

**Technical Report  
On the  
Iron Creek Property  
Lemhi County, Idaho**

**Prepared for  
Scientific Metals Corp.**  
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**December 15th, 2016**

## TABLE OF CONTENTS

Item 1: Summary .....	5
Item 2: Introduction.....	6
Item 3: Reliance on Other Experts .....	6
Item 4: Property Description and Location.....	7
Item 5: Accessibility, Climate, Local Resources, Infrastructure and Physiography .....	9
Item 6: History .....	12
Item 7: Geological Setting and Mineralization.....	18
7.1 Regional Geology .....	18
7.2 Property Geology.....	19
7.3 Mineralization.....	26
Item 8: Deposit Types .....	27
Item 9: Exploration .....	28
Item 10: Drilling .....	28
Item 11: Sample Preparation, Analysis and Security.....	28
Item 12: Data Verification.....	29
Item 13: Mineral Processing and Metallurgical Testing.....	30
Item 14: Mineral Resource .....	31
Item 15: Mineral Reserve Estimates.....	31
Item 16: Mining Methods.....	33
Item 18: Project Infrastructure.....	33
Item 19: Market Studies and Contracts.....	33
Item 20: Environmental Studies, Permitting and Social or Community Impact .....	33
Item 21: Capital and Operating Costs .....	33
Item 22: Economic Analysis .....	33
Item 23: Adjacent Properties .....	34
Item 24: Other Relevant Data and Information .....	34
Item 25: Interpretation and Conclusions .....	35
Item 26: Recommendations.....	35
26.1: Proposed Budget.....	36
Item 27: References .....	37
Item 28: Certificate of Qualifications.....	39

**LIST OF TABLES**

**Table 1: Iron Creek Property Unpatented Claims.....8**  
**Table 2. Author’s Samples from Property Visit .....29**  
**Table 3: Historical Reserve Estimates .....32**

**TABLE OF FIGURES**

**Figure 1. Iron Creek Property Location..... 10**  
**Figure 2. Iron Creek Property Claims ..... 11**  
**Figure 3. Regional Geology..... 16**  
**Figure 4. Property Compilation and Geology ..... 17**  
**Figure 5. No Name Zone Compilation .....23**  
**Figure 6. No Name Zone Underground Development.....24**  
**Figure 7: Long Section through No Name Zone.....25**

**DATE and SIGNATURE PAGE**

This report titled “Technical Report on the Iron Creek Property, Lemhi County, Idaho”, and dated December 15th, 2016 was prepared and signed by the following author:

Dated at Thunder Bay, Ontario  
December 15th, 2016

“Desmond Cullen”

Desmond Cullen, P.Geol.

**Item 1: Summary**

The Iron Creek Property (the “Property”) of Scientific Metals Corp. (“STM”) is located about 29 kilometres (18 miles) southwest from Salmon, Idaho, and encompasses 137 acres in seven patented lode mining claims, and 1131 acres in 58 unpatented claims, totalling 1,268 acres. The unpatented claims (100%) are held in good standing by Idaho Cobalt Co. of Boise Idaho, a wholly owned subsidiary of STM. STM has entered into an arm's-length letter agreement with Chester Mining Company (OTC: CHMN) providing STM with exclusive rights to enter into a lease agreement with an option to acquire a 100-per-cent interest in the patented claims.

The Property lies within the Blackbird copper-cobalt district, within the most prolific trend of cobalt mineralization in the U.S., the Idaho Cobalt Belt. The property shares similar geology and structure with other deposits in the 40-mile-long Belt, including the Blackbird mine and the proposed Idaho Cobalt Project of e-Cobalt Solutions.

The main mineralized zone on the Property is referred to as the No Name Zone, and is a steeply dipping, tabular zone containing a “swarm” of en-echelon layers and lenses composed of copper, iron, and cobalt sulphides, and magnetite. This body, though only partly explored by drilling and underground development, is known to extend at least 3,500 ft (1066 m) in length and 800 ft (244 m) in depth, with varying widths of 30 to 100 ft (9 to 30 m). The Zone and its massive-sulphide components are concordant primarily with the flanking metasedimentary rocks, implying a syngenetic origin.

A substantial amount of historical exploratory work has been completed on the property, including the development of approximately 1,500 feet of underground workings. Exploration by several companies since the 1940s, including Hanna Mining, Noranda Exploration Inc. and Cominco, has identified a number of significant cobalt, a key component in lithium-ion batteries, and copper targets on the property.

STM is proposing to conduct further diamond drilling targeting the No Name Zone in the area of the existing underground workings. The purpose of this would be partly to confirm previous drilling results and test sampling and analytical procedures, and also to expand the zone of known mineralization and to add to the drill core database to eventually conduct a N.I. 43-101 compliant ore reserve calculation.

**Item 2: Introduction**

Desmond Cullen, P. Geo, of Kaministiquia, Ontario was contracted by Scientific Metals Corp. ("STM"), to review historic data for the Iron Creek Property (the "Property"), identify its merits, propose an appropriate exploration program and budget for gold exploration on the property, and prepare a Technical Report (the "Report") compliant with NI 43-101 and suitable for the purposes of a financing document for STM.

The Property is located about 29 kilometres (18 miles) southwest from Salmon, Idaho, and encompasses 137 acres in seven patented lode mining claims, and 1131 acres in 58 unpatented claims, totalling 1,268 acres. The unpatented claims (100%) are held in good standing by Idaho Cobalt Co. of Boise Idaho, a wholly owned subsidiary of STM. STM has entered into an arm's-length letter agreement with Chester Mining Company (OTC: CHMN) providing STM with exclusive rights to enter into a lease agreement with an option to acquire a 100-per-cent interest in the patented claims.

The Iron Creek project lies within the Blackbird copper-cobalt district, within the most prolific trend of cobalt mineralization in the U.S., the Idaho Cobalt Belt. The property shares similar geology and structure with other deposits in the 40-mile-long Belt, including the Blackbird mine and the proposed Idaho Cobalt Project of e-Cobalt Solutions.

A substantial amount of historical exploratory work has been completed on the property, including the development of approximately 1,500 feet of underground workings. Exploration by several companies since the 1940s, including Hanna Mining, Noranda Exploration Inc. and Cominco, has identified a number of significant cobalt and copper targets on the property.

**Item 3: Reliance on Other Experts**

The author has relied on previous exploration reports as referenced in Section 27.0 References. In most cases these reports pre-date National Instrument 43-101 and the authors of these reports are not necessarily qualified persons as defined by NI 43-101. After reviewing the reports and associated data the author is satisfied the data presented is accurate.

For the purposes of this report the author has relied on ownership information provided by STM. The author has not researched property title or mineral rights for the property and expresses no opinion as to the ownership status of the property.

**Item 4: Property Description and Location**

The Property is located about 29 kilometres (18 miles) southwest from Salmon, Idaho and encompasses 137 acres in seven patented lode mining claims, and 58 unpatented claims totalling 1131 acres, for a total Property area of 1,268 acres . The unpatented claims (100%) are held in good standing by Idaho Cobalt Co. of Boise Idaho, a wholly owned subsidiary of STM, and are listed in Table 1 below.

According to the Mining Lease Agreement dated August 23<sup>rd</sup>, 2016, the patented claims are described as: Iron #143, Iron #135, Iron #182, Iron #136, Iron #118, Iron #189, and Iron #144 of the Idaho Mineral Survey No. 3613, embracing a portion of section 20 and 21, Township 19 North, Range 20 East, B.M., Parcel #RP9900000109A, located in the Blackbird Mining District, Lemhi County, Idaho.

Under the terms of the lease agreement for the patents, STM shall pay to the Chestor Mining Company (the "vendor") the sum of US\$45,000 upon signing of the lease agreement and the vendor shall retain a 4% net smelter return ("NSR") in the Property. STM shall pay the vendor advance royalty payments on the NSR of US\$3,000 per month for the first two years of the lease agreement, increasing to US\$4,000 per month for the subsequent two years, and US\$5,000 per month for subsequent years. At any time during the term of the lease, STM shall have the right to purchase a 100% interest in the Property and reduce the NSR held by the vendor from 4% to 1%, all for consideration of a cash payment US\$1,500,000. The NSR may subsequently be purchased by STM for a cash payment of US\$500,000 for every 1% NSR elected to be acquired by STM. In connection with this transaction, a cash finder's fee shall be payable to an arm's length party in accordance with the policies of the TSX Venture Exchange.

Because the Property is located within the Salmon National Forest, STM is in communication with Forest Service Rangers for guidance in ensuring that the Company is in compliance with all regulations and protocols. It is understood that water and particulates from any drilling or other work should be prevented from entering any body of water, such as Iron Creek, without first being treated so that there is no sedimentation or other contaminants entering the water. At this time it is the author's understanding that no permits are required for the proposed work except a snow removal permit for the six mile portion of the 045 Road south of the patented claims.

**Table 1: Iron Creek Property Unpatented Claims**

<b>Serial No.</b>	<b>Claim</b>	<b>Claim Size (acres)</b>	<b>Serial No.</b>	<b>Claim</b>	<b>Claim Size (acres)</b>
IMC215856	BR 58	20.66	IMC215886	BR 30	20.66
IMC215857	BR 1	20.66	IMC215887	BR 31	20.66
IMC215858	BR 2	20.66	IMC215888	BR 32	20.66
IMC215859	BR 3	20.66	IMC215889	BR 33	20.66
IMC215860	BR 4	20.66	IMC215890	BR 34	20.66
IMC215861	BR 5	20.66	IMC215891	BR 35	20.66
IMC215862	BR 6	20.66	IMC215892	BR 36	11.225
IMC215863	BR 7	20.66	IMC215893	BR 37	20.66
IMC215864	BR 8	20.66	IMC215894	BR 38	16.033
IMC215865	BR 9	20.66	IMC215895	BR 39	20.66
IMC215866	BR 10	20.66	IMC215896	BR 40	20.66
IMC215867	BR 11	20.66	IMC215897	BR 41	20.66
IMC215868	BR 12	20.66	IMC215898	BR 42	20.66
IMC215869	BR 13	20.66	IMC215899	BR 43	20.66
IMC215870	BR 14	20.66	IMC215900	BR 44	20.66
IMC215871	BR 15	20.66	IMC215901	BR 45	20.66
IMC215872	BR 16	20.66	IMC215902	BR 46	10.888
IMC215873	BR 17	20.66	IMC215903	BR 47	16.598
IMC215874	BR 18	20.66	IMC215904	BR 48	18.705
IMC215875	BR 19	20.66	IMC215905	BR 49	20.66
IMC215876	BR 20	20.66	IMC215906	BR 50	20.66
IMC215877	BR 21	20.66	IMC215907	BR 51	14.476
IMC215878	BR 22	4.628	IMC215908	BR 52	20.66
IMC215879	BR 23	20.66	IMC215909	BR 53	20.66
IMC215880	BR 24	20.66	IMC215910	BR 54	20.66
IMC215881	BR 25	5.51	IMC215911	BR 55	20.66
IMC215882	BR 26	20.66	IMC215912	BR 56	20.66
IMC215883	BR 27	20.66	IMC215913	BR 57	20.66
IMC215884	BR 28	20.66		<b>Total</b>	<b>1131.063</b>
IMC215885	BR 29	20.66			

### **Item 5: Accessibility, Climate, Local Resources, Infrastructure and Physiography**

The Iron Creek project is located 29 kilometres (18 miles) southwest of Salmon, Idaho, in Lemhi County (Figure 1). It is in the Salmon National Forest in unsurveyed sections 16, 17, 20, 21, 22, 27, 28, and 29, Township 19 North, Range 20 East, Boise Meridian. A total of 58 unpatented lode claims and seven patented lode claims constitute the claim group which covers approximately 1,268 acres (see Figure 2).

Access to the property is south 37 kilometres (23 miles) from Salmon on Highway 93, then west on a well-maintained gravel road along Iron Creek. The No Name Zone workings are along Iron Creek 17 kilometres (11 miles) from Highway 93. Access throughout the claim group is good because of a network of logging roads and previously constructed drill roads.

Salmon is a town of just over 3000, with the main industries being tourism, ranching and agriculture, and some logging and mining. There are a number of small mining contractors in the region, with easy access to larger urban centres.

Elevations within the project area range from 6,600 ft (2000 metres) along Iron Creek to over 8,300 ft (2500 metres) near the north end of the claim group. Heavy vegetation covers the bulk of the project area with outcrops restricted to less than 15% of the surface. Douglas fir predominates at the lower elevations with lodge pole pine increasing in abundance at higher elevations. Underbrush includes Nine Bark Brush on the north-facing slopes and pine grass on the south-facing slopes.

Annual precipitation ranges from 24 inches (60 centimetres) per year in the lower elevation to 30 inches (76 centimetres) per year in the upper elevations. Of this, 70% falls as snow. Average winter snowpack is three to four feet (90 to 120 centimetres).

Figure 1. Iron Creek Property Location

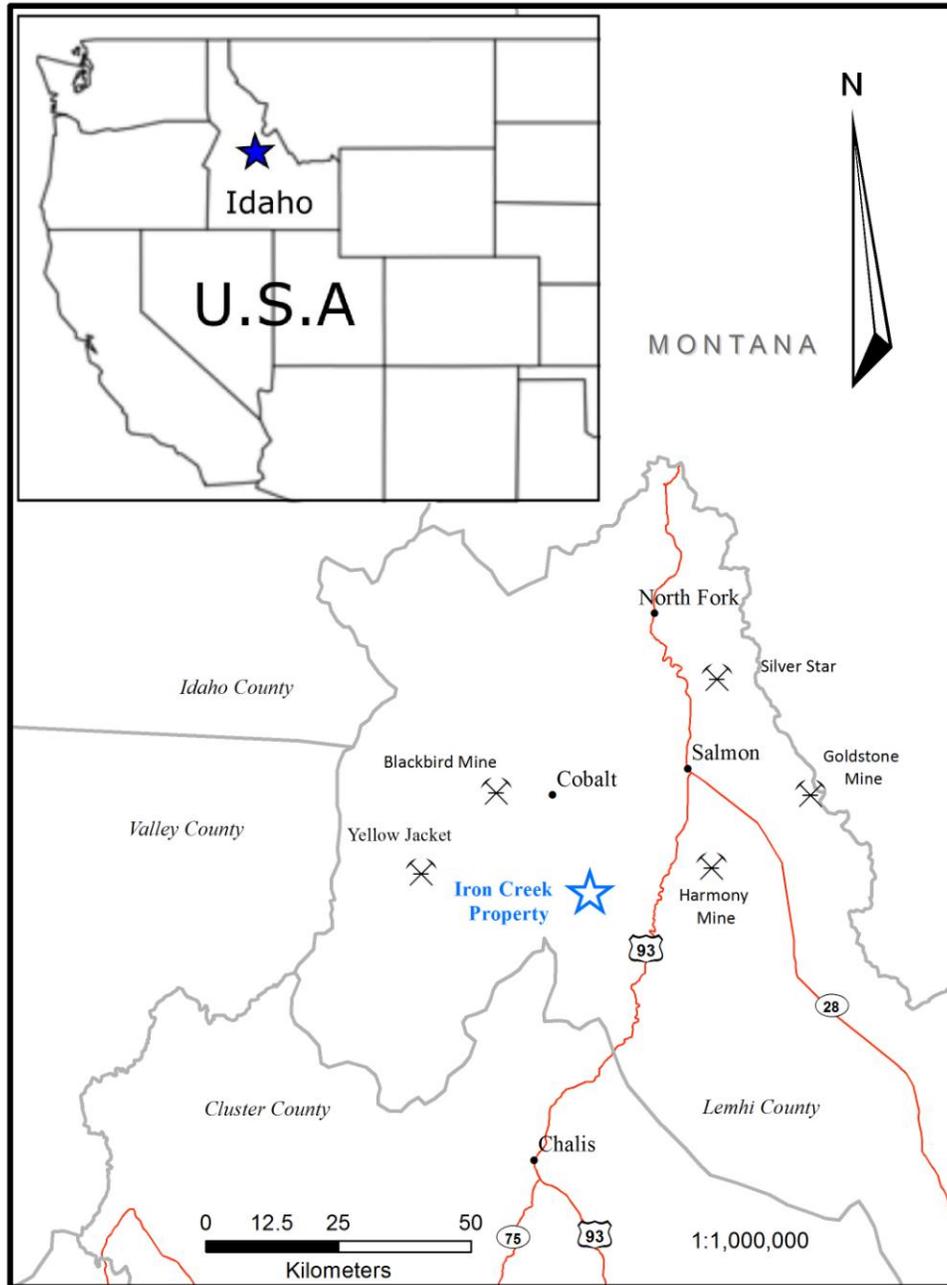
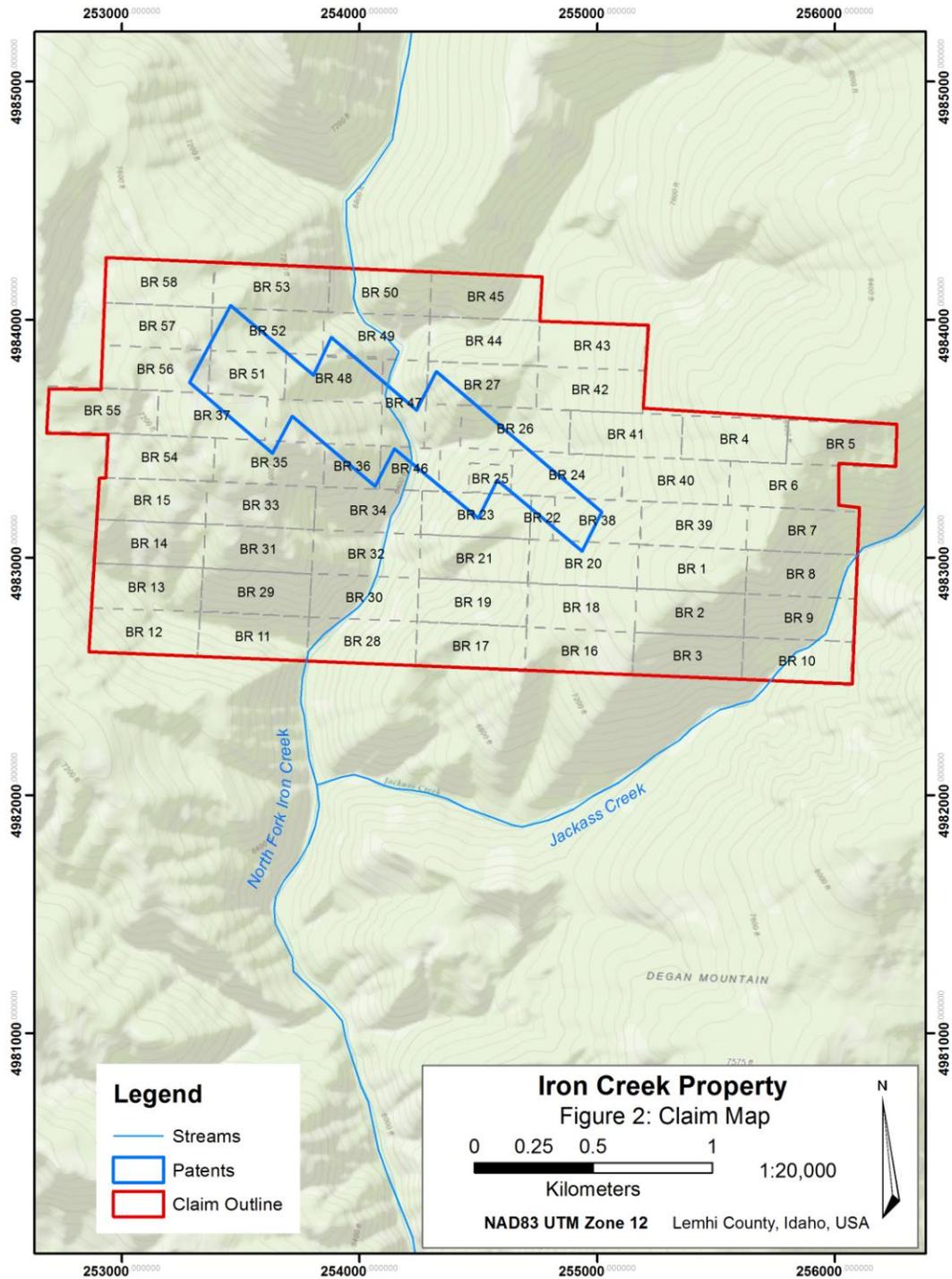


Figure 2. Iron Creek Property Claims



**Item 6: History**

The following description of the Property history is taken primarily from the Centurion Gold (1990) review of the Property, as well as a Cominco American Resources Inc. ("CARI") report (Hall 1992) and memo (Tureck 1996).

Park (1973) states that the Iron Creek property initially drew prospectors' interest as an iron prospect in 1946. In 1967, during construction of a logging road, Mr. L. Abbey staked 14 claims on copper stains in the No Name zone. In May 1970, these claims were leased to Sachem Prospects Corporation, a division of POM Corporation, Salt Lake City, Utah.

Sachem completed a work program which included claim staking, geologic mapping, aerial photography, and induced polarization, self potential, magnetic and geochemical surveys over the No Name Zone. In addition, they drilled eleven diamond drill holes and drove three drifts (East Adit, West Adit and a short unnamed adit). In 1972, Hanna Mining, through its wholly owned subsidiaries, Coastal Mining Co. and Idaho Mining Co., optioned the property and acquired it outright in 1973 in a lawsuit.

According to Bruce (1976a), \$536,000 was spent by Hanna/Coastal through early 1976. Between 1972 and 1974, Hanna conducted a preliminary evaluation of the No Name zone for its copper and cobalt and completed reconnaissance exploration over the Jackass, Footwall No Name, Sulphate, and Arsenopyrite-Gold zones (author's note: the arsenopyrite-gold zone is not on STM's current Property). Their work included construction of 1 in = 400 ft topographic base maps, a soil geochemical survey for Co and Cu, a reconnaissance induced polarization and resistivity survey, a stream sediment survey, an aeromagnetic survey, geologic mapping, diamond drilling, underground development and metallurgical work.

Hanna/Coastal completed a total of 13,250 ft of diamond drilling, principally on the No Name Zone. The 6500 Level adit was driven in the No Name Zone from Iron Creek, bringing the total drifted footage to about 1,500 ft. Bench-scale metallurgical tests were done on drill core and samples from the drifting. Trenching was conducted on the Arsenopyrite-Gold Zone and one hole was drilled on each of the Sulphate and Jackass zones.

Noranda Exploration, Inc., earned a 75% interest in the property in 1979 when it optioned the nearby Blackbird Mine property from Hanna. Noranda conducted geologic mapping, drilled and abandoned one core hole (579 ft) in the Jackass zone, drilled one shallow hole (testing the high cobalt zone), drilled three holes in the Arsenopyrite-Gold zone (a drill log and location only exist for one of these holes), re-logged three Coastal drill holes, conducted a soil sample orientation survey, sampled the younger Challis volcanic rocks for analysis using the redox (CRM) method and mapped the underground workings. Expenditures reached \$132,000 through December 31, 1983.

In 1985, Noranda subleased the Iron Creek property to Inspiration Mines, Inc. Inspiration's activities are poorly documented but the core from one hole (85-Au-4) was found in a Blackbird Mine core shed and "quick-logged" by Centurion. Less than 60 ft of the hole was split but neither the assays nor the location of the hole are known.

Following Inspiration and Noranda's release of the property in 1985, Hanna rehabilitated the workings and drove a new portal into the 6500 Level adit around the caved original portal.

In January 1988, Centurion Gold acquired the property from Hanna Mining and later in 1988, completed a soil survey over the Arsenopyrite-Gold zone. In 1989, Centurion drilled three short holes in the Jackass zone and completed silt and heavy mineral surveys throughout the property with the objective of finding additional gold mineralization. Additional geologic mapping was done at this time. Centurion summarized the Property as follows:

- copper-cobalt reserves on the order of 10 million tons of 2% Cu equivalent and mineralized intersections of up to 25 ft grading 5.54% Cu and 0.19% Co (No Name zone).
- three additional copper-cobalt targets that have had only preliminary examination (Jackass, Sulphate and Footwall No Name zones).
- a location within a belt of rocks that contains similar copper-cobalt mines and showings (the nearby Blackbird Mine produced 6,350 metric tons of 0.6% Co and 1.5% Cu between 1951 and 1959).
- a location 18 miles from the geochemically similar Beartrack deposit.

Cominco American Resources Inc. ("CARI") leased the Property from Centurion in 1991 in hopes of significantly upgrading and enlarging the resource to 20MT @ 3% Cu. During 1991, CARI reviewed and remediated existing data in an attempt to identify targets to be drilled in 1992. During 1991 and early 1992 the following was accomplished:

- All previous work, including geology, geochemistry, geophysics, and drilling was compiled and reviewed prior to the 1991 field season. Gaps in the database were identified; most notably poor drill logs and surface mapping, lack of updated geophysics, and incomplete geochemical coverage.
- 111 stream silt samples, collected by Centurion and analyzed for gold, were analyzed for base metals (27 element total ICP-AES scan) prior to the 1991 field season to identify previously unrecognized base metal anomalies.

- Surface geology was mapped at 1:4800 between June and September, 1991 concentrating on the western extension of Cu mineralization in the Main Copper Zone (i.e. the No Name Zone referred to in this report) and the base metal potential for the Jackass Creek and other footwall zones.
- An 87,000 line foot (26,500 metres) grid was surveyed onto the property in August and September, 1991 by Wilson Exploration; the previous grid was unrecognizable.
- An E.M.37 survey was performed by Blackhawk Geosciences on 80,000 line feet (24,400 metres) of this grid to delineate conductive, mineralized strata.
- VLF and Mag surveys were performed over the entire 87,000 feet (26,500 metres) of grid by Gradient Geophysics in September, 1991 to identify subtle structural features, contour magnetite and search for obscure structures/intrusives.
- 514 soil and 231 rock chip samples were collected over a) Zn anomalous horizons first identified by stream silt geochemistry b) permissive stratigraphy west of the No Name Zone c) gossanous exposures of magnetite footwall to the No Name Zone d) road exposures of the Jackass Zone were collected by geologists from July to October, 1991.
- 14,597' (4450 metres) of drill core, which represents 90% of the core retained from the No Name Zone (some core has been lost), was relogged at 1"=20' from October, 1991 to February, 1992. This work accomplished an understanding of mineralization controls, ore continuity, and potential for location of a greater and richer copper resource.
- Graphic drill logs (1"=100') and cross sections (1"=50') were constructed for the No Name Zone and one cross section was constructed for the Jackass Creek zone.

After the above evaluation, CARI geologists were not able to identify any good potential for substantially increasing reserves and grade of the Iron Creek deposit (Hall 1992). CARI decided to discontinue the lease with Centurion (now called Siskon) at that time. It should be noted that CARI's stated goal was to expand and improve drilled reserves at Iron Creek to 20MT @ 3% Cu.

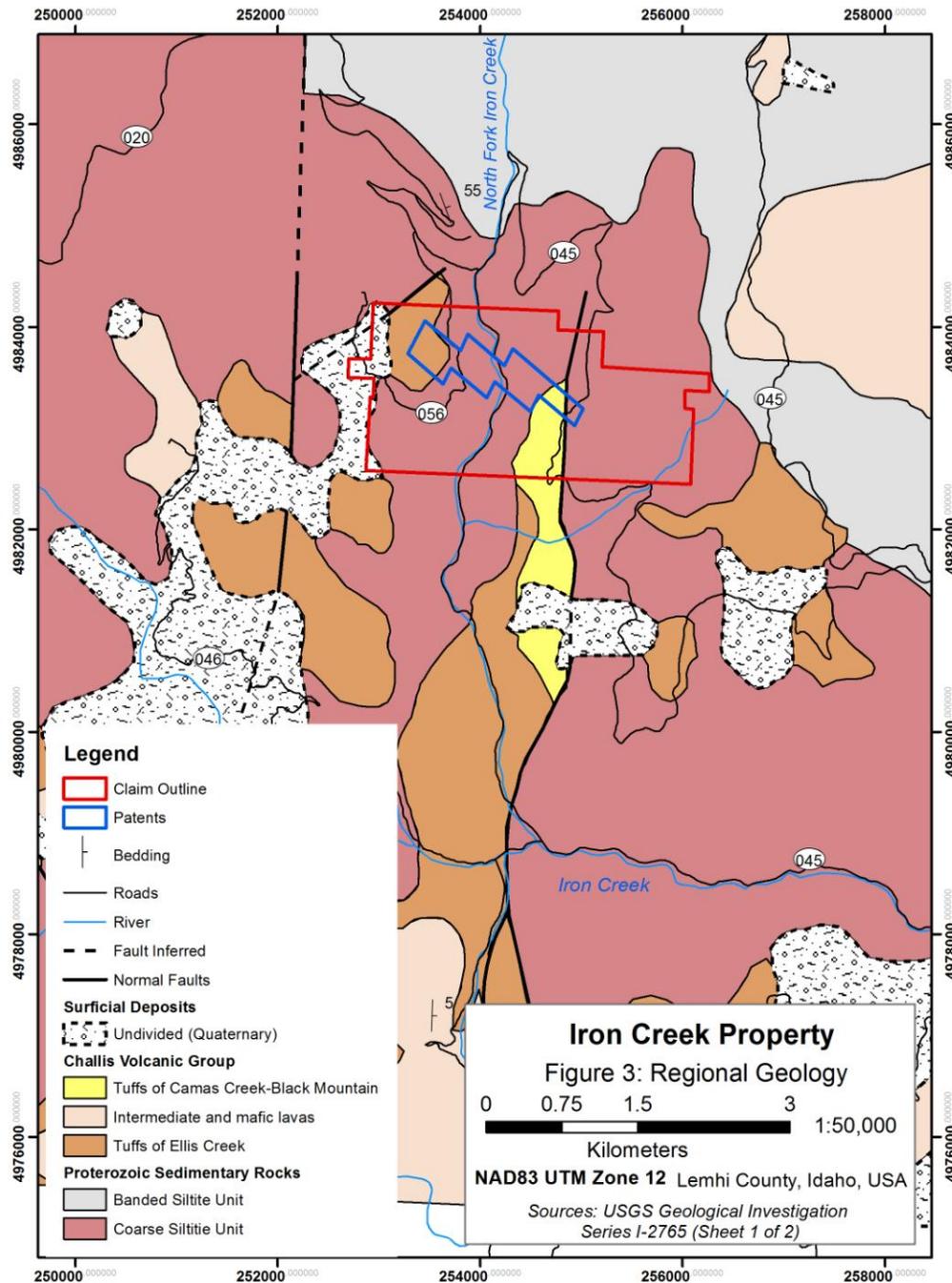
A memo titled "October 1996 Monthly Report" for CARI indicates that at that time CARI had completed a two-hole drill program totalling 2308 ft (703 metres) to test mineralization down dip and down rake of a fence of 3 prior holes which averaged 22 ft. (6.7 metres) of 4.4% Cu over at least 1800 ft (550 metres) of

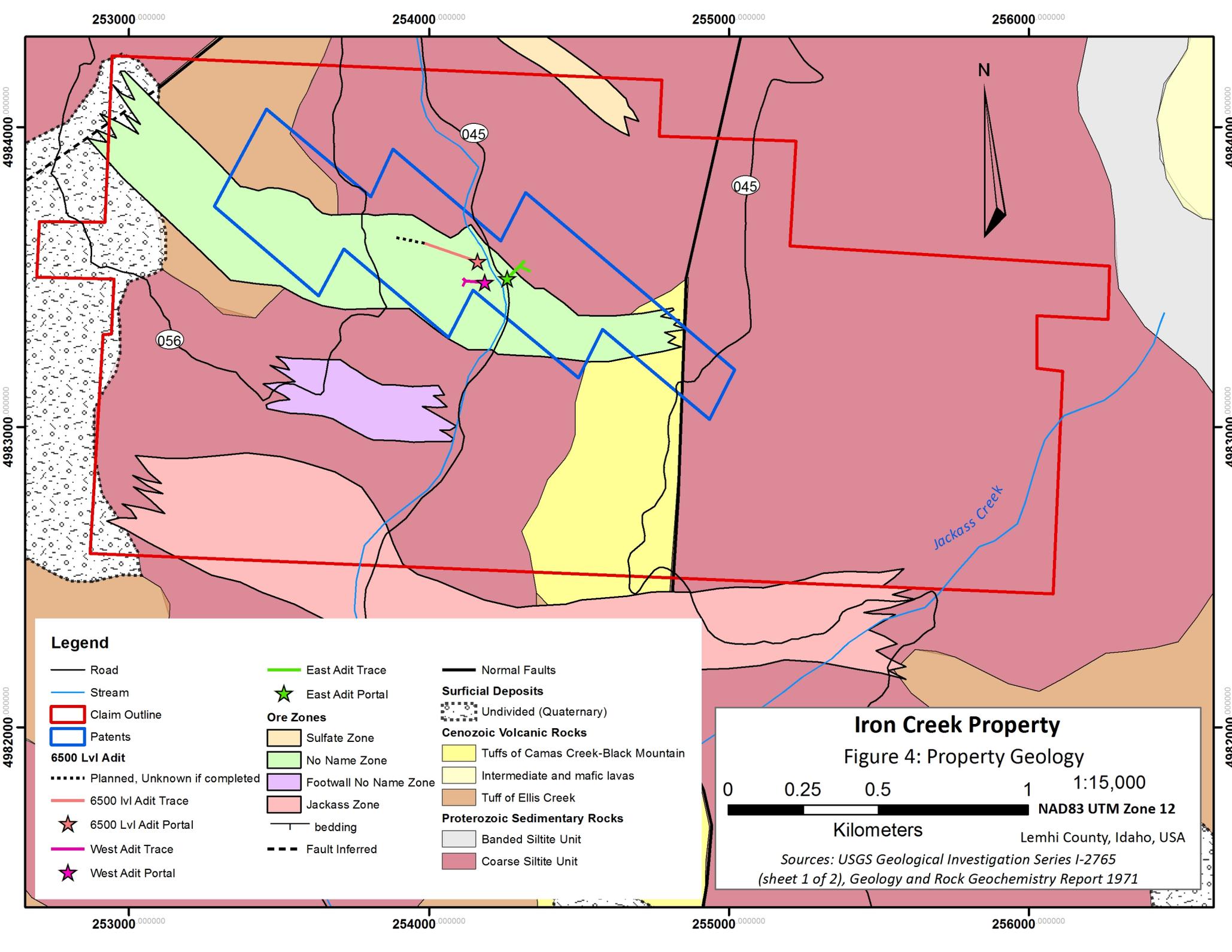
strike. Both holes successfully intersected the target copper mineralization in siliceous and chloritic phyllite host, however the core was in the process of being logged and sampled, and no assays were available at the time the report was written, and no further reports on the assay results were found by the author. A brief summary of the two holes is given below; note that the copper values are visual estimates as stated by Tureck (1996). There is no mention of cobalt values or estimates, and Cominco's interest appears to have been primarily in copper.

Hole NN-1 terminated at 1205 ft. (367 m) in undeformed Footwall Quartzite marker unit. The hole, located about 500 ft (150 m) NNE of IC-9 cut three copper zones with similar grades and thickness to mineralized sequences in IC-7 and IC-9. Significant mineralization (visual estimates) includes 24 ft. (7.3 m) @ 2.35% Cu including 5 ft. (1.5 m) @ 5.1% Cu, 33 ft. (10 m) @ 1.1% Cu, and 67 ft. (20.4 m) @ 1% Cu including 7 ft. (2.1 m) @ 2.72% Cu.

Hole NN-2 terminated at 1103 ft. (336 m) in undeformed Footwall Quartzite marker unit. The hole, located about 500 ft (150 m) NNE of IC-17 cut two copper zones that are probably correlative to the lower copper zone intersected in IC-17 (64 ft. (19.5 m) @ 1.3% Cu including 15 ft. (4.6 m) @ 4.4% Cu). Significant intercepts include (visual estimates) 26 ft. (7.9 m) @ 2.4% and 53 ft. (16.2 m) @ 2.6% Cu including 36' @ 3.4% Cu.

Figure 3. Regional Geology





**Legend**

- Road
- Stream
- ▭ Claim Outline
- ▭ Patents
- 6500 Lvl Adit**
- ⋯ Planned, Unknown if completed
- 6500 lvl Adit Trace
- ★ 6500 Lvl Adit Portal
- West Adit Trace
- ★ West Adit Portal
- East Adit Trace
- ★ East Adit Portal
- Ore Zones**
- ▭ Sulfate Zone
- ▭ No Name Zone
- ▭ Footwall No Name Zone
- ▭ Jackass Zone
- bedding
- Fault Inferred
- Normal Faults
- Surficial Deposits**
- ▭ Undivided (Quaternary)
- Cenozoic Volcanic Rocks**
- ▭ Tuffs of Camas Creek-Black Mountain
- ▭ Intermediate and mafic lavas
- ▭ Tuff of Ellis Creek
- Proterozoic Sedimentary Rocks**
- ▭ Banded Siltite Unit
- ▭ Coarse Siltite Unit

**Iron Creek Property**

Figure 4: Property Geology

0    0.25    0.5    1    1:15,000

Kilometers    NAD83 UTM Zone 12

Lemhi County, Idaho, USA

*Sources: USGS Geological Investigation Series I-2765  
(sheet 1 of 2), Geology and Rock Geochemistry Report 1971*

## Item 7: Geological Setting and Mineralization

### 7.1 Regional Geology

The Iron Creek project lies within the Blackbird copper-cobalt district. The rocks that host the Iron Creek mineralization are part of the Middle Proterozoic Yellowjacket Formation, which is the oldest unit within a 50,000-ft thick sedimentary section (Ruppel, 1975).

The Yellowjacket Formation can be broken down into three distinctive units according to Hughes (1983). The 10,000-ft thick Lower Unit is predominantly gray-green phyllite, siltite and minor quartzite, all of which may represent turbidite deposits. The 4,000-ft thick Middle Unit, which contains the bulk of the copper-cobalt and gold deposits, is composed of dark gray and black argillite, siltite, phyllite and fine-grained quartzite, all of apparent volcanogenic origin. Bedding and foliation are prominent and both generally strike northwest and dip 60° to 80° northeast. The 3,000-ft thick Upper Unit is a distinctive, thickly bedded quartzite.

Past geologic investigations have typically concluded that the Yellowjacket Formation has undergone several periods of metamorphism, but that no severe penetrative deformation has affected the rocks. Nash, et. al. (1986) and Riesmeyer (1986) cite examples of primary sedimentary structures in the project area rocks, particularly near mineralized horizons.

The following regional metamorphic events are known to have occurred:

- 1) a submarine geothermal system associated with volcanism;
- 2) pre-1.4 b.y.o. regional metamorphism to biotite grade;
- 3) regional metamorphism associated with 1.4 b.y.o. granitic plutons;
- 4) Cretaceous-Tertiary metamorphism associated with the Idaho Batholith (Nash, et.al., 1986).

Recent preliminary investigations by Jones and Reeve (1989) indicate that the host rocks at Iron Creek are not in their original "layer cake" positions, but have undergone intense penetrative deformation. Small, recumbent, isoclinal drag folds are common among the strata and compose fields of unique orientation and drag sense that can imply only the presence of much larger isoclinal folds. If this premise holds, the "layer-cake" assemblage is not a straight-forward, thick sequence of beds, but is composed of repeated and partly inverted smaller groups of strata that constitute nearly parallel limbs of large folds. The orientation relationships of drag folds, axial-plane phyllitic foliation and lineation are rigorous and are in accord with the inference of major folds.

Dominant, regional, north-northwest-striking faults and shear zones are subparallel to the northwest-striking metasedimentary rocks. At least some movement along these faults is post-metamorphism as, in places, metamorphic features (isograds) are offset. Younger, north-striking faults offset the mineralization.

Post-mineralization Tertiary rocks of the Challis Formation unconformably overlie the Yellowjacket Formation and generally occur on the ridge tops. A combination of these volcanics and a well-developed soil horizon affectively conceal 80-85% of the underlying Precambrian assemblage. Proterozoic granitic rocks do not crop out in the Iron Creek area.

## 7.2 Property Geology

### No Name Zone

The No Name Zone is a steeply dipping, tabular zone containing a “swarm” of en-echelon layers and lenses composed of copper, iron, and cobalt sulfides, and magnetite. This body, though only partly explored by drilling and underground development, is known to extend at least 3,500 ft (1066 m) in length and 800 ft (244 m) in depth, with varying widths of 30 to 100 ft (9 to 30 m). The Zone and its massive-sulphide components are concordant primarily with the flanking metasedimentary rocks, implying a syngenetic origin. Cross-cutting veins also have been identified.

These stratabound pods and lenses are restricted to a unit predominantly composed of argillite, but within this unit, mineralization grades into and out of barren, chloritic siltite, argillite and impure quartzite. Occasionally, sharp contacts are present between the mineralized rock and the chloritic host rock. An association of mineralization with biotite-rich rock, which may represent a mafic tuff, also has been noted.

Primary minerals in the No Name Zone include pyrite, magnetite, chalcopyrite, native copper and pyrrhotite. Oxidation and weathering have formed gossans of quartz, jarosite, goethite and hematite with malachite staining and some remnant syngenetic mineralization.

The isoclinal fold theory of Jones and Reeve (1989) may account for the en-echelon arrangement of sulfide lenses in the No Name Zone and, if so, it would increase confidence of ore-shoot continuity in the plunging axial direction. Significance of a larger scale would apply if a plot of drag-fold asymmetry could point to the locus of a major fold crest where the stratiform No Name Zone might be enormously thickened.

Detailed mineralogical and petrographic studies were conducted by Noranda (Chevillon, 1979). In the footwall portion of the No Name Zone, magnetite and pyrite occur as conformable lenses that are composed of 75% to 95% magnetite, 3% to 20% pyrite, and 10% to 15% quartz. The magnetite is generally massive, but pyrite occurs as isolated, fine- to medium-grained crystals. Narrow layers of granular pyrite lie parallel with bedding. These magnetite-pyrite lenses are up to 10 feet thick, have sharp footwall contacts, but gradational hanging wall contacts.

A pyrite zone is present above the magnetite footwall zone and forms a gradational contact with it. The pyrite zone consists of stockwork-like veins and disseminations in locally silicified host rocks. Pyrite comprises from 10% to 30% of the rock and is intergrown with 3% to 7% magnetite. Magnetite becomes less abundant to absent toward the hanging wall. Occasional grains and/or veinlets containing chalcopyrite and/or pyrrhotite are present in the pyrite zone.

Chalcopyrite becomes increasingly abundant toward the hanging wall and forms a chalcopyrite-pyrite zone. Chalcopyrite and pyrite occur in stockwork-like veinlets and disseminations apparently within concordant lenses. Locally, the lenses are composed of conformable zones of granular, intergrown pyrite and chalcopyrite enclosed in silicified host rocks. Silicification is locally complete resulting in a rock that resembles recrystallized chert. Pyrite and chalcopyrite range from 30% to 50% and 10% to 15%, respectively. Primary native copper has been recognized in the No Name Zone and generally occurs in veinlets and disseminations with magnetite and chlorite. Lenses of cobaltian pyrite occur in the chalcopyrite-pyrite zone. Pyrite is present as veinlets, disseminations and in granular aggregates, and becomes rare up section toward the non-mineralized hanging wall.

Metal values from diamond drill core are consistent with the mineralogical zoning trends described above. Generally, copper values are concentrated toward the hanging wall of the No Name Zone. Cobalt values seem to be present locally from the footwall to the hanging wall of the zone and are occasionally associated with copper values. Cobalt-rich mineralization forms a distinct zone in the eastern portion of the No Name Zone.

### **Jackass Zone**

At this time it appears that most of the Jackass Zone is not on the current Property of STM. The Jackass Zone occurs 2,000 ft to the southeast of the No Name Zone and also contains stratabound mineralization. Little is known about this area because drill holes (IC-6, NIC-22) collared above the zone were abandoned before penetrating the projection of the main mineralized horizon. NIC-22 did encounter about 100 ft of disseminated chalcopyrite before it was abandoned in a "squeezing fault zone" (Chevillon, 1979). Centurion's holes were at convenient spots along the road for assessment

purposes and did not test the zone. The Jackass zone is open to the southeast where it is covered by Challis Formation.

Outcrop mapping indicates the presence of zoning similar to that of the No Name Zone. Magnetite and pyrite are confined to the footwall of the zone. Pyrite increases and magnetite decreases in abundance higher in the stratigraphic sequence. Unlike the No Name Zone, there is an upper magnetite zone in the hanging wall which crops out along the road through the Jackass Zone.

The conformable magnetite-pyrite lenses are exposed over strike lengths of up to 300 ft and appear to grade laterally into non-mineralized chloritic host rocks. These gradational zones appear to be relatively richer in pyrite and are characterized by interfingering lenses of pyrite, magnetite and chloritic rock. The chloritic rock has locally been strongly silicified but nonsilicified areas exist.

Discordant lenses of magnetite breccia are also present in the footwall of the Jackass zone and even cut nonchloritic footwall rocks. The breccias are composed of 80% to 95% magnetite, up to 15% pyrite and 5% to 15% angular, spindle-shaped, lithic clasts.

Hanna's soil surveys and Noranda's grab rock-chip samples reveal that cobalt values appear to be associated with magnetite-rich rocks. Copper values are associated with veinlets and disseminations of chalcopyrite which are locally anomalous in the contact zone of mafic dikes. (Chevillon, 1979). The soil anomaly associated with the Jackass zone is down slope from the actual exposure of mineralization, probably due to surface disturbances.

### **Footwall No Name Zone**

This copper-cobalt zone occurs stratigraphically below the No Name zone and possibly along strike with the Jackass zone. Very little work has been done in this area although it did show up geochemically during soil sampling. Its 2,000-ft strike length is at least partly covered by Tertiary Challis Volcanics.

### **Sulphate Zone**

The Sulphate Zone described here appears to lie approximately half on the northern part of the current Property of STM. Chevillon (1979) describes the Sulphate zone as another example of stratabound, magnetite-rich mineralization. Conformable, narrow zones of magnetite and pyrite resemble the zones in the Jackass and No Name zones. Malachite stains chloritic rocks in the area.

A wide quartz vein (7-10 ft) with sparse pyrite and chalcopyrite is present in the zone and is generally conformable with stratigraphy. The vein is situated toward the footwall of the zone. No distinct mineralogical zoning is evident within the Sulphate zone. Bruce (1972) gives a description of the zone:

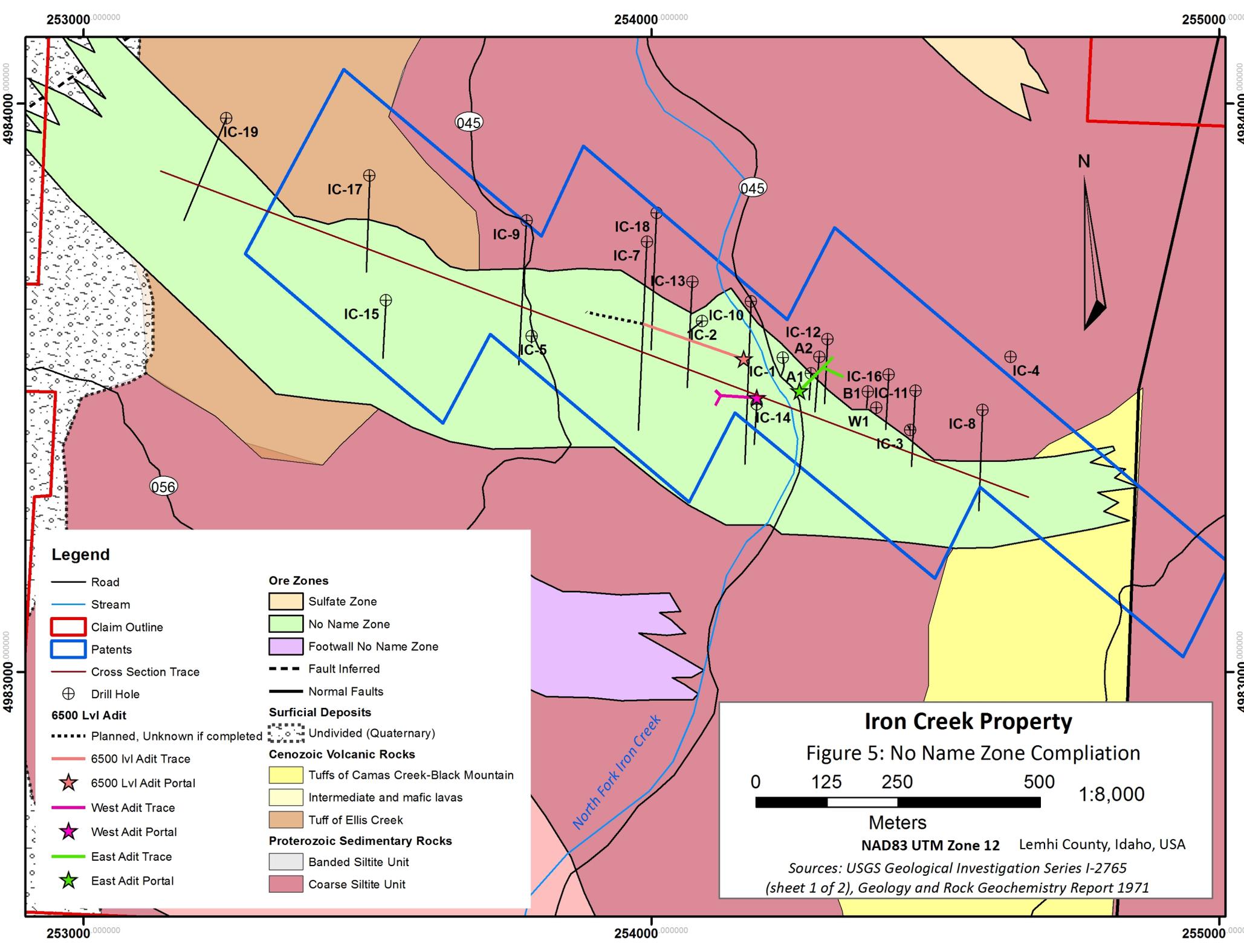
"The original showing was found on the west wall of Big No-Name Creek canyon. There, chloritic phyllite is heavily stained with malachite over a width of about 150 feet. Small 1/8 in.-1 in. quartz-iron oxide (boxwork) veinlets are common both parallel to and oblique to the foliation. In a few veinlets, scattered remnants of chalcopyrite are present. The name "Sulphate Zone" is apparently due to the presence of a secondary, greenish gray mineral that might be melanterite ( $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ ).

Approximately 800 ft southwest of the main showing, a large block (20 ft x 20 ft) of "bull" quartz was discovered. It appears to represent nearly complete replacement of the country rock by Sulphate[?]. Small patches of badly altered phyllite can be seen within the block. The outcrop is laced with small iron oxide, boxwork veinlets, but no sulfides or secondary copper minerals were noted.

The geochem samples suggest that cobalt is not important in this zone.

In summary, geological, geochemical, and geophysical data suggest a (discontinuous?) zone of mineralization at least 150 ft wide and at least 1,600 ft long. Chalcopyrite noted by L.H.Green near the collar of IC-4 O.D.H. is right on strike to the south and might lengthen the zone. The writer feels that the zone definitely merits further work similar to that already done, and that a drill hole is probably justified."

The recommended hole was drilled and apparently yielded disappointing results but additional holes are still warranted (Centurion 1990).



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**Legend**

- Road
- Stream
- ▭ Claim Outline
- ▭ Patents
- Cross Section Trace
- ⊕ Drill Hole
- 6500 Lvl Adit**
- ⋯ Planned, Unknown if completed
- 6500 lvi Adit Trace
- ★ 6500 Lvl Adit Portal
- West Adit Trace
- ★ West Adit Portal
- East Adit Trace
- ★ East Adit Portal
- Ore Zones**
- ▭ Sulfate Zone
- ▭ No Name Zone
- ▭ Footwall No Name Zone
- Fault Inferred
- Normal Faults
- Surficial Deposits**
- ▭ Undivided (Quaternary)
- Cenozoic Volcanic Rocks**
- ▭ Tuffs of Camas Creek-Black Mountain
- ▭ Intermediate and mafic lavas
- ▭ Tuff of Ellis Creek
- Proterozoic Sedimentary Rocks**
- ▭ Banded Siltite Unit
- ▭ Coarse Siltite Unit

**Iron Creek Property**

Figure 5: No Name Zone Compilation



Meters

NAD83 UTM Zone 12 Lemhi County, Idaho, USA

Sources: USGS Geological Investigation Series I-2765 (sheet 1 of 2), Geology and Rock Geochemistry Report 1971



045

045

056

IC-19

IC-17

IC-9

IC-18

IC-7

IC-15

IC-5

IC-13

IC-10

IC-2

IC-12

A2

IC-1

A1

IC-14

IC-16

B1

IC-11

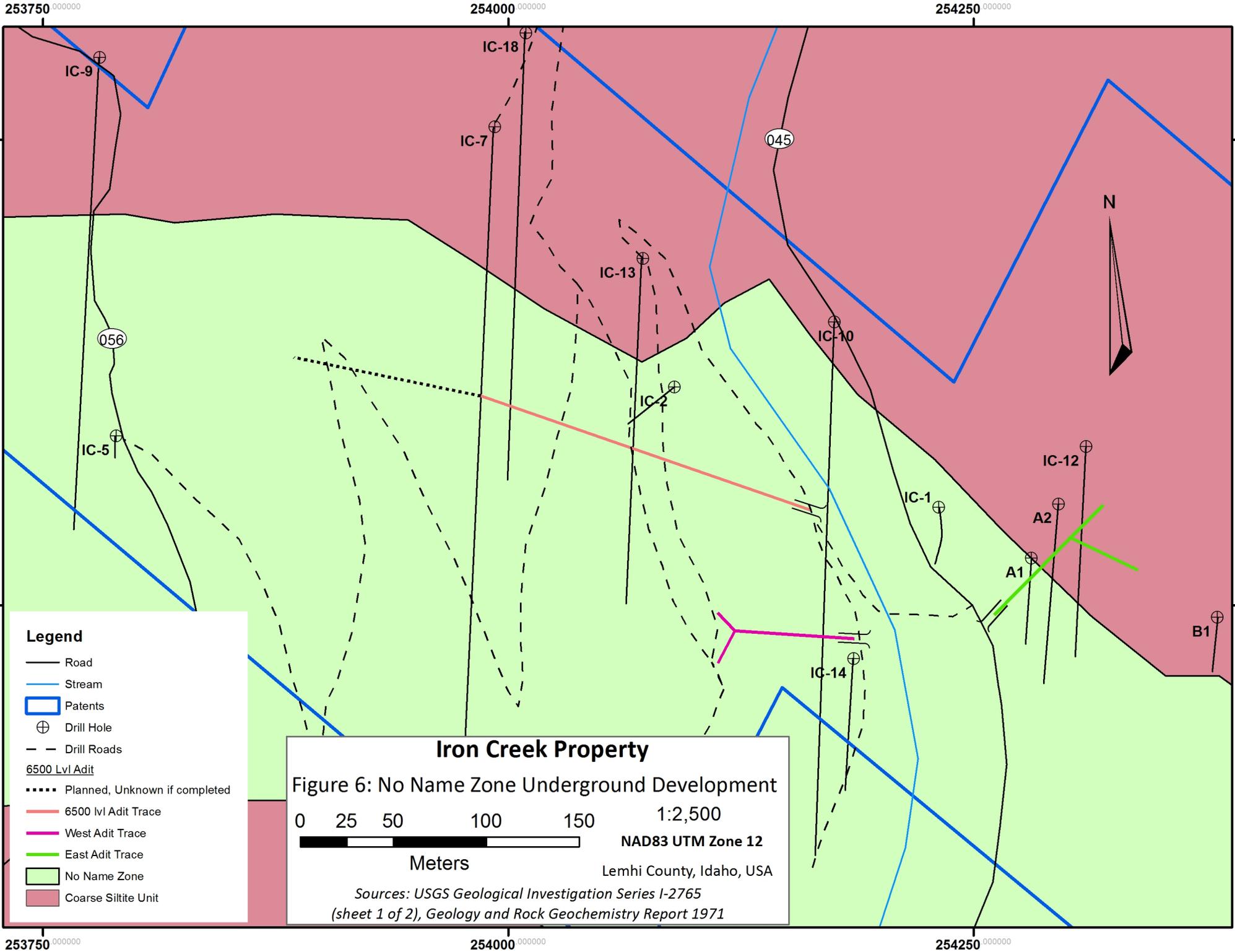
W1

IC-3

IC-8

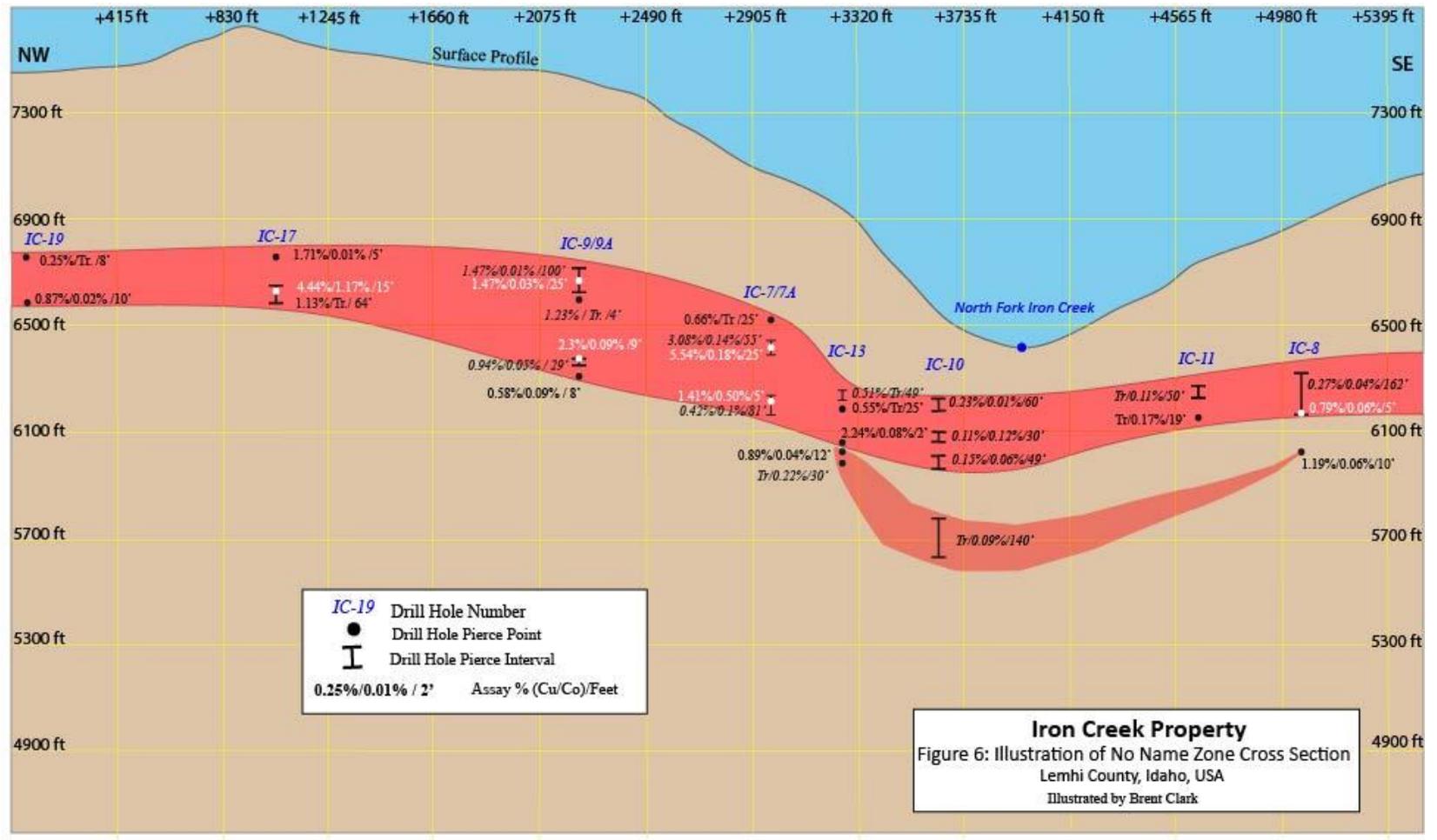
IC-4

North Fork Iron Creek



**Iron Creek Property**  
**Figure 6: No Name Zone Underground Development**  
 0 25 50 100 150 1:2,500  
 Meters NAD83 UTM Zone 12  
 Lemhi County, Idaho, USA  
*Sources: USGS Geological Investigation Series I-2765 (sheet 1 of 2), Geology and Rock Geochemistry Report 1971*

Figure 7: Long Section through No Name Zone



### 7.3 Mineralization

The stratiform copper – cobalt mineralization occurs in the Middle Member of the Proterozoic Yellowjacket Formation. It is associated with tuffaceous and exhalative deposits in a sequence of argillite, phyllite and lesser quartzite. These rocks strike northwest – southeast and dip 60° and 80° northeast.

Primary minerals in the No Name Zone include pyrite, magnetite, chalcopyrite, native copper and pyrrhotite. Oxidation and weathering have formed gossans of quartz, jarosite, goethite and hematite with malachite staining and some remnant syngenetic mineralization.

Both Hanna and Noranda conducted mineralogical and metallurgical studies on samples from the No Name Zone. Hanna's microscopic and X-ray studies (Mattson, 1972; Mattson, 1973) indicate that the cobalt in the majority of the samples occurs in cobaltian pyrite.

Noranda studied core from the high–cobalt zone with a scanning electron microscope (Snow, 1983). They also found that the cobalt occurs almost entirely in the pyrite. They further define two varieties of pyrite: a cobalt-rich variety, containing from 2.5% Co to 4.5% Co and a cobalt-free pyrite.

Apparently, three stages of pyrite deposition occurred. Chalcopyrite probably coincides with the last pyrite stage while marcasite and the rare cobaltite is later than the chalcopyrite/late pyrite stage. The one time that cobaltite was found in polished section it appeared to be a secondary mineral.

**Item 8: Deposit Types**

The target deposit at STM's Iron Creek Property belongs to a class of deposits variably described as "Blackbird Co-Cu" (Evans et. al., 1986) or "Blackbird Sediment-hosted Cu-Co" (Höy, 1995). STM's Iron Creek Property lies in the type locality for these deposits and includes some of the type deposits.

According to Evans et. al., "These deposits are stratabound iron-, cobalt-, copper-, and arsenic-rich sulfide mineral accumulations in nearly carbonate-free argillite/siltite couplets and quartzites ... " The summary that follows is extracted from Höy (1995):

"CAPSULE DESCRIPTION: Pyrite and minor pyrrhotite, cobaltite, chalcopyrite, arsenopyrite and magnetite occur as disseminations, small veins and tabular to pod-like lenses in sedimentary rocks. Chloritic alteration and tourmaline breccias are locally associated with mineralization.

"TECTONIC SETTINGS: Near continental margins or in intracratonic basins. Within the Belt-Purcell basin, which may have formed in a large inland sea, extensional tectonics are suggested by possible turbidite deposition, growth faulting, gabbroic sills and (?)tuff deposition. Alternative setting is marine, in an incipient or failed rift along a continental margin.

"DEPOSITIONAL ENVIRONMENT / GEOLOGICAL SETTING: These deposits are not well understood. Possible turbidite deposition in marine or inland sea, associated with basaltic pyroclastic volcanics or mafic synsedimentary gabbroic sills; alternatively, tidal flat environment.

"AGE OF MINERALIZATION: Can be of any age. The Blackbird deposits at the type locality are assumed to be approximately 1460 Ma, the age of the host rocks.

"HOST/ASSOCIATED ROCK TYPES: Fine-grained metasedimentary rocks; thin-bedded siltstone, fine-grained quartzite, black argillite and calcareous siltstone; garnet schist, phyllite, quartz-mica schist. In the Blackbird district synaeresis cracks (subaqueous shrinkage cracks) occur within immediate host rocks, sedimentary structures indicative of shallow water, and locally subaerial exposure in overlying rocks, suggest shallow water environment. Numerous biotite-rich beds within the host succession may be mafic tuff units (or diorite sills?).

"DEPOSIT FORM: Irregular, tabular to pod-like deposits, from approximately 2 to 10 m thick."

"ASSOCIATED DEPOSIT TYPES: Possibly Besshi volcanogenic massive sulphide deposits, Fe formations, base metal veins, tourmaline breccias."

**Item 9: Exploration**

STM has not yet performed any exploration on its Iron Creek Property. For a description of the work performed by previous operators on the Property, see “Item 6: History”. During his Property visit on September 26, 2016, the author took five grab samples as described in Item 12: “Data Verification” below.

**Item 10: Drilling**

STM has not yet performed any drilling on its Iron Creek Property. For a description of the work performed by previous operators on the Property, see “Item 6: History”.

**Item 11: Sample Preparation, Analysis and Security**

The only sampling to date done on behalf of STM are the five samples taken by the author during his Property visit on Sept 26, 2016. The author personally transported those samples to Thunder Bay, Ontario, Canada, and submitted them to Accurassay Laboratories in Thunder Bay.

The samples were submitted for sample preparation procedure ALP1 (dry, crush (<5kg) 85% -10 mesh (2mm), split (500g) and pulverize to 85% - 200 mesh (74 $\mu$ ). Silica abrasive clean between each sample). They were then subjected to analysis procedures ALMA1 (30 element analysis using multi acid digestion with an ICP – OES finish), and ALFA1 (30g gold fire assay).

The results are presented in “Item 12: Data Verification” below.

## Item 12: Data Verification

The previous reports used in preparing this Report for STM pre-date N.I. 43-101 and did not include information such as assay certificates, and rarely contained any discussion of sampling methodology, preparation analysis or security. It should be noted that the authors of these reports were experts often working for established, reputable mining companies and used industry-standard procedures at the time.

None of the core from the previous drilling could be found during the Property visit, and the underground workings were not accessible, except for the samples described below which were taken mainly from the portal entrances.

During his Property visit on September 26, 2016, the author took five grab samples, which are samples taken preferentially from mineralized zones with the intent of demonstrating the presence of mineralization on the property. The author does not claim that the samples are representative of any average or overall grade of the mineralization; nor do they indicate any size or extent of the mineralization.

**Table 2. Author's Samples from Property Visit**

Sample No.	Sample Location	Description	Au g/t (ppm)	Copper (ppm)	Cobalt (ppm)
600020	East portal - No Name Zone	argillite; medium grey, very fine grained; up to 7-10% pods, disseminations and stringers of medium to coarse grained pyrite (+ pyrrhotite?) up to 2-3mm	0.006	248	2310
600021	East portal - No Name Zone	argillite as above with more gossan/limonite staining (generally yellowish); semi-massive pyrite (+ chalcopyrite and po) up to 40-50% medium to coarse grained - generally 1-2mm, up to 5-6mm	0.111	26596	7364
600022	West Portal - No Name Zone	strong iron-oxidization/gossan - difficult to determine rock but appears to be argillite with small amount of sandstone(?); minor fine grained pyrite (+ chalcopyrite?)	0.11	439	47
600023	West Portal - No Name Zone	as above	0.045	86	29
600024	Rock dump ~50m north of West portal of No Name Zone	sample is from rock dump near where the long drift/adit is to the north west of the two other portals - there is no portal for this adit visible; rock is more siliceous, grey - possibly arkose/impure quartzite; ~5-7% fine grained patches, stringers and disseminated pyrite 1-2mm	0.043	252	2763
600024		Duplicate	0.028	256	2801

**Item 13: Mineral Processing and Metallurgical Testing**

STM has not yet done any mineral processing studies or metallurgical testing on the Property.

Both Hanna and Noranda conducted mineralogical and metallurgical studies on samples from the No Name Zone. Hanna's microscopic and X-ray studies (Mattson, 1972; Mattson, 1973) indicate that the cobalt in the majority of the samples occurs in cobaltian pyrite. X-ray patterns on heavy liquid sulfide concentrates showed strong peaks for pyrite and chalcopyrite and very weak peaks for cobaltite (CoAsS) and linnaeite-siegenite ((Co,Ni)<sub>3</sub>S<sub>4</sub>).

Apparently, three stages of pyrite deposition occurred. Chalcopyrite probably coincides with the last pyrite stage while marcasite and the rare cobaltite is later than the chalcopyrite/late pyrite stage. The one time that cobaltite was found in polished section it appeared to be a secondary mineral.

In 1972-1973, Mattson (1973) studied concentrates and found that the coarse sulfides were well liberated from each other and from the gangue and should separate easily.

Rule (1976a) made copper concentrates and rejected cobalt into iron concentrates. The tests showed excellent copper recoveries on the iron concentrates yielded 0.005 oz Au/ton, 0.519 oz Ag/ton, 0.20% As, 0.012% Bi and 36.0% S (Rule, 1976b). Mattson (1976) showed a good correlation ( $r=91$ ) between percent pyrite and percent cobalt but a poor correlation ( $r=30$ ) between percent chalcopyrite and percent cobalt. This adds further credence to the suggestion that cobalt occurs in pyrite. Unfortunately, percent cobalt in the iron concentrates will be restricted by the amount of cobalt that can substitute for iron in the pyrite lattice. In fact, the highest cobalt grade obtained by Hanna was 1.71% Co in a heavy-liquid sulfide separation that contained 91.1% pyrite. Higher percentages of cobalt will be difficult to obtain since the iron concentrates will also contain non-cobaltian pyrite.

Noranda studied core from the high – cobalt zone with a scanning electron microscope (Snow, 1983). They also found that the cobalt occurs almost entirely in the pyrite. They further define two varieties of pyrite: a cobalt-rich variety, containing from 2.5% Co to 4.5% Co and a cobalt-free pyrite. The arsenic content of the cobaltian pyrite ranged from 0.25% As to 0.83% As.

**Item 14: Mineral Resource**

There is no mineral resource defined on the Property; see below (“Item 15: Mineral Reserve Estimates”) for a discussion of previous reserve estimates.

**Item 15: Mineral Reserve Estimates**

The following discussion and summary of the historic reserve calculations performed on the Property are based on a report by S. Ristorcelli titled “Summary Report on the Iron Creek Property” for Centurion Minerals. Ristorcelli’s report was written in 1988 after Centurion acquired the Property from Hanna Mining and conducted a review, interpretation and compilation of all the Property data.

All previous reserve calculations on the Iron Creek Property of STM occur in the No Name Zone, and are to be considered historical estimates within the context of National Instrument 43-101. The author of this report could not determine the details of the methods used in these calculations.

Three sets of calculations were done by Hanna Mining (see Table 2 below), who considered the high grade estimates to be the most reliable (Ristorcelli 1988). Twenty four holes were drilled on the No Name Zone over a strike length of 5000 ft. (1500 metres).

According to Bruce (1976b), drill hole IC-19 (the western-most drill hole in the No Name Zone, see Figure 4) and the IP survey missed the mineralized zone at the west end because the strike of the host unit changes from west-northwest to north-northwest, thereby putting the mineralized horizon just northwest of IC-19’s collar (see Figure 4). Hole IC-17 is located 800 ft. (250 m) east of IC-19 and contains 179 ft (55 m) of trace cobalt and 0.68% copper. Continuity of mineralization elsewhere adds credence to Bruce’s (1976b) evaluations (Ristorcelli 1988).

Noranda placed little confidence in Coastal’s (i.e. Hanna’s) reserve figures, believing them to be on the conservative side (Snow 1983). Their initial reserve estimate suggested that 10 MT of about 2% copper equivalent grade is possible, and after reviewing the cross sections, Ristorcelli (1988) concluded that Noranda’s numbers were reasonable. In carrying out his review, Ristorcelli (1988) used the following parameters:

- 1: a tonnage factor of 11 ft<sup>3</sup>/ton
- 2: a maximum area of influence per drill hole of 400 ft. (120 m ) horizontally and 200 ft. (60 m) vertically within the mineralized area and 200 ft. (60 m) at both ends
- 3: a cut off of 1% copper equivalent
- 4: cobalt% x 6 = copper%
- 5: minimum thickness of 10 ft. (3 m)

**Table 3: Historical Reserve Estimates**

Summary of Reserve Estimates				
Company (reference)	Tons (1,000s)	Cobalt (%)	Copper (%)	Comments
Hanna (Markland 1972)	32,100 <sup>3</sup>	0.17 0.12 0.06	0.82 1.05 0.50	4,233 <sup>1</sup> tons/vertical ft. 20,133 <sup>2</sup> tons/vertical ft
Hanna (Akins 1973)	2,100 20,000	0.17 0.88	0.82 0.61	High grade, underground Low grade, open pit
Hanna (Markland 1974)	250 4,570 2,400 410 32,100	0.30 0.03 0.24 0.11 0.06	1.24 1.84 0.47 2.55 0.52	High grade (UG) – east High grade (UG) – west High grade (open pit) – east <sup>5</sup> High grade (open pit) – west <sup>6</sup> Low grade (open pit)
Noranda (Snow 1983)	1,000	0.61	0.3	High cobalt zone
Noranda (Snow 1983)	10,000	2% copper equivalent		Reviewed by Centurion staff (Co% x 6 = Cu%)

Notes:

- <sup>1</sup> 1.5% copper equivalent cut off, 50 ft. area of influence
- <sup>2</sup> 1.5% copper equivalent cut off, half distance to next hole area of influence
- <sup>3</sup> 0.4% copper equivalent cut off, open pit reserve to 500 ft., 50° slopes
- <sup>4</sup> uncut grade and dilution excluded except for low grade pit
- <sup>5</sup> Akins (1973b), stripping ratio is 2.5:1
- <sup>6</sup> Akins (1973b), stripping ratio is 6.1:1

STM considers the cobalt and copper tonnage and grade estimates above as historical estimates. The historical estimates do not use categories that conform to current CIM Definition Standards on Mineral Resources and Mineral Reserves as outlined in National Instrument 43-101, Standards of Disclosure for Mineral Projects ("NI 43-101") and have not been redefined to conform to current CIM Definition Standards. They were prepared in the 1980s prior to the adoption and implementation of NI 43-101. A qualified person has not done sufficient work to classify the historical estimates as current mineral resources and STM is not treating the historical estimates as current mineral resources. More work,

including, but not limited to, drilling, will be required to conform the estimates to current CIM Definition Standards. Investors are cautioned that the historical estimates do not mean or imply that economic deposits exist on the Property. STM has not undertaken any independent investigation of the historical estimates nor has it independently analyzed the results of the previous exploration work in order to verify the accuracy of the information. STM believes that the historical estimates are relevant to continuing exploration on the Property.

**Item 16: Mining Methods**

Not applicable

**Item 18: Project Infrastructure**

Not applicable

**Item 19: Market Studies and Contracts**

Not applicable

**Item 20: Environmental Studies, Permitting and Social or Community Impact**

Because the Property is located within the Salmon National Forest, STM is in communication with Forest Service Rangers for guidance in ensuring that the Company is in compliance with all regulations and protocols. It is understood that water and particulates from any drilling or other work should be prevented from entering any body of water, such as Iron Creek, without first being treated so that there is no sedimentation or other contaminants entering the water. At this time it is the author's understanding that no permits are required for the proposed work except a snow removal permit for the portion of the 045 Road south of the patented claims.

**Item 21: Capital and Operating Costs**

Not applicable

**Item 22: Economic Analysis**

Not applicable

**Item 23: Adjacent Properties**

To the immediate north of the Iron Creek Property is the CAS or Fox Property, which covers gold-cobalt bearing sulphide-rich quartz veins and shears hosted by spotted phyllites in the discovery road trench and various road cuts. Mineralized veins and shear zones contain quartz veins and stringers with iron-carbonate, cobaltiferous pyrite, arsenopyrite, trace chalcopyrite and tourmaline. There are three known mineralized zones, A, B and C from north to south respectively, of this style of mineralization. Zone A has been traced for a distance of 2,000 ft. (610 m) on surface and is up to 300 ft. (90 m) wide. Zone B has been traced for 2,600 ft. (790 m) on surface and is up to 400 ft. (120 m) wide. Zone C has been traced for 3,400 ft. (1030 m) on surface and averages 150 ft. (45 m) wide (Tafari 2005).

This information is not necessarily indicative of the mineralization on STM's Iron Creek Property, and the CAS/Fox claims are not a part of the Iron Creek Property.

**Item 24: Other Relevant Data and Information**

The author is unaware of any further data or relevant information that could be considered of any practical use in this report. The author is 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.

**Item 25: Interpretation and Conclusions**

The work carried out to date on STM's Iron Creek Property has clearly indicated the presence of significant copper-cobalt mineralization. The main target zone on the Property, the No Name Zone, is a steeply dipping, tabular zone containing a "swarm" of en-echelon layers and lenses composed of copper, iron, and cobalt sulphides, and magnetite. This body, though only partly explored by drilling and underground development, is known to extend at least 3,500 ft (1066 m) in length and 800 ft (244 m) in depth, with varying widths of 30 to 100 ft (9 to 30 m). The Zone and its massive-sulphide components are concordant primarily with the flanking metasedimentary rocks, implying a syngenetic origin.

The stratiform copper – cobalt mineralization is associated with tuffaceous and exhalative deposits in a sequence of argillite, phyllite and lesser quartzite. These rocks strike northwest – southeast and dip 60° and 80° northeast. Primary minerals in the No Name Zone include pyrite, magnetite, chalcopyrite, native copper and pyrrhotite. Oxidation and weathering have formed gossans of quartz, jarosite, goethite and hematite with malachite staining and some remnant syngenetic mineralization.

**Item 26: Recommendations**

The main area of interest on the Property at this time is the No Name Zone, and this should be the initial focus of STM's resources in order to increase the value of the Property. In addition to the work recommended below, STM should continue to compile all previous work into a digital workable format, including 3D modelling of the previous drilling.

It is recommended that STM conduct further diamond drilling targeting the No Name Zone in the area of the existing underground workings. The purpose of this would be partly to confirm previous drilling results and test sampling and analytical procedures, and also to expand the zone of known mineralization and to add to the drill core database to eventually conduct a N.I. 43-101 compliant ore reserve calculation.

STM should also conduct an examination and appraisal of the underground workings to determine the feasibility of rehabilitating them for the purpose of possibly extending them. Rehabilitating the workings could also allow STM to use them for underground diamond drilling to save drill footage that would be required to drill certain targets from surface drill collars higher up the mountains.

It is also recommended that more claim staking be done, where the ground is open, to the south to cover all of the Jackass Zone, and to the north to cover the portion of the Sulphate Zone that is not currently on the Property, and any other ground in that area not covered by the CAS/Fox claims.

**26.1: Proposed Budget**

Underground workings rehabilitation.....	\$215,000
Data compilation/3D modelling .....	\$20,000
Additional claim staking .....	\$10,000
Diamond Drilling (2,000 metres @ \$250 /metre all inclusive) .....	500,000
Assaying, Analyses (300 samples @ \$45) .....	13,500
Report and Sections .....	10,000
Contingency .....	30,000
<b>Total Proposed Budget</b>	<b>\$798,500</b>

**Item 27: References**

- Akins, R.S. 1973a: (February 12), Iron Creek, Hanna Mining Co. Memo; Coastal Files
- Akins, R.S. 1973b: (February 19), Iron Creek, Hanna Mining Co. Memo; Coastal Files
- Bruce, W.R. 1972: Monthly Report for August, 1972; Coastal Mining Co. Memo; Coastal Files.
- Bruce, W.R. 1976a: Summary – Iron Creek Property, Hanna Mining Co., Coastal Files.
- Bruce, W.R. 1976b: Iron Creek Ore Reserves Potential, Hanna Mining Co., Coastal Files.
- Centurion Gold, Inc. 1990 (specific author unknown): Review of the Iron Creek Property, Lemhi County, Idaho.
- Chevillon, C.V. 1979: Iron Creek (0419) 1977-1978 Progress Report, Northwest District Noranda Explorations, Inc.; Coastal Files.
- Evans, Karl V., Nash, J. Thomas, Miller, William R., Kleinkopf, M. Dean, and Campbell David L. 1986: Blackbird Co-Cu Deposits *in* Preliminary compilation of descriptive geoenvironmental mineral deposit models, U.S. Geological Survey Open-File Report 95-0831, du Bray Edward A., ed.
- Hall, S.H. 1992: Project Summary Report, Iron Creek Project, Lemhi, Idaho; Cominco American Resources Incorporated.
- Höy, T. 1995: Blackbird Sediment-hosted Cu-Co, in Selected British Columbia Mineral Deposit Profiles, Volume 1 - Metallics and Coal, Lefebure, D.V. and Ray, G.E., Editors, British Columbia Ministry of Energy of Employment and Investment, Open File 1995-20, pages 41-44.
- Hughes, G.J., Jr. 1983: Basinal Setting of the Idaho Copper Belt, Blackbird Mining District, Lemhi County, Idaho; *in* The Genesis of Rocky Mountain Ore Deposits – Changes with Time and Tectonics; Denver Region Exploration Geologists Society, p.21-27.
- Jones, A.G., and Reeve, L.G. 1989: Preliminary Investigation of Structural Setting, Iron Creek; Centurion Gold Inc., memo.
- Markland, G.D. 1972: Iron Creek – Blackbird Project for November; Coastal Mining Memo, Coastal Files.

- Markland, G.D. 1974: Iron Creek Exploration 1974; Coastal Mining Co. Memo, Coastal Files.
- Mattson, L.A. 1972: Project 645-143 Iron Creek – Specimen Microscopy; Hanna Mining Co. Memo; Coastal Files
- Mattson, L.A. 1973: Project 645-143 Iron Creek – Mineralogy of Bulk Float Concentrate, Test LTC-15; Hanna Mining Co. Memo; Coastal Files
- Mattson, L.A. 1972: Project 645-143 Iron Creek Ore Sample 76-29; Hanna Mining Co. Memo; Coastal Files
- Nash, J.T., and Hahn, G.A. 1986: Volcanogenic Character of Sediment-Hosted Co-Cu Deposits in the Blackbird Mining District, Lemhi County, Idaho – An Interim Report; U.S. Geological Society Open File Report 86-430, p.29.
- Park, A. 1973: Summary of Iron Creek Cu-Co Prospect, Hanna Mining Co. Memo, Coastal Files.
- Riesmeyer, W.D. 1986: Jackass Creek Massive Sulfide, Iron Creek Property; Hanna Mining Company Memo.
- Ristorcelli, S. 1988: Summary Report on the Iron Creek Property, Lemhi County, Idaho; *for* Centurion Minerals, Ltd.
- Rule, W.T. 1976: Project 645 – Iron Creek Batch Flotation Test Work to Selectively Produce a Copper Concentrate and Reject Co into an Iron Concentrate; Hanna Mining Co. Memo; Coastal Files.
- Ruppel, E.T. 1975: Precambrian Sedimentary Rocks in East-Central Idaho; U.S. Geological Survey Professional Survey 889-A, p.23.
- Snow, G.G. 1983: Synopsis of Iron Creek Co-Cu Property, Idaho (04083); Noranda inter-office memo; Coastal Files.
- Tafari, W.J. 2005: Summary Geological Report, The CAS Gold Prospect, Iron Creek Mining District, Lemhi County, Idaho, U.S.A.; *prepared for* WPI Gold Ltd.
- Tureck, K.T. 1996: Cominco American October 1996 Monthly Report; Cominco American Resources Incorporated.
- Webster, T.A., and Stump, T.K. 1980: Iron Creek Prospect, Lemhi County, Idaho, (#0483), Progress Report; Noranda Exploration Inc.; Coastal Files.

**Item 28: Certificate of Qualifications**

**Desmond Cullen**  
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**CERTIFICATE OF QUALIFIED PERSON**

I, Desmond Cullen, P.Ge. (#0164) do hereby certify that:

1. I am a consulting Professional Geologist living at 48-2 Husu Rd., R.R.#2, Kaministiquia, Ontario
2. I graduated with the degree of Honours Bachelor of Science (Geology) from Lakehead University, Thunder Bay, in 1988
3. "Technical Report" refers to the report titled "Technical Report on the Iron Creek Property, Lemhi County, Idaho" dated December 15th, 2016.
4. I am a registered Professional Geoscientist with the Association of Professional Geoscientists of Ontario (#0164) and a member Ontario Prospectors Association.
5. I have worked as a Geologist for 28 years since my graduation from university.
6. 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 as a Qualified Person for the purposes of NI 43-101.
7. I have worked extensively in Northwestern Ontario, and also Indonesia, China and Mongolia since graduating University.
8. I visited the Iron Creek Property on September 26<sup>th</sup>, 2016.
9. I have reviewed and edited the entire Technical Report.
10. I am independent of the party or parties (the "issuer") involved in the transaction for which the Technical Report is required, other than providing consulting services, and in the application of all of the tests in section 1.5 of NI 43-101.
11. I have had no prior involvement with the mineral Property that forms the subject of this Technical Report.
12. I have read NI-43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that Instrument and Form.

13. As of the date of this certificate, and to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 15<sup>th</sup> day of December, 2016.

**SIGNED**

“Desmond Cullen”

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Desmond Cullen, P.Geol.