PROPERTY GOLD RESERVES REPORT
FOR THE
JBSCH 1 – 10 PLACER CLAIMS
BURWASH CREEK, YUKON

TECHNICAL REPORT
FORM 43-101F1 OF
NATIONAL INSTRUMENT 43-101

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RESEARCH CONSULTING CENTER
Richmond, British Columbia
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SUMMARY

This Report was prepared for Northern Minerals Development Inc. In preparing this report, the author utilized many different methods of testing and analyses variety placer samples.

The sampling and sample preparation of the ore, concentrate, tailings and other related materials were done by experienced and skilled personal and analyses were carried out at reputable laboratories. It is assumed that the methods used were in keeping with accepted industry standards and there is no reason to believe that the assays reports are not representative of the intervals assayed.

The main objective of this report is to provide management of company with an independent opinion regarding Measured (Proven) Mineral Reserves and the mine plan to exploit those reserves.

Burwash Creek placer gold property and its potential and proven gold reserves on the JBSCH 1 – 10 Claims on Lower Burwash Creek is located at southwest part of Yukon and is approximately 100 km from the Whitehorse and 11 km from the town of Burwash Landing and is fully permitted to mine. Location of the Burwash Creek property may be seen on **Figure 1**.

Burwash Creek has over one hundred years of Placer Mining history, mostly mined by hand or with very low volume, small-scale equipment with primitive gravity recovery technology, which has no ability to recover the fine plus ultra-fine micron gold that is deposited on these claims. The current owners have been testing the gold potential of these Burwash Creek claims in bulk, pit and borehole since 2001. The calculation for the present gold resource for one claim area is 20,931,540 grams. The total present gold resource for all ten claims is 209,315,400 grams or 209.3 metric tons of gold. This is a significant gold deposit.

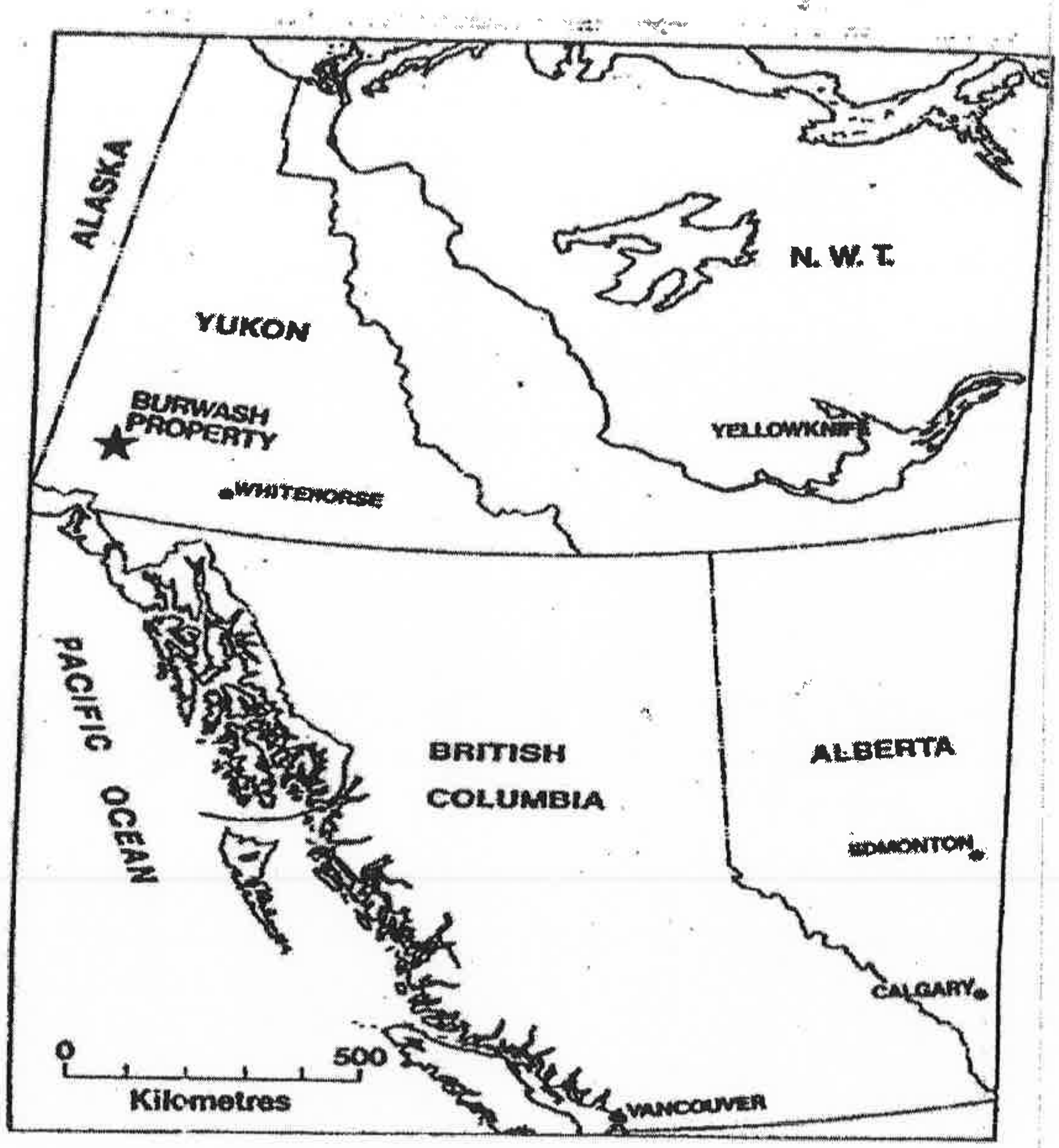


Figure 1.

Location of the Burwash Property

Dr. Valery J. Zhuravlev, P.Eng. as an Independent Consultant and Qualified Person visited the Burwash Creek property in 2003, 2006 to 2008, 2012 and 2013. During these trips the observation of many different areas of the property was done and the level of exploration and operation of the mine was examined.

The placer deposits comprise a glacially displaced, poorly sorted Late Jurassic/Cretaceous siltstone/greywacke matrix. Gold, silver, and platinum group elements were co-precipitated with other metallic and metal bearing species in the original sulfide rich seafloor depositional environment.

INTRODUCTION AND TERMS OF REFERENCE

Preparation of this report was undertaken on behalf of Northern Minerals Development Inc. (NMDI), as part of its study and documentation of the Burwash Creek mining property in support of its exploration and operation program development and validation efforts. This work was conducted upon the request of Mr. Clarke Ashly, President of NMDI. In preparing this report, the author utilized historical and modern geological and geochemical data compiled by the Geological Survey of Canada, Memoir 284, Yukon Territory, H.S. Bostock, 1898 to 1933; Exploration Potential Burwash Creek Gold Mine, L.B. Halferdahl, Ph.D., P. Eng. 1984; Yukon Placer Industry 1989 – 2006, Government of Canada; Yukon Exploration & Geology 1998-2004, Government of Canada, and field observations assisted by local residents and prospectors familiar with this property.

The main objective of this report is to provide the management of Northern Minerals Development Inc. with an independent opinion regarding the potential of Burwash Creek mining deposit. This report follows the layout and format for technical reports as described in **Form 43-101F1 of National Instrument 43-101.**

This report is based on geological reports and maps, technical data and papers, company letters and memorandums, sampling and testing protocols, and public information as listed in the "Reference" section of this report. In addition, to official sources of information some data were also derived from personal contacts with the staff of Northern Minerals Development Inc. and local professional miners.

The author has assumed that all of the information and technical documents listed in the "Reference" section are accurate and complete in all material respects.

All units used in the report are expressed in terms of the international system (SI) and the empirical system used in the USA. Concentrations of noble metals are reported in grams per metric ton (g/t) or parts per million (ppm) as well as in troy ounces per short ton (oz/ton), or in percentages (%).

DISCLAIMER

This report, dated November, 2013 has been prepared by an independently qualified consultant Valery J. Zhuravlev, Ph.D., P.Eng. (Author) for Northern Minerals Development Inc. (NMDI) and may be used by NMDI in connection with a review of the Burwash Creek mining property. The author does not accept any responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The information, conclusions, estimates, and assessments contained herein are based on:

1) The information available to the Author at the time of the preparation of this report.

2) The data supplied by NMDI and other third party sources.

While it is believed that the information contained herein is reliable under the conditions and subject to the limitations set forth herein, this report is based in part on information not within the control of Author and the Author therefore cannot and does not guarantee its accuracy. The comments in this technical report reflect the Author's best judgment in light of the information available to the Author at the time of the preparation of the report.

Author has taken all reasonable care in producing this report in accordance with Form 43-101F1 of National Instrument 43-101.

PROPERTY DESCRIPTION AND LOCATION

The Burwash Creek claim group consists of ten contiguous placer claims located in the Whitehorse Mining District, Yukon. These claims are registered as the JBSCH 1-10 claims with, Grant Numbers P 038915 to P 03924 and 100% owned by Northern Minerals Development Inc. They are located on the N.T.S. Map Sheet 115/G06 P; Latitude: 61 _ 25' 0" N; Longitude: 139 _ 13'5" W. Burwash Creek is a tributary of the Kluane River, which is located approximately 7 miles (11.2 km) northwest along the Alaska Highway from Burwash Landing, Yukon. A gravel road off the Alaska Highway is approximately one mile long, running through a Government gravel pit, accesses the Claims. The Alaska Highway is a Government maintained year around highway, which connects Alaska and Yukon to southern Canada and the mainland USA through the Province of British Columbia. The total Burwash Creek property assets are shown in **Figure 2.**

Since 2001, Northern Minerals Development Inc., conducted large scale sampling and mining on the lower Burwash Creek property with operations utilizing a wash plant for gold recovery. It was also testing many different types of mining recovery equipment including jigs, sluices, centrifuges, and cyclones. The location of the Burwash Creek claims and mine site may be seen in **Figure 3**.

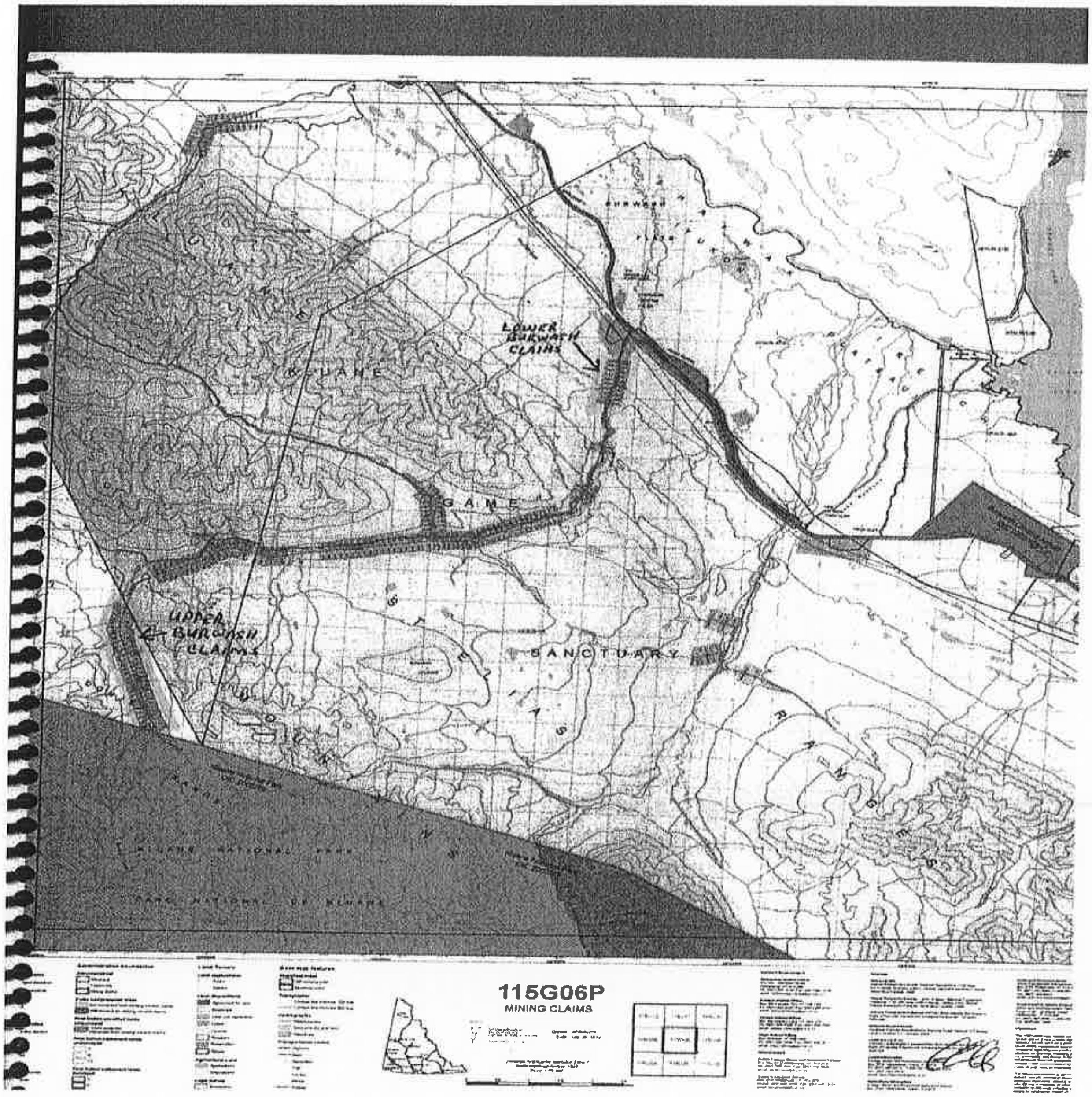
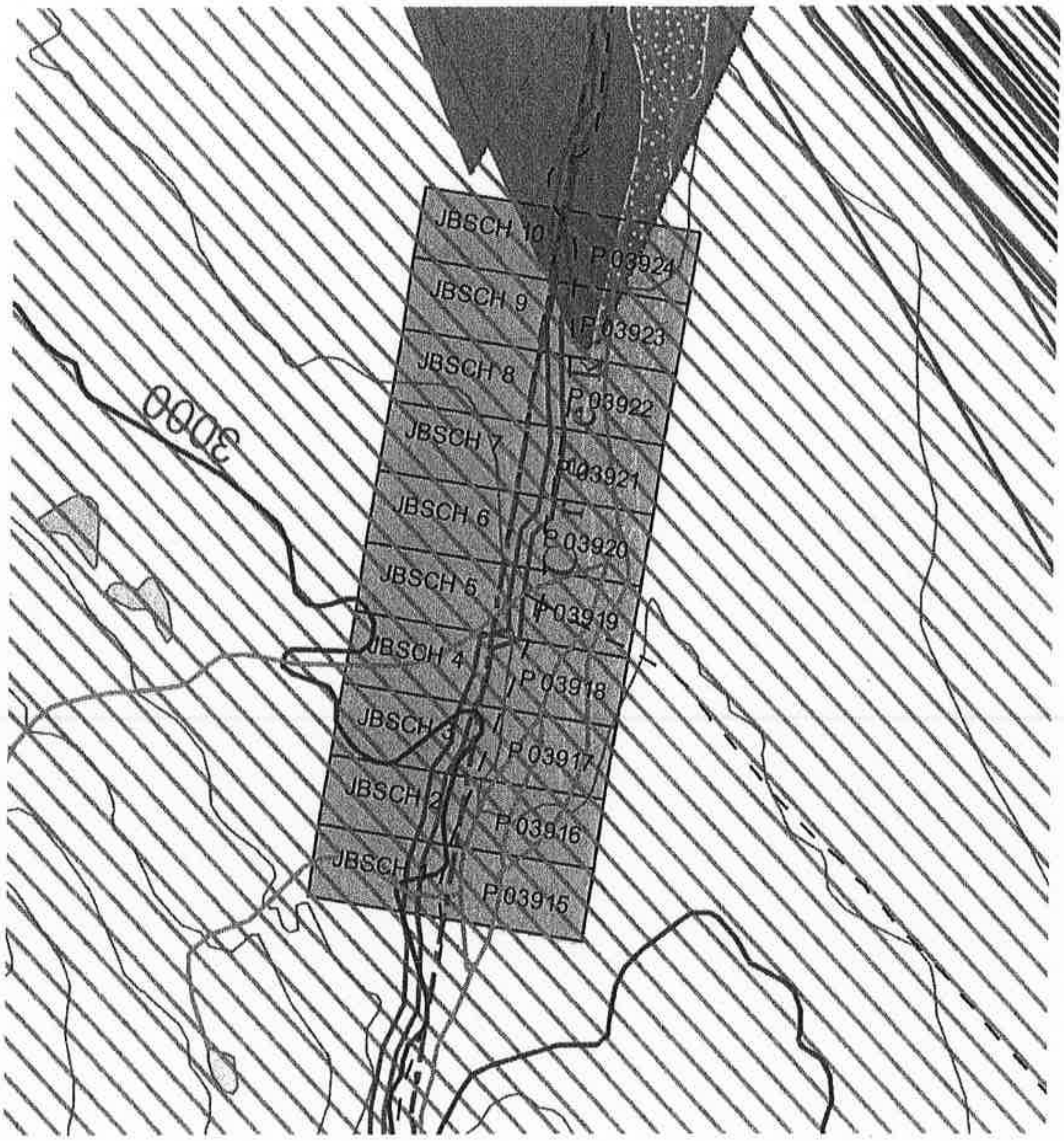


Figure 2.

Location of total Burwash Creek Mining Claims.


JBSCH 10
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JBSCH 4
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JBSCH 3
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JBSCH 2
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JBSCH 1
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3000

ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

Burwash Creek is within the St. Elias Mountains in southwest Yukon. The claim area is located from the mouth of the first canyon Northward or downstream on Burwash Creek where it opens into the wide-open Shakwack Trench, which runs perpendicular to Burwash Creek. There is an approximate 200 feet (61 m) drop in elevation from claim #1 downstream 5,000 feet (1,524 m) to the end of claim # 10. The east side of the Burwash valley has a 50 feet (15 m) bench that runs for about 1,500 feet (457 m) downstream from the canyon.

The west side of the valley is considerably steeper with slopes attaining 45 degrees and more and reaching a height of well over 100 feet (26 m) along the creek, with a length of approximately 1,000 feet (305 m) along the creek and widening from the canyon until it forms the south boundary of the Shakwak Trench at about 1,500 feet (457 m) downstream from the canyon. The height reaches 2,000 to 3,000 feet (610 to 914 m) above the valley floor further to the west away from the claim area. The valley bottom is basically flat, with permafrost under any area that has vegetation cover and not been open to the sun. The width of the valley from the canyons in the south is approximately 500 feet (152 m) opening by the end of the fifth claim to over 2,000 feet (610 m) wide.

Vegetation consists primarily of spruce and cottonwood forest. Alder and willow are common in the wetter areas and any area in the valley bottom that has not been cleared of vegetation.

The Burwash Creek area has a continental climate that it is relatively moderate by Yukon standards. Although the region lies over 250 km from the Pacific Ocean, the moderating effect of the warm water mass is the dominating factor of the local climate over most of the year. Temperatures during the summer months range up to 20°C with rare frosts. During spring and fall months, temperatures range between -10°C and 10°C, while winter temperatures are seldom below - 20°C for extended periods of time. A heavy winter snowfall is found at all around, and at some higher altitudes snow remains there year around. However, the snow seldom exceeds 2 – 3 feet (0.5-1 m) in depth and the ground is usually bare for approximately seven-eight months of the year. Much of the region lies in the rain shadow of the Saint Elias Mountains and overall precipitation is light although periodic Pacific storms can bring short-lived periods of heavy precipitation.

The property is very accessible and can be reached by vehicle along the Alaska Highway and by a gravel road from Alaska Highway to Burwash Creek. At the same time, the property is close to a major supply center within the Yukon Territory. All necessary supplies are available locally or in Whitehorse. This accessibility should lower mining costs as compared with other parts of the Yukon Territory. The local population includes skilled and experienced miners.

The physiography of Burwash Creek is highly complex, but fortunately the deep excavations made during the progress of mining have yielded much valuable information concerning it.

HISTORY

Gold was first discovered in the Burwash Creek area in 1904 as a result of the famous "Klondike Gold Rush" which drew prospectors into the area in the late 1890's in their search for new Bonanza Gold deposits. Burwash Creek was named after a Mining Recorder at Silver Creek named Lachlin Taylor Burwash.

Almost the complete length of Burwash Creek from the first canyon to its headwaters has seen some mining activity since 1904. The most prolific miner whose name was Henry Besner, mined from the first canyon upstream to the first main tributary called Tatamagouche Creek from 1945 to 1969 and the official records showed an average of 986 ounces of gold nuggets produced each year, which gave a total of 23,664 ounces of gold with platinum equaling one percent of the gold. His actual recoveries are believed to have been many times this amount. The gravity sluice boxes that have been used on Burwash Creek have not had the ability to recover fine gold, it just washes through there sluices.

When Henry Besner mined, he would position his sluice box in the middle of Burwash Creek and push pay gravels with a D8 Cat Dozer into it. All he could recover was large nuggets of gold plus some small platinum nuggets; the fine gold was washed through due to the large volume of water used to move the boulders through his sluice box. Today this method of mining is not allowed and would be stopped by the Mining Inspectors; this would also contravene Northern Minerals Water License and Land Use Permit, due to stream sediment loading aside from being very inefficient from a gold recovery standpoint.

Since 1904 Burwash Creek claims have been hand mined by a variety of miners. This property on lower Burwash was left untouched as a result of the water table being too near the surface 5 to 10 feet (2 – 3 m) and the fine gold although in abundance being unrecoverable using gravity recovery methods. In 1942 a Doodlebug Dredge which dug to a depth of approximately 12 feet (3.7 m), was used to make one pass, up and back on the creek but was unable to recover the fine gold. It also had a difficult time dealing with the large boulders that it encountered on the creek as well.

Periodic small-scale cat mining of the east bench has been attempted by different people in the 1970's the 80's and 90's with each operator recovering a few hundred ounces in coarse gold, by using primitive gravity recovery sluice boxes.

DEPOSIT TYPES

At the Kluane Ranges, near which the Burwash Creek deposit is located, at some remote period there has been a part of a huge glacier that has receded, possibly on account of its source of supply, or its connection with ice fields further north being cut off or disturbed by volcanic or subterranean activity of some kind. The deposit of wash dirt is evidence from the moraine matter left by the departed glacier; and the gradually accumulated products of erosion from the enclosing country.

Glacial history of the Kluane Ranges is documented by Muller (1967) and summarized by Doherty *et al* (1994), Mougeot and Walton (1996) and Duk-Rodkin (1999). The region has been subjected to a number of late Pleistocene glaciations. Most landforms in this area are a result of late Wisconsinian glaciation during which ice originated in the Icefield Ranges and flowed northeast, cutting prominent valleys across the Kluane Ranges before coalescing with ice flowing northwest along Shakwak Trench. In addition to ice streams occupying the valleys, smaller cirque glaciers capped summits of the Dezadeash and Kluane Ranges and they locally merged with the main ice streams. The valley ice reached elevations between 4500 and 5490 feet (1500 and 1830 m) so that tops of the higher peaks and ridges in the Kluane front ranges were ice-free with the exception of small cirque glaciers that developed along north-facing upper slopes.

In the past 3000 years, a series of major glacial advances occurred in the St. Elias Mountains. Ice streams flowed across the Kluane Ranges through major valleys cut by the earlier glaciations, reaching as far as the Shakwak Trench. In the past 500 years, surges of ice from prominent lobes extended to the Kluane Ranges from high ground in the Saint Elias Mountains locally blocking river valleys and resulting in a number of short-lived lakes. Ice margins of these glaciers have shown significant retreat since the earliest aerial photographs were taken in 1947.

Permafrost is discontinuous to continuous in the Kluane Ranges. It is most extensively developed at higher elevations where the insulating effect of glacial ice was either minimal or absent. For example permafrost extends to about 120 or 150 feet (40 or 50 m) from surface in the Wellgreen Mine 4250 Level (1300 m) whereas ice lenses are only present to depths of about 90 feet (30 m) in a nearby glaciated valley bottom (Carne, 1987).

The excessive agitation that the gravel deposit has been subjected to has so disturbed free gold and other value particles that it is doubtful whether or not there is a defined pay streak on the property, or great values on bedrock; it is highly probable that gold and other values in the ground are held in suspension throughout the deposit by a cementing medium of fine clay or glacier silt. Panning and assay results showed that on some parts of the property flat gold nuggets rarely up to five mm were obtained very near the surface, in other parts they were encountered fifteen or twenty feet below the surface, or accordingly as the cementing medium in the gravels had been affected. Different types of deposited materials (gravel, sand, and boulders) may be seen in **Figures 4 and 5.**

The Kluane Ranges are well endowed with mineral occurrences. The 94 mineral occurrences in the Mineral Files, discovered to date represent a total of 19 different deposit types. Economically significant Volcanic Redbed Cu, Cu±Au Skarn and Flood Basalt Associated Ni-Cu-PGE deposits are especially noteworthy. Despite this, very little modern regional exploration for these deposit models has been carried out. With its relatively good access, and with recent advances in understanding of the geological and metallurgical framework, the Kluane Ranges should be on the high priority list for any exploration manager.

The second most common type of mineral occurrence in the Kluane Ranges, although perhaps of lesser local economic importance, are a suite of unusual copper deposits that occur within Triassic Nikolai Assemblage mafic to intermediate volcanic rocks. The most significant of these are the Johobo and White River occurrences, which are described in some detail below.

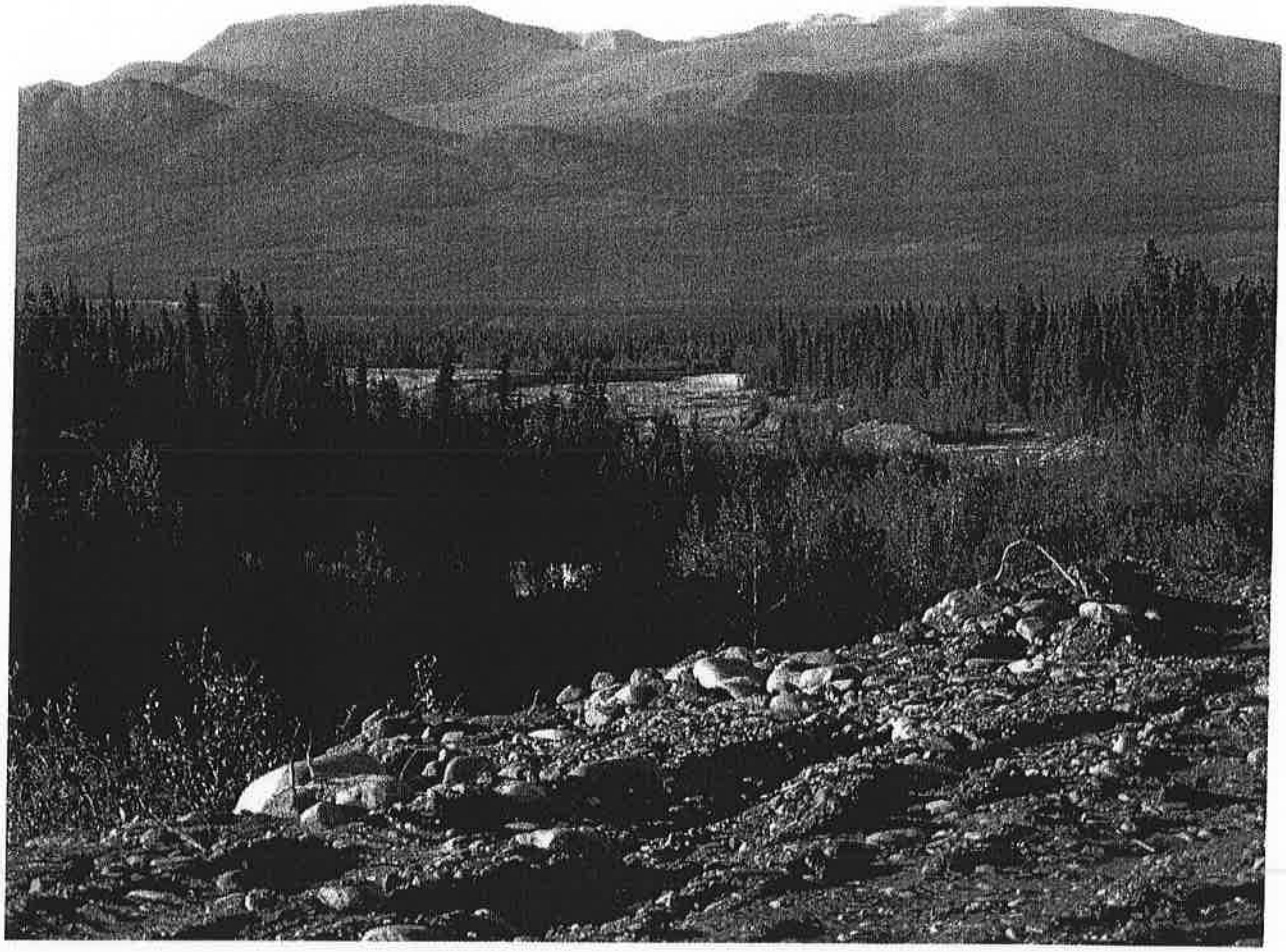


Figure 4.

Different Types of Deposited Materials
(Sand, Clay, Pebbles, Cobbles, and Boulders)

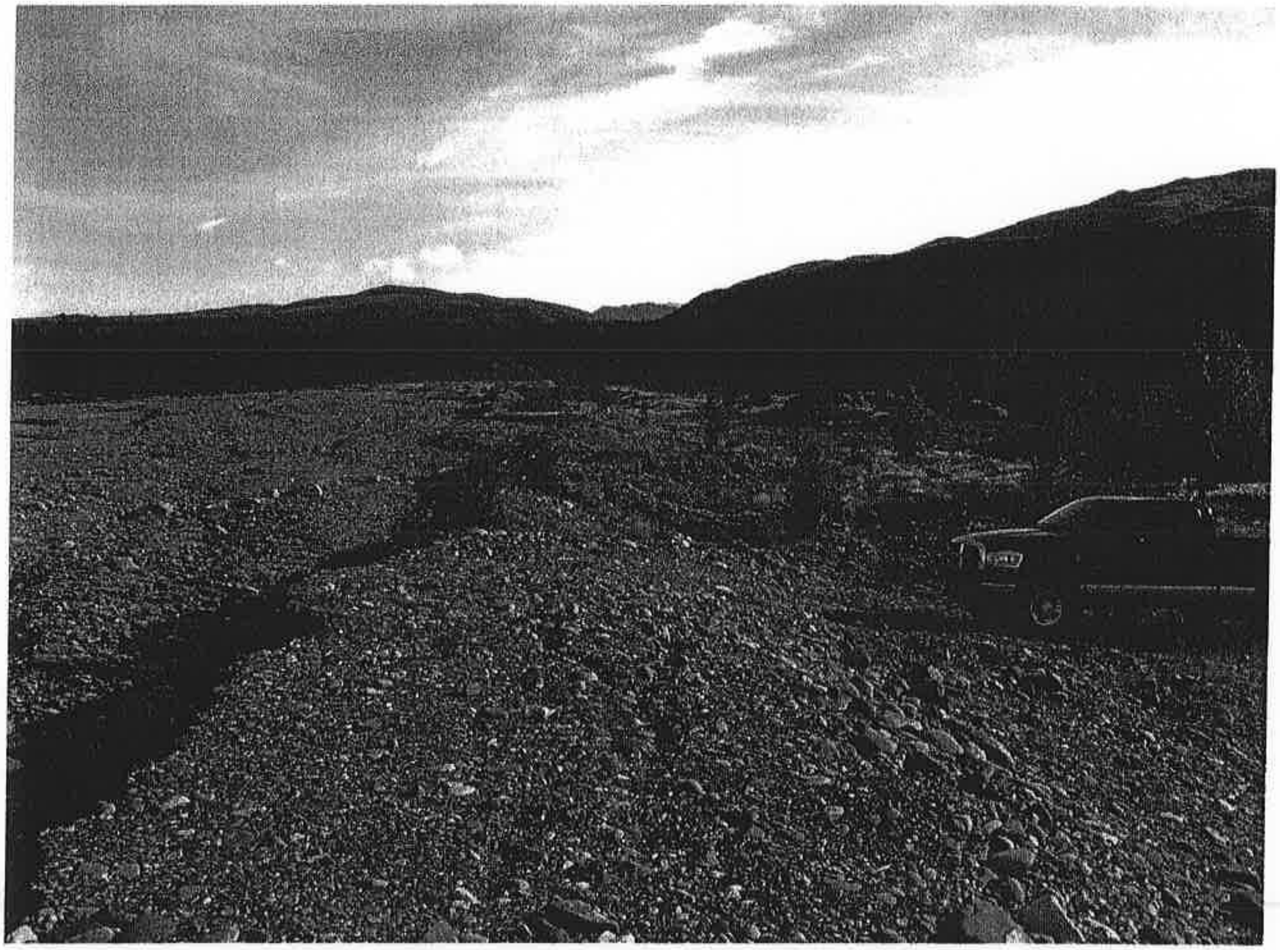


Figure 5.

Deposited Material

Volcanic Redbed Cu Occurrences is the Burwash Creek deposit type. Volcanic Redbed Cu deposits are defined as concordant or peneconcordant, disseminated, crosscutting vein and fault-controlled copper mineralization in predominantly sub-aerial volcanic sequences, usually basaltic. Native copper may be present at the cores of the deposits with mineralogical zoning grading outward through successive, overlapping and irregular zones of chalcocite, bornite, chalcopyrite and finally pyrite. Digenite, djurleite and covellite may also be present. Late-stage diagenetic or low temperature metamorphic fluids are thought to be responsible for the observed mineralization and weakly developed enveloping alteration (Kirkham, 1995 and Wilton, 1999).

Well-known examples of volcanic redbed copper occurrences include the Keweenaw Peninsula, Michigan deposits. The Calumet Conglomerate lode produced about 72.4 Mt grading 2.64% Cu with remaining indicated and inferred resources of 38.3 Mt grading 1.92% Cu. The Kearsage Amygdaloid ore body produced about 89.1Mt grading 1.05% Cu with remaining inferred resources of 72.1 Mt grading 1.0% Cu (Kirkham, 1995). The Sustut deposit in north-central British Columbia is the most well-known Cordilleran example with a total mineral inventory of 43.5 Mt grading 0.81% Cu in three zones.

MINERALIZATION

The Kluane Ranges district is not a distinct geological province in its own right. Rather it is a physiographic region within the Insular Superterrane tectonic province. The Insular Superterrane is mainly composed of two tectonostratigraphic assemblages - Wrangellia and Alexander Terranes.

Alexander Terrane is a large allochthonous crustal fragment that extends over 1000 km from Vancouver Island through southeast Alaska to southeast Yukon and into east-central Alaska (Peter and Scott, 1999). It includes a thick succession of Cambrian to Permian basinal and platformal carbonate and clastic sedimentary rocks with subordinate volcanic rocks that were deposited in ocean arc, back arc, platform, rift, trough and offshelf settings (Gordey and Makepeace, 1999 and 2001).

Stretching from west-central Idaho and eastern Oregon to the Wrangell Mountains of south-central Alaska, Wrangellia is one of the most extensively displaced exotic terranes in North America. Various controversial attempts have been made to reconstruct Wrangellia but the paleomagnetic and paleobiogeographic information is inconclusive. In any case, most of the scenarios support at least 4000 kilometres or more of drift before collision with North America. The northern segment of Wrangellia underlies a large part of central Alaska with two southeasterly trending branches that are separated in southwest Yukon by the main body of Alexander Terrane. The oldest rocks observed in the Kluane Ranges portion of Wrangellia are andesitic and basaltic flows, tuffs and breccias. Although these are similar in petrology and appearance to volcanic rocks in Alexander Terrane, they were extruded in a younger volcanic arc setting during the Late Pennsylvanian to Lower Permian.

Evidence that Wrangellia and Alexander Terranes were joined together at least 310 to 320 million years ago is given by Middle Pennsylvanian plutons in Alaska that "weld" the fault contact between the two. This observation contradicts stratigraphic and paleomagnetic data that had once been interpreted as evidence for two separate terranes until at least Jurassic time (Gardner *et al*, 1988).

Overlap successions include a thick Upper Jurassic to Lower Cretaceous deep marine clastic shale and sandstone sequence; Paleocene to Miocene fluvial and lacustrine conglomerate, sandstone shale and coal; Miocene to Pliocene or younger mafic to felsic volcanic rocks; and very recent pumice and volcanic ash deposits from vents in the White River area along the Alaska border. Overlap sequences in the strictest sense probably also include Triassic volcanic and sedimentary strata in both Alexander Terrane and Wrangellia, but since they differ somewhat in petrology and apparent environment of deposition (probably because of subsequent fault displacement on the Duke River Fault), they are described separately here.

Wrangellia and Alexander Terrane are bounded in the Kluane Ranges area by the Denali and Duke River Faults, which are right-lateral, strike slip faults. The Denali Fault originates in the region of Haines, Alaska and continues north through southwest Yukon, (where it is called the Shakwak Fault), and further northwest into eastern Alaska. This fault and the sub-parallel Duke River Fault are still the loci of seismic activity, causing a high frequency of small earthquakes (Hart, 2002). For instance, a total of 224 seismic events have been recorded in the Kluane Ranges area between 1920 and 1991, making it by far the most seismically active area in the Yukon. (Doherty *et al*, 1994). On November 3, 2002 a very strong earthquake (7.9 Richter Scale) was recorded in east-central Alaska as a result of 2.3 m of horizontal movement and 1.5 m vertical movement on the Denali Fault. A 4.1 magnitude quake occurred on November 19, 2002 with epicenter on the Duke River Fault near Haines Junction, Yukon. The length of Burwash Creek runs parallel to the Duke river which is approximately three km due east at the property.

Hulbert (1997) notes that in the Wrangellia portion of the Kluane Ranges there is little evidence for any strong orogenic activity prior to the Jurassic. However, in Alexander Terrane of northern British Columbia, Smith *et al* (1993) document an early (pre-Triassic?) phase of ductile deformation manifest primarily by isoclinal folds of variable orientation. This may have been a result of the Late Pennsylvanian to Permian amalgamation of Wrangellia and Alexander Terranes, forming the Insular Superterrane. The Upper Triassic Nikolai Assemblage shallow water to subaerial basalts in the Kluane

Ranges rest unconformably, at least in part, on marine sedimentary rocks of the Pennsylvanian Skolai Group, reflecting broad uplift prior to their extrusion.

Late Jurassic deformation along the eastern margin of the Insular Superterrane has been interpreted to reflect its initial juxtaposition with North America (McClelland and Gehrels, unpublished manuscript cited in Peter and Scott, 1999). Obduction and emplacement of Late Jurassic to Early Cretaceous plutons resulted in additional folding and low-grade regional metamorphism. Final accretion of the package to the western margin of the Intermontane Superterrane in mid- to Late Cretaceous time produced northwest trending zones of ductile to brittle shear that cut both the plutons and older rocks (Smith *et al*, 1993).

The northeast boundary of the Insular Superterrane is marked by the northwest trending Denali Fault and its subsidiary structures. After obduction ceased, slicing of the North American continental margin along the ancestral Denali Fault took place during the Tertiary as Wrangellia migrated northwards. The end of the orogenic cycle is marked by exhumation resulting from orogen-parallel transtensional extension followed with contraction and deformation suspected to be Tertiary in age (Smith *et al*, 1993; Crawford *et al*, 1999).

In the central part of the study area the steeply dipping Duke River Fault separates Alexander Terrane from the eastern limb of Wrangellia Terrane. Strike-slip movement along this structure has almost certainly modified the post-amalgamation architecture of the Insular Superterrane but the actual amount of displacement is not known. Relatively young transtensional extension along the Duke River Fault corridor may have formed depositional basins for the Paleocene to Oligocene Amphitheatre Assemblage fluvial and lacustrine strata. Miocene to Pliocene Wrangell Suite lavas that overlie these rocks are deformed along the trace of the Duke River Fault in the northwest part of the study area but they are not apparently displaced.

Strike-slip faulting is present at all scales throughout the Kluane Ranges, especially in the Wrangellia Terrane segment between the Duke River and Denali Faults where subparallel belts of relatively intact internal structure and stratigraphy have apparently been displaced some distance from each other.

In Wrangellia Terrane, major fold axes strike northwest, parallel to the bounding Duke River and Denali Faults. The folds are tight to isoclinal and upright to overturned to the northeast. These structures have, in turn, been folded about northeast axes into a series of culminations and depressions extending the length of the belt.

In Alexander Terrane, a similar pattern is present except that northeasterly-directed compression appears to dominate with a series of stacked northwest-facing thrust panels that are internally deformed by northeast-trending isoclinal folds. This is especially evident in the Donjek River area where the Duke River Fault changes orientation from northwest to more westerly.

The minerals generally contained in the deposited Burwash Creek's ore body are pyrite, arsenopyrite, galena, aphalerite, chalcopyrite, pyrrhotite, gold, and silver. The gangue minerals consist of two generations of quartz, granulated varieties calcite and altered wall rock.

The most importance fact is that the sulfide mineralization is associated with the Burwash Creek placer deposit. These sulfides primarily consist of pyrite, marcasite, and arsenopyrite, with minor amounts of chalcopyrite, galena, and sphalerite. These sulfides are similar enough in character and probably derived from the lode vein occurrences in the headwaters of the Burwash Creek drainage. The placer deposit also contains native gold, silver, platinum, and copper.

The sulfide mineralization is a byproduct of the placer recovery method. It is difficult to determine an exact concentration ratio for the sulfide mineralization in the placer concentrates. The amount of sulfides recovered will vary upon the type of recovery method used. For whatever method is used, the recovery plant should be adjusted to collect this sulfide product.

EXPLORATION

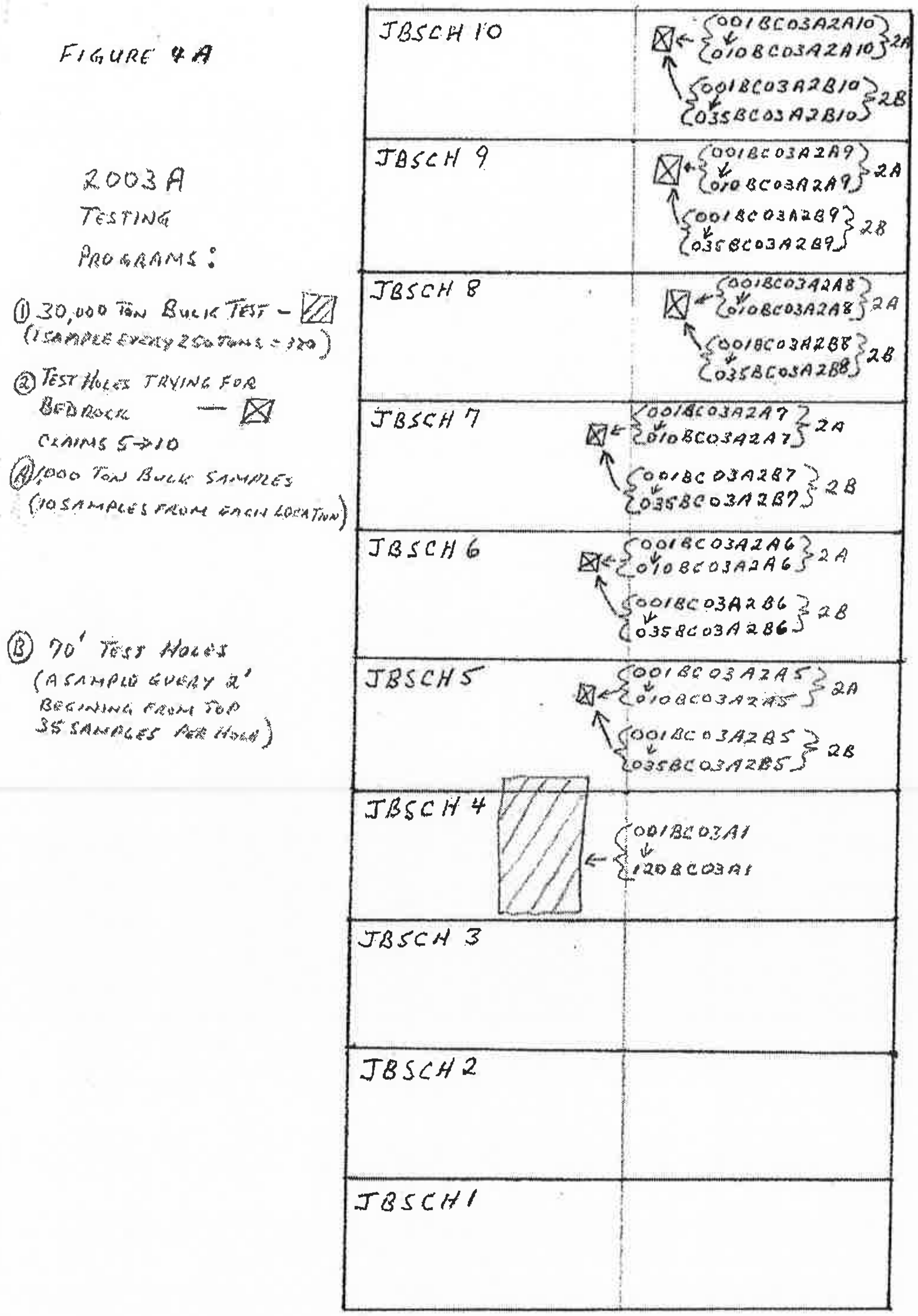
In 2001/2003 M Quest and Northern Minerals Development Inc. conducted an intensive research program to explore the properties and determine the mining reserves. As a result M Quest and Northern Minerals Development Inc. purchased the Claims in 2003. The exploration program in 2001/2002 consisted of filling one-ton ore bags and shipping them to Ontario to a scientific organization to assist in the determination, research, and development of the processing equipment they would be testing on the property in the summer of 2003.

Unfortunately the values recovered were not documented into a usable report; however it was noted significant values, which ranged from 1.5 grams and up to 18 grams with an average of 5 grams of gold per ton of head ore material.

Generally, an extensive level of exploration can be noted for the Burwash Creek property.

In 2003 was implemented a number of in-house exploration programs carried out on the Property. There was a 30,000 ton bulk testing program to test the plant design as well as for testing the recoveries from the various gravity plant systems, **Figure 6**. It was also taking six 1,000 ton, bulk samples gathered from claims 5 through 10. The average grade of coarse gold recovered was 1 gram per ton of head ore. Grades varied depending on which recovery methods were utilized. In a separate exploration test utilizing the same holes in an attempt to determine if bedrock could be reached, and to see if grade could be maintained. One hole from each of claim #5 to claim # 10 was prepared by using a D8 dozer to dig a trench down 20 to 30 feet (6.10 to 9.14 m) and then the excavator dug a further 40 feet (12.2 m). Bedrock was not encountered in any hole and visible coarse gold was recovered by using the Long Tom Sluice from each test hole, with a grade of better than 1.5 grams per ton maintained from bottom to top of each hole.

Figure 6
Exploration Program for Claims 4 to 10



To process more volume, when utilizing a sluice box, the gold recovery was the lowest about one gram per ton. The recovery was highest when using a Hy-G Centrifuge, which achieved 1.5 grams gold per ton. All of this gold was coarse gold recovered through gravity concentration methods.

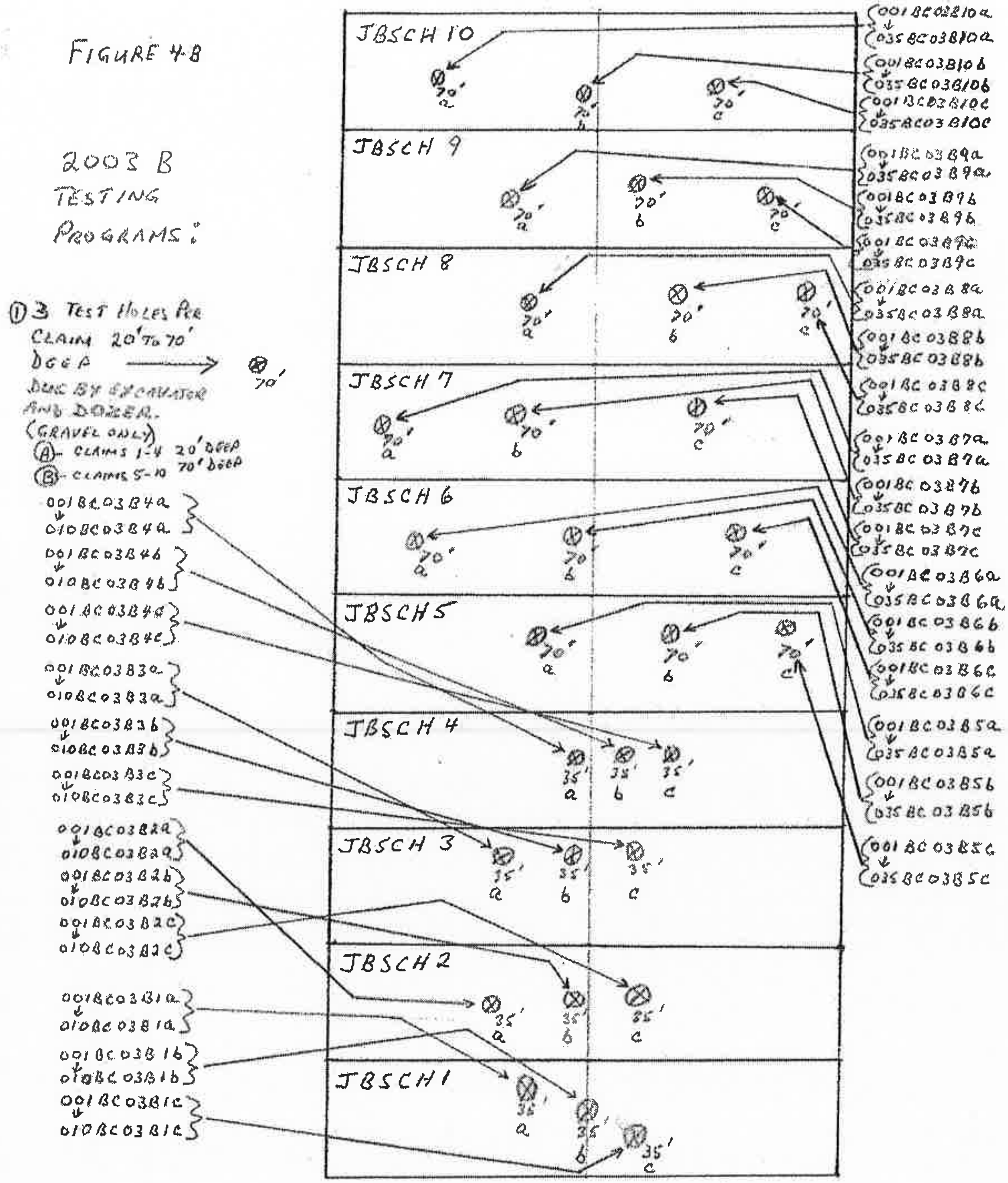
The fine gold could not be captured by any of the gravity concentration methods that was used to test, which ranged from sluices to centrifuges, and even to hydro-cyclones; yet by careful hand panning smaller gold particles could be observed in abundance with a loop and by microscope.

There was also an exploration-testing program, which saw a minimum of 3 holes per claim dug with an excavator to depths of 20 feet (6.1 m) on claims 1 through 4 (in the gravels only) and to 70 feet (21.3 m) on claims 5 through 10, **Figure 7**. A new Cat 330CL Excavator and a D8 Dozer were utilized to dig the holes. When Heavy Timber on surface or permafrost at a shallow depth was encountered the planned test holes were relocate until thawed ground was found. Each sample was one ton of gravel in the form of a channel from bottom to the top of the hole. The one-ton sample was bagged and hauled to the Long Tom Sluice testing unit for processing, plus two 1-ton samples from each claim were stored and then shipped to the Metallurgical Laboratory in Burnaby, BC which was completely constructed and equipped by M Quest/NMDI.

The test holes were filled in after sampling to prevent animals from falling in, which complies with Yukon Government exploration regulations. Once the one-ton sample was processed, the Long Tom sluice was carefully cleaned with the concentrate being washed into a pail and labeled for further hand panning. The sluice was then made ready for the next sample. The sluice sample was then carefully hand panned down to a heavy concentrate. The heavy concentrate was then worked to isolate the visible gold, which was removed, weighed and recorded. The remaining concentrates were stored, and then shipped to the metallurgical lab in Burnaby for assaying.

Figure 7

Exploration Program for Claims 1 to 10



On claim # 4 there was a diagonal drop-off discovered at the downstream end of the 30,000 ton bulk sample location, where the clay abruptly stops and gravels fill in against the clay, making it like an underground clay wall, **Figure 8**. This clay wall runs diagonal across Burwash Creek and the clay continues upstream to claim # 1, which is the beginning of the property. A hole was dug down 75 feet (23 m) on the downstream side of the diagonal clay wall in the gravels and it did not hit bedrock, so it was called the Drop-off. The same grade of 1.5 grams per ton of visible coarse gold was maintained throughout the 75 feet (23 m) hole, from the gravels which are on the downstream side of the clay wall. As a note: this Drop-off has the potential of having a major gold enrichment zone or Bonanza deposit or accumulation of gold nuggets, at the bottom or base of the downstream side of the clay wall. Burwash Creek has a history of larger gold Nuggets being recovered by the miners. The theory is that the nuggets work there to the bottom, because of gravity, and then since they cannot penetrate the clay, they then travel along the bottom (top of the clay layer) through the end of time until they hit a hole or trap where they stop. The Drop-off is a natural trap, therefore a potential Bonanza Deposit. The Drop-off hole is shown on the **Figure 9.**

During the 2003 exploration test was done by hand sampling taking six samples per claim down the center and one on each of the right and left limits, other than the upper claims (1 to 4) where it was taking three samples, from the left limit on each claim, **Figure 8.**

At the end of 2003 a Water License and Land Use Permit were applied for, therefore no activity took place on the claims during 2004 and 2005. During this time the Metallurgical Laboratory was built, equipped, and began processing samples. In August 2005 the approval was received for the Water License and Land Use Permit, **Appendix A.**

Figure 8

Exploration test Program, 2003

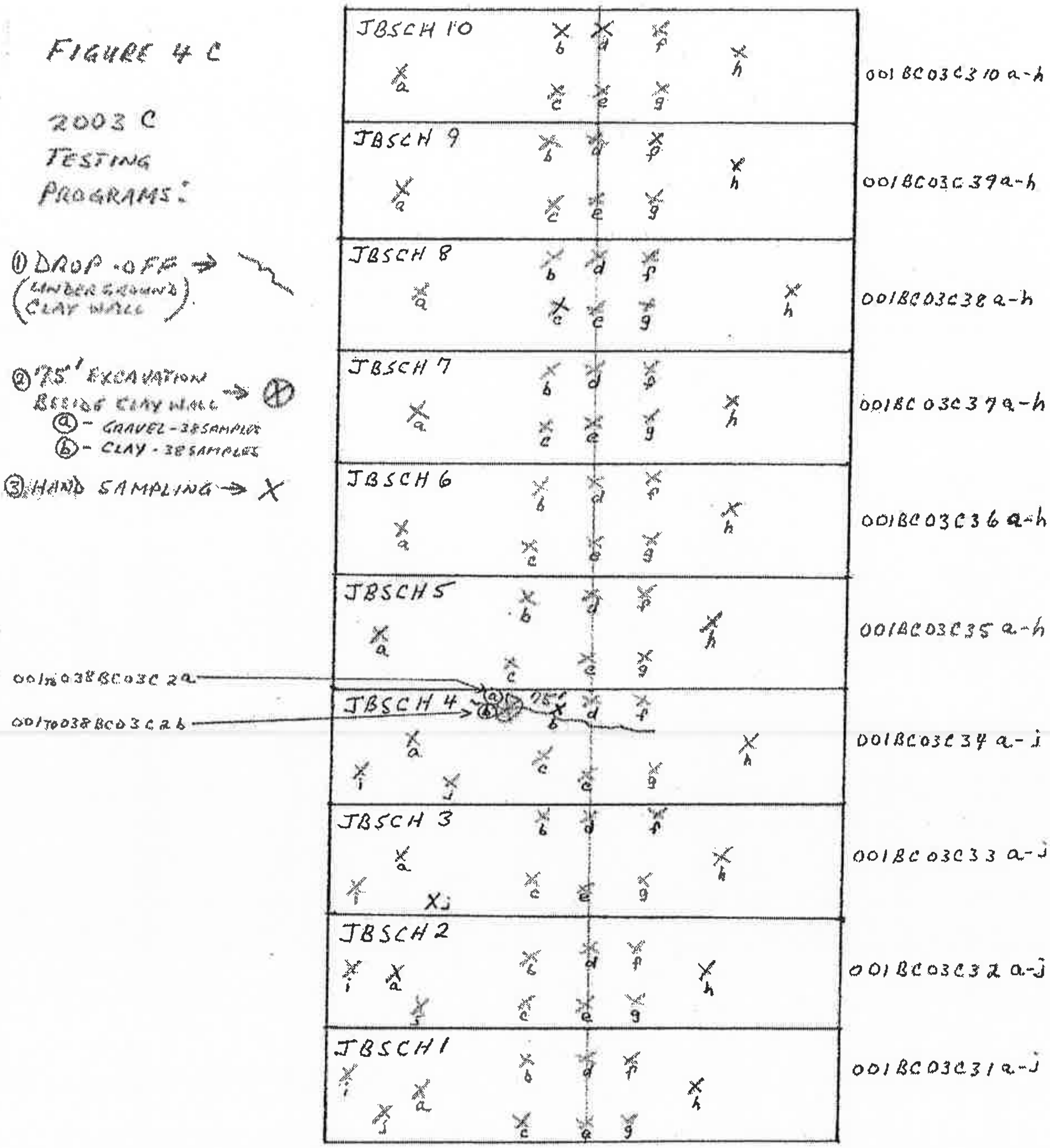


Figure 9

Drop-off dug down 75 feet along underground clay wall.

In 2006 with a ten-year Water License and Land Use Permit in hand, testing work was recommenced on the Property. There was Bulk Testing, Excavator Hole Sampling, and a small 10 Hole Drill Program undertaken.

The Bulk Testing consisted of testing another type of recovery equipment called a Jig/Riffle Sluice Plant. This Jig/Riffle design had been used in Nome Alaska although it was used on a coarse gold creek deposit that came out to the Beach Sands, rather than on the Nome Beach Sands themselves as it had been represented. This plant was not able to recover the fine gold on Burwash Creek.

Samples were taken throughout the claims by digging with the excavator and by hand, they were processed using a 12 inch (30.5 cm) duplex jig. The results were comparable with the findings of 2003. The laboratory had been set up in 2005 and it was possible to test the concentrates for the fine and ultra-fine micron gold that proved to be present. The metallurgical laboratory carried out over one thousand lab tests and assays from the sampling on Burwash Creek materials from 2005 through 2008.

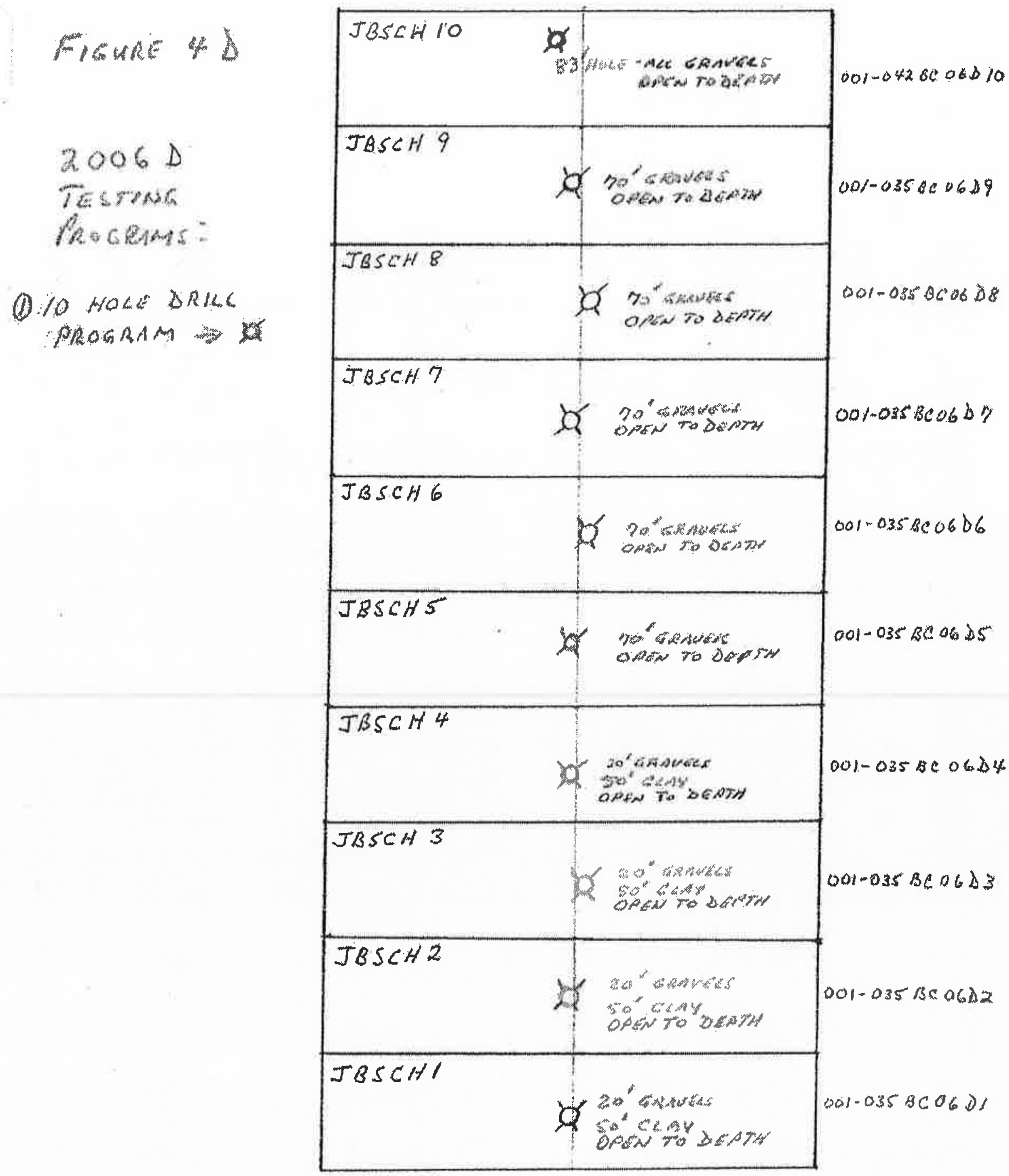
In 2006 a Reverse Circulation drill was contracted to implement a small 10 hole Drilling Program on the Property, **Figure 10**. The drill reached a depth of 83 feet (25.3 m), which was the maximum depth of the drilling pipe that the driller had available. This was 50 feet (13.1 m) from the downstream edge of claim #10 and bedrock was not achieved in that hole nor was the expected near bedrock gold enrichment area reached.

By the way, at the bridge where the Alaska Highway crosses Burwash Creek property, approximately 1 km downstream from the claims, the Government drilled down 90 feet (23.6 m) and it is said they did not hit bedrock.

This first hole was the deepest hole achieved by the drillers as a result of them losing 30 feet (8 m) of their drill pipe down hole in the first hole. The remaining nine holes were drilled to a maximum depth of 50 feet (13 m), which was the extent of the drilling pipe available. All the drill holes from claim 10 to claim 5 encountered gravel averaging 1.5

Figure 10

10 Holes Drill Program, 2006



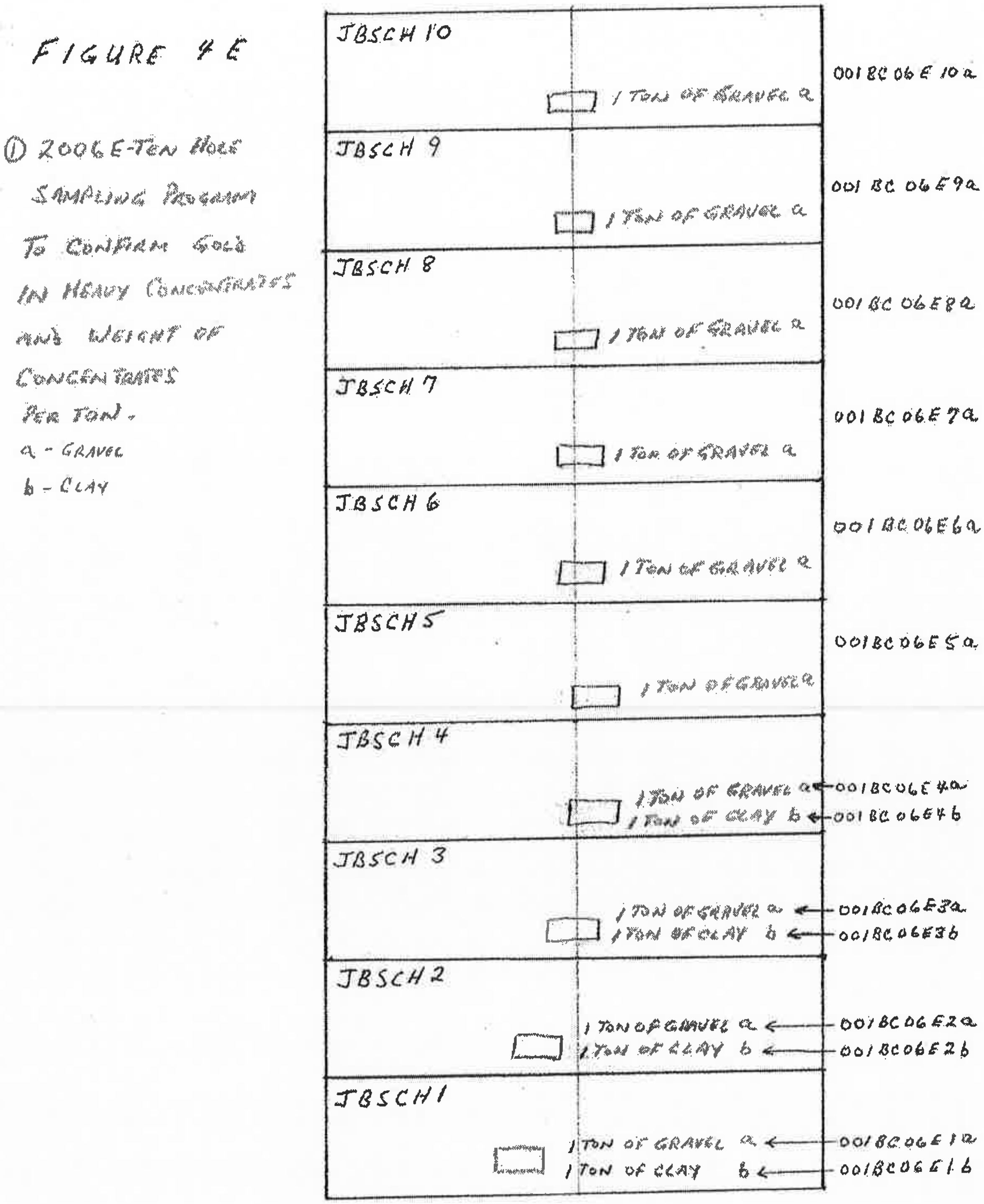
grams coarse gold and 5.5 grams fine gold, thereby confirming the same grade of the gravels as the previous sampling had indicated from top to bottom of the holes. The drill holes from claim 4 to claim 1, encountered clay at an average depth of 20 feet (5.2 m) from surface and the clay maintained its consistency to the full depth of the drill holes. It was discovered that the clay can be easily dug by excavator to at least 70 feet (18.3 m) from surface. The average grade of fine gold in the clay is 3.5 grams per ton. We encountered higher coarse gold content in the gravels above the clay averaging 3.5 grams per ton. This coarse gold enrichment is due to the clay acting as an impervious layer (like bedrock) not allowing the coarse gold to penetrate it, so that it gathers above the clay layer. We recovered the coarse gold above each of those drill holes that were drilled 50 feet (15 m) into the clay by bulk testing of the gravels and using a 12 inch (30.5 cm) duplex jig to process them. The gravel was sampled and pushed out to allow the drill to get to the 70 feet (18.3 m) depth, with 20 feet (6.1 m) of gravels and 50 feet (15.2 m) of clay. In 2006 a Ten Hole Exploration Excavator Sampling Program was also completed, **Figure 10.** The purpose of this 10 holes sampling was to confirm the coarse gold and to give an averaging weight per ton of the heavy concentrates that contain the fines and ultra-fine micron gold.

Gold in the Heavy Concentrates – 2006, Figure 11

Hole # 1- Claim JBSCH 1:
1 ton sample taken of gravels to 20 feet (6.1 m) and 1 ton sample of clay, down a further 20 feet (6.1 m); Recovered 55 pounds (24997.5 g) of Heavy Cons and 2.3 g of visual gold, from gravels.

Hole # 2 – Claim JBSCH 2:
1 ton sample taken of gravels to 20 feet (6.1 m) and 1 ton sample of clay, down a further 20 feet (6.1 m); Recovered 55 pounds (24997.5 g) of Heavy Cons and 1.5 g of visual gold, from gravels.

Figure 11
Ten Holes Sampling Program, 2006



Hole # 3 – Claim JBSCH 3:

1 ton sample taken of gravels to 20 feet (6.1 m) and 1 ton sample of clay, down a further 20 feet (6.1 m); Recovered 65 pounds (29542.5 g) of Heavy Cons and 3.5 g of visual gold, from gravels.

Hole # 4 – Claim JBSCH 4:

1 ton sample taken of gravels to 20 feet (6.1 m) and 1 ton sample of clay, down a further 20 feet (6.1 m); Recovered 68 pounds (30906 g) of Heavy Cons and 7.0 g of visual gold, from gravels.

Hole # 5 – Claim JBSCH 5:

1 ton sample taken from 35 feet (10.7 m) of gravels, the extent of the reach of the excavator; Recovered 71 pounds (38730.5 g) of Heavy Cons and 6.7 g of visual gold.

Hole # 6 – Claim JBSCH 6:

1 ton sample taken from 35 feet (10.7 m) of gravels, the extent of the reach of the excavator;

Recovered 83 pounds (45276.5 g) of Heavy Cons and 3.2 g of visual gold.

Hole # 7 – Claim JBSCH 7:

1 ton sample taken from 35 feet (10.7 m) of gravels, the extent of the reach of the excavator;

Recovered 72 pounds (39276 g) of Heavy Cons and 2.1 g of visual gold.

Hole # 8 – Claim JBSCH 8:

1 ton sample taken from 35 feet (10.7 m) of gravels, the extent of the reach of the excavator;

Recovered 62 pounds (33821 g) of Heavy Cons and 1.8 g of visual gold.

Hole # 9 – Claim JBSCH 9:

1 ton sample taken from 35 feet (10.7 m) of gravels, the extent of the reach of the excavator;

Recovered 59 pounds (32184.5 g) of Heavy Cons and 1.65 g of visual gold.

Hole # 10 – Claim JBSCH 10:

1 ton sample taken from 35 feet (10.7 g) of gravels, the extent of the reach of the excavator;

Recovered 56 pounds (30548 g) of Heavy Cons and 1.55 g of visual gold.

The total weight of the Heavy Concentrates was 646 pounds (352393 g), an average weight for one sample is 64.6 pounds (35239.3 g) of Heavy Concentrates or 3.2 g per ton of head ore. Example of one ton sample hole is shown on the **Figure 12**.

Gold Distribution Statement:

The obtained results of the described above exploration sampling program has proven that the gold has been fairly evenly distributed throughout the claims.

The one possible explanation for this even distribution of gold, which is not typical of a Burwash Creek Placer Deposit; is that this even distribution of gold is a direct result of the flooding that happens every 20 years on average (and appears to have happened through the millennia), it scours the canyon above the claims and deposits the gravels and gold onto these JBSCH 1 – 10 claims, which is the first flat wide area downstream of the canyons where the heavier gold and platinum are given a chance to settle out of the flow.

Volume and Grade Calculations (Methodology):

Creek cross-sections (the majority of the single hole excavator samples) were taken from the middle of each claim, which is 250 feet (76.2 m) from each number one claim post. When Bulk samples were taken, from each claim they were taken from either side of Burwash Creek that was easiest accessed or which would not affect the Water License & Land Use Permits. There was a minimum of 1,000 tons per bulk sample

Figure 12

Digging and collecting one ton sample from clay

processed and in two locations there was approximately 30,000 tons processed while testing various types of processing and recovery equipment.

The drilling was carried out 50 feet (15.2 m) upstream from each number two post, which is the downstream end of each claim, 10 holes in all. The first hole drilled was on claim #10, the drillers lost 23 feet (7.0 m) of this drill steel pipe down hole, so all the other holes were drilled from 10 feet (3.5 m) to 20 feet (7.0 m) deep cat trenches to attain a 70 feet (21.3 m) from surface drill depth target.

holes were drilled from 10 feet (3.5 m) to 20 feet (7.0 m) deep cat trenches to attain a 70 feet (21.3 m) from surface drill depth target.

The holes were sampled in 3-foot intervals and jigged to get a concentrate. Hand panned and the coarse gold weighed. The remainder of the sample containing the fine gold was bagged and shipped to the Lab. It was found that the ground remained consistent with previous testing. The claims upstream of the drop-off (underground Clay Wall) had 12 feet (3.7 m) to 20 feet (7.0 m) of gold bearing gravels, which rested on top of the clay layer. The clay averaged 3.5 grams of gold per ton and was easily drilled and excavator dug to 50 feet (15.2 m); which was as far as we could reach with the equipment utilized.

The assumptions made to facilitate the completion of the sections and volume calculations on the upper four claims (Claim #1 to #4). These were as follows:

- The depth of the gravels and clay on the upper four claims (Claim #1 to #4) were combined for the 70 feet (21.3 m) depth, 20 feet (7.0 m) of gravel and 50 feet (14.3 m) of clay;
- The East Bench has a minimum 20 feet (7.0 m) depth and much deeper in many areas;
- The foot of the mountain on the West side of these claims is over 150 feet (45.7 m) above the valley floor and all clay and gravel mixed.
- Any short fall of gravels on the East Bench is more than accommodated by evening out the height of the West mountainside of the claims, where selective hand sampling panned out fine and coarse gold; therefore it maintained the same 70 feet (21.3 m) depth of the deposit even on these upper 4 claims.

SAMPLING METHOD AND APPROACH

An example of sampling and sample preparation procedures implemented for the Burwash Creek ore material is shown below. As an example a bulk sample was collected from the Burwash Creek property by backhoe or excavator and contained in excess of one ton of material. Each bulk sample was weighed and placed in a separate stockpile. Some sampling process is shown in **Figures 13 and 14.**

Ordinary representative one ton bulk sample consisted of non-classified typical head ore from the property. That sample was comprised of placer gravel and sand with some clay. Representative splits from each sub-sample were dried in an oven, crushed to 6 mm (1/4 inch) minus, than pulverized in an impact crusher to approximately 40 mesh. To prevent cross contamination all processing equipment was thoroughly cleaned between samples. The splits were placed in individually labeled containers, and subsequent sub-samples and splits were registered in the sample database.

A weighted sample calculation method was applied that combined production and samples based on the total volume of material evaluated. A weighted average calculation was used to evaluate the property. Weighing was based on the total volume of material for each sample, therefore allowing larger bulk samples and mining columns to fairly influence the final derived grade. The samples were applied to their relative ore block or claim and the resulting grades were then combined to produce an overall grade. High grade values due to nugget effect were excluded. Since sample recovery has not produced a significantly large numbers of nuggets and sample-assays do not show pronounced grade spikes, no grade limiting calculations were applied.

Figure 13.

Bulk Sampling Process.

Figure 14.

Bulk Sample Material in treed area.

The procedure for the preparation of many tons of bulk samples are shown in **Figures 15, 16, and 17**. The samples were applied to their relative ore block or claim and the resulting grades were then combined to produce an overall grade. High grade values due to nugget effect were excluded. Since sample recovery has not produced a significantly large numbers of nuggets and sample-assays do not show pronounced grade spikes, no grade limiting calculations were applied.

Figure 15.

Gathering Head Ore Bulk Samples.

Figure 16.

Gathering Head Ore Samples, End of Season

Figure 17.

Complex Sampling of the Large Bulk Sample.

SAMPLE PREPARATION, ANALYSES AND SECURITY

The sampling and sample preparation of the ore, concentrate, tailings, and other related materials were done by experienced and skilled personal and sample pre-treatment, tests, and analyses were carried out at reputable laboratories. It is assumed that the methods used were in keeping with accepted industry standards and there is no reason to believe that the assays reports are not representative of the intervals assayed.

A detailed description of the sample preparation procedures, pre-treatment procedures, tests, instrumental, and chemical analyses are provided below.

Sample Preparation Procedure.

Generally, the sample preparation for the Burwash Creek samples was done in the manner described below. Each sample was weighed and the color and texture of the sample was recorded. Then, the sample was crushed by a jaw crusher to below 13 mm (_ inch) and screened at six millimeter (1/4 inch). During screening, the oversize material was visually inspected for metal particles. After crushing to 100 % passing the 6 mm screen, the material was blended in a riffle splitter and a one kilogram (2 lbs) portion was removed after checking for visible gold. The remainder of the minus 6 mm (1/4 inch) sample material was sealed and stored. The one kilogram (2 lbs) portion was dry-milled. The ground sample material was screened at 0.6 mm (28 mesh) and the oversized material was weighed. The plus 0.6 mm (28 mesh) oversized material was inspected under a microscope for the presence of metal particles. The fine material was split into 250 grams (0.5 lb) portions and sent for pulverization. The material was pulverized and then the material was removed and screened to determine the approximate size. Then the pulverized material was split. One part of the material was delivered to an analytical laboratory for determination of precious metals (PM) and platinum group elements (PGE) and another part was retained for audit analyses.

Fire Assay. Procedure.

Without any doubt the classical lead assay has proven to be the most important procedure for the concentration and isolation of the noble metals. Beamish stated that during 40 years of research in this field he had not experienced a single example of failure of the classical assay to find a paying ore.

Noble metals are often present in samples at sub-microgram levels. In addition, particularly in the case of gold, the distribution of the metals can be very inhomogeneous. These two factors favor the fire assay approach, where large enough sample size may be used and the noble metals are concentrated into a small bead.

In fire assay test the pulverized sample of the tested ore is usually mixed with an equal weight of litharge and enough charcoal or flour to reduce from 25 to 30 grams of lead to the metallic state, and to reduce all iron oxide to the ferrous condition. The fluxes to be added depend on the nature of the ore. Carbonate in the form of soda ash is added to form a fusible silicate with quartz or sand, and it is also useful in taking up and removing sulfur when sulfides are contained in the ore. Borax is needed to form fusible borates with the oxides of the metals if these are present in excess and is advantageous in increasing the fluidity of almost any charge. Sand is added in the comparatively rare case in which the ore is deficient in silica. Sand forms fusible silicates with alumina, lime, oxides of iron, etc., and protect the clay crucible from corrosion.

The quantities of the fluxes must be judged from the appearance of the ore and the experience of the assayer. The charge is thoroughly mixed and charged into a cold clay crucible which must not be much more than half full. The crucible is put into the furnace and started to heat. Chemical action begins between the carbonate of soda and the silica. Carbonic acid gas is given off and effervescence results. The temperature is gradually raised to a full red heat, and the lead beads coalesce and sink through the liquefying charge, which is continually stirred up by the disengaged gas. After a period of forty or fifty minutes the charge is in a state of quiet fusion, and the lead containing the gold is collected at the bottom. At that point the charge poured into a warm iron mould. The lead is found at the bottom of the mould and detached from the slag by hammering. In case the charge is melted too quickly part of the gold remains in the slag.

The mixture of chemicals and ore used for the crucible fusion provides a complex system. The chemistry of the fusion process is extremely complicated and practically unknown. By analogy with simple systems such as metal oxide with borax or silica it is possible to make reasonable guesses concerning some of the reactions, but a complete explanation of the reaction for even one ore composition must await an extensive examination of these multicomponent systems. Thus the technique of a fire assay collection of the noble metals is largely an empirical process assisted to a degree by some fundamental principles.

Attractive feature of the fire assay is its wide applicability to ores, concentrates, rocks, and many industrial products. An additional benefit is achieved because the metals are extracted from a complex matrix into a relatively simple metal alloy. The latter effect is particularly important in view of the complex interference problems encountered in noble metal analytical chemistry.

Techniques for Overcoming Interferences.

Several techniques are available to overcome interferences in the fire assay. The choice of technique may be problematic, especially when dealing with a material of unknown composition. However, the assayer learns, from experience, which technique is the most suitable for specific sample types. Procedures to be described have been found useful for a variety of complex materials.

Chemical Pretreatment.

Acid digestion is used, as a pretreatment, for the assay of concentrates, matte, speiss, and metallic.

The principle here is the elimination of interfering elements by acid dissolution. Gold is retained in the residue, separated by filtration or decantation, and determined by the fire assay.

The acid treatment technique finds its greatest application in the assay of copper ores and concentrates. The sample is treated with hot hydrochloric or sulfuric acid. Nitric acid may be also be used to remove base metals. Although base metals are more readily dissolved in nitric acid, its use is restricted to materials known to be free of chloride: in the presence of chloride, gold will be lost by dissolution.

Roasting.

Roasting is a process in which the material is heated in an oxidizing atmosphere. In the assay context, it is employed to convert metal sulfides to oxides, and to remove volatile impurities. The temperature is increased, gradually, to a maximum of 650^0 C.

If the temperature is raised too rapidly, gold may be lost, by partial volatilization, during the initial stages. The presence of chloride also increases the probability of loss by volatilization. Samples of sulfide concentration greater than about eight percent are roasted, as a common practice in many laboratories, prior to fusion.

Scorification.

Scorification is an oxidizing fusion, conducted in a scorifier: a shallow dish made of fireclay. The dish is designed to offer a large area for oxidation. The ore is mixed with granulated lead , together with a little borax, and heated in a scorifier in a muffle furnace. Borax is used to minimize corrosion of the scorifier and to ensure a fluid slag.

The technique is used most commonly for reducing the size of the lead button and decreasing the impurity level. Some of the molten lead is oxidized and, together with the borax, forms a slag with the oxidized base metal contaminants.

Atomic Absorption Spectrometry. Procedure

One of the major landmarks in noble metal analytical chemistry was the development of analytical atomic absorption spectroscopy by A. Walsh in 1955. At present atomic absorption spectroscopy is the most widely determinative tool for these metals.

Atomic absorption spectrometry is an analytical technique for the determination of elements based on the absorption of radiant energy by free atoms in their ground state. Atoms of different elements will absorb energy at wavelengths which are characteristic of the elements.

Atomic absorption spectrometry is well established as an important analytical technique in the precious metal industry. Classical wet chemical procedures for the determination of the precious metals and platinum group elements are time consuming, and require considerable analytical skills and knowledge, because of the complex separation involved. The major advantage of the atomic absorption technique is the possibility of measuring all the PM and PGM in the same solution, thus obviating the necessity for separations.

In common with most instrumental procedures, however, the application of atomic absorption spectrometry to PM/PGM analysis presents some problems: the technique is fraught with serious interferences. The interferences may be due to mutual PM/PGM effects or to the presence of other metals or non-metals.

Fortunately, there has been developed many different techniques to overcome and reduce the negative effects from the interferences. For example, the use of flames of higher temperature has been shown to reduce, or even eliminate, many interferences. Various releasing agents, for the determination of the PM/PGM, have been proposed. As well as suppressing interferences, releasing agents such as lanthanum or uranium usually exhibit the additional properties of enhancing sensitivity and improving the precision of measurement.

Burner height and flame stoichiometry (oxidant/acetylene flow) are also critical parameters for precise determination, and should be optimized carefully. The settings which give maximum absorbance are not necessarily the optimum. For example, a burner height of five to six millimeter below the optical path will give maximum absorbance, using lanthanum as a releasing agent. However, at this setting serious interference can be observed, even in presence of lanthanum. At the same settings, which are also optimum when uranium is used as releasing agent, interference is minimal.

DATA VERIFICATION

Northern Minerals Development Inc./M Quest, Burwash Creek has had extensive assays and chemical-instrumentation analyses performed over the last 10 years to verify the presence of and the correct amount of PM and PGM in a very significant placer deposit on its lands. Within its claim boundaries, NMDI/M Quest has approximately 30 million tons of readily mineable material. The ore materials have a total metal content averaging 3 to 5 percent of the entire mass. Beside the free native gold, silver, and platinum in the deposit, the ore metals include some quantities of gold, silver, and platinum group elements that are alloyed or chemically bonded together with other base metals in the deposit. The NMDI/M Quest specialists have proven that their complex ores can also be accurately assayed, concentrated, and the noble metals recovered into marketable forms.

There have been four major types of metallurgical validation on Burwash Creek materials: these include 1) fire assay, using standard fluxes and firing in assay kilns; 2) spectrometric analyses, including atomic adsorption (AA); 3) wet chemical analysis, using leaching and precipitating agents; and 4) pilot production refining.

The fourth way to set a value on an ore concentrate is to simply refine it in large volumes. This approach is currently in progress.

This way allows for eliminating the problem of small representative samples that relate to all of the three previous methods.

MINERAL PROCESSING AND METALLURGICAL TESTING

Northern Minerals Development Inc. has been subject to about 15 years of active mining (bulk sampling), processing, and metallurgical testing with positive and profitable results. The results of this work allowed NMDI to create and implement the very important programs for property development. Such activities became especially aggressive during recent years when many stages of research and development programs were implemented.

In the fifteen years of operations at the mine, the Burwash Creek placer ore body has undergone numerous studies, assays, and estimations of values.

During the 2001-2003 mining seasons NMDI performed a bulk sampling program which extracted over 20,000 tons of head feed material from the ore body. The pilot production metallurgical plant was constructed and configured to extract various gravity mineral fractions from the head feed. The company had produced approximately 40 tons of gravity concentrate material for further evaluation. At the same period the metallurgical laboratory was constructed and equipped with high quality atomic-absorption spectrophotometer and the extensive laboratory testing and pilot scale refining studies were performed using the concentrated material.

In 2006 a special pilot program for sampling the bulk samples from the ore body on a very large scale was implemented for analysis and study of the deposit. Another important program is related to the development of the most effective techniques for excavating, concentrating, and recovering the precious metals from this deposit. Only with verified data of recoverable values in hand could the resources and costs be estimated with sufficient clarity to proceed to full development. This effort has been the central activity of Northern Minerals Development Inc. for the last several years.

In **Figure 18** and **19** are shown the old wash plant from 2006 which was changed for new upgraded gravity recovery technology to increase effectiveness for the recovery of fine gold.

In 2007 NMDI ran its head feed ore from the pit into its new wash plant and pilot recovery circuit located at the NMDI, Burwash Creek property that are shown in **Figure 20**. This technology proved it was not effective for the recovery of fine and ultrafine gold.

In 2005 to 2008 NMDI/M Quest pilot refining plant was constructed and equipped in Burnaby, BC. That plant had a lot of possibilities for research and development of extraction technology. This facility included a number of pilot plants for concentration, fusion, and leaching processes. This facility was also equipped with fire assay and chemical/metallurgical laboratory which is shown in **Figure 21, 22, 23, and 24.**

Now utilizing all previous obtained knowledge and experience NMDI has moved from the principal concept of gravity concentration to a more sophisticated operation scheme which is to wash with minimal water, classify, and concentrate the fine material (less than 2 mm). Then to treat that fine concentrate with grinding and leaching technology.

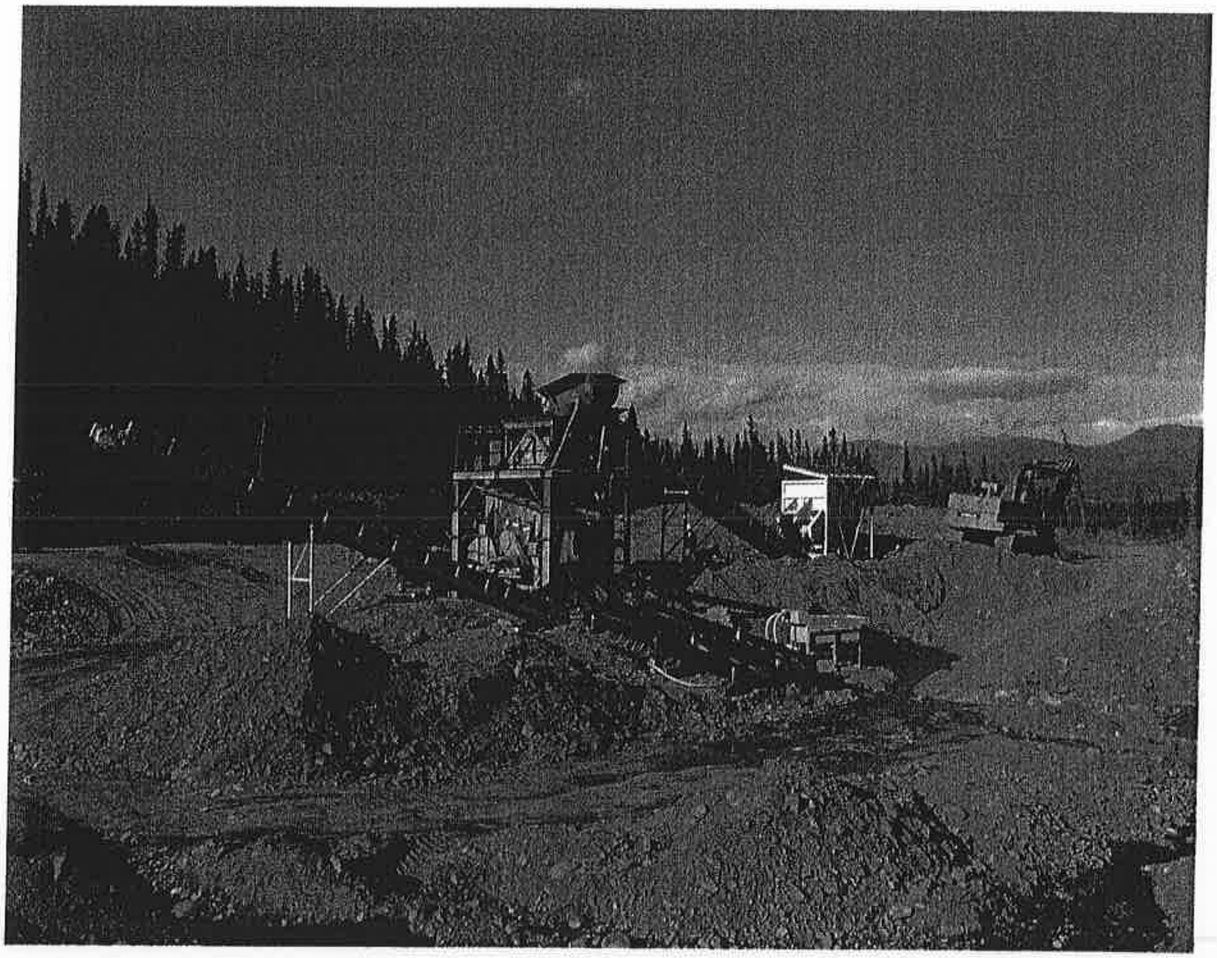


Figure 18.

Burwash Creek, Wash Plant and Pilot Recovery Circuit, 2006.

Figure 19.

Processing Wash Plant, 2006

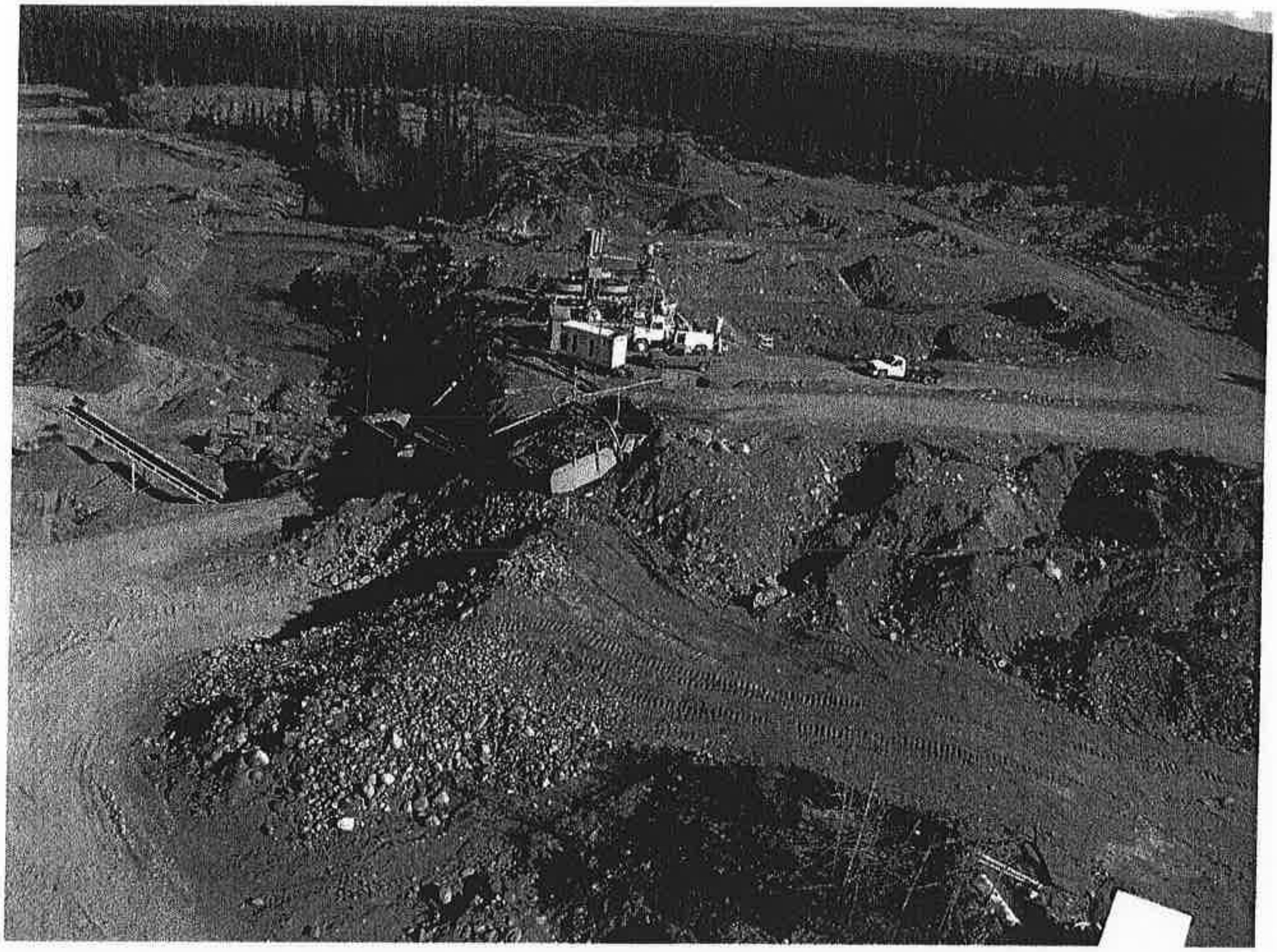


Figure 20

Wash Plant and Pilot Recovery Circuit, 2007-2008.

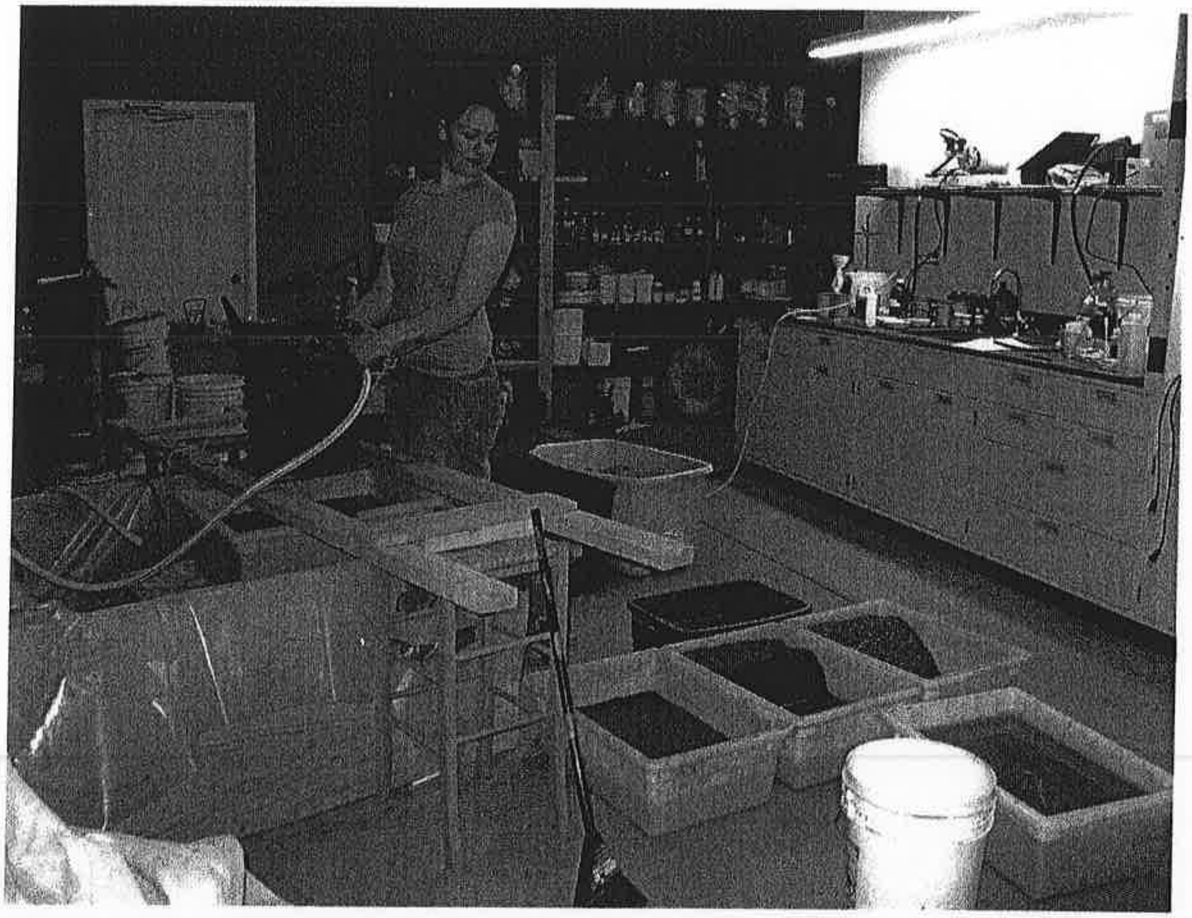


Figure 21.

Pilot Refining Plant.

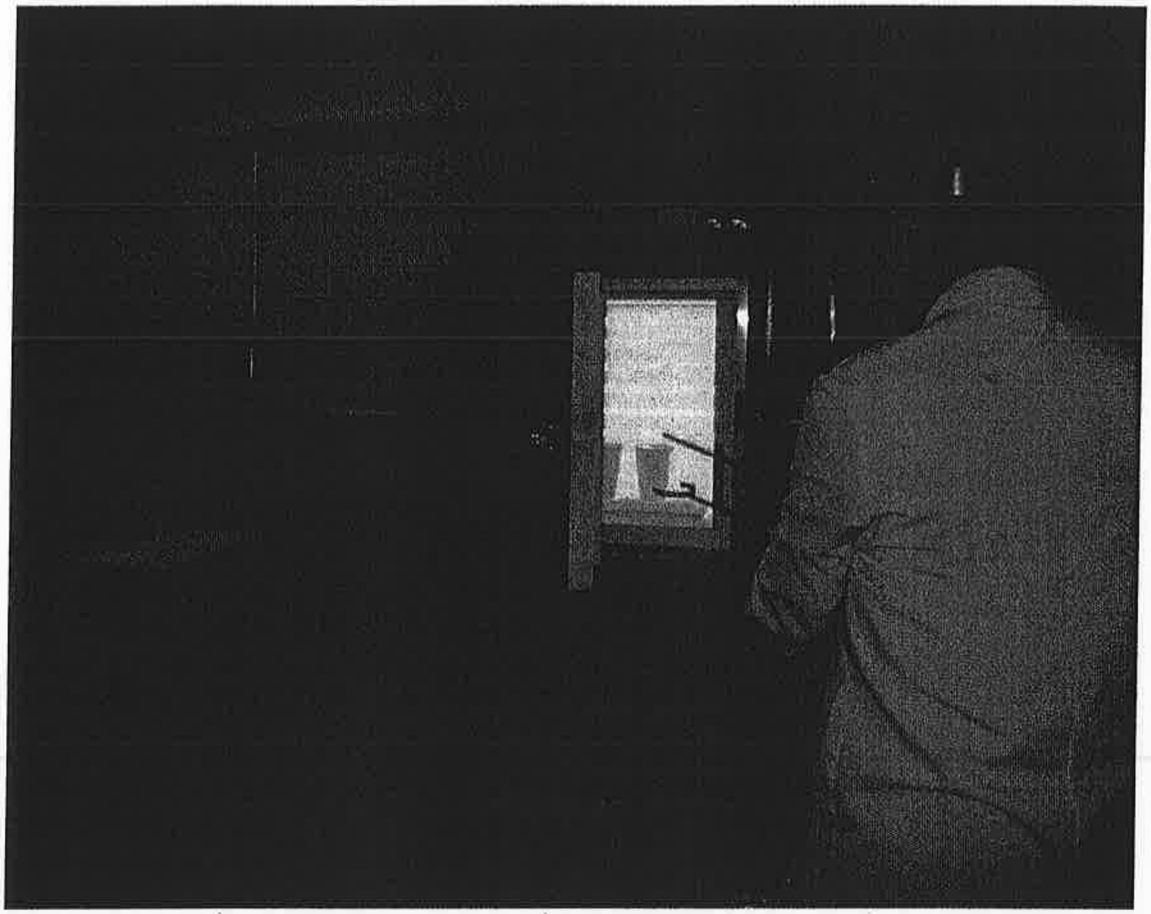


Figure 22.

Smelting Pilot Plant.

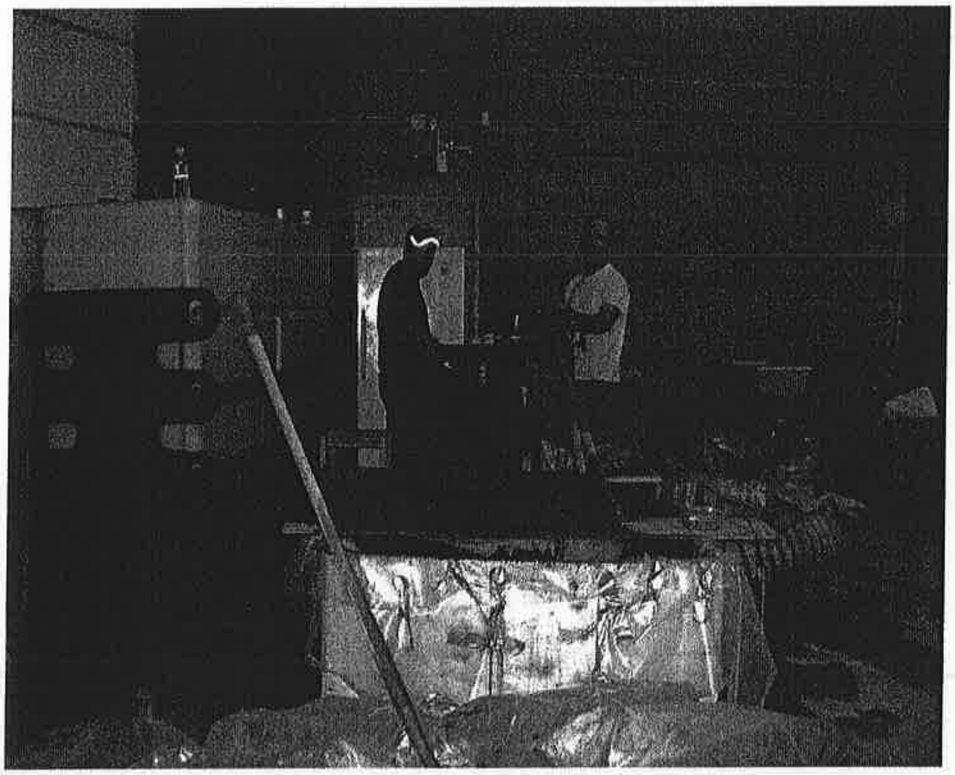


Figure 23.

Gravity Concentration Pilot Plant.

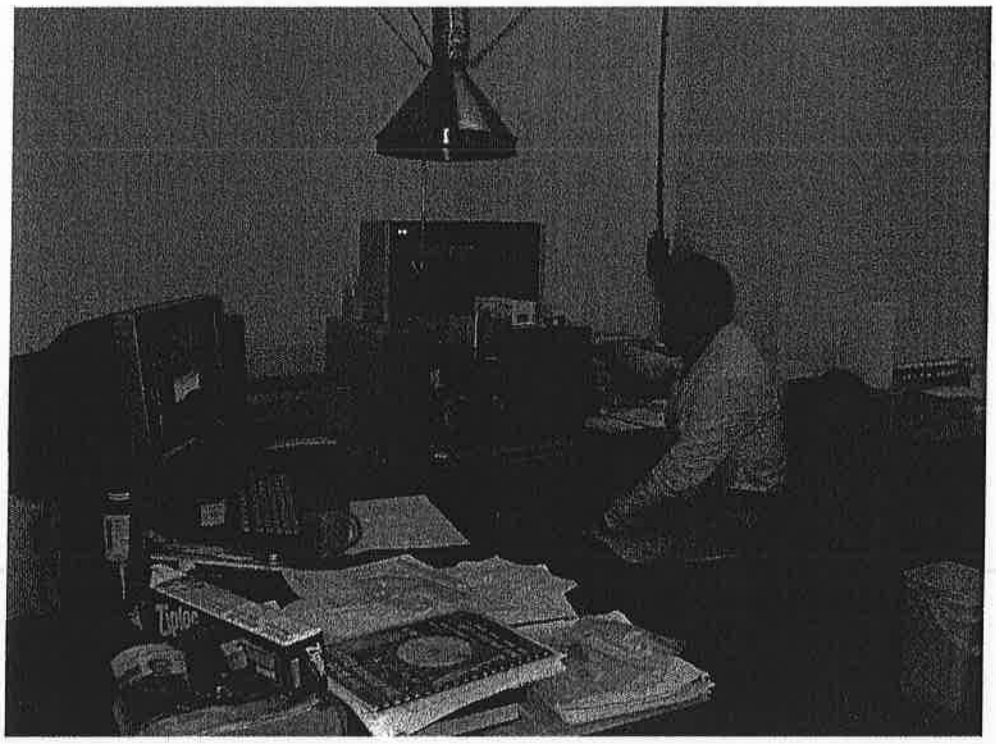


Figure 24.

Metallurgical Laboratory

MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

What follows are the definitions according to, Definitions and Guidelines. CIM Standards on Mineral Resources and Reserves, of what reserves and resources are.

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

A Mineral Reserve is the economically mineable part of a Measured or Indicated mineral Resources demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined.

Based on the above definitions, the values such as Gold, Silver, Platinum, Palladium, Rhodium, Ruthenium, Iridium, and Osmium in the Burwash Creek placer mining deposit, Yukon may be classified as solid inorganic material on and/or in the Earth's crust. The necessary data for the evaluation and estimation of the quantity and the grade or the quality, is such that it is ready for economic extraction.

The Burwash Creek Deposit has proven to be more consistent in its nature than the majority of other placer mines. The reason for this is due to the constant (approximately every 20 year flooding) that takes place on this watershed. The property being situated at the mouth of the furthest downstream canyon on Burwash Creek enriches the property yearly, in the channel that the creek runs in that particular year with the minor flooding that occurs yearly. However the Creek channel changes sometimes yearly with these floods and often moves across the whole valley when the 20 year flood hits, depositing the gold and other metals in the form of fines that it has washed out of the deposits higher up Burwash Creek. This property is the first chance for the flow to spread out and begin to settle thus depositing its rich load of heavy metals including noble metals that it has accumulated thru its charge down the length of Burwash Creek and its main tributary Tatamagouche Creek. Burwash and Tatamagouche Creeks have independent sources of gold a fact born out from the historic mining of each creek, which once the waters each carrying a load of heavy metals hit the lower canyons they are blended and this blended mix of heavy metals is deposited on this property. This ever changing deposition across the property is the reason for the very even distribution of gold values on the property. From surface to at least the 70 feet tested depth of the property it is still open to depth and bedrock has not been encountered in any of the testing or bulk mining to date. This even distribution of noble metals is a major difference between this Burwash property and most placer deposits.

Burwash Creek reserves calculations were prepared by Research Consulting Center, Richmond, British Columbia. Historical production and sampling reports have been combined with recent sampling efforts to produce a composite grade that fairly represents the potential for this property. The scope of this work includes mapping, drill, and bulk sampling data analysis, and reserve calculation. A map is drawn to scale showing mining workings and the outlines of the reserve blocks as well as the sample assay information. All suitable drill and bulk sample data and other sample-assay data was included in the evaluation of the reserves.

Moreover, some important assumptions, accomplished processing cost estimations, and applied specific grade calculations were done. Based on that the mining reserves calculation was implemented in March, 2013. That calculation was done for gold content only because for this value the data was most complete. The results of the calculations of the block volumes are shown in **Table 1**. The results of gold reserve calculation are shown in **Table 2** and in **Appendix B**. The location of the reserve blocks may be seen in **Figures 2 and 3.**

Table 1. Calculation of the Volume of Reserve Block (Claim)

	Length		**Width**		**Depth**		**Volume**	
	Meter	Feet	Meter	Feet	Meter	Feet	Cubic meter	Cubic yard
Block (Claim)	610	2,000	152	500	21.5	70	1,993,480	2,592,593

Total volume of ten ore blocks or claims is:

$1,993,480 \text{ m}^3 \times 10 = 19,934,800 \text{ m}^3$

2,592,593 cubic yard x 10 = 25,925,930 cubic yard

Table 2. Burwash Creek Gold Reserve Calculations

	Status	Grade Ounce per cubic yard	Gold Reserve		Volume, %
			Ounces	Kilograms	
Ore Block One Claim	Proven	0.2596	673,040	20,931.54	10.0
Ten Blocks Ten Claims	Proven	0.2596	6,730,400	209,315.40	100.0

INTERPRETATION AND CONCLUSION

It can be stated that Burwash Creek property has been tested in great details with very good results. It is also can be stated that property has enough pay-gravels in the first 70 feet to justify the ability to mining of this deposit for many years and it is still open to depth.

It must be stated that the property has a high water table and a conventional placer gravity plant will not have the ability to recover the fine and ultra-fine gold that is in this deposit. Therefore, the correct equipment must be used to excavate and then to recover the gold. The skyline excavator with its extremely low operating cost and ability to dig in dry or wet (under water) conditions is ideally suited for this deposit, then the conveying to the washing and classifying plant, with its nugget traps on each classification level, and then the containing and treating the remaining heavy concentrate small size fraction in a grinding and leaching circuit to liberate and recover the fine and ultra-fine gold.

Previous exploration efforts on the Burwash Creek property have concentrated on a series of surface samples that covered a significant part of the total surface of the ore material. It is the fact that all ten claims of the property were tested in detail from the surface to 70 feet and it is still open to depth because the bedrock was not reached.

The obtained results of analyses of the head ore, concentrates, and tailings material for precious metals as well as for platinum group elements varied slightly with sample location, methods of sample preparation, and type of analysis. That proves the deposit is fairly homogeneous in its gold and other metal distribution.

RECOMMENDATIONS

On the basis of the obtained data it can be recommended to continue mining the property with the most effective technology and equipment using the systematic technological and quality control for optimization the technological regimes.

In parallel with industrial process to continue the exploration works below 70 feet to bedrock for completing the exploration program and to complete the total reserve estimation of the Burwash Creek property.

Special attention should be paid for permanent quality control of all waste water and all mining wastes to prevent any contamination of natural water and soil. During the proposed mining, exploration, and evaluation of the valuable metals special attention should be paid to the grade and amount of possible dangerous elements such as arsenic, selenium, lead, mercury, and so on.

Any test results that could be used for quality control or industrial process should be repeated, checked, and statistically proved.

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SIGNATURE PAGE

This report titled PROPERTY GOLD RESERVES REPORT FOR THE JBSCH 1 – 10 PLACER CLAIMS, BURWASH CREEK, YUKON and dated November 30, 2013 was prepared for Northern Minerals Development Inc. and signed by the following author:

Dated at Richmond, British Columbia
November 30, 2013

Valery V. Zhuravlev, Ph.D., P.Eng.
Independent Consultant

PROFESSIONAL
PROVINCE OF
V. ZHURAVLEV
24871
BRITISH COLUMBIA
ENGINEER

CERTIFICATE OF QUALIFICATIONS

I, Valery J. Zhuravlev, do hereby certify:

1. That I maintain an engineering consulting practice at Research Consulting Centre, 3986 Broadway Street, Richmond, British Columbia, Canada, V7E 2Y2 and I am scientist and a professional engineer, providing consulting services to the mining industry.

2. That I am a graduate of chemical engineering program of Industrial University, Dneprodzerzhinsk, Ukraine and hold a Master's Degree in Chemical Engineering, granted in 1972.

3. That I have a degree of Doctor of Philosophy and hold a Ph.D. in Mineral Processing granted in 1982 at the same Industrial University.

4. That I have a title of Professional Engineer and I am a member of the Association of Professional Engineers and Geoscientist of British Columbia, APEGBC from 2000.

5. That I am a member of the American Institute of Chemical Engineers from 1991.

6. That I am a member of the American Chemical Society from 2005.

7. That I am an author of three patents and 24 scientific publications.

8. That I have practiced my profession applied to mining industry continuously for over 30 years and have examined and reported on numerous natural mineral deposits and artificial waste deposits throughout the world.

9. That I have read the definition of "Qualified Persons" set out in NI 43-101 and as a result of my experience, education, and registration, I am a Qualified Person as defined in NI 43-101.

10. That I am responsible for the preparation of the technical report PROPERTY GOLD RESERVES REPORT FOR THE JBSCH 1 – 10 PLACER CLAIMS BURWASH CREEK, YUKON and dated November 30, 2013. The information contained in this report was obtained from reports provided by Northern Minerals Development Inc., various public documents, and a visit to the placer mine property at Burwash Creek, Yukon. This information is to the best of my knowledge and experience correct.

11. That I am not aware of material fact or material change with respect to the subject matter of the technical report that is not reflected in the report, the omission to disclose which would make the report misleading.

12. That I am an independent Person as defined by NI 43-101.

13. That I have read National Instrument 43-101 and form 43-101F1 and this report has been prepared in compliance with NI 43-101 and Form 43-101F1.

Dated at Richmond, BC this 30th day of November, 2013

Valery J. Zhuravlev, M.Sc., Ph.D., P.Eng.