 Depth 100m Below Topography C 140 GRASS 6 2 Plate C-4




















































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