Surprise Lake copy
86-293 - 15062

Rotary/Percussion Drilling Report

Shuksan Property

Atlin Mining Division

N.T.S. 104N/11 and 12

59°34'N, 133°30'W

FILMED

Owner: Surprise Lake Exploration Limited Partnership

Operator: Placer Development Limited

R.A. Boyce
9 May, 1986

TABLE OF CONTENTS

LIST OF FIGURES

Introducton:

Rotary drilling was undertaken on the Shuksan property, Atlin district, in early October, 1985. Eight holes were drilled to test for gold mineralization in bedrock and for gold dispersion in overburden reflecting the eroded top of a deposit. Total depth drilled was 175.3 metres. Bedrock samples were analyzed for Au, As, Cu, Zn and Ag. Overburden samples were analyzed for a large suite of elements. Also, Pt and Pd were tested on selected samples. Carbonate alteration was recorded in ultramafic bedrock in two holes, one of which corresponded with elevated As values. No significant values were received in precious metals. Further work is recommended.

1.1 Location and Access

The Shuksan property is in the Atlin district of northwestern B.C., about 50 km. south of the Yukon border. It lies within the valleys of Spruce Creek and Dominion Creek; Spruce Creek is tributary to Pine Creek. The property lies twelve km. east of Atlin townsite.

Access is provided by the all-weather Spruce Creek road, which branches from the main Surprise Lake Road, about 6 km. east of Atlin. Other roads on the property are dry-weather or four-wheel drive only. Total road distance from Atlin is about 20 km, to the area of drilling in the western part of the property.

1.2 Physical Features

The Shuksan property lies in the valley of Spruce Creek and tributaries, and on lower mountain slopes. Spruce Creek valley is broad and gentle over most of its course within the claim block. A considerable a gorge has been eroded downstream from the claim block. Dominion Creek runs in a gorge from its source, but flattens on approach to Spruce Creek. The gentle valley slopes abruptly contact moderate to locally steep mountain slopes, indicating change from valley fill to bedrock/talus/felsenmeer slopes. This contact occurs at 1220 m. elevation on the north wall of the valley, and 1250 m. on the south side. Outcrop is restricted to the mountain slopes and locally in the creek bottom. Total relief on the property is about 600 m.

Most of the property is covered in immature to mature forest of mixed conifers. Aspens predominate on rocky slopes and buckbrush is prevalent in areas of poor drainage. Treeline occurs at approximately 1300 m. elevation.

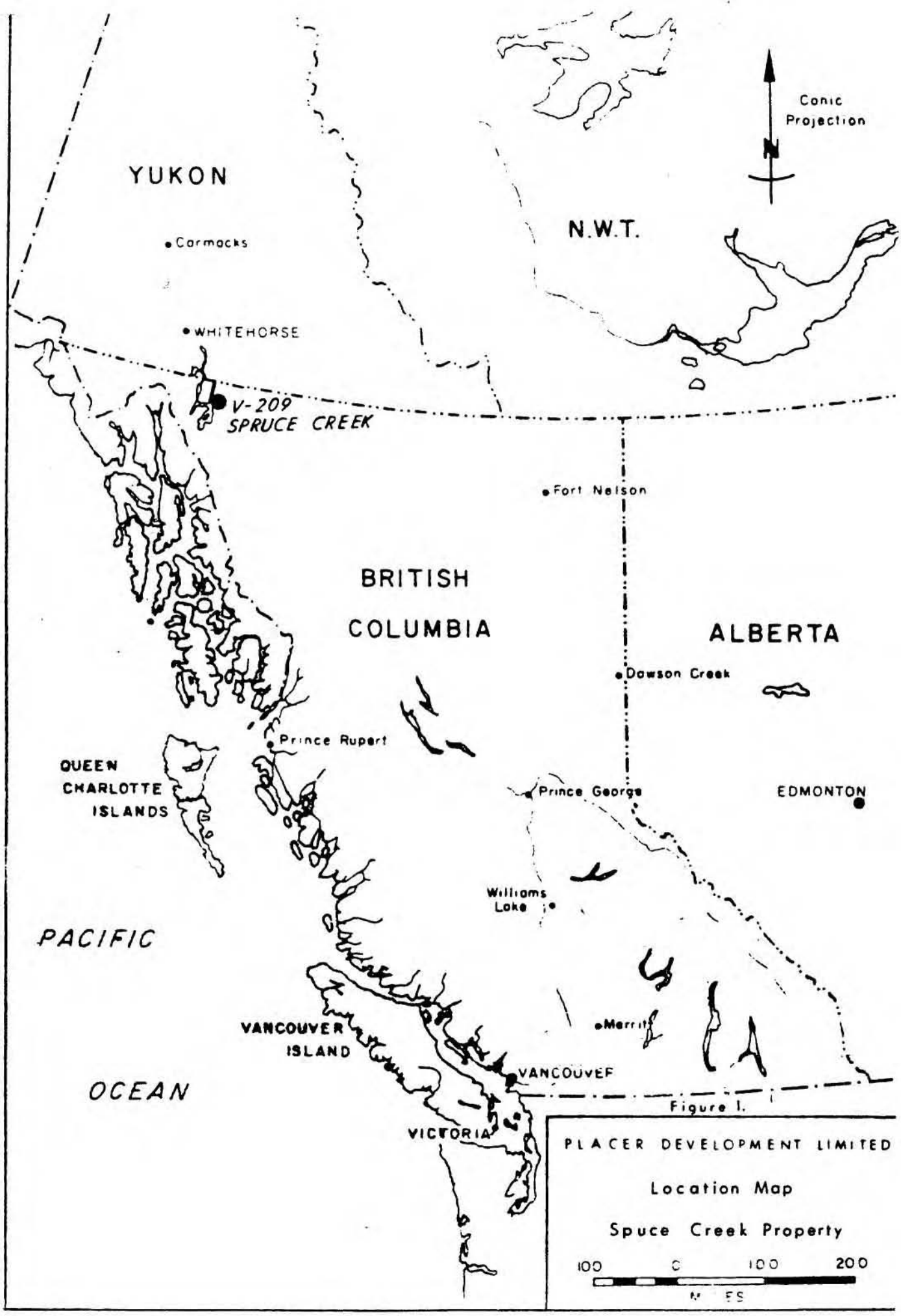
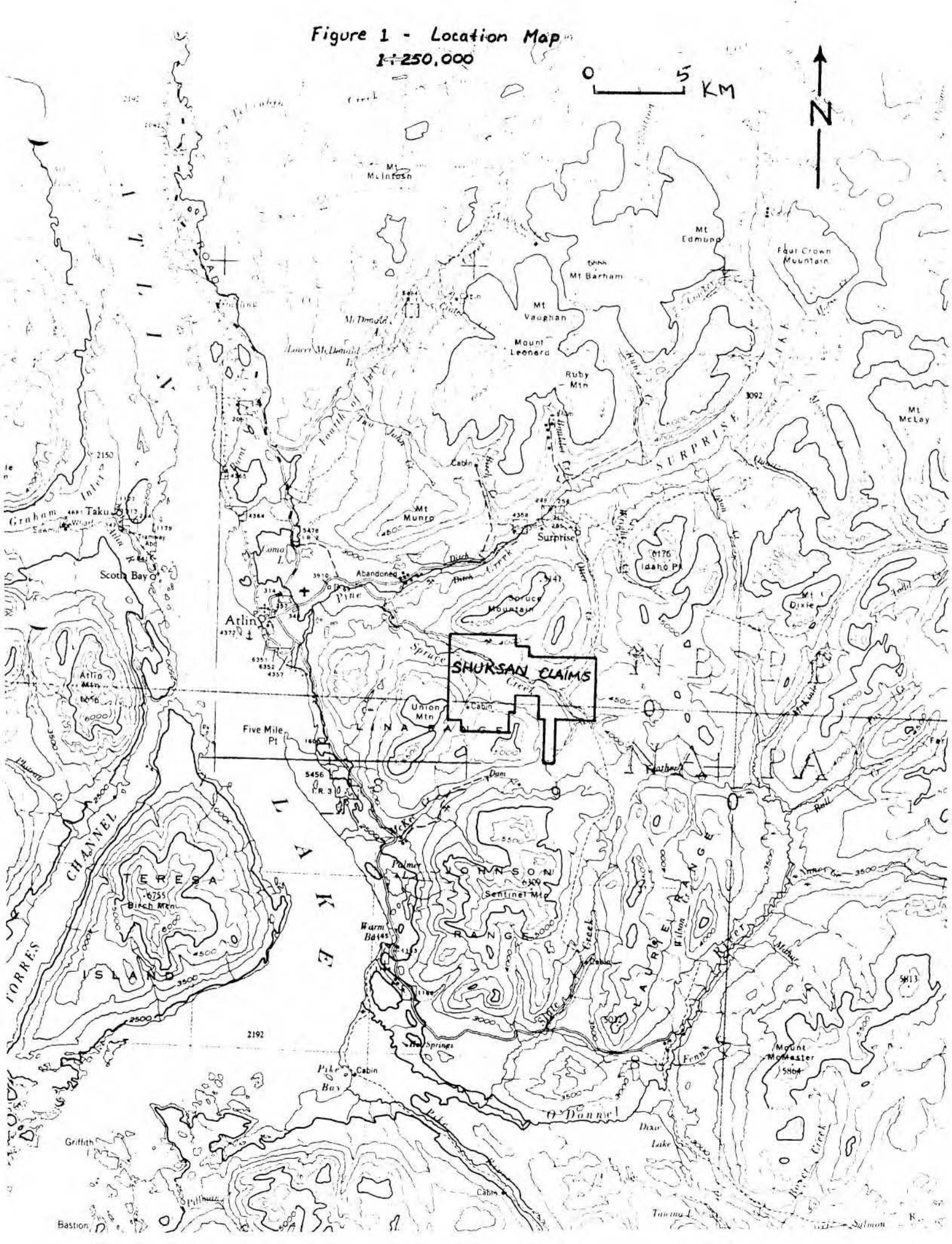

Conic
Projection
N
YUKON
N.W.T.
Carmacks
WHITEHORSE
V-209
SPRUCE CREEK
Fort Nelson
BRITISH
COLUMBIA
ALBERTA
Dawson Creek
Prince Rupert
QUEEN
CHARLOTTE
ISLANDS
Prince George
EDMONTON
Williams
Lake
PACIFIC
OCEAN
VANCOUVER
ISLAND
Merritt
VANCOUVER
VICTORIA
PLACER DEVELOPMENT LIMITED
Location Map
Spuce Creek Property
100 0 100 200
MILES

Figure 1.

Figure 1 - Location Map

1:250,000



1.3 Claim Status

The property is owned by Surprise Lake Exploration Limited Partnership and consists of the following:

Name	Units	Anniv. Date	Record No.
Shuksan 1	12	July 28	1359
Shuksan 2	20	July 28	1360
Shuksan 3	3	July 28	1361
Shuksan 4	12	Sept. 2	2027
Shuksan 5	16	Sept. 2	2028
Shuksan 6	20	Sept. 2	2016
Shuksan 13	20	Sept. 2	2023
Karen 6	20	July 28	1369
Karen 7	20	July 28	1370
Karen 8	8	July 28	1371
Kulshan 1	4	July 15	
Kulshan 2	12	July 15	
Kulsan 3	8	July 15	
PL 11055		Dec. 30	
PL 11056		Oct. 30	
Pl 11057		Dec. 30	
PL 11058		Dec. 30	
PL 11059		Dec. 30	
PL 11060		Dec. 30	

Work was performed only on Shuksan 1 and 4 claims.

1.4 Purpose

The purpose of the drilling project was an attempt to locate indications of buried gold mineralization that was the source for placer gold in Spruce Creek. The large recovery of gold from placer workings indicate a large and/or high grade and/or multiple bedrock source in the Spruce Creek drainage. Most placer gold occurs in the preserved Tertiary channel. Topography is believed to have been little altered by glacial processes, so the bedrock source lies within the modern drainage of Spruce Creek.

The mineralization style sought was the type that has been recognized in several very small high grade deposits in Pine Creek drainage. Gold is hosted by quartz and quartz carbonate

veining in the carbonatized boundaries of fault-related, serpentinized, ultramafic rocks. Encouragement for existence of a buried ultramafic body was provided by aeromagetic signatures. This anomaly was confirmed and delineated, and fault-relation demonstrated, by ground magnetic and VLF-EM surveys conducted immediately prior to drilling.

Similar style deposits of economic size are known in other parts of the world. A regional example is the Cassiar district, 220 km. to the east. Associated minerals in this mineralization type are pyrite and cobalt arsenide and possibly fuchsite. Geochemical indicators include As, K and possibly Ba, Sb, B, Bi and Ag. Distinction of carbonatized ultramafic (listwaenite) from serpentinite may be shown by increase in CO_2, Ca and possibly K and decrease in Si and Mg. Listwaenite lenses are associated with minor faults, particularly where the serpentinite body narrows, focussing hydrothermal fluids.

2. History

The Atlin district has witnessed placer gold production continuously to present since 1898. Various tributaries of Pine Creek and a few other creeks produced over a million ounces. Spruce Creek was the most prolific producer, with 260,000 ounces recorded to 1946, and probably significant unreported recovery. Most gold comes from five kilometres of surface workings, immediately downstream from the Shuksan property. These workings were extended 1.2 kilometres further upstream in the underground Noland Mine (Eastman Shaft) from 1936 to 1957. Its upper end is 70 metres below present creek level and 90 metres vertically below surface. Minor, generally uneconomic production has come from Pleistocene gravels of upper Spruce Creek.

Small, highgrade, bedrock gold deposits were discovered in Pine Creek as early as 1899. To date, no significant production has occurred. Much prospecting has been done in outcrop areas of mountain slopes. However, deep overburden cover has discouraged work in the valley of Spruce Creek.

Recent work on the property included that by Standard Gold Inc. in 1982 to 1984. Work included data compilation, soil sampling, mapping, airborne and ground geophysical surveys, trenching and diamond drilling. Three drill holes were near Placer drilling, but did not encounter ultramafic rocks. A small visible gold in quartz showing was found in the southeast corner of Shuksan 2 Claim. It was hosted by carbonatized ultramafic/chert contact

3. Geology

3.1 Bedrock Geology

The major rock units exposed in the area are members of the Permo-Pennsylvanian Cache Creek Assemblage. Three formations are represented. The Kedahda Formation includes argillite, phyllite, quartzite, sandstone, and minor chert and conglomerate. The Horse Feed Formation consists of limestone, dolomite and marble. The Nakina Formation contains basic to intermediate flows and tuffs and local gabbro.

All of these units are intruded by Alpine ultramafic bodies possibly related to Nakina Formation. They consist of serpentinite, serpentinized periodite, minor gabbro, and related local quartz-carbonate rock. They are apparently always fault-bounded. Small bodies are located throughout the map-area, especially near Pine Creek, and around Sentinel Mountain to the south of the property. Most known bedrock gold showings are associated with these rocks. A large body of ultramafic rock is mapped on Union Mtn., west of the claims. Locally, country rock adjacent to the ultramafic bodies is also carbonatized.

Major granitic plutons were intruded outside the property area, in Jurassic to Cretaceous time. Quaternary basalts are exposed outside the property in a small area north of Surprise Lake.

3.2 Mineralization

Bedrock gold showings known to date are mostly located in quartz veins (or quartz-carbonate veins) within or marginal to carbonatized ultramafics or less commonly, in carbonatized country rock immediately adjacent to ultramafics. Minor silicified faults or shears are generally associated. Mineralization is coarse to finely disseminated visible gold, with common disseminated pyrite and lesser chalcopyrite, galena, tetrahedrite and siderite. Mariposite and manganese oxide stain are locally associated.

Some features of the gold in placer deposits suggest a source in bedrock deposits of the above type. These include the coarseness and flat shape of gold nuggets, rarely recognized intergrowths of quartz and gold, and manganese oxide coating of nuggets near the upstream end of placer channels.

3.3 Pleistocene Deposits

There has been at least three periods of glaciation in the Atlin area. Two tills have been reported in the Spruce Creek area. The source of continental ice was the site of present-day Llewellyn Icefield, southwest of Atlin Lake. Alpine glaciation probably played a minor role. Glacial erosion in Spruce Creek was relatively light, and there was more a regime of deposition. Evidence includes preserved weathered surfaces on bedrock, weak development of cirques in local mountains, and preservation of the Tertiary channel of Spruce Creek. Valley fill depths are estimated at up to about 120 metres. The axis of Spruce Creek has been shifted northward against the valley wall, upstream from Dominion Creek confluence. The Tertiary gravel and a few metres of bedrock was locally scoured out of Spruce Creek by a small glacier advancing down Dominion Creek. It is believed this glacier did not advance far enough to turn down Spruce Creek. An esker complex near the junction of the two creeks indicates impoundment of Spruce Creek water by an ice mass. Presence of hummocky morraine in the valley bottom and meltwater channels on the south side of the valley indicate stagnation and isolation of the snout of this glacier.

The Tertiary channel has not been significantly removed or reworked. It is well-cemented and red to less often yellowish. It is thought to represent a humid, subtropical environment. Presence of common angular clasts represent major movement by sheet wash as colluvium, rather than alluvium. The channel is visually distinct from the overlying gray Pleistocene deposits.

4. Field Work

4.1 Preparation

Drill site were chosen and marked out immediately following completion of VLF/magnetic ground survey. On-site computer plotting of profiles allowed rapid interpretation and site selection. Drillsites were chosen to coincide with faulted boundaries and centre of an interpreted ultramafic body. Drillsites and access roads off the Dominion Creek road were made by a D6 - equivalent bulldozer belonging to Treetop Holdings Ltd. of Atlin. The drill was mobilized from Whitehorse and was onsite from 2 to 7 October.

4.2 Drilling

The drill employed on the Shuksan property was a Schramm rotary/percussion drill contracted from Midnight Sun Drilling Co. Ltd., of Whitehorse, Y.T. Initially, reverse circulation drilling was attempted. However, this proved ineffective due to problems with boulders and plugging up. Remainder of drilling was done with 15 cm. casing and conventional circulation. Overburden was rotary-drilled with a 13 cm. tricone bit and bedrock with a button bit and down-hole hammer. Drilling fluid was dry air except in damp material, where water was added to prevent plugging up.

Holes were drilled to approximately 10 m into bedrock. Data are listed below.

Hole	Total Depth	OVB Depth	B/R Depth	Bedrock
1	25.3 m	15.3 m	10.0 m	Serpentinite
2	27.4	18.2	9.2	Serpentinized UM
3	24.4	15.9	8.5	Serpentinized UM
4	18.0	8.2	9.8	Serpentinized UM
5	16.5	6.7	9.8	Highly altered serpentinite
6	21.9	12.5	9.4	Basalt
7	11.3	11.3	abandoned	
8	30.5	22.8	7.7	Weathered UM
	175.3 m.			

4.3 Sampling

All drilled material was sampled. Overburden was sampled to try to locate a dispersion train of particulate gold, and of geochemical indicators of mineralization or lithology. Such information in units identified as till or colluvium could potentially lead to bedrock mineralization. Bedrock was sampled for direct mineralization search, and for lithological and alteration information. Samples were routinely taken at about 1.5 m. intervals, or less if a stratigraphic change was recognized. Procedure is detailed below.

Drilled material was blown into a 80 cm. diameter cyclone, and exited through a 20 cm. mouth. It was caught in a single 25 litre bucket with overflow slots (for wet drilling). Buckets were changed when full, at least once in a 1.5 meter depth sample. A split was made by scooping out a pie section from each bucket in the sample interval, producing a sample of about 10 kg.

The bucket and samples were changed for each new stratigraphic unit.

A 5-mesh screen was laid on top of the bucket to catch oversize material, but commonly plugged up when drilling damp. A hand sieve/scoop (for wet/dry drilling) was used to take the coarse fraction sample of about 500 grams.

The 10 kg sample was double-plastic-bagged and sent to Placer's Vancouver Lab. There it was split prior to geochemical analysis to allow a bulk sample for visual imspection. The oversize fraction was later washed on a 6-mesh screen for pebble counts, and archived.

Total samples taken were 45 bedrock and 83 overburden.

4.4 Logging

The drill cuttings were logged during drilling operation. Features noted included sample number and interval, particle size distribution, clast lithologies, mineralization, oxidation, alteration, dryness and drill performance. It was felt that logging conditions were not ideal, and insufficent time was available. Hence, bulk sample splits were re-logged at Placer's Laboratory. A second log sheet, without a vertical scale, was prepared for each hole. Notes included colour, clast size and size distribution, angularity, HCl effervescence, and magnetism. Pebble counts from the oversize sample allowed more accurate clast lithology percentage determinations.

Field drill logs, re-logs and pebble count records may be found in Appendix D. Interpretive graphic logs and pebble count plots may be found in Appendix C.

5. Laboratory Work

5.1 Geochemistry

Bulk samples were sent to Placer's Vancouver laboratory for preparation and analysis. Samples were oven-dried and pulverized prior to analysis. All samples were analyzed for content of Au, Ag, As, Cu and Zn. All overburden and suspected overburden samples and the lowermost bedrock sample for each hole were additionally checked for Ni, Cr, Fe, Ca, Al and Mg. In addition 24 selected samples of overburden and bedrock were analyzed for Pt and Pd.

Geochemical values for Au and Ag are below detection limit for all samples, as is As in all overburden. A distinct arsenic anomaly occurs in bedrock of hole 5, with values up to 80 ppm and averaging 41 ppm. It is notable that there is no reflection of bedrock As values in immediately overlying sediment, or in overburden in down ice holes 6 and 8. Unfortunately the lowermost bedrock sample is not anomalous, so high arsenic can not be compared with major element values. Base metal values are background level for all holes and Pt and Pd are near detection limit.

Cr and Ni results plots are almost identical. These two elements plus Mg are sensitive to ultramafic rocks, so are sharply elevated in bedrock and lowermost overburden. An exception to this is hole 6, which bottomed in basalt. Hole 8 shows a sharp drop above bedrock in Cr and Ni and less markedly in Mg. A similar but less pronounced pattern is seen in holes 2 and 3. This is discussed later under "Interpretation."

Fe generally has a very similar pattern to Ca in overburden, but the relationship is variable in bedrock. Mg varies closely with Al in overburden, but changes to opposite pattern in bedrock and lowermost overburden. In many cases, all four major elements display very similar plots. Bedrock values in all four were different in hole 6 from other holes, due to the different lithology. Bedrock in hole 4 was noted as being carbonate-altered, and in hole 5 as being intensely altered. Mg and Ca values in hole 4 bedrock were similar to these for unaltered rock. In hole 5, Mg was depleted, as expected, but there was no associated enrichment in Ca.

Listings of geochemical analysis results may be found in Appendix A. Downhole plots of Ni, Cr and major elements are contained in Appendix B. Appendix C contains notes on sample preparation and analytical procedures.

5.2 Granulometric Analysis

Some difficulty was experienced in distinguishing among the various drilled overburden units and determining bedrock contact. A decision was made therefore to submit some samples for granulometric analysis to try to reveal grain size patterns distinctive to tills, outwash and bedrock. The entire section of hole 8 was chosen, as it was thought to show stratification and possibly weathered bedrock. Accordingly, a 500 g. split of the 20 samples were wet-sieved through the following screens; 8, 20, 35, 100, 270 and 400 mesh tyler. This divided particles into size ranges from granules to medium silt. Fractions were dried and weighed. Listings and plots of results are in Appendix E.

Some features of this procedure reduced its usefulness. The material being sieved was drill cuttings which may not be perfectly correlatable with undisturbed sediment. Secondly, both ends of the grain size scale are missing; the coarse end due to screening and discarding at the drill site, and the fine end due to impracticality of sieving to such small diameters. Thus clay must be grouped with medium and fine silt. Due to these limitations, it was not possible to construct the full length of curve that could characterize a diamicton.

Comparison was made with cumulative curves of tills from Dreimanis and Flint. Only samples 79885 and 79891 grossly resembled till curves, the former being coarser than the latter. Samples 79896 to 79898 show curves that are distinctly different from most and represent bedrock. Samples 79887 to 79889 and 79894 and 79895 are somewhat similar to bedrock curves.

6. Interpretation

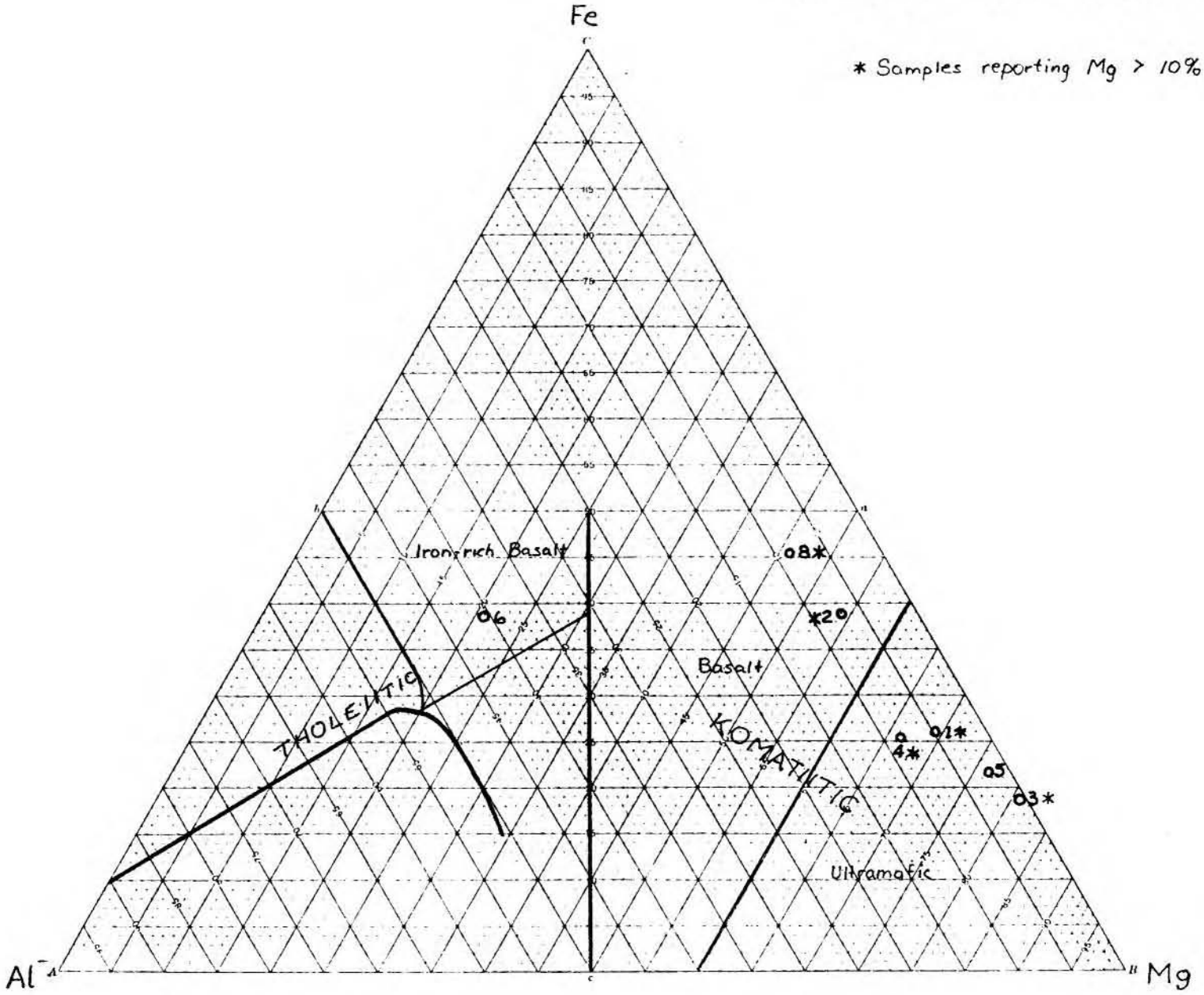
6.1 Bedrock Geology

The analyses of major elements Fe, Mg and Al in bedrock samples were used to construct a Jensen Cation Plot (Figure 3). Accurate plots could not be made due to upper detection limit of Mg and Fe reached in many samples. Thus, analyses of greater than 10% were treated as 10%. However it is believed that an acceptable grouping of all but one sample is demonstrated in or near the Komatiitic Ultramafic field. Increased Mg values for those plotted at 10% would tend to cause closer grouping of plots. Only the sample from Hole 8 had greater than 10% Fe.

Figure 3

Jensen Cation Plot of Bedrock Samples

* Samples reporting Mg > 10%



The grouping of bedrock samples indicates all are part of the same ultramafic body. No significant difference is shown by holes 4 and 5 which exhibited carbonate alteration.

Bedrock from drill hole 6 is plotted in the Tholeiitic Fe-rich basalt field, which is consistent with observations.

Bedrock drilling information indicates that an irregular serpentinized ultramafic body has been intersected. It is believed to be bounded by sinuous or offset faults that display VLF signatures and are carbonate-altered. The most encouraging hole (number 5) which showed intense alteration and anomalous As content, lies outside the magnetic high delineated by ground surveys. This gives encouragement to the possibility that the most altered ultramafic rock lies along VLF signatures, adjacent to, but not within magnetic highs. Such prospective ground lies between the northeast extensions of the two interpreted bounding faults of the magnetic-indicated ultramafic.

6.2 Overburden Stratigraphy

Interpretation of the overburden drill logs attempted to distinguish overburden units. Tentative identification was made of two tills, a glaciofluvial complex, regolith and bedrock. Graphic logs of the interpretive sections are shown in Appendix C.

Difficulty was encountered in separating overburden units in drill holes 2, 6 and 8. It is possible that stratigraphy is much more complex than that presented.

Drill log observations which proved useful in separating units included grain size distributions, sorting, dampness, compactness, pebble counts, change in colour and change in major element geochemistry. Pebble counts are not necessarily representative of the bulk composition of the section. Both chert and granitic clasts are common in pebble counts, but are probably no more prevalent in the source area than the rarely-recorded limestone. This is due to their clast "survivability." Similarly, common silicification in ultramafic clasts is not characteristic of the drilled serpentinized ultramafic bedrock. Disagreement of pebble count lithologies with major element geochemistry can also be demonstrated. An extreme example is sample 79814, hole 3. A 25 cm. boulder of distinctive purple chert breccia produces 48% of clasts counted in a 1.5 m section.

The granulometric analysis plots were generally not very useful. The two samples which appeared to plot as tills were interpreted as glaciofluvial and as regolith. However, the latter represented the upper part of regolith, which may have been glacier-modified. The failing of the technique in the former case may be due to bulk sampling over the complex, interbedded fluvial unit. Thus, various beds in the bulk sample may collectively contain all the size range of a diamicton. Granulometric plots did however give a distinctive signature for the lower, presumably fresher bedrock. This was weakly reflected in some of the higher bedrock samples and in a large boulder.

Useful observations to indicate till included till balls, clay coats on clasts, and striated or faceted clasts.

Till has been interpreted in the lower overburden section of all drill holes. Thickness ranges from two to eleven metres. Most of it is believed to be meltout till. Crude stratification is speculated but not easily demonstrated. Much of the variety in apparent compaction may be due to boulder-rich and finer-grained sections. The top of the till is marked by large boulders in three holes, and adjustment of uncertain sedimentary contacts could produce the same result in three other holes. The boulders may represent a lag resulting from winnowing of fines at the base of the glaciofluvial section. Holes 1, 2 and 3 display fairly similar sections. They are aligned transverse to ice direction. Low in the till section is a fine-grained interval which has indications of stratification. This may represent an internal fluvial unit. The sequence seems to become finer-grained to the northwest. The similarity of sections suggests that the till/glaciofluvial contact in hole 1 might be raised to a level similar to the other two holes. However it was placed at the lower level due to textural indicators.

Lodgement till is inferred at the base of till in four holes. The basal till is not as hard and compact as many lodgement tills. Positive indicators of lodgement include striated and faceted clasts. However, some of these clasts were also recognized higher in the till, indicating upthrusting into the englacial environment. Other lodgement till features recognized included finer-grained matrix; increase in till balls, clay coats and local lithology clasts; and smooth drilling.

An ablation till was interpreted to overlie glaciofluvial sediments in hole 8. It features complex stratigraphy and probably represents intervals of meltout till, outwash, flow till and crevasse fillings in a ice stagnation environment. This

drill hole is the only one collared low enough elevation to be in the ice stagnation zone. The ablation till section features very different major element geochemistry and clast lithologies from either lower till or glaciofluvial units.

Glaciofluvial sediments overlie the main till in all drill holes and are at surface in all except number 8. Units range from silts up to moderate-size boulders. Stratification is finer than sample interval, so sorting and internal stratigraphic morphology remain obscure. However it appears to be complex. Source material is till, and in many cases, especially lower in the section, pebble counts are similar to those in underlying till.

Regolith has been interpreted in hole 8, suspected in hole 7, and may be present in holes 1, 2 and 3. Its presence in hole 8 is indicated by rusty clasts, material softer than overlying till, 100% bedrock lithology clasts and a few fragments of wood (apparently roots) in the lower part of the unit. (Rust may be caused by groundwater immediately above bedrock or other aquaclude). A striking depletion in Ni and Cr and a weak depletion in Mg are associated. This could represent loss of sulhide-bound metals in a lateritic environment. Disseminated pyrite has been observed in fresh ultramafic rock. The regolith changes gradually downward through fairly soft weathered ultramafic rock to fresh rock containing calcite veinlets and talcose shears.

Similar geochemical plots to the regolith in hole 8 may be seen for hole 7 and more weakly in holes 1, 2 and 3. Hole 7 also has 100% local lithology in the suspected section. Hole 3 contains soft clay blebs, which are similar to that in bedrock sampled lower in the hole, possibly from fault gouge. Holes 1, 3 and 7 all contain a few rusty pebbles at base of till. Weathered bedrock in holes other than number 8 appears to be only a few centimeters thick.

7. Conclusions

The 1986 drill program at Spruce Creek has located an environment permissive for gold mineralization. Prospective ground is carbonate-altered, serpentinized ultramafic with anomalous geochemical arsenic values. It is indicated by linear VLF conductors marginal to magnetic highs.

Overburden sampling has failed to produce anomalous gold or arsenic values. It is apparent that a source is not up-ice from the drilling. Overburden drilling is warranted in other areas.

Overburden stratigraphy has been established as bedrock overlain by till and in turn overlain by a glaciofluvial complex. Weathered bedrock, regolith and a distinct, ablation till occur locally. These additonal units a likely to be more common toward Spruce Creek.

The drill employed was adequate for the job, but could be improved by use of water flush and smaller diameter hole.

8. Recommendations

An extension southeastward of the established grid for 700 metres is recommended. Further VLF-EM and magnetic surveys should be run to extend present geophysical coverage

Another phase of rotary/percussion drilling is recommended for the property, to probe for bedrock mineralization. Target areas are immediately south and east of hole 5, and northeast of holes 6, 7 and 8, along linear VLF features. Similar anomalous areas that are found in the geophysical survey should also be drilled.

A fence of holes should be drilled lower in Spruce Creek valley to test for overburden expression of mineralization. Material to be sampled includes the main, lower till and regolith.

RHB/cs
05:16:86

9. Statement of Expenditures

Drilling Cost	
Midnight Sun Drilling Invoice #2258 for 8 overburden holes	$15,638.85
Field Work Salaries & Benefits	
R. Boyce (project geologist) 9 days @ $250/day	2,250.00
D. Hayward (field assistant) 6 days @ $150/day	900.00
Assay Cost	
32 samples assayed for Cu, Zn, Ag, Au & As @$10.45/sample	334.40
90 samples assayed for Cu, Zn, Ni, Ag, Au, As Fe, Cr, Ca, Mg and Al @ $19.35/sample	1,741.50
24 samples assayed for Pt, Pd @$15.00/sample	360.00
Granulometric Analysis	1,567.94
Camp Cost	
Atlin Room & Board for 2 men for 7 days @ $60/manday	840.00
Road & Drillsite Preparation	
Bulldozer work by Treetop Holdings Ltd.	2,760.00
Transportation Cost	
1 4x4 P.U. 8 days @$60/day	480.00
Freight samples and Gear to Vancouver.	290.00
Return flight Vancouver - Whitehorse	553.70
Interpretation & Report Preparation	
R. Boyce 12 days @ $250/day	3,000.00
Typist for 1/2 day @ $150/day	75.00
Draft person 1 day @ $200/day	200.00
TOTAL:	$30,991.39

10. Statement of Qualifications

I, R.A. Boyce, with business address at Box 49330, Bentall Postal Station, Vancouver, B.C., V7X 1P1, do hereby certify that:

1. I have personally supervised the field work, and have assessed and interpreted the data from this exploration program on the Shuksan claims, Atlin Mining Division.

2. I am a graduate of the University of British Columbia, Vancouver (B.Sc., Geological Sciences, 1977).

3. I am a member of the Canadian Institute of Mining and Metallurgy.

4. I have engaged in the full-time practice of mineral exploration since graduation, in the Provinces of British Columbia, Quebec and Saskatchewan, and Yukon and Northwest Territories.

Respectfully submitted,

PLACER DEVELOPMENT LIMITED

R.A. Boyce

RAB/cs
05:14:86

11. List of References

Buisson, G., and M. LeBlanc, 1982, Gold in Carbonatized Ultramafic Rocks from Ophiolite Complexes, Ec. Geol. v.80, pp. 2028-2029.

Cannon, R.W., 1985, Ground Geophysical Surveys, Surprise Lake Exploration, Spruce Creek Option (Company report).

Dreimanis, A., 1978, Till and Tillite in The Encyclopedia of Sedimentology, R.W. Fairbridge and J. Bourgeois eds.

Flint, R.F., 1957, Glacial and Pleistocene Geology, p. 116.

Kerr, J.R., 1982, Geological and Geochemical Report on the GV, Eagle, Raven, Ptarmigan and Hawk Claims, B.C. Assess. Rpt. #10,537.

Monger, J.W.H., 1974, Upper Paleozoic Rocks of the Atlin Terrane, Northwestern B.C. and South-Central Yukon, G.S.C. Paper 74-47.

Troup, A.G., 1982, Skuksan Gold Property (Company report)

Troup, A.G., and C. Wong 1984, Diamond Drilling, Geochemical, Geological and Geophysical Report on the Shuksan Property, B.C. Assess. Rpt.

APPENDIX A

GEOCHEMICAL ANALYSIS RESULTS

GEOCHEM ASSAY SYSTEM: DATA FROM V209 SPRUCE CREEK

DATE: 85-12-17

SAMPLE	PROJECT	CU	ZN	NI	AG	AU	AS	FE	CR	CA	MG	AL	
79777	5232	31	42	340	<0.2	<0.02	<2	3.35	832	1.51	3.79	3.87	
79778	5232	30	41	290	<0.2	<0.02	<2	5.36	778	2.70	7.12	6.95	
79779	5232	28	38	217	<0.2	<0.02	<2	4.59	661	3.82	5.64	6.39	
79780	5232	29	38	210	<0.2	<0.02	<2	3.78	527	2.95	3.42	4.08	
79781	5232	35	46	300	<0.2	<0.02	<2	3.81	551	5.24	8.81	8.09	
79782	5232	37	47	290	<0.2	<0.02	<2	4.10	577	3.00	5.31	6.30	
79783	5232	32	46	191	<0.2	<0.02	<2	4.22	459	3.28	5.48	5.58	Hole 1
79784	5232	35	43	171	<0.2	<0.02	<2	4.52	459	3.27	3.96	5.31	
79785	5232	38	42	195	<0.2	<0.02	<2	4.68	563	4.07	5.99	6.14	
STD G	5232	89	72	28	0.8		68						
79786	5232	26	35	670	<0.2	<0.02	<2	3.51	1464	2.66	9.03	3.00	
79792	5232	9	26	1410	<0.2	<0.02	<2	3.73	2799	0.56	>10.0	0.71	Bedrock
79793	5232	31	37	193	<0.2	<0.02	<2	5.80	499	4.36	5.90	6.86	
79795	5232	34	42	200	<0.2	<0.02	<2	5.82	509	5.60	7.14	7.52	
79796	5232	34	43	310	<0.2	<0.02	<2	4.17	775	1.93	5.30	4.17	
79797	5232	33	40	18	<0.2	<0.02	<2	4.03	611	2.48	4.60	4.43	
79798	5232	31	45	330	<0.2	<0.02	<2	3.99	616	2.98	5.82	4.45	
79799	5232	37	41	260	<0.2	<0.02	<2	4.38	590	3.31	5.35	4.64	
79800	5232	40	43	320	<0.2	<0.02	<2	3.87	635	3.12	5.01	4.11	
STD AU	5232					0.50							Hole 2
79801	5232	30	44	350	<0.2	<0.02	<2	4.01	728	3.19	5.72	4.22	
79802	5232	36	44	270	<0.2	<0.02	<2	4.48	603	2.98	4.35	4.56	
79803	5232	37	49	145	<0.2	<0.02	<2	5.10	342	4.22	3.51	5.62	
79804	5232	39	43	185	<0.2	<0.02	<2	4.31	437	3.77	3.70	4.48	
79805	5232	19	30	860	<0.2	<0.02	<2	2.88	1837	3.01	9.66	1.52	
79806	5232	11	27	1270	<0.2	<0.02	<2	3.54	2640	1.32	>10.0	0.96	
79810	5232	6	24	1460	<0.2	<0.02	<2	7.20	2406	2.91	>10.0	1.23	Bedrock
79811	5232	31	43	290	<0.2	<0.02	<2	4.61	801	2.28	3.90	4.23	
79812	5232	37	45	320	<0.2	<0.02	<2	5.03	750	3.74	6.78	6.71	
79812*	5232	37	46	310	<0.2	<0.02	<2	5.03	750	3.74	6.78	6.71	
79813	5232	33	42	330	<0.2	<0.02	<2	4.47	904	2.40	5.22	4.35	
79814	5232	42	45	270	<0.2	<0.02	<2	4.01	549	2.22	4.11	4.31	
79815	5232	45	45	220	<0.2	<0.02	<2	4.66	565	2.64	3.97	4.66	
79816	5232	37	41	176	<0.2	<0.02	<2	5.33	402	5.39	4.95	6.67	Hole 3
79817	5232	44	40	250	<0.2	<0.02	<2	4.51	572	5.42	5.97	5.79	
79818	5232	41	46	270	<0.2	<0.02	<2	4.41	575	4.73	4.89	5.43	
79819	5232	40	49	270	<0.2	<0.02	<2	4.41	783	3.45	4.61	5.88	
79820	5232	35	43	150	<0.2	<0.02	<2	4.45	425	3.94	3.68	5.86	
79821	5232	29	30	470	<0.2	<0.02	<2	5.01	1362	5.81	>10.0	5.07	
79821*	5232	29	31	500	<0.2	<0.02	<2	5.01	1362	5.81	>10.0	5.07	
79826	5232	18	25	1570	<0.2	<0.02	<2	2.36	3536	1.38	>10.0	0.06	Bedrock
79794	5232	37	43	209	<0.2	<0.02	<2	4.57	494	2.78	3.40	4.43	
79794*	5232	37	43	209	<0.2	<0.02	<2	4.57	494	2.78	3.40	4.43	Hole 2
STD AU	5232					0.52							

LISTING - 44 RECORDS PRINTED
RUN AT: 14:55:53

FISCHER ASSAY SYSTEM: DATA FROM V200 SPRUCE CREEK

DATE: 85-12-17

SAMPLE	PROJECT	CU	ZN	NI	AG	AU	AS	FE	CR	CA	MG	AL	
79837	5233	31	43	260	<0.2	<0.02	<2	5.23	754	1.68	4.34	6.17	
79838	5233	26	46	230	<0.2	<0.02	<2	3.69	757	1.48	3.84	5.21	
79839	5233	40	44	210	<0.2	<0.02	<2	4.79	639	1.63	4.08	5.58	Hole # 4
79840	5233	44	43	250	<0.2	<0.02	<2	4.67	603	1.94	3.28	4.02	
79841	5233	44	43	290	<0.2	<0.02	<2	4.76	762	1.91	3.98	4.17	
79842	5233	76	76	930	<0.2	<0.02	<2	7.00	1167	7.12	>10.0	8.07	
79843	5233	12	24	1060	<0.2	<0.02	<2	3.88	1870	1.45	>10.0	1.25	Bedrock
79844	5233	55	36	350	<0.2	<0.02	<2	3.54	680	3.01	5.32	4.68	
79845	5233	26	37	350	<0.2	<0.02	<2	3.26	741	2.70	4.39	4.31	
STD G	5233	85	71	27	0.8		60						
79846	5233	34	45	310	<0.2	<0.02	<2	3.71	593	3.08	3.74	4.43	
79847	5233	43	60	360	<0.2	<0.02	<2	3.55	612	1.77	4.28	4.45	
79848	5233	42	58	310	<0.2	<0.02	<2	4.35	633	1.82	4.28	5.14	Hole #5
79849	5233	36	51	212	<0.2	<0.02	<2	1.15	560	2.57	4.26	5.27	
79850	5233	32	50	230	<0.2	<0.02	<2	3.83	665	3.03	4.29	4.83	
79851	5233	11	17	690	<0.2	<0.02	<2	1.41	3019	0.21	4.94	0.12	Bedrock
79852	5233	34	36	211	<0.2	<0.02	<2	4.32	552	2.46	3.35	4.64	
79853	5233	33	47	310	<0.2	<0.02	<2	4.50	654	3.12	5.21	5.48	
79856	5233	46	42	130	<0.2	<0.02	<2	5.10	410	3.58	3.45	5.37	
STD G	5233	92	71	27	0.8		60						
79857	5233	47	51	160	<0.2	<0.02	<2	4.90	368	3.06	3.30	5.9	
79858	5233	33	43	250	<0.2	<0.02	<2	4.33	533	3.77	4.00	5.42	
79859	5233	31	40	410	<0.2	<0.02	<2	4.25	676	3.93	5.79	4.42	
79860	5233	71	44	450	<0.2	<0.02	<2	3.60	752	3.34	7.42	5.66	Hole 6
79861	5233	40	55	260	<0.2	<0.02	<2	3.90	488	2.69	4.06	5.45	
79862	5233	37	50	133	<0.2	<0.02	<2	5.50	291	4.53	4.06	7.13	
79869	5233	60	38	42	<0.2	<0.02	<2	3.25	62	6.78	4.39	8.67	Bedrock
79870	5233	46	46	171	<0.2	<0.02	<2	4.06	499	1.87	2.69	5.24	
79871	5233	44	45	158	<0.2	<0.02	<2	4.12	494	2.23	3.14	5.70	
79871 *	5233	42	43	150	<0.2	<0.02	<2	4.12	494	2.23	3.14	5.70	
79872	5233	44	49	164	<0.2	<0.02	<2	4.12	481	2.61	2.86	5.11	
79873	5233	55	48	180	<0.2	<0.02	<2	4.76	455	3.24	3.46	5.33	
79874	5233	44	45	510	<0.2	<0.02	<2	6.09	1186	2.34	>10.0	5.66	Hole 7
79875	5233	50	46	620	<0.2	<0.02	<2	5.72	1253	2.27	8.50	4.46	
79876	5233	61	42	250	<0.2	<0.02	<2	5.92	476	3.38	3.81	4.58	
79877	5233	57	34	141	<0.2	<0.02	<2	8.52	288	6.28	4.41	6.59	
79878	5233	58	48	380	<0.2	<0.02	<2	4.93	727	2.96	8.47	6.62	
79879	5233	41	41	187	<0.2	<0.02	<2	4.70	406	3.48	6.37	7.66	
79880	5233	36	41	136	<0.2	<0.02	<2	6.49	390	4.76	5.61	7.97	
79880 *	5233	38	41	135	<0.2	<0.02	<2	6.49	390	4.76	5.61	7.97	
79881	5233	34	43	157	<0.2	<0.02	<2	5.38	303	5.00	4.63	7.26	
79882	5233	39	44	98	<0.2	<0.02	<2	5.52	247	4.33	3.43	6.64	
79883	5233	45	46	152	<0.2	<0.02	<2	5.13	343	4.07	3.15	5.43	
79884	5233	50	64	390	<0.2	<0.02	<2	3.11	542	4.95	6.04	6.73	
79885	5233	49	55	410	<0.2	<0.02	<2	5.15	759	2.87	6.87	5.29	
79886	5233	45	46	270	<0.2	<0.02	<2	5.75	575	4.10	5.58	6.10	
79887	5233	43	45	350	<0.2	<0.02	<2	3.18	695	4.63	7.50	5.31	Hole 8
79888	5233	38	45	860	<0.2	<0.02	<2	6.70	1731	2.36	>10.0	4.58	
79889	5233	35	43	810	<0.2	<0.02	<2	3.61	1593	1.30	8.52	2.44	
STD G	5233	86	73	28	0.8		60						
79890	5233	37	40	990	<0.2	<0.02	<2	6.21	1921	1.65	>10.0	4.33	
79891	5233	19	42	780	<0.2	<0.02	<2	5.25	928	3.77	>10.0	4.48	
79892	5233	150	47	137	<0.2	<0.02	<2	7.50	141	6.13	8.69	7.15	
79893	5233	13	62	147	<0.2	<0.02	<2	7.15	165	2.30	>10.0	5.83	
79894	5233	17	37	1130	<0.2	<0.02	<2	7.88	2144	0.99	>10.0	3.53	
79895	5233	12	60	1340	<0.2	<0.02	<2	8.53	2730	1.34	>10.0	2.28	
79896	5233	12	26	1500	<0.2	<0.02	<2	>10.0	3330	0.59	>10.0	1.85	Bedrock
79896 *	5233	12	26	1550	<0.2	<0.02	<2	>10.0	3330	0.59	>10.0	1.85	
STD AU	5233												

LACER GEOCHEM ASSAY SYSTEM: DATA FROM V209 SPRUCE CK

DATE: 85-

GRID	SAMPLE		PROJECT	CU	ZN	AG	AU	AS	Notes
		79787	5231	8	17	<0.2	<0.02	<2	
		79788	5231	4	17	<0.2	<0.02	<2	
		79789	5231	10	21	<0.2	<0.02	<2	Hole #1
		79790	5231	4	16	<0.2	<0.02	<2	
		79791	5231	4	17	<0.2	<0.02	<2	
		79807	5231	9	23	<0.2	<0.02	<2	
		79808	5231	4	25	<0.2	<0.02	<2	Hole #2
		79809	5231	7	25	<0.2	<0.02	<2	
		79822	5231	26	27	<0.2	<0.02	<2	
est	STD G		5231	[illegible]	[illegible]	[illegible]		[illegible]	
		79823	5231	16	20	<0.2	<0.02	<2	
		79824	5231	15	19	<0.2	<0.02	<2	Hole #3
		79825	5231	15	22	<0.2	<0.02	<2	
		79833	5231	35	23	<0.2	<0.02	<2	
		79834	5231	22	28	<0.2	<0.02	<2	
		79835	5231	9	17	<0.2	<0.02	<2	
		79836	5231	5	14	<0.2	<0.02	<2	Hole #4 - carb alt'n
		79837	5231	4	10	<0.2	<0.02	<2	
		79838	5231	5	15	<0.2	<0.02	<2	
est	STD G		5231	[illegible]	[illegible]	[illegible]		[illegible]	
		79847	5231	13	17	<0.2	<0.02	44	
		79848	5231	13	13	<0.2	<0.02	56	
		79849	5231	14	17	<0.2	<0.02	64	Hole #5 - intense carb alt'n
		79850	5231	16	27	<0.2	<0.02	40	
		79851	5231	11	15	<0.2	<0.02	40	
		79852	5231	43	28	<0.2	<0.02	4	
		79863	5231	54	52	<0.2	<0.02	<2	
		79864	5231	46	41	<0.2	<0.02	<2	
		79865	5231	56	43	<0.2	<0.02	<2	Hole #6
		79865*	5231	57	44	<0.2	<0.02	<2	
		79866	5231	49	37	<0.2	<0.02	<2	
		79867	5231	43	32	<0.2	<0.02	<2	
		79868	5231	82	37	<0.2	<0.02	<2	
		79896	5231	11	16	<0.2	<0.02	<2	
		79897	5231	9	16	<0.2	<0.02	<2	Hole #8
		79897*	5231	9	17	<0.2	<0.02	<2	
st	STD AU		5231				0.56		
st	STD AU		5231				0.52		

D OF LISTING - [illegible] RECORDS PRINTED
LIST RUN AT: 1[illegible]:57:[illegible]

REPORT: 225-3868

PROJECT: 5232

PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Pd PPB	Pt PPB
P4 79786		<5	<50
P4 79792		5	<50
P4 79804		5	<50
P4 79806		5	<50
P4 79810		.5	<50
P4 79821		5	<50
P4 79826		<5	<50

BONDAR-CLEGG

Geochem
Lab Re

REPORT: 225-3869

PROJECT: 5233

PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Pd PPB	Pt PPB
P4 79832		5	<50
P4 79839		10	<50
P4 79843		<5	<50
P4 79846		<5	<50
P4 79853		<5	<50
P4 79860		5	<50
P4 79862		<5	<50
P4 79869		<5	<50
P4 79875		5	<50
P4 79894		<5	<50
P4 79898		5	<50

Company Ltd.
...on Ave.
...couver, B.C.
V7P 2R5
...e: (604) 985-0681
Telex: 04-352667

BONDAR-CLEGG

Geoch
Lab

REPORT: 125-4013 PROJECT: 5231 PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Pd PPB	Pt PPB
P4 5231-79790		<5	<50
P4 5231-79823		5	<50
P4 5231-79833		5	<50
P4 5231-79850		5	<50
P4 5231-79867		<5	<50
P4 5231-79897		5	<50

APPENDIX B

STANDARD ANALYSIS METHODS USED BY PDL GEOCHEM LAB ARE LISTED BELOW:
ALL RESULTS EXPRESSED AS INDICATED IN UNITS COLUMN BELOW
ANY EXCEPTIONS FOR THIS PROJECT ARE NOTED ABOVE

REMARKS: INTERNAL LAB STANDARDS HAVE BEEN INCLUDED FOR REFERENCE.
SAMPLE NUMBERS FOLLOWED BY * ARE DUPLICATE ANALYSES.

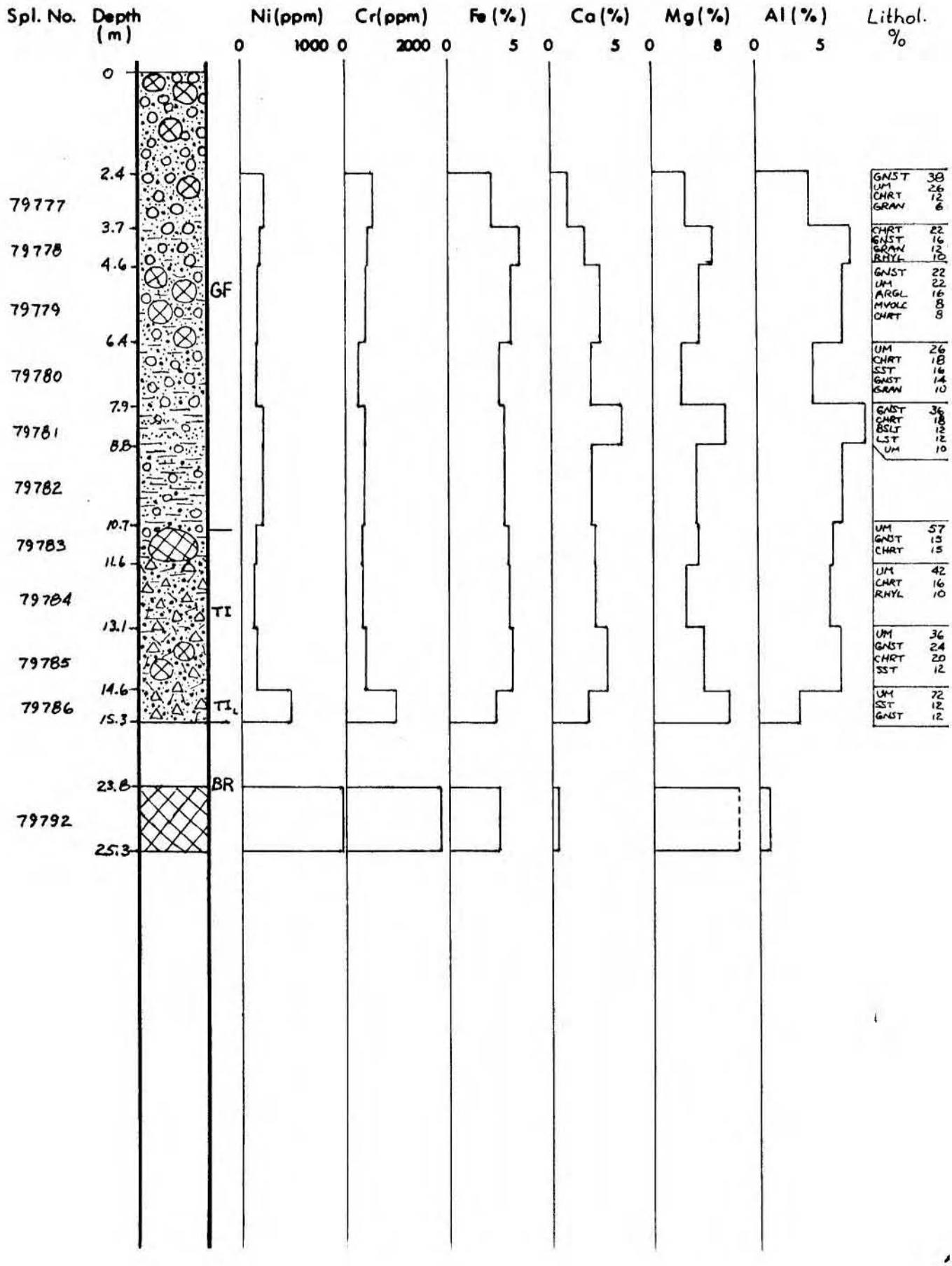
	UNITS	WT.G	ATTACK USED	TIME	RANGE	METHOD
MO	PPM	0.5	C HCLO4/HNO3	4HRS	1-1000	ATOMIC ABSORPTION
CU	PPM	0.5	C HCLO4/HNO3	4HRS	2-4000	ATOMIC ABSORPTION
ZN	PPM	0.5	C HCLO4/HNO3	4HRS	2-3000	ATOMIC ABSORPTION
PB	PPM	0.5	C HCLO4/HNO3	4HRS	2-3000	A.A. BACKGROUND COR.
CD	PPM	0.5	C HCLO4/HNO3	4HRS	0.2-200	A.A. BACKGROUND COR.
NI	PPM	0.5	C HCLO4/HNO3	4HRS	2-2000	ATOMIC ABSORPTION
CO	PPM	0.5	C HCLO4/HNO3	4HRS	2-2000	ATOMIC ABSORPTION
AG1	PPM	0.5	C HCLO4/HNO3	4HRS	0.2-20	A.A. BACKGROUND COR.
AU	PPM	10.0	AQUA REGIA	3HRS	0.02-4.00	A.A. SOLVENT EXTRACT
U	PPM	0.25	DIL HNO3	2HRS	1.0-1000	FLOURIMETRY SOLV. EX
V	PPM	0.5	C HF/HCLO4/HNO3/HCL	6HRS	5-1000	ATOMIC ABSORPTION
W	PPM	0.5	C HCLO4/H3PO4	2HRS	2-1000	DC PLASMA.
F	PPM	0.25	NA2CO3/KNO3 FUSION	30MIN	40-4000	SPECIFIC ION ELECTOD
AS	PPM	0.5	C HCLO4/HNO3	4HRS	2-1000	A.A. BACKGROUND COR.
SB	PPM	0.5	C HCL/HNO3	2HRS	2-1000	A.A. BACKGROUND COR.
BI	PPM	0.5	C HCLO4/HNO3	4HRS	2-2000	A.A. BACKGROUND COR.
MN	PPM	0.5	C HCLO4/HNO3	4HRS	2-3000	ATOMIC ABSORPTION
FE	%	0.5	C HF/HCLO4/HNO3/HCL	6HRS	0.02-20%	ATOMIC ABSORPTION
HG	PPB	0.25	DIL HNO3/HCL	2HRS	5-2000PPB	A.A. COLD VAPOR GEN
BA	%	0.25	C HF/HI/OXALIC	4HRS	0.02-20%	ATOMIC ABSORPTION
NA	%	0.5	C HF/HCLO4/HNO3/HCL	6HRS	0.2 -20%	ATOMIC ABSORPTION
K	%	0.5	C HF/HCLO4/HNO3/HCL	6HRS	0.2 -20%	ATOMIC ABSORPTION
CA	%	0.5	C HF/HCLO4/HNO3/HCL	6HRS	0.02-20%	ATOMIC ABSORPTION
SR	PPM	0.5	C HF/HCLO4/HNO3/HCL	6HRS	10-2000	ATOMIC ABSORPTION
MG	%	0.5	C HF/HCLO4/HNO3/HCL	6HRS	0.2-20%	ATOMIC ABSORPTION
SN	PPM	1.0	NH4I FUSION	15MIN	5-500	A.A. SOLVENT EXTRACT
LOI	%	1.0	ASH 600 DEG C	2HRS	0.02-99%	WEIGH RESDUE

APPENDIX C

Interpretive Graphic Logs
Major Element Geochemistry Plots
Pebble Count Plots

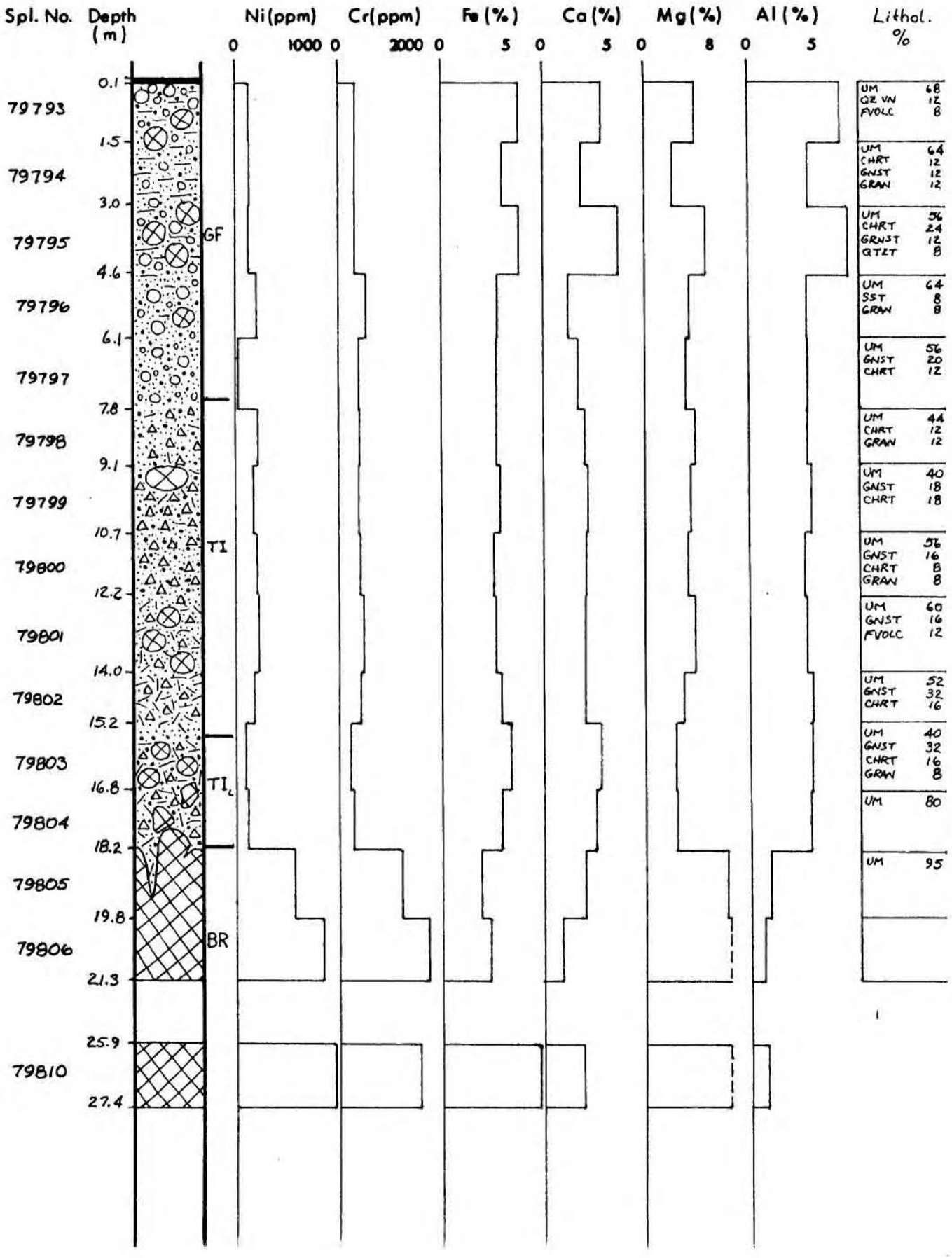
Spruce Creek Geochemistry

Hole No. 85-1



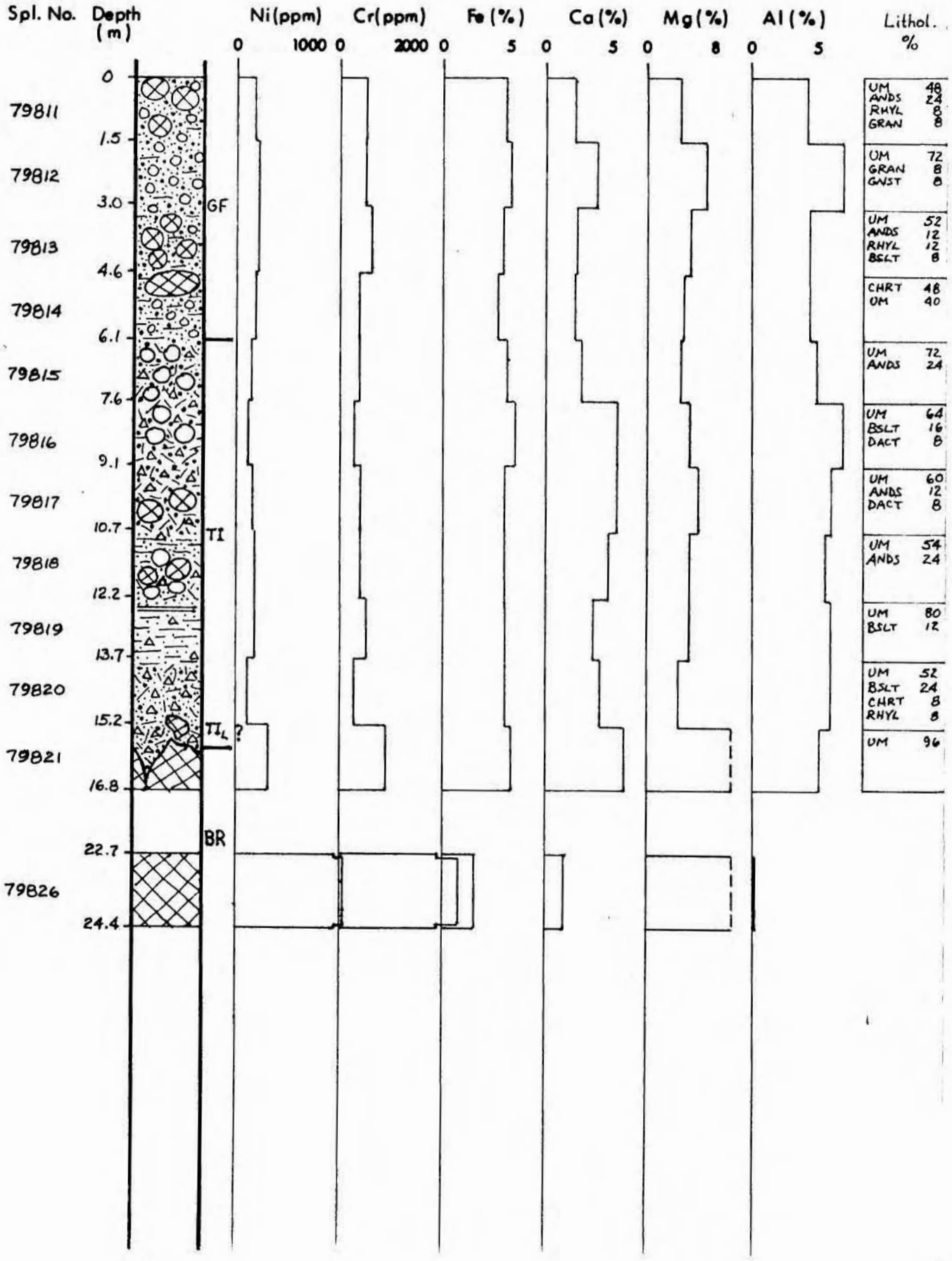
Spruce Creek Geochemistry

Hole No. 85-2



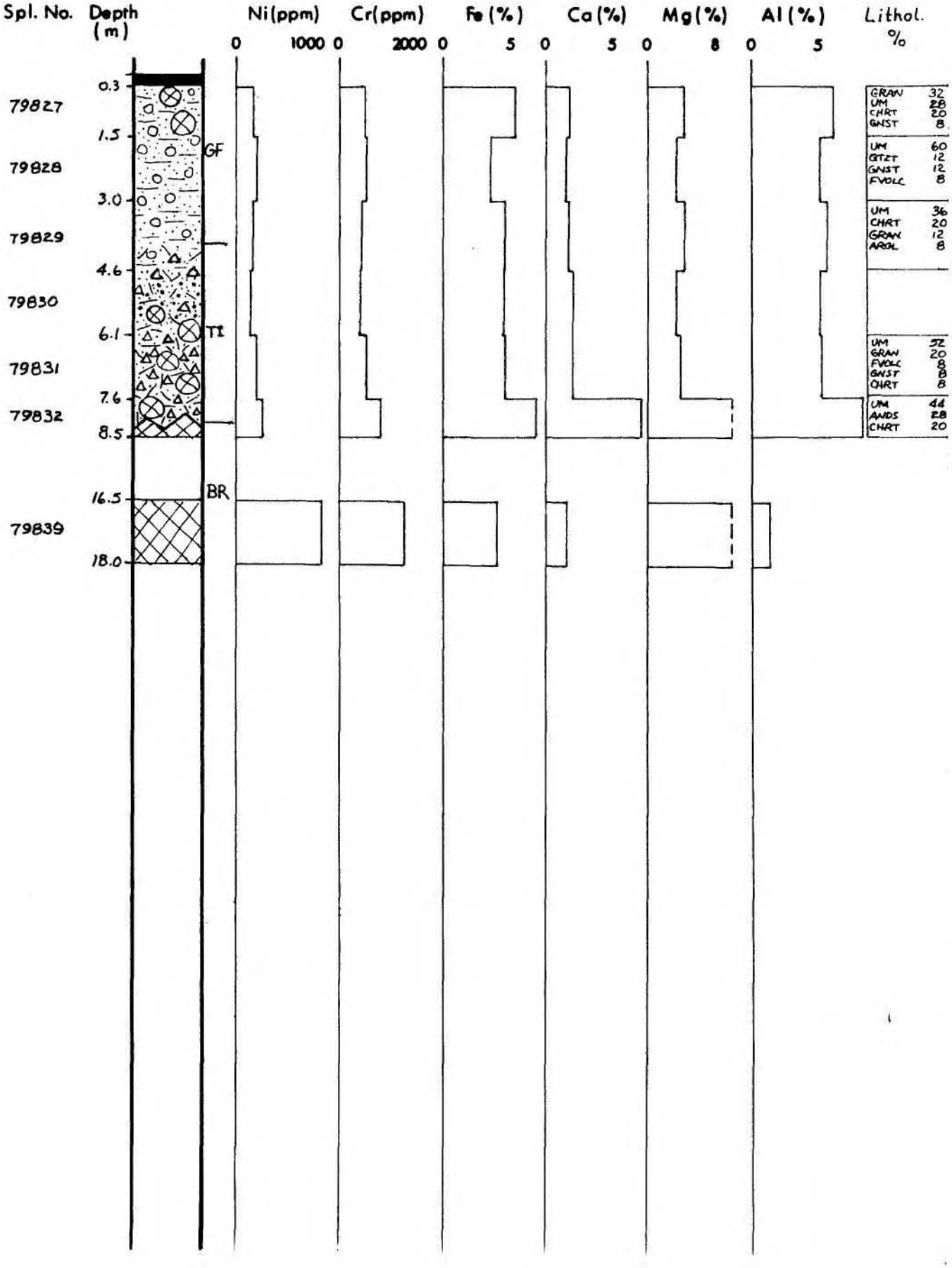
Spruce Creek Geochemistry

Hole No. 85-3



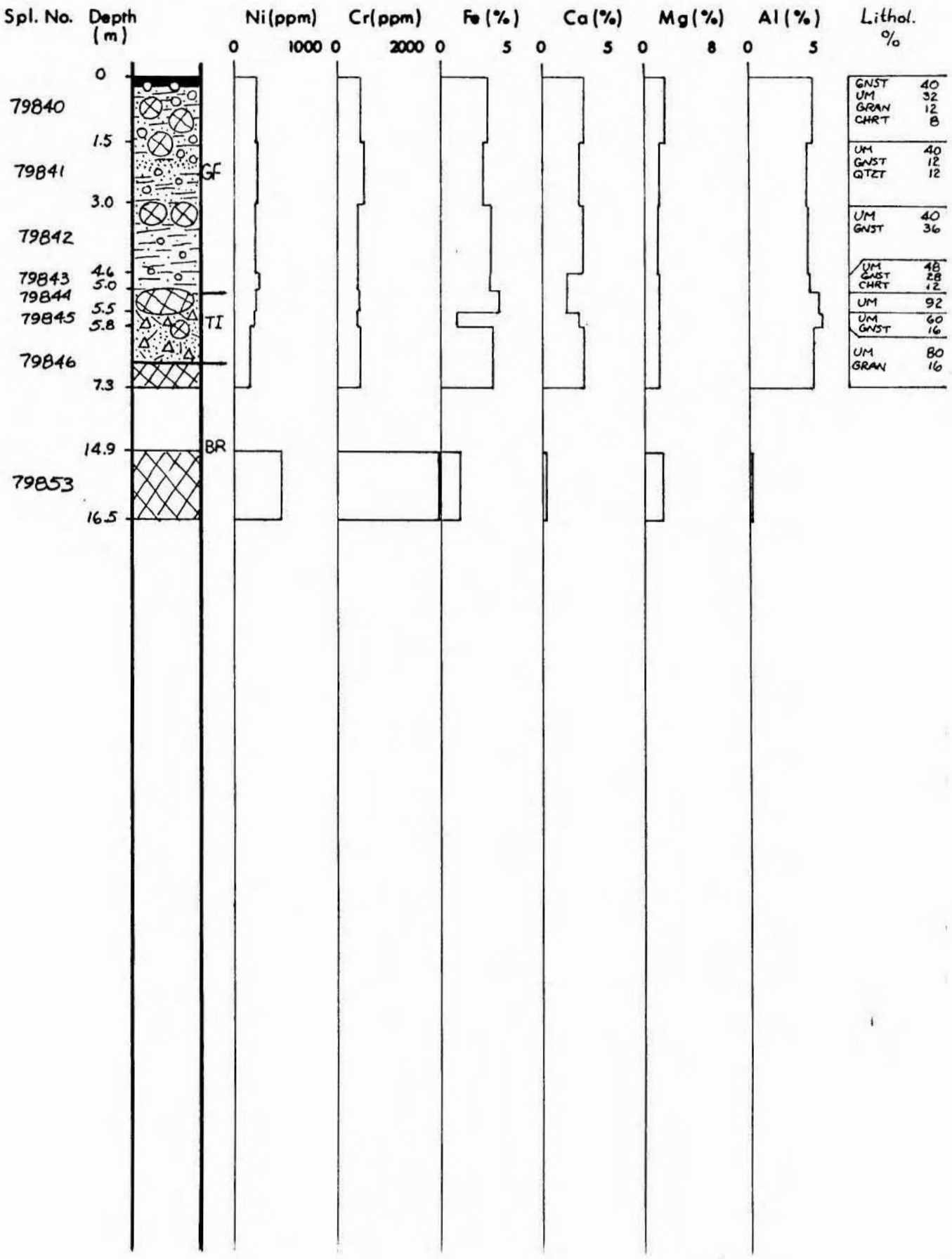
Spruce Creek Geochemistry

Hole No. 85-4



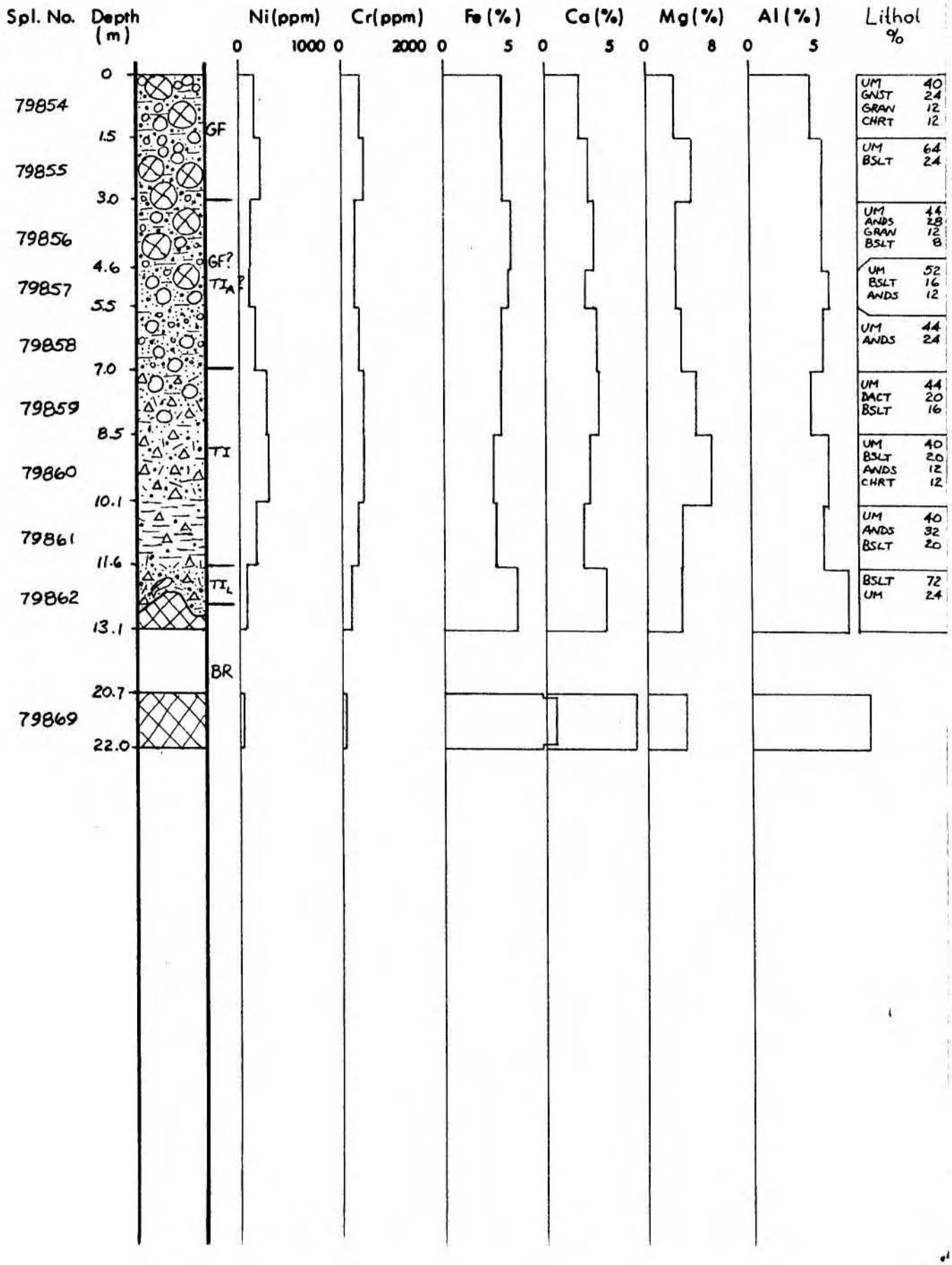
Spruce Creek Geochemistry

Hole No. 85-5



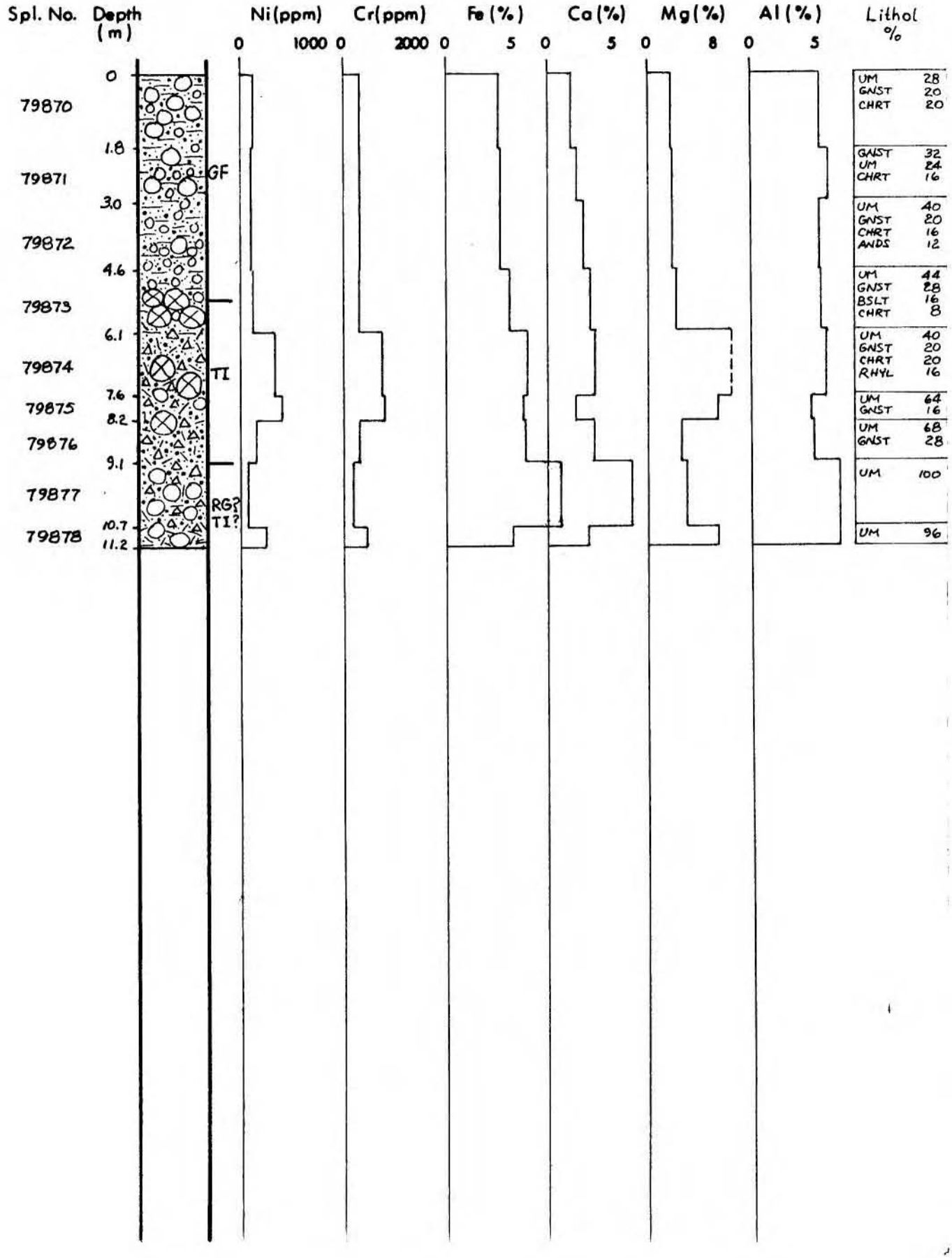
Spruce Creek Geochemistry

Hole No. 85-6



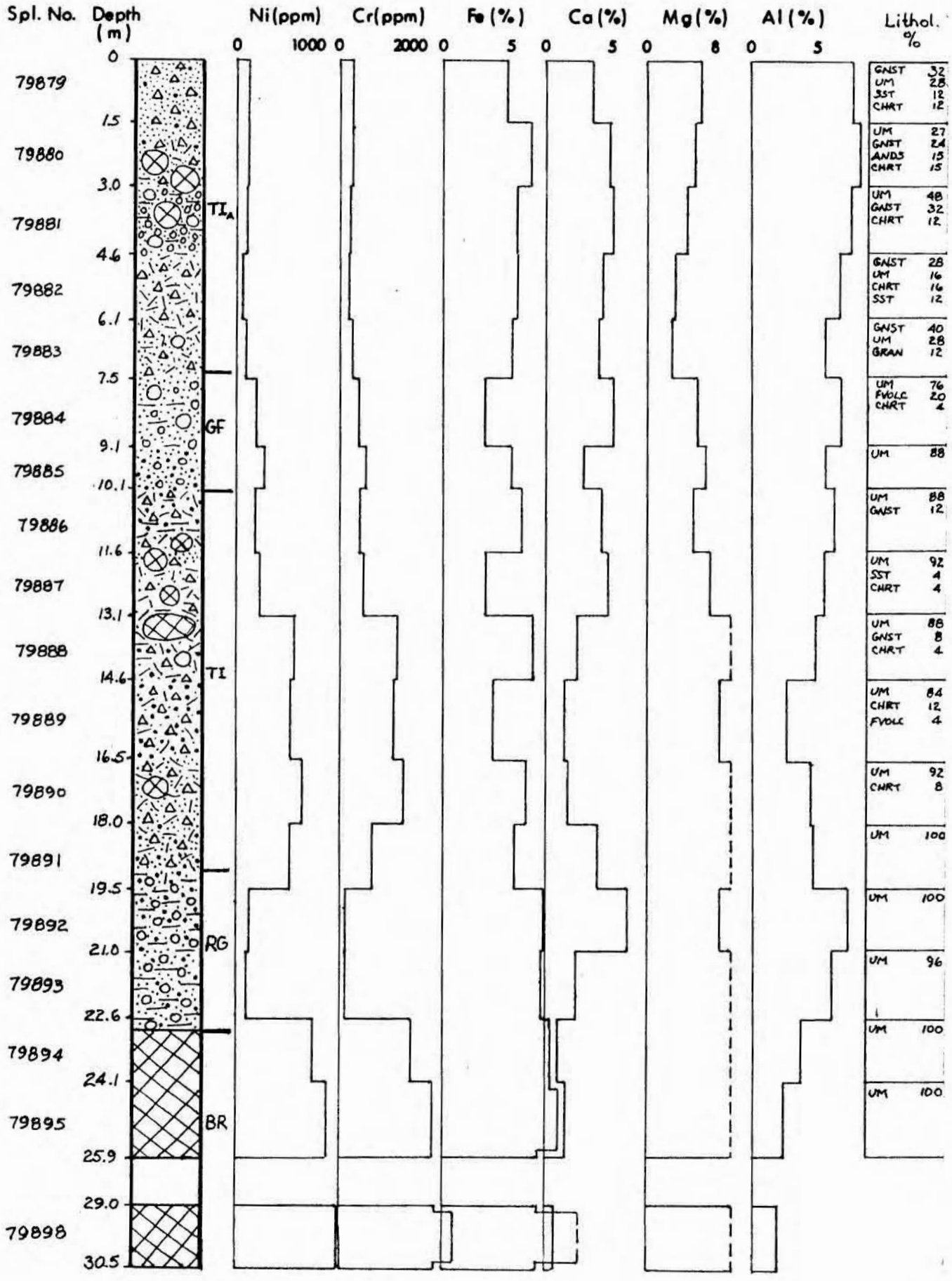
Spruce Creek Geochemistry

Hole No. 85-7



Spruce Creek Geochemistry

Hole No. 85-8



APPENDIX D

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE 2 OCT 1985
SHIFT 8:00 TO 19:20
TOTAL HOURS 11:20
CONTRACT HOURS ---------

V209
HOLE No. 85-1 LOCATION SPRUCE CK. L26+00W, 12+95S
GEOLOGIST BOYCE DRILLER MACKENZIE BIT No. 18 BUTTON / 17 TRICONE BIT FOOTAGE 0-22 (33) 50-83 / 22-50 (28)
MOVE TO HOLE 9:30
DRILL 12:05 → 2:00 3:30 → 6:00 6:15 → 7:20
MECHANICAL DOWN TIME 2:00-2:55 CLEAN BIT @ 22' 3:15 → 3:30 CONVERT 5:15 TO ... BIT CHANGE TO 22' @ 5:05
DRILLING PROBLEMS 1:30 → NO ADV 3:15
OTHER 9:30 → WATER TRUCK FILLS 10:05 SET UP 10:05 → 12:05
MOVE TO NEXT HOLE, PULL RODS - NEXT MORN

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG	LOTS OF MATERIAL - 5 GAL FINES IN 3-4 FT / 10 GAL COARSE "
				0 → 6 NO RETURN DUE TO SUB NOT IN GROUND - BOULDERY. WATER ADDED	
5				6 → 8 MINOR RETURN DUST - CLOGGING UP	
10			79777	8 → 12 LOOSE GRAVELLY 40% UM 30% GRNST GRAV, CHERT. MINOR QZ-CB ROCKET	
			79778	12 → 15 GRAVELLY COBBLY NI (FINE) SAND, MOD SILT, MOD WELL COMPACTED. 60% UM, 10% CHERT, 15% GRNST, MINOR QZCB 10% SST, MINOR QZVN GRAN + FELSICS	
20			79779	15 → 21 BOULDERY MOD. SD. HI SILT MINOR CB ALTN. HI SILT. UM 70%, SST 5%, GRNST 0%, CHERT 8%, MINOR JASPER, QZCB	
			79780	21-26 COBBLY, HI (FINE) SD, MOD SILT WELL COMPACTED (SLOW) 22 - NO ADV, WASHING HOLE. 50% UM, 15% SST, 15% GRNST, 10% CHT, MINOR QZVN + QZ-CB	TRICONE
			79781	26-29 / 29 → 35 CLAYEY SILT W/ COARSE SD = GRAVEL DK GRAY - WEA ~~BR~~ ~~UM~~ LOOSELY COMPACTED	
30			82	35-38 UM BLDR SOFT SERP?	
				38 → GRAVEL 85% UM 5% GRNST, 10% VAR - CHT, ST ABRUPT CONTACT	
			79783	40 - COARSE (FINE) SD HI, LO SILT PEBBLY NOTED FACETED PEB	
40			84	42.5 90% UM	
				43 - 70% UM RETURNS COARSE OR COARSER. CHT, SST + GRNST V MINOR QZ-CB + QZ VEINS	
				45.5 - HI SD, MOD CLAY, BLDRY	
			79785		
			86	48.5 MOD SILT + CLAY	
50			87	49.5 LOW (FINE) SD	
				50.2 - BEDROCK SERP'D UM W/ TALCOSE PAX + MINOR CAL VEINLETS DK GRN, LESS COMMONLY LT TO DK GRN	
				52 - PALE SERP MORE COMMON	
				54.4 - CLAYEY GOUGE?	
				MED GRAY CLAYEY SWILL W/ MINOR COARSE CUTTINGS	
60			88		
			89		
70			90		
			91	77' - 82' - LESS GOUGE, MORE CUTTINGS	
80			79792		
				83' END OF HOLE	

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE 3 OCT 1985
HOLE No. 85-2 LOCATION SPRUCE CK. V209 L26W 12+50S
GEOLOGIST BOYCE DRILLER MACKENZIE BIT No. B 1 / T 2 BIT FOOTAGE 35-65 / 28-88 (END)
SHIFT 07:40 TO
MOVE TO HOLE 9:30-10:05
DRILL 10:30-2:30
TOTAL HOURS
MECHANICAL DOWN TIME
DRILLING PROBLEMS Z.00 - BIT PLUGGED OUT CASING @ 12:50
CONTRACT HOURS
OTHER
MOVE TO NEXT HOLE

IN FEET	SAMPLE No.	DESCRIPTIVE LOG
		0 - .2 ORGANIC
	79793	.2 - OUTWASH, 60% CLASTS HI SD LO SILT COLLOY 4 L6 BLDRS - 80% UM, LESS GRNST, SST, CHERT, MINOR JASPER, QZVN
	79794	@10 - DIFFICULT HAMMERING CASING
10		HIGH (M&C) SD, MOD SILT, 70% CLASTS. 80% UM, 10% GRNST, MINOR SST, CHT, GRAN
	79795	
		18 - 50% CLASTS, HI (COARSE) SD, MINOR CLAY SAME RK TYPES
	79796	
20		
	97	MINOR QZVN, CHERT
	98	
30		31' 60% CLASTS, MOD (C) SD, MOD SILT, LOW CLAY DAMP - UM BLDR - SILTY PEBBLY BELOW. SLOW DRILLING. MINOR PALE ORANGE CHERT
	99	
	79800	38.5 - FEW CLAY "BALLS" - REST APPEARS OUTWASH
40		
	801	43 - BOULDERY, MINOR DK GRAY CLAY (GOUGE?)
		80% UM, LESSER CHERT, GRNST
	802	49 - SOME RUSTY BRN CLAY BALLS
50		54-55 95% UM - WEA B/R? BUT INCL SOME RNDD PEBS MINOR CHERT. MINOR TALC. BOULDERY - DRILL BOUNCES + STICKS (WEA B/R?)
	803	
	804	56 POORLY, 60% CLASTS, HI (M) SD, MOD SILT
		59 ALMOST 100% UM SMOOTH DRILLING, FEW RNDD CLASTS
60		←59.8 GRADUAL CONTACT W/ B/R WET @ 59.8 UM
	805	67 - SERP'D UM W/ RUSTY FRX, RARE QZ VEIN FRAG ALSO RARE CHERT FRAG. POOR WTR RETURN ... B/R
	806	69 - FEW TILL BALLS (??) SUSPICION OF TILL - WELL COMP LODGEMENT. ~99% UM.
70		
	807	73 FINE HONEY SERP'S, FEW CAL VEINLETS
	808	
80		
	809	82 - 10% OF CHIPS HAVE TALC COATING. 84 - COMMON CAL VEINLETS - MORE CHIPS RETURN
	810	88 - 89.5 - MANY RUSTY PARTINGS
90		90' - CRACKLED, W/ CAL VEINLETS
		90' - END OF HOLE

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

V209

DATE OCT 19 85

SHIFT 0800 TO

TOTAL HOURS

CONTRACT HOURS

HOLE No. 85-3 LOCATION SPRUCE CK L24+30W, 1200S

GEOLOGIST BOYCE DRILLER MACKENZIE BIT No. BIT FOOTAGE

MOVE TO HOLE 10:00 - 10:40

DRILL 10:45 -

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER CUT CASING + CHANGE BIT 1:10 - 1:45

MOVE TO NEXT HOLE

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG	
			79811 ✓	0-4 BOULDERY, MIXED, UM 150%	
			12 ✓		
10			13 ✓	12 - BOULDERY 60% UM, CHT, SST, GRWST	TOO MUDDY TO SEE ↓
	⊗		14	15 PURPLE ~~CHT~~ BLDR ~ 10"?	
			15	WET ↓ COBBLY GUMMY	
			16		
20			17	30-32 SOFT, FAST DRILLING 33 - BOULDERY	
			79818	38 - POOR RETURN, FEW FINES, BOULDERY DOM UM BLDRS + COBBLES	WTR ADDED -> GD RETURN INCL SOME CLAYEY GOO (FROM OVERLYING?)
40				40-45 95% UM 40 - CLAYEY ZONE	
			19	45-47 - SOFT, EASY DRILLING	
			20	47 70% UM HI (FINE) SD, LOW SILT	
50			21	51 - BOULDERY 51.5 → ... INCREASINGLY RUSTY PARTINGS ~100% UM 53 - SOLID, SLOW DRILLING	GRADUAL CONTACT W/ B/R
			22	54 - WELL SERP, RARE HEMATITE COATINGS 57 - 60 MUCH SOFTER, CUTS FINER	
60			23	60.1 - 68.5 COMMON RUSTY (ALT'D) PPX SERP'D CUTTINGS ALL 3mm OR LESS	
			24		
70			25	74.5 → HEAVILY RUSTY-BRN ALT'D SERP	
			26		
80					

83
90
80
58
54
365

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

V209

DATE 4 OCT 1985
HOLE No. 85-4 LOCATION SPRUCE CK C2400W 1232S
GEOLOGIST BOYCE DRILLER MACKENZIE BIT No. ______ BIT FOOTAGE ______
SHIFT
07:40 TO ______
MOVE TO HOLE 3:30 - 5:30
DRILL 6:20 - 6:45 AM 9:20 - 10:30
TOTAL HOURS
MECHANICAL DOWN TIME
DRILLING PROBLEMS
CONTRACT HOURS
OTHER 9:45 - CUT CASING + CHANGE BIT @ 33'
MOVE TO NEXT HOLE 11:00

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG	
			79827	0-1 ORGANIC 1 - MIXED RX TYPES - UM, SST, CHT GLACIOFLUVIAL UNCOMPACTED	BOULDERY GRAVEL W/ MED SD?
			28		
10			29	13' COBBLY 16' BOULDERY, 19-20' BOULDERY	
			30		
			31	24 - MORE CONSOLID MOSTLY UM RX COBBLY	
			32	28 GRADUAL CONTACT W/ UM B/R OVER ~ 1' 28-30' - COMMON CAL VEINLETS + TALC SPECS	SERP'D, DK GRAY TO GRN-GRAY
30			33		
			34		
40			35	40 V DUSTY - FEW LG CUTTING BRT GRN	SERP'D UM → TO BOTTOM
			36		
			37		
50			38	55 - ROUGH DRILLING - F/R?	
			39		
60					

ALL DRY DRILLING

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE 5 OCT 1985

SHIFT 0740 TO

TOTAL HOURS

CONTRACT HOURS

HOLE No. 85-5 LOCATION SPRUCE CK. L2400W 14+58S

GEOLOGIST BOYCE DRILLER MACKENZIE BIT No. BIT FOOTAGE

MOVE TO HOLE 1100-1230

DRILL 12:45 - 1:40

MECHANICAL DOWN TIME WTR PUMP FROZEN 11:00-12:00

DRILLING PROBLEMS

OTHER BIGN'T A BIT

MOVE TO NEXT HOLE 1:30-2:00

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG
				HI ORGANICS 1st FT — DRILL GRY - CAN'T SEE
			71840	GLACIOFLUVIAL GREY-GRN MUD - FEW CHIP HI SILT CONTENT? IN - CHT MOSTLY UM
			841	
10				10.5 BOULDERY, ROUGH DRILLING
			42	
			43	UM 100% BLDRS
	⊗		44	17 BLDR CONTACT FAIRLY SHARP ~1½' THICK
			45	18 19 17 CHERT 20% APPLEY HICHOOSD, SILT BROWN RUSTY. 70% UM, 10% CHT, 5% SST, 5% GRNT
			46	21-22 - SOFT, NO CHIPS.
				24 - RUSTY BRN B/R w/ MINOR WHITISH BIT - SANDY
			47	
30			48	
			49	38 TO END - V PALE BRN-ORANGE POWDER FEW CHIPS PALE GRN OR OFF-WHT
40	VOLCANIC ACTS		50	
			51	
			52	48-50 - FEW MORE CHIPS + BIT HARDER
50			53	
				END OF HOLE 54' FINAL SPL 53

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE 5 OCT 1985

SHIFT 0710 TO

TOTAL HOURS

CONTRACT HOURS

HOLE No. 85-6 LOCATION V209 SPRUCE 110 m E OF C2A 140m W OF L22, 13605

GEOLOGIST BOYCE DRILLER MACKENZIE BIT No. BIT FOOTAGE

MOVE TO HOLE 2:15 - 2:45

DRILL 3:00 - 5:20

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 6:00

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG
				DRILLING DRY
			79854	0 → GLACIOFLUVIAL - 50% COBS + BLDRS, HI (MOD) SD, MOD SILT, MINOR CLAY. SANDY LENSES. 50% UM, 40% CHT, MINOR SST. WK COMPACTION
			55	8 - 17 V. BOULDERY, BOUNCING DRILL. MOD COMPACTION
10				
			56	17 COBBLY
			57	18 - BRWN, TILLY, LESS CONSOL. 90% UM, MINOR CHT, SST. HI (COARSE) SD + SILT MATRIX, MINOR CLAY? 19 → " " CONSOLIDATED FEW TILL BALLS
20			58	22 - 30% CHT, 10% SST
			59	MAINLY UM
				29 SOFTER - WEA B/R?
30			60	33 SOFT + CLAYEY W/ FEW ANGULAR FRAGS DK GRAY-GRN
			61	35 - 15% FRAGS. 38 - FEW TALC VN FILLINGS
40			62	41-42 GRAD. CONTACT FR B/R - WEA'D UM
			63	46-56 SOFT, FEW LG CHIPS SL GRAYER - BLACK
50			64	54 - CAL VEINLETS 2%
			65	55 → A VG HAMMER
			66	56 - WET W/ SOME CLAY (FLT GOUGE?)
60			67	58 - HARDER, SLOW DRILLING DK GREENER CHIPS
				60 - MUCH LESS RETURN IN CYCLONE, LOTS COMING UP CASING
			68	↓
70			69	SLOW DRILLING TO END.
				72' - END OF HOLE

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

V209

DATE __________ 19 ___

SHIFT 0800 TO ______

TOTAL HOURS ______

CONTRACT HOURS ______

HOLE No. 85-7 LOCATION SPRUCE CK L22+32W 11+34S

GEOLOGIST BOYCE DRILLER MACKENZIE BIT No. ______ BIT FOOTAGE ______

MOVE TO HOLE LAST NIGHT

DRILL 9:00 - 10:30 - ... 12:30

MECHANICAL DOWN TIME UPLUG HOSE + REPL SPOUT 9:10 - 10:30 FIX CHAIN 11:30 - 11:40

DRILLING PROBLEMS BIT STUCK 25' @ 11:45 ROD BROKE 1:00

OTHER 12 - 12:00 Δ BIT

MOVE TO NEXT HOLE ______

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG
			79870	0-3' ALMOST NO RETURN - HOSE PLUGGED. GLACIOFLUVIAL. LOW COMPACTION. DRILLING IN COBBLY GRAVEL, M (COARSE) SAND, LOW SILT, MOD SORTING. 50 & GRNST, 30% UM, SOME RUSTY ALTD, CHERT
			71	6-8 - UNCONSOLIDATED. UM 70% 10% CHT, 5% GRNST
10			72	
			73	17.5-19.0 DRILL JUMPS - V BOULDERY 75% UM, 5% GNST, 5% CHT, 5% SST, MINOR QTZ + GRAN. 17-20 TUFFER, WELL COMPACTED. FEW TILL BALLS! MOD WELL SORTED.
			74	20-23 BOULDERY, COBBLY. LITTLE RETURN. MINOR CHT. MOD CONSOLID. SOME ROUND FRAGS W/ MUDDY COATS - TILL?
			75	26 - MORE L FRAGS, 80% DAMP 95% UM, MINOR CHT COMPACTED. CASING HARD TO HAMMER
30			76	27 - BOULDERY, WET MUD ON CHIPS - SILTY " " POOR SORTING. 28-25 V. SLOW DRILLING W/ LITTLE RETURN - BIT STUCK SAME RX TYPES.
			77	29 Δ TO HAMMER W/ WTR. POORLY SORTED SIM RX, MINOR SST + GRST, MINOR BLK SLATE + RUSTY QZ. 35 95% UM - WELL COMPACTED GRAVEL POOR SORTING
			78	-37 - ROD BROKE
40				HOLE ABANDONED 37 - NR B/R?

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE 7 OCT 1985

SHIFT 11:45 TO 8:30

TOTAL HOURS

CONTRACT HOURS

HOLE No. 85-8 LOCATION V209 SPRUCE CK L2200 W, 1235S

GEOLOGIST BOYCE DRILLER MACKENZIE BIT No. BIT FOOTAGE

MOVE TO HOLE 2:20 - 3:10

DRILL 3:25 - 6:45

MECHANICAL DOWN TIME

DRILLING PROBLEMS CAN'T DRIVE CASING THRU CLAY

OTHER

MOVE TO NEXT HOLE END

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG
			79879	TOP - MOD SORTED SANDY GRAVEL 25% CLAYEY - COBBLES HI (C) SO, MOD SILT. 0-15 SL DAMP, MUDDY (SILT) COBBLES - FAST DRILLING GLACIOFLUVIAL 40% UM, 20% CAPT, 10% SST, 10% GRST, 5% QZ VN MINOR GRAN + GOSSAN
			79880	5% - BOULDERY
10			79881	
			79882	15'-17' - V WET, MUDDY SILTY LAYER W/ 30% CUTTING CHIPS 17 24.5 DAMP GRAVEL
			79883	24.5 - DRYER COBBLY GRAVEL 80% UM, + CAPT + MINOR OTHERS MOSTLY CHIPS GOOD LENS LOCALLY 25% DOL + MINOR PURPLE GRST + CAR VEINS, MINOR GRAN 26 - DISM BLEBS PY IN SERP
			84	29 SILTY TILL BALLS? 31 - SOME V RUSTY SFC BOULDER - 90% UM
30			85	33' - RUSTY SFC COBBLES - BROKEN WEA B/R? 95% UM 34' - WET ANG CUTTINGS
			86	37 - BOULDERY - 95% UM RATHER WET 42-44.3 SERP BLDR - CAN'T DRIVE CASING THROUGH + CONTAMINATION?
40			87	
			88	45 DRY GRAVEL 90% UM
50			89	- 52 - V SANDY, FAST DRILLING. MAINLY UM CLASTS 50%, HI (M) SO, MOD SILT COLUMN
			90	
60			91	63-64 BRNISH WEA MAT'L
			92	65 - WEA B/R? BRN-GRAY, V SOFT, V FAST DRILLING. CUTTINGS 98% COARSE - FINE SAND.
70			93	
			94	
80			95	-85 CONTACT W/ FRESH B/R CAL VEINLET PARTICLES SHOW UP
			96	
90			97	
			98	97'-108' MUCH HARDER, SLOW DRILLING
100				

OUB
COLOUR
GRAIN SIZES
ACID
MAG
PART SHAPE/STRIA
ANGLES, ROUNDNESS, COMPOSITION

DIR
COLOUR
GRAIN SIZES
ACID
MAGNETIC

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ..... 19....
SHIFT
.....TO.....
TOTAL HOURS
.....
CONTRACT HOURS
.....

HOLE No. 85-1 LOCATION .....
GEOLOGIST ..... DRILLER ..... BIT No. ..... BIT FOOTAGE .....
MOVE TO HOLE .....
DRILL .....
MECHANICAL DOWN TIME .....
DRILLING PROBLEMS .....
OTHER .....
MOVE TO NEXT HOLE .....

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG
			7977	MD DK GRN-BRN; PARTICLES TO 4cm - MOSTLY SUBANG, SOME SUBRND; HI GRAN, HI (C) SO, LO (M) SO, MINOR SILT; NO FIZZ, MAGNETIC
			78	SAME COLOUR; PART TO 2cm - MOSTLY SUBANG; HI GRAN, HI (C) SO, MINOR (F) SO + SILT. NO FIZ, WK MAG.
			79	SAME COLOUR; PART PART TO 1.5 cm - MOSTLY SUBANG; HI GRAN, HI (C) SO, MINOR (F) SO + SILT; NO FIZ, LIKELY MAG.
			80	SIM COLOUR, SL BRNER + LIGHTER; PART TO 4cm, MOSTLY SUBANG, BUT ALSO SUBRND + RNDD; VHI GRAN, MOD (F) SO, LO (F) SO, LO SILT, CLAY? ; NO FIZ; LIKLY MAG.
			81	MD-DK (BRN) GRAY; RARE 2 cm PARTS, ANGULAR; LO GRAN, LO SO, HI SILT, LO CLAY; FIZZY, NON MAG.
			82	SAME COLOUR; SUBANG - SUBRND; ~~MOD~~ MOD GRAN, LO (C) SO, HI SILT, MINOR CLAY; FIZZY; WKLY MAG.
			83	SL PALER COLOUR; PART TO 3cm - ANG CUTTINGS; HI GRAN, MINOR SO, MOD SILT, LO CLAY; RARE FIZ; NON MAG; CLAY BALLS IN ARCH SPL
			84	SIM COLOUR, SL DARKER (DAMPER); PARTICLES TO 3cm - SUBANG TO RARELY RNDD + ANG; HI GRAN, HI (C) SO, MOD SILT; LOCALLY FIZZY (RINSE) + MAGNETIC; CLAY BALLS IN ARCH SPL
TILL			85	MED BRN-GRAY, FEW RUSTY PARTICLES; PART TO 3cm - SUBRND TO SUBANG; HI GRAN, MOD (M-F) SO, HI SILT, MINOR CLAY; FIZZY, LOCALLY MAG, CLAY BALLS IN ARCH SPL
			86	SIM COLOUR; PARTS TO 2cm - ANG TO ANG, FEW FACETED; HI PART, HI (C) SO, MINOR SILT + CLAY FIZZY; MAGNETIC; DRY
			87	MD-DK GRAY-GRN W/ FEW WHT CHIPS; HI GRAN, HI (C) SO, COM SILT, MOD CLAY, SOME MED GRAY TO SL BRN FLT GG; MAGNETIC; NO FIZ
			88	MD GRAY TO SL. DK BLUISH, ESP IN COARSER; HI GRAN, LO (F) SO, MOD SILT, MOD CLAY. FLT GG. COMMON, INCL MOSTLY SILT; MAGNETIC; NO FIZZ
			89	MD TO MD-DK GRAY (BLUE); LO (C) SO, MOD (F) SO, HI SILT, MOD CLAY; NO FIZ; MAGNETIC
			90	SIM COLOUR, W/ FINER MATRIX; MOD GRAN, LO (C) SO, LOT [illegible], VAR SILT, VAR CLAY. GG IN CLAY-HI NO FIZZ, ~~VARIAT~~ MAGNETIC EXT GG.
			91	GNEISS? - DK GRN PARTICLES IN LT GRAY MATRIX. MOD GRAN, LO (M) SO, HI SILT, HI CLAY. VAR MAG. CLAY BALLS IN ARCHIVE SPL
			92	SIM COLOUR; LO PART, HI (F) SO, MOD SILT + CLAY, FIZ + MAG, GREASY
83'				

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ..... 19....
SHIFT
.....TO.....
TOTAL HOURS
.....
CONTRACT HOURS
.....

HOLE No. 85-2 LOCATION .....
GEOLOGIST ..... DRILLER ..... BIT No. ..... BIT FOOTAGE .....
MOVE TO HOLE .....
DRILL .....
MECHANICAL DOWN TIME .....
DRILLING PROBLEMS .....
OTHER .....
MOVE TO NEXT HOLE .....

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG
			79793	MOD (GRN) BRN (DK PARTICLES); PART TO 2cm - COMMONLY SUBRND (TO RND); HI GRAN, MOD (F) SD, MOD (M) SD, MOD SILT; WK FIZ, LOCAL MAG
			94	SAME COLOUR; RARE PART TO 2cm - SUBRND TO SUBANG; HI GRAN, MOD (F) SD, MOD SILT; NO FIZ, MOD
			95	SIM COLOUR, SL GRAYER; PART TO 3cm - MOSTLY RND TO SUBRND; HI GRAN, HI (CM) SD, MOD SILT; NO FIZ, LOCAL MAG.; DRIER (CO2 - BLORS?)
			96	SIM COLOUR; RARE PART TO 1cm - SUBANG TO SUBRND; HI GRAN, HI (F) SD, MINOR SILT; NO FIZ; MAGNETIC; DRY
			97	MOD (LO,I) GRAY; CLASTS TO 3cm - SUBANG TO SUBRND; HI GRAN, HI (F) SD; NO FIZ, WK MAG
			98	SIM COLOUR, SL DARKER + RUSTIER; CLASTS TO 2cm RARE - SUBRND; HI GRAN, HI (F) SD, MINOR SILT + CLAY; NO FIZ; LOC MAG; DAMP
			99	MOD DK (GRN) BRN; RARE CLASTS TO 2cm - RND; MOD GRAN, HI (M) SD, MINOR SILT + CLAY FIZZY; WK MAG; DAMPER
			800	SIM COLOUR TO 98; 1cm PART - SUBRND TO RND; MOD PART, HI (M) SD, MINOR SILT, CLAY (I) SD; FIZZY, MOD, DAMP
			01	MED DK GRN (BRN); PART TO 2cm - SUBRND TO ANG; MOD PART, MOD (C-M) SD, MOD SILT, LOW CLAY; WK FIZ; NON MAG; DAMP
			02	SIM COLOUR, SOME MOD BRN; LO GRAN, LO (F) SD, MOD (F) SD, HI SILT; LO CLAY; FIZZY; MAG; DAMP
			03	MED (LO-M) GRAY; PART TO 1 cm - MOSTLY SUBRND; HI GRAN, MOD (C) SD, MOD (F) SD, MOD SILT; FIZZY, MAG
			04	SIM COLOUR, SL GRAYER; RARE CLAST TO 1 cm; SUBANG TO SUBRND; MOD PART, HI (C) SD, MOD (F) SD, HI SILT; FIZZY, MAG.
			05	SIM COLOUR, SL GRAYER; MOD GRAN, HI (C) SD, MOD (F) SD, MOD SILT; FIZZY; MAG; SL DAMP
			06	MED-DK (GRN) GRAY; MOD GRAN, HI (C) SD, MINOR FINE SD; WK FIZ, MAG; DAMP
			07	MINOR GRN, SL BROWNISH-GRAYISH; HI GRAN, HI (C-F) SD, MINOR SILT, WKLY MAGNETIC
			08	DK GRN, HI GRAN, MOD (C-F) SD, MINOR SILT MAGNETIC, NO FIZZ
			09	DK GRN, HI GRAN, MOD (C) SD LOW SILT. MAGNETIC, MINOR FIZ?
			10	DK GRN; HI GRAN, MOD (C) SD, MINOR (F) SD + SILT; MINOR FIZ, MAG, WET
96'				

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE .... 19....

SHIFT

.... TO ....

TOTAL HOURS

....

CONTRACT HOURS

....

HOLE No. BS-3 LOCATION ......

GEOLOGIST ...... DRILLER ...... BIT No. ...... BIT FOOTAGE ......

MOVE TO HOLE ......

DRILL ......

MECHANICAL DOWN TIME ......

DRILLING PROBLEMS ......

OTHER ......

MOVE TO NEXT HOLE ......

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG	
			79811	MED ~~TAN~~ BRN (GRAY); RARE PART TO 2cm - SUBRND TO RND; MOD GRAN, HI (M) SD, MOD SILT, NO FIZ, MAG, DRY	
			12	SIM COLOUR, SL GRAYER; PART TO 2cm (PEBBLY) - RND + SUBRND; HI GRAN, LO(C) SD, HI (F) SD, MOD SILT; WK FIZ; MAG	
			13	SIM COLOUR TO 12; PART TO 2cm - RND (TO SUBANG); HI GRAN, LO(C) SD, HI (F) SD, MOD SILT; NO FIZ, MAG	
			14	MED BRN-GRAY, CLASTS TO 2cm - SUBRND; HI GRAN, LO (C) SD, HI (F) SD MOD SILT, MINOR CLAY?; WK MAG; DAMP	
			15	MED ~~TAN~~-GRAY; CLASTS TO 2cm - SUBANG TO SUBRND; HI GRAN, LO(F) SD, MOD SILT, MINOR CLAY; WK FIZ; LOCAL MAG; V DAMP	
			16	SIM COLOUR; CLASTS TO 2cm - SUBANG - ANGLE FACETS; MOD GRAN, MINOR (C) SD, LOW (F) SD, HI SILT, MINOR CLAY; FIZZY; MAG V DAMP	
			17	SIM COLOUR; TO 2cm - SUBRND TO SUBANG; HI GRAN, LO (F) SD; HI SILT, MINOR CLAY?; FIZZY; LOCAL MAG; DAMP	
			18	MED-DK GRAY (BRN); RARE CLAST TO 1 cm - SUB ANG; MINOR GRAN, LO(F) SD, HI SILT, LO CLAY; FIZZY, WKLY MAG; DAMP	
			19	MED-DK GRAY; MINOR GRAN, LO(F) SD, HI SILT, MOD CLAY; WK FIZZ; WK MAG; DAMP.	
			20	MED-DK (BRN) GRAY; ½ cm CLASTS - SUBANG; MOD GRAN, MINOR (C) SD, LO (F) SD, HI SILT, LO CLAY W/ LOCAL HI CLAY BLOBS; WK FIZZ, WK MAG, WET	
	XXX		21	SIM COLOUR, SL RUSTIER; FEW SUBRND - SUBANG PART; MOD GRAN, MOD (C) SD, MINOR (M) SD MOD SILT, CLAY?; WK FIZ, WK MAG, DAMP	
			22	MED-DK TAN + GRN OR GRAYISH, PARTICLE DK GRN W/ FEW RUSTY RUST-RIM TAN-GRAY; HI GRAN, MOD (F) SD, MOD SILT, MINOR CLAY, NON-MAG, NO FIZ.	
			23	MED-DK GRN (DARKER THAN ABOVE), HI GRAN, [illegible] (F) SD, MINOR SILT + CLAY NON-MAG; NO FIZZ	
			24	MED DK GRN (SAME) (W FEW RUSTY); [illegible] GRAN, H (C) SD, LO (M-F) SD, ~~MOD~~ (MOD) SILT, NO FIZ, NONMAG	
			25	MED-DK GRN (SAME) W/ FEW BRN-RUSTY PARTICLES, MOD GRAN, HI (F) SD, HI SILT NON MAG, NO FIZ	
			26	MED-DK (RUSTY) GRN; MOD GRAN, HI (C) SD, LOW SILT, MINOR CLAY?; WK FIZ, NONMAG	
	80'				

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ..... 19....
SHIFT
.....TO.....
TOTAL HOURS
.....
CONTRACT HOURS
.....

HOLE No. 85-4 LOCATION .....
GEOLOGIST ..... DRILLER ..... BIT No. ..... BIT FOOTAGE .....
MOVE TO HOLE .....
DRILL .....
MECHANICAL DOWN TIME .....
DRILLING PROBLEMS .....
OTHER .....
MOVE TO NEXT HOLE .....

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG
			79827	MED (GRAY) TAN, RARE PART TO 2cm – SUBANG TO SUBRND; MOD GRAN, MOD(C) SD, HI(F)SD, MOD SILT; NO FIZ; MOD MAG; DRY
			28	MED GRAY-TAN; SUBANG (SUBRD) CLASTS RARE TO ½cm; HI GRAN, MOD(C) SD, HI SILT; NO FIZ; MAG; DRY
			29	SIM COLOUR; PART TO 2 cm – RND. SUBRND; MOD GRAN, LO(C) SD, LO(F)SD, HI SILT; NO FIZ, OK MAG
			30	SIM COLOUR; PART TO 1.5cm – RND TO SUBANG; MOD GRAN, MOD(C) SD, LO(F)SD, HI SILT; LOCAL MZ, MAG
			31	SIM COLOUR; LO% CLASTS, TO 2.5cm – SUBANG TO SUBRND; MOD GRAN, LO(C) SD, MOD(F)SD, HI SILT; WK FIZ, WK MAG.
			32	SL GRAYER; 30% CLASTS, TO 1cm – MOSTLY SUBANG; HI GRAN, HI(C)SD, LO(F)SD, LO SILT; NO FIZ; MAG; APPEARS UNCONSOLIDATED
			33	MED-PALE TAN-GRAY, CHIPS TO 2 cm – LOW-MOD GRAN, HI(C-F)SD, MOD-HI SILT; FIZZY MATRIX NON-MAG
			34	GRADATION FROM MED PALE GRAY (SL BRN) TO ~~MED~~ LT GRAY; CHIP TO 1.5cm; MOD GRAN, HI(F)SD, MOD-HI SILT; MAGNETIC; FIZZY MATRIX
			35	PALE GRAY, MOD GRAN (FEW TO 1cm), LOW(F)SD, HI SILT; MAGNETIC, EFFERVESCENT V DRY
			36	PALE GRAY AS ABOVE, BUT SL BRNISH; LO GRAN, MINOR SD, HI SILT, MAGNETIC, FIZZES V DRY
			37	PALE GRAY(BRN) AS ABOVE, SL DARKER; MINOR GRAN, MINOR SD, HI SILT (+CLAY?), FIZZY, MAGNETIC V DRY
			38	SAME COLOUR AS; MINOR SD + VIRTUALLY ALL SILT (+CLAY?) FIZZY, MAG VDRY
			39	SAME COLOUR; MINOR GRAN + SD; HI SILT (+CLAY?) FIZZY, MAG V DRY
59'				

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ..... 19....
SHIFT
.....TO.....
TOTAL HOURS
.....
CONTRACT HOURS
.....

HOLE No. 85-5 LOCATION .....
GEOLOGIST ..... DRILLER ..... BIT No. ..... BIT FOOTAGE .....
MOVE TO HOLE .....
DRILL .....
MECHANICAL DOWN TIME .....
DRILLING PROBLEMS .....
OTHER .....
MOVE TO NEXT HOLE .....

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG	
			79840	MOD GRAY-BRN; CLASTS TO 1 cm 20% SUBRND TO ANG; MAG; CONTAMINATED	LO GRAN, MOD (F) SD, HI SILT; FIZZY, LOCAL CLAY
			41	MD GRAY (BRN); 10% SMALL CLASTS; MINOR GRAN	HI (F) SD, HI SILT, MINOR CLAY?; FIZZY, MAG, DAMP
			42	MOD GRAY; FEW 1 cm ENHPT; MINOR GRAN, MINOR	SD, HI SILT, MINOR CLAY; FIZZY; MAG; DAMP
			43	SIM COLOUR; RARE CHIPS; LO GRAN, MINOR SD +	CLAY, HI SILT; FIZZY, WK MAG;
			44	SIM COLOUR; FEW CHIPS + SUBRND TO SUBANG CLASTS WK FIZ; MAGNETIC; DAMP	TO 2 cm 10%; MINOR GRAN + (F) SD, HI SILT; MINOR CLAY?
			45	SIM COLOUR, SL PALER; PART TO 2 cm 60% MOD (F) SD HI SILT; FIZZY; MAG; DRY	TLY SUBRND; MOD GRAN, MINOR (C) SD,
			46	SIM COLOUR, SL PALER, BOTTOM SECTION 1.5 cm SUBRND; 20%; MD GRAY, HI (F) SD, MD SLT,	PALE MED RUSTY BROWN - SL GRAYER THAN BELOW; PART TO STONG FIZ; MAG; DRY
			47	MD-PALE RUSTY BRN W GRN, GRAY & WHT PARTICLES; GREASY; V EFFERVESCENT; WKLY MAG	MD GRAN, MOD (F) SAND, HI SILT, MINOR CLAY;
			48	SIM COLOUR, SL PALER; MOD GRAN, MOD (C-F) SD, STRONGLY FIZZES	HI SILT, (CLAY?); GREASY; WKLY MAG.
			49	SAME COLOUR; MOD GRAN, MD-HI (C) SD, HI SILT, GREASY	GREASY; STRONG FIZ, WKLY MAG.
			50	PALER MICA CHOC-BRN; MOD GRAN, MOD (C) SD, HI SILT GREASY	PART TO 2 cm, HI EFFERVESCE, WK MAG
			51	PALE TAN-BRN; LO-MOD GRAN, LOW MOD SD, GREASY	HI SILT, CLAY? STRONG FIZ, WK MAG
			52	V PALE TAN-BRN, MOD GRAN, MOD (C-F) SD, HI GREASY, V DRY	SILT, WK FIZ, WK MAG.
			53	V PALE TAN-BRN, MOD GRAN, MOD SD, HI SILT;	WK FIZ, WK MAG; GREASY FEEL; V DRY
54'					

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ---------- 19----
SHIFT
-------TO-------
TOTAL HOURS

CONTRACT HOURS

HOLE No. 85-6 LOCATION ----------
GEOLOGIST ---------- DRILLER ---------- BIT No. ---------- BIT FOOTAGE ----------
MOVE TO HOLE ----------
DRILL ----------
MECHANICAL DOWN TIME ----------
DRILLING PROBLEMS ----------
OTHER ----------
MOVE TO NEXT HOLE ----------

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG
			79854	MD BRN(GRAY); PART 60% TO 1.5cm - MOSTLY CUTTINGS (PEB+CBB) SUBRND; MOD GRAN, LO(C) SD, HI(F)SD, MOD SLT; WK FIZ, WK MAG
			55	SAME COLOUR; CLASTS 70% -TO 3cm - SUBANG TO RND (PEBBLY); HI GRAN, MOD(C)SD, LO(F)SD, LO SILT; WK FIZ; MAG; DRY
			56	SAME COLOUR; CLASTS 80% BLOCKY CHIPS - RND+SUBRND; HI GRAN, MINOR(C-M)SD, MOD(F)SD, HI SILT; FIZZY, WK MAG, DRY
			57	SAME COLOUR; CLASTS 60% CHIPS + SUBANG + SUBRND; MOD GRAN, HI(C)SD, LO SILT; NOTE MUSTY SILT-CLAY BALLS (TILL?); MATRIX FIZZY, MAGNETIC
			58	SIM COLOUR, SL GRAYER; CLASTS 60% TO 3cm - RND(TO SUBANG); HI GRAN, HI(M)SD, LO SILT FIZZY, MAG
			59	SIM COLOUR TO 58; CLASTS 70% CHIPS TO 2 cm, SUBANG - SUBRND; LO GRAN, HI(F)SD, MOD SILT; CLAY?; FIZZY; MAG; DAMP + CONSOLIDATED
			60	MD GRAY; CLASTS 30% TO 1.5cm - SUBRND TO ANG (PEBBLY); HI GRAN, LO SD, HI SILT; FIZZY; MINOR CLAY MAG
			61	SIM COLOUR; RARE CHIPS, MINOR GRAN, HI SILT, MINOR CLAY; FIZZY, MAG
			62	SIM COLOUR, SL PALER; CLASTS 30% TO 1.5cm - SUBRND (TO SUBANG) PEBBLES; MOD GRAN, HI(F)SD, MOD SLT; FIZZY, MAG.
			63	MOD GRN(BRN)GRAY, MOD GRAN (TO 2cm), HI(C) SD, HI SILT; WK FIZ; V WK MAG
			64	MOD-PALE GRN-GRAY; HI GRAN (TO 2.5cm), LO(C) SD, HI (F) SD, MOD SLT; WK FIZ, WK MAG.
			65	SAME COLOUR; HI GRAN (TO 1.5cm), LO (C) SD, HI (F) SD, LO SLT; LOCAL WK FIZ; WK MAG
			66	PALE GRAY (GRN-BRN); HI GRAN, MOD(C), HI (F) SD, LO SLT; WK MAG, NO FIZ
			67	SL PALER GRAY (GRN-BRN); HI GRAN (TO 2 cm) HI(C-M) SD, CO(R) SD, MOD SLT; CLAY? FIZZES, WK MAG.
			68	SL DARKER GRAY-BRN; HI GRAN, LO(C) SD, HI (F) SD; HI SILT; LOCAL FIZZ, V WK MAG.
			69	PALE GRN-GRAY; RARE CHIP TO 2cm, COMMON 3mm; LO GRAN, LO (C) SD, HI (R) SD, HI SILT, LO CLAY, WK FIZ & MAG, V DRY
72'				

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ..... 19 ....
SHIFT
..... TO .....
TOTAL HOURS
.....
CONTRACT HOURS
.....

HOLE No. 85-7 LOCATION .....
GEOLOGIST ..... DRILLER ..... BIT No. ..... BIT FOOTAGE .....
MOVE TO HOLE .....
DRILL .....
MECHANICAL DOWN TIME .....
DRILLING PROBLEMS .....
OTHER .....
MOVE TO NEXT HOLE .....

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG
			79870	MED (GRN) GRAY-BRN; 20% PART-SUBRND; MOD GRAN, MOD(F)SD, HI SILT (MTTLE COARSE DUE TO PLUGGED RETURN); NO FIZ, NON MAG
			71	SAME COLOUR; RARE CHIP TO 1.5 cm - RND 25%; MOD GRAN, MINOR (C)SD, HI (F)SD; HI SILT; NO FIZ, WK MAG
			72	SAME COLOUR; CLASTS 60% TO 2cm - RND TO SUBRND PEBS; MOD GRAN, HI (M)SD, MOD SILT; FIZZY, MAG
			73	SAME COLOUR, CLASTS 50% TO 2cm - RND TO SUBANG - PEB+COBB; HI GRAN, HI (M)SD, MOD SILT; FIZZY, MAG
			74	SAME COLOUR; 50% CLASTS - BLDR CHIPS + RND PEBS, TO 2.5 cm; SAME CLAYEY SILT BALLS - CONSOLID (TILL?); HI GRAN, MOD(F)SD, HI SILT; NO FIZ; MAG; DAMP; FAIRLY COMPACT
			75	SIM COLOUR, SL MORE OLIVE; 70% CLASTS TO 3cm - CHIPS; LO GRAN, HI SILT, MOD CLAY; NO FIZ, MAGNETIC; DAMP + STICKY
			76	SIM COLOUR, SL MORE BRNISH; CLASTS 30% - CHIPS, SOME RND; MTH GRAN, MOD(M-F)SD, MOD SILT, MINOR CLAY; NO FIZ, MAG; DAMP
			77	MD GRAY-BRN, SOME RUSTY; CHIPS + RND CLASTS TO 1 cm - 70%; HI GRAN, MOD(M)SD, LO SILT CLAY?; FIZZY IN RUST; SL DAMP + COMPACT; MAG
37'			78	MED (GRAY) BRN; 5% CLAST CHIPS - RND - 10%; MOD GRAN, MOD(M-F)SD, HI SILT, LO CLAY; NO FIZ; WK MAG; DAMP - DRYING HARD

PLACER DEVELOPMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ..... 19....
SHIFT
..... TO .....
TOTAL HOURS
.....
CONTRACT HOURS
.....

HOLE No. 85-8 LOCATION .....
GEOLOGIST ..... DRILLER ..... BIT No. ..... BIT FOOTAGE .....
MOVE TO HOLE .....
DRILL .....
MECHANICAL DOWN TIME .....
DRILLING PROBLEMS .....
OTHER .....
MOVE TO NEXT HOLE .....

IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE No.	DESCRIPTIVE LOG
			79879	MD TAN-BRN; CLASTS 60% TO 2cm - RND TO SUBANG; NI GRAN, MINOR(F) SD, LOW(F) SD, NI SILT; NO FIZZ, MAG.
			80	SAME COLOUR; BCM CLASTS - CHIPS + SUBRND PEBS, TO 3cm; MI GRAN, MOD(F) SD, MOD SILT; NO FIZ, MAG
			81	MD GRAY-BRN; 70% CLASTS TO 3 cm - SUBRND TO SUBANG; MI GRAN, MOD-HI(F) SD, LO SILT; LOCAL FRIABLE.
			82	SAME COLOUR; CLASTS 60% CHIPS - SUBRND - TO 2.5cm; MOD GRAN, HI(M) SD, MI SILT; FIZZY, MAG; DAMP + PCL COMPACT
			83	MD GRAY (BRN); UNCOMMON CHIPS 10%; LO GRAN, MOD(F) SD, MI SILT, LO CLAY; V FIZZY; NON MAG; DAMP & WELL-COMPACTED (TILL?)
			84	MD GRAY-BRN; CLASTS 20% TO 1cm; SUBANG TO SUBANG; MOD GRAN, MOD(C) SD, MOD(F) SD, MOD SILT; FIZZY, MAG; LOCAL COMPACTION, ~~DRY~~ APPTLY WELL-SORTED
			85	SAME COLOUR; SM CHIPS 20% - SUBRND; MI GRAN, LO(C) SD, MOD(F) SD, MOD SILT; FIZZY; MAG; DRY, APPTLY WELL-SORTED
			86	SIM COLOUR; CHIPS 30%; LO GRAN, MINOR(C) SD; MI SILT; MI CLAY; FIZZY, MAG; WET
			87	SIM COLOUR, SL YELLOWER; 60% CHIPS + SUBRND PEBS TO 1.5 cm; LO GRAN, ~~MOD~~ LO SP, LO SILT, MI CLAY (SOME BALLS ALL CLAY); NO FIZZ, WK MAG; WET + STICKY
			88	MD GRAY-BRN; SM CHIPS 20% TO 1cm; MOD GRAN, MINOR(C) SD, MI SILT, MINOR CLAY; NO FIZ; MAG; DAMP
			89	SIM COLOUR; PEBBLE CLASTS TO 2cm; MOD GRAN, LO(C) SD, MOD(F) SD, MI SILT, MINOR CLAY; FIZZY, MOD; DAMP + GLUED TOGETHER
			90	SIM COLOUR; 50% CLASTS TO 1.5 cm - SUBANG; MI GRAN, MOD(C) SD, LO(F) SD, MOD SILT; FEW CONCRETED SLT-GRANULE BALLS; FIZZY; MAGNETIC; DRY
			91	MD RUSTY GRAY TO BRN GRAY; INCL SOME V WEA PEBS + GRANS; 60% CLASTS MOSTLY 2cm, VR TO 2cm - MOSTLY SUBANG; MI GRAN, MOD(C) SD, MI SILT - SOME SILTY BALLS (TILL?); WELL FIZZY; MAG; DRY
			92	COLOUR VAR RUSTY GRAY TO OLIVE-GRAY; 30% CLASTS AS ABOVE, LOTS OF "TILL" BALLS; MI GRAN, MOD(C) SD, LO(F) SD, MI SILT; WK FIZ; WK MAG (TILL?); GREASY
			93	MD (OL) GRAY; 50% CLASTS - TO 2cm - SUBANG + SUBRND; MI GRAN, LO(C) SD, MI SILT; WK FIZ; WK MAG; DRY; GREASY; NOTE FEW SM FRAG OLD WOOD + PEGOLITE?
			94	MD-PALE GRAY TO GRAY (BRN); 20% CLASTS TO ½ cm - ANG (TO SUBRND); MOD GRAN, LO(F) SD, MI SILT; WK FIZ; MAG, DRY
			95	SIM COLOUR; CLASTS 30% TO ½ cm - MOST SUBRND; MOD GRAN, LO(F) SD, MI SILT; FIZZY; MOD STRONG; DRY
			96	MD-PALE GRAY (GRN-BRN); MI GRAN (TO 2cm), MOD(C) SD, MOD-HI(F) SD, MOD SILT LOCAL WK FIZ; MAGNETIC - STRONG
			97	SL PALER GRAY (GRN-BRN); MI GRAN, LO(C) SD, HI(F) SD, ~~MOD~~ LO SILT; NO FIZ; MAGNETIC - STRONG
			98	MD-PALE GRAY (BRN); 10% WITTINGS; MI GRAN, LO(C) SD, LO(F) SD, MOD SILT; FIZ, STRONG MAG; GREASY
100'				

SPRUCE CK COARSE FRACTION HOLE #1

79777

UM SERP'D	卌 卌 |||	26%
GRNST	卌 卌 卌 ||||	38%
CHERT	卌 |	12%
FELSIC PIECES	||	
QZUN	||	
RHYL	|	
GRANITIC	|||	6%
BX	|	
QTZT	|	
ARGILLITE	||	

79778

UM SERP'D	||||	8%
GRNST	卌 |||	16%
CHERT	卌 卌 |	22%
ANDS	||	
RHYL	卌	10%
GRANITIC	卌 |	12%
BX	|	
SST	|	
SIL'D ARGL	|||	

79

SERP'D UM	卌 卌 |	22%
GRNST	卌 卌 |	22%
CHERT + CHT BX	||||	8%
ARGL	卌 |||	16%
GRANITIC	|||	
ANDS + BSLT	||||	8%
RHYL	|||	
QZVN	|	
LST	||	
QTZT	||	
SST	|	

NOTE 2 PIECES RHYL WELDED TF SHOT THROUGH W/ DISM PY ~ 5->10%

80

GRNST	卌 ||	14%
SERP'D UM	卌 卌 |||	26%
SST + QTZT	卌 |||	16%
DOL + LST	||||	8%
CHERT	卌 ||||	18%
ANDS	||	
GRAN	卌	10%
ARGL	|	
RHYL	|	

81

SERP'D UM	卌	10%
BSLT	卌 |	12%
GRNST	卌 卌 卌 |||	36%
FELSIC VOLC	|||	
CHERT	卌 ||||	18%
ARGL	||	
GRAN	|	
LST	卌 |	12%

82

SERP'D UM	卌 卌 卌 ||||	57%
PYRITIC RHYL	|	
GRAN	|	
GRNST	卌	15%
CHERT	卌	15%
QTZT	|	
QZVN	|	

84

SERP'D UM	卌 卌 卌 卌 |	42%
CHERT	卌 |||	16%
SST	||||	8%
RHYL	卌	10%
ANDS	||||	8%
GRAN	|||	
GRNST	||||	8%

85

SERP'D UM	卌 ||||	36%
CHERT	卌	20%
GRNST	卌 |	24%
GRAN	|	
RHYL	|	
SST	|||	12% +

86

CHERT/SST	|||	12%
SERP'D UM	卌 卌 卌 |||	72%
ANDS	|	
GRNST	|||	12%

87 — 100% SERP - SERP'D UM

88 — 1 FRAG RHYL, ~100% UM

SPRUCE CK CORASC - HOLE #2

79793 SERP'D UM ~~||||~~ ~~||||~~ ~~||||~~ || 68%
SST |
FELSIC VOLC || 8%
QZVN ||| 12%
GRNST |
CHERT |

MOSTLY CHIPPY w/ SUBANG (+ SUBRND) BOULDERS?

94 CHERT ||| 12%
SERP'D UM ~~||||~~ ~~||||~~ ~~||||~~ | (64%)
GRNST ||| 12%
GRAN ||| 12%
ARGL |

CHIPPY - CORELESS?

95 SERP'D UM ~~||||~~ ~~||||~~ |||| (56%)
CHERT ~~||||~~ | 24%
GRNST ||| 12%
QTZT ||

PEBBLY - SUBANG (SUBRND) MORE RUSTY PIECES

96 SERP'D UM ~~||||~~ ~~||||~~ ~~||||~~ | (64%)
ARGL |
SST ||
QZVN |
GRNST |
GRAN ||
FELSIC VOLC |
CHERT |

SMALL CHIPS, SUBANG + ANG (SUBRND)

97 SERP'D UM ~~||||~~ ~~||||~~ |||| (56%)
GRNST ~~||||~~ 20%
SST |
GRAN |
CHERT ||| 12%
ANDS |

LG CHIPS - ANG TO RND.

98 SERP'D UM ~~||||~~ ~~||||~~ (40%)
ANDS ||
CHERT ||| 12%
ARGL |
GRAN ||| 12% (AA)
SIL'D, 2X'D UM |
LST |
FELSIC VOLC ||
GRNST ||

CLEAN, ANG TO RND

99 GRNST |||| 16%
SERP'D UM ~~||||~~ |||| 40%
FELSIC VOLC ||
LST ||
CHERT + CH 2X |||| 16%
SLST |

LG CHIPS - ANG + SUBANG

800 SERP'D UM ~~||||~~ ~~||||~~ |||| 56%
GRNST |||| 16%
CHERT ||
GRAN ||
QTZT |
QZVN |
QZ CR |

CHIPPY, MOSTLY SUBANG (SUBRND)

801 SERP'D UM ~~||||~~ ~~||||~~ ~~||||~~ (60%)
ARGL |
FELSIC VOLC ||| 12%
CHERT |
GRAN |
GRNST |||| 16%

802 SERP'D UM ~~||||~~ ~~||||~~ ||| 52%
CHERT ~~||||~~ || 28%
ANDS ||| 12%
GRNST ||

MOSTLY SUBANG + MINOR CLAY COAT

803 SERP'D UM ~~||||~~ ~~||||~~ (40%)
GRNST ~~||||~~ ||| 32%
CHERT |||| 16%
QZVN |
GRAN ||
SST |

DISM PO IN SOME GRNST, MOSTLY SUBANG
MORE CLAY COATS

804 SERP'D UM ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ (80%)
SCHEELITE |
ANDS |
QZVN |
GRAN |
CAL VN | → LOCAL!

DISM PO IN UM, CHIPPY

805 95% SERP'D UM, MINOR GRAN, FELSIC VOLC, CHERT

V CHIPPY - CONTACT JUST BELOW TOP

SPRUCE CK. DRILLING - COARSE FRACTION

HOLE # 3

79811

CHERT	I	
UM	𝍸 𝍸 II	(48%)
ANDS	𝍸 I	24%
SST	I	
RHYL	II	8%
GRAN	II	8%
DACT	I	

SUBANG (TO SUBRNDD) CHIPS

12

UM	𝍸 𝍸 𝍸 III	(72%)
GRAN	II	8%
CHERT	I	
QZ VN	I	
GRNST	II	8%
BSLT	I	

MOSTLY ANG TO SUBRND CHIPS. UM IS RARELY CARB'D OR STEATIZED. TILL BALLS.

13

UM	𝍸 𝍸 III	(52%)
QZ VN	I	
ANDS	III	12%
GRNST	I	
RHYL	III	12%
GRAN	I	
BSLT	II	8%
QTZT	I	

SUBANG TO ROUNDED. RARE CARB'D UM

14

CHERT BX		𝍸 𝍸	40%)48%
CHERT		II	8%
UM		𝍸 𝍸	(40%)
BSLT		I	
DACT		I	
RHYL		I	

MAINLY SUB ANGULAR

15

ANDS	𝍸 I	24%
UM	𝍸 𝍸 𝍸 III	(72%)
RUSTY RHYL	I	

SUBANG TO SUBRNDD. FEW TILL BALLS + CLAY COATS

16

UM	𝍸 𝍸 𝍸 I	(64%)
BSLT	IIII	16%
DACT	II	8%
CHERT	I	
QZ VN	I	
GRAN	I	

MAINLY SUBANGULAR

17

UM	𝍸 𝍸 𝍸	(60%)
CHERT	I	
DACT	II	8%
BSLT	I	
QTZT	I	
ANDS	III	12%
SST	I	
GRNST	I	

SUB RND TO SUBANGULAR. COMMON CLAY COATS ONE FACETED CHERT CLAST

18

ANDS	𝍸	24%
UM	𝍸 IIII	(54%)
CHERT	I	
BSLT	I	

ROUNDED TO SUBANGULAR
COMMON CLAY COATS + SILTY TILL BALLS

19

UM	𝍸 𝍸 𝍸 𝍸	(80%)
CHERT	I	
RHYL	I	
BSLT	III	12%

MOSTLY SMALL, ANGULAR (TO SUBRNDD) CHIPS
COMMON CLAY COATS, FEW TILL BALLS.

20

BSLT	𝍸 I	24%
ANDS	I	
CHERT	II	8%
UM	𝍸 𝍸 III	(52%)
RHYL	II	8%
SST	I	

MOSTLY, SM ANGULAR CHIPS. FEW CLAY COATS + TILL BALLS.

21

UM	24	(96%)
CHERT	I	4%

CHERT CLAST IS FACETED. CLASTS COMMONLY SUBANGULAR. FEW CLAY COATS.

SPRUCE CREEK COARSE - Hole #4

79827

CHERT	IIII	20%
QTZT	I	
SERP'D UM	IIII	(28%)
GRAN	IIII	32%
ANDS	I	
FELSIC VOLC	I	
GRNST	II	
ARGL	I	

CLEAN, MOSTLY SUBRND, MANY RUSTY

28 (SERP'D UM & PB)

	IIII IIII IIII	(60%)
QZVN	I	
CHERT	I	
QTZT	III	12%
GRNST	III	17%
FELSIC VOLC	II	

CLEAN, SUBRND TO SUBANG

29

GRAN	III	12%
SERP'D UM	IIII IIII	(36%)
CHERT	IIII	20%
SST	I	
ARGL	II	
GRNST	I	
FELSIC VOLC	I	
LST	I	

CLAY COATS, TUFF BALLS (?) SUBANG → SUBRND

31

SERP'D UM	IIII IIII III	(52%)
GRAN	IIII	20%
FELSIC VOLC	II	
GRNST	II	
CHERT	II	
QZVN	I	

SUBANG - UNCOMMON CLAY COAT

32

CHERT	IIII	20%
ANDS	IIII II	28%
SERP'D UM	IIII IIII I	(44%)
FELSIC VOLC	I	
GRNST	I	

COMMON CLAY/SILT COATS + BALLS, SUB-ANG

33

100% SERP W/ FEW WEA SFCS

SHAKE CK COARSE Hole #5

79840

SERP'D UM	HHT III	(32%)
GRAN	III	12%
GRNST	HHT HHT	40%
QTZT	I	
CHERT	II	
METASED	I	

MOSTLY CHIPS, SOME CLAY COATS + [illegible] BALLS

41

GRNST	III	12%
QZ-CB VEIN	II	
QTZT	III	12%
LST	II	
SERP'D UM	HHT HHT	(40%)
LIMY MDST	I	
SILT ST	II	
CHERT	I	
FELSIC VOLC	I	

SOME CLAY COATS SUBRND TO ANG.

42

GRNST	HHT IIII	36%
CHERT	II	
SERP'D UM	HHT HHT	(40%)
LST	I	
GRAN	I	
LIMY ARGL	II	

MOSTLY SUBRND, FEW CLAY COATINGS

43

SERP'D UM	HHT HHT II	(48%)
SIL'D GRNST	HHT II	28%
CHERT	III	
LST	I	
SST	II	

COMMON SILT BALLS + COATS

44

SERP'D UM	HHT HHT HHT HHT III	(92%)
GRAN	I	(BLDR)
QZVN	I	
MINOR GRNST		

NOTE SOME SUBRND + MINOR CLAY COATS

45

CHERT	II	
QZ-CB	I	
SERP'D UM	HHT HHT HHT	(60%)
LST	II	
GRNST	IIII	16%
QTZT	I	

46

SERP'D UM	HHT HHT HHT I	64%
GRAN	IIII	16%
CARB'D UM	IIII	16%
FELSIC VOLC	I	

EC?

NOTE [illegible] SUBRND-SUBANG [illegible] CLAY COA[illegible]
B/R CONTACT? [illegible] BOTTOM

B/R 47 100% UM - 90% CARB'D

SPRUCE CK. DRILLING - COARSE FRACTION

HOLE #6

1854

SST	II	
UM	||| |||	(40%)
GRAN	III	12%
CHERT	III	12%
GRNST	||| I	24%
RUSTY RHYL	I	

MOSTLY ANGULAR, SMALL FRAGS.

55

UM	||| ||| ||| I	(64%)
BSLT	||| I	24%
QZVN	I	
RHYL	I	
CHERT	I	

MAINLY ANG + SUBANG.
ONE UM CLAST HAS QZ-CB VEINING

56

UM	||| ||| I	(44%)
RHYL	I	
GRAN	III	12%
ANDS	||| II	28%
LIMT.	I	
BSLT	II	

MOSTLY SUBANG, SOME SUBRND

57

GRAN	II	
UM	||| ||| ||| III	(52%)
CHERT	II	
ANDS	III	12%
BSLT	IIII	16%
RHYL	I	

5% RUSTY SFCS. MAINLY SUBRND

58

DACT	II	8%
BSLT	II	8%
UM	||| |||	(40%)
GRAN	II	8%
ANDS	||| I	24% 44%
CARB'D UM	I	
SST	I	
CHERT	I	

MAINLY SUBROUND

59

UM	||| ||| I	(44%)
BSLT	IIII	16%
DACT	|||	20%
RUSTY RHYL	II	
GRAN	I	
CHERT	II	
QTZT	I	

SUBROUND TO SUB ANGULAR, FEW LARGE

60

BSLT	|||	20%
UM	||| |||	(40%)
ANDS	III	12%
CHERT	III	12%
GRNST	I	
GRAN	I	
RHYL W/ BXW	I	
QTZT	I	

ANGULAR TO SUBROUND. NOTED 1 FACETED + STRIATED CLAST.

61

UM	||| |||	(40%)
BSLT	|||	20%
ANDS	||| ||| III	32%
CHERT	I	
GRAN	I	

SMALL CLASTS, MOSTLY SUBRND (TO SUBANG)

62

UM	||| I	(24%)
BSLT	||| ||| ||| ||| III	72%
GRAN	I	

SMALL, ANGULAR CHIPS

SPRUCE CK. DRILLING - COARSE FRACTION HOLE #7

9870

ANDS	II	
GRNST	|||	20%
UM	|||| II	(28%)
+BX CHERT	|||	20%
SST	II	
RUSTY, S/L BXN	I	
GRAN	II	

FINE DISM PY IN CHERT
MOSTLY ANGULAR + SUBANGULAR

71

CHERT	IIII	16%
GRNST	|||| III	32%
RHYL	II	
UM	|||| I	24%
DIOR	I	
GRANITIC GNEISS	I	
RHYL	I	
BSLT	II	

MOSTLY SUBANGULAR, FEW FACETED
FEW TILL BALLS - SAND + SILT

72

CHERT	IIII	16%
UM	|||| ||||	(40%)
GRNST	||||	20%
RHYL	I	
SST	I	
ANDS	III	12%
ARGL	I	

SUBRNDD + SUBANGULAR, MINOR CLAY COATS

73

BSLT	IIII	16%
GRNST	|||| II	28%
RHYL	I	
UM	|||| |||| I	(44%)
CHERT	II	8%

SUBRNDD - SUBANGULAR, NOTE FACETS

74

RHYL	IIII	16%
CHERT	||||	20%
BSLT	I	
GRNST	||||	20%
UM	|||| ||||	(40%)

SOME CHERT PYRITIC, SOME UM STEATIZED
SUBROUNDED

75

UM	|||| |||| |||| I	(64%)
ALSK	I	
GRNST	IIII	16%
GRAN	I	
CHERT	II	8%
RHYL	I	

MANY LG. CHIPS - RNB TO SUBANG
ONE CHERT PYRITIC

76

GRNST	|||| II	20%
UM	|||| |||| |||| II	(60%)
SST	I	4%

MOSTLY V SMALL PEBBLE SIZES.
QUITE ANGULAR

77

UM-SIC'D 100%

ALL ANGULAR CHIPS

78

UM	|||| |||| |||| |||| IIII	(96%)
RHYL	I	

ALL ANGULAR FRAGS + CHIPS

79879

GRNST	HHT |||	32%
SERP'D UM	HHT ||	(28%)
SST	||||	12%
CHERT	||||	
RHYL	||	12%

80

GRNST	HHT |||	24%
CHERT	HHT	15%
ANDS	HHT	15%
QZVN			
SERP'D UM	HHT ||||	(27%)
RHYL	||	
LST			6%
SST			
RUSTY GRAN			

81

SERP'D UM	HHT HHT||||	(48%)
GRNST	HHT |||	32%
CHERT	|||	12%
FELSIC VOLC			
GRANITIC			

82

CHERT	||||	16%
SERP'D UM	||||	(16%)
GRNST	HHT |||	28%
SANDSTONE	|||	12%
CARB ALT'D BSLT			
GRAN	||	
FELSIC VOLC	||	

83

GRAN	|||	12%
GRNST	HHT HHT	40%
SERP'D UM	HHT ||	(28%)
CHERT	||	
LST			
FELSIC VOLC	||	

84

SERP'D UM	HHT HHT HHT ||||	(76%)
FELSIC VOLC	HHT	20%
CHERT			4%

NOTE MANY CLAY-SILT BALLS

85

SERP'D UM	HHT HHT HHT HHT ||	(88%)
ANDS			
GRNST			
SST			

NOTE CLAY COATS + CLAY-SILT BALLS

86

SERP'D UM	HHT HHT HHT HHT ||	88%
GRNST	|||	

RARE CLAY-SILT LUMP

87

SERP'D UM	HHT HHT HHT HHT |||	(92%)
CLEAN SST			
CHERT			

MINOR SILT/CLAY BALLS, MINOR JADE? GRANITIC

88

SERP'D UM	HHT HHT HHT HHT ||	(88%)
GRNST	||	
CHERT			

SOME SERP STEATITIZED

89

SERP'D UM	HHT HHT HHT HHT		(84%)
CHERT	|||	
FELSIC VOLC			

SOME SERP STEATITIZED, SIL'D OR CB-ALT'D, SOME CLAY COATS

90

SERP'D UM	HHT HHT HHT HHT	(92%)
CHERT	||	

FEW UNSORTED TILL BALLS

(91) SERP'D UM (100%)

TILL BALLS + SILT-CEMENTED AGGREGATES COMMON
RARE SUBRND CLAST

(92) SERP'D UM (100%) - PACK
1 PIECE QZVN
YELLOW-BRN TILL BALLS, MANY SUBRND CLASTS

(93)

SERP'D UM	HHT HHT HHT HHT ||||	(96%)
SST			

MINOR CLAY COATINGS + TILL BALLS
FEW SUBRND FRAGS

(94) SERP'D UM (100%)
MOSTLY ANGULAR - RARE CLAY COATS

(95) SERP'D UM (100%) B/R
ALMOST ALL ANG CLAY ABSENT

(96) V.S.M. B/R

APPENDIX E

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-02

SAMPLE WEIGHT: 478.4 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79879

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	267.8	55.98	55.98	44.02
- 8 + 20	841	57.6	12.04	68.02	31.98
- 20 + 35	420	24.9	5.20	73.22	26.78
- 35 +100	149	28.7	6.00	79.22	20.78
-100 +200	74	20.8	4.35	83.57	16.43
-200 +270	53	7.8	1.63	85.20	14.80
-270 +400	37	10.8	2.26	87.46	12.54
-400		60.0	12.54	100.00	-
TOTAL		478.4	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-02

SAMPLE WEIGHT: 620.2 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79880

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	465.2	75.01	75.01	24.99
- 8 + 20	841	32.5	5.24	80.25	19.75
- 20 + 35	420	17.0	2.74	82.99	17.01
- 35 +100	149	31.0	5.00	87.99	12.01
-100 +200	74	14.0	2.26	90.25	9.75
-200 +270	53	7.9	1.27	91.52	8.48
-270 +400	37	8.2	1.32	92.84	7.16
-400		44.4	7.16	100.00	-
TOTAL		620.2	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-02

SAMPLE WEIGHT: 695.4 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79881

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	628.1	90.32	90.32	9.68
- 8 + 20	841	12.9	1.86	92.18	7.82
- 20 + 35	420	4.8	0.69	92.87	7.13
- 35 +100	149	10.4	1.50	94.36	5.64
-100 +200	74	8.0	1.15	95.51	4.49
-200 +270	53	3.8	0.55	96.06	3.94
-270 +400	37	4.5	0.65	96.71	3.29
-400		22.9	3.29	100.00	-
TOTAL		695.4	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-02

SAMPLE WEIGHT: 612.7 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79882

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	396.1	64.65	64.65	35.35
- 8 + 20	841	37.4	6.10	70.75	29.25
- 20 + 35	420	20.2	3.30	74.05	25.95
- 35 +100	149	36.1	5.89	79.94	20.06
-100 +200	74	31.2	5.09	85.03	14.97
-200 +270	53	11.4	1.86	86.89	13.11
-270 +400	37	11.0	1.80	88.69	11.31
-400		69.3	11.31	100.00	-
TOTAL		612.7	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-07

SAMPLE WEIGHT: 529.9 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79883

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	227.5	42.93	42.93	57.07
- 8 + 20	841	55.9	10.55	53.48	46.52
- 20 + 35	420	45.9	8.66	62.14	37.86
- 35 +100	149	39.1	7.38	69.52	30.48
-100 +200	74	41.9	7.91	77.43	22.57
-200 +270	53	10.4	1.96	79.39	20.61
-270 +400	37	13.5	2.55	81.94	18.06
-400		95.7	18.06	100.00	-
TOTAL		529.9	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-07

SAMPLE WEIGHT: 428.4 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79884

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	43.2	10.08	10.08	89.92
- 8 + 20	841	74.7	17.44	27.52	72.48
- 20 + 35	420	48.3	11.27	38.80	61.20
- 35 +100	149	111.8	26.10	64.89	35.11
-100 +200	74	44.6	10.41	75.30	24.70
-200 +270	53	18.4	4.30	79.60	20.40
-270 +400	37	19.1	4.46	84.06	15.94
-400		68.3	15.94	100.00	-
TOTAL		428.4	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-08

SAMPLE WEIGHT: 441.0 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79885

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	117.2	26.58	26.58	73.42
- 8 + 20	841	86.4	19.59	46.17	53.83
- 20 + 35	420	43.2	9.80	55.96	44.04
- 35 +100	149	74.2	16.83	72.79	27.21
-100 +200	74	44.8	10.16	82.95	17.05
-200 +270	53	10.1	2.29	85.24	14.76
-270 +400	37	15.1	3.42	88.66	11.34
-400		50.0	11.34	100.00	-
TOTAL		441.0	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-08

SAMPLE WEIGHT: 501.5 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79886

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	221.4	44.15	44.15	55.85
- 8 + 20	841	51.0	10.17	54.32	45.68
- 20 + 35	420	27.6	5.50	59.82	40.18
- 35 +100	149	40.6	8.10	67.92	32.08
-100 +200	74	23.0	4.59	72.50	27.50
-200 +270	53	15.8	3.15	75.65	24.35
-270 +400	37	18.7	3.73	79.38	20.62
-400		103.4	20.62	100.00	-
TOTAL		501.5	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-09

SAMPLE WEIGHT: 537.2 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79887

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	262.5	48.86	48.86	51.14
- 8 + 20	841	80.0	14.89	63.76	36.24
- 20 + 35	420	25.5	4.75	68.50	31.50
- 35 +100	149	34.9	6.50	75.00	25.00
-100 +200	74	25.5	4.75	79.75	20.25
-200 +270	53	20.3	3.78	83.53	16.47
-270 +400	37	9.0	1.68	85.20	14.80
-400		79.5	14.80	100.00	-
TOTAL		537.2	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-09

SAMPLE WEIGHT: 460.3 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79888

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	140.8	30.59	30.59	69.41
- 8 + 20	841	90.3	19.62	50.21	49.79
- 20 + 35	420	32.0	6.95	57.16	42.84
- 35 +100	149	41.1	8.93	66.09	33.91
-100 +200	74	34.6	7.52	73.60	26.40
-200 +270	53	10.6	2.30	75.91	24.09
-270 +400	37	14.4	3.13	79.04	20.96
-400		96.5	20.96	100.00	-
TOTAL		460.3	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-09

SAMPLE WEIGHT: 380.7 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79889

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	209.4	55.00	55.00	45.00
- 8 + 20	841	42.4	11.14	66.14	33.86
- 20 + 35	420	13.6	3.57	69.71	30.29
- 35 +100	149	21.5	5.65	75.36	24.64
-100 +200	74	23.6	6.20	81.56	18.44
-200 +270	53	9.0	2.36	83.92	16.08
-270 +400	37	11.0	2.89	86.81	13.19
-400		50.2	13.19	100.00	-
TOTAL		380.7	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-09

SAMPLE WEIGHT: 534.7 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79890

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	187.9	34.56	34.56	65.44
- 8 + 20	841	108.4	19.94	54.50	45.50
- 20 + 35	420	42.5	7.82	62.31	37.69
- 35 +100	149	47.0	8.64	70.96	29.04
-100 +200	74	46.0	8.46	79.42	20.58
-200 +270	53	20.8	3.83	83.24	16.76
-270 +400	37	12.6	2.32	85.56	14.44
-400		78.5	14.44	100.00	-
TOTAL		543.7	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-10

SAMPLE WEIGHT: 373.1 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79891

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	113.1	30.31	30.31	69.69
- 8 + 20	841	57.9	15.52	45.83	54.17
- 20 + 35	420	25.3	6.78	52.61	47.39
- 35 +100	149	26.3	7.05	59.65	40.35
-100 +200	74	35.9	9.62	69.28	30.72
-200 +270	53	15.3	4.10	73.38	26.62
-270 +400	37	20.7	5.53	78.91	21.09
-400		78.7	21.09	100.00	-
TOTAL		373.2	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-10

SAMPLE WEIGHT: 350.9 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79892

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	84.0	23.94	23.94	76.06
- 8 + 20	841	54.0	15.39	39.33	60.67
- 20 + 35	420	30.0	8.55	47.88	52.12
- 35 +100	149	44.8	12.77	60.64	39.36
-100 +200	74	27.1	7.72	68.37	31.63
-200 +270	53	31.6	9.01	77.37	22.63
-270 +400	37	16.8	4.79	82.16	17.84
-400		62.6	17.84	100.00	-
TOTAL		350.9	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-10

SAMPLE WEIGHT: 335.3 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79893

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	127.9	38.14	38.14	61.86
- 8 + 20	841	71.4	21.29	59.44	40.56
- 20 + 35	420	27.8	8.29	67.73	32.27
- 35 +100	149	30.9	9.22	76.95	23.05
-100 +200	74	23.2	6.92	83.87	16.13
-200 +270	53	9.5	2.83	86.70	13.30
-270 +400	37	11.2	3.34	90.04	9.96
-400		33.4	9.96	100.00	-
TOTAL		335.3	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-10

SAMPLE WEIGHT: 407.3 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79894

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	135.0	33.15	33.15	66.85
- 8 + 20	841	71.4	17.53	50.68	49.32
- 20 + 35	420	27.4	6.73	57.40	42.60
- 35 +100	149	36.5	8.96	66.36	33.64
-100 +200	74	38.5	9.45	75.82	24.18
-200 +270	53	13.3	3.27	79.08	20.92
-270 +400	37	19.1	4.69	83.77	16.23
-400		66.1	16.23	100.00	-
TOTAL		407.3	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-14

SAMPLE WEIGHT: 420.7 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79895

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	120.7	28.69	28.69	71.31
- 8 + 20	841	78.8	18.73	47.42	52.58
- 20 + 35	420	32.5	7.73	55.15	44.85
- 35 +100	149	39.5	9.39	64.54	35.46
-100 +200	74	38.6	9.18	73.71	26.29
-200 +270	53	14.2	3.38	77.09	22.91
-270 +400	37	24.5	5.82	82.91	17.09
-400		71.9	17.09	100.00	-
TOTAL		420.7	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-14

SAMPLE WEIGHT: 422.5 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79896

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	181.8	43.03	43.03	56.97
- 8 + 20	841	100.7	23.83	66.86	33.14
- 20 + 35	420	31.4	7.43	74.30	25.70
- 35 +100	149	26.0	6.15	80.45	19.55
-100 +200	74	20.6	4.88	85.33	14.67
-200 +270	53	8.1	1.92	87.24	12.76
-270 +400	37	11.5	2.72	89.96	10.04
-400		42.4	10.04	100.00	-
TOTAL		422.5	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-15

SAMPLE WEIGHT: 413.7 g

SAMPLE DESCRIPTION: Spruce Creek V209 - 79897

REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	164.6	39.79	39.79	60.21
- 8 + 20	841	121.5	29.37	69.16	30.84
- 20 + 35	420	39.0	9.43	78.58	21.42
- 35 +100	149	21.2	5.12	83.71	16.29
-100 +200	74	11.0	2.66	86.37	13.63
-200 +270	53	5.0	1.21	87.58	12.42
-270 +400	37	8.3	2.01	89.58	10.42
-400		43.1	10.42	100.00	-
TOTAL		413.7	100.00	-	-

KIM:ojt
1986-01-15

PLACER DEVELOPMENT LIMITED
METALLURGICAL RESEARCH CENTRE
SCREEN ANALYSIS REPORT

DATE: 1986-01-15

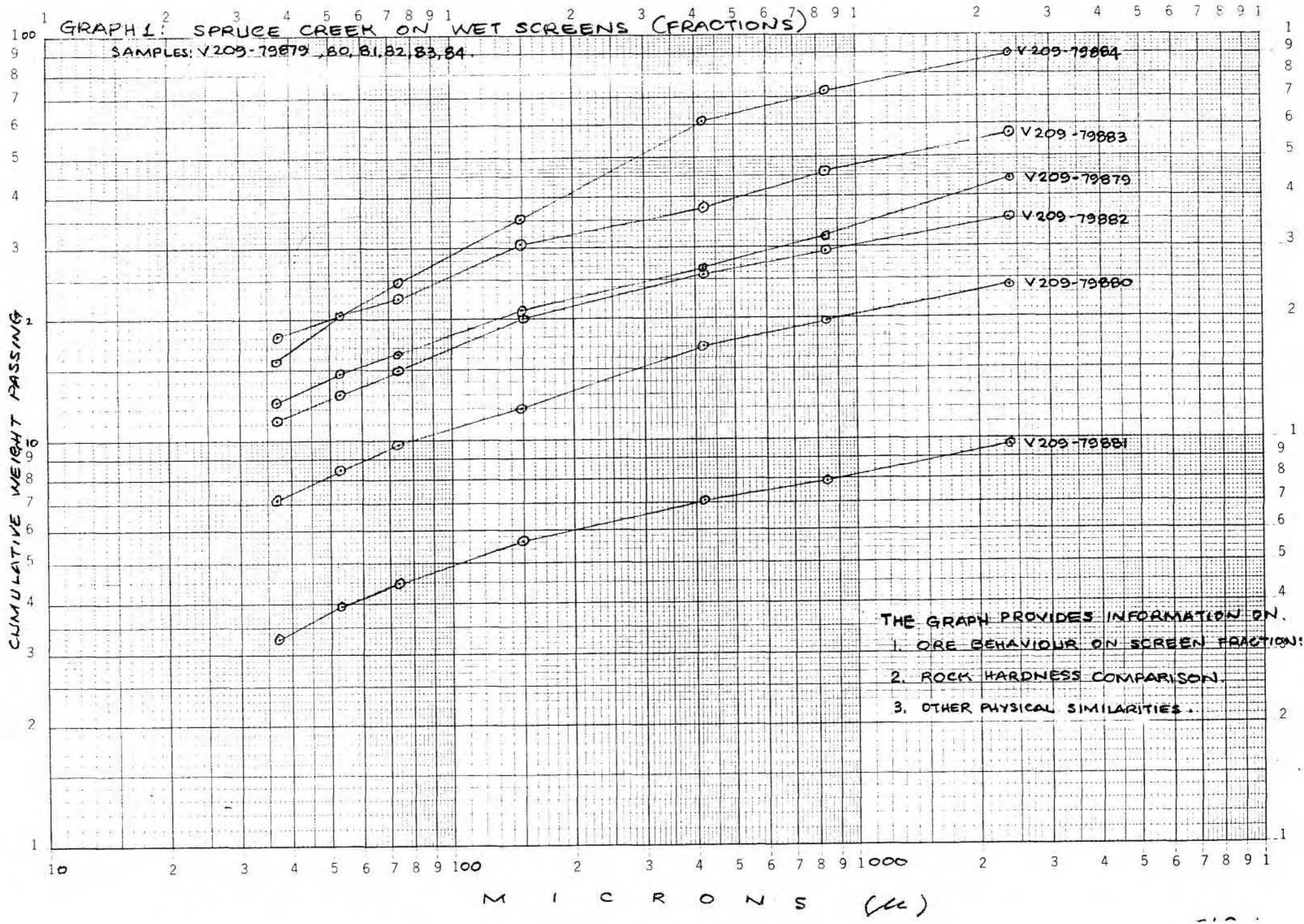
SAMPLE WEIGHT: 420.8 g

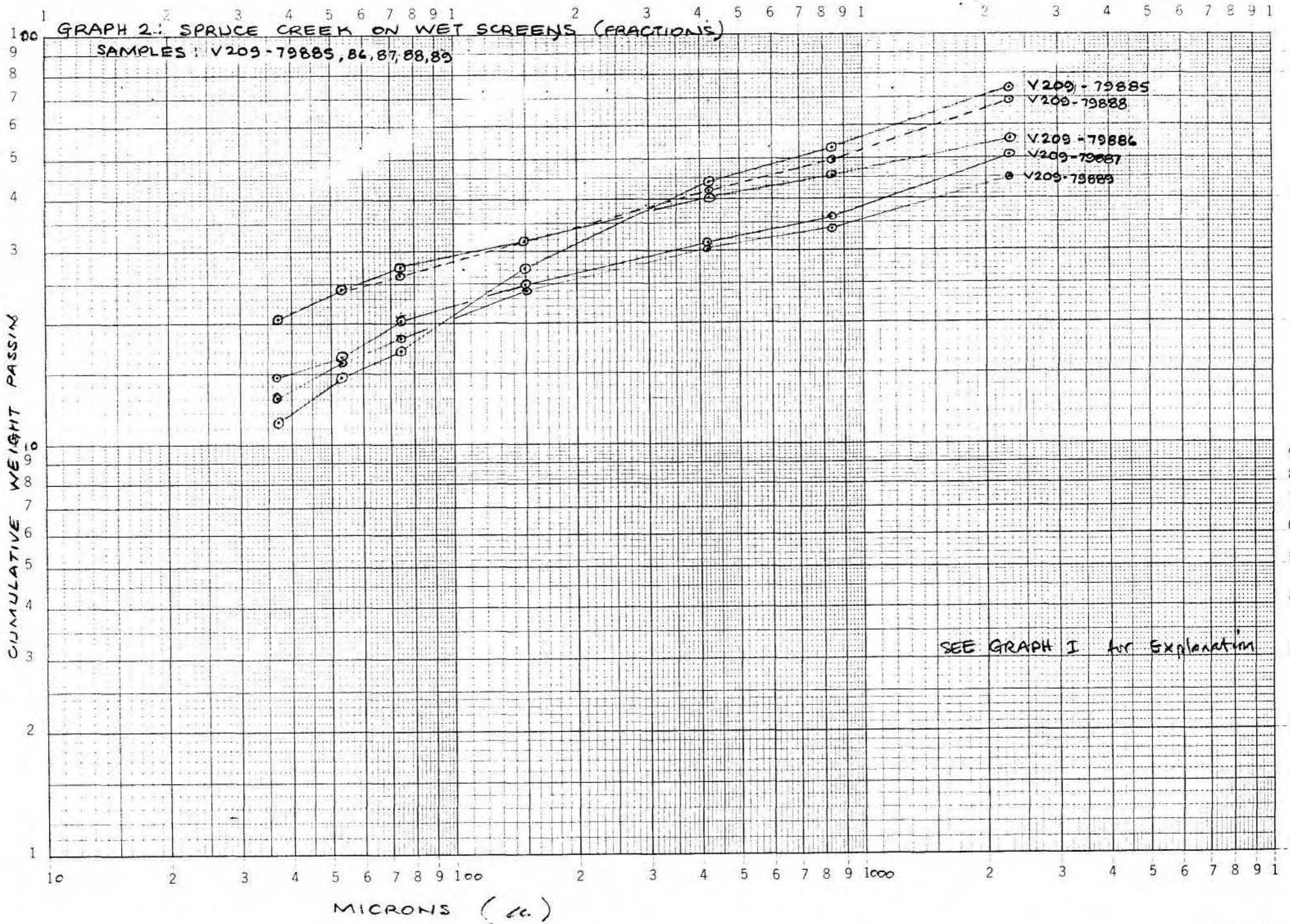
SAMPLE DESCRIPTION: Spruce Creek V209 - 79898

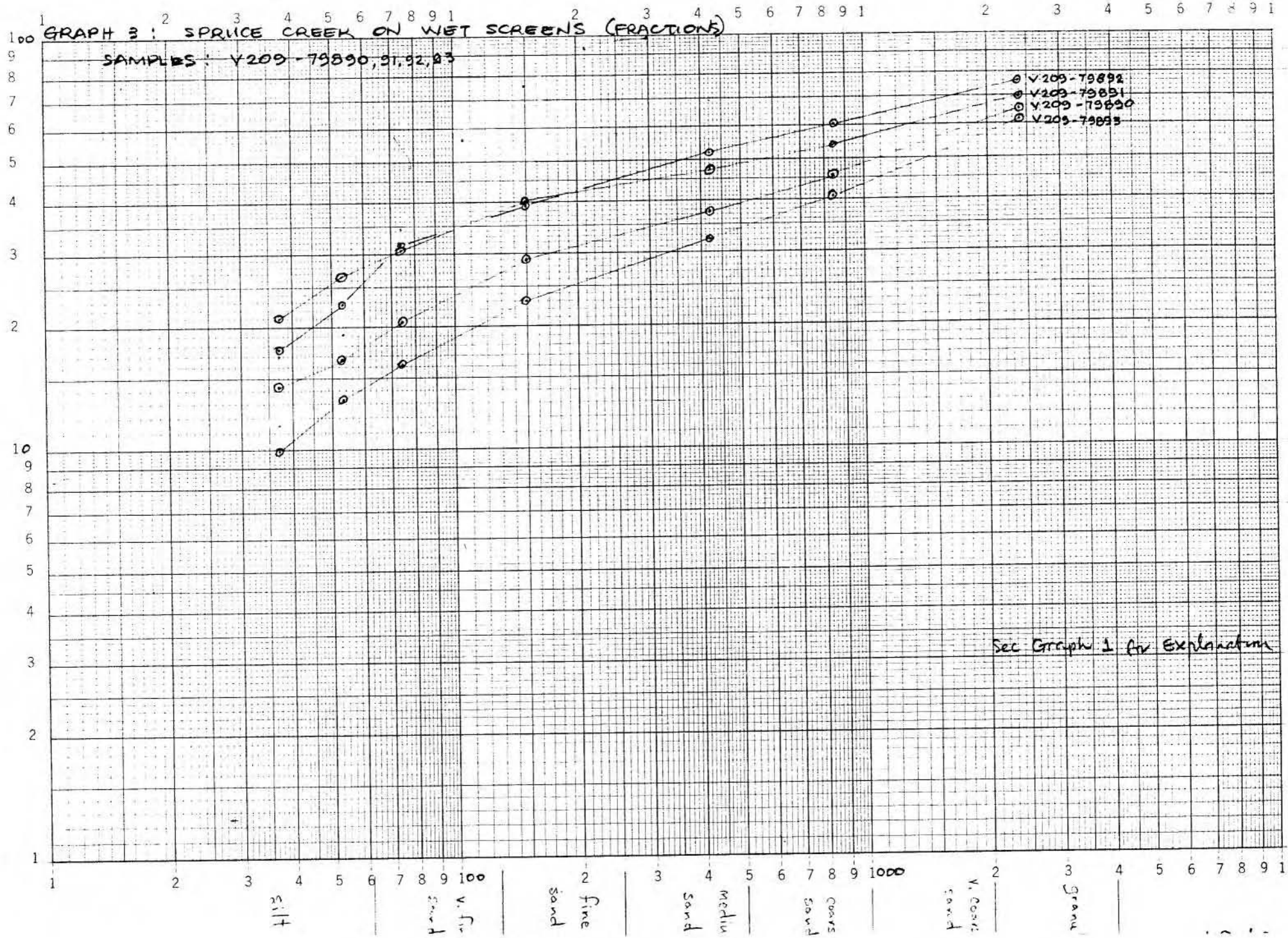
REMARKS: Screen 8, 20, 35, 100, 200, 270, 400

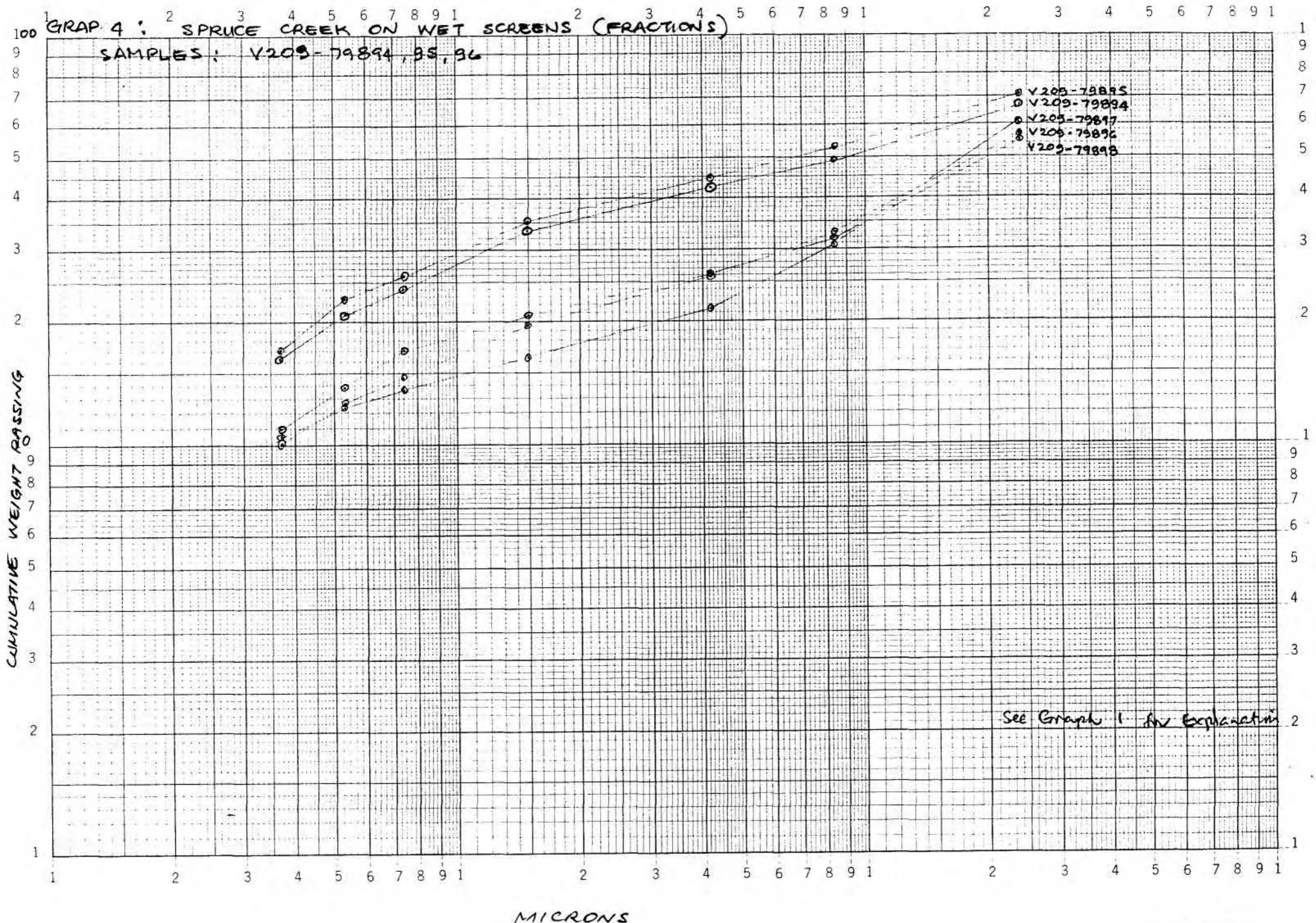
Mesh	Microns	Weight (g)	Weight (%)	Cumulative Weight (%)	Cumulative Weight Passing
+ 8	2380	188.3	44.75	44.75	55.25
- 8 + 20	841	97.2	23.10	67.85	32.15
- 20 + 35	420	25.3	6.01	73.86	26.14
- 35 +100	149	21.7	5.16	79.02	20.98
-100 +200	74	16.4	3.90	82.91	17.09
-200 +270	53	13.1	3.11	86.03	13.97
-270 +400	37	12.0	2.85	88.88	11.12
-400		46.8	11.12	100.00	-
TOTAL		420.8	100.00	-	-

KIM:ojt
1986-01-15


GRAPH 1: SPRUCE CREEK ON WET SCREENS (FRACTIONS)
SAMPLES: V209-79879, 80, 81, 82, 83, 84.
V209-79884
V209-79883
V209-79879
V209-79882
V209-79880
V209-79881
CUMULATIVE WEIGHT PASSING
MICRONS (μ)
THE GRAPH PROVIDES INFORMATION ON.
1. ORE BEHAVIOUR ON SCREEN FRACTIONS.
2. ROCK HARDNESS COMPARISON.
3. OTHER PHYSICAL SIMILARITIES.


GRAPH 2: SPRUCE CREEK ON WET SCREENS (FRACTIONS)
SAMPLES: V209-79885, 86, 87, 88, 89
V209-79885
V209-79888
V209-79886
V209-79887
V209-79889
SEE GRAPH I for Explanation
CUMULATIVE WEIGHT PASSING
MICRONS (μ)


GRAPH 3 : SPRUCE CREEK ON WET SCREENS (FRACTIONS)
SAMPLES : V209-79890,91,92,93
V209-79892
V209-79891
V209-79890
V209-79893
See Graph 1 for Explanation
silt
v. fine sand
fine sand
medium sand
coarse sand
v. coarse sand
Granule


GRAP 4 : SPRUCE CREEK ON WET SCREENS (FRACTIONS)
SAMPLES : V209-79894, 95, 96
V209-79895
V209-79894
V209-79897
V209-79896
V209-79898
See Graph 1 for Explanation
CUMULATIVE WEIGHT PASSING
MICRONS

133°30' W.

59°33'N.

KAREN 6.

KAREN 7.

KAREN 8.

SHUKSAN 5.

SHUKSAN 6.

SHUKSAN 1.

SHUKSAN 4.

SHUKSAN 2.

SHUKSAN 3.

G V 15.

KULSHAN 1.

KULSHAN 2.

SHUKSAN 13.

G V 24.

G V 23.

KULSHAN 3.

SPRUCE CREEK ROAD

SPRUCE CREEK

DOMINION

BL. 0+00

TL. 15+00 S.

L. 0+00

L. 4+00 W.

L. 8+00 W.

L. 12+00 W.

L. 16+00 W.

L. 20+00 W.

L. 24+00 W.

L. 28+00 W.

L. 32+00 W.

L.C.P.

1 2 3 4 5 6 7 8

0 200 400 600 800 1000
METRES

DRAWN: C.B./R.B.	SCALE: 1:20,000	PLACER DEVELOPMENT LIMITED	CLAIMS AND DRILLHOLE LOCATIONS
DRAFTING: A.K.	DATE: NOV.,1985	SPRUCE CREEK M.C. ATLIN M.D.	
APPROVED:	REVISED:		FILE REF. No.: FIG. 2