HOUSTON METALS - SILVER QUEEN MINE, OWEN LAKE, B.C.

February 1987

HISTORY

The property was discovered in 1912 in the Canyon above the camp and slightly to the north as you face uphill.

The No. 1 Vein outcropped in the canyon and a small adit was driven on the ore. By 1924 three adits were driven in the canyon.

In 1928 a full scale development program took place with the 2600 crosscut driven into the junction area of the 1-2-3 veins. This is about 200 feet past (east) of the shifters shack. A shaft was sunk on the Cole Vein located nearly one mile away from the 2600 crosscut. The plan was to have the shaft 500 feet below surface to meet the oncoming crosscut. The crash of 1929 terminated activity.

The property was examined and prospected over the years, eventually coming under the ownership of Canex (Placer Development) in 1941.

In the early 1960's Nadina Exploration was formed and optioned the claims from Placer Development. At the same time Frontier Explorations Ltd. was formed and optioned the adjoining Cole Lake ground from a Houston store keeper (Mr. Gould).

Nadina began a program of bulldozer stripping and underground development on the No. 1 Vein on the 2600 level and on the 2880 level in 1965 and 1966. The vein proved difficult to follow by drifting and the depth of oxidation on the southern extension of the main vein was not understood and the vein was thought to have faulted or pinched.

The enormous geochemical signature and gossans being uncovered in the southern area drew the attention of the porphyry copper prospectors swarming through the area in the 1960's.

In 1967 the property was optioned by Kennco and the entire area was mapped, geochemed and the areas of deep overburden were tested by I.P. and mag.

Five short widely spaced holes were drilled to test for porphyry copper occurrences and the property was dropped in 1967.

During this period the Cole Lake property was stripped and tested with a small diamond drill. The program was mainly concentrated on the Cole Vein.

Nadina began a vigorous program of underground development diamond drilling geological mapping and sampling from 1967-1970. Deep trenching in high geochem areas on the southend of the No. 1 Vein exposed the vein to the south (Ruby-No.4).

In 1970-1971 Northgate Exploration optioned both Nadina and Frontier's properties and began drilling 2,000 feet deep holes to test the dacite rhyolite interphase zone for massive sulphides using the model of the Lake Dufault deposit in Eastern Canada.

During this program a series of holes were drilled 250 feet below the 2600 level to test the No. 1 Vein (NG Vein series).

Frontier also drilled the Cole Vein to the 2600 foot level. The thousands of feet of drilling showed that there were veins throughout the property and that they persisted to great depth (1300 feet +).

Northgate dropped the option in 1971 as the price of Nadina shares had dropped below the option price and Nadina would not renegotiate.

A consortium composed of Bralorne and Pacific Petroleum optioned the property in 1971 and the Bradina Joint Venture was formed.

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The existing data was studied and a 500 ton per day mill was rushed into completion. The mine began production in 1975 with no further development work and very preliminary mill testing. The operation failed due to poor planning and bad mine operating practice in 1976.

During this period Frontier did detailed EM surveys and further drilling on the George Lake lineament Vein.

In 1977 Frontier optioned the Nadina ground and began a program of wedging off, the deep Northgate holes. The drilling established the persistance of the veins to great depth, but faulting made recovery and interpretation difficult.

During this period 1977-1980 Nadina was reorganized to form New Nadina and Frontier became New Frontier Petroleum.

New Nadina began a period of surface trenching, underground rehabilitation and underground diamond drilling. The vein in the south end of the property was drilled off, on 100 feet centers; 250 feet below the 2600 level. Surface diamond drilling established the NG 3 Vein in the south end of the property over 1,000 feet in length and to a minimum of 1300 feet of depth.

Detailed studies and accumulation of Bradina data coupled with detailed surface and underground drilling of the silver gold ores in the south end of the No. 1 (Ruby No.4) Vein occupied the period from 1980-1984.

In 1981 Bulkley Silver Resources optioned the mineral properties of New Frontier Explorations Ltd. and began a program to drive the long crosscut to the Cole Vein. As in 1929 the stock market crashed and the drift only advanced 200 feet. The 20 man camp and buildings you see today are a legacy of that period.

During 1982-1984 New Nadina drilled to test for parallel veins in the south end (Alimak) area of the No.1 Vein.

An airborne EM survey flown by Noranda-Granges showed a strong conductor near the Chisolm shaft in 1983.

A wildcat hole drilled near the Chisolm shaft area cored a breccia zone assaying 6-7 oz.per ton silver over 20 feet.

Bulkley Silver optioned the ground in 1984 and drilled a structure passing from the Chisolm shaft under the tailings pond and mill. This "Twinkle" zone proved to be a strong mineralized shear zone but no ore grade matter was encountered.

During this period the north end and Cole Lake zinc veins were sampled to see if the veins may contain any other minerals or metals to increase the value of the ore.

Bulkley Silver dropped the option and New Nadina cleared up-the No.1 Vein 2600 north drift to expose the zinc vein. This vein had been advanced in the last phase of the Bradina days and did not show on the then existing maps. A large cave blocked access and only by going down the second exit and wading through chest deep water did New Nadina become aware of the exposure.

The samples of zinc ore taken in the fall of 1984 were assayed in the spring of 1985 and returned extremely high gallium assays. These were checked and found to have reduced gallium but also good germanium.

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The property was re-optioned by Bulkley Silver in early 1985 and the No. 1 Vein north 2600 level was cleared to the north face and bulk sampled.

A large excavator trenched the zinc veins on the property and the large samples were crushed and split in a program to determine the economics of the gallium germanium in the zinc ores.

During this period New Frontier Petroluem went into receivership and Bulkley Silver Resources and Cater Energy Ltd. amalgamated to form Houston Metals Corporation. The original New Nadina-Bulkley option was changed to New Nadina-Houston Metals.

In October 1985 a million dollar program to develop the southern gold silver ores and further test the rare metal content of the zinc ores began. The one million dollars will be expended by March 1, 1987 and an additional 2 million dollars of financing is being secured.

GEOLOGY

The Owen Lake Camp is underlain by volcanic breccias, ash fall tuffs, crystal tuffs and flows. The rocks range in composition from andesitic to rhyolitic with dacitic composition being the commonest surface outcrop.

The south end area near the Alimak-Beaver Pond area is almost certainly the location of a major vent. The presence of diatremes, rhyolite dykes, and flows and coarse mosaic breccias all lead to the suspicion that a major vent is located there.

The rocks are chaotic in distribution in the south end but generally a shallow dip to the east is noted in the camp.

The rocks in the top of the section are andesite flows and dykes (microdiorite) which when fresh are black glassy and unmineralized. There appear to be multiple stages of these and the early andesite units are altered to a greenish groundmass with fine euhedral phenocrysts of feldspar. When intensely altered these units are visually similair to the andesitic crystal tuffs. These rocks are probably flows, welded tuffs with occassional fragmental zones.

The lower area beneath the camp to the Alimak Raise and beneath the large hayfields is composed of rhyo-dacite breccias and dacite feldspar porphyry. The area is intensely altered with 10% disseminated and fracture filling pyrite, kaolinization of the feldspars and a general bleaching of textures. Occassionally weathered core units that have been logged as feldspar porphyry show relic breccia texture. The entire pile is so chaotic that proximal vent - vent breccia is used to designate the area.

The age of these units and the vent is probably early tertiary related to Ootsa Lake group volcanic activity.

The ridges to the east and south of the mine are covered with tertiary plateau basalts.

The best host for the gold silver ores is the rhyolite breccia zones enclosed in the dacitic rocks, occassionally these zones show stratiform mineralization.

The target that appears the most important in the camp is manto type where a mineralized shear or fault encountered the preferred rhyolite breccia and a minerlized bed or zone would host a Delamar type bedded deposit of large tonnage. The shear zones themselves have great length and width and it is easy to visualize a significant ore zone in these shears.

MINERALIZATION

The veins are zoned north to south and east to west. The north and east veins are low gold silver and high in zinc rhodochrosite gangue. The south and westerly veins are higher in gold silver pyrite and are generally finer grained and more refractory to milling. The rare dispersed metals are occurring in the interphase between the gold silver ores and between the very low silver mainly gangue (rhodochrosite) veins at the upper end of the system. There appears to be some telescoping with late and early stages occurring in opposing zones.

The veins are vein faults with many stages of movement, often stacking takes place and a wide section of vein may be seen to be one section piled into one thick zone. These varying stages of opening may account for the telescoping.

The veins are generally steep, 65 degrees average dip to the east and strike north-south, the average width is 4 feet with many sections over 10 feet. The vein fault averages 65% mineable ore shoots which can be up to 900 feet long in one continuous ore shoot. The depth of the ore shoots is not known.

There are at least 12 major veins on the property with dozens of minor veins.

The main minerals are sphalerite, chalcopyrite, galena, tetrahedrite, tennantite, hematite, pyrite, rhodochrosite, chalcedonic quartz, barite with locally minute amounts of pyrobitumen.

The gallium, germanium, and indium report to a zinc concentrate but these studies are just beginning.

STRUCTURE

The property is cut by a series of north south faults which are mineralized. These appear to repeat every 2,000 feet. A series of EW structures (Wrinch Canyon-Beaver Pond draw, etc.) cut these structures making a large net of faulting.

The veins are faulted along strikes. This movement is pre and post ore making many false ore shoots for the miner when drifting. The veins occur roughly en echelon along strike and cymoid loop structures are common.

The veins are difficult to prospect for by drilling, but can be easily drilled off when an ore shoot is established.

The area has many postmineral dykes of trachytic composition varying in width from 3 feet - 30 feet. These dykes often cut the vein and occassionally follow within a vein.

The dip of the volcanic pile is about 10-15 degrees east with a northeast strike.

The rocks from Westegarde's Lodge to the Chisolm shaft are deep in the section of rhyo-dacites. The Cole Lake rocks are dacite to andesitic and would be equivalent to the north end of the 1-2-3 veins where they are nearly barren. The grade 500 feet below these would be increased 10 fold. The Cole vein assayed 3-6 oz.per ton silver at surface assayed 48 oz.per ton silver at 500 feet of depth.

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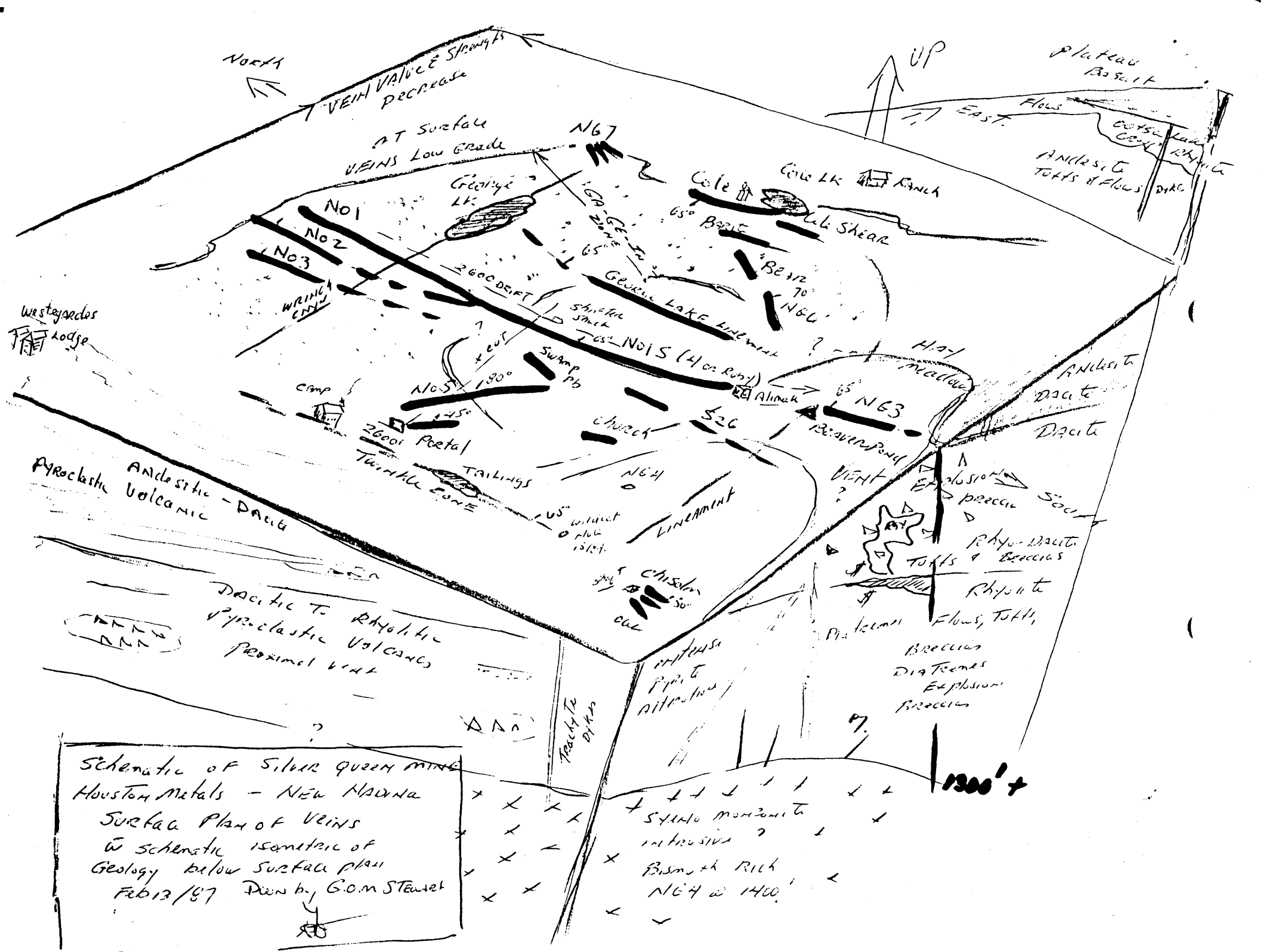

Schematic of Silver Queen Mine
Houston Metals – New Mexico
Surface Plan of Veins
& schematic isometric of
Geology below Surface plan
Feb 13/87 Drawn by G.O.M Stewart