GEOLOGIC REPORT NF-12-1

TECHNICAL REPORT ON THE NIXON FORK MINE PROJECT, MEDFRA QUADRANGLE, ALASKA

Prepared for

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1. SUMMARY

The Nixon Fork copper-gold-silver project consists of 95 unpatented federal lode and 15 placer claims and an additional 81 State of Alaska mining claims (6,840 acres aggregate) located in the Medfra A4 quadrangle approximately 56 km northeast of McGrath, Alaska. Fire River Gold Corporation, through its 100% owned subsidiary Mystery Creek Resources, owns and leases mining claims covering the fully-permitted Nixon Fork mine. The Nixon Fork project is accessible via air by charter aircraft from Anchorage, Fairbanks or McGrath, all of which are served by regular scheduled commercial air service. The Nixon Fork airstrip is approximately 1,280 meters long and can handle Hercules C-130 and DC-6 fixed wing transport aircraft. Facilities at the Nixon Fork project include a 200 tonne per day mill with a gravity gold separation circuit, a sulfide floatation circuit and a CIL gold leaching circuit. The mine also includes a fleet of mining vehicles, a self-contained diesel power plant, maintenance facilities, drilling equipment and an 85 person camp with office facilities.

The Nixon Fork project is situated in an area of moderate topographic relief with elevations ranging from 300 to 460 meters. Ridges are generally rounded and are forested with black spruce, larch, birch, and alder. Lower elevations are often poorly drained due in part to discontinuous permafrost conditions, often being covered by soft muskeg and stunted black spruce forest. Outcrops are rare in the mine area with a few resistant knobs along ridgelines. Mineral exploration and development has occurred at the Nixon Fork project in several discrete phases since it its discovery nearly 100 years ago. From 1920 to 2007, the mine produced (from all operators) 125,591 ounces of gold, 19,566 ounces of silver, 1,273,066 pounds of copper, from about 106,137 tonnes of ore. An additional 21,974 tonnes at 15.2 gpt (10,771 contained ounces) were mined and milled in 2011 however, final recovery figures for this processing were not available at the time this report was written. The silver and copper production figures are incomplete and should be considered minimum production estimates. Recent underground mining at Nixon Fork occurred during three intervals from 1995 to 1999, in 2007 and from July 4, 2011 to the present. Exploration and development drilling at Nixon Fork since 1985 included 130,925 meters of drilling in 1,436 surface and underground drill holes. Except for 7,341 meters of RC drilling in 85 holes completed in 1985, all of the drilling at Nixon Fork has been by diamond core drilling.

The Nixon Fork project is located on the northeastern edge of the Kuskokwim Mineral Belt (KMB) of southwestern Alaska. The Nixon Fork mine is situated between two regional northeast trending structures associated with the KMB, the Denali - Farewell fault system to the south and the Nixon Fork - Iditarod fault to the north. Both of these structures have undergone Cretaceous-Tertiary offsets of less than 150 km. Numerous northeast and northwest trending subsidiary structures that are related to the Nixon Fork - Iditarod and Denali - Farewell faults occur in the Nixon Fork project area and possibly influenced the emplacement of intrusive bodies in the area. Proterozoic through Lower Cretaceous basement rocks of the Nixon Fork area are considered part of the Nixon Fork terrane, variously interpreted as a discrete allochthonous terrane. These basement rocks were subsequently eroded and covered by Middle to Late Cretaceous Kuskokwim Group turbidite facies rocks of shallow marine and shoreline origin. Late Cretaceous to Early Tertiary volcanic-plutonic complexes, plutons and subvolcanic dike and sill swarms intrude and overlie the older terranes and the Cretaceous Kuskokwim group. These igneous rocks host a variety of mineral deposits in the KMB and range in composition from gabbro to alkali granite with intrusives in the Nixon Fork mine area comprised primarily of granodiorite.

The majority of the basement rocks in the Nixon Fork project area are composed of Cambrian to Devonian-aged shallow water carbonate rocks. These carbonate units are the primary host for both calc-silicate alteration and copper-gold mineralization on the Nixon Fork project. Recent petrographic and geochemical research conducted on the Nixon Fork deposit suggests that gold-copper mineralization may be preferentially hosted in a previously unrecognized calcareous sandstone unit. In the Nixon Fork area, two 68-70 Ma (Cretaceous) quartz monzonite stocks have intruded the Paleozoic and Cretaceous sedimentary rock units. In the mine area the skarn mineralization is related to the polyphase Mystery Creek stock that outcrops over a 5 kilometer by 3 kilometer area. The stock contains both disseminated and vein style copper and gold mineralization and metasomatic skarn mineralization is formed in several areas along the margin of this stock. In the Nixon Fork area, two 68-70 Ma quartz monzonite stocks have intruded the Paleozoic and Cretaceous sedimentary rock units. In the mine area the skarn mineralization is related to the polyphase Mystery Creek stock that outcrops over a 5 kilometer by 3 kilometer area. The stock contains both disseminated and vein style copper and gold mineralization and metasomatic skarn mineralization is formed in several areas along the margin of this stock. Geochemical and geological evidence suggests the Nixon Fork skarn is genetically similar to the skarn ore bodies mined at the Fortitude mine in Nevada and at the Nickel Plate mine in British Columbia.

The alteration and mineralization observed in rocks at Nixon Fork can be divided into 5 distinct but often overlapping phases: 1) contact metamorphism, 2) prograde skarn, 3) retrograde skarn, 4) local overprinting of skarn by quartz-sericite alteration and 5) supergene oxidation and metal enrichment. Skarns at Nixon Fork have been further subdivided into mappable units according to their dominant mineralogical compositions: 1) garnet > pyroxene skarn, 2) pyroxene > garnet skarn, wollastonite skarn, magnesian skarn (serpentine-phlogopite-talc-tremolite) and 5) retrograde sulfide-rich skarn. The Mystery and Crystal Garnet areas of the Nixon Fork project exhibit two distinctly different styles of skarn development and later retrograde alteration associated with copper-gold mineralization. Skarn zonation in the Mystery Creek area (Mystery Portal) consists of regular zonation outward from the intrusive stock on the east through a 2-8 meter thick garnet > pyroxene zone through a 3-22 meter thick pyroxene > garnet zone, with or without the presence of a 1-6 meter thick wollastonite zone which overprints the garnet > pyroxene zone. Outward of the pyroxene > garnet zone, alteration grades is a highly variable thickness of calc-silicate-bearing hornfels composed of argillite, dirty limestone and dolomite. Gold and copper mineralization in the Mystery Creek area occurs in retrograde skarn with forms primarily in the pyroxene > garnet skarn (85% of Cu-Au mineralization) with the remaining 15% of the copper and gold mineralization hosted by retrograde altered garnet > pyroxene skarn. In contrast, skarn zonation in the Crystal-Garnet area does not exhibit the regular zonation that has been mapped at the Mystery Creek area and retrograde alteration (and associated copper-gold mineralization) appears to be controlled more by late felsic dikes and fault structures. The intrusive-skarn contact in the Crystal Garnet area is generally faulted and retrograde alteration is best developed at or close to this faulted contact, although both prograde and retrograde skarn develop along structures up to 60 meters west of the intrusive contact. Both structural and lithologic controls on copper gold mineralization are evident at Nixon Fork.

Recent petrographic and geochemical research conducted on the Nixon Fork deposit suggests that gold-copper mineralization may be preferentially hosted in a previously unrecognized calcareous sandstone unit. The geographic extent of this unit and its significance relative to current resources and future exploration potential at Nixon Fork is uncertain.

Surface and underground drilling by Fire River commenced in 2010 and continues to the present. The 2010 surface drilling program was composed of 19 drill holes targeted outside the current resource base at the Whalen/North Star area and the Southern Cross area. Exploration in 2011 was limited to underground diamond drilling using Hagby drills targeting the Crystal/Garnet mine. These efforts were designed to upgrade existing resources and define additional gold-copper resources that could be accessed from the current underground workings.

A total of 24,800 m of diamond drilling was performed in 2010 and 2011, which included exploratory and ore definition drilling. Resources were expanded for three zones as a result of this drilling: 3000, 3300, and 3550. Current NI43-101 resources in all mineralized zones at the Nixon Fork mine include indicated resources of 204,360 tonnes grading 17.6 gpt (115,777 ounces) and inferred resources of 107,860 tonnes grading 18.0 gpt (62,452 ounces).

All of the mining conducted by Fire River from July 4, 2011 to the present has come from the 3300 zone. A total of 21,974 tonnes grading 15.2 gpt (10,771 contained ounces) were mined and milled in 2011 however, final recovery figures for this processing were not available at the time this report was written. The mine and mill at Nixon Fork currently are in the ramp-up stage to commercial production, so mining productivity and cost performance figures are not available for disclosure at this time.

Based on preliminary field, laboratory and literature studies completed to date, the following recommendations for future work are warranted:

1. **Phase 1:** Previous work has shown that skarn alteration and gold-copper mineralization are marked by weak to strong magnetic highs relative to unaltered limestone and intrusive. Initial exploration recommended for the Nixon Fork mine consists of close-spaced ground geophysics over the Mystery, J5A-Southern Cross, Crystal/Garnet, 3550/Recreation, Cowboy, and NorthStar/Whalen prospects. A contract geophysical crew is recommended with lines placed at right angles to known intrusive-skarn contacts. Limited oversight and ground support will be required from Nixon Fork mine personnel and contractors will be transported, housed and fed using existing mine facilities. The initial Phase 1 work program is designed to be completed within a 6 month period and is independent of any other work recommended at the Nixon Fork mine. Total estimated cost of this Phase 1 work is approximate cost of $150,000.
2. **Phase 2:** Following completion of Phase 1 work, a backhoe/dozer trenching program is recommended for areas of known (historic) surface mineralization as well as geophysical targets defined in previously unexplored areas by the Phase 1 ground geophysics program. Mine-based backhoe or crawler dozer equipment will be used to excavate bedrock trenches. All trenches should be mapped and continuous channel samples collected over 1 to 2 meter intervals. Contract or mine-site geologists and geotechnical personnel can be utilized for the recommended work. Limited oversight and ground support will be required from Nixon Fork mine personnel and contractors

will be transported, housed and fed using existing mine facilities. The initial Phase 2 work program is designed to be completed within a 6 month period and is dependent on the results of Phase 1 magnetics surveys recommended above. Total estimated cost of this Phase 1 work is approximate cost of $350,000.

2. INTRODUCTION

The following report was commissioned by Fire River Gold Corporation (Fire River) to summarize the geology and mineralization of the Nixon Fork copper - gold project mine in west-central Alaska (Figure 2.1). Fire River owns the Nixon Fork Mine through a wholly owned subsidiary, Mystery Creek Resources Inc. Mystery Creek has a renewable lease to explore and mine the mineralization at Nixon Fork. The authors, through their private companies, Avalon Development Corp. (Avalon) and Giroux Consultants Ltd. (Giroux) were retained to complete this summary report for Fire River. The senior author conducted a site visit to the project on August 21 and 22, 2009 and continued to work on exploration outside of the current resource base since that time but has not visited the project since August 2009.

Figure 2.1: Location map for the Nixon Fork gold - copper project, McGrath Mining District, Alaska. Data from Avalon Development, 2012.

This report is written to comply with Canadian National Instrument 43-101 requirements as adopted on June 30, 2011.

Unless otherwise noted, all costs contained in this report are denominated in United States dollars (US$1.00 = CDN$1.00). Where gold grades are quoted in this report, the abbreviation "opt" means troy ounces per short ton and the abbreviation "gpt" means grams per metric tonne. Unless otherwise noted, the price of gold used to convert grade or production figures from dollars to ounces is $20.67 per ounce prior to 1934 and $35.00 per ounce from 1934 through 1972. To insure historical accuracy, historical resource estimates are presented in their original dimensional and measurement units.

For purposes of this report, the terms “skarn” and “exoskarn” will be used interchangeably. The term “endoskarn” shall be used only when referring to metasomatic skarn alteration within the host intrusive body. Recommended work programs are included at the end of this report.

When referring to locations along a creek, this report uses the historical method of description where right limit and left limit refer to the side of the creek as viewed by a person looking downstream. The terms alluvial and placer are considered synonymous for the purposes of this report. For purposes of this report, the abbreviated term "Ma" shall mean "millions of years ago" and the term "Moz" shall mean "millions of ounces". Older literature uses volcanic rock names for clearly plutonic rocks, particularly those of hypabyssal nature. The authors have used the classification system of Streckeisen (1973) to convert the incorrect volcanic terms to their equivalent correct plutonic classification.

3. RELIANCE ON OTHER EXPERTS

The attached report has been prepared by the authors using public documents acquired by the author and private documents given to the author for this purpose. While reasonable care has been taken in preparing this report, the authors can not guarantee the accuracy or completeness of all supporting documentation. In particular, the authors did not attempt to determine the veracity of geochemical data reported by third parties, nor did the authors attempt to conduct duplicate sampling for comparison with the geochemical results provided by other parties. The interpretive views expressed herein are those of the authors and may or may not reflect the views of Fire River or the property owners. The authors have relied on these data and have no reason to believe that any material facts have been withheld.

4. PROPERTY DESCRIPTION AND LOCATION

The Nixon Fork property consists of 95 unpatented federal lode claims and 15 unpatented federal placer claims (2,200 acres aggregate) and an additional 81 State of Alaska mining claims (6,840 acres aggregate) located in Township 26 South, Range 21-22 East, Kateel River Meridian (Figure 4.1). The mine is located in the Medfra A4 quadrangle and is centered at 63^{o} 14’N, 154^{o} 46’W, 56 km northeast of McGrath, central Alaska. The claims are registered with the U.S. Bureau of Land Management and the Alaska Division of Mining, Land and Water Management (Appendix 1).

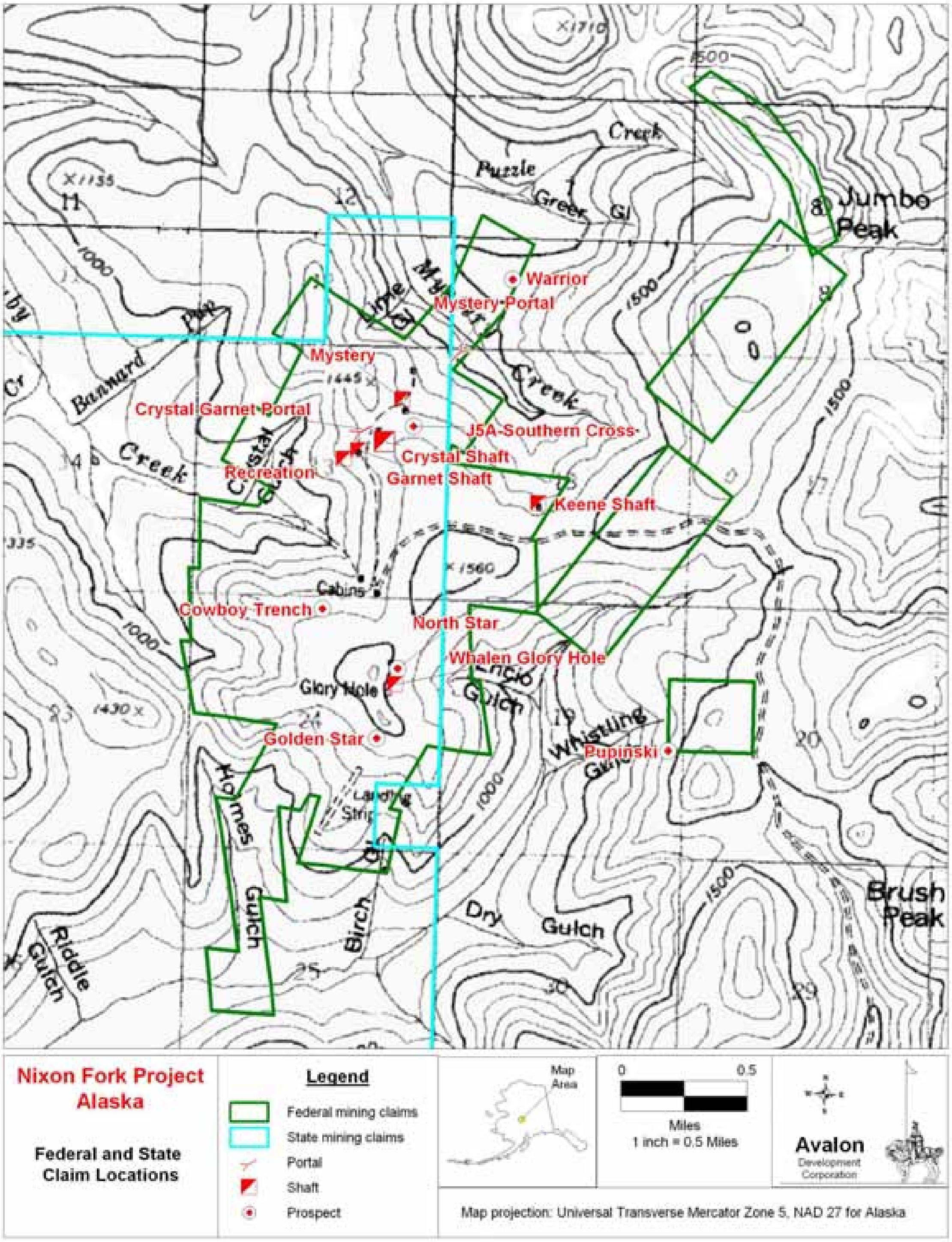

Figure 4-1: Land status at the Nixon Fork project, Medfra Quadrangle, Alaska. Date from Hansen, 2008, modified by Avalon Development, 2012.

Annual federal mining claim rental payments of $15,400 ($140/claim) were timely paid in August 2011 and will become due and payable ($15,400) again before August 31, 2012. Annual State mining claim rental payments of $16,090 were timely paid in November 2011 and payable again before November 30, 2010. Federal claim rental payments are paid to the US. Bureau of Land Management for claims wholly or partially on federal lands (Range 21 East) and to Doyon, Ltd., the Regional native corporation in this part of Alaska, for federal claims wholly on Doyon land (Range 22 East, Appendix 1). Annual affidavits of annual labor for State mining claims were timely recorded in November 2011 and will become due and recordable again by November 30, 2012.

At the time of statehood, the State of Alaska was given the right to select 104 million acres from the "public lands" that were then managed by the Bureau of Land Management (BLM). The State of Alaska began evaluating and selecting lands with the first million acres being lands to generate revenues for a mental health trust that had been established while Alaska was still a territory. The selection process continued until January 1, 1994, which was the statutory end date for completion of selections. Approximately 90 million acres have been tentatively approved (TA'd) for transfer to the State. In the case of the Nixon Fork property, Township 26S Range 21E is a state selected township that has yet to be transferred, and Township 26S Range 22E has been deeded to the native controlled Doyon Ltd.

As a result of this transaction, 33 of the 110 Federal claims are located on land administered by Doyon Ltd, a native corporation that obtained the land through the Alaska Native Claims Settlement Act (ANCSA). Tenure requirements for the Federal claims located on Doyon Land are the same as for those on Bureau of Land Management (BLM). A Federal claim, once granted, is valid until the following August 31. The annual cost to maintain a Federal claim is $140 paid to the BLM. Failure to pay the assessment fee in a timely manner results in the loss of those mineral rights.

There are currently 44 State of Alaska claims staked “at risk” that overlay the federal claims on the BLM ground located in Township 26N, Range 21E which is a TA'd Township. The State claims will only become active if the federal claims are abandoned and the state is conveyed title to the land underlying the claims. There are also 4 State claims on Doyon land, Township 26N Range 22E and an additional 58 expired State claims that form an area of interest clause in the agreement between St Andrew and the underlying land owners, Mespelt and Almasy Mining Company, LLC. State claims require annual assessment work of $100 per 40-acre claim and an annual rental fee that commenced at $35 per 40-acre claim, escalating to $70 per claim after 5 years and $140 per claim after the 11th year. For quarter-section claims the rentals commence at $140 per 160-acre claim, escalating to $280 per claim after 5 years and $680 per claim after the 11th year. All the State claims at the Nixon Fork project have been held in excess of 11 years.

A mining license tax (MLT) is payable on all production from State, federal or private lands in Alaska (Borell, 2009). This tax is on a net profits basis with a grace period for the first 3.5 years of production. If annual net income is less than $40,000, there is no MLT. The tax varies from 5% if annual net income is between $40,000 and $100,000 up to 7% if annual net income is above $100,000. In addition, there is also a 3% production royalty calculated on the same net profits basis as the mining license tax that applies to production from State lands. The claimholder may convert the State claims at any time to a lease which is subject to the same rental and production royalties as the claims but grants specific rights of tenure.

Mineral rights in this part of Alaska are administered by the BLM and the State of Alaska. The claims of the Nixon Fork project have not been surveyed by a registered land or mineral surveyor and there is no State or federal law or regulation requiring such surveying.

On February 4, 2003, Mystery Creek Resources Inc., then a wholly owned subsidiary of St. Andrew Goldfields, entered into a long-term lease on the Nixon Fork property with the owner, Mespelt & Almasy Mining Company LLC. Provisions of the lease are outlined below:

1. Exclusive and unrestricted 10 year term renewable upon written notice from lessee
2. Lessee has full use of all equipment and facilities on site
3. Exclusive rights to process all surface and underground ores, stockpiles, and tailings
4. Unrestricted access for all exploration, mining, and mineral processing activities
5. Advance minimum royalty of US $36,000 per year
6. Annual work commitments as follows- During 2003 $300,000, During 2004 $700,000, and during 2005 $1,000,000
7. Royalty on precious and platinum group metals based on the price of gold: 2% NSR for gold price less than $300/ounce, 3% NSR for gold price between $300 and $350 per ounce, 4% NSR for gold price between $350 and $400 per ounce, and 5% NSR for gold price greater than $450 per ounce
8. All other metals subject to 4.0% NSR
9. First right of refusal to acquire the property
10. Right to remove all improvements erected or placed thereon by the lessee

Postle and others (2006) indicated that the expenditure commitments required by the lease as outlined above have been completed and expenditures have exceeded the $2,000,000 required. To the best of the authors' knowledge, the lease agreement between Mystery Creek Resources and Mespelt & Almasy Mining Company, LLC, is in good standing. The property is subject to an additional 2% net smelter returns production royalty in favor of unrelated third party interests.

On February 12, 2009 Pacific North West Capital announced that it had exercised an option to acquire from St. Andrew Goldfields Ltd. all of the outstanding shares of Mystery Creek Resources, Inc., a wholly-owned Alaskan subsidiary of St Andrew Goldfields Ltd. Under terms of the agreement, Pacific North West would acquire all of the assets of Mystery Creek and assume its lease obligations at Nixon Fork, for $500,000. This financial obligation was met by Pacific North West Capital.

On August 13, 2009, Fire River Gold Corp. announced that it had exercised an option to purchase a 100% interest in the Nixon Fork project from Pacific North West Capital. The terms of the agreement included the following conditions, which were met on time:

1. Fire River paid $50,000 on signing of the letter agreement, following the receipt of all necessary approvals.
2. Fire River paid Pacific Northwest $450,000 over a six (6) month period and a total of $2.5 million in Fire River shares at a deemed price of $0.45 per share.
3. In addition, Fire River issued Pacific North West one million share purchase warrants at an exercise price of CDN$0.50 for a period of 24 months from the date of issue.
4. Fire River refunded all expenses incurred by Pacific North West from May 1st 2009 until the finalization of the transaction, the total of which was not to exceed CDN$1,250,000.

The authors are not aware of any changes to the aforementioned royalties and agreements.

5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The Nixon Fork project is accessible via air by charter aircraft from Anchorage, Fairbanks or McGrath, all of which are served by regular scheduled commercial air service. The Nixon Fork airstrip is approximately 1,280 meters long and can handle Hercules C-130 and D-6 fixed wing transport aircraft. Alternative access is by barge on the Kuskokwim River from Bethel, on the coast to the village of Medfra (740 km) and then 16 km north to the mine site via an unimproved dedicated State of Alaska road corridor.

The Nixon Fork project is situated in an area of moderate topographic relief with elevations ranging from 300 to 460 meters. Ridges are generally rounded and are forested with black spruce, larch, birch, and alder. Lower elevations are often poorly drained due in part to discontinuous permafrost conditions, often being covered by soft muskeg and stunted black spruce forest. Outcrops are rare in the mine area with a few resistant knobs along ridgelines. Colluvial and vegetative cover mask bedrock on hillsides and valley bottoms. Summer daytime temperatures on the project are typically range from 22^{o}C in the summer to lows of -40^{o}C in winter. Precipitation averages 40 cm per year, much of this as snow during the winter months.

The cities of Anchorage (population 280,000) and Fairbanks (50,000) are the major sources of labor, supplies, services and health facilities for the Nixon Fork project. McGrath, with a population of about 350 and other nearby small villages may provide some of the local laborers for mine operations. Facilities on site include a camp with accommodation for about 85 persons, a 200 tonne per day gravity flotation plant, assay lab, mechanical shop, offices and support equipment (Bridge Capital, 2008). Electricity for mine operations is generated on-site by diesel-powered generators.

6. HISTORY

Mineral exploration and development has occurred at the Nixon Fork project in several discrete phases since it its discovery in 1917. From 1920 to 2007, the mine produced (from all operators) 125,591 ounces of gold, 19,566 ounces of silver, 1,273,066 pounds of copper, from about 106,137 tonnes of ore (St. Andrew, 2007a, St. Andrew, 2007b, Bundtzen, 1999). An additional 21,974 tonnes at 15.2 gpt (10,771 contained ounces) were mined and milled in 2011 however, final recovery figures for this processing were not available at the time this report was written (R. Lessard, written comm.). The silver and copper production figures are incomplete and should be considered minimum production estimates. The following is a chronological summary of the project derived from published and private records available to the authors.

Exploration and Mining – 1909 to 1983: Gold was discovered on the Nixon Fork in 1909-1910 and caused the first rush of prospectors to the region (Bundtzen and others, 1986). The exact location of these discoveries is uncertain. Placer gold was discovered by F.E. Matthews in June, 1917 on Hidden Creek on the south end of what is now the Nixon Fork property and subsequent placer discoveries soon followed on Ruby, Mystery and Submarine Creeks (Thomas, 1948). Mertie (1936) reported a series of gold fineness values from various creeks in the district. The most productive placer deposits were located on Hidden Creek from Riddle Creek at the upper end to a point on Hidden Creek about one mile below the Riddle Creek – Hidden Creek junction. Gold fineness values on Hidden Creek production from 1925 through 1932 ranged from 892 to 961‰ and averaged 928‰. Silver values ranged from 30 to 68‰ and averaged 59‰. The largest single gold nugget reported from placer mining in the Nixon Fork area was a 4.75 ounce nugget from Hidden Creek (Mertie, 1936). Gold was reportedly fresh, angular and often contained adhering fragments of quartz. Associated heavy mineral concentrates include abundant native bismuth along with scheelite and barite. Other fineness values reported include 961‰ gold and 33‰ silver on Birch Gulch and 807‰ gold and 107‰ silver on Ruby Creek (Mertie, 1933).

The coarse, fresh nature of the placer gold found in these creeks suggested a nearby lode source which prompted prospecting and staking of the uplands surrounding these creeks in 1918 (Jasper, 1961).What we now call the Nixon Fork lode deposit was discovered by Pearson and Strand in the spring of 1918 and shortly after was leased to Thomas P. Eakin who sank the Crystal shaft (Roehm, 1937, Jasper, 1961). Eakin continued working in 1919, during which he mined and shipped 400 tons of ore to the Tacoma Smelter with an average grade of $90 per ton gold (4.35 opt). In 1919 the Whalen lode prospect (also known as the Whalen – Griffin prospect) was discovered by E.M. Whalen.

In early 1920 the Whalen lode, Pearson and Strand and McGowan and Mespelt prospect were leased to Juneau-based Treadwell-Yukon Company, Ltd. which prospected, developed and mined in various parts of their holdings from 1920 through late 1923 (Martin 1922, Brown, 1926, Roehm, 1937). Following prospecting in 1920, the Treadwell company erected a 10 stamp gravity recovery mill on Ruby Creek below the most promising workings. It sank the Garnet No. 1 and No. 2 shafts and the Recreation shaft above the mill but derived most of its production in 1922 and 1923 from the Whalen lode. Roehm (1937) reported that the Treadwell company recovered $207,000 from the Whalen lode property (approx. 10,014 oz) and an additional $28,000 worth of gold from the Pearson and Strand property (approx. 1,354 oz). The Treadwell company dropped its options in late 1923 on the Pearson and Strand and McGowan and Mespelt prospects but retained its option on the Whalen lode for an additional year before terminating this option as well (Jasper 1961). Production records from the Whalen prospect from 1922 indicated the bullion produced from that operation had a gold fineness that averaged 812‰ with a silver fineness that averaged 171‰ (Mertie, 1936). Production records from the Pearson and Strand prospect from 1922 indicated the bullion produced from that operation had a gold fineness that averaged 740‰ with a silver fineness that averaged 243‰ (Mertie, 1936).

The Treadwell-Yukon Company stamp mill on Ruby Creek was described by Mertie (1936). The mill consisted of 10 stamps and accessory equipment and was manufactured by the Alaska Juneau Gold Mining Co. in Juneau, Alaska (Thomas, 1948). The ore from operations was sent through a grizzly and into a jaw crusher, where it is reduced to a 1.5 inch minus pulp. The crushed ore is then sent to the stamp battery and the undersized fraction reports across a set of mercury amalgamation plates. Pulp which passes over the plates, then goes to a classifier which sends the coarser material to a ball mill. The pulp leaving the ball mill reports to a second set of mercury amalgamation tables. The remaining waste stream was impounded in a small tailing facility on Ruby Creek where it remains to the present. The waste was reported to contain sulfide material with gold values up to $22 per ton (1.906 opt). The mill was supplied with power from two 70 horsepower boilers and a 125 horsepower steam engine. Mill capacity was 50 tons per 24 hour operating day. Gold was produced on-site using a mercury retort.

In 1924 E.M. Whalen and four others leased the Treadwell mill and processed previously broken ore from the Whalen mine, recovering approximately $80,000 (3,870 ounces) in the process (Jasper, 1961). In 1926 Charles and Adolph Mespelt purchased the Treadwell company mill and the Pearson and Strand prospect. Roehm (1937) reported that work conducted by the Mespelts on the Pearson and Strand prospect between 1926 and 1932 produced an estimated $400,000 (19,351 oz). Production records from the Pearson and Strand prospect from 1926 through 1932 indicated the bullion produced from that operation had a gold fineness that averaged 735‰ with a silver fineness that averaged 247‰ (Mertie, 1936).

E.M. Whalen sank a new shaft on the Whalen prospect in 1936 and reportedly produced 50 tons or ore of unknown tenor (Roehm (1937). The Mespelt brothers retained ownership of the Nixon Fork property and continued prospecting and intermittent production from 1926 through 1950 when the property was leased to H.G. Wilcox (Roehm, 1937, Jasper, 1961). By 1952 the Wilcox leased had been terminated and Strandberg and Sons, Inc. acquired a lease on the property and began prospecting work which continued through 1964. The property was returned to the Mespelt brothers in 1964 and, in conjunction with Ted J. Almasy, these parties acquired ownership of all of the lode and placer rights in the Nixon Form mine area (Herreid, 1966).

Wallis and others (2003) reported that for the period 1920 through 1961 average head grades from lode production at Nixon Fork were 1.5 opt gold, 3.0 opt silver and 2% copper. Total production is estimated at 42,000 ounces of gold, 11,282 ounces of silver and 41,440 pounds of copper (Table 6.1). Placer mining is estimated to have amounted to about 15,000 ounces of gold with the majority of that from Hidden and Ruby Creeks and their tributaries.

Exploration – 1984 to 2002: Unless otherwise noted, the following summary of historic exploration, metallurgical testing and mining operations has been derived from Wallis and others (2003), Wallis and Rennie (2005) and Postle and others, (2006). The author did not have access to all of the historical reports written during the period 1984 through 2002 and relied on the above-referenced 43-101 compliant reports for accounts of exploration, development and production during this period.

Table 6.1: Total gold production from the Nixon Fork mine, 1920 to 2011. Total ounces recovered and recovery percent for 2011 were not available then this report was written.

Year	Tonnes	Mined Au Grade (gpt)	Ounces Mined	Ounces Recovered	Recovery (%)
1920-1961	28,000	51.4	42,000	42,000	N/A
1995	4,047	92.7	12,062	10,361	85.90%
1996	36,420	37.9	44,378	36,749	82.81%
1997	49,059	31.1	49,053	39,665	80.86%
1998	25,158	58.1	46,993	40,283	85.72%
1999	7,697	51.1	12,644	10,691	84.55%
2007 - 1st Qtr	8,198	21.8	5,212	3,374	64.74%
2007 - 2nd Qtr	7,433	16.0	3,468	2,261	65.20%
2011	21,974	15.2	10771	N/A	N/A
TOTALS:	187,986	38.3	226,581	185,384	78.54%

During the period 1984 through 2002 the Nixon Fork property has been explored by a number of companies including Battle Mountain Gold (Duval Corporation) from 1984 to 1988 and the Nixon Fork Joint Venture, (NFJV) with Central Alaska Gold Co. as operator from 1989 through 1993. Exploration included soil and geophysical surveys, trenching and both reverse circulation and core drilling as listed in Table 6.2. Table 6.2 includes a minor amount of drilling that may have been carried out on adjoining lands not currently held. Nevada Goldfields Inc. (NGI) a wholly owned subsidiary of Consolidated Nevada Goldfields Corporation (CNGC) acquired the property in July 1993 and carried out additional definition drilling and completed a feasibility study.

During 1994, NGI completed 914 meters of underground workings including declines into the Mystery and Crystal-Garnet zones in addition to both surface and underground drilling. In a report dated December 9, 1994, Derry Michener Booth & Wahl (DMBW) estimated the proven and probable minable reserves to be 117,200 tons averaging 1.32 oz/ton Au containing 154,500 ounces of gold based on a cut-off grade of 0.29 oz/ton Au and reducing all gold assays above 12 oz/ton Au to 12 oz/ton Au. This is an historical estimate and does not conform to the requirements of NI 43-101. Construction of the surface facilities and underground development commenced in March 1995. NGI invested about $34 million in the property during the life of mine (NGI March, 1998). Production from the Crystal-Garnet and Mystery orebodies commenced in October 1995.

Table 6.2: Exploration drilling on the Nixon Fork project, 1985-2002

Company	Year	Type	# Holes	Meters
Battle Mt. Gold	1985-1988	Surface RC	85	7,341.5
Nixon Fork JV	1989	Surface HQ Core	18	1,463.4
Nixon Fork JV	1990	Surface HQ Core	70	8,874.4
Nixon Fork JV	1993	Surface HQ Core	23	3,638.4
Nevada Goldfields	1994	Surface HQ Core	71	5,984.9
Nevada Goldfields	1994	Underground BQ Core	43	1,763.8
Nevada Goldfields	1996	Surface HQ Core	69	6,464.6
Nevada Goldfields	1996	Underground BQ Core	117	7,109.9
Nevada Goldfields	1997	Surface HQ Core	30	3,011.5
Nevada Goldfields	1997	Underground BQ Core	163	13,411.3
Nevada Goldfields	1998	Underground BQ Core	30	4,029.5
		TOTALS:	719	63,093.2

In 1996 NGI carried out a helicopter-borne combined electromagnetic and magnetic survey, stream and soil surveys over the mine area and two nearby townships that resulted in the acquisition of additional land holdings considered prospective for skarn gold deposits. These claims are no longer part of the property owned by Fire River. Surface drilling, totaling 5,832 meters, was completed on the mine property in 1996, testing the area between the Mystery and Crystal-Garnet areas and at the Whelan Glory Hole prospect.

In 1997 NGI completed 2,375 meters of additional surface drilling on the mine property around the Whelan Glory hole, High Grade and Southern Cross areas.

In 1998 exploration was confined to a small soil sampling program and trenching at the Warrior prospect.

The parent of NGI, Real Del Monte Mining Corporation, the successor to CNGC and its subsidiaries filed for Chapter 7 liquidation on June 25, 1999. The property, including the surface facilities and equipment, was formally abandoned by the Bankruptcy Trustee in March 2000 and returned to the original owners, Ted Almasy and Margaret Mespelt by formal document in November 2002.

Mineral Processing and Metallurgical Testing – 1984 to 2002: Several recognized firms carried out metallurgical testing prior to the 1995 production decision. Denver Mineral Engineers (1995) summarized the bulk sample metallurgical test work on the Crystal Garnet oxide ores as follows:

1. Gravity recovery of gold 19.6%
2. With flotation, overall gold recovery of 81%
3. Copper flotation of the oxide ore gave a recovery 15.4% copper with a concentrate grade of 15.5%
4. Gravity recovery of gold 33.9% with flotation overall recovery of 91.3%
5. Copper flotation gave a recovery of 97.9% copper with a concentrate grade of 28.3%

The mill operated from 1995 through June 1999. The Nixon Fork mill consists of gravity separation and flotation circuits employing conventional crushing, milling, gravity separation, flotation and concentrate- and tailings-dewatering circuits capable of handling 140 tonnes per day. Tailings are disposed of in a lined facility. Concentrates in the form of filter cake were loaded into polypropylene super sacks for shipment by air to Anchorage and then by ship to Dowa's smelter in Japan. Dore from the gravity circuit was taken to McGrath and mailed to Johnson Matthey in the United States.

Production records from the mine indicated that average mill recovery since start-up was 84.8%. Initially about half of the gold was recovered from the gravity circuit. As more sulfide ores were processed this amount decreased. Typically the gold recovery averaged 83.5% for the oxide ores while the sulfide ores averaged about 90% recovery. Flotation responses varied with the ore type, with higher copper recovery in the sulfide ore resulting in a higher quantity of lower grade concentrate. The average concentrate grade was 16.6% copper containing 300 to 600 gpt Au and an average of 277 gpt Ag per tonne. Concentrate penalty elements including arsenic and antimony (reported as combined arsenic plus antimony) averaged 0.58%, bismuth averaged 0.22% and selenium averaged 0.01%.

Mining Operations – 1995 to 1999: Five zones were originally considered for mining, the Crystal Garnet, Mystery, J5A, High Grade/Rec and the Southern Cross. Ultimately, the Nixon Fork Mine was developed for trackless mining with two 4 meter by 3 meter, –15% declines on two separate zones, the Crystal Garnet and the Mystery, about 500 meters apart. Initial production was from the Crystal Garnet oxide ores from October 1995 through to May 1996 when production began from the Mystery decline.

The Mystery decline, 642 meter in length, was developed in the sediments away from the quartz monzonite intrusive from the portal at 292 meter and the current face at 202 meters. Total development amounted to 783 meters. Total production from the Mystery was 5,410 t at 9.49 gpt Au. As the grade and tonnage for the Mystery bodies was less than anticipated, mining was shifted back to the Crystal Garnet sulfide mineralization.

The Crystal Garnet body is accessed by a 1,600 meter decline and 3,305 meters of development. The decline bottom is at the 145 meter elevation with the portal at 400 m. The water table varies from 140 to 168 meters in elevation. The 3100 and High Grade/Rec bodies were accessed from the Crystal decline but, again, as the grades were lower than anticipated mining was later confined to the higher grade Crystal Garnet bodies.

Total production from the Crystal Garnet mine, which included the C3000 from the 390 meter level to the 145 meter level, the C3300 between the 365 meter level and the 160 meter level, the C3001, C3002, C3004 orebodies and minor production from the Southern Cross and J5A areas, amounted to 116,971 t at 43.5 gpt Au.

The stopes were developed with 15 meters from sill to sill. Three-meter crown pillars were left every 30 to 45 m. Stoping methods used initially were shrinkage and drift and fill where shallow dipping orebodies were encountered. However, fewer flatter dipping orebodies were encountered than originally thought. The typical stope was mined with jacklegs, overhand, shrinking vertically until day lighting through the sill above. After all the ore was broken it was mucked out and hauled to surface. Waste rock was dumped into mined out stopes when possible or hauled to surface. Waste rock mined was 122,381 t, of which approximately 35% was backfilled.

Table 6.1 summarizes the gold production from the Nixon Fork mine during the period 1995 through 1999. In total, the mine produced 137,749 ounces of gold and 2.1 million pounds of copper from 1995 through 1998. Average production head grade for gold was 42 gpt and production costs averaged $266 per ounce recovered. The average copper head grade is not available to the author.

The profits from mining operations at Nixon Fork were utilized to fund the parent company Real del Monte's Mexican silver project development programs. The Mexican projects were not successful, forcing Real del Monte into bankruptcy and causing the closure of the Nixon Fork mine in 1999 (Freeman, 1999).

Exploration – 2003 to 2008: Unless otherwise noted, the following summary of historic exploration has been derived from Wallis and others (2003), Wallis and Rennie (2005) and Postle and others, (2006).

In early 2003, Geoinformatics Exploration Ltd. (Geoinformatics), was engaged to prepare a computerized three-dimensional geologic model of the Nixon Fork property and surrounding areas and analyze the model with the "Geoinformatics Process". All available geological data from the site was collected, placed in a digital format, and validated by Geoinformatics and Mystery's Exploration Manager. Geoinformatics prepared three-dimensional geologic models based upon the data collected with block modeling relying heavily on gold grades.

A limited program of geological mapping, trenching and sampling was carried out in the Whelan Glory Hole area where samples confirmed previous surface gold and copper mineralization extending for 75 meters northeast of the glory hole. Twenty trench samples returned from 0.86 to 44.8 gpt Au and 0.05% to 2.6 % Cu over 0.3 to 2.8 m.

In late 2004 Aeroquest Ltd. conducted a detailed time domain EM and magnetic (AeroTEM) survey of the entire Mystery Creek pluton. Flight lines were spaced 50 meters apart, resulting in a higher resolution product than the surveys done in the past. A total of 735 line km were flown in two blocks, including approximately 500 line km of tie and traverse lines in the immediate vicinity of the mine and around 230 line km in a southern block (Bridge Capital, 2008). There were no significant EM anomalies located by this work.

In 2004 and early 2005 St. Andrew initiated a series of surface and underground drilling programs at Nixon Fork. This work included 121 NQ holes totaling 11,874.9 meters of underground drilling on the 3000 and 3300 bodies and an additional 32 NQ holes totaling 5,539 meters in the J5A area (Table 6.3). One surface drill hole (BQ core) totaling 63.9 meters was drilled in the Whalen area in 2004 to test for mineralization associated with NE trending dikes. From April 2005 to August 18, 2006, St. Andrew completed an additional 14,558 meters of core drilling in 121 holes in several areas of the project (Table 6.3).

Table 6.3: Exploration and development drilling on the Nixon Fork project, 2004 – 2008.

Company	Year	Target Area	Type	# Holes	Meters
St. Andrew	2004-2005	3000/3300	Underground	121	11874.9
St. Andrew	2004-2005	J5A	Underground	32	5539.0
St. Andrew	2005-2005	Whalen	Surface	1	63.9
St. Andrew	2005-2006	J2100	Underground	17	2760.6
St. Andrew	2005-2006	3550	Underground	15	1998.5
St. Andrew	2005-2006	3300	Underground	10	1100.3
St. Andrew	2005-2006	Whalen	Surface	21	2850.1
St. Andrew	2005-2006	Mystery	Underground	35	3964.7
St. Andrew	2005-2006	Mystery	Surface	4	517.2
St. Andrew	2005-2006	Warrior	Surface	11	868.7
St. Andrew	2005-2006	3000 packer tests	Underground	8	497.9
St. Andrew	2007	3300	Underground	89	5454.9
St. Andrew	2007	Whalen	Surface	7	726.05
St. Andrew	2008	3300	Underground	33	2997.07
			TOTALS:	404	41,213.82

During the period extending from late 2007 through 2008, St. Andrew completed 122 NQ diamond drill holes totaling 8,451.97 meters from underground in the 3300 zone and an additional 7 NQ diamond drill holes totaling 726.05 meters from the surface in the Whalen zone.

The exploration programs completed at the Nixon Fork project from 2003 to 2006 had a total cost of $2.3 million (Bridge Capital, 2008).

Mineral Processing and Metallurgical Testing – 2003 to 2008: Unless otherwise noted, the following summary of historic metallurgical testing has been derived from Wallis and others (2003), Wallis and Rennie (2005) and Postle and others, (2006).

A sampling program on the 115,000 tonnes of material in the mine tailings pond was carried out in 2004 by H. Bogart, P. Eng. Samples were taken on 100 ft. line spacing over the dry part of the tailings, representing approximately one half of the pond. Some additional sampling was carried out on 50 foot centers. The pond could not be completely sampled as part of it was under water. Prior to sampling, the depth of the material was determined by injecting water through a pipe and pushing the pipe through the tailings. A power auger was used to collect the samples to a maximum depth of 9.5 ft., the limit of the equipment available. A total of 13 holes were completed. A bulk metallurgical sample of material taken from the same sites assayed 0.279 oz/ton Au. Results of this program are discussed under “Mineral Processing and Metallurgical Testing”.

From December 2003 through October 2005, three phases of metallurgical testing were conducted on mined material and tailings from the Nixon Fork mine. In late 2003 MCRI took three ‘bulk samples’ of ore from the C-3000 ore chute considered to represent types of skarn ore to be milled from the Crystal Mine. Chlumsky, Armbrust & Meyer LLC (CAM) supervised testing of the C-3000 bulk sample by Phillips Enterprises, LLC of Golden, Colorado (Bridge Capital, 2008, Chumsky and others, 2005a, 2005b). The test work included a gravity circuit and a flotation circuit using fresh ore at Nixon Fork, and cyanide leaching of gold from flotation concentrates as well as from the previously processed tailings. CAM was also responsible for the development of a process flow diagram.

Phase 1 test work focused on cyanide leaching of whole ore to maximize the gold recovery into dore form. Due to the high levels of cyanide soluble copper, a proprietary process for copper and gold separation was tested. As the testing proceeded, it became apparent that while the process was technically viable, it was probably uneconomical due to the large amounts of cyanide consumed.

The Phase 2 test program focused on a more conventional processing scheme, calling for gravity recovery of coarse free gold followed by flotation of the copper minerals with additional gold recovered to a high grade copper concentrate. A separate copper circuit was tested to make a copper concentrate but more importantly to remove copper from the feed to the cyanide circuit to enhance the gold recovery in the cyanide circuit. After 25 flotation tests, it was clear that a 25% copper concentrate could be produced on a regular basis with an overall gold recovery of 75% and a copper recovery of approximately 80%. The recovery depends on the grade and the feed rate to the circuits.

Phase 3 testing focused on recovering gold from the 1995-1999 tailings pond. A gravity separation test was carried out resulting in a 6% recovery for gold and 4.5% recovery for gold. Because of the low recoveries, no further gravity work was considered. A flotation test carried out on the gravity tails did not recover an acceptable percentage of the precious metals (57% for Au) and flotation was not considered for further work.

Three cyanidation tests were carried out on the tailings pond bulk sample. A test on the bulk sample as-received returned recoveries of 85% for gold and 83% for silver over 24 hours with cyanide consumption of 6.7 lb/ton. Extraction from the gravity tailings resulted in a 78% recovery. A moderate regrind of the gravity tailings and cyanidation improved extraction to 86% gold recovery and 82% silver.

Based on the 2004 test work, bulk cyanidation was considered an acceptable method to reprocess the tailings. The results suggest that 80% to 85% recoveries can be expected within a 12 hour retention time. The proposed recovery process involves the excavation from the existing pond using a hydraulic monitor, pumping the tailings to a set of leach tanks at the existing plant site, leaching for a 12 hour period, detoxifying and filtering the tailings so that they can be dry stacked on the old landing strip which will be permitted as an approved tailings disposal site. Wallis and others (2005) recommended mining of the tailings at a rate of 700 tonnes per day.

As a result of this successful test campaign, CAM developed a process flow diagram and Samuel Engineering was commissioned to assess the condition of the old process plant and to develop a capital cost estimate for refurbishing the plant, as well as constructing a new power generating facility and a new cyanide leach and gold recovery facility.

<u>Mining Operations – 1999 to 2008:</u> Unless otherwise noted, the following summary of historic mining operations has been derived from Bridge Capital (2008).

Based on the results of exploration and metallurgical work conducted during the period 2003 through 2005, St. Andrew completed mining plans for the C3300 and lower portions of the C3000 ore bodies. These plans envision longhole mining where practical or shrink stope with backfill where needed. Based on the 2005 Nixon Fork economic analysis compiled under the supervision of Paul Jones, P.Eng, the Company's Executive Vice President, the Company proceeded with pans to commence mining operations at the Nixon Fork property.

In the first quarter of 2006, St Andrew began upgrading, rehabilitating and recommissioning the 200 tonne per day gold mill and related surface infrastructure. In addition, a cyanide leach circuit was planned to leach tailings produced by the operation in addition to extracting and retreating the tailings from the previous operation. Engineering work was completed in April 2006. Onsite construction commenced in the second quarter of 2006 and underground rehabilitation commenced in the third quarter of 2006. Initial underground ore extraction started late in the fourth quarter of 2006 from development ore obtained during the development of the stoping areas on the 3300 Shoot area. Concentrates were back-hauled by air on the fuel planes from the mine site to Fairbanks where they are placed in rail cars for transport by rail/barge to Xstrata Copper Canada's Horne Smelter in Rouyn-Noranda, Quebec. Prior to start-up, total costs for mine and mill rehabilitation, reclamation bonding and surface work was approximately C$10 million (St. Andrew, 2006).

In the first quarter of 2007, the Nixon Fork mine processed 8,198 tonnes of ore with an average grading of 21.8 grams per tonne (Table 6.1, St. Andrew, 2007a). Mill recovery rate for the quarter averaged approximately 64.40% producing 3,374 ounces of gold and 37,623 pounds of copper. During the quarter, the mine produced 172 tonnes of copper concentrate containing 2,789 ounces of gold. In the first quarter of 2007, mining operations at Nixon Fork were focused on advancing the development and establishment of stoping areas and resulted in lower volumes of stope ore being treated through the mill. The company anticipated the availability of additional stopes by the third quarter of 2007.

Initial pre-production efforts at Nixon Fork focused on the development of stoping areas in the 3300 Shoot. In May 2006 the Company announced the appointment of Procon Mining and Tunneling ("Procon") as the mining contractor for the Nixon Fork Gold Mine. During the underground development program problems were experienced in identifying the shapes of the ore bodies as outlined by three dimensional modeling. Although high grade (in excess of 25 grams per ton), the irregular shape of the ore shoots, resulted in excessive dilution in the ore delivered to the mill. Consequently gold production fell well short of production targets. An underground drilling program was commenced in June 2007 to better define the dimensions of the modeled ore shoots.

In the second quarter of 2007, the Nixon Fork Gold Mine processed 7,433 tonnes of ore with a head grade of 16.0 grams per tonne Au (Table 6.1, St. Andrew, 2007b). Mill recovery rate for the quarter averaged 65.2% producing 2,261 ounces of gold. During the quarter, the Company recognized gold sales of $2.7 million recovered from 258 tonnes of copper concentrate delivered to the smelter. The company reported that mine development scheduled for completion in the second quarter fell behind schedule due to equipment and mining personnel shortages and ore face availability issues encountered in the upper portion of the Crystal deposit. The company indicated that it planned to shut down the mill operations for about 6 weeks in August and September to allow for the planned installation of tailings filtration equipment and the integration of the dry stack tailings facility at the mine.

On October 10, 2007 St. Andrew announced that it had suspended operations at Nixon Fork, pending additional definition drilling and resource modeling (St. Andrew, 2007c). Mining at the time was under way on the upper portion of the 3300 ore body. Construction of a dry stack tailing facility and the installation of the mill cyanide circuit also were suspended. The company indicated that better definition of mineralization was required at both the 3300 and 3000 ore bodies before mining would resume. There have been no mining or milling activities at the Nixon Fork mine since that time. Total production during 2007 was 6,775 ounces of gold and 78,644 pounds of copper (Fire River, 2009).

Mineral Resources and Reserves – 2003 to 2011: Following its acquisition of the Nixon Fork project, St. Andrew Goldfield commissioned Roscoe Postle Associates Inc. to complete new mineral resources and reserves that were complaint with national Instrument 43-101 (Wallis and others, 2003). In 2005, Roscoe Postle provided and an updated resource estimate (Wallis and Rennie, 2005) and followed with a second in 2006 (Postle and others, 2006).

In 2010, Fire River Gold announced revised resource estimates for the tailing and for lode underground resources (Flanders and others, 2010). These resource estimates were performed by the G. Giroux, one of the authors. The resource for the tailings is 92,000 tonnes of indicated resources grading 7.87 gpt for a total of 23,300 ounces of gold and 48,000 tonnes of inferred resources grading 7.37 gpt for a total of 11,400 ounces of gold. This estimate includes all tailings without reference to a cutoff grade. The estimate for lode gold in the Nixon Fork project includes Indicated Resources of 121,690 tonnes grading 26.88 gpt for a total of 105,168 ounces using a 10 gpt cutoff. Inferred Resources total 70,780 tonnes grading 27.80 gpt totaling 63,257 ounces also at a 10 gpt cutoff.

Exploration and Development Work in 2009 - 2011: Following acquisition of the Nixon Fork project in early 2009, Pacific North West Capital commenced a CDN$1.25 million program with the objective of conducting a comprehensive re-evaluation of mine reserves and resources, metallurgy, tailing production scenarios, completion of updated NI 43-101 technical report (Flanders and others, 2010), completion of a preliminary feasibility study (Finch, 2011) and commencement of commercial production (July 4, 2011).

Fire River spent approximately $500,000 in 2009 conducting a comprehensive reevaluation of mine reserves / resources, metallurgy, tailing production scenarios, completion of updated NI 43-101 technical report, financial analysis update the mine plan and a recommended program for the exploration on the project. These studies will form the basis for a planned re-start of mining operations at Nixon Fork.

As a follow-up of the 2004 tailing impoundment drilling program, in 2009 Fire River drilled an additional 329 feet in 21 holes in the tailing facility, with hole depths ranging from 8 to 30 feet (Fire River News Release, 6 April 2010). Not all planned sites could be drilled due to liquefaction of the tailings when disturbed. Sampling was done every 2.5 ft, producing a total of 133 samples. A summary of the results of this work is presented under "Mineral Processing and Metallurgical Testing"

During 2010 Fire River continued its comprehensive reevaluation of mine reserve/resources, metallurgy, and tailings production scenarios (R. Lessard, 2012, written comm.). A surface NQ2 diamond drilling program commenced in July with 19 holes drilled including 11 holes in the Whalen/North Star areas and the remainder in the Southern Cross area. June also saw the re-opening and refurbishing of the underground which continued through the following year. An underground NQ2 diamond drilling program commenced in August and continued through the end of the year with 53 holes drilled for a total of 5708.3 meters. Drill targets included 3000X, 3000Z, 3100, upper 3300, 3300D, 3000D, and Hi Grade Rec (Table 6.4). Mystery Creek also contracted Steve Zahoney to re-map the Garnet underground development which was completed in December. Also during this period surface facilities were upgraded including the addition of an additional 9800 gallon fuel tank and camp upgrades were completed. Mill refurbishment began late in the year along with the resumption of construction of the new cyanide leach circuit started by St Andrews. In total Fire River spent $5.2 million in new equipment during the year (R. Lessard, 2012, written comm.).

Table 6.4: Exploration and development drilling on the Nixon Fork project, 2010 – 2011.

Company	Year	Target Area	Type	# Holes	Meters
Fire River Gold	2010	Whalen	Surface	4	737.5
Fire River Gold	2010	North Star	Surface	7	767.2
Fire River Gold	2010	Southern Cross	Surface	8	905.1
Fire River Gold	2010	3000D	Underground	5	346.3
Fire River Gold	2010	3300D	Underground	4	341.1
Fire River Gold	2010-2011	3100 & J5A	Underground	34	3716.1
Fire River Gold	2010-2011	3000X	Underground	27	1780.0
Fire River Gold	2010-2011	3000Z	Underground	23	1342.4
Fire River Gold	2010-2011	3300	Underground	141	9344.4
Fire River Gold	2010-2011	Hi Grade Rec	Underground	19	2050.6
Fire River Gold	2010-2011	145 Ramp	Underground	9	533.0
Fire River Gold	2011	3200	Underground	12	714.5
Fire River Gold	2011	3550	Underground	29	4573.0
Fire River Gold	2011	Mystery Drift	Underground	1	92.4
			TOTALS:	323	27243.6

The underground NQ2 diamond drill program continued through 2011 (Table 6.4) concentrating primarily on defining the 3300 ore body in preparation for mining, with additional drilling to explore for additional resources both northeast and southwest of know ore bodies.

This resulted in the discovery of a previously unknown body designated as the 3550 ore body. The program produced 251 NQ2 holes for a total of 19,125.3 meters in 2011 (R. Lessard, 2012, written comm.). During 2011 Fire River Gold expended approximately $8.5 million in exploration and development. Approximately $3 million was expended on mill refurbishment and cyanide leach circuit construction. Mill refurbishment was completed in July with mill startup on July 4th. Construction of the cyanide leach circuit continued through the end of the year. As part of the cyanide leach circuit construction, an additional $500,000 was expended for the construction of the dry stack tailings storage area to store the tailings processed through the leach circuit. Additionally, a new mill/technical office building was constructed and the onsite assay laboratory was commissioned in the early summer months.

Mining Operations – 2011 to Present: Fire River commenced underground development at the Nixon Fork mine in May 2011. The primary focus of this work was the development of the 170/Mystery Cross Connect and the 145 decline. In June 2011 Phase 1 of the mining plan was initiated with the mining of the 3300 ore body between the 208 and 270 elevations and at the 383 level producing 18,738 tonnes at 14.8 gpt for 2011(R. Lessard, 2012, written comm.). Mining method was predominantly room and pillar with minor back-stoping in selected locations. Long hole drilling was commenced late in the year in preparation of changing mining method early in 2012. In September surface mining of the G2 pit (surface expression of the 3300 ore body located in the laydown area just south of the portal) was commenced and continued through October when surface activity was suspended due to the onset of winter. The surface pit produced 3236 tonnes at 17.6 gpt for a total ore production for 2011 of 21,974 tonnes at 15.2 gpt (10,771 contained ounces). Final mill recovery and total ounces recovered for 2011 were not available at the time this report was written.

7. GEOLOGICAL SETTING AND MINERALIZATION

Regional Geology

The Nixon Fork project is located on the northeastern edge of the Kuskokwim Minerals Belt (KMB) of southwestern Alaska (Figure 7.1, Bundtzen and Miller, 1996, 1997). The KMB roughly parallels the Kuskokwim Mountains which form a broad northeast-trending belt of accordant rounded ridges and broad sediment filled lowlands with locally rugged, glaciated igneous-cored massifs. The KMB covers an area approximately 550 km long by 350 km wide (192,500 km^2) that extends from Goodnews Bay on the extreme southwestern coast, to Von Frank Mountain, about 100 kilometers northeast of McGrath.

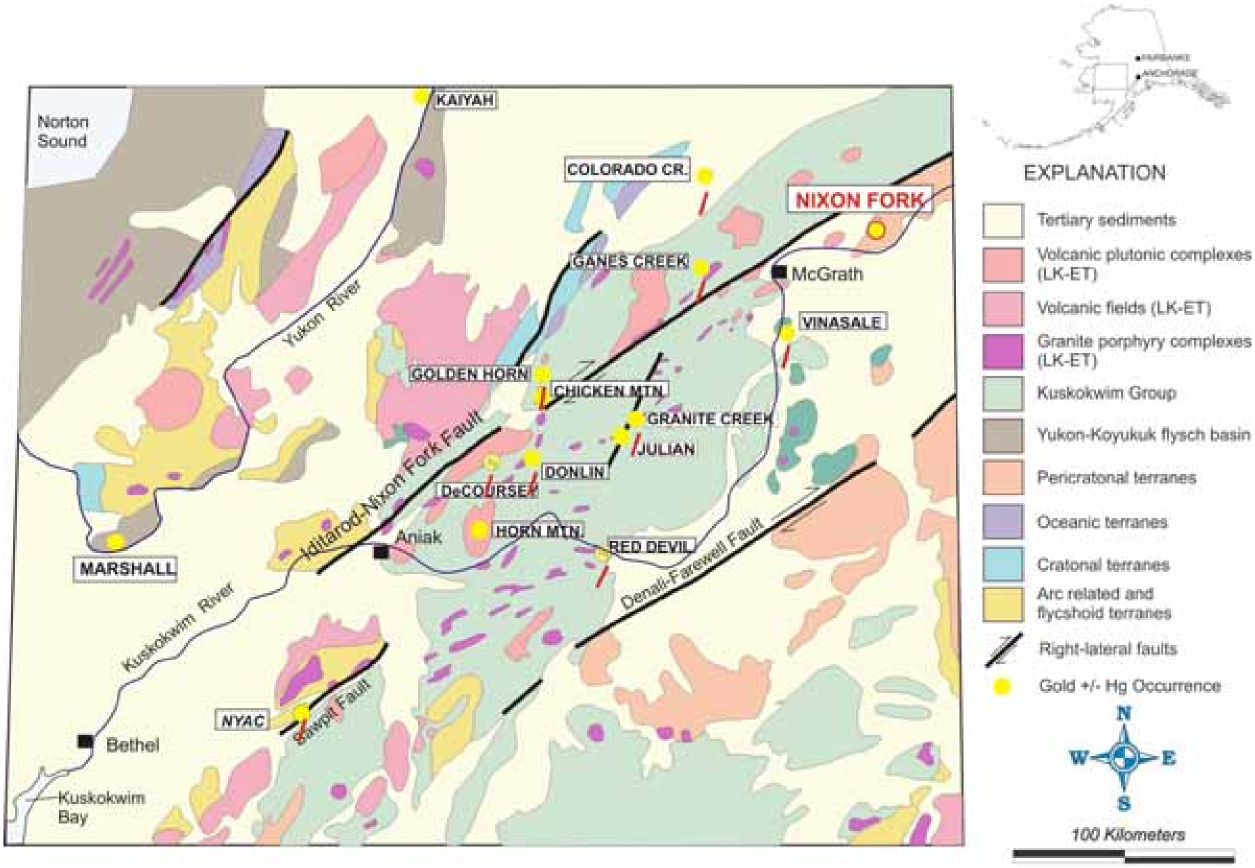

Figure 7.1: General geology of Southwestern Alaska. Geology and gold prospect data from Bundtzen and Miller, 1997, modified by Avalon Development, 2012.

Rocks in the KMB have been subdivided by age and tectonic history into two groups: Lower Cretaceous and older fault-bounded terranes, and middle Cretaceous and younger overlap and basin fill assemblages of sedimentary and volcanic rocks, which were subsequently intruded by mafic to felsic plutons (Bundtzen and Miller, 1997; Bundtzen and Gilbert, 1983; Decker and others, 1994; Miller and Bundtzen, 1994). Proterozoic to Lower Cretaceous rocks crop out in fault-bounded belts that generally parallel the northeasterly structural grain of the region. The Nixon Fork mine is situated between two regional northeast trending structures associated with the KMB, the Denali Farewell fault system to the south and the Iditarod-Nixon Fork fault to the north. Both of these structures have undergone Cretaceous-Tertiary offsets of less than 150 km (Decker and others, 1994). Numerous north-south, northeast and northwest trending subsidiary structures that are related to the Iditarod - Nixon Fork and Denali Farewell faults occur in the Nixon Fork project area and possibly influenced the emplacement of intrusive bodies in the area.

Proterozoic through Lower Cretaceous basement rocks of the Nixon Fork area are considered part of the Nixon Fork terrane, variously interpreted as a discrete allochthonous terrane (Patton and other, 1994) or as various facies of the continental shelf and slope rocks of the Farewell terrane (Decker and others, 1994). Jones and others (1982) suggested that the Nixon Fork terrane was tectonically displaced several hundred kilometers from the northwestern part of the Canadian Cordillera before it was sutured to its current location.

Amalgamation of the older allochthonous terranes of western Alaska was completed prior to middle Cretaceous time (Nokleberg and others, 1994; Decker et al., 1994; Patton et al., 1994). Subsequently, these older terranes were eroded and partly covered by terrigenous clastic rocks deposited into the Kuskokwim basin. These basin fill sequences are Middle to Late Cretaceous in age and display prograding turbidite facies interpreted to be of shallow marine and shoreline origin (Miller and Bundtzen, 1994; Patton and others, 1994). The regionally extensive Upper Cretaceous Kuskokwim Group was deposited primarily by turbidity currents into an elongate, probably strike-slip basin (Miller and Bundtzen, 1994). Local interbedded tuffs and volcaniclastic sandstone exist within the Kuskokwim Group however much of the Kuskokwim Group is derived from a mixture of sedimentary and metamorphic terranes (Decker et al., 1994). Small islands of Kuskokwim Group sediments remain in the Nixon Fork District disconformably overlying the older basement rocks.

Late Cretaceous to Early Tertiary volcanic-plutonic complexes, plutons and subvolcanic dike and sill swarms intrude and overlie the older terranes and the Cretaceous Kuskokwim group (Bundtzen and Miller, 1996). These Late Cretaceous- Early Tertiary igneous rocks host a variety of mineral deposits in the KMB and range in composition from gabbro to alkali granite with intrusives in the Nixon Fork mine area comprised primarily of granodiorite to quartz monzonite (Patton and other, 1983; Wilson and other, 1998).

The dominant deformation events affecting rocks of the KMB began in Late Cretaceous time, although earlier deformational events clearly affected the Nixon Fork and adjacent allochthonous terranes prior to their amalgamation (Patton et al., 1994). The post-accretionary, overlap assemblages (Kuskokwim Group and Late Cretaceous to Early Tertiary volcanic and plutonic rocks) were deformed along continental-scale right lateral, strike slip faults with accompanying en-echelon folds and high-angle faults (Flanigan and others, 2000; Miller and Bundtzen, 1994). The oldest overlap assemblages (Middle Cretaceous) are the most highly deformed and were subjected to multiple fold episodes characterized by steep sub-isoclinal folds. Late Cretaceous and younger rocks are more broadly folded. The main fault zones affecting the KMB include the Poorman, Iditarod-Nixon Fork, Farewell-Denali and Susulatna faults, strike roughly 055^o to 060^o, with offsets that range in order from 16 to 160 kilometers. The dextral strike slip tectonic environment probably controlled the formation of the Kuskokwim basin and the emplacement of Late Cretaceous-Early Tertiary plutonic and volcanic rocks (Nokleberg and others, 1994; Miller and Bundtzen, 1994). The Nixon Fork terrane is bounded to the north by the Poorman fault and to the south by the Nixon Fork – Iditarod fault. Strands of the latter fault occur to the northwest and southeast of the Nixon Fork District.

Unconsolidated fluvial, colluvial, and aeolian deposits that range in age from Late Tertiary to Holocene cover at least 50 percent of the maturely eroded Kuskokwim Mountains. The Nixon Fork District was not affected by continental-scale Pleistocene glaciation however the aeolian silt deposits were derived from winds related to these glacial events.

District Geology

The majority of the basement rocks in the Nixon Fork project area are composed of Cambrian to Devonian-aged shallow water carbonate rocks which have been poorly described in the mine area. Cady and others (1955) assigned the limestone units in the Nixon Fork area to the early Paleozoic Holitna Formation (Figure 7.2). However, based on more detailed biostratigraphic evidence, subsequent investigators have assigned the shallow shelf carbonate units of the Nixon Fork mine area to the Ordovician Telsitna and Novi Mountain Formations (undivided), both shallow water limestone and dolomite units which crop out in the region (Wilson and others, 1998, Patton and others, 2009). These carbonate units are the primary host for both calc-silicate alteration and copper-gold mineralization on the Nixon Fork project. Recent petrographic and geochemical research conducted on the Nixon Fork deposit suggests that, in addition to structural controls, the gold-copper mineralization may be preferentially hosted in receptive carbonate host rocks. Power and others (2003) identified one such preferential host as a micritic or dirty limestone unit at the Crystal-Garnet prospect area and traced it in three dimensions to the northeast toward the Mystery prospect area. Recent re-logging of drill core by Fire River identified a previously unrecognized calcareous sandstone unit that also appears to be preferentially mineralized (G. Myers, oral comm., 2009, see “Controls on Mineralization” below). These favourable host rocks exist well outside the Crystal-Garnet and Mystery prospects and are potential host rocks on other prospects in the Nixon Fork District.

Paleozoic units of the Nixon Fork terrane were subsequently covered by terrigenous clastic units of the Lower Cretaceous Kuskokwim Group (Patton and others, 2009, Wilson and others, 2009). Cutler (1994) reported that these rocks in the Nixon Fork area consisted of black, fine grained metagraywacke and slate. This rock unit exhibits biotite hornfels alteration where if has been intruded by Cretaceous to Tertiary intrusive bodies (Patton and others, 2009). This rock type hosts none of the copper-gold mineralization on the Nixon Fork project (Cutler, 1994). These Kuskokwim Group flysch sediments have been preserved from erosion along the keel of a northeast trending synform (Patton and others, 1983). Older literature suggested the Kuskokwim Group rocks were part of a northeast-elongate antiform that had been thrust over from the southeast by carbonate rocks of the Telsitna and Novi Mountain Formations (Brown, 1926; Herreid, 1966). These older investigators, as well as investigators with Battle Mt. Gold and Central Alaska Gold, hypothesized that the antiformal dome is exposed in a fenster through the overlying carbonate thrust package (Behre Dolbear, 1994). Subsequent intrusion of the Mystery Creek stock occurred after thrusting and caused skarn development in the carbonate package and hornfelsing in the Kuskokwim Group rocks. Patton and others (2009) maintain that the Kuskokwim Group sediments were unconformably deposited on the older Telsitna and Novi Mountain Formations, a hypothesized ascribed to by the authors of this report.

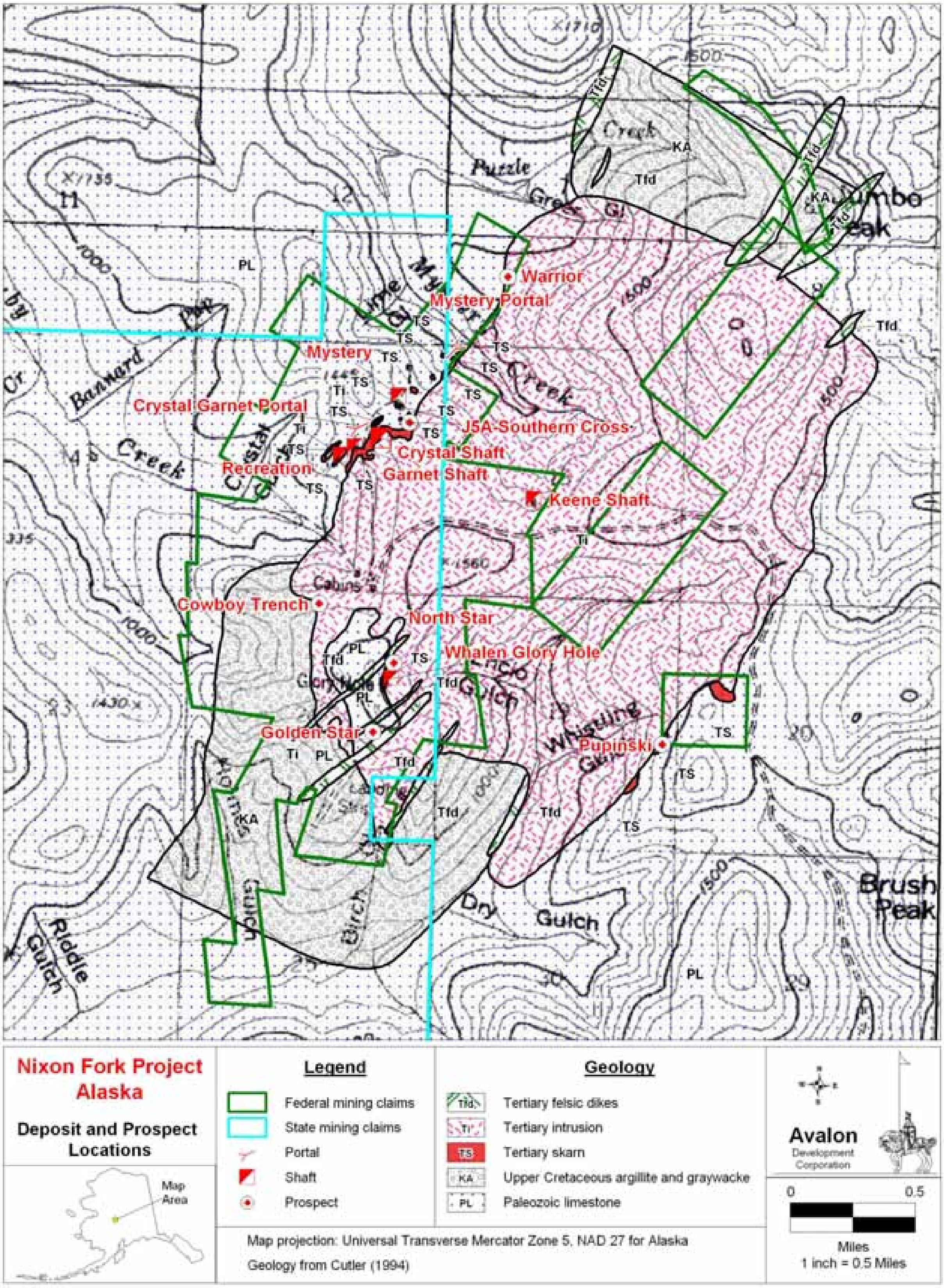

Figure 7.2: General geology and prospect locations for the Nixon Fork project, Medfra Quadrangle, Alaska. Date from Cutler, 1994, modified by Avalon Development, 2012.

In the Nixon Fork area, two 68-70 Ma (Cretaceous) quartz monzonite stocks have intruded the Paleozoic and Cretaceous sedimentary rock units. In the Nixon Fork mine area the prograde skarn alteration and possibly the gold-copper mineralization is related to the polyphase Mystery Creek stock that outcrops over a 5 kilometer by 3 kilometer area (Figure 7.2). The stock contains both disseminated and vein style copper and gold mineralization while metasomatic skarn mineralization occurs in several areas along the margin of this stock (Cutler, 1994). Newberry and others (1997) and Cutler (1994) indicated that the plutonic rocks associated with the Nixon Fork mineralization are slightly to moderately alkalic, extremely reduced (I-type field) and contain little or no modal magnetite or ilmenite. The Eagle Creek stock, 11 km southwest of Nixon Fork mine contains similar mineralization within the stock and skarn alteration and gold mineralization in the adjacent sedimentary rocks (Thomas, 1948; Bundtzen, 1999).

Cutler (1994) identified three chemically distinct phases of the Mystery Creek stock. The oldest phase (Unit 1 of Cutler, 1994) occurs in the western and central portions of the pluton and consists of medium to coarse grained equigranular monzodiorite, quartz monzonite and monzonite. The volumetrically largest phase of the Mystery Creek pluton (Unit 2 of Cutler, 1994) consists of medium to coarse grained monzonite, quartz monzonite and quartz monzodiorite covering an estimated 75% of the surface area of the pluton. Unit 2 plutonic rocks appear to be more quartz rich and more evolved that those of Unit 1 (Cutler, 1994).

The youngest plutonic rock in the Mystery Creek pluton (Unit 3 of Cutler, 1994) forms northeast-elongate altered dikes ranging in composition for granite to quartz monzonite. The dikes typically have an aplitic texture and post-date skarn alteration and copper-gold mineralization, although these dikes may have filled pre-existing structural corridors that were integral to prograde and/or retrograde skarn alteration and mineralization. These aplite dikes appear to follow northeast trending structures which parallel the regional structural fabric in this part of Alaska. Aplite dikes are most common in the northeastern and southwestern parts of the Mystery Creek pluton. The background gold content of all three plutonic rock phases is generally less than 5 ppb and in some cases, less than 1 ppb (Cutler, 1994).

The structural geology of the Nixon Form area is extremely complex at the mine-scale but on the project scale consists of a broad northeast-trending synform, the core of which is occupied by the Mystery Creek pluton (Patton and others, 1983, Patton and others, 2009). The Nixon Fork synform (local name given by the authors) is subparallel to a series of other fold axes mapped to the northeast of the Nixon Fork mine site and which are all bounded by two strands of the Nixon Fork Iditarod strike slip fault which have been mapped to the northwest and southeast of the Nixon Fork property. At the mine-scale, north-south and northwest-trending structures appear to play a significant role in controlling skarn-related gold-copper mineralization (Power, 2003).

District Mineralization

The following summary of the mineralization in the Nixon Fork District is derived in large part from Freeman (2009) and Flanders and Giroux (2010). A more complete summary of these topics and mine-scale geology and mineralization at the Nixon Fork mine can be found in these references.

Plutonic and sedimentary country rocks at Nixon Fork have been altered and in some cases mineralized following emplacement of the Nixon Fork plutonic suite. Since post-intrusive alteration is genetically linked to skarn-hosted copper-gold mineralization at Nixon Fork, the various styles of alteration affecting the Nixon Fork area are discussed under this section. The alteration/mineralization of rocks at Nixon Fork can be divided into 5 distinct but related and often overlapping phases: 1) contact metamorphism, 2) prograde skarn, 3) retrograde skarn, 4) local overprinting of skarn by quartz-sericite alteration and 5) supergene oxidations and metal enrichment (Cutler, 1994). Skarns at Nixon Fork have been further subdivided into mappable units according to their dominant mineralogical compositions: 1) garnet > pyroxene skarn, 2) pyroxene > garnet skarn, 3) wollastonite skarn, 4) magnesian skarn (serpentine-phlogopite-talc-tremolite) and 5) retrograde sulfide-rich skarn.

Contact Metamorphic Alteration: Paleozoic and Mesozoic country rocks which were intruded by the Nixon Fork intrusive complex exhibit variable contact metamorphic alteration depending primarily on original host rock composition. Massive limestones are commonly altered to dense gray marbles while impure limestones and dolomites exhibit marbles with fine grained bands of calc-silicate minerals, primarily clinopyroxene, idocrase and garnet (Cutler, 1994). Pyroxene compositions of contact metamorphic origin are magnesium rich and are chemically distinctive from prograde skarn pyroxenes. Where observed together in drill core or in surface or underground exposures, prograde metasomatic skarn alteration post-dates contact metamorphic alteration and contact metamorphic affects extend laterally beyond the limits of prograde metasomatic skarn alteration. Einaudi (1982) suggested that the brittle nature of contact metamorphic rocks makes them more susceptible to later prograde metasomatic skarn alteration and that the conversion of contact metamorphic hornfels to skarn causes volumetric reductions, enhancing the porosity of these rocks. Both the chemical and physical changes in contact metamorphic rocks make them more favorable hosts for later gold-copper mineralization.

Prograde Skarn: Prograde skarns at Nixon Fork occur primarily as exoskarn hosted in former impure limestones and dolomites. Endoskarn, formed within the causative plutonic body, does occur locally at Nixon Fork but is volumetrically insignificant relative to exoskarn. Recent work suggests some alteration previously identified as endoskarn is in fact exoskarn developed in calcareous sandstone units however, the extent to which this misidentification exists is uncertain (G. Myers, oral comm.., 2009). Spatially, the most important skarn alteration and mineralization occurs on the western and southwestern edges of the Nixon Fork plutonic suite in areas where previous mining has occurred: the Mystery area, the Crystal Garnet area and the Whalen Glory Hole area. Several smaller occurrences also have been identified around the Nixon Fork plutonic suite although none have been mined or prospected extensively.

Prograde skarn minerals at Nixon Fork consist primarily of variable amounts of garnet, ranging from Fe-rich andradite to Ca-rich grossularite along with pyroxene, ranging from Fe-rich hedenbergite to Mg-rich diopside (Cutler, 1994). Manganese-rich garnet and manganese rich pyroxene are rare or absent in prograde skarns at Nixon Fork. Textural evidence suggests that pyroxenes formed first during prograde metasomatism while garnets formed later by replacement of pyroxene (Cutler, 1994).

Pyroxene > garnet skarn, with pyroxene forming 20-60% of the rock, is volumetrically the most abundant prograde skarn assemblage at Nixon Fork (Cutler, 1994). Pyroxene > garnet skarn is less abundant closer to the intrusive contact and shows partial replacement of pyroxene by garnet. Wollastonite occurs in minor amounts in pyroxene > garnet skarns. Chalcopyrite, pyrite, marcasite and arsenopyrite occur as disseminations and late veins within pyroxene > garnet skarn and can make up 2-40% of the total rock mass. Retrograde alteration (see below) is best developed in pyroxene > garnet skarn and most of the gold is hosted in pyroxene > garnet skarn.

Garnet > pyroxene skarn with garnet forming 50-70% of the rock, is volumetrically the most abundant prograde skarn assemblage at Nixon Fork (Cutler, 1994). Garnet > pyroxene skarn is more abundant closer to the intrusive contact and shows partial to complete replacement of pyroxene by garnet. Wollastonite and idocrase occur in minor amounts in garnet > pyroxene skarns. Chalcopyrite, pyrite, and pyrrhotite occur as disseminations and late veins within pyroxene > garnet skarn and can make up <1% of the total rock mass.

Wollastonite skarns at Nixon Fork post-date and cross-cut previously formed pyroxene > garnet and garnet > pyroxene skarn (Cutler, 1994). Cross-cutting features are sharp and suggest wollastonite skarn formed as a late-stage vein or vug-filling event. Wollastonite skarn is most common near the intrusive contacts and no retrograde alteration is evident at the interfaces between wollastonite skarn and other prograde skarn minerals, suggesting Wollastonite alteration may post-date retrograde alteration. Accessory minerals in wollastonite skarn include garnet, pyroxene and idocrase. Sulfide minerals comprise <1% of wollastonite skarn assemblages and include pyrite and chalcopyrite. Gold values in wollastonite skarn are generally <5 ppb.

Magnesian skarns have been identified in drill holes but have not been seen at the surface at Nixon Fork. Magnesian skarns consists of fine grained serpentine, phlogopite, diopside and idocrase with minor olivine, talc and tremolite. Minor magnetite and hematite also occur with magnesian skarns. Magnesian skarns are not commonly anomalous in gold at Nixon Fork however, some gold-bearing magnesian skarns have been identified.

Based primarily on the work of Cutler (1994), prograde skarn alteration at Nixon Fork appears to have occurred at shallow depths of emplacement. This conclusion is supported by the presence of post-skarn porphyry dikes, widespread retrograde alteration, numerous open-space fillings and veins, abundant evidence of brittle fracture and a relatively small contact metamorphic aureole surrounding the Nixon Fork plutonic complex. Based on petrological and mineralogical data. Cutler estimates that the Nixon Fork prograde skarn formed at shallow depths (0.5 kb) from a slightly reduced magma. Prograde assemblages formed somewhere in the 400 to 500^{o}C degree temperature range followed by retrograde alteration below 410^{o}C and consisting of amphibole, epidote, quartz, calcite and sulfides. Wollastonite alteration appears to have occurred during or after retrograde alteration.

Retrograde Skarn: Previous workers have suggested that all of the commercially important metals in the Nixon Fork deposit are hosted in retrograde altered prograde skarn and that gold grades and associated sulfide content are directly proportional to the intensity of the retrograde alteration (Cutler, 1994). Qualitative work conducted by Pacific North West Capital and Fire River in 2009 suggest that much of the previously mined Mystery ore was high grade pyroxene chalcopyrite skarn with very minimal retrograde alteration. It is possible that some mineralization previously classified as being hosted in retrograde skarn alteration, was in fact hosted in rocks affected by recently identified ferroan dolomite alteration and/or subjected to supergene oxidation, both of which appear similar to true retrograde altered skarn. Additional petrographic and geochemical research will be required to determine the extent and significance of ferroan dolomite alteration and supergene oxidation.

Cutler (1994) identified 4 types of metallic mineralization associated with retrograde alteration: 1) disseminated and vein chalcopyrite + pyrrhotite + pyrite with lesser marcasite and bornite in pyroxene-dominant skarn, 2) massive arsenopyrite cut by veins containing chalcopyrite + pyrrhotite + pyrite with lesser marcasite and bornite, 3) oxidized and possibly supergene-enriched zones containing free gold with chalcopyrite, pyrite, malachite and azurite in a gangue of chlorite, clay, limonite, calcite and quartz in formed from garnet pyroxene skarn, and 4) recrystallized limestone and dolomite that contain free gold in a mixture of limonite, hematite, chlorite, calcite, quartz and serpentine.

Pyroxene > garnet prograde skarn is the dominant host for economically significant gold-bearing retrograde skarn. Primary retrograde alteration products include amphibole, quartz and calcite. Primary metallic minerals include native gold, chalcopyrite, pyrrhotite, pyrite with lesser amounts of bornite, marcasite, bismuthinite and several gold-silver telluride minerals. Chalcopyrite is volumetrically the most abundant sulfide at Nixon Fork and occurs as both fine grained disseminated grains in prograde skarn and as later, coarse grained sulfide veins in retrograde skarn. Higher gold values also accompany copper in retrograde skarn. Approximately 30-40% of the chalcopyrite observed at Nixon Fork displays exsolution of bornite from bornite-chalcopyrite solid solutions. Pyrite is the second-most abundant sulfide at Nixon Fork and is present in disseminated form in all skarn types as well as in recrystallized marbles and in intrusive rocks (Cutler, 1994). Pyrrhotite is present in retrograde altered pyroxene > garnet and garnet > pyroxene skarns and shows replacement by marcasite in retrograde skarn. In retrograde zones, pyrrhotite is spatially associated with chalcopyrite and pyrite. Pyrrhotite also has been seen as disseminations in recrystallized marbles and in intrusive rocks but has not been identified in prograde skarn that has not been retrograde altered.

Arsenopyrite occurs primarily as monomineralic masses to 5-6 mt^3 which cut pyroxene > garnet prograde skarn near the marble-out front (Cutler, 1994). These arsenopyrite masses do not contain gold and are cut by gold-bearing chalcopyrite-pyrrhotite-pyrite veinlets formed during retrograde alteration. Microprobe analyses of arsenopyrite from Nixon Fork has indicated that it formed at temperatures of 360-390^oC (Cutler, 1994), a temperature range which fits well with retrograde skarn development temperatures derived from other skarn deposits.

Limited multi-element data analysis conducted by Cutler (1994) indicates that gold has an extremely strong, positive linear correlation with bismuth (bivariate correlation coefficient of

0.94) while gold and cobalt share a strong positive linear correlation (bivariate correlation coefficient of 0.71). Silver, copper and arsenic show weaker but still positive correlations with gold (bivariate correlation coefficients of 0.44, 0.40 and 0.37, respectively). Evidence from other intrusive-related gold and copper-gold systems in Alaska also shows this strong gold - bismuth correlation (McCoy and others, 1997, Gage, 2002, Ebert and others, 2003).

Metallic and Silicate Zoning: the Mystery and Crystal Garnet areas of the Nixon Fork project exhibit two distinctly different styles of skarn development and later retrograde alteration associated with copper-gold mineralization (Cutler, 1994). Skarn zonation in the Mystery Creek area (Mystery Portal) consists of regular zonation outward from the intrusive stock on the east through a 2-8 meter thick garnet > pyroxene zone through a 3-22 meter thick pyroxene > garnet zone, with or without the presence of a 1-6 meter thick wollastonite zone which overprints the garnet > pyroxene zone. Outward of the pyroxene > garnet zone, alteration grades through a highly variable thickness of calc-silicate-bearing hornfels composed of argillite, dirty limestone and dolomite. Magnesian skarn is sporadically developed in the dolomite bed which occurs about 50 meters west of the intrusive contact.

Gold and copper mineralization in the Mystery Creek area occurs in retrograde skarn with forms primarily in the pyroxene > garnet skarn (85% of Cu-Au mineralization) with the remaining 15% of the copper and gold mineralization hosted by retrograde altered garnet > pyroxene skarn. Retrograde copper-gold skarn bodies average 12 to 20m^3 in volume. Massive arsenopyrite bodies replace and cut across pyroxene > garnet prograde skarn near the marble front. These arsenopyrite bodies are in turn cut by retrograde alteration veins.

In contrast, skarn zonation in the Crystal-Garnet area does not exhibit the regular zonation that has been mapped at the Mystery Creek area and retrograde alteration (and associated copper-gold mineralization) appears to be controlled more by late felsic dikes and fault structures (Cutler, 1994). The intrusive-skarn contact in the Crystal Garnet area is generally faulted and retrograde alteration is best developed at or close to this faulted contact, although both prograde and retrograde skarn develop along structures up to 60 meters west of the intrusive contact. Retrograde skarn bodies are controlled by northeast trending felsic dikes and structures and northwest-trending structures. Unlike copper gold mineralization in the Mystery Creek area, some of the copper gold mineralization in the Crystal Garnet area is highly oxidized and variably supergene enriched, both of which may be a function of the higher fracture density in the Crystal Garnet area. In addition, previously identified supergene oxidation effects may be related in part to recently identified ferroan dolomite alteration (G. Myers, oral comm.., 2009). Oxidation at Nixon Fork is variable in general but extends to at least 140 meters below surface at the bottom of the Garnet shaft as evidenced by the presence of solution collapse breccias and copper oxides (Jasper, 1961).

Limited modern exploration has been conducted on the Whalen Glory Hole however evidence from drilling and past underground mining suggest the pyroxene-dominant prograde and retrograde skarn bodies there are formed in a roof pendant of limestone and dolomitic limestone resting on the Nixon Fork plutonic body. Skarn bodies occur along northeast trending structures and prominent northeast trending dikes. Late quartz-sericite alteration post-dates retrograde alteration and may have upgraded gold values in retrograde skarn bodies however, quartz sericite alteration outside of skarn bodies does not contain significant gold values (Cutler, 1994). Historic mining records indicate that above the 100 foot level of the Whalen Glory Hole, gold and copper were hosted in highly oxidized rocks, probably upgraded by supergene enrichment processes (Herreid, 1966, Brown, 1926). Sulfide mineralization becomes dominant below the 100 foot level.

Limited information is available on the origin of the gold and other metals in the Nixon Fork skarn. Cutler (1994) examined metal depletion ratios relative to the Nixon Fork intrusive complex and determined that the gold in the Nixon Fork deposit did not originate in the surrounding carbonate country rocks, leaving the Nixon Fork intrusive complex or an undiscovered (buried) source as the only other likely candidates for the source of gold. Sulfur isotopes from chalcopyrite, bornite and arsenopyrite from Nixon Fork range from 3.6 to 4.2 and suggest magmatic sulfur derivation (Cutler, 1994).

Metal and alteration zoning outside of the immediate vicinity of the Mystery, Crystal Garnet and Whalen prospects is poorly documented, due in large part to limited natural or man-made exposures, sporadic and ineffective exploration programs over the last 25 years and the attendant focus on production-oriented exploration and development during this same time period. Information presented under Future Exploration Targets suggests that the Mystery Creek, Crystal-Garnet and Whalen zones are part of a much larger, more diverse hydrothermal system that previously thought.

Controls on Mineralization: Both structural and lithologic controls on copper gold mineralization are evident at the Mystery Creek, Crystal-Garnet and Whalen zones. Wallis and others (2003) suggested that skarn development occurs in close proximity to the margins of the Nixon Fork quartz monzonite stock and is associated with favorable lithologies such as impure dolomite or thinly bedded micritic limestone. Postle and others (2006) reported that recent drilling in the J5A prospect area allowed identification of a single permissive lithologic unit that appears to host gold mineralization in at least 3 mineralized skarns that can now be correlated over a distance of 800 meters along strike (Mystery Mine-M1100 zone, J5A area - J2201 zone and Crystal Mine-C3000 and C3300 zones). This favorable bed is a fine grained calcareous siltstone that appears to be a simple facies equivalent within more common recrystallized carbonate host rocks. This favorable horizon averages 3 meters in thickness, strikes northeast, and dips 70^{o} to the southeast. Three-dimensional modeling by Power and others resulted in similar conclusions regarding the presence of a favorable micritic and/or dirty limestone unit at the Crystal-Garnet mine workings which strikes into the Mystery mine workings. Additional exploration will be required to determine if the same favorable horizon is present in the High Grade – Recreation area to the south and the Warrior area to the north.

Pre-mineral northeast and northwest trending structures clearly helped focus alteration and mineralization within favorable lithologies as did pre-existing foliation and bedding planes. Postle and others (2006) reported that drilling in 2004 and 2005 in the J5A zone suggests that quartz-arsenopyrite-pyrite veins with sericitic selvages within the Nixon Fork plutonic complex may have acted as conduits for later hydrothermal fluids responsible for retrograde skarn development and associated copper-gold mineralization.

At the mine scale, fold axes are thought to have influenced skarn development (Wallis and others, 2003). On a project scale, the Nixon Fork plutonic complex and the adjacent Paleozoic and Mesozoic country rocks are located in the keel of a northeast trending synform that extends for at least 15 miles from Hidden Creek on the south to beyond Boulder Creek on the north (Patton and others, 1983, Patton and others, 2009). Host rocks for skarn on the northwest side of the Nixon Fork plutonic complex dip steeply to the southeast, into the over-hanging intrusive. This configuration may be a significant mineral control in the western margin of the Mystery Creek pluton. Power and others (2003) presented evidence from the Pupinski prospect suggesting that favorable carbonate stratigraphy on the western margin of the Mystery Creek pluton may dip to the northwest, into the eastern margin of the pluton, providing that same opportunities for alteration and mineralization as on the western margin of the pluton. This subject will be discussed more under "Future Exploration Targets".

The brittle nature of calc-silicate hornfels developed early in the alteration and mineralization sequence and also influenced later prograde and retrograde skarn alteration. Another less well understood control is related to the southeasterly dip of the northwestern edge of the Nixon Fork plutonic suite. In both the Mystery and Crystal Garnet areas, the intrusive body sits vertically above well developed prograde and retrograde skarn (Cutler, 1994). This same overhanging intrusive geometry is suspected to exist at other skarn bodies along the northwest edge of the Nixon Fork plutonic complex (Warrior, J5a, Southern Cross, High grade-Recreation prospects). How this relationship between the intrusive and host carbonates affected skarn development and gold-copper mineralization, if at all, remains uncertain.

Recent petrographic and geochemical research conducted on the Nixon Fork deposit suggests that gold-copper mineralization may be preferentially hosted in a previously unrecognized calcareous sandstone unit (G. Myers, oral comm., 2009). The geographic extent of this unit and its significance relative to current resources and future exploration potential at Nixon Fork is uncertain but will be investigated as part of a recently commissioned Master's thesis program being conducted at the University of Alaska – Fairbanks. Results from this work are not yet available.

8. DEPOSIT TYPES

Bundtzen and Miller (1996, 1997) and Miller and others (2002) present a wide variety of gold deposit models that have been defined in time-equivalent rocks and similar structural settings in the KMB. Virtually all of the significant lode gold occurrences in the KMB are associated with late Cretaceous to early Tertiary volcanic and/or plutonic rocks which post-date the Kuskokwim Group post-accretionary basic fill sediments. The presence of gold mineralization in or adjacent to thick sequences of carbonate rocks adds copper-gold skarn deposits to the list of potential ore deposits types and also suggests that sediment-hosted replacement style gold deposits may be present in the carbonate-flysch packages in the Nixon Fork District. As a consequence, the Nixon Fork District is permissive for the following ore deposit types:

1. Plutonic-hosted mesothermal copper-gold-polymetallic deposits: These deposits are hosted in plutonic rocks ranging from alkali gabbro to granite but gold-enriched skarns are more commonly associated with quartz monzodiorite, quartz monzonite, and monzogranite (Newberry and others, 1997). Exoskarn formation occurs in a wide variety of carbonate hosts with resultant calc-silicate mineralogy controlled to some degree by the Ca:Mg ratio of the carbonate host rocks. Associated intrusive rocks in gold-enriched skarns are generally reduced (I-type) plutonic bodies with alkalic chemical affinities. Evidence from Cutler (1994) indicates that the Nixon Fork intrusive body is an I-type granitic body based on a Na2O versus K2O alkalinity plot. Intrusive samples from Nixon Fork also plot primarily in the gold favorable field of alkalinity versus redox potential plots (Cutler, 1994). Skarns such as Nixon Fork commonly exhibit elevated Cu, Bi, As, Te and Sb and often contain anomalous Zn, Ag, Sn, W, Co and Ni. Gold-enriched skarns also tend to be low in Mo content. Oxide skarn deposits in this class often contain copper oxides after bornite and chalcopyrite with coarse visible gold. Alteration assemblages are dominated by grossularitic garnet and hedenbergitic pyroxene however with dolomitic host rocks at Nixon Fork allowed for development of magnesium enriched skarns containing diopside, salite and olivine. Manganese is distinctly absent in garnet and pyroxene in gold-enriched skarns. Geochemical evidence presented by Cutler (1994) suggests the Nixon Fork skarn is genetically similar to the skarn ore bodies mined at Fortitude in Nevada. Wallis and Rennie (2005) suggested the Nixon Fork had genetic similarities to the Nickel Plate mine in British Columbia. At the Nickel Plate the underground tonnage mined was 3 million tonnes at 14 gpt gold while at Fortitude the high-grade zone contained resources of 5.1 million tonnes at 10.5 gpt gold (Meinert, 1992).
2. Intrusive-related gold deposits: this broad class of mesothermal gold deposits occur in the KMB and the adjacent Tintina Gold Belt of Alaska and the Yukon Territory. Recent discoveries in this belt have outlined a series of distinctive mineral occurrences which appear to be genetically related to mid-Cretaceous to Early Tertiary plutonic activity which affected a large area of northwestern British Columbia, Yukon, Alaska and the Russian Far East (Flanigan and others, 2000). This work, based on extensive geologic and structural mapping and analytical studies (major and trace element analysis, fluid inclusion microthermometry, ^{40}Ar/^{39}Ar geochronology, and isotope analysis) has provided new information regarding gold metallogenesis in the Tintina Gold Belt as well as in the adjacent and overlapping KMB (Lang and Baker, 2001; Baker and others, 2006; Burns et al., 1991; Lelacheur et al., 1991; Hollister, 1991; McCoy et al., 1995; McCoy et al., 1997; McCoy and others, 2002; Mortensen and others, 2000; Newberry et al., 1995; Eremin, 1995; Bundtzen and Miller, 1997). A synthesis of this information suggests a mineral deposit model in which metal and high CO_2 bearing fluids fractionate from ilmenite series, I-type intrusions during the late phases of differentiation (porphyritic granites). Depending on the rate of ascent of these hydrothermal fluids, the level of the crust they reach before depositing their metallic budget and their associated intrusive rocks, two distinctly different metallogenic systems can form, in some cases in the same mineral prospect. In deeper, higher pressure settings gold mineralization can form at higher temperatures (400°-600°C) and low sulfur fugacities. Such systems are characterized by elevated Au ± Bi ± Te ± W ± As mineralization. Sulfur-depleted

metallic minerals such as native bismuth, native arsenic, maldonite and loellingite often form in such environments. These higher temperature systems display isotopic, trace element and fluid inclusion evidence suggesting almost exclusively magmatic fluid involvement and are thought to form in more proximal intrusive settings. In higher level, lower pressure settings, mineralization forms at lower temperatures (250°-400°C) and higher sulfur fugacities and is characterized by elevated Au ± Ag ± As ± Cu ± Sb ± Hg ± Pb ± Zn. These lower temperature systems display isotopic, trace element and fluid inclusion evidence suggesting significant meteoric water mixing and are thought to form in more distal intrusive settings. A synthesis of this information (Hart et al., 2002, McCoy et al., 1997) suggests an ore deposit model in which gold and high CO_2 bearing fluids fractionate from ilmenite series, I-type mid-Cretaceous intrusions during the late phases of differentiation. The gold is deposited in anastomosing pegmatite and/or feldspar selvage quartz veins. Brittle fracturing and continued fluid convection lead to concentration of gold bearing fluids in intrusions and schist-hosted brittle quartz-sericite shear zones. Carbonate and/or calcareous horizons host W-Au skarns and replacement deposits. Structurally prepared calcareous and/or carbonaceous horizons may host bulk-minable replacement deposits. These occur most distal to the intrusions within favorable host rocks. The various styles of significant hypogene gold mineralization in the KMB and Tintina Gold Belt are presented in Lang and others (2001) and Baker (2003). Based on current information, gold mineralization on the Colorado Creek project shares some similarities with the above-described plutonic-related systems.

3. Sediment-hosted replacement style Au deposits: Although evidence for this type of gold deposit is limited in the Nixon Fork area, many of the critical criteria for sediment-hosted gold deposits are present in the district. While a full discussion of the voluminous literature published on sediment-hosted replacement style gold deposits is beyond the scope of this report and such deposits are highly variable and their genetic origins remain a subject of debate, the following summary from Cline and others (2005) and du Bray (1995) indicates that the salient features of these deposits may include the following important characteristics:
    a. Older basement structures, both extensional and compressional, create a pre-mineral architecture of steeply dipping fluid conduits and/or shallow, low angle “traps” that cut a wide variety of reactive, predominantly calcareous host rocks.
    b. Younger sedimentary rock sequences that eventually are affected by compressional tectonics contain reactive pyritic and carbonaceous silty limestones, the primary host rocks in almost every sediment-hosted gold deposit.
    c. The largest of the sediment-hosted gold deposits (>250 tonnes of Au) are localized in the lower plate of a regionally extensive thrust fault system that placed upper plate non-reactive, relatively impermeable rocks above more reactive, permeable carbonate-dominant stratigraphy in the lower plate, forming a regional aquitard at the upper plate – lower plate boundary.
    d. Black carbonaceous rocks occur in every district and may host some or all of the gold mineralization. However, there appears to be no consistent relationship between organic carbon content and ore grade. Organic carbon appears to play little or no role in the precipitation of gold but may help maintain

reducing conditions of ore fluids thereby allowing H_2S to remain as the dominant sulfur species during gold transport.

e. Some basement and younger high angle faults were inverted during younger compressional events and formed structural anticlines and domes that served as depositional sites for auriferous fluids during post-compressional relaxation and extension.

f. Pre-mineral extensional tectonics reopened favorably oriented older structures as strike-slip, oblique-slip, and normal-slip faults.

g. Fluid flow and mineral deposition appear to have been fairly passive as there is minimal evidence for over-pressured hydrothermal fluids and multi-stage vein paragenesis.

h. Geologic reconstructions and fluid inclusions indicate that deposits formed within a few kilometers of the surface.

i. Ore fluids were moderate temperature (~180°–240°C), low salinity (~2-3 wt % NaCl equiv.), CO_2 bearing (<4 mol %), and CH_4 poor (<0.4 mol %), with sufficient H2S (10^{-1} to 10^{-2} m) to transport gold.

j. Ore fluids decarbonatized, argillized, and locally silicified wall rocks, and deposited disseminated pyrite containing submicron gold where iron liberated from wall rock reacted with reduced sulfur in the ore fluid.

k. Gold occurs most commonly as submicron-scale gold in trace element-rich pyrite and marcasite, even in samples in which gold values exceeds several ounces per ton. Gold-bearing pyrite and marcasite occur as discrete grains, generally less than a few micrometers in diameter, or as narrow rims on earlier formed pyrites.

l. Most gold was deposited with main ore-stage minerals that include gold-bearing arsenian pyrite and marcasite, quartz, kaolinite, dickite, and illite. These minerals are fine grained and typically volumetrically minor to insignificant. Associated gold pathfinder elements include As, Sb, Tl, and Hg in preference to base metals and Ag. Alluvial gold deposits are rare in streams draining sediment-hosted gold deposits.

m. Silicification accompanied some but not all gold deposition and occurs as jasperoid and lesser fine drusy quartz lined vugs. Larger quartz veins rarely occur during ore-stage mineralization.

n. Isotopic studies indicate multiple sources for ore fluids and components and require either different models for different districts or call upon meteoric waters to dilute a deeper ore-fluid.

o. Oxygen and hydrogen isotope ratios of minerals and fluid inclusions are highly variable, however most contain meteoric water signatures with or without accompanying deep magmatic or metamorphic fluid sources.

p. A large range in sulfur isotopes occur in ore-grade pyrite from sediment-hosted gold deposits, suggesting predominant derivation from a sedimentary source. However, some sulfur- isotope data are consistent with a magmatic sulfur source.

q. As a result of these inconsistencies, current sediment-hosted gold deposit models relate deposits to (1) metal leaching and transport by convecting meteoric water, (2) metal leaching and transport by epizonal intrusions, and (3) metal leaching and transport by deep metamorphic and/or magmatic fluids.

9. EXPLORATION

As per Item 9 of NI43-101-F1, exploration work conducted by parties other than Fire River Gold is summarized under “History” of “Geologic Setting and Mineralization”. If exploration work conducted by previous operators is included in this section, the source of that information is referenced herein.

A significant number of samples from the 2007 - 2008 drilling campaign were re-assayed by Fire River in 2010 (Flanders and others, 2010). Although every attempt was made to match the historical interval, in some cases this was not possible. Table 9.1 shows a comparison of the 2010 assays to the historical assays for the 2008 drill holes. In general, given the coarse gold present at Nixon Fork, there is good replication of intervals and grades. The two most significant discrepancies are in two intervals in drill holes N08U011(+1500% change) and N08U023(-39% change). The average difference in gold values using all the re-assayed intervals is +2.85 gpt; if the two most anomalous results from holes 11 and 23 are removed, the difference changes to -2.38 gpt, indicating a significant nugget effect exists at the Nixon Fork mine.

Table 9.1: Comparison of 2007-2008 drill results with 2010 re-assays. Data from Flanders and others, 2010.

	Historic Intercepts - 2008				2010 Re-assays - Field Duplicates			
Hole #	From	To	Length(m)	Au(gpt)	From	To	Length(m)	Au(gpt)
N08U001	231.6	239.6	8	1.6	231.6	239.2	7.6	0.8
N08U003	235.3	238.7	3.4	11.2	234.7	239.3	4.6	6.3
N08U011	71.6	76.2	4.6	8.7	71.6	76.2	4.6	140
N08U012	78.3	83.8	5.5	21.9	78.3	83.8	5.5	15.8
N08U017	35.2	37.5	2.3	24.9	34.6	37.5	2.9	18.7
N08U017	21.5	29.1	7.6	26.8	21.5	28.9	7.4	35
N08U021	26	29	3	18.3	26.8	29.9	3.1	15.6
N08U023	33.7	37.9	4.2	9	33.8	37.8	4	10.8
N08U023	12.5	16.9	4.4	121.6	12.4	17.3	4.9	74.5
N08U023	33.7	37	3.3	12.9	33.8	37.8	4	10.8
N08U024	36	38.2	2.2	14.6	36	38.1	2.1	8.2
N08U025	14	20.4	6.4	13.1	13.6	20.1	6.5	15.8
N08U025	14	26.6	12.6	8.9	14	26.8	12.8	8.6
N08U027	14	17.8	3.8	11.2	14	17.7	3.7	8.1
N08U027	14	17.8	3.8	11.2	14	17.7	3.7	8.1
N08U030	21.4	24.6	3.1	45.1	22.6	22.8	2.2	44.9
N08U031	29.4	32	2.6	65.4	29.4	32.1	2.7	52.9
N08U031	29.4	32	2.6	65.4	29.4	32.1	2.7	52.9

Fire River began a surface diamond drilling program in late July 2010 and underground diamond drilling in August of the same year with NQ2 (50.6 mm) size core (R. Lessard, written comm., 2012). The surface drilling program was composed of 19 drill holes located in areas distal from the current mine site. The targets for the surface drilling were the Whalen/North Star area (11 holes) and the Southern Cross area (8 holes). The surface program terminated in October of the same year due to the onset of winter. Significant results of this work are presented in “Drilling”. Significant drill intercepts from the 2010 drilling program are presented in Appendix 2.

Exploration in 2011 was limited to underground diamond drilling using Hagby drills with NQ2 size core (R. Lessard, written comm., 2012). The underground diamond drilling program, which continued into 2012, was conducted from within the Crystal/Garnet mine. No surface drilling program was conducted in 2011. Significant results of this work are presented in “Drilling”. Significant drill intercepts from the 2011 drilling program are presented in Appendix 2.

In early 2011 Fire River announced the results of a preliminary economic assessment designed to evaluate the resumption of underground mining at the Nixon Fork project. The independent report, produced by Snowden Mining Industry Consultants Inc., indicated that the current resource was sufficient to sustain a two year production forecast at a production rate of 150 tonnes per day with an average mined grade of 30.1 gpt using an average cut-off grade of approximately 15 gpt gold (Finch and others, 2011). The mineral inventories in this report did not include the results of definition and exploration drilling performed in 2010 and 2011. Capital costs to resume production are estimated to be $6.3 million with a projected payback of 3 months. Operating costs are estimated at $434/ton or $447/oounce for the first two years of operations. At a gold price of $1200 per ounce gold, the project delivers an internal rate of return of 549% and net present value of $60.9 million on an undiscounted cash flow of $64.3 million over the first two operating years. A more complete summary of this preliminary economic assessment is presented in Finch and others (2011).

As of the date of this report, the senior author is engaged in a district-wide compilation effort surrounding the resource base at the Nixon Fork mine. While results of this work are not yet available, the focus of this work is integration of all historic geology, geophysics and geochemistry outside the Crystal Garnet resource area and evaluation of the resulting +25-year database to identify potential new resource targets for future exploration.

10. DRILLING

Historic drilling at Nixon Fork is summarized under “History” and results are discussed under “Mineralization”.

Details relating to drilling techniques, equipment, and other related drilling data generated prior to 2005 and 2007-2008 are not available to the author.

Modern exploration and development drilling on the Nixon Fork project began in 1985 and has been conducted intermittently since then. Over the period 1985 through the end of 2011 a total of 1,436 drill holes (130,925 meters) have been completed at the Nixon Fork project (Table 10.1). Wallis and others (2003) reported that surface core drilling conducted before 2003 was HQ (63.5 mm in diameter) while the underground core drilling was BQ in size (36.4 mm in diameter). Collars for all the surface exploration and underground holes were surveyed in addition to down hole surveys at varying intervals of 20 to 60 m, depending on the length of the hole.

Table 10.1: Summary of exploration drilling on the Nixon Fork project, 1985 through 2011. Data compiled from Wallis and others (2003), Postle and others (2006), St. Andrew Goldfields, oral comm., 2009 and R. Lessard, written comm., 2012.

Company	Year	Type	# Holes	Meters	Target Area
Battle Mt. Gold	1985-1988	Surface RC	85	7,341.50	Various
Nixon Fork JV	1989	Surface HQ Core	18	1,463.40	Various
Nixon Fork JV	1990	Surface HQ Core	70	8,874.40	Various
Nixon Fork JV	1993	Surface HQ Core	23	3,638.40	Various
Nevada Goldfields	1994	Surface HQ Core	71	5,984.90	Various
Nevada Goldfields	1994	Underground BQ Core	43	1,763.80	Various
Nevada Goldfields	1996	Surface HQ Core	69	6,464.60	Various
Nevada Goldfields	1996	Underground BQ Core	117	7,109.90	Various
Nevada Goldfields	1997	Surface HQ Core	30	3,011.50	Various
Nevada Goldfields	1997	Underground BQ Core	163	13,411.30	Various
Nevada Goldfields	1998	Underground BQ Core	30	4,029.50	Various
St. Andrew	2004-2005	Underground NQ Core	121	11874.9	3000/3300
St. Andrew	2004-2005	Underground NQ Core	32	5539	J5A
St. Andrew	2004	Surface BQ Core	1	63.9	Whalen
St. Andrew	2005-2006	Underground NQ Core	17	2760.6	J2100
St. Andrew	2005-2006	Underground NQ Core	15	1998.5	3550
St. Andrew	2005-2006	Underground NQ Core	10	1100.3	3300
St. Andrew	2005-2006	Surface NQ Core	21	2850.1	Whalen
St. Andrew	2005-2006	Underground NQ Core	35	3964.7	Mystery
St. Andrew	2005-2006	Surface NQ Core	4	517.2	Mystery
St. Andrew	2005-2006	Surface NQ Core	11	868.7	Warrior
St. Andrew	2005-2006	Underground NQ Core	8	497.9	3000 packer
St. Andrew	2007	Underground NQ Core	89	5454.9	3300
St. Andrew	2007	Surface NQ Core	7	726.05	Whalen
St. Andrew	2008	Underground NQ Core	33	2997.07	3300
Fire River	2010	Surface NQ2 Core	4	737.5	Whalen
Fire River	2010	Surface NQ2 Core	7	767.2	North Star
Fire River	2010	Surface NQ2 Core	8	905.1	Southern Cross
Fire River	2010	Underground NQ2 Core	5	346.3	3000D
Fire River	2010	Underground NQ2 Core	4	341.1	3300D
Fire River	2010-2011	Underground NQ2 Core	34	3716.1	3100 & J5A

Company	Year	Type	# Holes	Meters	Target Area
Fire River	2010-2011	Underground NQ2 Core	27	1780	3000X
Fire River	2010-2011	Underground NQ2 Core	23	1342.4	3000Z
Fire River	2010-2011	Underground NQ2 Core	141	9344.4	3300
Fire River	2010-2011	Underground NQ2 Core	19	2050.6	Hi Grade Rec
Fire River	2011	Underground NQ2 Core	12	714.5	3200
Fire River	2011	Underground NQ2 Core	29	4573	3550
		TOTALS:	1436	130,925.22	

With the exception of one BQ (36.4 mm in diameter) surface drill hole that was drilled in the Whalen area in 2004, Wallis and Rennie (2005) reported that all of the surface and underground drilling conducted St. Andrew between 2004 and 2008 was with NQ (47.6 mm) size core. All core drilling completed by Fire River in 2010 and 2011 was with NQ2 (50.6 mm) size core (R. Lessard, written comm., 2012).

Fire River began a surface diamond drilling program in late July 2010 and underground diamond drilling in August of the same year with NQ2 (50.6 mm) size core (R. Lessard, written comm., 2012). The surface drilling program was composed of 19 drill holes located in areas distal from the current mine site. The targets for the surface drilling were the Whalen/North Star area (11 holes) and the Southern Cross area (8 holes). The surface program terminated in October of the same year due to the onset of winter. Significant results of this work are presented in “Drilling”. Significant drill intercepts from the 2010 drilling program are presented in Appendix 2.

In late 2010 Fire River announced results from surface core drilling program at the Whalen, North Star and Southern Cross prospects (Fire River news release, November 23, 2010). Hole N10-001, drilled at the Whalen prospect approximately 1900 meters south of the mill, returned 26.1 gpt gold over 1.24 meters. Hole N10-007, drilled in the North Star zone approximately 1800 meters south of the mill, returned 37.0 gpt gold over 3.6 meters including 77.9 gpt gold over 1.1 meter. Hole N10-015, drilled at the Southern Cross prospect approximately 680 meters northeast of the mill, returned 27.56 gpt gold over 1.4 meters. Additional drilling results from the 2010 surface program are presented in Appendix 2. The focus of these holes was the lateral or down plunge extensions of known mineralized zones identified by previous drilling. These zones are outside of the current resource base and represent mineralization that is prospective for future minable resources. Additional drilling will be required to expand on and define additional resources at the Whalen, North Star and Southern Cross prospects.

Exploration drilling in November and December 2010 and in 2011 was limited to underground diamond drilling using Hagby drills with NQ2 size core (R. Lessard, written comm., 2012). The underground diamond drilling program, which is on-going at the date of this report, was conducted from within the Crystal/Garnet mine. No surface drilling program was conducted in 2011. Significant results of this work are presented in “Drilling”. Significant drill intercepts from the 2011 drilling program are presented in Appendix 2.

The 2010-2011 underground drilling was focused on the 3000 and 3300 zones and added resources to several zones within the resource base (See Mineral Resources). However, one of the most significant discoveries made during the 2011 drilling program was related to the newly discovered 3550 zone. Past mining at Nixon Fork has shown that mineralization takes the form of pipes that are more-or-less continuous vertically with steep dips of between 50 and 70 degrees, with occasional fault-induced off-sets. In October 2011 exploration drilling from the 3300 zone intercepted a previously unknown zone of high grade gold-copper mineralization below and apparently fault offset from the Hi Grade Recreation Zone, which was mined to a depth of 50 meter below surface in the 1920s (Figure 10.1). This offset is present in the adjacent 3300 zone and the nearby 3000 zone, both of which extend at least 300 meters below surface outcrops and both of which remain open to depth. Preliminary drilling on the 3550 zone returned significant gold, silver and copper intercepts (Table 10.2). If the 3550 zone can be traced to similar depths as the 3000 and 3300 zones, it represents a potentially significant new resource target that is easily accessible from current underground facilities. Additional exploration of this zone is under way at the date this report was written.

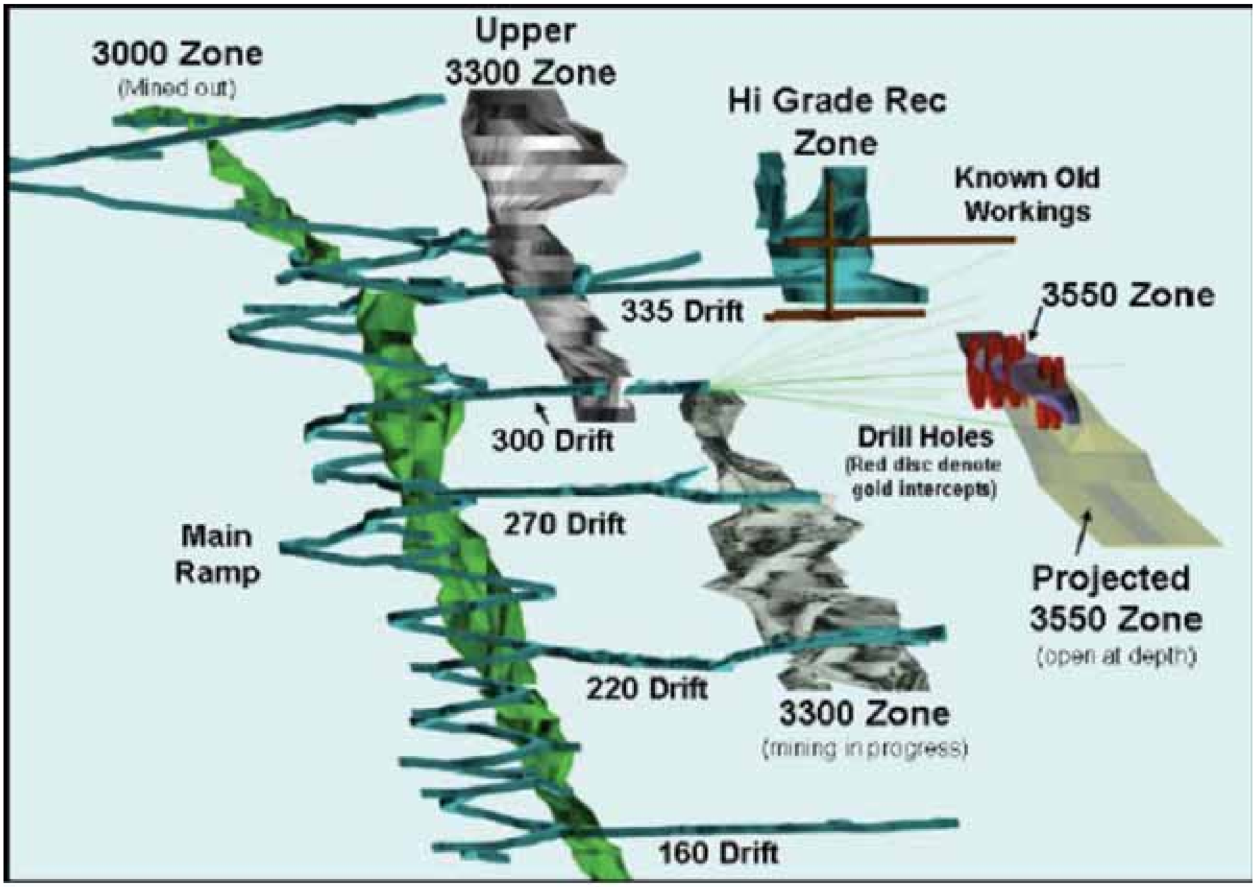

Figure 10.1: Generalized cross-section therough the 3000, 3300 and 3550 zones, Nixon Fork project, Medfra Quadrangle, Alaska. Date from Fire River Gold, 2011, modified by Avalon Development, 2012.

Table 10.2: Significant drill intercepts through the 3550 zone, Nixon Fork Mine, Alaska. Interval widths are approximately true width. Data from Fire River news release, November 1, 2011.

Hole No.	Zone	From (m)	To (m)	Width (m)	Au (gpt)	Ag (gpt)	Cu (%)
N11U-225	3550						
		93.64	94.34	0.70	5.92	3.00	0.19
		99.67	100.92	1.25	2.78	15.00	0.56
		104.83	109.12	4.29	8.41	13.44	0.66
	Including	104.83	106.07	1.24	12.05	21.00	1.10
	Including	108.08	109.12	1.04	19.85	20.00	0.92
N11U-226	3550						
		112.62	119.79	7.17	46.01	47.81	2.92
	Including	113.54	116.98	3.44	93.82	94.26	5.79
N11U-227	3550						
		40.84	42.06	1.22	2.47	0.50	0.07
		44.11	45.11	1.00	8.27	1.00	0.18
N11U-228	3550						
		106.07	113.69	7.62	32.81	64.62	2.66
	Including	106.07	108.66	2.59	92.20	169.66	7.24

11. SAMPLE PREPARATION, ANALYSIS AND SECURITY

Sampling Methodology: Wallis and others (2003) reported that prior to 2003, drill core was logged on site, samples marked and the remaining half core stored on site. Special attention was paid to lithology, alteration oxidation, sulfide and gold content, bedding, foliation, and intrusive contacts. Most of the previous core is stored on site and is in reasonable shape. Some of the underground drill core has been retained however, much has been discarded.

Postle and others (2006) reported that after 2004, core was either sawn in half or split with a hydraulic splitter. Samples, selected by geological contacts and the sulfide content, were generally taken in 0.5 to 1.5 m intervals and bagged for shipment. Larger samples were confined to visually low sulfide bearing rocks.

For the tailings sampling program completed in 2004, the samples were collected by a power auger drilled to a maximum depth of 9.5 feet, which was the limit of the equipment available (Wallis and Rennie, 2005). Each sample consisted of the cuttings from two holes at the same site combined into one sample. A bulk sample was collected by drilling five holes at each site and combining the samples. Only half of the pond was sampled as the remainder was under water.

For diamond drill core, each sample of half core was put into a sample bag, securely fastened and included in a large shipping bag which is then flown by charter aircraft to the laboratory in Fairbanks.

During the 2010 re-logging campaign of drill core from 2007 and 2008, samples collected were essentially field duplicates (Finch, 2011). That is the other half of the core was placed in a sample bag, there was no remaining sample left in the core box. This method provided the most statistically meaningful method of comparing historic results to the results of 2010. Once placed in a 6 mil plastic bag the samples were securely sealed and placed in large bags for shipping. These bags were flow out by charter aircraft to the ALS Chemex preparation laboratory in Fairbanks.

Drill core from the 2010 and 2011 surface and underground exploration and definition drilling programs was logged with intervals of interest and/or mineralization marked for sampling. The core is subsequently photographed prior to cutting. Half the core is retained for future reference and the remaining half placed in double poly bags and sealed for shipment. Exploration drilling samples were flown by charter aircraft to Fairbanks and delivered to the ALS Chemex preparation lab in Fairbanks, Alaska. Following commission of the on-site laboratory at Nixon Fork in June 2011, surface and underground rock, soil and definition drill core samples were submitted to the onsite lab for fire assay gold analysis. These samples are processed the same way as exploration drilling samples except that once logged, photographed and split, the samples are placed in a 6 mil plastic bag, sealed, and brought to the Nixon Fork lab.

Analysis and Security: For the programs carried out prior to 1999, the sample preparation and assaying was carried out by Chemex Laboratories and other recognized assay labs using standard industry methods (Postle and others, 2006). Although all the samples were fire assayed for gold, the “finish” method varied and included AA, gravimetric, and metallic screens. During the period 1989 through 1994, all samples were assayed for gold, silver, copper, and arsenic. After the commencement of production by Nevada Goldfields, surface and underground samples were normally prepared and fire assayed at the mine assay lab using standard industry methods.

After the commencement of production by Nevada Goldfields, surface and underground samples were normally prepared and fire assayed at the mine assay lab using standard industry methods (Wallis and others, 2003). Mine samples were dried and crushed to 3/8 inches in a jaw crusher, then split to 200 g to 300 g in a small Jones splitter. The sample was then pulverized in a ring and puck pulverizer, rolled, and a 30 g cut (one-assay ton) taken for fire assay. Samples were mixed with fluxes and fused. After the lead was removed, the beads were weighed and placed into parting cups. Silver was inquarted at three times the bead weight, parted with nitric acid and the remaining gold dried and weighed. Wallis and others (2003) reported that during production from 1994 to 1997, 10% of the samples were duplicated and 5% of the samples were sent to Chemex for checks but no checks were completed after August 1997. The mine lab did not run standards or blanks on a routine basis. KPGM Peat Marwick (1996) audited the mine assay facilities at the Nixon Fork mine and reported some concern regarding the accuracy of sampling and assaying procedures. Copper and silver assays were not routinely run on drill core and underground samples. Wallis and others (2003) reported that the mine lab was dusty, the jaw crusher had not been properly cleaned and large drying oven was located in the mill where it was subject to dust contamination.

Following acquisition of the Nixon Fork project by St. Andrew, all samples were sent to SGS laboratories in Fairbanks for sample preparation and the pulps were sent to SGS Lakefield in Toronto for assay (Wallis and Rennie, 2005). Gold content was determined using a standard one assay ton fire assay with gravimetric finish, with copper and silver determined by aqua regia digestion and AA finish. When SGS closed its sample prep facility in June 2004, the samples were then sent to ALS Chemex in Fairbanks for sample preparation and then to Vancouver for standard fire assay and aqua regia digestion as described above. During the surface exploration program carried out in 2005 and 2006, field standards and blanks were not submitted with the samples but duplicates were run every 20 samples and those that ran > 20 gpt were rerun on a regular basis by the laboratory. Commencing in June 2005, the samples were sent to Alaska Assay Labs Inc. in Fairbanks for preparation and then shipped to Inspectorate in Sparks, Nevada for assaying. Inspectorate used the same assay methods as those performed by ALS Chemex.

The tailings samples collected in 2004 were shipped to the Golden Sunlight Mine assay lab where they were dried, pulverized, split and fire assayed using a one assay ton with gravimetric finish in duplicate or triplicate.

Details relating to sample preparation, analysis and security for the 2007-2008 drilling program at Nixon Fork are not available to the author.

During the 2010 program all assay work was completed by ALS Chemex, with sample preparation in their Fairbanks, Alaska, facility. Laboratory and analysis in the Vancouver Lab. Samples from this program were crushed and a 250 gram riffle split was pulverized to +85% passing 75 microns. The pulverizer was cleaned with waste rock after each sample was pulverized. Gold was determined by 30 gram fire assay with gravimetric finish. Multi-element analyses were conducted using inductively couple plasma atomic emission spectrography with a four-acid digestion procedure.

Sample preparation and assay work for 2011 drill program was the same as 2010 with the following changes (R. Lessard, written comm., 2012). Sample preparation was completed by ALS Chemex, initially in the Fairbanks, Alaska, facility. In August, ALS Chemex opened a new preparatory laboratory in Anchorage, Alaska where samples were subsequently sent. Regardless of preparation lab location, all samples from the 2011 program were crushed and a 250 gram riffle split was pulverized to +85% passing 75 microns. The pulverizer was cleaned with waste rock after each sample was pulverized. Gold was determined by 30 gram fire assay with gravimetric finish. Multi-element analyses were conducted using inductively couple plasma atomic emission spectrography with a four-acid digestion procedure. Gold assays results greater than 5 ppm are automatically re-submitted for metallic screen analysis Final assay was conducted in either the Vancouver, BC or Reno, NV labs dependent upon the availability.

Definition drilling, underground samples from rock, chips, and mucks were prepared and analyzed in the on site assay lab beginning in June of 2011. Prior to this date, all samples were analyzed by ALS Chemex as described above. Samples preparation consist of drying, crushing to 1/2 inch, taking an approximately 20% riffle split, and pulverizing to 75 microns. The pulverizer was cleaned with quartz sand after each sample was pulverized. A 50 gram split of the pulverized samples was then analyzed by fire assay techniques using a 1/4 assay ton charge with a gravimetric finish (R. Lessard, 2012, written comm.).

Quality Assurance/Quality Control (QA/QC): Limited information is available to the author on data verification procedures at the Nixon Fork mine property prior to 2003. The majority of the pre-2003 data verification information that is known to the author and summarized below is referenced in Wallis and others (2003), Wallis and Rennie (2005) and Postle and others (2006).

Wallis and others (2003) reported that Pincock Allen & Holt(1996) audited the Nixon Fork resources and reserves in June 1996. The database included records for 725 holes of which some 366 are surface holes and the remaining 359 were underground holes. The Nixon Fork mine staff audited the database in April 1997 and again in late 1998. It is reported that a few intervals were missing assays but no other errors were found. The missing intervals were found and entered. During a database review conducted by Wallis and others (2003) an additional 133 checks were made on the 1997 underground and surface drill programs. Two intervals in hole 97U-76 were found to be missing mine assays and 18 of the assays in the database from three underground holes were identified as duplicate assays from the lab sheets rather than the originals. Because of the small number of samples involved RPA believes that the differences in the values would not make a significant difference in the previously completed resource estimate. To insure database integrity, Wallis and others (2003) recommended that that the resource database be carefully audited and that the resource model be updated with the 1998 database and that the 1998 database be used in all future estimations of the resources.

Wallis and others (2003) also reported that they reviewed the 1999 NGI Surpac model for the Nixon Form mine and identified a few minor errors in the database that they believed would have no noticeable effect on the estimation of the resources.

Wallis and others (2003) reported that during their work in 2003 they located the results of 68 check assays completed by Chemex in 1997 on the underground and surface drilling. The samples were analyzed by fire assay methods but the finish type was unknown. They also recovered 34 pulps at random from the 1996 and 1997 drilling. The pulps were analyzed by fire assay with gravimetric finish by Assayers Canada in Vancouver. Compared to the mine assays, The average difference between the mine assay results and the Chemex check assay results is -2.62 gpt gold and -15.2%. The average difference between the mine assay results and the Assayers Canada check assays is –13.4 gpt gold and –17.0%. Wallis and others (2003) noted that five pairs of assays exhibited extreme grade variances, the largest of which was a 0.03 gpt Au mine sample that returned 59.97 gpt gold when check assayed by ALS Chemex. Given the coarse gold commonly seen in Nixon Fork ore, such extreme variances may be caused by nugget effect. Wallis and others (2003) recommended that an independent laboratory carry out additional check assays on all available pulps used for resource estimation purposes.

As a follow up to recommendations made by Wallis and others (2003, Wallis and Rennie presented a comprehensive quality assurance/quality control procedure for all sampling conducted at Nixon Fork after 2003. This program consisted of insertion of a series of duplicates, blanks and standards at various points in the sample preparation and analysis sequence. This QA/QC procedure was followed by St. Andrew beginning with the 2004 exploration program.

Of the 65 standards that were run during the 2004 drill program, Wallis and Rennie (2005) reported that 13 returned values above three standard deviations from the accepted value. One assay (#2680) appears to be a mislabeling of the standard. Standard GS5 assayed at SGS was the worst performer. In general the labs appear to show a low bias, lending a possible conservative element to resource estimates completed with these assays. Wallis and Rennie (2005) recommended rerunning samples with significant variance to try to determine a more accurate value for these samples.

Wallis and Rennie (2005) reported that “barren-looking limestone” was used as a blank for the 2004 drilling program. The source of this limestone was not specified but is assumed to be from the Nixon Fork area. These blank samples generally assayed <0.05 gpt gold. Three samples returned values in the 0.05 to 0.07 gpt gold range and five samples that returned values >0.07 gpt gold. Four of these high samples were run immediately after a high grade sample, suggesting the anomalously high blank value was the result of contamination during sample preparation. Postle and others (2006) noted that these gold values in what appears to be barren limestone may be the result of low level gold values in the limestone even though it was selected on the basis of no visible mineralization or alteration. Wallis and Rennie (2005) recommended that the five samples be re-run (samples 2460, 2677, 2772, 2789, 2934) and also recommended that a large sample of barren material be sent for crushing and multiple analyses to at least two laboratories and that this be used as a standard blank in the future.

Wallis and Rennie (2005) also examined the assays for the duplicates of the split core, duplicates of the rejects and the pulp duplicates. Precision on the core duplicates was 27%, marginally better for the prep duplicates at 15%, and better for the pulp duplicates (8%). This lack of precision at the core and reject stage is not unexpected for a high-grade coarse gold deposit and the results were considered acceptable.

Postle and others (2006) reported that during the 2005 surface exploration program, field standards and blanks were not submitted with the samples, but duplicates were run every 20 samples and those samples that assayed > 0.20 gpt gold were also rerun.

Quality control samples were inserted into the sample stream for the 2007-2008 core drilling program on a 2 for 10 basis (G. Myers, written comm., 2009). Details relating to the proportion of standards, blanks and duplicates and the over-all geochemical lab performance for the 2007-2008 drilling program at Nixon Fork are not available to the author.

For the 2010 and 2011 NQ2 diamond drill programs and other samples taken prior to the June 2011 commissioning of the on-site laboratory, quality assurance/quality control is verified using external standards, blanks, and duplicates with 13% of all samples submitted being quality assurance/quality control check samples (Lessard, 2012, written comm.). Utilizing 1 of 6 different gold standards purchased from CDN Resource Laboratory Ltd, the standards were inserted on a 1 for 25 sample basis. Blank material, composed of purchased marble chip with representative samples submitted to the assay lab to verify the absence of gold, are inserted at a rate of 4 for every 100 samples. Pulp duplicates are submitted every 30 samples and coarse (field) duplicates, produced from cutting the core in quarters and submitting both quarters as separate samples, are submitted 2 per 100 samples. Upon receipt of results, standards are examined ensuring the results fall within 2.5 standard deviations of the certified values. Blank material gold results must be no greater than 5 times the minimum detectable value. Failed results are evaluated to determine the cause of failure, and if required, are re-analyzed by the lab and/or additional samples from the remaining core are submitted for analysis. Due to the known existence of high-grade coarse gold in this deposit, duplicate samples gold values are monitored, but no corrective actions are taken for variability of gold results. No statistical data has been maintained on the failure rate of quality assurance/quality control samples, but estimates indicate that the failures of standards is around 1 to 2% of all samples submitted, and blank failures is less than 1% (R. Lessard, 2012, written comm.).

Following commissioning of the on-site assay lab in June 2011, quality assurance/quality control for underground chip, muck, hand, and definition drilling core samples is maintained by the assay lab which submits known standards with every 23 samples submitted for analysis. Failure of the standard to fall within the 2.5 standard deviation of the certified value is justification for re-analysis of the full set of samples in those particular batches (Lessard, 2012, written comm.).

12. DATA VERIFICATION

This report has been prepared by the authors using public documents acquired by the author and private documents given to the author by Fire River Gold for this purpose. While reasonable care has been taken in preparing this report, the authors did not attempt to determine the veracity of geochemical data reported by third parties, nor did the authors attempt to conduct duplicate sampling for comparison with the geochemical results provided by other parties. The authors have relied on these data and have no reason to believe that any material facts have been withheld.

13. MINERAL PROCESSING AND METALLURGICAL TESTING

Unless otherwise noted, the following summary of historic metallurgical testing has been derived from Wallis and others (2003), Wallis and Rennie (2005) and Postle and others, (2006). As of the date of this report, Pacific North West has not conducted or contracted others to complete mineral processing or metallurgical testing on the Nixon Fork project.

Several recognized firms carried out metallurgical testing prior to commencement of production in 1995. Denver Mineral Engineers (1995) summarized the bulk sample metallurgical test work on the Crystal Garnet oxide ores as follows:

1. Gravity recovery of gold 19.6%
2. With flotation, overall gold recovery of 81%
3. Copper flotation of the oxide ore gave a recovery 15.4% copper with a concentrate grade

4. of 15.5%
5. Gravity recovery of gold 33.9% with flotation overall recovery of 91.3%
6. Copper flotation gave a recovery of 97.9% copper with a concentrate grade of 28.3%.

The mill operated from 1995 through June 1999. The Nixon Fork mill consists of gravity separation and flotation circuits employing conventional crushing, milling, gravity separation, flotation and concentrate- and tailings-dewatering circuits capable of handling 140 tonnes per day. Tailings are disposed of in a lined facility. Concentrates in the form of filter cake were loaded into polypropylene super sacks for shipment by air to Anchorage and then by ship to Dowa's smelter in Japan. Dore from the gravity circuit was taken to McGrath and mailed to Johnson Matthey in the United States.

Production records from the mine indicated that average mill recovery since start-up was 84.8%. Initially about half of the gold was recovered from the gravity circuit. As more sulfide ores were processed this amount decreased. Typically the gold recovery averaged 83.5% for the oxide ores while the sulfide ores averaged about 90% recovery. Flotation responses varied with the ore type, with higher copper recovery in the sulfide ore resulting in a higher quantity of lower grade concentrate. The average concentrate grade was 16.6% copper containing 300 to 600 gpt Au and an average of 277 gpt Ag per tonne. Concentrate penalty elements including arsenic and antimony (reported as combined arsenic plus antimony) averaged 0.58%, bismuth averaged 0.22% and selenium averaged 0.01%.

A sampling program on the 115,000 tonne mine tailings pond was carried out in 2004 by H. Bogart, P. Eng. Samples were taken on 100 ft. line spacing over the dry part of the tailings, representing approximately one half of the pond. Some additional sampling was carried out on 50 ft. centers. The pond could not be completely sampled as part of it is under water. Prior to sampling, the depth of the material was determined by injecting water through a pipe and pushing the pipe through the tailings. A power auger was used to collect the samples to a maximum depth of 9.5 ft., the limit of the equipment available. A total of 13 holes were completed. A bulk metallurgical sample of material taken from the same sites assayed 0.280 oz/ton Au (Table 13.1)

From December 2003 through October 2005, three phases of metallurgical testing were conducted on mined material and tailings from the Nixon Fork mine. In late 2003 MCRI took three 'bulk samples' of ore from the C-3000 ore chute considered to represent types of skarn ore to be milled from the Crystal Mine. Chlumsky, Armbrust & Meyer LLC (CAM) supervised testing of the C-3000 bulk sample by Phillips Enterprises, LLC of Golden, Colorado (Bridge Capital, 2008, Chlumsky and others, 2005a, 2005b). The test work included a gravity circuit and a flotation circuit using fresh ore at Nixon Fork, and cyanide leaching of gold from flotation concentrates as well as from the previously processed tailings. CAM was also responsible for the development of a process flow diagram.

Table 13.1: Results of 2004 tailing pond sampling at the Nixon Fork mine. Data from Wallis and Rennie, 2005.

Sample #	Assay #1 oz/ton Au	Assay #2 oz/ton Au	Assay #3 oz/ton Au	Average of each sample oz/ton Au
NF 1	0.294	0.245	0.235	0.258
NF 2	0.222	0.198		0.210
NF3	0.192	0.169	0.175	0.179
NF4	0.250	0.232		0.241
NF5	0.211	0.298	0.195	0.235
NF6	0.298	0.241		0.270
NF7	0.921	0.692	0.677	0.763
NF8	0.281	0.270		0.276
NF8D	0.315	0.270		0.293
NF9	0.186	0.308		0.297
NF10	0.305	0.298		0.302
NF11	0.277	0.291		0.284
NF12	0.266	0.248		0.257
NF13	0.258	0.258		0.258
Average of all 13 samples				0.317
Average of 12 samples excluding # NF7				0.280

Phase 1 test work focused on cyanide leaching of whole ore to maximize the gold recovery into dore form. Due to the high levels of cyanide soluble copper, a proprietary process for copper and gold separation was tested. As the testing proceeded, it became apparent that while the process was technically viable, it was probably not economic due to the large amounts of cyanide consumed.

The Phase 2 test program focused on a more conventional processing scheme, calling for gravity recovery of coarse free gold followed by flotation of the copper minerals with additional gold recovered to a high-grade copper concentrate. A separate copper circuit was tested to make a copper concentrate but more importantly to remove copper from the feed to the cyanide circuit to enhance the gold recovery in the cyanide circuit. After 25 flotation tests, it was clear that a 25% copper concentrate could be produced on a regular basis with an overall gold recovery of 75% and a copper recovery of approximately 80%. The recovery depends on the grade and the feed rate to the circuits.

Phase 3 testing focused on recovering gold from the 1995-1999 tailings pond. A gravity separation test was carried out resulting in a 6% recovery for gold and 4.5% recovery for gold. Because of the low recoveries, no further gravity work was considered. A flotation test carried out on the gravity tails did not recover an acceptable percentage of the precious metals (57% for Au) and flotation was not considered for further work.

Three cyanidation tests were carried out on the tailings pond bulk sample. A test on the bulk sample as-received returned recoveries of 85% for gold and 83% for silver over 24 hours with cyanide consumption of 6.7 lb/ton. Extraction from the gravity tailings resulted in a 78%

recovery. A moderate regrind of the gravity tailings and cyanidation improved extraction to 86% gold recovery and 82% silver.

Based on the 2004 test work, bulk cyanidation was considered an acceptable method to retreat the tailings. The results suggest that 80% to 85% recoveries can be expected within a 12 hour retention time. The proposed recovery process involves the excavation from the existing pond using a hydraulic monitor, pumping the tailings to a set of leach tanks at the existing plant site, leaching for a 12 hour period, detoxifying and filtering the tailings so that they can be dry stacked on the old landing strip which will be permitted as an approved tailings disposal site. Wallis and others (2005) recommended mining of the tailings at a rate of 700 tonnes per day.

As a result of this successful test campaign, CAM developed a process flow diagram and Samuel Engineering was commissioned to assess the condition of the old process plant and to develop a capital cost estimate for refurbishing the plant, as well as constructing a new power generating facility and a new cyanide leach and gold recovery facility (Postle and others, 2006).

As a follow-up of the 2004 tailing impoundment drilling program, in 2009 Fire River drilled an additional 329 feet in 21 holes in the tailing facility, with hole depths ranging from 8 to 30 feet (Fire River News Release, 6 April 2010). Not all planned sites could be drilled due to liquefaction of the tailings when disturbed. Sampling was done every 2.5 ft, producing a total of 133 samples. A summary of these results are presented in Table 13.2. There does not appear to be any zoning of grade by depth. In general the grades are higher on the NW side of the pond and generally decrease to the east and south. The average gold grade of all 2009 samples is 7.6 gpt as compared to an average grade of 9.6 gpt gold for the 2004 tailings pond drilling. Given the extremely high grade of the ore from which the tailings were derived, significant nugget effect is not unexpected.

In September 2010 Fire River announced results of its preliminary economic assessment on cyanide leaching of the existing tailings impoundment at Nixon Fork. This study estimated a 79% recovery of gold in the tailings impoundment from inferred resources of 48,000 tonnes grading 7.37 gpt (11,400 ounces) and indicated resources of 92,000 tonnes grading 7.87 gpt (23,300 ounces). The preferred alternative (Case A) had an estimated capital cost of $7.6 million and envisioned construction in years 1 and part of year 2 with processing and recovering beginning in year 2 and continuing through year 5. The envisioned operation generated a $3.3 million net present value at a 5% discount rate and 24% internal rate of return at $1000/oz gold price and a $14.2 million net present value at a 5% discount rate and 81% internal rate of return at $1500/oz gold price. A complete summary of the results of this work are presented in Flanders and others (2010).

In early 2011 Fire River announced the results of a preliminary economic assessment designed to evaluate the resumption of underground mining at the Nixon Fork project. The independent report, produced by Snowden Mining Industry Consultants Inc., indicated that the current resource was sufficient to sustain a two year production forecast at a production rate of 150 tonnes per day with an average mined grade of 30.1 gpt using an average cut-off grade of approximately 15 gpt gold (Finch and others, 2011). The mineral inventories in this report did not include the results of definition and exploration drilling performed in 2010 and 2011. Capital costs to resume production are estimated to be $6.3 million with a projected payback of 3 months. Operating costs are estimated at $434/ton or $447/oounce for the first two years of operations. At a gold price of $1200 per ounce gold, the project delivers an internal rate of return of 549% and net present value of $60.9 million on an undiscounted cash flow of $64.3 million over the first two operating years. A more complete summary of this preliminary economic assessment is presented in Finch and others (2011). The mine was placed into commercial production on July 4, 2011.

Table 13.2: Summary of 2009 tailings impoundment drilling. Data from Fire River news release, 6 April 2010. All assay results in grams of gold per tonne.

From (ft)	0.0	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0	27.5	Average
To (ft)	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0	27.5	30.0	by Hole
09DH3	6.2	10.4	12.5	9.3	9.9	8.4							9.4
09DH4	7.5	7.6	11.6	7.6	7.8								8.4
09DH5	7.9	8.4	12.0	7.0	7.3	10.5	10.9	6.5					8.8
09DH6	6.3	9.2	9.9	9.6	7.1	9.8	4.7	6.4					7.9
09DH7	9.3	8.5	8.4	9.5									8.9
09DH8	9.3	6.8	10.0	10.6	9.4	10.5	10.6	10.6					9.7
09DH9	8.4	5.5	8.5	10.3	6.6	6.3	7.0	9.8					7.8
09DH10	6.9	8.6	6.2	6.6	6.5								7.0
09DH12	4.5	7.6	6.1	8.4	7.2	8.6							7.1
09DH15	7.4	6.2	8.7	9.1	7.2	9.3	10.0	7.3					8.1
09DH16	6.2	4.8	9.5	9.3	4.8								6.9
09DH18	6.0	7.0	6.4	8.4	3.2	10.9							7.0
09DH22	5.3	6.0	7.0	8.3	7.0	6.6							6.7
09DH23	6.1	5.7	7.4	6.6									6.4
09DH25	4.0	7.1	7.6	9.1	6.7	7.3							7.0
09DH27	6.3	7.8	7.5	8.2	8.8	6.7	7.7	6.4	7.1	9.1	12.2	12.4	8.3
09DH30	6.6	8.1	8.1	6.4									7.3
09DH35	5.6	7.3	7.2	7.3	6.4	5.9							6.6
09DH38	4.5	5.0	5.4	7.6	6.1	5.6	5.7	6.4					5.8
09DH42	5.1	5.9	8.0	8.0	6.9	7.2	6.9	5.7	5.7	6.6			6.6
Avg by Depth	6.5	7.2	8.4	8.3	7.0	8.1	7.9	7.4	6.4	7.9	12.2	12.4	7.6

14. MINERAL RESOURCE ESTIMATES

Fire River has contracted Giroux* Consultants Ltd. to produce an updated resource estimate for the 3300 and 3000 zones of the Nixon Fork Mine, on the Nixon Fork Gold Project in Alaska. G.H. Giroux is the qualified person responsible for the resource estimate and visited the site on May 3 to May 5, 2010. Mr. Giroux is a qualified person by virtue of education, experience and membership in a professional association. He is independent of both the issuer and the vendor applying all of the tests in section 1.5 of National Instrument 43-101.

This update is based on an additional 272 drill holes completed in 2010-11 since the last resource estimate (Finch and others, 2011 and Flanders and Giroux, 2010)

Data Analysis

For the resource estimate at Nixon Fork a total of 1,493 diamond drill holes from both surface and underground sites were available for analysis. A total of 29,193 samples were assayed for gold. Of these 4,768 reported as 0.00 were set to 0.001 gpt Au, 778 reported as <0.03 were set to 0.015 gpt Au, 613 reported as <0.05 were set to 0.025 gpt Au, 197 reported as <0.01 were set to 0.005 gpt Au and 407 reported as blank were set to 0.001 gpt Au. In addition 4,873 gaps between assays were filled with 0.001 gpt Au. This produced a final data base of 29,748 gold assay values.

An original geologic three dimensional model was made in 2010 using GemCom software by QP Larry Hillesland using both underground and surface drill holes. After the 2010-11 drill program, QP Jeffery Levell updated these solids using the new drill holes. A total of 17 mineralized solids were produced from cross sections and level plan interpretation. Of these solids only the 3300, 3000 X, 3000Z and 3000D zones and a new 3550 zone contained enough new drilling to warrant updating the resource.

The 301 drill holes that penetrated these revised solids are listed in Appendix 3.

Table 14-1: List of mineralized solids modeled.

Name of Solid	Area	Uppermost Plan	Lowermost Plan	Volume m3	Comments
Whalen	Whalen	470	365	18640	2 zones, looks strat controlled, possibly folded,
					w/ structural influence
North Star	North Star	470	405	44240	Complex control, large zone along contact,
					probable structure influence, Mg Skarn
MystS	Mystery	280	260	1362	NW frac zone, few DDH's small
MystS2	Mystery	270	250	355	NW frac zone, few DDH's small
M1	Mystery	280	230	5040	
M2	Mystery			5211	
M3	Mystery		330	7609	
M4	Mystery	290	250	5500	strat control, and along contact of dike
SC	Southern Cross	390	370	4242	skies out, open at depth, at NFQM contact,
					strat controlled?
J5	J5A	360	245	21134	strat, contact and structural controls, NMHG
3300 zones					
3300-3E		220	195	4445	NNE frac zone in NFQM
3300-3C		225	215	2870	pipe like
3300-300		300	220	27443	offset from 3300-383, clearly some NW-trending

Name of Solid	Area	Uppermost Plan	Lowermost Plan	Volume m3	Comments
					frac/flt control, w/ minz in NFQM
3300-3S		215		23781	offset
3300-383	uppermost	400	300	6063	upper parts clearly along contact (nose) with strat control,
					lower parts more likely structurally controlled?
3510	South of 3300	375	345	2495	strat control, folded
3500	SE of 3300	380	370	544	needs work, exploration, NW frac/flt control

The original solids modeled by Larry Hillesland and used for the 2010 Resource estimate are shown for the four model areas as Figures 14-1 to 14-4.

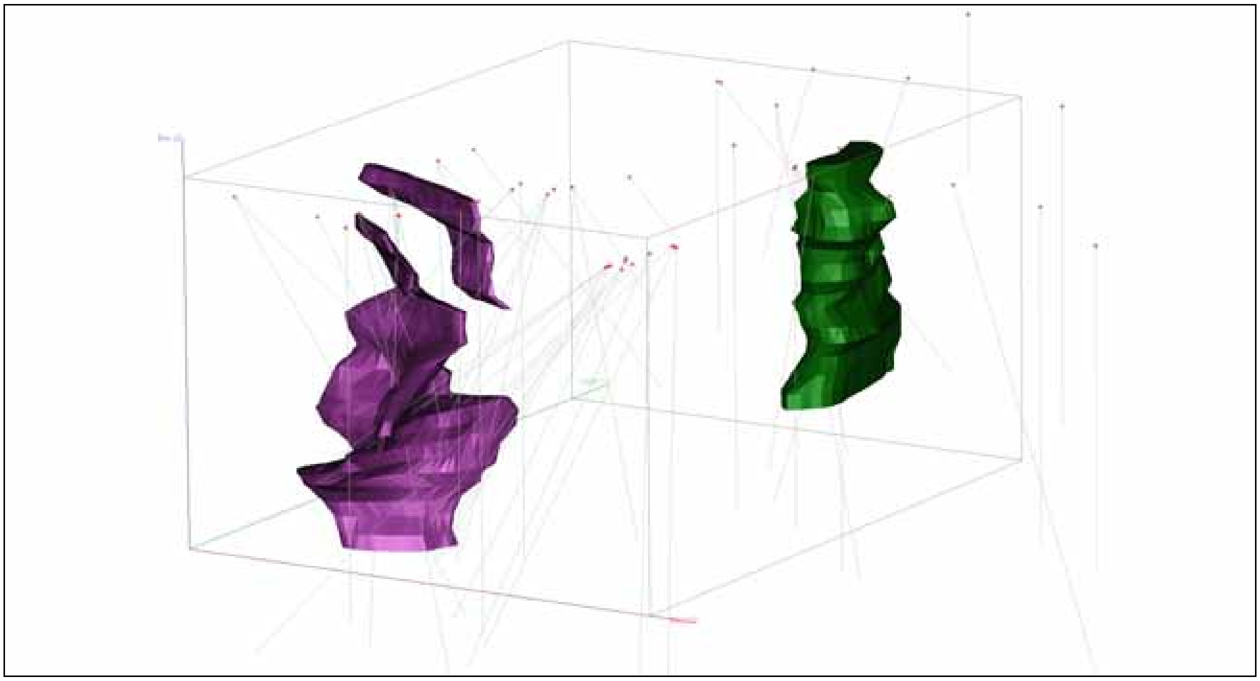

Figure 14-1: Mineralized solids Whalen in Purple and North Star in Green in Model 1

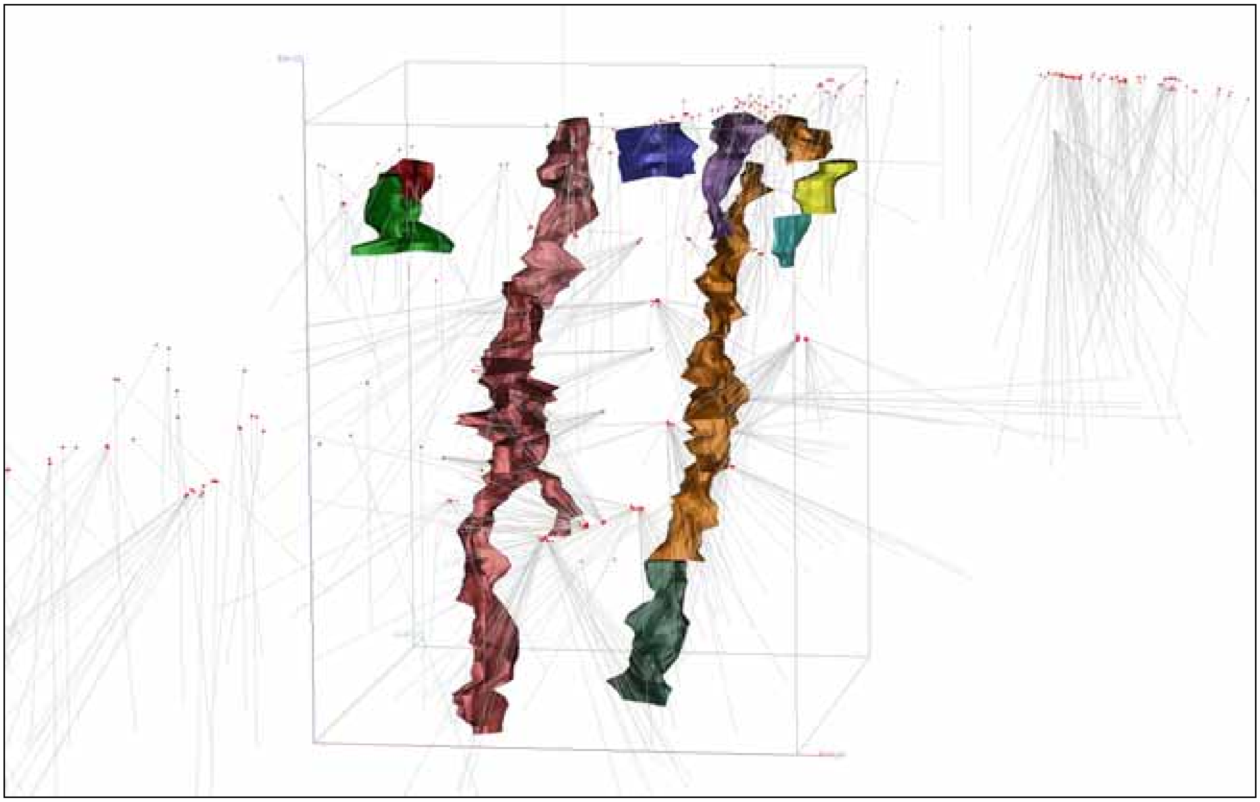

Figure 14-2: Mineralized Solids from left to right: 3500 solids, 3300 solids and 3000 solids in Model 2

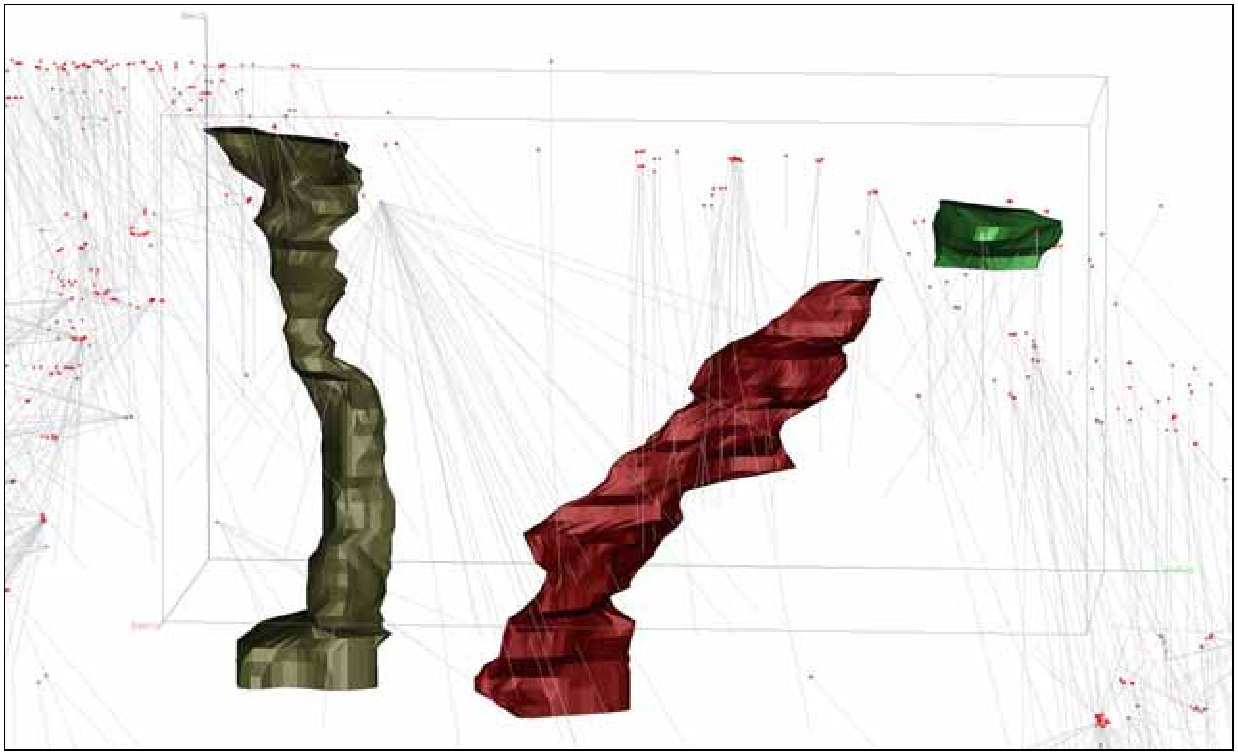

Figure 14-3: Mineralized Solids from left to right: 3100, J5 and Southern Cross in Model 3

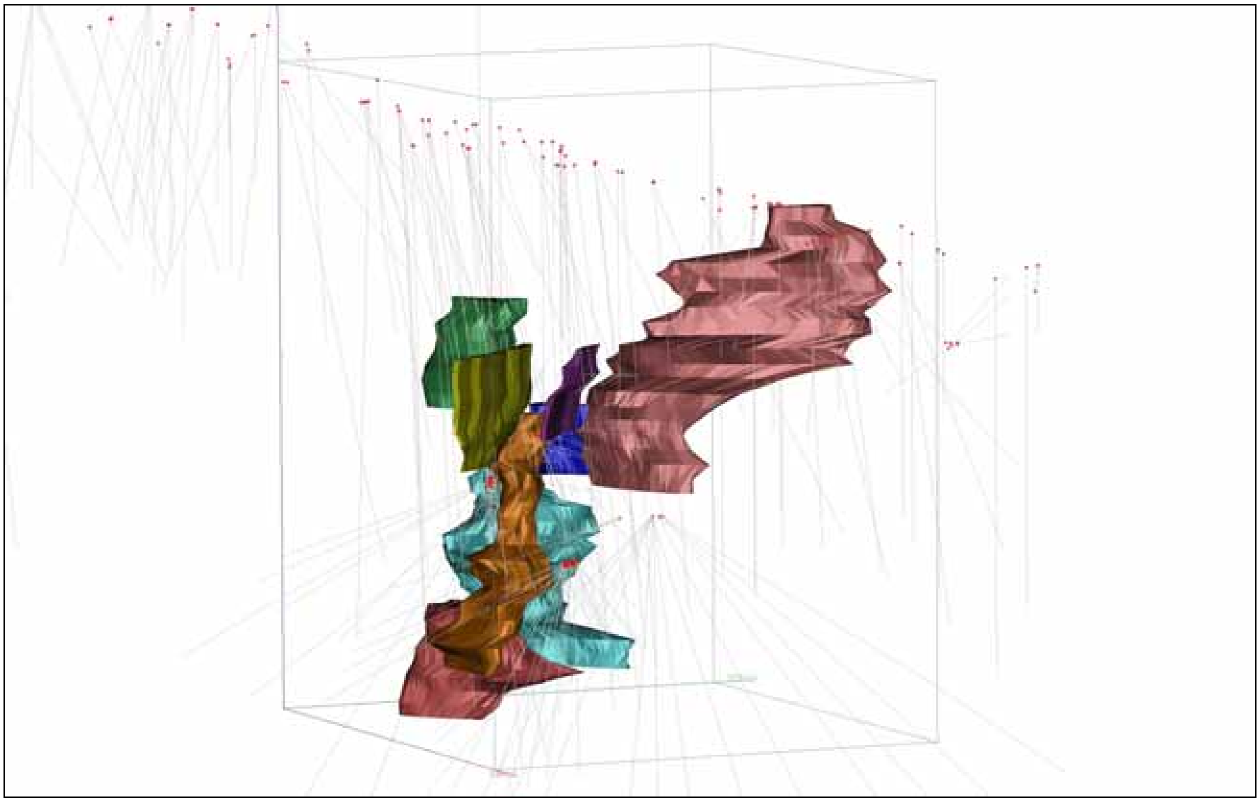

Figure 14-4: Mineralized Solids for the Mystery Zones in Model 4

The solids with significant new drill information are all in Model 2 and shown below as Figure 14-5.

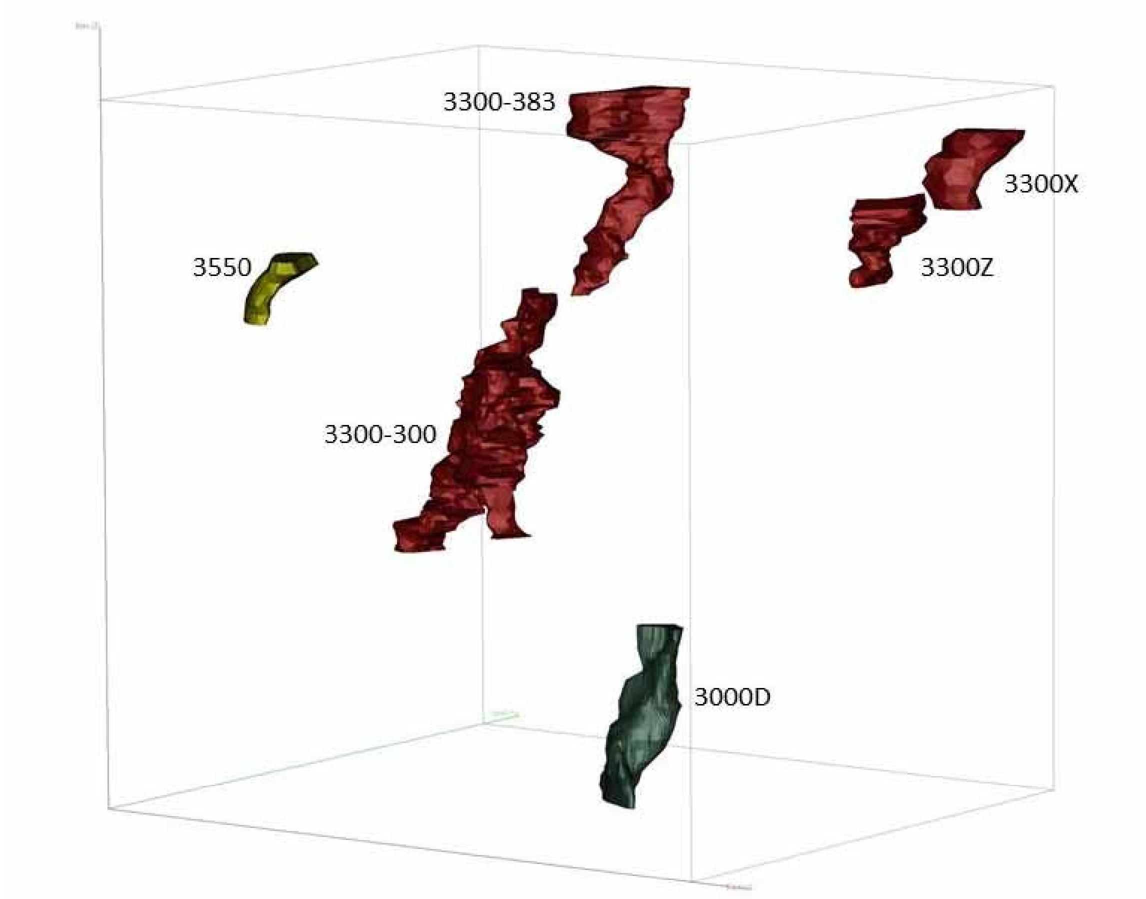

Figure 14-5: Solids with enough drilling for 2011 Update of Model 2

Table 14-2: Statistics for gold from mineralized solids (Those updated 2011 are highlighted)

Zone	Number	Mean Au (gpt)	Standard Deviation	Minimum Value	Maximum Value	Coefficient of Variation
3000D	241	26.65	67.44	0.001	562.00	2.53
3000M	956	35.71	77.54	0.001	871.63	2.17
3000X	381	2.99	14.38	0.001	160.50	4.82
3000Z	320	3.67	20.23	0.001	346.17	5.51
3100	269	3.15	11.87	0.001	139.22	3.77
3200	51	4.98	9.67	0.001	38.05	1.94
3300-300	2,830	12.34	64.34	0.001	2000.00	5.26
3300-383	253	11.13	34.64	0.001	308.59	3.11
3500N	20	13.70	24.87	0.001	101.77	1.81
3510	104	12.62	70.55	0.001	709.62	5.59
3550	38	14.09	36.21	0.025	167.00	2.57
J5	286	4.66	17.09	0.001	182.43	3.67
M1	349	26.34	194.95	0.001	3209.74	7.40
M3	198	2.91	14.13	0.001	166.24	4.85
M4	38	8.54	25.07	0.001	150.11	2.93

Zone	Number	Mean Au (gpt)	Standard Deviation	Minimum Value	Maximum Value	Coefficient of Variation
M5	46	7.96	13.48	0.001	63.28	1.69
M6	290	15.10	61.75	0.001	707.40	4.09
M7	106	5.69	21.61	0.001	165.73	3.79
MystS	21	5.85	16.56	0.001	76.44	2.83
MystS2	55	4.38	17.24	0.001	119.26	3.94
NS	236	1.20	3.90	0.001	39.40	3.25
SC	45	9.36	26.55	0.001	128.05	2.84
Whalen	318	2.84	9.69	0.001	119.97	3.41
WASTE	7,714	0.63	8.89	0.001	386.06	14.08

For statistical analysis and determination of capping levels the solids were grouped based on location into the following groups:

3000 Series	- 3000D, 3000M, 3000X, 3000Z, 3200
3100 Series	- 3100
3300 Series	– 3300-300, 3300-383
3500 Series	– 3500N, 3510, 3550
J5 Series	- J5, SC
Mystery Series	- M1, M3, M4, M5, M6, M7, MystS, MystS2
North Star Series	- NS
Whalen Series	- Whalen
Waste Series	- WASTE

For each of the above groups the gold grade distribution was examined using lognormal cumulative frequency plots to determine if capping was necessary and if so at what level. In all cases gold showed multiple overlapping lognormal populations. In each case the individual populations were partitioned out and a capping level established to reduce the effect of high grade outliers. The cap levels and number of samples capped are tabulated below. For the two zones updated in 2011, the capping exercise was re-done.

Table 14-3: Capping strategy for Mineralized Groups
(Groups updated in 2011 highlighted)

Group	Capping Strategy	Cap Level	Number Capped
3000	2SDAMP2	440 gpt	11
3100	2SDAMP2	52 gpt	2
3300	2SDAMP2	390 gpt	10
3500	2SDAMP2	34 gpt	12
J5	2SDAMP3	76 gpt	7
Mystery	2SDAMP4	226 gpt	14
NS	2SDAMP1	92 gpt	0
Whalen	2SDAMP2	48 gpt	2
Waste	2SDAMP4	13 gpt	41

The statistics for gold after capping are tabulated below for the various mineralized groups.

Table 14-4: Statistics for capped gold from mineralized solids (Groups updated in 2011 highlighted)

Group	Number	Mean Au (gpt)	Standard Deviation	Minimum Value	Maximum Value	Coefficient of Variation
3000	2,261	22.76	60.38	0.001	440.00	2.65
3100	269	2.73	8.28	0.001	52.00	3.04
3300	3,083	10.91	38.25	0.001	390.0	3.50
3500	162	5.73	10.44	0.001	34.00	1.82
J5	331	4.47	13.34	0.001	76.00	2.98
Mystery	1,103	8.86	32.19	0.001	226.00	3.63
NS	236	1.20	3.90	0.001	39.40	3.25
Whalen	318	2.56	7.15	0.001	48.00	2.79
WASTE	7,714	0.27	1.24	0.001	13.00	4.51

Composites

For the 2011 update only solids 3300-300, 3300-383, 3000X, 3000Z, 3000D and 3550 were re-composited. The drill holes were “passed through” the mineralized solids with the point each hole entered and left each solid recorded. Uniform down hole 2 m composites were formed that honored the solid boundaries. Composites less than 1.0 m at the solid boundaries were combined with adjoining samples to produce composites of uniform support of 2 ± 1 m in length. After forming the composites, a total of 3 isolated single composites less than 0.5 m in length were dropped from the data base. The 2 m composite file statistics are tabulated below.

Table 14-5: Statistics for 2 m Gold Composites for solids to be updated

Group	Number	Mean Au (gpt)	Standard Deviation	Minimum Value	Maximum Value	Coefficient of Variation
3000	647	8.24	27.91	0.001	408.56	3.39
3300	1,746	8.13	24.45	0.001	296.64	3.01
3500	237	2.42	5.74	0.001	29.29	2.37

Variography

Pairwise relative semivariograms were used to model gold in both the 3000 and 3300 zones. In both cases, a geometric anisotropy was demonstrated and a nested spherical model was fit to the data. The parameters for each model are tabulated below with the models shown as Appendix 3.

For this 2011 update the variography for the 3000 was similar to that established in 2010 while the 3300 zone had slight changes made to the ranges. The 3500 zone had insufficient data to establish a model so the nearby 3300 model zone model was used.

Table 14-6: Summary of Semivariogram Parameters

Zone	Azimuth/Dip	C_0	C_1	C_2	Short Range (m)	Long Range (m)
3000	015 / 0	0.40	0.70	0.25	7.0	15.0
	285 / -30	0.40	0.70	0.25	6.0	10.0
	105 / -60	0.40	0.70	0.25	4.0	6.0
3300	010 / 0	0.80	0.35	0.24	5.0	18.0
	280 / -40	0.80	0.35	0.24	3.0	12.0
	100 / -50	0.80	0.35	0.24	6.0	36.0

Bulk Density

The following is taken from Scott Wilson Roscoe Postle, 2006:

St Andrew carried out 113 bulk density measurements of diamond drill core. Prior to 2003, the average bulk density was assigned by ore-type according to the following list:

- *Oxide: 2.52 t/m*^{3}
- *Mixed: 2.72 t/m*^{3}
- *Sulfide: 2.93 t/m*^{3}

As no significant bulk density studies are available since this work these “broad brush” averages are applied as shown in the Table below.

Table 14-7: Summary of Specific Gravity Determinations

Name of Solid	Area	Strike or trend	Dip or plunge	Ore Type	Specific Gravity
Whalen - North Star Zones					
Whalen	Whalen	96	-68	Ox	2.52
North Star	North Star	328	-67	Ox	2.52
Near 3300 - (west and south)					
3510	South of 3300	22	-80	Ox	2.52
3500N	SE of 3300	308	-46	Ox	2.52
3300 zones					
3300-300		175	-62	Ox	2.52
3300-383	uppermost	221	70	Ox	2.52
3200		34	-85	Ox	2.52
3000 Zones					
3000Z	east of 3000	271	-82	Ox	2.52
3000M	Mined Out	119	-74	Ox	2.52
3000D	deep extension to 3000	203	-73	Ox	2.52
3000X		239	-57	Ox	2.52
3100		22	-80	Mixed	2.72

Name of Solid	Area	Strike or trend	Dip or plunge	Ore Type	Specific Gravity
J5	J5A	186	-50	Mixed	2.72
SC	Southern Cross	286	-43	Mixed	2.72
Mystery Zones					
MystS	Mystery	127	-74	Mixed	2.72
MystS2	Mystery	129	-83	Mixed	2.72
M1	Mystery	200	-59	Mixed	2.72
M2	Mystery	152	-74	Mixed	2.72
M4	Mystery	229	-72	Mixed	2.72
M5	Mystery	44	-55	Mixed	2.72
M6	Mystery	101	-71	Mixed	2.72
M7	Mystery	208	-80	Mixed	2.72

It is recommended that during the next drill campaign a systematic check of bulk density is completed on the new drill core. The potential exists for heavier rock in skarn zones but the potential for voids also exists particularly in the breccia zones. A better understanding of bulk density is necessary going forward.

Block Models

Due to the small block size, a total of 4 block models were created to cover the various mineralized zones to be estimated. The models all used 2 x 2 x 2 m blocks and the origin of each model was set so that all models could be combined into a single large model if required. For this update the only model re-estimated was Model 2. The model origins were as follows:

Model 1 – to cover Whalen and North Star Deposits

Lower Left Corner

Easting – 411300 E	Column Size = 2 m	85 Columns
Northing – 7011470 N	Row Size = 2 m	115 Rows

Top of Model

Elevation – 480	Level Size = 2 m	60 Levels

No Rotation

Model 2 – to cover 3000, 3300 and 3500 Deposits

(Note: this model was expanded to cover new zones modeled in 2011)

Lower Left Corner

Easting – 411150 E	Column Size = 2 m	181 Columns
Northing – 7012896 N	Row Size = 2 m	147 Rows

Top of Model

Elevation – 430	Level Size = 2 m	179 Levels

No Rotation

Model 3 – to cover 3100, SC and J5 Deposits

Lower Left Corner

Easting –411528 E	Column Size = 2 m	74 Columns

Northing –7013154 N	Row Size = 2 m	170 Rows
Top of Model		
Elevation – 430	Level Size = 2 m	94 Levels
No Rotation		

Model 4 – to cover Mystery Deposits

Lower Left Corner		
Easting –411708 E	Column Size = 2 m	96 Columns
Northing – 7013460 N	Row Size = 2 m	85 Rows
Top of Model		
Elevation – 376	Level Size = 2 m	117 Levels
No Rotation		

Figure 14-6: Block Models in Plan View showing from south to north Model 1, Model 2, Model 3 and Model 4.

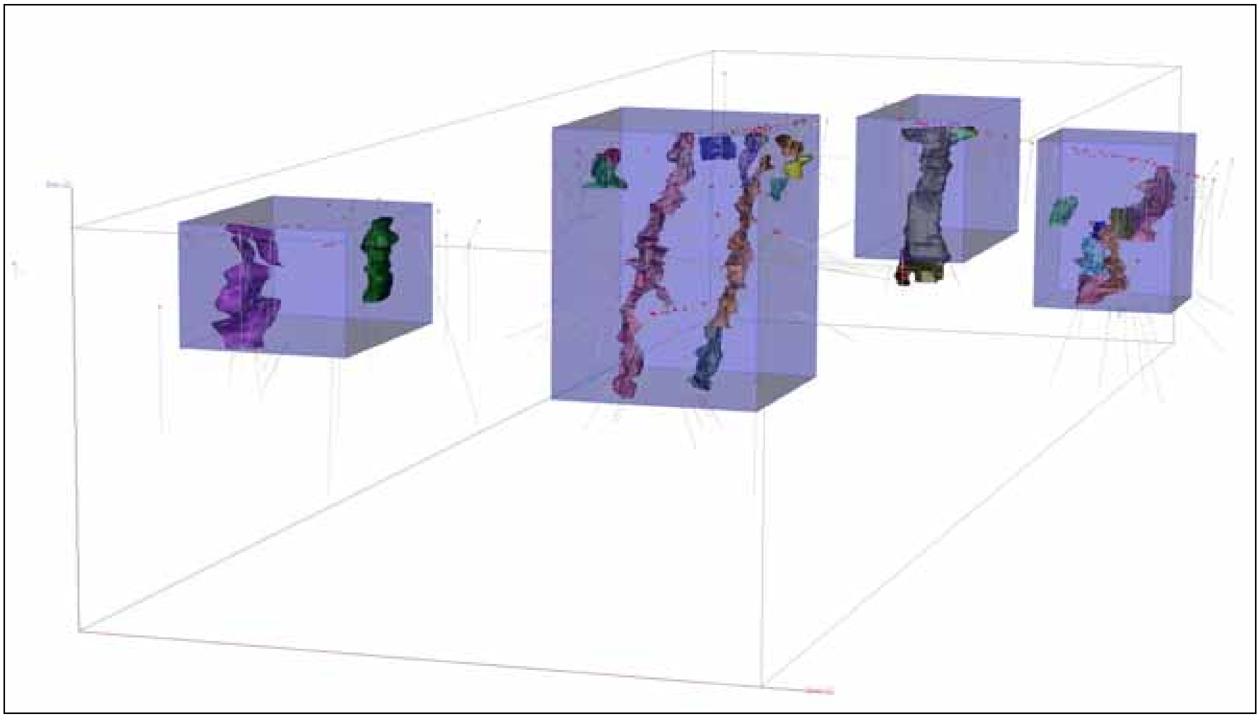

Figure 14.7: Block Models looking North, from west to east Model 1, Model 2, Model 3 and Model 4

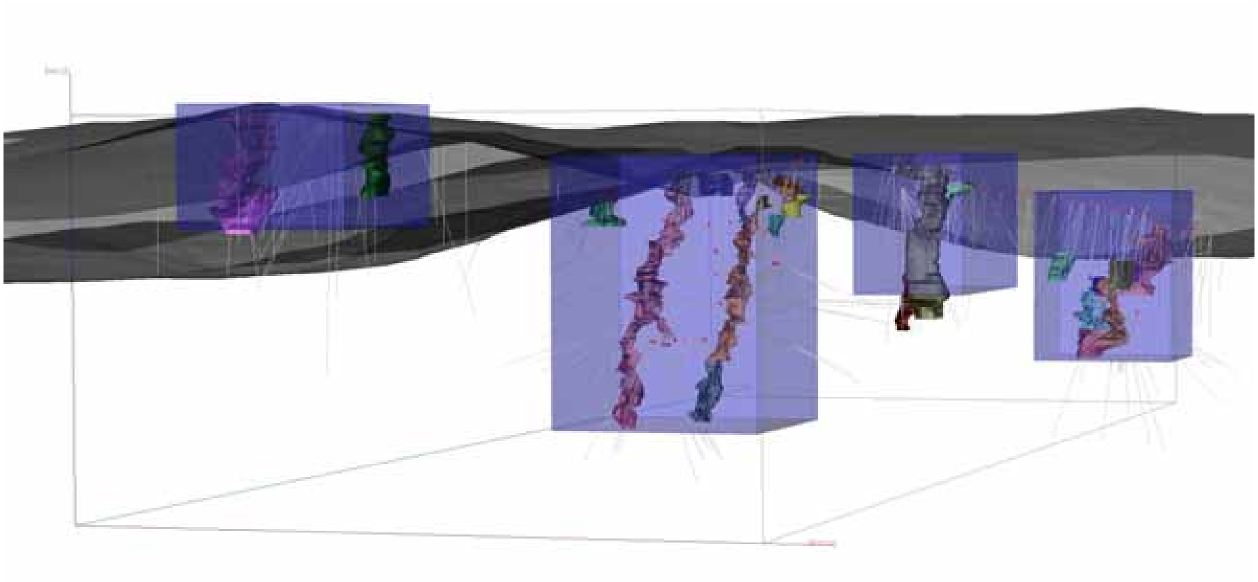

Figure 14-8: Block models looking north showing surface topography

Grade Interpolation

Gold grades were interpolated into blocks using ordinary kriging. The kriging exercise was completed in a series of passes with the search ellipse dimensions determined by the semivariogram range. In all cases a 1st pass was completed requiring a minimum of 4 composites to be located within a search ellipse with dimensions equal to ¼ the semivariogram range. For blocks not estimated in Pass 1 the search ellipse was expanded to ½ the semivariogram range and Pass 2 was completed. A third pass using the full range and in some cases a fourth pass using twice the range completed the kriging exercise. In all passes, if more than 12 composites were found the closest 12 were used. In all passes, a maximum of 3 composites from any drill hole was set, which insured that a minimum of two holes were used to estimate any block.

Within Model 2, only the 3000X and 3000Z solids were re-estimated for this update in the 3000 zones using the 3000 zone composites and variography. The two solids that made up the 3300 zone were re-estimated using the 3300 zone composites and the 3300 zone variography.

Table 14-8: Summary of Kriging Parameters by Zone

ZONE	SOLID	PASS	NUMBER	AZ/DIP	DIST. (m)	AZ/DIP	DIST. (m)	AZ/DIP	DIST. (m)
3000 Zone	3000X 100% Est.	1	47	15 / 0	3.75	285 / -30	2.5	105 / -60	1.5
		2	1,388	15 / 0	7.5	285 / -30	5.0	105 / -60	3.0
		3	1,134	15 / 0	15.0	285 / -30	10.0	105 / -60	6.0
		4	12	15 / 0	30.0	285 / -30	20.0	105 / -60	12.0
	3000Z 100% Est.	1	80	15 / 0	3.75	285 / -30	2.5	105 / -60	1.5
		2	758	15 / 0	7.5	285 / -30	5.0	105 / -60	3.0
		3	1,041	15 / 0	15.0	285 / -30	10.0	105 / -60	6.0
		4	186	15 / 0	30.0	285 / -30	20.0	105 / -60	12.0
	3000D 100% Est.	1	11	15 / 0	3.75	285 / -30	2.5	105 / -60	1.5
		2	939	15 / 0	7.5	285 / -30	5.0	105 / -60	3.0
		3	2,211	15 / 0	15.0	285 / -30	10.0	105 / -60	6.0
		4	636	15 / 0	30.0	285 / -30	20.0	105 / -60	12.0
3300 Zone	3300-300 100% Est.	1	6,087	10 / 0	4.5	280 / -40	3.0	100 / -50	9.0
		2	3,941	10 / 0	9.0	280 / -40	6.0	100 / -50	18.0
		3	550	10 / 0	18.0	280 / -40	12.0	100 / -50	36.0
	3300-	1	1,027	10 / 0	4.5	280 / -	3.0	100 / -	9.0

ZONE	SOLID	PASS	NUMBER	AZ/DIP	DIST. (m)	AZ/DIP	DIST. (m)	AZ/DIP	DIST. (m)
	383 100% Est.					40		50	
		2	2,459	10 / 0	9.0	280 / -40	6.0	100 / -50	18.0
		3	1,230	10 / 0	18.0	280 / -40	12.0	100 / -50	36.0
		4	151	10 / 0	36.0	280 / -40	24.0	100 / -50	72.0
3500 Zone	3550 98.5% Est.	1	1	10 / 0	4.5	280 / -40	3.0	100 / -50	9.0
		2	180	10 / 0	9.0	280 / -40	6.0	100 / -50	18.0
		3	971	10 / 0	18.0	280 / -40	12.0	100 / -50	36.0
		4	1,051	10 / 0	36.0	280 / -40	24.0	100 / -50	72.0

Figure 14-9 shows the solids re-estimated in Model 2 superimposed on the original Model 2 solids estimated in 2010. The new solids are hatched black overlaying the original interpretation. New drilling has changed the shapes as shown. The part of the 3300-300 solid below the 194 level is unchanged from the previous estimate. The upper part of the 3300-383 solid has been mined as a shallow open cut.

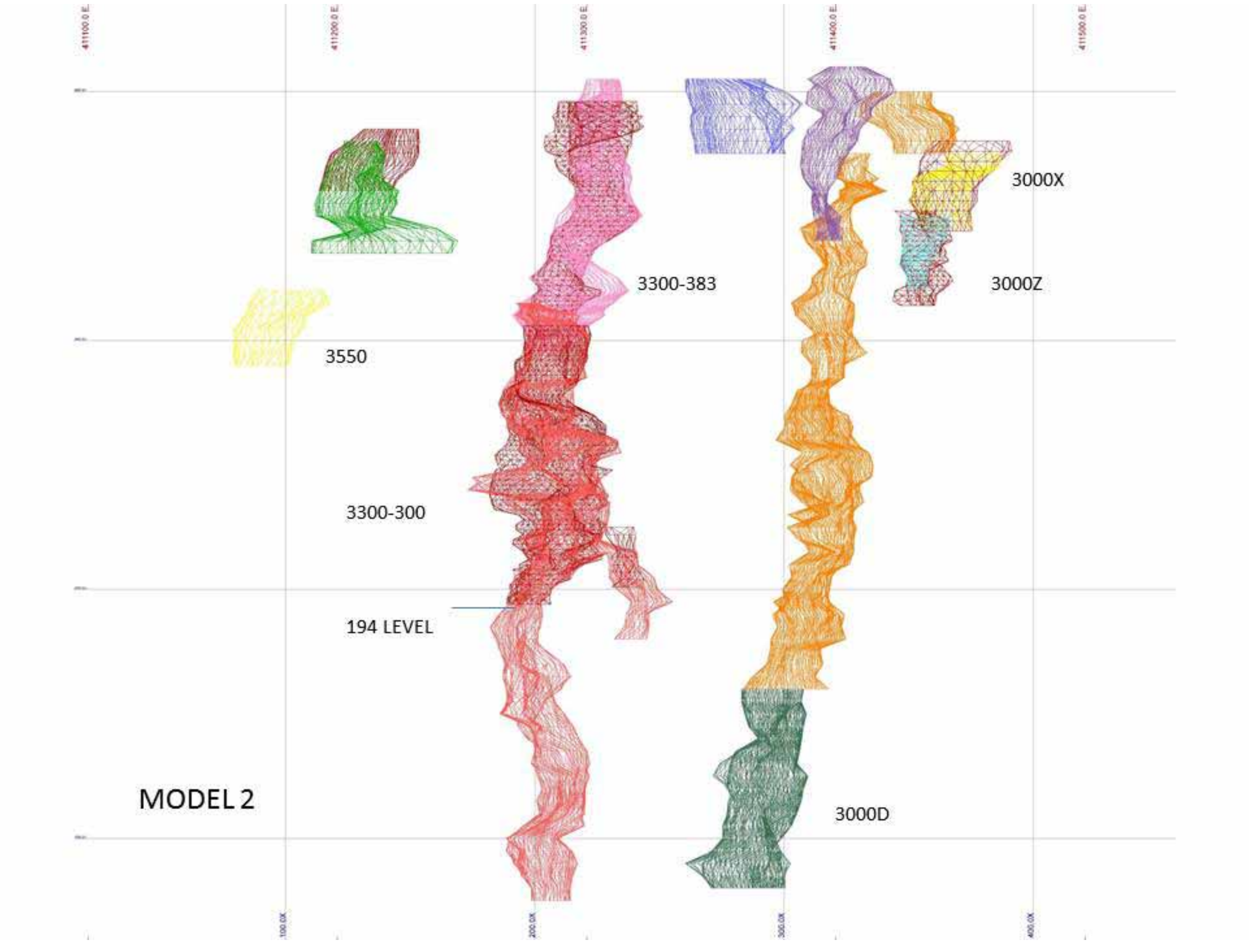

Figure 14-9: Isometric view looking north showing new Solids in Black overlaying old solids

The tonnage for each mineralized block was calculated as follows:
Tonnes = 2 x 2 x 2 x SG x (% Mineralized - % in Workings)/ 100%

This assumes that any underground development is within the mineralized portion of the block. Figure 14-10 shows the underground workings for Model 2.

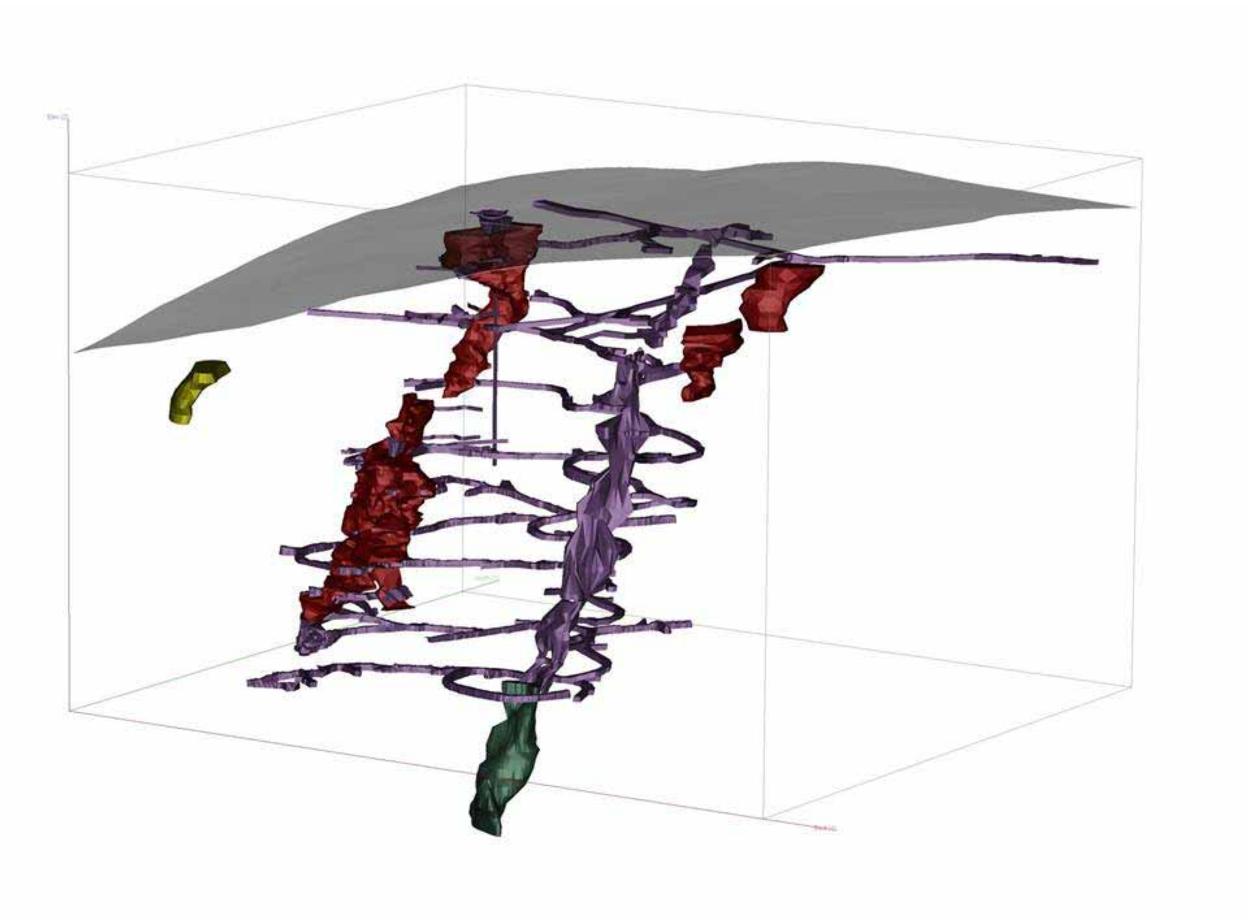

Figure 14-10: Model 2 showing the 3300 and 3000 solids in red and the underground workings in purple.

Classification

Based on the study herein reported, delineated mineralization of the estimated zones within the Nixon Fork Deposit are classified as a resource according to the following definitions from National Instrument 43-101 and from CIM (2005):

> *"In this Instrument, the terms "mineral resource", "inferred mineral resource", "indicated mineral resource" and "measured mineral resource" have the meanings ascribed to those terms by the Canadian Institute of Mining, Metallurgy and Petroleum, as the CIM Definition Standards on Mineral Resources and Mineral Reserves adopted by CIM Council, as those definitions may be amended."*

The terms Measured, Indicated and Inferred are defined by CIM (2005) as follows:

> *"A Mineral Resource is a concentration or occurrence of diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal and industrial minerals in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge."*

“The term Mineral Resource covers mineralization and natural material of intrinsic economic interest which has been identified and estimated through exploration and sampling and within which Mineral Reserves may subsequently be defined by the consideration and application of technical, economic, legal, environmental, socio-economic and governmental factors. The phrase ‘reasonable prospects for economic extraction’ implies a judgement by the Qualified Person in respect of the technical and economic factors likely to influence the prospect of economic extraction. A Mineral Resource is an inventory of mineralization that under realistically assumed and justifiable technical and economic conditions might become economically extractable. These assumptions must be presented explicitly in both public and technical reports.”

Inferred Mineral Resource

“An ‘Inferred Mineral Resource’ is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, workings and drill holes.”

“Due to the uncertainty that may be attached to Inferred Mineral Resources, it cannot be assumed that all or any part of an Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration. Confidence in the estimate is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. Inferred Mineral Resources must be excluded from estimates forming the basis of feasibility or other economic studies.”

Indicated Mineral Resource

“An ‘Indicated Mineral Resource’ is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.”

“Mineralization may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization. The Qualified Person must recognize the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource estimate is of sufficient quality to support a Preliminary Feasibility Study which can serve as the basis for major development decisions.”

Measured Mineral Resource

> *"A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity."*
>
> *"Mineralization or other natural material of economic interest may be classified as a Measured Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such that the tonnage and grade of the mineralization can be estimated to within close limits and that variation from the estimate would not significantly affect potential economic viability. This category requires a high level of confidence in, and understanding of, the geology and controls of the mineral deposit."*

Geologic continuity has been established through underground mapping and mining and through drill hole interpretation via cross sections and level plans. The grade continuity can be quantified through the use of semivariograms. By tying the search ellipses to the semivariogram range and orientations grade continuity can be used to classify the deposit.

Within the Model 1 area:

Whalen – Blocks estimated during pass 1 and 2 using up to ½ the semivariogram range are classified as Indicated. All other blocks are inferred.

North Star - Since there was insufficient data to determine semivariograms all blocks are classified as Inferred.

Within the Model 2 area:

3000M and 3077 Zones – All blocks are mined out

Remaining 3000X, 3000Z and 3000D Zones - Blocks estimated in Pass 1 or 2 using up to ½ the semivariogram range were classified as Indicated. All other estimated blocks were classified as Inferred.

3300 Zones – Blocks estimated in Pass 1 or 2 using up to ½ the semivariogram range were classified as Indicated. All other estimated blocks were classified as Inferred.

3500 Zones – Blocks estimated in Pass 1 or 2 using up to ½ the semivariogram range were classified as Indicated. All other estimated blocks were classified as Inferred. For the 3550 zone there was insufficient data at present to class any blocks as measured or indicated. All blocks were classified as Inferred.

Within the Model 3 area:

J5 Zone - Blocks estimated in Pass 1 or 2 using up to ½ the semivariogram range were classified as Indicated. All other estimated blocks were classified as Inferred.

3100 Zone - Blocks estimated in Pass 1 or 2 using up to ½ the semivariogram range were classified as Indicated. All other estimated blocks were classified as Inferred.

Southern Cross Zone - Since there was insufficient data to determine semivariograms all blocks are classified as Inferred.

Within the Model 4 area:

Mystery Zones - Blocks estimated in Pass 1 or 2 using up to ½ the semivariogram range were classified as Indicated. All other estimated blocks were classified as Inferred.

The results are summarized below at a 5 gpt and 10 gpt Cut-off and then tabulated by zone. **These results assume one could mine to the boundaries of the solids and no external edge dilution has been considered.**

Table 14-9: Summary of Resource within mineralized zones at 5 gpt and 10 gpt Cut-offs

Classification	**Zone**	**Au Cut-off (gpt)**	**Tonnes> Cut-off (tonnes)**	**Grade > Cut-off Au (gpt)**	**Ounces Gold**
INDICATED	3000 X,Z, & D	5.00	16,330	23.10	12,130
	3300	5.00	131,300	18.60	78,509
	3500	5.00	5,300	8.34	1,421
	Whalen	5.00	8,900	7.02	2,008
	J5	5.00	18,000	11.07	6,408
	3100	5.00	7,700	7.11	1,761
	Mystery	5.00	57,800	14.94	27,763
	TOTAL	**5.00**	**245,330**	**16.48**	**130,000**
INFERRED	3000 X,Z, & D	5.00	32,440	22.61	23,577
	3300	5.00	27,800	24.05	21,494
	3500	5.00	17,260	7.05	3,912
	Whalen	5.00	170	6.36	35
	J5	5.00	2,500	8.71	700
	3100	5.00	4,900	6.97	1,097
	Mystery	5.00	360	9.27	107
	NS	5.00	2,000	5.96	383
	SC	5.00	19,800	14.46	9,208
	TOTAL	**5.00**	**107,230**	**17.55**	**60,513**
INDICATED	3000 X,Z, & D	10.00	10,570	31.83	10,817
	3300	10.00	81,200	25.60	66,840
	3500	10.00	1,200	11.71	452
	Whalen	10.00	630	11.20	227
	J5	10.00	7,500	16.67	4,020
	3100	10.00	560	11.34	204
	Mystery	10.00	27,400	23.70	20,878
	TOTAL	10.00	**129,060**	**24.93**	**103,438**
INFERRED	3000 X,Z, & D	10.00	20,350	31.74	20,766
	3300	10.00	19,800	30.91	19,677

Classification	**Zone**	**Au Cut-off (gpt)**	**Tonnes> Cut-off (tonnes)**	**Grade > Cut-off Au (gpt)**	**Ounces Gold**
	3500	10.00	1,550	11.59	578
	Whalen	10.00	10	10.21	3
	J5	10.00	660	13.58	288
	3100	10.00	410	12.38	163
	Mystery	10.00	100	18.85	61
	NS	10.00	0	0.00	0
	SC	10.00	11,100	19.64	7,009
	TOTAL	10.00	**53,980**	**27.97**	**48,545**

***Note: There is a reported 5,410 tonnes averaging 9.49 gpt Au that has been mined from the Mystery Zones but there is no indication of where this has come from or at what Cut-off the mining used.**

The resulting gains from the 2011 drilling in the 3000, 3300 and 3500 zones are tabulated below.

Table 14-10: Comparison of 2010 and 2011 Results for 3000 X and Z zones and 3300 Zone

Classification	Year	Zone	Au Cut-off (gpt)	Tonnes > Cut-off (tonnes)	Grade Au (gpt)	Ounces Au
Indicated	2010	3000 X,Z &D	5.0	11,490	27.01	9,977
	2011	3000 X,Z &D	5.0	16,330	23.10	12,130
Inferred	2010	3000 X,Z &D	5.0	29,000	23.55	21,953
	2011	3000 X,Z &D	5.0	32,440	22.61	23,577
Indicated	2010	3300	5.0	112,100	19.66	70,867
	2011	3300	5.0	131,300	18.60	78,509
Inferred	2010	3300	5.0	30,300	22.60	22,015
	2011	3300	5.0	27,800	24.05	21,494
Indicated	2010	3500	5.0	5,300	8.34	1,421
	2011	3500	5.0	5,300	8.34	1,421
Inferred	2010	3500	5.0	40	5.25	7
	2011	3500	5.0	17,260	7.05	3,912

3000 X & Z Zones

INDICATED RESOURCE WITHIN 3000 X & Z ZONES

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	18,500	5.39	3,204
2.00	11,500	7.79	2,879
3.00	8,000	10.16	2,614
4.00	6,300	11.95	2,421
5.00	**5,100**	**13.71**	**2,247**
6.00	4,200	15.50	2,093
7.00	3,400	17.55	1,918
8.00	2,800	19.54	1,759
9.00	2,400	21.87	1,687
10.00	**1,900**	**24.87**	**1,519**

INFERRED RESOURCE WITHIN 3000 X & Z ZONES

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	14,800	5.35	2,546
2.00	9,800	7.38	2,325
3.00	6,800	9.52	2,080
4.00	4,800	12.05	1,860
5.00	**3,600**	**14.65**	**1,696**
6.00	3,000	16.38	1,580
7.00	2,600	17.71	1,480
8.00	2,400	18.92	1,460
9.00	2,000	20.57	1,322
10.00	**1,900**	**21.66**	**1,323**

3000 D Zone

INDICATED RESOURCE WITHIN 3000 D ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	14,850	21.41	10,220
2.00	13,750	23.02	10,174
3.00	13,000	24.19	10,111
4.00	12,060	25.80	10,004
5.00	**11,230**	**27.37**	**9,882**
6.00	10,510	28.88	9,758
7.00	10,000	30.01	9,648
8.00	9,450	31.33	9,519
9.00	9,100	32.21	9,423
10.00	**8,670**	**33.36**	**9,298**

INFERRED RESOURCE WITHIN 3000 D ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	35,470	19.78	22,555
2.00	34,090	20.52	22,495
3.00	32,780	21.24	22,388
4.00	30,830	22.36	22,165
5.00	**28,840**	**23.60**	**21,882**
6.00	26,440	25.24	21,456
7.00	24,000	27.14	20,944
8.00	21,900	29.03	20,439
9.00	19,940	31.05	19,902
10.00	**18,450**	**32.78**	**19,443**

3300 Zone Resource (Minus mined out sections)

INDICATED RESOURCE WITHIN 3300 ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	197,000	13.36	84,643
2.00	177,400	14.68	83,722
3.00	163,200	15.74	82,577
4.00	146,300	17.16	80,696
5.00	**131,300**	**18.60**	**78,509**
6.00	118,600	20.00	76,265
7.00	107,600	21.39	73,990
8.00	97,400	22.84	71,523
9.00	89,100	24.18	69,272
10.00	**81,200**	**25.60**	**66,840**

INFERRED RESOURCE WITHIN 3300 ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	37,900	18.45	22,482
2.00	36,400	19.14	22,397
3.00	32,600	21.11	22,129
4.00	30,200	22.47	21,813
5.00	**27,800**	**24.05**	**21,494**
6.00	26,100	25.25	21,191
7.00	23,900	26.94	20,702
8.00	21,600	29.08	20,191
9.00	20,600	30.04	19,898
10.00	**19,800**	**30.91**	**19,677**

3500 Zone Resource

INDICATED RESOURCE WITHIN 3500 ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	28,100	3.51	3,171
2.00	17,400	4.80	2,682
3.00	12,000	5.82	2,245
4.00	7,700	7.14	1,767
5.00	**5,300**	**8.34**	**1,421**
6.00	4,200	9.05	1,222
7.00	3,400	9.74	1,065
8.00	2,800	10.20	918
9.00	2,100	10.80	729
9.50	1,700	11.22	613
10.00	**1,200**	**11.71**	**452**

INFERRED RESOURCE WITHIN 3500 ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	3,900	2.71	339
2.00	2,500	3.41	274
3.00	1,800	3.75	217
4.00	490	4.39	69
5.00	**40**	**5.25**	**7**

INFERRED RESOURCE WITHIN 3550 ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	29,210	5.34	5,013
2.00	24,820	5.98	4,774
3.00	21,980	6.44	4,554
4.00	20,600	6.63	4,392
5.00	**17,220**	**7.05**	**3,903**
6.00	11,170	7.83	2,811
7.00	5,920	9.01	1,716
8.00	3,460	10.13	1,126
9.00	2,470	10.79	857
10.00	**1,550**	**11.59**	**578**

The remaining zone resources are the same as those reported in 2010.

Whalen Zone Resource

INDICATED RESOURCE WITHIN WHALEN ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	62,800	3.05	6,160
2.00	38,600	4.04	5,017
3.00	23,700	5.03	3,833
4.00	14,700	6.02	2,844
5.00	**8,900**	**7.02**	**2,008**
6.00	5,500	7.98	1,411
7.00	3,600	8.78	1,016
8.00	2,400	9.47	730
9.00	1,300	10.26	429
10.00	**630**	**11.20**	**227**
11.00	390	11.67	146
12.00	30	12.49	12

INFERRED RESOURCE WITHIN WHALEN ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	5,100	2.55	417
2.00	2,900	3.33	310
3.00	1,400	4.11	185
4.00	650	4.96	104
5.00	**170**	**6.36**	**35**
6.00	50	8.48	14
7.00	50	8.59	14

J5 Zone Resource

INDICATED RESOURCE WITHIN J5 ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	69,900	4.56	10,252
2.00	43,600	6.45	9,041
3.00	31,500	7.97	8,074
4.00	23,100	9.59	7,125
5.00	**18,000**	**11.07**	**6,408**
6.00	14,800	12.28	5,843
7.00	12,200	13.49	5,292
8.00	10,400	14.55	4,866
9.00	8,800	15.65	4,428
10.00	**7,500**	**16.67**	**4,020**
11.00	6,600	17.51	3,716
12.00	5,800	18.37	3,426

INFERRED RESOURCE WITHIN J5 ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	35,200	2.33	2,633
2.00	12,400	3.99	1,589
4.00	3,400	7.64	835
5.00	**2,500**	**8.71**	**700**
6.00	2,000	9.60	617
7.00	1,600	10.39	534
8.00	1,100	11.66	412
9.00	830	12.76	341
10.00	**660**	**13.58**	**288**
12.00	460	14.86	220

3100 Resource

INDICATED RESOURCE WITHIN 3100 ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	36,200	3.52	4,099
2.00	25,700	4.38	3,622
3.00	18,000	5.19	3,004
4.00	11,000	6.29	2,223
5.00	**7,700**	**7.11**	**1,761**
6.00	5,100	7.97	1,307
7.00	3,400	8.69	950
8.00	2,100	9.50	641
9.00	1,100	10.38	367
10.00	**560**	**11.34**	**204**
11.00	340	11.97	131
12.00	150	12.59	61

INFERRED RESOURCE WITHIN 3100 ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	59,800	2.38	4,584
2.00	24,200	3.78	2,941
3.00	12,800	5.00	2,057
4.00	7,600	6.08	1,486
5.00	**4,900**	**6.97**	**1,097**
6.00	2,900	7.97	743
7.00	1,700	9.05	494
8.00	1,000	10.33	332
9.00	590	11.49	218
10.00	410	12.38	163
11.00	300	13.09	126
12.00	180	14.10	82

Mystery Zone Resource

INDICATED RESOURCE WITHIN MYSTERY ZONES

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	175,100	6.58	37,037
2.00	123,600	8.71	34,608
3.00	94,100	10.67	32,284
4.00	73,200	12.74	29,978
5.00	**57,800**	**14.94**	**27,763**
6.00	48,200	16.83	26,078
7.00	41,800	18.40	24,732
8.00	36,000	20.18	23,358
9.00	31,000	22.04	21,968
10.00	**27,400**	**23.70**	**20,878**
11.00	24,500	25.27	19,901
12.00	22,300	26.65	19,109

INFERRED RESOURCE WITHIN MYSTERY ZONES

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	2,300	3.33	246
2.00	1,300	4.84	202
3.00	730	6.54	153
4.00	530	7.81	133
5.00	**360**	**9.27**	**107**
6.00	170	13.52	74
7.00	100	18.46	59
8.00	100	18.46	59
9.00	100	18.85	61
10.00	**100**	**18.85**	**61**
11.00	100	18.85	61
12.00	100	19.06	61

Note: There is a reported 5,410 tonnes averaging 9.49 gpt Au that has been mined from the Mystery Zones but there is no indication of where this has come from or at what Cut-off the mining used.

North Star Inferred Resource

INFERRED RESOURCE WITHIN NORTH STAR ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	60,600	2.23	4,335
2.00	24,000	3.42	2,635
3.00	14,000	4.11	1,850
4.00	5,800	4.98	929
5.00	**2,000**	**5.96**	**383**
6.00	800	6.89	177
7.00	400	7.28	94

Southern Cross Inferred Resource

INFERRED RESOURCE WITHIN SC ZONE

Au Cut-off (gpt)	Tonnes> Cut-off (tonnes)	Grade > Cut-off Au (gpt)	Ounces Gold
1.00	28,900	10.67	9,913
2.00	25,400	11.93	9,744
3.00	22,200	13.32	9,505
4.00	20,600	14.06	9,314
5.00	**19,800**	**14.46**	**9,208**
6.00	18,600	15.04	8,992
7.00	17,300	15.67	8,716
8.00	15,700	16.52	8,337
9.00	13,600	17.75	7,760
10.00	**11,100**	**19.64**	**7,009**
11.00	9,100	21.58	6,314
12.00	8,500	22.36	6,112

15. MINERAL RESERVE ESTIMATES

There currently are no mineral reserves n the Nixon Fork project that comply with the Definition Standards on Mineral Resources and Mineral Reserves as adopted by CIM Council, as amended.

16. MINING METHODS

The central portion of the 3300 zone has been actively mined from July 2011 through 2012 and is ongoing (R. Lessard, 2012, written comm.). Mining has been conducted over a vertical range of 240 meters. A total of approximately 23,000 tonnes have been mined during this period. The following remarks are based upon this experience:

Methods: Throughout this range rock conditions and ore shapes have been highly variable. Various mining methods have been employed to accommodate the changing conditions. The following methods have been successfully implemented to economically extract the mineral values while carefully controlling dilution and providing a safe working environment:

Room and pillar
Back stoping
Benching
Drift and fill
Breasting
Longhole stoping
Mechanical excavation
Open pit

It is anticipated that ore shapes encountered in the future will be as irregular as in the past. These various methods will continue to be utilized to accommodate the spectrum of conditions.

Ground Control: Throughout the mine, with proper management of heading dimensions, all ground control needs have been accommodated with self-supporting fixtures. friction bolts (split sets), resin grouted bolts and Swelex bolts have all been effectively utilized and proven adequate. To augment the anchor fixtures, welded wire mesh, mats, "butterfly" plates and link mesh have been used for ground support.

Production: Standard production rate for the mine is 160 tonnes/day. This rate has been exceeded on numerous occasions. Productivities in the stopes have ranged up to 50 tons per man shift. Average in stope productivity is approximately 8 tonnes per man shift. Productivity of 8 tonnes per man shift translates to a direct mining cost of approximately $122 per tonne.

Mining Fleet: Mine production/development has been accomplished with the following fleet of equipment:

Wagner ST2 D 2 yard scoop	3	
JCI 125M 1.25 yard scoop	1	
Wagner 414 10 ton trucks	2	
JCI JDT 416 truck 16 ton truck	1	
Tamrock single boom jumbo	1	20% usage
GD S83F jackleg drills	23	
Boart BCI-2 long hole drill	1	20% usage

Compressed air is supplied by one 1,000 cfm IR electric compressor and one Sullair 1300 cfm portable compressor. Installed onsite power is provided by 3 each 870 kilowatt Caterpillar diesel generators. Utility and crew transportation is provided by 6 Kubota RTV 900 units and 3 Ford tractors.

Mine Life: Current resources estimates include 286,000 tonnes at an average grade of 17 gpt which is sufficient for 5 years of mine life.

17. RECOVERY METHODS

Ore from the Nixon Fork mine is processed through a 200 tpd mill. The description below, along with a flowsheet shown in Figure 17.1 describes the processes used for recovery (R. Lessard, 2012, written comm.).

Raw ore is fed to a two-stage crushing circuit with a jaw and conical crusher. Crushed ore is then ground in rod and ball mills. A gravity concentrator is used to separate coarse gold, which is segregated on a shaker table. The gravity concentrate is then melted and refined on site to produce gold dore bars.

Flotation is then used on the ore stream after the gravity separation. The floated fraction is dried to form a gold and silver-rich copper concentrate that is shipped from site for transport to a smelter. The flotation tails are fed to a carbon-in-leach circuit to recover the residual gold on activated carbon, which is stripped and refined to make dore bars. The final tails from the leaching process are passed through a cyanide-destruct circuit, filtered, then placed on the filtered tailings disposal site (FTDS), or dry stack. Supplemental feed will be obtained from the existing tailings storage facility (TSF) which will be decommissioned and reclaimed after the historic tailings have been processed and moved to the FTDS. Residual gold in the historic tailings will also be recovered through leaching.

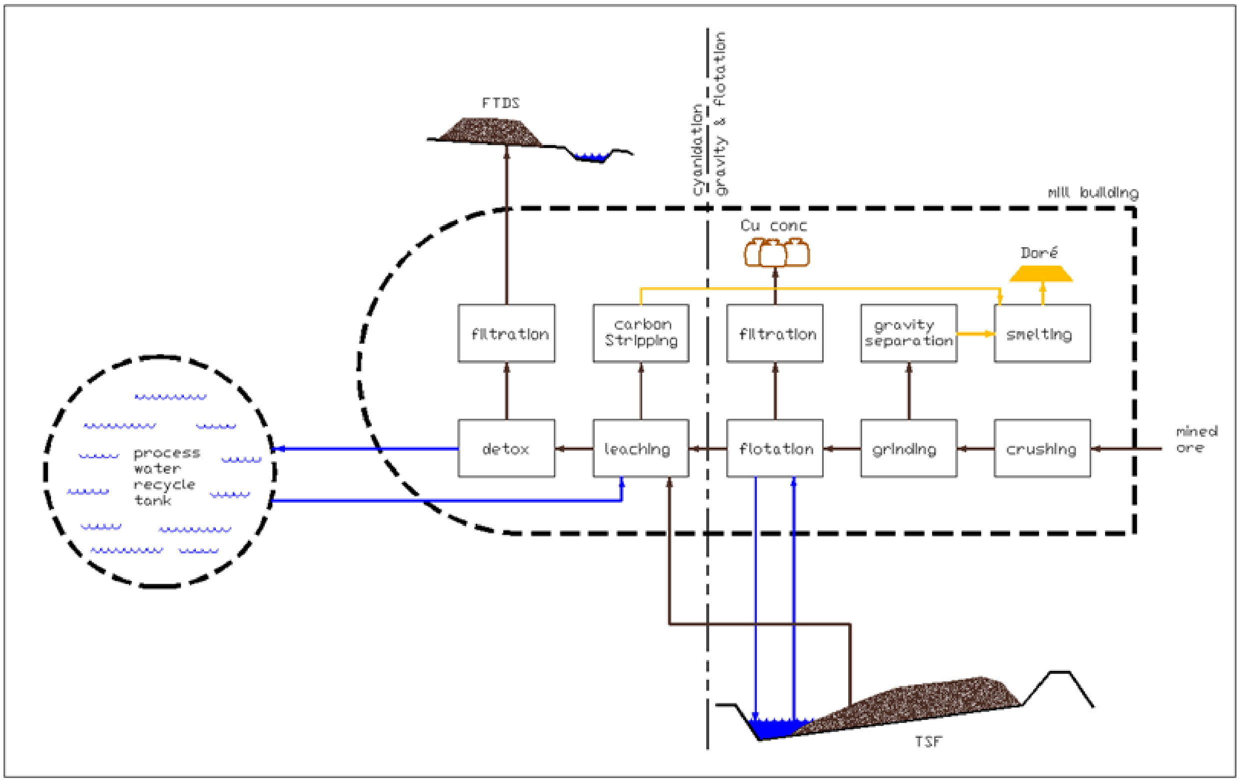

Figure 17.1: Process flowsheet for the Nixon Fork mill. Data from Fire River, 2012.

18. PROJECT INFRASTRUCTURE

Nixon Fork mine is a self contained operation with its own independent infrastructure (R. Lessard, 2012, written comm.). Living facilities, power, water, sewage, and garbage disposal are maintained by the maintenance department of the mine. Key to the operation is the 1200 meter dirt airstrip which is the sole access to the mine site. Capable of handling up to and including C130 Hercules and DC-6 aircrafts, it is the conduit for the movement of personnel, fuel, food, and supplies needed to keep the mine in operation. C130 Hercules aircrafts transports all major equipment required at the site.

Fuel is provided using primarily DC-6 and occasionally from C130 Hercules aircrafts and is stored in a 78,000 gallon capacity fuel farm located at the north end of the runway. The fuel is subsequently piped to the mill site for consumption by 3 each 870 kilowatt Caterpillar diesel generators to power the underground, mill, and site. Diesel is also the fuel that powers all mine and support equipment and for heating. Waste heat from the generators also provide heat for the mill and the underground.

Non cyanide treated waste from the mill is pumped to a tailings pond as a temporary storage location in preparation for reprocessing through the Cyanide Leach Circuit. Tailings from the Cyanide Leach Circuit, once treated to remove the cyanide will be de-watered and trucked to a dry-stack, located on the east side of the runway, constructed for this purpose.

Camp facilities includes an 85 man housing unit, with associated kitchen, dining, recreational, laundry, and exercise facilities. Satellite telephones, TV, and internet are also provided to the camp inhabitants. Other facilities includes a maintenance shop, office, dry/locker room, assay lab, and core logging and storage facilities.

19. MARKET STUDIES AND CONTRACTS

No specific market studies have been undertaken for the purpose of this report. Gold markets are global, mature and capable of absorbing all of the production anticipated from the Nixon Fork mine.

Fire River currently has two contracts in place for the sale of products produced by the Nixon Fork mine (R. Lessard, 2012, written comm.):

Refining Contract: Johnson Matthey Inc. in Salt Lake City, Utah, has been contracted to refine dore bars shipped from the Nixon Fork mine. The dore bars are expected to contain 70% gold and 30% silver. The contract is for a one year term which may be automatically extended after the first 12 month period.

Concentrate Sales Agreement: Glencore International Limited has negotiated a three year contract for the purchase of copper concentrate produced at the Nixon Fork mine. The gold and silver-bearing copper concentrate is designed to have moderate copper content which has varied from 10% to 25% historically. The concentrate leaves the mine in 1 tonne totes on pallets aboard C130 Hercules aircraft. The mine expects to ship approximately 900 wet metric tonnes of concentrate per year. The product will be transported to Anchorage where it will be transferred and loaded into 40 foot international shipping containers then barged to Seattle. The final destination for the product will be a smelter in the Philippines.

20. ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

Two environmental assessments (1991, 1995) were conducted at Nixon Fork prior to commencement of production in 1995, both resulting in a finding of no significant impact. In October, 2005 the BLM published their findings of an environmental assessment conducted by the agency at the Nixon Fork mine site (BLM, 2005). The 2005 environmental assessment also resulted in finding of no significant impact.

During late March, 2009, a review of State and federal permits covering the Nixon Fork property was organized by the senior author. The meeting was attending by the senior author, representatives if Fire River and personnel from both State and Federal agencies with permitting authority over the Nixon Fork mine (Freeman, 2009). No significant permit compliance issues or notices of non-compliance outstanding against the permits were identified at that meeting.

Following that meeting, Fire River acquired a number of permits required before mining operation can be conducted in the State of Alaska. The primary operational permits at Nixon Fork include:

1. Plan of Operations (POO) and Reclamation Plan from the State of Alaska and the U.S. Bureau of Mines, from which the bonding requirements is determined.
2. Waste Management Plan (WMP), issued by Alaska Department of Environmental Conservation (ADEC).
3. Certificate of Approval (COA) from the State of Alaska to operate and maintain a dam (for the tailings storage facility).
4. Storm Water Pollution Prevention Plan (SWPPP).
5. Spill Prevention Control and Countermeasure Plan (SPCC) for the control and management of oil spills.
6. Air Quality Permit from ADEC.
7. Temporary Water Use Permit from Alaska Dept. of Natural Resources (ADNR).

The 2005 POO and WMP are in the process of being updated. This process is not anticipated to pose any threat or delay to ongoing operations (R. Lessard, 2012, written comm.). To the best of the author’s knowledge, the Nixon Fork mine is in compliance with all of its operational permits.

21. CAPITAL AND OPERATING COSTS

The property is currently completing all construction activities and ramping mine production to full expectations. Mining productivity and cost performance has not been fully evaluated and is not available for disclosure at this time (R. Lessard, 2012, written comm.).

22. ECONOMIC ANALYSIS

In September 2010 Fire River announced results of its preliminary economic assessment on cyanide leaching of the existing tailings impoundment at Nixon Fork. This study estimated a 79% recovery of gold in the tailings impoundment from inferred resources of 48,000 tonnes grading 7.37 gpt (11,400 ounces) and indicated resources of 92,000 tonnes grading 7.87 gpt (23,300 ounces). The preferred alternative (Case A) had an estimated capital cost of $7.6 million and envisioned construction in years 1 and part of year 2 with processing and recovering beginning in year 2 and continuing through year 5. The envisioned operation generated a $3.3 million net present value at a 5% discount rate and 24% internal rate of return at $1000/oz gold price and a $14.2 million net present value at a 5% discount rate and 81% internal rate of return at $1500/oz gold price. A complete summary of the results of this work are presented in Flanders and others (2010). The tailing recovery process has not yet commenced so actual operating costs and productivity figures are not yet available.

In early 2011 Fire River announced the results of a preliminary economic assessment designed to evaluate the resumption of underground mining at the Nixon Fork project. The independent report, produced by Snowden Mining Industry Consultants Inc., indicated that the current resource was sufficient to sustain a two year production forecast at a production rate of 150 tonnes per day with an average mined grade of 30.1 gpt using an average cut-off grade of approximately 15 gpt gold (Finch and others, 2011). The mineral inventories in this report did not include the results of definition and exploration drilling performed in 2010 and 2011. Capital costs to resume production are estimated to be $6.3 million with a projected payback of 3 months. Operating costs are estimated at $434/ton or $447/ounce for the first two years of operations. At a gold price of $1200 per ounce gold, the project delivers an internal rate of return of 549% and net present value of $60.9 million on an undiscounted cash flow of $64.3 million over the first two operating years. A more complete summary of this preliminary economic assessment is presented in Finch and others (2011). The mine was placed into commercial production on July 4, 2011. Underground mining and milling operations are still in the ramp-up phase so actual operating costs and productivity figures are not yet available.

A mining license tax (MLT) is payable on all mineral production from State, federal or private lands in Alaska (Borell, 2011). This tax is on a net profits basis with a grace period for the first 3.5 years of production. If annual net income is less than $40,000, there is no MLT. The tax varies from 5% if annual net income is between $40,000 and $100,000 up to 7% if annual net income is above $100,000. In addition, there is also a 3% production royalty calculated on the same net profits basis as the mining license tax that applies to production from State lands. Underground mining and milling operations are still in the ramp-up phase so actual tax burden figures are not yet available.

23. ADJACENT PROPERTIES

Digital mining claim records published by the State of Alaska indicate that there are no third-party mining claims in the Nixon Fork area. Fairbanks-based Doyon Ltd., one of 13 Alaska native corporations, owns surface and mineral rights to extensive tracts of land to the east and south of the Nixon Fork mine site. Little public geological or geochemical data are available from these lands so their relationship to mineralization on the Nixon Fork project is uncertain. The authors are not aware of any information relating to properties adjacent to Nixon Fork relevant for disclosure in this report.

24. OTHER RELEVANT DATA AND INFORMATION

To the best of the authors’ knowledge, there are no other data available to the authors that bear directly on the potential of the Nixon Fork project.

25. INTERPRETATIONS AND CONCLUSIONS

The Nixon Fork copper-gold-silver project consists of 95 unpatented federal lode and 15 placer claims and an additional 81 State of Alaska mining claims (6,840 acres aggregate) located in the Medfra A4 quadrangle approximately 56 km northeast of McGrath, Alaska. Fire River Gold Corporation, through its 100% owned subsidiary Mystery Creek Resources, owns and leases mining claims covering the fully-permitted Nixon Fork mine. The Nixon Fork project is accessible via air by charter aircraft from Anchorage, Fairbanks or McGrath, all of which are served by regular scheduled commercial air service. The Nixon Fork airstrip is approximately 1,280 meters long and can handle Hercules C-130 and DC-6 fixed wing transport aircraft. Facilities at the Nixon Fork project include a 200 tonne per day mill with a gravity gold separation circuit, a sulfide floatation circuit and a CIL gold leaching circuit. The mine also includes a fleet of mining vehicles, a self-contained diesel power plant, maintenance facilities, drilling equipment and an 85 person camp with office facilities.

The Nixon Fork project is situated in an area of moderate topographic relief with elevations ranging from 300 to 460 meters. Ridges are generally rounded and are forested with black spruce, larch, birch, and alder. Lower elevations are often poorly drained due in part to discontinuous permafrost conditions, often being covered by soft muskeg and stunted black spruce forest. Outcrops are rare in the mine area with a few resistant knobs along ridgelines. Mineral exploration and development has occurred at the Nixon Fork project in several discrete phases since it its discovery nearly 100 years ago. From 1920 to 2007, the mine produced (from all operators) 125,591 ounces of gold, 19,566 ounces of silver, 1,273,066 pounds of copper, from about 106,137 tonnes of ore. An additional 21,974 tonnes at 15.2 gpt (10,771 contained ounces) were mined and milled in 2011 however, final recovery figures for this processing were not available at the time this report was written. The silver and copper production figures are incomplete and should be considered minimum production estimates. Recent underground mining at Nixon Fork occurred during three intervals from 1995 to 1999, in 2007 and from July 4, 2011 to the present. Exploration and development drilling at Nixon Fork since 1985 included 130,925 meters of drilling in 1,436 surface and underground drill holes. Except for 7,341 meters of RC drilling in 85 holes completed in 1985, all of the drilling at Nixon Fork has been by diamond core drilling.

The Nixon Fork project is located on the northeastern edge of the Kuskokwim Mineral Belt (KMB) of southwestern Alaska. The Nixon Fork mine is situated between two regional northeast trending structures associated with the KMB, the Denali - Farewell fault system to the south and the Nixon Fork - Iditarod fault to the north. Both of these structures have undergone Cretaceous-Tertiary offsets of less than 150 km. Numerous northeast and northwest trending subsidiary structures that are related to the Nixon Fork - Iditarod and Denali - Farewell faults occur in the Nixon Fork project area and possibly influenced the emplacement of intrusive bodies in the area. Proterozoic through Lower Cretaceous basement rocks of the Nixon Fork area are considered part of the Nixon Fork terrane, variously interpreted as a discrete allochthonous terrane. These basement rocks were subsequently eroded and covered by Middle to Late Cretaceous Kuskokwim Group turbidite facies rocks of shallow marine and shoreline origin. Late Cretaceous to Early Tertiary volcanic-plutonic complexes, plutons and subvolcanic dike and sill swarms intrude and overlie the older terranes and the Cretaceous Kuskokwim group. These igneous rocks host a variety of mineral deposits in the KMB and range in composition from gabbro to alkali granite with intrusives in the Nixon Fork mine area comprised primarily of granodiorite.

The majority of the basement rocks in the Nixon Fork project area are composed of Cambrian to Devonian-aged shallow water carbonate rocks. These carbonate units are the primary host for both calc-silicate alteration and copper-gold mineralization on the Nixon Fork project. Recent petrographic and geochemical research conducted on the Nixon Fork deposit suggests that gold-copper mineralization may be preferentially hosted in a previously unrecognized calcareous sandstone unit. In the Nixon Fork area, two 68-70 Ma (Cretaceous) quartz monzonite stocks have intruded the Paleozoic and Cretaceous sedimentary rock units. In the mine area the skarn mineralization is related to the polyphase Mystery Creek stock that outcrops over a 5 kilometer by 3 kilometer area. The stock contains both disseminated and vein style copper and gold mineralization and metasomatic skarn mineralization is formed in several areas along the margin of this stock. In the Nixon Fork area, two 68-70 Ma quartz monzonite stocks have intruded the Paleozoic and Cretaceous sedimentary rock units. In the mine area the skarn mineralization is related to the polyphase Mystery Creek stock that outcrops over a 5 kilometer by 3 kilometer area. The stock contains both disseminated and vein style copper and gold mineralization and metasomatic skarn mineralization is formed in several areas along the margin of this stock. Geochemical and geological evidence suggests the Nixon Fork skarn is genetically similar to the skarn ore bodies mined at the Fortitude mine in Nevada and at the Nickel Plate mine in British Columbia.

The alteration and mineralization observed in rocks at Nixon Fork can be divided into 5 distinct but often overlapping phases: 1) contact metamorphism, 2) prograde skarn, 3) retrograde skarn, 4) local overprinting of skarn by quartz-sericite alteration and 5) supergene oxidation and metal enrichment. Skarns at Nixon Fork have been further subdivided into mappable units according to their dominant mineralogical compositions: 1) garnet > pyroxene skarn, 2) pyroxene > garnet skarn, wollastonite skarn, magnesian skarn (serpentine-phlogopite-talc-tremolite) and 5) retrograde sulfide-rich skarn. The Mystery and Crystal Garnet areas of the Nixon Fork project exhibit two distinctly different styles of skarn development and later retrograde alteration associated with copper-gold mineralization. Skarn zonation in the Mystery Creek area (Mystery Portal) consists of regular zonation outward from the intrusive stock on the east through a 2-8 meter thick garnet > pyroxene zone through a 3-22 meter thick pyroxene > garnet zone, with or without the presence of a 1-6 meter thick wollastonite zone which overprints the garnet > pyroxene zone. Outward of the pyroxene > garnet zone, alteration grades is a highly variable thickness of calc-silicate-bearing hornfels composed of argillite, dirty limestone and dolomite. Gold and copper mineralization in the Mystery Creek area occurs in retrograde skarn with forms primarily in the pyroxene > garnet skarn (85% of Cu-Au mineralization) with the remaining 15% of the copper and gold mineralization hosted by retrograde altered garnet > pyroxene skarn. In contrast, skarn zonation in the Crystal-Garnet area does not exhibit the regular zonation that has been mapped at the Mystery Creek area and retrograde alteration (and associated copper-gold mineralization) appears to be controlled more by late felsic dikes and fault structures. The intrusive-skarn contact in the Crystal Garnet area is generally faulted and retrograde alteration is best developed at or close to this faulted contact, although both prograde and retrograde skarn develop along structures up to 60 meters west of the intrusive contact. Both structural and lithologic controls on copper gold mineralization are evident at Nixon Fork. Recent petrographic and geochemical research conducted on the Nixon Fork deposit suggests that gold-copper mineralization may be preferentially hosted in a previously unrecognized calcareous sandstone unit. The geographic extent of this unit and its significance relative to current resources and future exploration potential at Nixon Fork is uncertain.

Surface and underground drilling by Fire River commenced in 2010 and continues to the present. The 2010 surface drilling program was composed of 19 drill holes targeted outside the current resource base at the Whalen/North Star area and the Southern Cross area. Exploration in 2011 was limited to underground diamond drilling using Hagby drills targeting the Crystal/Garnet mine. These efforts were designed to upgrade existing resources and define additional gold-copper resources that could be accessed from the current underground workings.

A total of 24,800 m of diamond drilling was performed in 2010 and 2011, which included exploratory and ore definition drilling. Resources were expanded for three zones as a result of this drilling: 3000, 3300, and 3550. Current NI43-101 resources in all mineralized zones at the Nixon Fork mine include indicated resources of 204,360 tonnes grading 17.6 gpt (115,777 ounces) and inferred resources of 107,860 tonnes grading 18.0 gpt (62,452 ounces).

All of the mining conducted by Fire River from July 4, 2011 to the present has come from the 3300 zone. A total of 21,974 tonnes grading 15.2 gpt (10,771 contained ounces) were mined and milled in 2011 however, final recovery figures for this processing were not available at the time this report was written. The mine and mill at Nixon Fork currently are in the ramp-up stage to commercial production, so mining productivity and cost performance figures are not available for disclosure at this time.

26. RECOMMENDATIONS

Based on preliminary field, laboratory and literature studies completed to date, the following recommendations for future work are warranted:

3. **Phase 1:** Previous work has shown that skarn alteration and gold-copper mineralization are marked by weak to strong magnetic highs relative to unaltered limestone and intrusive. Initial exploration recommended for the Nixon Fork mine consists of close-spaced ground geophysics over the Mystery, J5A-Southern Cross, Crystal/Garnet, 3550/Recreation, Cowboy, and NorthStar/Whalen prospects. A contract geophysical crew is recommended with lines placed at right angles to known intrusive-skarn contacts. Limited oversight and ground support will be required from Nixon Fork mine personnel and contractors will be transported, housed and fed using existing mine facilities. The initial Phase 1 work program is designed to be completed within a 6 month period and is independent of any other work recommended at the Nixon Fork mine. Total estimated cost of this Phase 1 work is approximate cost of $150,000 (Table 26.1).

Table 26.1: Breakdown Phase 1 costs for the Nixon Fork project, Alaska. (6 Month Period)

Exploration Item	Estimated Cost	Comment
Fire River Labor	25,000	On-site support staff
Contract Geophysicists	75,000	Ground Magnetics
On-site Room, Board, Transport	15,000	Mine camp and facilities
Final report	10,000	Report, data and recommendations
Contingency	25,000	Possible expansion of survey
Total	$150,000	

4. **Phase 2:** Following completion of Phase 1 work, a backhoe/dozer trenching program is recommended for areas of known (historic) surface mineralization as well as geophysical targets defined in previously unexplored areas by the Phase 1 ground geophysics program. Mine-based backhoe or crawler dozer equipment will be used to excavate bedrock trenches. All trenches should be mapped and continuous channel samples collected over 1 to 2 meter intervals. Contract or mine-site geologists and geotechnical personnel can be utilized for the recommended work. Limited oversight and ground support will be required from Nixon Fork mine personnel and contractors will be transported, housed and fed using existing mine facilities. The initial Phase 2 work program is designed to be completed within a 6 month period and is dependent on the results of Phase 1 magnetics surveys recommended above. Total estimated cost of this Phase 1 work is approximate cost of $350,000 (Table 26.2).

Table 26.2: Breakdown Phase 2 costs for the Nixon Fork project, Alaska. (6 Month Period)

Exploration Item	Estimated Cost	Comment
Fire River Labor	125,000	On-site/contract technical staff
Heavy Equipment	50,000	Mine backhoe, dozer
Geochemistry	35,000	Third-party Au +ICP
On-site Room, Board, Transport	50,000	Mine camp and facilities
Expendables	30,000	Fuel, sampling equipment, etc.
Final report	25,000	Report, data and recommendations
Contingency	35,000	Possible expansion of trenching
Total	$350,000	

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STATEMENT OF QUALIFICATIONS

CURTIS J. FREEMAN
Avalon Development Corporation
P.O. Box 80268, Fairbanks, Alaska 99708
Phone 907-457-5159, Fax 907-455-8069, Email Avalon@alaska.net

I, CURTIS J. FREEMAN, Certified Professional Geologist #6901, HEREBY CERTIFY THAT:

I am currently employed as President of Avalon Development Corporation, P.O. Box 80268, Fairbanks, Alaska, 99708, USA.

2. I am a graduate of the College of Wooster, Ohio, with a B.A. degree in Geology (1978). I am also a graduate of the University of Alaska with an M.S. degree in Economic Geology (1980).

3. I am a member of the American Institute of Professional Geologists, the Society of Economic Geologists, the Geological Society of Nevada, the Alaska Miners Assoc., the Association for Mineral Exploration of British Columbia and the Prospectors and Developers Assoc. of Canada.

4. From 1980 to the present I have been actively employed in various capacities in the mining industry in numerous locations in North America, Central America, South America, New Zealand and Africa. The author has worked on the subject property in the past and has worked on genetically similar projects in Alaska since 1984.

5. I have read the definition of “Qualified Person” set out in National Instrument 43-101 (NI43-101) and certify that by reason of my education, affiliation with a professional organization (as defined by NI43-101) and past relevant work experience, I fulfill the requirements to be a “Qualified Person” for the purposes of NI43-101.

6. Except for Section 14, I am responsible for preparations of all sections of the report entitled **Technical Report on the Nixon Fork Mine Project Medfra Quadrangle, Alaska**, and dated February 3, 2012 (the “Technical Report”) relating to the Nixon Fork copper - gold property. The author has worked on the project in the past. The author conducted a site visit to the project on August 21 and 22, 2009 and continued to work on exploration areas outside of the current resource base since that time but has not visited the project since August 2009.

7. Prior to 2009, the author had no prior involvement with the property that is the subject of the Technical Report.

8. I am not aware of any material fact or material change with respect to the subject matter of this Technical Report that is not reflected in the Technical Report, the omission to disclose which would make the Technical Report misleading. As of the date of this certificate, to the best of the qualified person’s 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.

9. I am not independent of the issuer applying all of the tests in section 1.4 of NI43-101. I own controlling interest in Anglo Alaska Gold Corporation, a private Alaska-domiciled corporation which owns 94,000 shares of Fire River Gold Corp. common stock, and therefore am not an independent Qualified Person under section 1.4 of NI43-101. I own no interest in any other company or entity that owns or controls an interest in the properties which comprise the Nixon Fork project.

10. I have read NI43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance with that instrument and form.

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

DATED in Fairbanks, Alaska this 3rd day of February 2012

AMERICAN INSTITUTE OF PROFESSIONAL GEOLOGISTS
CERTIFICATE NUMBER 6901
AIPG
CURTIS J. FREEMAN
CERTIFIED PROFESSIONAL GEOLOGIST

Curtis J. Freeman, BA, MS, CPG#6901, AA#159

STATEMENT OF QUALIFICATION

GARY H. GIROUX
Giroux Consultants Ltd.
1215 – 675 W. Hastings St.
Vancouver, B.C. V6B 1N2

I, G.H. Giroux, of 982 Broadview Drive, North Vancouver, British Columbia, do hereby certify that:

1. I am a consulting geological engineer with an office at #1215 - 675 West Hastings Street, Vancouver, British Columbia.

2. I am a graduate of the University of British Columbia in 1970 with a B.A. Sc. And in 1984 with a M.A. Sc., both in Geological Engineering.

3. I am a member in good standing of the Association of Professional Engineers and Geoscientists of the Province of British Columbia.

4. I have practiced my profession continuously since 1970. I have had over 30 years experience in base and precious metal resource estimation and in that time have worked on many skarn deposits including New York Canyon, Merry Widow, Los Filos and Bermejal.

5. I have read the definition of "qualified person" set out in National Instrument 43-101 and certify that by reason of education, experience, independence and affiliation with a professional association, I meet the requirements of an Independent Qualified Person as defined in National Policy 43-101.

6. **I am responsible for Section 14; in the technical report entitled "Technical Report on the Nixon Fork Mine Project Medfra Quadrangle, Alaska"** dated February 3, 2012 ("Technical Report"). This report is based on a study of the data and literature available on the Nixon Fork project and a site visit conducted during the period May 3-5, 2010.

7. I have previously completed a resource estimate on this property in 2010.

8. As of the date of this certificate, 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.

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

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

Dated this 3rd day of February 2012

“G.H. Giroux” {signed and sealed}

G. H. Giroux, P.Eng. MASc.

APPENDIX 1

STATE OF ALASKA MINING CLAIMS
NIXON FORK PROJECT

All claims located in the Mt. McKinley Recording District, Kateel River Meridian, Alaska
State of Alaska mining claims owned by Mespelt and Almasy Mining Company LLC

Count	Claim Name	Acres	Township	Range	Section	ADL#
1	M&A #1	40	26 S	21 E	13	312759
2	M&A #2	40	26 S	21 E	14	312760
3	M&A #3	40	26 S	21 E	24	312761
4	M&A #4	40	26 S	21 E	23	312762
5	Clough Strand #10	40	26 S	22 E	17,18	314860
6	MAR 1	40	26 S	21 E	23	508866
7	MAR 2	40	26 S	21 E	23	508867
8	MAR 3	40	26 S	21 E	23	508868
9	MAR 4	40	26 S	21 E	23	508869
10	MAR 5	40	26 S	21 E	23	508870
11	MAR 6	40	26 S	21 E	23	508871
12	MAR 7	40	26 S	21 E	23	508872
13	MAR 8	40	26 S	21 E	23	508873
14	MAR 9	40	26 S	21 E	14	508874
15	MAR 10	40	26 S	21 E	14	508875
16	MAR 11	40	26 S	21 E	14	508876
17	MAR 12	40	26 S	21 E	14	508877
18	MAR 13	40	26 S	21 E	12	508878
19	MAR 14	40	26 S	21 E	12	508879
20	MAR 15	40	26 S	21 E	12	508880
21	MAR 16	40	26 S	21 E	12	508881
22	NF-1	40	26 S	21 E	13	532159
23	NF-2	40	26 S	21 E	13	532160
24	NF-3	40	26 S	21 E	13	532161
25	NF-4	40	26 S	21 E	13	532162
26	NF-5	40	26 S	21 E	13	532163
27	NF-6	40	26 S	21 E	13	532164
28	NF-7	40	26 S	21 E	13	532165
29	NF-8	40	26 S	21 E	13	532166
30	NF-9	40	26 S	21 E	13	532167
31	NF-10	40	26 S	21 E	13	532168
32	NF-11	40	26 S	21 E	13	532169
33	NF-12	40	26 S	21 E	13	532170

Count	Claim Name	Acres	Township	Range	Section	ADL#
34	NF-13	40	26 S	21 E	24	532171
35	NF-14	40	26 S	21 E	24	532172
36	NF-15	40	26 S	21 E	24	532173
37	NF-16	40	26 S	21 E	24	532174
38	NF-17	40	26 S	21 E	24	532175
39	NF-18	40	26 S	21 E	24	532176
40	NF-19	40	26 S	21 E	24	532177
41	NF-20	40	26 S	21 E	24	532178
42	NF-21	40	26 S	21 E	24	532179
43	NF-22	40	26 S	21 E	24	532180
44	NF-23	40	26 S	21 E	24	532181
45	NF-24	40	26 S	21 E	24	532182
46	Pupinsky #4	40	26 S	22 E	20	312736
47	Pupinsky #5	40	26 S	22 E	20	312737
48	Pupinksy #6	40	26 S	22 E	20	312738

STATE OF ALASKA MINING CLAIMS
NIXON FORK PROJECT

All claims located in the Mt. McKinley Recording District, Kateel River Meridian, Alaska
State Mining Claims owned by Mystery Creek Resources

Count	Claim Name	Acres	Township	Range	Section	ADL#
1	Ruby 1	160	26 S	21 E	15	661071
2	Ruby 2	160	26 S	21 E	14	661072
3	Ruby 3	160	26 S	21 E	14	661073
4	Ruby 4	160	26 S	21 E	13	661074
5	Ruby 5	160	26 S	21 E	15	661075
6	Ruby 6	160	26 S	21 E	14	661076
7	Ruby 7	160	26 S	21 E	22	661077
8	Ruby 8	160	26 S	21 E	23	661078
9	Ruby 9	160	26 S	21 E	22	661079
10	Ruby 10	160	26 S	21 E	23	661080
11	Ruby 11	160	26 S	21 E	27	661081
12	Ruby 12	160	26 S	21 E	26	661082
13	Ruby 13	160	26 S	21 E	26	661083
14	Ruby 14	160	26 S	21 E	25	661084
15	Ruby 15	160	26 S	21 E	25	661085
16	Ruby 16	160	26 S	21 E	27	661086
17	Ruby 17	160	26 S	21 E	26	661087
18	Ruby 18	160	26 S	21 E	26	661088
19	Ruby 19	160	26 S	21 E	25	661089
20	Ruby 20	160	26 S	21 E	25	661090
21	Ruby 21	160	26 S	21 E	34	661091
22	Ruby 22	160	26 S	21 E	35	661092
23	Ruby 23	160	26 S	21 E	35	661093
24	Ruby 24	160	26 S	21 E	36	661094
25	Ruby 25	160	26 S	21 E	36	661095
26	Ruby 26	160	26 S	21 E	34	661096
27	Ruby 27	160	26 S	21 E	35	661097
28	Ruby 28	160	26 S	21 E	35	661098
29	Ruby 29	160	26 S	21 E	36	661099
30	Ruby 30	160	26 S	21 E	36	661100
31	Ruby 31	40	26 S	21 E	24	661101
32	Ruby 32	40	26 S	21 E	24	661102
33	Ruby 33	40	26 S	21 E	24	661103

UNPATENTED FEDERAL MINING CLAIMS
NIXON FORK PROJECT

All Claims Located within the Mt. McKinley Recording District, Kateel River Meridian, Alaska
Unpatented federal mining claims owned by Mespelt and Almasy Mining Company, LLC

No.	Claim Name	Acres	Township	Range	Section	AA#
1	GOLDEN STAR	20	26S	21	24	033627
2	GOLDEN STAR NO I	20	26S	21	24	033628
3	SHAMROCK	20	26S	21	24	033629
4	MABEL NO 1	20	26S	21	13,24	033630
5	MABEL NO 2	20	26S	21	24	033631
6	MABEL NO 3	20	26S	21	24	033632
7	MABEL NO 4	20	26S	21	24,25	033633
8	MABEL NO 5	20	26S	21	24	033634
9	BOSTON	20	26S	21	24,25	033635
10	MABEL NO 6	20	26S	21	24	033636
11	MOHAWK	20	26S	21	13,24	033637
12	TECLA PUP	20	26S	21	13	033638
13	NORTH STAR	20	26S	21	13,24	033639
14	GOLDFIELD	20	26S	21	13,24	033640
15	RED LODE	20	26S	21	13,24	033641
16	WALDEN	20	26S	21	13	033642
17	IRON NO.1	20	26S	21	13	033643
18	IRON NO. 2	20	26S	21	13,24	033644
19	IRON	20	26S	21	13,24	033645
20	CHALCOPYRITE	20	26S	21	13	033646
21	CHALCOCITE	20	26S	21	13	033647
22	SOUTHERN CROSS	20	26S	21,22	13,18	033648
23	TEXAS LODE CLAIM	20	26S	21	12,13	033649
24	EMERGENCY	20	26S	21,22	13,13,7	033650
25	BOSTON BUTT	20	26S	21	24,25	033654
26	MCGOWAN	20	26S	21,22	13,18	033655
27	KEEN	20	26S	21,22	13,18	033656
28	RICHARDSON	20	26S	21	13,24	033658
29	MESPELT	20	26S	21,22	13,24,18	033659
30	DOLF MESPELT LODE CLAIM	20	26S	21,22	13,18	033660
31	CHARLIE MESPELT LODE CLAIM	20	26S	21,22	13,18	033661
32	CARL SCHUTTLER LODE CLAIM	20	26S	21,22	24,19	033663
33	LEO RODRIGUE LODE CLAIM	20	26S	21,22	24,19	033664

No.	Claim Name	Acres	Township	Range	Section	AA#
34	HY GROSHONG LODE CLAIM	20	26S	21,22	24,19	033665
35	MONTANA LODE CLAIM	20	26S	21	13,18	033667
36	WERNECKE LODE CLAIM	20	26S	21	24	033668
37	GRIFFIN LODE CLAIM	20	26S	21	23,24	033669
38	WHELAN LODE CLAIM	20	26S	21	24	033670
39	BULLOCK LODE CLAIM	20	26S	21	24	033671
40	MATHEISON LODE CLAIM	20	26S	21	13,14,23	033672
41	PEARSON LODE CLAIM	20	26S	21	13,24	033673
42	STRAND LODE CLAIM	20	26S	21	13,24	033674
43	OWEN GRAY LODE CLAIM	20	26S	21	13	033675
44	SNOW LODE CLAIM	20	26S	21	13	033676
45	OMALLEY LODE CLAIM	20	26S	21	13	033677
46	NEVADA LODE CLAIM	20	26S	21	12,13	033681
47	MONZONITE FRACTION LODE CLAIM	20	26S	21	13	033682
48	PORPHYRY FRACTION LODE CLAIM	20	26S	21	13	033683
49	OLD FITZGERALD LODE CLAIM	20	26S	21	13	033684
50	JIM BEAM LODE CLAIM	20	26S	21	13	033685
51	OLD TAYLOR LODE CLAIM	20	26S	21	13	033686
52	CROWN ROYAL LODE CLAIM	20	26S	21	13	033690
53	IDAHO LODE CLAIM	20	26S	21	12,13	033712
54	UTAH LODE CLAIM	20	26S	21	12,13	033713
55	WYOMING LODE CLAIM	20	26S	21	12,13	033714
56	NO 1 ABOVE RUBY CREEK	20	26S	21	13	033715

No.	Claim Name	Acres	Township	Range	Section	AA#
57	NO 2 ABOVE RUBY CREEK	20	26S	21	13	033716
58	NO 1 ABOVE CRYSTAL GULCH	20	26S	21	13	033717
59	NO 1 ABOVE BENCH RUBY CREEK	20	26S	21	13	033718
60	NO 2 ABOVE DISC HOLMES GULCH	20	26S	21	24	033719
61	NO 1 ABOVE DISC HOLMES GULCH	20	26S	21	24	033720
62	DISCOVERY HOLMES GULCH	20	26S	21	24	033721
63	LIBERTY NO. 2	20	26S	21	24,25	033722
64	LIBERTY NO. 1	20	26S	21	24,25	033723
65	LINCOLN PLACER MINING CLAIM	20	26S	21	25	033724
66	SHAMROCK PLACER MINING CLAIM	20	26S	21	25	033725
67	NO 3 ABOVE DISC HOLMES GULCH	20	26S	21	24	033726
68	WHELAN PLACER CLAIM	20	26S	21	25	033727
69	AMETHYST LODE MINING CLAIM	20	26S	21	13	033728
70	GARNET SOUTH EXTENTION	20	26S	21	13	033729
71	GARNET LODE MINING CLAIM	20	26S	21	13	033730
72	RECREATION LODE	20	26S	21	13	033731
73	CRYSTAL LODE	20	26S	21	13	033732
74	NIXON FORK LODE	20	26S	21	13	033733
75	BLACK BEAR LODE	20	26S	21	13	033734
76	NO 3 ABOVE RUBY CREEK	20	26S	21	13	033735
77	NO 4 ABOVE RUBY CREEK	20	26S	21	13,24	033736

UNPATENTED FEDERAL MINING CLAIMS
NIXON FORK PROJECT

All Claims Located within the Mt. McKinley Recording District, Kateel River Meridian, Alaska
Unpatented federal mining claims owned by Mespelt and Almasy Mining Company, LLC,
on land owned by Doyon Limited

No.	Claim Name	Acres	Township	Range	Section	AA#
1	Mystery	20	26S	22E	7,18	033651
2	Warrior	20	26S	22E	7	033652
3	Chief	20	26S	22E	7	033653
4	Almasy	20	26S	22E	18,19	033657
5	Evan Jones	20	26S	22E	18,19	033662
6	Dick Matthews	20	26S	22E	19	033666
7	Pinky Doodle 1	20	26S	22E	8	033678
8	Pinky Doodle 2	20	26S	22E	8	033679
9	Pinky Doodle 3	20	26S	22E	5,6,8	033680
10	Old Grandad	20	26S	22E	18	033687
11	Old Crow	20	26S	22E	18	033688
12	Old Forester	20	26S	22E	18,19	033689
13	Pupinsky 1	20	26S	22E	20	033691
14	Pupinsky 2	20	26S	22E	20	033692
15	Pupinsky 3	20	26S	22E	20	033693
16	Jack Nixon 1	20	26S	22E	8,17	033694
17	Jack Nixon 2	20	26S	22E	8	033695
18	Jack Nixon 3	20	26S	22E	8	033696
19	Jack Nixon 4	20	26S	22E	8,17	033697
20	Jack Nixon 5	20	26S	22E	17	033698
21	Jack Nixon 6	20	26S	22E	8,17,18	033699
22	Jack Nixon 7	20	26S	22E	7,8,17,18	033700
23	Jack Nixon 8	20	26S	22E	7,8,17	033701
24	Jack Nixon 9	20	26S	22E	8	033702
25	Clough Strand 1	20	26S	22E	18	033703
26	Clough Strand 2	20	26S	22E	17,18	033704
27	Clough Strand 3	20	26S	22E	17,18	033705
28	Clough Strand 4	20	26S	22E	17,18,19	033706
29	Clough Strand 5	20	26S	22E	18,19	033707
30	Clough Strand 6	20	26S	22E	18,19	033708
31	Clough Strand 7	20	26S	22E	18,19	033709
32	Clough Strand 8	20	26S	22E	18	033710
33	Clough Strand 9	20	26S	22E	17,18	033711

APPENDIX 2
SIGNIFICANT DRILL INTERCEPTS
NIXON FORK MINE 2010 - 2011

Hole No.	Zone	From (m)	To (m)	Width (m)	Au (gpt)	Ag (gpt)	Cu (%)
N10-001	Whalen				gpt	gpt	%
Significant Intersections		74.37	76.81	2.44	2.42	1.00	0.07
		79.55	85.99	6.44	6.78	1.10	0.04
	Including	81.96	83.20	1.24	26.10	1.00	0.02
		87.17	88.00	0.83	11.00	1.00	0.12
		113.20	114.95	1.45	9.06	3.00	0.30
		119.79	120.61	0.82	2.37	0.50	0.01
N10-003	Whalen						
Significant Intersections		120.17	124.84	4.67	4.40	1.14	0.14
N10-004	Whalen						
Significant Intersections		143.72	144.32	4.67	7.20	29.05	1.01
	Including	143.72	145.94	2.22	12.65	52.41	1.82
N10-005	North Star						
Significant Intersections		33.68	34.23	0.55	3.48	5.00	0.50
		40.84	42.38	1.54	3.32	4.00	0.34
N10-006	North Star						
Significant Intersections		57.34	58.22	0.88	4.24	7.00	0.48
		59.89	60.91	1.02	41.80	15.29	0.86
	Including	60.37	60.91	0.48	86.00	28.00	1.61
		62.22	62.94	0.72	4.56	2.00	0.11
		68.87	69.33	0.46	3.44	2.00	0.14
		131.60	133.01	1.41	9.69	1.00	0.10
		162.05	164.21	2.16	4.57	0.70	0.00
N10-007	North Star						
Significant Intersections		18.68	20.26	1.58	8.63	3.00	0.30
		25.00	29.49	4.49	29.79	17.46	1.51
	Including	25.91	27.84	1.93	52.92	29.22	2.62
	Including	28.65	29.49	0.84	28.00	16.00	1.52
		55.38	57.45	2.07	2.58	1.66	0.15
N10-009	North Star						
Significant Intersections		41.15	41.45	0.30	165.00	149.00	7.13
		46.10	48.77	2.67	11.23	14.62	0.73
		52.43	53.64	1.21	2.32	4.00	0.32
		56.69	60.80	4.11	2.57	9.00	0.31
		65.47	66.83	1.36	9.74	14.00	0.47
N10-012	Southern Cross						

Hole No.	Zone	From (m)	To (m)	Width (m)	Au (gpt)	Ag (gpt)	Cu (%)
Significant Intersections		32.92	35.92	3.00	9.93	13.00	0.15
N10-014	Southern Cross						
Significant Intersections		27.74	29.47	1.73	6.02	8.00	0.45
N10-015	Southern Cross						
Significant Intersections		100.99	102.37	1.38	29.80	98.76	2.59
	Including	101.50	102.37	0.87	44.20	125.00	3.49
N10-018	Southern Cross						
Significant Intersections		84.38	86.26	1.87	5.30	4.32	0.24
	Including	85.34	85.72	0.38	15.45	12.00	0.58
N10U-002	3100						
Significant Intersections		65.23	67.78	2.55	14.32	4.4	0.32
	Including	66.23	66.84	0.61	52.3	16	1.28
N10U-003	3100						
Significant Intersections		76.71	77.72	1.01	9.15	86	2.99
N10U-004	3100						
Significant Intersections		65.67	66.33	0.66	2.36	11	0.65
N10U-006	3100						
Significant Intersections		79.39	80.19	0.8	1.26	28	1.5
N10U-008	3300						
Significant Intersections		80.34	87.76	7.42	11.53	0.86	0.11
N10U-009	3300						
Significant Intersections		94.3	97.54	3.24	25.42	4.87	0.37
N10U-010	3300						
Significant Intersections		86.87	88.39	1.52	21	0.5	0.02
N10U-014	3300						
Significant Intersections		52.73	54.25	1.52	5.82	1	0
N10U-016	3300						
Significant Intersections		72	73	1	31.4	31	0.62
N10U-020	Hi Grade Rec						
Significant Intersections		52.02	53.04	1.02	12.7	11	1.13
N10U-022	Hi Grade Rec						
Significant Intersections		93.38	94.69	1.31	30.5	4	0.02
N10U-023	3000X						
Significant Intersections		39.17	44.47	5.3	1.7	17.47	0.11
		48.23	52.34	4.11	2.04	129.15	0.4
	Including	51.71	52.34	0.63	7.26	39	0.32
N10U-024	3000X						
Significant Intersections		32.57	35.4	2.83	160.5	6	0.02

Hole No.	Zone	From (m)	To (m)	Width (m)	Au (gpt)	Ag (gpt)	Cu (%)
N10U-025	3000X						
Significant Intersections		35.66	37.47	1.81	2.57	9.25	0.02
		45.29	47.37	2.08	1.74	49.26	1.23
N10U-027	3000X						
Significant Intersections		35.5	36.94	1.44	6.2	2	0.01
N10U-028	3000Z						
Significant Intersections		107.44	108.92	1.48	33.16	165.18	10.85
N10U-029	3000Z						
Significant Intersections		49	50.3	1.3	18.2	2	0.06
N10U-030	3000Z						
Significant Intersections		45.43	46.95	1.52	7.19	0.5	0
		75.55	76.31	0.76	3.87	61	0.12
N10U-033	3000X						
Significant Intersections		53.3	56.92	3.62	92.17	52.2	1.8
N10U-034	3000X						
Significant Intersections		42.67	45.7	3.03	1.17	250	0.15
		57.12	59.13	2.01	2.39	0.5	0
N10U-035	3000X						
Significant Intersections		46.94	47.92	0.98	3.94	338	1.3
		51.04	56.08	5.04	24.5	289.3	1.29
N10U-037	3300D						
Significant Intersections		25.3	26.82	1.52	5.98	5	0.52
N10U-038	3300D						
Significant Intersections		74.07	87.78	13.71	28.83	11.5	0.69
	Including	75.42	76.36	0.94	96.1	48	2.82
	Including	78.63	79.89	1.26	118.5	23	1.32
N10U-039	3300D						
Significant Intersections		71.84	77.98	6.14	7.05	17.3	1.21
	Including	73.63	75.15	1.52	18.95	53	3.56
N10U-040	3000D						
Significant Intersections		35.21	36.27	1.06	202.71	39.1	1.88
		42.37	43.89	1.52	8.61	14	0.78
		65.23	65.97	0.74	5.97	7.1	0.31
N10U-041	3000D						
Significant Intersections		31.7	37.66	5.96	125.51	45.4	3.03
	Including	34.12	37.66	3.54	188.97	58	3.87
N10U-042	3000D						
Significant Intersections		32.17	36.27	4.1	76.16	17.3	0.73
	Including	33.22	34.38	1.16	245	24	1.15
N10U-043	3000D						

Hole No.	Zone	From (m)	To (m)	Width (m)	Au (gpt)	Ag (gpt)	Cu (%)
Significant Intersections		38.95	44.48	5.53	65.3	27.3	1.93
N10U-044	3000D						
Significant Intersections		46.36	49.07	2.71	124.28	19.8	1.25
		58.26	58.83	0.57	11.3	8	0.51
		75.59	77.11	1.52	11.65	5	0.27
N10U-045	3100						
Significant Intersections		222.91	231.51	8.6	11.37	22.9	0.26
		246.59	246.94	0.35	7.38	140	0.04
N10U-047	3100						
Significant Intersections		191.96	194.32	2.36	108	147	0.48
N10U-052	3000X						
Significant Intersections		43.49	52.1	9.24	5.28	23.08	1.11
	Including	44.93	45.49	0.56	11.95	31	0.46
	Including	50.6	52.1	1.5	24	96	4.97
N11U-005	3000X						
Significant Intersections		75.59	78.08	2.49	12.92	56.42	1.55
	Including	76.71	78.08	1.37	20.37	87.01	2.11
N11U-006	3000X						
Significant Intersections		72.87	80.49	7.62	9.63	55.49	0.97
	Including	76.70	78.96	2.26	25.66	96.57	1.45
N11U-007	3000X						
Significant Intersections		43.59	48.16	4.57	1.57	82.01	0.18
N11U-008	3000X						
Significant Intersections		33.69	34.44	0.75	8.48	16.00	0.00
Significant Intersections		49.68	51.74	2.06	15.28	35.06	0.31
	Including	51.21	51.74	0.53	57.00	52.00	0.57
N11U-009	3000X						
Significant Intersections		33.29	48.17	14.88	3.04	11.65	0.12
	Including	33.29	34.54	1.25	10.25	1.00	0.02
	Including	42.07	45.12	3.05	5.57	18.48	0.22
N11U-010	3000X						
Significant Intersections		37.49	46.31	8.82	16.70	26.21	1.11
	Including	39.11	39.65	0.54	5.93	44.00	1.28
	Including	41.62	43.27	1.65	83.32	70.19	3.55
	Including	45.11	46.31	1.20	10.55	12.38	0.27
Significant Intersections		75.16	77.42	2.26	6.77	61.00	0.79
	Including	75.16	76.65	1.49	9.31	70.46	1.07
N11U-012	3000X						
Significant Intersections		40.87	42.87	2.00	5.76	2.52	0.12
	Including	41.86	42.87	1.01	10.25	4.00	0.16

Hole No.	Zone	From (m)	To (m)	Width (m)	Au (gpt)	Ag (gpt)	Cu (%)
Significant Intersections		45.75	48.88	3.13	3.06	6.00	0.25
	Including	47.00	48.15	1.15	5.91	2.00	0.06
N11U-014	3000X						
Significant Intersections		25.60	30.18	4.58	1.68	29.49	0.15
	Including	29.30	30.18	0.88	9.75	164.00	0.30
N11U-016	3000X						
Significant Intersections		31.39	33.88	2.49	7.39	144.00	0.10
N11U-019	3300-383						
Significant Intersections		4.37	7.42	3.05	29.40	36.00	0.62
N11U-020	3100						
Significant Intersections		227.14	230.08	2.94	12.34	14.66	0.67
	Including	227.14	228.63	1.49	23.30	26.00	1.13
N11U-021	3300-220						
Significant Intersections		5.54	6.45	0.91	11.99	89.05	1.66
	Including	5.54	6.11	0.57	18.40	138.00	2.54
Significant Intersections		10.42	11.13	0.71	18.15	8.00	0.05
N11U-022	3300-220						
Significant Intersections		17.68	20.57	2.89	18.44	38.85	0.99
	Including	17.68	18.18	0.50	96.00	160.00	0.00
N11U-024	3300-220						
Significant Intersections		0.00	4.01	4.01	18.99	16.28	0.43
	Including	0.00	0.91	0.91	68.30	26.00	0.87
N11U-026	3300-220						
Significant Intersections		0.91	5.49	4.58	5.75	7.01	0.33
	Including	0.91	2.44	1.53	14.85	7.00	0.55
N11U-028	3300-220						
Significant Intersections		13.11	23.04	9.93	15.95	5.69	0.38
	Including	20.73	23.04	2.31	41.24	12.52	0.80
N11U-029	3300-383						
Significant Intersections		13.11	30.16	17.05	4.98	27.10	0.96
	Including	13.11	22.65	9.54	6.67	41.15	1.45
	Including	26.82	28.62	1.80	5.34	3.00	0.18
N11U-030	3300-220						
Significant Intersections		3.27	7.66	4.39	22.97	7.07	1.12
	Including	3.27	4.58	1.31	54.91	19.15	3.57
	Including	7.01	7.66	0.65	40.20	8.00	0.34
Significant Intersections		15.06	22.25	7.19	9.13	2.88	0.15
	Including	16.26	17.68	1.42	25.90	7.00	0.48
	Including	20.73	22.25	1.52	13.35	3.00	0.06
N11U-031	3300-383						

Hole No.	Zone	From (m)	To (m)	Width (m)	Au (gpt)	Ag (gpt)	Cu (%)
Significant Intersections		4.87	7.32	2.45	9.49	7.00	0.47
Significant Intersections		8.84	19.05	10.21	16.66	51.22	2.17
	Including	14.66	16.94	2.28	58.21	191.02	7.97
Significant Intersections		19.51	30.18	10.67	8.12	5.83	0.36
	Including	19.51	27.13	7.62	10.46	7.67	0.31
N11U-032	3300-220						
Significant Intersections		4.13	10.06	5.93	71.41	40.07	2.00
	Including	5.13	5.61	0.48	177.29	120.10	5.80
	Including	6.82	10.06	3.24	103.66	52.40	2.70
N11U-033	3300-383						
Significant Intersections		10.06	19.08	9.02	41.04	33.81	2.09
	Including	11.58	14.70	3.12	111.85	87.45	5.56
N11U-034	3300-220						
Significant Intersections		0.00	13.11	13.11	26.35	9.87	0.40
	Including	0.00	4.37	4.37	30.45	22.27	1.08
	Including	5.79	6.16	0.37	170.00	41.00	0.35
	Including	9.98	10.35	0.37	394.00	21.00	0.39
	Including	11.58	13.11	1.53	5.46	4.00	0.02
N11U-035	3300-383						
Significant Intersections		14.94	22.63	7.69	24.01	24.74	2.37
	Including	21.71	22.63	0.92	72.30	67.00	7.29
N11U-036	3300-220						
Significant Intersections		17.68	24.88	7.20	146.40	21.47	1.27
	Including	21.09	24.88	3.79	217.99	28.45	2.17
N11U-037	3300-383						
Significant Intersections		3.96	7.01	3.05	7.99	8.00	0.01
Significant Intersections		14.63	21.58	6.95	2.69	11.40	0.55
	Including	20.46	21.58	1.12	5.05	35.00	0.78
N11U-039	3300-383						
Significant Intersections		0.00	4.18	4.18	17.56	4.07	0.17
	Including	0.00	2.69	2.69	24.58	3.00	0.22
Significant Intersections		30.02	32.91	2.89	3.79	5.94	0.26
	Including	31.55	32.91	1.36	6.75	7.00	0.33
Significant Intersections		35.90	37.80	1.90	19.23	12.43	1.33
	Including	35.90	36.37	0.47	64.80	32.00	3.90
N11U-040	3300-235						
Significant Intersections		1.22	4.12	2.90	33.28	9.54	0.71
	Including	1.70	4.12	2.42	39.64	11.04	0.83
N11U-041	3300-383						
Significant Intersections		2.04	5.18	3.14	28.92	11.38	1.08

Hole No.	Zone	From (m)	To (m)	Width (m)	Au (gpt)	Ag (gpt)	Cu (%)
	Including	3.96	5.18	1.22	68.60	23.00	2.56
N11U-043	3300-383						
Significant Intersections		0.52	2.44	1.92	4.64	3.00	0.17
Significant Intersections		50.86	53.71	2.85	2.12	4.61	0.14
N11U-044	3300-235						
Significant Intersections		5.49	12.63	7.14	2.49	1.61	0.07
	Including	8.53	10.06	1.53	5.12	2.00	0.13
N11U-046	3300-235						
Significant Intersections		3.00	7.01	4.01	6.95	4.34	0.23
	Including	3.00	5.33	2.33	9.84	5.72	0.26
N11U-047	3300-383						
Significant Intersections		42.80	47.00	4.20	20.44	5.12	0.15
	Including	45.51	47.00	1.49	52.50	7.00	0.20
N11U-048	3300-235						
Significant Intersections		16.41	20.73	4.32	11.25	3.78	0.34
	Including	17.68	19.33	1.65	26.22	7.33	0.83
N11U-049	3300-383						
Significant Intersections		42.06	47.86	5.80	17.11	11.87	0.64
	Including	42.06	44.68	2.62	32.30	19.00	1.11
N11U-050	3300-235						
Significant Intersections		15.37	19.02	3.65	11.08	3.57	0.32
	Including	18.64	19.02	0.38	101.50	30.00	2.70
N11U-052	3300-235						
Significant Intersections		11.97	20.39	8.42	107.13	36.26	1.82
	Including	12.35	12.70	0.35	41.10	17.00	1.19
	Including	13.72	15.63	1.91	43.68	25.32	2.05
	Including	16.90	18.80	1.90	391.42	118.74	4.99
	Including	19.74	20.39	0.65	79.40	27.00	1.74
N11U-054	3300-235						
Significant Intersections		12.44	20.73	8.29	6.76	3.26	0.22
	Including	12.44	12.97	0.53	16.64	7.30	0.55
	Including	18.50	18.73	0.23	9.94	4.00	0.19
N11U-061	3200						
Significant Intersections		39.32	47.42	8.10	13.33	12.23	0.66
	Including	40.84	43.92	3.08	23.57	15.36	0.89
	Including	45.72	47.42	1.70	17.15	24.00	1.27
N11U-063	3200						
Significant Intersections		54.41	55.93	1.52	2.21	1.00	0.01
N11U-065	3200						
Significant Intersections		50.31	51.72	1.41	1.51	10.44	0.41

Hole No.	Zone	From (m)	To (m)	Width (m)	Au (gpt)	Ag (gpt)	Cu (%)
Significant Intersections		52.73	55.17	2.44	1.99	61.75	2.92
	Including	55.07	55.17	0.10	5.20	14.00	0.64
N11U-066	3300-235						
Significant Intersections		1.47	6.90	5.43	25.56	5.63	0.26
	Including	3.88	4.23	0.35	34.70	22.00	1.88
	Including	5.49	6.90	1.41	86.16	8.94	0.35
N11U-068	3300-235						
Significant Intersections		0.91	8.59	7.68	5.50	3.81	0.17
	Including	7.01	8.59	1.58	16.84	7.57	0.52
Significant Intersections		10.06	14.25	4.19	3.73	1.74	0.07
	Including	10.06	11.58	1.52	7.19	2.00	0.14
	Including	13.85	14.25	0.40	8.77	5.00	0.04
N11U-072	3300-240						
Significant Intersections		7.98	9.45	1.47	3.59	2.00	0.09
N11U-073	3200						
Significant Intersections		42.37	45.10	2.73	23.18	6.91	0.32
	Including	44.09	45.10	1.01	41.20	10.00	0.60
Significant Intersections		52.12	54.64	2.52	5.87	32.58	0.90
	Including	53.25	54.64	1.39	9.74	55.00	1.52
N11U-075	3000Z						
Significant Intersections		22.77	23.17	0.40	2.40	70.00	4.35
N11U-076	3300-240						
Significant Intersections		18.95	19.40	0.45	181.50	57.00	3.30
N11U-077	3000Z						
Significant Intersections		18.70	23.25	4.55	2.03	17.55	0.53
N11U-078	3300-240						
Significant Intersections		7.30	8.84	1.54	1.38	1.00	0.04
N11U-079	3000Z						
Significant Intersections		18.27	19.98	1.71	2.52	127.28	2.32
	Including	18.27	18.62	0.35	5.84	405.00	4.04
N11U-081	3000Z						
Significant Intersections		19.09	21.04	1.95	2.26	46.90	1.34
N11U-082	3300-240						
Significant Intersections		8.74	10.36	1.62	126.35	63.33	5.15
	Including	8.74	9.76	1.02	196.50	100.00	8.10
N11U-083	3000Z						
Significant Intersections		25.11	29.79	4.68	7.67	42.22	1.37
	Including	25.11	25.72	0.61	12.50	13.00	0.68
	Including	26.97	28.49	1.52	13.36	41.00	1.38
N11U-084	3300-240						

Hole No.	Zone	From (m)	To (m)	Width (m)	Au (gpt)	Ag (gpt)	Cu (%)
Significant Intersections		9.48	12.28	2.80	40.93	7.78	0.29
	Including	10.15	10.45	0.30	317.00	46.00	1.98
Significant Intersections		31.75	32.26	0.51	16.55	18.00	1.14
N11U-086	3300-240						
Significant Intersections		20.29	21.54	1.25	15.80	14.00	0.65
N11U-088	3300-240						
Significant Intersections		16.74	18.16	1.42	9.36	2.80	0.37
	Including	16.74	17.59	0.85	14.40	4.00	0.60
N11U-089	3000Z						
Significant Intersections		19.78	27.10	7.32	3.66	62.36	1.86
	Including	22.74	25.70	2.96	6.42	90.78	2.79
N11U-090	3300-240						
Significant Intersections		17.93	22.29	4.36	14.69	14.72	0.72
	Including	19.20	21.17	1.97	22.08	16.85	0.70
N11U-092	3300-240						
Significant Intersections		17.68	20.56	2.88	17.96	7.19	0.27
	Including	19.20	20.56	1.36	35.60	13.00	0.49
Significant Intersections		24.28	28.64	4.36	57.01	32.44	2.21
	Including	24.28	25.24	0.96	55.20	77.00	5.68
	Including	27.52	28.64	1.12	174.50	55.00	3.70
Significant Intersections		29.87	32.92	3.05	3.31	1.00	0.12
N11U-093	3000Z						
Significant Intersections		15.24	15.74	0.50	3.22	208.00	0.43
Significant Intersections		17.06	18.24	1.18	1.80	23.36	0.04
	Including	17.06	17.40	0.34	3.62	44.00	0.07
N11U-094	3300-240						
Significant Intersections		26.46	34.59	8.13	93.52	2.72	0.05
	Including	26.46	28.35	1.89	190.23	2.44	0.03
	Including	32.67	34.59	1.92	31.76	1.88	0.02
N11U-095	3000Z						
Significant Intersections		0.00	2.63	2.63	2.12	4.46	0.09
	Including	0.00	1.55	1.55	2.61	2.00	0.02
N11U-096	3300-240						
Significant Intersections		19.20	28.40	9.20	24.40	11.90	0.82
	Including	20.62	23.77	3.15	39.90	11.69	0.66
	Including	25.17	28.40	3.23	26.54	20.75	1.65
Significant Intersections		33.36	34.44	1.08	15.90	5.00	0.09
Significant Intersections		37.02	37.86	0.84	14.90	1.00	0.02
N11U-098	3300-240						
Significant Intersections		27.86	31.83	3.97	8.98	0.95	0.01

Hole No.	Zone	From (m)	To (m)	Width (m)	Au (gpt)	Ag (gpt)	Cu (%)
	Including	27.86	29.47	1.61	20.29	1.61	0.01
Significant Intersections		45.11	48.16	3.05	2.99	2.00	0.10
N11U-101	3000Z						
Significant Intersections		0.63	3.19	2.56	2.47	36.55	1.11
N11U-102	3300-240						
Significant Intersections		19.20	22.25	3.05	12.82	1.43	0.03
	Including	19.69	20.73	1.04	29.70	3.00	0.05
N11U-103	3000Z						
Significant Intersections		0.00	3.65	3.65	6.56	81.18	2.19
	Including	0.91	3.65	2.74	7.79	93.85	2.38
N11U-105	3000Z						
Significant Intersections		0.00	2.50	2.50	3.33	36.38	1.04
	Including	1.22	2.50	1.28	4.36	52.00	1.48
N11U-106	3300-240						
Significant Intersections		20.50	21.95	1.45	2.72	0.50	0.05
Significant Intersections		34.14	41.82	7.68	1.54	1.00	0.02
	Including	34.14	35.66	1.52	3.15	0.50	0.01
N11U-107	3000Z						
Significant Intersections		0.00	2.44	2.44	2.74	26.09	0.72
	Including	0.00	1.05	1.05	4.70	54.00	1.40
N11U-108	3300-240						
Significant Intersections		37.19	38.71	1.52	13.65	0.50	0.01
N11U-109	3000Z						
Significant Intersections		0.00	2.30	2.30	2.17	39.01	0.99
	Including	1.69	2.30	0.61	6.60	136.00	3.42
N11U-110	Exploration						
Significant Intersections		156.36	157.89	1.53	2.45	2.00	0.11
N11U-117	3100						
Significant Intersections		58.80	61.62	2.82	2.15	52.72	1.23
	Including	58.80	59.48	0.68	3.14	145.00	3.14
N11U-118	Exploration						
Significant Intersections		155.68	157.58	1.90	8.10	10.01	0.64
	Including	155.68	156.85	1.17	12.65	15.00	0.92
Significant Intersections		171.91	177.86	5.95	1.93	3.43	0.25
	Including	171.91	173.51	1.60	3.68	3.00	0.20
N11U-120	Exploration						
Significant Intersections		118.02	118.75	0.73	6.15	0.50	0.01
Significant Intersections		121.11	125.10	3.99	1.88	2.53	0.71
	Including	123.78	124.78	1.00	4.98	1.00	0.10
N11U-125	3100						

Hole No.	Zone	From (m)	To (m)	Width (m)	Au (gpt)	Ag (gpt)	Cu (%)
Significant Intersections		64.01	65.53	1.52	2.44	1.00	0.01
N11U-127	3100						
Significant Intersections		39.38	40.54	1.16	1.10	1.00	0.13
N11U-129	3100						
Significant Intersections		39.38	42.37	2.99	2.73	8.38	0.06
	Including	41.31	42.37	1.06	4.70	20.00	0.16
N11U-130	3300-190						
Significant Intersections		55.78	58.83	3.05	19.75	20.92	0.77
	Including	56.64	57.37	0.73	61.00	56.00	1.85
N11U-137	3100						
Significant Intersections		28.50	29.15	0.65	1.44	202.00	0.03
Significant Intersections		33.22	34.75	1.53	1.49	63.39	0.01
N11U-140	3300-190						
Significant Intersections		48.16	49.26	1.10	7.18	8.00	0.36
N11U-141	3100						
Significant Intersections		30.57	33.31	2.74	1.04	99.51	2.51
N11U-145	3100						
Significant Intersections		6.27	7.06	0.79	1.47	101.00	0.11
N11U-153	3300-300						
Significant Intersections		58.64	60.40	1.76	1.85	<1.00	0.03
N11U-154	3300-240						
Significant Intersections		84.78	87.64	2.86	21.74	14.13	0.85
	Including	87.12	87.64	0.52	89.00	60.00	2.96
N11U-160	3300-240						
Significant Intersections		48.16	49.68	1.52	1.35	< 1.00	<0.01
N11U-161	3300-300						
Significant Intersections		38.96	39.24	0.28	3.72	1.00	<0.01
Significant Intersections		41.79	42.48	0.69	1.95	< 1.00	0.03
N11U-163	3300-235						
Significant Intersections		0.00	4.70	4.70	3.24	1.32	0.08
Significant Intersections		14.94	19.51	4.57	66.39	76.80	4.06
	Including	16.46	18.07	1.61	177.00	169.00	9.40
N11U-165	3300-235						
Significant Intersections		1.45	3.91	2.46	26.40	4.10	0.20
	Including	1.45	2.74	1.29	46.90	6.00	0.30
N11U-167	3300-235						
Significant Intersections		0.00	2.62	2.62	7.72	4.78	0.13
Significant Intersections		13.11	14.63	1.52	7.18	26.53	1.67
	Including	14.04	14.63	0.59	13.75	5.00	0.67
N11U-171	3300-235						

Hole No.	Zone	From (m)	To (m)	Width (m)	Au (gpt)	Ag (gpt)	Cu (%)
Significant Intersections		2.86	4.27	1.41	2.44	1.00	0.11
N11U-173	3300-235						
Significant Intersections		1.22	2.74	1.52	13.70	8.00	0.04
N11U-174	3300-240						
Significant Intersections		62.18	65.23	3.05	2.12	2.99	0.08
Significant Intersections		74.54	76.88	2.34	2.48	0.71	0.01
N11U-175	3300-235						
Significant Intersections		14.94	18.46	3.52	109.97	21.60	1.20
	Including	15.89	17.77	1.88	205.00	40.00	2.23
N11U-176	3300-240						
Significant Intersections		77.49	78.49	1.00	3.90	<1.00	0.01
N11U-177	3300-235						
Significant Intersections		0.00	4.16	4.16	5.03	3.30	0.06
	Including	0.71	1.96	1.25	12.65	3.00	0.12
Significant Intersections		9.47	14.63	5.16	9.08	3.96	0.25
	Including	9.47	10.06	0.59	26.40	7.00	0.46
	Including	13.47	14.63	1.16	24.68	11.07	0.74
N11U-178	3300-240						
Significant Intersections		77.55	78.64	1.09	17.70	1.00	0.02
N11U-180	3300-240						
Significant Intersections		77.11	78.64	1.53	2.78	1.00	0.08
Significant Intersections		85.57	89.31	3.74	3.16	3.94	0.25
	Including	86.26	87.78	1.52	5.65	0.50	0.01
N11U-182	3300-240						
Significant Intersections		58.27	59.05	0.78	8.80	16.00	0.98
N11U-184	3300-240						
Significant Intersections		48.16	49.68	1.52	3.60	18.00	1.55
Significant Intersections		53.34	55.78	2.44	2.21	6.00	0.21
Significant Intersections		66.45	70.81	4.36	15.76	1.97	0.07
	Including	69.90	70.81	0.91	65.30	4.00	0.26
N11U-185	3300-230						
Significant Intersections		113.17	113.92	0.75	7.80	1.00	0.09
Significant Intersections		123.92	124.44	0.52	13.80	4.00	0.15
N11U-188	3300-240						
Significant Intersections		65.99	68.55	2.56	4.00	3.30	0.14
N11U-191	3300-230						
Significant Intersections		93.02	93.75	0.73	1.77	7.00	0.31
N11U-193	3300-230						
Significant Intersections		94.18	94.84	0.66	117.50	116.00	8.54
Significant Intersections		101.80	103.33	1.53	62.30	52.00	0.18

Hole No.	Zone	From (m)	To (m)	Width (m)	Au (gpt)	Ag (gpt)	Cu (%)
N11U-198	3300-230						
Significant Intersections		95.71	97.23	1.52	1.80	2.00	0.05
N11U-199	3300-230						
Significant Intersections		93.82	95.71	1.89	1.68	1.00	0.06
Significant Intersections		98.76	100.23	1.47	1.67	1.00	0.03
N11U-203	3300-230						
Significant Intersections		32.77	33.22	0.45	4.50	184.00	0.09
N11U-204	3300-230						
Significant Intersections		104.55	109.12	4.57	51.91	30.48	1.96
	Including	106.13	109.12	2.99	77.61	45.92	2.94
N11U-208	3300-230						
Significant Intersections		99.97	109.12	9.15	7.38	11.45	0.58
	Including	102.06	103.75	1.69	8.48	34.09	2.41
	Including	106.07	107.59	1.52	21.20	6.00	0.10
N11U-225	3550						
Significant Intersections		93.64	94.34	0.70	5.92	3.00	0.19
Significant Intersections		99.67	100.92	1.25	2.78	15.00	0.56
Significant Intersections		104.83	109.12	4.29	8.41	13.44	0.66
	Including	104.83	106.07	1.24	12.05	21.00	1.10
	Including	108.08	109.12	1.04	19.85	20.00	0.92
N11U-226	3550						
Significant Intersections		112.62	119.79	7.17	46.01	47.81	2.92
	Including	113.54	116.98	3.44	93.82	94.26	5.79
N11U-227	3550						
Significant Intersections		40.84	42.06	1.22	2.47	0.50	0.07
		44.11	45.11	1.00	8.27	1.00	0.18
N11U-228	3550						
Significant Intersections		106.07	113.69	7.62	32.81	64.62	2.66
	Including	106.07	108.66	2.59	92.20	169.66	7.24

APPENDIX 3
LIST OF DRILL HOLES USED FOR THE NIXON FORK UPDATE

HOLE	EASTING	NORTHING	ELEVATION	HOLE LENGTH (m)
BZ10-001	411426.86	7013097.90	328.81	21.34
BZ10-002	411426.86	7013097.90	328.81	20.42
BZ10-003	411426.86	7013097.90	328.81	15.24
BZ11-001	411426.86	7013097.90	328.81	14.05
BZ11-002	411426.86	7013097.90	328.81	20.42
BZ11-003	411426.86	7013097.90	328.14	18.29
LH97-18	411426.71	7013102.67	330.21	9.76
LH97-20	411426.15	7013103.01	330.21	7.32
LH97-22	411426.71	7013102.67	330.21	8.53
LH97-23	411426.80	7013102.72	330.21	7.32
LH97-24	411432.61	7013103.74	329.98	12.20
LH97-25	411433.24	7013102.57	329.98	12.20
LH97-26	411430.10	7013099.51	329.98	9.76
LH97-27	411431.93	7013098.96	329.98	9.76
LH97-28	411434.11	7013100.60	329.98	9.76
LH99-02	411283.55	7013088.13	306.70	12.20
LH99-04	411283.08	7013088.50	306.70	10.98
LH99-07	411287.60	7013090.60	306.60	12.20
N04U003	411352.00	7013101.00	269.70	126.20
N04U004	411352.00	7013101.00	269.70	136.30
N04U005	411352.00	7013101.00	269.70	153.00
N04U006	411352.00	7013101.00	269.70	122.80
N04U048	411320.90	7012921.90	189.80	73.00
N04U055	411331.70	7012970.70	188.64	85.60
N04U056	411331.70	7012970.70	189.25	78.80
N04U057	411331.70	7012970.70	190.15	104.20
N04U060	411336.90	7012963.85	188.89	79.20
N04U061	411335.80	7012962.74	188.51	72.50
N04U063	411336.60	7012963.63	189.57	70.40
N04U065	411335.70	7012963.30	188.07	78.00
N04U068	411336.90	7012964.19	188.92	80.20
N04U076	411337.10	7012965.66	188.99	70.70
N04U083	411337.30	7012965.50	189.65	75.60
N04U084	411337.20	7012965.62	189.29	75.60
N04U087	411337.10	7012965.58	189.18	71.30
N04U088	411337.20	7012965.52	189.41	73.80
N04U089	411337.30	7012965.38	189.67	71.00

HOLE	EASTING	NORTHING	ELEVATION	HOLE LENGTH (m)
N04U090	411337.10	7012965.24	189.57	73.80
N04U093	411367.00	7013069.80	233.00	139.00
N04U108	411342.90	7012984.40	187.70	71.10
N04U109	411342.90	7012984.40	186.90	75.70
N04U110	411342.90	7012984.40	187.30	84.70
N04U111	411343.00	7012985.00	187.70	82.00
N04U112	411343.00	7012985.00	186.90	87.80
N04U113	411343.00	7012985.00	187.30	93.00
N04U115	411343.20	7012985.10	187.70	80.20
N04U120	411343.20	7012985.30	187.80	82.00
N04U121	411343.20	7012985.20	187.90	112.50
N05U030	411274.20	7013070.00	305.34	98.80
N05U031	411274.20	7013070.00	305.34	86.60
N05U033	411274.20	7013070.00	305.34	244.10
N05U034	411274.20	7013070.00	305.34	86.00
N05U035	411274.20	7013070.00	305.34	55.50
N05U037	411274.20	7013070.00	305.34	25.60
N05U038	411274.20	7013070.00	305.34	124.20
N07U017	411250.09	7012985.13	223.62	60.96
N07U018	411250.16	7012984.97	223.65	54.56
N07U019	411250.07	7012984.71	223.65	27.43
N07U020	411250.17	7012984.43	223.65	60.96
N07U021	411250.14	7012984.21	223.64	60.96
N07U022	411250.47	7012984.06	223.66	60.96
N07U023	411250.45	7012984.01	223.66	60.96
N07U024	411250.35	7012983.62	223.72	60.96
N07U026	411250.37	7012983.32	223.63	60.96
N07U028	411330.77	7013053.69	240.09	91.14
N07U029	411331.08	7013053.25	240.08	73.20
N07U032	411331.07	7013053.30	240.18	73.20
N07U033	411331.35	7013053.25	240.13	79.25
N07U034	411331.28	7013053.12	240.20	82.30
N07U035	411331.58	7013052.88	240.21	104.85
N07U037	411330.85	7013053.47	240.24	61.60
N07U039	411330.53	7013053.74	240.27	92.66
N07U041	411331.14	7013053.21	240.42	85.95
N07U042	411331.32	7013053.12	240.42	86.87
N07U044	411330.73	7013053.54	240.37	77.72
N07U046	411282.14	7013011.42	258.31	30.80
N07U047	411282.07	7013011.36	259.21	36.30
N07U048	411281.99	7013011.32	259.38	18.00

HOLE	EASTING	NORTHING	ELEVATION	HOLE LENGTH (m)
N07U049	411281.93	7013011.75	258.36	30.50
N07U050	411281.85	7013011.66	258.68	10.40
N07U051	411281.90	7013011.75	258.97	30.50
N07U052	411281.86	7013011.74	259.39	36.60
N07U053	411282.06	7013010.86	258.33	42.70
N07U054	411282.47	7013011.10	258.57	14.60
N07U055	411282.15	7013010.85	259.04	32.00
N07U056	411282.16	7013010.83	259.39	30.50
N07U057	411282.02	7013010.60	258.36	42.70
N07U058	411282.14	7013010.56	258.73	36.60
N07U059	411281.99	7013010.57	259.09	32.00
N07U060	411282.14	7013010.60	259.42	30.50
N07U061	411281.99	7013010.32	258.48	42.70
N07U062	411282.11	7013010.32	258.80	36.60
N07U063	411282.11	7013010.31	259.10	32.00
N07U064	411282.28	7013010.33	259.40	30.50
N07U065	411281.98	7013009.68	258.58	44.20
N07U066	411282.13	7013009.58	258.87	33.60
N07U067	411282.32	7013009.51	259.14	32.00
N07U068	411282.38	7013009.54	259.38	31.40
N07U069	411282.11	7013009.18	258.89	33.50
N07U070	411282.12	7013009.17	259.24	32.00
N07U071	411282.11	7013009.19	259.38	30.50
N07U072	411282.00	7013008.39	258.73	40.80
N07U073	411281.99	7013008.45	259.05	38.70
N07U074	411281.95	7013008.46	259.38	39.30
N07U075	411281.90	7013008.28	259.38	42.40
N07U076	411281.86	7013008.36	259.07	41.00
N07U077	411281.91	7013008.35	258.65	19.20
N07U078	411280.16	7013007.94	258.65	41.40
N07U079	411280.15	7013008.04	259.03	39.00
N07U080	411280.14	7013008.02	259.13	39.00
N07U081	411280.09	7013008.12	259.40	36.50
N07U082	411279.11	7013008.17	259.37	36.50
N07U083	411279.11	7013008.27	259.14	38.10
N07U084	411279.11	7013008.16	258.81	41.00
N07U085	411282.11	7013008.77	258.80	24.10
N07U086	411281.94	7013009.22	258.56	34.00
N08U007	411355.97	7013082.34	301.67	100.60
N08U008	411355.97	7013082.34	301.67	120.40
N08U011	411355.97	7013082.34	301.67	118.90

HOLE	EASTING	NORTHING	ELEVATION	HOLE LENGTH (m)
N08U012	411355.97	7013082.34	301.67	120.40
N08U013	411355.97	7013082.34	301.67	112.78
N08U014	411355.97	7013082.34	301.67	86.00
N08U016	411355.97	7013082.34	301.67	91.50
N08U017	411260.81	7013035.27	269.00	37.49
N08U018	411260.81	7013035.27	269.00	55.80
N08U019	411260.81	7013035.27	269.00	37.80
N08U021	411260.81	7013035.27	269.00	37.50
N08U022	411262.63	7013011.43	270.00	39.62
N08U023	411262.63	7013011.43	270.00	40.90
N08U024	411262.63	7013011.43	270.00	39.60
N08U025	411262.63	7013011.43	270.00	39.00
N08U026	411262.63	7013011.43	270.00	39.32
N08U027	411262.63	7013011.43	270.00	39.30
N08U028	411262.63	7013011.43	270.00	39.00
N08U029	411263.56	7013008.98	270.00	75.90
N08U030	411263.56	7013008.98	270.00	86.60
N08U031	411263.56	7013008.98	270.00	60.70
N08U032	411355.97	7013082.34	301.67	109.70
N08U033	411355.97	7013082.34	301.67	129.60
N10U-008	411354.54	7013083.29	302.22	120.40
N10U-009	411354.54	7013083.16	302.14	117.04
N10U-010	411354.38	7013083.53	302.35	105.16
N10U-023	411422.00	7013197.00	369.50	76.22
N10U-024	411420.93	7013196.20	369.17	60.96
N10U-025	411422.00	7013197.00	369.50	59.44
N10U-026	411421.47	7013196.36	369.05	70.10
N10U-027	411420.64	7013196.13	369.00	73.17
N10U-028	411420.20	7013196.01	368.83	118.87
N10U-029	411420.32	7013195.94	368.89	99.06
N10U-030	411422.00	7013197.00	369.50	114.02
N10U-031	411420.09	7013196.01	368.95	133.81
N10U-033	411421.03	7013196.27	368.87	86.26
N10U-034	411421.06	7013196.29	368.74	95.40
N10U-035	411422.00	7013197.00	369.50	77.42
N10U-052	411421.27	7013196.27	368.97	63.40
N10U-053	411421.22	7013196.24	368.81	57.91
N11U-002	411421.10	7013196.14	369.10	66.75
N11U-003	411420.95	7013196.06	368.92	75.90
N11U-004	411421.00	7013195.96	368.10	46.48
N11U-005	411420.36	7013195.82	368.79	81.69

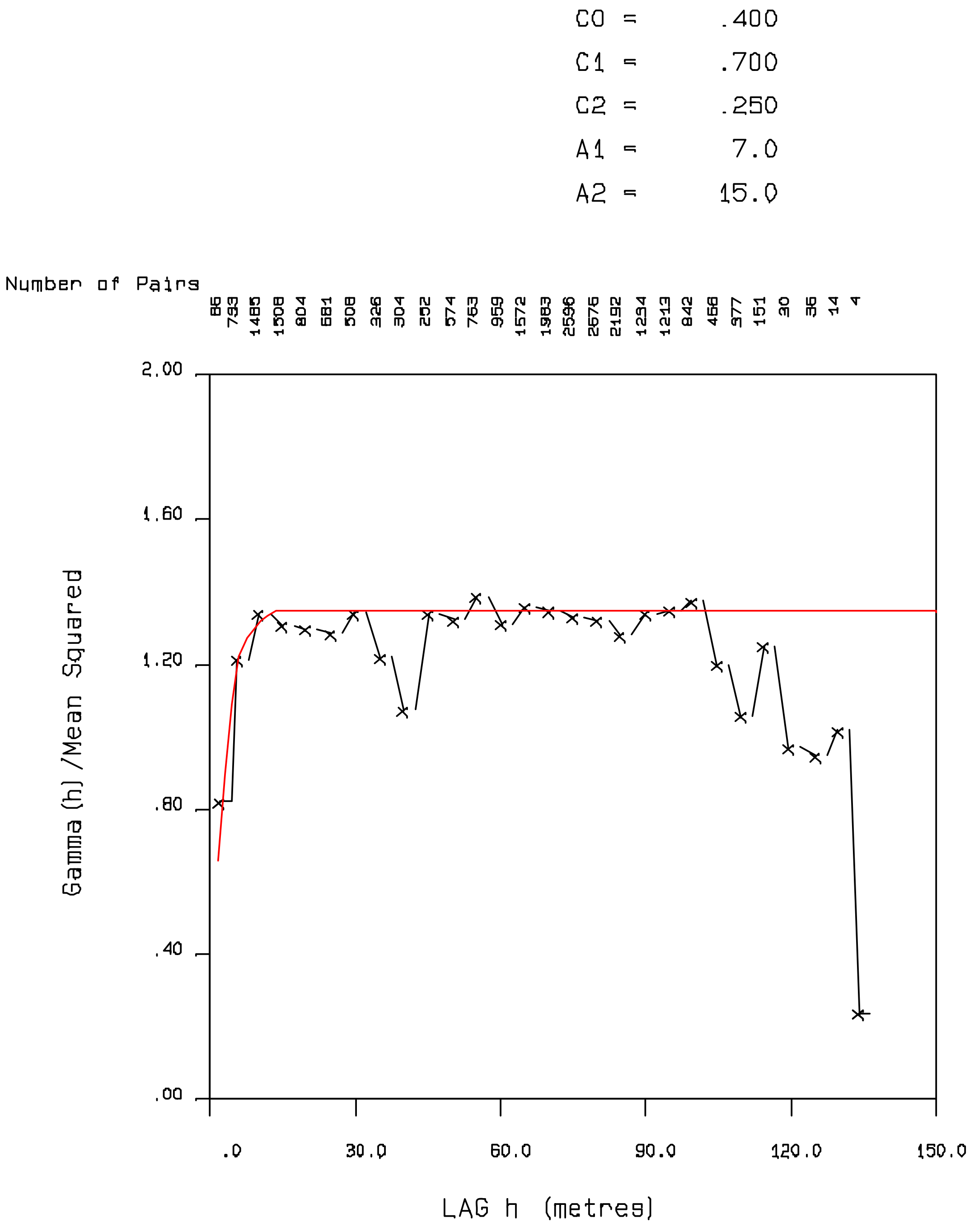
HOLE	EASTING	NORTHING	ELEVATION	HOLE LENGTH (m)
N11U-006	411420.36	7013195.86	368.71	97.23
N11U-007	411422.00	7013196.26	368.89	61.87
N11U-008	411422.07	7013196.29	368.92	64.92
N11U-009	411422.05	7013196.39	369.07	67.99
N11U-010	411467.82	7013197.02	378.81	80.16
N11U-012	411465.54	7013194.44	380.19	64.92
N11U-014	411466.01	7013194.27	380.09	59.13
N11U-015	411466.41	7013194.11	379.95	45.11
N11U-016	411466.49	7013194.13	380.19	43.59
N11U-019	411315.11	7013115.09	384.90	24.08
N11U-021	411292.20	7012977.12	222.76	37.49
N11U-022	411291.24	7012977.70	223.01	40.54
N11U-023	411315.48	7013116.12	384.87	24.99
N11U-024	411291.26	7012978.03	222.40	28.35
N11U-026	411290.57	7012978.19	222.59	35.97
N11U-027	411314.94	7013114.78	384.18	20.73
N11U-028	411290.08	7012977.92	223.43	43.43
N11U-029	411315.28	7013113.92	384.39	35.97
N11U-030	411290.07	7012977.83	223.91	26.82
N11U-031	411315.57	7013116.10	384.35	30.18
N11U-032	411289.34	7012978.17	222.84	39.93
N11U-033	411315.28	7013114.13	384.92	35.97
N11U-034	411289.13	7012978.32	222.30	39.93
N11U-035	411315.21	7013113.49	384.87	40.84
N11U-036	411288.99	7012978.06	223.81	45.11
N11U-037	411315.20	7013113.06	384.35	25.30
N11U-038	411288.97	7012978.04	223.12	45.11
N11U-039	411315.64	7013113.39	384.90	40.84
N11U-040	411282.97	7013007.21	234.51	29.87
N11U-041	411315.61	7013112.75	384.48	64.92
N11U-042	411282.08	7013007.97	233.87	29.87
N11U-043	411316.83	7013111.39	384.95	55.78
N11U-044	411282.33	7013008.08	234.71	23.45
N11U-045	411316.99	7013111.39	384.59	55.78
N11U-046	411282.53	7013007.52	234.09	29.87
N11U-047	411317.12	7013111.00	384.96	53.64
N11U-048	411282.33	7013008.52	234.21	29.87
N11U-049	411317.69	7013111.71	384.94	49.68
N11U-050	411282.29	7013008.65	233.97	29.87
N11U-052	411282.36	7013008.66	234.97	39.93
N11U-054	411282.35	7013008.92	234.57	39.93

HOLE	EASTING	NORTHING	ELEVATION	HOLE LENGTH (m)
N11U-064	411286.58	7013009.16	234.99	10.06
N11U-066	411286.57	7013008.10	235.52	51.21
N11U-068	411286.56	7013008.89	235.19	31.39
N11U-070	411286.53	7013009.39	233.59	29.87
N11U-072	411278.17	7013023.88	259.37	80.16
N11U-074	411278.09	7013023.85	258.66	80.16
N11U-075	411413.34	7013103.92	323.87	40.53
N11U-076	411278.24	7013023.69	258.33	78.64
N11U-077	411413.56	7013104.35	323.91	46.33
N11U-078	411278.34	7013023.82	258.94	16.15
N11U-079	411413.76	7013105.25	323.90	51.21
N11U-080	411278.20	7013023.38	259.38	80.16
N11U-081	411413.71	7013105.04	323.55	49.68
N11U-082	411278.17	7013023.88	258.95	90.83
N11U-083	411413.36	7013103.73	323.71	39.93
N11U-084	411278.29	7013022.75	259.98	90.53
N11U-086	411278.27	7013022.67	258.98	92.05
N11U-088	411278.24	7013023.34	258.35	90.83
N11U-089	411413.61	7013104.35	323.57	40.54
N11U-090	411291.30	7013047.48	258.40	80.16
N11U-092	411291.25	7013047.45	258.11	80.16
N11U-093	411414.28	7013106.18	323.36	71.02
N11U-094	411291.18	7013047.34	258.43	80.16
N11U-095	411431.33	7013098.54	330.01	40.54
N11U-096	411291.13	7013047.21	258.14	80.16
N11U-097	411430.10	7013098.62	328.81	43.59
N11U-098	411290.87	7013046.86	258.47	80.16
N11U-099	411429.10	7013098.59	329.63	35.20
N11U-100	411290.98	7013047.19	258.45	80.16
N11U-101	411434.17	7013101.57	329.36	5.79
N11U-102	411290.87	7013046.86	258.47	80.16
N11U-103	411434.10	7013101.79	329.37	29.87
N11U-104	411290.87	7013046.86	258.47	79.86
N11U-105	411434.04	7013101.84	328.65	30.18
N11U-106	411291.42	7013047.34	258.08	79.86
N11U-107	411434.69	7013099.97	328.84	29.87
N11U-108	411291.37	7013047.50	258.62	81.38
N11U-109	411434.42	7013101.14	330.13	30.33
N11U-128	411243.98	7012976.95	222.81	45.11
N11U-153	411336.46	7013109.93	302.93	86.56
N11U-154	411312.94	7013080.61	249.98	110.34

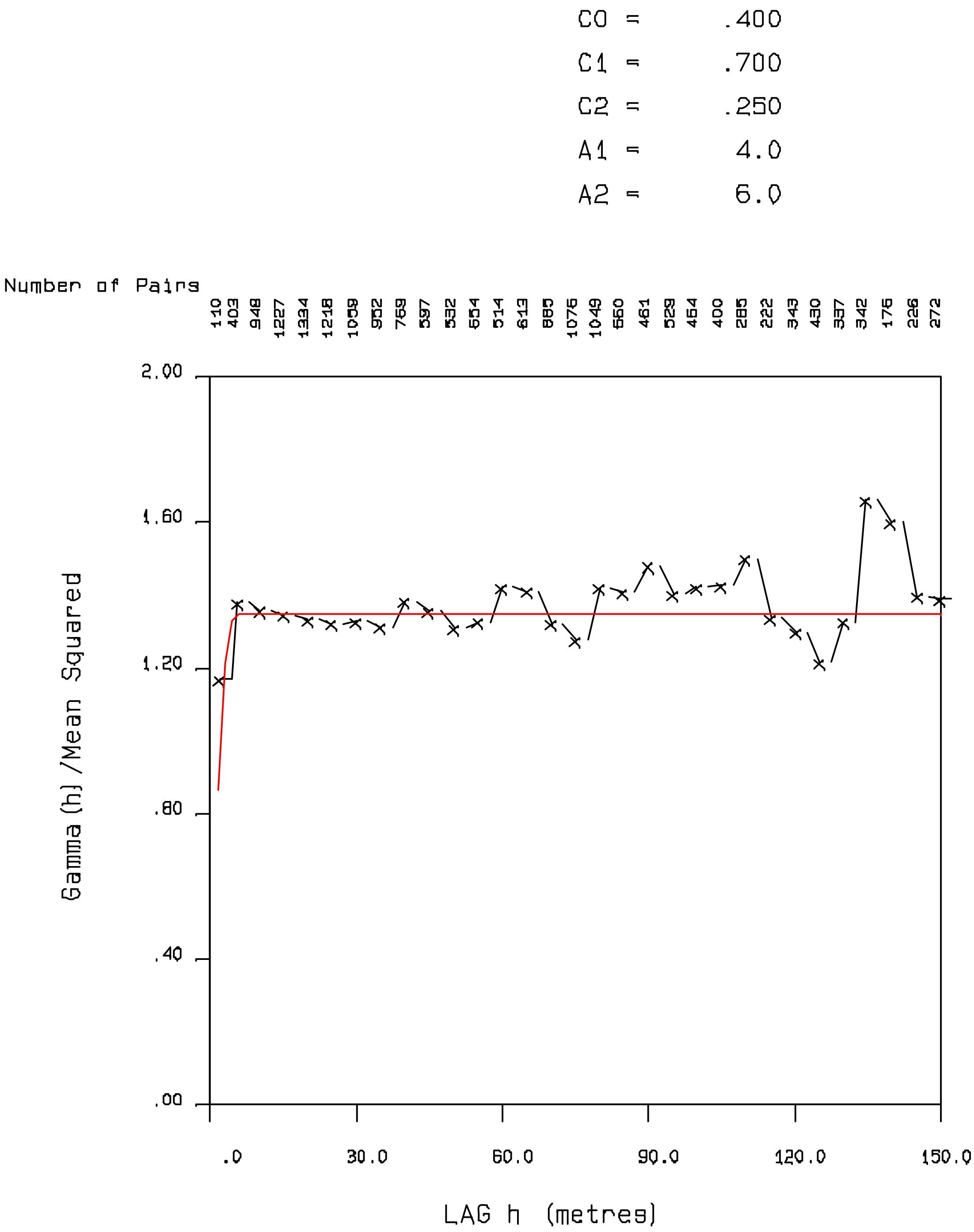
HOLE	EASTING	NORTHING	ELEVATION	HOLE LENGTH (m)
N11U-156	411312.81	7013080.66	249.78	103.02
N11U-158	411312.92	7013080.61	249.90	110.03
N11U-160	411312.97	7013080.60	250.08	110.03
N11U-163	411285.24	7012992.17	233.36	33.07
N11U-165	411284.60	7012990.30	232.87	40.84
N11U-167	411285.21	7012992.05	232.46	80.16
N11U-169	411284.93	7012991.29	232.49	71.48
N11U-171	411284.73	7012990.39	232.49	40.84
N11U-173	411284.95	7012991.18	232.42	60.66
N11U-174	411314.35	7013080.57	250.41	99.97
N11U-175	411284.96	7012990.88	232.10	60.66
N11U-176	411314.26	7013080.56	250.52	100.28
N11U-177	411285.12	7012991.21	232.02	45.11
N11U-179	411284.96	7012990.29	231.98	7.32
N11U-181	411284.63	7012989.65	231.94	40.54
N11U-182	411314.31	7013080.42	250.07	91.14
N11U-188	411314.15	7013080.41	250.03	90.83
N11U-190	411314.18	7013080.45	249.96	99.97
N11U-193	411358.38	7013070.23	231.82	110.95
N11U-195	411358.25	7013070.30	231.83	95.10
N11U-196	411358.14	7013070.36	231.90	100.28
N11U-198	411358.21	7013070.43	231.73	110.03
N11U-199	411358.28	7013070.32	232.11	110.03
N11U-204	411358.03	7013070.50	231.79	120.09
N11U-205	411358.06	7013070.48	231.90	120.09
N11U-207	411358.02	7013070.92	231.79	120.09
N11U-208	411359.37	7013070.05	231.87	110.03
N86-08	411281.40	7013027.00	389.11	140.21
N86-25	411444.61	7013162.32	421.17	121.92
N90-35	411466.76	7013071.82	424.80	179.53
N90-43	411473.12	7013153.36	423.79	126.56
N90-47	411455.51	7013106.61	423.58	115.40
N90-50	411484.24	7013053.23	427.48	169.17
N90-65	411329.09	7013040.01	399.87	132.28
N90-66	411286.47	7011519.87	462.35	99.24
N94-01	411460.04	7013145.22	422.42	91.44
N94-02	411461.78	7013122.18	423.95	94.20
N94-21	411335.00	7013077.00	403.59	51.05
N94-34	411306.07	7013110.16	401.88	43.30
N96-01	411309.19	7013107.26	402.51	42.70
N96-02	411309.19	7013107.26	402.51	65.20

HOLE	EASTING	NORTHING	ELEVATION	HOLE LENGTH (m)
N96-19	411308.00	7013090.00	402.21	57.00
N96-20	411308.02	7013090.16	402.21	67.10
N96-21	411308.02	7013090.16	402.21	199.00
N96-22	411308.19	7013088.65	402.18	63.10
N96-24	411313.02	7013069.93	403.02	212.10
N96-25	411313.02	7013069.93	403.02	99.10
N96-26	411313.02	7013069.93	403.02	71.90
N96-27	411313.02	7013069.93	403.02	61.90
N96U019	411281.07	7013100.51	342.60	57.80
N96U020	411308.41	7013097.88	338.19	19.50
N96U023	411308.55	7013098.83	339.05	47.30
N96U050	411414.84	7013119.74	325.08	149.40
N96U053	411360.04	7013084.57	301.45	100.60
N98U028	411349.58	7013043.30	187.14	161.30
N98U030	411349.84	7013042.40	186.88	231.50
N98U033	411352.37	7013103.13	270.25	138.40
N98U035	411352.55	7013103.07	270.06	165.50
N99U001	411352.55	7013103.07	270.26	138.00
301 Holes	Totalling			19917.75

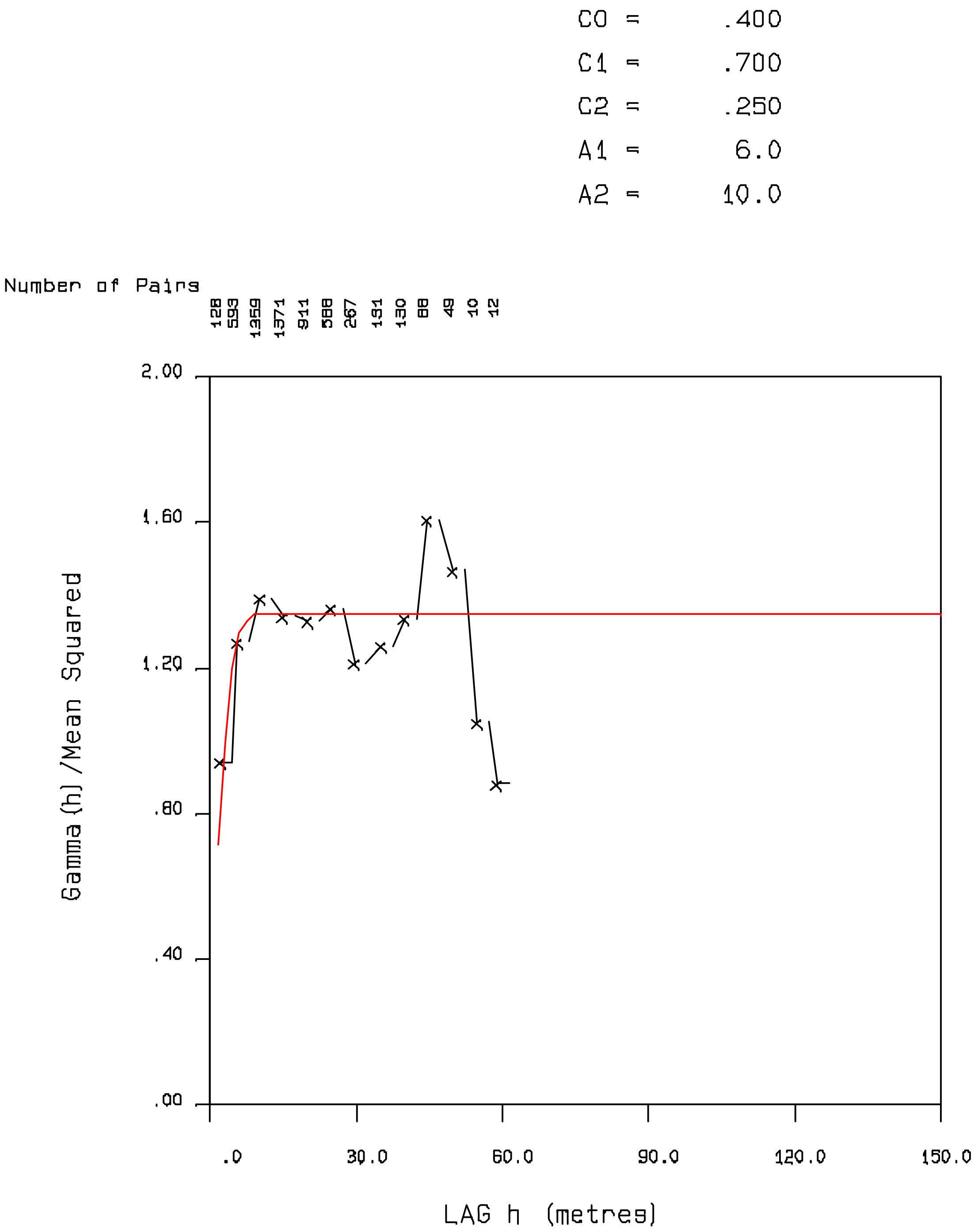
APPENDIX 3 – SEMIVARIOGRAMS FOR 3000 AND 3300 ZONES



NIXON FORK 3000 ZONE AU - AZ 15 DIP 0



NIXON FORK 3000 ZONE AU - AZ 105 DIP -60



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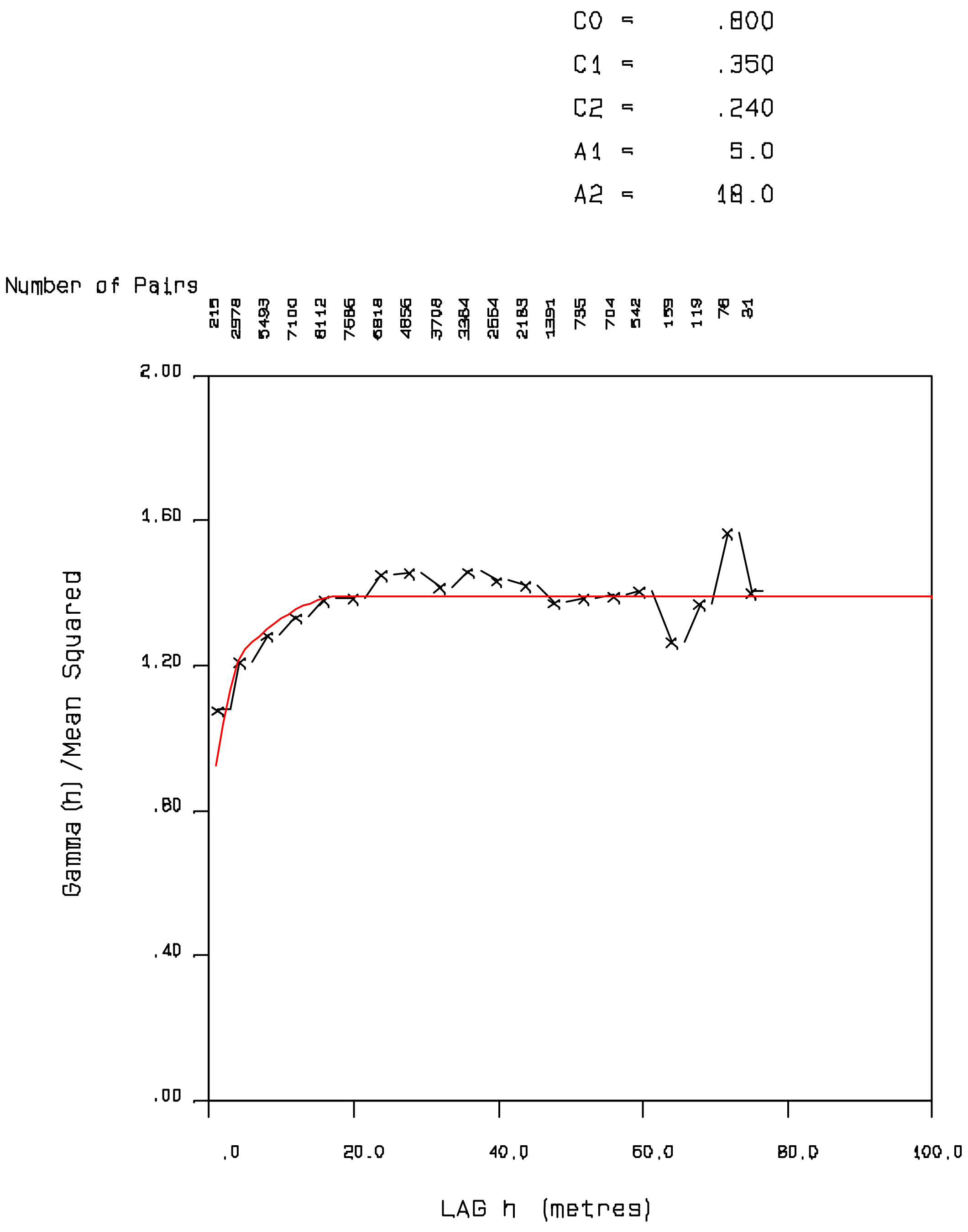
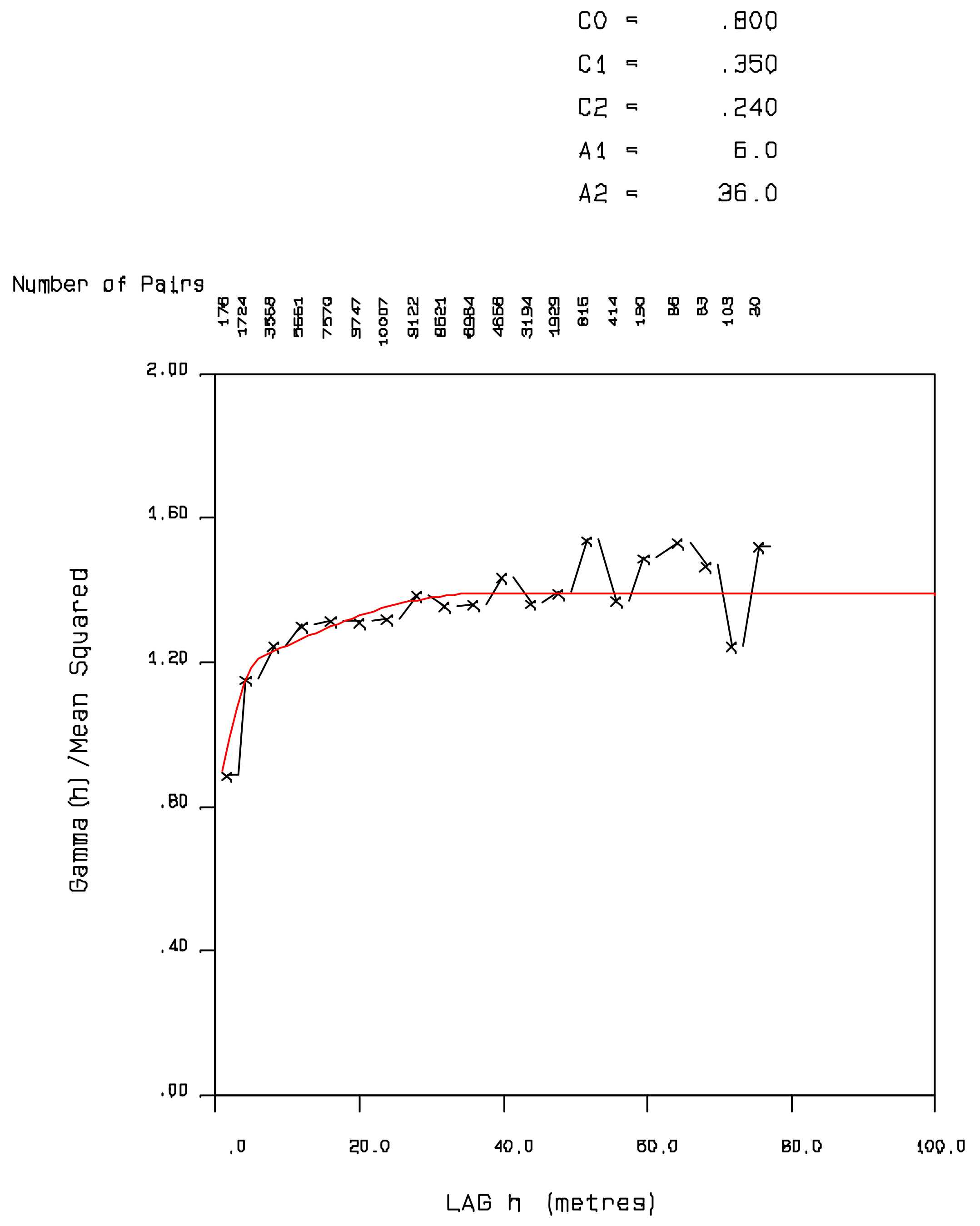
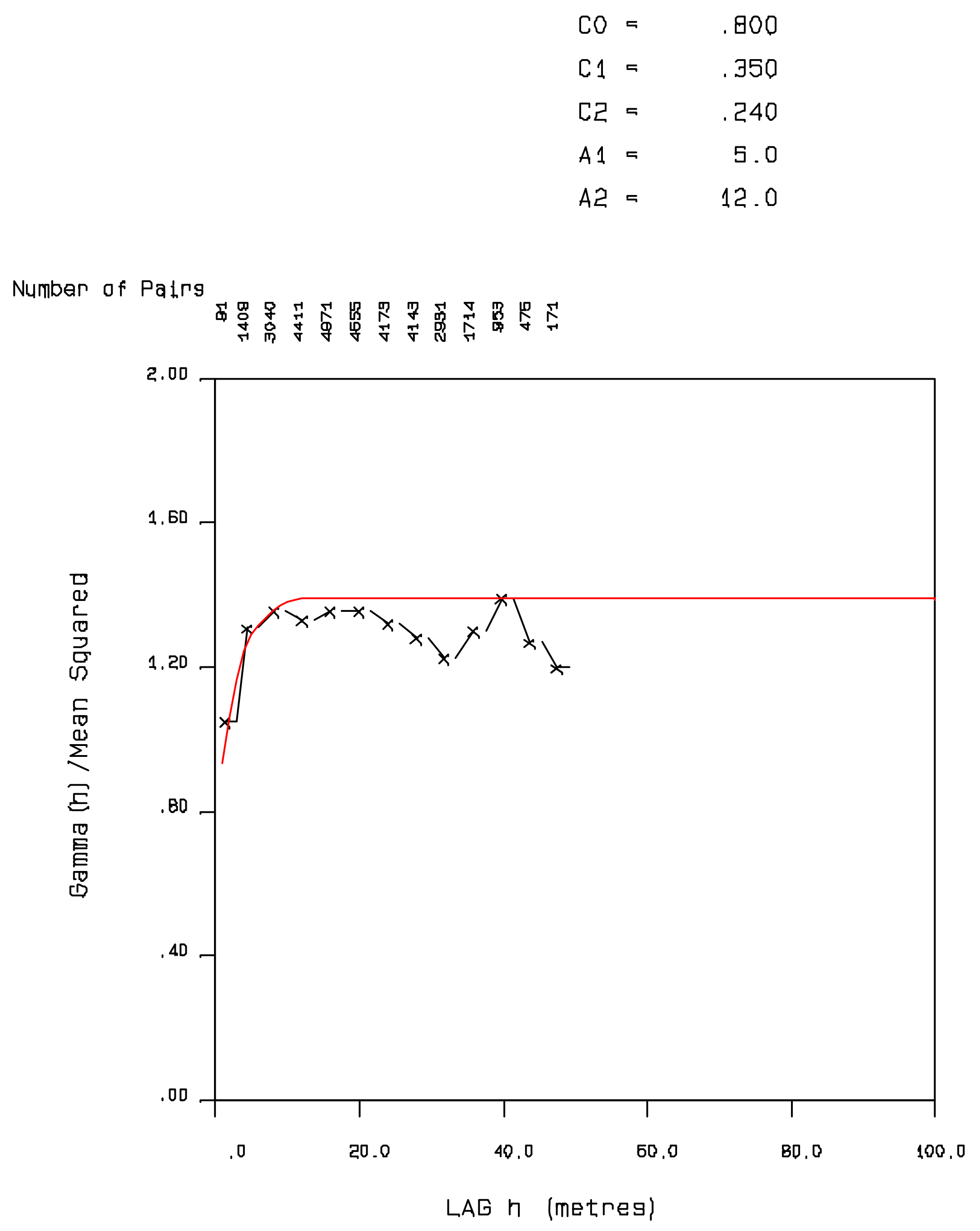


NIXON FORK 3300 ZONE AU - AZ 10 DIP 0



NIXON FORK 3300 ZONE AU - AZ 100 DIP -50



NIXON FORK 3300 ZONE AU - AZ 280 DIP -40

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