REPORT OF RECONNAISSANCE DRILLING
on
COFFEE CREEK

KOUGAROK MINING DISTRICT, ALASKA

From 15 June to 22 June 1997, Lohman Mining and Commercial Co. drilled 58 holes on patented mining claims (MS 1875 & MS 1144) located on Coffee Creek within the southern part of the Kougarok Mining District of Alaska. This same mining company owns the mining claims and desires to expand their knowledge of the mineral content of their property and its potential for development. Lohman Mining contracted Thrasher & Assoc. (of Nome) to do the drilling and consulted J.O.Keener (NordWand Ent. of Fairbanks) to collect, process and analyze the samples.

Sampling Procedure

Uncased holes were drilled with a self-propelled, rubber tracked Mayhew 1000. This is an air-rotary, normal circulation drill with air pressure supplied by a 350 to 400 cfm compressor. No water was used to float chips. All holes drilled in virgin ground were frozen from the surface to the bottom of the holes. Holes drilled in tailings (T1 - T4) encountered thawed, dry gravel and bedrock. Drilling conditions were very good, however, the abrasive and resistant nature of the quartz-rich gravels consumed drill bit blades at a rapid rate. Initially, 6-inch blades were used, but were switched to 4 3/4 inch blades part way through the program (Line 97-5) when the last of the 6-inch blades were used up. Several equipment failures occurred, requiring a shut-down of two days duration.

In normal-circulation, the center of the single-wall drill pipe is pressurized with air, which blows the chips at the face of the bit out of the hole through the space between the drill pipe and the hole wall. A dust deflector, placed above the collar of the hole diverts the chips onto the ground and around the hole. For this project, muck sections were drilled straight through without sampling until sands or gravels were encountered. Samples of gravel and bedrock were collected by stopping the rotation of the drill, clearing out the muck around the hole and then placing tarps around the hole and under the dust deflector and proceeding to turn the drill. At the conclusion of the sample interval, the drill is stopped and the collected sample was transferred from the tarps into sample bags, to be transported to the sample concentrator.

Without doubt, there is a loss of sample during this process. The most likely sources of loss occur in the hole where chips are either plastered against the irregular hole wall as they are being blown out or are blown under the vegetation mat, which sometimes detaches from the underlying muck. In addition, considerable chips are lost outside the hole by blowing-by the tarp and being lost to the tundra vegetation. Various efforts were made to recover as much of the sample as was practical, however, some

improvements to this method of collection is recommended...perhaps a more effective dust deflector and casing the upper 5 feet of the hole would improve recovery.

The volume of each sample was measured with 5 gallon and 2 gallon buckets. A visual estimate was made of fractional amounts to the nearest 1/2 to 1/4 gallon. Initially, the sample concentrator (EZ Panner) was transported with the drill rig on an auxiliary tracked vehicle (Yukon) to enable processing of the sample concurrent with drilling. This allowed immediate feedback on the mineral content of the ground and was very helpful in on-the-spot decisions about the progress of the drill pattern. A disadvantage with this procedure was that samples were measured frozen; therefore an unknown, but large swell occurred due to varying amounts of ice and chip size. This resulted in sample volumes that were much greater than the theoretical volumes of an ideal cylinder (with an assumed 125% swell for gravel).

Part way through the program, the auxiliary Yukon "swallowed the anchor" and was trucked back to Nome. The EZ Panner was set up in a stationary location next to the camp and samples were transported from the field to the EZ Panner and allowed to thaw. The volumes of thawed samples were considerably less than the theoretical volumes (including 125% swell). The average recovery for all the frozen samples allowed to thaw is 48% of an ideal "swelled" cylinder. Based on observations, it is assumed that about 25% of a particular sample volume is lost to blow-by or wall-loss and an additional 25% to 50% is lost to melted ice seeping out of the sample bags. The assumption seems reasonable when compared to those holes drilled in thawed tailings (T1 - T4) where the average recovery is 78% of an ideal "swelled" cylinder. It may also be observed that recoveries generally diminished as the hole got deeper. This may be seen in holes where more than one sample was collected.

The variability of recovery is a critical factor in estimating the value of sample based on a unit volume (ie. $ per cubic yard). Because of broad assumptions and high variability of ice content, values based on a unit volume are not presented here. Rather, a value for a unit area (cents per square-foot of bedrock...cents/b-f) is presented for each hole that yielded more than a trace of visible gold.

After measuring the volume of a sample, it was concentrated with an EZ Panner which is composed of a hopper, a vibrating screen and an oscillating sluice. A Honda pump, powered by a 3 horsepower motor, supplied adequate water under pressure to give a thorough wash of the sampled material. Pan samples of the sluice tailings indicated occasional losses of very fine colors of gold, however, it is thought that a good recovery was made of visible gold and other heavy minerals. The sluice concentrate was then washed into a large gold pan and panned down to the colors, which were picked out with a dry fingertip and transferred to a small sample vial. The accessory heavy minerals and their relative abundance were noted and discarded. If only a trace of gold was recovered (eyeballed, but generally less than a dozen very fine particles) it was noted as a "trace" and also discarded. Samples of gold were then rinsed in lab-grade alcohol, dried and cleaned of all impurities. Weigh-ups were accomplished with a Haigis Pocket Scale, capable of weighing to the nearest 1 milligram. Gold samples were then placed in a clean and dry sample vial and returned to Lohman Mining.

Values for holes with more than a trace of gold were calculated by multiplying the mass of gold recovered by the inverse of the area of the hole and then converting to troy ounces and finally multiplying by 85% purity (850 fine) and by spot gold priced at $350 per troy ounce.

Cross-Sections

All the data gathered in the field are compiled on maps (sent to Lohman Mining, 26 July 1997) and cross-sections included with this report. Cross-sections are drawn with profiles perpendicular to the stream flow and looking downstream. Generally, they are drawn to a horizontal scale of 1" = 50' and a vertical scale of 1" = 25', thus a 2:1 exaggeration. Note that the actual distances between holes and depths down-hole are presented to further detail results. The cross-section for the holes drilled in tailings are shown in profile parallel to the direction of streamflow....horizontal scale is not standardized, however vertical scale is 1" = 25'.

Abbreviations are used and are listed below:

Stratigraphic Cross-Sections ---

Mk.....	Muck
Slt.....	Silt
Snd....	Sand
Sld.....	Slide (colluvium)
Gvl.....	Gravel (alluvium)
Qz.....	Quartz
Qzy.....	Quartzy (quartz rich)
Pbls.....	Pebbles
Cbls.....	Cobbles
Blk.....	Black
Tn.....	Tan

Sample Result Cross-Sections ---

Tr.....	Trace of Gold
mg.....	milligrams
c/b-f.....	Cents per square-foot of bedrock
S1.....	Sample 1 (Sample 2, etc.)
Hole #.....	Hole Number
Smpl #.....	Sample Numer
M. Vol (gal.).....	Measured Volume in gallons
T. Vol. (gal.).....	Theoretical Volume in gallons (swelled 125%)

Discussion

As a result of the 1997 drill program, much has been learned about the placer deposits that occur along Coffee Creek. The unconsolidated deposits may be seperated into three geomorphologic regions....the upper basin, the middle canyon and the lower slope.

Upper Basin..... The upper basin is composed of two relatively symmetric valleys (Camp and Coffee Creeks) in which intermittent first order and juvenile second order streams have intrenched into dominantly colluvial, depositional valley fill. Sorting and concentrating is hampered by low stream gradient and semi-arid conditions. Gravels are angular and poorly sorted and generally lack the rounded quartz cobbles that occur commonly further downstream. It can be difficult to tell from drill chips when the drill bit passes from gravel into decomposed bedrock, as the gravels are composed almost exclusively of the underlying bedrock.

Placers in the upper basin are comprised of eluvial placers (historical accounts) and small stream placers, where one may grade into the other. Streaky and narrow gold placers were found on both Camp Creek and upper Coffee Creek as a result of the 1997 program. Gold particles are angular, hackly and appear newly liberated from ore rock. Where gold was found, bedrock or base of pay was 15 to 25 feet below the surface. Bedrock is composed of black slate and quartz-muscovite schist. Bedrock is generally decomposed to a depth of two to four feet, however, in places, the quartz-muscovite schist was decomposed to a clay to an unknown depth. One hole (L97-3, H-Z) was drilled to a depth of 76 feet without encountering gravel or bedrock. It may be found that the bedrock floor of the upper basin is relatively flat between the two creeks. Numerous man-made disturbances were observed; the majority of which were shallow ditches and tundra drains. Some indications of prospecting with shafts were seen, but no great amount of material was brought to the surface. Bedrock is exposed nowhere in the creek bottoms.

Middle Canyon..... Camp Creek and Coffee Creek merge near the lower edge of the upper basin and form a third order stream of steeper gradient and greater energy, enabling it to cut a canyon into bedrock. It is in this regime that the competency of the stream to sort and concentrate gravel is enhanced. This part of the creek was drilled by Thurman Oil and Mining in 1995. Bedrock is a deeply decayed tan, quartz-muscovite schist and may afford a poor bedrock to trap and concentrate gold. This program did, however, demonstrate that a quartz rich channel occurs along the left limit of and 200 feet from the present creek. This channel is well exposed in a small cut at the confluence of Wonder Gulch and Coffee Creek. Near this junction the bedrock changes to a more competent, near-vertically dipping slate that is an excellent trap for gold. There is also strong evidence that a dominant source of primary gold exists near the head of Wonder Gulch.

The gravels through the ancient canyon become more rounded and more sorted as they are transported downstream. Rounded quartz cobbles become very common. The valley is asymmtric where the right-limit or south wall is not as steep as the left-limit. It may be found that thin gravels mantle the lower slopes of the south wall below Coffee Dome and may be remnants of an ancient fan deposit. Mining has been continuous

through the ancient canyon from Wonder Gulch downstream for 2 1/2 miles. Most of the mining took place in the present creek bed and on discontinuous low-level, right-limit bench deposits; however, two small tributaries that cut through the south wall have also been mined for short distances (Dome Creek & Eagle Draw). The gravels exposed in mine cuts in these two minor drainages are rounded, oxidized and generally similar to the gravels of the canyon rather than angular like the immature deposits of the upper basin. This observation tends to support the idea that higher level and older gold-bearing gravels, characterized by rounded quartz pebbles and cobbles, may occur well to the south of the present creek and are being re-concentrated by modern "pups".

Lower Slope..... Systematic mining ceased at the mouth of the middle canyon. This marks the head of a more recent fan deposit (the lower slope) which lower Coffee Creek is actively downcutting. Stream gradient flattens and the stream environment is more of a depositional nature with occasional concentrating events. The gravels are more mature, finer-grained, contain a large number of round quartz pebbles and overly a clay bedrock. The clay bedrock of this part of Coffee Creek and other nearby creeks has been somewhat of a mystery ever since discovery. It appears to be deeply weathered and perhaps hydrothermally altered muscovite schist, perhaps bounding a large fault zone. Lower Coffee Creek is subject to stream capture here, turning north to join Quartz Creek before emptying into the Kougarok River valley. This feature may also be fault related.

Some gold was found near the creek on both limits of the creek, but the most significant find was that gold-bearing gravel benches occur well up the hill on the left-limit, above the point of capture near Whelan Creek. Depths to the top of clay bedrock range from 11 to 43 feet, but where gold was found, clay bedrock was about 30 feet below the surface. The placers in this region are likely to be patchy rather than continuous or streaky. The heavy mineral content changes downstream, where fine-grained garnet becomes more dominant than iron minerals; yet it is noted that garnet is widespread, but goethite (iron hydroxide) is concentrated with gold. Goethite is a weathering product of pyrite and occurs as dense, brown nodules and nuggets. Mining along the lower slope is limited to two well developed tundra drains, some well-exposed prospect shafts and several other shallow ditches and excavations. It is doubtful that either of the big tundra drains reached much deeper than the top of the gravel benches.

Considering the factors that have lead to the distinct geomorphologic regions, it is likely that graben related faulting has resulted in several episodes of downcutting and slopeside deposition. Simply put, the Kuzitrin Basin is sinking, slipping down along a normal fault zone that trends north through MS 1144. Over time, an extensive wedge of quartz gravels have developed on top of the fault zone. The gravels are anomolous in gold and is well studied at other localities, given the name Kougarok Gravel and assigned a relative age of Pliocene to Pleistocene. The Kougarok Gravel is, in theory (fact?), one of the larger resources of placer gold in the state. Nokleberg and Bundtzen (et al in USGS Bull-1786, p. 74) estimate the resource at 3 million ounces contained in 850 million cubic yards of gravel. Although there is a commonly regarded notion that buried, ancient high-grade channels may be found within the Kougarok Gravel, the theory remains largely untested.

Recommendations

More exploration drilling is required to further understand the extent of the gold placers found during the 1997 program. Bulk samples are also needed to verify or gauge the accuracy of the drilling. It is recommended that in 1998, exploration trenches be placed in several locations to obtain larger samples and to gather more detailed stratigraphic observations. This may be accomplished by contracting A & L Mining to cut the trenches with their mid-sized excavator. Ideally, the excavator would be equipped with a frost bucket (and plenty of extra frost-teeth) and be capable of digging to a depth of 26 feet. On Line 97-1, a trench should be cut on either side of the creek, between H-A & H-B and between H-1/2 & H-2. Samples of at least one cubic yard should be obtained from each trench and concentrated with a small washplant. Similar trenching is also suggested on Line 97-3, H-1 (or Line 95-4, H-2). It is highly recommended that the bench placers on the lower slope be trenched as well. This may be most easily accomplished by trenching in the old tundra drain alongside Line 97-10, where most of the muck has been previously removed. A method should be developed by which to measure the amount of ice contained in the samples. This may be done by placing the sample in a tub (or tubs), measuring the frozen, swollen volume, allowing it to thaw, and then measuring the amount of water and the volume of thawed material within the tub.

If the trenching program yields positive results and a fudge factor can be developed from the process to apply to the 1997 drill program, then further drilling is recommended. The same method of measuring ice may also be employed with the drill samples. Another method of drilling may also be contemplated, although the Mayhew 1000 used in 1995 & 97 has demonstrated that it is quick and relatively inexpensive. The availability of other drills may be problematic.

In conclusion, much has been learned about the placer deposit on Coffee Creek. The 1997 drill program was accomplished within a reasonable budget and resulted in several placer gold targets to explore further. This program is a positive indication that more exploration may be done effectively and should be undertaken when possible.

This report is respectfully submitted to Lohman Mining and Commercial Co. by :

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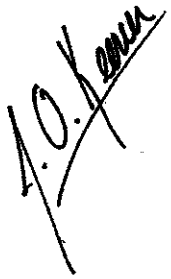
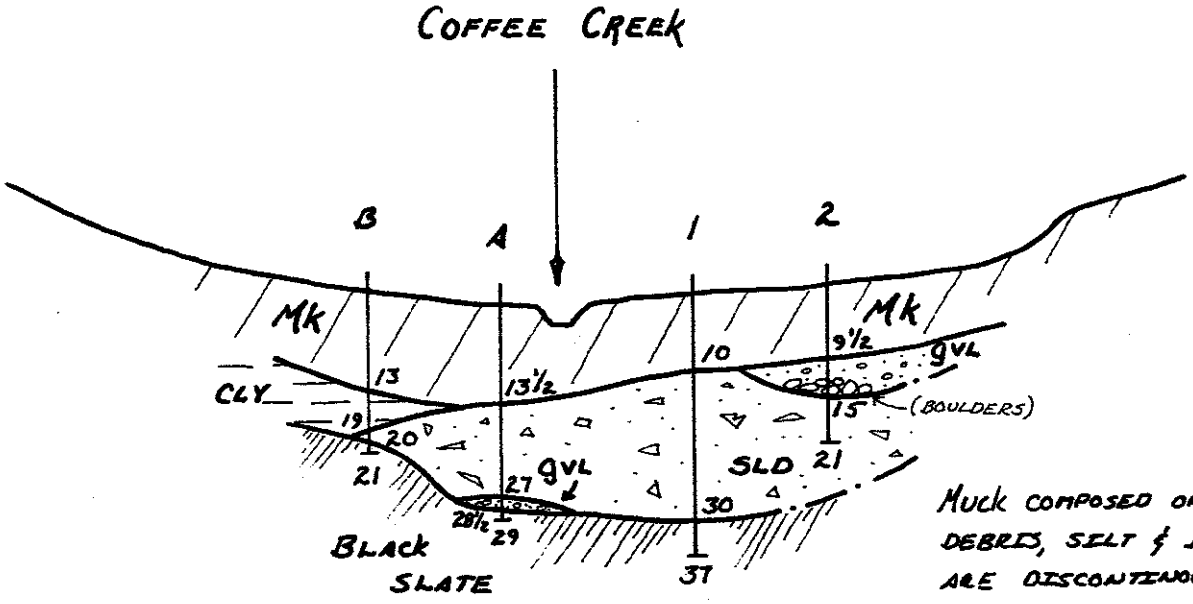
19 December 1997



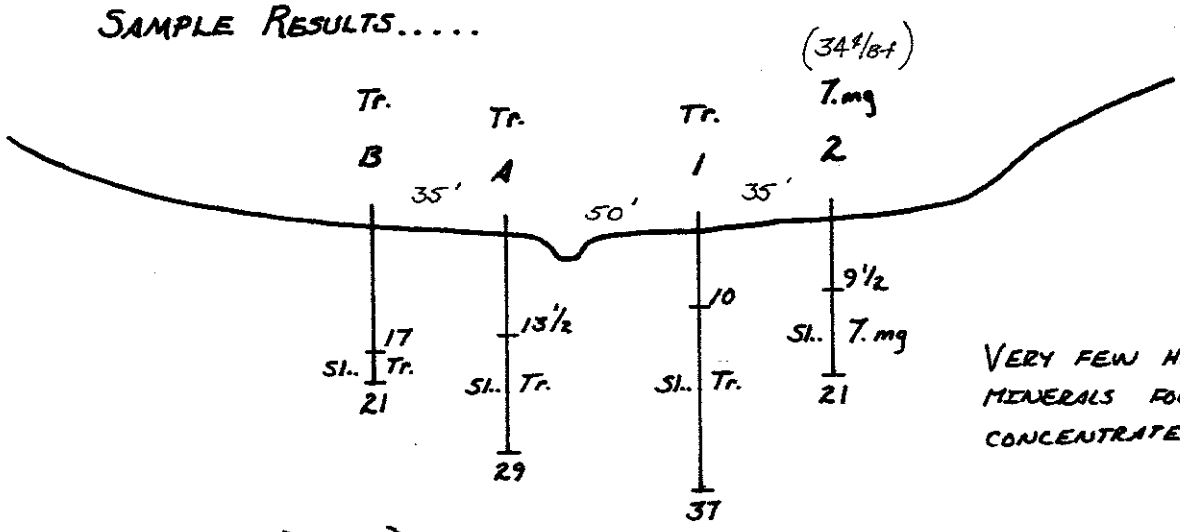
EAGLE ASSOCIATION.....MS 1875 LINE 97-2

STRATIGRAPHY.....



MUCK COMPOSED OF ORGANIC DEBRIS, SILT & ICE. GRAVELS ARE DISCONTINUOUS... BEARU GRAVELS REST ON SLIDE FALSE BEDROCK.

SAMPLE RESULTS.....

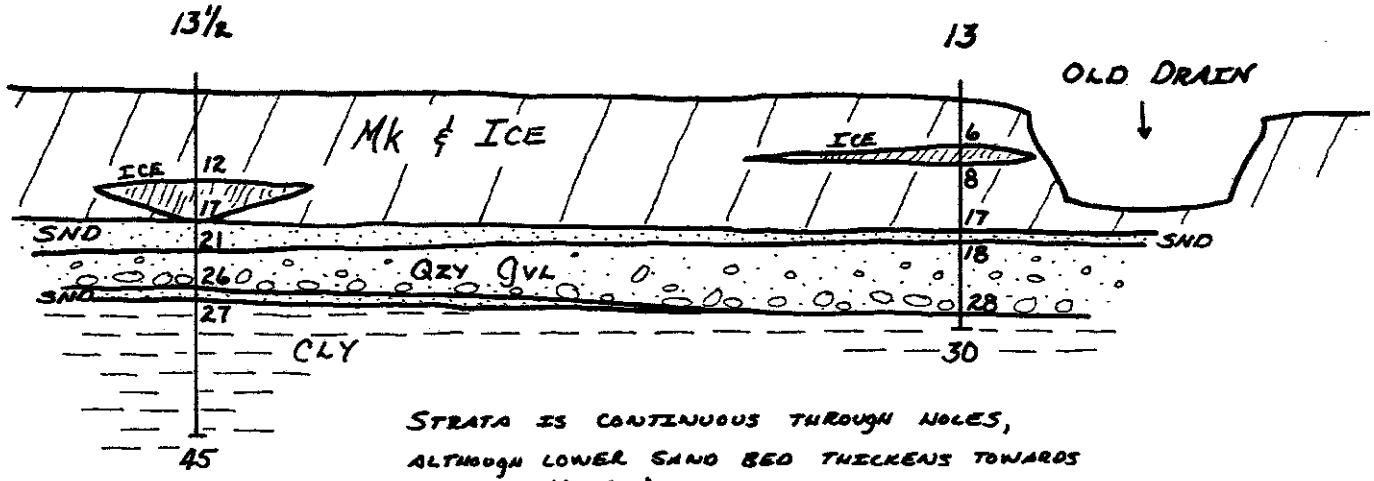


VERY FEW HEAVY MINERALS FOUND IN CONCENTRATE.

HOLE #	SMPL #	M. VOL. (gal.)	T. VOL. (gal.)	RECOVERY
6" DIAM. B..	1..	15.	7.4	202 %
A..	1..	35.	28.4	81 %
1..	1..	75.	49.6	151 %
2..	1..	18.5	21.1	88 %

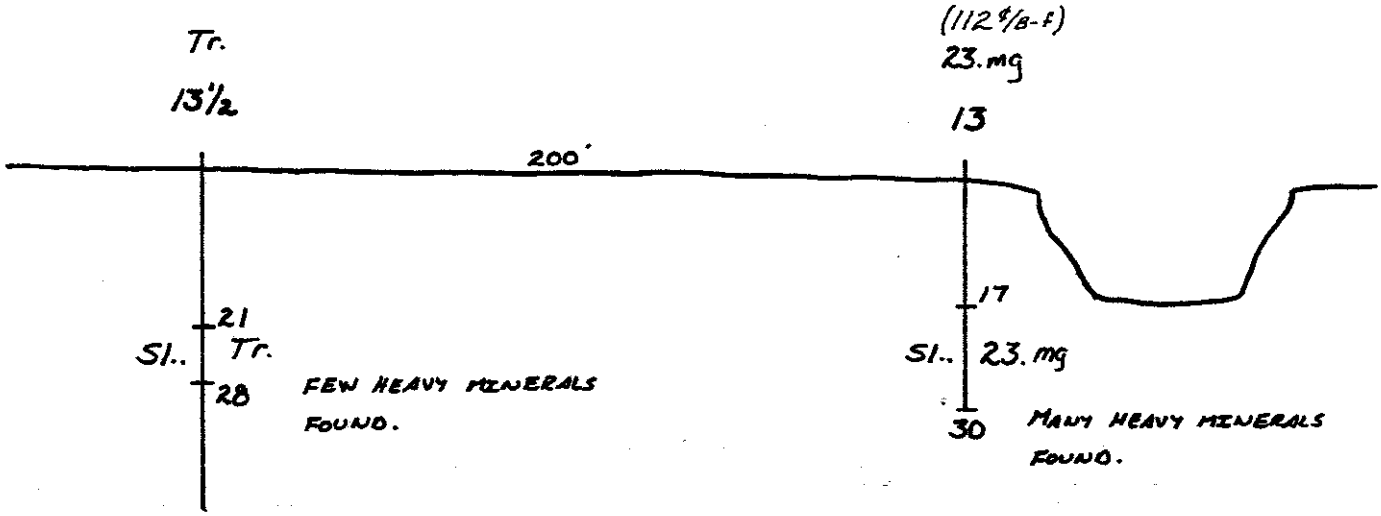
MEASURED FROZEN

STRATIGRAPHY.....



STRATA IS CONTINUOUS THROUGH HOLES, ALTHOUGH LOWER SAND BED THICKENS TOWARDS HOLE 13½ (W).

SAMPLE RESULTS.....



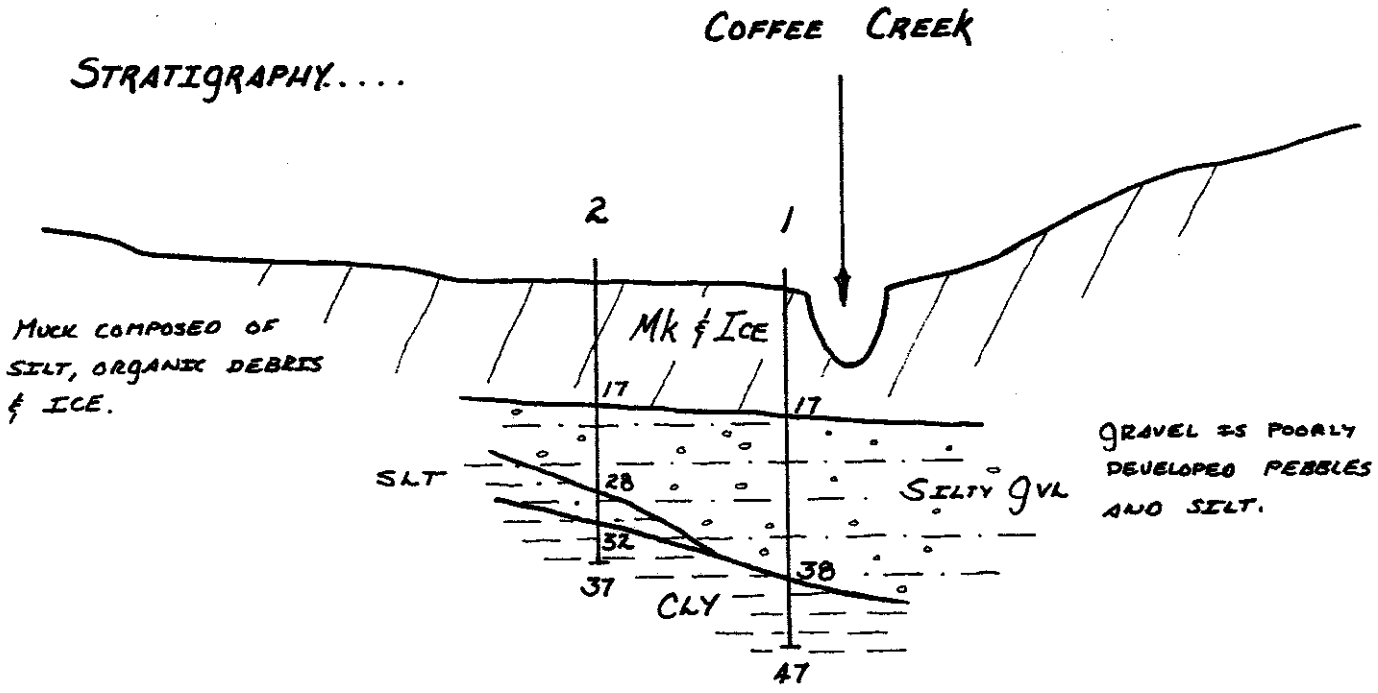
HOLE 13½.. 4¾" DIAM.
SMPL #1 ..
M. VOL ... 5.0 gals.
T. VOL ... 8.1 gals.
RECOVERY = 62 %

HOLE 13 .. 6" DIAM.
SMPL #1 ..
M. VOL ... 18.0
T. VOL ... 23.9
RECOVERY = 75 %

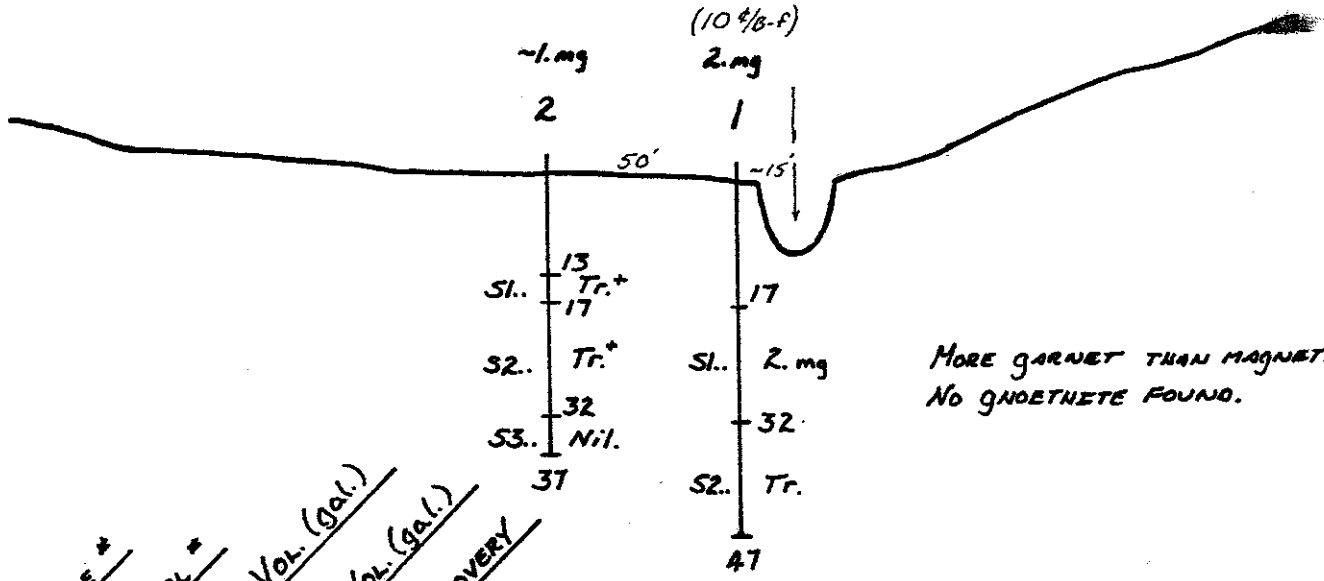
← MEASURED THAWED →

SKIDOO ASSOCIATION — LINE 97-15

STRATIGRAPHY....



SAMPLE RESULTS.....



	HOLE #	SMPL #	M. VOL. (gal.)	T. VOL. (gal.)	RECOVERY	
6" DIAM.	1..	1..	30.0	27.6	109 %	MEASURED FROZEN
		2..	30.0	27.6	109 %	
	2..	1..	11.0	7.3	151 %	
		2..	40.0	27.6	145 %	
		3..	10.0	7.4	135 %	