Ministry of Energy, Mines & Petroleum Resources       Assessment Report         Mining & Mincrals Division       BC Geological Survey       Assessment Report         TYPE OF REPORT [type of survey(s)]: Geological Evaluation       TOTAL COST: 3,000         AUTHOR(S): Jeffrey D, Rowe       SIGNATURE(S):	BRITISH COLUMBIA The Best Place on Earth		T
Mining & Minerals Division       Assessment Report         BC Geological Survey       TotAL COST: 3,000         AUTHOR(s): Jeffrey D. Rowe       SIGNATURE(s):			Roy OGICAL SURVEY
AUTHOR(§): Jeffrey D. Rowe SIGNATURE(\$): YEAR OF WORK: 2015 YEAR OF WORK: 2015 TATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(\$)/DATE(\$): 5553028 / Apr 29, 2015  PROPERTY NAME: Holy Cross CLAIM NAME(\$) (on which the work was done): Dun (1027914), Scorpio (1027918), Van (1027920), Slow (1027922), Halen (1027925), Slayer (1027926), Sled-Head E (1027928), No GQ Man's Land (1031305) COMMODITIES SOUGHT: Gold, silver MINERAL INVENTORY MINFILE NUMBER(\$), IF KNOWN: MINING DIVISION: Omineca NTS/BCGS: 93F/15W LATITUDE: 53 ° 47 '30 '' LONGITUDE: 1224 ° 58 '00 '' (at centre of work) OWNER(\$): 1) Charles Greig 2) MALLING ADDRESS: 729 Okanagan Ave E., Penticton, BC V2A 3K7 OPERATOR(\$) (who paid for the word): 1) Charles Greig 2) MALLING ADDRESS: 729 Okanagan Ave E., Penticton, BC V2A 3K7 PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude): The Holy Cross property contains alteration and mineralization typical of that associated with a low sulphidation epithermal gold-silver system. Gold and silver occur within areas of silicified, quartz veined rhyolite of the Eocene Ootsa Lake Group.	Mining & Minerals Division BC Geological Survey		Assessment Report Title Page and Summary
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PROPERTY NAME: Holy Cross         CLAIM NAME(8) (on which the work was done): Dun (1027914), Scorpio (1027918), Van (1027920), Slow (1027922), Halen (1027925)         Slayer (1027926), Sled-Head E (1027928), No GQ Man's Land (1031305)         COMMODITIES SOUGHT: Gold, silver         MINIRRAL INVENTORY MINFILE NUMBER(8), IF KNOWN:         MINING DIVISION: Omineca         MINING DIVISION: Omineca         MALING ADDRESS:         729 Okanagan Ave E., Penticton, BC V2A 3K7         OPERATOR(8) [who paid for the work]:         1) Charles Greig         2)         MAILING ADDRESS:         729 Okanagan Ave E., Penticton, BC V2A 3K7         MAILING ADDRESS:         729 Okanagan Ave E., Penticton, BC V2A 3K7         PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):         The Holy Cross property contains alteration and mineralization typical of that associated with a low sulphidation epithermal gold-silver system. Gold and silver occur within areas of silicified, quartz veined rhyolite of the Eccene Ootsa Lake Group.	NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):		YEAR OF WORK: 2015
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CARTODE:       3.3       4.7       30       CONSTRUCT:       1224       38       00       (at centre of work)         OWNER(S):       1)       Charles Greig       2)		NTS/BCGS: 93F/15W	
OWNER(S):       1) Charles Greig       2)         MAILING ADDRESS:       729 Okanagan Ave E., Penticton, BC V2A 3K7	LATITUDE: 53 ° 47 '30 " LONGITUDE: 1224	• 58 '00 " (at centre of wo	ork)
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	Gold anomalies in soil and coincident IP resistivity and chargea	bility highs provide good exploration ta	gets.

### REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 17807, 19005A, 19278, 19627, 24228, 24732,

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping Historic Dat	a Evaluation	All	3000
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for)			
Soil			
Silt			
Rock			
Other			
DRILLING			
(total metres; number of holes, size) Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
<b>.</b>			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/			
Trench (metres)			
[Independent days (matrice)			
			3000

BC Geological Survey Assessment Report 35547

### **EXPLORATION DATA COMPILATION**

### AND GEOLOGICAL EVALUATION

for the

### HOLY CROSS PROPERTY

Omineca Mining Division Fraser Lake Area, Central British Columbia NTS Map Sheet 093F/15W 53° 47.5' North Latitude, 124° 58' West Longitude 370500E, 5962200N (UTM: NAD 83 Zone 10)

Prepared for

Charles J. Greig Owner and Operator

729 Okanagan Ave E., Penticton, B.C. V2A 3K7

By

Jeffrey D. Rowe, B.Sc. P.Geo.

C.J. Greig & Associates Ltd. 729 Okanagan Ave E., Penticton, B.C. V2A 3K7

July 31, 2015

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#### 1.0 SUMMARY

The Holy Cross Gold property consists of eight contiguous mineral tenures covering 1012.4 hectares located in the Nechako Plateau area of central British Columbia. The tenures are 100% owned by Mr. Charles Greig. The claim group is located approximately 145 kilometres west of Prince George and has excellent access provided by forest service logging roads extending from the village of Fraser Lake, 33 kilometres to the north.

Gold mineralization on the Holy Cross prospect was discovered in 1987 by Noranda Exploration Company, Ltd. Noranda conducted extensive geological, geochemical, geophysical and trenching programs in 1988 and 1989, identifying several areas of silicified, quartz veined rhyolite that returned numerous anomalous gold values from grab samples; some greater than 10 g/t Au. Samples collected from the Discovery zone, which is 500 m south of the claim boundary, returned an average gold analysis of 1.0 g/t over 8.5 metres. Exposures of alteration and mineralization on the property are typical of those associated with a low sulphidation epithermal gold-silver system. Alteration is generally restricted to the Ootsa Lake Group felsic volcanic rocks, consisting of banded and brecciated rhyolites that have been interpreted as a series of volcanic domes. Massive to drusy quartz and chalcedony veins from 2 to 5 mm and veins of Jasper up to 2 cm have been found cutting the rhyolite at several locations, in zones ranging up to 10 meters wide and containing 1-5% disseminated pyrite. Minor arsenopyrite, chalcopyrite and pyrrhotite and rare visible gold have also been observed.

Noranda allowed the claims to lapse and other companies, including Cogema Resources Inc., Phelps Dodge Corporation of Canada, Limited and Golden Cross Resources Inc., subsequently conducted limited exploration in the area of the property between 1995 and 2009. They identified additional showings of gold mineralization, with grab samples returning as much as 24.02 g/t Au, and defined significant Induced Polarization geophysical anomalies, but failed to follow up these targets with new trenching or diamond drilling. A number of significant, un-tested targets on the property have been identified by the author based on this evaluation of the historic exploration data.

This study relies on information collected from numerous sources including Geological Survey of Canada, BC Geological Survey and BC Ministry of Mines, as well as assessment reports and Minfile records. This report is a compilation and evaluation of the results of all previous work, and includes new geological, geochemical and geophysical compilation maps that were generated using geographic information system (GIS) software. The author recommends additional soil sampling and geophysical surveys in selected areas that have had little work, to be followed by trenching or diamond drilling of favourable targets.

# 2.0 LOCATION, ACCESS, PHYSIOGRAPHY, VEGETATION AND CLIMATE

The Holy Cross property is located in the Omineca Mining Division of central British Columbia, approximately 145 kilometres west of Prince George and 30 kilometres south of the village of Fraser Lake (fig. 1). The claims lie within the Nechako Plateau between Holy Cross Mountain and Bentzi Lake.

Access to the property is provided by the Holy Cross Forest Service Road that leaves Highway 16 approximately 7.5 kilometres east of Fraser Lake. Several branch roads head west onto the claims from the Holy Cross Forest Service Road, but most of these side roads are reported to be overgrown and are only suitable for foot traffic. These spur roads could be easily re-activated by clearing away the recent growth of underbrush.

Accommodation, along with basic supplies, labour and fuel are available in the village of Fraser Lake 30 kilometres to the north, or the town of Vanderhoof 70 kilometres to the northeast. Any specialized material, equipment or manpower requirements can be found in the city of Prince George, 145 kilometres to the east.

The Holy Cross property covers two low, east-northeast trending, gently to moderately sloping hills, located 2 to 6 km east-northeast of Holy Cross Mountain (fig. 2). Elevations range from 975 to 1410 meters. The property covers mainly the northern and eastern slopes of the two hills, encompassing forested as well as logged hillsides containing local ponds and small streams. Remaining forest cover consists primarily of pine, much of it infected by the Mountain Pine Beetle. Logging operations have been active throughout the region and moderately large clear-cut patches are present on the property, many of which appear to have been cut within the last ten years. Logging roads extend into most parts of the property, although some may have been reclaimed or overgrown.

Outcrop is present near hilltops where overburden is thin, but on the northern and eastern slopes of the hills outcrop is scarcer and overburden may be quite thick. Previous exploration activities approximately 25 years ago have included excavator trenching and road building in three or more areas of the property and it is not known if these disturbed areas have been reclaimed.

The area of the Holy Cross property has a temperate climate with warm summers and cold winters. Snowfall accumulation in this part of the province typically averages 0.5 meters in depth annually. Surface exploration work on the property is best carried out between April and late September.



Figure 1. Property location map

# 3.0 CLAIMS

The Holy Cross gold property consists of eight contiguous MTO mineral tenures covering 1012.4 hectares, located on NTS map-sheet 093F15W, centered at approximately 53 degrees 47.5 minutes North Latitude and 124 degrees 58 minutes West Longitude, or UTM co-ordinates 370500E, 5962200E (NAD83, Zone10). The claims were staked in April and October, 2014 and are all owned 100% by Charles Greig. Tenure details are listed in Table 1 and they are illustrated on Figure 2.

Tenure Number	Name	Issue Date	Good To Date	Hectares
1027914	Dun	2014/apr/29	2015/oct/25	19.10
1027918	Scorpio	2014/apr/29	2015/oct/25	38.20
1027920	Van	2014/apr/29	2015/oct/25	76.40
1027922	Slow	2014/apr/29	2015/oct/25	114.59
1027925	Halen	2014/apr/29	2015/oct/25	76.42
1027926	Slayer	2014/apr/29	2015/oct/25	133.68
1027928	Sled-Head E	2014/apr/29	2015/oct/25	152.79
1031305	No GQ Man's Land	2014/oct/02	2015/oct/02	401.22

Table 1. Holy Cross Property Mineral Tenures
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Figure 2. Mineral tenure locations

Assessment work requirements in British Columbia specify that, in the first three years of a claim's existence, exploration work in the amount of \$5.00 per hectare per year be completed. Double that amount (\$10.00 per hectare) of cash may be paid in substitution for exploration expenditures (cash in lieu). The claims are considered to be in anniversary year one and sufficient assessment work has been conducted to extend the expiry dates of most of the claims until October 25, 2015, based on acceptance of this report.

# 4.0 GEOLOGY

### 4.1 Regional Geology

The Holy Cross property is situated in the Nechako Plateau, which is at the northern end of the much larger Interior Plateau region of central British Columbia and is part of the Intermontane Belt. The Nechako Plateau is an area of subdued relief. Glacial drift is extensive and bedrock surface exposure is typically limited to 5-10%.

The geology of the area was first mapped at a regional scale of 1:250,000 by Tipper (1963). More detailed mapping in the area was conducted by Diakow and Webster (1994), Lane (1995) and Diakow and Levson (1997). The regional geology within the area extending up to about 20 km from the property is illustrated on Figure 3, which is derived from previous published mapping compiled by Massey et al. (2005).



Figure 3. Regional geology in the area of the Holy Cross property (Massey et al., 2005)

According to Lane & Schroeter (1997) the Nechako region is underlain by basement rocks of the Stikine Terrane comprised of remnants of superposed island arc volcanics and associated marine sequences that are assigned to the Lower Permian Asitka, the Upper Triassic Stuhini and the Lower and Middle Jurassic Hazelton Groups.

During Middle Jurassic time, previous widespread volcanism ended and structural onlap of the Cache Creek Terrane onto Stikinia led to the formation of basinal settings. Initial deposits in these basins consisted primarily of shale, succeeded by chert dominated coarse clastic deposits characteristic of marine regression and fluvial-deltaic sedimentation, represented here by the Bowser Lake Group.

During Early Cretaceous time, shallow-marine sediments of the Skeena Group were deposited. Upper Cretaceous calc-alkaline volcanic rocks, represented in central Stikinia by the Kasalka Group, stratigraphically overlie the Skeena Group and mark the construction of a continental margin arc. This volcanism remained active until latest Late Cretaceous time.

Continental arc magmatism was re-established during Middle and Late Eocene time with eruption of the Ootsa Lake and Endako Groups. The Miocene and Pliocene Chilcotin Group followed the Endako Group and forms a broad lava plateau covering much of south-central British Columbia.

The area of the Holy Cross property contains exposures of most of the units described above and, as shown on Figure 3, the older volcanic and intrusive units are typically fault-bounded and possibly uplifted and exposed due to erosion of the capping Eocene to Pliocene volcanics.

The Nechako Plateau region has potential to host different styles of mineral deposits and in particular within the highly prospective Jurassic Hazelton Group and Eocene Ootsa Lake Group volcanic rocks, and their coeval intrusions, that are cut locally by intensive extensional faulting.

#### 4.2 Property Geology

The Holy Cross property is underlain by three groups of volcanic-sedimentary rocks ranging in age from Middle Jurassic to Eocene. In this region, during Early to Middle Eocene time, tectonic events resulted in hydrothermal activity that produced several localized areas of volcanic-hosted epithermal gold-silver mineralization.

The Holy Cross property is predominantly underlain by rhyolitic and andesitic volcanic and volcaniclastic rocks intruded, in the northern area, by a quartz monzonite stock and capped locally by basaltic flows (fig.4). The volcanic rocks have been previously mapped by Noranda geologists (Barber, 1989) as belonging to the Eocene age Ootsa Lake Group; however more recent mapping by Lane (1995) has classified some of the andesitic volcanics in the north part of the property as older Hazelton Group. Nevertheless, Lane's (1995) mapping does confirm that the significant mineral-bearing rhyolite unit is part of the Ootsa Lake Group, although the extent of the unit is not quite as widespread as shown on the Noranda maps. Within the property area Lane's (1995) mapping has Ootsa Lake volcanics apparently in unconformable contact with Hazelton volcanics.

Based on Lane's (1995) mapping the oldest rocks are on the north part of the property, comprising grey-green andesitic volcanic and epiclastic rocks of the Middle Jurassic Hazelton Group. These volcanics are generally massive flows but local, crystal-rich sections display weak



graded bedding and are interpreted to be reworked crystal tuffs. Thermal alteration (hornfelsing) has been noted near the contact with a quartz monzonite stock.

Figure 4. Property geology (Lane, 1995) and trench locations (Barber, 1989)

The lowermost Ootsa Lake volcanic unit consists of massive, locally feldspar phyric, maroon to grey colored andesite and massive basalt. The groundmass is composed of biotite, hornblende, epidote and feldspar with locally up to 15% plagioclase phenocrysts up to 3 mm in length. Up to 2% disseminated specular hematite occurs in the andesites with limited hematite veins up to 10 cm and trace pyrite and malachite. Sparse 2-10 mm white quartz veins cut the Ootsa lake andesites but mineralization has not been observed in them. Minor calcite and epidote veinlets fill fractures. Alteration includes chlorite and kaolinite which appears as bleaching and replacement of feldspar phenocrysts by kaolinite. This type of alteration is typical of an epithermal environment.

Overlying the andesitic unit are banded and brecciated rhyolites which have been interpreted as a series of volcanic domes (Donaldson, 1988) that form prominent resistant hilltops. The average strike of flow banding varies from 120 to 170 degrees with dips of 70 to 80 degrees southwest. The flow banded rhyolites are dark purple to maroon where unaltered and light purple, tan, buff or cream where argillically altered, with bands 1 to 2 mm in width. The rhyolite is typically very siliceous with many of the flow bands replaced by quartz. Rhyolite breccias may in part be syn-

depositional, caused by explosive volcanism, producing 1 mm to 5 cm angular to sub-angular fractured fragments of light purple, buff, tan, and cream coloured banded rhyolite in a dark purple-maroon fine grained matrix. However, some of the breccias appear to have been tectonically formed, as they are cemented by vein quartz and chalcedony with fragments typically kaolinized, sericitized or silicified.

Massive to drusy quartz and chalcedony veins from 2 to 5 mm and veins of Jasper up to 2 cm have been found cutting the rhyolite (Donaldson, 1988). Quartz veinlets in joints commonly strike 015 and 060 degrees and dip 60 to 80 degrees northwest. The Jasper veins strike 040 to 060 degrees and may contain up to 1% specular hematite. Mineralization within the rhyolites consists of less than 1% specular hematite and trace pyrite. Alteration typically consists of silicification and patchy kaolinite replacement with local areas of more pervasive kaolinite.

Interbedded with the rhyolites are lesser felsic lapilli and ash tuffs that exhibit a dark purple fine grained matrix usually with preferentially clay-altered clasts. More significant clay or silica alteration results in lighter-coloured matrix and clasts. Tuffs may contain up to 1% disseminated pyrite and 3% specular hematite. Local calcite and/ or epidote and/ or quartz carbonate veinlets cut these rocks.

Endako Group rocks lie unconformably over the Ootsa Lake Group. The Endako Group has been subdivided into three units but only one unit has been mapped on the property. It consists of massive, vesicular basalt that is fine grained, dark grey to black with up to 3% olivine phenocrysts about 2 mm in diameter. Vesicles make up 5% to 50% of the rock, it is relatively unaltered and it is not known to host mineralization.

Much of the northern part of the property is underlain by grey, massive, medium to coarse grained biotite quartz monzonite. Plagioclase phenocrysts 0.5 to 1 cm long are common and a hornblende phyric phase, containing prismatic hornblende phenocrysts 0.5 to 0.7 cm long, is also present. Felsic plutonic rocks have also been mapped from the northern part of the property with compositions ranging from syenite to quartz monzonite, but these are believed to be phases of the same biotite quartz monzonite body. The rocks are brown to light pink, coarse grained, equigranular, homogenous and fresh. This intrusion has been reported as early Middle Jurassic in age by Lane (1995).

Noranda identified two prominent circular features and several prominent NE and ENE trending linear features from an interpretation of Landsat imagery (Barber, 1989). Field checks apparently established that the circular features outlined rhyolite domes and the linear features were interpreted as fault structures. Several of the linear features appear to be terminated by the circular features, whereas others cut across the circular features. Aerial photographs and ground surveys revealed a series of NNE and NNW trending linear features which appear to cut all rock types and are possible evidence of a late stage tectonic event.

#### 5.0 MINERALIZATION

On the Holy Cross property and adjacent claims to the south, exposures of alteration and mineralization are typical of those associated with a low sulphidation epithermal system. Argillic alteration is generally restricted to areas within the Ootsa Lake felsic volcanic rocks. Locally it has been overprinted by silicification in zones ranging up to 10 meters wide and containing 1% to 5% disseminated euhedral pyrite (Chapman, 2009). Minor arsenopyrite, chalcopyrite and pyrrhotite and rare visible gold have also been observed. Alteration is centered on the Hilltop Zone on the west-central part of the Holy Cross property and extends southeasterly off the claims to the Discovery Zone, covering an area of over two square kilometres.

Silicification is most evident in the banded rhyolite flow units and rhyolite breccias that underlie the prominent, resistant knolls and hilltops. It is locally accompanied by fracture controlled drusy quartz veinlets, veins of banded quartz and jasper up to 10 cm wide, zones of quartz healed breccias and, less commonly, chalcedony veins, secondary brecciation, and specular hematite. Silicified zones that have returned anomalous gold and silver values locally contain up to several percent fine-grained, disseminated pyrite and commonly have fracture coatings of manganese oxides, limonite and hematite. All of these features have been interpreted by Chapman (2009) as evidence of several episodes of silicification. Veins and pervasively silicified zones are commonly enveloped for a few tens of metres by weakly to moderately clay-altered, sericitic and bleached wallrock. Peripheral to the bleached zones pervasive hematitic alteration has stained andesites and rhyolites dark maroon or purple.

The best grade gold and silver-bearing mineralization found to date is associated with banded vuggy quartz veinlets found in silicified volcanic rocks approximately 500m to the south of the property boundary (Discovery Zone). In this area a grab sample of silicified rhyolite with 5% disseminated pyrite (sample RR19) from near Trench TR-1 returned a value of 24.02 g/t gold and 20.8 g/t silver (Goodall, 2002). Also from TR-1, a grab sample of banded quartz and chalcedony (sample 54084) returned 9.56 g/t gold and 9.5 g/t silver (Payne 1996). TR-1 exposes banded, pyritic, quartz-jasper veins up to 10 centimetres in width occurring at an intersection of two lineaments trending approximately 035° and 120°. The quartz-jasper veins contain 10-15% disseminated pyrite within a zone of massive grey chalcedony and intense silicification that forms an alteration halo extending for tens of meters. Chip samples collected by Noranda (Barber, 1989) in this showing area returned 1.0 g/t gold over 8.5m and chip samples collected by Phelps Dodge (Payne, 1996) averaged 1.8 g/t gold and 47.8 g/t silver over 4 meters.

Goodall (2002) noted that arsenic values from some of his rock samples were weakly to moderately anomalous, reaching a high concentration of 318 ppm and roughly correlating with elevated gold values. Lead shows an association with silver and a weak correlation with gold. Other typical epithermal pathfinder elements such as antimony, mercury, barium and zinc were not elevated in any of Goodall's samples. One of the more significant samples collected from inside the Holy Cross property area was Goodall's sample JB17 located near trench TR-21, approximately 1000m northwest of the Discovery Zone. It returned 400 ppb Au and 5.0 ppm Ag from a grab sample of drusy quartz in maroon rhyolite. Results from 3 of the 5 trenches

excavated in the Hilltop Zone by Noranda are not publically available, so it is not known what, if any, significant gold values were returned from those targets.

### 6.0 PREVIOUS WORK

The first recorded exploration work in the area around the Holy Cross property was in 1987 when reconnaissance by Noranda Exploration Company, Ltd. ("Noranda") discovered a rhyolite dome from which several samples returned anomalous concentrations of gold. Noranda explored the property during 1988-89 with geological mapping, extensive soil sampling, magnetometer and IP surveys and trenching. They identified several areas of pervasively silicified, quartz veined rhyolite with anomalous gold, silver and copper values.

As part of their 1988 program Noranda collected 3,170 soil samples on northeast-oriented soil lines (Church & Savell, 1988) that covered the area of the current Holy Cross property as well as areas to the east, south and west. All samples were analyzed for Au, Ag, Cu, Pb and Zn and 621 of the samples were also analyzed for As, Sb, Mo and Ba. The results indicated zones of anomalous copper, silver and gold although these anomalies did not always coincide. Also, during two sampling campaigns in 1988, 663 rock grab samples were collected from outcrop and float and analyzed for gold and a suite of 30 elements (Donaldson, 1988) (Church & Savell, 1988). Silicified rhyolite and rhyolite breccia returned the best results, with values such as 7.12 a/t gold and 4.8 g/t silver from grabs of drusy quartz veins (Church & Savell, 1988). A magnetometer survey was completed in 1988 (Savell and Bradish, 1989) but was located to the east of the current Holy Cross property so the results are not pertinent to this report. In addition to the geochemical and geophysical programs Barber (1989) reported that nine bulldozer trenches were excavated in 1988. The results of the 1988 trenching were not made public, however, Barber's report on the 1989 trenching did show the trench locations and noted that Trench 1 (TR-1), excavated at the Discovery outcrop in 1988, returned 1.0 g/t gold over 8.5 metres from a silicified rhyolite breccia.

In 1989 Noranda conducted geological mapping and follow-up geochemical surveys, with totals of 770 rock samples and 1137 soil samples. Soils were analyzed for Au, Ag and Cu. Values >10 ppb Au, >1.0 ppm Ag and >75 ppm Cu were considered significant anomalies. In general, anomalous gold values occurred within larger areas of anomalous silver and copper values. Magnetometer and IP surveys were reportedly undertaken; however the data does not appear in assessment records, so is unavailable to the author. An additional 17 trenches (Trenches 10 to 26) were excavated by backhoe on a variety of geological, geochemical and geophysical targets. Barber (1989) concluded from the trench results that in general the IP anomalies are due to pyrite and/or silicification in the host rocks and soil geochemical anomalies reflect elevated Au, Ag and Cu in silicified, pyritized volcanics. The best result from the 1989 trenching program was 240 ppb gold over 2 meters. Silicified and quartz-veined zones with variable kaolinite, pyrite and sericite alteration were noted in several of the trenches. Barber (1989) made recommendations for further work, including extending the sample grid to the west to test the west side of the "dome", excavate additional trench targets and drill selected IP targets and linear features. However, Noranda did no further work on the property and the claims lapsed.

In 1995 Phelps Dodge Corporation of Canada, Limited optioned Cogema Resources Inc.'s property that covered much of the original Noranda ground. Fifty-two rock samples collected by Phelps Dodge included samples from the Discovery trench (TR-1), which is located 500 m south of the Holy Cross property. A grab sample from TR-1 returned 9.6 g/t gold and 28.1 g/t silver, and chip samples averaged 1.8 g/t gold and 47.8 g/t silver over 4 meters (Payne, 1996). A sample collected approximately 800 meters east of TR-1 returned 264 ppb Au, 50.0 ppm Ag. The best sample result from within the current Holy Cross property area was 24 ppb Au, 1.9 ppm Ag, which Phelps Dodge collected from Noranda trench TR-4.

In 1997 Phelps Dodge undertook geologic mapping, prospecting and collection of 24 rock samples. The work was undertaken primarily to the south and east of the current property and the sample values were relatively low, with the best sample returning 967 ppb gold from rhyolite crackle breccia with traces of pyrite and specular hematite (Fox, 1997). No further work was recommended and the property was returned to Cogema, which allowed the claims to lapse in 1999.

The key showings in the Holy Cross area were staked by Geoffrey Goodall in 2000 and 66 rock samples were collected in 2000 and 2001, mostly within 70 m of old Noranda trenches. Approximately 10% of the samples returned gold concentrations greater than 100 ppb, to a high of 2402 ppb. Silver concentrations ranged from detection limit to 20.8 g/t silver (Goodall, 2002).

In 2006 Golden Cross Resources Inc. acquired an option on claims that covered the main showings from Aegean Marine Consultants Ltd., a private company owned by Geoffrey Goodall. In 2007 Golden Cross carried out line cutting, IP, and magnetometer surveys over 22 line-km. This work located co-incident chargeability and resistivity anomalies along the western edge of the grid trending north-northwesterly over a length of 1200m and up to 400m in width (Chapman, 2008). The co-incident geophysical anomalies coincide closely with the mapped extent of the Ootsa Lake rhyolite unit, which contains most of the known mineral showings that are typified by strong silica alteration and sparse disseminated pyrite.

In 2009, IP and magnetometer surveys were again undertaken by Golden Cross, with 2 lines added to the south of the grid and extension of the 2007 lines 250m further to the west, totalling 12 line-km. The survey data showed that the original resistivity and chargeability anomalies are continuous to the west and to the south and they remain open to expansion. Some of the strong geophysical responses coincide with gold-bearing mineral showings in trenches or on surface, however, a number of the strongest responses have not been tested by trenching and there has never been any drill testing done on the property. Drilling was recommended by Chapman (2009) to evaluate the geophysical targets, however, there was no further work undertaken and the claims lapsed.

No other work has been recorded for this prospect and in April, 2014 new claims comprising the Holy Cross property were staked by Charles Greig to partially cover the areas of the main mineral occurrences and trenches.

### 7.0 PRESENT PROGRAM

The present study has comprised a compilation of exploration data from the area of the Holy Cross property, including exploration assessment reports, as well as government sponsored geological mapping, airborne geophysical survey data and Minfile reports. All sources are listed in Section 10.0 (References). As well, satellite imagery was viewed to determine glacial lineament directions to help interpret potentially glacially-transported soil geochemical anomalies. The objective was to compare geological, geochemical and geophysical data to help define favourable areas for future mineral exploration.

All available previous exploration data was entered into the MapInfo GIS system to facilitate overlaying of various layers of information onto base maps, allowing an evaluation of the relationships between known mineral occurrences and geological, geochemical, geophysical and topographic features. Maps for this report were produced using the GIS program. Based on the relationships noted in the mineralized areas, recommendations for further exploration on the rest of the property were formulated and are outlined in sections below.

#### **8.0 EVALUATION OF DATA FROM PREVIOUS EXPLORATION WORK**

Soil geochemical programs previously carried out by Noranda essentially covered all of the current Holy Cross property, with most of the samples collected at 50m stations with 200m line intervals (fig. 5). The Hilltop Zone area in the western part of the property has coverage at 25 x 100m, and only the northern and far west parts of the block are relatively sparsely sampled, with a wider-spaced grid measuring 50 x 400m. The northern area is underlain by quartz monzonite and Hazelton Group andesitic volcanics and there were no significant gold or copper anomalies on the wide-spaced lines, therefore no additional sampling is warranted in this area. An area to the west of the Hilltop Zone, 300-600m wide by 2000m long, also has relatively sparse soil sample coverage. This area is on the projected trend of the favourable rhyolite unit, therefore, additional soil sampling, spaced at 50 x 100m, is recommended in this area.



Figure 5. Historic soil grid coverage (corrected line locations) by Noranda (1998, 1989) with gold (red) and copper (blue) geochemical anomalies

Some of the Noranda soil geochemical data has been contoured on Figure 6, showing anomalies having gold values >50ppb and copper values >100 ppm overlain on the property geology. The geochemical plots indicate poor correlation between anomalous gold and copper even though minor chalcopyrite has been noted in some of the gold-bearing veins in the Discovery Zone (Barber, 1989). Numerous copper anomalies within the favourable Ootsa Lake Group volcanic rocks suggest that copper mineralization may be associated with the gold-silver bearing epithermal system but could have been deposited during separate overprinted events from those that deposited gold- and silver-rich zones. Metal zonation is common in epithermal deposits, with copper and other base metals occupying deeper levels of the system, giving way to precious metals at higher elevations (Buchanan, 1981); therefore, the copper anomalies may represent deeper parts of the mineralizing system. In support of this theory, the majority of the copper anomalies are located within areas mapped as the Ootsa Lake andesite unit, which underlies the rhyolite unit that hosts most of the gold anomalies and showings. The area underlain by rhyolite that extends northwesterly from the Hilltop Zone is lacking in gold and copper geochemical anomalies; however, this may be due to sparse soil sample coverage as discussed above, and additional sampling in this area is required.



Figure 6. Geology (Lane, 1995) with overlain gold & copper soil anomalies (Savell & Church, 1988), (Barber, 1989)

In order to evaluate possible glacial transport of soil anomalies, a map has been generated from the Noranda soil geochemical data, showing contoured gold and copper anomalies overlain on a plot of glacial direction symbols as derived from the BC Ministry of Energy, Mines and Petroleum Resources "Exploration Assistant" website (fig. 7). The glacial directions shown on the plot are mainly drumlinoid or fluting features and the ice direction on average is about 065°. The sources of the anomalies are expected to be up-ice (southwest) from the anomalous stations by as much as 50 to 100m in the Hilltop Zone where overburden is relatively shallow. Glacial smearing of the soil anomalies may extend greater distances in the eastern part of the property where overburden appears to be thicker.



Figure 7. Glacial directions (BCMEMPR Exploration Assistant) with overlain gold & copper soil anomalies, as well as trench locations (Savell & Church, 1988), (Barber, 1989) and interpreted possible gold zones (pink)

Surprisingly, the area of the Discovery trench (TR-1), with the highest gold values from rock samples, did not return any anomalous gold values (>50 ppb) in soil samples. As well, some of the strongest and most extensive gold-in-soil anomalies in the Hilltop Zone have not been tested by trenching. Trenches TR-2, TR-3 and TR-22 extend only partially across two of the gold anomalies, whereas TR-4 tested a copper anomaly. TR-21 was dug along the road near a gold anomaly but did not adequately test it. Three possible gold zones have been interpreted by the author on Figure 7 based on the up-ice edges of the soil anomalies, as well as the apparent trends of the anomalies and the orientations of some of the known mineral occurrences in the area. Based on these interpretations the previous trenches may have been located too far to the northeast to cut the source areas of the anomalous gold-in-soil. Additional trenching is recommended to test for gold mineralization up-ice from the soil geochemical anomalies.

There are no public records of the geologic mapping or sample results from trenches TR-2, TR-3 or TR-4 so it is not known if they encountered mineralization. Trench TR-22 intersected andesite and banded rhyolite, with kaolinite, sericite and pyrite alteration and local quartz veining. The trench was sampled over its entire length returning some anomalous values, such as 220 ppm Cu and 4.8 ppm Ag over 5m, but gold values were all relatively low, with a high of 35 ppb (Barber, 1989). This trench was oriented north-westerly, parallel to the possible mineral zone trend and it is recommended that future trenching be oriented north-easterly.

Induced Polarization (IP) resistivity and chargeability maps created for Golden Cross Resources Inc. in 2009 (Chapman, 2009) have been rectified to a UTM base (NAD 83, Zone 10) and combined with the contoured Au and Cu soil geochemical anomalies derived from Noranda's geochemical plots (Barber, 1989) (figs. 8 & 9).

Trench locations that had been drawn on the geophysical maps by Golden Cross (black lines) do not always coincide with the trench locations that were determined by this author (green lines), who utilized the detailed "ground-corrected" grid map in Barber's (1989) trench report and Google Earth satellite imagery. Trench locations will require GPS surveying in the field to confirm their exact locations.

The resistivity map (fig. 8) expresses resistivity highs with "warmer" coloured contours; for instance, yellow is >3000 ohm-m and light brown is >7000 ohm-m. The higher resistivity is believed to be caused by rocks of higher silica content and, in fact, the outline of the high resistivity does coincide well with the mapped area of silica-rich rhyolite and with areas of known silica alteration, such as the Discovery Zone. The areas of high resistivity continue to the edges of the survey grid to the northwest of the Hilltop Zone and to the west and southeast of the Discovery Zone, suggesting that the rhyolite unit continues in those directions. Chapman (2009) reported that geophysical targets were located by the 2007 and 2009 IP surveys that have no known surface expression; however, these targets were not followed up by Golden Cross Resources. The areas outside of the survey grid along trend from the resistivity highs also have high exploration potential and should be followed up with geological, geochemical and geophysical surveys.



Figure 8. IP resistivity (Chapman, 2009) with trench locations, gold & copper geochemical anomalies and interpreted possible gold zones (pink)

The IP chargeability map (fig. 9) shows areas of high chargeability in "warmer" colours, with light orange indicating >10 mV/V and red indicating >16 mV/V. The areas of high chargeability coincide closely with those of high resistivity. Elevated chargeability is commonly caused by sulphide grains in the rock and this is supported by descriptions of sparsely disseminated pyrite frequently seen in breccias or veins in the rhyolite unit. The localized very high chargeability areas in pink probably represent greater concentrations of sulphide minerals, such as pyrite, probably fairly close to surface. Pyrite is reported to be typically associated with the known gold showings and it is also significant that many of the gold-in-soil anomalies fall within zones of moderate to high chargeability. As illustrated on Figure 9, most of the strongest chargeability in the Hilltop Zone area has not been adequately tested by trenching and there has never been any drill testing of the targets at depth. The possible gold zones that are interpreted from soil geochemistry are shown on this figure to extend along the southwest flanks of the strongest chargeability anomalies, suggesting that these postulated zones may dip to the northeast with sulphide minerals present at depth causing the anomalies. Interpretation of the IP data, included in the Chapman (2009) report, may help determine if there is a down-dip orientation to the chargeability highs.



Figure 9. IP chargeability (Chapman, 2009) with trench locations, gold & copper geochemical anomalies and interpreted possible gold zones (pink)

Figure 10 illustrates the strong correlation of high chargeability with the Ootsa Lake Group rhyolite unit as mapped by Lane (1995). This correlation suggests that the rhyolite contains abundant zones of disseminated sulphide minerals, some of which have been revealed by trenching and others presumably covered by overburden or at shallow depths below surface. Rock samples collected by Goodall (2002) are also shown on the map and they indicate that most of the higher gold values from his samples fall within the chargeability highs. Areas of high chargeability extend to the north of the mapped rhyolite unit indicating that the contact of the rhyolite may, in places, be located farther to the north than shown on the map or that sulphide mineralization may extend into the underlying andesite unit along the northern contact zone.



Figure 10. Geology with overlain chargeability highs (>10 mV/V) (Chapman, 2009) and anomalous gold in rocks (Goodall, 2002)

The IP chargeability results also show distinct linear trends that are illustrated in Figure 11. These linear features may be related to structural breaks that could have initiated brecciation and localized mineralizing fluids. In the Hilltop Zone these linear chargeability features trend northwest and north-northeast. In the Discovery Zone there is a distinct east-west trend that projects onto the Holy Cross property to the west. To the southeast of the Discovery Zone, linear trends are southeasterly, extending onto the property and becoming stronger in intensity toward the edge of the survey. The figure also shows rock sample gold anomalies (Goodall, 2002) indicated by colour-coded diamond shapes. Significantly, most of the rock samples with anomalous gold values fall along, or near, the linear chargeability features. Realistically, the areas with the highest mineral potential may occur at the intersections of linear trends, therefore these represent good targets for additional detailed exploration.



Figure 11. IP chargeability highs exhibit linear trends and gold anomalies in rock samples (Goodall, 2002) commonly fall along these trends

Magnetics are plotted on Figure 12 along with the areas of IP chargeability highs >10 mV/V. Magnetic highs are shown in "warmer" coloured contours with light orange indicating >57500 nT and dark pink indicating >58000 nT. There is generally poor correlation between the magnetic highs and the areas of anomalous chargeability and resistivity. There are two large areas of strong magnetic susceptibility. The northern magnetic high trends northwesterly and coincides partially, along its northeast edge, with an area mapped as Hazelton Group andesitic volcanics. It has been noted that these Hazelton rocks are altered near the contact with an intrusion to the north, which may have introduced pyrrhotite or magnetic anomaly, to the east of the Discovery Zone, is more enigmatic. It is within an area of sparsely outcropping Ootsa Lake Group andesitic volcanics volcanics with nearby rhyolite outcrops. These units do not exhibit strong magnetic susceptibility in other areas; however, there is a possibility that the magnetic anomaly may be caused by a small, shallowly buried, magnetic mineral-bearing intrusive stock, perhaps coeval with the Ootsa Lake volcanics.



Figure 12. Magnetics with overlain chargeability highs (>10 mV/V) (Chapman, 2009) and trench locations

Gold-in-soil geochemical anomalies tend to be located along the western flanks of the magnetic highs (fig. 13). Although there is reported hematite associated with some of the gold-bearing mineralization there has been no report of more strongly magnetic minerals that would explain the magnetic anomalies seen in the survey. Therefore, due to the limited association of magnetic anomalies (highs or lows) with gold mineralization it appears that magnetic surveys are of lesser importance than IP surveys to help define areas of potential gold mineralization on the property. However, magnetics may prove useful for mapping of geologic units beneath the overburden cover.



Figure 13. Magnetics (Chapman, 2009) with trench locations, gold & copper geochemical anomalies and interpreted possible gold zones (pink)

### 9.0 CONCLUSIONS AND RECOMMENDATIONS

Geologic evidence, including host rock types, tectonic setting, alteration and style of mineralization, suggests that the Holy Cross property has the potential to host an epithermalstyle gold-silver deposit. Based on the evaluation of previous work, including geological, geochemical and geophysical surveys, the author believes that additional exploration is warranted to further assess the property.

Soil geochemical and Induced Polarization geophysical surveys are recommended on the west side and the southeastern part of the property, as shown on Figure 14, to add more detailed data where information is sparse or lacking. Approximately 300 soil samples on stations spaced at 50 x 100 m are estimated from the western area, and about 150 samples, at the same spacings, from the southeastern area. Lines should be oriented at 030° to mesh with, and extend, the historic Noranda grid. Additional IP surveying would continue the historic Golden Cross lines that were oriented east-west and spaced 200 m apart. Totals of approximately 8 line-km in the western area and 4.5 line-km in the southeastern area are estimated for geophysical work. Since it is relatively inexpensive, magnetometer surveying should be undertaken at the same time, on the same grid lines, to supplement the IP data and to add to the historic magnetic data. All new geophysical data should be integrated with the historic data if possible.



Figure 14. Proposed areas of soil sampling, IP and magnetometer surveys

Five trenches are recommended in the Hilltop Zone area to test the author's concept of possible un-explored gold zones near the up-ice edges of gold-in soil anomalies (fig. 15). As can be seen on the figure, previous trenching may not have extended far enough to the southwest to check for mineral zones from which gold particles were transported to the east-northeast in glacial sediments by the advancing ice. Figure 16 shows proposed trenches and gold anomalies overlain on a Google Earth satellite image on which the glacial ice direction is clearly evident. A total of approximately 800 linear metres of trenching is estimated and overburden depths are expected to be variable, but probably between one and three metres deep based on moderately abundant outcrop in the Hilltop Zone. Trench locations would be subject to GPS survey confirmation of the locations of anomalous soil stations and also the positions of the previously dug trenches. Additional trench targets may be generated by the proposed geochemical and geophysical work, which should precede the trenching program.



Figure 15. Proposed trench locations to test possible gold zones indicated by soil anomalies

Diamond drilling may be considered in place of the proposed trenching to test the geochemical and geophysical anomalies defined by the historic surveys. Drill holes would extend approximately along the same lines proposed for trenching but angled at -50° to the northeast or southwest. Holes would be 200 to 300 m deep, totalling about 1200 m.

Contingent on positive results from this program, a second stage program of expanded trenching and/ or diamond drilling would be warranted.



Figure 16. Satellite Image (Google Earth) with gold geochemical anomalies (red), possible gold zones (pink) and proposed trenches (yellow). Glacial ice direction, trending about 065°, is apparent on the image.

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\* All Assessment Reports are available on-line at http://aris.empr.gov.bc.ca/

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- \* Minfile descriptions are available on-line at http://minfile.gov.bc.ca/searchbasic.aspx
- \* All BC GSB publications are available on-line at http://www.empr.gov.bc.ca/MINING/GEOSCIENCE/PUBLICATIONSCATALOGUE/Pages/default.aspx

### **10.0 STATEMENT OF EXPENDITURES**

Holy Cross Cost Statement Apr 1 - Apr 29, 2015					
Exploration Work Type	Comment				<u>Totals</u>
Geological Consulting		Days	Rate	Subtotal	
J. Rowe - Geologist	Compile data, evaluate results, review glacial lineaments on				
	satellite image, write report	4	500.00	2000.00	
					2000.00
GIS Drafting		Days	Rate	Subtotal	
	Generate maps for report	2	400.00	800.00	
					800.00
Supplies	Office equipment, computer software rental			200.00	
					200.00
TOTAL EXPENDITURES					3000.00

# 11.0 AUTHOR'S QUALIFICATIONS

I, Jeffrey D. Rowe, of 2537 Evergreen Drive, Penticton, British Columbia, Canada, hereby certify that:

- 1. I am a graduate of the University of British Columbia with a B.Sc. (Honours) (Geological Sciences, 1975) and have practiced my profession continuously from 1975 to 1999 and from 2007 to present.
- 2. I have been employed in the geoscience industry for over 30 years, and have explored for gold and base metals in North America for both senior and junior mining companies, on exploration properties as well as at a producing mine.
- 3. I am a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia (license #19950).
- 4. 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.
- 5. I have no direct or indirect interest in the property described herein, nor do I expect to receive any.
- 6. I am the author of the report entitled; "Exploration Data Compilation and Geological Evaluation for the Holy Cross Property" dated July 31, 2015.

Dated at Penticton, British Columbia, this 31st day of July, 2015.

Respectfully submitted,

"J D Rowe"

Jeffrey D. Rowe, B.Sc., P.Geo.