9617337 CANADA LIMITED
(To Be Renamed Fortune Bay Corp.)
GOLDFIELDS PROJECT
NATIONAL INSTRUMENT 43-101
PROPERTY TECHNICAL REPORT

Goldfields Property
Saskatchewan
Canada

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Date and Signature Page

The effective date of this technical report is March 19th, 2016.

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Table of Contents

List of Figures

List of Tables

1.0 Summary

1.1 Introduction

Mercator Geological Services Limited (Mercator) was retained by 9617337 Canada Limited in January, 2016 to prepare an independent National Instrument 43-101 (NI 43-101) property technical report for the company's Goldfields Project, located on the north shore of Lake Athabasca, in the province of Saskatchewan, Canada. The Goldfields property contains a total of 36 land dispositions that are currently held by 7153945 Canada Limited, a wholly owned subsidiary of Fortune Bay Corp. (Fortune) which is a publicly traded Canadian company with head offices in Halifax, Nova Scotia, Canada. The primary metal of exploration interest is gold but significant occurrences of uranium are also present on the property. The surface area covered by the company's mineral exploration dispositions totals 22,126 hectares (ha).

The Goldfields Project is being acquired by 9617337 Canada Limited through a plan of arrangement involving Fortune, Kneat Solutions Limited and 9617337 Canada Limited. 7153945 Canada Limited and various other subsidiaries of Fortune will be spun out to 9617337 Canada Limited. An application will be submitted to list the shares of 9617337 Canada Limited on the TSX Venture Exchange (TSXV) with the Goldfields Project being the Qualifying Property to meet the listing requirements. This technical report was prepared for 9617337 Canada Limited, to be renamed Fortune Bay Corp. (Fortune Bay), to support the transaction and listing on the TSXV.

Under terms of engagement with 9617337 Canada Limited, Mercator was assigned the responsibility of carrying out a site visit, completing initial field evaluation of selected exploration target areas, and preparation of a property technical report in accordance with NI 43-101. Terms of engagement were established through discussions held between representatives of Mercator and 9617337 Canada Limited during November of 2015.

This report documents the exploration history of the property, which extends from the 1880's through to the latest drill program completed in 2011, and also presents new 2015 site visit and evaluation components that include: 1) a structural/geophysical lineament study designed to identify new exploration targets; 2) a prospecting campaign that includes a scintillometer survey, exploration target evaluations, bedrock sampling and analysis and geological observations; 3) a rock geochemical study; and 4) a follow-up petrographic study designed to better characterize the host rock(s) and alteration assemblage(s) of the known mineral deposits. The site visit served to fulfil requirements set out under NI 43-101 and also provided an opportunity to develop and ground-truth a property-scale geological framework that can be used to categorize and contextualize the many mineral occurrences and/or deposits on the Goldfields property. This report also includes results of metallurgical testing carried out by SGS Mineral Services of Lakefield, ON on core samples from the past producing Box Mine and Athona gold deposits.

This metallurgical work was overseen and managed by Mr. Andrew Doolittle, P. Eng.,of Saskatoon-based March Consulting Associates Ltd. (March).

The Qualified Person (QP) responsible for sections 4, 5, 6, 9, 10, 16 and 17, plus portions of sections 1, 18 and 19 of this technical report, is Mr. Stewart Yule, P. Geo., of Mercator. The QP responsible for sections 2, 3, 7, 8, 11, 12, 14, and 15, plus portions of sections 1, 18 and 19 of this report, is Dr. Tony Barresi, P. Geo., of Mercator. Mr. Andrew Doolittle, P. Eng., of March is responsible for section 13 and portions of sections 1 and 18 of this report that are related to metallurgical testwork. Mr. Yule and Dr. Barresi completed the Mercator site visit between September 23 and October 1, 2015. Mr. Doolittle has not visited the property.

1.2 Property Description and Location

The property is located 13 km south-southeast of the town of Uranium City, Saskatchewan and centered at approximately 59° 27' North Latitude and, 108° 31' West Longitude. The property is approximately 850 km north of Saskatoon and 60 km south of the border with the Northwest Territories.

At the effective date of this report, the property being acquired by 9617337 Canada Limited consisted of 36 mineral dispositions in which 7153945 Canada Limited holds a 100% interest. These contiguous dispositions cover a total surface area of 22,126 hectares (ha) and measure approximately 25 km by 19 km in maximum east-west and north-south dimensions, respectively.

1.3 Accessibility, Physiography, Climate and Infrastructure

The property is situated in northern Saskatchewan, approximately 13 km south-southeast of the town of Uranium City. Flights from Saskatoon to Uranium City are available three days per week during summer months and two days per week during winter months. The property can be accessed by four-wheel drive vehicle from Uranium City via a 25 km long drive south on Highway 962. A secondary road network on the property was developed during historic mining activities, as was the former town of Goldfields, a gold mining settlement established in the 1930's. The secondary road network provides limited walking access to the main showings on the Goldfields property.

The topographic relief consists of moderately high hills and steep ridges, the highest being Beaverlodge Mountain at 419.8 m above sea level (asl), which projects dramatically from surrounding lakes and bays of Lake Athabasca, which has a surface elevation of 213 m asl. Elongated ridges and valleys trend NE-SW and reflect the orientation of regional folding of Precambrian-shield rocks that underlie much of the property. Glacial till thicknesses range from only a few centimetres on ridges to over 6 m thick in low lying areas. Trees are generally small with abundant black spruce and jack pine and sporadic, clustered stands of birch and poplar.

The property is located in the Taiga Shield Ecozone and experiences a subarctic climate with average daily temperatures between 11°C and 16°C in mid-summer and -8°C to -32°C in mid-winter. The average annual precipitation as rainfall reported from Environment Canada is 223.7 mm with the largest amounts recorded from May to October.

Uranium City was once a major regional centre established to service the uranium mines that developed during the mining boom of the 1940's and 1950's. However, the closure of the mines in the 1980's lead to economic collapse and the community currently maintains a population of less than 100 permanent residents. There are few local resources available in Uranium City, although gasoline, diesel and aviation fuel are available from a bulk fuel provider and accommodations can be found at a multi-unit bed and breakfast facility. Stony Rapids, located 150 km east of Uranium City, is the logistics hub for northern Saskatchewan and provides access to government administrative offices, banks, hospital facilities, hotels and food stores.

1.4 History

The Goldfields property has a long and extensive exploration history, with the earliest reported work occurring in 1882 - 1883, when J.B. Tyrrell recorded the presence of noritic rock on the northeast end of Lake Athabasca, while conducting a topographic survey for the Geological Survey of Canada. However, records show that significant mineral exploration and related discoveries began much later, in 1934. As mentioned above, the Goldfields and Beaverlodge Lake areas were explored and ultimately mined for gold and uranium mineralization. Because gold is the primary metal of interest in this report, the summary of historic exploration presented below in Table 1.1 is focused primarily on gold exploration history.

Table 1.1: Summary of Exploration History

Work Period	Showing Name	*Company	Summary of Work Completed
1934	Box Mine	Tom Box	Tom Box and Gus Nyman discover gold on the east shore of Vic Lake, adjacent to what is now the Box Mine
1935-1939	Box Mine	Cominco	Extensive trenching, drilling (there are conflicting reports as to number of holes and meterage) and underground development work
1939-1942	Box Mine	Cominco	Approximately 1,417,520 tons (1,285,952 tonnes) of ore from underground mining by Consolidated Mining and Smelting Limited (Cominco) was milled from which 64,065.95 ounces (1,992,643.14 g) of gold bullion was produced and 4,637.33 ounces (144,234.87 g) of gold was attributed to tailings. These provide a calculated milled gold grade of 1.66 g/t Au as reported in CM&S (1942) included in Dayha (1989).

Work Period	Showing Name	*Company	Summary of Work Completed
1935-1939	Athona	Athona Mines	Trenching, drilling and underground development was carried out but commercial production was not reached. The following summary of historic reserve reporting applies to this deposit: Probable category: 1,075,014 tonnes at 2.95 g/t Au in the Main Zone and 27,215 tonnes at 8.91 g/t Au in the East Zone (Coombe, 1984; March, 2011); These figures are historical in nature and were not prepared in accordance with NI43-101. A Qualified Person has not done sufficient work to classify these as current resources or reserves and 9617337 Canada Limited is not considering them to be current resources or reserves.
1935-1937	Frontier Lake	Cominco	21 diamond drill holes (ddh), extensive trenching, and drove an adit with 186 m of drifting and 104 m of cross-cutting.
1980-1982	Frontier Lake	SMDC	Prospecting, mapping and sampling of gold showings.
1981-1982	Fish Hook Bay	Eldor	Extensive mapping and trenching, then 15 ddh (625 m) FH-82-7 returned 154.95 g/t Au from a 0.5 m sample.
1983	Frontier Lake	SMDC	12 underground ddh (744 m), surface trenching and sampling (2.5 and 4.9 g/t Au – widths not stated in reference consulted)
1984	Frontier Lake	SMDC	4 ddh (354 m), 3.7 g/t, 1.5 g/t and 1.4 g/t Au over 1 m of sampled core.
1986-1987	Fish Hook Bay	Eldor	19 ddh (FH-86-19 to FH-86-34), assayed for Au, Pt and Pd; no records found; 23 ddh (2,374 m) FH-87-35 to FH-87-56, with only slightly anomalous results.
1987	Quartzite Ridge	SMDC	8 ddh (460 m) QR87-1 to QR87-8; hole QR87-4 returned 2.16 g/t Au over 0.5 m.
1987	Nicholson Bay	Eldor	6 ddh (335 m) MCD-1 to MCD-6; best result was a composite in MCD-5 of 18.2 g/t Au, 2.05 g/t Pt and 8.67 g/t Pd over 6m.
1987-1988	Nicholson Bay	SMDC	26 ddh (1,558 m) MCD87-1 to MCD88-26; MCD88-11 returned the best result with 114.15 g/t Au, 300 ppb Pt and 1000 ppb Pd over 0.4 m.
1987-1988	Golden Pond	Kasner	6 ddh (577 m), GP-88-1 to GP-88-6; GP-88-2 returned assays from 4.34 to 148.78 g/t Au over 1 m intervals.
1988	Quartzite Ridge	GLR	2 ddh, wildcat holes; results below detection limits
1988	Frontier Lake	Cameco	9 ddh (1,159 m); best result was from F-88-9 with 1.2 g/t and 14.6 g/t Au over 1 m samples.

Work Period	Showing Name	*Company	Summary of Work Completed
1988	Box Mine	Kasner	3 ddh (1,132 m); hole LB-88-3, testing Box Mine extension, cut 4.66 g/t Au over 3 m of sampling.
1988	Box/Athona	Kasner	52 ddh (6,384 m); BX88-1 to BX88-51 drilled at the Box Mine. 52 ddh (5,323 m), A88-1 to A88-52 drilled at Athona showing; whole core sampling was completed, drilling report and results currently not available.
1989	Box/Athona	RJK	47 RC holes (3,169 m); BR-89-52A to BR-89-98 at the Box Mine and 11 RC holes (1,175 m) AR-89-53 to AR-89-63 at Athona; drilled to verify previous work and samples were used for bulk sampling and metallurgical testing.
1994-1995	Box/Athona	GLR	282 ddh (35,944 m); B94-99 to B95-250 and A94-64 to A95-193; designed for infill purposes, orebody modelling and to provide metallurgical material.
1995	Box Mine	GLR	Feasibility and pit design study was completed; a non NI43-101 compliant combined total resource of 16,600,000 tonnes at 1.73 g/t Au and 921,440 ounces of gold was reported. These figures are historic in nature and were not prepared in accordance with NI43-101. A Qualified Person has not done sufficient work to classify these as current resources or reserves and 9617337 Canada Limited is not considering them to be current resources or reserves.
1995	Frontier Lake	GLR	Reconnaissance prospecting and rock sampling; grab samples from the adit area returned up to 53.25 g/t Au.
1995	Golden Pond	GLR	2 ddh (221 m); GP-95-7 intersected an average of 5.1 g/t Au over 15 m and GP-95-8 returned anomalous values of 0.5 g/t Au over 16.24 m.
1997	Box/Athona	GLR	Ore reserve audit was published for the combined Box and Athona deposits; a non NI43-101 resource of 9,830,000 tonnes at 2.18 g/t Au and 689,681 ounces of gold was reported.
1997	Goldfields area	GLR	Dighem was retained to fly a 2,391 km airborne geophysical survey on the claim holdings; numerous electromagnetic, resistivity, magnetic and radiometric anomalies were outlined.
2004-2005	Box Mine	GLR	37 ddh (4,037 m); B04-251 to B05-285 drilled for confirmation of previous drill programs and 5 holes for piezometer installation.
2005	Fish Hook Bay	GLR	8 ddh (1,664 m); FH05-01 to FH05-08; narrow U-rich veins and a slight Au anomaly were returned.

Work Period	Showing Name	*Company	Summary of Work Completed
2005-2006	Box Mine	GLR	A now historic NI43-101 measured resource of 1,915,000 tonnes at 1.61 g/t Au and 99,000 ounces of gold was reported for the Box Mine deposit.
2006	Athona	GLR	16 ddh (1,592 m); A06-194 to A06-211 were drilled to confirm previous results at Athona. The highest gold assay composites were intersected in holes A06-207, with 4.23 g/t Au over 25 m, and A06-211 with 5.33 g/t Au over 9.8 m.
2006	Golden Pond	GLR	4 ddh (306 m); GP06-01 to GP06-04; no results found.
2006	Triangle	GLR	2 ddh (204 m); TR06-01 and TR06-02; slight anomalies in Au , Ag, Co and Mn.
2007	Quartzite Ridge	GLR	16 ddh (2,829 m); QR07-01 to QR07-16; testing U potential; one sample returned 109 ppb Au, but most were below detection limits.
2007	Quartzite Ridge/ Hanson Bay	GLR	3 ddh (963 m); HB07-01 to HB07-03; only slight Au anomalies.
2007	Box Mine	GLR	13 ddh (3,348 m); B07-286 to B07-298 for exploration purposes; best results from hole B07-294 with 5 samples over 5 g/t Au and up to 69.67 g/t Au.
2008	Frontier Lake	GLR	3 ddh (675 m); FR08-01 to FR08-03; 2.24 g/t Au over 1 m sample length.
2008	Box Mine	GLR	3 ddh; B08-300 to B08-302; drilled for condemnation purposes and testing geochemical anomalies.
2008	Golden Pond	GLR	9 ddh (1,648 m); GP08-01 to GP08-09; best result was from GP08-09, with 4.22 g/t Au over 1 m sample length.
2010	Box/Athona and Frontier Lake	Linear	16 ddh (4,198 m); drilled to test anomalous areas outlined by a DC/IP geophysical survey; no economic mineralization was encountered from the geophysical targets.
2011	Box/Athona	Brigus	17 ddh (3,093 m); infill drilling to upgrade some of the resource from inferred to indicated; B11-323 returned the highest assay result, with 10.31 g/t Au over 1 m sample length.
2011	Box Mine	Brigus	4 ddh (819 m); geotechnical drilling for pit design purposes.
2011	Box Mine	Brigus	The most current NI43-101 resource estimate includes measured resources of 858,000 tonnes at 2.05 g/t Au, indicated resources of 12,966,000 tonnes at 1.63 g/t Au and inferred resources of 3,158,000 tonnes at 1.74 g/t Au and is reported in March (2011). The report further outlined combined proven and probable reserves for the Box mine and Athona deposit as totaling 22,333,045 tonnes at an average grade of 1.42 g/t Au (1,020,000

Work Period	Showing Name	*Company	Summary of Work Completed
			ounces of contained gold). Wardrop (a Tetra Tech Inc. company) prepared the mineral resource estimates used to define reserves in the March (2011) pre-feasibility study report that was prepared for Brigus. This report was subsequently re-issued to Fortune as March (2014) in accordance with NI43-101 in 2014 and retained its October, 6, 2011 effective date. Results of the pre-feasibility study were positive and defined a net present value of $144 million at a 5% discount rate and a gold price per troy ounce of $1,250. The internal rate of return was 19.6%. The prefeasibility study has not been updated by 9617337 Canada Limited and these results are therefore considered historical by 9617337 Canada Limited with respect to NI43-101 and the company is not relying upon them or considering them to be current.

Note: ddh - diamond drill hole, RC - reverse circulation drill hole
*see report section 3.2 for company abbreviations

1.5 Geological Setting and Mineralization

The Goldfields property lies within the Churchill Structural Province of the Canadian Shield and in a sequence of Archean paragneiss, meta-sedimentary, and meta-volcanic rocks and associated mafic to felsic intrusions that comprise the Rae province/craton. The Rae craton occupies the northern shore of Lake Athabasca where it is divided into seven Precambrian domains. The property sits within the Beaverlodge Domain. Within the Beaverlodge Domain the Rae province contains basement granite (ca. 3.0 Ga) that is unconformably overlain by the Murmac Bay Group. The Murmac Bay Group (ca. 2.33 – 2.17 Ga) comprises sequences of metamorphosed sedimentary rock, as well as metabasite/amphibolite with extrusive and intrusive basaltic/gabbroic to komatiitic protoliths. In the approximate middle of the Goldfields property, the Murmac Bay Group is unconformably overlain by the Martin Group (ca. 1.8 – 1.75 Ga) which is composed of redbed sedimentary rock and interbedded basalt flows. In contrast to the Murmac Bay Group, the Martin Group is not strongly metamorphosed or deformed although it forms broad open folds about the same NE-SW trending axis as the Murmac Bay Group.

The Murmac Bay Group is intruded by a series of granites ranging from 2321 ±15 Ma to 2999±7 and a number of smaller granite bodies, such as the Box Mine granite, that are either undated or have poorly constrained ages. Gold showings and deposits are hosted exclusively in the Murmac Bay Group, however uranium or uranium-rich polymetallic showings are present in both groups and are especially prevalent near the unconformity that separates the two groups.

The main mineral deposits of interest on the property with respect to gold are the Box mine and Athona gold deposits. These are comprised of mineralized stockwork quartz-carbonate veining systems that are hosted within or peripheral to the locally enigmatic Box Mine Granite and Athona Granite, respectively. Gold occurs in the vein arrays as a locally coarse grained (nuggety), free phase and also in association with dispersed sulphide in both the veins and adjacent wall rocks. Both deposits occur within altered and deformed granite and strongly metasomatized or granitized metasedimentary host rock lithologies. Intensity of the associated potassic alteration and veining systems diminishes away from related intrusive contacts. The Box mine deposit measures approximately 750 m in strike length and between 40 to 60 m in true thickness of the mineralized envelope that the gold bearing vein systems define. The Box mineralized zone trends northerly and dips east at moderate angle (50°). The Athona gold deposit is comprised of at least four mineralized zones, these being the West Mine Granite, the Athona Granite, the Pond Zone and the East Zone. These zones are similar in character to those at the Box mine and occur over a strike length of approximately 1000 m. The main mineralized zones at Athona average approximately 40 m in thickness and dip west at moderate angles (30° to 45°). Recent assessments of the two deposits reported by March (2011, 2014) define deposit gold grades for mineral resources at a 0.5 g/t cutoff value to be 2.04 g/t, 1.63 g/t and 1.74 g/t, respectively, for measured, indicated and inferred resource categories for the Box mine. Corresponding tonnages are 0.858 million, 12.966 million and 3.158 million for these categories. Gold grades of 1.28 g/t and 1.10 g/t, respectively, were estimated for indicated and inferred resource categories for the Athona deposit, with corresponding tonnages being 7.036 million and 1.406 million. These resource estimates are historical in nature with respect to NI43-101 and a Qualified Person has not done sufficient work to classify these as current resources. 9617337 Canada Limited is not considering them to be current resources.

1.6 Deposit Types

1.6.1 Beaverlodge Lake Type

A number of known deposits and showings on the Goldfields property are classified as a specific type of unconformity uranium or uranium-rich polymetallic deposit locally termed Beaverlodge Lake Type after Beaverlodge Lake, which is in part surrounded by the Goldfields property. The summary definition provided as part of the Saskatchewan Geological Survey's mineral deposit models states that the deposits are "epigenetic, structurally controlled uranium ± polymetallic mineralization spatially associated with the unconformity between Archean to Paleoproterozoic basement rocks and the younger Paleoproterozoic intracratonic basin sedimentary rocks of the Martin Group."

1.6.2 Box and Athona Deposits

The Box and Athona deposits have generally been considered orogenic gold deposits. However, as a result of the work documented in this report and a review of historical work, it is recognized that the Box and Athona deposits resemble an oxidized intrusion-related (porphyry) gold setting that was modified by structural overprint. The Box and Athona deposits differ from orogenic gold deposits in a number of ways. Most notably, mineralized stockwork quartz veining is not limited to, or even concentrated at, the contact between the host granite bodies and lower competency host-rocks. In fact, both deposits are contained almost entirely within granite stocks and mineralization, alteration and veining diminishes rapidly outward from the intrusive contact. Because mineralization at the Box and Athona deposits is contained almost exclusively within, and is related to alteration genetically linked to, the Box and Athona granites, and because it is not uniquely and dominantly related to significant structures, we propose that it may be a an example of an oxidized intrusion related deposit model (porphyry deposit).

1.7 Exploration

The 2015 exploration program carried out in conjunction with the site visit for this report was divided into six parts: 1) a structural/geophysical lineament study to delineate structural controls on mineralization and to identify new exploration targets; 2) a rock geochemical sampling program; 3) a scintillometer survey; 4) geological observations; 5) target evaluations; and 6) a petrographic study designed to characterize barren versus mineralized granites and determine alteration mineralogy and paragenesis near known mineral deposits.

Results of these programs broadly confirmed the nature and styles of gold and uranium mineralization described by previous workers and also demonstrated that exploration targeting parameters developed as part of the 2015 program can be used to identify new areas of potentially interesting gold or uranium mineralization in bedrock. An example of the latter is found in the Triangle showing area where a grab sample collected by Mercator staff at some distance from the historic mineral occurrence location, but within the 2015 target area, returned a gold grade of 177.5 g/t Au.

1.8 Sample Preparation, Analyses and Security

A total of 13 grab samples were taken over the eight day 2015 field program and site visit. With the exception of two samples collected from adit dumps, all samples were collected from bedrock using a rock hammer and sealed in a plastic sample bag. The samples were bundled in rice sacks and transported via airplane back to the Mercator office in Nova Scotia as personal luggage. At Mercator, a coarse blank sample and a certified reference material sample were blindly inserted into the sample sequence to monitor quality control. The samples were then shipped to an ALS Global (ALS) preparation laboratory in Sudbury, ON. The prepared samples were analysed at an ALS analytical laboratory in Vancouver, BC where gold, platinum and palladium concentrations were determined by inductively coupled plasma – atomic emission spectrometry (ICP-AES) after fire assay pre-concentration. Samples with greater than 10 ppm Au were retested using atomic absorption spectroscopy against matrix-matched standards. Gold concentrations that were over limit by this method (>100 ppm) were retested again by the gravimetric method. An additional suite of thirty-three elements (including Ag, Cu, Pb, Zn, U, and Ni) were determined by ICP-AES and a four-acid digestion technique. Over limit Ag (>100 ppm) and Zn (>10,000 ppm) samples were retested using atomic absorption spectrometry.

Mercator is of the opinion that the sample preparation, analysis and security methods used by Mercator staff and staff of ALS Global is consistent with industry standards and suitable for the purpose of enhancing current understanding of mineralization styles and exploration potential on the Goldfields property.

1.9 Data Verification

A site visit to the property was conducted by Mercator staff between September 23 and October 1, 2015 to develop and ground-truth a property-scale geological framework that can be used to categorize and verify the various mineral occurrences and deposits on the Goldfields property. Eight field traverses were conducted to facilitate geological observations at the past producing mines, as well as at Saskatchewan mineral file inventory occurrences, and to confirm lithology, mineralization, alteration and structure described in historic assessment and technical reports. During the site visit a geochemical rock sampling program was completed on outcrops of known mineral occurrences to confirm presence of mineralization. A scintillometer survey was completed to confirm gamma radiation levels and location of known uranium occurrences. When drill collars, monuments, trenches and mine workings were observed, verification of UTM co-ordinates were cross checked with hand-held GPS equipment.

Based on results of the programs summarized above, Mercator has determined that, to the extent reviewed during the site visit, ample evidence exists of the previous exploration programs carried out on the Goldfields property and of the main styles of bedrock mineralization previously described.

1.10 Mineral Resource Estimates

9617337 Canada Limited has not carried out any mineral resource estimation programs on the properties that are the subject of this technical report. However, historical mineral resource estimates prepared in accordance with NI43-101 were reported for Brigus in March (2011) and re-issued in March (2014) for Fortune Bay Corp. These cover the Box and Athona deposits and are described in section 1.4 above.

1.11 Mineral Reserve Estimates

9617337 Canada Limited has not carried out any mineral reserve estimation programs on the properties that are the subject of this technical report. However, historical mineral reserve estimates prepared in accordance with NI43-101 were reported for Brigus in March (2011) and re-issued in March (2014) for Fortune Bay Corp. These cover the Box and Athona deposits and are described in section 1.4 above.

1.12 Mineral Processing and Metallurgical Testing

In 2015 a metallurgical test work program on Box mine and Athona mineralized material was developed based on recommendations presented in the March (2011) NI 43-101 pre-feasibility study technical report that was re-issued to Fortune in 2014. The original effective date of October 6, 2011 was retained at the time of re-issue and this report is referenced herein as March (2014). No changes in technical or economic parameters presented in March (2011) were incorporated in March (2014). A metallurgical work program arising from the March (2011) report's recommendations was begun in 2015 on behalf of 7153945 Canada Limited under supervision of March and reporting was finalized in 2016. A summary of the work program follows.

The recommended metallurgical test work program was discussed with SGS Minerals Services Lakefield (SGS) and a scope of work was developed based on the available test material. Tests were conducted by SGS with reliance on their standards and procedures. Samples tested were historical drill core (slabbed half-core) and originated from a 2011 drilling program. Representative composites of the received core material originating from each of the Box and Athona deposits were separately assessed. The materials tested do not relate specifically to a geo-statistical model or mine plan.

An initial pair of flotation tests was conducted for the dual purpose of assessing sample condition and reagent dosage for the two deposits. These preliminary flotation tests resulted in rougher gold recoveries of 94.7% and 92.9%, respectively, for the two deposits and with tailings that contained 0.03 and 0.04 g/tonne Au. Sulfide recovery to tailings was below detection limit. This level of flotation recovery was not unusual based on review of historical testing, and did not show evidence of depressed recovery. The samples were therefore considered to be valid for testing and test work was recommended to proceed as planned.

The metallurgical testing by SGS was conducted in two phases following sample preparation. In the sample preparation phase, bulk composites were produced for both the Box and Athona deposits. These composites were then split for head characterization, SAG mill comminution (SMC) testing, Ball and Rod Mill Work Indices, Abrasivity, and two phases of metallurgical testing.

- Phase 1 of the metallurgical testing compared processes at three different grind sizes (flotation vs cyanidation) both with and without upstream gravity recovery. The intent of the preliminary work was to do side-by-side comparison between processing methods at grinds and conditions meaningful with respect to the flowsheet as recommended in the historical March (2014) Pre-feasibility Study technical report.

- Phase 2 investigated the selected process and grind, and looked in further detail at downstream processes for gold leaching and recovery, and solid liquid separation. Use of the current test results should aid in interpretation of historical test work and reduce uncertainty in setting future design criteria.

Representative sub-samples of the Box and Athona composites were submitted for chemical analysis. Gold assaying of samples by SGS was carried out using their screen metallics method. Representative samples of each composite were also submitted for ICP-OES scan, Whole Rock analysis (WRA), and sulfur/sulfide test protocols. Gold grades of 1.55 g/t Au and 1.39 g/t Au apply to the Box and Athona composites, respectively.

Historical reports reviewed indicate that both the Box and Athona mineral deposits contain uncomplicated gold mineralogy as granites with pyrite as the major sulfide mineral present. The reports indicate that historical experience is that the gold assays are subject to the so-called nugget effect. This material is consistent in these regards, thus there is a tendency for variance between assays, explaining differences between expected values and head assays of composite sub-samples.

1.12.1 Phase 1 Metallurgical Testing

The Phase 1 testing included SMC, Standard Bond Rod Mill Grindability, Standard Bond Ball Mill Grindability and Standard Bond Abrasion tests for each of the Box and Athona composites. Combined results show that the composite samples are amenable to SAG milling.

Phase 1 Gravity recovery was done on samples of the ground material in each size, and for each composite. The samples were passed through a Knelson MD-3 gravity concentrator, and the Knelson concentrate was then passed over a Mozley laboratory separator. Gravity recovery in Phase 1 ranged from 15.0% to 46.9% for the Box composite, and from 40.9% to 60.2% for the Athona composite. Results support the use of gravity recovery in the flowsheet.

Phase 1 kinetic cyanide leach tests were completed on samples of both gravity tails and virgin material for each composite and grind size. The tests were done using SGS' standard bottle rolling procedure at 40% w/w solids. The tests showed final leach recoveries ranging from 94% to 98% for the Box composite, and 92% to 98% for the Athona composite and are quite comparable to those obtained in parallel flotation testing.

Phase 1 flotation tests were completed on samples of both gravity tails and virgin material for each composite and grind size. Rougher recovery of gold in virgin material was 96.6% to 98% within mass pulls of 2.36% to 3.63% for the Box composite; likewise, 90.1% to 95.8% recovery in 2.55% to 2.72% mass for the Athona composite.

Optimization test results for the Box composite show that greater than 97% of the gold in the gravity tailing was recovered into a rougher concentrate of less than 3% of the weight. Optimization test results for Athona show that greater than 95% of the gold in the gravity tailing was recovered into a rougher concentrate of less than 3% of the weight.

The SGS test report shows that Box and Athona composite samples are amenable to SAG milling and also recommends that gravity recovery be included in the flowsheet for Phase 2 testing and ultimately in the operational flowsheet. Both composites were shown to be amenable to gravity separation flotation and cyanidation. A simplified flotation flowsheet was recommended for Phase 2 because of the high recovery into small mass achieved in rougher flotation. This removed the cleaner and secondary cleaner flotation steps.

1.12.2 Phase 2 Metallurgical Testing

The second phase of metallurgical testing involved grinding to a target size of 150 microns followed by gravity recovery and open circuit rougher flotation of gravity tails on larger bulk samples of the Box and Athona composites. By processing larger samples, sufficient flotation concentrate and tailings were generated to investigate the downstream processes of concentrate leaching, gold recovery and solid liquid separation from cyanide solutions.

The results of the Phase 2 Box mine bulk flotation tests gave recovery performance similar to tests in the earlier Phase 1 and flotation optimization programs. The test report shows that it is possible to achieve a 92.5% gold recovery to a rougher flotation concentrate of less than 3% mass. Overall, including the gravity concentrate, this equates to 97% total gold recovery. The recovery of sulfide minerals was also similar and the tailings grades were consistently low.

The result of the Phase 2 Athona deposit bulk flotation test varied from the Phase 1 tests. In bulk flotation, 75% of the gold was recovered to a rougher flotation concentrate of 2.3% mass. Overall, including the gravity concentrate, this equates to 81% total gold recovery. The tailings from BF-2 were submitted for size-by-size analysis of gold content and the coarsest fraction (+150 micron) contained 40% of the gold in the tailings. This suggests that the gold might be liberated at finer grind size.

Phase 2 cyanide leach testing of flotation concentrate showed that both Box and Athona composite flotation concentrates are amenable to cyanide leaching. Testing indicates extraction of 98% of the gold in 48 hours. Sodium cyanide consumptions were typical for leaching concentrate; 2.4 kg/tonne to 5.4 kg/tonne.

Gold recovery from the leached concentrate was investigated by two methods, carbon adsorption and Merrill-Crowe (zinc cementation). Within the limitations of the material and tests conducted, it would seem that carbon adsorption is the preferred route from a metallurgical standpoint, although the material is amenable to both. Merrill-Crowe is metallurgically appropriate when extraction is complicated by the presence of significant silver. In this case, silver content is not high and carbon adsorption showed greater recovery of gold. This makes choice of technology the potential object for an economic trade-off study. The single Merrill-Crowe test recovered 97% of the gold with barren solution assay of 0.15 mg/L Au. The carbon modeling indicated that a gold adsorption efficiency of 99.9% is achievable and the gold in the barren solution would be 0.013 mg/L assuming conditions as tested. Modelling with the sample material provided showed that for this sample, a 7 stage CIP circuit (at a carbon concentration of 50 g/L) would be the optimum design for the gold recovery portion of the milling circuit.

Solid-liquid separation test work was also investigated in Phase 2 to provide information for estimating sizing and evaluation of process flowsheet equipment. Interpretation of these results must take into account the limitation that they are representative of the material tested, and appropriate caution and judgement must be used to ensure suitability to any use.

1.13 Interpretation and Conclusions

1.13.1 Gold Exploration Potential

Gold exploration potential on the Goldfields property has been most thoroughly investigated to date in the immediate vicinities of the past-producing Box and Athona gold deposits. These were the focus of historic underground development and, in the case of Box, commercial mining, and have subsequently been extensively explored through diamond drilling programs. March (2011, 2014) reported most recently in accordance with NI 43-101 on associated resources and reserves for these two deposits in support of a pre-feasibility study. Total mineral reserves reported were 22,333,045 tonnes in combined proven and probable categories at an average gold grade of 1.42 g/t Au. Financial analysis at that time identified acceptable open pit project economics based on a net present value of $144 million at a 5% discount rate and a gold price per troy ounce of US $1250. Associated mineral resources for the deposit were estimated at a gold cutoff value of 0.5 g/t Au. Mercator notes that these reserves are now historical in nature with respect to 9617337 Canada Limited, a Qualified Person has not carried out sufficient assessment to classify them as current reserves and that 9617337 Canada Limited is not considering them to be current reserves. Notwithstanding their historical status, the recent reserve estimate and associated positive pre-feasibility study for open pit mining are relevant with regard to assessment of current and future economic potential of the two gold deposits studied, and also for assessment of the broader exploration potential of the Goldfields property.

Based on its review of the available historic and current property information, including the recent pre-feasibility study work by March, Mercator considers the Box and Athona deposits to currently have good exploration and development potential and to warrant completion of additional evaluation through deposit extension drilling programs followed by a decision to either update and re-cast the March (2014) pre-feasibility study for open pit mining to current status for 9617337 Canada Limited, or to proceed with economic assessment of a distinctly different project scope that could, for example, incorporate a substantial underground mining component as well as an open pit component.

In addition to the Box and Athona deposit areas, historic exploration results highlight the Frontier Adit gold deposit, the Gil gold showing and the Golden Pond gold occurrence as having substantial demonstrated gold exploration potential defined by historic work programs that include geological mapping, prospecting, geophysical surveying, geochemical surveying, core drilling and, at certain sites, underground investigations. These areas warrant detailed further assessment to better determine their current potential to host gold mineralization of economic significance. At present, none of these areas has current mineral resources or reserves defined in accordance with NI 43-101.

Preliminary results of compilation and exploration targeting work completed in 2015, in combination with 2015 site visit results, show that significant greenfields exploration potential is present on the Goldfields property in areas external to the both the Box and Athona deposits and to the most prominent historic gold prospects noted above. These areas of potential are defined by various historic mineral occurrences and also by conceptual exploration targeting parameters applied in 2015 that are described in this report. At minimum, such targets warrant detailed prospect level geological mapping and sampling assessments to better define their potential. A wider ranging greenfields program is also warranted and should consist of detailed literature reviews of all known showings and identified target areas, analysis of all historic drilling, sampling and geophysical survey results, where available, and possible follow-up by geophysical and geochemical surveys and surface trenching in the most prospective areas. A property-wide reconnaissance mapping and bedrock sampling program that includes the prioritized exploration targets generated in 2015 and described in this report is also warranted.

A case has been presented in this report for incorporation of a porphyry gold model in planning future property exploration programs. While not negating applicability of the generally invoked orogenic model, this approach places emphasis on definition and interpretation of potassic alteration trends and sulphide-bearing quartz vein arrays associated with favorable granitic intrusions. Future property exploration programs of all types will benefit from access to comprehensive, property-wide digital compilations of the most up to date airborne and ground geophysical survey results as well as compilation of data from all available government and industry geochemistry surveys carried out within the property area. Expansion of the project's drilling database to include all historic drilling carried out at locations external to the Box mine and Athona deposit, such as the Frontier Adit and other exploration targets tested in the past, would improve understanding of property geology and therefore of mineralization potential and exploration targeting. Mercator believes that such digital compilation work is fully warranted and that it should form a core component of the next phase of property exploration. It should also be recognized that work of this nature has already been initiated in the Box mine and Athona deposit areas.

Mercator coordinated a digital compilation of government and industry airborne survey data sets for the property in 2015 and this resulted in creation of new digital layers of magnetometer, radiometric and versatile time domain electromagnetic survey (VTEM) results. These assets were usefully applied by Terrane in the 2015 lineament analysis and exploration targeting exercise described in this report. Complete regional scale government survey coverage is in place but detailed airborne survey (VTEM) coverage is not. Mercator is of the opinion that expansion of existing VTEM coverage to include the entire property in future exploration is warranted.

1.13.2 Granitic Intrusions and Porphyry Gold Model

Most of the significant gold showings currently defined on the Goldfields property are related to stockwork quartz veining within and along the contacts of granite intrusions. The intrusions are often small stocks that intrude larger granite bodies and the stock and host can have very similar appearances. Approximately one half of the Goldfields property is underlain by granite, most of which has some degree of metasomatic alteration and quartz veining. While much of the granite is probably not of economic significance, mineralized stocks of similar size to those that host the Box and Athona deposits could easily be concealed within larger granite bodies because they have similar mineralogy, texture and appearance. Results of the 2015 work program and review of existing relevant literature has shown that the granite-hosted gold mineralization on the Goldfields property can be interpreted as conforming to a gold-rich porphyry model. Results of field work in 2015 indicate that the following five criteria are useful in identifying granites with enhanced gold potential:

1. They contain increased proportions of quartz veining relative to surrounding rock (>5%/vol.).
2. The granite-hosted veins have trace to 5% pyrite which may form as clots in the veins.
3. Small proportions (<1%/vol.) of copper, lead, zinc and molybdenum bearing sulphides are present in granite-hosted veins.
4. The “mine granites” tend to have a higher degree of alteration, especially silica+K-feldspar alteration, which often results in a bright pink to red colour; in addition, they are typically less foliated than the granites that they intrude.
5. In at least some cases, the Box mine being an example, it appears that mineralization is hosted within discrete small stocks that can be delineated via detailed geological mapping in combination with interpretation of detailed airborne and ground geophysical survey results.

1.13.3 Uranium and Uranium and Polymetallic Exploration Potential

The Goldfields property contains two past producing uranium mines, the Lorado Mine and Nicholson Mine, in addition to the various gold deposits and prospects referred to above. In addition, there are numerous other historic, uranium-polymetallic showings on the property. These are generally classified for current report purposes as being representative of Beaverlodge Lake type vein mineralization. Evidence of unconformity related uranium mineralization is also present locally on the property. In addition, the 2015 scintillometer survey identified a number of previously unidentified or undocumented areas emitting high levels of gamma radiation. This indicates that despite the long exploration history of the area, grassroots style uranium prospecting and mapping may still be productive. Future uranium exploration should initially focus on 1) areas near the past producing mines and known showings and 2) targeted reconnaissance exploration areas defined through analysis of digitally compiled geological, geochemical and geophysical datasets. The latter may include the targets defined in section 8.1 of this report. Reconnaissance exploration focused on the unconformity that separates the Murmac Bay Group from the Martin Group, and on areas below the unconformity that have indications of structural permeability and/or oxidation/reduction fronts is also appropriate.

At the present time, uranium and associated polymetallic exploration potential is considered secondary in importance to that defined for gold on the property. However, it is important to increase understanding of the distribution of such mineralization. To this end, future field programs should universally include systematic collection of radiation level readings for bedrock, drill core and overburden. This will facilitate discovery of new uranium and polymetallic prospects that may be present in the areas being assessed.

1.13.4 2015 Metallurgical Assessment Program

In 2015 a metallurgical test work program was carried out by SGS Minerals Services Lakefield (SGS). Tests were conducted in a detailed two phase investigation. In Phase 1 grindability was examined and it was concluded that Box and Athona composite sample materials were amenable to SAG milling. Phase 1 also examined gold recovery processes in parallel. Gravity recovery was studied and is recommended for inclusion in the design flowsheet. Box and Athona composites were amenable to either flotation or cyanidation with similar recovery.

Phase 2 testing was conducted with a simplified flotation flowsheet and cyanidation of concentrate based on the findings of Phase 1. Flotation optimization testwork showed it was possible to get 95% or better gold recovery into 3% mass using rougher flotation of gravity tailings without cleaner flotation stages. This was confirmed for Box composite sample in Phase 2 bulk flotation. For Athona the Phase 2 bulk flotation gave lower than expected recovery (75% Au recovery in 2.3% mass, 81% combined Au recovery including gravity concentrate) compared with two prior tests at similar conditions, examination of these bulk flotation tailings suggested that grinding finer (than p80 of 160 micron) might have increased recovery.

Phase 2 confirmed that the bulk flotation concentrates were amenable to cyanidation with 98% recovery at test conditions. Gold recovery from the leach solution was investigated using carbon and zinc cementation (Merrill-Crowe) methods. For carbon recovery, a CIP (carbon-in-pulp) circuit is recommended rather than CIL (carbon-in-leach). The predicted recovery by CIP (99.9%) is higher than the experimental recovery for Merrill-Crowe (97%). The leach residues and flotation tailings were also studied for solid-liquid separation design information.

Additional metallurgical testing is required to finalize flow sheet design parameters and this will be required to support any future project feasibility study. However, the current level of testing may be sufficient to support any re-casting of a pre-feasibility level assessment in the near term. It is recognized that terms of reference for a future re-casting of the pre-feasibility study could require completion of additional specific testing to meet project requirements.

1.14 Recommendations

The following recommendations for future exploration and technical assessment of the Goldfields property arise from the conclusions presented above.

In summary, additional core drilling to extend the extents of mineralization in the Box mine and Athona deposit area is warranted and, if successful, will require completion of an updated mineral resource estimate for these deposits. Completion of detailed re-assessments of the Frontier Adit, Gil, Golden Pond and Triangle gold occurrences is also recommended to define geophysical survey and drilling strategies that will most effectively assess their economic potential. A similar detailed review approach is recommended for the past producing Lorado and Nicholson Bay uranium deposits as well for the surrounding areas that show promise for Beaverlodge Lake style polymetallic occurrences. However, the latter is considered a secondary priority.

Significant greenfields potential for discovery of new gold and uranium-polymetallic deposits is present on the Goldfields property, as exemplified by results of compilation and targeting work completed in 2015. Systematic follow-up of such targets, with gold potential being highest in priority, is recommended and should begin with geological mapping, prospecting and geochemical surveying. Consideration should also be given to extending VTEM airborne geophysical survey coverage to include the full property extent. Resulting new data could be merged with that from the existing survey and be re-processed to provide the basis for a new, property-wide structural analysis and targeting effort supported by digitally available government and industry geochemistry datasets. This new analysis should result in refinement of greenfields exploration target priorities.

With respect to metallurgical testing, no further work is currently recommended. Further testing may be needed to support final flow sheet design and equipment selection if a decision is taken to either proceed to a more advanced level of study or change from the process concept in the report, March (2011, 2014).

1.15 Proposed Budget

A two phase approach to future property exploration and property assessment is proposed, based on conclusions and recommendations summarized above. Phase I consists of preparation of revised and updated digital property datasets, detailed desktop studies to generate new exploration targets in both brownfields and greenfields positions, and detailed review and assessment of the existing resource and reserve models for the Box mine and Athona deposits to characterize resource extension and upgrading opportunities. An initial field program to carry out ground based assessments of targets identified in the previously mentioned work programs is also included, as is a program of drill core re-assessment for areas adjacent to the existing Box mine and Athona resource models and in relation to significant historic occurrences, such as the Gil prospect or Frontier Adit, that have been identified as areas having good potential. It is also recommended that Phase I include a technical review of the main assumptions and parameters that were used to define the pre-feasibility study (March, 2011, 2014) to determine what modifications, if any, should be considered if a decision to re-visit this detailed level of assessment is taken in the near-term. Phase 1 concludes with analysis and reporting of results generated by the preceding programs. The estimated budget for Phase I programs is presented below in Table 1.2 and totals $235,000.

Recommended Phase II programs are more substantial than Phase I and are based on the assumption that Phase I results are positive. Completion of core drilling of deposit extension and resource upgrading opportunities identified at the Box mine and Athona deposits is included, as is comprehensive field follow up that includes an allowance for core drilling of the main non-resource prospect areas, as well as prioritized new greenfields target areas. Extension of VTEM airborne survey coverage to include currently non-surveyed areas is also included and should be carried out early in the work schedule so that results can be used to enhance Phase II target assessments. No additional detailed engineering or metallurgical programs are included in the Phase II budget, but an allowance has been included for updating of existing mineral resource estimates subsequent to completion of Phase II deposit extension and resource upgrading drilling. An increment of engineering review is included in the resource update program to support definition of open pit and underground development considerations and parameters that should be incorporated in the resource deposit models.

An estimated budget for the recommended Phase II programs is presented below in Table 1.3 and totals Cdn $2,275,000. Commitment to some components of the proposed Phase II budget is contingent on sufficiently positive results being returned from related Phase I programs.

Table 1.2: Proposed Phase I

Item Number	Program Component	Estimated Cost ($Cdn)
1	Digital data compilation and interpretation – all aspects	70,000
2	Box mine and Athona deposit resource extension drill program planning that includes review and re-logging of historic drill core	30,000
3	Detailed field evaluation of known prospects and new target areas that includes the following components: • Detailed geological mapping and sampling plus review of historic drill core sections for mineralization present at the Box, Athona, Nicholson Bay, Fish Hook Bay and Golden Pond areas; this will establish better understanding of deposit characteristics that can subsequently be applied in both deposit extension and exploration target evaluations - estimated cost inclusive of travel and support is $50,000; • Preliminary geological mapping, prospecting, sampling and soil geochemical surveying, where warranted, to assess new exploration target areas defined to date or during work completed under Item 1 above – estimated cost inclusive of travel and support is $50,000	100,000
4	Review and updating of economic parameters to support Phase II recasting of mineral resource estimates	15,000
5	Administration and support	20,000
	Total Phase I	**235,000**

Table 1.3: Proposed Phase II

Item Number	Program Component	Estimated Cost ($Cdn)
1	Box mine and Athona deposit extension drilling (2500 m)	750,000
2	New prospect evaluation drilling (2500 m)	750,000
3	Expansion of VTEM coverage	250,000
4	Continued greenfields target follow-up – geophysical, geochemical and geological surveying	250,000
5	Updating of Box mine and Athona mineral resource estimates plus associated reporting and project evaluation after completion of resource extension drilling in (1) above	75,000
6	Administration	200,000
	Total Phase II	**2,275,000**

2.0 Introduction

2.1 General Terms and Project Scope

Mercator Geological Services Limited (Mercator) were retained by 9617337 Canada Limited in January, 2016 to prepare an independent National Instrument 43-101 (NI 43-101) property report for the company's Goldfields Project located on the north shore of Lake Athabasca in the province of Saskatchewan, Canada. The Goldfields property contains a total of 36 land dispositions and is held in name by 9617337 Canada Limited. The primary metal of interest is gold and the surface area covered by the company's mineral dispositions total 22,126 hectares (ha).

The Goldfields project is owned by 9617337 Canada Limited which is a wholly owned subsidiary of Fortune Bay Corp., a Canadian company trading on the Toronto Stock Exchange (TSX) under the symbol FOR with head offices in Halifax, Nova Scotia, Canada. As a result of a plan of arrangement dated involving Fortune Bay Corp., Kneat Solutions Limited and 9617337 Canada Limited, 9617337 Canada Limited and various other subsidiaries of Fortune Bay Corp. (Fortune). will be spun out to privately held 9617337 Canada Limited. An application will be submitted to list the shares of 9617337 Canada Limited, to be renamed Fortune Bay Corp. (Fortune Bay), on the TSX Venture Exchange (TSXV) with the Goldfields project being the Qualifying Property to meet the listing requirements. This technical report was prepared to support the property transaction and listing process.

Under terms of engagement with 9617337 Canada Limited, Mercator was assigned the responsibility of carrying out a site visit, completing initial field evaluation of selected exploration target areas and preparation of a property technical in accordance with NI 43-101. Terms of engagement were established through discussions held between representatives of Mercator and 9617337 Canada Limited.

This technical report documents the exploration and mining history of the property, which extends from the 1880's through to the latest drill program completed in 2011, and also presents 2015 site visit and evaluation components carried out on behalf of 9617337 Canada Limited. These include: 1) a structural/geophysical lineament study designed to identify new exploration targets; 2) a prospecting campaign that includes a scintillometer survey, exploration target evaluations, bedrock sampling and analysis and geological observations; 3) a rock geochemical study; and 4) a follow-up petrographic study designed to better characterize the host rock(s) and alteration assemblage(s) of the known mineral deposits.

The technical goal of the 2015 study was to develop and ground-truth a property-scale geological framework that can be used to categorize and contextualize the many mineral occurrences/deposits on the Goldfields property. This report also includes results of metallurgical testing carried out under supervision of March by SGS Mineral Services of Lakefield, ON on core samples from the Box and Athona deposits. The associated work program was developed to address recommendations presented in the 2011 pre-feasibility study NI 43-101 technical report prepared by March for Brigus (March (2011) and re-issued to Fortune in 2014 as March (2014).

2.2 Responsibilities of Qualified Persons

The Qualified Person (QP) responsible for sections 4, 5, 6, 9, 10, 16 and 17, plus portions of sections 1, 18 and 19 of this technical report, is Mr. Stewart Yule, P. Geo., of Mercator. The QP responsible for sections 2, 3, 7, 8, 11, 12, 14, and 15, plus portions of sections 1, 18 and 19 of this report, is Dr. Tony Barresi, P. Geo., of Mercator. Mr. Andrew Doolittle, P. Eng., of March is responsible for section 13 and portions of sections 1 and 18 of this report that are related to metallurgical testwork. Table 2.1 further summarizes author responsibilities.

Table 2.1: Qualified Person Responsibilities for Report Sections

Responsible Person - QP	Company	Area of Responsibility	Relevant Sections
Stewart Yule P. Geo.	Mercator Geological Services Ltd.	Site visit September 23rd to October 1st, 2015 and related field work. Historic exploration compilation and report preparation	4, 5, 6, 9, 10, 16 and 17, plus portions of 1, 18 and 19.
Dr. Tony Barresi, P. Geo.	Mercator Geological Services Ltd.	Site visit September 23rd to October 1st, 2015 and related field work; supervision of geological interpretations and petrography study and report preparation	2, 3, 7, 8, 11, 12, 14 and 15, plus portions of 1, 18 and 19
Andrew Doolittle, P. Eng.	March Consulting Associates Inc.	Client representative for direction of 2015-2016 test program by SGS	13 and portions of 1 and 18.

2.3 Site Visits by Authors

A site visit to the property was conducted by Qualified Persons Mr. Stewart Yule (P.Geo.) and Dr. Barresi (P. Geo.) between September 23 and October 1, 2015. The purpose of the 2015 site visit was to confirm the historically reported nature and character of property geology and mineralization for NI43-101 reporting purposes and to develop and ground-truth a property-scale geological framework that can be used to categorize and contextualize the many mineral occurrences/deposits on the Goldfields property. Qualified Person Mr. Andrew Doolittle (P. Eng.) has not visited the Goldfields property.

2.4 Independence of Authors

All authors of this report are independent of 9617337 Canada Limited, Fortune, Kneat Solutions Limited and 7153945 Canada Limited, as defined under NI 43-101.

2.5 Abbreviations Used in this Report

Table 2.2 presents abbreviations and factors that have been used in this report and certain others are individually defined where they initially appear in the text. Currency references in this report reflect Canadian funds unless otherwise indicated.

Table 2.2: Listing of Abbreviations and Conversions

Abbreviation	Source
Company Names	
AMEC	AMEC Americas Ltd.
Amok	Amok Ltd.
Auric	Auric Resources Ltd.
Brigus	Brigus Gold Corp.
Casmyn	Casmyn Engineering
Clix	Clix Athabasca Uranium Mines Ltd.
Cominco	Consolidated Mining and Smelting of Canada Ltd.
Eldorado	Eldorado Mining and Refinement Ltd.
Enex	Enex Mines Ltd.
Fortune	Fortune Bay Corp. (reference to existing company)
Fortune Bay	Fortune Bay Corp. (intended new name of 9617337 Canada Limited
GLR	Greater Lenora Resources Corp.
Gray	R.G. Gray Consultants Ltd.
Kasner	Kasner Group of Companies
KCB	Klohn-Crippen Berger Ltd.
KCC	Klohn Crippen Consultants Ltd.
Lakefield	Lakefield Research Ltd.
March	March Consulting Associates Incorporated
Mary Ellen	Mary Ellen Resources Ltd.
Mercator	Mercator Geological Services Ltd.
Norac	Norac Exploration Ltd.
ODM	Overburden Drilling Management Ltd.
Radiore	Radiore Uranium Mines Ltd.
RJK	RJK Mineral Corp.
Simons	H.A. Simon Ltd.
SMDC	Saskatchewan Mining Development Corp.
SRC	Saskatchewan Research Council
Swider	Richard C. Swider Consulting Engineers Ltd.
Touborg	Touborg Consultants Inc.
Wardrop	Wardrop Engineering Inc.
Minerals/Elements/Chemicals	
cpy	Chalcopyrite
gl	Galena
hbl	Hornblende
K-fld	K-feldspar
plag	Plagioclase Feldspar
py	Pyrite
qz	Quartz
sph	Sphalerite
Ag	Silver
As	Arsenic

Abbreviation	Source
Au	Gold
Co	Cobalt
Cu	Copper
Fe	Iron
K	Potassium
Mg	Magnesium
NaCN	Sodium Cyanide
Ni	Nickel
Pb	Lead
Pd	Palladium
PGE	Platinum Group Elements
Pt	Platinum
REE	Rare Earth Elements
Th	Thorium
U	Uranium
U_3O_8	Triuranium Octoxide
Zn	Zinc
Units of Measure	
k	thousand
"	inch
µm	micrometre
C	Celsius
cm	centimetre
CPS	Counts per second
ft	foot
g	gram (0.03215 troy oz)
Ga	billion
ha	hectare
kg	kilogram
km	kilometre
lbs	pounds
m	metre
Ma	million
mg	milligram
ml	millilitre
mm	millimetre
oz	troy ounce (31.10 g)
Oz/T to g/t	1 oz/T = 34.28 g/t
ppb	parts per billion
ppm	parts per million
st	short ton (2000 lb or 907.2 kg)
st/d	short ton per day
t	tonne (1000 kg or 2204.6 lb)

Abbreviation	Source
%	percent
/	per
°	degree symbol
	Miscellaneous Abbreviations
1VD	First Vertical Derivative
asl	Above sea level
ca	circa
BMP	Best Management Practices
CLEANS	Clean up of Abandoned Northern Sites
DC/IP	Direct Current Induced Polarization
DEM	Digital Elevation Model
et al.	and the others
GIS	Geographic Information System
GPS	Global Positioning System
GSC	Geological Survey of Canada
ICP-AES	Inductively Coupled Plasma - Atomic Absorption Spectrometry
ICP-AES	Inductively Coupled Plasma – Atomic Emission Spectrometry
INAA	Instrumental Neutron Activation Analysis
MARS	Mineral Administration Registry Saskatchewan
NAD	North American Datum
NI 43-101	Canadian Securities Administrators National Instrument 43-101
No.	number
OK	Ordinary Kriging
ON	Ontario
Ontario	Ontario Research Foundation
RC	Reverse Circulation Drilling
SGH	Soil Gas Hydrocarbons
SK	Saskatchewan
SMDC	Saskatchewan Mining Development Corporation
SMDI	Saskatchewan Mineral Deposit Index
SMEGAC	Saskatchewan Mineral Exploration and Government Advisory Committee
SRC	Saskatchewan Research Council
SWA	Saskatchewan Watershed Authority
SRTM	Shuttle Radar Topography Mission
TMI	Total Magnetic Intensity
TSXV	TSX Venture Exchange
UTM	Universal Transverse Mercator
VLF	Very Low Frequency
VTEM	Versatile Time Domain Electromagnetic

3.0 Reliance on Other Experts

3.1 General

This report was prepared by Mercator for 9617337 Canada Limited and the information, conclusions and recommendations contained herein are based on information available at the time of report preparation. This includes data and reports made available by 9617337 Canada Limited as well as reports and data available to the public. Sources of such information are referenced in this report and are detailed in the References Cited section of the report. The information presented in this report is believed to be reliable, but parts of the report are based upon information not within the control of Mercator staff. However, Mercator has no reason to question the quality or validity of the data used in this report. The comments and conclusions presented herein reflect the authors' best judgement at the time of report preparation.

Mercator has relied upon 9617337 Canada Limited for provision of information pertaining to details and validation of mineral exploration titles, site environmental conditions and liabilities, definition of permits established to carry out exploration, land access agreements, and both status and details of agreements that exist between 7153945 Canada Limited, Fortune, Kneat Solutions Limited and 9617337 Canada Limited.

This report expresses opinions regarding exploration potential for the Goldfields project as well as recommendations for further investigations and analysis. These opinions and recommendations are intended to serve as guidance for future exploration but should not be construed as a guarantee of success.

4.0 Property Description and Location

4.1 General

The Goldfields property is located 13 km south-southeast of the town of Uranium City, Saskatchewan and centered at approximately 59° 27’ North Latitude and, 108° 31’ West Longitude (Figure 4.1). The property is approximately 850 km north of Saskatoon and 60 km south from the border with the Northwest Territories.

4.2 Mineral Disposition Tabulation

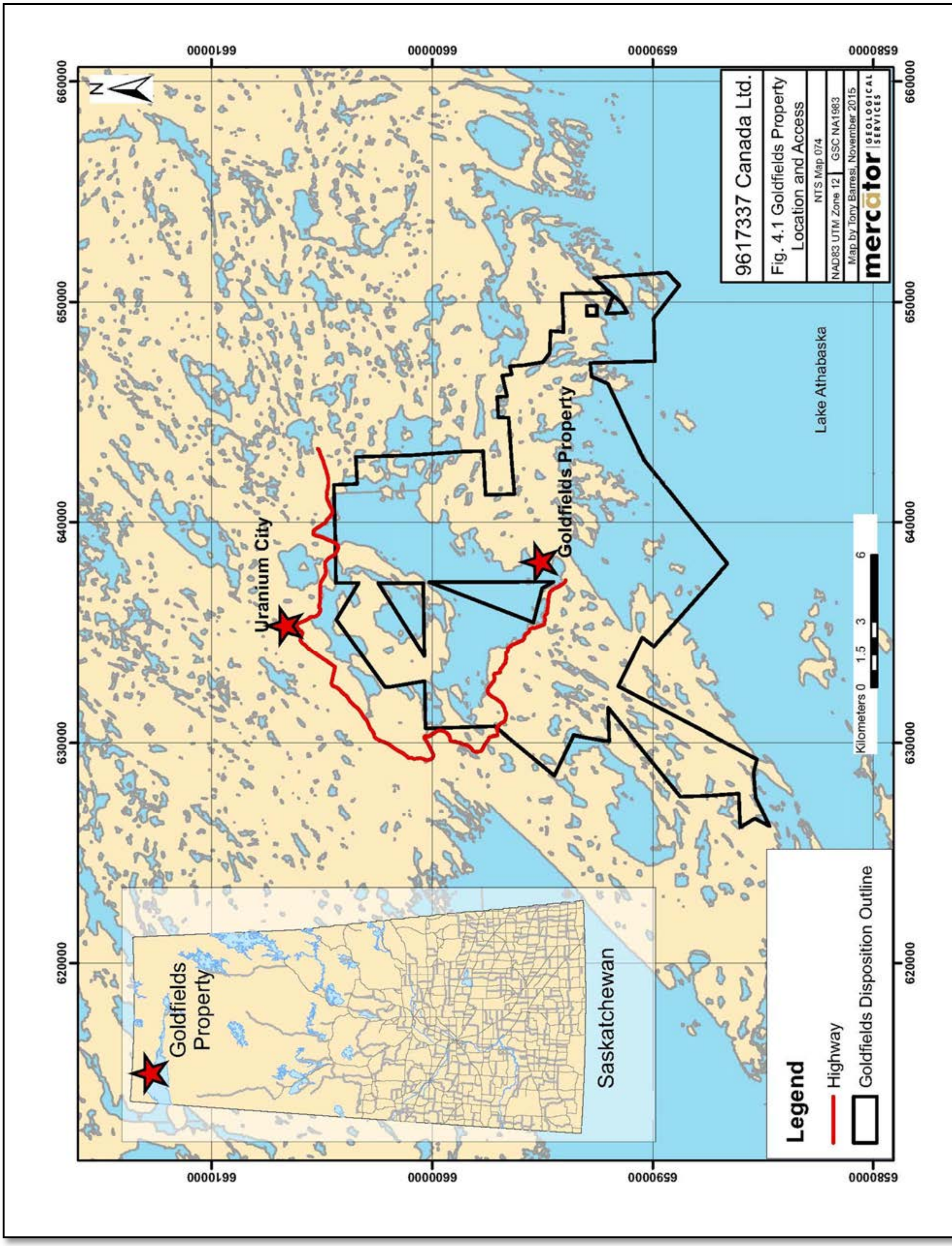
At the effective date of this report the Goldfields property consisted of 36 contiguous mineral dispositions in which 153945 Canada Inc. holds a 100 percent interest. These mineral dispositions cover a total surface area of 22,126 hectares (ha) and define an area that measures approximately 25 km by 19 km in maximum east-west and north-south dimensions, respectively. Table 4.1 presents details of the 36 mineral dispositions and Figure 4.2 shows the disposition outlines and locations. The five central dispositions that contain the Box Mine and Athona deposit plus fourteen additional dispositions are in good standing until respective expiry dates that occur between the years 2023 and 2034. Seventeen additional dispositions require exploration expenditures of approximately $140,000 to remain in good standing past their current expiry dates that occur in the 2016 through 2018 period

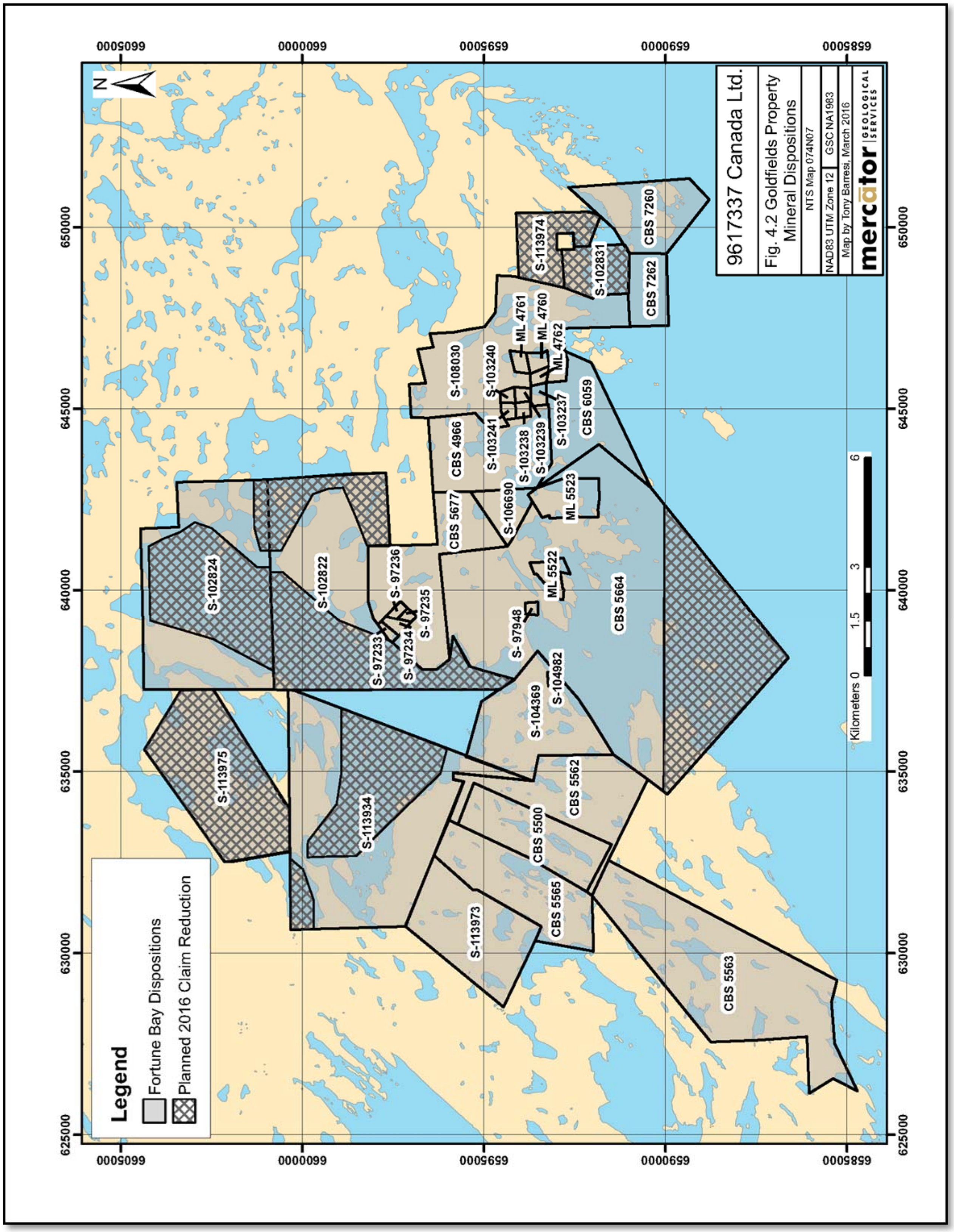
As stated previously in report section 3, Mercator has relied upon 9617337 Canada Limited with respect to reporting the details and status of mineral dispositions that constitute the Goldfields property that is the subject of this technical report. Mercator checked Table 4.1 information against public records available through the province of Saskatchewan’s on-line Mineral Administration Registry System and found them to be in agreement. While information presented in Table 4.1 was not independently validated, Mercator had no reason to question this information at the effective date of this report.

Table 4.1: Details of Mineral Dispositions

Disposition	Owner	Hectares	NTS Sheet	Effective Date	*Good standing Date
CBS 4966	7153945 CANADA INC.	648	74N08	19/10/1983	16/01/2018
CBS 5500	7153945 CANADA INC.	486	74N07	01/10/1976	29/12/2023
CBS 5562	7153945 CANADA INC.	745	74N07	27/07/1977	24/10/2024
CBS 5563	7153945 CANADA INC.	1747	74N07	27/07/1977	24/10/2023
CBS 5565	7153945 CANADA INC.	707	74N07, 08	21/12/1977	24/10/2023
CBS 5664	7153945 CANADA INC.	4547	74N07	27/07/1977	20/03/2023
CBS 5677	7153945 CANADA INC.	752	74N07, 08	29/05/1978	26/08/2018
CBS 6059	7153945 CANADA INC.	486	74N08	23/02/1984	23/05/2018
CBS 7260	7153945 CANADA INC.	460	74N08	26/11/1986	23/02/2018
CBS 7262	7153945 CANADA INC.	200	74N08	26/11/1986	23/02/2018
ML 4760	7153945 CANADA INC.	25	74N08	01/08/2005	29/10/2023
ML 4761	7153945 CANADA INC.	20	74N08	01/08/2005	29/10/2023
ML 4762	7153945 CANADA INC.	24	74N08	01/08/2005	29/10/2023
ML 5522	7153945 CANADA INC.	70	74N07	22/07/2002	19/10/2036
ML 5523	7153945 CANADA INC.	167	74N08	23/08/2002	20/11/2034
S- 97233	7153945 CANADA INC.	16	74N07	08/08/1979	05/11/2023
S- 97234	7153945 CANADA INC.	16	74N07	08/08/1979	05/11/2024
S- 97235	7153945 CANADA INC.	16	74N07	24/09/1979	22/12/2023
S- 97236	7153945 CANADA INC.	16	74N07	24/09/1979	22/11/2023
S- 97948	7153945 CANADA INC.	16	74N07	16/11/1982	13/02/2028
S-102822	7153945 CANADA INC.	2125	74N07, 08, 09, 10	05/05/1994	02/08/2016
S-102824	7153945 CANADA INC.	1852	74N09, 10	05/05/1994	02/08/2016
S-102831	7153945 CANADA INC.	222	74N08	05/05/1994	02/08/2016
S-103237	7153945 CANADA INC.	16	74N08	12/02/1986	12/05/2017
S-103238	7153945 CANADA INC.	16	74N08	12/02/1986	12/05/2017
S-103239	7153945 CANADA INC.	16	74N08	12/02/1986	12/05/2017
S-103240	7153945 CANADA INC.	16	74N08	12/02/1986	12/05/2017
S-103241	7153945 CANADA INC.	16	74N08	12/02/1986	12/05/2017
S-104369	7153945 CANADA INC.	738	74N07	27/10/1997	24/01/2027
S-104982	7153945 CANADA INC.	14	74N07	04/04/1996	02/07/2032
S-106690	7153945 CANADA INC.	146	74N07, 08	22/02/2001	21/05/2028
S-108030	7153945 CANADA INC.	1179	74N08	10/08/2005	07/11/2025
S-113934	7153945 CANADA INC.	2448	74N07, 10	20/10/2003	17/01/2017
S-113973	7153945 CANADA INC.	755	74N07	30/06/2005	27/09/2017
S-113974	7153945 CANADA INC.	304	74N08	05/05/1994	02/08/2016
S-113975	7153945 CANADA INC.	1099	74N10	05/05/1994	02/08/2016
	Total	22126			

*Note: Claim reductions that were under application at the effective date of this report are shown in Figure 4.2. When instituted, these will result in extensions of corresponding "good standing" dates due to automatic re-allocation of total associated assessment work credits.


9617337 Canada Ltd.
Fig. 4.1 Goldfields Property Location and Access
NTS Map 074
NAD83 UTM Zone 12
GSC NA1983
Map by Tony Barresi, November 2015
Lake Athabaska
Goldfields Property
Uranium City
Goldfields Property
Saskatchewan
Kilometers 0 1.5 3 6
Legend
Highway
Goldfields Disposition Outline
620000
630000
640000
650000
660000
6580000
6590000
6600000
6610000


9617337 Canada Ltd.
Fig. 4.2 Goldfields Property Mineral Dispositions
NTS Map 074N07
NAD83 UTM Zone 12
GSC NA1983
Map by Tony Barresi, March 2016
mercator GEOLOGICAL SERVICES
Legend
Fortune Bay Dispositions
Planned 2016 Claim Reduction
Kilometers 0 1.5 3 6
N
S-102824
S-102822
S-113975
S-113934
S-113973
S-97236
S-97235
S-97233
S-97234
S-97948
S-104369
S-104982
S-106690
S-103241
S-103238
S-103239
S-103237
S-103240
S-108030
S-113974
S-102831
CBS 5677
CBS 4966
CBS 6059
CBS 5664
CBS 5562
CBS 5500
CBS 5565
CBS 5563
CBS 7260
CBS 7262
ML 5523
ML 5522
ML 4761
ML 4760
ML 4762
625000
630000
635000
640000
645000
650000
6605000
6600000
6595000
6590000
6585000

4.3 Mineral Disposition System in Saskatchewan

Mineral dispositions in Saskatchewan are issued under The Crown Minerals Act (the Act) and are regulated under the Saskatchewan Mineral Tenure Registry Regulations, revised in 2012 (C-50.2 Reg 27) and amended in 2013 (SR70, 2013). A mineral disposition can be registered under a permit, claim or lease, and includes the rights pursuant to each disposition type outlined by the Act's regulations. An individual registered, or a comparably registered corporation, with the Mineral Administration Registry Saskatchewan (MARS) on-line claim staking system can acquire mineral exploration dispositions in the province. A registered user may designate another person to act as an agent to conduct specific transactions on the registered user's behalf.

Mineral disposition claims are issued for a period of one year and can be renewed through application, payment of prescribed renewal fees and demonstration that required yearly assessment work has been performed. In Saskatchewan, mineral disposition claims (Prefixes S- and CBS-) grant the holder the exclusive right to explore for Crown minerals but not to mine them. However, a claim in good standing can be converted to a lease (Prefixes ML- and Q-) upon application. Leases have a term of 10 years and are renewable. A lease grants the holder the exclusive right to explore, mine, work, recover, procure, remove, carry away and dispose of any Crown minerals that are subject to the regulations within the leased lands.

Under Saskatchewan's Mineral Tenure Registry Regulations, annual expenditures of $15.00 per hectare are required from the second to the tenth year after the first year of staking a claim to retain each disposition with a minimum of $240.00 per claim per assessment work period. After 10 years, this rate increases to $25.00 per hectare annually and all subsequent assessment work periods with a minimum of $400.00 per claim per work period.

4.4 Permits Required For Recommended Future Exploration

Authorization permits for timber removal, road construction, storage of fuel or camp material are required for most exploration programs and are obtained through the Saskatchewan Ministry of Environment. The Saskatchewan Mineral Exploration and Government Advisory Committee (SMEGAC) developed the Mineral Exploration Guidelines for Saskatchewan to assist government and industry in the application and approval process for activities on land administered by the Ministry of Environment. The 2012 guide and associated Best Management Practices (BMP) provide information to assist in the planning, initiation and completion of mineral exploration programs in a manner that will help minimize environmental impacts and meet all relevant legislative requirements. For example, diamond drilling programs will normally require Term Right to Use Water licences obtained through the Saskatchewan Watershed Authority (SWA) and a Notification Form submitted to the Department of Fisheries and Oceans Canada. The SMEGAC guideline further outlines requirements and contact information specific to drilling on land, drilling on ice and drill core storage through BMP's -010, -011 and -012 respectively.

9617337 Canada Limited advised Mercator that at the effective date of this report, no authorization permits had been obtained by the company for exploration work on the Goldfields property.

4.5 Environmental Considerations

The Goldfields Property contains at least six mineral deposits or occurrences that reached significant underground exploration stages and three that reached the stage of mine development and production. The Box mine gold production period spanned from 1939 to 1942. The Nicholson Uranium Mine was in production from 1955 to 1956 and from 1958 to 1959. The Lorado Uranium Mill operated from 1957 to 1960. During the course of these activities, substantial modifications to the natural landscapes were made to accommodate site infrastructure for mining and milling purposes. Various historic shafts and adits that were located during the 2015 site visit have been backfilled and in some cases fenced off, such as the Athona shaft. The riveted steel girders from the Box mine head frame and mill are still standing but the shell of this infrastructure was destroyed previously by fire. The remaining historic head frame is recognized as a factor of importance for environmental considerations and as a potential safety concern (Figure 4.3)

The Box mine was included in an Environmental Impact Statement (EIS) prepared by UMA Engineering Ltd. on behalf of GLR in 2007. The associated report is referenced herein as UMA (2007). This document supported a proposed open pit mining operation based on resources/reserves of the Box mine and Athona deposit as defined by a 2007 feasibility study reported by Bikerman et al. (2007). for the company. The Saskatchewan Ministry of Environment (SMOE) subsequently approved the proposed open pit mining project on May 28, 2008. Site liabilities existing at the time of 2007 reporting were addressed in the EIS and have not been addressed further by 9617337 Canada Limited.

The Saskatchewan Government initiated certain reclamation work in the Uranium City area using federal funding provided to the Saskatchewan Research Council (SRC), a provincial crown corporation that manages Project Cleanup of Abandoned Northern Sites (CLEANS). Project CLEANS is a multi-year, multimillion-dollar project aimed at assessing and reclaiming the Gunnar mine and mill site, Lorado mill and 35 other mine sites in Northern Saskatchewan. During the 2015 site visit the Lorado mill site reclamation work within the Goldfields property area was in progress and is currently scheduled to be completed in the summer of 2016.

Figure 4.3: Quartz stockwork in granite. Background: Headframe from the historic Box mine.

9617337 Canada Limited advised Mercator that at the effective date of this report there were no environmental issues known to the company that would materially impact its ability to carry out recommended mineral exploration and assessment programs in the project area. Mercator has relied upon this assertion and has not carried out independent validation.

4.6 Availability of Land for Potential Future Site Development

The Goldfields project area includes both brownfield and wilderness land owned by the province of Saskatchewan ("Crown land"). In Mercator's opinion, the extensive amount of undeveloped land present in this area should be sufficient to support future site developments. However, no agreements to secure land access for future development have been established to date by 9617337 Canada Limited.

4.7 Other Significant Factors or Risks

Mercator is not aware of any other significant factors or risks that may affect access, title, or the right or ability to perform work on the Goldfields property.

5.0 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Accessibility

The Goldfields property is located 13 km south-southeast of the town of Uranium City in Northern Saskatchewan. Flights from Saskatoon to Uranium City are available three days per week during summer months and two days per week during winter months. Several charter aircraft companies operate in the area. The property can be accessed by four-wheel drive vehicle from Uranium City via a 25 km long drive south on Highway 962. Depending on road conditions, the drive takes approximately one hour. During the winter the Goldfields property is most readily accessed by snowmobile or helicopter. The Goldfields property lies along the north shore of Lake Athabasca, Canada's 8th largest lake, and boat access is possible during the summer field season. An ice road over Lake Athabasca is maintained from Stony Rapids to Uranium City and is typically open for 6 weeks during February and March. A secondary road network on the property was developed during historic mining activities, as was the former town of Goldfields, a gold mining settlement established in the 1930's. The secondary road network provides limited walking access to the main showings on the Goldfields property.

5.2 Climate and Physiography

The Goldfields property is located in the Goldfields area on the north shore of Lake Athabasca and surrounds the Beaverlodge Lake area, immediately south of Uranium City, in Northwestern Saskatchewan. The topographic relief consists of moderately high hills and steep ridges, the highest being Beaverlodge Mountain at 419.8 m above sea level (asl), which projects dramatically above surrounding lakes and bays of Lake Athabasca, which has a surface elevation of 213 m asl. Elongated ridges and valleys trend NE-SW and reflect the orientation of regional folding of Precambrian-shield rocks that underlie much of the property.

Glacial rivers, discharge channels and alluvial fans within the Beaverlodge Lake area are oriented in a southwesterly direction following the elongated hills and ridges. Glacial till thicknesses vary from only a few centimetres on ridges to over 6 m thick in low lying areas. Bogs developed in valley lows are composed of humus and peat layers that measure a few metres to several tens of metres in thickness. Trees are generally small with abundant black spruce and jack pine and sporadic, clustered stands of birch and poplar.

The property is located in the Taiga Shield Ecozone and experiences a subarctic climate with average daily temperatures between 11°C and 16°C in mid-summer and -8°C to -32°C in mid-winter. The temperature range is in large part due to the continental effect and cold winters typical of northern latitudes. The average annual precipitation as rainfall reported from Environment Canada is 223.7 mm with the largest amounts recorded from May to October. The lakes in the region generally freeze by late October and may remain frozen until late May. Wind chill factors are significant in the winter and can reach “feel-like” readings below -40°C. The Goldfields area typically receives moderate to heavy winter snowfalls with more than 2 metres in total seasonal accumulation.

5.3 Local Resources and Infrastructure

Uranium City was once a major regional centre established to service the uranium mines that developed during the mining boom of the 1940’s and 1950’s. In 1982, Uranium City’s population peaked at 5,000 people but with the closure of the mines in 1983 the local economy collapsed and the community was nearly abandoned. Uranium City currently has a population of less than 100 permanent residents.

There are few local resources available in Uranium City, although gasoline, diesel and aviation fuel are available from a bulk fuel provider at the local airport. Most supplies come from Stony Rapids or are flown in from southern Saskatchewan. Stony Rapids is located 150 km east of Uranium City and is the logistics/business hub for northern Saskatchewan. Government administrative offices, banks, hospital facilities, hotels charter transportation services and food stores are present in the community.

The economy of northern Saskatchewan is predominantly based on mining and exploration industry activities plus tourism activities such as hunting, fishing and outdoor recreation pursuits. Education, health services and the public sector in both provincial and First Nations jurisdictions account for approximately 40 % of northern employment opportunities.

Electrical power for Uranium City and the region is supplied from the Charlotte River hydroelectric station operated by SaskPower, Saskatchewan’s provincial power authority. The Fredette River water treatment plant provides municipal water for the community of Uranium City.

The very low population of the Uranium City area could not substantively support a new mine development project in the area. However, Saskatchewan’s existing mining industry workforce that is largely focused on uranium, potash and gold operations would provide a skilled worker pool to support any future mine development on the Goldfields property.

5.4 Operational Period for Exploration Activities

It would be most cost effective to carry out exploration activities recommended in this report during the late May through mid November snowless period. Access to most property areas is most readily available at this time and weather conditions are most favorable. Programs requiring water or float plane access should not be planned for the spring breakup or fall freeze-up periods. Drilling ad geophysical surveying programs should be avoided during these times as well and can often be advantaged during winter by easier access associated with frozen lakes and swamps. Higher costs are common for winter programs due to the harsh operating environment that is met in this regions during that period of the year.

6.0 Introduction

The previous work programs that are pertinent to this report are summarized below under chronologically ordered sections. The history of exploration work and mining activities were compiled and edited using excerpts from the March (2011) NI 43-101 technical report as well as exploration histories described in the Government of Saskatchewan Mineral Deposit Index (SMDI) database.

6.1 Ownership

The Goldfields property takes its name from the former village of Goldfields, a gold mining settlement established in the 1930's. The Box Mine gold operation was operated by Consolidated Mining and Smelting of Canada Ltd. (Cominco) from 1939 until 1942 when it closed due to work force shortages brought about by World War II. In 1987, Lenora Exploration Ltd. and Mary Ellen Resources Ltd. jointly optioned the Box and Athona gold deposits and commenced work to evaluate them as open pit operations. Mary Ellen Resources Ltd., Lenora Exploration Ltd. and AXR Resources Ltd. merged in December of 1988 to form Greater Lenora Resources Corp., which later became known as GLR Resources Inc. (GLR). Between 1987 and 1989, GLR, RJK Mineral Corp. (RJK) and Uranium City Resources Inc. operated under the umbrella company known as the Kasner Group of Companies, a Canadian junior mining sector company focusing on projects from Ontario to British Columbia. In May of 2009, Linear Gold Corp. acquired the Box and Athona properties through its subsidiary 7153945 Canada Limited, which still holds the mineral land dispositions covering the project area. In June of 2010, a merger between Linear Gold Corp. and Apollo Gold Corp. formed Brigus Gold Inc. In December of 2013, Fortune was created from a merger between Brigus Gold Inc. and Primero Gold Canada Inc. and assumed ownership of 7153945 Canada Limited. At the effective date of this report, all Goldfields project land dispositions were held by 7153945 Canada Limited and were scheduled for transfer to 9617337 Canada Limited pursuant to a plan of arrangement between the companies.

6.2 Mining History of the Box Mine

The following brief history of the Box Mine deposit was sourced from the Saskatchewan Geological Survey Open File Report 84-1 by W. Coombe of Coombe Geoconsultants Ltd. (Coombe, 1984), as well as an internal company report prepared in 1980 by R.J. Nicholson, Project Geologist for Western District, Cominco Ltd. (Nicholson, 1980).

The earliest reported geological work in northern Saskatchewan commenced in 1880, when the Geological Survey of Canada conducted a topographic survey along the Saskatchewan River to Reindeer Lake and then northwards to Lake Athabasca. During 1882 to 1883, J.B. Tyrrell surveyed many of the waterways and recorded the presence of noritic rocks on the north shore of Pine Channel at the east end of Lake Athabasca.

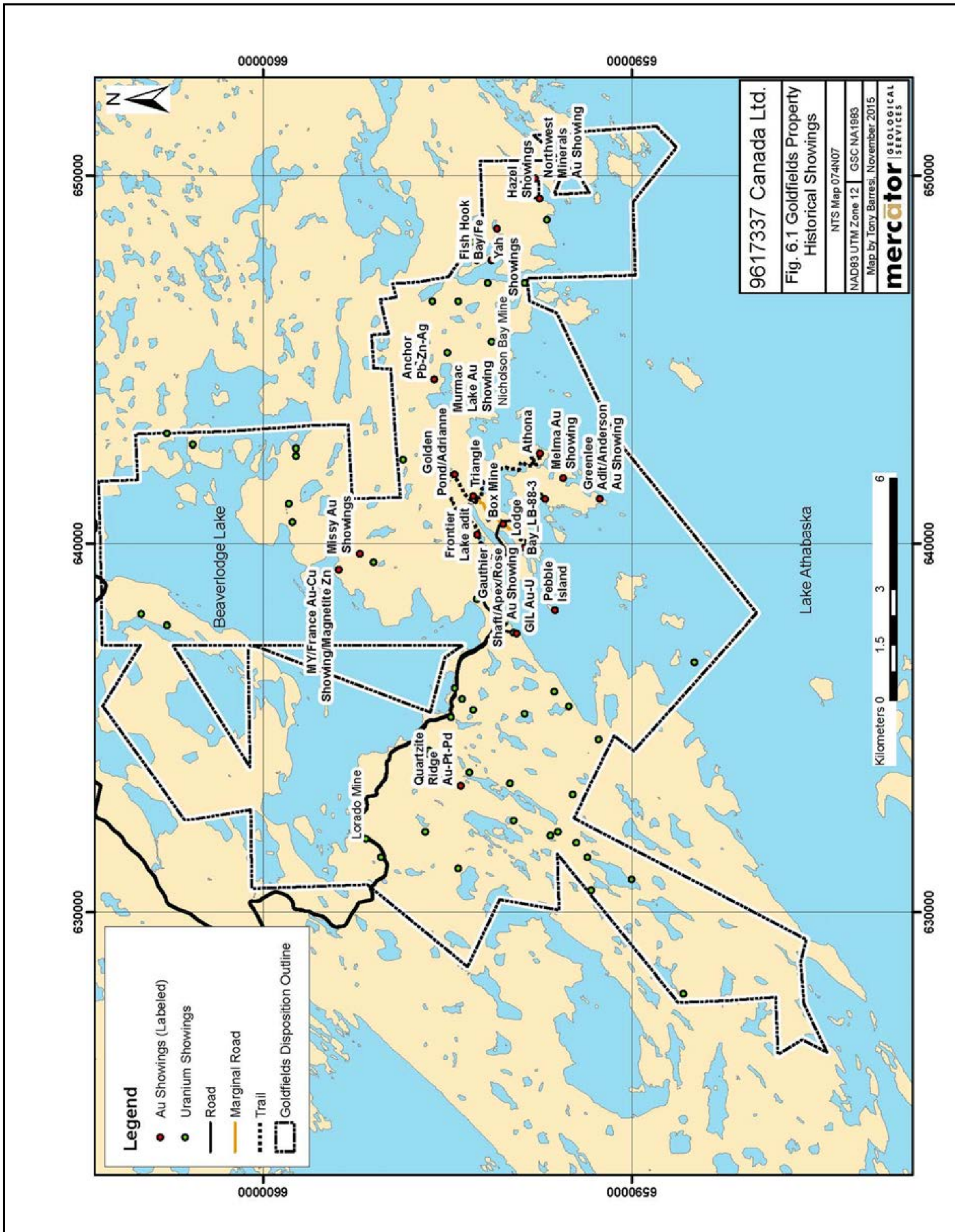
In August 1934, gold was discovered by Tom Box and Gus Nyman on the east shore of Vic Lake, adjacent to the now historic Box Mine (Figure 6.1). Cominco acquired the discovery by staking claims Vic 1 to 17 and subsequently carried out surface and underground exploration work.

There are conflicting reports concerning the number of diamond drill holes completed and the total meterage drilled during this early exploration period. Nicholson (1980) indicates that 13 drill holes were completed for a total of 1,273 m. Coombe (1984) reported that 27 diamond drill holes were completed for a total of 3,148 m of coring. Bench concentrate testing on a sample grading 2.35 oz/st (80.56 g/t) Au and 0.35 oz/st (12.0 g/t) Ag showed a recovery of 99.2 % (March, 2011). In July 1935, the No. 1 shaft, inclined at 42° to the southeast, was sunk to a depth of 76 m in the footwall close to the granite and amphibolite contact. In September of that year, the No. 2 shaft, a three compartment production shaft collared 390 m northeast of the No. 1 shaft, was sunk at an inclination of 45° to the southeast. Three levels were developed, these being at 30 m, 91 m and 152 m measured down dip. Drifts were driven near the footwall contact of the deposit and horizontal diamond drill holes were cored across the ore body from the 91 m level to intersect the main set of gold bearing quartz veins. Crosscuts were driven at each shaft station across the ore body and along certain underground drill holes to check analytical results.

In 1936, development work continued on the three levels with plans for a 100 short ton per day (st/d) mill at the Box Mine. In April of 1936, problems arose in the laboratory conducting gold assaying and in May the approved plans to increase the mill capacity to 500 st/d were rescinded. Difficulty in estimating the gold grades became apparent and three possible mining plans were considered that might aid in gold grade estimation. Firstly, the development of a limited tonnage of comparatively high-grade ore; secondly, the development of cross-zones which included a greater density of cross stringers; or thirdly, the mining of the whole orebody (Coombe, 1984). The decision was made to mine the entire body and stope development was initiated.

Development continued from the No. 1 and No. 2 shafts on the 91 m level. In June of 1937 the decision was made to increase the Box Mine to a 1,000 st/d cyanide mill operation, as well as to begin construction of a hydro-electric power plant. It was during this development period that the town of Goldfields, SK was incorporated.

In July of 1938, Box mine stope development indicated a lower grade of ore than anticipated. It was decided to carry out an extensive underground drilling program designed to intersect at right angles the main gold bearing quartz stringers. A total of 1,870 m of drilling was completed and ore reserves were recalculated to total less than one-half the original estimate. The new gold


9617337 Canada Ltd.
Fig. 6.1 Goldfields Property Historical Showings
NTS Map 074N07
NAD83 UTM Zone 12
GSC NA1983
Map by Tony Barresi, November 2015
mercator GEOLOGICAL SERVICES
Legend
Au Showings (Labeled)
Uranium Showings
Road
Marginal Road
Trail
Goldfields Disposition Outline
Kilometers 0 1.5 3 6
N
Beaverlodge Lake
Lake Athabaska
Lorado Mine
Quartzite Ridge Au-Pt-Pd
MY/France Au-Cu Showing/Magnetite Zn
Missy Au Showings
Gauthier Shaft/Apex/Rose Au Showing
GIL Au-U
Pebble Island
Frontier Lake adit
Box Mine
Lodge Bay_LB-88-3
Triangle
Golden Pond/Adrianne
Athona
Melma Au Showing
Greenlee Adit/Anderson Au Showing
Murmac Lake Au Showing
Nicholson Bay Mine Showings
Anchor Pb-Zn-Ag
Fish Hook Bay/Fe
Yah
Hazel Showings
Northwest Minerals Au Showing
630000
640000
650000
6600000
6590000

grade was approximately 0.138 oz/st (4.73 g/t) Au (Coombe, 1984). Hydro-electric development was then completed, with two tunnels diverting waters of Tazin Lake through a chain of lakes to a chosen site on the Wellington River. A power unit with 3,300 HP was installed and 35 km of transmission line brought power to the mine site. An agreement was made between Cominco and Athona Mines whereby the Box mine milling facility would process ore from the neighbouring Athona gold deposit, 2 km to the east, and provisions were made for a 3,000 st/d capacity.

By early 1939, Cominco completed 3,578 m of drifting and cross cutting as well as 8,967 m of drilling within the Box mine ore body. The Box mine gold deposit was classified as a large tonnage, low grade deposit. On June 27th, 1939 the first ore through the mill was processed at a rate of 500 st/d (453.6 t/d). The first gold brick, worth approximately Cdn $30,000, was poured in August of 1939. At the same time, the Box mill reached a capacity of 1,000 st/d (907.2 t/d). Underground mining methods took advantage of the ore geometry and deposit size to develop large stopes through block caving; Comino reported gold recoveries at 92 %.

By August of 1940, the mill production had reached approximately 1,200 st/d (1,088.6 t/d). An internal company letter reported the grade of the Box mill feed to average 0.0498 oz/st (1.707 g/t) Au (Nicholson, 1980).

In June of 1942, the Box mine was closed due to a work force shortage with the onset of World War II. Estimated reserves at the time of shut down were given as 2.28 million tons (2.07 million tonnes) at a gold grade of 0.050 oz/st (1.714 g/t) (Nicholson, 1980). This reserve estimate is historical in nature and was not prepared in accordance with NI 43-101 and the CIM Standards. A Qualified Person has not done sufficient work to classify these as current reserves and 9617337 Canada Limited is not considering them to be current reserves.

From 1939 to 1942, the Box mine processed approximately 1.29 million tons (1.17 million tonnes) of ore having a calculated gold grade of 0.048 oz/st (1.64 g/t) Au, recovering 65,066 ounces (2,023,826 grams) of gold and 62,205 ounces (1,934,837 grams) of silver (March, 2011).

6.3 Mining History of the Athona Deposit

The Athona gold deposit is located approximately 0.6 km southeast of Neiman Bay of Lake Athabasca, about 1.4 km south of the former town site of Goldfields and 2 km east of the Box mine (Figure 6.1). Following the discovery of gold at the adjacent Box mine the Lucky-Willy group of 14 claims at Athona were staked in the fall of 1934 and spring of 1935 for Great Bear Lake Mines Ltd., which subsequently changed its name to Athona Mines Ltd.

Work between 1935 and 1938 consisted of extensive trenching and diamond drilling with a total of 7,345 m of exploration core drilling completed that located several zones of mineralization.

Work had begun on two shafts in 1935 and both were sunk on the Main Zone as identified by mine engineer N.W. Byrne. The No. 1 shaft, a three compartment vertical shaft, was sunk to a depth of 85 m with levels at 38 m and 76 m and a westerly inclined 30 m winze from the 38 m level. Lateral development on the 38 m level consisted of 1,016 m into the West Zone and 479 m into the East Vein. Further lateral development on the 76 m level consisted of 658 m into the West Zone and 676 m into the East Vein. The No. 2 shaft, a two compartment -70° east inclined shaft located 244 m south of the No. 1 shaft, was sunk to a depth of 34 m with a level at 30 m and approximately 100 m of lateral development. In 1937, the company was reorganized following the acquisition of the Greenlee Mines Ltd. properties found at the south-end of the Goldfields peninsula, and renamed Athona Mines (1937) Ltd. Work on the Greenlee showing between 1935 and 1937 was comprised of trenching, 470 m of diamond drilling in 7 drill holes and the sinking of a prospect shaft. The Greenlee shaft was sunk to 15 m with 24 m of lateral work at that level (Bowe, 1988). Bulk sampling of the Athona mineralized zones was achieved by construction of a 15 st/d (13.61 t/d) pilot mill. Athona Mines continued underground development and reported values of 0.22 oz/st (7.54 g/t) Au (March, 2011).

A 1938 annual report indicates that the probable ore reserve in the Main Zone was 1,340,000 tons (1,215,628 tonnes) at 0.097 oz/st (3.325 g/t) Au (uncut) or 0.086 oz/st (2.948 g/t) Au (cut). The total ore (including probable) was 3,485,000 tons (3,161,539) at 0.086 oz/st (2.948 g/t) Au (uncut) or 0.080 oz/st (2.742 g/t) Au (cut) (Coombe, 1984). It was estimated that approximately 2,500,000 tons (2,267,962 tonnes) of ore were amenable to open pit mining based on a 1,500 st/d (1,360.8 t/d) operation.

The 1939 annual report indicated the ore reserves in the Main Zone as probable ore: 1,185,000 tons (1,075,014 tonnes) at 0.086 oz/st (2.948 g/t) Au and in the East Zone as 30,000 tons (27,215 tonnes) of probable ore at 0.26 oz/st (8.913 g/t) Au and 50,000 tons (45,359 tonnes) of possible ore at 0.17 oz/st (5.828 g/t) Au (Coombe, 1984). Mercator notes that the 1938 and 1939 reserve estimates are historical in nature and were not prepared in accordance with NI 43-101 and the CIM Standards. A Qualified Person has not done sufficient work to classify these as current reserves and 9617337 Canada Limited is not considering them to be current reserves.

Operations at the Athona deposit were discontinued in June 1939. The reasons given for cessation of operations were that, although sufficient development work had been done to bring the mine into production, no arrangements had been made with Cominco for treatment of ore on a custom basis, and no satisfactory source of power was available for operation of a mill (Coombe, 1984).

6.4 Additional Previous Work in the Box Mine and Athona Deposit Areas

Although the Box mine and Athona deposit are the most significant in terms of development and exploration activities in the Goldfields area, other showings were being discovered and actively staked during the same period. The following is a brief summary of exploration work carried out regionally in the Goldfields area using excerpts from technical reports by Jensen (2005a), Nadeau (1997) and the Government of Saskatchewan's online Mineral Deposit Index (SMDI).

After development operations ceased at the Athona and Frontier showings in 1939 and at the Box mine in 1942, exploration work in the Goldfields area shifted focus from gold to assessing the potential for uranium mineralization following the Beaverlodge uranium discoveries in the 1940's. Hundreds of uranium showings were subsequently discovered, of which 36 were explored underground and 16 reached various degrees of production.

By 1967, the Athona deposit was held under disposition CBS 305 held by Mokta Canada Ltd. (Mokta). Mokta completed a regional airborne radiometric survey and then followed up with ground mapping and uranium prospecting across the Athona and Cornwall Bay areas.

In 1968, Dejour Mines Ltd. completed detailed geological mapping and radiometric prospecting in the Box mine area. The work discovered a number of radioactive fractures and a small diamond drilling program was completed to test the fracture system in which one hole intersected pitchblende filled fractures over 15 cm of core.

In 1970, Norcan Mines Ltd. completed uranium exploration that included two diamond drill holes and radiometric prospecting, ground scintillometer and mineral surveys on land disposition CBS 305, which then covered the Athona and Cornwall Bay areas.

From 1979 to 1982, Denison Mines Ltd. (Denison) conducted line cutting, ground EM and magnetic surveys across the Box mine tailings area and the regional Goldfields area. Exploration for gold and uranium included 6 diamond drill holes (LB-79-1 to LB-79-3 and LB-79-5 to LB-79-7). No assessment records have been found for this period of work.

During the late 1980s, the focus shifted back toward gold as the Province of Saskatchewan experienced a boom in gold exploration. Exploration figures peaked at $55 million dollars in 1988 and 5 new gold mines in the province entered the production stage. Between 1987 and 1989, through funding with the Kasner Group of Companies (Kasner), GLR Resources Inc. (GLR), RJK Mineral Corp. (RJK) and Uranium City Resources Inc. completed extensive drilling, trenching and metallurgical work to assess the Box and Athona properties.

In September of 1988, three diamond drill holes (LB-88-1 to LB-88-3) were completed under Kasner's Lodge Bay exploration program for a total of 1,132.1 m of coring. Drill holes LB-88-1 and LB-88-2 are located approximately 700 m northeast of Box Shaft No.2 and are spaced at approximately 50 m. Neither contained significant gold values. Hole LB-88-3 was drilled to test the down dip extension of the Box mineralization on the southeast side of Neiman Bay (Figure 6.1) and contained anomalous gold values, the best intersection being 0.136 oz/st (4.662 g/t) Au over 3.0 m (Bowe and Petrie, 1988). Drill hole VI-88-1 was completed to test the potential of the Vic Lake Fault zone, located at the boundary between the Lodge Bay and Box projects, and no significant gold values were returned.

At the Box mine a total of 6,384 m were drilled in 1988 in 52 diamond drill holes (BX88-1 to BX88-51). Another 52 drill holes (A88-1 to A88-52) were completed in 1988 at the Athona deposit for a total of 5,323 m of BQ sized coring. Nine of these holes were surveyed with a Mount Sopris down hole radiometric logging instrument. The results indicated that none of the surveyed holes contained significant uranium mineralization. However, a slight increase in radioactivity was detected in the Box mine granites, foliated granites and hornblende gneisses, which may have been be attributable to the presence of potassium feldspar and sericite.

In 1988, GLR completed an ore reserve calculation to support a prefeasibility study for the Box and Athona deposits using 1934 to 1988 data. This work was reported in assessment report AF 74N-0005 but no digital files are available for the work.

In 1989, RJK completed a reverse circulation drill program on the Box and Athona properties. The primary objective was to verify and better define gold grades at the two deposits. It was thought that a reverse circulation (RC) hammer drill would obtain a larger sample size and therefore lessen the nugget effect in the assay results. Individual samples weighed approximately 36 kg and were taken at 1 m intervals from holes with diameters of up to 14 cm. RJK completed 47 RC drill holes (BR-89-52A to BR-89-98) for a total of 3,169 m of drilling at the Box mine, of which 22 holes were collared at 12.5 m centres to assess the possibility of higher grade mineralized pods. The remainder of the 1989 RC holes were collared at 25 m centres. When combined with the previous diamond drilling, the overall drill hole coverage at the Box mine was at 25 m spacing.

At the Athona deposit, 11 RC holes (AR-89-53 to AR-89-63) were completed for a total of 1,175 m drilled in 1989. The majority of these 11 holes were exploratory, testing the western extension of the Main Zone, and the remainder were drilled to verify previous drill results and underground development in the Main Zone. Samples from both the Box and Athona reverse circulation programs were also used for bulk sampling purposes for a metallurgical cyanide leach test conducted in 1990 by Casmyn Research and Engineering, results of which were reported in Casym (1990).

In 1990, R.G. Gray Consultants Ltd. (Gray) was retained by RJK to conduct a statistical study of the reverse circulation (RC) drilling results that were used to complete the Casmyn leach test. The purpose of the study was to assist in completing a mineralized reserve model using only the new RC results for comparison with reserves modelled from previous diamond drilling and trenching results, as well as to determine the best method of combining the new RC sample data with the previous data in order to estimate the tonnage and grade of the deposit. Most of the analysis was completed by mid-June of 1990, and the results were communicated to RJK at which time the project was terminated. The statistical study was completed on 2,197 samples from the total of 3,457 RC samples used for the Casmyn leach analysis. The main difference noted by Gray in the new RC data was a considerable reduction of higher grade samples, over 0.15 oz/ton (5.142 g/t), as a percent of total samples over 0.01 oz/ton (0.343 g/t). The higher grade samples that were reported do not appear to be highly clustered, resulting in lower overall grade estimates for the mineralization when interpolated with these samples alone (Gray, 1991). Gray suggested that further analysis was required in order to propose the most accurate method of integrating the latest RC data with the considerable amount of previous data available from the Goldfields property.

Between 1994 and 1995, GLR completed 282 diamond drill holes and a total of 35,944 m drilled at the Box mine and Athona deposit. The drill programs were designed to infill previous drilling, to provide additional geological and geometrical information for orebody modeling and resource calculations, and to provide material for metallurgical testing (McKay, 1997). A logging protocol was introduced in 1994 to describe the mineralized units in 1 m increments so that systematic documentation could be maintained. Later in 1995, these values were recorded as a lithocode value instead of written text to expedite logging and provide numerical information for modelling and statistical studies. When drilling intersected the mineralized zones the complete BQ sized drill core was sampled in 1 m intervals and assayed for gold by the total metallic technique at TSL Laboratories in Saskatoon. At the Box Mine 152 drill holes (B94-99 to B95-250) were completed for a total of 25,531 m cored. At the Athona deposit, 130 drill holes (A94-64 to A95-193) were completed for a total of 10,413 m cored.

In 1995, GLR completed 2 diamond drill holes (PI95-1 and PI95-2) for a total of 418 m of coring on Pebble Island, 2.5 km southwest of the Box Mine (Figure 6.1). Located at the northeast tip of Pebble Island, the showing consists of visible gold and associated chalcopyrite mineralization within quartz veining. However, no records are available for this 1995 assessment work.

In early 1995, J.F. Touborg Consultants Inc. (Touborg) were retained by GLR to complete a radar study of an area between the Box mine and Fish Hook Bay for the purpose of developing new exploration targets and guidelines for advanced mine development at the Box mine and Athona properties. Radar enhancements were interpreted at 1:100,000, 1:50,000 and 1:31,500 scale to develop structural concepts and ideas for exploration follow-up at the Box, Athona and Fish Hook Bay properties. Touborg (1995) reported that the Lake Athabasca shoreline from Milliken Lake to Fish Hook Point appears to be controlled by a large ENE-WSW fold, axial plane fault and Athabasca basin fault. The axial plane fault was illustrated by fold closures in metasedimentary units extending into Lake Athabasca and the alignment of the lake shorelines. These faults further act as conduits and depositories for hydrothermal and supergene vein mineralization (Jensen, 1996). Many of the Goldfields mineral occurrences are located in close proximity to these major lineament features and several groups of occurrences lie on specific lineament orientations.

In 1995, detailed geological mapping of trenches at the Box mine was completed by F. Hurdy in conjunction with a reconnaissance sampling program to confirm earlier assay results from various Goldfields occurrences. Jensen (1996) reported that the detailed mapping and sampling of the Box trenches confirmed that higher grade gold is associated with northerly trending quartz vein systems, and is in association with galena and sphalerite mineralization.

During 1995, the most recent diamond drill holes completed on the Box and Athona deposits were located and surveyed, as well as several of the original survey monuments, mine workings, vent raises and shaft collars. The newly surveyed drill hole collar information and surface trenches were incorporated into an updated database used for resource estimation.

A feasibility study for the Box Mine and Athona deposit was completed by H.A. Simons Ltd. (Simons) in 1996. Simons (1996) reported a total reserve of 16,600,000 tonnes at 1.727 g/t Au and 921,440 ounces of gold. Mercator notes that this reserve estimate is historical in nature and was not prepared in accordance with NI 43-101 and the CIM Standards A Qualified Person has not done sufficient work to classify these as current reserves and 9617337 Canada Limited is not considering them to be current reserves.

In support of the Simons feasibility study, Klohn Crippen Consultants Ltd. (KCC) undertook a preliminary open pit design survey for GLR. The 1995 KCC preliminary report suggested that it would be possible to develop slopes with inter-ramp angles of 60° to 65° on the hanging walls (E and SW walls) and end walls (SE and NE walls) (Willms, 2013). The footwall (NW wall) slopes would need to be flatter due to the foliation and the geometry of the ore body (Willms, 2013).

In 1997, Behre Dolbear completed an ore reserve audit of published reserves for the combined Box and Athona deposits. Behre Dolbear reported combined proven and probable in-situ reserves to be 9,830,000 tonnes at 2.182 g/t Au for 689,681 troy ounces of contained gold (Behre Dolbear, 1996). As for the preceding estimates, Mercator notes that this reserve estimate is historical in nature and was not prepared in accordance with NI 43-101 and the CIM Standards. A Qualified Person has not done sufficient work to classify these as current reserves and 9617337 Canada Limited is not considering them to be current reserves.

In 1997, GLR retained Dighem (CGG Canada Ltd.) to fly an airborne geophysical survey over the claim holdings. From June 3 to June 13, 1997 a 2,391 line km survey block was flown for electromagnetic (EM), resistivity, magnetic and radiometric surveys. The surveys contain numerous anomalous features, many of which were considered to be of moderate to high priority as exploration targets. Most of the inferred bedrock conductors were said to warrant further investigation using appropriate surface exploration techniques (Garrie, 1997).

In 2001, GLR stated that an environmental impact study had been completed and Gekko of Australia reported excellent recoveries from simple gravity processing of Box mine mineralized samples. GLR also reported that the Fish Hook Bay and Nicholson Bay prospects showed similarities to the Coronation Hill uranium deposit in the Katherine-Darwin region of the Northern Territory, Australia.

During a period from August 2004 to May 2005, GLR completed a two phase diamond drilling program for the purpose of confirming previous drilling from the 1988/1989 and 1994/1995 drill programs at the Box mine. The confirmation drill program consisted of 37 NQ sized holes (B04-251 to B05-285) for a total of 4,307 m cored. Five of the 37 holes were drilled specifically for piezometer testing and three more piezometers were installed in previously drilled holes for modeling the water flow within the rock units near the Box deposit. The confirmation drilling was requested by AMEC Americas Ltd. (AMEC) that had been retained to produce a new resource estimate for the Box deposit. Assays of the drill core were required to verify results obtained from earlier programs that used the entire core for analysis. Based on the 2004 audit of the Box mine database, AMEC recommended that the database be rebuilt. In February 2005, GLR and AMEC reconstructed the drill hole collar, down-hole survey, gold assay and lithologic databases and determined them to be accurate and suitable for resource modelling purposes (Amec, 2006).

In October of 2005, after an initial resource estimate was completed, GLR discovered that the underground drift and cross cut surveys used in the resource estimate model were incorrectly located. The azimuths for those data had already been rotated into the Box mine grid system while the azimuths for the rest of the data were relative to true north (Jensen, 2005a). The database was rebuilt again; wireframes reconstructed, sample verification re-done, and block grades re-estimated. The underground data was relocated and approved as being reasonably located. In 2006, AMEC reported a measured resource of 1,915,000 tonnes at 1.61 g/t Au and 99,000 ounces of gold for the Box Mine deposit. Indicated resources totalled 11,330 tonnes grading 1.41 g/t Au and Inferred resources totalled 96,000 tonnes grading 1.48 g/t Au (Amec, 2006). Mercator notes that this resource estimate is historical in nature, a Qualified Person has not done sufficient work to classify these as current resources and 9617337 Canada Limited is not considering them to be current resources.

In 2006, GLR completed 16 diamond drill holes (A06-194 to A06-211) at the Athona deposit for a total of 1,592 m of NQ sized coring. Once again, the first objective of the program was to confirm by drilling the previous gold values obtained during the 1994/1995 and 1987/1988 drill programs, as well as drilling prior to 1939 at the Athona deposit. Wardrop Engineering Inc. (Wardrop) was contracted by GLR to complete a feasibility study of the Athona deposit. Wardrop selected 10 drill holes (A06-194 to A06-197 and A06-206 to A06-211) for confirmation purposes. The results of the 2006 confirmation drilling program agreed with the gold grade previously obtained at selected areas of the Athona deposit. The highest gold assay results were intersected in hole A06-207, that returned 4.23 g/t Au over 25 m, beginning at a downhole depth of 96 m, and A06-211, that returned 5.33 g/t Au over 9.8 m beginning at a downhole depth of 1.2 m (Mihailovic and Nadeau, 2006).

The second objective of the 2006 drill program was to test the extensions of gold bearing quartz vein zones outside the projected pit outline at the Athona deposit. A total of six drill holes (A06-198 to A06-203) were completed on the east side of the proposed Athona pit. Nadeau (2006), concluded that results of the 2006 exploration drilling program indicated that gold mineralization extends further to the north and south of veins H, K, F, and M of the “Vein Zone” and suggested that follow up work be completed to support an increase in resources for the Athona deposit.

In 2007, GLR completed a bio-geochemical “twig survey” across a grid on the northern extension of the Box mine area. The baseline of the grid measured 1,800 m in length and was crossed by 30 survey lines oriented at 315°, with 75 m spacing, between Neiman Bay and Frontier Lake, as well as crossing the Golden Pond target area at the north end of the grid. Where vegetation allowed, twig samples were collected at stations every 50 m along the survey lines. Twigs were cut from branches and bagged to provide sufficient sample weight. The bio-geochemical samples were sent to Activation Laboratories where the twigs were ashed in a kiln and then analyzed for Au content by Instrumental Neutron Activation Analysis (INAA). Once plotted, the survey results indicated that the anomalous gold values, above 200 ppb Au, were concentrated in the south end of the survey grid proximal to the Box mine area.

In 2007, GLR completed 13 drill holes (B07-286 to B07-298) at the Box mine totalling 3,348 m of coring. The purpose of the 2007 drill program was to explore for further mineralization potential. The first phase (B07-286 to B07-290) was designed to test the northern extension of the Box mine granite on the north side of Neiman Bay, up to 700 m north of the Box mine head frame. No significant gold results were returned from the northern phase of drilling, and these holes were later re-logged as condemnation holes for future infrastructure planning. The second phase (B07-291 to B07-298) was designed to test the extension of the Box mine granite on the south side of the proposed pit outline. Six of the thirteen holes drilled in 2007 intersected gold mineralization and samples were sent to TSL Laboratories in Saskatoon for gold analysis by fire assay and screen metallic methods. The best results were from hole B07-294, with 5 samples returning grades over 5 g/t Au, and up to 69.67 g/t Au, over sample widths of 1 m beginning at a down hole depth ranging between 184 m and 237.4 m. All mineralized samples consisted of medium to coarse-grained grey granite cut by sulphide bearing quartz veins.

In 2008, GLR completed 3 diamond drill holes (B08-300 to B08-302) for condemnation purposes in preparation of proposed development activities. Drill holes B08-300 and B08-301 were both collared 200 m northeast of the Box mine shaft and tested a geochemical anomaly from the 2007 twig sampling survey. No significant gold results were returned from the drilling program. The proposed waste rock site was condemnation drilled by hole B08-302, which was collared in the valley between the Golden Pond and Frontier Lake showings. Hole B08-302 tested a magnetic anomaly from the 2007 Condor Survey. This hole contained no significant gold results or evidence of increased alteration or quartz veining.

On August 21, 2009, GLR announced the sale of all its Goldfields assets to Linear Gold Corp. (Linear). In 2010, Linear completed 4,198 m of drilling in 16 holes. Drilling was conducted in two phases. The Phase 1 drill program (holes B10-303 to B10-307 and B10-314) was designed to intersect the Box mine mineralized zone at depth from the southeast side of the deposit. The Phase 2 drilling (A10-212, A10-213, and B10-308 to B10-313, FR10-001 and FR10-002) was intended to test anomalous areas outlined by a Titan 24 DC/IP geophysical survey, conducted concurrently to the Phase 1 drilling, on the Athona, Golden Pond and Frontier Lake areas. The DC/IP survey was completed by Quantec Geoscience Ltd. on February 18, 2010 over a grid of 14 lines oriented at 118° totalling over 58.7 km of cut line. A total of 8 separate resistive high anomalies were identified across the grid. Dixon and MacLaren (2012) concluded that the 2010 drilling of the DC/IP survey targets, although successful in identifying the source of the various anomalies, did not identify economic mineralization and no further drilling of those targets was recommended.

In June of 2010, the merger of Linear with Apollo Gold Corp. formed Brigus Gold Inc. (Brigus) which maintained ownership of the Goldfields mineral land dispositions through the subsidiary 9617337 Canada Limited.

From June 6th to September 16th, 2011 Brigus continued the Goldfields assessment work with delineation and geotechnical drill programs. Delineation drilling in 2011 was designed to intersect mineralization below the pit limits and to upgrade some of the resources at the Box and Athona deposits from inferred to indicated status. The program also included infill holes within the mineralized zones at both deposits. The infill program consisted of 17 holes (B11-315 to B11-327 and A11-214 to A11-217) and produced a total of 3,093 m of NQ sized core. Results were reported as promising; the highest assay result of 10.31 g/t Au, was returned for the sample interval between 171 and 172 m downhole in hole B11-323, within the Box mine granite. Also, a notable mineralized section in the Box mine granite was returned from hole B11-322 which graded 7.88 g/t Au for the 27.5 m downhole interval from 145.5 to 173.0 m.

The second drill program completed by Brigus in 2011 was part of a geotechnical drilling and mapping project in support of a pre-feasibility level site investigation of the proposed Box mine open pit. Klohn-Crippen Berger Ltd. (KCB) engineering consultants, formerly Klohn Crippen Consultants Ltd., were retained to complete a site investigation that included geotechnical drilling, strength testing, hydraulic conductivity assessments, acoustic televiewer surveying and structural mapping in support of the pre-feasibility level open pit slope design. The geotechnical drill program consisted of 4 diamond drill holes (B11-328 to B11-331) that totalled 819 m of HQ sized coring. KCB carried out geotechnical core logging on site in order to characterize the rock. Information recorded included; lithological description, core recovery, rock quality designation (RQD), estimation of intact rock strength, weathering, alteration type and intensity (Willms, 2013). Frontier Geosciences Inc. of North Vancouver was sub-contracted to perform an acoustic televiewer survey in each of the four KCB holes, as well as three exploration holes (B11-323, B05-266 and B05-283), to measure broken zones and joints in the borehole walls. A field mapping program was also conducted during the geotechnical program to augment the drilling data and confirm structures previously identified from air photos. D. Willms of KCB recommended using a 65° base case bench face angle for the pre-feasibility level pit design. The study conclusions have limitations due to the small number of test holes obtained from widely spaced subsurface exploration (Wilms, 2013) .

During 2011, Brigus retained March Consulting Associates Inc. (March Consulting) to complete a resource estimate in accordance with NI43-101 for the Goldfields project to support a new pre-feasibility study. March (2011) reported resource estimates for the Box mine, based on an ordinary kriging (OK) interpolation deposit model. The estimate reflects a 0.5 g/t Au cut-off grade and includes measured resources of 858,000 tonnes at 2.05 g/t Au, indicated resources of 12,966,000 tonnes at 1.63 g/t Au and inferred resources of 3,158,000 tonnes at 1.74 g/t Au. The ordinary kriging (OK) resource estimates for Box were estimated for a range of gold cut off grades (COGs) from 0.125 g/t Au to 4.0 g/t Au (Daigle, 2014). The March (2011) technical report outlined combined proven and probable reserves for the Box mine and Athona deposit, at a 0.5 g/t Au cutoff value, to total 22,333,045 tonnes at an average grade of 1.420 g/t Au (1,020,000 troy ounces of contained gold). Mercator notes that this combined reserve estimate is historical in nature, a Qualified Person has not done sufficient work to classify these as current reserves and 9617337 Canada Limited is not considering them to be current reserves.

It was concluded in the 2011 pre-feasibility study that the Goldfields Project had progressed to the point of defined resources and reserves. The capital and operating costs determined for 2011 were found to provide acceptable project economics. Recommendations identified for the Goldfields project included; continue exploration drilling in relevant areas to enhance the resource estimate, conduct project specific process test work and optimize process recovery, complete the geotechnical assessment and update the reserve models to reflect the potential revised pit design, and advance the project planning and design to minimize potential execution risks. The 2011 March Consulting NI 43-101 technical report was re-issued on March 13, 2014 as March (2014) in the name of Fortune Bay Corp. without material change to resource or reserve estimates or report conclusions and recommendations. Mercator notes that this re-issued reserve estimate is now historical in nature, a Qualified Person has not done sufficient work to classify these as current reserves and 9617337 Canada Limited is not considering them to be current reserves.

6.5 Exploration History of Frontier Lake Area

The Frontier gold showing was discovered between 1930 and 1934 on the northeast corner of Triangle Lake, and lies 180 m northwest of Frontier Lake. It was originally held by the Frontier Trust claim group (Figure 6.1). The Saskatchewan Mineral Deposit Index (SMDI) for the Frontier Lake Showing (#1211) reports that in 1935, Coniagas Mines Ltd. optioned the claims and completed 80 surface pits and trenches, as well as 10 diamond drill holes to test the gold showing. In 1937, Cominco optioned the Frontier property and completed further trenching and 11 diamond drill holes. An adit was driven northwest from the small lake and 186 m of drifting and 104 m of cross-cuts were completed to explore pyritic quartz vein stockwork hosted within granite. In 1939 the option was cancelled and Cominco allowed the claims to lapse.

In 1953, Athabasca Goldfields and Uranium Ltd. completed 3 diamond drill holes on the YW claims located north of Frontier Lake (Jensen, 1996).

In 1968, Dejour Mines Ltd. completed airborne and ground scintillometer surveys, radiometric prospecting and detailed geological mapping in the Frontier Lake area (Jensen, 1996).

In 1977, the Frontier showing was staked by the Saskatchewan Mining Development Corporation (SMDC), a provincial crown corporation established in 1974. In 1980, SMDC completed reconnaissance prospecting on the Frontier property and sampled existing showings for gold, uranium and base metals. In 1982, SMDC completed further reconnaissance work that included prospecting, mapping, sampling of gold showings and lake sediment sampling. The 1982 program resulted in the discovery of regional gold showings, such as the Anderson, located 2.9 km to the south of the Frontier Lake adit.

In 1983, SMDC completed 12 underground diamond drill holes (LBU-1 to LBU-12) on the Frontier showing west and east zones for a total of 744 m of coring, as well as further geological mapping and sampling. Surface exposures were mapped and sampled from the three main trenches named VG, Bonanza and Midas. Northerly trending quartz veining returned a best value of 2.50 g/t Au (no width stated in reference) from the Midas trench. Only low values were returned from the Bonanza trench and the best value from the VG Trench was 4.94 g/t Au (no width stated in reference), with visible gold present. SMDC completed EM-16, VLF-EM, IP and magnetic surveys over the Frontier showing and also over the Anderson and Nicholson grids (Jensen, 1996).

In 1984, SMDC completed 9 diamond drill holes (LB4-1 to LB4-9) in the Frontier, Anderson and My-France grids of the Goldfields area. The Frontier Lake drilling totalled 354 m of BQ sized coring from holes LB4-6 to LB4-9. Hole LB4-6 returned best values of 3.70 g/t Au and 0.72 g/t Au both over 1 m (no depth stated in reference) and 1.51 g/t Au and 1.44 g/t Au both over 1 m from holes LB4-7 and LB4-8 (no depth stated in reference) (Jensen, 1996). During the same year, SMDC completed further prospecting, mapping and soil/grab sampling, as well as EM/magnetic surveys across the Frontier grid extension.

In 1988, the assets of SMDC were merged with those of Eldorado Nuclear Ltd., under the terms of the Saskatchewan Mining Development Corporation Reorganization Act, to form the Canadian Mining and Energy Corporation or Cameco Corp. (Cameco). Cameco, based out of Saskatoon, would go on to become one of the world's largest publicly traded uranium producing companies.

In 1988, during the peak of gold exploration in Saskatchewan, Cameco completed 3,402 m of coring in twenty-five diamond drill holes within the Goldfields and Beaverlodge Lake areas exploring for gold, uranium and platinum group elements. Nine diamond drill holes (F-88-1 to F-88-9) were completed on the Frontier showing for a total of 1,159 m of BQ sized coring. The best gold results from this program, all over 1.0 m core sample intervals, were returned from: hole F-88-5 with 2.23 g/t Au (no depth stated in reference); F-88-7 with 1.51 g/t (no depth stated in reference); F-88-8 with 1.75 g/t Au (no depth stated in reference) and F-88-9 with 1.2 g/t Au and 14.57 g/t Au values (no depths stated in reference) (Jensen, 1996). In addition, 9 grab samples were taken for geochemical analysis from the Frontier showing.

In 1995, a joint venture involving GLR and claim holder R. Dudnick completed a reconnaissance program of prospecting and rock sampling which covered the Frontier Lake showing. A total of 18 grab samples were taken from various trenches and quartz veins around the Frontier Lake adit. Sample 19103, taken from the Frontier adit area, returned 53.25 g/t Au and 2.2 ppm Ag (no length stated in reference). The joint venture work resulted in the discovery of a new showing on the southeast shore of Frontier Lake at the midpoint of the shore, or approximately 450 m southeast of the Frontier adit. Highlights include grab sample 19223 which returned 0.09 oz/ton (3.02 g/t) Au, 2.6 ppm Ag and 4900 ppm Cu, and grab sample 19224 which assayed 0.09 oz/ton (3.05 g/t) Au, 37 ppm Ag, and 3500 ppm Cu (SMDI #1211).

In 2008, GLR completed three diamond drill holes (FR08-01 to FR08-03) on the Frontier showing for a total of 675 m of NQ coring. The three drill holes are tightly clustered within 25 m of each other and collared approximately 175 m northeast of the Frontier adit. No assessment reports have been found for the 2008 drill program on disposition CBS 5664. The drill logs indicate that the 2008 Frontier drilling was exploratory and that all three holes first intersected black, massive amphibolite for 3 to 30 m then continued through interbedded pink granite and grey arkosic quartzite, both with 5 to 10 percent quartz veining and trace to minor pyrite and hematite mineralization. The 2008 core sampling was focused on mineralized quartz veining with 1 m sample intervals sent for gold analysis by fire assay to TSL Laboratories in Saskatoon. The best result was from hole FR08-03 with 2.24 g/t Au over a 1.0 m interval from 42 to 43 m downhole within a 10 m unit of fine-grained pink granite with 5% quartz veining and up to 3% pyrite in local patches.

In 2010, Linear Gold completed two diamond drill holes (FR10-001 and FR10-002) in the Frontier Lake area for a total of 697 m of NQ coring. The Frontier drill holes were part of a broader 10 hole drill program intended to test anomalous areas outlined by a Titan 24 DC/IP geophysical survey completed on the Athona, Golden Pond and Frontier Lake areas in the same year. FR10-002 was collared near the southwest shore of Frontier Lake and ended at a depth of 200 m in pink to grey banded meta-quartzite and was not sampled. Drill hole FR10-001 was collared approximately 330 m northeast along the main road between Frontier Lake and Vic Lake. The drill log indicates that hole FR10-001 intersected banded pink and grey quartzite interbedded with dark green chloritic amphibolite. A total of 40 samples from hole FR10-002 were sent to TSL Laboratories for gold analysis by the screen metallics method; the best result was 1.22 g/t Au over the 1.0 m interval from 162.5 to 163.5 m within a brecciated quartzite unit. Dixon and MacLaren (2012) concluded that the 2010 drilling of the DC/IP survey targets, although successful in identifying the source of the various anomalies, did not identify economic mineralization and no further drilling of those targets was recommended.

6.6 Exploration History of Golden Pond/Adrianne Showing Area

The Golden Pond area was prospected, first for gold and later for uranium mineralization, beginning in the early 1930's. Exploration work conducted early during this period, by persons unknown, resulted in the discovery of the Adrianne Showing, 1.75 km northeast of the Frontier adit, and three separate areas were trenched.

From 1978 to 1981, a Denison and SMDC joint venture completed prospecting, geological mapping and sampling of existing showings in the Goldfields area.

In 1982, SMDC completed further geological mapping, prospecting and sampling that resulted in the re-discovery of the Adrianne Gold Showing.

From 1987 to 1988, the Kasner Group of companies renamed the Adrianne, Jane and Suzanne showings as the "On Golden Pond Lake" or "Golden Pond Showing" and conducted a grab sampling campaign on the property. In 1988, Kasner completed 6 diamond drill holes (GP-88-1 to GP-88-6) for a total of 577 m of BQ sized coring. Drill hole GP-88-3 was collared 300 m to the southeast of the showing near the amphibolite-granite contact along a proposed extension of the Frontier Fault and no significant gold mineralization was encountered. The best results were returned from drill holes GP-88-1 and GP-88-2, which were designed to drill beneath a zone where surface quartz vein samples (assumed to be grabs) containing pyrite and galena assayed between 0.233 to 0.963 oz/ton (7.99 to 33.01 g/t) Au. Drill hole GP-88-1 recorded anomalous gold values ranging from 130 to 860 ppb Au over one metre sample intervals associated with quartz veining with associated pyrite and galena mineralization. Drill hole GP-88-2 recorded gold assays ranging from 0.019 to 4.34 oz/ton (4.34 to 148.78 g/t Au) over 1 m down hole intervals. Two specks of visible gold were observed in the core at down hole depths of 33.7 and 37.0 m, these being associated with quartz veins containing pyrite, galena and sphalerite hosted by porphyritic granite. Bowe (1988) concluded that the anomalous gold values recorded in GP-88-1 and GP-88-2 correlate with veins observed in the core but these mineralized zones do not correlate with the observed vertical auriferous quartz veins found at surface within the Adrianne Showing.

From 1995 to 1998, the Golden Pond showing was held by R. Dudnick, who completed prospecting and rock sampling, lake sediment sampling and chip sampling of historical trenches. In 1995, Dubnick and GLR collaborated on two diamond drill holes (GP95-7 and GP95-8) for a total of 221 m of drilling. These holes were designed to test the mineralization located in the Adrianne Zone 1 trench and the previous intersection reported from drill hole GP-88-2. Drill hole GP-95-7 intersected an average of 5.1 g/t Au over 15 m, which contained 2 zones of higher grade, these being 4.6 g/t Au over 6 m and 8 g/t Au over 6 m (no depth stated in reference) (Nadeau, 2008). Drill hole GP-95-8 intersected anomalous values averaging 0.5 g/t Au over 16.24 m (no depth stated in reference) (Nadeau, 2008). The Saskatchewan Mineral Deposit Index (SMDI) for the Golden Pond Showing (#2308) reports that 11 grab samples taken in the immediate showing area returned values of up to 0.22 g/t Au, 0.3 ppm Ag and 310 ppm Cu. The best result reported by SMDI for the showing was from grab sample number 19174, which returned 66.4 g/t Au, 32.0 ppm Ag and 190 ppm Cu. In 1996, chip sampling from west of Golden Pond returned 600 ppb Au, 640 ppb Au and 0.168 oz/ton (5.76 g/t) Au but sample interval lengths are not recorded (SMDI).

In 1997, a 2,391 line km survey block was flown for electromagnetic (EM), resistivity, magnetic, and radiometric surveys over three areas covering the GLR properties. The claim covering the Golden Pond showing was allowed to lapse in February of 2001.

In 2001, Dubnick re-staked the Golden Pond showing under mineral disposition S-106690. In August of 2002, Dubnick completed prospecting, stripping, trenching and sampling from which good lead values were returned from a quartz vein with galena. The vein was trenched and chip sampled and further work revealed two more mineralized quartz veins. The showing was named the Dubnick Vein 1 to Vein 3 Lead Showing. In the summer of 2003, Dubnick completed stripping, 5 trenches, geological mapping and sampling of the area. Trenching encountered polymetallic mineralization within a quartz vein (Vein 3) with grab sample values up to 113.5 ppb Au, 300 ppm Ag and 360 ppm Cu (SMDI).

In 2006, GLR completed 4 diamond drill holes (GP-06-01 to GP-06-04) for a total of 306 m of NQ sized coring. Drill holes GP-06-01 and GP-06-02 were drilled from the same collar and appear to be testing mineralization encountered in hole GP-88-2. Drill holes GP-06-03 and GP-06-04 were also drilled from the same collar and appear to be testing mineralization encountered in hole GP-88-5. No results or assessment have been found for the 2006 period of drilling.

In 2007, GLR completed a bio-geochemical "twig survey" across a grid on the northern extension of the Box mine area to the Golden Pond showing. The baseline of the grid measured 1,800 m in length and was crossed by 30 survey lines oriented at 315°, with 75 m spacings, between Neiman Bay and Frontier Lake and crossed the Golden Pond target area at the north end of the grid. Where vegetation allowed, twig samples were collected at stations every 50 m along the survey lines, the latest 50 cm of growth were cut from branches and bagged to provide sufficient sample weight. The bio-geochemical samples were sent to Activation Laboratories where they were ashed in a kiln and then analyzed for gold content by Instrumental Neutron Activation Analysis (INAA). Once plotted, the survey results indicated that most of the anomalous gold samples, above 200 ppb Au, were concentrated in the southern end of the survey grid proximal to the Box mine area.

In 2008, GLR completed 9 diamond drill holes (GP08-01 to GP08-09) for a total of 1,648 m of NQ sized coring. No assessment reporting has been found for the 2008 drill program on disposition CBS 5667. The drill logs for the 2008 Golden Pond drill program indicate that the holes were designed to have exploration and condemnation purposes. The drilling targeted mineralized areas, as well as minor geochemical anomalies outlined in the 2007 twig survey. The 2008 core sampling was focused on mineralized quartz veining with 1 m sample intervals sent for Au analysis by fire assay to TSL Laboratories in Saskatoon. The best result from the program was from hole GP08-09, which returned 4.22 g/t Au between downhole depths of 35 m and 36 m within a unit of amphibolite with granitic inclusions and up to 5 % quartz veining. Visible gold occurs at 35.65 m. The next best result was returned from near surface in drill hole GP08-01 with where 4.18 g/t Au was returned between downhole depths of 2 m to 3 m within a coarse-grained granitic unit with less than 5 % quartz veining and minor pyrite. No other samples from the 2008 program returned gold values in the multiple-gram range.

6.7 Exploration History of Fish Hook Bay Area

The earliest record of work in the Fish Hook Bay area was a report of iron deposits made by J.B. Tyrrell in his 1894 Geological Survey of Canada (GSC) Report.

Between 1914 and 1916, F. Alcock conducted work for the GSC in the Lake Athabasca Region and stated that the Fish Hook Bay Iron showings were not of ore grade and therefore of no commercial importance (Christie, 1952).

In 1921, several mineral claims were staked in the area to cover the iron deposits. The Fish Hook Bay showing was assessed in 1922 by J. Allan and A. Cameron of the University of Alberta who concluded that the long distance from market and low grade of the iron prohibited any commercial development of iron ore from the area. The claims were allowed to lapse.

During the 1940's, with the discovery of the Beaverlodge uranium showings, the Fish Hook Bay area was again staked with several patented claims. The area around Fish Hook Bay was extensively explored by Eldorado Nuclear Ltd. (Eldorado). Eldorado conducted surface prospecting and geological mapping which resulted in the discovery of about 278 radioactive showings, with 40 containing visible pitchblende or secondary uranium alteration minerals. Most of these were trenched and sampled, and during the period between 1945 and 1948 about 80 diamond drill holes were completed, totalling almost 9,144 m (Nadeau, 2007).

Between 1948 and 1954, Eldorado completed a sampling program, a Geiger survey and 41 diamond drill holes on the Fish Hook property (Nadeau, 2007). The diamond drill core was assayed for uranium, however the results are not available.

In 1956, Eldorado staked the Fish Hook Bay area under claim CBS-8204. Three uranium zones were defined based on the extensive drilling completed in the area. Zone A was outlined along the peninsula, Zone B and Zone C were defined along the western shoreline of Fish Hook Lake.

From 1957 to 1960, Black Bay Uranium Ltd. (Black Bay) was actively involved in the Fish Hook Bay property. Trenching was completed in the three zones defined by Eldorado. Only Zone B was determined to have economic potential. In 1957, Black Bay sank a shaft in Zone B to a depth of 188 m and advanced a cross cut 128 m on the 45 m level. In addition, an adit was driven for a length of 79 m to connect with a shaft above the first to provide a haulage way for ore. The 1957 historical reserve for the B Zone was 100,000 tons (90,718.5 tonnes) of ore grading 0.22% U_3O_8 to the 73 m level (Nadeau, 2007). Mercator notes that this reserve estimate is now historical in nature and was not prepared in accordance with NI43-101 and the CIM Standards. A Qualified Person has not done sufficient work to classify these as current reserves and 9617337 Canada Limited is not considering them to be current reserves.

In 1958, operations at Fish Hook Bay were temporarily suspended. In late 1959, a contract was made to ship ore at a maximum rate of 50 tons (45.4 tonnes) per day to aggregate the equivalent of 176,000 lbs. (79,833.6 kg) of uranium oxide before the 31st of March 1962. Production began in January of 1960 but then ceased by the end of March the same year. The contract was terminated due to the high vanadium content of the ore and the operation was shut down. Underground mining of the B Zone in 1959 and 1960 produced 9,022 tons (8,181.6 tonnes) of ore grading 0.22% U_3O_8 (Nadeau, 2007).

Nadeau (2007) reported that in 1963 sampling for gold and platinum was carried out on the Shirley Peninsula, which returned significant grab sampling values up to 14.4 oz/ton (493.63 g/t) Au and 0.240 oz/ton (8.23 g/t) Pt from trenching of carbonate veins in cherty ferruginous dolomite (iron formation), but no assessment reports have been found for this work.

In 1968, Eldorado completed a detailed property re-evaluation that involved assaying for uranium, vanadium, gold, copper, cobalt, platinum and molybdenum. Nadeau (2007) reports that during late 1969 and early 1970 a diamond drilling program was completed from which hole FH-69-11 intersected 0.11 oz/ton (3.77 g/t) Au over 8.5 m of quartzite and ferruginous quartzite (no depth stated in reference).

In 1981, Eldor Mines Ltd. (Eldor), formally Eldorado Nuclear Ltd., and SMDC completed mapping and trench sampling for precious metals in the area. Nadeau (2007) highlighted the best results of the 1981 trenching: partial results included 10.5 oz/ton (344.51 g/t) Au from trench 45-SH-9 and 7.82 oz/ton (268.07 g/t) Au from trench 45-SH-1. Sample lengths are not indicated. The Eldor and SMDC joint venture completed a 6 hole Winkie diamond drill program and exploration was later expanded based on positive results.

In 1982, Eldor completed an extensive exploration program in the Fish Hook Bay area. Eldor re-established a total of 17.63 km of grid lines and completed detailed geological mapping, soil and heavy mineral geochemical sampling, as well as lithogeochemical sampling. Geophysical work included 5.6 km of magnetic surveying and 4.18 km of VLF-EM surveying. Eldor also completed a 15 hole diamond drill program that totalled 625 m of AX sized core. The drill program was designed to test at depth the veins that returned the highest gold values from the 1981 trenching program. The drilling beneath trench 45-SH-1 encountered a new east trending and south dipping zone associated with the oxide facies of the iron formation (Nadeau, 2007). The newly discovered zone assayed 0.761 oz/ton (26.09 g/t) Au and 0.347 oz/ton (11.9 g/t) Au, both over 0.5 m (no depths are stated in reference), respectively, in holes FH-82-2 and FH-82-3. The best result was returned from hole FH-82-7 with 4.52 oz/ton (154.95 g/t) Au over 0.5 m of iron formation (no depth is stated in reference).

In 1986, Eldor completed 19 diamond drill holes (FH-86-19 to FH-86-34) and core was assayed for gold, platinum and palladium. However, no assessment records of this work are available.
In 1987, Eldor completed 23 diamond drill holes (FH-87-35 to FH-87-56; and FH-87-38A) for a total of 2,374 m on the Fish Hook Bay and Nicholson Bay showings. The BQ sized drill core was geologically and radiometrically logged. Sludge sampling was completed during the drilling process by sluicing the drill return to collect the fines, with each sample representing a 6 m interval of drill hole cuttings. Anomalies in this medium were to provide back-up and possible confirmation of anomalies in the core samples, as well as to ensure that samples were collected where core was lost due to grinding and/or washing out of gouge material (Williams, 1988). The drill core was split and sampled from top to bottom with the maximum sample interval being 1.5 m with smaller intervals respecting changes in lithology and mineralization. The core and sludge samples were both shipped to the Bondar-Clegg laboratory in Ottawa for gold, platinum and palladium analyses using a fire assay and DC plasma technique.

Results of sampling from the Fish Hook C Zone and A Zone drill core returned only slightly anomalous results and further work was not recommended in those immediate areas. Two fences of three holes each were completed to test the B Zone uranium mineralization. Overall, both the north and south fences through the B Zone mineralization encountered significant radioactivity but only minor anomalous gold values (Williams, 1988). Drilling on the Nicholson sites was encouraging with an apparent association between gold anomalies and strong radioactivity in areas of structural disturbance and core loss. Williams (1988) recommended further work at the Nicholson sites to extend the zones of known mineralization.

In the summer of 1987, Eldor also completed geological mapping, rock and chip sampling of the existing trenches in the Nicholson Bay area. The purpose of this work was to become more familiar with the Nicholson area geology, and to tie that geology into the detailed mapping completed on the surrounding Fish Hook Bay claim area.

In 1997, Geoterrex-Dighem flew an airborne geophysical survey over the Fish Hook property as part of a larger regional survey conducted on the GLR holdings in the Beaverlodge area. Survey measurements produced geophysical maps that included: total magnetic and vertical gradient magnetic maps, apparent resistivity maps at 900 and 7200 Hz, and radiometry maps (total U, K and Th counts). In 1998, Nadeau reviewed the anomalous magnetic and EM conductors produced from the survey data and completed an internal summary report for GLR with recommended exploration targets. Nadeau (1998) recommended mapping and drilling the extension of the Zones B and C en echelon Au-Pt-U mineralized veins at Fish Hook Bay to the NW along a discontinuous linear conductor.

In 2000, GLR completed a geochemical soil survey in a swampy valley located northeast of the Fish Hook Bay uranium showings and Fish Hook Lake. Soil and hummus materials were analyzed by the selective leaching methods of enzyme leach and soil gas hydrocarbons (SGH). The purpose of the geochemical survey was to evaluate the potential of additional uranium mineralization to the northeast of the Fish Hook deposit. A U-Co-As-REE anomaly was identified at the intersection of the grid baseline with tie-line 200S overlying a weak magnetic high and weakly anomalous EM conductor (Nadeau, 2007).

In 2005, GLR completed a small tree biogeochemistry survey in the Fish Hook Bay area to test the soil anomalies identified in 2000. Twig samples from trees at 10 sample stations were taken in the area of interest. The twig data showed a U-Co-As-Fe anomaly and further follow up work was recommended that included an extensive twig sampling survey over the whole grid area, as well as diamond drilling to test the newly identified anomaly.

In 2005, Uranium City Resources Inc. retained Geotech Ltd. (Geotech) of Aurora, ON to complete a helicopter-borne time domain electromagnetic (EM) geophysical survey on the Fish Hook Bay claim block. The Geotech equipment was mounted on a 26 m diameter towed coil ring and flown over the property at an altitude of 30 m using a radar altimeter. Geotech employed a powerful electric generator signal to provide depth penetrations between 500 to 800 m. Although the 2005 geophysical EM and magnetic survey had a deeper depth of penetration than previous surveys similar results were observed with strong conductors displaying a preferred N-S direction.

In 2005, GLR completed 8 diamond drill holes (FH05-01 to FH05-08) at Fish Hook Bay for a total of 1,664 m of NQ sized core. Five of the 2005 GLR drill holes (FH05-02 to FH05-06) were completed in the B Zone area, designed to intersect 3 to 5 vein sets with uranium mineralization previously defined by historic diamond drilling. Significant uranium mineralization above 1,000 ppm U was intersected in 4 of the 5 drill holes. However, the width of uranium mineralization was narrower than reported in previous drilling. Nadeau suggested that the low grades and narrow widths intersected in 2005 could be due to a pinch and swell effect of veining and/or location errors for the 1987-88 drill holes completed by Eldor in the B Zone. Three of the 2005 diamond drill holes were located in the Fish Hook Bay Shaft Zone and were designed to test and confirm the northwestern extension of uranium mineralization from the B Zone toward the Shaft Zone. In addition, hole FH05-01 was drilled vertically to confirm the presence of gold mineralization intersected in a hole drilled adjacent to the shaft structure by Eldor in 1986. Holes FH05-07 and FH05-08, which were drilled to the southwest of the shaft, returned only four samples corresponding to narrow uranium bearing veins over 1 m with values ranging from 110 to 971 ppm U. The best result from hole FH05-01 was 152 ppb Au between 284.4 m and 285.26 m downhole within a quartzite unit with hematite and localized bands of semi-massive pyrite.

A review of the drill hole locations completed in 2005 suggested that some of the holes were drilled too short and too steep to intersect significant uranium mineralization (Nadeau, 2007). Additionally, some of the holes may have been located in areas of pinch-and-swell veins where little mineralization would have been intersected. Nadeau (2007) recommended that additional drilling be completed to better define the mineralization at the B Zone, but only after reconciling the collar locations of Eldor's 1987 drill holes.

6.8 Exploration History of Nicholson Bay Area

The Nicholson Bay property was reportedly first staked for iron in 1920 and then re-staked in 1929 for base metal potential.

In 1935, the area was prospected for gold and copper potential and the Nicholson Bay No. 4 Zone was explored by two adits with a total of 106.7 m of underground workings. During the course of this work uranium stain and pitchblende were discovered, marking the first uranium discovery in the Beaverlodge area. Although the discovery was reported in the Alcock (1936)

Geology of Lake Athabasca memoir for the GSC, the showing sparked little interest until 1948 when prospecting for uranium became open to the public.

In 1949, Nicholson Mines completed uranium exploration through prospecting, trenching and 15 diamond drill holes to re-assess the economic potential of the pitchblende in No. 4 Zone. Further prospecting and 26 diamond drill holes were completed on other zones during the same year. A shaft, with lateral development at the 30 and 60 m levels, was sunk to 70.7 m in the No. 4 Zone. In the No. 2 Zone area, a shaft was sunk to 41 m with 171 m of lateral development on the 30 m level. In addition, an 18 m prospect shaft was sunk in the No. 1 Zone extension area. Results from work on the No. 1 and 2 Zones was not encouraging and subsequent work was carried out only at the No. 4 Zone.

In 1950, Nicholson Mines conducted further lateral work in the No. 4 Zone area with 466 m on the 1st level and 408 m on the 2nd level. The mine workings in 1950 consisted of shaft No. 1, two adits on the No. 4 Zone (adjacent to shaft No. 1), shaft No. 2 and shaft No. 3 located 760 m east of shaft 1. Additional exploration work conducted on the No. 1 Extension, No. 2 and No. 6 Zones included overburden stripping, trenching and 914 m of diamond drilling. The No. 1 Extension Zone was detected through overburden about 457 m northwest of the No. 1 Zone (Jensen, 2005). Overburden stripping revealed a radioactive zone at the contact of quartzite and ferruginous quartzite. Secondary uranium minerals occur across a maximum of width of 2.5 m and sampling indicated significant amounts of uranium and elevated gold and silver values across widths up to 1.8 m (Beck, 1969). Chip sampling from trenches at the Nicholson No. 2 Zone during 1950 returned average assays of 0.52 % U_3O_8 and 2.85 oz/ton (97.7 g/t) Au uncut (1.35 oz/ton (46.28 g/t) Au cut) over an average width of 0.5 m along a combined length of 55 m (Jensen, 2005).

In 1951, Nicholson Mines was reorganized and named Consolidated Nicholson Mines Ltd. (Nicholson). Also in 1951, the No. 1 shaft was deepened to 99 m and some lateral development work was done on the 90 m level. When this work did not find the downward extension of the ore zone all development work was stopped.

In 1954, Nicholson contracted the sale of its uranium ore to the Eldorado Mining and Refinement Ltd. (Eldorado) mill facility for custom processing.

In 1955, Nicholson completed 5 diamond drill holes (No. 1 to No. 2 and No. 1-1 to No. 1-3) for a total of 344 m of diamond drilling on the No. 1 and No. 1 Extension Zones but the uranium results were not encouraging.

Development work resumed in 1955 at the No. 4 Zone shaft and stoping was carried out on the first and second levels. By the end of 1956, 12,000 tons of ore averaging 0.304 % U_3O_8 had been extracted from the No. 4 Zone workings and was shipped to the Eldorado mill for custom processing. Late in 1956 when the Eldorado contract expired and ore pricing could not be agreed upon, the Nicholson mining operations ceased and the mine plant was sold.

Between 1958 and 1959, KLK Mining Company high-graded the Nicholson deposit above the lower adit level and extracted about 2,000 tons (1,814 tonnes) of ore at an average tenor of 0.5 % U_3O_8 (Beck, 1969). The Nicholson Bay property was then allowed to lapse.

In 1965, J. McDonald staked the property as the MC claims No. 1 to 6. Between 1967 and 1969, Enex Mines Ltd. (Enex) took over a working option on the claims and completed geological and scintillometer surveys.

In 1970, Nicholson completed work on an area known as developed area No. 1 covered by ML 4760 to ML 4762. Work consisted of line cutting, overburden stripping, trenching, sampling, geological mapping and radiometric surveys of the No. 1 Zone, No. 1 Extension Zone and the No. 6 Zone. A 1.8 m chip sample crossing the most pronounced fractures was reported to assay 0.19 % U_3O_8, 0.02 oz/ton (0.67 g/t) Au, 1.2 oz/ton (41.14 g/t) Ag, trace platinum and 0.08 % vanadium (Jensen, 2005). A further 8 diamond drill holes were completed on the No. 1 Zone for a total of 515 m of coring; no assessment records are available for this work.

In 1974, Enex completed soil-gas sampling and a bog geochemical sample survey on MC claims 3 and 4 which covered the No. 4 Zone.

In 1975, the MC claims were converted to ML 5131 with J. McDonald still holding the lease title and Enex again optioned the Nicholson property. Enex completed 8 diamond drill holes (75N-1 to 75N-8) for a total of 617 m to drill test the No. 4 Zone, the main vein, and the eastern contact between Fe-rich quartzite and dolomitic quartzite, as well as areas with anomalous hummus geochemistry. However, no mineralization was encountered during the drilling (SMDI).

In 1977, Auric Resources Ltd. (Auric), formerly Consolidated Nicholson Mines Ltd., began exploration work at the Nicholson Bay property. Work included trenching, geological mapping, EM and magnetic surveys and a follow-up radon detection survey on a 610 m long, overburden covered, uranium target fault zone that extends through the No. 2 Zone and the No. 1 Extension Zone.

In 1978, Auric completed 6 diamond drill holes for a total of 212 m of coring to test the No. 2 Zone. Only core with scintillometer readings above background were analyzed for uranium (Mason, 1987).

In 1979, an airborne electromagnetic survey was completed for SMDC in the Macintosh Bay area.

In 1983, SMDC established a flagged grid to conduct 4.3 line km of VLF-EM and magnetic surveys across the property. SMDC also completed geological mapping and sampling (32 samples) to evaluate several of the Nicholson Bay occurrences and two zones on the adjacent Fish Hook Bay property (Jensen, 2005).

In 1984, SMDC conducted 8 line km of max-min surveying across the No. 2 Zone and completed 2 diamond drill holes totalling 117 m of coring on an eastern conductor. The 2 drill holes intersected only minor amounts of sulphides with no economic mineralization (Mason, 1987).

In 1987, a joint venture between Eldor Mines Ltd. (Eldor) and Mary Ellen Resources Ltd. (Mary Ellen) took control of CBS 8204 and NIC claims 1 to 5, which covered the Nicholson mine site. The Nicholson property was geologically mapped, sampled and 6 diamond drill holes were completed (MCD-1 to MCD-6) for a total of 335 m of BQ sized coring. The main goal of the 1987 drill program was to confirm the presence of gold and PGM mineralization on the Nicholson Bay property. The best assay results were returned from hole MCD-5 with a composite intersection of 18.2 g/t Au, 2.05 g/t Pt and 8.67 g/t Pd over 6 m of core (no depth stated in reference) (Mason, 1987).

Between 1987 and 1988, a joint venture between Chancellor Energy Resources Ltd. and SMDC, under an option from Mary Ellen, completed 26 diamond drill holes (MCD87-1 to MCD87-9 and MCD88-10 to MCD88-26) for a total of 1,558 m of BQ sized coring. The main purpose of the drill program was to follow up on the February 1987 drilling at Nicholson No. 2 Zone and extend the strike length of the gold, platinum and palladium mineralization. Four of the drill holes were radiometrically logged through the "red zone", a series of calc-silicate diopside-rich rocks with hematite and carbonate alteration. The logging program also included a petrographic study on selected drill core. The best result was returned from hole MCD88-11 with 3.33 oz/ton (114.15 g/t) Au, 300 ppb Pt and 1000 ppb Pd from 37.7 to 38.1 m downhole in dolomite within the No. 2 Zone target. MCD87-9 returned assay results from 4400 to 7000 ppb Au and 240 to 400 ppb Pd from 0.4 m sample intervals between 44.5 to 45.7 m downhole in the "red zone" target area.

During the same 1987 to 1988 period, SMDC completed a ground magnetic survey across the Nicholson No. 2 Zone and trenching with chip sampling was also completed on the Nicholson Zone Nos. 1, 2 and 6, as well as the No. 1 Extension Zone. However, assessment records for this period of work are not currently available.

In 1997, a 2,391 line km survey block was flown for electromagnetic (EM), resistivity, magnetic, and radiometric surveys over the GLR properties, including the Nicholson Bay area. In 1998, Nadeau reviewed the anomalous magnetic and EM conductors produced from the survey data and completed an internal summary report for GLR with recommended exploration targets. Nadeau (1998) recommended mapping and drilling the extension of the "red zone" that hosts copper-nickel-gold-platinum bearing sulphides and uranium from shaft #2 to shaft #4 and toward Iron Cove to the NW at Nicholson Bay.

6.9 Exploration History of Triangle Showing Area

The discovery of the Triangle gold showing is not well documented and the showing is not listed separately in the Saskatchewan Mineral Deposit Index (SMDI). The showing is located approximately 1 km southwest of the Golden Pond Lake and 1.3 km northeast of the Box mine headframe (Figure 6.1). In 2002, Norac Exploration Ltd. (Norac) completed prospecting, trenching and stripping, as well as, rock and soil sampling for gold, silver, platinum group elements and copper analyses on mineral disposition S-106690.

Between 2003 and 2004, R. Dubnick held mineral disposition S-106690 and completed prospecting, trenching, stripping and sampling for gold, silver and platinum group elements on the showing. Prospecting and stripping of quartz veins by Dubnick at the northeast corner of the Triangle claim S-106690 yielded Au grab sample values up to 1 oz/t (28.35 g/t) Au (Nadeau, 2008).

In 2005, GLR optioned mineral disposition S-106690 from Dubnick. Subsequent trenching and channel sampling of the quartz veins by GLR staff in 2005 identified occurrences of visible gold in some of the quartz veins (Nadeau, 2008).

In 2006, GLR completed two diamond drill holes (TR06-01 and TR06-02) on the Triangle showing for a total of 204 m of NQ sized coring. The drill program was part of a larger program that included the surrounding mineral dispositions and included the Athona and Golden Pond showings. Both holes were drilled from the same collar location with azimuths of 270° and to depths of 102 m; hole TR06-01 had a dip of -45° and hole TR06-02 had a dip of -60°. The two drill holes were designed to delineate the gold potential at depth for anomalous gold values found in quartz veins on surface. In altered and mineralized zones the drill core was split and sampled in 1 m lengths or less to respect lithologic boundaries. The split samples were sent to TSL Laboratories in Saskatoon for gold, platinum, palladium and multi-element analysis by fire assay and ICP analytical finish.

Drill hole TR06-01 intersected a hydrothermally altered breccia from 4 to 7 m downhole with values up to 210 ppb Au, followed by a serpentinite unit from 31 to 34 m that returned values of 200 ppb to 500 ppb Au. Nadeau (2008) highlighted that sampling returned values up to 3.7 ppm Ag, 484.1 ppm Co and 16,580 ppm Mn from hole TR06-01. Drill hole TR06-02 intersected a sequence of altered dolomite, serpentinite and quartz breccia from 20 to 24 m ,with values up to 440 ppb Au, and another sequence of dolomite and serpentinite from 28 to 31 m that returned values up to 0.96 g/t Au. Sampling from TR06-02 also returned values of 1.2 ppm Ag, 1,197 ppm Co and 11,557 ppm Mn.

In 2007, GLR completed a bio-geochemical "twig survey" across a grid on the northern extension of the Box mine area to the Golden Pond showing. The baseline of the grid measured 1,800 m in length and was crossed by 30 survey lines oriented at 315°, with 75 m spacings, between Neiman Bay and Frontier Lake and crossed the Triangle area at the north end of the grid. Where vegetation allowed, twig samples were collected at stations every 50 m along the survey lines, the latest 50 cm of growth were cut from branches and bagged to provide sufficient sample weight. The bio-geochemical samples were sent to Activation Laboratories where the twigs were ashed in a kiln and then analyzed for Au content by Instrumental Neutron Activation Analysis (INAA). Once plotted, the survey results indicated that most of the anomalous gold samples, above 200 ppb Au, were concentrated in the south end of the survey grid proximal to the Box Mine area.

In 2010, a Titan 24 DC/IP geophysical survey was completed by Quantec Geoscience Ltd. for GLR over 58.7 km of line cutting that covered the Triangle showing and disposition S-106690. Four diamond drill holes (B10-308, B10-311 to B10-313) were completed to test anomalous areas outlined by the geophysical survey near the Triangle showing. Dixon (2012) concluded that the 2010 drilling of the DC/IP survey targets, although successful in identifying the source of the various anomalies, did not identify economic mineralization and no further drilling of those targets was recommended.

6.10 Exploration History of Quartzite Ridge and Crackingstone Areas

In 1952, Clix Athabasca Uranium Mines Ltd. (Clix) discovered the Quartzite Ridge showing and staked it as the CLIX 1 to 29 claims. Between 1952 and 1955 Clix completed 41 diamond drill holes to outline uranium mineralization in an area roughly halfway between the Quartzite Ridge and Crackingstone showings. No assessment records are available for this period of work.

In 1967, Amok Ltd. (Amok) held the claim block over the Quartzite Ridge showing and submitted a geological summary report for assessment of the area. In 1968, Amok completed a 4 hole reconnaissance diamond drilling program on claim block CBS 310 near Howland Lake, on the east side of the Quartzite Ridge showing. The claim block lapsed in 1974 with no further work being reported.

In 1977, SMDC staked the Quartzite Ridge showing under claim CBS 5500. The next year SMDC began exploration with an airborne EM and magnetic survey, as well as detailed geological mapping and trenching on some of the radioactive occurrences. During the winter of 1978, SMDC completed 13 diamond drill holes on the showing for a total of 851 m drilled. The drill holes all intersected graphitic schist, but they did not contain significant uranium mineralization.

In 1979, an intensive exploration program was completed in which SMDC conducted ground EM and magnetic surveys, geological mapping, radiometric prospecting and "Wacker" overburden sampling. The surveying outlined graphitic metapelite schist conductors. A total of 131 radioactive occurrences were documented, mainly localized as vein mineralization in amphibolite (Hilland, 1988).

Between 1980 and 1981, SMDC conducted further geological mapping, prospecting, ground geophysical surveying and overburden drilling. SMDC also completed 12 diamond drill holes (CK1-1 to CK1-12) for a total of 1,826 m of drilling. Significant uranium mineralization was intersected in two holes; CK1-9 intersected 1.01 % U3O8 from 56 to 58 m downhole, and CK1-10 intersected 2.19 % U3O8 from 68 to 68.5 m downhole (Hilland, 1988). The mineralization occurred on and adjacent to the contact area between the quartzite and the graphitic bearing amphibolite. Many diamond drill core samples were also assayed for gold, with four samples producing anomalous values (Hilland, 1988).

In 1987, property owners SMDC and Urangesellschaft Canada Ltd. optioned CBS 5500 to Mary Ellen Resources Ltd. and Lenora Explorations Ltd. under the Kasner Group of Companies (Kasner). During the same year, Kasner completed exploration work to evaluate gold and PGE mineralization on the Quartzite Ridge and Crackingstone showings. Exploration work consisted of sampling known radioactive occurrences, using Saskatchewan Geological Survey data and SMDC maps. The showings were located by prospecting with a scintillometer and then sampled. Samples were assayed for gold, platinum and palladium by acid digestion and atomic absorption spectrometry at TSL Laboratories in Saskatoon. Continuous chip samples (no lengths stated in reference) from Quartzite Ridge produced significant assays, such as 2.21 oz/ton (75.76 g/t) Au, 14,000 ppb Pt and 14,800 ppb Pd. Hilland (1988) reported that the most encouraging occurrence, termed the Quartzite Ridge Showing, was tested by an eight hole (QR87-1 to QR87-8) diamond drill program for a total of 460 m of coring over a 400 m strike length. Samples were analysed for gold only, with significant assays (>1000 ppb Au) re-analysed for platinum and palladium. Sludge samples were also collected during the drilling process and analysed for gold. The best result was returned from hole QR87-4 with 0.063 oz/ton (2.16 g/t) Au and 50 ppb Pd over 0.5 m in amphibolite containing two quartz veins (Hilland, 1988). The drilling indicated a strong positive correlation between gold and uranium in the project area.

In 1988, GLR completed two drill holes on claim S-107123 to intersect the northern extension of the Quartzite Ridge showing. The assays did not yield any significant gold values and range from below the detection limit of <5 ppb Au to a maximum of only 25 ppb Au. However, these drill holes were "wildcat" holes that were poorly constrained by geological and geophysical data.

In 2005, GLR performed a geochemical survey across the Quartzite Ridge area. Several areas of anomalous uranium were detected in soil, trees and rock samples. Radioactive fractures were also detected by prospecting in conglomerate rocks of the Martin group and in basement rocks of the Tazin Group (Nadeau, 2006). Follow up work was done in 2006 at these anomalous areas and included radiometric prospecting, rock geochemistry and a biochemical survey.

In 2007, GLR completed a diamond drilling program at two project areas on claim S-107123. The program included 16 diamond drill holes (QR07-01 to QR07-16) for a total of 2,829 m of NQ sized coring for the Quartzite Ridge Project. The Quartzite Ridge Project was intended to test anomalous uranium areas outlined by previous work in two separate locations, 1.8 km apart, on the north end of the Quartzite Ridge showing. Results for uranium in core samples from the Quartzite Ridge Project were low in all holes completed. In one core sample of Martin Group conglomerate an anomalous value of 109 ppb Au was measured (Nadeau, 2007). However, most gold values obtained in core samples were below 10 ppb Au. Nadeau (2007) recommended detailed mapping, radiometric and field VLF-EM and magnetic surveys be completed to characterize the surface extension of major faults, lithologic contacts and quartz veining before additional drill testing.

The 2007 program also included three diamond drill holes (HB-07-01 to HB-07-03) for a total of 963 m of NQ sized coring on the Hanson Bay Project, 4 km northwest of the Quartzite Ridge showing. The aim of the drilling at the Hanson Bay Project was to test EM conductors identified in previous airborne geophysical surveys and an inferred deep cross cutting fault at the unconformity contact between the Martin Group and basement rock (Nadeau, 2007). Results for uranium in the Hanson Bay core were low in all three holes. A few anomalous gold values were found in holes HB-07-02 and HB-07-3 with 328 ppb Au and 262 ppb Au respectively. No follow up work was recommended for the Hanson Bay area based on the low uranium values and lack of a major fault structure.

6.11 Exploration History of Keddy Bay Area

In 1950, Clix Athabasca Uranium Mines Ltd. (Clix) discovered the Keddy Bay showing during Geiger counter and scintillometer surveys over an area 1.8 km due west of Keddy Bay. Clix completed considerable work on the area including scintillometer surveys, geological mapping, trenching and sampling. No pitchblende was located but yellow uranium oxide powder occurs where scintillometer surveys returned readings as high as 4,500 cps.

In 1951, Radiore Uranium Mines Ltd. (Radiore) located a second uranium occurrence 488 m to the west of the original Keddy Bay showing. Radiore completed trenching, sampling and 4 short diamond drill holes. Termed the Radiore Con. No. 5 occurrence, it is underlain by a north-northeast trending brecciated quartzite dipping gently to the east. In 1952, Radiore used surface mining methods and high-graded the showing. Ore was bagged and shipped to the nearby Eldorado Mill for custom processing.

Between 1953 and 1954, Steeloy Mining Corp. completed a ground scintillometer survey, geological mapping and three diamond drill holes in the Keddy Bay area on the Ranium claims, approximately 2 km to the east of the main showing. However, Bowe (1988) reports that no radioactivity was detected in the core.

In 1987, Jordex Resources Inc. completed geological mapping, sampling and chip sampling of 7 historic trenches on the Keddy Bay showing for gold, platinum and palladium through multi-element analysis. However, assessment records are not available for this work.

6.12 History of Metallurgical Testing on the Box and Athona Deposits

Metallurgical test work for the Box Mine ore was originally conducted by Cominco, who also operated a mill on-site from 1939 to 1942 to process ore. Whole ore cyanidation with 24 hour retention and Merrill-Crowe precipitation was employed on ore ground to 55 % -200 mesh. Gold recovery was reported as between 94 and 98 % (Bikerman et al., 2009).

In 1980, Pyx Exploration Ltd. carried out a heap leaching test on 1.5 tons (1.36 tonnes) of mineralization from the Athona site (Thomas, 1980). Three barrels of granite with quartz veining were sampled from the Main Zone shaft dump and sent to Dawson Metallurgical Laboratories Inc. in Utah. Results of the leaching tests indicated that the Athona ore was not amenable to heap leaching with approximately 20 % recovery, however the flotation recoveries were in the range of 92 to 97 % gold recovery by grinding to approximately -65 mesh. Salisbury (1981) reported that the results indicate an appreciable portion of the gold is associated with the sulphide mineralization and therefore a low leach recovery would be indicated even with a fine grind.

In 1987, bulk sampling programs were initiated at both the Box mine and the Athona deposit to obtain representative samples for metallurgical testing. The overall sampling approach was through blasting and trenching on the surface of the deposits. The trenches were typically 5 to 10 ft (1.5 to 3.1 m) deep, 10 to 12 ft (3.1 to 3.7 m) wide and extended in length from 100 to 800 ft (30.5 to 243.8 m). Samples were stockpiled by 100 ft (30.5 m) interval lengths. On average, approximately 500 tons (453.6 tonnes) of material was stockpiled from each trench interval. Each stockpile was then crushed on site and passed through a sampling tower. The tower was set to recover approximately 50 lbs (22.7 kg) of sample per 100 tons (90.7 tonnes) of material feed, so an average of 250 lbs (113.4 kg) was obtained from each trench interval. The samples were transported in 40 gallon (151.4 litre) drums to the Ontario Research Foundation (ORF) facilities in Mississauga, ON, for metallurgical testing. The test program was conducted on seven trench samples, 5,643 lbs, (2,559.7 kg) of Box mine material and twenty samples 15,168 lbs, (6,880.2 kg) of Athona deposit material. The two samples were found to be similar in all matters investigated and all conclusions drawn from the test work apply to both the Box and Athona materials. The gold content determined by bulk cyanidation of 500 kg lots was 0.052 oz/t (1.78

g/t) Au for the Box samples and 0.053 oz/t (1.82 g/t) Au for the Athona samples. All samples were described as difficult to assay due to the nugget effect, or presence of free gold. Gravity separation at -48 mesh recovered only 25 to 30% of the contained free gold, probably due to insufficient liberation at the screen size tested. The 1988 ORF report found that flotation of sample material ground to 80 % -200 mesh resulted in concentrates grading 0.72 oz/t (24.68 g/t) Au for the Athona sample, with a gold recovery of 90.7%. Flotation of the Box sample resulted in a concentrate grading 1.056 oz/t (36.2 g/t) Au, with a recovery of 91.9% of the gold contained in the sample (Lakshmanan, 1988). Furthermore, ORF found that flotation concentrate cyanidation resulted in gold recoveries of 97.6% for the Athona concentrate and 96.1% for the Box concentrate.

Also in 1988, a bulk sampling study was conducted to determine the concentration and mode of occurrence for gold in the tailings from the Box mine, as well as to resolve a 0.018 oz/ton (0.62 g/t) Au difference between the historic mine grade and the historic mill grade. According to historic operating reports, Cominco subtracted 0.018 oz/ton (0.62 g/t) Au from the underground grade of 0.06 to 0.07 oz/ton (2.06 to 2.4 g/t) Au to balance a lower mill grade. In October of 1988, eight samples were collected from four backhoe pits on an area of tailings that were thought to represent Box mill discharge from 1942. The four pits were dug 40 to 60 m apart on a transect moving roughly south away from the historic cyanide pit toward the edge of Vic Lake. Two representative samples were collected from each pit. The first sample was collected from oxidized tailings, above the water table, and the second was from un-oxidized tailings, below the water table, at depths between 1 and 2 m. Each sample weighed between 20 and 25 kg and was collected in 15 litre buckets. Samples were processed at Overburden Drilling Management Ltd. (ODM) in Nepean, ON, where the gold content was determined by two methods. Firstly, by performing a methylene iodide gravity separation where the small sink concentrates were then analyzed by instrumental neutron activation analysis (INAA). Secondly, the raw tailings and methylene iodide large float rejects were analyzed by screen metallics, fire assay, and atomic absorption methods. The gold in the sampled tailings was found by ODM to occur half in pyrite and half in fine visible gold grains with very little coarse gold present. Averill (1988) concluded that the concentration of gold in the sampled portion of the Box mine tailings averaged 0.007 oz/ton (0.24 g/t) Au, with the highest sample returning a value 0.015 oz/ton (0.51 g/t). The average gold value was considerably less than the 0.018 oz/ton (0.62 g/t) Au cutting factor but it was higher than the 0.004 oz/ton (0.14 g/t) Au figure reported for the 1939 mill discharge. Since mill recovery normally improves with time, the 1939 figures may have been too low (Averill, 1988).

In 1988, Casmyn Engineering (Casmyn) was retained by RJK to perform a detailed historic literature search to identify all operating parameters, constraints and problems associated with the Box milling operation. A total of 80 batch samples were obtained from 41 trenches, 32 from the Box Mine and 9 from the Athona property. Bulk samples varying from 1 to 3 tonnes were taken from each trench. Casmyn selected trench material with good gold content and recovery in order to simulate, on a pilot scale, the gold recovery that could have been achieved during production between 1939 and 1942. The coarse rock was crushed and screened to 1/8” then coned and quartered to give three one tonne sample cones. Because one leach test was performed for every tonne of sample, the one tonne cone was further split to produce a 303 kg leach feed sample. The leach samples were then screened to 80 % -200 mesh.

Based on the results of the mill simulation test program, Casmyn concluded that the overall gold recovery in the Box mill between 1939 and 1942 was in the region of 75.0%, at the maximum, rather that the reported level of 93% recovery. Based on the leach residence time only, the gold recovery in the mill would have been 72.9% (Dahya, 1989). At a leach residence time of 24 hours, as reported in 1940, the recovery in the mill would have been approximately 69% gold. Because of inadequacies in grind size, cyanide input and leach residence time optimal gold recovery was not achieved during production at the Box mill. Most importantly, the absence of a gravity recovery circuit in the mill would have had a detrimental effect on the overall gold recovery at the Box Mine. During the 1988 exploration program, 64 bulk leach tests were performed on Box ore samples indicating an optimum leach residence time of 77 hours resulting in an average gold recovery of 93.1%. The optimum leach time for the Athona ore was 59 hours with an average gold recovery of 92.3%. Results from the 1988 Casmyn leach tests confirmed that the Goldfields ore is amenable to cyanidation and that most of the gold is in a recoverable form. During the leach tests, all analytical procedures were conducted at TSL Laboratories in Saskatoon. A statistical study of the fire assays and leach assays returned a correlation factor of 0.88 indicating a high degree of confidence in the data (Casmyn, 1989).

In 1990, Casmyn was retained by RJK to complete a bulk cyanidation test program for the Goldfields project. The purpose of the cyanide-leach test program was to compare results obtained from fire assay methods and to ascertain if cyanide leaching could overcome the nugget effect encountered in previous sampling programs. The test program comprised 3,457 reverse circulation samples representing 1 m of ground core, up to 14 cm in diameter. The reverse circulation samples ranged from 20 to 40 kg in weight, and sample material was obtained from both the Box mine and the Athona deposit during 1988-1989 reverse circulation drill programs. The samples were shipped to the Casmyn plant in Oakville, ON for processing. They were ground to 75% -200 mesh and then leached for 60 hours by cyanide concentration set at 2 grams NaCN per litre. The slurry sample was then decanted and filtered to provide a solution for atomic absorption analysis and a solid residue for fire assay analysis. Both gold analyses were completed at Barringer Laboratories Inc. in Mississauga, ON and the assays for both the solid and the solution phases were used in the metallurgical balance and head assay calculations. An average gold extraction of approximately 90% was achieved (Carmichael, 1990).

In 1990, Ortech International Corp. (Ortech) of Mississauga, ON completed an audit of the Casmyn leach test program. The Casmyn laboratory was visited by an Ortech representative to review the leach test work in progress. Lakshmanan (1990) presented two recommendations to the Casmyn laboratory for implementation. The first was a moisture content check of the samples prior to leaching because of heat generated during dry grinding. The Casmyn data showed moisture contents ranging between 0.1 and 0.4 % by weight, which may not be significant enough to impact the overall leach performance derived from the calculated head assay. The second recommendation was to collect the slurry sample at 3 different depths within the leach vessel, rather than from three points along the bottom circumference of the vessel. The recommendations were implemented by Casmyn and Ortech concluded that the 1990 leach test program met industry standards.

In 1994, in an effort to further determine the amount of gold in the tailings from the Box mill, a drilling program was completed to sample the entire thickness of the Vic Lake tailings. A total of 24 holes were drilled with a modified bit equipped with a flapper valve to prevent liquefied tailings from exiting the rod string when it was pulled from the hole. The collected samples were sent to the Saskatchewan Research Council (SRC) in Saskatoon for analyses. Results of the 1994 survey show that although gold was found in the tailings, the gold was not present in significant or economic amounts. The findings indicated that gold was not passing from the mill into the tailings and the difference between calculated mill head grade and calculated mine production head grade was due to other factors (Jensen, 2005a).

Between 1994 and 1995, Richard C. Swider Consulting Engineers Ltd. (Swider) was retained by GLR to design and supervise a series of metallurgical test programs conducted at Lakefield Research Ltd. (Lakefield) in Ontario. Bulk sample material and core samples were employed for the various aspects of the Lakefield test programs. A 40 tonne sample from the 1988 Box mine trenching program and a 20 tonne Athona mineralization stockpile sample were obtained for bulk sample materials. The first Lakefield test program was an analytical study conducted in the fall of 1994 from which 10 random drill core samples from the Box mine and 10 random drill core samples from the Athona deposit were submitted to ascertain the best analytical method for the analysis of gold. Three analytical methods were tested on the drill core. The methods employed were multiple one assay-ton fire assay, metallic fire assay and 1 kg cyanide bottle rolls. Lakefield concluded that the best analytical technique to use would be one that analyses the entire sample as received, such as the total metallics method proposed by TSL Laboratories in Saskatoon.

Also in 1994, Swider supervised a Kilborn pebble forming test conducted on bulk sample material from the Box mine and Athona deposit. The objective of the Kilborn test was to determine if pieces of rock from the Box and Athona samples would make suitable pebbles for secondary grinding, and to compare the hardness of these materials with others of known hardness. Autogenous grinding and pebble milling were considered to be necessary in order to make the project a viable proposition (Bigg, 1994). Three drums of 8” (20.3 cm) rock samples were submitted to Lakefield for processing by the Kilborn mill. The sample material was first broken down to minus 4” (10.2 cm) pieces using a sledgehammer and the minus 1.5” (3.8 cm) material was removed. A specific gravity of 2.63 was determined by water displacement for both the Box and Athona samples. Initial charges of approximately 115 kg were added to the mill with coarse sand and water to make a mixture of the correct pulp density for grinding. Samples were milled for half-hour intervals, and then stopped to check pulp density with additional rock added hourly as needed for loss of volume due to grinding. The mills were run for 12 hours for each ore. Both the Box and Athona ores were determined to be very hard and ideal pebbles for grinding.

In 2001, GLR retained Gekko Systems Ltd. (Gekko) to investigate the amenability of Box and Athona mineralization samples to gravity concentration utilizing an Inline Pressure Jig. The Box and Athona samples were progressively ground and tabled to produce a number of concentrate and tails samples. All samples were analysed to determine the yield, recovery and yield grade curves for gold and sulphur. The outcomes were determined to be suitable for a 90% gold recovery with a yield of up to 20%. Gravity was effective in producing a concentrate from the Box sample containing 68% of the gold and 58% of the sulphur in 2.5% of the mass at a grade of 42 g/t Au and 5.68% S (Dorey, 2001). Gravity was effective in producing a concentrate from the Athona sample containing 75.8% of the gold and 74% of the sulphur in 2.3% of the mass at a grade of 75.4 g/t Au and 6.11% S (Dorey, 2001).

7.0 Geological Setting and Mineralization

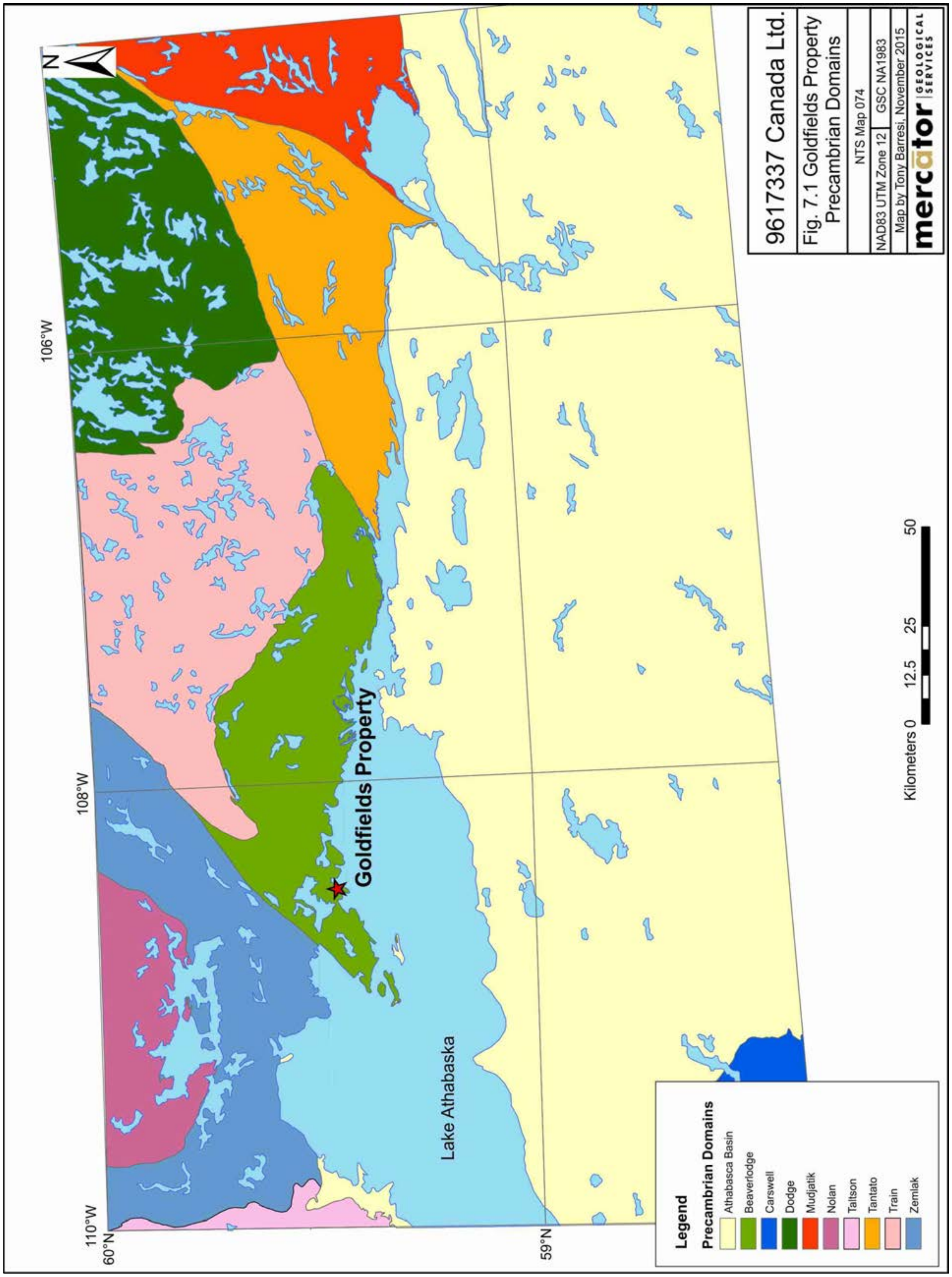
7.1 Regional Geology

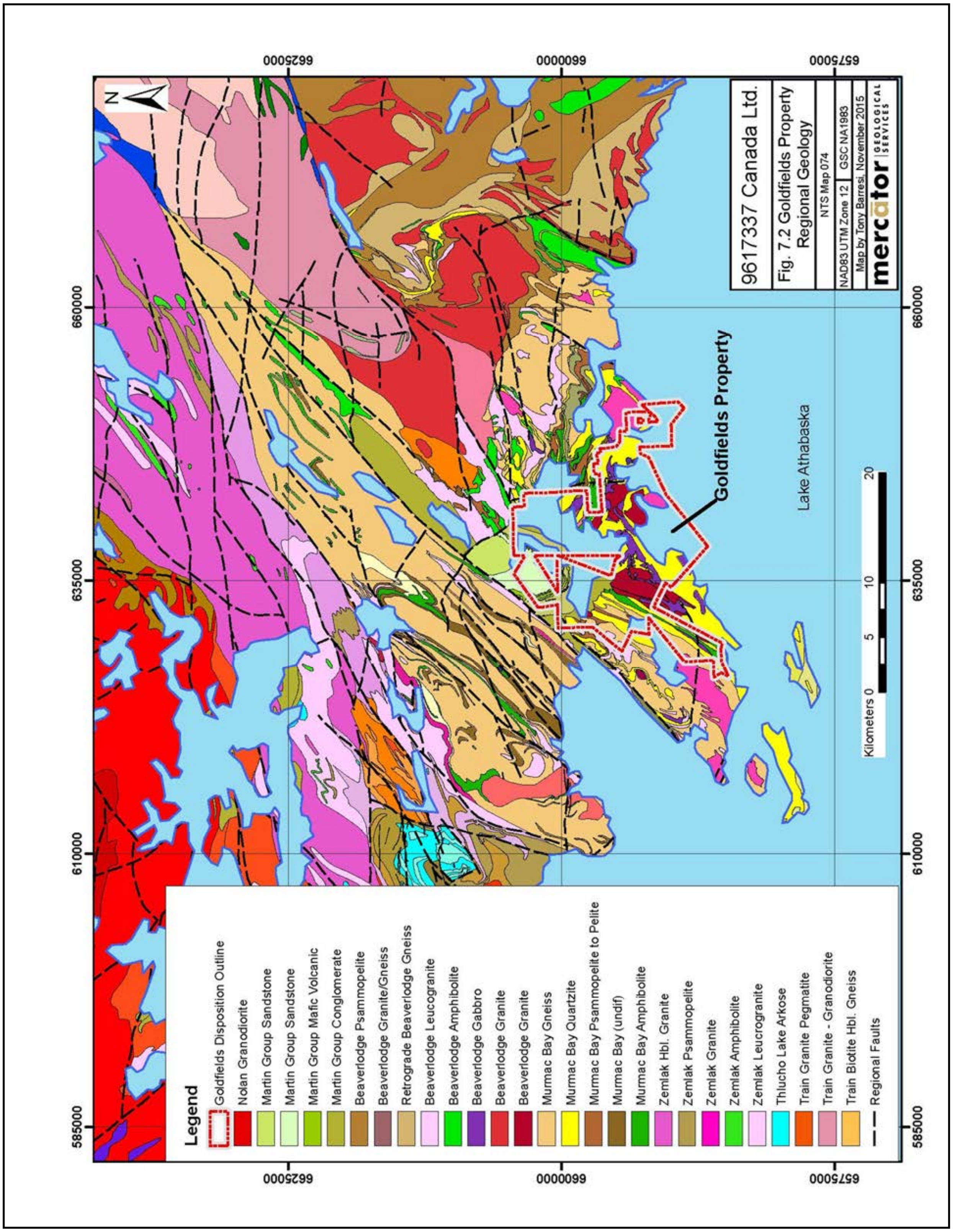
The Goldfields property lies within the Churchill Structural Province of the Canadian Shield in a sequence of Archean paragneiss, meta-sedimentary, and meta-volcanic rocks and associated mafic to felsic intrusions that comprise the Rae craton. The limits of the Rae craton are defined by the Taltson-Thelon tectonic zone to the northwest, and the Snowbird tectonic zone to the southeast and it is overlain by the younger Athabasca Basin to the south (Figure 7.1).

The Rae craton occupies the northern shore of Lake Athabasca where it is divided into seven domains. From west to east these are the Nolan, Ena, Zemlak, Beaverlodge, Train, Tantato and Dodge domains (Figure 7.1). The rocks within these domains were strongly affected by metamorphism and intruded by syn-orogenic granite during the Hudsonian Orogeny ca. 1750 – 1950 Ma. The rocks are typically isoclinally folded along north-easterly-trending axes, although some broad open folds are also present. Younger overlying rocks of the Athabasca Formation to the south are mainly flat lying. Faults and associated mylonite zones in basement rock typically trend east, northeast or northwest.

Within the Beaverlodge Domain (Figures 7.1, 7.2), which includes the Goldfields Property, the Rae craton comprises ca. 3.0 Ga. basement granite that is unconformably overlain by the Murmac Bay Group. The Murmac Bay Group comprises sequences of metamorphosed sedimentary rock including marble/meta-dolostone, quartzite, meta-graywacke, psammite and metapelite, as well as metabasite/amphibolite with extrusive and intrusive basaltic/gabbroic to komatiitic protoliths (Figure 7.2). The basement granite and Murmac Bay Group were deformed and metamorphosed to upper/middle amphibolite facies prior to intrusion of a ca. 2.18 -2.44 Ga suite of coarse-grained granites (Persons, 1988, Van Schmus et al., 1986, Bickford et al., 1990) including the Gunnar, Macintosh Bay, Cameron and Stephens Lake granites. Abundant gabbroic sills and leucocratic pink granites also intrude the Murmac Bay Group but their timing is more enigmatic. A set of younger mafic intrusions and rare associated granitic pegmatite intrusions form locally cross-cutting dikes and are thought to be derived from partial melting during the Paleoproterozoic Trans-Hudson Orogen.

The Murmac Bay Group is unconformably overlain by the Martin Group (Figure 7.3), which is composed of 1.82 Ga (Morelli et al., 2009) red bed sedimentary rock and interbedded basalt flows. Unlike the Murmac Bay Group, the Martin Group is not strongly metamorphosed or deformed, although it forms broad open folds about the same northeast-trending axis as the Murmac Bay Group. To the south of Lake Athabasca, the Murmac Bay Group is overlain by flat-lying ca. 1.76 to 1.50 Ga (Creaser and Stasiuk, 2007) Athabasca Group sedimentary rocks (Figure 7.1).


9617337 Canada Ltd.
Fig. 7.1 Goldfields Property
Precambrian Domains
NTS Map 074
NAD83 UTM Zone 12
GSC NA1983
Map by Tony Barresi, November 2015
mercator GEOLOGICAL SERVICES
N
106°W
108°W
110°W
60°N
59°N
Goldfields Property
Lake Athabaska
Kilometers 0 12.5 25 50
Legend
Precambrian Domains
Athabasca Basin
Beaverlodge
Carswell
Dodge
Mudjatik
Nolan
Taltson
Tantato
Train
Zemlak

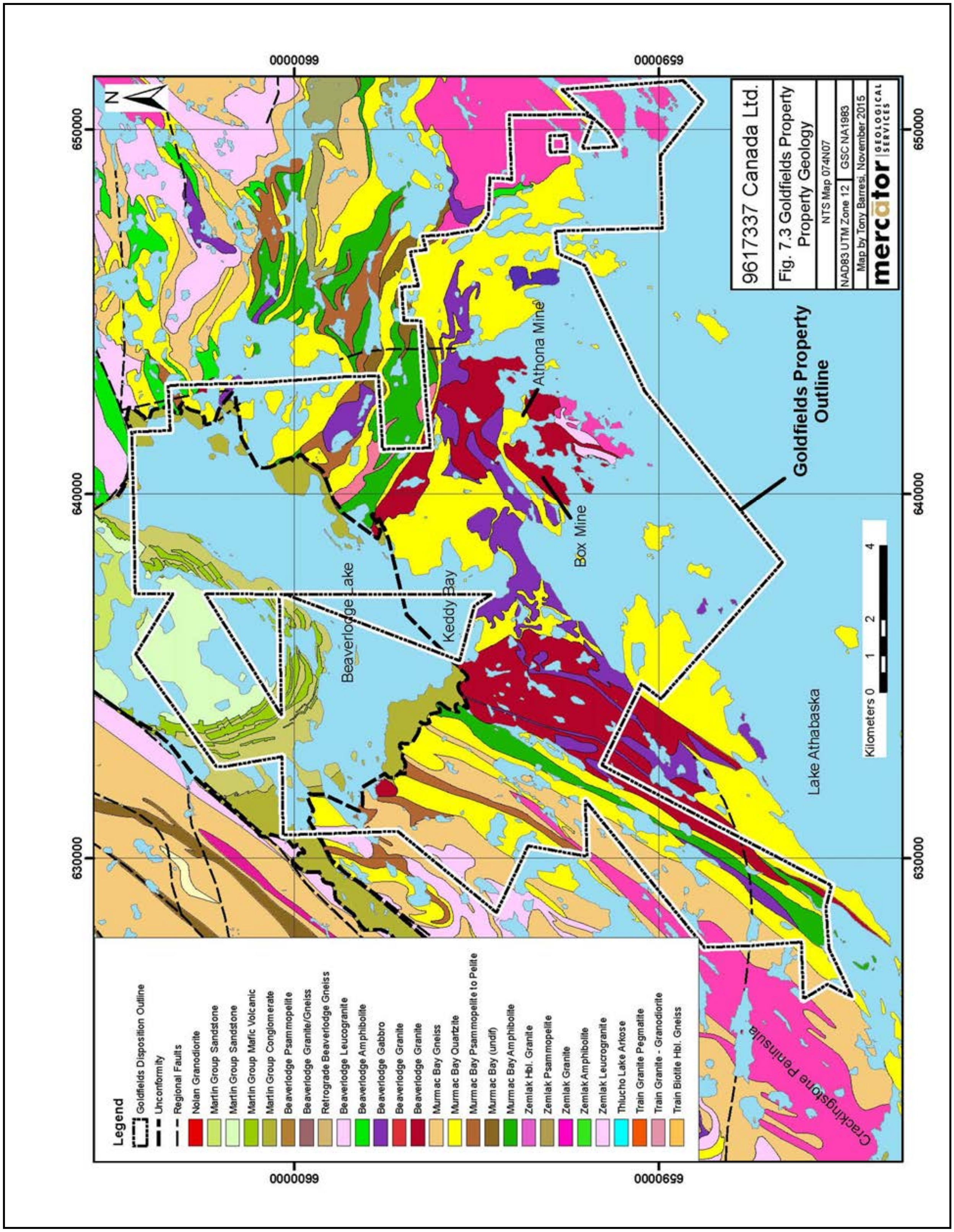

9617337 Canada Ltd.
Fig. 7.2 Goldfields Property
Regional Geology
NTS Map 074
NAD83 UTM Zone 12
GSC NA1983
Map by Tony Barresi, November 2015
mercator GEOLOGICAL SERVICES
Goldfields Property
Lake Athabaska
Kilometers 0 5 10 20
585000
610000
635000
660000
6625000
6600000
6575000
N
Legend
Goldfields Disposition Outline
Nolan Granodiorite
Martin Group Sandstone
Martin Group Sandstone
Martin Group Mafic Volcanic
Martin Group Conglomerate
Beaverlodge Psammopelite
Beaverlodge Granite/Gneiss
Retrograde Beaverlodge Gneiss
Beaverlodge Leucogranite
Beaverlodge Amphibolite
Beaverlodge Gabbro
Beaverlodge Granite
Beaverlodge Granite
Murmac Bay Gneiss
Murmac Bay Quartzite
Murmac Bay Psammopelite to Pelite
Murmac Bay (undif)
Murmac Bay Amphibolite
Zemlak Hbl. Granite
Zemlak Psammopelite
Zemlak Granite
Zemlak Amphibolite
Zemlak Leucrogranite
Thlucho Lake Arkose
Train Granite Pegmatite
Train Granite - Granodiorite
Train Biotite Hbl. Gneiss
Regional Faults

7.2 Local Geology

Bedrock geology on the Goldfields property comprises the Murmac Bay Group (ca. 2.33 – 2.17 Ga) (Ashton et al., 2013) and unconformably overlying Martin Group (ca. 1.8 – 1.75 Ga). The Murmac Bay Group is found predominantly in the southern half of the property and is separated from the Martin Group, which occupies the northern half of the property, by a deformed unconformity (Figure 7.3). The Murmac Bay Group lies unconformably on circa 3.0 Ga Elliot Bay granite which is exposed on the eastern side of the Crackingstone Peninsula (Figure 7.3). Here, metamorphosed saprolite and basal conglomerate lie directly on a paleosurface developed at the contact with the Elliot Bay Granite. Higher in the stratigraphy the Murmac Bay Group comprises quartzite, meta-graywacke, metapelite and lesser amounts of metamorphosed carbonates, iron-stone and mafic volcanics. The metamorphic rocks have been variably deformed and metamorphosed during multiple tectono-thermal events including the 1.94 - 1.92 Ga Taltson orogeny (McDonough et al., 2000), 1.91 - 1.90 Ga amphibolite-facies metamorphism associated with deformation in the Snowbird Tectonic Zone (Ashton et al., 2009a), and a regionally extensive lower-temperature metamorphic overprint at 1.8 Ga associated with the Trans-Hudson orogeny. A middle-amphibolite facies peak metamorphic assemblage is apparent in mafic lithologies, which have abundant hornblende porphyroblasts; however, retrograde chlorite after hornblende is common. The Murmac Bay Group is intruded by 2326 ±15 Ma Mackintosh Bay granite, 2321±3 Ma Gunnar granite, 2999±7 Ma Cornwall Bay granite (Ashton et al., 2013) and a number of smaller granite bodies (e.g. the Box mine granite) that are either undated or have poorly constrained ages. Penecontemporaneous gabbro and ultramafic dikes, sills and stocks also intruded the Murmac Bay Group. The strata are folded about steep-dipping NE-SW trending axial planes. Along the Crackingstone Peninsula the folding is isoclinal but in the eastern portion of the property some folds are broad and open.

In the approximate middle of the Goldfields property a distinct angular unconformity truncates the SW-NE trend of Murmac Bay Group strata. The unconformity is broadly folded about a NE-SW axis. The Martin Group, which overlies the unconformity, is composed mainly of red-bed conglomerate, sandstone and shale with some intercalated mafic volcanic flows. The Martin Group lacks the strong metamorphic and deformation features that characterize the Murmac Bay Group.

Gold showings and deposits (see Figure 6.1 – Exploration History) are hosted exclusively in the Murmac Bay Group, however uranium showings are present in both groups and are especially prevalent near the unconformity that separates them.


9617337 Canada Ltd.
Fig. 7.3 Goldfields Property Property Geology
NTS Map 074N07
NAD83 UTM Zone 12
GSC NA1983
Map by Tony Barresi, November 2015
mercator GEOLOGICAL SERVICES
Goldfields Property Outline
Athona Mine
Box Mine
Beaverlodge Lake
Keddy Bay
Lake Athabaska
Crackingstone Peninsula
Kilometers 0 1 2 4
650000
640000
630000
6600000
6590000
Legend
Goldfields Disposition Outline
Unconformity
Regional Faults
Nolan Granodiorite
Martin Group Sandstone
Martin Group Sandstone
Martin Group Mafic Volcanic
Martin Group Conglomerate
Beaverlodge Psammopelite
Beaverlodge Granite/Gneiss
Retrograde Beaverlodge Gneiss
Beaverlodge Leucogranite
Beaverlodge Amphibolite
Beaverlodge Gabbro
Beaverlodge Granite
Beaverlodge Granite
Murmac Bay Gneiss
Murmac Bay Quartzite
Murmac Bay Psammopelite to Pelite
Murmac Bay (undif)
Murmac Bay Amphibolite
Zemlak Hbl. Granite
Zemlak Psammopelite
Zemlak Granite
Zemlak Amphibolite
Zemlak Leucogranite
Thluicho Lake Arkose
Train Granite Pegmatite
Train Granite - Granodiorite
Train Biotite Hbl. Gneiss

7.3 Mineralization

7.3.1 Box Mine and Athona Deposit – Gold Mineralization Characteristics

The Box and Athona mines exploited gold rich deposits that have similar mineralization characteristics. Mineralization at the Box Mine is hosted within granite and granitized metasedimentary country rock. Mineralization at the Athona mine is hosted entirely within granite. At both deposits gold is associated with quartz veining, an average of 1% pyrite, traces of chalcopyrite, and rare sphalerite and galena. The gold occurs as free gold, or as inclusions in, or coatings on, pyrite, or less commonly other sulfides. Gold at the Athona deposit is also found in association with chloritic selvages to quartz veins. The Box deposit is hosted mainly within a granitoid sill that strikes 048° and dips 35° to the SE. The sill and associated mineralization has a strike length of approximately 610 m and an average width of 36 m, but can be as thick as 53 m. The Athona deposit is hosted in a 030° striking and shallow dipping sill-like granitoid body that is overlain and underlain by unaltered and non-mineralized concordant bodies of gabbroic amphibolite. Mineralization is contained within two discrete zones of veining (Main Zone and East Zone). The Main Zone is 25 m thick by 122 m long and consists of steeply NW dipping en échelon narrow quartz veins. The East Zone, which has significantly less strike length than the Main Zone, contains similarly oriented mineralization within the H, K and L veins/vein-sets. A number of other locations on the Goldfields property, including the Frontier Lake, Golden Pond, Gauthier, Melma and Greenlee showings (Figure 6.1) have similar styles of gold mineralization to the Box and Athona deposits. Figures 7.4 and 7.5 present representative views of gold distribution style within the Box mine deposit, as reflected in the mineral resource block model prepared by Wardrop and used in the March (2011) pre-feasibility study.

7.3.2 Lorado and Nicholson Bay Mines – Uranium Mineralization Characteristics

The Lorado and Nicholson Bay mines exploited uranium rich polymetallic deposits on the Goldfields property. The Lorado mine exploited nested zones of mineralization on the limbs of a NE trending, gently plunging, syncline at the contact between graphitic schist and quartzite. Mineralization was contained in a series of up to 60 m by 15 m zones with dense concentrations of pitchblende, pyrite, chalcopyrite, and minor bornite, chalcocite and hematite. At Nicholson Bay four main and two subsidiary mineralized zones are defined. They consist of NW striking and 45° to 90° NE dipping 2.5 cm to 1.8 m thick sections of sheared meta-sedimentary rock with quartz-carbonate veining and iron-carbonate alteration. The mineralized zones have strike lengths up to 55 m. Mineralization consists of a wide variety of sulfides including bornite, chalcocite, niccolite, cobalt-nickel arsenides, chalcopyrite, pyrite, galena, sphalerite, pitchblende, thucolite, and hisingerite, contained within calcite-dolomite-quartz-chlorite veins, soft fault-gouge, and wallrock. In addition to uranium, the Nicholson Bay zones contain copper, lead, silver, gold, cobalt, nickel, vanadium, platinum and palladium. A number of other locations on

Figure 7.4: Perspective view to north of Box mine deposit model (from March (2011)

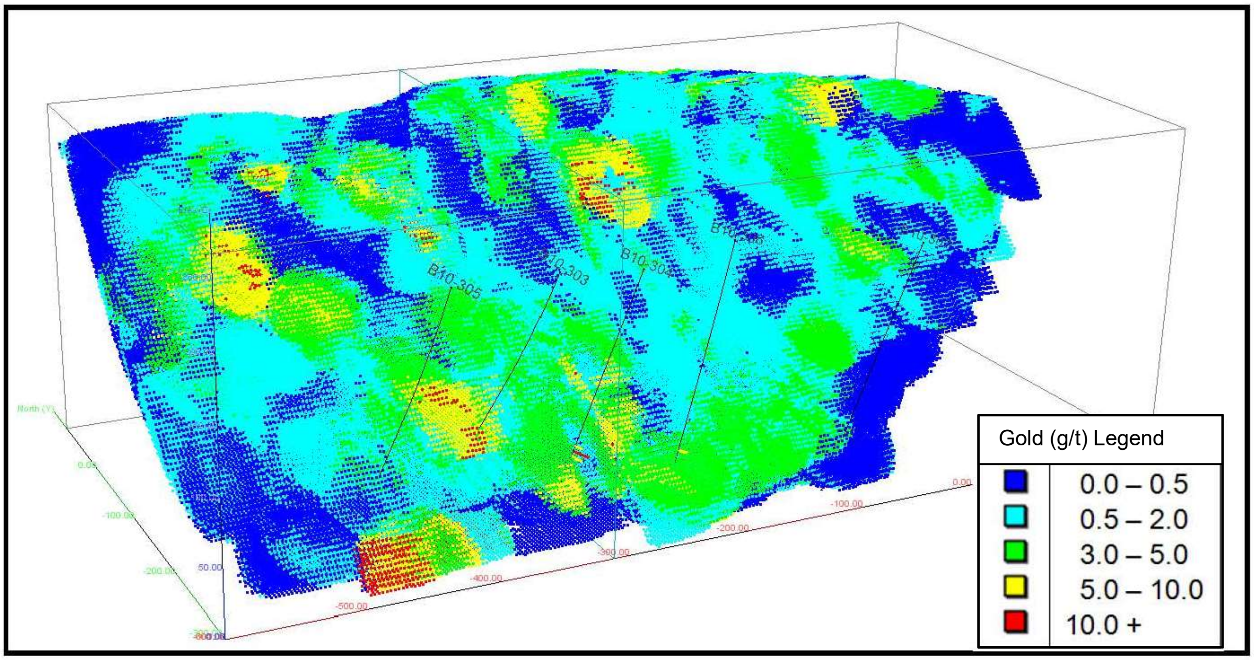
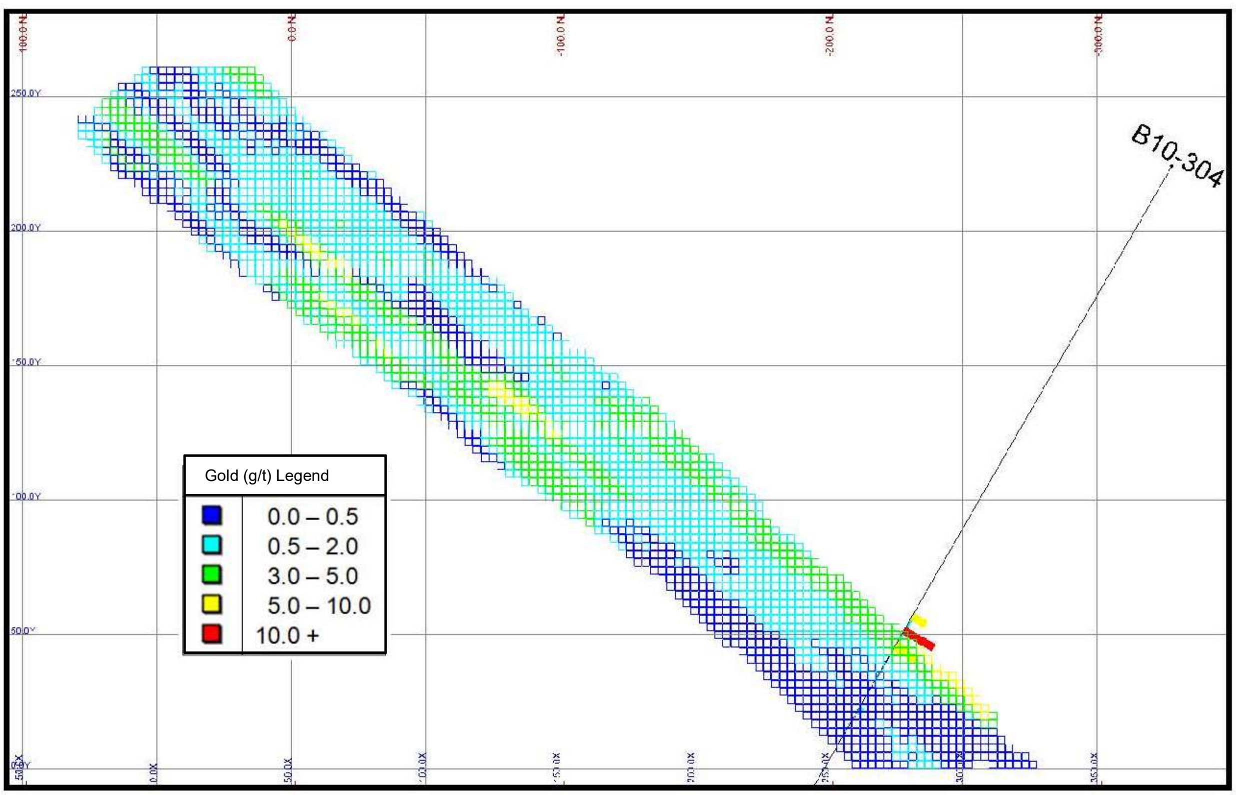


Figure 7.5: Cross section view to northeast of Box mine deposit model (from March (2011)



the Goldfields property, including the Fishhook Bay and Gil showings (Figure 6) have styles of uranium rich polymetallic mineralization similar to the Lorado and Nicholson Bay showings.

7.3.3 Orogenic or Intrusion/Porphyry Style Gold Discussion

It is proposed in this report that intrusion or porphyry style gold mineralization may be considered the dominant style of gold mineralization that is represented at the Box mine, Athona deposit, Frontier Lake adit, Vic Lake adit and the Golden Pond occurrence. Mineralization in these areas has previously been classified as being representative of either orogenic, mesothermal and/or structurally controlled styles (Rees, 1992). Based on review of existing literature and results of 2015 field and petrographic studies, it is proposed that these deposits can also be classified as intrusion-related because each of them contains stockwork quartz veining and silica±K-feldspar alteration within and directly adjacent to granite intrusion(s). Unlike typical orogenic gold deposits where gold bearing quartz veins are millions of years younger than their passive hosts, the mine-granites on the Goldfields property appear to be genetically related to the gold-bearing veining. The granites and country rock in contact zones are the exclusive hosts of the veining/mineralization, and the veining has associated high-temperature (potassic) alteration which likely results from late-stage hydrothermal fluids derived from the granite melt. In this regard, the deposits appear to most closely conform to a gold-rich porphyry model.

Gold mineralization in the Goldfields region is hosted by quartz-vein-stockwork typically found within Box Granite 1 and Athona Granite (collectively referred to as the “mine granites”). While most of the granite in the region contains an unusually high proportion of quartz veins, within the vicinity of known gold deposits the density of quartz veining is especially high and ranges up to 35 % by volume. The veins have many orientations but at any given site there are often I) foliation parallel veins, II) crosscutting veins that have two dominant orientations, and III) late, coarse, thick, often uranium-bearing veins. All three types of quartz veins are composed of milky-white bull quartz or, more rarely, coarse clear quartz. They range in thickness from ≈5 mm to 20 cm with rare thicker veins up to 1 m wide. Foliation parallel Type I veins can be continuous but often form discontinuous boudins. Type II veins have good continuity over 5-10 metres but pinched out terminations are common, especially in the narrowest veins. Type III veins are continuous over long distances and can be traced between outcrops. In most locations the veins and wallrock have variable amounts of hematite staining but lack the limonite coatings on fractures that commonly give mineral deposits their gossanous appearance. However, near known mineral deposits, and in a few other locations, weak to moderate limonite coatings are apparent and hematite staining increases in both the veins and wallrock. It is most apparent at the contact between the wallrock and veins. Low proportions of pyrite (3-5%) are present in veins with the highest sulphide proportions, as well as trace amounts of galena, molybdenite, and chalcopyrite ± malachite. Quartz veins with the most intense mineralization contain dime to fist sized vugs filled with fine-grained pyrite.

Selvages of quartz veins range from unaltered to K-feldspar, albite, chlorite/biotite, or sericite-pyrite altered. K-feldspar is the most common type of vein-selvage, however, it can be subtle in the mine granites which are already pink and quartz+K-feldspar altered.

The mineralized granites show a high degree of metasomatism/alteration. Their texture is often composed of amorphous pods of feldspar and quartz, sometimes weakly aligned in an incipient foliation. In some locations (e.g. at the Frontier adit and south of the Box mine) it is unclear if precious metal mineralization is hosted in strongly silicified country rock, or altered granite. In these locations the rock resembles pink quartzite or quartz-rich aplite with sucrosic quartz and minor amounts of pink groundmass/K-feldspar. The fine-grained rock has transitional contacts with coarser, but strongly altered, granite, suggesting that it is a result of strong silica alteration. Where it is exposed in trenches above the Frontier Adit, it has sharp, probably intrusive, contacts with amphibolite. The country rocks that host the altered and mineralized granites have narrow halos of intense silica+albite±biotite alteration that previous workers attributed to "granitization". Interestingly, where the country rock is in contact with coarse altered granite it is altered to coarse quartz+feldspar, and where it is in contact with fine silicified granites (e.g. at the Frontier adit), it is altered to sucrosic quartz and K-feldspar. The alteration associated with the granites is indicative of high-temperature and silica-rich hydrothermal fluids. Resistivity could be a useful exploration tool to identify prospective but buried intrusions because of the impressive volume of secondary silica in the mineralized rock. However, high proportions of silica rich rocks (granites with high proportions of quartz veining, silicified rock, and quartzite) are ubiquitous throughout the Goldfields property, so secondary criteria must be used to evaluate individual resistivity targets.

The timing relationship of granite-emplacement, quartz veining and mineralization to deformation is not entirely clear. Previous workers have suggested that the mine granites postdate one deformation event and predate a second deformation event. The granite-country-rock contacts both follow and appear to crosscut the NE-SW regional tectonic fabric and on an outcrop scale the contacts are highly irregular with both foliation parallel and cross-cutting boundaries. The contact pattern suggests that at the time of intrusion a pre-existing foliation sometimes formed a path of least resistance for the intruding magma. Syn-emplacement quartz veining also utilized the pre-existing foliation forming Type I quartz veins. The development of foliation within the granite itself, and the presence of veined granite "clasts" in strongly foliated/sheared meta-greywacke country rock near intrusive contacts, indicates that a second deformation event postdates, and therefore affected, the granites. A competing hypothesis is that the granites are syn-tectonic and were emplaced during the second regional deformation event. This hypothesis is preferable as it most easily explains the single orientation of the foliation within the granites as well as the one that appears to have been pre-existing at the time of emplacement. It is likely that the mine granites intruded into low-pressure zones during regional S2 deformation.

7.3.4 Multi-Element Skarn

Two skarn showings were observed on the northern end of the Athona peninsula: one at the Triangle showing, and another at the location of Terrane Geoscience Target #6 (see previous Figure 6.1). At the latter, limestone interbedded with meta-graywacke is in contact with a narrow sill of amphibolite. The outcrop has been blasted to remove what is presumed to have been skarn mineralization. Rock adjacent to the historical blasting contains calc-silicate pods that include epidote-calcite-quartz and traces of pyrite. At the Triangle showing, a large outcrop that has been completely uncovered and cleaned off is composed of tan coloured dolostone (in places indistinguishable from limestone) that appears to be interbedded with, as well as filling large irregular voids within, laminated fine to coarsely crystalline talc + quartz rock. A high density of quartz veins cut through both lithologies. They range in orientation from 160-190°/60-90°, and in places contain approximately 1% pyrite and trace bornite, malachite, chalcopyrite, galena and possibly black sphalerite. No intrusive rocks outcrop at the showing but granite outcrops just 150 m to the southeast of the showing. Historical drilling intersected granite at approximately 35 m depth beneath the surface showing (Nadeau and Mihailovic, 2008).

7.3.5 Multi-Element Beaverlodge Lake Style

A regional variety of multi-element (e.g. U, Cu, Au, Co, Ni, Pt, and Pd) mineral occurrences termed “Beaverlodge Lake style” are present on the Goldfields property. The only example of this variety of mineralization observed during the 2015 Mercator site visit was near the Gil Saskatchewan mineral inventory location. Here, a recessive, up to 1 m wide foliation parallel replacement and shear zone within amphibolite is composed of coarse, pink, bladed calcite, fine quartz, remnant wall-rock and abundant, fine-grained, steely coloured pitchblende with disseminated blebs of chalcopyrite and minor disseminated pyrite. The zone may also contain cobalt bloom (erythrite; though this was not definitively identified in the field). The mineralized zone is mostly covered by overburden but outcrops in two locations 120 m apart along strike. Uranium (pitchblende) bearing quartz veins run parallel to the zone for an additional 100 m. This type of replacement/vein mineral occurrence could be of economic interest if high gold and or platinum group element levels are present. Therefore, it should be the subject of more focused study and prospecting. The Gil showing (previous section Figure 6.1), in particular, would benefit from a more detailed examination and currently remains open along strike to the SW.

7.3.6 Unconformity Uranium

Unconformity style uranium mineralization was encountered in fractured granites that lie beneath the unconformity that separates the Murmac Group from the Martin Group. This style of mineralization is especially prominent in granites encountered during a 2015 Mercator geological traverse that began on the SW side of Keddy Bay. Here, scintillometer readings up to

13,000 CPS were recorded in the vicinity of cracks and recessive zones in granite. While the cracks and recessive zones were typically under cover, in a few instances pitchblende and/or yellow uranium oxide were visible as fracture coatings. The density of radioactive fractures and the intensity of the radiation increases northwards towards the unconformity where some of the fractures have reddish oxidized margins, likely indicating that they were open to the paleo-surface (unconformity) and subject to paleo-weathering. A parallel geological traverse conducted roughly 2 km to the west was almost entirely within metasedimentary rock. This sequence did not present significant indications of uranium mineralization, except at the farthest southern point, where total count scintillometer readings up to 2,350 CPS were returned from a faulted area. These may indicate presence of bedrock uranium mineralization, possibly related to nearby granites.

8.0 Deposit Types

8.1 Uranium and Polymetallic Deposits

A number of known deposits and showings on the Goldfields property are classified by the Saskatchewan Geological Survey as a specific type of unconformity uranium or uranium-rich polymetallic deposit locally termed Beaverlodge Type after Beaverlodge Lake, which is in part surrounded by the Goldfields property. The summary definition provided as part of the Saskatchewan Geological Survey's mineral deposit models states that the deposits are "epigenetic, structurally controlled uranium ± polymetallic mineralization spatially associated with the unconformity between Archean to Paleoproterozoic basement rocks and the younger Paleoproterozoic intracratonic basin sedimentary rocks of the Martin Group." The deposits are divided into simple and complex types based on ore mineralogy: 1) the simple type consists of dominant pitchblende and lesser coffinite, brannerite, nolanite, pyrite, chalcopyrite and galena; 2) the complex type consists of dominant pitchblende with coffinite, thucholite, sulphides, arsenides and selenides of nickel, cobalt, copper, lead and zinc, as well as native gold, silver and platinum group metals. The Beaverlodge-Type model is largely based on work by Ashton and Normand (2012) and Ashton (2011). Sixteen deposits that conform to the Beaverlodge model were mined between 1953 and 1982 including the Ace-Fay-Verna and Gunnar mines, as well as the Nicholson Bay and Lorado mines which are on the Goldfields property.

Beaverlodge-Type deposits are hosted in fault/shear/breccia zones, usually in basement rock, but occasionally in overlying sedimentary rock. They are most commonly hosted in basement amphibolite. As a result of the structural mode of emplacement, they typically form tabular to lensoidal bodies that can be extensive in the plane of the fault/shear. The deposits formed over several generations; the main mineralizing event is dated at 1848 Ma (Dieng et al., 2013). Ashton (2011) proposed that the deposits formed from deeply derived hydrothermal, and possibly meteoric, fluids that precipitated uranium and other elements in structural and/or oxidation/reduction traps near the unconformity surface. The metals were likely scavenged from fertile basement rock. The hydrothermal fluids related to the deposit formation were also responsible for broad zones of hematite alteration that surround the deposits and focused zones of albite alteration closer to the mineralization.

8.2 The Box and Athona Gold Deposits and Similar Deposits

The Box and Athona deposits have commonly been considered orogenic gold deposits (e.g. Krushelniski et al., 2014). However, as a result of the work documented in this report and a review of historical work, it is proposed that the Box and Athona deposits also closely resemble an oxidized intrusion-related (porphyry) gold setting. Typical orogenic-related gold deposits post-date their host rocks, usually by millions of years, and they are distinctly structurally controlled. Where orogenic gold deposits are associated with granite bodies the granite is generally a passive host to the mineralization and may have provided a rheological or competency contact that aided in focusing mineralizing fluids. According to the orogenic model, auriferous quartz veins are related to hydrothermal fluids derived from devolatilization of deeply buried metamorphic rocks or subducted oceanic crust; the fluids are typically pH neutral with low to moderate salinity and high CO_2. Work by Rees (1992) addressed these conditions in part and Appleyard (1989) considered possible mechanisms of granitization related to gold deposits in the area.

The Box and Athona deposits are similar to orogenic settings in various aspects but also differ in a number of significant ways. Most notably, mineralized stockwork quartz veining is not limited to, or even concentrated at, the contact between the host granite bodies and lower competency host-rock. In fact, both deposits are contained almost entirely within granite stocks and mineralization, alteration and veining diminishes rapidly outboard of the intrusive contact. This indicates that magmatic-hydrothermal fluids derived from the granite melts were the causative mineralizing fluids, and therefore the veining is roughly coeval with the emplacement of the granite. The mineralizing fluids likely had moderate to high salinity and evolved to low pH as indicated by the presence of plagioclase feldspar in mineralized quartz veins and sericite alteration in vein selvages. The mineralized granites exhibit moderate to strong K-feldspar alteration that is overprinted by weak to moderate sericite alteration. Adjacent altered rocks have lower temperature albite-rich alteration assemblages and these grade rapidly outwards into regionally extensive metamorphic rock with retrograde chlorite that may conceal a propylitic alteration halo. This alteration zonation is typical of gold-rich porphyry style deposits where mineralization is often contained within a high-temperature (potassic) zone closely associated with the causative intrusion which can be overprinted by lower temperature and lower pH (sericite) alteration resulting from fluid evolution and thermal collapse of the magmatic-hydrothermal system. The high oxygen fugacity of the Box and Athona intrusions, which is interpreted based on the presence of primary magnetite and abundant hematite, favours the dissolution and transport of gold in magmatic fluids, giving rise to an effective mineralizing system. Unlike other non- or poorly-mineralized granites and gneiss in the Goldfields area, the Box and Athona granites have porphyritic textures. The two stage magmatic cooling/quenching represented by the porphyry texture is intimately tied to the processes that forms mineralized stockwork veining in porphyry deposits.

Complex collision zones such as the one represented by the Trans-Hudson Orogen in northern Saskatchewan and Manitoba can contain significant metal resources that are often considered orogenic. While orogenic deposits generated from deeply derived fluids are often associated with tectonic collision zones, direct upwards channeling through deep structural conduits is not the only method of cycling metalliferous fluids from the lithospheric mantle to the upper crust, rather it may also ascend within granitic diapirs that can ultimately form porphyry deposits. Distinguishing between these types of deposits must be based on the observed relationship between the mineralization and localized structures and/or intrusions. Because mineralization at the Box and Athona deposits is contained almost exclusively within, and is related to alteration genetically linked to, the Box and Athona granites, and because it is not notably related to any significant structures, it is proposed that it suitably conforms to an oxidized intrusion related deposit model (porphyry deposit).

9.0 Exploration

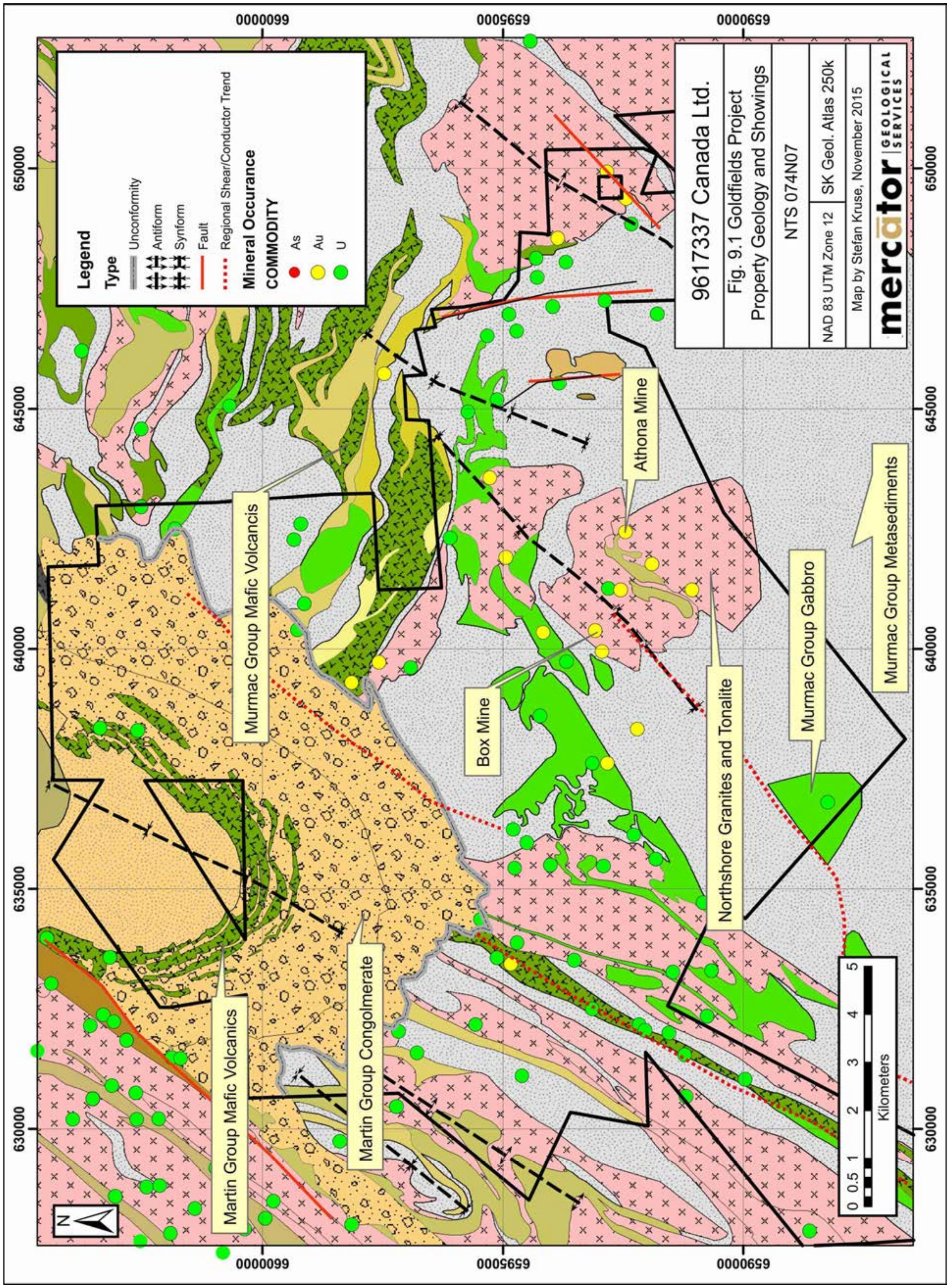
The only current exploration completed by 9617337 Canada Limited was the exploration program conducted by Mercator in 2015 and this work has been divided into five parts for reporting purposes: 1) a structural and geophysical lineament study to delineate structural controls on mineralization and to identify new exploration targets; 2) a rock geochemical sampling program; 3) a scintillometer survey; 4) geological observations and 5) a petrographic study designed to characterize barren versus mineralized granites and determine alteration mineralogy and paragenesis near known mineral deposits. Descriptions of the 2015 program components appear below under separate headings.

9.1 Structural and Geophysical Lineament Study

A lineament analysis, data compilation and desktop study of available public data and reports for the Goldfields property was completed by Terrane Geoscience Inc.(Terrane) under contract to Mercator. The project and results are described in Kruse (2015). The objective of this work was to generate target areas for pending ground follow-up. Emphasis was placed on gold targets but top-tier uranium targets were also identified. Data reviewed and /or interpreted included:

- Regional Bedrock Geology (1:250k Saskatchewan GIS database and 1:63,360 Geological Survey of Canada map 1015A (Figures 9.1 and 9.2)
- Saskatchewan Mineral Occurrence database
- SRTM digital elevation model (DEM) and first vertical derivative (1VD) DEM (Figure 9.3)
- Aeromagnetic Surveys (GSC 1VD, total magnetic intensity (TMI) and local versatile time domain electromagnetic (VTEM) TMI and 1VD surveys (Figure 9.4)
- Geology and Uranium Exploration Technology of the Proterozoic Athabasca Basin, Saskatchewan and Alberta (EXTECH) IV data compilation (conductors, drill holes, mapping, regional faults etc.)
- Local Titan induced polarization (IP) survey (Figure 9.5)
- Natural Resources Canada CANVEC base data (topography, lakes, rivers etc.)
- Publically available satellite imagery (LANDSAT, SPOT)

A lineament interpretation was carried out on the 1VD aeromagnetics and 1VD SRTM DEM data. In general, both the aeromagnetic and digital elevation data (DEM) reflect the mapped underling bedrock geology. Bedrock highs delineated by the DEM commonly trace the overall foliation trend while bedrock depressions commonly contain recessively-weathered faults.



9617337 Canada Ltd.
Fig. 9.1 Goldfields Project
Property Geology and Showings
NTS 074N07
NAD 83 UTM Zone 12
SK Geol. Atlas 250k
Map by Stefan Kruse, November 2015
mercator GEOLOGICAL SERVICES
Legend
Type
Unconformity
Antiform
Synform
Fault
Regional Shear/Conductor Trend
Mineral Occurance
COMMODITY
As
Au
U
Murmac Group Mafic Volcancis
Athona Mine
Box Mine
Northshore Granites and Tonalite
Murmac Group Gabbro
Murmac Group Metasediments
Martin Group Mafic Volcanics
Martin Group Congolmerate
Kilometers
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635000
640000
645000
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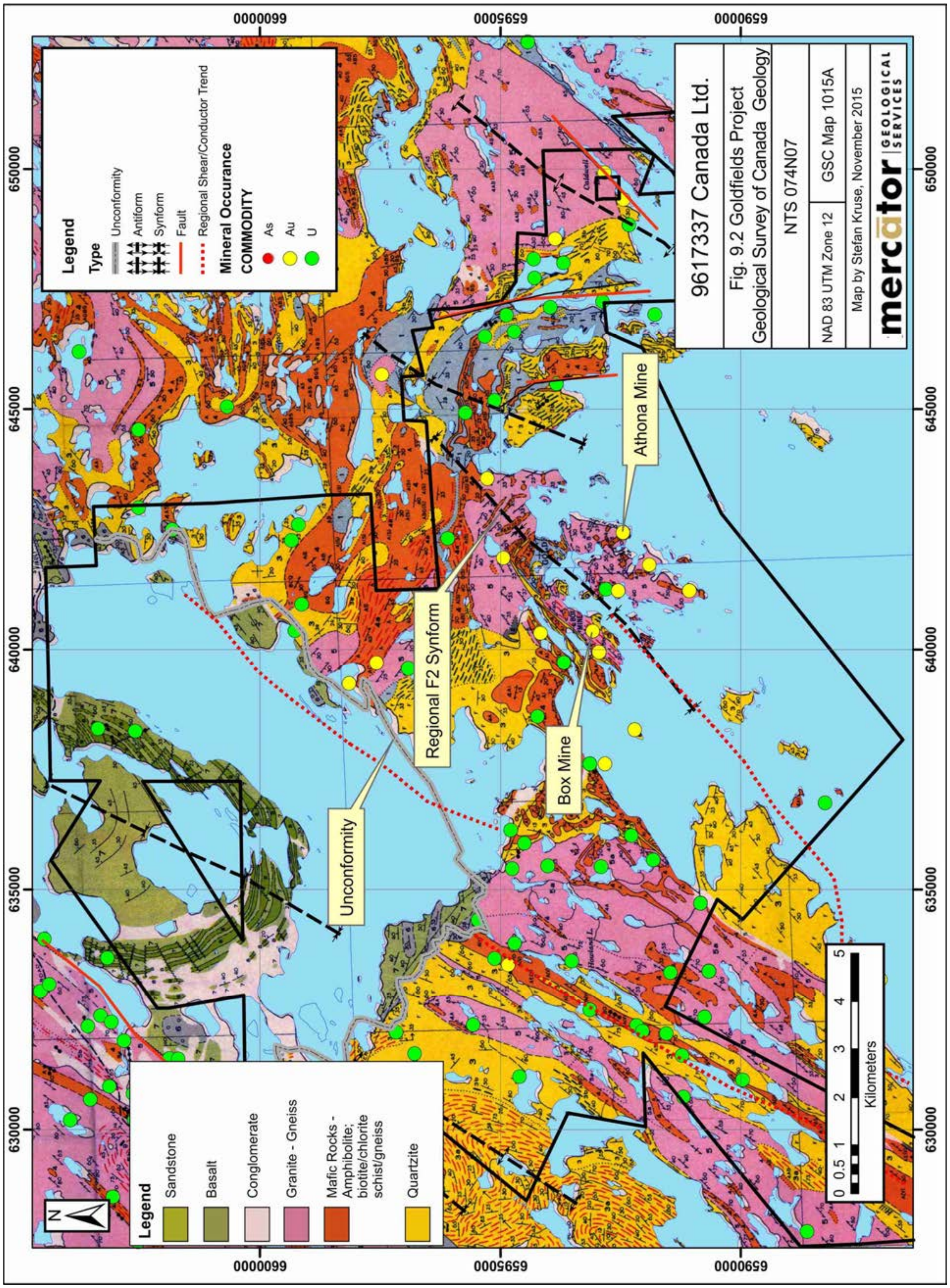
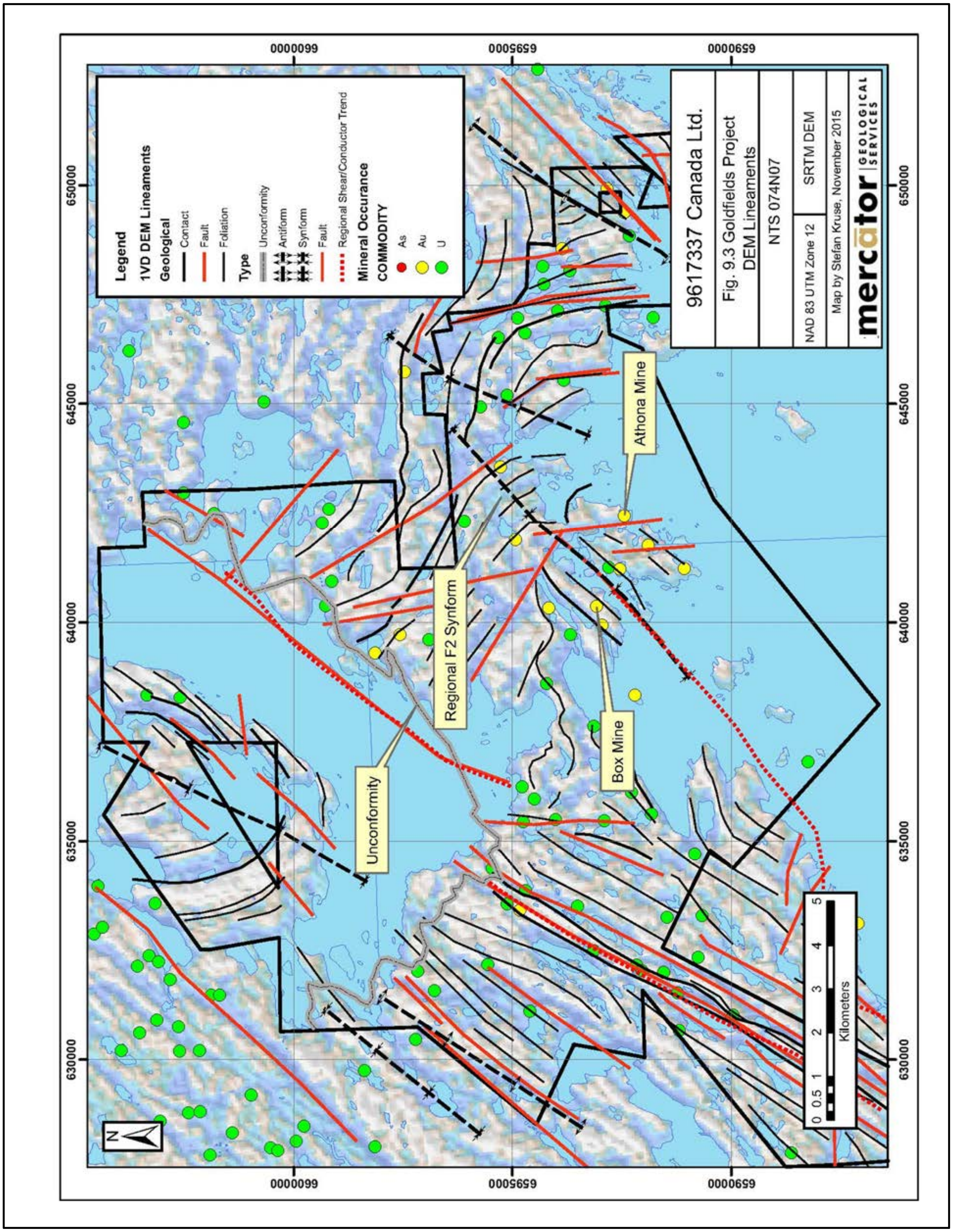


9617337 Canada Ltd.
Fig. 9.2 Goldfields Project
Geological Survey of Canada Geology
NTS 074N07
NAD 83 UTM Zone 12
GSC Map 1015A
Map by Stefan Kruse, November 2015
mercator GEOLOGICAL SERVICES
Legend
Type
Unconformity
Antiform
Synform
Fault
Regional Shear/Conductor Trend
Mineral Occurance
COMMODITY
As
Au
U
Legend
Sandstone
Basalt
Conglomerate
Granite - Gneiss
Mafic Rocks - Amphibolite; biotite/chlorite schist/gneiss
Quartzite
Unconformity
Regional F2 Synform
Box Mine
Athona Mine
Kilometers
0 0.5 1 2 3 4 5
630000
635000
640000
645000
650000
6600000
6595000
6590000
N


9617337 Canada Ltd.
Fig. 9.3 Goldfields Project
DEM Lineaments
NTS 074N07
NAD 83 UTM Zone 12
SRTM DEM
Map by Stefan Kruse, November 2015
mercator GEOLOGICAL SERVICES
Legend
1VD DEM Lineaments
Geological
Contact
Fault
Foliation
Type
Unconformity
Antiform
Synform
Fault
Regional Shear/Conductor Trend
Mineral Occurance
COMMODITY
As
Au
U
Athona Mine
Box Mine
Regional F2 Synform
Unconformity
Kilometers
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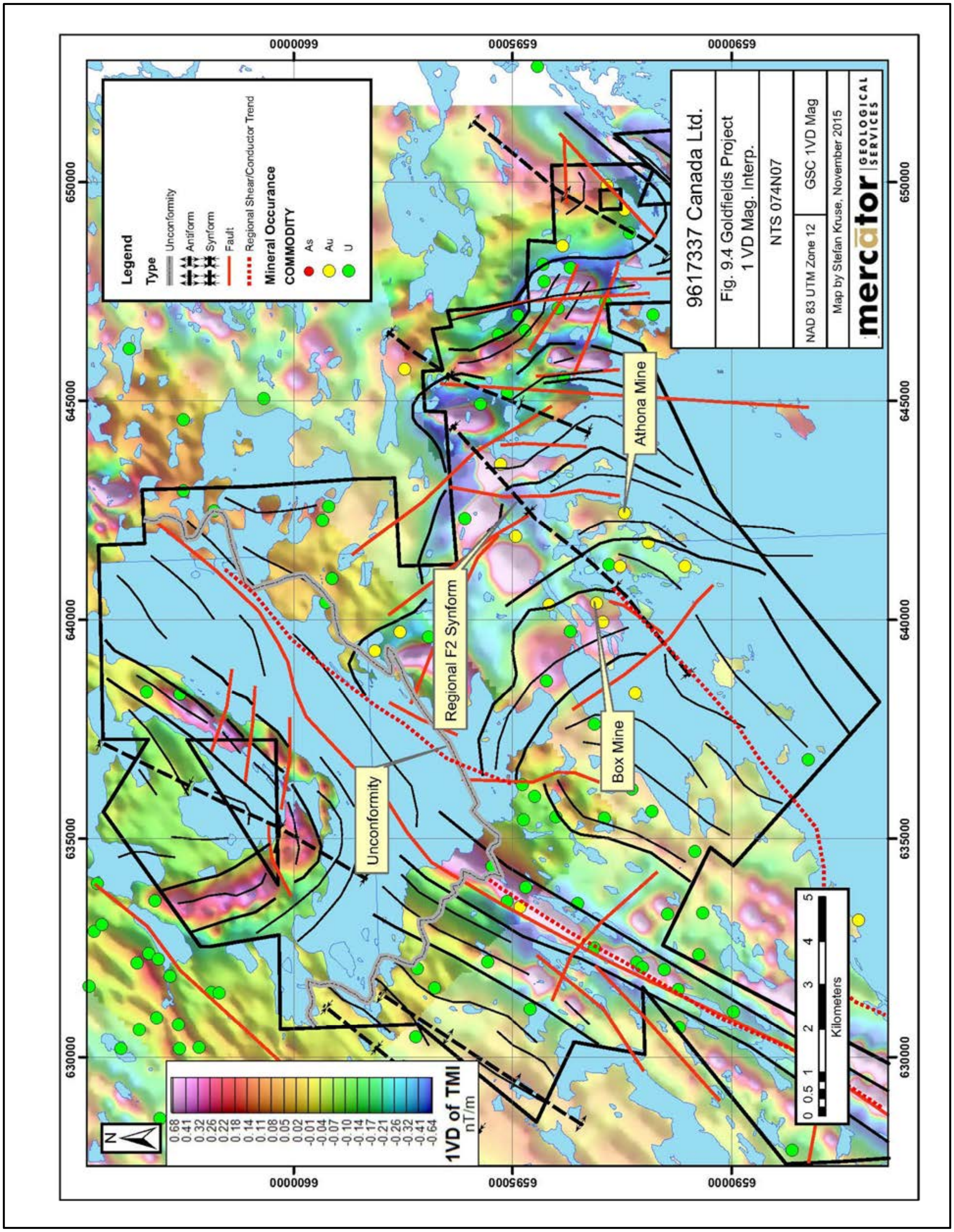
Legend
Type
Unconformity
Antiform
Synform
Fault
Regional Shear/Conductor Trend
Mineral Occurance
COMMODITY
As
Au
U
9617337 Canada Ltd.
Fig. 9.4 Goldfields Project
1 VD Mag. Interp.
NTS 074N07
NAD 83 UTM Zone 12
GSC 1VD Mag
Map by Stefan Kruse, November 2015
mercator GEOLOGICAL SERVICES
Athona Mine
Box Mine
Regional F2 Synform
Unconformity
1VD of TMI
nT/m
0.68
0.41
0.32
0.26
0.22
0.18
0.14
0.11
0.08
0.05
0.02
-0.01
-0.04
-0.07
-0.10
-0.14
-0.17
-0.21
-0.26
-0.32
-0.41
-0.64
N
Kilometers
0 0.5 1 2 3 4 5
630000
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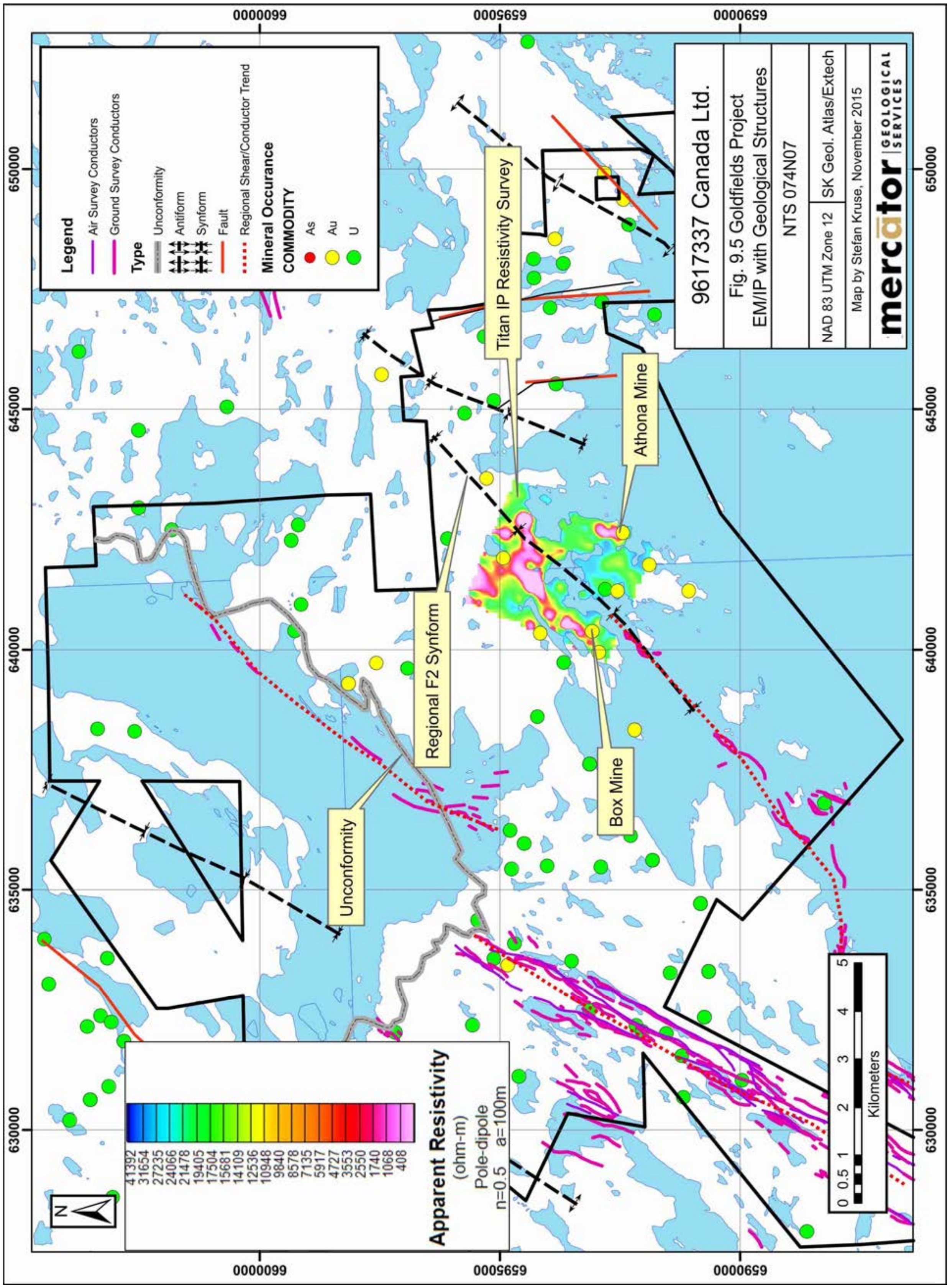
6600000
6595000
6590000


9617337 Canada Ltd.
Fig. 9.5 Goldfields Project
EM/IP with Geological Structures
NTS 074N07
NAD 83 UTM Zone 12
SK Geol. Atlas/Extech
Map by Stefan Kruse, November 2015
mercator GEOLOGICAL SERVICES
Legend
Air Survey Conductors
Ground Survey Conductors
Type
Unconformity
Antiform
Synform
Fault
Regional Shear/Conductor Trend
Mineral Occurance
COMMODITY
As
Au
U
Apparent Resistivity
(ohm-m)
Pole-dipole
n=0.5 a=100m
41392
31654
27235
24066
21478
19405
17504
15681
14109
12536
10948
9840
8578
7135
5917
4727
3553
2550
1740
1068
408
Titan IP Resistivity Survey
Athona Mine
Box Mine
Regional F2 Synform
Unconformity
Kilometers
0 0.5 1 2 3 4 5
630000
635000
640000
645000
650000
6600000
6595000
6590000

The aeromagnetic data set effectively delineates lithological boundaries with strong magnetic contrast.

9.1.2 Controls on Gold Mineralization

Review of information pertaining to historic gold deposits such as those at the Athona and Box mines, plus various mineral occurrences, provided definition of several common themes listed below in order of decreasing importance:

- All know gold occurrences are located within the Murmac Group, structurally below the folded unconformity with the overlying Martin Group.
- Gold commonly occurs within the granites and granitoid gneisses of the Paleoproterozic North Shore Suite. Some occurrences are also associated with the Neoarchean Beaverlodge suite of granites. At almost every occurrence, however, the mineralization is hosted within the granite adjacent to a contact with a mafic unit (variably described as amphibolite, gabbro, hornblende gneiss etc.). This suggests that competency contrast is a significant control on mineralization.
- Mineralized zones are commonly sheared. Shear zone orientation is controlled by lithological boundaries (i.e. granite/mafic contacts).
- The significant gold showings or deposits (Athona, Box and Frontier) are clustered around the closure and proximal limbs of a regional NE-SW trending F2 synform.
- Mineralized veins commonly occur in en-echelon arrays, oriented 15-40° anticlockwise of the main shear zones. This suggests the emplacement of the veins occurred in a left-lateral shear zone, nucleated on lithological boundaries.
- Quartzite/granite contacts are also locally prospective (i.e. Hazel and Northwest occurrences).

9.1.3 Gold Targeting – Kruse (2015)

Ninety-seven gold target locations were selected for prospecting follow-up and semi-quantitatively ranked for priority or prospectivity. All targets and associated location coordinates are tabulated in Appendix 1 and Figure 9.6 below presents locations. The four ranking tiers that were applied to these targets by Terrane are defined below in Table 9.1.

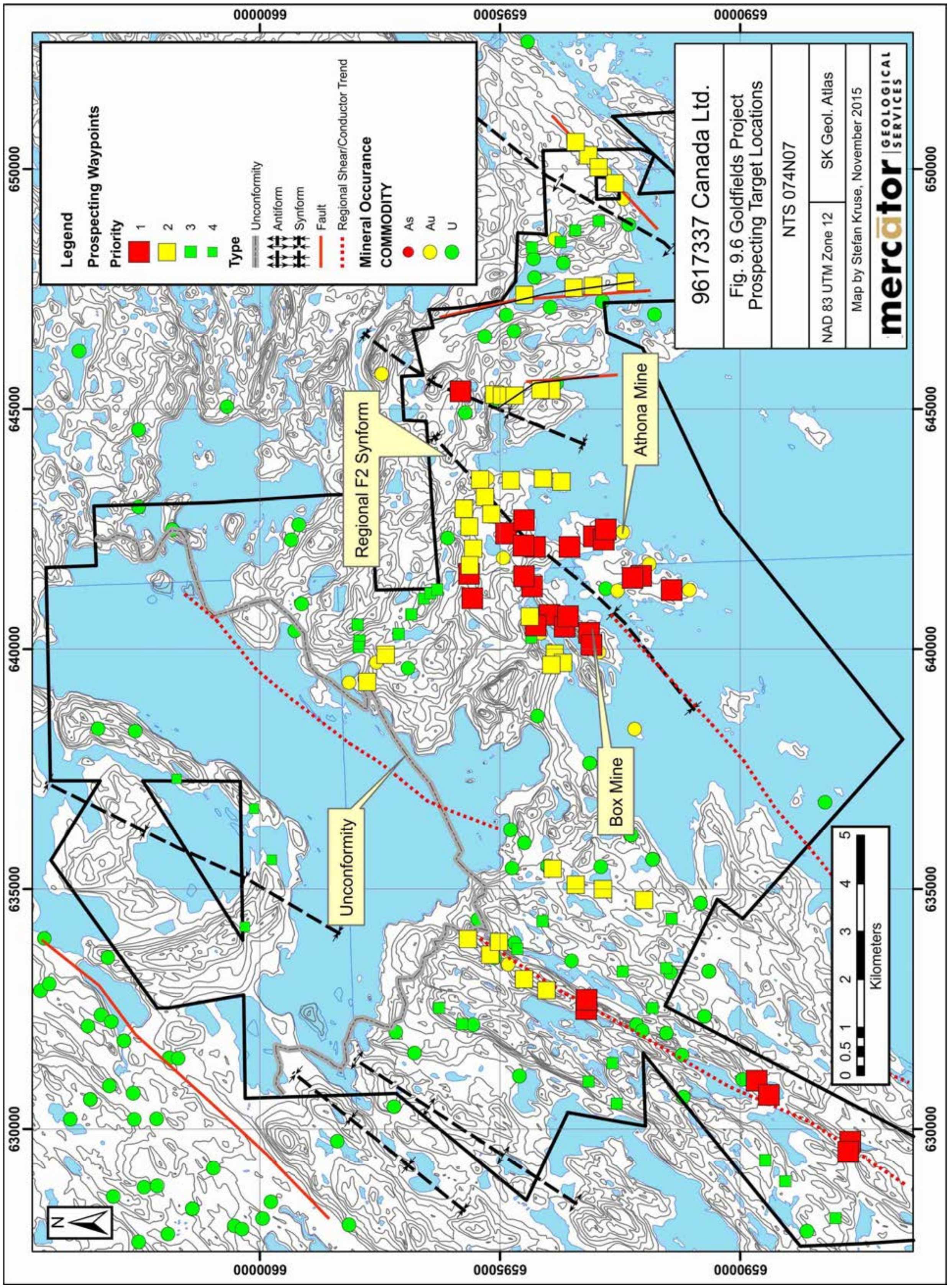

Legend
Prospecting Waypoints
Priority
1
2
3
4
Type
Unconformity
Antiform
Synform
Fault
Regional Shear/Conductor Trend
Mineral Occurance
COMMODITY
As
Au
U
9617337 Canada Ltd.
Fig. 9.6 Goldfields Project
Prospecting Target Locations
NTS 074N07
NAD 83 UTM Zone 12
SK Geol. Atlas
Map by Stefan Kruse, November 2015
mercator GEOLOGICAL SERVICES
Regional F2 Synform
Athona Mine
Box Mine
Unconformity
Kilometers
0 0.5 1 2 3 4 5
630000
635000
640000
645000
650000
6600000
6595000
6590000
N

Table 9.1: Details of Target Tier Structure

Target Tier 1
• Structurally below the Martin Group - Murmac Group unconformity
• Proximal (generally within 2 km) or on-strike of a known historic gold deposit
• Within the major F2 syncline hosting the Athona and Box deposits
• Fall within or on the margins of a resistivity high (Titan IP Survey)
• Structurally below the Martin/Murmac unconformity
Target Tier 2
• Structurally below the Martin Group - Murmac Group unconformity
• Proximal to a minor gold or gold/uranium occurrence
• Located at a granite/mafic contact or quartzite/granite contact
• Lie within or proximal to a major magnetic or topographic lineament
Target Tier 3
• Structurally below the Martin Group - Murmac Group unconformity y • Located at a lithological contact or near a regional F2 fold hinge • Lie within or proximal to a magnetic or topographic lineament
Target Tier 4
• Lie above the Martin Group - Murmac Group unconformity within a regional F2 synform • Are within fold-accommodation faults, interpreted from aeromagnetic lineaments

9.1.4 Uranium Targeting – Kruse (2015)

While not the main focus of this work, several prospective uranium targets were identified. A major NE-SW trending uraniferous fault/conductor system (previous Figure 9.6) is located in the SW quadrant of the property. Six Tier 1 targets were identified at the intersection of the conductor system with cross-faults (aeromagnetic lows, which break/offset the conductor trend). Tier 2 uranium targets were also identified along this conductor trend and along known N-S striking, post-Athabasca, uraniferous faults on the east side of the property.

9.1.5 Discussion and Recommendations – Kruse (2015)

Terrane concluded that the main large-scale structural controls on location of gold mineralization on the Goldfields property are zones of competency contrast at granite - mafic gneiss contacts. The geometry of these in turn is considered to be controlled by the interference of F1 and F2 folds. F2 folds are relatively well defined, based on existing government mapping (GSC 1015A), as moderately NE- or SW-plunging synform-antiform pairs with steeply-inclined axial planes. In contrast, the geometry of F1 folds is not well or consistently documented. The orientation of F1 fold hinges may play an important role in defining the plunge direction of mineralized zones. It was concluded that detailed structural and lithologic mapping in and around key priority rated target areas is fully warranted.

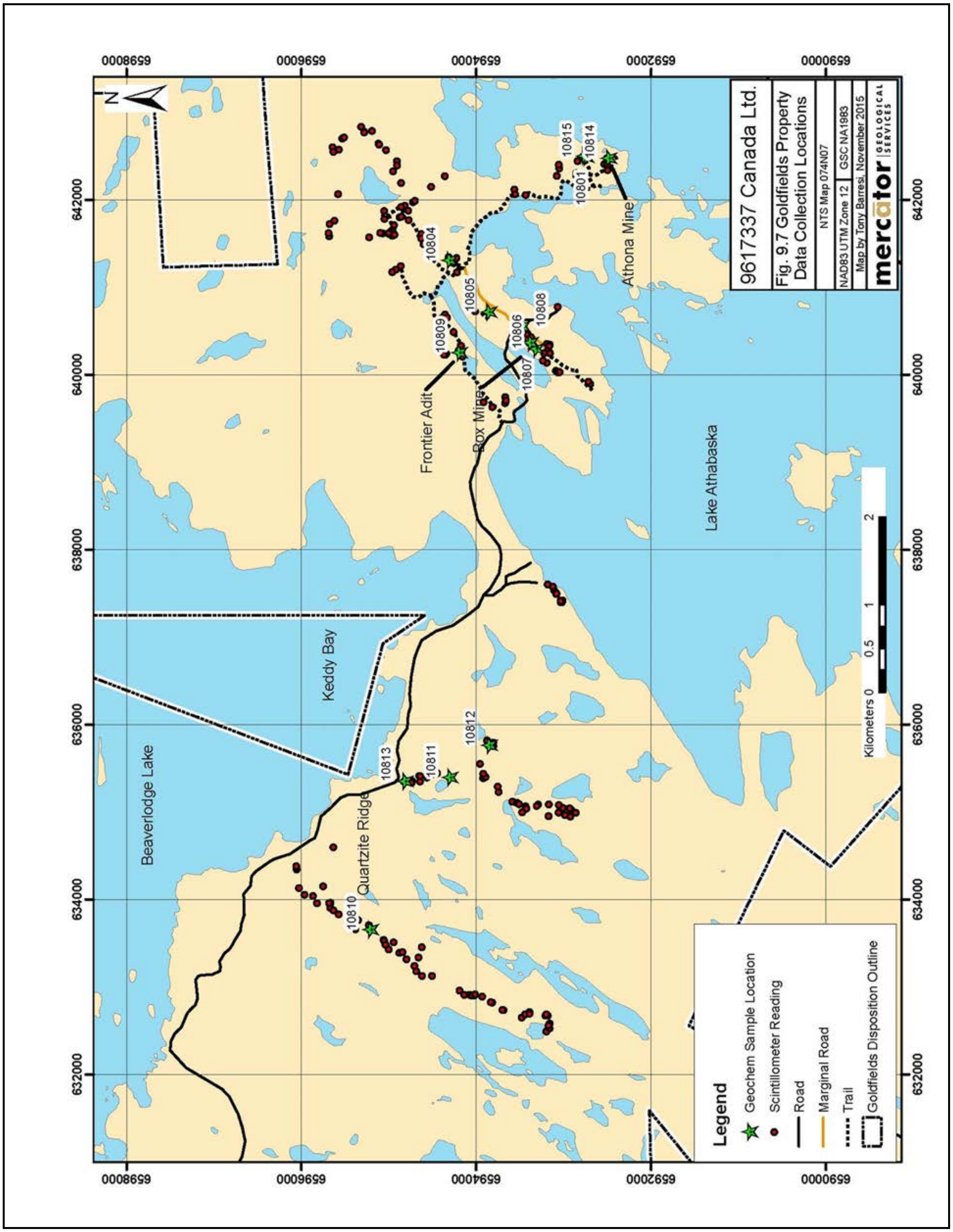
9.2 Rock Geochemical Sampling

Mercator staff collected 13 rock samples during 2015 Goldfields property site visit. These are identified in Table 9.2 and were collected from outcrops, mineral occurrences or mine dumps that contain representative veining and/or mineralization of interest. Analytical results for gold, silver, copper, lead and zinc are also included in Table 9.2. The samples are "grab" in nature and were collected to either confirm anomalous metal levels previously reported or to enhance understanding of mineralization styles present on the property. They do not have associated sample length parameters. Location coordinates for all samples are included in Appendix 1 of this report and Figure 9.7 presents locations. Samples were sent to ALS Global, an independent, fully accredited, international analytical services firm, for preparation and analysis, details of which are presented later in report section 11.

Table 9.2: 2015 Rock Geochemical Samples

Sample Number	Area	Au	Ag	Cu	Pb	Zn
		ppm	ppm	ppm	ppm	ppm
10804	Triangle	177.5	140	800	121	199
10805	N. of Box Mine	0.017	0.6	14	15	15
10806	Box Mine	0.326	1	8	61	79
10807	Box Mine	5.34	2.3	12	42	55
10808	Box Mine	37.1	9.7	42	89	9
10809	Frontier Adit	0.332	<0.5	10	12	4
10810	Quartzite Ridge	0.022	<0.5	32	3	6
10811	Keddy Bay	0.167	0.6	143	67	19
10812	Keddy Bay	0.003	<0.5	3	3	10
10813	Keddy Bay	0.005	<0.5	9	4	6
10814	Athona	2.11	<0.5	10	205	448
10815	Athona	11.5	3	12	497	619
10801	Athona	0.197	<0.5	3	34	18

Notes: *ppm denotes parts per million; **CDN-SE-2 is a certified reference material sample


9617337 Canada Ltd.
Fig. 9.7 Goldfields Property Data Collection Locations
NTS Map 074N07
NAD83 UTM Zone 12
GSC NA1983
Map by Tony Barresi, November 2015
mercator GEOLOGICAL SERVICES
Legend
Geochem Sample Location
Scintillometer Reading
Road
Marginal Road
Trail
Goldfields Disposition Outline
Kilometers 0 0.5 1 2
N
Beaverlodge Lake
Keddy Bay
Lake Athabaska
Quartzite Ridge
Frontier Adit
Box Mine
Athona Mine
10801
10804
10805
10806
10807
10808
10809
10810
10811
10812
10813
10814
10815
632000
634000
636000
638000
640000
642000
6590000
6592000
6594000
6596000
6598000

9.2.1 Results of 2015 Rock Geochemistry Sampling

Comments with respect to analytical results for the 13 samples collected during the 2015 site are highlighted in point form below.

- The high-grade gold result from the Triangle showing (177 ppm Au in sample 10804) is the highest grade sample collected to date from that area. Although historical drilling by GLR resources in 2006 near the sample site returned insignificant gold values (Nadeau and Mihailovic, 2008), identification of high-grade gold in the 2015 sample warrants revisiting the showing to map in detail the surface expression of the sampled zone and to better determine its potential.

- Gold bearing granites near the Box mine, Athona deposit, and at the Frontier adit have much higher concentrations of potassium (2.09 – 5.02% K) than non-mineralized granite from north of the Box mine (0.97% K) and in the Keddy Bay area (0.98% K). This is consistent with the observation that mineralized granites have been affected by intense K-feldspar±biotite alteration.

- Sample 10909 that was collected from the Frontier adit area has the highest concentration of potassium (5.02% K) indicating that it is not simply "quartzite" as previous workers have suggested. The high potassium concentration indicates either a granitic protolith or secondary potassic enrichment at the expense of sodium and/or calcium in albite or plagioclase feldspar (sodium and calcium concentrations total < 0.2%).

- Levels of elements that best characterize rock forming minerals (e.g. potassium, sodium, magnesium and phosphate), as well as metals of economic or exploration interest such as gold, silver, copper, barium, lead, and arsenic are similar in samples collected from the Box and Athona mines, but differ in comparison with the sample from the Frontier adit (10809). The latter contains higher concentrations of barium, potassium and phosphate and lower concentrations of sodium. This may be a result of higher intensity alteration, or may indicate that the Frontier adit exploited a different style of mineralization than that present at the Box and Athona mines.

- Sulphur and iron concentrations are relatively low for mineralized samples collected from the Box and Athona granites (sulphur ranges between 0.13 and 1.43%) and this supports the general field observation that low sulphide levels characterize most rocks, even those with highest gold concentrations. Good correlation exists between increasing sulphur concentration and increasing gold levels, indicating that increase in overall sulphide content may be a positive indicator for presence of gold.

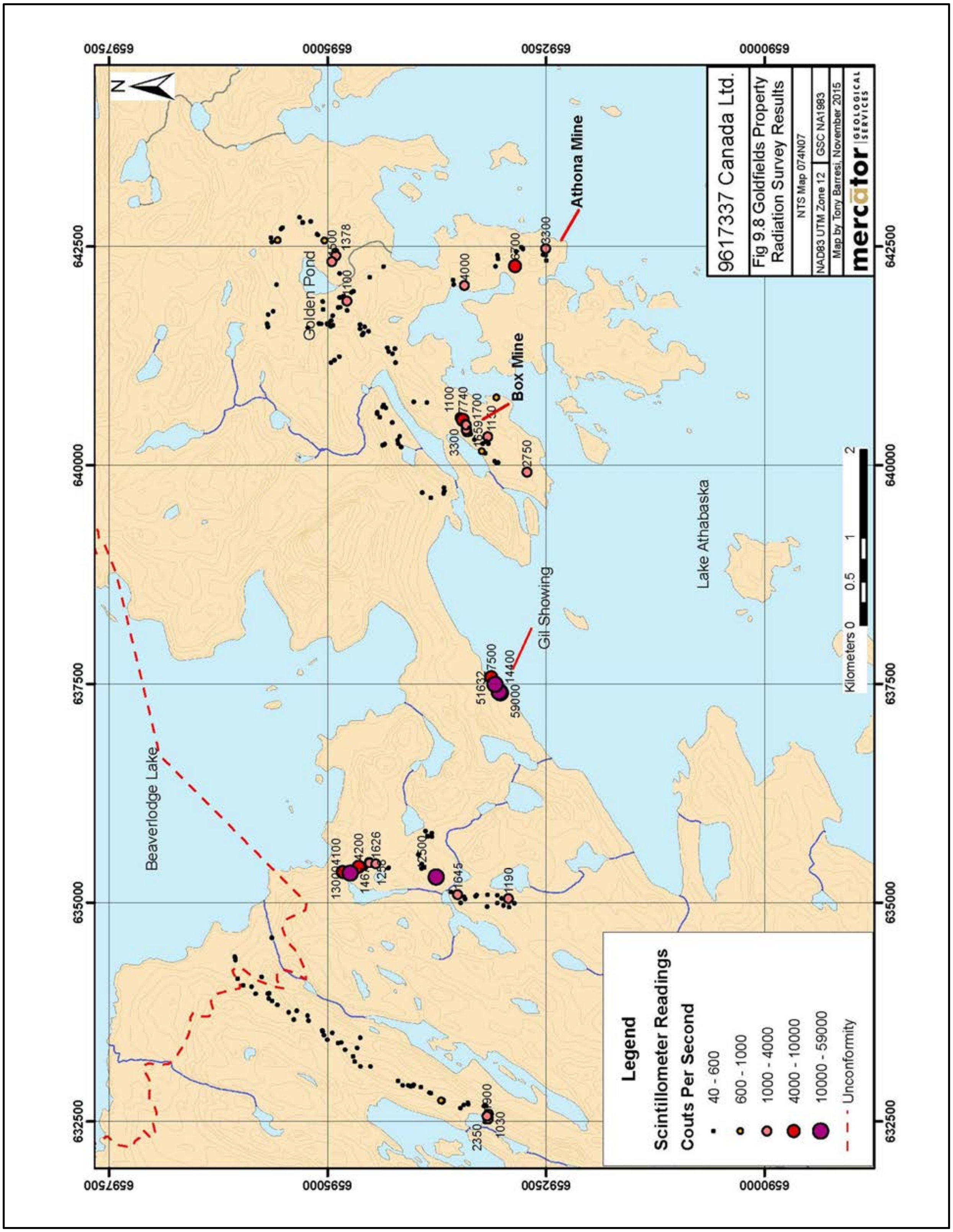
- Elevated concentrations of bismuth (Bi) and tungsten (W), which are typical of "orogenic" gold deposits, are not present at the Box and Athona deposits. However, the high grade gold sample from the Triangle showing contains 1140 ppm Bi, suggesting that it may more closely conform to that deposit model.

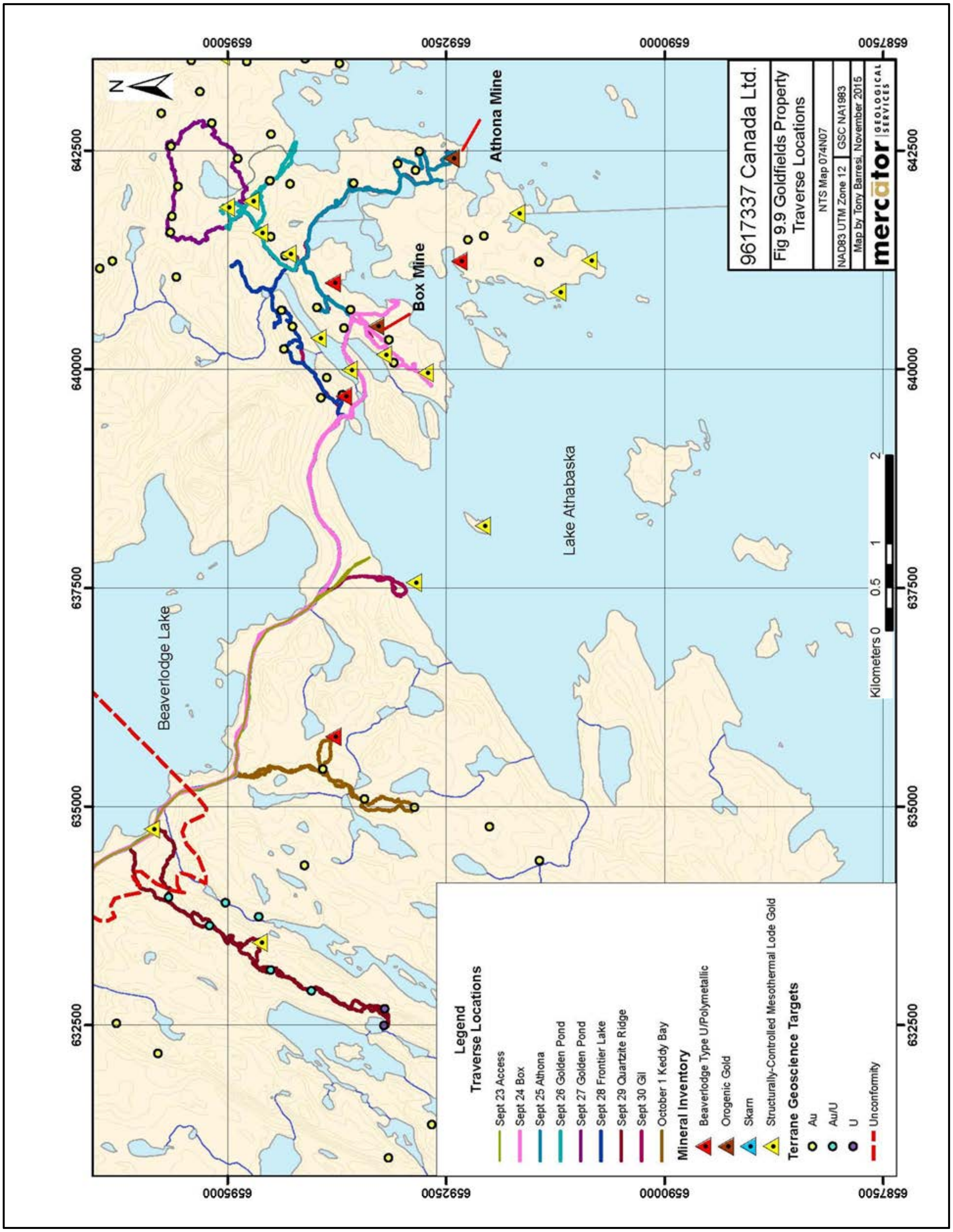
9.3 Scintillometer Survey

A ground scintillometer survey was conducted during Mercator's 2015 mapping, sampling, and prospecting program carried out on the Goldfields property. The purpose of this survey was to establish a baseline dataset of gamma radiation emitted from bedrock located both proximally and distally to the main gold occurrences such as the Box mine and Athona deposit, and at other areas of interest. Gamma radiation was measured with a portable hand-held, RS-121 Super-SCINT scintillometer. Survey measurements were recorded in counts per second (CPS) of gamma radiation. A total of 235 measurements were taken and survey station locations were recorded with a hand-held GPS using UTM NAD83 Zone 12 coordinates (previous Figure 9.7). Radiation readings taken at ground level were recorded at each outcrop mapping station or approximately every 200 m during each field traverse. A survey station was also recorded at each location where the scintillometer indicated radiation in excess of 1,000 CPS.

9.3.1 Scintillometer Survey Results

The 235 scintillometer readings ranged from 40 counts per second (CPS) to 59,000 CPS (Figure 9.8) with a mean of 1,171 CPS and median of 200 CPS. The data distribution is skewed due to selective sampling of highly radioactive material. Background radiation is lowest in amphibolite and metasedimentary rock that typically show 100 to 200 CPS readings. Background radiation in granite has a higher range, roughly up to 300 CPS, presumably as a result of increased radiation from the decay of potassium in K-feldspar. In the vicinity of the Box and Athona mines and around Golden Pond, where the rocks are affected by K-feldspar alteration/flooding, background radiation is in the 400 to 600 CPS range. Anomalous radiation readings between 600 and 10,000 CPS were encountered in localized settings, such as recessive fractures cutting granite, and/or associated with a set of late quartz veins. Anomalous radiation is especially common within granite near the unconformity surface that separates the Murmac Bay Group from the Martin Group (Figures 9.8 and 9.9). Areas with high levels of radiation, up to 13,000 CPS, are present in recessive zones in the footwall of the unconformity and in some of these locations indications of pitchblende and/or yellow uranium oxide were visible. At the Gil showing, survey locations 200 m apart registered between 59,000 and 51,633 CPS within a possibly continuous zone of recessive rock that measures about 1 metre in thickness and is composed primarily of quartz and carbonate with local indications of pitchblende and minor sulphide hosted by amphibolite.


9617337 Canada Ltd.
Fig 9.8 Goldfields Property Radiation Survey Results
NTS Map 074N07
NAD83 UTM Zone 12
GSC NA1983
Map by Tony Barresi, November 2015
mercator GEOLOGICAL SERVICES
Legend
Scintillometer Readings
Couts Per Second
40 - 600
600 - 1000
1000 - 4000
4000 - 10000
10000 - 59000
Unconformity
Kilometers 0 0.5 1 2
Athona Mine
Box Mine
Gil Showing
Golden Pond
Lake Athabaska
Beaverlodge Lake
632500
635000
637500
640000
642500
6597500
6595000
6592500
6590000


9617337 Canada Ltd.
Fig 9.9 Goldfields Property
Traverse Locations
NTS Map 074N07
NAD83 UTM Zone 12
GSC NA1983
Map by Tony Barresi, November 2015
mercator GEOLOGICAL SERVICES
Athona Mine
Box Mine
Lake Athabaska
Beaverlodge Lake
Kilometers 0 0.5 1 2
632500
635000
637500
640000
642500
6595000
6592500
6590000
6587500
N
Legend
Traverse Locations
Sept 23 Access
Sept 24 Box
Sept 25 Athona
Sept 26 Golden Pond
Sept 27 Golden Pond
Sept 28 Frontier Lake
Sept 29 Quartzite Ridge
Sept 30 Gil
October 1 Keddy Bay
Mineral Inventory
Beaverlodge Type U/Polymetallic
Orogenic Gold
Skarn
Structurally-Controlled Mesothermal Lode Gold
Terrane Geoscience Targets
Au
Au/U
U
Unconformity

9.4 Geological Traversing

9.4.1 Introduction

Eight geological traverses were conducted on the property by Mercator staff during the 2015 site visit (previous Figure 9.9) and the area surrounding the Box and Athona mines was of primary interest. The traverses were designed to facilitate geological observations at these past producing mines as well as at selected Saskatchewan mineral file inventory occurrences and certain exploration targets generated in 2015 by Terrane. Work in 2015 was limited to areas within approximately 4 km of currently accessible four-wheel-drive roads. A large portion of the property, which is only accessible via boat, helicopter or floatplane, was not inspected in any manner during the 2015 site visit.

9.4.2 Overview of Property Geology

As detailed in previous section 7.0, bedrock geology of the Goldfields property consists of the Early Proterozoic Murmac Bay Group, and Late Proterozoic Martin Group. The Murmac Bay Group is host to all known gold mineralization on the property and comprises metamorphosed siliciclastic and carbonate sedimentary rock and mafic volcanic rock that are intruded by granite and gabbro. The Murmac Bay Group is metamorphosed to amphibolite facies (retrograded to upper greenschist) and was complexly folded, foliated, and faulted during two deformation events. A folded and faulted unconformity (previous Figure 9.1) separates the Murmac Bay Group, from mainly coarse clastic sedimentary “redbed” sedimentary rock and basalt flows of the overlying Martin Group. Unlike the Murmac Bay Group, the Martin Group shows little evidence of metamorphism and, although it is folded and faulted, there is no development of a penetrative foliation. The unconformity between the two groups represents a locally and regionally important horizon for uranium deposit exploration.

9.4.3 Lithologies

Siliciclastic rocks on the property are primarily meta-graywacke and quartzite. Conglomerates are also described at the Box mine but most coarse fragmental rocks observed during the site visit were of likely tectonic origin (Figure. 9.10f). Meta-graywacke is the most abundant siliciclastic lithology and comprises dark gray to pale orange weathering rock, usually with a coarse granular appearance (Figures 9.10b and 9.10c). On fresh surfaces the graywacke has a non-descript granular texture, sometimes with visible feldspar grains hosted between foliation planes within a fine-grained chloritic and/or ankeritic matrix. Bedding is largely obscured and rotated into the plane of foliation. The 1-2 m scale breaks in slope on steep-sided hills likely represent differential weathering of bedding layers of variable competence. The meta-graywacke also contains rare recessive beds of chlorite-rich rock likely derived from a mafic tuff protolith, as well as thin limestone beds and/or boudins. (Figure 9.10c).

Quartzite represents the other significant siliciclastic lithology found on the property (Figures 9.10a and 9.10b). It is typically massive to finely-laminated, non-foliated and highly siliceous, and ranges from white to pink in color. In a few locations, quartzite forms 30 cm to several meter thick beds within dominantly meta-graywacke successions. Where most abundant, it comprises thick homogenous mono-lithological sections. Highly silicified rock in the vicinity of the Box mine and Frontier Lake adit have uncertain protoliths. They may be products of extreme hydrothermal alteration but are texturally very similar to quartzite (Figure 9.11d).

9.4.3.2 Carbonates

Limestone and dolostone are rare on the Goldfields property and were mainly observed on the northern portion of the Athona Peninsula. Limestone forms massive to brecciated beds up to several metres in thickness that are interbedded with siliciclastic rock and/or are in contact with amphibolite (Figure 9.12f). Tan coloured dolostone is well exposed in a completely cleaned off outcrop at the Triangle showing where it appears to be interbedded with finely laminated talc schist (Figures 9.10e). The meta-dolostone and talc schist are partly silicified and the former does not display foliation, possibly due to late annealing and/or recrystallization.

9.4.4 Amphibolite/Gabbro

Hornblende bearing rocks on the Goldfields property have been variably described as amphibolite and/or gabbro, with proposed intrusive and extrusive mafic and ultramafic protoliths. Despite the heterogeneity of possible protoliths, the lithology is regionally homogenous with little variation in texture or composition. It is typically composed of 30% columnar, 4-8 mm long hornblende porphyroblasts that are contained within a fine-grained groundmass that can range from entirely dark minerals (presumably amphibole) to fine salt and pepper texture that probably includes intergrown plagioclase and amphibole phases. The hornblende porphyroblasts have straight edges parallel to their long axis and ragged terminations. The lithology is easily recognized on weathered surfaces where the dark coloured hornblende porphyroblasts stand out against an orange-brown weathering matrix (Figure 9.10d. This lithology is typically foliated.

9.4.5 Granites

Granites occupy approximately 50% of the area covered during Mercator's 2015 site visit and of the overall Goldfields property. There are several generations of granites, all of which have similar characteristics and are differentiated by subtle variations. The granites on the Goldfields

Fig. 9.10A Frontier adit dump: pink quartzite.

Fig. 9.10D Box mine area: Amphibolite. Inset (bottom left) is closeup of hornblende porphyroblastic texture.

Fig. 9.10B Frontier Lake area: laminated white quartzite overlying and interbedded with grungy gray meta-graywacke.

Fig. 9.10E Golden Pond area (Triangle showing): Massive tan coloured dolostone pods within and x-cut by talc + quartz.

Fig. 9.10C Quartzite Ridge area: meta-graywacke with limestone and calc-silicate boudin.

Fig. 9.10F Box mine area: pink Box granite clasts within sheared meta-graywacke.

Figure 9.10: Goldfields Property - Lithologies Illustrated 1 of 2

Fig

Fig. 9.11A Box mine area: pink Box granite with poorly defined crystal margins. Interpreted to be a result of late-stage metasomatism.

Fig. 9.11D Box mine area: fine grained altered granite. Difficult to distinguish from pink quartzite.

Fig. 9.11B Athona mine dump: pink (top right) and gray (top left) versions of the Athona granite, and the overlying amphibolite (bottom).

Fig. 9.11E Box mine area: biotite schist.

Fig. 9.11C Athona mine area: pink quartz-porphyritic granite.

Fig. 9.11F Athona area: gneiss with biotite-rich melanosomes and feldspar-rich leucosomes.

Figure 9.11: Goldfields Property - Lithologies Illustrated 2 of 2

property are characteristically salmon pink and porphyritic, often with subhedral to euhedral albite phenocrysts and quartz eyes up to 4 mm in diameter in a pink K-feldspar rich groundmass that disguises a high proportion of K-feldspar phenocrysts (previous Figures 9.11a, 9.11b, 9.11c, 9.12a). Mafic phases in the granites are largely destroyed by alteration, metamorphism and deformation and all that usually remains of these are foliation-parallel, discontinuous pods and seams of chlorite or biotite (previous Figure 9.12b). Several distinct phases of granite have been also identified:

1. Early granite: Strongly foliated, fine to medium-grained, monzonite to granite that is transitional with orthogenesis. This granite contains about 1%/volume quartz veins, a lower proportion than the other granites, and also has a low (≈10%) proportion of quartz Petrography shows that there is abundant quartz but much of it is contained in fine-grained domains that result from strain-related grain size reduction.

2. Box granite 1 (strongly altered) (previous Figures 9.11d, 9.12a, 9.12b): this granite has little remnant granitic texture and is mainly comprised of blotchy, irregularly intergrown K-feldspar and albite with fine-grained domains of albite+quartz. It is weakly to non-foliated and contains a high proportion of quartz veins, usually >10%/volume.

3. Box granite 2 (weakly to moderately altered) (previous Figure 9.11a): This granite is similar to, and may be transitional with, the heavily altered version of the Box granite but in this case feldspar and quartz phenocrysts are discernable within an otherwise metasomatic/structurally-modified texture with irregular grain boundaries between crystals. This less-altered version of the Box granite can be variably foliated and contains up to 10%/volume quartz veins. Where it is most heavily veined it is least foliated.

4. Athona granite (previous Figures 9.11b and 9.11c): This lithology intrudes the early granite and amphibolite. It comprises a coarsely porphyritic variety of granite with high proportions of quartz phenocrysts (≈35%/vol.) and distinct mafic phenocrysts (5%/vol) altered to chlorite. Petrography shows that pods and clots of fine-grained secondary silica are responsible for the appearance of quartz phenocrysts. It is non-foliated, and while in places it is bright pink in color from potassic alteration and hematite staining, there are areas where it is buff in color and even K-feldspar phenocrysts lack any pink coloration. Both color varieties of the Athona granite have high proportions of quartz veins, although the pink variety is more heavily veined.

5. Aplite: In places such as at the Frontier adit, a fine-grained rock composed of sucrosic quartz (70%) and K-feldspar±plagioclase (30%) is present (previous Figure 9.11d), sometimes in association with coarser granite. It is unclear if this is an altered granite, altered quartzite, or a distinct granitic phase. Petrography shows that at the Frontier adit the fine-grained siliceous rock is an altered quartz-rich meta-wacke. An earlier

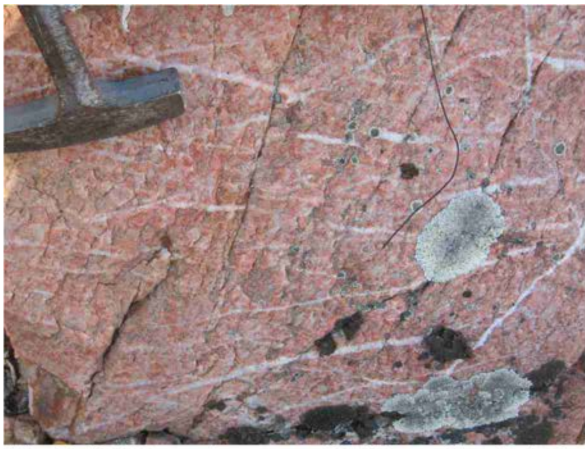


Fig. 9.12A Box mine area: K-feldspar flooded Box granite.

Fig. 9.12B Box mine area: K-feldspar altered biotite schist near contact with Box granite - partial “granitization”.

Fig. 9.12C Box mine area: quartz vein cutting chlorite rich meta-tuff(?). Note K-feldspar selvage.

Fig. 9.12D Box mine area: quartz+biotite/chlorite vein cutting meta-sedimentary rock. note the K-feldspar selvage.

Fig. 9.12E Box mine area: rusty quartz+chlorite+pyrite filled vug/vein cutting Box granite. Note narrow white clay selvage..

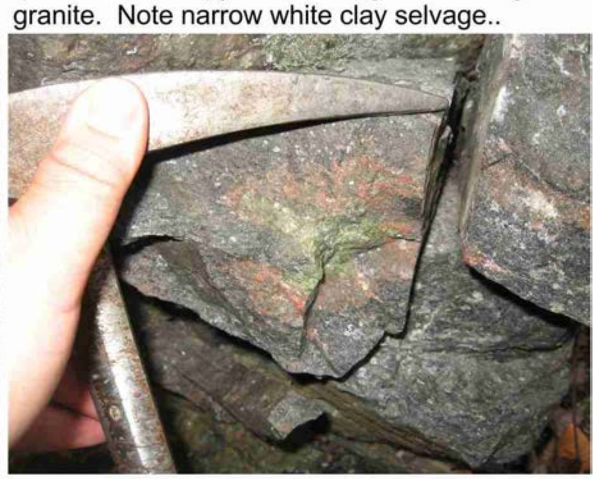


Fig. 9.12F Athona area: epidote + calcite (pink) (calc-silicate) pod in limestone near contact with amphibolite.

Figure 9.12: Goldfields Property - Alteration Illustrated

geochemical study (Appleyard, 1988) suggested that this rock type results from granitization, but field relationships indicate that it is transitional with coarser granites and has intrusive contacts with other country rock, indicating that it is a distinct intrusive phase.

9.4.6 Gneiss and Schist

In a few locations, protolith composition and textures are largely destroyed and the remaining strongly metamorphosed and deformed rocks are classified as schist or gneiss (previous Figures 9.11e, 9.11f, 9.12b, 9.13e). Schist is typically biotite rich with pods of granoblastic quartz and albite (previous Figure 9.11e). Most often it is a highly metamorphosed and deformed version of amphibolite, granite or greywacke that is often found along the margin of younger granite intrusions.

Several compositional varieties of gneiss are represented, including orthogneiss originating from metamorphosed and deformed granites, and paragneiss which has a likely sedimentary protolith. Orthogneiss includes significant amounts of pink K- feldspar within leucosomes and sometimes has traces of remnant granitic textures (e.g. K-feldspar phenocrysts). Paragneiss typically has biotite rich melanosomes and gray to white albite+quartz leucosomes. Where paragneiss is in contact with the Box granite 1, contact metamorphism/metasomatism is responsible for granitization and introduction of granoblastic K-feldspar+quartz+albite domains (previous Figure 9.12b).

Fig. 9.13A Box mine area: Dense quartz stockwork veining in K-feldspar flooded Box granite.

Fig. 9.13B Box mine area: Vuggy quartz veins filled with fine grained pyrite and trace chalcopyrite.

Fig. 9.13C Box mine area: Quartz vein in Box granite with trace pyrite and chalcopyrite. Minor malachite.

Fig. 9.13D Frontier adit dump: Cluster of fine grained pyrite on margin of quartz vein in f.g. pink granite?

Fig. 9.13E Golden Pond area: foliation parallel quartz veins in biotite schist near contact with pink granite. Veins contain pyrite + trace chalcopyrite + sphalerite + galena.

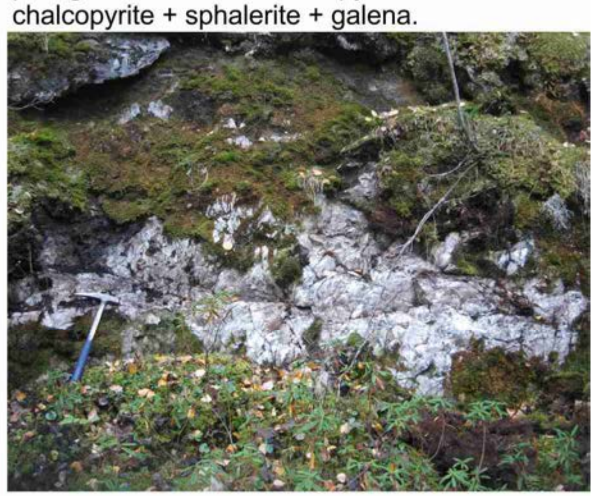


Fig. 9.13F Golden Pond area: Dubnick vein - white bull quartz where exposed from pulling back moss from the outcrop.

Figure 9.13: Goldfields Property - Veining and Mineralization

9.4.7 Mineralization

9.4.7.1 Intrusion/Porphyry Style Gold

Intrusion/porphyry style gold mineralization is the most important type of mineralization observed during the 2015 property visit. It is the style of gold mineralization interpreted in this report to be represented at the Box mine (previous Figure 9.13a, 9.13b, 9.13c), Athona mine, Frontier Lake adit (previous Figure 9.13d), Vic Lake adit (previous Figure 9.14d) and at the Golden Pond occurrence (previous Figure 9.13f). Mineralization in these areas had previously been classified in style as orogenic, mesothermal and/or structurally controlled. For current report purposes, these are re-classified as intrusion-related because each of them contains stockwork quartz veining and silica±K-feldspar alteration within and directly adjacent to granite intrusion(s). Unlike typical orogenic gold deposits where gold bearing quartz veins are millions of years younger than their passive hosts, the mine-granites on the Goldfields property appear to be genetically related to the veining. The granites and country rock in contact zones are the exclusive hosts of the veining/mineralization, and the veining has associated high-temperature (potassic) alteration which likely results from late-stage hydrothermal fluids derived from the granite melt. In this regard, the deposits appear to most closely conform to a gold-rich porphyry model.

Gold mineralization in the Goldfields region is hosted by quartz-vein-stockwork (previous Figures 9.13a and 9.13b) typically found within Box granite 1 and Athona granite (collectively referred to as the "mine granites"). While most of the granite in the region contains an unusually high proportion of quartz veins, within the vicinity of known gold deposits the density of quartz veining is especially high and ranges up to 35 %/volume. The veins have many orientations but at any given site they are often I) foliation parallel veins, II) crosscutting veins that have two dominant orientations, and III) late, coarse, thick, often uranium bearing veins. All three types of quartz veins are composed of milky-white bull quartz or, more rarely, coarse clear quartz. They range in thickness from ≈5 mm to 20 cm with rare thicker veins up to 1 m wide (previous Figure 19.13f).

Foliation parallel Type I veins can be continuous but often form discontinuous boudins. Type II veins have good continuity over 5-10 metres but pinched out terminations are common, especially in the narrowest veins. Type III veins are continuous over long distances and can be traced between outcrops. In most locations the veins and wallrock all have variable hematite staining but lack the limonite coatings on fractures that commonly give mineral deposits their gossanous appearance. However, near known mineral deposits, and in a few other locations, weak to moderate limonite coating becomes apparent and hematite staining increases in both the veins and wallrock. It is most apparent at the contact between the wallrock and veins (Figures 9.13b, 9.13d and 9.13e). Low proportions of pyrite (3-5%) are present in veins with the highest sulphide proportions, as well as trace amounts of galena, molybdenite, and chalcopyrite±malachite (previous Figure 9.13c). Quartz veins with the most intense mineralization contain centimeter to decimeter sized vugs filled with fine-grained pyrite (previous Figure 9.13b).

Selvages of quartz veins range from unaltered to K-feldspar (previous Figure 9.12c), albite, chlorite/biotite (previous Figure 9.12d), or sericite-pyrite altered (previous Figure 9.12e). K-feldspar is the most common type of vein selvage, however, it can be subtle in the mine granites which are already pink and quartz+K-feldspar altered (previous Figure 9.12a).

The mineralized granites show a high degree of metasomatism/alteration. Their texture is often composed of amorphous pods of feldspar and quartz, sometimes weakly aligned in an incipient foliation. In some locations (e.g. at the Frontier adit and south of the Box mine) it is unclear if precious metal mineralization is hosted in strongly silicified country rock or altered granite. In these locations the rock resembles pink quartzite or quartz-rich aplite with sucrosic quartz and minor amounts of pink groundmass/K-feldspar (previous Figures 9.12a, 9.13a, 9.13d). The fine-grained rock has transitional contacts with coarser, but strongly altered, granite, suggesting that it is a result of strong silica alteration. Where it is exposed in trenches above the Frontier adit it has sharp, probably intrusive, contacts with amphibolite. The country rocks that host the altered and mineralized granites have narrow halos of intense silica+albite±biotite alteration that previous workers attributed to "granitization" (previous Figure 9.12b). Interestingly, where the country rock is in contact with coarse altered granite it is altered to coarse quartz+feldspar, and where it is in contact with fine silicified granites, such as at the Frontier adit, it is altered to sucrosic quartz and K-feldspar. The alteration associated with the granites is indicative of high-temperature and silica-rich hydrothermal fluids. Resistivity could be a useful exploration tool to identify prospective but buried intrusions because of the large amounts of secondary silica in the mineralized rock. However, high proportions of silica rich rocks such as granites with high proportions of quartz veining, silicified rock, and quartzite are ubiquitous throughout the Goldfields property, so secondary criteria must be used to evaluate individual resistivity targets.

The timing-relationship of granite-emplacement, quartz veining and mineralization to deformation is not entirely clear. Previous workers have suggested that the mine granites postdate one deformation event and predate a second deformation event. The granite-country-rock contacts both follow and appear to crosscut the NE-SW regional tectonic fabric and on an outcrop scale the contacts are highly irregular with both foliation parallel and cross-cutting boundaries. The contact pattern suggests that at the time of intrusion a pre-existing foliation sometimes formed a path of least resistance for the intruding magma. Syn-emplacement quartz veining also utilized the pre-existing foliation forming Type I quartz veins. The development of foliation within the granite itself, and the presence of veined granite "clasts" in strongly foliated/sheared meta-graywacke country rock near intrusive contacts indicates that a second deformation event postdates and therefore affected the granites. A competing hypothesis is that the granites are syn-tectonic and were emplaced during the second regional deformation event.

The latter hypothesis is preferred, as it most easily explains the similarity of foliation orientation within the granite with that which appears to have been pre-existing at the time of emplacement. It is likely that the mine granites intruded into low-pressure zones during regional S2 deformation.

9.4.7.2 Multi-Element Skarn Style

Two skarn showings were observed on the northern end of the Athona peninsula, one at the Triangle showing and another at the location of Terrane exploration Target 6. At the latter, limestone interbedded with meta-graywacke is in contact with a narrow sill of amphibolite. The outcrop has been blasted to remove what is presumed to have been skarn mineralization. Rock adjacent to the historical blasting contains calc-silicate pods that include epidote-calcite-quartz and traces of pyrite. At the Triangle showing, a large outcrop, which has been completely cleared (Figure 9.14c) is composed of tan coloured dolostone (and in places indistinguishable limestone) that appears to be interbedded with, as well as filling large irregular voids within, laminated fine to coarsely crystalline talc+quartz rock. A high density of quartz veins cut the lithologies. They range in orientation from 160-190° to 060-90°, and in places contain approximately 1% pyrite and trace bornite, malachite, chalcopyrite, galena and possibly black sphalerite. No intrusive rocks outcrop at the showing but granite outcrops just 150 m to the southeast of the showing and historical drilling described by Nadeau and Mihailovic (2008) intersected granite at approximately 35 m depth beneath the surface showing.

9.4.7.3 Multi-Element Beaverlodge Lake Style

A regional variety of multi-element (U, Cu, Au, Co, Ni, Pt, Pd) mineral occurrences termed “Beaverlodge Lake style” are present on the Goldfields property. The only example of this style of mineralization observed during the 2015 site visit was near the “Gil” Saskatchewan mineral inventory location (previous Figure 6.1). Here a recessive, up to 1 m wide, foliation-parallel replacement and shear zone within amphibolite is composed of coarse, pink, bladed calcite, fine quartz, remnant wall-rock and abundant, fine-grained, steely coloured pitchblende with disseminated blebs of chalcopyrite and minor disseminated pyrite. The zone may also contain cobalt bloom. The mineralized zone is mostly covered by overburden but outcrops in two locations 120 m apart along strike. Uranium (pitchblende) bearing quartz veins run parallel to the zone for an additional 100 m. This type of replacement/vein mineral occurrence could be of economic interest if high gold and or platinum group element levels are present. Therefore, it should be the subject of more focused study and prospecting. The Gil showing, in particular, would benefit from detailed examination and currently remains open along strike to the SW.

Fig. 9.14A Athona shaft. Although backfilled twice it continues to cave in, exposing the upper level of the shaft. The shaft is in amphibolite, although the dump (background) mainly has Athona granite.

Fig. 9.14C Triangle showing. The outcrop at this showing has been completely excavated and cleaned off. Exposes dolostone x-cut by quartz veins and zones of silicification.

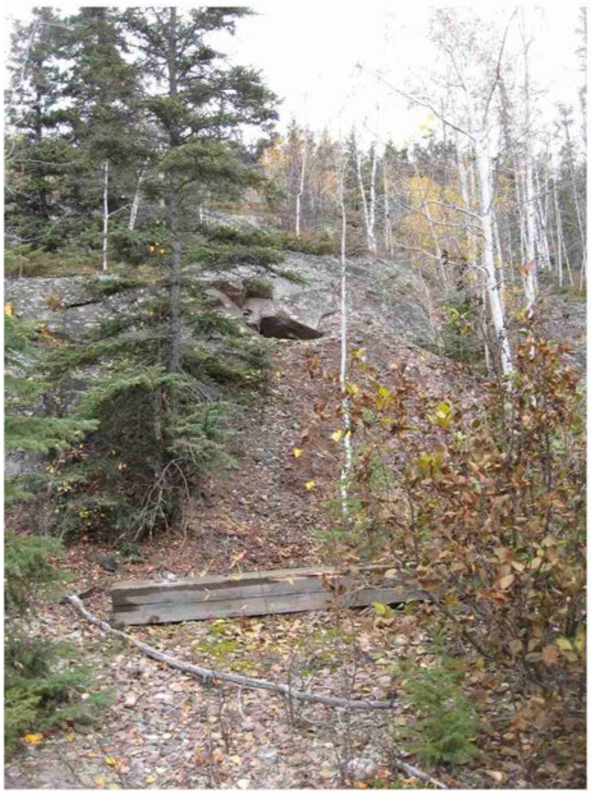


Fig. 9.14B Frontier adit. Although the portal is backfilled, the very top of the portal has a very small opening (seen above). The Frontier adit portal is in amphibolite although the adit exploited granite and/or quartzite.

Fig. 9.14D Vic Lake adit. A faulted zone (foreground right) crosses the portal, but the adit appears to have exploited pyrite rich quartz veins in pink granite that are exposed above the old portal (yellow streaks - photo center).

Figure 9.14 Goldfields Property - Historical Workings

9.4.7.4 Unconformity Uranium Style

Unconformity style uranium mineralization was encountered in fractured granites that lie beneath the unconformity that separates the Murmac Group from the Martin Group (previous Figure 9.8). This style of mineralization is especially prominent in granites encountered during a 2015 site visit geological traverse that began on the SW side of Keddy Bay (previous Figure 9.8). Here, scintillometer readings up to 13,000 CPS were recorded in the vicinity of cracks and recessive zones in granite (previous Figure 9.8). While the cracks and recessive zones were typically under cover, in a few instances pitchblende and/or yellow uranium oxide were visible as fracture coatings. The density of radioactive fractures and the intensity of the radiation increases northwards towards the unconformity where some of the fractures have reddish oxidized margins, likely indicating that they were open to the paleo-surface (unconformity) and subject to paleo-weathering. A parallel geological traverse conducted roughly 2 km to the west was almost entirely within metasedimentary rock. This sequence did not present significant indications of uranium mineralization, except at the farthest southern point where total count scintillometer readings up to 2,350 CPS were returned from a faulted area (previous Figure 9.8). These may indicate presence of bedrock uranium mineralization, possibly related to nearby granites.

It is worth noting that a number of unconformity style uranium showings are directly adjacent to the Box mine access road, within a short distance of the unconformity. These showings are largely under cover, but some, such as Quartzite Ridge, have been drilled. They were not observed during the Mercator site visit but should be included in future follow-up work directed towards uranium evaluation.

9.5 Petrography

9.5.1 Introduction

Eleven samples from the Goldfields property were selected by Mercator in 2015 for petrographic analysis. The petrographic study was conducted using thin-sections with cover-slips that were observed using a research-grade petrographic polarizing microscope. The thin-section off-cuts were also etched with hydrofluoric acid and stained using cobalt nitrate to better determine K-feldspar concentrations and distribution. The purpose of the study was to more fully describe the rocks associated with the Box and Athona mines and to compare them with other granites or orthogneisses found on the property. Characterization of metasomatic/hydrothermal alteration was a specific objective of the petrographic study in order to support the reinterpretation of the Box/Athona deposit-type to an intrusion related model (see previous section 9.4.7).

Table 9.3 below provides location and lithology information pertaining to the eleven samples submitted for thin section study and Figure 9.15 presents sample locations. Petrographic descriptions prepared by author Barresi for each of the samples are included in Appendix 3.

Table 9.3: Sample Location And Lithology Data For Thin Sectioned Samples

Sample Number	*UTM Easting (m)	*UTM Northing (m)	Lithology
10801	642499	6592769	Porphyritic Syeno-Granite
10802	642486	6592749	Syeno-Granite
10803	642471	6592488	Syeno-Granite
10806	640296	6593320	Syeno-Granite
10807	640367	6593384	Syeno-Granite
10808	640549	6593475	Orthogneiss
981	640437	6593372	Muscovite Biotite Schist
10805	640718	6593859	Medium-Grained Granite
10813	635351	6594816	Alkali-Feldspar Granite
979	642491	6592807	Orthogneiss
10809	640252	6594196	Meta-wacke

* Note: UTM Zone 12, NAD83 datum

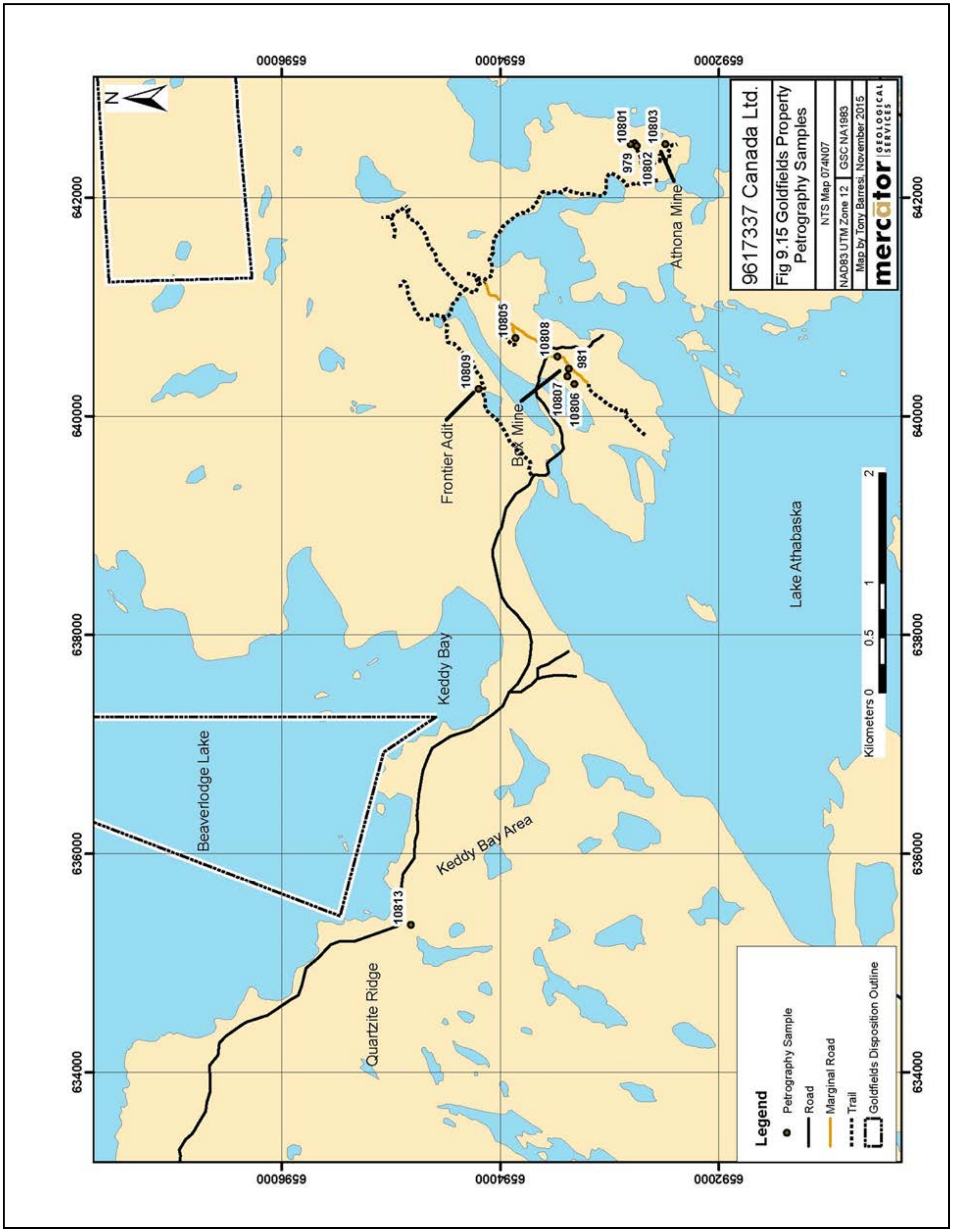
9.5.2 Discussion of 2015 Petrographic Study Results

9.5.2.1 Box and Athona Granites

The Box and Athona granites are texturally and mineralogical similar. The associated intrusions are notably porphyritic, unlike the granites in surrounding country rock, and they fall within the syeno-granite classification on the Streckeisen diagram. Both the Box and Athona granites contain perthite phenocrysts which are rare to absent in other granite/orthogneiss observed on the property. The presence of perthite in the "mine granites" is an enigma because perthite formation is typically considered to be a result of unmixing of K and Na components in alkali feldspar during slow cooling, but the porphyritic texture of the rock indicates that it underwent rapid cooling/quenching. Some studies have found that perthite can form during regional metamorphism (Pryer and Robin, 1995). It is likely that in the mine granites metastable alkali feldspar was "frozen" during rapid cooling/quenching and became perthite during subsequent metamorphism. A similar history could explain how seemingly-alteration-related feldspar (e.g. in the selvages of quartz veins) can now be perthite.

The main variations between samples of the Box and Athona granites are in the proportions of groundmass to phenocrysts. These variations are consistent with normal heterogeneity in porphyry intrusions, although they could also represent subtly different sub-intrusions or stocks.

Sample 10803 from the Athona granite is unique because of abundant granophyre, a texture commonly formed from eutectic crystallization in the presence of a water phase, or from undercooling. Undercooling of granites can be achieved through pressure quenching, a process commonly evoked to explain the existence of porphyritic intrusive rocks.


9617337 Canada Ltd.
Fig 9.15 Goldfields Property Petrography Samples
NTS Map 074N07
NAD83 UTM Zone 12
GSC NA1983
Map by Tony Barresi, November 2015
mercator GEOLOGICAL SERVICES
N
Legend
Petrography Sample
Road
Marginal Road
Trail
Goldfields Disposition Outline
Kilometers 0 0.5 1 2
Lake Athabaska
Beaverlodge Lake
Keddy Bay
Keddy Bay Area
Quartzite Ridge
Frontier Adit
Box Mine
Athona Mine
10801
979
10802
10803
10805
10808
10809
10807
10806
981
10813
634000
636000
638000
640000
642000
6596000
6594000
6592000

9.5.2.2 Alteration

Samples from the Box and Athona granites show weak to intense K-feldspar alteration, which ranges from minor or patchy replacement of groundmass and plagioclase phenocryst to K-feldspar, to complete replacement of all groundmass and plagioclase by K-feldspar. In some samples, K-feldspar alteration of plagioclase is accompanied by myrmekite formation. The "mine granites" have also been affected by silicification in the form of dense veining, myrmekite formation, groundmass replacement, and in a few locations silica rims form over embayed feldspar crystals. Sericite stringers and sericite replacement of feldspar are part of a late quartz-sericite alteration overprint that affects primary and secondary K-feldspar in the Box and Athona granites. This is typical of intrusion-related alteration systems that experience thermal collapse resulting in a lower temperature alteration assemblage (sericite) overprinting an earlier higher temperature assemblage (potassic). It appears that sericite alteration postdates some quartz veining but is associated with other quartz veins and is cross-cut by still later quartz veins.

Samples of rocks from near the contact with the Box and Athona granites have very little to no K-feldspar but have high concentrations of untwinned albite. The untwinned albite could be a result of regional metamorphism but more likely represents a sodic alteration shell to a porphyry intrusion alteration system. Biotite and/or chlorite after biotite are also present in the contact rocks. It is unclear if the biotite represents potassic alteration related to the porphyry alteration system or if it formed during an earlier tectono-metamorphic event. Field observations indicate that gneissic textures are better developed near the contact with the Box granite; this suggests that either the Box intrusion was emplaced in a reactivated structural zone (in which case some of the biotite could be pre-existing), or intrusion-related metasomatism contributed to textural and mineralogical development or enhancement of the gneissic texture, in which case the biotite could in part represent potassic alteration.

Two samples of granite collected distant from the Box and Athona mines have no (10813), or very little (10805) potassic alteration. Tiny K-feldspar stringers present in sample 10805 may indicate proximity to a buried or nearby, but currently unidentified, Box-like intrusion. Strong sericite alteration in sample 10813, from Quartzite Ridge, is texturally unique because it forms straight edged veins that contain shattered fragments of wall-rock. While this alteration is not as high temperature as the potassic alteration at the Box and Athona mines, it represents a vigorous hydrothermal system, the extent and origin of which may be significant to future mineral exploration.

Staining of the rock sample from the Frontier adit (10809) shows a surprising amount of K-feldspar, much more than was estimated during initial petrographic observation. Most of the K-feldspar in the sample is contained in the matrix component, which appears, based on staining, to be composed almost entirely of K-feldspar. It seems highly unlikely that the primary mineralogy of the matrix would be entirely K-feldspar when the coarse fraction is mainly quartz, so it appears that the sample has been strongly affected by K-feldspar alteration in the form of near-complete replacement of the rock matrix. This suggests that the deposit type at the Frontier showing might be similar to those at the Box and Athona mines, which are believed to be related to high-temperature fluids derived from local intrusions. Future exploration of the Frontier adit area should focus on identification of the causative-intrusion and include mapping of alteration facies.

One of the main macroscopic features of the Box and Athona granites, contact rock and granites regionally, which makes them interesting from an exploration point of view, is that they are pink to red in colour and appear to have abundant K-feldspar alteration. Petrography, etching, and staining of these granites shows that much of the pink to red colouring is a result of hematite staining. Plagioclase, K-feldspar, and even quartz are stained to various pink and red colours making them very difficult to distinguish. Notably, the least pink or red rocks (e.g. sample 981) contain biotite, while hematite stained rocks tend to contain chlorite. This suggests that free iron released during the biotite → chlorite reaction may be responsible for at least some hematite staining. Unfortunately, etching and staining of rock slabs is necessary in order to clearly identify secondary K-feldspar in granites on the Goldfields property.

9.5.2.3 Deformation

The amount of strain recorded in the observed samples is variable. The Box and Athona granites, as well as the meta-wacke from the Frontier adit and granite from Quartzite Ridge, show minimal amounts of deformation. However, a subtle foliation is present in the Box granite and all of the thin sectioned samples have quartz with weak to moderate undulose extinction. The remaining samples collected from host rock near the Box and Athona intrusions are strongly deformed and consist mainly of phyllosilicate domains interspersed with domains of fine-grained recrystallized quartz and broken fragments of feldspar. Remnant coarse-grained domains in these samples indicate that the protolith was likely a medium-grained equigranular granite. The greatest amount of strain is recorded in sample 981, which was collected from the edge of the Box granite. Although this sample has a strong metasomatic overprint, in places there are remnant clasts of highly strained, possibly mylonitic, quartz. This suggests that emplacement of the Box granite may have been in part related to reactivation of a significant, pre-existing structure.

Surprisingly, the sample from Quartzite Ridge (10813) does not exhibit evidence of significant deformation but `is considered to be the oldest granite on the property and supposedly forms the basement to Murmac Bay Group. It seems unlikely that it would be among the least deformed of the samples, especially because it is described in literature as being strongly deformed to the point of being mylonitic (Ashton et al., 2012). Perhaps the sample collected in 2015 is of a younger, previously unidentified granite that intruded the older basement-granite. This could have positive exploration implications for the Quartzite Ridge area.

9.5.2.4 Deposit Model

Previous workers have indicated that the Box and Athona gold deposits closely conform to an orogenic and/or structural and/or mesothermal deposit model. Petrographic observations presented in this report support the interpretation that the Box and Athona deposits may be more appropriately classified as reflecting an intrusion-related or porphyry deposit model. By this model, the mineralization would be directly related, both genetically, and spatially/temporally with the intrusion, or crystallization, of the associated granites. The following petrographic observations support this hypothesis:

1. While granite is present throughout the Goldfields property, only the Box and Athona granites have a primary porphyritic texture. The porphyritic texture is indicative of two stage crystallization history that ended with rapid quenching. The presence of granophyre in the Athona granite supports a similar history that likely included pressure quenching. Cooling textures in porphyry intrusions are attributed to secondary-boiling and hydro-fracturing of both the host rock and intrusion that contributed to depressurization and pressure-quenching. Therefore, the porphyry and granophyre textures in the Box and Athona granites are consistent with co-genetic emplacement of quartz veins derived from magmatic fluids that filled the fractured rock.

2. The mine granites and surrounding country rock at the Box mine and to a lesser degree at the Athona mine show classic intrusion-related alteration mineral assemblages and zonation. The deposits are interpreted to have high-temperature potassic altered cores with variable amounts of spatially associated silicification that grade outward into contact rock with sodic alteration. The potassic and sodic altered rocks are overprinted by lower-temperature sericite alteration which is also accompanied by local silicification.

3. Fluids responsible for stockwork quartz veins in intrusion-related deposits are typically saline. The presence of a few percent albite crystals in the quartz veins associated with the Box and Athona granite may indicate that some of these veins precipitated from saline fluids.

10.0 Drilling

9617337 Canada Limited, has not carried out any drilling on the Goldfields property. However, numerous drilling programs have been carried out through the history of the Goldfields property and these are summarized in report section 6.0. Mercator received certain drilling data sets for the Goldfields property and these appear to be functional. None of these has been validated by Mercator for current report purposes.

11.0 Sample Preparation, Analysis and Security

11.1 Introduction

A total of 13 rock samples were taken over the eight day 2015 field program and site visit (Table 11.1). The samples were collected from outcrops or mine-dumps that contained representative veining and/or mineralization from particular showings or areas of interest on the Goldfields property. The samples are grab in nature and were collected to enhance the understanding of mineralization styles but are not representative of grades over any particular length.

11.2 Sample Preparation and Methods

With the exception of two samples noted in Table 11.1 that were collected from adit dumps, all samples were collected from bedrock. At each sample site the sample was photographed and greater than five representative fragments of bedrock were removed using a steel hammer and placed in a polyurethane bag that was then sealed with a zip-tie. The coordinates of each sample location were obtained with a hand-held global positioning system (GPS) and recorded in Universal Transverse Mercator (UTM) North American Datum 1983 (NAD83) Zone 12 coordination. The samples were bundled in rice sacks and transported via airplane back to the Mercator office in Nova Scotia as personal baggage of the authors. At Mercator, a coarse blank sample and a certified reference material sample were blindly inserted into the sample sequence to monitor quality control. The samples were then placed in sealed 20 litre plastic buckets and transported via registered mail to an ALS Global preparation laboratory in Sudbury, ON; the prepared sample splits were then shipped by ALS Global to the company's analytical laboratory in Vancouver, BC for analysis. ALS Global is an independent, commercial firm accredited by the Standards Council of Canada (SCC) and the Canadian Association for Laboratory Accreditation (CALA) and is also ISO 9001 and ISO/IEC 17025 certified. Hand specimen examples of each sample were retained at Mercator offices to support the petrographic program discussed previously in report section 9.5.

Table 11.1: 2015 Sample Location and Lithology Details

Sample Number	*UTM Easting (m)	*UTM Northing (m)	Sample Type	Lithology
10804	641303	6594306	Grab	Quartz Vein
10805	640718	6593859	Grab	Granite
10806	640296	6593320	Grab	Granite
10807	640367	6593384	Grab	Granite
10808	640549	6593475	Grab	Granite
10809	640252	6594196	Mine Dump	Meta-Wacke
10810	633652	6595214	Grab	Quartz Vein
10811	635396	6594301	Grab	Quartz Vein
10812	635762	6593853	Grab	Granite
10813	635351	6594816	Grab	Quartz Vein
10814	642471	6592488	Mine Dump	Granite
10815	642486	6592749	Grab	Granite
10801	642499	6592769	Grab	Granite

* Note: UTM Zone 12 coordination, NAD 83 datum

11.3 Analytical Methods

At the preparation lab the samples were weighed, dried and finely crushed to better than 70% passing a 2 mm screen. A split of up to 250 g was taken and pulverized to better than 85% passing a 75 micron screen. Gold, platinum and palladium concentrations were determined by inductively coupled plasma – atomic emission spectrometry (ICP-AES) after fire assay pre-concentration. For this technique the sample was first fused with a mixture of lead oxide, sodium carbonate and borax, silica, inquarted with 6 mg of gold-free silver and then cupelled to yield a precious metal bead. The bead was digested for 2 minutes at high power by microwave in dilute nitric acid. The solution was cooled and hydrochloric acid was added. The solution was digested for an additional 2 minutes at half power by microwave. The digested solution was then cooled, diluted to 4 ml with 2% hydrochloric acid, homogenized and then analyzed. Samples with greater than 10 ppm Au were retested using atomic absorption spectroscopy against matrix-matched standards. Gold concentrations that were over limit by this method (>100 ppm) were retested again by the following gravimetric method: "A prepared sample is fused with a mixture of lead oxide, sodium carbonate, borax, silica and other reagents in order to produce a lead button. The lead button containing the precious metals is cupelled to remove the lead. The remaining gold and silver bead is parted in dilute nitric acid, annealed and weighed as gold."

An additional suite of thirty-three elements (including Ag, Cu, Pb, Zn, U, and Ni) were determined by ICP-AES and a four-acid digestion technique. For these analyses a 0.25 g sample was digested with perchloric, nitric, hydrofluoric and hydrochloric acids. The residue was topped up with dilute hydrochloric acid and the resulting solution was analyzed. The results were corrected for spectral and inter-element interferences. Over limit Ag (>100 ppm) and Zn (>10,000 ppm) samples were retested using atomic absorption spectrometry.

11.4 Quality Assurance and Control

Quality control samples inserted by Mercator included a non-certified coarse blank comprised of Nova Scotia Goldenville Formation quartzite and one sample of certified reference material CDN-SE-2 that was obtained from CDN Resource Laboratories in Langley, BC. Low gold, silver, copper and zinc values obtained for the blank (Sample 10802; Table 11.2) indicate that down-stream contamination during sample preparation has not significantly affected these samples. Analytical results for gold, silver, copper and zinc in sample 10803 (Table 10.2) fall within certified “between-lab“ 2σ error for CDN-SE-2. The percentage difference between the lab results and the certified values for gold, silver, copper and zinc are <1%, and for gold are < 5%. The higher % difference for gold is a result of the low concentration of Au in the standard (0.232 ppm) and therefore small variations in its measured values (e.g. 0.01 ppm) can represent a larger proportional difference. Results for Mercator quality control samples and internal quality control results provided by ALS Global indicate that geochemical data from that laboratory presented in this report are robust and appropriate for mineral exploration use. The samples are grab samples and are intended to give a general idea of the tenor of mineralization but are not representative of grades extended over any specific length or width.

11.5 Mercator Comment on Geochemical Results and Security

A table of sample locations, rock type, and assay results for Mercator 2015 sampling is located in Appendix 2 along with the associated laboratory certificate from ALS Global. Sample locations and select element assay results are displayed graphically on Figure 11.1. Table 11.2 below presents analytical results for gold, silver, copper and zinc. Results for quality control samples submitted for analysis are also included in Table 11.2.

Table 11.2: Summary of 2015 Bedrock Sampling Program Results

Sample Number	Area	Au	Ag	Cu	Pb	Zn
		ppm	ppm	ppm	ppm	ppm
10804	Triangle	177.5	140	800	121	199
10805	North of Box Mine	0.017	0.6	14	15	15
10806	Box Mine	0.326	1	8	61	79
10807	Box Mine	5.34	2.3	12	42	55
10808	Box Mine	37.1	9.7	42	89	9
10809	Frontier Adit	0.332	<0.5	10	12	4
10810	Quartzite Ridge	0.022	<0.5	32	3	6
10811	Keddy Bay	0.167	0.6	143	67	19
10812	Keddy Bay	0.003	<0.5	3	3	10
10813	Keddy Bay	0.005	<0.5	9	4	6
10814	Athona	2.11	<0.5	10	205	448
10815	Athona	11.5	3	12	497	619
10801	Athona	0.197	<0.5	3	34	18
Mercator Quality Control Data						
10802	Blank	0.002	0.7	39	33	95
10803	**CDN-SE-2	0.232	352	493	9490	13450
**CDN-SE-2	Cert. Values	0.242	354	490	9570	13400
**CDN-SE-2	2σ error	0.018	21	30	440	1100
% diff. Std. vs. Cert. Value		4.2	0.6	0.6	0.8	0.4

Notes: *ppm denotes parts per million; **CDN-SE-2 is a certified reference material sample

Review of the 2015 sampling program data showed highlights to be as follows:

- The highest grade sample (10804) is from a quartz vein collected from outcrop at the Triangle showing. The sample grades 177.5 ppm Au and 140 ppm Ag and contains 0.08% Cu, 0.012 Pb% and 0. 2% Zn. This is consistent with the observed mineralogy: pyrite + bornite + chalcopyrite + sphalerite + malachite in quartz.

- Samples (10806, 10807 and 10808) from the vicinity of the Box mine have gold concentrations ranging from 0.326 to 37.1 ppm. Copper, lead and zinc concentrations in the Box mine area samples are low, all being less than 100 ppm. Silver concentrations for the same samples range from 1 to 9.7 ppm.

- Samples (10814, 10815 and 10801) from the vicinity of the Athona mine have gold concentrations ranging from 0.197 – 11.5 ppm. Two of the three samples returned lead and zinc values between 619 and 2005 ppm and the remaining sample returned lead and zinc values of less than 35 ppm. Silver concentrations are lower than in the Box mine area, with two samples returning values of <0.5 ppm Ag and one sample with 3 ppm Ag.

- A sample from the Frontier adit dump (10809) returned an elevated gold value of 0.332 ppm but no other elements of interest show anomalous levels. The gold result does not reflect the presence of visible gold that was identified in the hand sample. This suggests that a coarse gold "nugget effect" should be considered when assessing past or future geochemical results from this location.

- Reconnaissance samples from Keddy Bay (10811-10813), Quartzite Ridge (10810) and the area between the Box mine and Triangle showing (10805) have insignificant to weakly anomalous results for gold, silver and copper. The anomalous results 0.18 ppm Au; 0.6 ppm Ag; 0.015% Cu assign to a >1m thick quartz vein (sample 10811) collected from granite host rock in the Keddy Bay area.

- No anomalous uranium results were returned from 2015 samples but this reflects the focus of sampling on potentially gold-bearing lithologies.

Mercator is of the opinion that the sample preparation, analysis and security methods used by Mercator staff and staff of ALS Global are consistent with current industry standards and suitable for the purpose of better understanding mineralization styles present on the Goldfields property.

12.0 Data Verification

12.1 Review and Validation of Project Data Sets

All available historic exploration data from 9617337 Canada Limited company's "data room" was made available to Mercator through digital data stored on an external hard drive and in some instances included the supporting hard copy documents. These historical records first had to be sorted by property then by type of exploration work completed including; ground and airborne geophysical surveys, geological and geochemical surveys, topographic surveys and sampling and drilling program reports. Additional historic digital data, when available, was acquired online from the Saskatchewan Mineral Assessment Database (SMAD) and the Saskatchewan Mineral Deposit Index (SMDI). Historic data with location co-ordinates was combined with acquired digital files from online government sources, which included datasets for geology, geochemistry and mineral occurrences. Both sources of data were then compiled into a GIS based comprehensive digital base map. The digital base map was then used for target evaluation and validation of known mineral occurrences and infrastructure during the 2015 site visit on the Goldfields property.

12.2 Site Visit by Mercator

A site visit to the property was conducted by Mercator staff, Stewart Yule (P.Geo.) and Dr. Anthony Barresi (P. Geo.), between September 23 and October 1, 2015. The main purpose of the 2015 site visit was to develop and ground-truth a property-scale geological framework for future exploration and to verify to the extent possible historic reporting of anomalous precious metal levels at certain documented mineral occurrences and deposits.

12.2.2 Site Visit Data Validation and Sampling by Mercator

As described previously in section 9.4, eight field traverses were conducted on the property. The area surrounding the Box Mine and Athona deposit was of primary interest. Traverses were designed to facilitate observations at the past producing mine areas as well as at Saskatchewan mineral file inventory occurrences and to validate historic reports of anomalous metal levels, descriptions of lithology, mineralization, alteration, structure and evidence of previous work in such areas. Field work was limited to areas within approximately 4 km of currently accessible four-wheel-drive vehicle roads. As a result, a large portion of the property, which is only accessible via boat, helicopter or floatplane, was not observed during the site visit due to time constraints.

The known showings were identified based on descriptions and locations in the Saskatchewan mineral inventory file. Field work showed that the inventoried co-ordinate locations were often incorrect, with showings being found by conducting more thorough literature reviews combined with geo-referencing of historical maps, or by looking for obvious signs of site disturbance such as old drill roads, trenches or evidence of blasting. Some inventoried historic showings were not found and some of these back to the 1930's. It is possible that co-ordinate translation errors between local mine-grid and the UTM system contributed to this result or that evidence of these occurrences is simply no longer recognizable.

In conjunction with the field traverses, when drill casing, collar monuments or open cored holes were found in bedrock their UTM co-ordinates were recorded with a hand-held GPS unit. Field validation of 21 diamond drill hole collars proved worthwhile, as many of these co-ordinates plotted within an acceptable range given the accuracy of hand-held GPS equipment and historic conversions from local mine-grids to UTM co-ordinates. As expected, drill collar co-ordinates from the more recent exploration programs were the most accurate when compared to the drill hole database. Two collars recorded from the 1995 drill program were noted to be less accurate, with errors up to +/- 15 m when compared to the current drill hole database.

A total of 13 geochemical rock samples were taken during the site visit. The samples were collected from outcrops or mine-dumps that contain representative veining and/or mineralization from particular showings or areas of interest on the Goldfields property. The samples are grab in nature and were collected to both enhance the understanding of mineralization styles and to validate the presence of anomalous gold levels in the historic showings. Assay results presented earlier in section 11.0 of the report show that there is gold present at showings where anomalous gold levels have historically been reported by others.

During each of the eight field traverses completed on the Goldfields property in 2015, a scintillometer survey was conducted. Survey measurements were recorded in counts per second (CPS) of gamma radiation and readings were taken at each outcrop mapping station or approximately every 200 m during each traverse. The main purpose of the survey was to establish a baseline dataset of gamma radiation emitted from bedrock at and away from the main Box Mine and Athona showings, as well as to confirm the presence of previously reported anomalous radioactivity levels associated with uranium mineralization. The location of the Gil gold-uranium showing was confirmed when areas with high levels of radiation, between 59,000 and 51,633 CPS, were recorded from survey locations 200 m apart during a field traverse along the shore of Lodge Bay (see previous Figure 6.1).

Based on observations made during the 2015 site visit, analysis of grab samples and results of the scintillometer survey, Mercator has determined that, to the extent reviewed during the site visit, ample evidence exists of previous exploration programs carried out on the Goldfields property and that anomalous historically reported occurrence of both precious metals and uranium were typically confirmed by Mercator through sampling and analysis of materials from associated field locations.

13.0 Mineral Processing and Metallurgical Testing

The metallurgical test work scope completed in 2015 was developed based on the recommendations of the document "NI 43-101 Technical Report, Pre-feasibility Study, Brigus Gold Corp. Goldfields Project, Saskatchewan, Canada" Effective Date: October 6, 2011 and prepared by March in cooperation with Wardrop, DMA and EHA. The metallurgical test plan was discussed with SGS Minerals Services Lakefield (SGS) and a scope of work was developed based on the available test material. Tests were conducted by SGS with reliance on their standards and procedures. Samples tested were historical drill core (slabbed half-core) and originated from a 2011 drilling program.

The material for metallurgical composite tests came from drill holes B11-324 and B11-325 for Box, and from A11-215, A11-216, and A11-217 for Athona. Variability material was studied from the high grade intervals of B11-326 and B11-327 for Box. The core material selected was to provide a reasonable representation of each deposit for composites, and some variability material that would contain greater amounts of gold and related minerals. The material tested does not relate specifically to a geo-statistical model or mine plan.

The sample material was received by SGS, in two shipments and held at their facilities in Lakefield, Ontario until the present test work. The material was stored there within two crates at ambient condition from 2011 to 2015, in rice bags as received. The crates and bags showed minor signs of condensation as would be expected from ambient storage. Due to the age of the material, sample condition was discussed with the gold team at SGS. An initial pair of flotation tests was conducted for the dual purpose of assessing sample condition and reagent dosage. These preliminary flotation tests resulted in rougher gold recoveries of 94.7% and 92.9%, and with tailings that contained 0.03 and 0.04 g/tonne Au. Sulfide recovery to tailings was below detection limit. This level of flotation recovery was not unusual based on review of historical testing, and did not show evidence of depressed recovery. The samples were therefore considered to be valid for testing and test work was recommended to proceed as planned.

The metallurgical testing by SGS was conducted in two phases following sample preparation. In sample preparation bulk composites were produced for both Box and Athona. These composites were then split for Head Characterization, SMC testing, Ball and Rod Mill Work Indices, abrasivity, and metallurgical testing in two phases.

- Phase 1 of the metallurgical testing compared processes at three different grind sizes (flotation vs cyanidation) both with and without upstream gravity recovery. The intent of the preliminary work was to do side-by-side comparison between processing methods at grinds and conditions meaningful with respect to the flowsheet as recommended in the historical (2011) Pre-feasibility Study.

- Phase 2 investigated the selected process and grind, and looked in further detail at downstream processes for gold leaching and recovery, and solid liquid separation. Use of the current test results should aid in interpretation of historical test work and reduce uncertainty in setting future design criteria.

13.1 PHASE 1

13.1.1 Phase 1 - Head Characterization

Representative sub-samples of the Box and Athona composites were submitted for chemical analysis. Gold assay was done on samples by the SGS screen metallics method. Representative samples of each composite were also submitted for ICP-OES scan, Whole Rock analysis (WRA), and sulfur/sulfide test protocols. The results are summarized in the following table.

Table 13.1: Sample Geochemistry Analysis (SGS)

ICP Scan	**Sample**		**WRA**	**Sample**	
g/t	**Box**	**Athona**	**%**	**Box**	**Athona**
Au	1.55	1.39	SiO_2	77.4	76.8
Ag	<2	<2	Al_2O_3	11.1	11.9
As	<30	<30	Fe_2O_3	1.44	1.36
Ba	277	76.3	MgO	0.57	0.52
Be	<2	<2	CaO	0.32	0.57
Bi	<20	<20	Na_2O	3.01	4.98
Cd	<2	<2	K_2O	4.12	2.4
Co	<4	<4	TiO_2	0.1	0.07
Cu	64.4	8.8	P_2O_5	0.02	<0.01
Li	<5	<5	MnO	<0.01	0.02
Mo	<5	<5	Cr_2O_3	0.02	0.02
Ni	<20	<20	V_2O5	<0.01	<0.01
Pb	<60	<60	LOI	1.28	0.85
Sb	<10	<10		**Sample**	
Se	<30	<30	**%**	**Box**	**Athona**
Sn	<20	<20	S	0.37	0.33
Sr	17.9	18.4	$S^{=}$	0.32	0.21
Tl	<30	<30			
U	<20	<20			
Y	23.7	30.6			
Zn	48	38			

Historical reports reviewed indicate that both the Box and Athona mineral deposits contain uncomplicated gold mineralogy as granites with pyrite as the major sulfide mineral present. The reports indicate that historical experience is that the gold assays are subject to the so-called nugget effect. This material is consistent in these regards thus there is a tendency for variance between assays, explaining differences between expected values and head assays of composite sub-samples.

13.1.2 Phase 1 - Grindability Testing

The current testing included an SMC test, Standard Bond Rod Mill Grindability Test, Standard Bond Ball Mill Grindability Test and Standard Bond Abrasion Test for each of the Box and Athona composites. This provides a coherent set of results that augment historical work where these parameters were tested individually on different material. Values obtained relate specifically to the sampled material, and allow estimates of energy requirement, wear rates, and sizing of crushing and grinding equipment if this material were processed. The results show that the material is amenable to SAG milling. The results reflect the average behavior due to composite sampling, and variation should be considered in their interpretation and use for design. The ball mill work indices are quite normal for granites and are classified as medium for Box, and moderately hard for Athona. Both composites are classified as hard with respect to impact breakage. Both composites are classified as very abrasive. These results are consistent with historical reports. Results are summarized in the following tables.

Table 13.2: SMC Test Results

Sample Name	A	b	A x b	Hardness Percentile	t [1]	DWI (kWh/m^3)	M_{ia} (kWh/t)	M_{ih} (kWh/t)	M_{ic} (kWh/t)	SCSE (kWh/t)	Relative Density
Athona	100	0.35	35.0	72	0.34	7.52	21.9	16.6	8.6	10.4	2.63
Box	100	0.36	36.0	70	0.36	7.21	21.2	15.9	8.2	10.2	2.62

a[1]The t value reported as part of the SMC procedure is an estimate

Table 13.3: Bond Rod Mill Grindability Test Results

Sample Name	Mesh of Grind	F_{80} (mm)	P_{80} (mm)	Gram per Revolution	Work Index (kWh/t)	Hardness Percentile
Athona	14	10,998	935	7.03	17.1	80
Box	14	9,578	935	8.24	16.0	70

Table 13.4: Bond Ball Mill Grindability Test Results

Sample Name	Mesh of Grind	F_{80} (mm)	P_{80} (mm)	Gram per Revolution	Work Index (kWh/t)	Hardness Percentile
Athona	80	2,461	151	1.65	16.0	69
Box	80	2,553	143	1.72	15.0	57

Table 13.5: Bond Abrasion Test Results

Sample Name	AI (g)	Percentile of Abrasivity
Athona	0.994	98
Box	0.906	97

13.1.3 Phase 1 - Metallurgical Testing

Historical studies and operation featured a variety of flowsheet configurations including whole rock cyanidation, gravity recovery, and flotation preceded by gravity recovery. These studies also explored a relatively wide range of grinds. Phase 1 of the current testing provides the first known basis through which these processing methods may be directly compared on the same material and at similar grind size

13.1.4 Phase 1 - Gravity Recovery Testing

Gravity recovery was done on samples of the ground material in each size, and for each composite. The samples were passed through a Knelson MD-3 gravity concentrator, and the Knelson concentrate was then passed over a Mozley laboratory separator.

Typically, larger samples of 20kg or more are preferred for assessing gravity recovery in order to reduce the influence of nugget effect. Sample size for this investigation was limited to smaller samples due to the amount of material available to complete the scope of testing. Interpretation of the results must therefore consider that gravity recovery figures are expected to have greater variance due to nugget effect and the amount of concentrate collected.

- Gravity recovery in Phase 1 ranged from 15.0% to 46.9% for Box composite, and from 40.9% to 60.2% for Athona composite. The significance of these findings is that they support the use of gravity recovery in the flowsheet.
-
- The sensitivity of the Phase 1 tests is not sufficient to identify an optimal grind, but rather suggests that gravity recovery is relatively insensitive to grind size and that there is evidence of coarse gravity recoverable gold in the composites.

13.1.5 Phase 1 - Cyanidation Testing

Kinetic cyanide leach tests were completed on samples of both gravity tails and virgin material for each composite and grind size. The tests were done using SGS' standard bottle rolling procedure at 40% w/w solids, with assays on liquor samples taken from the pregnant solution at 8 hrs, 24 hrs and final samples on liquor and residue duplicates at 48 hours. During the course of the test, pH was maintained in the range of 10.5 -11.0 with lime, and cyanide concentration was maintained at 0.5 g/L.

The findings of the cyanide testing were:

- The tests showed final leach recoveries ranging from 94% to 98% for Box composite, and 92% to 98% for Athona composite, and were quite comparable to those obtained in the parallel flotation testing

- The initial rate at which gold is leached is higher for virgin material than for gravity tails because there is free gold readily available

- The test results were relatively insensitive to grind size by comparison of tailings, though the best recoveries were seen at the finest grinds.

13.1.6 Phase 1 - Flotation Testing

Flotation tests were completed on samples of both gravity tails and virgin material for each composite and grind size. The reagent regime is for typical bulk sulphide flotation and fine free gold. Flotation was configured with a rougher stage followed by two stages of concentrate cleaning in an open circuit. The configuration was chosen based on the most recent (2011) historical pre-feasibility study. Gold and sulfur assays were done on cleaner circuit products (2nd cleaner concentrate, 2nd cleaner tails, 1st cleaner tails), and in duplicate for rougher tailings. Sulfur assays were done in preference to sulfide assays because of the detection limit for sulfur (0.01%) is more sensitive than the detection limit for sulfide (0.05%), improving the measurement accuracy in the rougher tailings.

The findings of the flotation tests were:

- The tests showed that the sample gold values are floated quite readily, and that a large upgrading ratio is achieved in the rougher stage alone. Rougher recovery of gold in virgin material was 96.6% to 98% within mass pulls of 2.36% to 3.63% for Box composite; likewise 90.1% to 95.8% recovery in 2.55% to 2.72% mass for Athona composite.

- The test results showed gold and sulfur recovery were relatively insensitive to grind size.

- Comparison of rougher tailings did not show a metallurgical difference between inclusion of gravity recovery and direct flotation on virgin material. Tailings are equivalent based on detection limits.

- Comparison of rougher tailings with the parallel cyanidation tailings did not show a metallurgical difference between performances of flotation versus cyanidation. Tailings are equivalent based on detection limits.

- The SGS report recommends gravity recovery be included in the flowsheet based on operational considerations such as maintaining consistent feed to flotation.

13.1.7 Phase 1 - Flotation Optimization Testing

Based on the above flotation findings, optimization was conducted. Samples were prepared and pre-treated by gravity recovery and then kinetic rougher tests were done with rougher cells only.

- The test results for Box show that greater than 97% of the gold in the gravity tailing was recovered into a rougher concentrate of less than 3% of the weight.
- The test results for Athona show that greater than 95% of the gold in the gravity tailing was recovered into a rougher concentrate of less than 3% of the weight.
- Comparing the different grinds in successive trials for each composite shows there is minimal benefit to grinding to the finer size. There is only a difference between the two grind sizes during the first two minutes of flotation (<1% mass) and the difference is minimal thereafter.

13.1.8 Phase 1 - Interpretation of Results

- The test report shows that the sample is amenable to SAG milling.
- The test report recommends Gravity recovery be included in the flowsheet for Phase 2 testing and ultimately in the operational flowsheet. Both composites are amenable to gravity separation and incorporating it will potentially stabilize feed and limit recovery losses downstream, further it will make metallurgical balancing and accounting more accurate.
- The test report concludes that the Box and Athona composite samples are amenable to both flotation and cyanidation.
- Comparison of recovery and tails between cyanidation and flotation shows similar results for both methods. Flotation concentrate must be subsequently leached with some small additional loss, thus from a purely metallurgical perspective, cyanidation has a slight advantage in terms of recovery.
- Given the age and storage of the sample material, potential oxidation, if present, would be expected to reduce flotation recoveries and increase cyanidation recoveries seen in results.
- Flotation tests showed that greater than 90% of sulfide minerals were recovered to the concentrate leaving waste rock tailings with less than 0.03% sulfur.
- The test report recommends that Phase 2 of the testing be conducted using a simplified flotation circuit with only rougher-scavenger configuration.

- The results of the whole rock tests and gravity tests for Box and Athona are in the following tables. Overall recovery and extraction of gold including gold recovered to the gravity circuit has been used.

Table 13.6: Summary of Box Test Results - Overall Gold Recovery:

Sample	Process	Process comparison	
		Flotation %	Cyanidation %
Whole rock test at P80 of 275 µm	Rougher	97.0	94.0
Gravity tailing test at P80 of 275 µm	Rougher	96.4	95.9
Whole rock test at P80 of 168 µm	Rougher	96.0	96.5
Gravity tailing test at P80 of 168 µm	Rougher	92.2	97.6
Whole rock test at P80 of 80 µm	Rougher	98.0	98.4
Gravity tailing test at P80 of 80 µm	Rougher	98.0	97.0

Table 13.7: Summary of Athona Test Results - Overall Gold Recovery

Sample	Process	Process Comparison	
		Flotation %	Cyanidation %
Whole rock test at P80 of 265 µm	Rougher recovery/extraction	90.1	93.8
Gravity tailing test at P80 of 265 µm	Rougher recovery/extraction	91.3	92.7
Whole rock test at P80 of 168 µm	Rougher recovery/extraction	93.5	92.5
Gravity tailing test at P80 of 168 µm	Rougher recovery/extraction	92.4	94.0
Whole rock test at P80 of 76 µm	Rougher recovery/extraction	95.8	98.2
Gravity tailing test at P80 of 76 µm	Rougher recovery/extraction	92.7	97.4

13.2 PHASE 2

13.2.1 Phase 2 - Metallurgical Testing

The second phase of metallurgical testing involved grinding to target of 150 micron, gravity recovery and open circuit rougher flotation of gravity tails on larger bulk samples of the Box and Athona composites. By processing larger samples, sufficient flotation concentrate and tailings were generated to investigate the downstream processes of concentrate leaching, gold recovery and solid liquid separation from cyanide solutions.

13.2.2 Phase 2 – Variability Testing

Three samples of Box drill core with expected higher grade and higher sulfide (Variability Samples) were processed in Phase 2 to examine the responses of gold and sulfide recovery. The testing indicated that these samples responded similarly to the composite materials tested in terms of recovery and tailings sulfur grade.

13.2.3 Phase 2 - Bulk Flotation Testing

13.2.3.1 Box Testing

The results of the Box bulk flotation tests gave recovery performance similar to tests in Phase 1 and flotation optimization. The test report concludes that it is possible to achieve a 92.5% gold recovery to a rougher flotation concentrate of less than 3% mass. Overall, including the gravity concentrate, this equates to 97% recovery. The recovery of sulfide minerals was also similar, the tailings grades were consistently low. Comparisons of flotation results are shown in the tables below. Note that for BF-2 (Athona), and for BF-3 (Box) flotation was done in larger cells and flotation time was extended by 100%.

Table 13.8: Comparison of Box Gravity Tailing Flotation Results

Phase	Test	Mass of Feed, kg	Vol of Flot Cell*, L	Grind size P80, µm	Mass Recovery %	Au Recovery, %		Tailing grade	
						Flot	Flot + grav	g/t Au	% S
Phase 1	F-6	4	7	168	2.52	90.8	92.2	0.16	0.03
Phase 2	F-15	2	4	129	2.60	97.2	97.6	0.05	0.02
Phase 2	BF-1	48**	7	168	2.16	91.5	96.5	0.06	0.01
Phase 2	BF-3	50***	28	167	2.98	92.5	97.4	0.05	0.02

* Rougher stage, ** 12 x 4 kg tests in a 7 L cell, *** 5 X 10 kg tests in a 28 L cell

13.2.3.2 Athona Testing

The result of the Athona bulk flotation test varied from the previous tests. In bulk flotation, 75% of the gold was recovered to a rougher flotation concentrate of 2.3% mass. Overall, including the gravity concentrate, this equates to 81% recovery. The recovery of sulfide minerals was similar to the previous test work; the tailing grade was consistently low. This low gold recovery may be an anomalous result particularly as the sulfide recovery was similar to the smaller scale tests. Alternatively, in scaling up from a 7 liter to a 28 liter flotation cell, the flotation time was extended by 100%; this may not have been long enough. The tailings from BF-2 were submitted for size-by-size analysis of gold content. The coarsest fraction (+150 micron) contained 40% of the gold in the tailings which suggests that the gold might be liberated at finer grind size.

Table 13.9: Comparison of Athona Gravity Tailing Flotation Results

Phase	Test	Mass of Feed, kg	Vol of Flot Cell*, L	Grind size P_{80}, µm	Mass Recovery %	Au Recovery, %		Tailing grade	
						Flot	Flot + grav	g/t Au	% S
Phase 1	F-12	4	7	168	2.1	85.4	92.4	0.09	0.01
Phase 2	F-17	2	4	125	2.8	93.7	95.4	0.05	0.01
Phase 2	BF-2	20**	28	160	2.3	75.4	81.1	0.17	0.01

* Rougher stage, ** 2 x 10 kg tests in a 28 L cell

13.2.4 Phase 2 - Cyanide Leach of Flotation Concentrate

The tests show that both Box and Athona composite flotation concentrates are amenable to cyanide leaching. Testing indicates extraction of 98% of the gold in 48 hours. Sodium Cyanide consumptions were typical for leaching concentrate; 2.4 kg/tonne to 5.4 kg/tonne. This consumption is high compared to direct leaching of virgin material on a kilogram per kilogram basis, but is on a relatively small (less than 3%) mass fraction so overall use is comparable to direct cyanidation. Cyanide consumption was higher for the more finely ground concentrates (p80 of 20 micron and 27 micron) than for the coarser regrind size (p80 40 micron).

Table 13.10: Rougher Concentrate Leach Results

CN Test No.	Sample Description	Feed Size P80, µm	Reagent Addition kg/t of CN Feed		Reagent Consumption kg/t of CN		% Au Extraction								Residue grade	Calc Head Grade
			NaCN	CaO	NaCN	CaO	1 h	2 h	4 h	8 h	12 h	24 h	48 h	72 h	Au, g/t	Au, g/t
13	Box Rougher Conc BF-1	27	9.33	1.59	5.40	1.29	-	-	-	30	-	93	98.7	97.9	0.37	29.1
15	Box Rougher Conc BF-3	40	7.32	1.05	2.84	0.96	12	28	62	77	94	97	97.2		0.41	19.1
16	Box Rougher Conc BF-3	40	6.59	0.94	2.36	0.88	-	-	-	92	-	90	98.2		0.31	17.5
14	Athona Rougher Conc BF-2	20	10.7	2.00	4.37	1.64	-	-	-	64	-	92	98.0		0.46	22.7

13.2.5 Phase 2 - Gold Recovery

Gold recovery was investigated by two methods, carbon adsorption and Merrill-Crowe (zinc cementation). Within the limitations of the material and tests conducted, it would seem that carbon adsorption is the preferred route from a metallurgical standpoint, although the material is amenable to both. Merrill-Crowe is metallurgically appropriate when extraction is complicated by the presence of significant silver. In this case, silver content is not high and carbon adsorption showed greater recovery of gold. This makes choice of technology the potential object for economic trade-off study.

- The single Merrill-Crowe test recovered 97% of the gold with barren solution assay of 0.15 mg/L Au.

- It can be concluded, based on the leach kinetics that carbon-in-pulp (CIP) is the preferred option for carbon absorption rather than carbon-in-leach (CIL). The carbon modeling indicated that a gold adsorption efficiency of 99.9% is achievable and the gold in the barren solution would be 0.013 mg/L assuming conditions as tested.

- Modelling with the sample material provided, indicated that a 7 stage CIP circuit (at a carbon concentration of 50g/L) would be the optimum design for the gold recovery portion of the milling circuit.

13.2.6 Phase 2 - Solid-Liquid Separation Testing

Solid-liquid separation test work was investigated in Phase 2 to provide information for estimating sizing and evaluation of process flowsheet equipment. Interpretation of these results must take into account the limitation that they are representative of the material tested, and appropriate caution and judgement must be used to ensure suitability to any use.

It has been shown in the previous sections that the flotation process effectively concentrates gold and sulfide mineral values into a small mass fraction of the original milled material, typically 3% or less. This material is subsequently reground and leached to produce samples of leached residue, thus requiring large quantities of material to generate the required samples. A limited scope of work was performed on leached flotation concentrate for Box and Athona composites. This included scoping level static settling tests and tests on vacuum-filtered settled material. The tests suggest potential flocculent treatment and resulted in a slightly cloudy overflow at 24 hrs. Two vacuum-filtration cake thicknesses were investigated for each of the Box and Athona composite leach residues. The throughput was better for Box composite than for Athona, and for both composites, the thin cake had better throughput with slightly higher residual moisture. Further work with larger samples is recommended to establish specific design criteria and sizing. Particle size analysis was conducted on all raw samples. The determinations were performed using a combination of gravimetric sieve analysis and laser-diffraction analysis. Dry specific gravities were also determined.

Full dynamic thickener testing and rheology were completed for Box composite flotation tailings. During the dynamic settling test, the sample displayed average yield stress below 10 Pa, which is generally predictive of operation-friendly behavior. A potential for operational instability was identified by a significant increase in yield stress after thirty minutes of extended settling time as for example might occur if a thickener were shut down without draining, or underflow pump failed. Design provisions are recommended to protect the rake and empty the sludge bed prior to shutdown. The critical solids density of the Box composite bulk rougher flotation tailing was found to be 69% w/w. The pulp exhibits pseudoplastic shear-thinning behavior which is favorable to operation.

14.0 Mineral Resource Estimates

9617337 Canada Limited has not carried out any mineral resource estimation programs on the properties that are the subject of this technical report. Historical mineral resource estimates exist for the Box and Athona deposits and these are discussed in report section 6.0.

15.0 Mineral Reserve Estimates

9617337 Canada Limited has not carried out any mineral reserve estimation programs on the properties that are the subject of this technical report. Historical mineral reserves exist for the Box and Athona deposits and these are discussed in report section 6.0.

16.0 Adjacent Properties

Mercator is not aware of any adjacent properties as defined by NI 43-101 that are pertinent to the content, conclusions and recommendations of this technical report.

17.0 Other Relevant Data and Information

Mercator is not aware of any other relevant data or information that is pertinent to the content of this technical report.

18.0 Interpretation and Conclusions

18.1 Summary of Gold Exploration Potential

Gold exploration potential on the Goldfields property has been most thoroughly investigated to date in the immediate vicinities of the past-producing Box and Athona gold deposits. These were the focus of underground mining at the Box mine in the 1939 to 1942 period and underground exploration at Athona deposit during the 1935 to 1939 period. March (2014) reported most recently in accordance with NI 43-101 on associated resources and reserves in support of a pre-feasibility study of the combined deposits. Total mineral reserves reported in March (2014) were 22 million tonnes grading 1.42 g/t Au at a cutoff grade of 0.5 g/t Au. Mercator notes that these reserves are now historic in nature, a Qualified Person has not carried out sufficient assessment to classify them as current reserves and 9617337 Canada Limited is not considering them to be current reserves. Notwithstanding their historic status, the March (2014) reserve estimate and associated pre-feasibility study for open pit mining are relevant with regard to assessing future economic potential of the two gold deposits studied. Mercator considers both deposits to currently have good exploration and development potential and to fully warrant completion of additional deposit extension drilling programs in both strike and dip positions.

Brownfields exploration, with emphasis on core drilling of possible strike and dip extensions to the Box and Athona deposits, or at possible satellite zones, is considered a priority for future property investigation. Deposit extension exploration programs will require detailed mapping of the Box and Athona areas, literature review and careful three dimensional digital analysis of existing deposit attributes. Integration of historic geophysical survey results into this process could play an important role in further identifying and assessing exploration opportunities in proximity to the areas included in the most recent resource models. Results of these programs will provide definition of subsequent core drilling program targets.

In addition to the Box and Athona deposit areas, historic exploration results highlight the Frontier Lake Nicholson Bay, Fish Hook Bay, and Golden Pond areas as having demonstrated gold exploration potential defined by at least some core drilling, surface sampling and /or underground exploration. At present, none of these areas has current mineral resources or reserves defined in accordance with NI 43-101.

Preliminary results of compilation work completed in 2015 by Mercator, in combination with 2015 site visit results, show that greenfields exploration potential is also present on the Goldfields property in areas external to the Box and Athona deposits. Examples of known mineral occurrences at which significant gold grades have been returned include the previously mentioned Frontier Lake, Nicholson Bay, Fish Hook Bay and Golden Pond areas as well as the Gil, Triangle and Quartzite Ridge occurrence areas. The Triangle area returned a high grade gold value (177.5 g/t Au – see previous Table -11.2 in section 5.) for a grab sample collected by

Mercator staff during the 2015 site visit. These areas first require detailed desktop compilation of historic exploration results with this followed by prospect level geological mapping and sampling assessments. Wider ranging greenfields programs will require detailed literature reviews for known showings, analysis of historic drilling, sampling and geophysical survey results where available, and follow-up by possibly geophysical surveys and surface trenching investigations in the most prospective areas. Such programs should result in definition of targets for drill testing. A property-wide reconnaissance mapping and bedrock sampling program that includes assessment of prioritized exploration targets generated by Terrane in 2015 and described in this report is also required. Presumably, completion of such work programs would result in definition of additional drilling targets.

All future exploration programs will benefit from access to a property-wide digital compilation of the most up to date airborne and ground geophysical survey results as well as results of both government and industry geochemistry program data sets. Expansion of the project's drilling databases to include all historic drilling carried out at locations such as the Frontier Adit and the various exploration targets tested in the past would substantially improve the technical dataset available for property assessment and exploration planning. Such digital compilation work is fully warranted and should be completed to support planning of future project exploration programs.

18.2 Significance of Granitic Intrusions and Porphyry Gold Model

Most of the significant known gold showings on the Goldfields property are related to stockwork quartz veining within and along the contacts of granite intrusions. The intrusions are often small stocks that intrude larger granite bodies, and the stock and host can have very similar appearances. Approximately one half of the Goldfields property is underlain by granite, most of which has some degree of metasomatic alteration and quartz veining. While much of the granite is probably not of economic significance, stocks of similar size to those that host the Box and Athona deposits could easily be concealed within larger granite bodies because they have similar mineralogy, texture and appearance. As a result of the 2015 work program, it has been concluded that the granite-hosted gold mineralization on the Goldfields property most closely conforms to a gold-rich porphyry model. This helps to define new exploration criteria and work to date on application of this model indicates that the following five field criteria are useful in identifying the most prospective granites with respect to gold potential:

- They contain increased proportions of quartz veining relative to surrounding rock (>5%/vol.).

- The granite-hosted veins have trace to 5% pyrite which may form as clots in the veins.

- Small proportions (<1%/vol.) of copper, lead, zinc and molybdenum bearing sulphides are present in granite-hosted veins.

- The "mine granites" tend to have a higher degree of alteration, especially silica+K-feldspar alteration, which often results in a bright pink to red colour; in addition, they are typically less foliated than the granites that they intrude.
- In at least some cases, the Box mine being an example, it appears that mineralization is hosted within discrete small stocks that can be delineated via detailed geological mapping.

In order to best explore the granites on the Goldfields property a thorough literature review should first be conducted to identify and prioritize known showings relative to host intrusion characteristics. All existing geochemical data should be scrutinized in order to best determine which granites have potential to host gold deposits of potential economic interest. Areas with either i) interesting historical results, or ii) prospective granites that have no historical work, should be systematically mapped and sampled to determine potential for mineralization.

18.3 Exploration Significance of 2015 Sampling Program Results

Geochemical results from the 13 samples collected on the Goldfields properties in 2015 by Mercator show a number of features that are significant to interpretation of alteration styles and deposit types on the Goldfields property. These are important to the process of future exploration because they help to define spatial aspects of greatest gold mineralization potential. The following significant results were identified through study of the 2015 geochemical program results:

- The high-grade gold result from the Triangle showing (177 ppm Au in sample 10804) is the highest grade sample collected from that area. Although historical drilling by GLR Resources in 2006 near the sample site returned insignificant gold values (Nadeau and Mihailovic, 2008), identification of high-grade gold in the 2015 sample warrants revisiting the showing to map the surface expression of the sampled zone and to better determine its potential.

- Gold bearing granites near the Box mine, Athona deposit, and at the Frontier adit have much higher concentrations of potassium (2.09 – 5.02% K) than non-mineralized granite from north of the Box mine (0.97% K) and in the Keddy Bay area (0.98% K). This is consistent with the observation that mineralized granites have been affected by intense K-feldspar±biotite alteration.

- The sample from the Frontier adit (10809) has the highest concentration of potassium (5.02% K) indicating that it is probably not simply "quartzite" as previous workers have suggested. The high potassium concentration indicates either a granitic protolith or that secondary potassic enrichment has taken place at the expense of sodium and/or calcium in albite or plagioclase feldspar (sodium and calcium concentrations total < 0.2%).

- Levels of elements that best characterize rock forming minerals (e.g. potassium, sodium, magnesium and phosphate), as well as metals of economic or exploration interest such as gold, silver, copper, barium, lead, and arsenic are similar in samples collected from the Box and Athona mines, but differ in comparison with the sample from the Frontier adit (10809). The latter contains higher concentrations of barium, potassium and phosphate and lower concentrations of sodium. This may be a result of higher intensity alteration, or may indicate that the Frontier adit exploited a different style of mineralization than that present at the Box and Athona mines.

- Sulphur and iron concentrations are relatively low for mineralized samples collected from the Box and Athona granites (sulphur ranges between 0.13 and 1.43%) and this supports the observation that low sulphide levels characterize most rocks, even those with highest gold concentrations. However, good correlation exists between increasing sulphur concentration and increasing gold levels, indicating that a subtle increase in overall sulphide content may be a positive indicator for presence of gold.

- Elevated concentrations of bismuth and tungsten, which are typical of “orogenic” Au deposits, are not present at the Box and Athona deposits. However, the high-grade gold sample from the Triangle showing contains 1140 ppm Bi, suggesting that it may more closely conform to that deposit model.

18.4 Uranium and Polymetallic Exploration Potential

The Goldfields property contains two past producing uranium mines, the Lorado Mine and Nicholson Mine, in addition to the various gold deposits and prospects referred to above. In addition, there are numerous other historic uranium-polymetallic showings on the property. These are generally classified for current report purposes as being representative of Beaverlodge Lake type vein mineralization. Evidence of unconformity related uranium mineralization is also present locally on the property. In addition, the 2015 scintillometer survey identified a number of previously unidentified or undocumented areas emitting high levels of gamma radiation. This indicates that despite the long exploration history of the area, grassroots style uranium prospecting and mapping may still be productive. Future uranium exploration should initially focus on 1) areas near the past producing mines and known showings and 2) targeted reconnaissance exploration areas defined through analysis of digitally compiled geological, geochemical and geophysical datasets. The latter may include the targets defined in section 8.1 of this report. Reconnaissance exploration focused on the unconformity that separates the Murmac Bay Group from the Martin Group, and on areas below the unconformity that have indications of structural permeability and/or oxidation/reduction fronts is also appropriate.

At the present time, uranium and associated polymetallic exploration potential is considered secondary in importance to that defined for gold on the property. However, it is important to increase understanding of the distribution of such mineralization. To this end, future field programs should universally include systematic collection of radiation level readings for bedrock, drill core and overburden. This will facilitate discovery of new uranium prospects that may be present in the areas being assessed.

18.5 2015 Metallurgical Assessment Program

In 2015, a metallurgical test work program was carried out by SGS Minerals Services Lakefield (SGS). Tests were conducted in a detailed two phase investigation. In Phase 1 grindability was examined and it was concluded that Box and Athona composite sample materials were amenable to SAG milling. Phase 1 also examined gold recovery processes in parallel. Gravity recovery was studied and is recommended for inclusion in the design flowsheet. Box and Athona composites were amenable to either flotation or cyanidation with similar recovery.

Phase 2 testing was conducted with a simplified flotation flowsheet and cyanidation of concentrate based on the findings of Phase 1. Flotation optimization testwork showed it was possible to get 95% or better gold recovery into 3% mass using rougher flotation of gravity tailings without cleaner flotation stages. This was confirmed for Box composite sample in Phase 2 bulk flotation. For Athona the Phase 2 bulk flotation gave lower than expected recovery (75% Au recovery in 2.3% mass, 81% combined Au recovery including gravity concentrate) compared with two prior tests at similar conditions. Examination of these bulk flotation tailings suggested that grinding finer (than p80 of 160 micron) might have increased recovery.

Phase 2 confirmed that the bulk flotation concentrates were amenable to cyanidation with 98% recovery at test conditions. Gold recovery from the leach solution was investigated using carbon and zinc cementation (Merrill-Crowe) methods. For carbon recovery, a CIP (carbon-in-pulp) circuit is recommended rather than CIL (carbon-in-leach). The predicted recovery by CIP (99.9%) is higher than the experimental recovery for Merrill-Crowe (97%). The leach residues and flotation tailings were also studied for solid-liquid separation design information.

Additional metallurgical testing is required to finalize flow sheet design parameters and this will be required to support any future project feasibility study. However, the current level of testing is considered sufficient to support any re-casting of pre-feasibility level assessment in the near term. It is recognized that terms of reference for a future re-casting of the pre-feasibility study could require completion of additional specific testing to meet project requirements.

19.0 Recommendations

19.1 Summary

The following recommendations for future exploration of the Goldfields property arise from the conclusions presented above. In summary, additional core drilling to extend the extents of mineralization in the Box mine and Athona deposit area is warranted and, if successful, will require completion of an updated mineral resource estimate for these deposits. Completion of detailed re-assessments of the Frontier Adit, Gil, Golden Pond and Triangle gold occurrences to is also recommended to define geophysical survey and drilling strategies that will most effectively assess their economic potential. A similar detailed review approach is recommended for the past producing Lorado and Nicholson Bay uranium deposits as well for the surrounding areas and prospects that show promise for Beaverlodge Lake style polymetallic occurrences. Significant greenfields potential for discovery of new gold and uranium-polymetallic deposits is present on the Goldfields property, as exemplified by results of targeting work completed in 2015 by Terrane. Systematic follow-up of such targets, with gold potential being highest in priority, is recommended and should begin with geological mapping, prospecting and geochemical surveying. Consideration should also be given to extending VTEM airborne geophysical survey coverage to include the full property extent. Resulting new data could be merged with that from the existing survey and be re-processed to provide the basis for a new, property-wide structural analysis and targeting effort supported by digitally available government and industry geochemistry datasets. This new analysis should result in refinement of greenfields exploration target priorities.

With respect to metallurgical testing, no further work is currently recommended. Further testing may be needed to support final flow sheet design and equipment selection if a decision is taken to either proceed to a more advanced level of study or change from the process concept in the report, March (2011, 2014).

19.2 Proposed Budget

A two phase approach to future property exploration is proposed, based on conclusions presented in section 18 and recommendations summarized above. Phase I consists of preparation of revised and updated digital property datasets, detailed desktop studies to generate new exploration targets in both brownfields and greenfields positions, and detailed review and assessment of the existing resource and reserve models for the Box mine and Athona deposits. An initial field program to carry out ground based assessments of targets identified in the previously mentioned work programs is also included, as is a program of drill core re-assessment for areas adjacent to the existing Box mine and Athona resource models or in relation to significant historic occurrences, such as the Gil prospect or Frontier Adit, that have been identified as showing well defined potential for additional drilling. It is also recommended that Phase I include a technical review of the main assumptions and parameters that were used to define the pre-feasibility study, March (2011, 2014) to determine what modifications, if any, should be considered if a decision to re-visit this detailed level of assessment is taken in the near-term. Phase I concludes with analysis and reporting of results generated by the programs noted. The estimated budget for Phase I programs is presented below in Table 19.1 and totals $235,000.

Recommended Phase II programs are more substantial than Phase I and are based on the assumption that Phase I results are positive. Completion of core drilling of deposit extension opportunities identified at the Box mine and Athona deposits is included, as is comprehensive field follow up that includes an allowance for core drilling of the main non-resource prospect areas as well as prioritized new greenfields target areas. Extension of VTEM airborne survey coverage to include currently non-surveyed areas is also included and should be carried out early in the work schedule so that results can be used to enhance Phase II target assessments.

No additional detailed engineering or metallurgical programs are included in this budget phase but an allowance has been included for updating of existing mineral resource estimates subsequent to completion of deposit extension drilling identified in Phase I desk top studies. An increment of engineering review is included in the resource update program to support definition of open pit and underground development possibilities that should be registered in the resource deposit models.

An estimated budget for the recommended Phase II programs is presented below in Table 19.2 and totals $2,275,000 Cdn.

Table 19.1: Proposed Phase I Budget Estimate

Item Number	Program Component	Estimated Cost ($Cdn)
1	Digital data compilation and interpretation – all aspects	70,000
2	Box mine and Athona deposit resource extension drill program planning that includes review and re-logging of historic drill core	30,000
3	Detailed field evaluation of known prospects and new target areas that includes the following components: • Detailed geological mapping and sampling plus review of historic drill core sections for mineralization present at the Box, Athona, Nicholson Bay, Fish Hook Bay and Golden Pond areas; this will establish better understanding of deposit characteristics that can subsequently be applied in both deposit extension and exploration target evaluations - estimated cost inclusive of travel and support is $50,000; • Preliminary geological mapping, prospecting, sampling and soil geochemical surveying, where warranted, to assess new exploration target areas defined to date or during work completed under Item 1 above – estimated cost inclusive of travel and support is $50,000	100,000
4	Review and updating of economic parameters to support Phase II recasting of mineral resource estimates	15,000
5	Administration and support	20,000
	Total Phase I	**235,000**

Table 19.2: Proposed Phase II Budget Estimate

Item Number	Program Component	Estimated Cost ($Cdn)
1	Box mine and Athona deposit extension drilling (2500 m)	750,000
2	New prospect evaluation drilling (2500 m)	750,000
3	Expansion of VTEM coverage	250,000
4	Continued greenfields target follow-up – geophysical, geochemical and geological surveying	250,000
5	Updating of Box mine and Athona mineral resource estimates plus associated reporting and project evaluation after completion of resource extension drilling in (1) above	75,000
6	Administration	200,000
	Total Phase II	**2,275,000**

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21.0 Author Certificates

CERTIFICATE of AUTHOR

I, Stewart R. Yule, P. Geo., do hereby certify that:

1. I currently reside in Dartmouth, Nova Scotia, Canada and am employed as a Project Geologist by:

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2. I received a Bachelor of Science Degree (with Honours in Geology) in 2002 from Saint Mary's University.

3. I am a registered member in good standing of the Association of Professional Geoscientists of Nova Scotia, registration number 174.

4. I have worked as a geologist in Canada and the United States since graduation from university.

5. I have relevant work experience with regard to oxidized intrusion-related, porphyry, gold deposits and have extensive mineral exploration work experience for various other commodities.

6. I visited the Goldfields Property on September 23rd through October 1st, 2015 and participated in field program relevant to this report.

7. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

8. I am one of the qualified persons responsible for preparation of the technical report titled "9617337 Canada Limited (To Be Renamed Fortune Bay Corp.), Goldfields Project, National Instrument 43-101 Property Technical Report, Goldfields Property, Saskatchewan, Canada, Effective Date: March 19th, 2016" (the "Technical Report"). I am responsible for report sections 4, 5, 6, 9, 10, 16 and 17, plus portions of sections 1, 18 and 19.

9. I have not had prior involvement with the property that is the subject of this Technical Report.

10. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

11. I am independent of the issuer, 9617337 Canada Limited, applying all of the tests in section 1.5 of National Instrument 43-101.

12. I have read National Instrument 43-101 and Form 43-101F1, and believe that this Technical Report has been prepared in compliance with that instrument and form.

13. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 9th Day of May, 2016

"Original signed and stamped by"

____

Stewart Yule, P. Geo.
Senior Geologist
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CERTIFICATE of AUTHOR

I, Tony Barresi, P. Geo., do hereby certify that:

1. I currently reside in Ketch Harbour, Nova Scotia, Canada and am employed as a Consulting Geologist by:

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2. I received a Bachelor of Science Degree (with Honours in Geology) in 2004 from Saint Mary's University.

3. I received a Doctorate of Philosophy Degree in the subject of Earth Sciences from Dalhousie University.

4. I am a registered member in good standing of the Association of Professional Geoscientists of Nova Scotia, registration number 233.

5. I have worked as a geologist in Canada since graduation from university in 2004.

6. I have relevant work experience with regard to oxidized intrusion-related, porphyry, gold deposits and have extensive mineral exploration work experience for various other commodities and deposit types.

7. I visited the Goldfields Property on September 23rd through October 1st, 2015 and participated in field program relevant to this report.

8. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

9. I am one of the qualified persons responsible for preparation of the report titled "9617337 Canada Limited (To Be Renamed Fortune Bay Corp.), Goldfields Project, National Instrument 43-101 Property Technical Report, Goldfields Property, Saskatchewan, Canada, Effective Date: March 19th, 2016" (the "Technical Report"). I am responsible for report sections 2, 3, 7, 8, 11, 12, 14 and 15, plus portions of sections 1, 18 and 19.

10. I have not had prior involvement with the property that is the subject of this Technical Report.

11. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

12. I am independent of the issuer, 9617337 Canada Limited, applying all of the tests in section 1.5 of National Instrument 43-101.

13. I have read National Instrument 43-101 and Form 43-101F1, and believe that this Technical Report has been prepared in compliance with that instrument and form.

14. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 9th Day of May, 2016

"Original signed and stamped by"

____

Tony Barresi, Ph. D., P. Geo.
Consulting Geologist
Mercator Geological Services Limited

CERTIFICATE of AUTHOR

I, Andrew Doolittle, P. Eng. do hereby certify that:

1. I reside in Saskatoon, Saskatchewan, Canada and am employed as Manager, Process Engineering by:

   March Consulting Associates Inc.
   200, 201 21st Street East
   Saskatoon, Saskatchewan, Canada
   S7K 0B8

2. I graduated with a Bachelor's degree in Chemical Engineering from the University of Saskatchewan in 2002.

3. I maintain membership in good standing with the Association of Professional Engineers & Geoscientists of Saskatchewan as a Professional Engineer, member no. #12683. I hold permission to consult with Mineral Processing as an identified field of practice.

4. I have been practicing in my profession as an engineer for a total of 13 years since my graduation from university with experience that includes mineral processing plant design as consultant and operational roles as process engineer and lab supervisor. Specific to the content of this report is my experience conducting and overseeing metallurgical testwork, and the use of this testwork and other data as it impacts on plant design.

5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

6. I am one of the qualified persons responsible for preparation of the report titled "9617337 Canada Limited (To Be Renamed Fortune Bay Corp.), Goldfields Project, National Instrument 43-101 Property Technical Report, Goldfields Property, Saskatchewan, Canada, Effective Date: March 19th, 2016" (the "Technical Report"). I am responsible for report section section 13 and portions of sections 1 and 18 that are related to metallurgical testwork.

7. I have not had prior involvement with the property that is the subject of this Technical Report.

8. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

9. I am independent of the issuer, 9617337 Canada Limited, applying all of the tests in section 1.5 of National Instrument 43-101.

10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 9th day of May, 2016.

"Original document signed and stamped by"

____

Andrew Doolittle, B. Eng., P. Eng.
Manager, Process Engineering
March Consulting Associates Inc.

Appendix 1

Structural and Geophysical Lineament Study Targets

Target	Easting	Northing	Priority	Justification
Au	641229	6591434	1	Granite/mafic contact
Au	641526	642471	1	Granite/mafic contact
Au	641483	6592249	1	Granite/mafic contact
Au	642351	6593054	1	Granite/mafic contact
Au	642277	6592847	1	Granite/mafic contact and topo lineament
Au	642494	6592805	1	Granite/mafic contact;resistivity high
Au	642129	6593556	1	Granite contact/topo lineament
Au	641301	6594337	1	Contact;topo lineament;resistivity high
Au	640708	6593975	1	Contact;resistivity high
Au	640473	6593664	1	Contact;resistivity high
Au	640339	6593151	1	Granite/mafic contact;resistivity high
Au	640077	6593096	1	Granite/mafic contact;resistivity high
Au	640684	6593592	1	Granite/mafic contact;resistivity high
Au	642411	6594882	1	Granite/mafic contact;resistivity high
Au	642689	6594501	1	Granite/mafic contact;resistivity high
Au	641518	6594505	1	Contact;resistivity high
Au	642121	6594282	1	Contact;resistivity high
Au	642157	6594512	1	Contact;resistivity high
Au	641057	6595584	1	Granite/mafic contact;resistivity high
Au	641569	6595652	1	Granite/mafic contact;resistivity high;mag linear
Au	632499	6593208	1	Conductor Break;mag lineament;contact;topo lin
Au	632690	6593201	1	Conductor Break;mag lineament;contact;topo lin
Au	631007	6589660	1	Conductor Break;mag lineament;contact;topo lin
Au	630713	6589414	1	Conductor Break;mag lineament;contact;topo lin
Au	629737	6587716	1	Conductor Break;mag lineament;contact
Au	629523	6587755	1	Conductor Break;mag lineament;contact
Au	640491	6594255	1	Contact
Au	645364	6595823	1	Contact;mag lineament;topo lineament
Au	643534	6595413	2	Granite/mafic contact
Au	643177	6595314	2	Granite/mafic contact
Au	642816	6595179	2	Granite/mafic contact
Au	642554	6595644	2	Granite/mafic contact
Au	642089	6595564	2	Granite/mafic contact
Au	639324	6597771	2	Granite/mafic contact
Au	639885	6597384	2	Granite/mafic contact
Au	642929	6595756	2	Granite/mafic contact;mag lineament
Au	641752	6595633	2	Granite/mafic contact;mag lineament
Au	643520	6594778	2	Granite/mafic contact
Au	643554	6594110	2	Granite/mafic contact
Au	643501	6593720	2	Granite/mafic contact
Au	634772	6592002	2	Granite/mafic contact;mag lineament
Au	645397	6593934	2	Contact;mag lineament;topo lineament;fault

Target	Easting	Northing	Priority	Justification
Au	645410	6594153	2	Contact;mag lineament;topo lineament;fault
Au	645311	6595125	2	Contact;mag lineament
Au	645291	6594960	2	Contact;mag lineament
Au	645284	6594695	2	Contact;mag lineament
Au	650573	6593423	2	Topo lineament;fault
Au	649710	6592617	2	Topo lineament;fault
Au	650046	6592947	2	Topo lineament;fault
Au	647654	6592387	2	Contact;topo lineament;fault
Au	647376	6594490	2	Contact;topo lineament;fault
Au	647528	6593465	2	Contact;topo lineament;fault
Au	647574	6593055	2	Contact;topo lineament;fault
Au/U	639909	6593865	2	Contact
Au/U	639711	6593686	2	Contact
Au/U	639678	6593931	2	Contact
Au/U	635431	6593907	2	Granite/mafic contact;mag lineament
Au/U	635090	6593431	2	Granite/mafic contact;mag lineament
Au/U	634995	6592859	2	Granite/mafic contact;mag lineament
Au/U	650294	6593163	2	Topo lineament;fault
U	632896	6594038	2	Contact;conductor;regional shear;topo lineament
U	633134	6594506	2	Contact;conductor;regional shear;topo lineament
U	633642	6595205	2	Contact;conductor;regional shear;topo lineament
U	633968	6595673	2	Contact;conductor;regional shear;topo lineament
U	633904	6595022	2	Contact;conductor;regional shear;topo lineament
U	640677	6594381	2	Contact
Au	640318	6597114	3	Granite/mafic contact;topo lineament
Au	641239	6596315	3	Granite/mafic contact;mag lineament
Au	633745	6594641	3	Contact;conductor;regional shear;
Au	640233	6594354	3	Contact;mag lineament
Au	632519	6591828	3	Contact;Mag lineament
Au	634383	6591430	3	Granite/mafic contact;mag lineament
Au	634331	6594117	3	Granite/mafic contact
Au	633352	6591550	3	Granite/mafic contact
Au	633286	6592450	3	Granite/mafic contact
Au	628913	6589063	3	Granite/mafic contact
Au	629347	6589486	3	Granite/mafic contact
Au	628140	6588015	3	Granite/mafic contact
Au	631368	6592661	3	Granite/mafic contact
Au	630532	6592576	3	Granite/mafic contact
Au	630987	6593158	3	Granite/mafic contact
Au	632183	6595794	3	Granite/mafic contact
Au	632522	6596270	3	Granite/mafic contact
Au/U	640721	6596850	3	Granite/mafic contact;topo lineament

Target	Easting	Northing	Priority	Justification
Au/U	640186	6597924	3	Granite/mafic contact;topo lineament
Au/U	640509	6597966	3	Granite/mafic contact;topo lineament
Au/U	648361	6594345	3	Contact;topo lineament
Au/U	648481	6593736	3	Contact;topo lineament
Au/U	648917	6592949	3	Contact
Au/U	648719	6593439	3	Contact
U	640043	6597945	3	Granite/mafic contact;mag lineament
U	641049	6596585	3	Granite/mafic contact;mag lineament
U	641155	6596458	3	Granite/mafic contact;mag lineament
Au	635612	6599762	4	Mag lineament;fold
Au	636681	6600122	4	Mag lineament;fold
Au	637295	6601741	4	Mag lineament;fold
Au	634215	6600313	4	Mag lineament;fold

Appendix 2

2015 Rock Sample Location Table
2015 Assay Results and Certificates

Sample	Area	UTM Coordinates		DESCRIPTION	PGM-ICP23	Au-AA25	Au-GRA21	PGM-ICP23	PGM-ICP23	ME-ICP61	Ag-OG62	ME-ICP61
		Easting	Northing		Au	Au	Au	Pt	Pd	Ag	Ag	Al
		meters	meters		ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
10804	Triangle	6594306	641303	Quartz veins in carbonate	>10.0	>100	177.5	<0.005	<0.001	>100	140	0.07
10805	Box Mine	6593859	640718	Quartz stockwork in granite	0.017			<0.005	<0.001	0.6		6.83
10806	Box Mine	6593320	640296	Quartz stockwork in granite	0.326			<0.005	<0.001	1		3.4
10807	Box Mine	6593384	640367	Quartz stockwork in granite	5.34			<0.005	<0.001	2.3		2.74
10808	Box Mine	6593475	640549	Quartz stockwork in granite	>10.0	37.1		<0.005	<0.001	9.7		4.88
10809	Frontier	6594196	640252	Apalite/quartzite from adit dump	0.332			<0.005	<0.001	<0.5		3.82
10810	Quartzite Ridge	6595214	633652	Quartz vein in metasedimentary rock	0.022			<0.005	<0.001	<0.5		0.5
10811	Keddy Bay	6594301	635396	Quartz vein in granite	0.167			<0.005	<0.001	0.6		0.15
10812	Keddy Bay	6593853	635762	Quartz vein in granite	0.003			<0.005	<0.001	<0.5		0.62
10813	Keddy Bay	6594816	635351	Quartz veins in granite	0.005			<0.005	<0.001	<0.5		1.41
10814	Athona	6592488	642471	Samples from Athona mine dump	2.11			<0.005	<0.001	<0.5		4.04
10815	Athona	6592749	642486	Quartz stockwork in granite	>10.0	11.5		<0.005	<0.001	3		4.18
10801	Athona	6592769	642499	Quartz stockwork in granite	0.197			<0.005	0.001	<0.5		5.07

Sample	Area	ME-ICP61 As ppm	ME-ICP61 Ba ppm	ME-ICP61 Be ppm	ME-ICP61 Bi ppm	ME-ICP61 Ca %	ME-ICP61 Cd ppm	ME-ICP61 Co ppm	ME-ICP61 Cr ppm	ME-ICP61 Cu ppm	ME-ICP61 Fe %	ME-ICP61 Ga ppm	ME-ICP61 K %	ME-ICP61 La ppm
10804	Triangle	<5	<10	<0.5	1140	0.06	4.3	4	25	800	1.52	<10	0.02	<10
10805	Box Mine	<5	510	1.1	5	0.22	<0.5	3	13	14	0.95	20	0.97	10
10806	Box Mine	<5	270	0.7	4	0.02	0.8	<1	17	8	0.64	10	2.5	20
10807	Box Mine	7	170	0.6	<2	0.01	<0.5	<1	24	12	0.91	10	2.09	10
10808	Box Mine	12	240	0.8	3	0.02	<0.5	1	19	42	1.67	10	2.35	20
10809	Frontier	<5	850	<0.5	<2	0.06	<0.5	<1	37	10	0.81	<10	5.02	20
10810	Quartzite Ridge	13	20	<0.5	<2	2.23	<0.5	5	26	32	1.31	<10	0.29	<10
10811	Keddy Bay	<5	20	<0.5	4	0.02	<0.5	1	26	143	0.32	<10	0.1	<10
10812	Keddy Bay	<5	40	<0.5	<2	0.63	<0.5	<1	33	3	0.47	<10	0.34	<10
10813	Keddy Bay	5	220	<0.5	<2	0.02	<0.5	1	23	9	0.53	<10	0.98	<10
10814	Athona	<5	150	1	<2	0.5	2.3	1	25	10	0.72	10	2.04	10
10815	Athona	8	90	1.1	2	0.11	5.5	<1	24	12	0.77	10	2.45	20
10801	Athona	<5	140	1.2	<2	0.16	<0.5	<1	21	3	0.71	10	3.18	20

Sample	Area	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
		Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th	Ti
		%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
10804	Triangle	2.06	248	1	0.01	4	10	121	0.08	<5	<1	2	<20	<0.01
10805	Box Mine	0.46	111	1	4.54	4	160	15	<0.01	<5	3	126	<20	0.06
10806	Box Mine	0.06	33	1	1.05	2	30	61	0.19	<5	1	14	<20	0.02
10807	Box Mine	0.09	31	<1	0.67	2	30	42	0.54	<5	1	9	<20	0.02
10808	Box Mine	0.06	33	3	2.75	1	40	89	1.43	<5	1	20	20	0.03
10809	Frontier	0.06	39	<1	0.09	2	230	12	0.31	<5	1	30	<20	0.04
10810	Quartzite Ridge	1.49	671	1	0.01	7	50	3	0.29	<5	3	10	<20	0.06
10811	Keddy Bay	0.02	40	1	0.01	1	10	67	0.01	<5	<1	3	<20	<0.01
10812	Keddy Bay	0.56	296	1	0.02	1	40	3	<0.01	<5	<1	4	<20	0.01
10813	Keddy Bay	0.11	61	2	0.14	1	30	4	0.02	<5	<1	11	<20	0.01
10814	Athona	0.26	173	<1	2	1	30	205	0.18	<5	1	17	<20	0.02
10815	Athona	0.15	101	<1	1.72	1	20	497	0.25	<5	1	13	20	0.03
10801	Athona	0.19	123	1	2.07	1	40	34	0.13	<5	1	18	20	0.03

Sample	Area	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
		Tl	U	V	W	Zn
		ppm	ppm	ppm	ppm	ppm
10804	Triangle	<10	<10	1	<10	199
10805	Box Mine	<10	<10	15	<10	15
10806	Box Mine	<10	<10	5	10	79
10807	Box Mine	<10	<10	10	<10	55
10808	Box Mine	<10	<10	18	<10	9
10809	Frontier	<10	<10	7	<10	4
10810	Quartzite Ridge	<10	<10	21	<10	6
10811	Keddy Bay	<10	<10	1	<10	19
10812	Keddy Bay	<10	<10	2	<10	10
10813	Keddy Bay	<10	<10	3	<10	6
10814	Athona	<10	<10	7	<10	448
10815	Athona	<10	<10	1	<10	619
10801	Athona	<10	<10	8	<10	18

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65 QUEEN ST.
DARTMOUTH NS B2Y 1G4

Finalized Date: 15- NOV- 2015
Account: QDE

CERTIFICATE SD15166931

P.O. No.: 4220
This report is for 15 Rock samples submitted to our lab in Sudbury, ON, Canada on 30- OCT- 2015.

The following have access to data associated with this certificate:

TONY BARRESI	PETER WEBSTER	STEWART YULE

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI- 21	Received Sample Weight
LOG- 22	Sample login - Rcd w/o BarCode
LOG- 24	Pulp Login - Rcd w/o Barcode
CRU- 31	Fine crushing - 70% <2mm
PUL- QC	Pulverizing QC Test
SPL- 21	Split sample - riffle splitter
PUL- 31	Pulverize split to 85% <75 um

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME- ICP61	33 element four acid ICP- AES	ICP- AES
Ag- OG62	Ore Grade Ag - Four Acid	VARIABLE
ME- OG62	Ore Grade Elements - Four Acid	ICP- AES
Zn- OG62	Ore Grade Zn - Four Acid	VARIABLE
Au- AA25	Ore Grade Au 30g FA AA finish	AAS
PGM- ICP23	Pt, Pd, Au 30g FA ICP	ICP- AES
Au- GRA21	Au 30g FA- GRAV finish	WST- SIM

To: MERCATOR GEOLOGICAL SERVICES LIMITED
ATTN: STEWART YULE
65 QUEEN ST.
DARTMOUTH NS B2Y 1G4

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:
Colin Ramshaw, Vancouver Laboratory Manager

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Page: 2 - A
Total # Pages: 2 (A - C)
Plus Appendix Pages
Finalized Date: 15- NOV- 2015
Account: QDE

CERTIFICATE OF ANALYSIS SD15166931

Sample Description	Method	WEI-21	PGM-ICP23	PGM-ICP23	PGM-ICP23	Au-GRA21	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
	Analyte	Recvd Wt.	Au	Pt	Pd	Au	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr
	Units	kg	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	LOR	0.02	0.001	0.005	0.001	0.05	0.5	0.01	5	10	0.5	2	0.01	0.5	1	1
10801		1.27	0.197	<0.005	0.001		<0.5	5.07	<5	140	1.2	<2	0.16	<0.5	<1	21
10802		0.11	0.232	<0.005	0.001		>100	5.84	4440	310	0.8	<2	2.41	138.5	13	51
10803		1.13	0.002	<0.005	0.002		0.7	8.42	7	910	2.5	<2	0.84	<0.5	16	70
10804		1.46	>10.0	<0.005	<0.001	177.5	>100	0.07	<5	<10	<0.5	1140	0.06	4.3	4	25
10805		1.36	0.017	<0.005	<0.001		0.6	6.83	<5	510	1.1	5	0.22	<0.5	3	13
10806		1.07	0.326	<0.005	<0.001		1.0	3.40	<5	270	0.7	4	0.02	0.8	<1	17
10807		2.26	5.34	<0.005	<0.001		2.3	2.74	7	170	0.6	<2	0.01	<0.5	<1	24
10808		1.65	>10.0	<0.005	<0.001		9.7	4.88	12	240	0.8	3	0.02	<0.5	1	19
10809		1.57	0.332	<0.005	<0.001		<0.5	3.82	<5	850	<0.5	<2	0.06	<0.5	<1	37
10810		0.40	0.022	<0.005	<0.001		<0.5	0.50	13	20	<0.5	<2	2.23	<0.5	5	26
10811		1.67	0.167	<0.005	<0.001		0.6	0.15	<5	20	<0.5	4	0.02	<0.5	1	26
10812		1.19	0.003	<0.005	<0.001		<0.5	0.62	<5	40	<0.5	<2	0.63	<0.5	<1	33
10813		1.31	0.005	<0.005	<0.001		<0.5	1.41	5	220	<0.5	<2	0.02	<0.5	1	23
10814		1.84	2.11	<0.005	<0.001		<0.5	4.04	<5	150	1.0	<2	0.50	2.3	1	25
10815		2.04	>10.0	<0.005	<0.001		3.0	4.18	8	90	1.1	2	0.11	5.5	<1	24

***** See Appendix Page for comments regarding this certificate *****

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Page: 2 - B
Total # Pages: 2 (A - C)
Plus Appendix Pages
Finalized Date: 15- NOV- 2015
Account: QDE

CERTIFICATE OF ANALYSIS SD15166931

Sample Description	Method / Analyte / Units / LOR	ME-ICP61 Cu ppm 1	ME-ICP61 Fe % 0.01	ME-ICP61 Ga ppm 10	ME-ICP61 K % 0.01	ME-ICP61 La ppm 10	ME-ICP61 Mg % 0.01	ME-ICP61 Mn ppm 5	ME-ICP61 Mo ppm 1	ME-ICP61 Na % 0.01	ME-ICP61 Ni ppm 1	ME-ICP61 P ppm 10	ME-ICP61 Pb ppm 2	ME-ICP61 S % 0.01	ME-ICP61 Sb ppm 5	ME-ICP61 Sc ppm 1
10801		3	0.71	10	3.18	20	0.19	123	1	2.07	1	40	34	0.13	<5	1
10802		493	8.09	10	1.80	10	0.86	1440	6	1.24	28	530	9490	6.19	119	12
10803		39	4.20	20	3.41	30	1.39	744	2	1.39	40	750	33	0.04	<5	14
10804		800	1.52	<10	0.02	<10	2.06	248	1	0.01	4	10	121	0.08	<5	<1
10805		14	0.95	20	0.97	10	0.46	111	1	4.54	4	160	15	<0.01	<5	3
10806		8	0.64	10	2.50	20	0.06	33	1	1.05	2	30	61	0.19	<5	1
10807		12	0.91	10	2.09	10	0.09	31	<1	0.67	2	30	42	0.54	<5	1
10808		42	1.67	10	2.35	20	0.06	33	3	2.75	1	40	89	1.43	<5	1
10809		10	0.81	<10	5.02	20	0.06	39	<1	0.09	2	230	12	0.31	<5	1
10810		32	1.31	<10	0.29	<10	1.49	671	1	0.01	7	50	3	0.29	<5	3
10811		143	0.32	<10	0.10	<10	0.02	40	1	0.01	1	10	67	0.01	<5	<1
10812		3	0.47	<10	0.34	<10	0.56	296	1	0.02	1	40	3	<0.01	<5	<1
10813		9	0.53	<10	0.98	<10	0.11	61	2	0.14	1	30	4	0.02	<5	<1
10814		10	0.72	10	2.04	10	0.26	173	<1	2.00	1	30	205	0.18	<5	1
10815		12	0.77	10	2.45	20	0.15	101	<1	1.72	1	20	497	0.25	<5	1

***** See Appendix Page for comments regarding this certificate *****

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Page: 2 - C
Total # Pages: 2 (A - C)
Plus Appendix Pages
Finalized Date: 15- NOV- 2015
Account: QDE

CERTIFICATE OF ANALYSIS SD15166931

Sample Description	Method / Analyte / Units / LOR	ME-ICP61 Sr ppm 1	ME-ICP61 Th ppm 20	ME-ICP61 Ti % 0.01	ME-ICP61 Tl ppm 10	ME-ICP61 U ppm 10	ME-ICP61 V ppm 1	ME-ICP61 W ppm 10	ME-ICP61 Zn ppm 2	Ag-OG62 Ag ppm 1	Zn-OG62 Zn % 0.001	Au-AA25 Au ppm 0.01
10801		18	20	0.03	<10	<10	8	<10	18			
10802		223	<20	0.30	<10	<10	97	<10	>10000	352	1.345	
10803		141	<20	0.42	10	<10	92	<10	95			
10804		2	<20	<0.01	<10	<10	1	<10	199	140		>100
10805		126	<20	0.06	<10	<10	15	<10	15			
10806		14	<20	0.02	<10	<10	5	10	79			
10807		9	<20	0.02	<10	<10	10	<10	55			
10808		20	20	0.03	<10	<10	18	<10	9			37.1
10809		30	<20	0.04	<10	<10	7	<10	4			
10810		10	<20	0.06	<10	<10	21	<10	6			
10811		3	<20	<0.01	<10	<10	1	<10	19			
10812		4	<20	0.01	<10	<10	2	<10	10			
10813		11	<20	0.01	<10	<10	3	<10	6			
10814		17	<20	0.02	<10	<10	7	<10	448			
10815		13	20	0.03	<10	<10	1	<10	619			11.50

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CERTIFICATE OF ANALYSIS SD15166931

CERTIFICATE COMMENTS

LABORATORY ADDRESSES

	Processed at ALS Sudbury located at 1351- B Kelly Lake Road, Unit #1, Sudbury, ON, Canada.			
Applies to Method:	CRU- 31	LOG- 22	LOG- 24	PUL- 31
	PUL- QC	SPL- 21	WEI- 21	
	Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.			
Applies to Method:	Ag- OG62	Au- AA25	Au- GRA21	ME- ICP61
	ME- OG62	PGM- ICP23	Zn- OG62	

Appendix 3

Petrographic Descriptions

Sample # 10801 (Figures A3.1 and A3.2)

Area: Athona

Location Description: Trench north of Athona adit

Assigned Name: Porphyritic Syeno-Granite

Description: Pink fine to medium-grained porphyritic granite cross-cut by quartz veins.

Primary mineralogy (80% of total):
64% K-Feldspar
25% Quartz
10% Plagioclase feldspar
1% Biotite (mostly altered to chlorite)

Groundmass (50% of primary mineralogy) is composed of 50% 100-300 µm quartz crystals with sutured, often straight, grain boundaries, 38% 200-400 µm anhedral K-feldspar crystals, typically with tartan twinning (microcline), 10% 200-400 µm subhedral plagioclase, and 2% disseminated 50-100 µm muscovite crystals. Small traces of fine hornblende fragments are also present. The fine-grained groundmass appears to be primary although in places recrystallized quartz resulted in granoblastic texture with little remnant strain.

Phenocrysts (50% of primary mineralogy) are 90% K-feldspar and 10% plagioclase. The K-feldspar phenocrysts are typically perthite up to 1 cm in length. They range from smaller highly irregular shaped and poikilitic grains to larger subhedral polygons with irregular margins; rare euhedral phenocrysts are also present. Inclusions comprise subhedral plagioclase and blebby irregular quartz. While most of the phenocrysts are perthite, a minority are antiperthite and some do not have resolvable exsolution lamellae. Based on crystal twinning it appears in most cases that albite was exsolved from microcline, however in some crystals both the host crystal and the lamellae are untwinned. The perthite ranges from flame-like to interlocking to lamellar. Plagioclase phenocrysts are typically 1-2.5 cm and subhedral with generally rectangular geometry but with highly irregular margins especially on c-axis terminations.

Secondary Mineralogy (20% of total)
80% Quartz
12% K-feldspar
4% Chlorite
3% Plagioclase
1% Sericite
Hematite Trace

The section is crosscut by abundant quartz veins composed of up to 2 mm long elongate anhedral to subhedral quartz crystals. The veins have experienced some strain as they display undulose extinction, sub-grain rotation and in places grain size reduction. Secondary quartz also forms irregular pods and poly-crystalline blebs away from the veins; these could be mistaken for phenocrysts in hand sample. Rare pristine interlocking plagioclase crystals are present within some quartz veins. They have low extinction angles indicating a high Na versus Ca content. Highly turbid K-feldspar is present surrounding the quartz veins. Adjacent to quartz veins it appears that the albite component in some perthite phenocrysts may have been altered to K-feldspar, and there may be alteration-related K-feldspar which is non-perthitic adjacent to quartz veins in a few locations.

Primary biotite is 90% altered to chlorite, probably as a retrograde metamorphic overprint.

Very minor sericite alteration of feldspar is present.

The sample is pink due to the presence of pink K-feldspar and Fe staining of quartz/feldspar. The Fe may have been released during the biotite→chlorite reaction.

Sample # 10802 (Figures A3.1 and A3.3)

Area: Athona

Location Description: Trench N of Athona adit

Assigned Name: Syeno-Granite

Description: Gray medium to coarse-grained granite cut by quartz veins.

Primary mineralogy (70% of total):
65% K-Feldspar
26% Quartz
7% Plagioclase feldspar
1% Chlorite
1% Muscovite

The fine-grained component of this sample only occupies 15% volume and it is unclear if it represents a primary groundmass or is a result of strain related grain-size reduction. Because there are many domains and "clasts" of medium to coarse granite without a fine-grained component, it seems likely that the fine-grained texture is secondary. The fine-grained component contains 50-200 μm grains of interlocking K-feldspar (40%), quartz (40%), plagioclase feldspar (10%), chlorite (possibly after biotite; 5%), and muscovite (5%). The grains are mostly anhedral but sometimes have straight sutured boundaries. Weak undulose extinction characterizes most fine-grained quartz, but the largest grains exhibit stronger within-grain deformation. Some of the micas may be secondary.

The medium to coarse-grained component, which most clearly represents the primary mineralogy and texture of the granite, is composed of 70% perthite, 25% quartz and 5% plagioclase. The perthite grains are composed of subhedral 0.5-1 cm microcline crystals with exsolved albite; the albite is rarely twinned. Most of the perthite crystals are relatively clear except near quartz veins where they have increased turbidity indicating that there is some secondary K-feldspar in the vein selvage. Quartz crystals are typically <1 cm and anhedral. Plagioclase crystals are subhedral to euhedral and 0.5-1 cm in length; smaller plagioclase and quartz crystals are present as inclusion in perthite crystals.

Secondary Mineralogy (30% of total):
86% Quartz
4% K-feldspar
2% Sericite
2% Chlorite
1% Plagioclase Feldspar
1% Calcite

Most of the secondary mineralogy comprises coarse quartz veins with approximately 1 mm elongate anhedral quartz crystals that show moderate undulose extinction; minor plagioclase feldspar crystals are also present in these veins. In places, secondary quartz is present as pods in the fine-grained groundmass of the rock or forms rims around embayed microcline crystals. Fine-grained secondary K-feldspar forms selvages to quartz veins and pods, and has partly flooded/replaced the fine-grained groundmass. One <100 µm thick calcite vein is present in the section. Minor chlorite and sericite are present in the fine-grained domain of the rock and are likely a result of alteration or metamorphism.

Sample # 10803 (Figures A3.1 and A3.4)

Area: Athona

Location Description: Athona adit dump

Assigned Name: Syeno-Granite

Description: Porphyritic, granophyric, pink syeno-granite cut by two types of quartz veins.

Primary mineralogy (80% of total):
36% Quartz
34% K-Feldspar
16% Granophyre
14% Plagioclase feldspar

This sample is the mostly clearly porphyritic of those examined from the Athona mine area with 60% of the non-vein volume comprising fine-grained 50-150 µm groundmass. The groundmass contains mainly anhedral but interlocking quartz (60%), K-feldspar (30%) and plagioclase (10%) crystals. Some plagioclase crystals have remnants of subhedral forms but now have highly disrupted margins.

Phenocrysts compose 40% of the primary lithology. They include phenocrysts of granophyre (50%), plagioclase (25%), and perthite/antiperthite/microcline (25%). Granophyre phenocrysts consist of subhedral 0.5 to >5 mm microcline crystals with exsolved angular to vermiform optically continuous quartz. In some places the granophyric texture borders on micro-graphic and in others it is highly irregular and comprises small quartz grains that are not all optically continuous. In the latter case there may be some myrmekite development. In a few locations the original K-feldspar "host crystal" appears to be completely replaced/altered to fine-grained quartz+feldspar while vermiform quartz is unaltered. Antiperthite phenocrysts typically form subhedral 0.5->2 mm untwinned albite crystals with microcline lamellae. Perthite is also present. Plagioclase phenocrysts are subhedral to euhedral and range from 0.5 to 5 mm in size. They have low maximum extension angles suggesting an anorthite content of approximately 5% (albite) or 30% (oligoclase) based on the Michel Levy method.

Secondary Mineralogy (20% of total):
94% quartz
4% calcite
1% plagioclase
1% K-feldspar
Biotite trace
Chlorite trace
Muscovite trace

Two types of veins are present in the sample: 1) a quartz vein with 1 mm anhedral quartz crystals as well as minor amounts of plagioclase and K-feldspar. This vein has a 100 µm chlorite selvage (after biotite?); 2) a quartz (80%) calcite (20%) vein composed of 1 mm euhedral quartz and anhedral calcite crystals. The vein appears to be overprinting the primary rock texture, as opposed to cutting it, as there are remnants of groundmass interstitial to the crystals that comprise the vein. This vein-type does not have a selvage.

Additional alteration includes: 1) very minor chlorite and muscovite in the groundmass and rare muscovite alteration of feldspar; 2) high temperature K-metasomatism represented by myrmekite formation; 3) silicification of the alkali feldspar host to granophyre in some places; and 4) minor hematite staining of quartz/feldspar, and fractures.

Sample # 10806 (Figures A3.1 and A3.5)

Area: Box

Location Description: South of the Box mine headframe, within the mapped perimeter of the "Box Granite"

Assigned Name: Syeno-Granite

Description: Silicified porphyritic red syeno-granite with quartz veins.

Primary mineralogy (70% of total):
40% Quartz
50% K-feldspar
8% Plagioclase
2% Muscovite
Sphene Trace

Groundmass represents 50% by volume of the primary portion of the rock. However, it is invaded by secondary quartz and sericite, which is sometimes difficult to distinguish from the primary mineralogy. The groundmass is formed of 50-200 μm anhedral quartz (39%) and K-feldspar crystals (39%) with irregular, often curved grain boundaries, and subhedral plagioclase feldspar crystals (10%). The groundmass also contains disseminated sericite, trace subhedral sphene, and opaque crystals (pyrite), which are secondary.

Phenocryst phases represent 50% volume of the primary mineralogy of the rock. They include 38% subhedral 1-5 mm microcline, 38% 1-3 mm subhedral perthite, 10% sub-rounded forms of poly-crystalline quartz up to 2 mm diameter, and 4% remnant plagioclase phenocrysts which are embayed and partly altered to K-feldspar/perthite. The rock records little strain and even quartz phenocrysts do not show strong undulose extinction.

Secondary Mineralogy (30% of total)
75% Quartz
15% Sericite/Muscovite
5% K-feldspar
5% Pyrite
Hematite Trace

The sample is cross-cut by abundant quartz veins and stringers composed of 0.5-1 mm long anhedral quartz crystals and narrower stringers composed of groundmass-sized quartz grains that are only clearly distinguished from the groundmass where they cut phenocrysts. Sericite stringers range from 100 to 500 μm in thickness; the thickest are associated with hematite lined fractures. They define a weak foliation that is both crosscut by quartz veins, and parallel to some quartz veins. Disseminated pyrite is closely associated with quartz veins. Remnant primary plagioclase phenocrysts are embayed and have cuspate margins with K-feldspar or perthite replacement and overgrowths representing potassic alteration. The stained off-cut shows that almost all feldspar in the sample is K-feldspar; this confirms that there is pervasive K-feldspar alteration of the groundmass. The K-feldspar is weakly altered by sericite in some locations suggesting that potassic alteration pre-dates sericite alteration.

Sample # 10807 (Figures A3.1 and A3.6)

Area: Box

Location Description: South of the Box mine headframe, within the mapped perimeter of the "Box Granite"

Assigned Name: Syeno-Granite

Description: Silicified porphyritic red syeno-granite with quartz veins.

Primary mineralogy (70% of total):
60% K-feldspar
34% Quartz
6% Plagioclase
Muscovite Trace
Sphene Trace

In this sample the groundmass to the Box granite occupies 35% of the primary volume. It comprises fine-grained (<50-200 µm), mostly anhedral, quartz (50%), K-feldspar (40%) and plagioclase (10%) with trace amounts of muscovite and sphene. The groundmass is host to phenocrysts that occupy the remaining 65% volume of the porphyry. Phenocrysts include K-feldspar (70%), quartz (25%) and plagioclase (5%). K-feldspar phenocrysts range from subhedral to euhedral and from 0.5 - >5 mm in size. They include microcline, perthitic microcline and untwinned K-feldspar. Myrmekite is present in some K-feldspar, and at the contact between K-feldspar and plagioclase crystals, indicating that some plagioclase has been altered to K-feldspar. Quartz phenocrysts range from 1-4 mm in size. They have a sub-rounded habit and are commonly polycrystalline with anhedral crystal boundaries. Subhedral plagioclase phenocrysts are rare but are sometimes clustered with K-feldspar phenocrysts forming myrmekitic glomerocrysts.

Secondary mineralogy (30% of total):
70% Quartz
5% Muscovite
5% Plagioclase
15% K-feldspar
3% Pyrite
2% Hematite

Secondary minerals occupy approximately 30% of the sample. Secondary mineralogy includes veins composed of ≈1-2 mm anhedral quartz (80%) and subhedral K-feldspar (10%) and albite crystals (10%). In addition, there are narrow stringers of secondary sericite/muscovite and minor alteration of feldspar to sericite. K-feldspar alteration is observed as replacement of plagioclase feldspar by K-feldspar, sometimes forming myrmekite, and by patchy flooding of the groundmass. Hematite is locally abundant along fractures and along the margins of opaque minerals (pyrite).

Sample # 10808 (Figures A3.1 and A3.7)

Area: Box

Location Description: Along the margin of the Box granite, just east of the contact (sample is of altered and mineralized country rock)

Assigned Name: Orthogneiss

Description: Hydrothermally altered orthogneiss.

Mineralogy:
50% Quartz
20% K-feldspar
10% Albite (untwinned)
8% Plagioclase feldspar
10% Muscovite
2% Chlorite
Sphene Trace
Zircon Trace
Orthopyroxene? Trace

Sample 10808 is a gneiss composed of foliated, fine-grained quartzofeldspathic domains (65%), which appear to be composed of deformed/recrystallized and metamorphosed pre-kinematic granitic minerals, and syn- to late-kinematic domains of coarser quartz and untwinned albite (20%), and chlorite+muscovite. Bands rich in chlorite (possibly after biotite) and muscovite may result from metamorphism/alteration and deformation of the fine-grained domains. Field observations indicate that compositional bands can be up to several cm in thickness but in the thin-section they are observed on a finer scale with most bands being less than 1 cm in thickness. Fine-grained domains are composed of 50-100 μm irregular and intergrown quartz (70%) and fine-grained sericite (10%) with up to 500 μm fragments of fractured feldspar crystals (5% plagioclase, 5% K-feldspar) that are aligned roughly parallel to the foliation. The matrix also contains trace sphene and zircon and in one location a remnant orthopyroxene glomerocrysts is pseudomorphed by chlorite. The texture of the fine-grained domain is interpreted to represent remnant broken feldspar crystals within a recrystallized quartz and sericite matrix. The coarse-grained domains comprise pods and vein-like bands and do not exhibit strain features but are aligned parallel to the foliation, indicating that they are syn- to late kinematic. They are composed of 300-1500 µm roughly polygonal quartz, coarse, sometimes >1 cm, untwinned anhedral K-feldspar and rare subhedral plagioclase crystals up to 1 mm long. Chlorite appears to fill pressure shadows where there are irregular kinks in coarse-grained domains. Feldspar in the sample is weakly altered to sericite.

Sample # 981 (Figures A3.1 and A3.8)

Area: Box

Location Description: Just to the east of the Box headframe, sample is of the altered country rock collected on the eastern margin of the Box granite

Assigned Name: Muscovite biotite schist

Description: Hydrothermally altered muscovite biotite schist.

Mineralogy:
42% Quartz
19% Muscovite
12% Albite (untwinned)
12% Plagioclase
9% Biotite
6% Chlorite
Zircon trace

This foliated rock is composed of three distinct domains: phyllosilicate dominant domains (30%), fine-grained domains (40%), and coarse quartz rich domains (30%). The mica rich domains form up to 1.5 cm thick straight bands and narrow stringers that anastomose through the fine-grained domains and appear to wrap around the coarse quartz domains. They contain 50% muscovite, 30% biotite and 20% chlorite (after biotite). The phyllosilicates are roughly aligned and are typically 500 µm long. Biotite is most common in the center of the domain with muscovite on the edges, passing transitionally into the fine-grained domains. Trace amounts of zircon are observed in the phyllosilicate dominant domains.

The fine-grained domains contain remnant plagioclase and K-feldspar[1] crystals that can be greater than 5 mm in diameter. These remnant crystals are highly fractured and cross cut by fine-grained quartz veinlets; they were probably part of the primary minerology of the protolith (granite?). Much smaller, but similarly angular and fractured, feldspar crystals (10% untwinned albite, 10% plagioclase feldspar) are combined with quartz (70%) and muscovite (10%) to form

[1] Stained off-cut of this sample shows that there is no K-feldspar. The minerals interpreted to be K-feldspar are likely altered to untwinned albite via intrusion-related metasomatism or regional metamorphism.

the remaining portion of the fine-grained domains. The crystals are typically anhedral and 50-100 µm in diameter. Rare porphyroclasts of highly strained quartz and feldspar are present within the fine-grained domains; these provide textural evidence of a complex deformation history that was largely destroyed by late metasomatism related to the intrusion of the Box granite.

The coarse quartz-rich domains form wispy foliation parallel pods with 90% 2-3 mm anhedral quartz, 5% albite and 5% albite after K-feldspar crystals, and minor sericite.

Sample # 10805 (Figures A3.1 and A3.9)

Area: Box/Triangle

Location Description: North of the Box granite intrusion between the Box mine and Triangle showing.

Assigned Name: Medium-grained granite

Description: Strained medium-grained equigranular granite

Primary Mineralogy (90% of total)
65% Quartz
20% Plagioclase feldspar
15% Albite (untwinned)

The primary mineral assemblage of this sample is consistent with a granite protolith. Based on textural and grain size criterion it consists of two main domains. Medium-grained domains contain approximately 1 mm diameter interlocking equigranular crystals of quartz (65%) plagioclase (20%) and untwinned albite (15%). The crystals in these domains are highly strained and have irregular, serrate, grain boundaries. Quartz has highly undulatory extinction and subgrain rotation is ubiquitous. Feldspar grains are often fractured and have curved/bent crystal faces and twinning. The medium-grained domains are considered to be texturally the most representative of the protolith granite. Fine-grained domains, which occupy about 35% volume of the sample, are a result of strain-related grain-size reduction. They contain single-crystal and poly-crystalline “clasts” of the medium-grained granite within a matrix of approximately 50-100 µm nearly granoblastic quartz with angular fractured fragments of broken feldspar crystals. The fine-grained domains do not exhibit strain features.

Secondary Mineralogy (10% of total)
85% Quartz
10% Muscovite
5% Chlorite
K-feldspar trace

One corner of the thin-section includes a quartz vein with clean coarse quartz that exhibits moderate undulose extinction. Muscovite stringers approximately 50 µm wide cross-cut the fine-grained domains and are present along fractures in the medium-grained domains. Trace chlorite, possibly after biotite, is present in a few of the stringers. A very subtle and weak alteration of feldspar to sericite is observed in a few locations. Staining of the off-cut revealed that there are several closely spaced, very narrow, straight K-feldspar stringers which probably represent a distal expression of high-temperature potassic alteration from the Box granite or similar intrusion.

Sample # 10813 (Figures A3.1 and A3.10)

Area: Quartzite Ridge

Location Description: In the Quartzite Ridge area just south-west of the access road.

Assigned Name: Alkali-Feldspar Granite

Description: Weakly strained medium-grained alkali-feldspar granite crosscut by quartz and sericite veins with patchy quartz-sericite alteration.

Mineralogy
70% Quartz
20% Microcline
10% Muscovite

Sample 10813 is composed of intergrown and mostly equigranular 0.5-3 mm quartz and microcline, and probably a trace of primary muscovite. The actual primary proportions of quartz and muscovite are difficult to determine due to moderate amounts of silica and sericite alteration. The crystals are anhedral and intergrown with irregular but not serrate grain boundaries. Rare microcline crystals can be up to 5 mm in diameter and form a subtly larger phenocryst phase in the otherwise medium-grained equigranular primary texture. Unlike some of the other "country-rock" granites, this one does not appear to be strongly deformed. The quartz has weak to moderate undulose extinction and fine-grained domains from strain-related grain size reduction account for less than 10% volume of the rock.

Secondary quartz and muscovite represent at least 20% of the overall volume of the sample with abundant 1-2 mm quartz veins with sericite selvages, sericite stringers, and patchy domains where quartz and sericite partly replace primary minerals. While some of the veining/alteration in this sample is similar to that found near the Box and Athona mines, where veins have irregular contacts with wall-rock and seem to infiltrate/transition into the altered wallrock, some of the veins in the Quartzite Ridge sample have straight margins and contain angular shattered fragments of wallrock-minerals. This indicates high pressure injection of hydrothermal fluids into brittle rock.

Sample # 979 (Figures A3.1 and A3.11)

Area: Athona

Location Description: Sampled from just north of the Athona trenches in the granite/orthogneiss country rock.

Assigned Name: Orthogneiss

Description: Perthite-porphyroclastic pink orthogneiss.

Mineralogy:
10% K-feldspar
40% Albite (untwinned)
42% Quartz
6% Chlorite after biotite
1% Opaque
Calcite trace
Sericite trace
Hematite Trace

This sample consists primarily of bands of fine- to medium-grained recrystallized quartz (50-1000 μm) surrounding and interlocking with broken fragments of originally subhedral to euhedral feldspar crystals that range from being the same size as the host quartz to large remnant crystals up to 5 mm long. The larger crystals sometimes have nearly euhedral shapes but the outer margins are broken and irregularly intergrown with, or intruded by, fine-grained quartz. There are no plagioclase feldspar crystals (based on twinning and crystal form), however there are albite exsolution lamellae on most of the larger K-feldspar crystals/perthite. Based on staining of the thin-section off-cut, most of the observed K-feldspar is untwinned albite, with only 10% actual K-feldspar. Biotite and chlorite after biotite are present in narrow bands and clots often on the edges of bands defined by different grain sizes.

The sample has clearly been strained. A few remnant clasts of medium-grained equigranular textured granite exhibit the most strain with quartz that is strongly undulose with clear sub-grain rotation boundaries and strongly serrate edges. Feldspar crystals are fractured and broken in places. Fine-grained domains are largely a result of strain-related grain size reduction and exhibit the least amount of remnant strain.

The sample has suffered some alteration: biotite is altered to chlorite and hematite; it is unclear if the biotite is secondary and related to intrusion of the nearby Athona granite, or if it is primary to the orthogneiss. Minor amounts of sericite, calcite and hematite are present in weakly altered feldspar crystals. The sample contains secondary quartz in quartz-rich, syn-kinematic bands;

although it is difficult to know how much of the quartz is secondary. Staining shows that there is a low proportion of K-feldspar in the sample (10%), therefore most of the observed alkali feldspar is actually untwined albite, possibly formed from K-feldspar as a result of metasomatism during intrusion of the Athona granite.

Sample # 10809 (Figures A3.1 and A3.12)

Area: Frontier adit

Location Description: This sample was collected from the mine dump below the back-filled portal to the Frontier adit.

Assigned Name: Meta-wacke

Description: Quartz-rich meta-feldspathic-wacke with siltstone laminations and quartz veins.

Mineralogy:
65% Quartz
34% Feldspar (mostly or all K-feldspar)
1% Muscovite
Hematite Trace
Sphene/Zircon Trace

One of the main objectives of examining this sample petrographically was to determine if it is has an igneous (aplite) or sedimentary (sandstone) protolith. Petrographic observations indicate a sedimentary protolith. The rock is composed of 200-500 µm quartz (80%) and K-feldspar (20%; at least 5% microcline) grains in a fine-grained matrix (30% volume) composed of <30 µm quartz (≈10%), K-feldspar (≈50%) and muscovite (1%) with trace zircon or sphene. The fine-grained (silty) matrix is interstitial to grains of the coarser fraction and forms narrow sub-mm laminations. In thin-section it is too fine-grained to distinguish the relative quartz to feldspar content but staining shows that the matrix is almost entirely K-feldspar. The coarse fraction of the sample is strongly compacted and grains are preferentially oriented with long axes parallel to the bedding defined by the siltstone laminations. Crystal boundaries of the quartz grains are irregular, probably as a result of suturing during compaction/diagenesis. In places the sutured grains form sub-mm bands of quartz aggregates with no interstitial matrix. Although many of the grains have irregular sutured boundaries, some grains have remnant sub-round shapes, especially feldspar grains. In a few cases, subrounded polycrystalline quartz grains are present (<1%). A very small proportion (<1%) of the sample consists of 1-3 mm quartz and microcline grains that are much larger than the surrounding grains. These grains range from sub-rounded to square, nearly-euhedral microcline crystals, which appear to have barely been affected by transport. In thin-section the sample does not appear to be strongly altered with the exception of some cryptic silicification and minor hematite along fractures. However, the presence of about 90% K-feldspar in the matrix of the sample suggests that it has been affected by K-feldspar flooding. The sample exhibits characteristics of minimal exposure to stress in the form of minor undulose extinction in quartz grains.

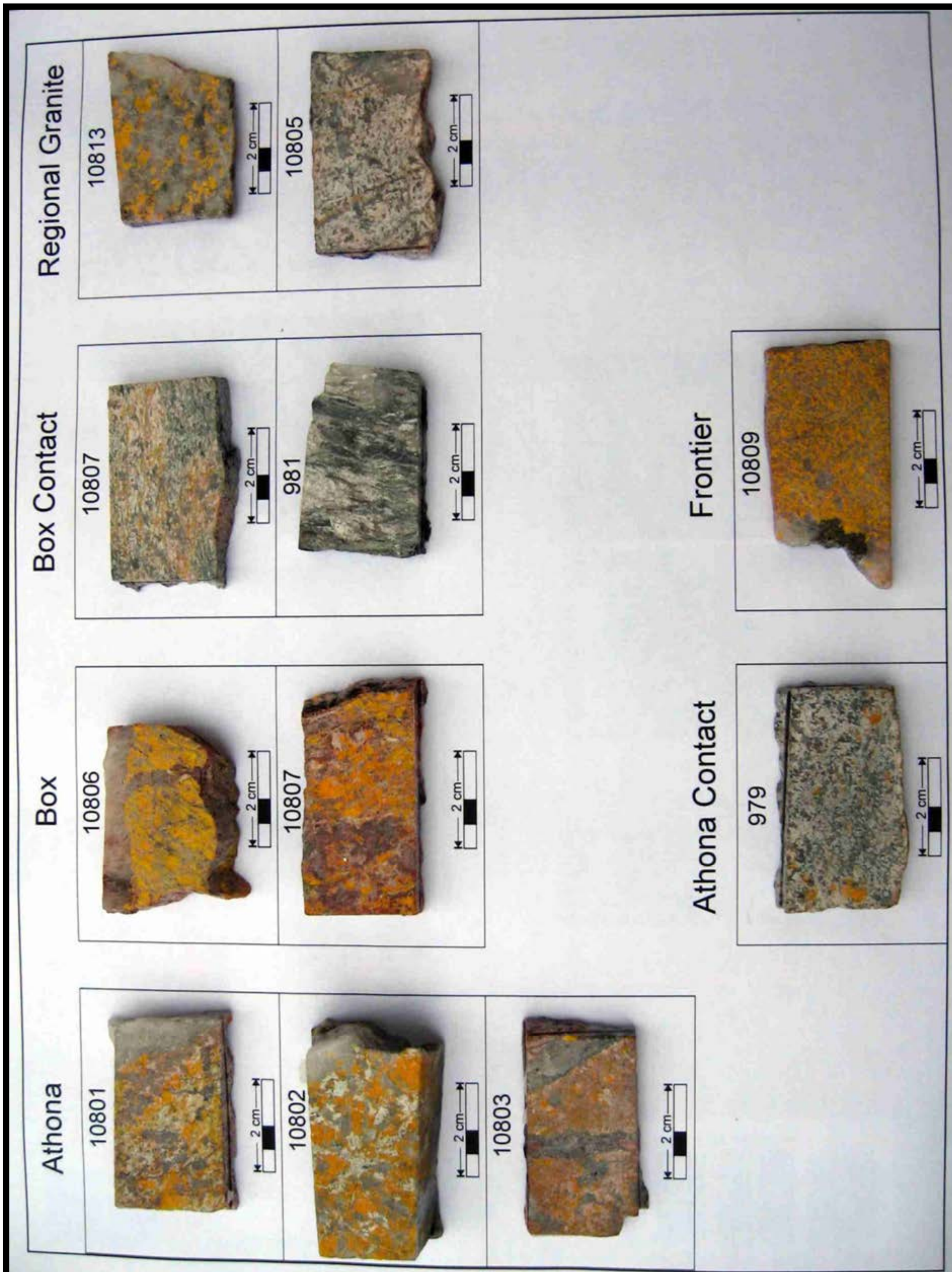

Figure A3.1: Stained off-cuts of petrography samples. Orange coloured mineral is K-feldspar.

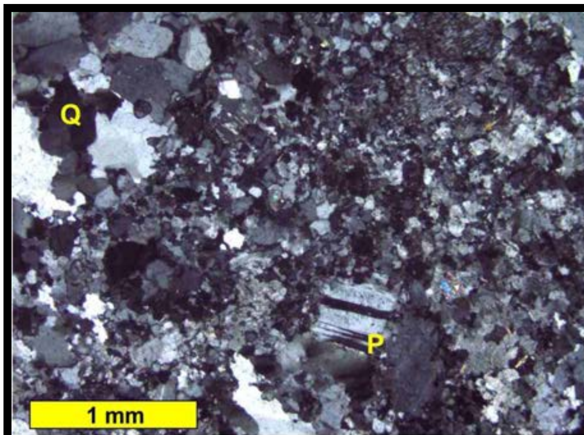

Fig. A3.2A: 40X; crossed nicols; Plagioclase (P) phenocryst in fine grained quartzofeldspathic groundmass. Top left is secondary quartz (Q) pod.

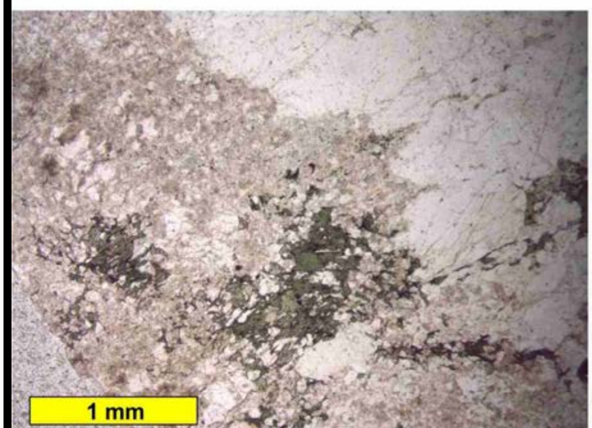

Fig. A3.2B: 40X; plane-polarized light; Quartz vein (top right) cutting f.g. matrix with chlorite pseudomorphs of biotite. Note how turbid the K-feldspar in the groundmass near the vein is, indicating that it is secondary.

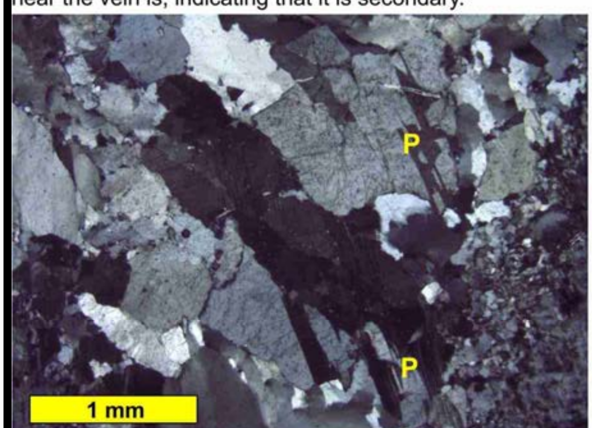

Fig. A3.2C: 40X; crossed nicols; Quartz vein with coarse quartz and plagioclase (P).

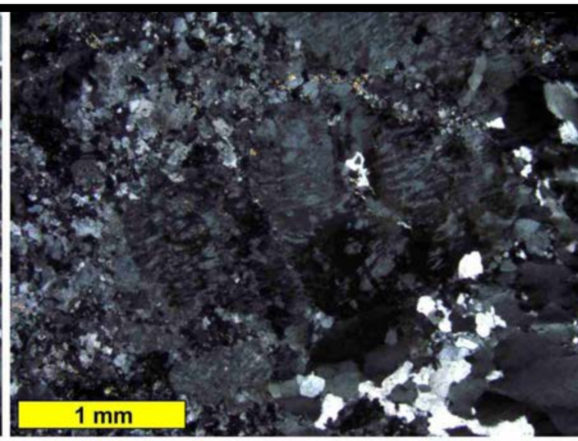

Fig. A3.2D: 40X; crossed nicols; Irregular perthite phenocrysts surrounded by fine grained groundmass. Lighter coloured lamellae within crystal are exsolved.

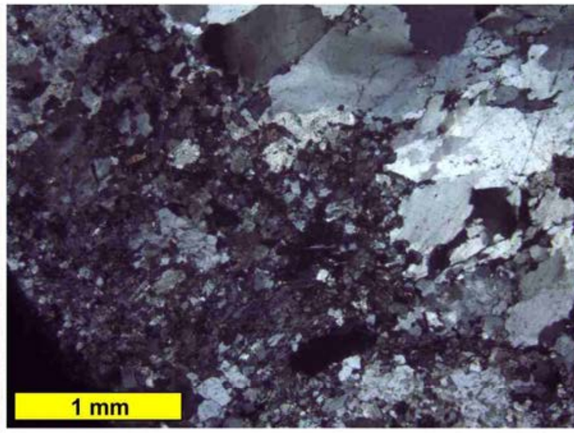

Fig. A3.2E: 40X; crossed nicols; Quartz vein (top right) cutting f.g. matrix with chlorite pseudomorphs of biotite. Note how turbid the K-feldspar in the groundmass near the vein is, indicating that it is secondary.

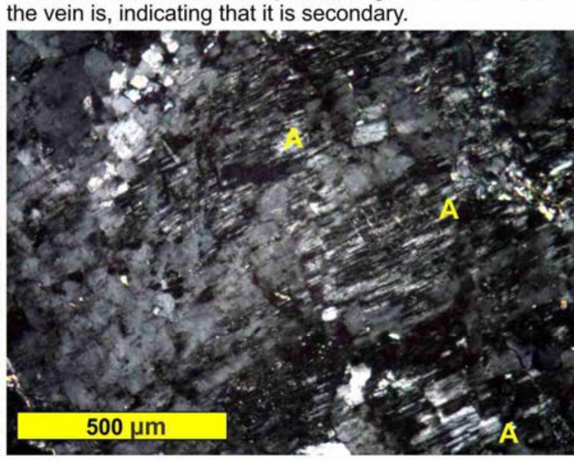

Fig. A3.2F: 100X; crossed nicols; Perthite with visible polysynthetic twinning of albite (A) component.

Figure A3.2 – Petrography

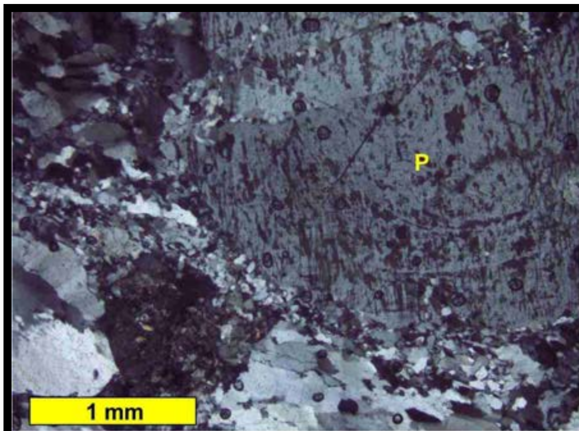

Fig. A3.3A: 40X; crossed nicols; Perthite crystal (P) within fine grained groundmass that appears to wrap/warp around the crystal.

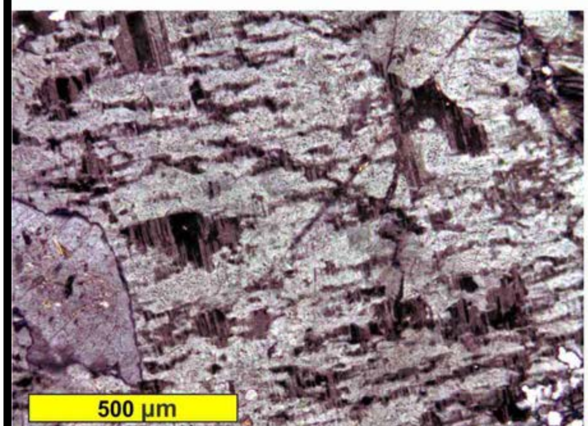

Fig. A3.3B: 100X; crossed nicols; Closeup of partly extinct perthite crystal with domains of polysynthetic twinned albite.

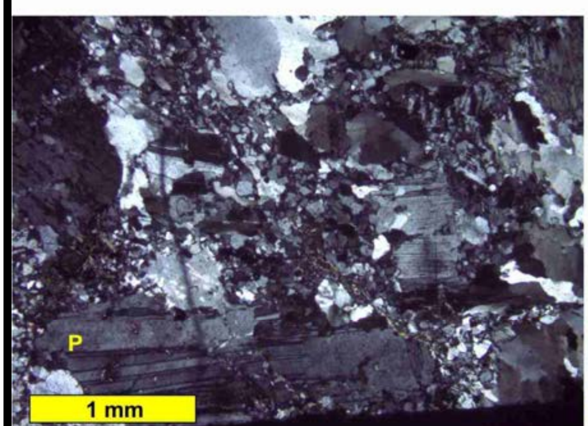

Fig. A3.3C: 40X; crossed nicols; Large plagioclase feldspar crystal (P) at boundary between fine and coarse grained domains.

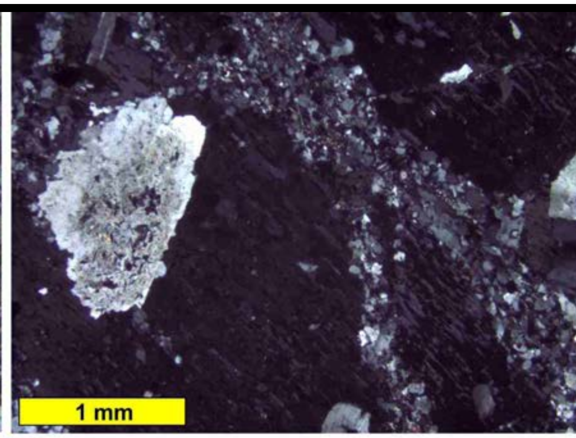

Fig. A3.3D: 40X; crossed nicols; Extinct perthite crystal with inclusion rich K-feldspar inclusion. X-cut by fine grained "groundmass" indicating that at least some of the "groundmass" is secondary.

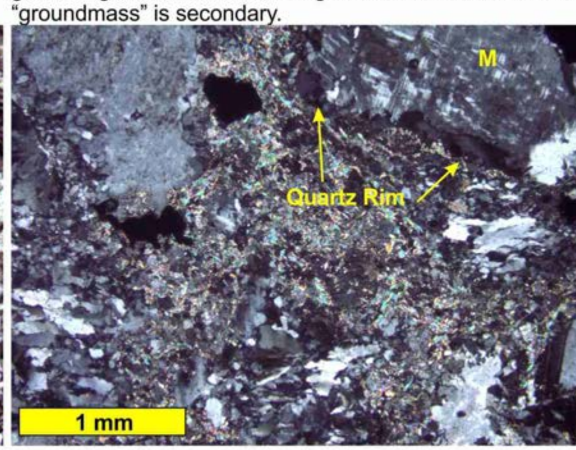

Fig. A3.3E: 40X; crossed nicols; Abundant fine muscovite (bright coloured crystals) in fine grained domain (center). Quartz rim around microcline crystal (M; top right).

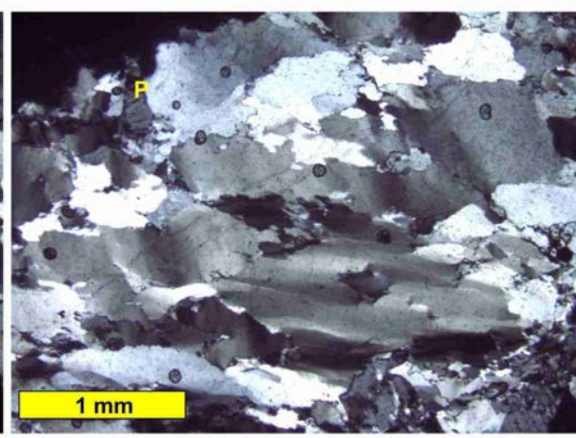

Fig. A3.3F: 40X; crossed nicols; Strained quartz vein material with minor plagioclase (P).

Figure A3.3 – Petrography

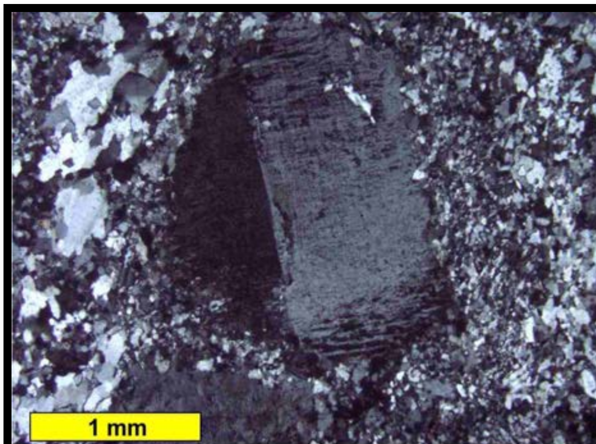

Fig. A3.4A: 40X; crossed nicols; Perthite phenocryst within fine grained groundmass.

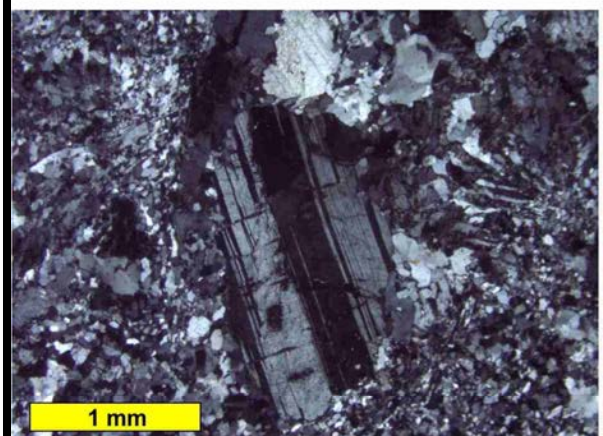

Fig. A3.4B: 40X; crossed nicols; Plagioclase phenocryst in a fine grained groundmass. Poorly developed granophyre to center-right.

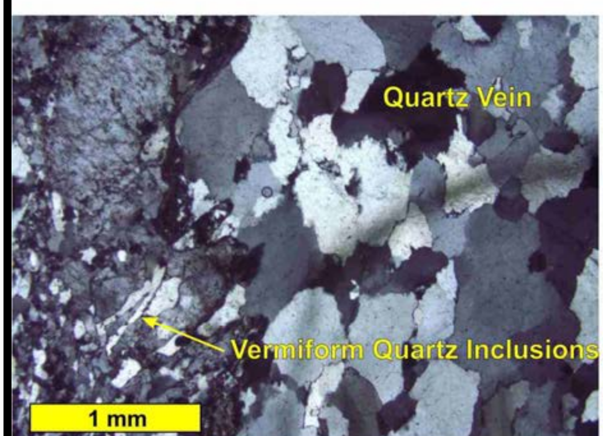

Fig. A3.4C: 40X; crossed nicols; Quartz vein (right) with chlorite (after biotite?) selvage and K-feldspar phenocryst or alteration beside that. Vermiform quartz inclusions in K-feldspar (myrmekite?).

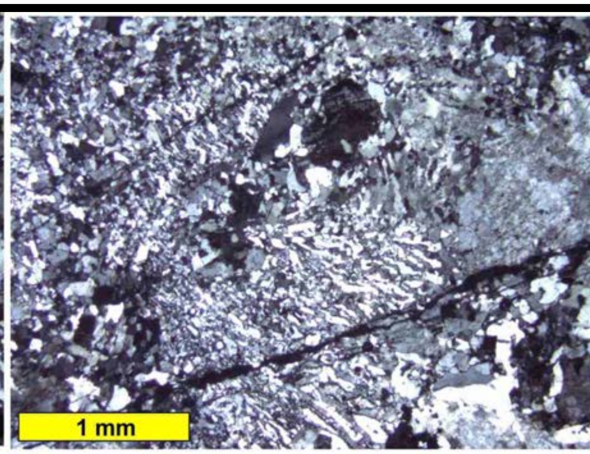

Fig. A3.4D: 40X; crossed nicols; Granophyre texture with blebby optically continuous quartz within a K-feldpar phenocryst.

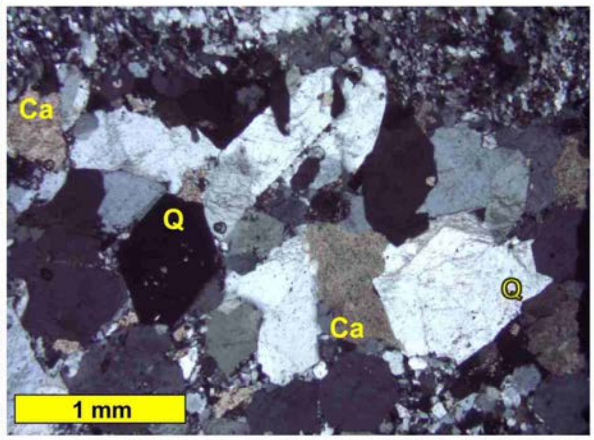

Fig. A3.4E: 40X; crossed nicols; Coarse euhedral quartz (Q) and subhedral calcite (Ca) crystals within a vein. Note interstitial fine grained material similar to groundmass of granite.

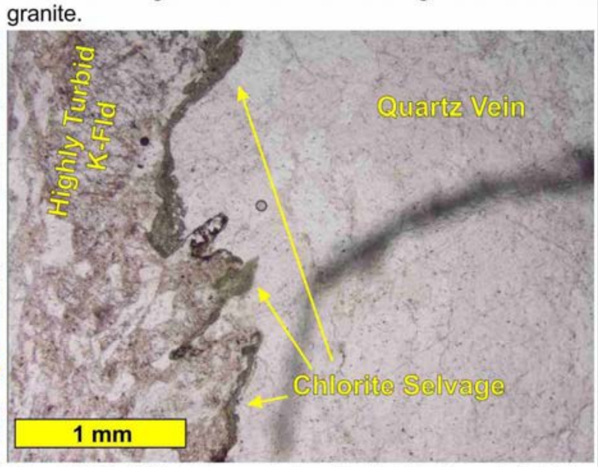

Fig. A3.4F: 40X; Plane polarized light; Quartz vein (right) with chlorite (after biotite?) selvage and highly turbid (alteration related?) K-feldspar beside chlorite.

Figure A3.4 – Petrography

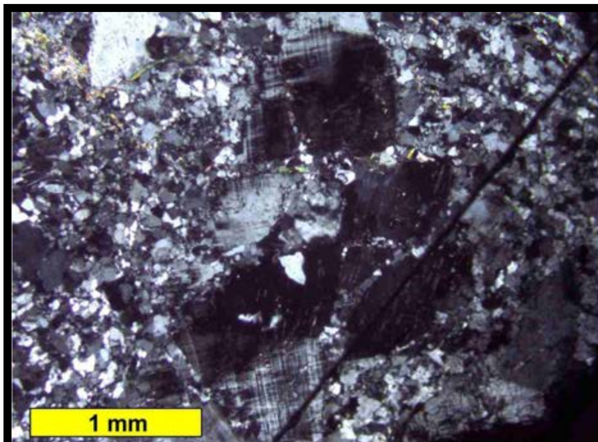

Fig. A3.5A: 40X; crossed nicols; Subhedral microcline phenocryst (3-4mm diameter) in fine quartz+K-feldspar+plagioclase groundmass.

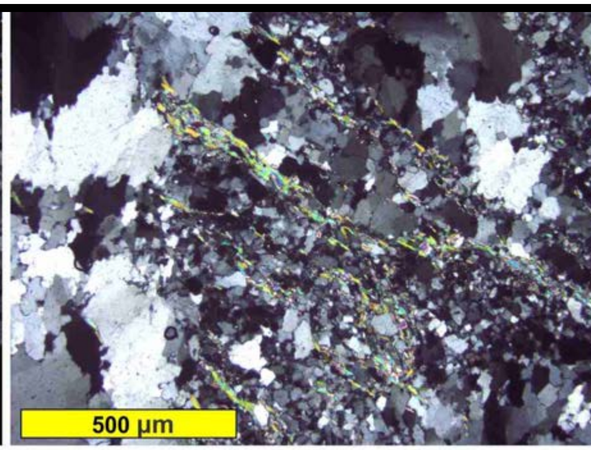

Fig. A3.5D: 100X; crossed nicols; Secondary sericite stringers truncated by quartz vein (left).

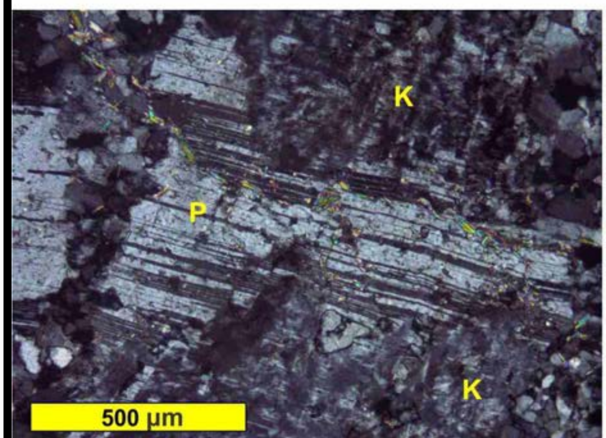

Fig. A3.5B: 100X; crossed nicols; Plagioclase phenocryst (P) that is embayed and replaced by K-feldspar (K). Minor sericite/muscovite overprint alteration.

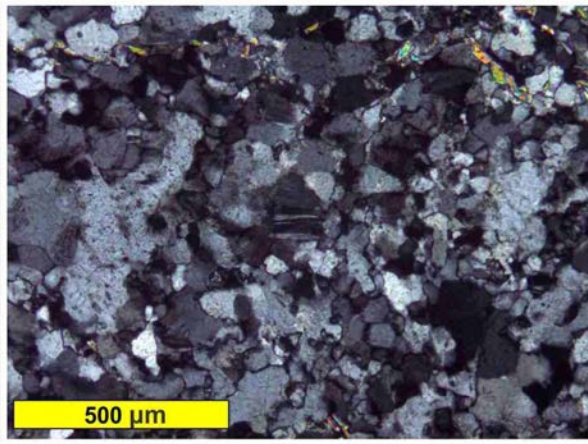

Fig. A3.5E: 100X; crossed nicols; Closeup of fine-grained interlocking groundmass composed mainly of anhedral quartz, K-feldspar and plagioclase crystals.

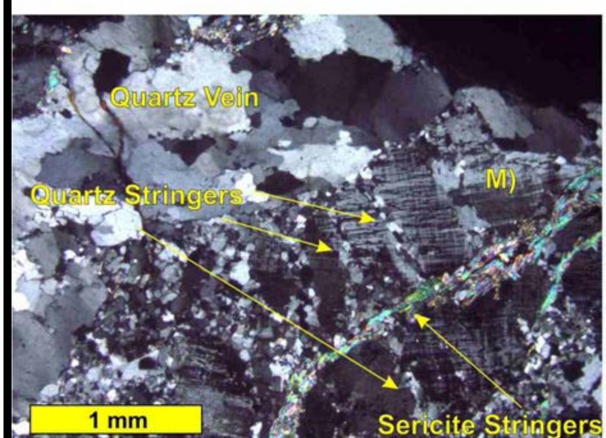

Fig. A3.5C: 40X; crossed nicols; Microcline phenocryst(M) x-cut by quartz stringers on margin of thicker quartz vein (Top left). Quartz stringers x-cut by late sericite stringer.

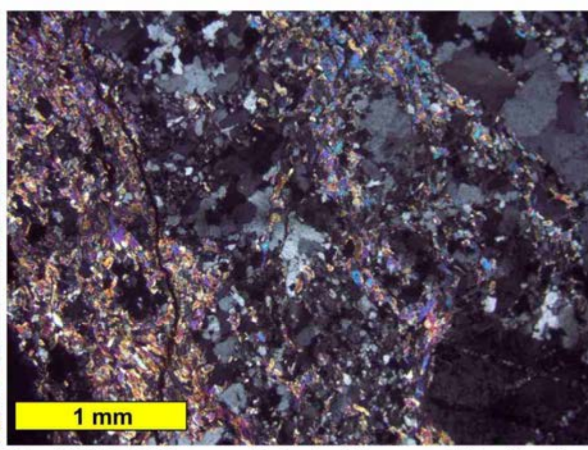

Fig. A3.5F: 40X; crossed nicols; Strong sericite alteration overprint; note that in this example the sericite stringers are parallel to quartz veining (right).

Figure A3.5 – Petrography

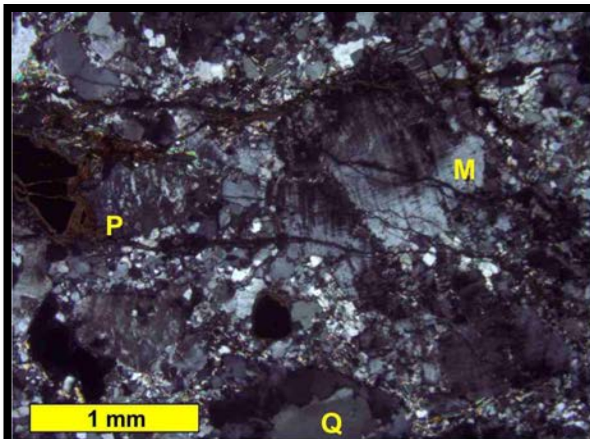

Fig. A3.6A: 40X; crossed Nicols; Porphyritic texture with microcline (M), perthite (P) and polycrystalline quartz (Q) phenocrysts in a fine-grained groundmass.

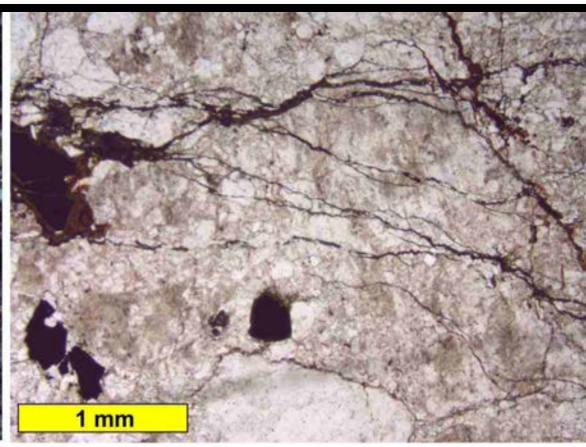

Fig. A3.6D: 40X; plane polarized light; Identical field of view as photo to left; here highlighting presence of secondary opaque minerals (pyrite) and hematite on fractures.

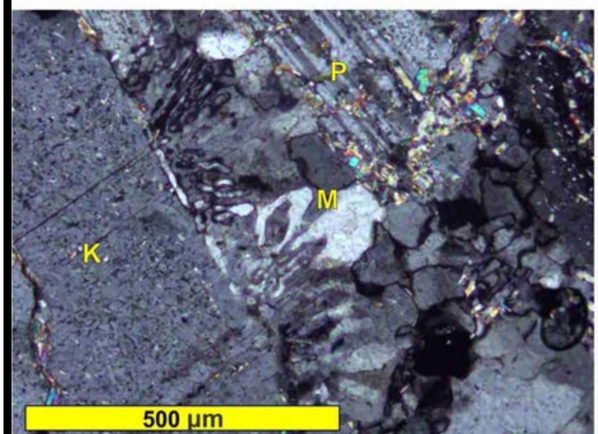

Fig. A3.6B: 100X; crossed nicols; Closeup of myrmekite (M) formed at contact between K-feldspar (K) and plagioclase feldspar (P) phenocrysts.

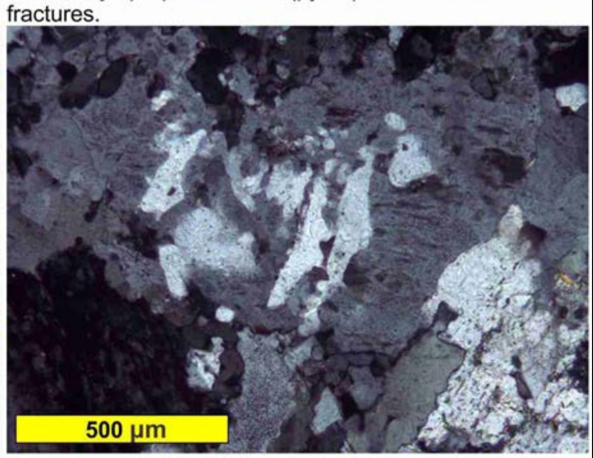

Fig. A3.6E: 100X; crossed nicols: Quartz exsolved from K-feldspar phenocrysts. Possibly myrmekite resulting from K-feldspar alteration of plagioclase.

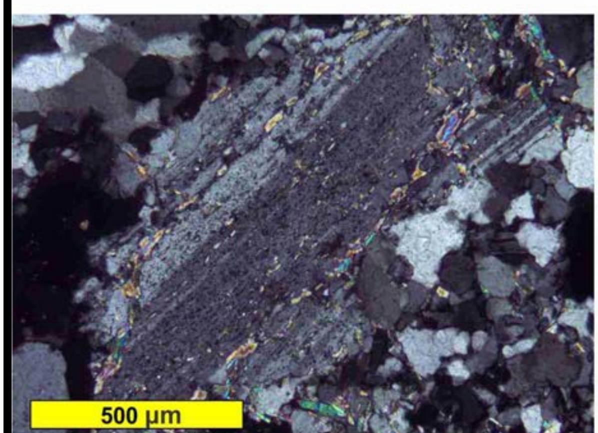

Fig. A3.6C: 100X; crossed nicols: >2mm subhedral plagioclase phenocryst affected by sericite alteration. Sericite is focussed along cleavage and twinning boundaries.

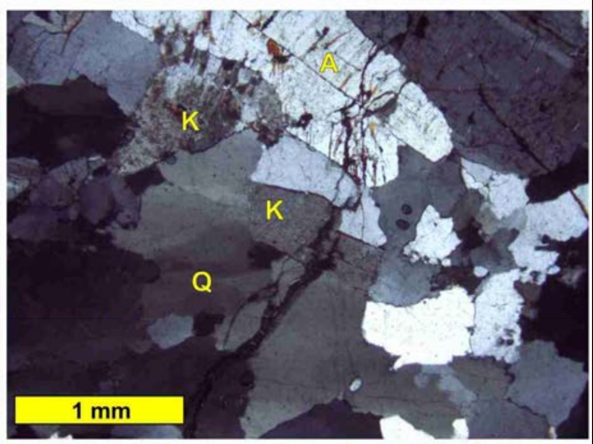

Fig. A3.6F: 40X; crossed nicols; Quartz (Q), K-feldspar (K), albite (A) vein.

Figure A3.6 – Petrography

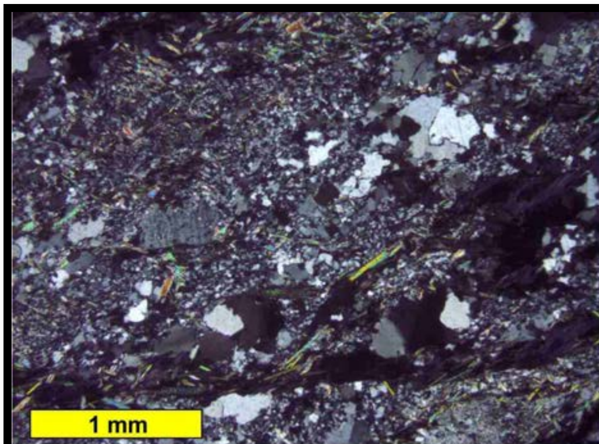

Fig. A3.7A: 40X; crossed nicols; Foliation forming chlorite and muscovite rich bands interspersed with fine-graned domains of quartz hosting angular feldspar.

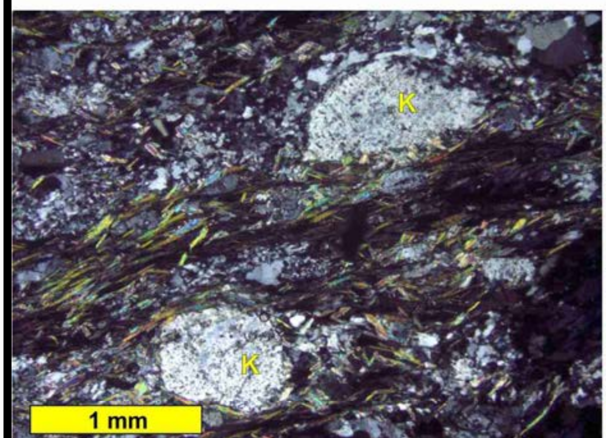

Fig. A3.7B: 40X; crossed nicols; K-feldspar (K) "augen" indicating that K-feldspar phenocrysts were present prior to alteration/deforation.

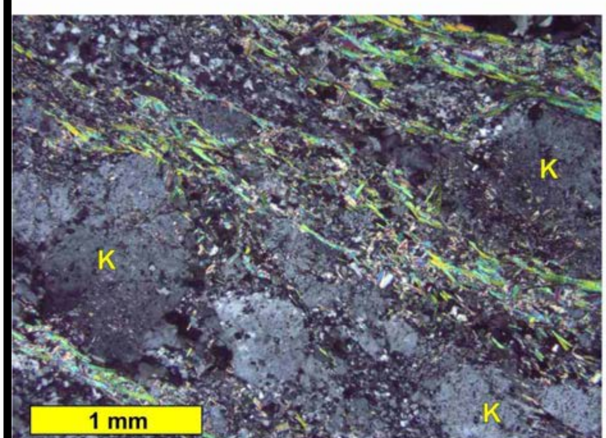

Fig. A3.7C: 40X; crossed nicols: Section of 10mm long, foliation parallel, coarse K-feldspar(K) domain.

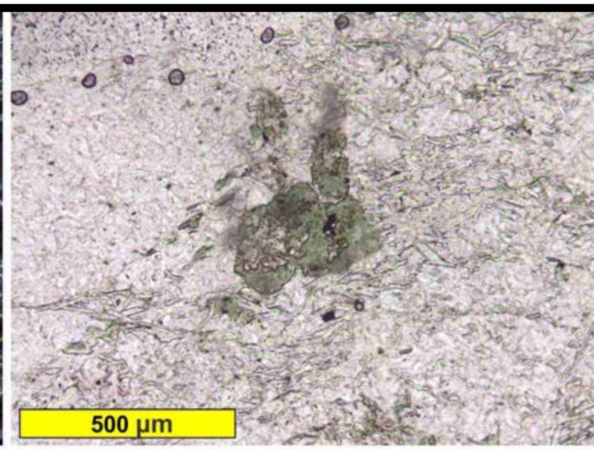

Fig. A3.7D: 100X; plane polarized light; Chlorite pseudomorph of FeMg silicate. Six-sided crystal form, low birefringence and parallel extinction in small remnant part indicate it may be orthopyroxene.

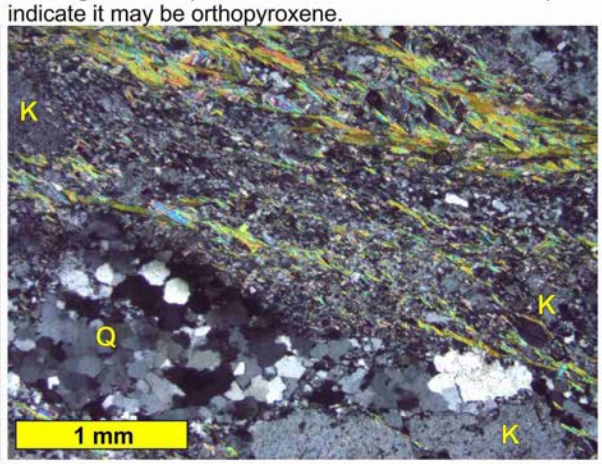

Fig. A3.7E: 40X; crossed nicols; Polygonal quartz (Q) and associated coarse K-feldspar (K); parallel to foliation.

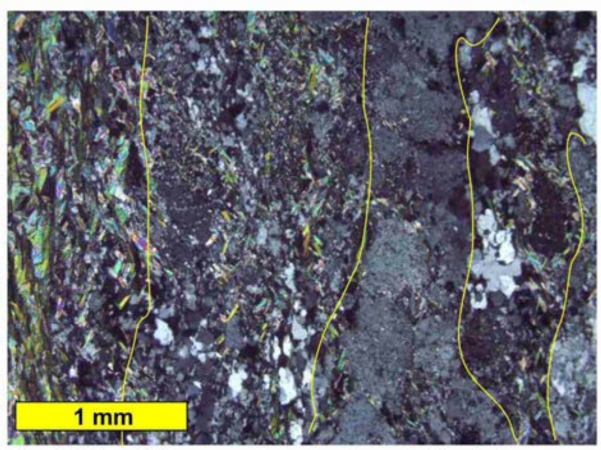

Fig. A3.7F: 40X; crossed nicols; From left to right: muscovite rich domain, fine grained quartz with angular feldspar, coarse K-felspar, polygonal quartz, coarse K-feldspar.

Figure A3.7 – Petrography

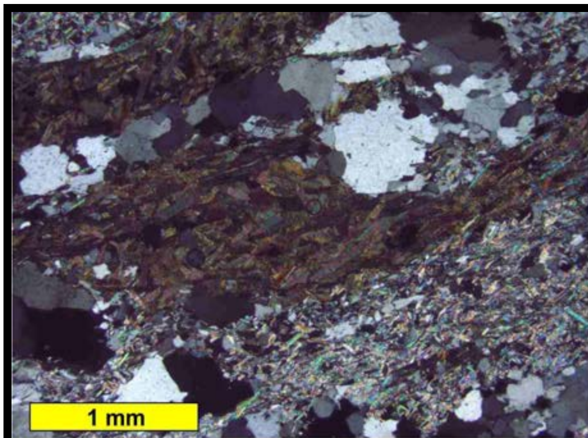

Fig. A3.8A: 40X; crossed nicols; Combined view of biotite-rich, fine-grained, and coarse-quartz domains.

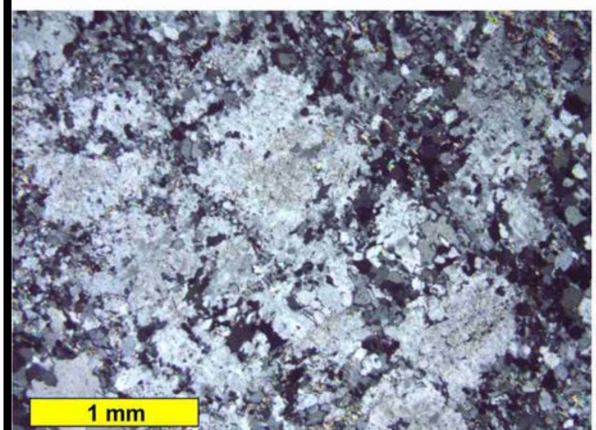

Fig. A3.8B: 40X; crossed nicols; large remnant K-feldspar crystal fractured and altered within fine-grained domain.

Fig. A3.8C: 40X; crossed nicols: Porphyroclast of highly strained quartz cross-cut by unstrained fine-grained quartz.

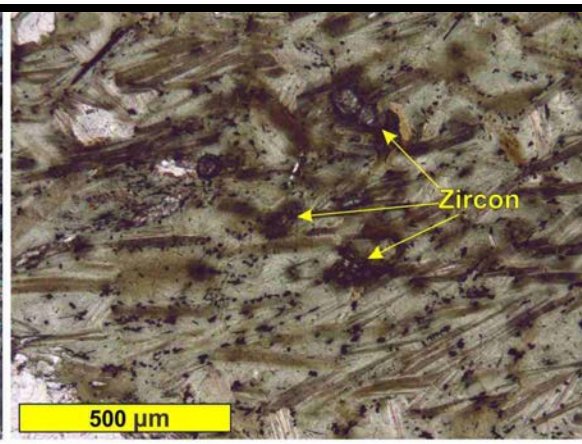

Fig. A3.8D: 100X; plane polarized light; Closeup of phyllosilicate domain. Biotite crystals are brown and chlorite full and partial pseudomorphs are green. Zircon noted.

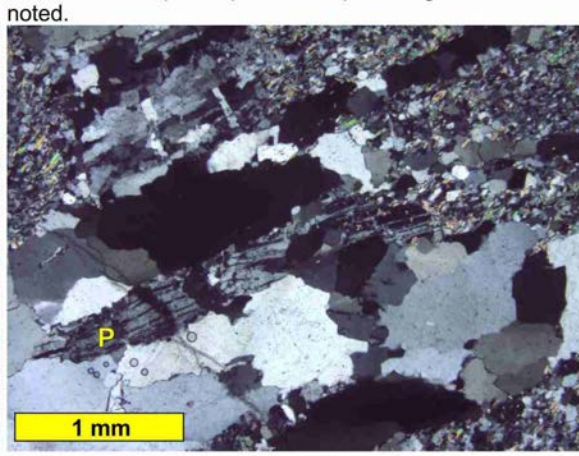

Fig. A3.8E: 40X; crossed nicols; Vein-like contact between coarse quartz and fine-grained domains. Coarse quartz domain has captured a highly strained plagioclase (P) crystal.

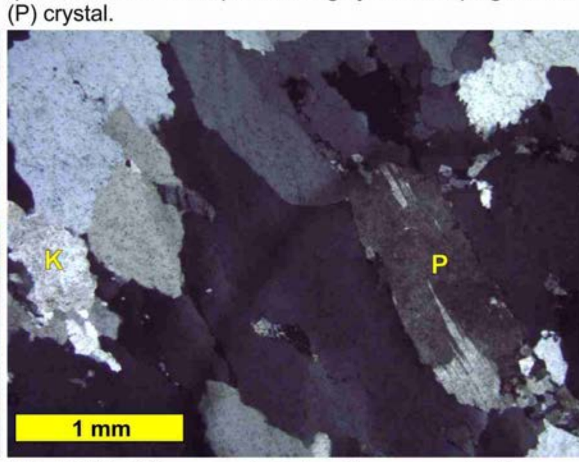

Fig. A3.8F: 40X; crossed nicols; Coarse quartz-rich domain with plagioclase (P) and K-fedlspar (K) crystals.

Figure A3.8 – Petrography

Fig. A3.9A: 40X; crossed nicols; Section of remnant medium-grained texture with serrate crystal margins, highly undulatory extinction in quartz, sub-grain rotation and visibly strained plagioclase crystals.

Fig. A3.9D: 40X; crossed nicols; Strained and bent plagioclase crystals. Muscovite stringer cutting medium-grained domain.

Fig. A3.9B: 100X; crossed nicols; Combined medium and fine grained domains. Note relative lack of strain in nearly granoblastic fine-grained domain compared to twisted plagioclase in medium-grained domain.

Fig. A3.9E: 40X; crossed nicols; Fine and medium grained domains.

Fig. A3.9C: 40X; crossed nicols: Sericite/muscovite stringers cutting fine-grained domain.

Fig. A3.9F: 40X; crossed nicols; Quartz (Q) vein with chlorite (C) in pressure shadow at contact with unstrained fine-grained domain.

Figure A3.9 – Petrography

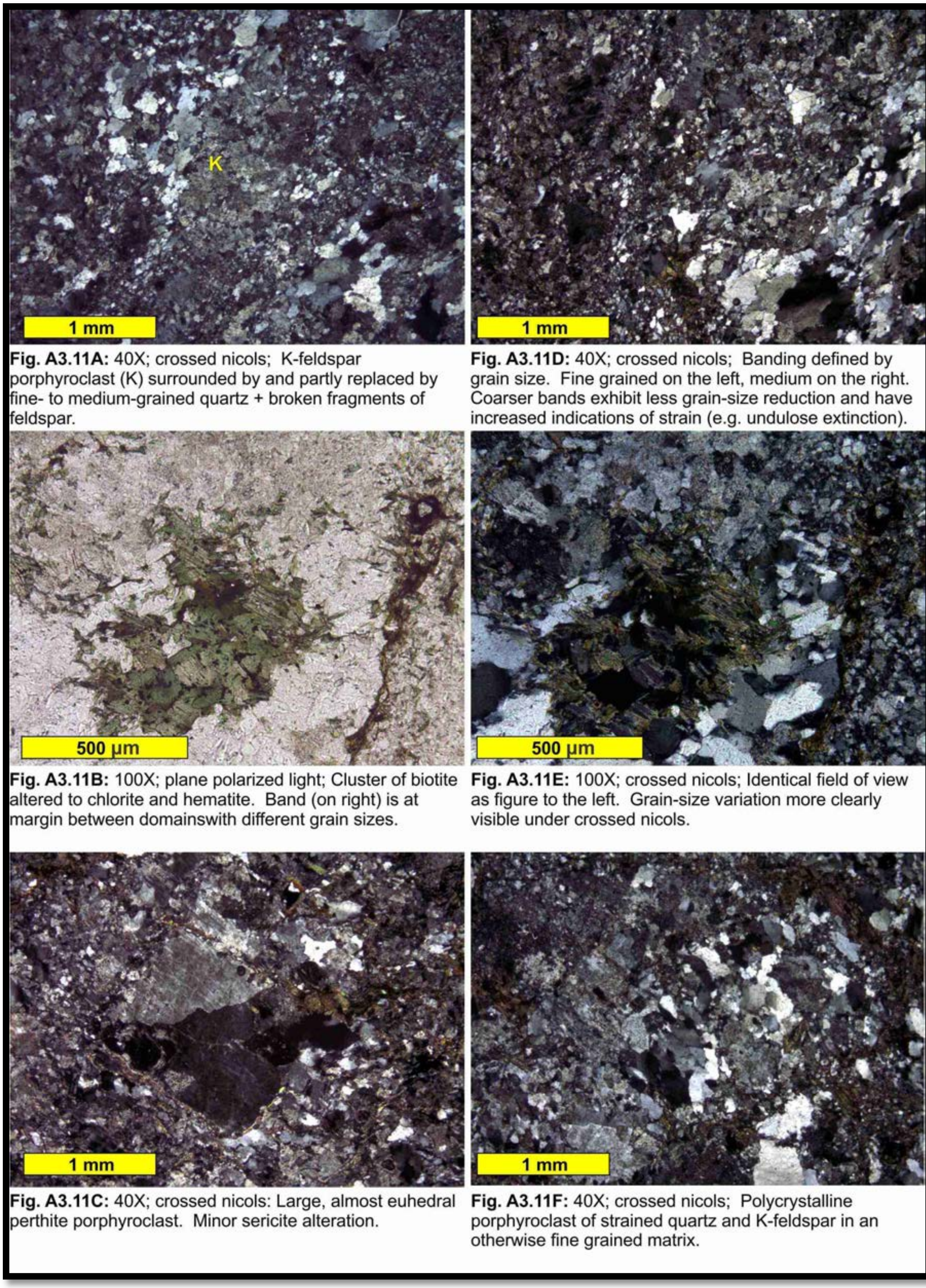

Fig. A3.11A: 40X; crossed nicols; K-feldspar porphyroclast (K) surrounded by and partly replaced by fine- to medium-grained quartz + broken fragments of feldspar.

Fig. A3.11D: 40X; crossed nicols; Banding defined by grain size. Fine grained on the left, medium on the right. Coarser bands exhibit less grain-size reduction and have increased indications of strain (e.g. undulose extinction).

Fig. A3.11B: 100X; plane polarized light; Cluster of biotite altered to chlorite and hematite. Band (on right) is at margin between domainswith different grain sizes.

Fig. A3.11E: 100X; crossed nicols; Identical field of view as figure to the left. Grain-size variation more clearly visible under crossed nicols.

Fig. A3.11C: 40X; crossed nicols: Large, almost euhedral perthite porphyroclast. Minor sericite alteration.

Fig. A3.11F: 40X; crossed nicols; Polycrystalline porphyroclast of strained quartz and K-feldspar in an otherwise fine grained matrix.

Figure A3.10 – Petrography

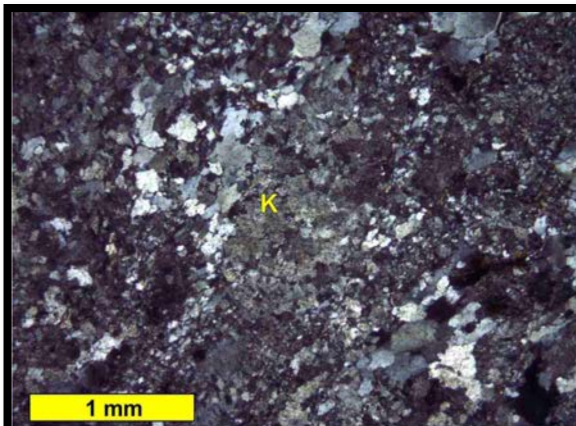

Fig. A3.11A: 40X; crossed nicols; K-feldspar porphyroclast (K) surrounded by and partly replaced by fine- to medium-grained quartz + broken fragments of feldspar.

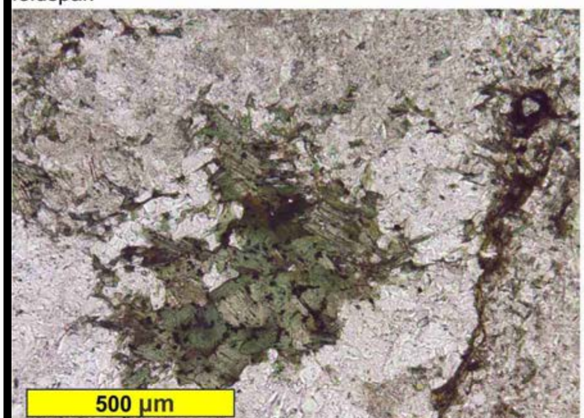

Fig. A3.11B: 100X; plane polarized light; Cluster of biotite altered to chlorite and hematite. Band (on right) is at margin between domainswith different grain sizes.

Fig. A3.11C: 40X; crossed nicols: Large, almost euhedral perthite porphyroclast. Minor sericite alteration.

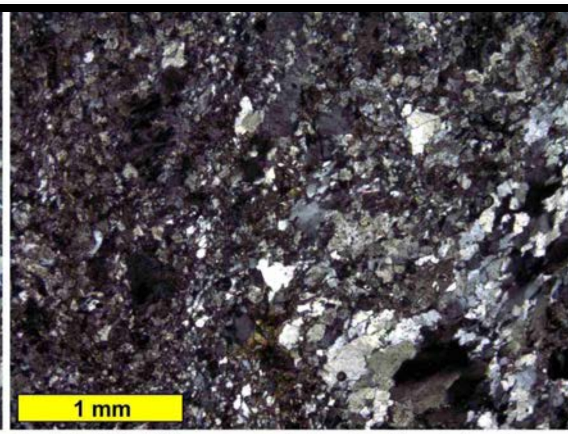

Fig. A3.11D: 40X; crossed nicols; Banding defined by grain size. Fine grained on the left, medium on the right. Coarser bands exhibit less grain-size reduction and have increased indications of strain (e.g. undulose extinction).

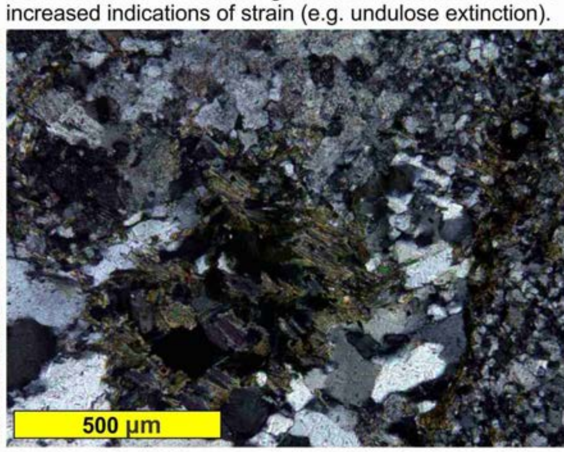

Fig. A3.11E: 100X; crossed nicols; Identical field of view as figure to the left. Grain-size variation more clearly visible under crossed nicols.

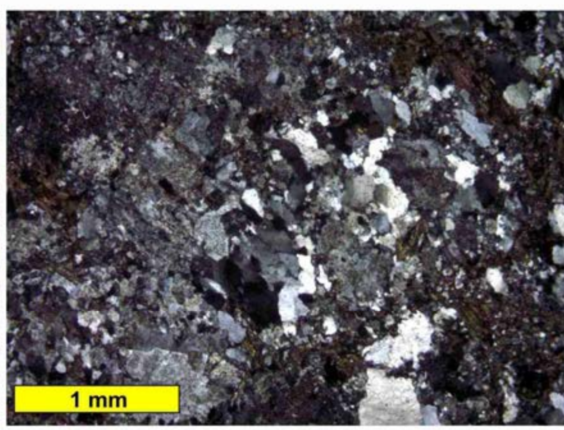

Fig. A3.11F: 40X; crossed nicols; Polycrystalline porphyroclast of strained quartz and K-feldspar in an otherwise fine grained matrix.

Figure A3.11– Petrography

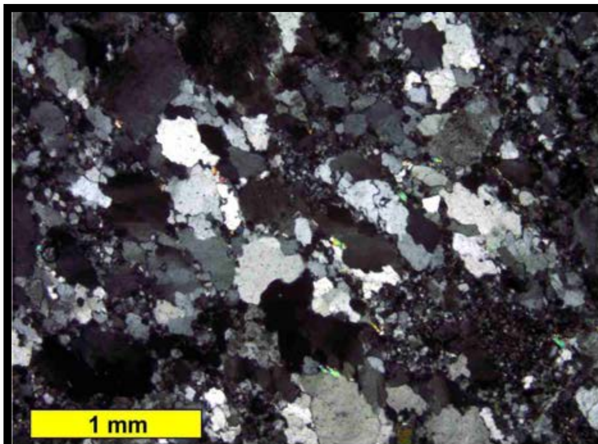

Fig. A3.12A: 40X; crossed nicols; 100-400 μm quartz grains with irregular sutured margins and <50 μm fine grained interstitial matrix (K-feldspar).

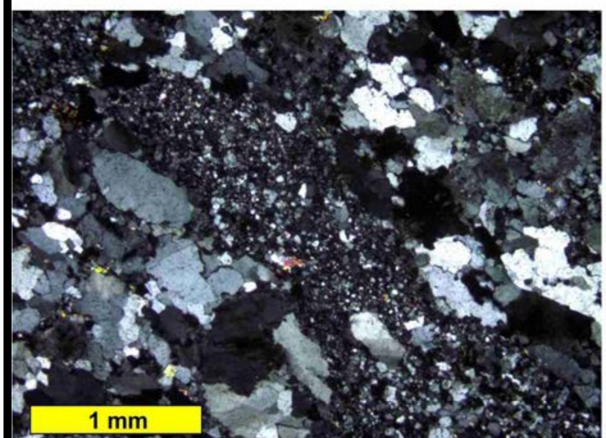

Fig. A3. 12B: 40X; crossed nicols; 500-800 μm thick lamination of silt-sized K-feldspar grains.

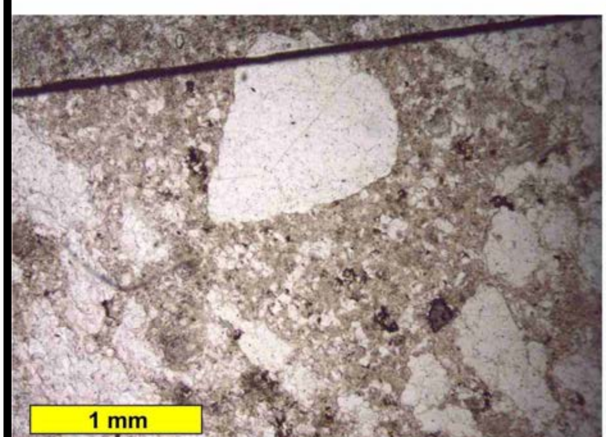

Fig. A3.12C: 40X; Plane polarized light: Turbid silty lamination with sub-rounded quartz and heavy mineral grains (sphene/zircon?) but primarily K-feldspar. Margins show coarse (clear) vs. fine (turbid) fractions.

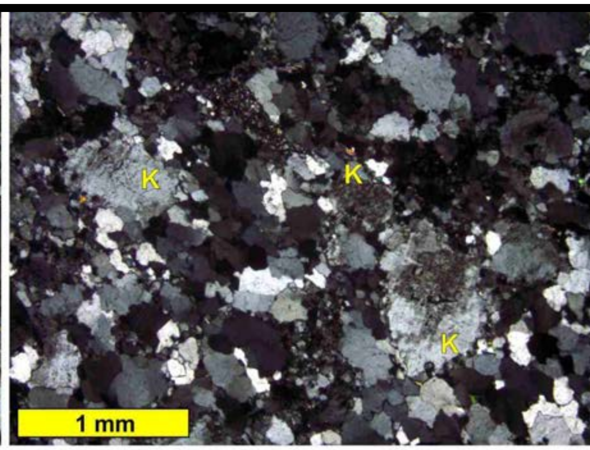

Fig. A3.12D: 40X; crossed nicols; Sub-rounded to sub-angular K-feldspar(K)/perthite grains in the coarse domain.

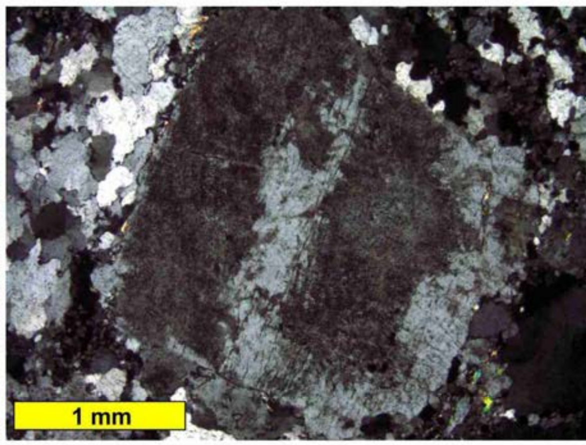

Fig. A3.12E: 40X; crossed nicols; 2.5mm diameter sub-angular K-feldspar grain with partly-preserved euhedral crystal form. This suggest a proximal source which is in stark juxtaposition to the quartz-rich nature of the rock.

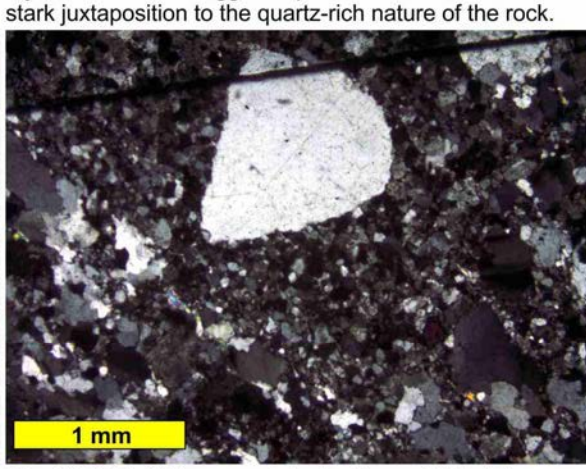

Fig. A3.12F: 40X; crossed nicols; Same field of view as photo to left but with crossed nicols.

Figure A3.12 – Petrography