

## **TECHNICAL REPORT**

**CARSON PROPERTY**

**NTS: 086G/03, Mackenzie Mining District, Northwest Territories**

**115°8'35"W 64°9'57"N**

**January 18, 2011**

**PREPARED FOR:**

**JOSHUA GOLD RESOURCES**

**C/O NHC**

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**Chapleau, Ontario**

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## STATEMENT OF QUALIFICATIONS

I, David White, of the City of Yellowknife, in the Northwest Territories, Canada,

HEREBY CERTIFY:

1. That my address is 3506 McDonald Drive, Yellowknife, N.W.T. X1A 2H1.
2. That I am a graduate of the University of Manitoba
  - a) B.Arts – Physical Geology and Geology, 1999
3. That I am a graduate of the University of Alberta:
  - a) B.Sc. – Specialization Geology, 2003, U of A
4. That I have been practicing geology since 2003

May, 2003 - September 2003	RWED Yellowknife, NWT, Geologist
September 2003 - October 2004	DIAND Yellowknife, NWT, Geologist
October 2004 – November 2004	Northern Dynasty Minerals Ltd. Vancouver, British Columbia, Geologist
November 2004 to present	Aurora Geosciences Ltd. Yellowknife, NWT, Geologist
5. That I visited the property for one day on November 23<sup>rd</sup>, 2010.
6. At the time of writing this report I have 7 years of gold, diamond uranium and base metal exploration experience (geological mapping, core logging and report writing) which qualifies me to write this report.
7. That I am a registered Professional Geologist in the Northwest Territories. As such I am a qualified person for the purposes of National Instrument 43-101.
8. As of the date of this certificate, to the best of my knowledge, information and belief, I am not aware of any material fact or material change with respect to technical aspects of the report which is not reflected in the report, and that all required scientific and technical information has been disclosed in order to make the technical report not misleading.
9. That I am independent of the issuer as defined by the tests set out in Section 1.4, "Standards of Disclosure for Mineral Projects", National Instrument 43-101.
10. That I have read "Standards of Disclosure for Mineral Projects", National Instrument 43-101 and read Form 43-101F1. This report has been prepared in compliance with this Instrument and Form 43-101F1

This certificate applies to the NI 43-101 compliant technical report titled: "TECHNICAL REPORT CARSON PROPERTY, NORTHWEST TERRITORIES", as dated this January 18, 2011.

Dated this January 18, 2011 at Yellowknife, N.W.T.



David White P.Geol.

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## Executive Summary

This NI 43-101 technical report has been prepared for Joshua Gold Resources Ltd. to provide an evaluation of the historical work completed on, and in the immediate area of, the Carson property. Aurora personnel visited the property on November 23rd, 2010 to validate mineralization described in surface trenching and confirm drilling work completed in 1947. Due to excessive snow cover a detailed assessment of the auriferous quartz veins and associated alteration and structure could not be completed. However, one trench at the Pond showing was located and sampled. A number of old fuel drums and drill steel was also observed.

The Carson property is located approximately 195 kilometers north-northwest of Yellowknife on the western shore of Damoti Lake. Three gold showings, the Pond, Chuck Vein, and Hill top, are hosted in sheared volcanic and volcanoclastic rocks in a style of mineralization consistent with orogenic lode gold-type occurrences. The property is underlain by rocks of the Indin Lake supracrustal belt. The Indin Lake belt is an upper greenschist to lower amphibolite metamorphic-facies package of volcanic, volcanoclastic, clastic, and exhalative sedimentary rocks.

Exploration has been periodically conducted in the Indin Lake area since the mid 1930's with the discovery of lode gold in the mafic volcanic rocks that surround the lake. Prospecting of the area around the lake identified a number of additional gold showings in the volcanic and surrounding sedimentary rocks. In the 1970's, exploration shifted focus to polymetallic base metal targets and lead to the discovery of new occurrences in the Indin Lake belt. The discovery of iron formation-hosted gold at Damoti Lake, and active mining at the Colomac deposit, fueled the exploration effort during the 1990's. At present, elevated gold prices have renewed staking and exploration interest in the Indin Lake belt.

The earliest organized exploration recorded on the property was conducted by Snowden Yellowknife Mines (Snowden) in 1947. This exploration effort may have lead to the discovery of the Pond, Chuck Vein, and Hilltop showings. These showings remain the most prominent mineral occurrences recognized on the property. Snowden reported trenching and diamond drilling activities on the Pond showing and isolated localities along strike to the northeast. Grades as high as 1.26 oz/t Au over 7 inches in hole S-18 and 0.55 oz/t Au over 7 inches in hole S-16 are reported (Glidden and Burton, 1948). In 1981, Wollex Exploration examined the property through prospecting, mapping, and re-sampling existing trenches. Noranda Exploration Company of Canada assessed the property in 1985. Additional prospecting, mapping, re-sampling of the surface trenches, and VLF-EM and total field magnetic surveys were completed. No further ground work is reported.

The structural setting, alteration, and mineral assemblages of the gold showings are consistent with orogenic lode gold-type mineralization. Gold occurs in, or in altered host rock at the margins of, quartz veins hosted in shear zones oriented parallel or subparallel to property- and/or regional-scale tectonic fabrics. Metamorphic minerals observed on the property are consistent with greenschist grade. Host rock adjacent to mineralized quartz veins is silicified and carbonatized and shows chlorite±biotite, pyrite±pyrrhotite mineral assemblages.

A total of nine trenches and 35 x-ray diamond drill holes have been completed on the Pond showing. The showing occurs in sheared mafic and felsic volcanic rocks. Drilled gold-bearing intervals show silica-carbonate-pyrite±pyrrhoite alteration. One grab sample from Trench 16 assayed 2.66 oz/t.

The Chuck vein showing is a milky white quartz vein hosted in a ten meter wide shear zone. This vein is lesoidal and can be traced discontinuously for 200 meters. A chip sample collected in 1985 assayed 870 ppb Au over 0.5 meters in Trench 2.

The Hilltop showing is a weakly silicified zone in intermediate volcanic rocks. Four trenches have been excavated on the showing. No significant gold assays are reported.

Further exploration is warranted on the Carson property. Updated VLF-EM and magnetic surveys are recommended as a next step and precursor to additional mapping, prospecting, and diamond drilling. Diamond drilling should be conducted in the early spring to reduce mobilization expenses by taking advantage of the Colomac ice road.



## **1.0 Introduction**

In November of 2010, Joshua Gold Resources Ltd. (Joshua) contracted Aurora Geosciences Ltd (Aurora) to complete a NI 43-101 and mineral assessment of the Carson property. Aurora visited the property on November 23rd, 2010 to validate mineralization described in surface trenching and confirm drilling work completed in 1947.

The Carson property is located on the western shore of Damoti Lake, approximately 195 kilometers north-northwest of Yellowknife. Access is best achieved by fixed or rotary wing aircraft. The Colomac winter road traverses Indin Lake approximately five kilometers to the west of the property. This winter road can be used as a seasonal staging point.

The Indin Lake supracrustal belt has been a focus of gold exploration since the mid 1930's. Gold discovered in 1938 at the Barker showing initiated a flood of exploration activities that resulted in the discovery and limited exploitation of a number of gold showings, 104 showings are presently recorded in the Northern Minerals showing database (NORMIN.DB). The Indin Lake belt is host to past producers Colomac mine, North Inca and the Barker vein, as well as significant gold deposits including Damoti Lake and Diversified. With the exception of Damoti Lake (iron formation-hosted) and Colomac (felsic dyke-hosted), all known gold deposits in the Indin Lake belt can be classified as orogenic lode gold style.

Three main gold showings and a number of small isolated gold occurrences are identified on the Carson property. Mineralization at all three showings are quartz vein hosted, or associated, and show alteration and economic minerals consistent with orogenic lode gold-type deposits. The property has been prospected and mapped during at least three exploration programs. Trenching, and chip sampling has been conducted on the three main showings and sporadically about the property. The Pond showing was diamond drilled in 1947.

## **2.0 Reliance on other experts**

### **2.1 Terms of reference**

This report was prepared for Joshua Gold Resources Inc. (Joshua). This document is a technical evaluation of the historical work completed in the immediate area of mining lease 3446. The Carson property comprises one mining lease registered in good standing with the NT Mining Recorder's office and is geographically centered at 115°8'35"W 64°9'57"N.

This report reviews and summarizes all publicly available historical work in the area.

This report is prepared by David White P. Geol., a principal of Aurora Geosciences Ltd. of Yellowknife. The author is a qualified person as defined by the Canadian Securities Administrators National Instrument 43-101. Mr. White has over 7 years of exploration experience and 2 years as a P.Geol. The author's specific disciplines have been in evaluating gold, base metal, uranium and rare earth-related prospects within Nunavut, NWT, Yukon, Alaska, British Columbia, and Saskatchewan. Mr. White is a member in



good standing with the NWT and Nunavut Association of Professional Engineers, Geologists and Geophysicists (Member #1778). Mr. White and Gary Vivian P.Geol. conducted a site visit of the Carson property on November 23<sup>rd</sup>, 2010.

This document is a technical evaluation of historical data (pre-2010). Diamond drilling in 1947 and prospecting and ground geophysical work completed in 1947, 1981, and 1985 have been reported at the Carson property.

This report reviews and summarizes most of the previous work with the caveat that none of this work is digital. No original data exists aside from hand drawn maps and partial assay data which cannot be correlated to individual drill holes. It should be noted all previous reports were written by independent third parties with no direct benefit from the property. A total of 43 diamond drill holes have been completed on the Carson property. All of this information is contained on paper logs and hand drawn plan maps. The assay data is available from the 1985 surface program. Historic drill results have not been digitized.

## 2.2 Site visit

The author visited mining lease 3446 on November 23<sup>rd</sup>, 2010. Gary Vivian accompanied the author during the site visit. He is the president of Aurora Geosciences Ltd. and has more than 25 years of exploration experience in the NT and NU. Aurora personnel left Yellowknife via Bell 206 helicopter and flew directly to site. As is consistent with November climate north of Yellowknife, there was significant snow cover on the property. The intent was to visit the three showing locations and to identify previous work outlined in assessment reports 015043, 081586, and 081954.

Showing locations were predicted by geo-referencing historic maps. There can be a large margin of error associated with this technique, especially with data generated prior to consistent use of accurate surveying techniques and GPS. Because of the snow covered ground, the crew was completely reliant on these coordinates to locate the showings.

The Pond showing was spotted from the air. Four old fuel drums were spotted very close to the predicted showing location. The showing workings are located on a north-northeast trending ridge. One drill hole was identified by a piece of drill steel sticking out of the hole. One additional length of drill steel, 4 fuel drums, and various pieces of scrap wood were also discovered. A blasted pit was discovered to the south of the drill collar. It is approximately 1x1x0.5 meters in size. A white massive quartz vein is exposed in the north and south walls of the pit. This vein and adjacent wall rock material were sampled (Table 1).

Three possible showing locations were generated for the Hilltop showing. All areas were investigated on foot; however, evidence of historic working was not identified. This is not surprising as snow cover was extensive and this showing has been the focus of less work relative to the Pond showing.

The Chuck Vein showing was not investigated because of uncertainty in the showing location as well as fuel and daylight considerations.

A thorough property investigation could not be completed on November 23<sup>rd</sup>, 2010 because of snow cover. However, the author is satisfied that the work reported in assessment reports 015043, 081586, and 081954 was completed as it is reported.

Photos taken by the author during the site visit are shown in Figure 1.

**Table 1. Sample description and gold analysis for samples collected during property visit on November 23<sup>rd</sup>, 2010.**

Sample	Description	Gold Analysis
G0648511	Massive bull quartz, white, no sulphide observed, very clean and little fractured. Sampled from north wall of pit.	0.01 g/t
G0648512	As above. Sampled from south wall of pit.	<0.01 g/t
G0648513	Andesite schist. Wall rock of Sample G0648511. Vugs/amygdulae are annealed with iron-carbonate (brown) showing euhedral terminations; small vugs may be 100% Fe-carb, large vugs are annealed by Fe-carb+quartz (white, finely crystalline); pervasive carbonate altn along foliation. North pit wallrock sample.	<0.01 g/t
G0648514	Sample located on ground 10 feet from pit – presumed to be projectile from sampled pit or pit close by; mafic volcanic schist host to quartz carbonate vein (30%). Fe-carb stringers oriented perpendicular to fabric in volcanic; Fe-carb brown, stringer <mm to 2mm thick – larger veins are banded too fine gr. to identify mineral (colour is drk. chocolate bwn to light bwn; carbonate also disseminated b/w stringers. Basalt is pervasively silicified + v. fine gr. disseminated py+po (1-2%) – pin head sulphide Sulphide most intense adjacent to quartz vein (~5%) and locally form massive stringers along vein contact. Quartz vein is sugary white and v.f.gr.	0.07 g/t
G0648515	Andesite schist; chloritized like sample G0648613, pervasive and vein/fracture controlled carbonate alteration. TR fine disseminated pyrite. South pit wall wall rock sample.	<0.01 g/t

### 2.3 Sources of information and disclaimer

This report is based primarily upon data that has been submitted for assessment purposes and government geological reports. All reports have been identified throughout the text. All reports used for the purpose of this filing were written prior to the implementation of the standards relating to National Instrument 43-101. Reports 081586 and 081954 were prepared by persons holding a minimum of a post-secondary degree in geology or related fields and as such the reports are considered accurate. The primary disclaimer from this author results from not having any significant original data. A total of 43 historic drill holes have been completed on the property to date. There are a series of crude hand drawn drill collar location maps by Glidden and Burton (1948) that are assumed to be accurate in the context of the report filed in 1948, but should not be relied upon for absolute location in the field. Drill collars need to be located and confirmed in the field. None of the occurrences of visible gold mentioned in this report have been observed by the author.

A significant portion of this report has been based upon the written results produced by qualified personnel (individuals holding a minimum of a post-secondary degree in geology or related fields). The author has not been able to confirm any of the results based on original data. The author does not have



Valley showing (looking south). An unmarked drill hole and fuel drums were identified along a ridge in the expected showing area. Significant snow cover prevented any detailed geological investigation.



Quartz vein in north wall of pit



Valley showing (looking north). Identified pit is located just off the photo to the left.



Quartz vein in south wall of pit



Valley showing: blasted (historic) pit re-sampled during 2010 site visit. Massive white quartz vein strikes approximately parallel to the two orange ribbons.

**Figure 1. Carson property site visit photographs**

the original assay certificates for the 1947 diamond drill program or the 1981 program and can only assume the intersections as provided in the reports (Glidden and Burton, 1948; Dickson, 1982) are correct. Drill collar plan maps and sections have not been generated or re-generated for the purpose of this report. The author would consider this exercise to be misleading. The collar locations of all drill holes have not been confirmed and could not be confirmed during the November 23<sup>rd</sup>, 2010 site visit. The collar orientation (azimuth and dip) is not reported for a number of holes completed in 1947. Digitizing and presenting historic drill data from the Carson property is speculative and conceptual at best and is considered to be beyond the scope and relevance of this NI 43-101 report.

Gold values reported from the 1947 Snowden diamond drilling are presented in Gold\$ and Sludge/Gold\$. Gold\$ values are in dollars. Canadian dollars are assumed. The Sludge/Gold\$ value is calculated by dividing the Gold\$ value by \$35 per tonne and represents an oz/t value (Glidden and Burton, 1948). For the purpose of this report, this calculation has been carried through all Gold\$ values reported in the 1947 drill logs. The author cannot confirm the actual grade of the gold values reported as there are no assay certificates included in assessment report 015043 (Glidden and Burton, 1948).

**NORMIN.DB data are provided without warranty of any kind, either expressed or implied. The information may be used with the strict understanding that neither the federal nor territorial governments nor their ministers, employees, or agents shall be liable to any persons for any loss or damage of any nature, whether arising out of negligence or otherwise, which may be occasioned as a result of use of this information.**

**The Historical Estimates in this report were not prepared by independent Qualified Persons, nor has any of the information contained therein been audited by an independent Qualified Person. The 2005 Domati Lake recourse estimate is a NI 43-101 compliant resource estimate (Puritch and Ewert, 2005). The Historical Estimates do not conform to the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) standards of reporting pursuant to requirements under National Instrument 43-101. The authors wish to clarify that: (i) there are no mineral resources and no mineral reserves on the Carson property as such terms are defined under National Instrument 43-101.**

### **3.0 Property description and location**

#### **3.1 Location**

The property is located approximately 195 kilometers north of Yellowknife, NT on the west shore of Damoti Lake (Figure 2). The Colomac mine site is located approximately 25 kilometers to the north. Tli’cho lands are located to the west, south, and east. The community of Wekweti is located approximately 50 kilometers to the east near Snare Lakes.

#### **3.2 Claim status**

The property consists of a single mining lease. Mining lease 3446 is 1141 acres in size. It was surveyed to lease in 1993 and is paid in good standing until June 30<sup>th</sup>, 2024 (Table 2). The lease is registered at the Northwest Territories Mining Recorder 100% in the name of John P. Rapski. Adjacent to the south and



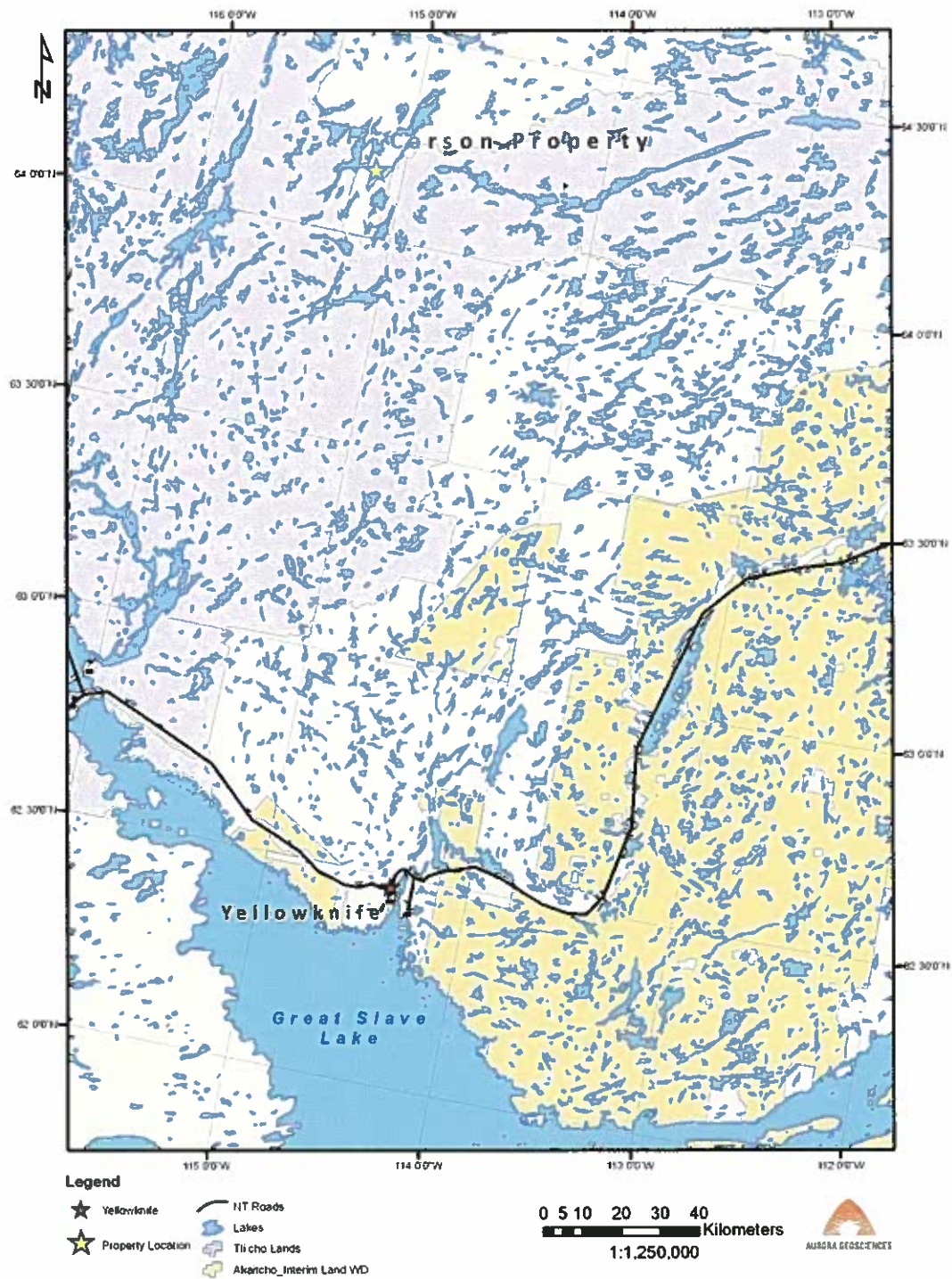


Figure 2. Property Location Map

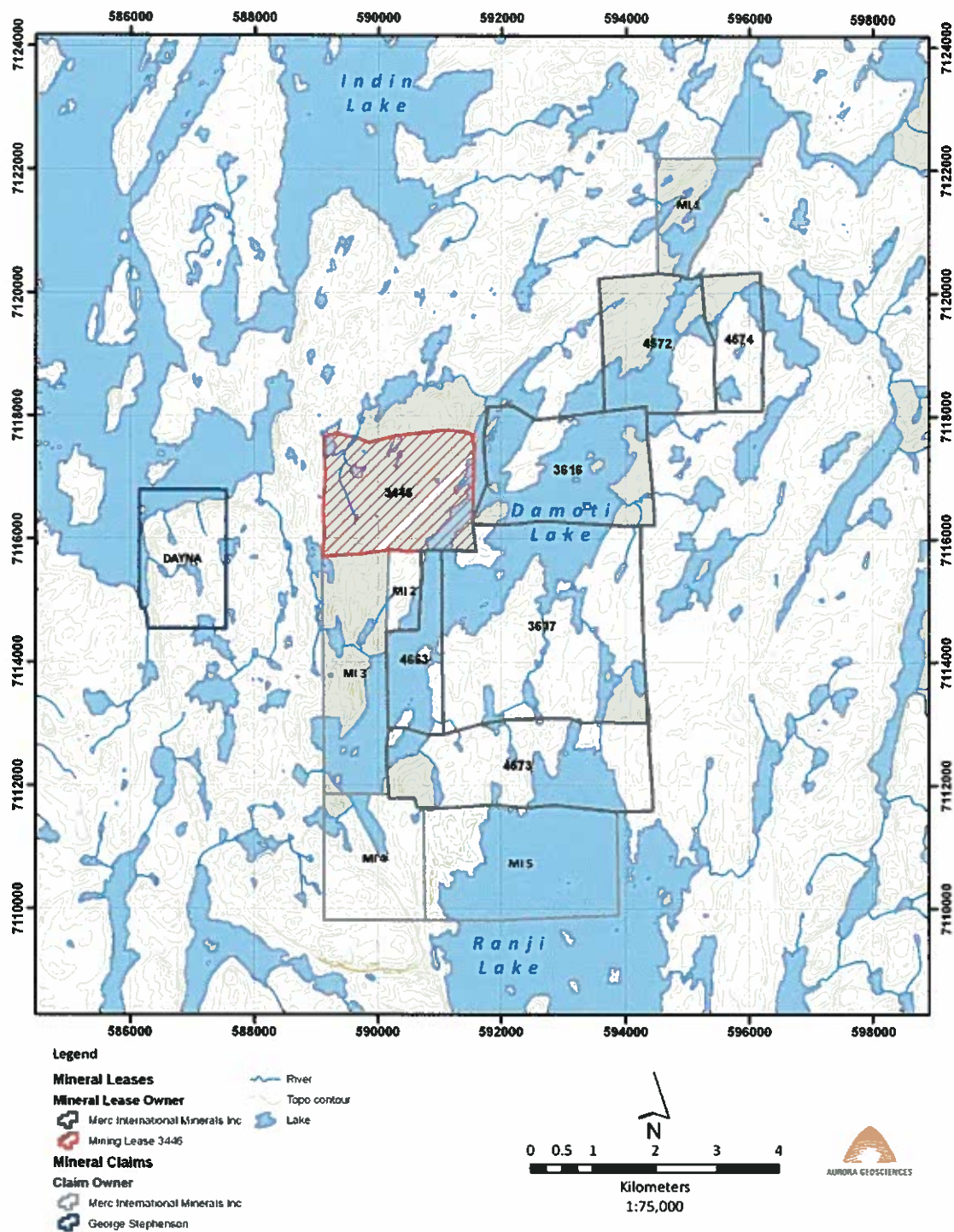


Figure 3. Property claim map

east MERC International Minerals holds six mining leases and five mineral claims in good standing. Ground is open to the west and north of the property (Figure 3).

**Table 2. Property disposition status**

LEASE_NUM	LEASE_STAT	NTS_SHEET1	ISSUED_DT	EXPIRES_DT	LEASE_ACRE	OWNER_NAM1	OWNER_NAM2	PERCENTAGE
3446	ACTIVE	086B03	1993-06-30	2024-06-30	1141.00	Rapski	John P.	1.0000

John Rapski optioned the property to 2214098 Ontario Ltd. on December 23<sup>rd</sup>, 2009. 2214098 Ontario Ltd. has intent to acquire a 100% undivided interest in the Carson property by paying an aggregate of CDN \$56,000 (Table 3). As part of this agreement, the Carson property is subject to a 2.0% net smelter returns (NSR) payable to John Rapski, 1.5% of which may be purchased at anytime for CDN \$1,000,000.

**Table 3. Summary table 2214098 Ontario Ltd. initial option terms**

Date	Cash (\$Cdn)
August 31, 2008	4,000
October 31, 2010	12,000
October 31, 2011	8,000
October 31, 2012	8,000
October 31, 2013	8,000
October 31, 2014	8,000
October 31, 2015	8,000

### 3.3 Nature of Joshua Gold Resources Inc. interest

Effective December 08<sup>th</sup>, 2010, Joshua Gold Resources Inc. has entered an option agreement to acquire 100% undivided interest in the Carson property from 2214098 Ontario Ltd. Joshua Gold Resources Inc. will issue an aggregate sum of CDN \$100,000 cash and 1,000,000 shares to 2214098 Ontario Ltd. (Table 4). As part of this agreement the Carson property remains subject to a 2% NSR payable to John Rapski of which 0.5% may be purchased for CDN \$1,000,000. An additional 1% NSR is payable to 2214098 Ontario Ltd., of which 0.5% may be purchased for CDN \$1,000,000.

**Table 4. Summary of Joshua Gold Resource Inc. initial option terms**

Date	Cash (\$Cdn)	Shares
Before April 30, 2011	25,000	
March 30, 2011		100,000
September 30, 2011	10,000	
September 30, 2012	10,000	
September 30, 2013	10,000	
September 30, 2014	10,000	
September 30, 2015	35,000	



## **4.0 Accessibility, climate, local resources, infrastructure, and physiography**

### **4.1 Access**

The property is most directly accessed via Damoti Lake by float- or ski-based fixed wing aircraft or helicopter directly from Yellowknife. The Colomac seasonal road runs along Indin Lake located approximately five kilometers to the west. This road originates in Yellowknife and is maintained through the winter months.

### **4.2 Physiography**

*Italic text in this section is extracted from the Ecological Stratification Working Group, (1995)*

The property is located in the Coppermine River Upland ecoregion of the Taiga Shield eco-zone. *This ecoregion extends from the McTavish Arm of Great Bear Lake to Howard Lake in the central District of Mackenzie in the Canadian Shield. It is marked by short, cool summers and very cold winters. The mean annual temperature is approximately -7°C. The mean summer temperature is 9°C and the mean winter temperature is -24.5°C. The mean annual precipitation ranges from 200 to 300 mm. The ecoregion is classified as having a predominantly high subarctic ecoclimate. It is part of the tundra and boreal forest transition, where the latitudinal limits of tree growth are reached. The predominant vegetation consists of open, very stunted stands of black spruce and tamarack with secondary quantities of white spruce and a ground cover of dwarf birch, willow, ericaceous shrubs, cottongrass, lichen, and moss. Poorly drained sites usually support tussocks of sedge, cottongrass, and sphagnum moss. Low shrub tundra, consisting of dwarf birch and willow, is also common. This ecoregion includes the western half of the Bear-Slave Upland, which consists mainly of massive Archean rocks that form broad, sloping uplands, plateaus, and lowlands. The surface is typical of the bare rock parts of the Shield. Numerous lakes fill the lowlands, and rounded rocky hills reach 490 m asl in elevation. Bare rock outcrops are common, and Dystric Brunisols with some Turbic, Static, and Organic Cryosols are the dominant soils in the ecoregion. The soils have formed on discontinuous veneers and blankets of hummocky to rolling, sandy morainal, fluvioglacial, and organic deposits. Permafrost ranges from continuous in the east to extensive discontinuous in the west half of the ecoregion, with low to moderate ice content and sparse ice wedges. Characteristic wildlife includes caribou, moose, grizzly and black bear, snowshoe hare, fox, wolf, beaver, muskrat, osprey, raven, spruce grouse, and waterfowl. Land uses include hunting and trapping, fishing, and tourism.*

### **4.3 Local resources and infrastructure**

There is no infrastructure located on the property. The seasonal Colomac winter road transects Indin Lake approximately five kilometers to the west. This road is open during the winter months. At the time of report preparation there is an active semi-permanent exploration camp at Damoti Lake. This camp has been in place and in various states of usefulness since the mid 1990's.

## **5.0 History**

There has been no recent exploration conducted on the Carson property. The last documented exploration program was conducted in 1985 when Noranda Exploration Company Ltd. (Noranda)

completed detailed mapping, sampling, and total field magnetic and VLF surveys. As a result all exploration is summarized in the History section of this report.

### **5.1 Regional exploration history**

Prospecting and exploration work in the Damoti Lake and Indin Lake areas began in 1938 with the discovery of the Barker (Anne) showing. This discovery led to the staking and subsequent mapping and prospecting of much of the Indin Lake supracrustal belt by government and invested industry personnel. A number of showings were discovered including Diversified, North Inca and Colomac, all of which reached an advanced stage of exploration.

Reconnaissance mapping of the Indin Lake belt commenced in 1939 by C.S. Lord and J.T. Wilson of the Geological Survey of Canada, and was completed in 1948 (Lord, 1951; Fortier, 1949). Detailed geological examination was then conducted at Chalco Lake (Stanton et al., 1948; Pehrsson and Kerswill, 1997), Ranji Lake (Tremblay et al., 1953; Pehrsson and Kerswill, 1997b), and Ghost Lake (Wright, 1954; Pehrsson and Kerswill, 1997b).

A second round of exploration in the 1970's was focused on volcanic-hosted massive sulphide (VHMS) mineralization. This work resulted in a number of base metal occurrences. During the 1980's renewed interest in the belt culminated with the development of the Colomac mine and the Cass deposit.

Between 1970 and 1972, Freeport Oil Company explored the belt for base metal mineralization. A 2700 line kilometer airborne electromagnetic and magnetic survey was conducted over ground west of the Damoti Lake area, this survey did identify a conductor on the west shore of Damoti Lake (Klein, 1970).

In 1981, Noranda staked the Betam claims adjacent to the present day Carson property. Geological, geochemical, and geophysical investigation were conducted. Anomalous, but low grade gold values were found in small sulphide-bearing quartz veins in the mafic volcanic rocks and the ground was allowed to lapse (Cluff and Myres, 1982).

In 1985, the Oti claims were staked along the western shore of Damoti Lake by Comaplex Resources International Ltd. and were examined by Placer Development Ltd. A number of low grade showings were discovered by geological, geochemical and geophysical surveys (Pinsent, 1985).

The Geological Survey of Canada initiated 1:125,000 scale mapping furthered the geological understanding of the area (Frith, 1986; 1993). Detailed examination of the mineralized areas in the Indin Lake area was conducted from 1987 to 1991 (Morgan, 1992). Most recently the Indin belt was examined in the context of structural and sedimentological relationships (Pehrsson and Beaumont - Smith, 1994; Pehrsson and Villeneuve, 1999; Pehrsson, 2002; Pehrsson, 2009).

In 1992, J. Brophy conducted mapping and sampling on BIF Island of Damoti Lake. Prospective results from this sampling led to the staking and discovery of the Damoti Lake deposit by Covello Bryan and Associates in 1993. Exploration at Damoti Lake has been ongoing through to present day. Puritch and Ewert (2005) present a very thorough summary of exploration on the Damoti Lake iron-formation property.

## **5.2 Property exploration history overview**

The area covering the Chuck Vein showing was originally staked in 1939 by P.A. Schwerdt and restaked in 1945 by Schwerdt again after the Dions claims were allowed to lapse.

In 1946, Snowden acquired the Doins claim and commenced with trenching, stripping, and x-ray diamond drilling. A total of 13 trenches/pits and 43 drill holes totaling 6384.26 feet was completed. Drilling on the Pond Zone encountered visible gold.

Comaplex Resource International Ltd. in 1981 staked the showing area (KIM 1 claim) and Wollex Exploration (Wollex) located and resampled the existing trenches in the summer of 1981. The sampling returned some elevated gold values which included 4820 ppb Au from the Chuck vein and 5940 ppb Au from the G-Zone [Pond] (Dickson, 1983).

The KIM 1 claim was allowed to lapse and in 1985 the showing area was re-staked as the BR2 claim by W. Brink. Noranda explored the property in 1985. The showing area was prospected then mapped at a scale of 1:10,000. The property was chip sampled (92 collected), grab sampled (55 samples) and 63 samples were taken for lithogeochemistry. Sampling on the Pond showing returned significant gold values up to 2.66 oz/ton while the Chuck Vein had a chip sample assaying 870 ppb gold. Noranda did not complete any further work on the property. Geophysical surveys were conducted and the property was taken to lease in June of 1993 (Puritch and Ewert, 2005).

## **5.2 Mapping, sampling and geochemical analysis**

Wollex prospected and sampled the Carson property in 1981. A number of shear zones were identified on the then called KIM1 claim (owned 100% by Comaplex Resources International Ltd.), the largest of which was the G-Zone (Pond zone as of 1985). The G-zone is described to continue from the claim boundaries for many kilometers in both directions and coincide with the contact of the mafic and felsic volcanic rocks (Dickson, 1982).

An analysis error occurred at the lab when processing the 1981 samples (Dickson, 1983). Due to the packaging of the samples, the lab mistakenly assayed several rock chips from the same trench as one sample; therefore some reported results are the averages of several samples over the length of the trench (Dickson, 1982).

Four trenches were sampling at the Pond showing. Gold values are described as erratic with a best result of 0.17 oz/ton Au from an average of two samples (Dickson, 1982).

In 1985, Noranda collected and analyzed 117 chip samples and 30 grab samples for gold across the property. An additional 63 samples were collected for lithogeochemistry and geochemical analysis for gold (Powers, 1986). Chip samples consisted of continuous chisel samples across quartz vein and altered walk rock material.

A total of 20 lithogeochemical samples, eight grab samples, and 78 chip samples were collected from the Pond zone. Results are summarized below in Table 5 and Table 6.

**Table 5. Pond zone lithogeochemical sampling, 1985 sampling**

Sample No.	Description	SiO <sub>2</sub>	Na <sub>2</sub> O	MgO	K <sub>2</sub> O	CaO	Au
		(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(ppb)
10316	Sheared mafic volcanic	59.34	0.9	2.1	1	2.1	<5
10317	Porphyry dyke	77.88	0.6	0.6	1.2	0.4	<5
10136	Silicified mafic volcanic	41.33	0.8	3.4	0.7	10.4	-
7E	Sheared/CO <sub>3</sub> mafic Vol.	48.3	1.7	8.1	0.9	12.8	15
7G	Sheared/CO <sub>3</sub> mafic Vol.	45	1.85	2.3	7.2	0.3	10
7H	Sheared andesite	60.9	0.5	2.3	1.9	6.4	5
7J	Sheared andesite	55.3	0.5	2.9	0.9	3.2	10

**Table 6 Pond zone grab and chip samples, gold >100 ppb, 1985 sampling**

Sample	Description	Au (ppb)	Location	Sample Type
10046	Quartz vein	1800	trench 2	0.6m chip
10056	Altered wallrock	140	trench 6	0.7m chip
10098	CO <sub>3</sub> altered wallrock	130	trench 17	0.8m chip
10099	CO <sub>3</sub> altered wallrock+py	220	trench 17	grab
11148	py, wallrock	630	grid area	grab
11152	wallrock-py	140	trench 5	grab
11154	wallrock-py	160	grid area	grab
11155	qtz vein-py	170	trench 7	grab
11157	qtz vein-py	150	trench 3	grab
11158	wallrock-py	450	grid area	grab
11159	Qtz vein-cp-py	220	grid area	grab
11162	Qtz vein-cp-py	2.66 oz/t or 91.2 g/t	trench 16	grab
25B	qtz vein -py	0.38 oz/t or 3.17 g/t	trench 2	chip
25C	alt. wallrock -py	240	trench 6	chip
25G	qtz vein , rusty	0.064 oz/t	trench 7	chip
25J	qtz vein, py, cp	150	trench 5	chip
25L	altd wallrock	190	trench 10	chip
26A	altd wallrock	310	trench 17	chip
26G	qtz vein, rusty	100	trench 3	chip

Whole rock analysis was interpreted to indicate limited sodium depletion and magnesium, potassium, and calcium enrichment (Powers, 1986). Several samples returned above background gold values.

At the Chuck vein, four grab samples and five chip samples were collected and analyzed for gold. An additional four lithogeochemical samples were submitted. These results are summarized in Table 7 and Table 8.

**Table 7 Chuck vein lithogeochemical sampling, 1985 sampling**

Sample No.	Description	SiO <sub>2</sub>	Na <sub>2</sub> O	MgO	K <sub>2</sub> O	CaO	Au
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15C	altd. wallrock	34.6	0.8	4.7	<0.1	4.1	45
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**Table 8. Chuck vein grab and chip samples, gold >100ppb, 1985 sampling**

Sample	Description	Au (ppb)	Location	Sample Type
10961	altd. wallrock	870	Trench 2	0.5m chip
11151	py-qtz vein	540	Chuck vein	grab

Sodium depletion and magnesium enrichment are noted from limited samples collected (Powers, 1986).

A total of nine lithogeochemical samples and 16 chip samples were collected on the Hilltop zone. Results are summarized in Table 9.

**Table 9. Hilltop lithogeochemical sampling, 1985 sampling**

Sample No.	Description	SiO <sub>2</sub>	Na <sub>2</sub> O	MgO	K <sub>2</sub> O	CaO	Au
10321	Rhyolite tuff	77.85	1.1	0.5	2.8	1.9	<5
10142	Mafic volcanic	60.34	0.6	1.9	2.6	6.8	-

No significant gold values were obtained from chip sampling. Alteration is described to be discontinuous along strike beyond the trenched area (Powers, 1986)

Reconnaissance sampling and prospecting was coeval to the detailed showing investigation. A total of 30 lithogeochemical and 18 grab samples were collected. Results are summarized in Table 10 and Table 11.

**Table 10. Reconnaissance lithogeochemical sampling, 1985 sampling**

Sample No.	Description	SiO <sub>2</sub>	Na <sub>2</sub> O	MgO	K <sub>2</sub> O	CaO	Au
10304	feldspar dyke	68.33	7.7	1.2	0.6	1.2	<5
10306	intermed. Dyke	32.78	1.7	11.5	0.3	12.1	<5
10133	mafic volc	73.47	0.9	0.5	2.6	3.2	-
14H	sheared silicified rhyolite	76.5	0.7	0.6	3.3	1.7	25

**Table 11. Reconnaissance grab sampling, gold >100ppb, 1985 sampling**

Sample	Description	Au (ppb)	Location	Sample Type
11148	pyritic sediment	280	near camp	grab

Very little gold mineralization was discovered outside of the three main shear-zone showings. Minor sodium depletion coupled with magnesium and calcium enrichment is noted (Powers, 1986).

### 5.3 Geophysics

Noranda completed ground magnetic and Very Low Frequency Electromagnetic (VLF-EM) surveys in the fall of 1985 after the geology program had finished. A 2.1 kilometer baseline oriented at 034° azm was

established by chaining. A line spacing of 100 meters with 50 meter station spacing were chained and flagged from the baseline to establish 15.4 line kilometers of survey lines.

### 5.3.1 Magnetic survey

**Survey specifications:** The magnetometer employed on the survey was a UNIMAG model G836 proton magnetometer manufactured by Geometrics of Toronto, Ontario. The diurnal variation was monitored with a geometries base station unit. Base station measurements were made every four seconds and used to correct the field data. The magnetic variation ranges from 3350 to -1630 nts (Powers, 1986).

**Discussion:** Powers (1986) suggests that there is a trend from low to high magnetic response along the eastern portion of the property interpreted to be the contact between [volcanic and sedimentary] rocks. (Figure 4). Within the magnetic terrane there are a number of interpreted linear highs that trend parallel to the regional fabric.

### 5.3.2 VLF-EM survey

**Survey specifications:** An EM16 manufactured by Geonics Limited of Toronto, Ontario was used to carry out the VLF-EM survey. This instrument measures the in-phase and quadrature component of the electromagnetic field transmitted from various naval facilities. In this case the transmitter employed was Seattle, Washington (Powers, 1986).

**Discussion:** Powers (1986) summarizes three VLF-EM anomalies (Figure 5). A small anomaly interpreted to be shallow in origin occurs at the north end of the grid (L11+00N at 1+50E). A second shallow but more prominent anomaly trends approximately parallel to the baseline on the eastern side of the survey grid (L6+00N at 3+50E to L4+00S at 2+50E). Powers (1986) suggests that this anomaly may actually be two anomalies offset between 3+00S and 4+00S. The third anomaly is coincident with the Chuck vein (L1+00S and L2+00S at 3+00W). All conductors are interpreted to strike parallel to regional foliation.

## 5.4 Trenching

Snowden exposed 2782 cubic feet in nine trenches on the Carson property (Figure 6). The locations of nine of these trenches are shown to be at the Pond showing (Glidden and Burton, 1948). Trenches are reported at the Chuck vein and Hilltop zone showings and were sampled during the 1981 Wollex program and 1985 Noranda programs (Dickson, 1982; Powers 1986). The author cannot confirm when the trenches outside the Pond zone were created. Assay values from any material sampled from the trenches is not presented in Glidden and Burton (1948).

## 5.5 Diamond drilling

In 1946, Snowden acquired the Doins claim and commenced with trenching, stripping, and x-ray diamond drilling. A total 43 drill holes totaling 6384.26 feet were completed (Glidden and Burton, 1948).



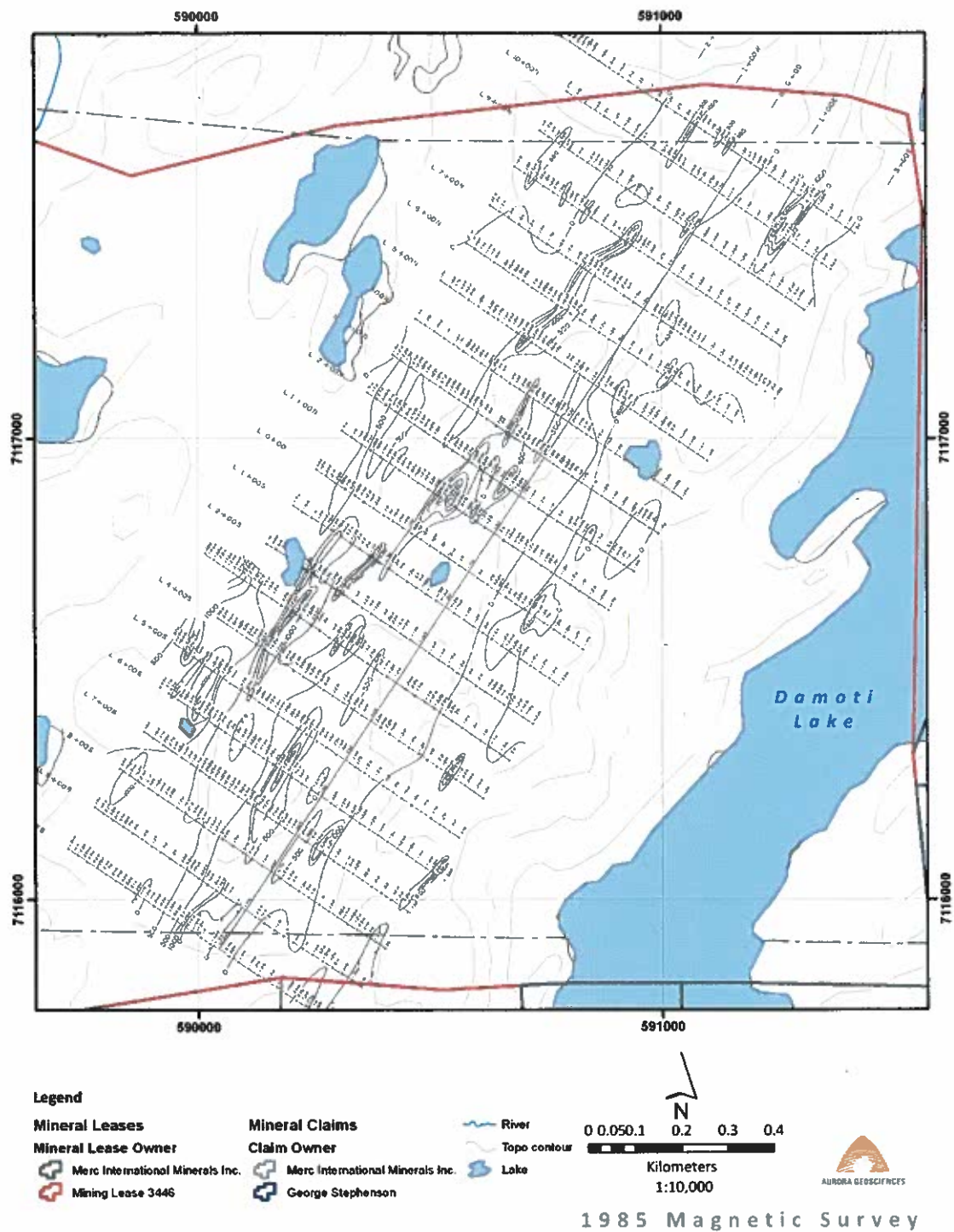


Figure 4. 1985 Total Field Magnetic survey map



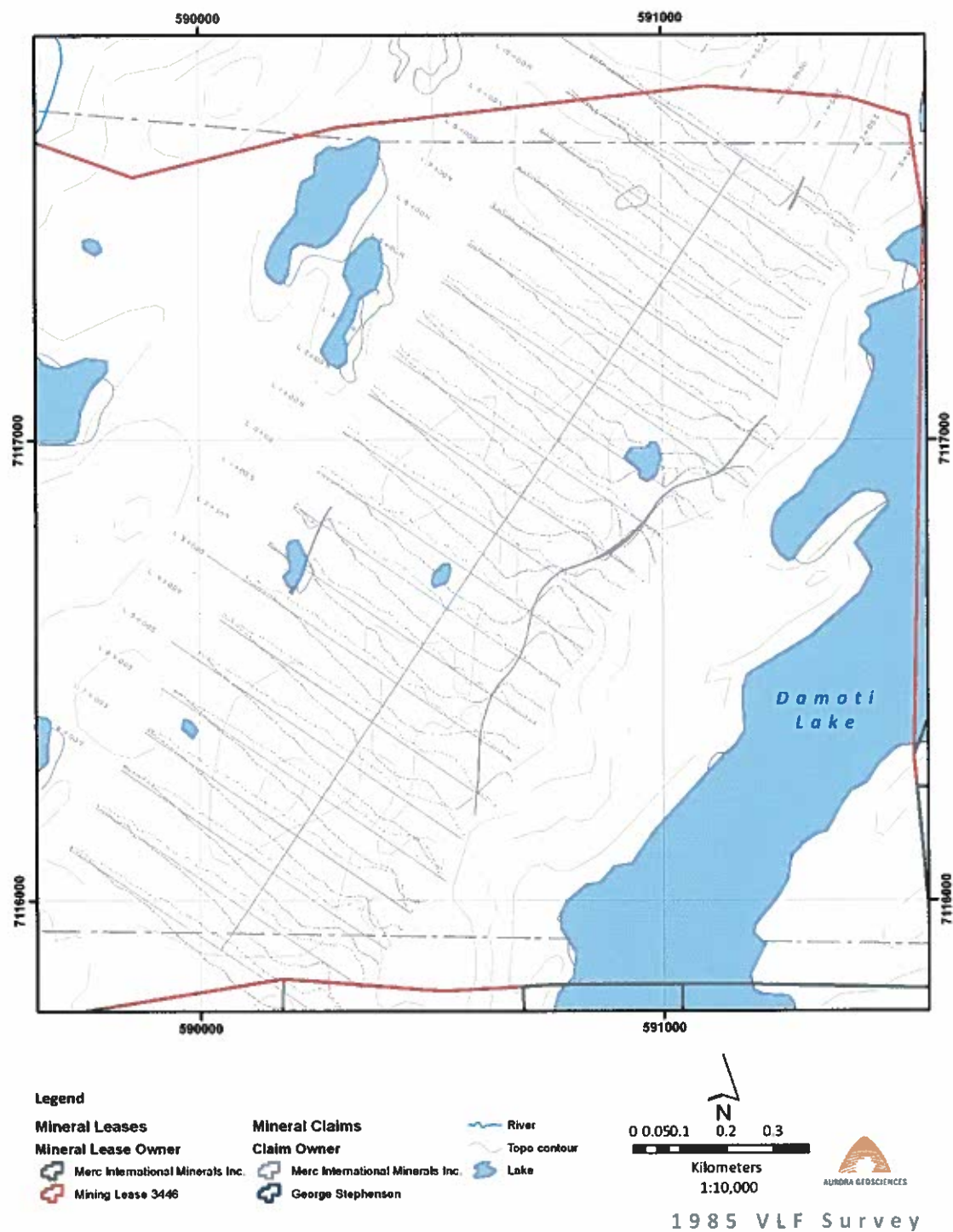


Figure 5. 1985 VLF survey map

**Table 12. 1947 diamond drilling summary**

Drill Hole	Depth (feet)	Dip	Azimuth	Claim	Zone	best-grade Au Analysis (oz/t)	Summary
G-1	69			Dolins 4 (1947)			
G-2	57			Dolins 4 (1947)			
G-3	181	53	317	Dolins 4 (1947)		0.04 oz/t over 33" at 94.25'	siliceous shearing with disseminated fine pyrite
G-4	248	68	317	Dolins 4 (1947)		0.03 oz/t over 28" at 77.5'	
G-5	274	45		Dolins 4 (1947)		0.5 oz/t over 54" at 37'	siliceous replacement, pyrite and pyrrhotite
G-5A	159	61	317	Dolins 4 (1947)		0.1 oz/t over 46" at 56'	siliceous material with abundant pyrite
G-8	246	45	300	Dolins 4 (1947)		0.11 oz/t over 12" from 79-80'	milky white quartz, fine fractures-bearing pyrite
R-1	101			Dolins 4 (1947)			
S-1	130	45		Dolins 4 (1947)	Splash* (1947)	0.01 oz/t over 2.2' from 7.3-9.5'	pyrite-bearing volcanic rock in a carbonatized quartz vein.
S-2	107	60		Dolins 4 (1947)	Splash* (1947)	0.36 oz/t over 2.0' from 87-88'	white quartz with visible gold at 88.5'.
S-3	97	60		Dolins 4 (1947)	Splash* (1947)	0.44 oz/t over 2.0' from 84.2-86.2'	greyish quartz; heavy pyrite as clusters, visible gold near minor fractures
S-4	99	60		Dolins 4 (1947)	Splash* (1947)	0.04 oz/t over 1.3' from 50-51.3,	quartz stringers with clusters of massive pyrite
S-4A	7.5	60		Dolins 4 (1947)	Splash* (1947)	0.04 oz/t over 1.2' from 3.3-4.5'	greyish quartz; rusty fractures
S-5	107	60		Dolins 4 (1947)	Splash* (1947)	0.02 oz/t over 1.5' from 74-75.5'	sheared sericitic volcanic rock; several quartz pyrite sphalerite stringers
S-6	104	60		Dolins 4 (1947)	Splash* (1947)	0.01 oz/t over 2.9' from 67-70'	pyrite-pyrrohoite-bearing quartz stringers in chlorite altered volcanic rock
S-7	100	60		Dolins 4 (1947)	Splash* (1947)	0.05 oz/t over 2.2' from 6.5-8.7'	quartz-carbonate vein with weakly disseminated pyrite
S-8	93	60		Dolins 4 (1947)	Splash* (1947)	0.21 oz/t over 0.9' from 5.5-6.3'	greyish white stringer with pyrite at margins
S-9	88	60		Dolins 4 (1947)	Splash* (1947)		
S-10	104	60		Dolins 4 (1947)	Splash* (1947)		
S-11	99	60		Dolins 4 (1947)	Splash* (1947)		
S-12	625	60	258	Dolins 4 (1947)		0.04 oz/t over 10" at 390'	siliceous interval with 70% pyrite
S-13	550	60	281	Dolins 4 (1947)		0.49 oz/t over 20" at 162.75'	fractured and silicified interval, 15% py+as(Tr)+visible gold
S-14	326	60	257	Dolins 4 (1947)		0.02 oz/t over 14" at 172.25'	quartz vein in carbonate-altered zone
S-15	334	35	289	Dolins 4 (1947)		0.3 oz/t over 8" at 302'	impure quartz vein
S-16	320	60	310	Dolins 4 (1947)		0.55 oz/t over 7" at 273.5'	quartz with strong concentrations of pyrite and fine tourmaline crystals
S-17	295	45	272	Dolins 4 (1947)		0.16 oz/t over 7" at 294'	quartz with inclusions of pyrite altered andesite
S-18	521	50	220	Dolins 4 (1947)		1.26 oz/t over 7" at 267'	white quartz with abundant pyrite. Visible gold.
H-1	36	45	270	Dolins 2 (1947)	Hilltop (1947)		
H-2	83	45	270	Dolins 2 (1947)	Hilltop (1947)		
H-3	70	45	270	Dolins 2 (1947)	Hilltop (1947)		
C-1	45	60		Dolins 3 (1947)			
C-2	17	60		Dolins 3 (1947)			
C-3	99	56		Dolins 3 (1947)			
1	101	40	45	Dolins 4 (1947)			
2	84	40	45	Dolins 4 (1947)			
3	86	40	65	Dolins 4 (1947)			
4	90	65	45	Dolins 4 (1947)			
5	21	65	25	Dolins 4 (1947)			
6	15	55	25	Dolins 4 (1947)			
7	97	50	45	Dolins 4 (1947)			
8	68	65	45	Dolins 4 (1947)			

\*Splash 1947 is inferred to be the Pond zone by georeferencing the drillhole and claims location maps from assessment report 015043

\*\* gold grade values area calculated from a gold \$ value reported in the drill logs. The value of \$35/oz was used for this calculation as reported in the logs.

Thirty-six of these holes as presented in Glidden and Burton (1948) are summarized in Table 12. The majority of the drilling was conducted on claims Doins 4 and 2 on the east side of the Carson property. These collars are inferred to be testing mineralization at the Pond showing. X-ray sized drill steel was located at the Pond showing during the November 23<sup>rd</sup>, 2010 site visit.

At least 35 of the 43 drill holes were completed on the Doins 4 claim (Pond showing) and an additional three holes completed on the Doins 2 claim (showing unknown). The collars on the Pond showing cannot be accurately located based on maps and logs included in Glidden and Burton (1948). Drill holes S-1 to 18 appear to be drilled at the southern end of the Pond showing coincident with trenching in the area. Holes G-1, -2, -3, -4, -5, 5-A, and G-8 appear to be drilled at the northern end. Three holes are reported on the Doins 2 claim; however, the exact location of these collars cannot be confirmed (Glidden and Burton, 1948).

Holes completed at the Pond showing with significant gold mineralization are summarized below. Gold mineralization is consistently associated with silica-carbonate-pyrite±pyrrhotite alteration of shear zones in felsic-intermediate-mafic volcanic rocks. Visible gold is described in holes S-13 and S-18. Sampled intervals are typically between six inches and three feet. Figure 6 shows the location maps for the 1947 drilling (Glidden and Burton, 1948).

Drill hole S-2 is collared into a carbonatized dacitic tuff and intersects a number of weakly auriferous intervals. Pyrite±pyrrhoite±sphalerite are hosted in white quartz veins and altered volcanic rocks. A best-grade two-foot interval from 87-89 feet graded 0.36 oz/t Au.

Hole S-3 was completed along strike to the north of S-2. A number of pyrite-bearing quartz veins and stringers intruding altered volcanic rock show weak gold mineralization. A total of 0.44 oz/t Au is reported over two feet from 84.2-86.2 feet.

Hole S-9 is collared in silicified and sheared intermediate volcanics. Silicification and shearing is intersected throughout the hole; a number of the quartz stringers are weakly auriferous. One sample assayed 0.21 oz/t Au over 0.9 feet from 5.5-6.3 feet. A second carbonatized quartz vein assayed 0.06 oz/t Au over 2.5 feet from 42.5-45 feet.

Hole S-13 appears to be collared at the south end of the Pond showing. An auriferous zone from 160 to 167 feet occurs in silicified and carbonate-alteration andesite. Gold mineralization is associated with fracturing and pyrite in the quartz veins/stringers and volcanic host rock. Arsenopyrite is described in two gold-mineralized zones. The best-grade interval of 0.49 oz/t over 20 inches at 162.75 feet shows visible gold.

Hole S-14 is collared to test the same structure as S-13. Sheared and altered andesite is intersected in the hole. One interval of intense silicification and carbonate alteration is intersected from 114 to 334 feet. This zone contained three mineralized zones: 0.01 oz/t Au over 10 inches at 295 feet; 0.01 oz/t Au over 12 feet at 260 feet; and 0.3 oz/t Au over 8 inches at 302 feet.



Hole S-16 undercut gold mineralization intersected in S-13 and S-12. The hole is collared in sheared and moderately silicified andesite. Rhyolite and diorite are also intersected in the hole. Multiple short silicified and pyrite-bearing intervals are weakly auriferous. An auriferous zone from 264 to 280 feet is hosted in strongly silicified and carbonate-altered sheared andesite. Gold values include: 0.02 oz/t over 17 inches (264 feet), 17 inches (272 feet), 18 inches (275 feet), and 60 inches (280 feet). A best-grade interval associated with abundant pyrite and fine-grained tourmaline assayed 0.55 oz/t Au over 7 inches at 273.5 feet. The hole finished in sheared, altered, carbonatized felsic volcanics.

Hole S-18 is drilled on the same target as S-13 and S-16 (Glidden and Burton, 1948). The hole is collared in sheared dacite. Silica-carbonate-pyrite alteration is associated with all gold-bearing intervals. Gold values greater than 0.01 oz/t are reported from 89.75 to 521 feet (Table 13).

Table 13. Summary table of gold assay values reported from hole S-18.

S-18 Assay Summary		
Depth from (feet)	Depth to (feet)	Au (oz/t)
89.58	90.42	0.01
111.67	112.58	0.04
113.33	115.00	0.01
115.75	118.17	0.03
240.50	242.67	0.03
243.75	247.00	0.02
262.50	266.83	0.04
265.00	267.50	0.01
267.67	268.25	1.26
295.00	298.17	0.21
300.00	302.50	0.01
315.00	317.50	0.07
371.75	375.00	0.10
375.00	377.33	0.36
377.33	379.33	0.19
379.33	380.17	0.34

Drill hole G-5 was completed at the north end of the Pond showing. The hole was collared in altered dacite and drilled to 286 feet. Minor quartz diorite porphyry was intersected. Gold mineralization is associated with silica-carbonate-pyrite±pyrrhotite alteration and summarized in Table 14.

Table 14. Summary table of gold assay values reported from hole G-5.

G-5 Assay Summary		
Depth from (feet)	Depth to (feet)	Au (oz/t)
30.17	32.50	0.06
32.50	37.00	0.50

50.00	52.08	0.01
55.00	57.08	0.01
57.08	58.67	0.30
58.67	60.00	0.02
60.00	62.50	0.32
62.50	65.00	0.05
65.00	67.50	0.31
67.42	69.42	0.01
94.42	96.08	0.05
160.67	162.92	0.01
162.67	164.33	0.09
225.58	228.58	0.02

## 6.0 Geological setting

The Damoti Lake area is situated in the southwestern Slave Structural Province. It is located within the Indin Lake Supracrustal belt, which is comprised of Archean supracrustal metasedimentary and metavolcanic rocks of the Yellowknife Supergroup.

### 6.1 Regional geology

The Indin Lake supracrustal belt is constrained to the west by Archean granitoid plutons and migmatites while gneissic rocks, interpreted to be basement rocks to the belt, flank the eastern side. Metavolcanic, metasedimentary rocks and metamorphic isograds of the Indin Lake belt form a series of broad, north-northeast-trending structures that extend south from the south side of Truce Lake to the southern portion of the Snare River (Figure 7).

Three lithostratigraphic groups define the Yellowknife Supergroup rocks in the Indin Lake belt. The basal Hewitt Lake group (>2.67 Ga.) consists of pillowed mafic tholeiitic and lesser felsic calcalkaline volcanic rocks (Pehrsson, 2009). The Leta Arm group (c.2.67 Ga.) overlies the Hewitt Lake group. It includes pillowed and massive mafic and felsic flows and intermediate to felsic volcanoclastic rocks (Pehrsson, 2009). The Chalco Lake group (<2.65 Ga.) consists of conglomerate, sandstone-mudstone, and volcanoclastic rocks (Pehrsson, 2009). Sediments are comprised of interbedded sequences of argillite, siltstone and greywacke beds ranging in size from millimeter thick laminations to tens of meters thick greywacke horizons. These rhythmically layers sequences are consistent with turbidite deposition.

Thin horizons of pyrite±pyrrhotite-bearing iron formation and locally sulphide-bearing argillite and graphitic argillite commonly occur in the sediments on the eastern side of the Indin Lake belt (Morgan, 1992).

Occurrences of quartz diorite and gabbro sills throughout the Indin Lake belt are thought to be related to the volcanic units in the area. Local granodiorites and pegmatites of variable ages also intrude the metavolcanic and metasedimentary units. Diabase dyke swarms cut all units throughout the Indin Lake area.



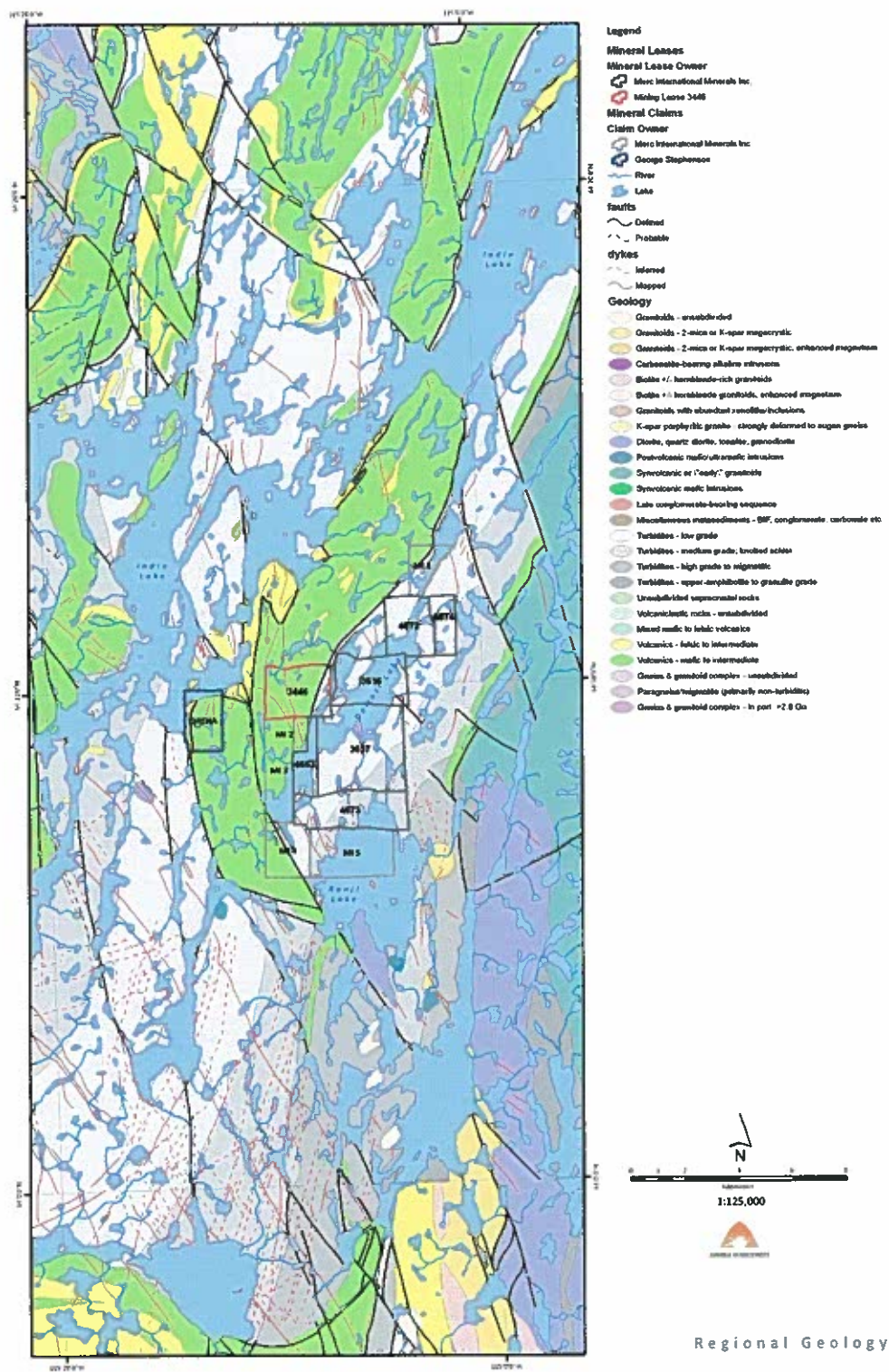


Figure 7. Regional Geology



Lower to upper greenschist facies metamorphism is recorded in the central portions of the belt, amphibolite facies rocks occur at the belt margins (Frith, 1992). Evidence for four deformational events has been observed in the Indin Lake Supracrustal belt (Pehrsson and Beaumont-Smith, 1994). This deformation is summarized below:

- **D1**, the earliest deformational event, is represented by a flattening or attenuation of primary structures. The derived foliations in the sediments is approximately bedding parallel and defined by biotite or amphibole growth, where it has been preserved. The folding is characterized by meso- to macro-scale folds within the sediments, and lacks a discernable axial planar cleavage. The deformation appears to have predated the thermal peak of metamorphism.
- **D2** has produced the most apparent foliation in the Damoti Lake area at the outcrop scale. The north-trending cleavage cross cuts metamorphic peak minerals and is axial-planar to meso- and regional-scale folds. The steeply plunging F2 folds have northeast trending fold axes.
- **D3** resulted in moderate to open folds (F3), with a distinctive northwest-striking foliation (S3). Metamorphic isograds are deformed by this event.
- **D4** structures have been divided into two sets based on their dip angles. The steep structures have not been observed in context with the shallow set, preventing resolution of their relative timing. The shallow set includes shallowly plunging S4 kink bands and a sub-horizontal crenulation lineation. The steep-plunging box folds and crenulations are associated with a series of northwest trending sinistral faults (Pehrsson and Beaumont-Smith, 1994).

Much of Damoti Lake is underlain by metamorphosed greywacke-argillite turbidites. It is surrounded to the west and south by mafic and felsic metavolcanic rocks.

Gold mineralization in the Indin Lake Supracrustal belt occurs in two different settings.

- **Orogenic lode gold deposits:** structurally (tectonic or lithologic competency) controlled quartz±quartz-carbonate veins associated with silica-carbonate+pyrite±pyrrhotite alteration halos (Barker Vein, Lex Main, North Inca, Diversified).
- **Iron-formation hosted gold:** the Damoti Lake occurrence is the only known deposit of this type in the Indin Lake belt. It is best characterized as gold in crosscutting veins and veinlets, or as fine disseminations associated with pyrite, pyrrhotite, and arsenopyrite hosted in iron-formation within sedimentary or volcanoclastic sequences (Puritch and Ewert, 2005).

## **6.2 Property geology**

The Carson property is underlain by mafic and lesser felsic metavolcanic and subordinate metasedimentary rocks of the Yellowknife Supergroup. Felsic metavolcanic rocks occur at the metavolcanic-metasedimentary contact. Eight major rock assemblages were delineated during the 1985 mapping program (Figure 8). As the property geology could not be investigated during the November 23<sup>rd</sup>, 2010 site visit, the lithological units mapped on the property are presented here as described by Powers (1986) in no particular chronostratigraphic order.

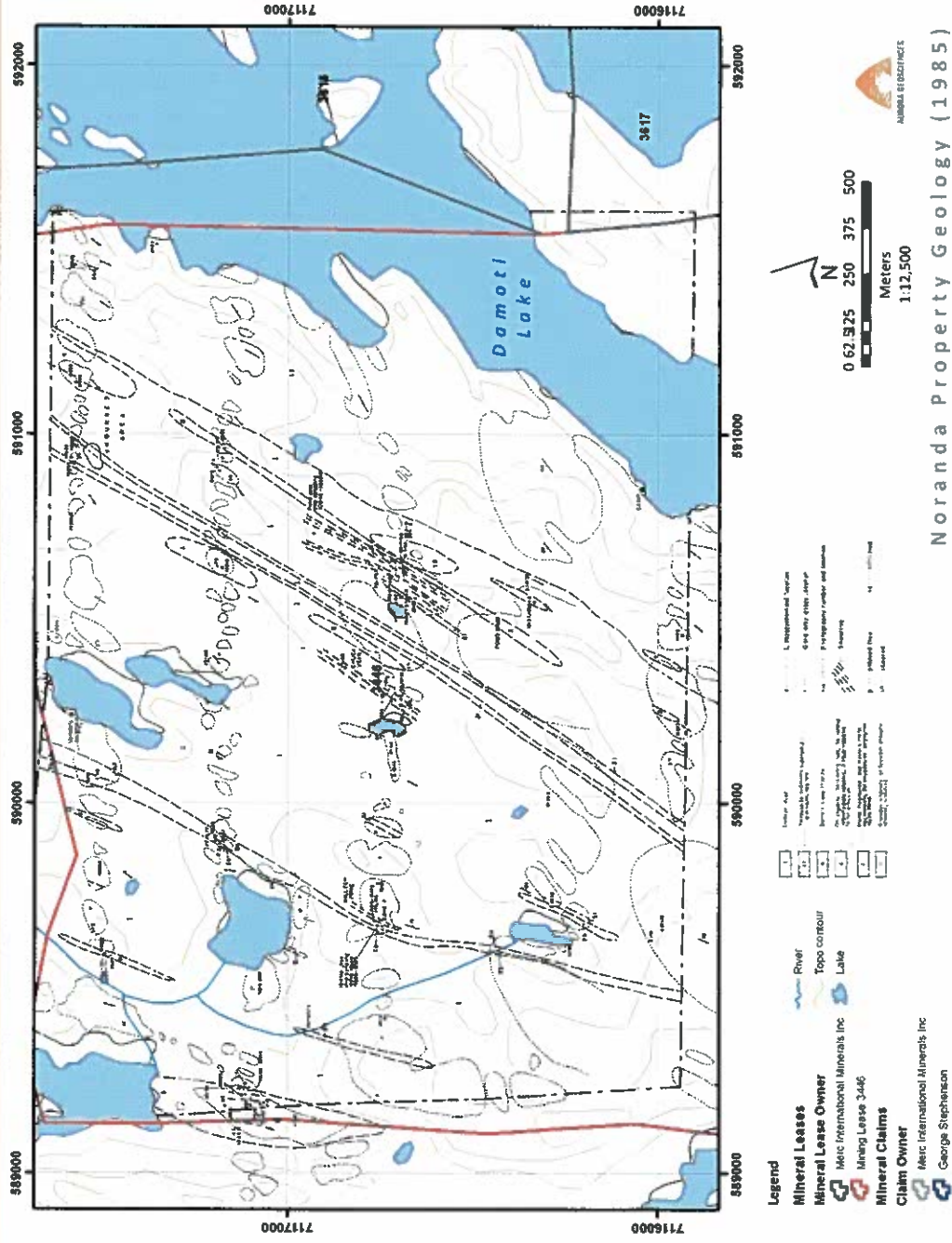


Figure 8. Property Geology (modified after Powers, 1985)

The Snowden andesite is mapped to underlie the central area of the property and consists of pillowed and subordinate variolitic, porphyritic, and amigaloidal flows. Pillows range up to two meters in length and are well preserved. Variolitic flows, containing well preserved variolites up to two centimeters in size, may be up to 25 meters in width and are consistently oriented to the northeast, parallel to the regional fabric.

Mafic volcanoclastic rocks overlie the Snowden andesite flows. Two horizons five to eight meters thick are mapped to transect the property. The volcanoclastic horizons are composed mostly of felsic clasts with lesser mafic and crystal tuff content. Individual clasts may be up to one meter in length and are elongate 5:1. A mafic agglomerate subunit is associated with the mafic volcanoclastic rocks and is interpreted to be a strongly sheared equivalent.

The Oti rhyolite is mapped on the western side of the property. This unit is mapped in strongly brecciated and sericitized lenses up to 100 meters in width and is interpreted to be spatially associated with a regional lineament. Several graphitic shear zones coincident with this unit are host to pyritic argillite. A small pyrite-bearing dacite tuff (unit 3c) that occurs northeast of the Oti rhyolite shows above background gold values.

The Damoti Lake rhyolite is mapped at the metavolcanic-metasedimentary rock contact. This unit is fine-grained tuffaceous with local interbeds of lapilli size fragments.

Feldspar crystal tuff up to fifteen meters in width is mapped immediately west of the mafic metavolcanoclastic rocks on the western portion of the property. This tuff contains 30% crystalline fragments of feldspar up to three millimeters in size.

Yellowknife Supergroup metasedimentary rocks are mapped as a fine-grained greywacke and argillite sequence that underlie the eastern third of the property. This interbedded unit shows graded bedding. Top indicators in both the metavolcanic and metasedimentary rocks indicate that the turbidite sequence overlies the metavolcanic pile. This is consistent with the regional stratigraphic framework.

Feldspar porphyry intrusive dykes range up to twenty meters in width and are mapped throughout the property. The dykes weather buff white in colour and are oriented parallel to the regional foliation. Two large dykes are mapped between the Chuck vein and Pond showings.

Steeply dipping diabase dykes intrude the entire property stratigraphy and are oriented parallel to the regional foliation.

#### **6.2.1 Structure**

Well developed foliation in the metavolcanic and metasedimentary rocks underlying the property strike 032° to 034° azm and dip steeply to the east. This foliation is consistently parallel or subparallel to bedding. Several prominent shears are mapped in the mafic stratigraphy. Shear zones are parallel to the foliation and range up to 150 meters in width. Individual shear zones are associated with chlorite, carbonate, and silica alteration.

The Pond, Chuck vein, and Hilltop shear zones constitute the three main gold-bearing shear zones identified on the property. Of note, an additional brecciated and altered shear zone occurs in the Oti rhyolite (Powers, 1986).

## 7.0 Deposit type

Orogenic lode gold deposits of middle Archean to Proterozoic age are the most predominant gold deposit type in the metamorphic belts of the Slave Geologic Province. Metamorphic belts are complex regions of accretionary or collisional orogenies that generate magmatic arcs, fore arcs, back arcs and associated sedimentary prisms and extensional basins. These terranes are then metamorphosed and intruded by extensive plutonism, and subsequently uplifted and eroded into new sedimentary basins. Gold-bearing deposits can be generated or modified at each stage of the orogenic cycle (Groves et al., 2003).

Gold deposits formed in metamorphic belts are diverse in terms of their age, geometry, structural control, host rocks, metamorphic grade or host rocks, alteration, and metal associations. They form along convergent margins during tectonic accretion, translation or collision related to plate subduction and/or delamination (Groves et al., 2000). Such gold deposits are suggested to form during late stage orogenesis in the main phase of compressional or transpressional crustal shortening, in which the penetrative fabrics are generated and/or reactivated (Groves et al., 2003). Country rocks are metamorphosed to greenschist or lower amphibolite facies. Gold mineralization is associated with at least one stage of penetrative deformation and is coincident with strong structural control such as faults, shear zones, folds, or zones of lithologic competency contrast (Groves et al., 2003).

Deposits show only subtle metal zoning and distinctive host-rock wall alteration. K, As, Sb, LILE, CO<sub>2</sub>, and S are enriched together with subordinate and variable amounts of Na or Ca in rocks of higher metamorphic grade (Ridley et al., 2000). Host rock alteration assemblages vary from sericite-carbonate-pyrite at high crustal levels through biotite-carbonate-pyrite, to biotite-amphibolite-pyrrhotite and biotite/phlogopite-diopside-pyrrhotite at deeper crustal levels (Ridley et al. 2000). Quartz-carbonate veins are ever present in these systems and gold is either hosted in these veins or in sulphidized, high Fe/Fe+Mg+Ca host rocks adjacent to the veins (Bohlke, 1988). A metal enrichment of Au-Ag±As±B±Bi±Sb±Te±W is characteristic of these deposits (Haneman, 2000; Groves, 2003).

The regional- to deposit-scale characteristics of metamorphic belt-hosted orogenic lode gold deposits are summarized in Table 15.

**Table 15. Regional- and Deposit-scale characteristics of orogenic gold deposits (modified after Groves et al., 2003)**

Critical characteristics	Orogenic gold deposits
Age range	Middle Archean to Tertiary
Tectonic setting	Deformed continental margin mainly all allochthonous terranes
Structural setting	Commonly structural highs during later stages of compression and transtension
Host rocks	Variable; mainly mafic volcanic or intrusive rocks or greywacke-slate sequences

Metamorphic grade of host rocks	Mainly greenschist facies but sub-greenschist to lower granulite facies
Association with intrusions	Commonly felsic to lamprophyre dykes or continental margin batholiths
Mineralization style	Variable; large veins, vein arrays, saddle reefs, replacement of Fe-rich rocks
Timing of mineralization	Late-tectonic; post- (greenschist) to syn- (amphibolite) metamorphic peak
Structural complexity of ore bodies	Complexity common, particularly in brittle-ductile regimes
Evidence of overprinting	Strong overprinting in larger deposits; multiple veining events
Metal association	Au-Ag±As±B±Bi±Sb±Te±W
Metal zoning	Cryptic lateral and vertical zoning
Proximal alteration	Varies with metamorphic grade; normally mica-carbonate-Fe sulphide
Proposed heat sources	Varied; asthenosphere upwelling to midcrustal granitoids
Proposed metal sources	Subducted/subcreted crust and /or supracrustal rocks and/or deep granitoids

Crustal-scale deformation zones that host felsic porphyry intrusions (Abitibi Belt, Canada) and/or serpentized ophiolite fragments (Ashanti belt, Ghana) and/or lamprophyre dykes (Juneau belt, USA) are important controls in localizing orogenic gold deposits (Groves et al., 2003). Bends, jogs, and dilations in regional structural zones and their interaction with subsequent-order shear zones, major competency contrasts (lithological), anticlinal or uplifted zones, and irregularities along granitoid contacts are all important in focusing mineralizing fluids at the regional or district scale (Groves et al., 2000, Hageman et al., 2000; Groves et al., 2003). There is no consistent spatial association with orogenic gold deposits and specific granitoid composition; abundant granitoid intrusions are a feature of orogenic gold provinces because they are a consequence of collisional-accretionary processes at continental margins (Kerrick and Cassidy, 1994; Groves et al., 2003).

Structural control is an essential component of orogenic gold mineralization at a deposit scale. Faults and shear zones with a reverse sense of offset are more commonly mineralized than those with a normal or strike-slip offset. Although host rocks vary significantly, mafic volcanic or intrusion related rocks commonly host these deposits in the Archean (Heneman et al. 2000; Groves et al., 2003).

## 7.2 Orogenic lode gold on the Carson property

Gold mineralization as described in historical reports is consistent with orogenic lode gold type deposits described above.

The Indin Lake supracrustal belt that underlies the Carson property on the western shore of Damoti Lake is comprised of metamorphosed mafic volcanic and volcanoclastic rocks including subordinate felsic volcanic rocks that are overlain by sedimentary rocks. Auriferous quartz-carbonate veins and stockwork associated in regional foliation-parallel shear zones occur in the mafic volcanic rocks (Chuck vein and Hilltop) and at lithological contacts (Pond). Alteration assemblages of sericite (±biotite)-carbonate-pyrite±pyrrhotite are consistent with mesozonal orogenic deposits in greenschist facies host rocks.

Gold mineralization intersected at depth is consistently associated with silica-carbonate-pyrite±pyrrhotite alteration of shear zones in felsic-intermediate-mafic volcanic rocks over intervals of approximately 6 to 60 inches (Glidden and Burton, 1948).



## **8.0 Property mineralization**

Gold associated with quartz veins (shear zones) or with silicification are found in the metavolcanic and metasedimentary rocks of the Yellowknife Supergroup. In the Indin Lake Supracrustal belt shear-hosted mineralized systems generally occur at or near volcano-sedimentary contacts.

Mineralization on the property is summarized as follows (Powers, 1986):

- Gold-bearing quartz veins and lenses with pyrite-pyrrhotite and trace chalcopyrite and galena in mafic shear zones.
- Pyrite-pyrrhotite horizons near the contact of the Lovang tuff and Snowden andesite.
- Pyritic argillites associated with shear zones in the Oti rhyolite.

Gold mineralization on the Carson property is hosted in three principal northeast-trending shear zones called the Pond, Chuck vein, and Hilltop.

### **8.1 Pond**

The Pond occurrence has been previously known as the Wally (1946) and G-Zone (1983). In 1985 Noranda labeled the showing Pond.

The Pond showing covers an area of moderately sheared mafic volcanic rocks which trend 034° azm and is approximately 150 meters wide (Figure 9). Within this zone are three more intensely silicified shear zones described to be about 0.3 to 1.5 meters in width and up to five meters in length as exposed at surface (Powers, 1986). Silicified zones and quartz veins are described as glassy, milky white, and contain trace amounts of pyrite with lesser pyrrhotite and chalcopyrite (Powers, 1986). Wall rock alteration is moderately chloritized and carbonitized and host to a halo of 1-3% very fine-grained pyrite that extends up to 1.5 meters laterally from the silicified zones.

Numerous mafic and feldspathic dykes crosscut the showing stratigraphy. Most are 0.3 to 1.0 meters in width and are inferred to be steeply dipping (Powers, 1986).

### **8.2 Chuck vein**

The Chuck vein is a milky white quartz vein intruded along a ten meter wide silicified shear zone (Powers, 1986).

The vein is lensoidal in nature and is mapped discontinuously over a strike length of 200 meters (Figure 10). It reaches a maximum width of two meters at the southern end of the explored area. Trace amounts of pyrite are observed in the vein (Powers, 1986).

Carbonatization and silicification are similar to the Pond showing; however, silicification is more prolific at the Chuck vein. Mineralized wallrock, similar to the Pond showing, usually occurs adjacent to the vein. Subsidiary quartz veins located to the west of the Chuck vein attain widths of 0.2 to 0.5 meters (Powers, 1986). There is no mention as to whether these silicified zones are mineralized.

### **8.3 Hilltop**

The Hilltop showing is described to be less silicified and mineralized than the Chuck vein or Pond showings. Four trenches excavated weakly silicified intermediate volcanic rock (Figure 11). Alteration of the host volcanic rock is described to be minimal; however, where quartz flooding or veining is present it is associated with carbonate alteration.

Pyrite-pyrrhotite mineralization occurs in a two meter wide silicified zone at the contact of intermediate and felsic volcanic rocks.

## **9.0 Sampling method, approach, preparation, analysis and security**

There has been no current (post 2001) sampling in conjunction with exploration work on the Carson property, therefore all sampling is considered to be historic.

A total of five samples were collected during the site visit on November 23<sup>rd</sup>, 2010. These samples were collected, transported, and analyzed in coherence with NI 43-101 standards. Samples were in the custody of the author during transport from the property and were submitted to ALS Minerals preparation facility in Yellowknife in sealed bags. Samples G064811 and G064812 were analyzed by package Au-AA26 (fire assay and AAS), samples G064812-15 were assayed by Au-AA26 and 54 element Aqua Regia ICP-MS/AES (ALS ME-MS41). Geochemical analysis certificates are presented and included in Appendix I of this report.

### **9.1 Historic sampling**

#### **9.1.1 Surface sampling**

Surface samples taken during the 1981 and 1985 programs were grab samples and chip samples. The grab samples were representative of one specific lithology. The chip samples were collected by chiseling a continuous amount of rock over a specified length.

Detailed sample methodology is not presented in reports assigned to either of the 1981 or 1985 programs. As a result, the author cannot speak in detail to the sample approach, consistency of this methodology, or security assigned to samples collected. Assay certificates are not included in the Wollex report, only gold values are presented in the text and maps.

Two analysis strategies were employed by Noranda in 1985. Geochemical analysis certificates are presented and included in Appendix I of this report. Grab and chip samples were assayed for Au. The type of analysis is not reported. Lithogeochemical analysis was completed on a number of grab samples during the program. A standard 13 oxide suite (SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, CaO, MgO, Na<sub>2</sub>O, K<sub>2</sub>O, TiO<sub>2</sub>, MnO,





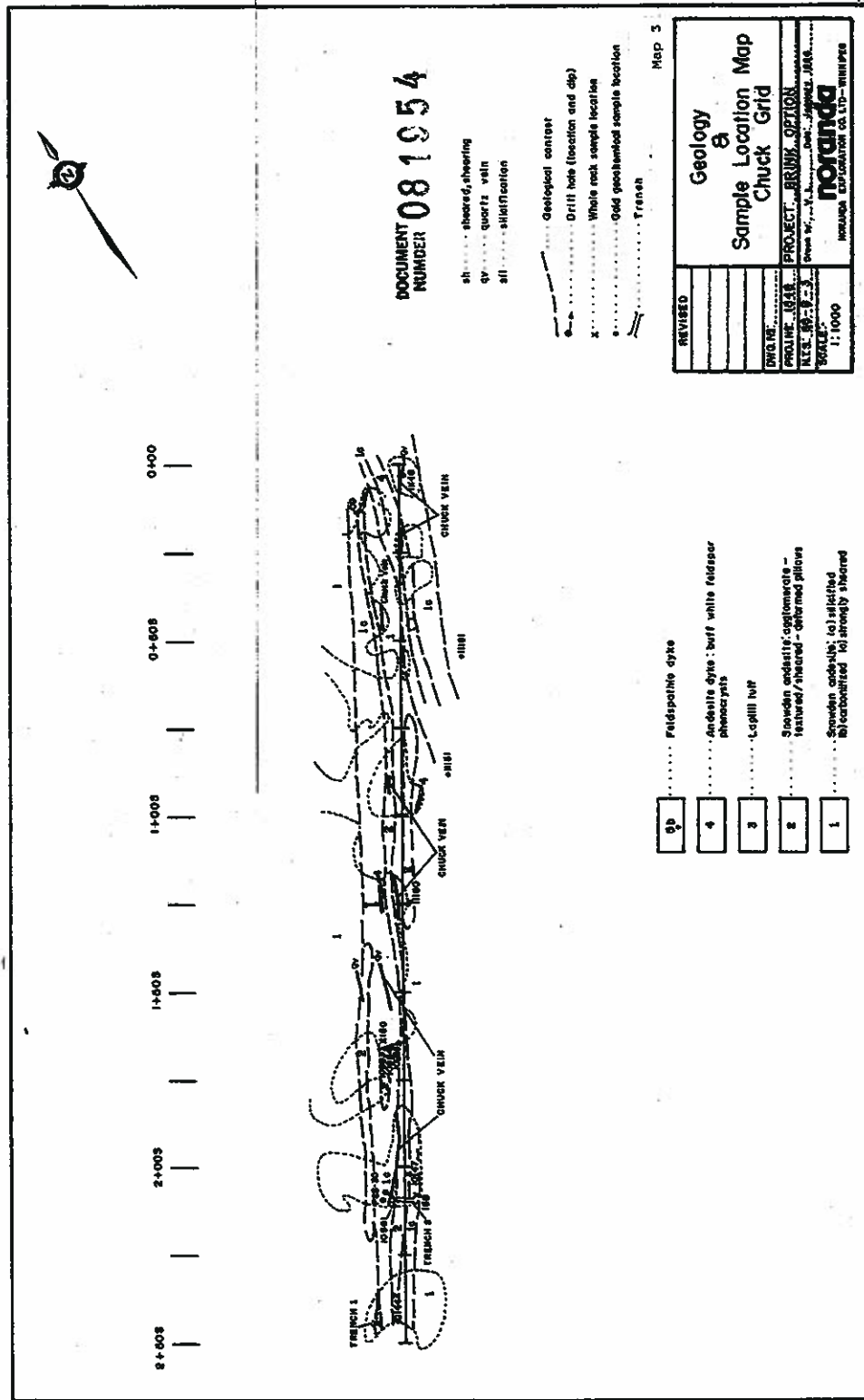
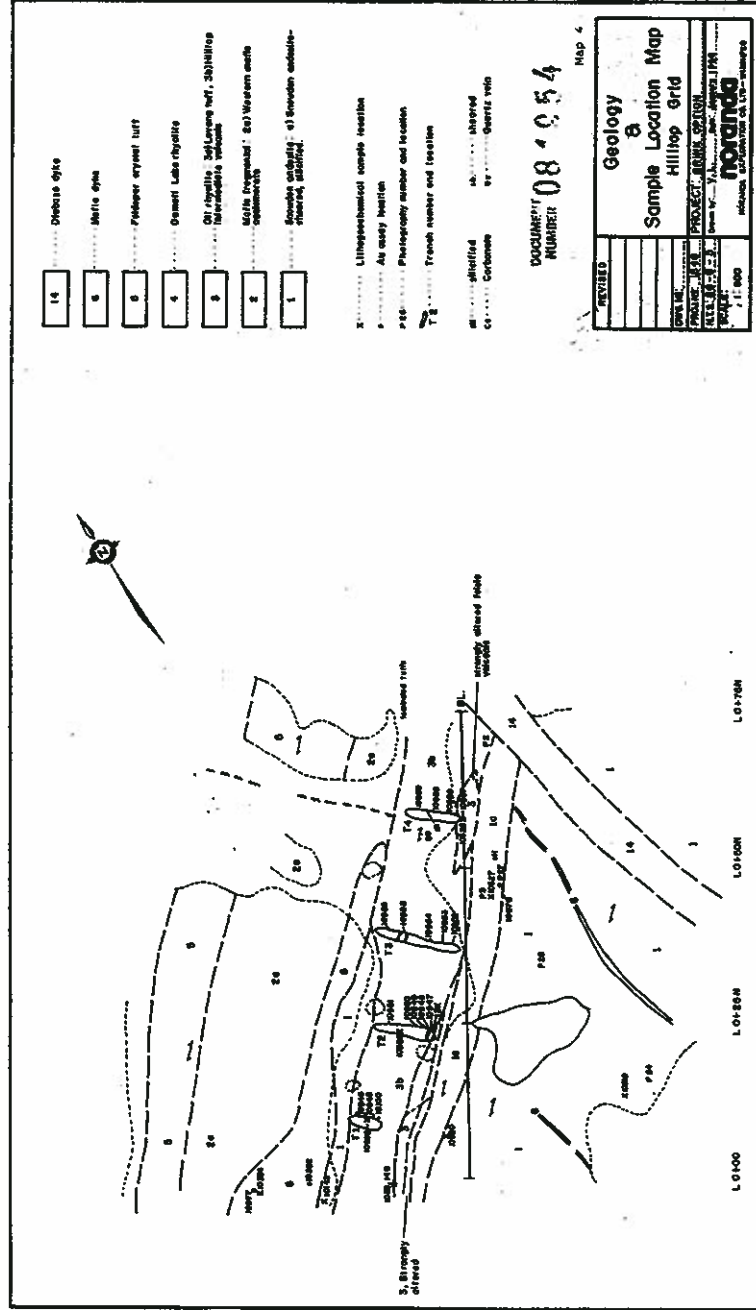


Figure 10. Geology and sample location map Chuck showing (Powers, 1986)



**Figure 11. Geology and sample location map Hittop showing (Powers, 1986)**

P<sub>2</sub>O<sub>5</sub>, BaO, SrO, ZrO<sub>2</sub> with LOI was analyzed. A gold analysis was also assigned to each sample. TSL Laboratories were certified assay labs at the time the 1985 assaying was completed.

#### **9.1.2 Diamond drill core sampling**

The 1948 drill program samples were x-ray core. There is no information on the QA/QC of the sample procedure or analytical procedure employed to derive the gold results reported in the drill logs. Analytical certificates are not presented in the 1948 assessment report.

### **10.0 Data verification**

The author was not involved in any of the design, management or implementation of any of the previous programs. The author has not undertaken any significant independent verification of the quantitative data that has been extracted from these reports. The author does not consider the two samples collected on November 23<sup>rd</sup>, 2010 to be indicative of mineralization on the property as a whole. A thorough property investigation could not be completed on November 23<sup>rd</sup>, 2010 because of snow cover; however, the author is satisfied that the work reported in historic documentation was completed as it was reported.

### **11.0 Adjacent properties**

There are a number of showings hosted in the Indin Lake supracrustal rocks that underlie the property (Figure 12). Colomac is a significant past gold producer now in a state of reclamation. It is located approximately 20 kilometers to the northwest of the Carson property. The Damoti Lake property is an advanced exploration project that surrounds the property to the south, east, and north and is currently owned and operated by MERC International Minerals. A single claim named Dayna covers the Barker Vein, a past gold producer located approximately two kilometers to the west.

#### **11.1 Property summary:**

*All showing summaries have been extracted and modified from the Northwest Territories Geoscience Office (NTGO) Northern Minerals (NORMIN.DB) database.*

##### **Damoti Lake property**

The Damoti Lake property (*proper*) consists of six mining leases, and five mineral claims owned by MERC International Minerals. This stratiform banded iron-formation (BIF) gold occurrence consists of six showings including: BIF Island, North Island, Causeway Zone, Horseshoe Zone, Quartz Zone, and Lard Zone. The showings are covered by leases 3616 and 3617. The property history and summary is consolidated from the NORMIN database.

The Damoti Lake property is located 210 kilometres north-northwest of Yellowknife, NT, and can be accessed with a ski- or float equipped fix-winged aircraft on Damoti Lake except during winter freeze-up and spring break-up, or by helicopter. Heavy equipment and large shipments of fuel can be brought to the Damoti Lake project site via the 300-kilometer ice road to Colomac from Yellowknife.

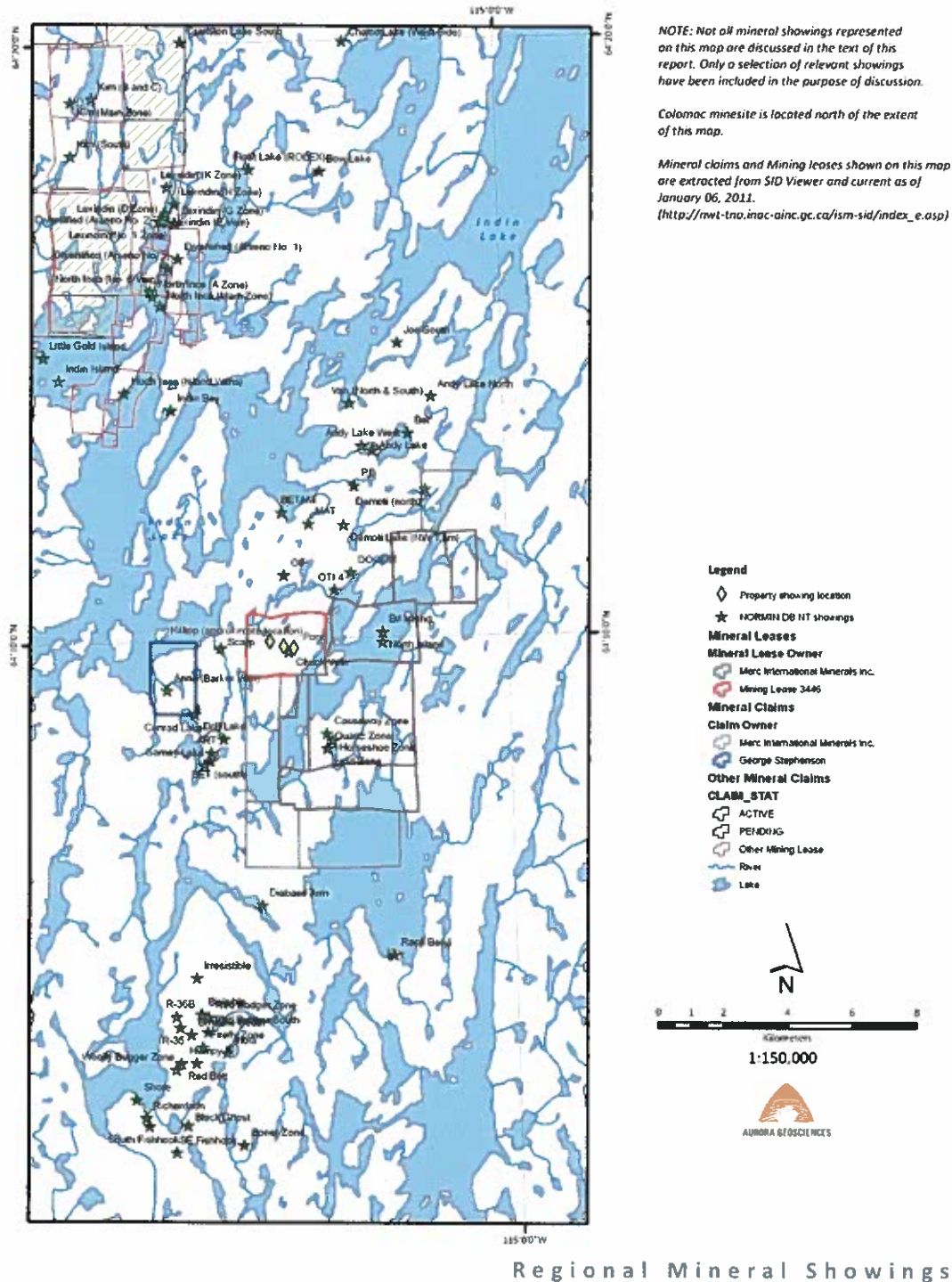


Figure 12. Indin Lake area mineral showings



During a mapping and sampling project funded by the federal government in 1992, J. Brophy assayed 10 grab samples from the iron formation on BIF Island. All samples returned elevated anomalous gold values, with one sample grading 28.0 g/t Au (Falck and Bianchi, 1994).

Damoti Lake was staked in 1993 by Covello, Bryan and Associates Ltd. for the joint venture of Athabaska Gold Resources Ltd. (75%), Gitenes Exploration Inc. (25% working interest), and Consolidated Ramrod with the right to earn 51% interest in the property after an expenditure of \$2.7 million CDN. Ramrod became operator of the project in May 1994 and in September 1995 obtained 100% interest in the property subject to a 2.0% NSR royalty held by Covello, Bryan & Associates Ltd.

Extensive ground magnetic surveys and horizontal loop EM surveys traced the auriferous iron formation discovered on BIF Island (1992) in Damoti Lake to extend 4 km's north-northeast and 5.7 km's southwest of the island. The Horseshoe Zone was located in this BIF unit near the south shore of Damoti Lake and was first drilled in 1994. Exploration activity continued in the BIF unit from 1993 into 1994, through 1995 and into early 1996, during which time 254 diamond drill holes and extensive ground and airborne geophysics were completed over most of the strike length of the BIF. Approximately 5,000 rock samples were collected.

In March 1996, Consolidated Ramrod Gold Corporation changed its name to Quest International Resources Corporation (Quest) and a decision was made to go underground to explore high-grade BIF within the Horseshoe Zone. Approximately 430 meters of decline/crosscut on two levels were opened. A total of 35 underground core holes (792.10 m) were completed (23 holes intersecting 7 mineralized zones). Approximately 3,810 metric tonnes of mineralized rock averaging 15.43 g/t Au extracted from the decline is stockpiled on the surface near the portal (Russell, 2003).

In 1997, Sierra Mining and Engineering Company assisted in the planning of drilling programs to define reserves and increase resources in the Horseshoe Zone. A total of 45 out of 58 drill holes in the Horseshoe Zone intersected significant mineralization. Two of the best intercepts are: D97-268 (9.40 meters of 35.76 g/t Au) and D97-296 (13.50 meters of 41.01 g/t Au). Significant gold mineralization at depths greater than 100 meters was also intercepted, indicating that the potential size of the Horseshoe deposit is not limited by a shallow plunging syncline as previously thought. The Horseshoe Zone was estimated to contain a resource of 455,685 tonnes grading 15.97 g/t Au (non NI43-101 compliant) by the end of 1997 (Russell, 2003). In 1997, Quest converted four mining claims (DAM 2, DAM 3, DAM 8 and SUF 200) to mining leases; the Horseshoe Zone is located in mining lease DAM 3.

Golder Associates Ltd. conducted environmental and engineering baseline work during the summer of 1997 until the end of the year, and prepared an application for a permit to mine the Horseshoe deposit. Studies include preliminary ARD testing, background research for wildlife and archaeological studies, and arranging meetings with the government agencies involved in granting the permit. Additionally, panels for aerial photography were placed in the field and the claim block was flown in late July, 1997. Topographic maps with a 1.0-meter contour interval were prepared for the Horseshoe deposit area in order to complete design work for a mine/mill facility.

In May 1999, Quest became Standard Mining Corporation, a subsidiary of Doublestar Resources Inc. (Doublestar). In June 2002, Doublestar announced an option agreement with Canadian Zinc Corporation for 50% of the Damoti Lake property in return for \$2.4 million (CDN) over 4 years. In May 2003, the option agreement was terminated upon failure of Canadian Zinc to commit to the first year expenditure. On May 27, 2003, Anaconda Gold Corp. signed a letter agreement with Doublestar giving Anaconda the right to earn a 55% interest in the Damoti Lake project by spending a total of \$2.5 million (CDN) on exploration over a four-year period. The property is still subject to a 2.0% NSR royalty held by Covello, Bryan & Associates Ltd.

In 2004 Anaconda completed 1,421 meters of drilling in 20 holes during a 'initial phase' of drilling focused on confirming and further delineating resources in the Horseshoe deposit. Highlights from this phase of drilling included Hole D04-329 which intersected 10.95 m grading 74.54 g/t Au at a shallow depth of 57.5 m to 68.45 m. Included in the intersection was a much higher grading 1.0 m interval assaying 365.75 g/t Au (Puritch and Ewert, 2005).

A second phase of drilling on the Horseshoe zone included 1,300 meters in 19 holes and was intended to define high-grade lenses and extend the zone to the north. Hole D04-356 intersected 2.25 metres grading 32.19 g/t Au from a shallow depth of 15.85 m to 18.10 m. Included in the intersection was a much higher grading section of 0.57 m assaying 100.00 grams gold per tonne. Hole D04-360 intersected 10.65 metres grading 59.51 g/t Au from 64.8 m to 75.33 m. Two exploration drill holes (D04-352 and D04-353) were completed 80 m north of the main Horseshoe zone. Hole D04-352 intersected 1 m grading 12.98 g/t Au from 110.0 to 111.0 metres. Hole D04-353 returned 1.55 m grading 14.56 g/t Au (Puritch and Ewert, 2005).

In 2005, Anaconda drilled 1470 m in 13 holes on the Damoti Lake property. One hole confirmed mineralization within the Horseshoe zone returning an intersection of 33.88 g/t Au over 3.61 m. Twelve holes were drilled in the Lookout zone, located 200 meters north of the Horseshoe zone. The best intersection was 11.68 g/t Au over 2.50 m (Puritch and Ewert, 2005).

In September of 2009, Merc International announced the new discovery of a gold intersection in the west limb of the Horseshoe zone, which returned an assay of 3.63 g/t Au over 7.55 m core length, including 12.02 g/t Au over 1.10 m (Gochnauer et al. 2010).

The Damoti Lake property covers a portion of a metasedimentary rock belt on the eastern edge of a small band of NE-trending volcanics. The metasediments are lower greenschist grade Archean turbidites with graded beds and load structures and a planar NNE-trending fabric dipping 75-80 degrees to the west. The turbidites are repeatedly folded into a series of tight folds and contains interstratified bands of iron formation. Several dykes and generations of quartz veins, and a small granodiorite body, intrude the metasedimentary rocks and iron formation. Late faults cut the fold structures as well as some of the early intrusions and the zones of mineralization. Diabase dykes intrude all units.

#### ***Horseshoe zone (NORMIN.DB 086BSW0050)***

The Horseshoe zone (~1000 feet strike length) is located near the south shore of Damoti Lake. The gold showings in the BIF unit have a close spatial association with quartz and/or chlorite veins (or shear

zones) and related chlorite-silica-sulfide alteration envelopes. The iron formation showings tend to consist of chloritic sulphide facies and cherty-grunerite facies, with silicate facies and silicate-amphibole facies along the margins. The intensity of alteration and gold grades generally diminish outward from the center of the BIF units and gold is strongly associated with sulphide-rich zones. In the Horseshoe Zone pyrrhotite is the dominant sulphide. Gold mineralization is strongly concentrated in the eastern limbs of synclinal folds and in the fold closures. Additional gold mineralization of significant grade has been found within the Horseshoe Zone in several deep-seated zones.

***BIF Island (NORMIN.DB 086BSW0001)***

The Bif Island showing is an auriferous banded iron-formation discovered in the summer of 1992 by J. Brophy (government geologist). Assays from the iron formation in the middle of Damoti Lake returned elevated gold including one sample of 26.8 g/t Au from a silicified pyrite-bearing amphibolite. The BIF Island showing consists of two zones (North Island and BIF Island) separated by approximately 350 metres; iron formation occurs between these zones under the lake. Sulphidic iron formation occurs in an Archean aged greywacke-argillite package. It consists of at least six facies including silicate-oxide, silicate-amphibole, silicate-sulphide, silicate-chlorite and cherty exhalative. Detailed diamond drilling between 1994 and 1997 at both zones has yield significant gold values including 16.07 feet grading 1.037 oz/ton gold (drill hole D95-176).

***North Island (NORMIN.DB 086BSW0096)***

Gold is strongly associated with the chloritization of the rock. Several generations of quartz veins (generally centimetre scale) cut the iron formation and are concentrated in the area of fold noses. Elevated gold values are associated with these structural locations. The iron formation in the North Island area is interpreted to have a synclinal fold pattern plunging to the north with an axial trace to the NNE. Faulting has offset the gold-bearing BIF along shallowly-dipping fault planes. Abundant shallowly-dipping faults offset the auriferous units and complicate the geology.

***Causeway zone (NORMIN.DB 086BSW0053)***

The Causeway zone is a gold bearing iron formation hosted in an argillite and greywacke package. The northern portion of the showing was tested in 1993 with a single drill hole and 7 grab samples. Four of the grab samples returned assays between 0.51 g/t Au and 5.11 g/t Au. A single diamond drill hole (D93-16) was used to test the structure at depth. Drilling results indicated that the iron formation is auriferous in thin intervals (eg. 0.25 feet at 1.23 g/t Au). The south end of the showing was tested with 4 diamond drill holes which intersected significant gold intervals in three of the drill holes (including 1.64 feet at 0.353 oz/ton Au in hole D95-151).

***Quartz zone (NORMIN.DB 086BSW0052)***

The Quartz zone consists of auriferous iron formation (minimum 600 feet strike length) hosted in a greywacke-argillite package. As of 1995, one diamond drill hole, bedrock mapping and both ground and airborne geophysical studies were completed over the showing. Best assay taken from the drill core was 5.25 feet at 0.268 oz/ton.

**Lard zone (NORMIN.DB 086BSW0051)**

A single grab sample of amphibolite with banded sulphides was assayed from the iron formation, containing only slightly elevated gold values. In 1995, two diamond drill holes tested the iron formation. Results of the drilling include 3.28 feet at 0.200 oz/ton Au (D95-138) and 7.22 feet at 0.239 oz/ton Au (D95-142).

**North Inca property**

The North Inca property is located approximately ten kilometers north-northwest of the Carson property. These showings include the North Inca Island veins, Main zone, A-zone, and No. 6 vein. The A-zone and A-zone extension are at an advanced stage of exploration.

The North Inca showings are about 210 kilometres NNW of Yellowknife, NT, and the A Zone is found on the southern half of the North Inca Peninsula, which isolates the Leta Arm from Indin Lake. Access is by ski- or float-equipped aircraft to Indin Lake.

The North Inca property was first staked in 1938 as the PA (Brown veins) and MA (Johnson vein) groups by Territories Exploration Company Ltd. Some surface work was done on the Johnson vein and the Brown veins, the latter of which were drilled by Frobisher Exploration Company Ltd. in 1941. The claims were then allowed to lapse.

In 1944, J. Tibbit and W.A. McKeown staked the NORTH 1-16 claims (A and Main zones and No. 6 vein on NORTH 2; Johnson and No. 42 veins on NORTH 4), and J.M. McMeekan and associates staked the TARTAN 44 7-18 claims (A and Main zone extensions were on TARTAN 44 8). These claims were acquired in 1945 by North Inca Gold Mines Ltd. (managed and controlled by Trans-American Mining Corp.), and along with DIP 1-2, these claims formed the North Inca property. From 1946-1948, the property underwent geological mapping on the 1": 400' scale, surface prospecting, 8947.1 metres of diamond drilling (mostly in the A and Main zones), and underground exploration. A shaft was sunk down to the 175-foot level in 1946, on the NORTH 2 claim, where 131 metres of drifting, 809 metres of crosscuts west from the shaft, and 559.3 metres of diamond drilling were completed in the A-zone by 1947. The shaft was later sunk to the 325-foot level to explore the adjacent Main zone. In 1941, a further ~610 metres diamond drilling in the vicinity of the A-zone was completed. In 1947, several exploratory holes into the Main zone extension (aka Diversified shear zone) near the east boundary of the property was completed.

The A-zone north of the Inca fault was reported in 1948 to contain a resource of 23 000 tons of ore (non NI43-101 compliant) at 0.54 oz/ton Au (uncut) across 0.75 metres and in three north-plunging shoots (A-1, A-2, and A-3 veins); the Main zone was reported to contain a resource of 600 feet x 5 feet at 0.44 oz/t gold to depths of 160 feet to 300 feet (Lord, 1951).

Alaska Canadian Corporation acquired the North Inca (and Diversified) claims in the 1950's, and in 1969, Polaris Development Corporation took over the assets of Alaska Canadian and Polaris became Ursa Polaris Developments. Despite the change in ownership, no work was done on the North Inca property.

In 1980, an updated reserve estimate (non NI43-101 compliant) of unspecified North Inca deposit(s) from drilling by Manson Creek Resources Ltd. and Indigo Gold Mines Inc. for the North Inca property (Arseno No. 1 zone) was 90 000 tons at 0.20 oz/ton Au (Jakubek et al., 1989; Hawkins and Delas, 1989). In 1983, the North Inca property (and Diversified property) was amalgamated into Lintex Minerals.

Ursa Polaris Developments Corporation recorded the claims on the North Inca property as mining leases in 1985, 1986, and 1988, and retained 10% ownership as of 2004. In 1992, the claims were owned by New Lintex Minerals Ltd. and operated by Golden Rule Resources Ltd. who, in 1988, drilled 4 diamond drill holes at the North Inca mine; possible reserves (*non 43-101 compliant*) were calculated at 81 000 tons grading 12.3 g/ton Au (Morgan, 1992).

The A-zone and A-zone extension are located on the Inca Peninsula of the North Inca property, and are part of a series of gold showings that occur near the NNE-trending contact between the metavolcanics and the metasediments (south of the Diversified property). The property is bisected by a belt of altered andesitic-dacitic volcanics outcropping on a chain of islands and the Inca Peninsula, and that is flanked on both sides by greywacke, argillite, slate, and phyllite metasediments. The metavolcanics have been altered to a soft, fissile, grey, sericite-carbonate-chlorite schist, or greenstone, and a few 10's of metres thickness from the head frame are cataclastic to mylonitic. The volcanics and sediments trend NNE, are steeply dipping, and are cut by NW-trending diabase dykes. The steeply-dipping shear zones in both rock types contain the most promising known auriferous quartz veins.

The A-zone contains several veins: A-1 (aka east Brown vein), A-2 (aka west Brown vein), and A-3. A-1 and A-2 are 2 parallel quartz veins 3.5 metres apart on the surface and oriented 010/75-vertical, subparallel to foliation in the enclosing schist. Both veins have been offset by about 1 metre, twice, by two faults that separate each vein into 3 equal-length sections. A-1 has been stripped (opened by trenching) for 44 metres and its width averages 0.75 metres; the vein passes under Indin Lake to the south, and plunges under the schist to the north. About 34 metres further north, a lens of unmineralized quartz 0.75x8 metres emerges from unsheared phyllite along the strike of A-1. A-2 has been stripped for 44 metres and has an average width of 0.45 metres; to the south the vein tapers off and to the north the vein passes under a drift and likely tapers off. A-3 was not examined but is reported to contain visible gold. A-3 outcrops about 23 metres west of A-2, and it is exposed as a 0.3x3 metre vein that lies within a 2-metre wide shear zone.

The A-zone has been traced by diamond drilling for a length of about 123 metres and to a depth of 73 metres. The A-zone and Main zone are truncated by the sinistral Inca fault 30 metres south of the peninsula, below Indin Lake. The A-zone extension is displaced along the Inca fault about 450 metres to the southeast of the A-zone veins. 5 holes (733 metres) have been drilled into this zone; one of the holes returned values of 0.1 oz/ton Au over 0.55 metres, and 0.17 oz/ton Au over 0.3 metres (Hawkins and Delas, 1989).

The veins walls are sharp and lined by rusty sericite-carbonate (pyrite-pyrrhotite) schist 3 to 24 inches thick. The quartz is fractured and mottled dark grey to white, cut by milky white, vuggy quartz seams, up to 1 inch wide, and masses that contain an iron-carbonate mineral. White and grey quartz are found in



equal abundances. Some seams of schist parallel to vein walls are found in the veins. <1% of the veins are metallic minerals (pyrite, arsenopyrite, gold, and very little galena, pyrite? and pyrrhotite?) and visible gold is abundant in grey quartz.

## **11.2 Showing summary**

### **Van (NORMIN.DB 086BSW0005)**

The Van (North & South) showing is a Zn-Cu-Ag showing defined anomalous metal values from nine diamond drill holes (a total of 10 drill holes were completed in total by Freeport Canadian Exploration Company). The showing is situated along the east side of Indin lake and extends along strike to the north-northeast for approximately four kilometres. The showing is hosted in graphitic argillite intercalated with felsic volcanics. Chalcopyrite, pyrite, pyrrhotite and sphalerite occur mainly within the graphitic argillite in concentrations of trace up to 25%. Some of the more significant intersections include: 1.09% zinc and 5.05 oz/ton silver over six feet in drill hole No.01, and 0.98% copper and 2.90% zinc over two feet in drill hole No.03. In 1984, E. Meyers assayed quartz in greenstone at the northern end of the showing tend. The showing latitude and longitude is taken from the near centre of the drilling activity which happens to be the location of drill hole no. 3. Refer to DIAND assessment report (Boldy et al., 1971) for drill hole locations and drill logs for this showing.

### **DOODIT (NORMIN.DB 086BSW0016)**

This gold showing was first discovered in 1947. The showing consists of two gold occurrences located approximately 600 metres apart but along strike within silicified (quartz-rich) sections of argillaceous sediment. Pyrite and pyrrhotite are associated with the gold mineralization. One grab sample returned 20.90 ppm Au from quartz veins (Pinsent, 1985). A best-grade drill core intersection assayed 0.065 oz/ton gold over 2.0 feet (Gliddon, 1947).

### **PB (NORMIN.DB 086BSW0025)**

This showing is defined by two anomalous gold/copper samples and 8 drill holes occurring within a 500 - 600 metre radius. The old diamond drill holes (1947) indicate quartz vein hosted sulphide mineralization but no assay values are reported. Two rock samples collected in quartz stringers (samples 162 and 163; Cluff and Myers, 1982) just north of the drill collars returned 0.036 oz/ton Au and 8510 ppm Cu. Andesite and basalt underlies the showing. Sulphides present in the quartz includes pyrite, pyrrhotite and chalcopyrite (malachite was also observed).

### **Bet (NORMIN.DB 086BSW0046)**

The Bet is a gold, silver, copper and lead showing defined by eight rock samples collected near the northeast shore of Andy Lake. The Bet showing runs along the northeastern shoreline of Andy Lake for about 500 metres. Quartz-carbonate stringers host anomalous sulphide and precious metal mineralization (pyrite, pyrrhotite, galena, chalcopyrite, sphalerite, gold, and silver) in shear zones. The sulphides are described as mainly disseminated and locally banded. The mineralized quartz stringers cut through all the major lithologies within the area.

#### **Drill Lake (NORMIN.DB 086BDW0058)**

The Drill Lake showing is a quartz-carbonate vein gold prospect hosted in sheared pillow mafic volcanics up to 20 metres wide. The quartz veins are discontinuous and individually range in widths of 1 to 50 centimetres. Grab and chip sampling returned one significant gold assay at 0.116 oz/ton from this sheared outcrop (Meyers, 1985). To the northeast (150 - 200 metres) of this sampled outcrop earlier diamond drilling was performed testing this shear underlying a bog/swamp (Peacock, 1946; no assay reported).

#### **Conrad Lake (NORMIN.DB 086BSW0059)**

The Conrad Lake is a reconnaissance showing with a few grab and soil samples collected from a mineralized quartz-rich shear in a volcanic package. Only one grab sample assayed anomalous gold (0.229 oz/ton gold) at the intersection of two shears in blue colored quartz with minor pyrite and chalcopyrite. Other samples collected in the area contained trace to slightly elevated gold values.

#### **Scarp (NORMIN.DB 086BSW0060)**

The Scarp showing is a drilled copper occurrence defined by two grab samples, one soil sample collected from the Scarp Grid (OTI claims) and two diamond drill holes (totaling 95 feet of coring). The auriferous grab samples were collected from a gossanous carbonatized basalt assaying up to 6400 ppm copper. A soil sample taken in the same area returned an assay of 0.35% copper. The sampling was performed on a grid established over a shear structure (Pinsent, 1985b). No assays were reported from diamond drilling.

#### **OTI (NORMIN 086BSW0061)**

The OTI showing is a reconnaissance copper occurrence based on one chip sample taken across a 2.5m basalt-hosted bull quartz vein which locally contains adjacent malachite staining. This sample assayed 2640 ppm Cu (Pinsent, 1985). This showing lies along strike of the Doodit showing (086BSW0016).

#### **Betam (NORMIN.DB 086BSW0062)**

The BETAM showing is a reconnaissance level showing based on a single rock sample collected on the eastern side of Indin Lake. The sample was taken from a rusty shear in a dacite containing disseminated pyrite. An assay from the sample (A-1138) returned a zinc value of 4200 ppm (Cluff and Myers, 1982). Other samples taken in the vicinity did not return any significant assays.

#### **MAT (NORMIN.DB 086BSW0063)**

The MAT showing is a quartz vein hosted gold occurrence. The showing is defined by five quartz samples taken in three separate localities approximately one kilometre apart hosted in rhyolite and andesite. Gold assays from the quartz samples range from 0.016 oz/ton to 0.042 oz/ton. The quartz veins are described as being blue to milky in color (local hematite staining) and up to 110 feet along strike with maximum widths of 8.0 feet. Sulphides associated with the quartz include pyrrhotite and chalcopyrite. The showing latitude and longitude is located on the centre grouping of samples which includes three closely grouped samples (Meyers, 1985b).

#### **Andy Lake (NORMIN.DB 065BSW0064)**

The Andy Lake polymetallic showing is hosted mainly in quartz veins associated with shearing located between two lakes (Andy Lake and an unnamed lake) which are about 150 to 200 metres apart. Anomalous gold, lead and silver values are obtained from the area between and on the northeastern shore of the unnamed lake. The showing area is approximately 500 metres in length. The showing area is mainly comprised of mafic volcanic rocks (andesite to basalt) in the western portion of the showing area (closest to the unnamed lake). Granite forms an irregular body throughout the central portion of the showing. Dykes and smaller outcroppings of granitic rock occur throughout the area. The granite is described as mylonitic and locally containing minor amounts of pyrite, magnetite and chalcopyrite.

A shear occurs on the west side of the granite in contact with the mafic volcanics. This well sampled shear is orientated 025 degrees and dips 060 degrees east and is traceable for about 100 metres. Quartz veining associated with this shear is locally auriferous. The best grade sample (number 9095) was collected in 1994 by Gitennes Exploration and assayed 0.109 oz per ton gold from a white quartz vein with two percent chalcopyrite and galena. Felsic volcanic rocks occur in the eastern portion of the showing area. These felsic rocks are mapped as rhyolites. A few other smaller shears are also mapped (Blackwell et al., 1996; Map No. 5).

Quartz veins, and locally stockwork, are noted in all the lithologies. Those veins associated with the shear structures can be brecciated and display shear fabrics. The veins are usually described as white and contain trace to 2 to 4 percent pyrite and lesser pyrrhotite, galena, sphalerite and chalcopyrite.

Most of the significant mineralization occurs in the quartz veins which have returned a best gold value of 0.109 oz per ton gold as mentioned above. A sample collected in the southern portion of the showing area (exact position of the sample is unclear) returned an assay of 126.6 ppm silver, 11,000 ppm lead and 0.028 oz per ton gold.

Other significant assays were obtained from both the granite and mafic volcanic rocks in the area. One mylonitic granite sample (number 9660; Blackwell et al., 1996) returned a gold assay of 860 ppb. A mafic volcanic described as a sheared andesite assayed 1800 ppb gold. From the soil sampling done in 1985 a single soil sample returned an assay of 1.04 ppm gold in an area of auriferous quartz veining on the northern portion of the Andy Lake showing.

#### **Damoti North (NORMIN.DB 086BSW0065)**

The Damoti (north) showing is defined by a single rock sample with 6800 ppm Zn (sample 77738; Pinsent, 1985). The sample was collected from a thinly bedded (less than two metres) pyrite-bearing, graphitic argillite. This sample was collected on the Indin grid nearing the contact with the greywacke to the east. The sample also assayed elevated lead, copper, silver and slightly above background gold concentrations (0.04 ppm).

#### **Andy Lake North (NORMIN.DB 086BSW0066)**

The Andy Lake North is a gold showing defined by a single anomalous rock grab sample from a rusty dacite with pyrite mineralization. This sample assayed 3428 ppb Au (Cluff and Myers, 1982). Three other rock grab samples (andesite) were assayed in the vicinity but returned no significant values. Minimal

information is given about the sampled outcrop or the area except that the majority of the underlying bedrock is mafic volcanics.

#### **Joe South (NORMIN.DB 086BSW0067)**

Joe South is a gold showing defined by a single rock grab sample (19683) from a mineralized quartz vein. Areas of interest were staked by E. Meyers in the mid 1980's in order to cover geophysical targets outlined in a previous survey conducted by Freeport Oil Company Alberta, Limited in 1970 (Klein, 1970). During 1984-1985, a geological/geophysical study of the claims held by E. Meyers was completed, involving ground magnetics and VLF surveys, and reconnaissance prospecting/mapping. The prospecting resulted in locating auriferous quartz veins on the Joe claim. The most southerly rock grab sample (19683) returned an assay of 0.028 oz/ton Au from a five inch pyrrhotite-chalcopryrite-bearing quartz vein in volcanic rocks (Meyers, 1985b).

#### **Off (NORMIN.DB 086BSW0089)**

The Off copper showing occurs in a quartz vein located in a 300 metre long gossan zone (NNE striking) hosting quartz, carbonate and chlorite alteration with trace chalcopryrite and pyrite. The single sample which defines the Off is sample 9857 which contained 2 to 5 percent chalcopryrite and pyrite combined. This sample assayed 2.30 percent copper and 215 ppb Au (Blackwell et al., 1996). From reconnaissance bedrock mapping (1:20,000 scale) the gossanous zone occurs in pillowed and/or brecciated mafic volcanic rocks.

#### **Andy Lake West (NORMIN.DB 086BSW0090)**

The Andy Lake West zinc showing is defined by a single sample which assayed 6200 ppm zinc (sample A1071) from a rusty volcanic rock (Cluff and Myers, 1982). The property geology is sketchy and details are provided mainly from reconnaissance bedrock mapping of selected outcrops during prospecting. The area around the showing is mapped as mafic to felsic volcanic rocks.

#### **Gamey Lake (NORMIN.DB 086BSW0057)**

The Gamey Lake showing is a reconnaissance level gold showing defined by a single elevated grab sample (37,800 ppb Au from sample 93-IHZZ-001D; Flood, 1993). Several other rock samples were collected in the vicinity but did not return any significant assay values. The gold mineralization is hosted in a 15 centimetre wide (2 metre long) quartz-carbonate vein that cuts a basaltic flow (possible pillows in the area).

### **11.3 Past Producers**

#### **Baker Vein (NORMIN.DB 086BSW0012)**

Gold was discovered in the Barker Vein in 1938 by Territories Explorations Ltd. and 9 trenches were dug on the ANNA 2 and 3 claims. The vein produced 1600 lbs of ore (83 ounces of Au), by mining of a pipe-shaped orebody one foot in diameter and 10 feet in length. In 1940, the claims were re-staked by Schwerdt Brothers and an additional 248 ounces of gold was recovered from the Barker Vein (no assessment report on this submitted; taken from description of property history from assessment file 081785 [Swanson, 1984]). In 1945, American Yellowknife Gold Mines Ltd. was the operator of the property, putting in about 16 trenches, sampling, and drilling. Two gold showings near the Barker Vein

were reported in 1945: one is 800 feet north of the vein, the other consists of quartz veins and stringers along the contact between andesite and a quartz feldspar porphyry dyke (Swanson, 1984). 4605.8 feet (unknown reference) of diamond drilling (Swanson, 1984: only 4060 feet or 15 holes) was completed on the Barker Vein and in the surrounding area however, the drilling for a north-trending target did not reveal any significant gold mineralization and the claims were returned to the Schwerdt Brothers in 1946.

In 1982, the showing was re-staked as the VIDIE Group by G. E. Swanson. Frontier Gold Mines Inc. mapped and sampled old trenches and outcrops scattered across the property. The grab samples of vein material from outcrops in, and near, the Barker Vein had a few anomalous gold values from 0.002-0.056 oz/ton Au, and mineralized core (from 1940) was also assayed, returning up to 0.076 oz/ton Au. It was inferred that the early drilling may have missed a NE-striking, SE-dipping auriferous body (Swanson, 1984).

In 1985, the claims were restaked as the Barker Claims and in 1986, a mineral lease (3210) in the name of Frontier Gold Mines Inc. was issued claims. In 1988 a legal land survey was done to fulfill mining lease requirements.

In 1993, BHP Minerals Canada Ltd. took two samples taken from the Barker Vein (one of drill core) that assayed 3560 ppb gold (quartz-feldspar dyke) and 1560 ppb gold (quartz-carbonate vein), as part of their sampling program for the adjacent HELA claims.

In 2009, The Baker vein was staked by George Stephenson. No work is reported after this staking.

The Anna (Barker Vein) showing consists of several quartz-carbonate veins hosted in foliated, dark green, Archean andesitic metavolcanic rocks of the Gamey Lake belt with associated peripheral, auriferous quartz-feldspar dyke(s) that contain minor sulphide mineralization (pyrite, chalcopyrite, and malachite). Two faults cut the property and intersect within 10's of metres of the auriferous zones. The vein-hosting andesite has a 1-foot wide chloritic shear zone along both sides of the Barker Vein.

The majority of work has been done on the quartz-carbonate Barker Vein, which yielded about 331 oz/ton Au from mainly grey to white quartz (lesser carbonate) material. The vein contains 2% sulphides, mostly chalcopyrite with some malachite, galena, sphalerite, pyrite, and arsenopyrite, in addition to gold. Nearby quartz-carbonate veins are folded and higher concentrations of gold are found in the fold noses.

The Barker Vein is a 40-foot long, quartz-carbonate vein oriented 335/60. The vein is truncated on the southern end by a fault and ends abruptly in soft grey schist in the north. The vein is 1 foot wide in the southern portion and widens to 3-6 feet to the north. All of the gold mined by Territorial Exploration Ltd. was extracted at the intersection of the south end of the vein with the truncating fault. The intersection plunges 35 degrees to the SE and forms a pipe-shaped body with a diameter of about 1 foot and a length of about 10 feet. The pipe-shaped body is truncated by another fracture at depth, and it contained the majority of the ore and coarse-grained visible gold hosted in fine-grained carbonate.



Large cross-cutting veins are in the vicinity of the vein. Other nearby quartz veins (old, exposed trenches) show folding and pyrite, calcite mineralization. These have been found to locally contain anomalous gold (0.056 oz/ton gold).

#### **Colomac (NORMIN.DB 086BSW0004)**

The Colomac mine site is located approximately 25 kilometers north of the property. It was discovered in 1945, and mined from 1990-1991. It has produced 418 000 tr. ounces of gold, primarily from a low-grade (0.047 tr. oz/ton Au), high-tonnage, open-pit deposit (Costello, 1999).

In 1945, gold was found in the Colomac dyke (GI and IF claims covered most of the dyke) by Colomac Yellowknife Mines Ltd., Indian Lake Gold Mines Ltd., and Indyke Mines Ltd., part of the Central Mining Services Ltd. consortium. Regional geological mapping, intensive surface prospecting and sampling, diamond drilling (10,233 m or 95 holes), and localized X-ray drilling (544 m or 17 holes) was undertaken on the above 3 Central Mining properties. In 1946, an adit was driven into the Colomac dyke on behalf of the 3 companies holding the claims crossed by the dyke. About 762 metres of cross-cutting and drifting led to a 4545 tonne bulk sample. 1593 lbs of the sample assayed: 0.0825 oz/ton Au and 0.07 oz/ton Ag, with 94% Au recovery by cyanidation (85% by straight amalgamation). Reserves of 21,000 tons of material per vertical foot, grading 0.0676 oz/ton Au (Lord, 1951), or 19,090 tonnes at 2.9 g/ton Au (Padgham and Atkinson, 1991) were estimated from underground work. Work ceased on the properties in 1947.

In 1968, Discovery Mines Ltd. optioned the property (50%), and staked BOB 1-24, mostly on lapsed Goldcrest Mines and Nareco claims. Discovery Mines re-evaluated the Colomac and Goldcrest dykes with available information, geological reconnaissance, and attempted to extend the known length of the dykes by several trenches on the BOB and WHY claims. Dyke dimensions indicated a large low-grade tonnage, but the price of gold did not make mining feasible.

Hydra and Discovery became Johnsby Mines Ltd., and in 1974, Cominco Ltd. optioned the property. 20 holes were drilled (3,048 m) to a depth of 304 m over a strike of 600 metres, in/near Zone 2. A heap-leaching test achieved 30% gold recovery.

In 1980, Newmont Mines Ltd. achieved 93% gold recovery from colour and gravity sorting, and flotation tests. Over 1980-81, a mining feasibility study was conducted.

In 1986, Neptune Resources Corp. optioned the property (60%) and 5 zones that could be mined by open pit were identified. Over 1987-88, exploration included 19,686 m of drilling in 196 holes on Zones 2, 2.5, and 3, and open-pit mining of 36,000 tonnes from Zone 2. Vat leaching achieved 80% gold recovery in 35 days from 1400 tonnes of finely crushed material. Geological reserves for Colomac, defined by drilling to date (3 programs), were revised to 25 Mt at 1.9 g/t Au (1986-87). In 1987, airborne surveys, mapping, environment, permafrost and feasibility studies were completed. A production decision was made in late-1987 to mine Zone 2 by open pit and recover the gold by conventional milling and agitation leaching.

Neptune commenced site and mine construction (with a 9,000 tonne/day conventional mill) over 1988-9, with financing from Northgate Exploration Ltd. An estimate in 1988 gave a reserve of 28 Mt proven and probable at 0.056 oz/ton Au, mineable by open pit in 5 zones (Jakubek et al., 1989). Bulk sampling, test milling, and open pit preparation were done in 1989. In 1990, AGE 2 and FRE 2 underwent line-cutting, airborne geophysical surveys, rock and sediment sampling, and 4 holes were drilled on AGE 2 (Grizzly Bear Zone), about 3 km south and 2 km west of Zone 2. The capital cost of the Colomac project was about \$166 million. ABM Gold Corp. (of Northgate), amalgamated with Neptune to form NorthWest Gold Corp. (100%). The first gold was poured in May, 1990, but the mine shut down in June 1991 due to economics. A total of 4,510 kg of gold had been recovered from 2.4 Mt of ore.

In 1994, Royal Oak Mines Inc. acquired and reopened the Colomac Mine. Royal Oak drilled 2 holes in 1996 in the Colomac dyke and 57 holes in the Grizzly Bear Zone, and in 1997, 2 holes in/near the Colomac dyke, all testing magnetic anomalies and the depth of Zone 2. The mine closed in 1997.

The Colomac property is now under ownership of DIAND and the mine site is undergoing reclamation.

The Colomac 'dyke' is one of a few gold showings where quartz veins occur in competent, felsic porphyries on the Colomac property, including Goldcrest (NORMIN Showing 086BSW0039).

A multiphase, synvolcanic intrusive sill/dyke complex (about 2x10 km in area) is found west of Baton Lake. The complex intrudes a 4 km thick belt of greenschist-grade intercalated mafic-intermediate flows and intermediate-felsic volcanics, within 800 m of underlying turbidites. The host strata and sill/dyke complex are strongly deformed, and the mafic volcanics have a steeply-dipping foliation and a steeply-plunging lineation. The complex strikes NNE and dips steeply east, subparallel to the host strata. It consists of a series of multiphase, medium-grained diorite to quartz-diorite (small blue quartz phenocrysts; up to 15% magnetite) and gabbroic sills, with about 15% of the complex occupied by elongate, andesitic enclaves (10's x 100's of metres in size). The 'Colomac dyke,' the largest of several bodies believed be rotated sills, occurs near the top of the complex in contact with, or nearby, andesitic volcanics. A talc-carbonate schist found near the dyke (Zone 2) is presumably altered andesite.

The Colomac dyke (2671 +/- 10 Ma; EGS 1992-11) is composed mainly of a medium-grained quartz-albite porphyry (dioritic to trondhjemitic), with some chlorite, biotite, epidote, carbonate, amphibole, magnetite, up to 2% pyrite, and pyrrhotite. The dyke ranges from 9-60 m in width (averaging 30 m), strikes about 6 km, and does not have a strong tectonic fabric. The dyke is oriented 010/80 in the north, and 023/80 in the south. The dyke has been brittly deformed to produce fracture stockworks and auriferous quartz-veined zones that are highly altered and carbonatized. Overall, alteration zoning in the dyke consists of potassically altered cores, accompanied by weak silicification and massive clots of hematite-magnetite in quartz, enveloped by chloritization and epidotization.

Gold is found in several zones within the dyke, in association with parallel sets of glassy, tensional quartz veins that consist of lenses of smoky grey quartz within white quartz. The veins are up to 1.0 m wide but average from 1.25-5.0 cm thick, and they commonly contain up to 15% carbonate. They are generally co-planar, trend SSW and dip 20 degrees west, but also tend to undulate irregularly over short intervals. Shallow-dipping veins will become steep-dipping when they enter sheared zones. Vein margins tend to

be ribboned by crack-seal textures and may be sheared. Contacts between veins and the host porphyry are sharp but may also appear gradational due to silicified halos. The quartz veins generally terminate at the dyke margins but a few small, barren quartz-carbonate veins occur locally in the andesite. A late set of white, barren quartz veins is also present.

Gold occurs as fine grains along contact margins, in fractures, and in quartz vein selvages/halos, but not commonly in the quartz veins themselves. Since the vein selvages are auriferous, grade is controlled by the quantity of veins, not the absolute volume of quartz. Gold is spatially associated with pyrite (in quartz veins and vein selvages), chlorite, pyrrhotite, tourmaline, arsenopyrite, and magnetite. Sericitic alteration is found in the immediate vicinity of mineralization, accompanied by silicified and chloritized selvages containing the above minerals. Alteration halos also contain albite, quartz, sericite-muscovite, various carbonates, Ti-oxides, and epidote-group minerals, and are enriched with minor chalcopyrite, marcasite, galena, and sphalerite.

The highest grade area, Zone 2, consists of the thickest and coarsest-grained portion of the Colomac dyke. Veins form up to 10% of Zone 2, are subparallel to each other, and dip 30 degrees east, with steeper dips at the east margin (about 40 degrees but some are vertical). In Zones 2 and 3, veins are oriented 165/35, on average.

## **12.0 Mineral processing and metallurgical testing**

There has been no mineral processing or metallurgical testing completed upon the Carson property. This is an early stage exploration project.

## **13.0 Mineral resource and mineral reserve estimates**

There is no mineral resource or mineral reserve estimates on the Carson property.

## **14.0 Other relevant data and information**

Puritch and Ewert (2005) mention that there was an airborne survey completed on the Carson property before the property was taken to lease in 1993. Puritch and Ewert do not reference this statement. The author could find no record of such a survey covering the property.

There is no other relevant data or information for this report.

### **14.1 PROHIBITED DISCLOSURE**

All inferred resource quantity and grade estimates pertaining to the Carson property as presented in this Technical Report are conceptual only. Any mineral resource estimates presented in this Technical Report were presented prior to 2001 and are therefore considered historical estimates and do not conform to the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") standards of reporting pursuant to requirements under National Instrument 43-101. Historical estimates were not

prepared by independent Qualified Persons, nor has any of the information contained therein been audited by an independent Qualified Person. The authors wish to clarify that: (i) there are no mineral resources and no mineral reserves on the Carson property as such terms are defined under National Instrument 43-101.

All Mineral Resource and Mineral Reserve calculations regarding adjacent properties and showings as discussed in (Section 11) have not been verified by the qualified authors of this Technical Report. The estimates/calculations (historical or not) are not known to be prepared by independent Qualified Persons, nor are the authors aware if any of the information contained therein has been audited by an independent Qualified Person. It is possible that the Historical Estimates presented in Section 11 do not conform to the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) standards of reporting pursuant to requirements under National Instrument 43-101. The authors have not verified the character of mineralization on these properties; therefore, it cannot be confirmed that mineralization at the aforementioned deposits is indicative of mineralization described on the Carson property. The data has been primarily summarized from the Government of Northwest Territories mineral assessment database and references therein and unpublished historic exploration data.

#### 14.2 DISCLOSURE OF HISTORICAL ESTIMATES

There are no historical estimates pertaining to the Carson property.

All Mineral Resource and Mineral Reserve calculations regarding adjacent properties as discussed in (Section 11) have not been verified by the qualified authors of this Technical Report. The estimates/calculations (historical or not) are not known to be prepared by independent Qualified Persons, nor are the authors aware if any of the information contained therein has been audited by an independent Qualified Person. It is possible that the Historical Estimates presented in Section 11 do not conform to the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) standards of reporting pursuant to requirements under National Instrument 43-101. The authors have not verified the character of mineralization on these properties; therefore, it cannot be confirmed that mineralization at the aforementioned deposits is indicative of mineralization described on the Carson property. The data has been primarily summarized from the Government of Northwest Territories mineral assessment database and references therein and unpublished historic exploration data.

#### 15.0 Interpretations and conclusions

Exploration has been reported on the Carson property since in 1946. Exploration programs between 1947 and 1993 have included mapping, prospecting, trenching, diamond drilling, and ground and airborne geophysics. No work has been reported since 1993.

The Pond, Chuck vein, and Hilltop showings were identified during early exploration efforts in the Indin Lake area. Since the 1985 program by Wollex Exploration, there has been little work to advance the understanding of gold mineralization on the property. The Wollex and Noranda campaigns mapped bedrock exposures on the property in detail while re-sampling existing surface trenches. Drilling completed to date has been focused on the Pond showing. The bulk of the drill collars are tightly spaced

at the south end of the Pond showing, there are five collars at the northern extent of known mineralization. This drilling has confirmed the continuity of shear-hosted gold mineralization and related alteration at depth. Many of the holes intersected numerous gold-bearing silicified intervals. Gold grades range from 0.01 oz/t to 1.26 oz/t, however many of the intervals average between 0.01 and 0.02 oz/t.

A comprehensive interpretation of the diamond drill results is not feasible at this time as the location and orientation of many of the drill collars has not been confirmed. This data has been poorly represented in the historic assessment reports. As result an investigation of gold grade and continuity between drill holes cannot be completed. Even once the collar locations and orientations can be confirmed conducting such an investigation using the historic data alone would be dubious. Subsurface geochemical analysis is limited exclusively to assay values for gold and there is little structural or detailed description of alteration associated with the sampling intervals. Furthermore, the drilling sample record is exclusively x-ray core, and therefore represents a very small sample diameter that is substandard to modern accepted practice.

Mineralization on the Carson property is classified as orogenic lode gold-type. This genetic model is consistent with the regional geologic terrane, host lithologies, structural-controls and alteration assemblages observed on the property. Gold mineralization is hosted in, or spatially associated with, white to grey quartz veins and silica-carbonate-pyrite+pyrrhotite alteration in shear zones oriented parallel or subparallel to the regional tectonometamorphic fabric underlying property. Greenschist-facies metamorphism of volcanic and sedimentary rocks mapped on the property is also consistent with this model of mineralization.

The Pond zone appears to have the most exploration potential because it is the largest in size and the most consistently mineralized along strike and at depth. The showing consists of a shear zone approximately 150 meters wide near the volcano-sedimentary contact that transcends the property. More intensely sheared intervals are silicified and altered and host variable sulphide±gold mineralization. Drilling has shown that gold mineralization continues at depth and several instances of visible gold are reported in the drill core. The Chuck vein showing, which has not been tested by drilling, does warrant further investigation. Gold values as high as 4820 ppb are reported from trenching on the vein (Dickson, 1983). The Chuck vein is up to 0.5 meters wide and can be followed over 200 meters in a shear zone that is mapped to be up to ten meters wide. The Hilltop showing shows less prolific silicification and alteration than the Pond or Chuck vein occurrences.

The VLF-EM survey shows three conductors. The two conductors along the eastern limit of the survey are here interpreted to be related to the volcano-sedimentary contact. The third anomaly is approximately 200 meters in strike and spatially associated with the Chuck Vein. A more detailed survey that covers ground between the volcano-sedimentary contact and the Chuck Vein is recommended.

The total field magnetic survey completed in 1985 broadly defines two domains interpreted to be consistent with the mafic/felsic volcanic contact. There are a number of linear magnetic highs in the mafic volcanic rocks, some of which are spatially coincident with, but offset of the VLF conductor



interpreted to be the Chuck Vein. There has been no follow-up to explain the magnetic response. The absence of magnetic features coincident with the Pond showing may be a function of survey design and data processing. As a result, advanced data processing would make the magnetic data more useful.

Ground-based VLF-EM and magnetic surveys are valid surveys for delineating structures and possibly alteration associated with gold mineralization in this environment. A much higher level of detail than what was collected in 1985 is required to effectively utilize these surveys.

Further exploration is required to properly define the mineral showings along strike and at depth.

## **16.0 Recommendations**

The Carson property has been the focus of prospecting, mapping, trenching and diamond drilling; however, because of the vintage of the exploration effort, the author considers this property to be in an early stage of exploration. Recommended exploration on the property can be classified into three stages:

1. Surface exploration has identified three showings and a number of subordinate weakly anomalous gold occurrences on the property, only one showing has been drilled. Initial work should be focused around bringing historical data up to modern standards. This work would include identifying all historically described showings in the field and accurately registering these locations. Diamond drill collars should be located and hole orientation documented, if possible. All auriferous zones should be channel sampled to include host lithology, alteration, and mineralization. All historic data should be digitized and merged with modern data as permitted.  
Special attention should be given to mapping structure in the mineralized zones and interpreting this data in the context of property- and regional-scale observations. Understanding the showing- and property-scale structural controls on mineralization is critical to effectively planning any future drilling.
2. An updated ground magnetic and VLF survey should cover the entire property. These data sets should be interpreted in the context of structural controls on known gold showings and applied to other areas of the property.
3. Diamond drilling is recommended on the Pond, Chuck Vein, and any prospective geophysical anomalies identified from the work completed in stage two. While the historic drilling in the Pond zone should be used to direct follow-up collars, a number of the historic collars will need to be twinned to verify gold values reported by Snowden Yellowknife Mines in 1946.

Gold mineralization in orogenic settings is commonly considered 'coarse' and often shows a nugget effect. It is the author's opinion that the values recovered during the x-ray program are likely understated as a function of sample volume and analytical procedure (Puritch and Ewert, 2005; Vivian and White, 2010). Samples submitted for analysis should be analyzed by standard fire assay preparation

and analysis (30 gram sample) procedures. Samples that return gold values, or where visible gold is identified in the sample, should be assayed using a metallic preparation method that uses a larger sample size (500 grams). An example of a metallic preparation procedure from Acme Analytical Laboratories Ltd., an ISO 9002 certified laboratory, is presented below

A 500 gram reject split is pulverized with 95% passing -150 mesh therefore providing a coarse +150 mesh and fine -150 mesh fraction for fire assay with gravimetric finish. The coarse fraction is assayed in total. Results are reported from the coarse fraction, fine fraction, and a weighted average concentration for the entire sample.

#### 16.1 Proposed budget

The following program budget is proposed for further work at the Carson property.

**Table 16. Proposed Budget**

<b>Stage 1: Geology program</b>	
Sr. Geologist and Jr. Assistant; channel sampling gear, camp, safety gear, sampling gear: 14 days @ \$1500 per day	\$ 21,000.00
Historical Data compilation and integration: 30 hrs @\$80	\$ 2,400.00
<b>Stage 2 Geophysics program</b>	
Magnetic/VLF Survey: 6 days @ \$1500 per day [~50 line kilometers at 50m and 100m line spacing]	\$ 9,000.00
Camp - Stage 1 and 2: 20 days (includes food and fuel)	\$ 4,200.00
Mobe and Demobe and support - Stage 1 and 2 (Charter service)	\$ 9,760.00
<b>Stage 3 Drilling Program</b>	
All inclusive estimated cost for 1500 meter drill program	\$ 750,000.00
Includes: drilling, helicopter, camp, camp support and staff, geologic and technical staff	
Assaying: 300 samples @ \$35 per sample	\$ 10,500.00
Final report and compilation	\$ 10,000.00
Miscellaneous (~5%)	\$ 40,843.00
<b>TOTAL PROPOSED BUDGET</b>	<b>\$ 857,703.00</b>

Respectfully submitted,

January 18, 2011

AURORA GEOSCIENCES LTD.



David White, P.Geol

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## 20.0 TITLE AND SIGNATURE PAGE

This report titled "TECHNICAL REPORT CARSON PROPERTY, NORTHWEST TERRITORIES" dated January 18, 2011, was prepared and signed by:

A handwritten signature in blue ink, appearing to read 'D White', is written over a horizontal line.

David White, P.Geol.  
Aurora Geosciences Ltd

Dated at Yellowknife, Northwest Territories on January 18, 2011.

## 21.0 CONSENT

To : The Toronto Stock Exchange  
P.O. Box 450  
3<sup>rd</sup> Floor, 130 King Street West  
Toronto, ON M5X 1J2

The author consent to the public filing of the Technical Report and to extracts from, or a summary of, the Technical Report in the written disclosure being filed. The author confirms they have read the written disclosure being filed and that it fairly and accurately represents the information in the Technical Report that supports the disclosure.

This consent is dated at Yellowknife, Northwest Territories on January 18, 2011.



David White, P.Geol.  
Aurora Geosciences Ltd

## **Appendix I**

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*Assay and Lithochemical Certificates  
Noranda (1985)  
Aurora Geosciences Ltd. (2010)*