THE GEOLOGY OF THE
CATFISH MINERAL PROPERTY
TUTSHI LAKE, BRITISH COLUMBIA

Catfish and Iguana Claims
Atlin Mining Division

(NTS: 104M/15)

Latitude: 59° 50'
Longitude: 134° 30'

Prepared for:

FRAME MINING CORPORATION

Prepared by:

J.H. Davis, P.Geol.
Consulting Geologist
December 3, 1989

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TUTSHI LAKE
FROM SOUTH MIDDLE RIDGE

NORTH MOUNTAIN FOREGROUND,
MIDDLE RIDGE, SOUTH MOUNTAIN

SUMMARY

Arsenopyrite bearing quartz veins having anomalous silver-gold mineralization occurs primarily within Upper Cretaceous Aplite but does extend into other units including the pre-Permian metamorphics.

Quartz veining generally parallels a steeply dipping east-west joint set in part infilled with massive arsenopyrite. This veining cross-cuts a minor north-south vein system that parallels a secondary joint set.

Sub-economic? mineralization is restricted to this one type, having maximum gold values of 99,565.7 ppb and maximum silver values of 555.3 ppm. No association was found between gold and the other elements analyzed for.

INTRODUCTION LOCATION AND ACCESS

The Catfish mineral property is situated on the west shore of Tutshi Lake, British Columbia (104M/15) in the vicinity of Paddy Pass (Figure 1). Access is via the Klondike Highway 50 km north of Skagway, Alaska. From the highway a lease road runs 3.1 km west traversing the claims north of Paddy Pass.

The topography varies from moderate in valley bottoms to steep and extreme along the ridges. Elevation ranges from 700 to 2,000m. Considerable outcrop occurs above the tree line on three peaks referred to in this report as the North Mountain, Middle Ridge and South Mountain. Valley bottoms are widely covered with scree, glacial till and alluvium.

Detailed mapping and sampling at the 1:5,000 scale was conducted from mid-June to early September, 1989, with the able assistance of Ron Scheele and Gerald Grubisa (Maps 1 and 2, Figure 2).

The area is known for vein associated anomalous antimony-arsenic-silver-gold mineralization that, in part, extends northeastward to the Venus mine.

Within the property mineralization occurs in arsenopyrite bearing quartz veins having anomalous silver and gold. The host rock is primarily Upper Cretaceous Aplite with veins paralleling primary joint sets. Veining does extend into other units including pre-Permian Metamorphics but is insignificant in those other units.

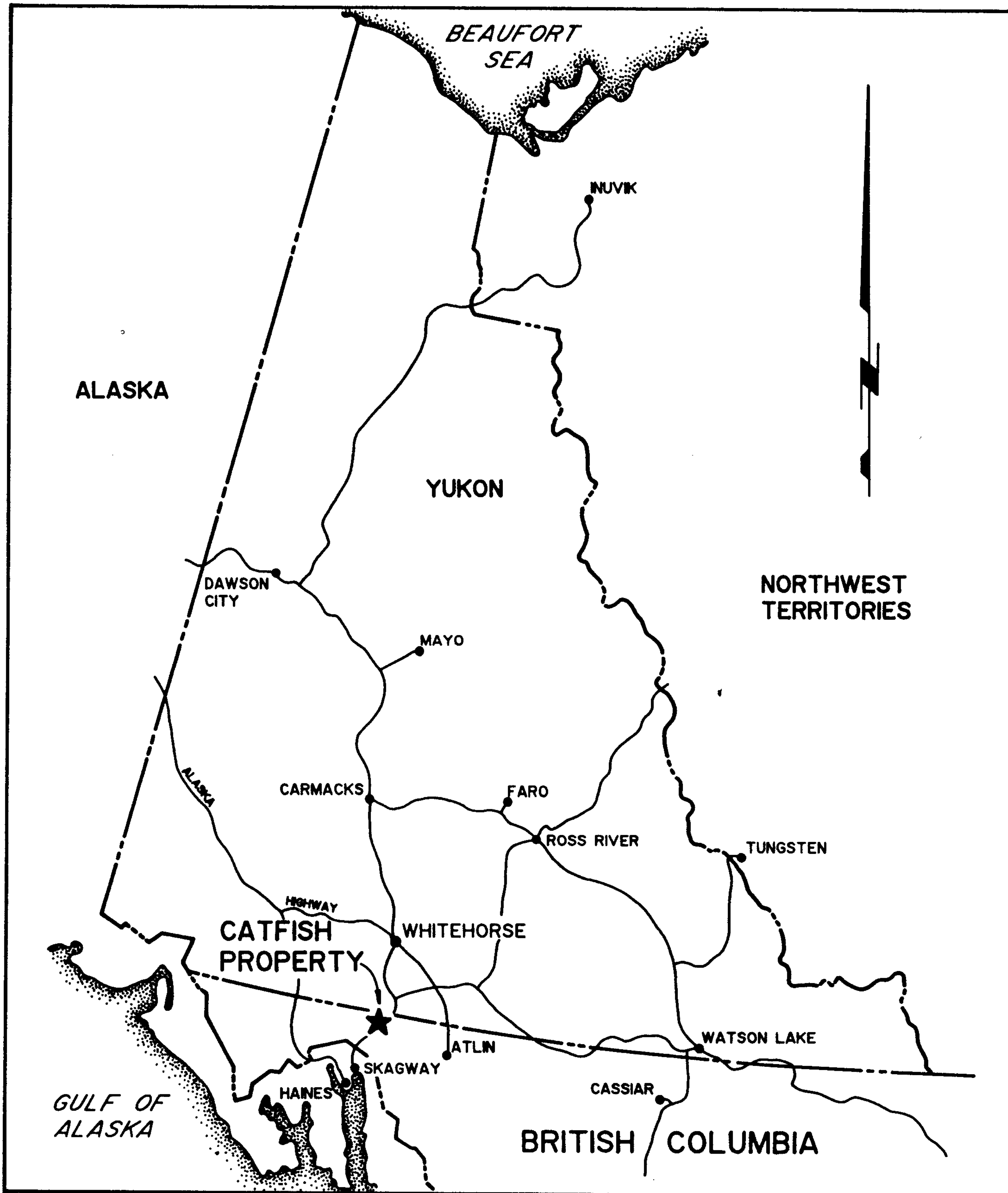

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FIGURE I - LOCATION MAP

0 50 100 200 300 400

SCALE IN KILOMETRES

DATE : SEPTEMBER 1989

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CHECKED BY : J. H. DAVIS
CONSULTING
GEOLOGIST

PROFESSIONAL GEOLOGIST · ALBERTA
JAMES HENDERSON DAVIS

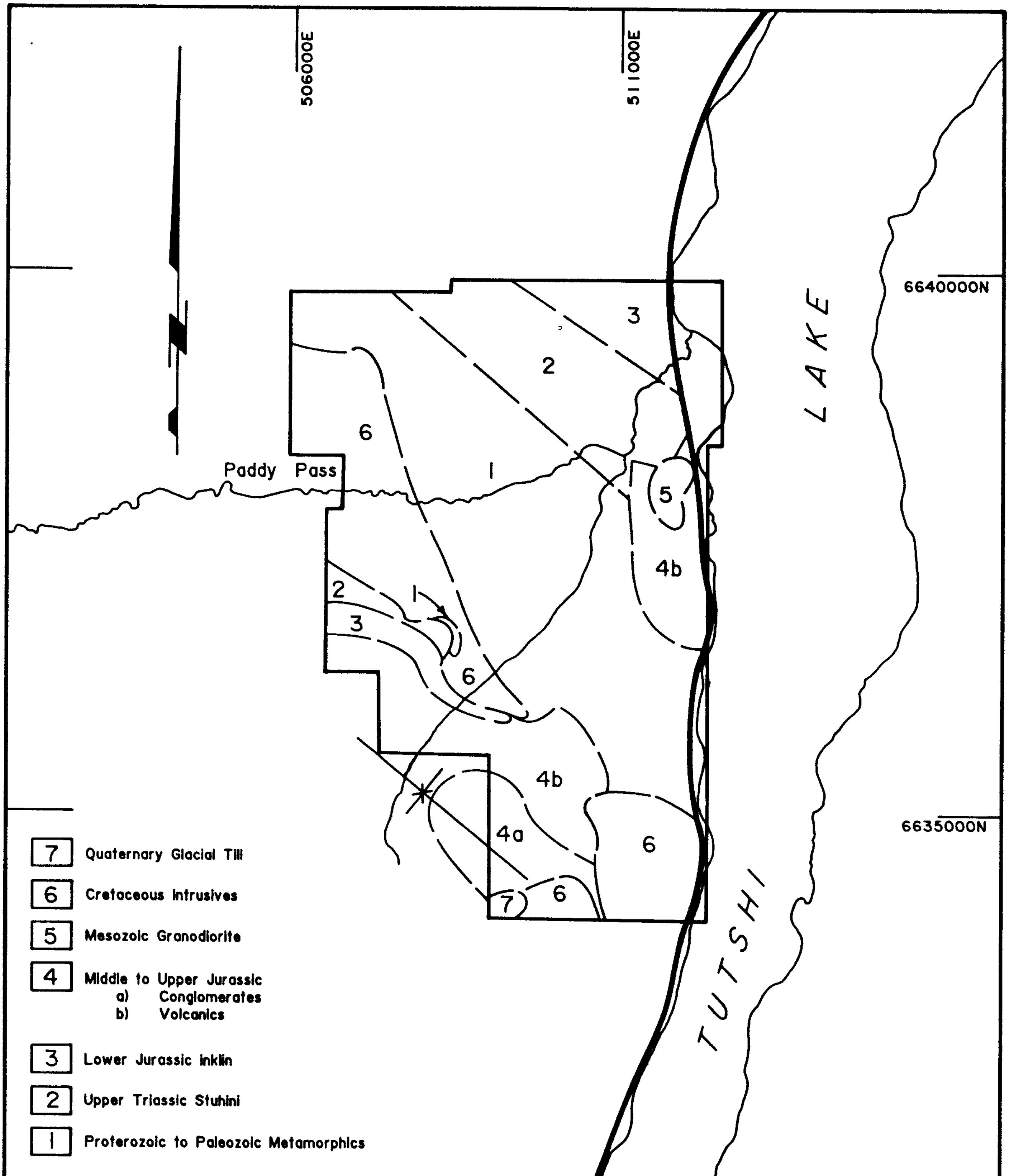

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FIGURE 2 - PROPERTY GEOLOGY

SCALE 1 : 50000

METRES 1000 0 1000 2000 3000 4000 METRES

DATE : SEPTEMBER 1989

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GEOLOGY BY : J. H. DAVIS
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PROFESSIONAL GEOLOGIST ALBERTA
JAMES HENDERSON DAVIS

Dec 5/89

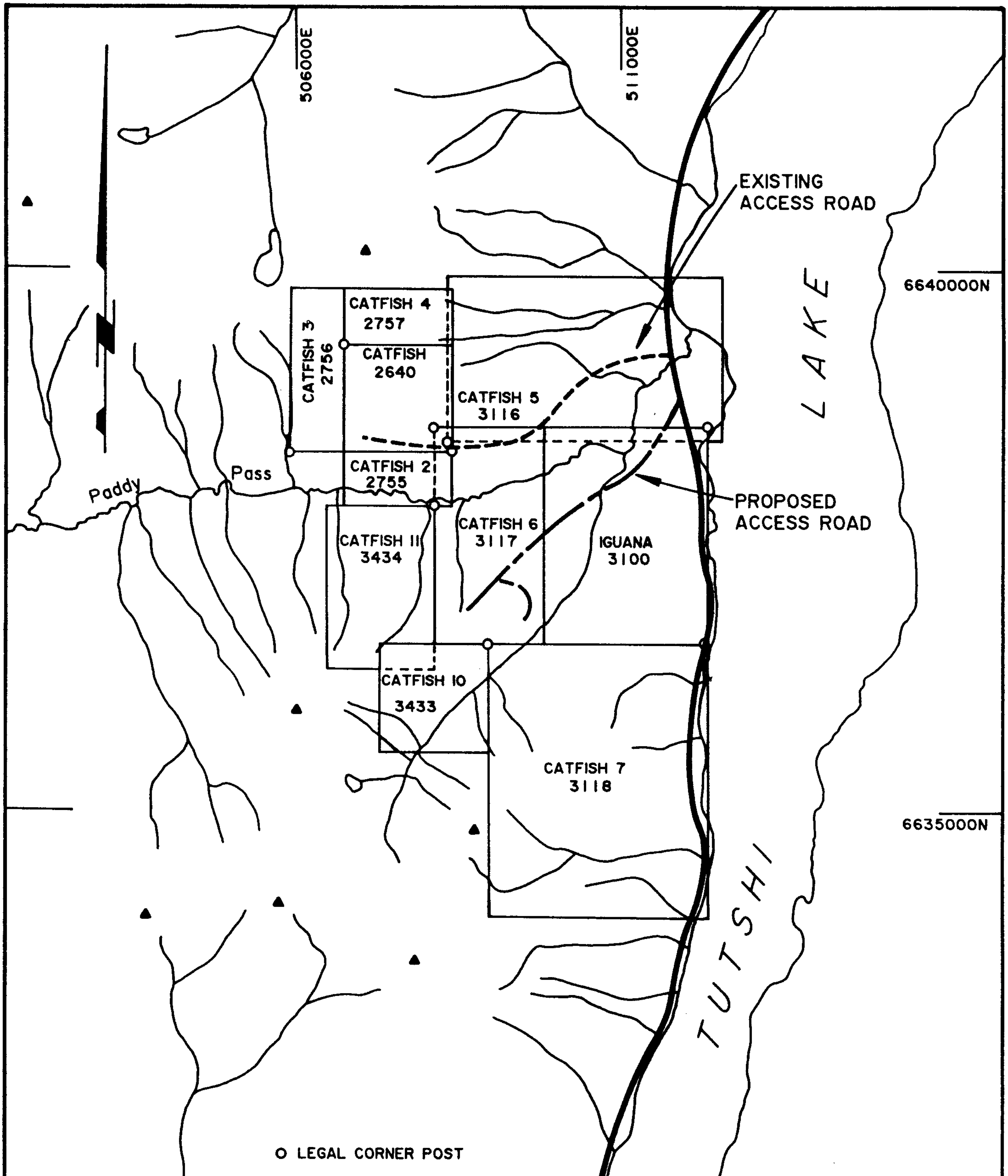
CLAIMS

The Catfish and Iguana claims are owned by Frame Mining Corporation and Mr. C.J.R. Hart. The claims appertain to the Atlin Mining Division, and are summarized below (Table 1, Figure 3).

TABLE 1

CLAIMS

Claim #	Grant #	Expiry Date	# Units
Catfish	2640	24-Jun-98	4
Catfish 2	2755	30-Oct-98	2
Catfish 3	2756	30-Oct-98	3
Catfish 4	2757	30-Oct-98	2
Catfish 5	3116	04-Mar-98	15
Catfish 6	3117	04-Mar-98	8
Catfish 7	3118	04-Mar-98	20
Catfish 10	3433	02-Sep-96	4
Catfish 11	3434	06-Sep-96	6
Iguana	3100	05-Jan-98	12



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CATFISH PROJECT

FIGURE 3 - 1989 EXPLORATION CLAIM MAP

SCALE 1 : 50000

METRES 1000 0 1000 2000 3000 4000 METRES

DATE : SEPTEMBER 1989

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HISTORY

Evidence of early undocumented work on the property can be seen by the presence of four adits, numerous blast holes, trenches, and a 3.1 km lease road.

From 1950 to 1954, R.L. Christie mapped the area for the Geological Survey of Canada (Christie, 1957). The area was also mapped by Bultman (1979) in his thesis on the Whitehorse Trough. In 1985, Schroeter examined mineral properties within the Bennett map area (Schroeter, 1986). During 1986 reconnaissance mapping and prospecting was carried out by H. Copland (1987). Regional mapping of the Tutshi Lake area was performed by the British Columbia Geological Survey in 1987 (Mihalynuk and Rouse, 1988a, 1988b; Rouse et al, 1988). In 1988, reconnaissance mapping and prospecting was carried out by Beacon Hill Consultants Ltd. (Morris, 1988).

1989 EXPLORATION PROGRAM

The work program for 1989 is summarized below:

Table 2

1989 Exploration

	Claims Covered
Geochemical Survey:	
Rock Samples (447)	All except Catfish 2
Soil Samples (143)	Catfish, Catfish 3,5,6,7,10,11
Petrography (20)	Catfish 5,6,7,10,11, Iguana
*Geophysical Survey:	}
I.P. approximately 10 km	} 2,3,6,7,10,11
*Linecutting:	}
Approximately 10 km	}
Geological Survey & Prospecting:	
17 km^2 at 1:5,000 in part at 1:1,000	All
Road Upgrading:	
3.1 km	Catfish, Catfish 5,6
Blasting & Hand Trenching:	
72.2m^2 (8 trenches)	6, 10

*Report Pending

REGIONAL GEOLOGY

Within the map are the Llewellyn fault zone divides an uplifted Nisling Terrane on the west from the Stikinia Terrane on the east (Wheeler and McFeely, 1987). This dextral transcurrent fault is a northward extension of the King Salmon fault. Regionally the Nisling Terrane is comprised of granites and granodiorites of the Coast Belt, as well as Boundary Ranges metamorphics (Mihalynuk and Rouse; 1988a, 1988b) and minor erosional remnants of younger strata that occur as inliers or flank the Coast Belt along its eastern margin.

Within the Intermontane Belt, the Stikinia Terrane is predominantly the southern extension of the Late Triassic to Late Cretaceous Whitehorse Trough (Tempelman-Kluit, 1979; Wheeler, 1961) which trends southeasterly towards the Stikine Arch (Souther, 1971).

Further east the Nahlin fault separates an uplifted Cache Creek Terrane (Atlin Terrane) from the Stikinia Terrane (Wheeler and McFeely, 1987; Monger, 1975).

PROPERTY GEOLOGY[1]

Layered Rocks

Boundary Ranges Metamorphics (1)

The Boundary Ranges metamorphics (Table 3) are variably metamorphosed greenschist to amphibolite facies rocks that appear similar to Yukon group rocks to the north (Christie, 1957). Bultman (p.25, 1979) indicates that in the southwest margin of his study area, metamorphic grade appears to decrease toward the northwest. They are generally very well foliated and crenulated with foliation well defined by the alignment of hornblende, biotite and sericite, and by the development of quartzo-feldspathic mineral segregation (25-75%) in schists, gneisses and augen gneisses. Relict bedding that roughly parallels the foliation can occasionally be recognized by the occurrence of massive quartzite intervals.

Petrology suggests volcanic and volcaniclastic affinity based on mineralogy that is atypical for rocks of pelitic protolith (Morris, 1988). Feldspar-hornblende ± biotite ± sericite gneiss, and feldspar-quartz-chlorite ± sericite ± biotite schist dominate the unit. Epidote may occur near the Unit 2 contact. Minor augen gneiss and rare carbonate intervals occur, as do some occasional relatively unmetamorphosed intervals. Locally, small scale fold hinges have been mapped (Maps 1 and 2).

On the middle ridge localized hornfels has developed in contact areas with the aplite.

Metamorphic grade and the degree of deformation are much higher in this unit than in the overlying Stuhini Group

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[1]The nomenclature generally follows that of Mihalynuk and Rouse (1988).

TABLE 3

TABLE OF GEOLOGICAL FORMATION

Eras	Period or Epoch	Formation/ Map Unit		Lithology
Quaternary		7		Unconsolidated glacial till and fluvial sediments
	Upper Cretaceous	Coast Intrusions/6	a*	Coarse grained biotite ± hornblende granite and aplite
			b*	As above lacking megacrystalline potassium feldspar
			c	Granodiorite
			d	Diorite and feldspar porphyry
	Intrusive Contact			
		5		Granodiorite
	Unconformity or Intrusive Contact			
Mesozoic	Middle to Upper Jurassic	Volcanics/4	a	Clast supported conglomerate and other sediments.
			b	Volcanics;breccias, tuff, bladed feldspar porphyry flows.
			c	Matrix supported conglomerate variegated argillite (within volcanic sequence).
	Erosional Unconformity			
	Lower Jurassic	Laberge Group Inklin Formation/3		Carbonaceous argillite and siltstone
	Conformable Contact			
	Upper Triassic	Stuhini Group/2		Variegated dark, green hornblende-feldspar-phyric tuffs, breccias marble; Very dark grey to maroon flows, greywacke, silty argillite, tuffs
Erosional Unconformity				
Palaeozoic to Proterozoic	Pre-Permian	Boundary Ranges Metamorphics /1		Schist and gneiss of sedimentary and volcanic affinity, minor marble.

* Mihalynuk,M., and Rouse, J., (1988), Geology of the Tutshi Lake area; NTS 104M/15;B.C. Geological Survey, Open file Map 1988-5

indicating the occurrence of a deformational event before the deposition of the Upper Triassic rocks.

Stuhini Group (2)

Locally the Stuhini is seen as an extension of that unit within the Tulsequah map area (Bultman, 1979; Souther, 1971), and can be correlated in part, with the Lewes River Group (Schroeter, 1985; Wheeler, 1961).

In the study area, petrology (Appendix V; Morris, 1988) indicates rocks of the Stuhini Group and younger, are generally non-foliated and seem not to be regionally metamorphosed.

On the north mountain the lower Stuhini contact is faulted against the Boundary Range metamorphics. These fault contacts may have been facilitated by ductile movement within carbonate intervals noted below. This sequence is typified by a dark green in part variegated green maroon, dense, massive, hornblende - feldspar phyric volcanic that is pervasively epidotized (5%).

In hand specimen, the rock appears weakly porphyritic having 10% euhedral white feldspar phenocrysts to 3mm. Thin section reveals 50% equant-euhedral secondary amphiboles to 6 mm pseudomorphed after hornblende.

This resistive cliff forming unit can be correlated with Bultman's (1979) Unit B; and with Mihalynuk and Rouse's (1988) hornblende-phyric tuffs and epiclastics. Weakly foliated at the basal contact the unit is elsewhere non-foliated.

Within the lower 150m at least four intervals over 30m of a light buff weathering light green tremolite marble which is significantly altered and permeated by microfractures, are interbedded with dark grey fine grained lapilli tuffs, with lapilli to 1 cm. A dextral fault offsets this marble unit about 100m. Sample 0128 (Appendix V) within this sequence appears to be a pyroclastic breccia deposited in a carbonate mud similar to that described by Souther (p. 20, 1971).

Towards the upper contact with the Inklin Formation, minor dark green grey volcaniclastic breccia with clasts to 10 cm are interbedded with the volcanics.

On the middle ridge a section tentatively assigned to the Stuhini appears gradational with the overlying Inklin Formation. From the east where the lower contact with the metamorphics is indiscernible and presumably faulted, an interbedded sequence of: variegated very dark grey to maroon microcrystalline amygdaloidal (?) flows, greywackes, silty argillite, medium grey microcrystalline tuff, medium grey brown sub-trachytic microlitic felsic tuff/flow, grade into very dark grey argillites of the Inklin. The two units weather differently with the Stuhini being a darker ochre-brown compared to the reddish brown of the Inklin.

While this section of Stuhini does not correlate with that on the north mountain, the lower part of the section also displays weak foliation. Locally skarn has developed, presumably a near contact effect of the underlying granitic intrusion.

Laberge Group, Inklin Formation (3)

The Inklin formation is comprised of carbonaceous argillites interbedded with minor carbonaceous siltstones. The upper contact on the middle ridge and south mountain is covered due to the recessive nature of the formation. Shearing is evident in the basal middle to upper Jurassic volcanics and could indicate a fault contact. Inklin derived clasts occur within intervals of the volcanics indicating an erosional unconformity. The lower contact on the south mountain is intruded by Unit 6 aplite. Pinching out on the south mountain the Laberge sediments are either faulted off or were locally not deposited. On the north mountain the basal contact was not observed, but appears intruded by Unit 6 aplite.

Middle to Upper Jurassic Volcanics (4)

Middle to Upper Jurassic volcanics appear in the southwestern corner of the claim group in a synclinal structure where a sub-unit (4a) of clast supported conglomerates are interbedded with and overlie a volcanic sequence (4b). These volcanics have in part; an apparent fault contact with Inklin carbonaceous argillites, an unobserved and unconformable contact with Boundary Range metamorphics, or are intruded by Cretaceous granites, aplites and granodiorites.

The volcanic sequence consists of an intermediate medium brown grey pyroclastic breccia with clasts ranging to 30 cm that towards its base is sheared and contains minor red-hematitic chert clasts, <1% to 5 cm (Morris, 1988). Interbedded with the breccia are variably composed intermediate to mafic ash-lapilli-lithic tuffs that have up to 80% lapilli to 15mm. Weakly aligned lapilli that include sericite altered glass indicate original bedding.

Also within the volcanic sequence are common brown bladed sub-trachytic feldspar porphyry flows having 50-60% porphyroblasts to 6 mm, that display graded bedding over intervals many metres thick; and a minor unit of intermediate to mafic agglomerate with porphyroblastic bombs to 40 cm in a fine-grained aphanitic matrix (sample 42, Appendix V). Sub unit 4c appears within the lower part of 4b and is comprised of varicoloured subrounded to subangular volcanic and sedimentary derived pebbles and cobbles to 10 cm in a variegated medium-green-maroon matrix, and a well-bedded maroon and green argillite, in part silty with occasional medium grained black lithic grains. The overlying clast supported conglomerate (4a) is composed primarily of Inklin derived, finely laminated clay silt and sand pebbles, in a coarse sandy matrix. These conglomerates have thin interbeds of carbonaceous argillite in part containing coarse woody fragments.

A second section of Unit 4 in the eastern part of the claims on the downthrown side of the Llewellyn fault zone, is poorly exposed in roadcuts, is intruded by a Mesozoic granodiorite, and has been delineated on the basis of photo-lineaments.

This youngest consolidated rock unit is covered as are other units by unconsolidated Quaternary glacial till, scree and alluvium.

Intrusive Rocks

Mesozoic Granodiorite (5)

This small intrusive within the Llewellyn fault zone is highly sheared. Carbonate-skarnic? alteration along one shear shows chalcopyrite mineralization, and has anomalous gold; 16,900 ppb (sample 0131).

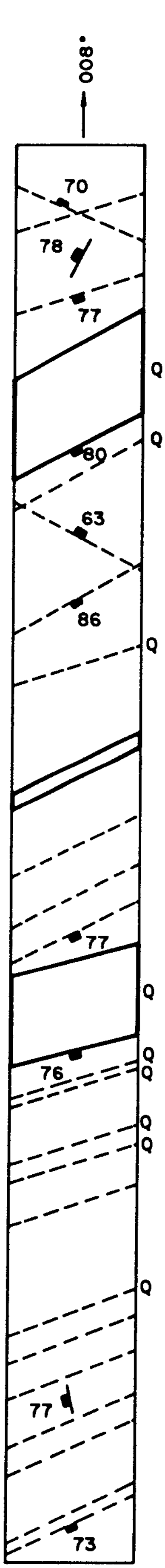
Upper Cretaceous, Coast Intrusions (6)

Coarse grained quartz-feldspar-biotite ± hornblende granite occurs on the north mountain and western middle ridge. A facies boundary that roughly trends NW-SE through units 6a and 6b (Mihalynuk and Rouse, 1988b) has on its eastern side a white very finely crystalline aplite that in part has occasional coarse grained rounded quartz porphyroblasts and may contain up to 5% biotite. Alteration is generally non-existent while mineralization is generally associated with the primary east-west or secondary north-south joints sets (Figures 4-11). Disseminated pyrite 1-2% may occur and can be easily identified in outcrop by an orange-buff weathering color. Arsenopyrite altering to scorodite can impart a green coloration to outcrop.

The textural facies boundary described here probably represents a separate high level intrusive event with associated jointing resulting from late stage cooling.

On the middle ridge, the eastern boundary of the aplite is in contact with the metamorphics along a dextral shear of undetermined offset.

Within the extreme southwest corner of the claims is a non-foliated light blue-grey very coarsely crystalline granodiorite, having predominately white subhedral feldspar (25%) and lesser mafic phenocrysts.



Length (m)	INTERVAL (m)	SAMPLE No.	Au oz/t	Ag ppm	As > 1000 ppm	Cu, Pb, Sb, Mo, Zn > 500ppm	LITHOLOGY
11.5 – 9.5	2.0	0138	0.009	5.3	10790		Aplite, veinlets to 16mm
9.5 – 8.7	0.8	0137	0.003	2.8	7370		QV, 80/074, 3% asp cgr and veinlets, tr dism cgr pyr.
8.7 – 6.7	2.0	0136	0.003	1.9	5780		Aplite, veinlets to 10mm
6.7 – 4.7	2.0	0135	0.010	3.7	32200		Aplite, asp vein, veinlets to 6mm
4.7 – 4.0	0.7	0134	0.027	56.6	61000	Cu 545, Zn 551	QV, 76/088, < 20% asp, veinlets to 44mm, < 1% cgr pyr.
4.0 – 2.0	2.0	0133	0.002	2.2	2950		Aplite, veinlets to 9cm
2.0 – 0	2.0	0132	0.003	2.0	9220		Aplite, white, vfxl, asp veinlets parallel primary jts 73/074, secondary jts 77/178, veinlets to 22mm

SCALE 1 : 50

METRES 1 0 1 2 3 4 METRES

VEIN (INCLINATION), ARSENOPYRITE UNLESS NOTED Q=QUARTZ OR CC=CALCITE

VEINLET (INCLINATION) < 10 cm WIDE (NO WIDTH SHOWN), ARSENOPYRITE UNLESS NOTED Q=QUARTZ OR CC=CALCITE

SHEAR

JOINT (INCLINATION)

FOLIATION (INCLINATION)

Δ SILICIC ALTERATION

K POTASSIC ALTERATION

NOTES : 1) VEINS GENERALLY PARALLEL PRIMARY JOINTS

2) FOR TRENCH LOCATION SEE MAP 3

FRAME MINING CORPORATION

CATFISH PROJECT

FIGURE 4 - TRENCH No. 1

DATE : SEPTEMBER 1989

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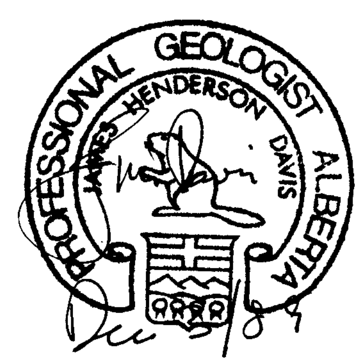
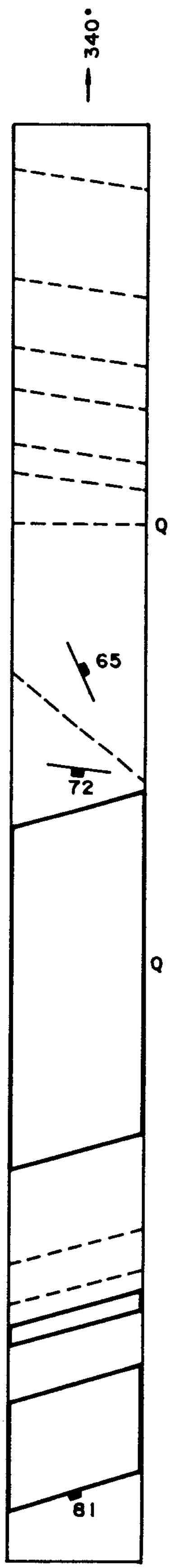
GEOLOGY BY : J. H. DAVIS CONSULTING GEOLOGIST





Length (m)	INTERVAL (m)	SAMPLE No.	Au oz/t	Ag ppm	As > 1000 ppm	Cu	Pb	Sb	Mo	Zn	LITHOLOGY
10.5 – 8.5	2.0	0142	0.005	0.3	13000						Aplite, veinlets to 25mm
8.5 – 5.5	3.0	0141	0.006	2.0	13100						Aplite, veinlets to 7cm. Primary jts 72/076
5.5 – 3.0	2.5	0140	0.016	9.1	70500						QV, subparallel primary jts 81/053, slightly folded, common asp throughout, strong scorodite alteration, 1% pyr.
3.0 – 0	3.0	0139	0.005	13.6	17500		Pb 545				Aplite, lt green-grey, vfxl, strong scorodite alteration, rubbly, asp veins, veinlets to 7cm. Primary jts 81/053

(Cu, Pb, Sb, Mo, Zn > 500 ppm)

- VEIN (INCLINATION), ARSENOPYRITE UNLESS NOTED Q=QUARTZ OR CC=CALCITE
- VEINLET (INCLINATION) < 10 cm WIDE (NO WIDTH SHOWN), ARSENOPYRITE UNLESS NOTED Q=QUARTZ OR CC=CALCITE
- SHEAR
- JOINT (INCLINATION)
- FOLIATION (INCLINATION)
- Δ SILICIC ALTERATION
- K POTASSIC ALTERATION

NOTES : 1) VEINS GENERALLY PARALLEL PRIMARY JOINTS

2) FOR TRENCH LOCATION SEE MAP 3

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FIGURE 5 - TRENCH No. 2

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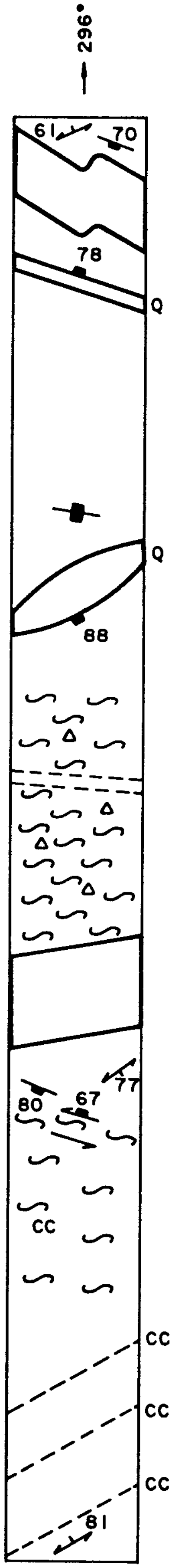
SCALE 1 : 50

METRES 1 0 1 2 3 4 METRES



Length (m)	INTERVAL (m)	SAMPLE No.	Au oz/t	Ag ppm	As > 1000 ppm	Cu, Pb, Sb, Mo, Zn > 500 ppm	LITHOLOGY
11.0 – 10.6	0.4	0149	0.011	63.3	50500		PPM dk maroon-gn weak fol.
10.6 – 9.7	0.9	0148	0.027	175.4	198000	Cu 892, Pb 1226, Sb 730	Asp vein, 78/223 slightly folded, mnr PPM 9.8-10.1m 30-80% asp, 1-5% cpy
9.7 – 6.7	3.0	0147	0.005	4.0	4990		PPM w Quartz boudin 7.2-7.6m having Fe stain, tr pyr, foliation dislocated due to small scale faults. Fol. 88/355 Jts. 90/035
6.7 – 4.7	2.0	0146	0.006	10.4	16800	Cu 608	PPM, shear zone gouge and rubble mod silicification with small asp veinlets and leached scorodite from overlying vein, veinlets to 15mm
4.7 – 4.0	0.7	0145	0.073	19.9	241000	Sb 700	Scorodite vein weathered to 8' depth in part 50% asp.
4.0 – 2.0	2.0	0144	<0.002	2.5	2970		PPM, small shear w drag fold, rubble 2.0-3.3m w common cc frac infilling.
2.0 – 0	2.0	0143	0.003	1.7			PPM, dark brn-gy/gn-gy schist, fol 81/175

SCALE 1 : 50

METRES 1 — 0 — 1 — 2 — 3 — 4 METRES

VEIN (INCLINATION), ARSENOPYRITE UNLESS NOTED Q=QUARTZ OR CC=CALCITE

VEINLET (INCLINATION) < 10 cm WIDE (NO WIDTH SHOWN), ARSENOPYRITE UNLESS NOTED Q=QUARTZ OR CC=CALCITE

SHEAR

JOINT (INCLINATION)

FOLIATION (INCLINATION)

SILICIC ALTERATION

K POTASSIC ALTERATION

NOTES : 1) VEINS GENERALLY PARALLEL PRIMARY JOINTS

2) FOR TRENCH LOCATION SEE MAP 3

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FIGURE 6 - TRENCH No. 3

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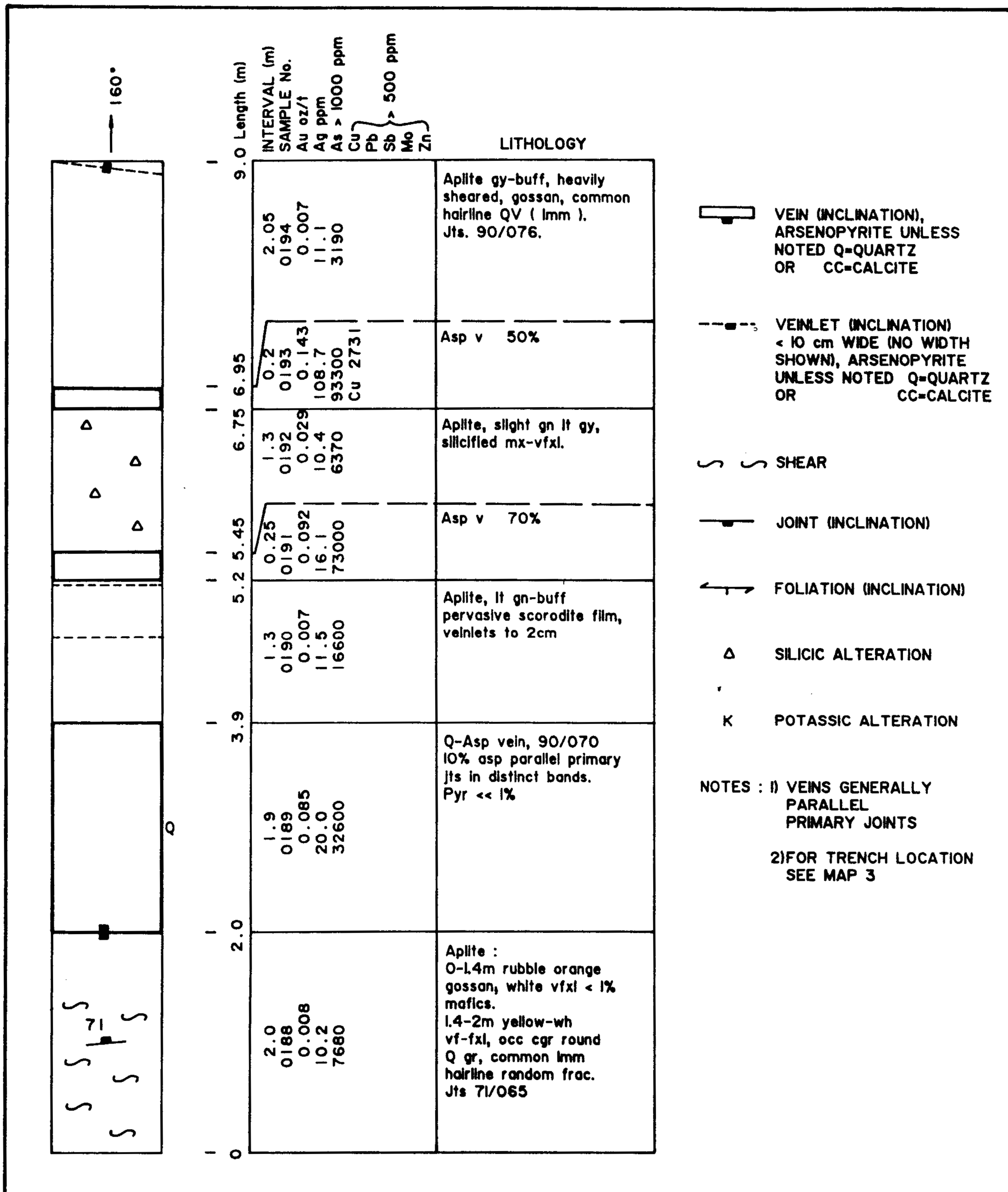

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FIGURE 7 - TRENCH No. 4

SCALE 1 : 50

METRES 1 0 1 2 3 4 METRES

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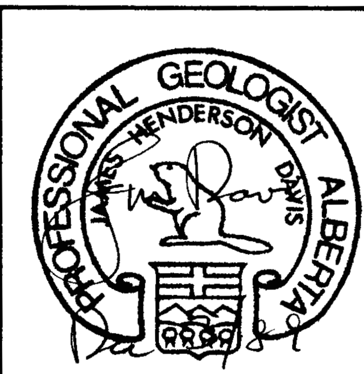

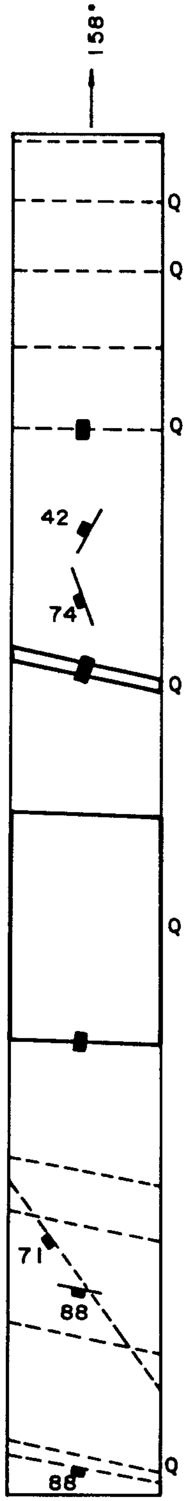

Length (m)	INTERVAL (m)	SAMPLE No.	Au oz/t	Ag ppm	As > 1000 ppm	Cu, Pb, Sb, Mo, Zn > 500 ppm	LITHOLOGY
9.0 – 6.75	2.25	0187	0.013	9.7	3370		Aplite, jts 90/068 Veinlets to 25mm
6.75 – 4.5	2.25	0186	0.005	10.1	6530		Aplite
4.5 – 3.0	1.5	0185	0.116	156.1	24200	Pb 678	QV, mnr asp < 5% in veinlets, to 22mm 90/070
3.0 – 0	3.0	0150	0.004	7.1	5710		Aplite, wh, fxl w 3-5% mgr biot, sucrosic, mnr hairline QV. Primary jts 88/258, secondary jts 74/317, tertiary jts 42/008. Veinlets to 16mm.

VEIN (INCLINATION), ARSENOPYRITE UNLESS NOTED Q=QUARTZ OR CC=CALCITE

VEINLET (INCLINATION) < 10 cm WIDE (NO WIDTH SHOWN), ARSENOPYRITE UNLESS NOTED Q=QUARTZ OR CC=CALCITE

SHEAR

JOINT (INCLINATION)

FOLIATION (INCLINATION)

Δ SILICIC ALTERATION

K POTASSIC ALTERATION

NOTES : 1) VEINS GENERALLY PARALLEL PRIMARY JOINTS

2) FOR TRENCH LOCATION SEE MAP 3

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CATFISH PROJECT

FIGURE 8 - TRENCH No. 5

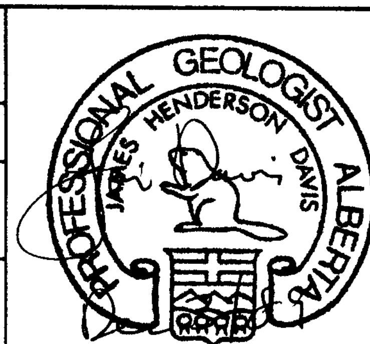
SCALE 1 : 50

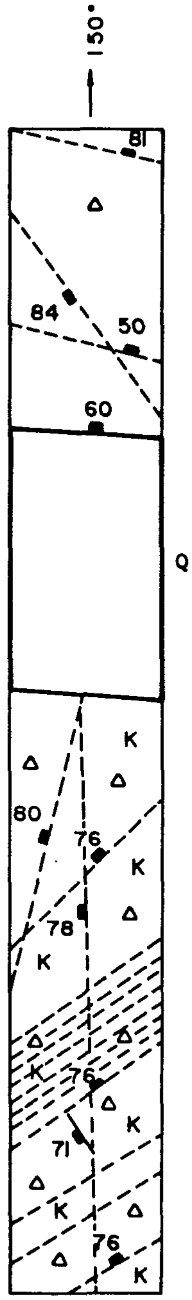
METRES 1 0 2 3 4 METRES

DATE : SEPTEMBER 1989

DRAWN BY : SONYA HANSEN

GEOLOGY BY : J. H. DAVIS CONSULTING GEOLOGIST





Length (m)	INTERVAL (m)	SAMPLE No.	Au oz/t	Ag ppm	As > 1000 ppm	Cu, Pb, Sb, Mo, Zn > 500 ppm	LITHOLOGY
7.7 – 5.7	2.0	0198	0.017	31.6	10500	Pb 645	Aplite wh, vfxl w biot, v wk silic. Veinlets to 18mm.
5.7 – 4.0	1.7	0197	0.178	100.0	20100	Cu 576 Pb 906	QAV, 40% asp « 1% cpy+ pyr; irregular contacts due to small scale faulting -60/065
4.0 – 2.0	2.0	0196	0.013	1.5	3110		Aplite : Secondary joints prominent having 5-10mm asp veinlets 80/343 to 76/015 every 50cm. Other joint sets every 20cm generally lack mineralization. Silicic and wk pot alt, asp and pyr min. throughout.
2.0 – 0	2.0	0195	0.014	1.6	7880		Aplite, mx, gy-buff w weak potassic ? alt on jts and frac. 3-5% mgr biot. Mod. silicification gives rock lt gy colour, tr asp along jts. Scorodite on all jt sets 76/030, 80/343, 72/294 < 1% pyr << 1% cpy.

VEIN (INCLINATION), ARSENOPYRITE UNLESS NOTED Q=QUARTZ OR CC=CALCITE

VEINLET (INCLINATION) « 10 cm WIDE (NO WIDTH SHOWN), ARSENOPYRITE UNLESS NOTED Q=QUARTZ OR CC=CALCITE

SHEAR

JOINT (INCLINATION)

FOLIATION (INCLINATION)

Δ SILICIC ALTERATION

K POTASSIC ALTERATION

NOTES : 1) VEINS GENERALLY PARALLEL PRIMARY JOINTS

2) FOR TRENCH LOCATION SEE MAP 3

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FIGURE 9 - TRENCH No. 6

SCALE 1 : 50

METRES 1 0 2 3 4 METRES

DATE : SEPTEMBER 1989

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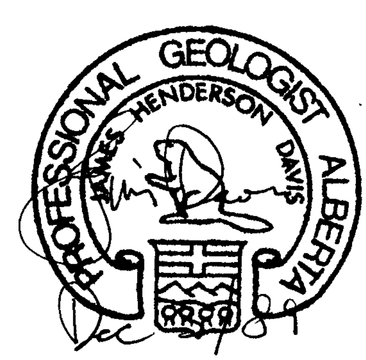
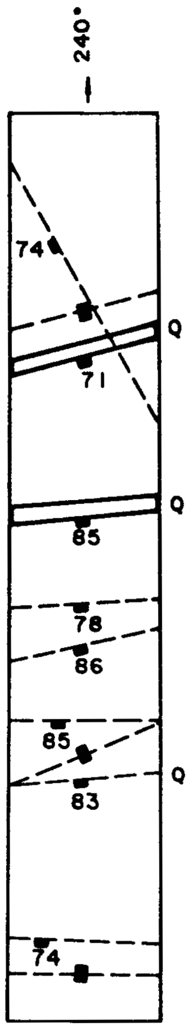
GEOLOGY BY : J. H. DAVIS CONSULTING GEOLOGIST





Length (m)	INTERVAL (m)	SAMPLE No.	Au oz/t	Ag ppm	As > 1000 ppm	Cu, Pb, Sb, Mo, Zn > 500 ppm	LITHOLOGY
6.0 – 4.0	2.0	0230	0.020	1.0	68700		Aplite, asp + QV, veinlets to 17mm
4.0 – 2.0	2.0	0200	0.043	3.1	82000		Aplite, Q + asp vein, veinlets to 8.5cm
2.0 – 0	2.0	0199	0.050	5.1	11000		Aplite wh vfxl w occ vcgr anhedral Q gr, 2% vcgr biot, spotted appearance due to Q + biot phenocrysts. Veinlets to 5cm, roughly parallel N - S jt set. No visible alteration.

VEIN (INCLINATION), ARSENOPYRITE UNLESS NOTED Q=QUARTZ OR CC=CALCITE

VEINLET (INCLINATION) < 10 cm WIDE (NO WIDTH SHOWN), ARSENOPYRITE UNLESS NOTED Q=QUARTZ OR CC=CALCITE

SHEAR

JOINT (INCLINATION)

FOLIATION (INCLINATION)

Δ SILICIC ALTERATION

K POTASSIC ALTERATION

NOTES : 1) VEINS GENERALLY PARALLEL PRIMARY JOINTS

2) FOR TRENCH LOCATION SEE MAP 3

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FIGURE 10 - TRENCH No. 7

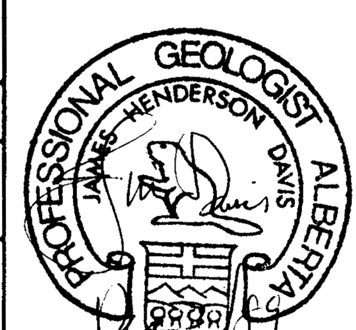
SCALE 1 : 50

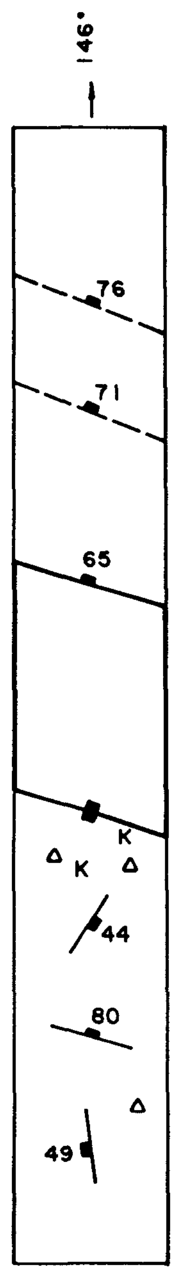
METRES 1 0 2 3 4 METRES

DATE : SEPTEMBER 1989

DRAWN BY : SONYA HANSEN

GEOLOGY BY : J. H. DAVIS CONSULTING GEOLOGIST





Length (m)	INTERVAL (m)	SAMPLE No.	Au oz/t	Ag ppm	As > 1000 ppm	Cu, Pb, Sb, Mo, Zn > 500 ppm	LITHOLOGY
7.5 – 4.45	3.05	0233	0.028	3.6	6800		Aplite, wh, vf-fxl 3% mgr biot, weakly silicified within 0.5m of vein, asp veinlets to 35mm
4.45 – 3.0	1.45	0232	0.203	555.3	98200	Cu 651, Pb 2887, Sb 800	QV, -30% asp throughout. Sharp lower contact, upper contact diffuse w Q stockwork in aplite 65/072, tr << 1% pyr, cpy, gal.
3.0 – 0	3.0	0231	0.005	10.2	2120	Pb 510	Aplite buff-wh, vfxl, 3% biot, weathers lt yellow-orange, tr pp pyr, tr hairline Q fracture and weak silicic alteration along jt, strongly jointed 80/073. Approaching vein at 3.0m wk sil + pot alt for 0.5m. Secondary jts 49/319, 44/180.

VEIN (INCLINATION), ARSENOPYRITE UNLESS NOTED Q=QUARTZ OR CC=CALCITE

VEINLET (INCLINATION) < 10 cm WIDE (NO WIDTH SHOWN), ARSENOPYRITE UNLESS NOTED Q=QUARTZ OR CC=CALCITE

SHEAR

JOINT (INCLINATION)

FOLIATION (INCLINATION)

Δ SILICIC ALTERATION

K POTASSIC ALTERATION

NOTES : 1) VEINS GENERALLY PARALLEL PRIMARY JOINTS

2) FOR TRENCH LOCATION SEE MAP 3

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FIGURE 11 - TRENCH No. 8

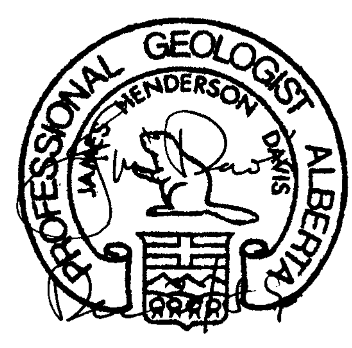
SCALE 1 : 50

METRES 1 0 2 3 4 METRES

DATE : SEPTEMBER 1989

DRAWN BY : SONYA HANSEN

GEOLOGY BY : J. H. DAVIS CONSULTING GEOLOGIST



STRUCTURE

The regional NW structural trend that parallels the axis of the Whitehorse trough is the result of compressive NE-SW stress that foreshortened the trough during the early Cretaceous. Transcurrent faulting along the Llewellyn fault zone (330°) with local east side down movement also follows this trend.

Within the map area (Maps 1 and 2) a large scale open syncline anticline fold pair trend 310°. The anticline may have been influenced by Upper Cretaceous granite and aplite intrusives that seem to have caused doming in the vicinity of the middle ridge aplite zone (Maps 2 and 3). Conversely post-deformational faulting may have caused displacement of the anticlinal axis. Tighter folding can be seen within Inklin strata in less competent argillites. Geological boundaries, some faulted average 320°. Small scale fold hinges in the metamorphics and lower Stuhini trend NNW to N plunging 30 - 60°.

Stereonet plots confirm these trends (Figures 12-19). Foliation information using a test vector analysis for near vertically dipping planes gives an average strike of 171° dipping 65° east. Bedding information indicates an average strike of 121 ° dipping 43° south. Poles to joints indicate a dominant near vertical set striking ENE and a secondary near vertical set striking NNW. This is replicated in vein data indicating the close association between mineralization and post intrusive jointing (Figures 4-11).

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FIGURE I 2

EQUAL-AREA POLES TO FOLIATION TEST

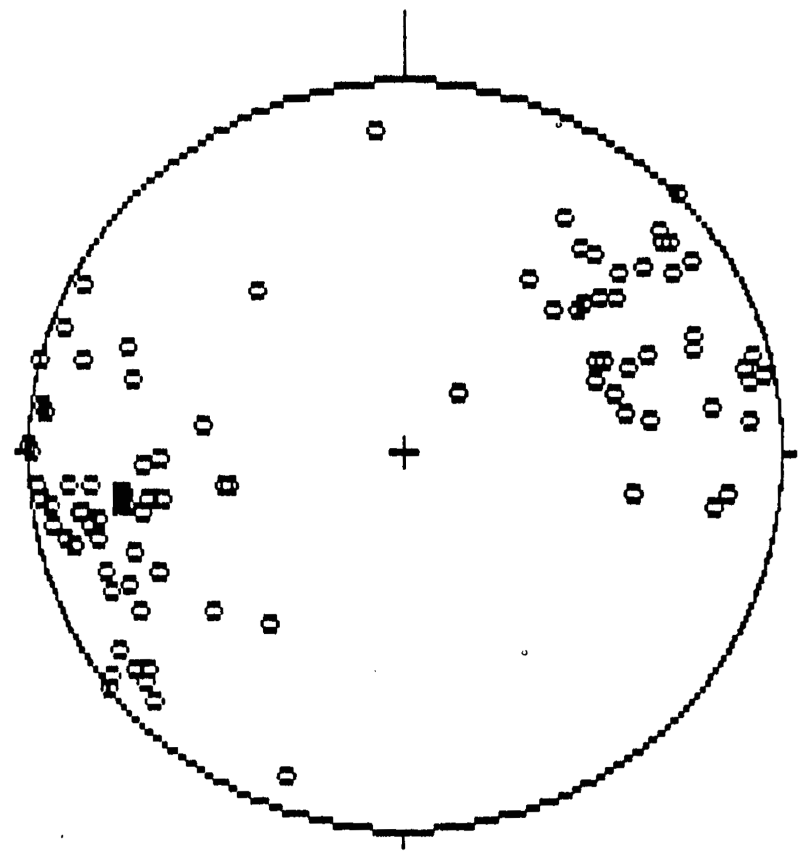
A:\GEOLOGY\FOLIATN.DAT

90 points

Test vector
  azimuth = 260.00 deg
  plunge = 5.00 deg
  test angle = 40 deg

Average plane
170.88 / 64.95 E

Error Analysis
  Mean error = 36.79 deg
  Std dev of err = 21.81 deg
  Var of err = 475.83 deg sqrd
  Standard error = 5.29 deg



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GEOLOGIST

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FIGURE 13

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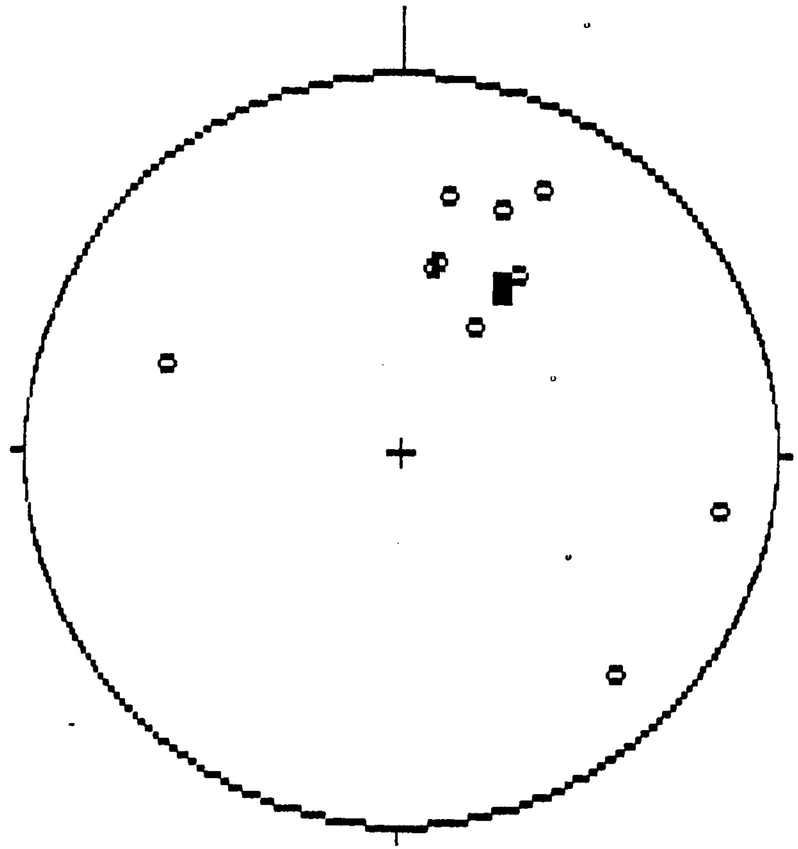
EQUAL-AREA POLES TO BEDDING

A:\GEOLOGY\BEDDING.DAT

10 points



Average plane

121.24 / 42.61 S

Error Analysis

Mean error = 33.57 deg

Std dev of err = 29.15 deg

Var of err = 849.71 deg sqrd

Standard error = 84.97 deg

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FIGURE I 4

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EQUAL-AREA POLES TO JOINTS
A:\GEOLOGY\JOINT.DAT
44 points

Average plane
45.75 / 41.87 S

Error Analysis
Mean error = 56.33 deg
Std dev of err = 17.82 deg
Var of err = 317.45 deg sqrd
Standard error = 7.21 deg

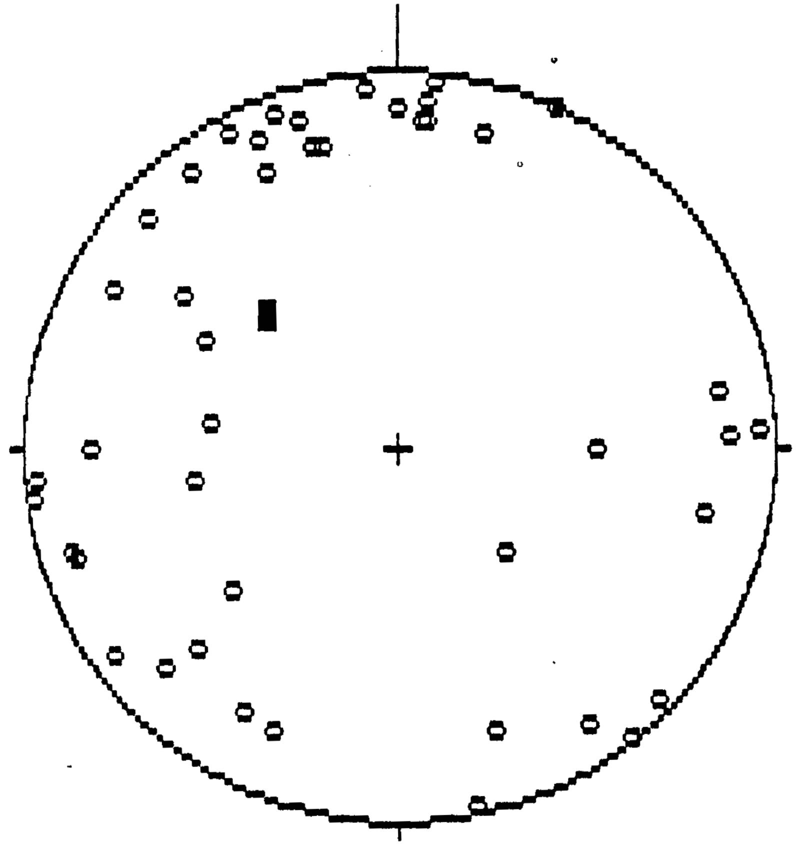

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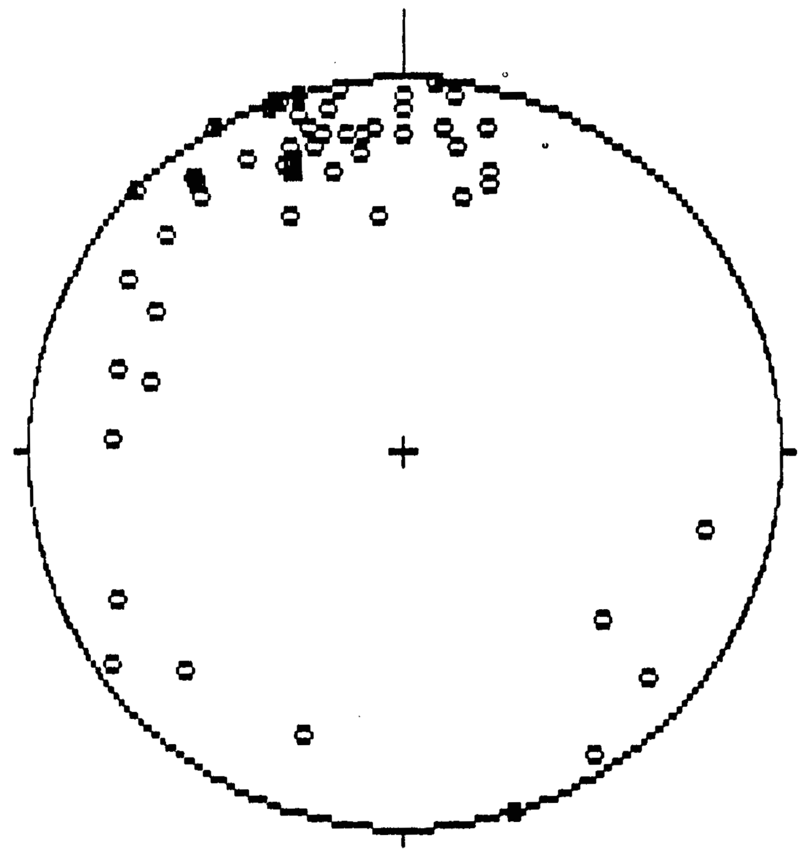
FIGURE 15

EQUAL-AREA POLES TO VEINS

A:\GEOLOGY\VEIN.DAT

57 points



Average plane

69.27 / 71.38 S

Error Analysis

Mean error	=	27.78 deg
Std dev of err	=	18.98 deg
Var of err	=	360.09 deg sqrd
Standard error	=	6.32 deg

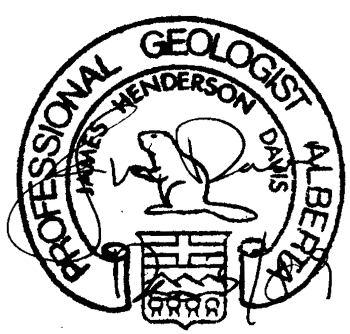


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FIGURE 16

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CONTOURED EQUAL-AREA POLES TO FOLIATION

A:\GEOLOGY\FOLIATN.DAT

90 points

Spacing for contouring grid = 6 degrees
No. of contour subintervals = 1

Contour interval = 2 %

Max population density = 13 %
at azimuth = 258 degrees
and plunge = 12 degrees

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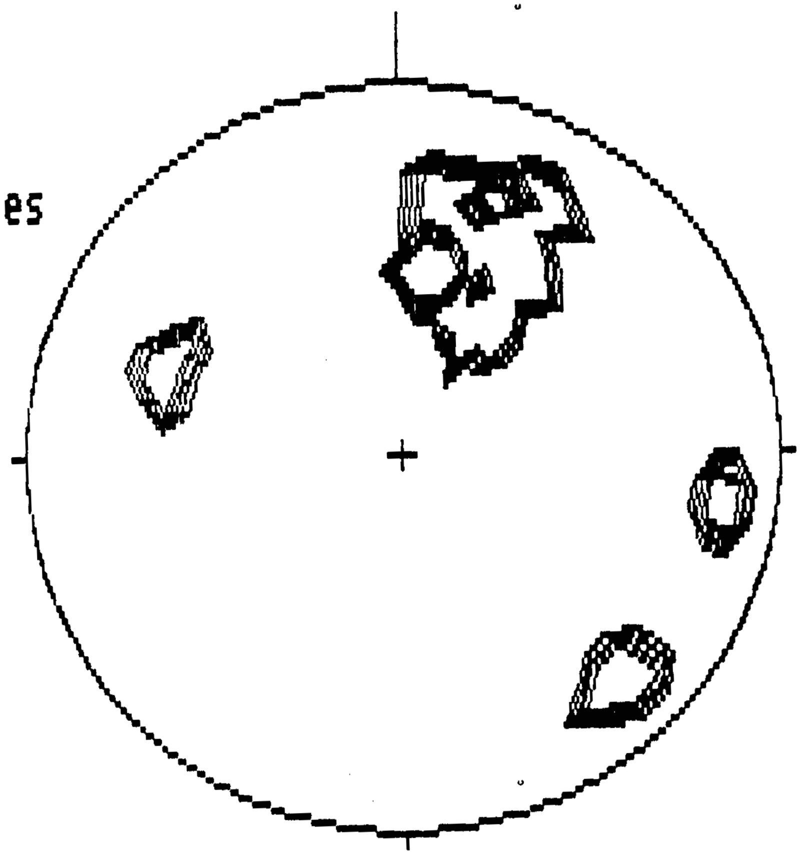
FIGURE 17

CONTOURED EQUAL-AREA POLES TO BEDDING
A:\GEOLOGY\BEDDING.DAT
10 points



Spacing for contouring grid = 6 degrees
No. of contour subintervals = 1

Contour interval = 2 %

Max population density = 20 %
at azimuth = 24 degrees
and plunge = 24 degrees

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FIGURE 18

12-02-1989

CONTOURED EQUAL-AREA POLES TO JOINTS

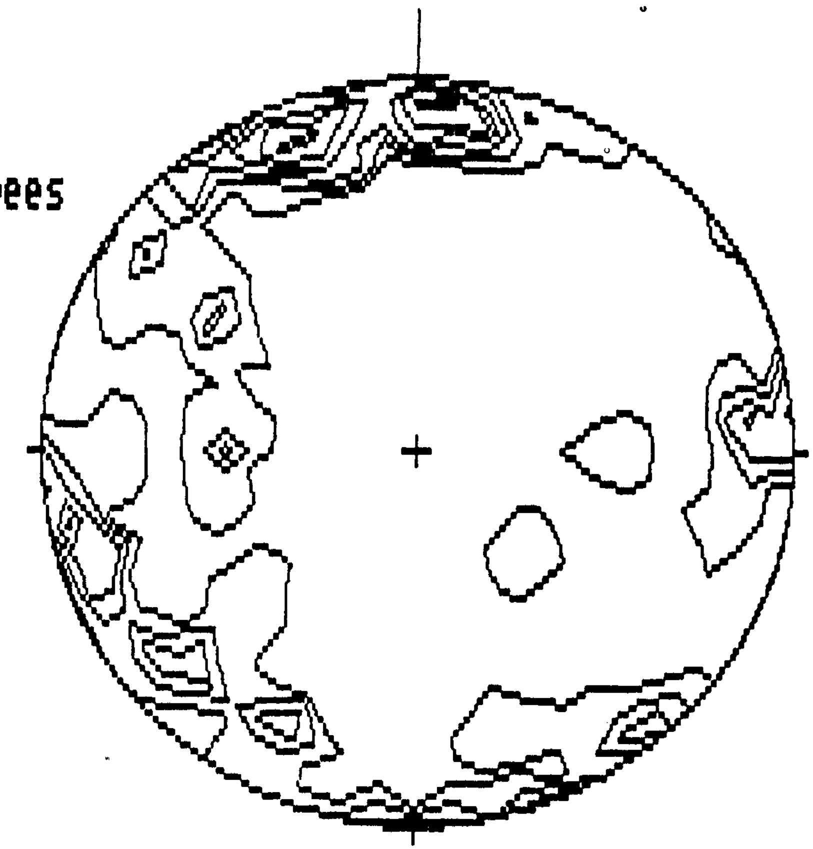
A:\GEOLOGY\JOINT.DAT

44 points

Spacing for contouring grid = 6 degrees
No. of contour subintervals = 1

Contour interval = 2 %

Max population density = 11 %
at azimuth = 336 degrees
and plunge = 12 degrees



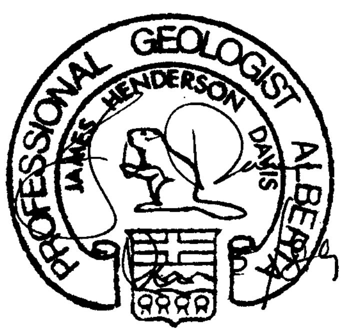


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FIGURE 19

12-02-1989

CONTOURED EQUAL-AREA POLES TO VEINS

A:\GEOLOGY\VEIN.DAT

57 points

Spacing for contouring grid = 6 degrees

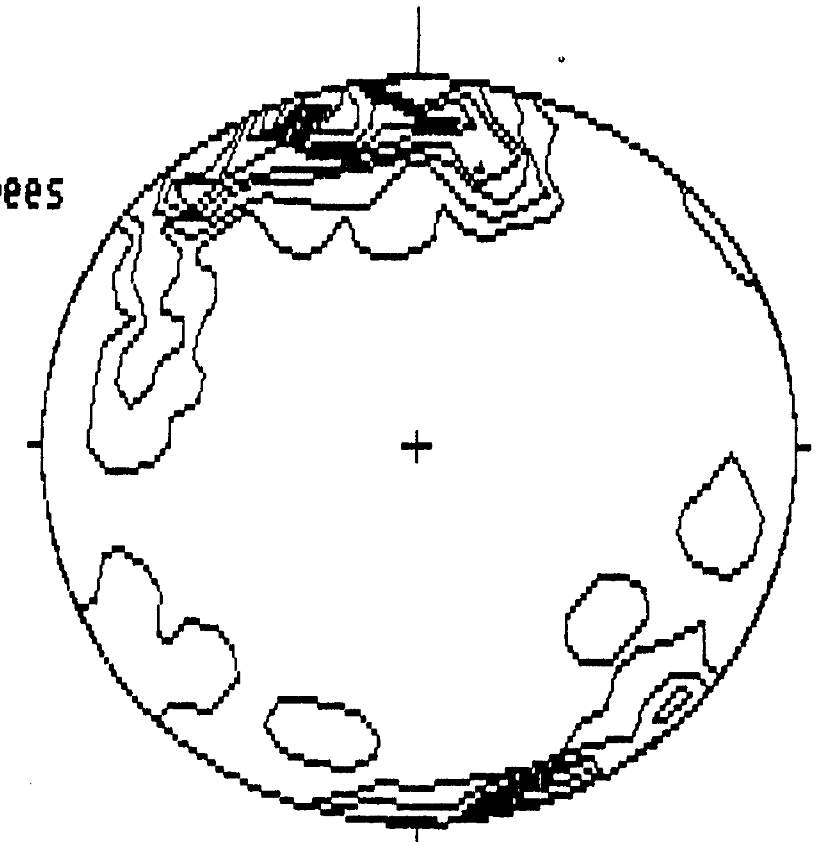
No. of contour subintervals = 1

Contour interval = 2 %

Max population density = 23 %

at azimuth = 342 degrees

and plunge = 6 degrees



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GEOLOGY BY : J. H. DAVIS
CONSULTING
GEOLOGIST

MINERALIZATION

Statistics

Linear correlation coefficients were calculated using bivariate statistics for; Au ppb versus Ag Cu Pb As Sb Mo and Zn ppm where applicable. The results are presented in Table 4.

TABLE 4

Bivariate Statistics: Rock Geochemistry

AU PPB vs AG PPM N=414 Correlation Coefficient: 0.26678

Minimum X Value	:	.00000
Maximum X Value	:	25921.00000
Minimum Y Value	:	.00000
Maximum Y Value:		555.30000
Statistics on X Value		
Mean	:	314.69150
Standard Deviation	:	1659.96400
Variance	:	2755481.00000
Statistics on Y Value		
Mean	:	7.32609
Standard Deviation	:	36.45936
Variance	:	1329.28500

AU PPB vs CU PPM N=414 Correlation Coefficient: 0.24192

Minimum X Value	:	.00000
Maximum X Value	:	25921.00000
Minimum Y Value	:	.00000
Maximum Y Value:		9601.00000
Statistics on X Value		
Mean	:	314.69150
Standard Deviation	:	1659.96400
Variance	:	2755481.00000
Statistics on Y Value		
Mean	:	103.79230
Standard Deviation	:	527.91760
Variance	:	278697.00000

AU PPB vs PB PPM N=414 Correlation Coefficient: 0.22108

Minimum X Value	:	.00000
Maximum X Value	:	25921.00000
Minimum Y Value	:	.00000
Maximum Y Value:		3345.00000

```
Statistics on X Value
Mean                  :      314.69150
Standard Deviation    :     1659.96400
Variance              :  2755481.00000

Statistics on Y Value
Mean                  :       78.32367
Standard Deviation    :      304.70870
Variance              :    92847.41000

AU PPB    vs    AS PPM      N=414       Correlation Coefficient:   0.37237
Minimum X Value       :         .00000
Maximum X Value       :    25921.00000
Minimum Y Value       :         .00000
Maximum Y Value:          241000.00000

Statistics on X Value
Mean                  :      314.69150
Standard Deviation    :     1659.96400
Variance              :  2755481.00000

Statistics on Y Value
Mean                  :     7533.47800
Standard Deviation    :    29947.66000
Variance              :896862200.00000

AU PPB    vs    SB PPM      N=414       Correlation Coefficient:   0.23709
Minimum X Value       :         .00000
Maximum X Value       :    25921.00000
Minimum Y Value       :         .00000
Maximum Y Value:            2200.00000

Statistics on X Value
Mean                  :      314.69150
Standard Deviation    :     1659.96400
Variance              :  2755481.00000

Statistics on Y Value
Mean                  :       87.56039
Standard Deviation    :      214.81050
Variance              :    46143.57000

AU PPB    vs    ZN PPM      N=44        Correlation Coefficient: -0.06816
Minimum X Value       :         .00000
Maximum X Value       :     6960.00000
Minimum Y Value       :        4.00000
Maximum Y Value:             551.00000

Statistics on X Value
Mean                  :     1026.23400
Standard Deviation    :     1619.34100
Variance              :  2622264.00000
```

Statistics on Y Value		
Mean	:	54.40909
Standard Deviation	:	91.79456
Variance	:	8426.24100

AU PPB vs MO PPM N=159 Correlation Coefficient: -0.00923

Minimum X Value	:	.00000
Maximum X Value	:	6960.00000
Minimum Y Value	:	.00000
Maximum Y Value:		9606.00000
Statistics on X Value		
Mean	:	365.31630
Standard Deviation	:	984.73270
Variance	:	969698.40000
Statistics on Y Value		
Mean	:	106.38990
Standard Deviation	:	766.77840
Variance	:	587949.10000

Interpretation of the results for Mo and Zn should be tempered by the following: 1) Assay results for Mo are partially invalidated due to calibration problems. Our assayers had not previously run Mo and had undertaken to do so for us on a trial basis.

Reruns of five samples were undertaken by them at a second laboratory to verify machine calibration and led to the discovery that initial reported values for Mo were 8.8 - 53.8% of true values. Error was not strictly an order of magnitude and previously certified values were all under-reported. Certified values for Mo are correct only for samples 0074, 0079, 0080, 0175 and 0208. These samples had the most visible molybdenite when collected and are assumed to be within the high range of anomalous values for the property. The maximum value of 9,606 ppm was reported for location 0175. 2) Analysis for Zn was undertaken only on samples obtained in the trenching program (Figures 4-11). Results are therefore from a limited number of samples in a restricted area of the claims.

Correlation coefficients (Table 4) indicate at best very weak correlation between Au and As and no correlation between Au and the other elements analyzed for (Appendix II).

Cumulative probability graphs for economic elements, Au and Ag were prepared to select from the inflection points on lognormal curves the anomalous cutoff values (Table 5; Maps 3-5) for Au and Ag in rock and soil samples (Sinclair, 1976).

Table 5

Anomalous Au and Ag:

Rock and Soil Geochemistry

Element	Sample Type	Anomalous Value	Cumulative %
Au	Rock	668 ppb	90
Ag	Rock	14.9 ppm	94
Au	Soil	68 ppb	90
Ag	Soil	2.0 ppm	73

No values were attempted for other elements due to the finding of lack of correlation between them and Au (Table 4).

Analysis

The only potentially economic mineralization occurs in arsenopyrite-bearing quartz veins having anomalous silver and gold, that parallel parallel primary joint sets. The aplite-granite facies boundary is significant in that the best developed jointing, veining and mineralization occurs within the aplite. Most veining trends east-west with near vertical dips. In the vicinity of trenches 7 and 8 the east-west veins cross-cut a series of north south veins that parallel a secondary joint set (Figures 9-11, 14, 15, 18, 19). Both east-west and north-south vein systems have anomalous gold.

On the north mountain the granitic facies intrudes the metamorphics. Both units have quartz veining generally lacking arsenopyrite, with widths to 1m. Some stockwork veining associated with shearing occurs near location 0080. Two veins within the metamorphics have anomalous gold (1962 ppb) and silver (96.6 ppm). Anomalous silver (63.6 ppm) occurs in a granite hosted vein at location 0175, the site of the highest Mo occurrence (9,606 ppm). Most significant veins on the north mountain contain coarse rosettes of molybendite. This type of mineralization does not occur on any other part of the claim group. Soil geochemistry reveals a broad zone of anomalous silver downslope from outcrop of the granitic and metamorphic units.

The middle ridge contains the most promising occurrence of gold mineralization on the property (Map 3). Within the aplite unit predominantly east-west trending quartz-arsenopyrite veins have anomalous gold to 62,291.1 ppb and silver to 555.3 ppm (Figures 4-11). These veins with widths to 2.5m generally parallel the primary joint sets. Trenching has revealed that almost all joints (<10 cm) contain massive arsenopyrite. Some disseminated pyrite (<2%) occurs within gossanous areas of the aplite. Alteration is generally absent. Locally silicic alteration near quartz veins and very minor potassic alteration (Figures 9 and 11) along mineralized joints can be seen. The higher gold values occur on the north side of the middle ridge. On the south side the larger veins are generally barren. Veining that continues into the metamorphics also contains gold (99,565.7 ppb) and silver (175.4 ppm) mineralization although these veins generally are less than 0.5m wide and are not well developed. The site of the highest recorded gold value on the property (Sample 15798) is within a vein that is truncated and lost through faulting on both its margins. Soil geochemistry reveals a significantly larger areal distribution for gold (263 ppb) and significantly less silver distribution than does the north mountain. On both sides of the middle ridge these anomalies lie primarily below the intrusives. Multi-horizon soil sampling was done for some samples on the north-middle ridge which resulted in an apparent pattern of increasing anomalous gold from C through A horizons. Three humus samples of the A horizon were also taken (Appendix II). Throughout the rest of the property, the B horizon was sampled unless noted otherwise (Appendix II).

The south mountain has no developed vein systems. A minor vein at location 15372 contains gold (1,356 ppb) and silver (39.3 ppm). Soil values on the south mountain show a minor area of anomalous silver, primarily centred on a pyrite bearing oxidized aplite.

Virtually all anomalous gold and silver mineralization on the property is associated with quartz veining ± arsenopyrite ± molybdenite mineralization. Those samples that do not fit this pattern are briefly summarized below:

Within Unit 1 samples 0083 and 15433 have anomalous gold; within Unit 2 sample 0063 has anomalous gold associated with shearing and 2% chalcopyrite and pyrite mineralization; within Unit 4 sample 15362 has anomalous gold associated with 2% disseminated pyrite, arsenopyrite and chalcopyrite; within Unit 5 sample 0131 has anomalous gold associated with shearing and 2% chalcopyrite mineralization; within Unit 6 aplite samples 15371, 15472 and 15754 have anomalous gold or silver which may be associated with shearing, arsenopyrite mineralization or oxidation zones. The most noteworthy of these is sample 0131 within the sheared Mesozoic granodiorite of the Llewellyn fault zone, having Au 16,900 ppb. Follow up sampling revealed no mineralization outside the localized chalcopyrite bearing shear.

CONCLUSIONS

The only potentially economic mineralization occurs in arsenopyrite bearing quartz veins having anomalous silver-gold mineralization. These veins trend predominantly east-west in aplite and metamorphic units paralleling the primary joint sets. Earlier north-south veining parallels the secondary joint set but is of minor importance. Correlation coefficients show lack of association between gold and other elements.

The most significant veining occurs within the aplite on the north side of the middle ridge as seen in trenches 4-8 (Figures 7-11, Map 3). Here sporadic gold values reach 62,297.1 ppb. Trenching results from the larger veins indicate gold values that range from 2,914 to 6,960 ppb over widths of 1.45 to 1.9m. The maximum exposed strike length is 110m. High grade veins within the metamorphics have gold values to 99,565.7 ppb over 0.5m but have been lost through faulting.

Exploration to date indicates sub-economic gold mineralization of 0.1 to 0.2 oz/t over vein widths averaging 1.6m and having limited known strike lengths of 100+m.

Potential for future exploration exists based on the possibility that either gold zonation within the vein system increases with depth, or that an alteration envelope exists at depth.

I.P. geophycisal survey results (report pending) may indicate future exploration targets in areas covered by overburden.

RECOMMENDATIONS

Follow up I.P. geophysical results and extend if warranted the geochemical survey over Paddy Creek in areas of overburden that correspond to the aplite zone.

A limited drill program is warranted to test the possibility of increased gold mineralization at depth within the arsenopyrite-bearing quartz veins of the north middle ridge.

STATEMENT OF QUALIFICATIONS

1. I, **James Henderson Davis**, am a geologist residing in Calgary, Alberta.

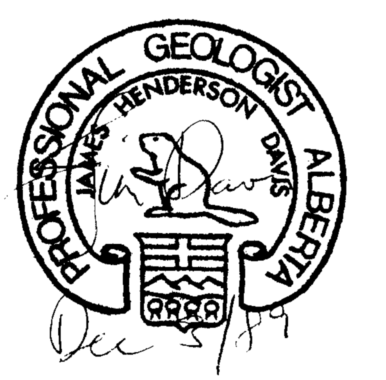
2. I am a graduate of the University of Guelph, with a B.A., in Geography with a minor in Geology, 1975; and the University of Calgary, with an Honors B.Sc. in Geology, 1987.

3. I am a registered Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta.

4. I have practised my profession since October, 1978, and have worked as an independent consultant since July, 1987.

5. I have no interest, direct or indirect, in the property discussed in this report.

6. This work for Frame Mining Corporation, and Mr. C.J.R. HART, was based on field work carried out by myself, assisted by R. Scheele and G. Grubisa whose work I directly supervised, and on a study of published and unpublished data.



J.H. DAVIS, P.Geol.
December 3, 1989

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APPENDIX I

STATEMENT OF COSTS

Appendix I

Catfish Claims - Statement of Costs   Phase 1 - June to September 2, 1989

Samples and Assays	
112 soil samples;NAL;Aug/89; 112 sample prep,Au Fire assay, AAS 5 elements at $14.75	$1,652.00
284 samples;NAL;Aug/89; 284 rock assays at $18.35; 26 dilutions at $1.50 each	$5,250.40
28 samples;NAL;Aug/89;28 sample prep(metallics), Au metallics fire assay at $27.50	$770.00
2 samples;NAL;Aug 26/89; 2 sample prep, Au & Ag fire assay, AAS 2 elements at$ 20.00	$40.00
7 samples;NAL;Aug 26/89; 7 sample prep, Au 1AT fire assay, AAS 3 elements at$ 17.00	$119.00
3 samples;NAL;Aug 12/89; 3 Au 1AT fire assay at $9.75	$29.25
2 samples;NAL;Aug 12/89; 2 Au & Ag fire assay at $12.75	$25.50
3 samples; Bondar Clegg; Aug/89; sample prep,arsenic,Ag,Cu,Pb,Ag-fire assay at $25.10/sample + $5.00 fax charge	$80.30
50 sample bags;NAL;Aug 10/89	$50.00
1,000 sample bags at $90.00/1,000; June 12/89	$90.00
Samples and Assays Subtotal	**$8,106.45**
Meals, Accommodation, Travel and Expenses	
Camp set-up and supplies; June/89	$3,089.96
Field supplies (maps, equipment, filed books, etc.) May 15 - August 27)	$3,031.15
Groceries/meals (June 6-Sept 2)	$5,737.35
Hotel (June 7 -16, June 24, July 4,July 12, July 14-15, July 18,July 31, Aug 25-27, Aug 31)	$1,761.96
Truck rental (RMR-8); 1 ton; June 15/89	$180.40
Truck lease (RPX-3); June 1-Sep 2/89; 3 months at $1100; 2 days at $36.67/day	$3,373.34
Transportation (gas, taxi) June 6 - Sep 2	$886.93
Meals, Accommodation, Travel and Expenses Subtotal	**$18,061.09**
Helicopter	
Whitehorse-Tutshi return;June 13-1.8hrs(#79977);June 22- 1.2hrs(79983)@ $610;July 5- 1.6hrs @$660(#85300) plus fuel	$3,166.44
Move camp;June 16- 2.7hrs(#85041);July 25- 1.5hrs(#85512);Aug 2- 2.4hrs(#1466) @ $610 plus fuel	$2,648.58
Sling load to camp,local recon.: June 24- 1.4hrs(#85051); July 13- 2.0hrs(#83464) @ $610 plus fuel	$2,267.80
Set out 3 passengers; July 8- 1.3hrs @ $660(#85305); Aug 10- .8hrs @ $610(#3885) plus fuel	$1,501.92
Set out/pickup 2 at Paddy Pass; Aug 12- 1.2hrs(GJ)(#3891);Aug 28- 1.8hrs (#3349)@ $610 plus fuel	$2,081.25
Helicopter Subtotal	**$11,665.99**
Personnel	
Worker's Compensation	$1,244.00
Field assistant, Gerald Grubisa; June 14-Jul 18, Jul 25-Aug 24/89; 65 days at $100/day	$6,916.00
Geologist, Jim Davis; June 8-July 18, July 26-Sep 2; 80 days at $200/day	$16,000.00
Field Assistant, Glen McAdam; June 15-24/89; 11 days at $115/day	$1,265.00
Field assistant, Ron Scheele; June 14-Jul 18, Jul 25-Aug 24/89; 65 days at $100/day	$6,916.00
Personnel Subtotal	**$32,341.00**
Road Work & Trenching	
E-lobe Contracting; Sep 1/89 (Road)	$320.00
Steve Anderson & Sons; July 21-24/89; D6D cat - 26 hrs @$100/hr plus expenses, mob/demob (road)	$2,905.00
M.J. Moreau; Aug 24-Sep 2/89; 10 days at $750/day plus expenses (Trench)	$10,241.60
Helicopter to sling trenching equipment;Aug 22- 1.9hrs(#3338);Aug 29 1.2hrs(#1023);Aug 30- 1.3hrs(#3982) @ $610 plus	$3,020.40
Road Work & Trenching Subtotal	**$16,487.00**
Phase 1 - June to September 2, 1989 - Total	**$86,661.53**

Catfish Claims - Statement of Costs		Phase 2 - September 3 to December 17, 1989

Samples and Assays	
32 soil samples;NAL;Sep/89; 32 sample prep,Au Fire assay, AAS 5 elements at $14.75	$472.00
101 samples;NAL;Sep/89; 101 rock assays at $18.35	$1,853.35
15 samples;NAL;Sep/89; 15 rock assays, AAS 2 elements at $20.35;11 dilutions at $1.50 each	$321.75
29 samples;NAL;Sep/89; 29 sample prep,Au Fire assay, AAS 7 elements at $36.00	$1,044.00
Sample transport; Oct/89	$57.00
Credit for Mo assays; Sep/89	($45.00)
Samples and Assays Subtotal	$3,703.10
Meals, Accommodation, Travel and Expenses	
Office supplies Oct 25 - Dec 15) (photocopies, drafting paper, mylar,etc)	$385.59
Groceries/meals (Sep 6 - Sep 27, Oct 31- Dec 17)	$664.75
Hotel (Sept 14-27, Nov 1 - Dec 16)	$3,740.82
Truck rental (RPX-7); Nov 11-Dec 29/89; 20 days at $36.67;29 days at $35.48 + $27.00 gas	$1,789.32
Truck lease (RPX-3); Sep 3-Nov 10/89; 28 days at $36.67;1 week at $480;3 days at $80 plus $1,534.80 damages	$3,281.46
Transportation (gas, taxi) Sep 6 - Sep 23, Dec 10 - Dec 18)	$290.40
Plane, Whitehorse to Calgary;Dec 17/89; Jim Davis	$903.00
Meals, Accommodation, Travel and Expenses Subtotal	$11,055.34
Helicopter	
Helicopter Subtotal	$0.00
Personnel	
Geologist, Jim Davis; Sep 3-Sep 27,Nov 1-4,9-10,13-17,20-25,28-30,Dec 1-9,11-16; 60 days at $200/day	$12,000.00
Drafting, Handesign; Sep 21-29, Oct 31, Dec 1/89;88.25 hours at $22.00/hour + $13.50 supplies	$1,955.00
Petrographics, Jeff Harris; Sep/89; 15 thin sections,5 polished sections,20 stained reject reject slices,reflected light exams,XRD work, report	$1,874.05
Personnel Subtotal	$15,829.05
Road Work & Trenching	
M.J. Moreau; Sep 3-11/89; 9 days at $750/day plus expenses	$7,830.70
Helicopter for trenching; Sep 5- 2.3hrs(1023&3986);Sep 6- 1.7hrs(1028);Sep 11-1.3hrs @ $610 plus fuel	$3,623.55
M.J. Moreau (backfill); Sep 26-28/89; 3 days at $500/day plus expenses	$2,029.65
Road Work & Trenching Subtotal	$13,483.90
Phase 2 - September 3 to December 17, 1989 - Total	$44,071.39

APPENDIX II

GEOCHEMICAL SURVEY: ROCK AND SOIL

APPENDIX II
SAMPLING PROCEDURES

Rock samples were obtained from outcrop only, neither frost heave nor float was sampled.

Soil samples were taken at approximate one hundred metre intervals in areas most likely to have good soil profiles. Screes were avoided.

Samples were obtained with the aid of a mattock and plastic sampling shovel. The soil profile was exposed usually to a depth of two to three feet in order to recognize the A, B, and C horizons. In some instances three or four cuts were taken at one location in order to obtain the best profile. The preferred horizon was then sampled with a plastic shovel and placed in a paper soil bag.

The B horizon was sampled unless noted otherwise. Multiple horizon sampling was done at some locations in a restricted area of the north middle ridge in a known anomalous area to test variations between horizons. These horizons are denoted by the suffix following respective sample numbers. In three cases humus was sampled from the A horizon. These samples were sent to Bondar Clegg for analysis. All other samples were analyzed by Northern Analytical Laboratories.

Atomic absorption analysis was performed for rock and soil samples for all elements exclusive of gold. Gold was analyzed using the trace level gold fire assay method, unless the free gold fire assay was performed. The latter method can be distinguished in this appendix by the appearance in columns 2 through 4 of Au values in oz/t.

SAMPLE	PETRG	LOCATION	TRENCH	CLAIM #	ROCK UNIT	SAMPLER	2ND LINE DESCRIPTION
42	TRUE	MR/S	FALSE	10	4b	J	MAF AGGL
0056	FALSE	GRID	FALSE	6	6a	G	QAV ASP VLETS 3-5CM
0057	FALSE	GRID	FALSE	6	6a	G	QAV WEATH SCORO
0058	FALSE	GRID	FALSE	6	6a	G	QAV,10% ASP,NEAR APL CONTACT
0059	FALSE	MR/N	FALSE	11	6a	G	APL CRM-BRN,V WEATH,1-2% MAF,Q PHENO TO 3MM
0060	FALSE	MR/N	FALSE	11	6a	G	APL V FXL, <1% MAF,HRL Q FRAC EVERY 0.5CM
0061	FALSE	MR/N	FALSE	11	2	J	VOLCANIC/VOLCANICLASTIC BLOCKY DK MAR GY-M GN GY
0062	FALSE	MR/N	FALSE	11	3	J	ARG BLK EXT FISS,WEATH OR BRN,LIM STN
0063	FALSE	MR/NW	FALSE	11	2	R	FLOW DK GY,10% PHENO,TWIN PLAG LATHS,2% CPY+PY
0064	FALSE	MR/NW	FALSE	11	2	R	BIO-Q-SCHIST FGR,POORLY DEV FOL,1% PY+CPY
0065	FALSE	MR/NW	FALSE	11	2	R	QAV 15CM,MASS ASP+PY,SHEAR ZONE
0066	FALSE	MR/NW	FALSE	11	2	R	QAV 10CM,MASS ASP+PY
0067	TRUE	MR/NW	FALSE	11	2	R	Q-RICH FEL RX WH-GY W IRR MAF BANDS,VF DISM PY (SKARN?)
0068	FALSE	MR/NW	FALSE	11	6a	R	Q-F-BIO GRAN CGR,WEATH RUSTY
0069	FALSE	NMTN/S	FALSE	N/A	6a	R	GRAN WEATH CRM WH-GY CGR
0070	FALSE	NMTN/S	FALSE	3	1	R	BIO-Q-SCHIST DK GY-BRN,POOR FOL,1% PY
0071	FALSE	NMTN/S	FALSE	3	6a	R	GRAN CGR WEATH RUSTY BRN
0072	FALSE	NMTN/S	FALSE	CAT	6d	J	F-PHYRIC DIOR DIKE X-CUT PPM
0073	FALSE	NMTN/S	FALSE	CAT	1	J	BANDED GNEISS,Q-F LAYERS 2MM (30-40%)
0074	FALSE	NMTN/S	FALSE	3	6a	J	QV IN GRAN, TR MO+ASP+PY
0075	FALSE	NMTN/S	FALSE	3	6d	J	DIOR? DK GN
0076	FALSE	NMTN/S	FALSE	3	1	J	BANDED SCHIST, 75% Q-F, LT GY-WH W 1-2MM MAF BANDS
0077	FALSE	NMTN/S	FALSE	4	1	J	SCHIST MAR GN WELL FOL HARD, IN PART 3-5% PYR, RUSTY WEATH
0078	FALSE	NMTN/S	FALSE	CAT	1	J	QV 0.5-4' WIDE
0079	FALSE	NMTN/S	FALSE	CAT	1	J	QV 1% MO TR CU STN, STOCKWORK V <1'
0080	FALSE	NMTN/S	FALSE	CAT	1	J	A.A. +TR CPY
0081	FALSE	NMTN/S	FALSE	CAT	1	R	PPM GY GN MOD FOL, 5MM BANDING, WEATH RUSTY BRN, <1% PY+BORN, MOD SHEARED

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0082 FALSE  NMTN/S                FALSE  CAT          1         J
      PPM LT WH SS/ARK PROTO, HIGHLY SHEARED, RECESSIVE, FAULTED
0083 FALSE  NMTN/S                FALSE  4            1         R
      PPM BANDED GY AND BUFF WELL FOL
0084 FALSE  NMTN/S                FALSE  4            1         R
      POSS STUH MASS DK GN, 20% BIO
0085 FALSE  NMTN/S                FALSE  4            1         R
      LT GN&WH ALTERNATING BANDS, IN PART MASS DK GN GY, MICROFOLDS
0086 FALSE  NMTN/S                FALSE  4            1         R
      PPM BANDED WH&GN&BLK, V WELL FOL
0087 FALSE  NMTN/S                FALSE  4            1         R
      DK GN GY MASS, PLAG LATHS 1-2MM MOD SHEARED
0088 FALSE  NMTM/S                FALSE  CAT          1         R
      M GY BRN WELL FOL, MAF & Q-F LAYERS, CI=60, Q BOUDINS TO 4CM
0089 FALSE  NMTN/S                FALSE  CAT          1         R
      QV 50CM FRAC
0090 FALSE  NMTN/RIDGE            FALSE  CAT          1         R
      PPM WELL FOL, DK GN GY BANDS 80% & BUFF FEL BANDS 20%, NEAR F P     CONTACT
0091 FALSE  NMTN/RIDGE            FALSE  5            1         R
      PPM WELL FOL MOTT LT TO DK GN, MAINLY Q+F
0092 FALSE  NMTN/RIDGE            FALSE  5            1         R
      PPM MOD FOL, BANDED TO MASSIVE, WEATH V RUSTY BRN
0093 FALSE  NMTN/RIDGE            FALSE  5            1         R
      MX DK GN,IN PART MOD FOL BND DK GN&CRM WH,IN PART MASS WH HIGHLY SHRD 1-3% PY,POSS SPH,WTH V OR BRN
0094 FALSE  NMTN/NE               FALSE  5            2         R
      STUH? NON-FOL MOTT GN GY -CRM BUFF
0095 FALSE  NMTN/NE               FALSE  5            6a        R
      APL V RUSTY OR, 5%PY; AND GD
0096 FALSE  NMTN/NE               FALSE  5            6a        R
      APL PALE GN WH, OX V RUSTY OR, 5-7% PY
0097 FALSE  NMTN/S                FALSE  CAT          6a        R
      GRAN CGR, RUSTY
0098 FALSE  NMTN/S                FALSE  CAT          1         R
      QV VUGGY/ADIT 3 SEMI-PARLLEL V 80-150CM
0099 FALSE  NMTN/S                FALSE  CAT          1         R
      PPM Q-BIO SCHIST, WELL FOL BANDED
0100 FALSE  NMTN/S                FALSE  CAT          1         R
      PPM M BRN GY BANDED, C.I.=70, <1% PY
0101 FALSE  GRID                  FALSE  6            6a        J
      APL WH-YEL GN ABNT HRL QAV, <1% ASP+PY
0102 FALSE  GRID                  FALSE  6            6a        J
      QV 4-5' WIDE, STRIKE LENGTH >90M
0103 FALSE  GRID                  FALSE  6            6a        J
      A.A. IN PART W 6" ASP V
0104 FALSE  MR/N                  FALSE  11           6a        J
      GRAN Q-F-BIO V CGR, SHEARS EVERY 5MM, CI<10
0105 FALSE  ROAD CUTS             FALSE  7            1         J
      M GY SCHIST, 25% Q-F LAM TO 2MM, UP TO 3% SUL INCL PYR TR CPY+ASP
0106 FALSE  ROAD CUTS             FALSE  7            1         J
      PPM SIL, PY, TR CU
0107 TRUE   ROAD CUTS             FALSE  7            6         J
      SIL SHEAR ZONE CO-FOLIAL SHEARING, 7% PY (BCGS SITE)
0108 FALSE  ROAD CUTS             FALSE  7            1         J
      PPM SHEAR ZONE, HEAVILY MIN W PY TR GAL+CPY
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0109	FALSE	ROAD CUTS	FALSE	IG	5	J	FAULT GOUGE IN MGD/DIORITE DIKE, GOSSAN, CGR PYR
0110	TRUE	ROAD CUTS	FALSE	IG	2	J	STUH GN PX-FP, EP ALT, TR PYR
0111	FALSE	ROAD CUTS	FALSE	5	2	J	STUH M MAR GN APH, HEAVILY VEINED & SHEARED TR PURP ALT
0112	FALSE	NMTN/S	FALSE	CAT	1	J	PPM GN-MAR GY VF LAM SCHIST, 50-50 Q-F & MAF LAM 1MM WIDE
0113	FALSE	NMTN/S	FALSE	CAT	6a	J	APL SL OR BUFF MX
0114	FALSE	NMTN/S	FALSE	CAT	1	J	PPM GY GN-MAR FOL RX NO MIN SEG, VOLC PROTO
0115	FALSE	NMTN/S	FALSE	CAT	6d	J	DIOR DIKE MGY 20% VCGR F PHENO
0116	FALSE	NMTN/S	FALSE	5	1	J	PPM MAR GN SCHIST STRONGLY FOL, COM Q BOUDIN
0117	FALSE	NMTN/N	FALSE	4	2	J	STUH M GN VFXL-MX, CHL, 10-20% BIO
0118	FALSE	NMTN/N	FALSE	4	6a	J	APL GY BUFF CPX 5-10% PY, WEATH BURNT YEL
0119	FALSE	NMTN/N	FALSE	4	1	J	PPM GY BRN WAXY SER SCHIST, SOME APL INJ & QV TO 4MM
0120	FALSE	NMTN/N	FALSE	5	1	J	PPM STRONGLY FOL VF LAM (2MM) Q SCHIST, SER ALT
0121	FALSE	NMTN/N	FALSE	5	6a	J	SAME AS 0118
0122	TRUE	NMTN/N	FALSE	5	2	J	STUH M-DK SL MAR GN VOLC, V HARD ~5% EP, <1% PY
0123	FALSE	NMTN/N	FALSE	5	6a	J	APL WH RED CHALKY SHEARED
0124	TRUE	NMTN/N	FALSE	5	6a	J	APL GY WH MX, 5-10% PY, V STRONG LIM STN
0125	FALSE	MR/S	FALSE	10	1	J	QAV 2' WIDE 50-80% ASP, BLAST HOLE
0126	FALSE	NMTN/S	FALSE	5	1	J	2' SHEAR W CC+QV IN PPM
0127	TRUE	NMTN/S	FALSE	5	2	J	MARBLE TAN WH FOL
0128	TRUE	NMTN/S	FALSE	5	2	J	BREC W CC LINED FRAG IN STUH
0129	TRUE	NMTN/S	FALSE	5	2	J	MARBLE TAN-GN WH , ACT REXL
0130	TRUE	NMTN/S	FALSE	5	2	J	ARG NON-CALC, <1% PY INTERBEDS OF MARBLE
0131	FALSE	ROAD CUTS	FALSE	IG	5	J	GD SHEARED, 2% CPY
0132	FALSE	T1 0-2m	TRUE	10	6a	J	APL WH VFXL,ASP VLETS, QV
0133	FALSE	T1 2-4m	TRUE	10	6a	J	APL
0134	FALSE	T1 4-4.7m	TRUE	10	6a	J	QV, 20% ASP
0135	FALSE	T1 4.7-6.7	TRUE	10	6a	J	APL, ASP VLETS

0136	FALSE	T1 6.7-8.7m	TRUE	10	6a	J
	APL W ASP VLETS					
0137	FALSE	T1 8.7-9.5m	TRUE	10	6a	J
	QV 3% CGR ASP AND VLETS					
0138	FALSE	T1 9.5-11.5m	TRUE	10	6a	J
	APL W ASP VLETS					
0139	FALSE	T2 0-3m	TRUE	10	6a	J
	APL W HEAVY SCORO, ASP VLETS					
0140	FALSE	T2 3-5.5m	TRUE	10	6a	J
	QV 30% ASP+SCORO, 1% PY					
0141	FALSE	T2 5.5-8.5m	TRUE	10	6a	J
	APL W ASP VLETS					
0142	FALSE	T2 8.5-10.5m	TRUE	10	6a	J
	APL W ASP VLETS					
0143	FALSE	T3 0-2m	TRUE	10	1	J
	PPM DK BRN GY-GN GY SCHIST, WK FOL CC VLETS					
0144	FALSE	T3 2-4m	TRUE	10	1	J
	PPM SHEAR W DRAG FOLD, RUBBLE, CC FRAC INF					
0145	FALSE	T3 4-4.7m	TRUE	10	1	J
	SCORO V HEAVY WEATH					
0146	FALSE	T3 4.7-6.7m	TRUE	10	1	J
	SHEAR ZONE GOUGE & RUBBLE IN PPM W LEACHED SCORO					
0147	FALSE	T3 6.7-9.7m	TRUE	10	1	J
	PPM ONE POD Q BOUDIN, TR PY					
0148	FALSE	T3 9.7-10.6m	TRUE	10	1	J
	QAV 40-80% ASP, 1-5% CPY					
0149	FALSE	T3 10.6-11.0m	TRUE	10	1	J
	PPM DK MAR GN, WK FOL					
0150	FALSE	T5 0-3m	TRUE	6	6a	J
	APL WH FXL W 3-5% MGR BIO, SUCR, MNR HRL QV, THIN ASP V ALONG JTS					
0151	FALSE	MR/N	FALSE	6	1	R
	PPM VAR LT-M GY 1-2% VF DISM PY					
0152	FALSE	MR/N	FALSE	6	1	R
	Q-MUSC-BIO SCHIST GN GY MOD FOL, Q BOUDIN, PY, 3% CPY; IN PART MASS DK GY, 4% VF DISM PY					
0153	FALSE	MR/N	FALSE	6	1	R
	PPM VAR, POORLY FOL, 2-4% F DISM PY					
0154	FALSE	MR/N	FALSE	6	6a	R
	APL FXL HEAVILY OX, BROKEN, WEATH SUL					
0155	FALSE	MR/N	FALSE	6	6a	R
	APL FXL HEAVILY SHEARED, OX, HRL FRAC, WEATH SUL					
0156	FALSE	NMTN/E	FALSE	4	2	G
	STUH GN BLK ASH TUFF VFGR, EP ALT, <1% PY					
0157	FALSE	NMTN/E	FALSE	5	2	G
	STUH M GN GY-LT GY, VFGR, INT-MAF, SL EP ALT					
0158	FALSE	NMTN/E	FALSE	5	2	G
	STUH INT-MAF HIGHLY OX, POSS SHEAR ZONE, RUBBLY 1% PY					
0159	FALSE	NMTN/E	FALSE	5	2	G
	STUH INT-MAF WEATH RUSTY BRN, ABNT Q					
0160	FALSE	NMTN/E	FALSE	5	2	G
	TUFF M GN GY, WEATH V RUSTY BRN, <1% PY					
0161	FALSE	NMTN/E	FALSE	5	2	G
	INTB VOLC/BREC, DK GN GY, <1% PY					
0162	FALSE	NMTN/S	FALSE	5	2	G
	PPM M GY-LT GN GY VF LAM CHL SCHIST					

0163	FALSE	NMTN/S	FALSE	5	2	G
	PPM LT GY, FGR, F LAM, CHL, 4% SUL					
0164	FALSE	NMTN/S	FALSE	5	2	G
	PPM DK GN GY, VFGR, F LAM, BOUDINS TO 3CM					
0165	FALSE	NMTN/S	FALSE	5	2	G
	SCHIST GN GY, VFGR, WEATH RUSTY BRN, CI 60-100					
0166	FALSE	NMTN/S	FALSE	5	2	G
	STUH DK GN GY, MASS NON-FOL, EP					
0167	FALSE	NMTN/S	FALSE	5	2	G
	STUH MAF TUFF DK GN FGR, EP					
0168	FALSE	NMTN/S	FALSE	5	2	G
	STUH TUFF V DK GN GY, 1% PY					
0169	FALSE	NMTN/E	FALSE	5	2	G
	TUFF DK GN GY VFGR, SL BREC, <1% PY TR CU?					
0170	FALSE	NMTN/E	FALSE	5	2	G
	DK GN GY M-FGR, EP+CHL ALT					
0171	FALSE	NMTN/E	FALSE	5	2	G
	PX FP, LT GY INT-FEL VFGR, STRONG BREC					
0172	FALSE	NMTN/S	FALSE	3	6a	G
	QV 75x0.5m					
0173	FALSE	NMTN/S	FALSE	3	1	G
	SCHIST VFGR, VF LAM, MICRO PY, WEATH RUSTY BRN, CI 30-60					
0174	FALSE	NMTN/S	FALSE	3	1	G
	SCHIST MAR GY FGR WELL DEV Q-F LAM TO 5mm					
0175	FALSE	NMTN/S	FALSE	3	6a	G
	QV IN GRAN, COM MO, TR PY+GAL?					
0176	FALSE	NMTN/S	FALSE	3	6a	G
	GRAN CGR CI 0-30, UP TO 20% BIO					
0177	FALSE	NMTN/S	FALSE	3	6a	G
	QV IN GRAN					
0178	FALSE	NMTN/S	FALSE	3	6a	G
	SAME AS 0176					
0179	FALSE	NMTN/S	FALSE	N/A	6a	G
	A.A.					
0180	FALSE	NMTN/S	FALSE	N/A	6a	G
	APL VFXL, 4% MAF					
0181	FALSE	NMTN/S	FALSE	N/A	6a	G
	QV IN GRAN, 50x0.5m					
0182	FALSE	NMTN/S	FALSE	3	6a	G
	GRAN OFF WH CGR CI 0-30					
0183	FALSE	NMTN/S	FALSE	3	6d	G
	DIOR DIKE MAF-INT, <1% PY					
0184	FALSE	NMTN/S	FALSE	3	6a	G
	SAME AS 0182					
0185	FALSE	T5 3-4.5m	TRUE	6	6a	J
	QV W MNR ASP VLETS TO 22mm, <5% ASP, HRL QV IN APL ALONG V MARGIN					
0186	FALSE	T5 4.5-6.75m	TRUE	6	6a	J
	APL SAME AS 0150 W SCORO ALONG JTS, ONE QAV 10cm					
0187	FALSE	T5 6.75-9m	TRUE	6	6a	J
	APL SAME AS 0150, COM ASP VLETS PARALLEL JTS 5-25mm					
0188	FALSE	T4 0-2m	TRUE	6	6a	J
	APL BROKEN, OR GOSSAN COLOR FOR 1.4m, FRESH SURFACE WH VFXL, <1% MAF					
0189	FALSE	T4 2-3.9m	TRUE	6	6a	J
	QAV 10% ASP IN DISTINCT BANDS, HRL QV ALONG MARGINS					

0190	FALSE	T4 3.9-5.2m	TRUE	6	6a	J	APL LT GN BUFF PERVASIVE SCORO FILM, 2 ASP VLETS 5-20mm
0191	FALSE	T4 5.2-5.45m	TRUE	6	6a	J	ASP V, 70% ASP
0192	FALSE	T4 5.45-6.75m	TRUE	6	6a	J	APL SL GN LT GY, MX-VFXL, IN PART SIL
0193	FALSE	T4 6.75-6.95m	TRUE	6	6a	J	ASP V, WEATH RUBBLE, 50% ASP+SCORO
0194	FALSE	T4 6.95-9m	TRUE	6	6a	J	APL GY BUFF, HEAVILY SHEARED W MOD GOSSAN, COM HRL QV, ONE ASP VLET 2mm
0195	FALSE	T6 0-2m	TRUE	6	6a	J	APL GY BUFF MX, MNR ASP VLETS, 3-5% BIO, SIL TR K ALT
0196	FALSE	T6 2-4m	TRUE	6	6A	J	APL ONE ASP VLET 10mm
0197	FALSE	T6 4-5.7m	TRUE	6	6a	J	QAV, 40% ASP
0198	FALSE	T6 5.7-7.7m	TRUE	6	6a	J	APL MNR ASP VLETS
0199	FALSE	T7 0-2m	TRUE	6	6a	J	APL WH VFXL W OCC VCGR ANH Q GR, 2% VCGR BIO, ASP TO 5cm
0200	FALSE	T7 2-4m	TRUE	6	6a	J	APL A.A. + ASP TO 12cm
0201	FALSE	NMTN/S	FALSE	CAT	6a	R	APL FXL W QV 5-20mm, FRAC
0202	FALSE	NMTN/S	FALSE	CAT	1	R	PPM BANDED LT GN-BUFF & BROWN, OX, <1% PY
0203	FALSE	NMTN/S	FALSE	CAT	6a	R	APL PALE GN WH FXL, WEATH SUL
0204	FALSE	NMTN/S	FALSE	CAT	6a	R	QV 325-400cm WIDE, VUGGY W WEATH SUL
0205	FALSE	NMTN/S	FALSE	CAT	6a	R	A.A., 50m STRIKE LENGTH
0206	FALSE	NMTN/S	FALSE	CAT	6a	R	QV 2x50m, VUGGY, WEATH RUSTY
0207	FALSE	NMTN/S	FALSE	CAT	6a	R	GRAN CGR, TR BIO, WEATH V RUSTY
0208	FALSE	NMTN/S	FALSE	CAT	1	R	QV 1m, ADIT, 2% PY+ASP TR CPY+MO
0209	FALSE	NMTN/S	FALSE	CAT	1	R	A.A., 80m STRIKE LENGTH
0210	FALSE	NMTN/S	FALSE	CAT	6a	R	GRAN CGR
0211	FALSE	NMTN/S	FALSE	CAT	6a	R	QV 2m X-CUTS GRAN, V OX
0212	FALSE	NMTN/S	FALSE	3	1	R	PPM Q-BIO SCHIST BANDED GY BRN-WH BUFF, MOD FOL
0213	FALSE	NMTN/S	FALSE	3	1	R	PPM BIO-Q SCHIST WELL FOL, AND APL
0214	FALSE	NMTN/S	FALSE	3	6a	R	GRAN RUSTY WEATH, CGR, BROKEN
0215	FALSE	NMTN/S	FALSE	3	6a	R	GRAN CGR A.A.
0216	FALSE	NMTN/S	FALSE	3	6a	R	GRAN CGR W QV TO 1cm AND APL TO 5cm

0217	FALSE	NMTN/S	FALSE	N/A	6a	R
	GRAN CGR W QV TO 1cm					
0218	FALSE	NMTN/S	FALSE	N/A	6a	R
	GRAN CGR + APL W QV TO 1cm					
0219	FALSE	NMTN/S	FALSE	N/A	6a	R
	GRAN SL RUSTY WEATH CGR					
0220	FALSE	NMTN/S	FALSE	N/A	6a	R
	GRAN+APL					
0221	FALSE	ROAD CUTS	FALSE	IG	5	R
	GD MOTT BUFF-DK GN, MX, SHEARED, <1% PY					
0222	FALSE	ROAD CUTS	FALSE	IG	5	R
	GD MOTT BUFF-DK GN, FRAC SHEARED, 1-3% PY					
0223	FALSE	PADDY CK	FALSE	IG	1	R
	ARG BRN GY W LS BANDS, CONTACT PPM+STUH, <1% PY					
0224	FALSE	PADDY CK	FALSE	IG	2	R
	STUH SHEARED, MAINLY BROKEN CHIPS W CC V					
0225	FALSE	ROAD CUTS	FALSE	IG	5	J
	LT WH-GY-GN SKARN?,MGD, <1% SUL, SHEARED, CALCITIC (25%)					
0226	FALSE	ROAD CUTS	FALSE	IG	5	J
	MGD FOL BANDED LT-M GN, 1% PY, SIL, NON CALC					
0227	FALSE	ROAD CUTS	FALSE	IG	4b	J
	MUJV LT GN, MOD-STRONGLY SHEARED, MOD CALC, SIL, 1% DISM PY+CPY					
0228	FALSE	ROAD CUTS	FALSE	IG	4b	J
	A.A. M WH GY GN, MORE CGR ALT, CALC, 2% PY					
0229	FALSE	ROAD CUTS	FALSE	IG	5	J
	MGD FOL M GN GY, 5% MAF, 2% PY, NON CALC					
0230	FALSE	T7 4-6m	TRUE	6	6a	J
	SAME AS 0200 W ASP TO 9cm					
0231	FALSE	T8 0-3m	TRUE	6	6a	J
	APL BUFF WH VFXL, 3% BIO, TR ASP					
0232	FALSE	T8 3-4.45m	TRUE	6	6a	J
	QV 30% ASP, << 1% PY+CPY+GAL					
0233	FALSE	T8 4.45-7.5m	TRUE	6	6a	J
	APL WH VF-FXL, 3% MGR BIO, QAV 35mm					
15351	FALSE	MR/S	FALSE	6	1	J
	QV BOUDIN					
15352	FALSE	SMTN/N	FALSE	10	4c	J
	ARG SLTY, FE STN					
15353	FALSE	SMTN/N	FALSE	10	4b	J
	XL-LAP TUFF					
15354	FALSE	SMTN/N	FALSE	10	4c	J
	CGL					
15355	FALSE	SMTN/N	FALSE	10	6d	J
	DIOR P					
15356	FALSE	SMTN/N	FALSE	10	4b	J
	SER FEL-INT TUFF, GOSSAN ZONE, HIGHLY SHEARED					
15357	FALSE	SMTN/N	FALSE	10	4b	R
	MAF VOLC BREC, GOSSANOUS W CU+FE STN					
15358	FALSE	SMTN/N	FALSE	7	4b	R
	MAF PHENO FLOW, 20% F					
15359	TRUE	SMTN/N	FALSE	7	3	R
	ARG BLK, FISS, MOD CARB					
15360	FALSE	SMTN/N	FALSE	7	6a	R
	QV IN APL					

15361	FALSE	SMTN/N	FALSE	7	3	R
	ARG + PYROCLASTIC BREC					
15362	FALSE	SMTN/N	FALSE	7	4b	R
	TUFF LT GY 2% PY ASP CPY					
15363	FALSE	SMTN/N	FALSE	7	4b	R
	PYROCLASTIC BREC W CC V					
15364	FALSE	SMTN/N	FALSE	7	4b	R
	MAFIC TUFF					
15365	FALSE	SMTN/N	FALSE	7	4b	R
	A.A. W LIM STN					
15366	FALSE	SMTN/N	FALSE	7	6a	R
	APL W QV THROUGHOUT					
15367	FALSE	SMTN/N	FALSE	7	1	R
	BANDED GNEISS W QV, ABNT FRAC					
15368	FALSE	SMTN/N	FALSE	7	6a	R
	APL CRM BUFF, Q + MAFIC PHENO, OX, FRAC					
15369	FALSE	SMTN/N	FALSE	7	6a	R
	A.A. MOD OX, PY					
15370	FALSE	SMTN/N	FALSE	7	6a	R
	APL PALE GN, w Q-F-BIO PHENO					
15371	FALSE	SMTN/N	FALSE	7	6a	R
	APL CRM BUFF, MOD OX					
15372	FALSE	SMTN/N	FALSE	7	6a	R
	QAV CRM WH WEATH GN					
15373	FALSE	SMTN/N	FALSE	7	1	R
	QV, ABNT FRAC, PY, X-CUTS BANDED GNEISS					
15374	FALSE	SMTN/N	FALSE	7	6a	R
	APL RED-OR OX					
15375	FALSE	SMTN/N	FALSE	7	1	R
	SCHISTOSE GNEISS, 3% DISM PY					
15376	FALSE	SMTN/N	FALSE	7	6d	R
	FLOW? LT GN GY, 10% F LATHS (DIOR?)					
15377	FALSE	SMTN/N	FALSE	7	6a	R
	APL PALE GN W BIO+F, ASP					
15378	FALSE	SMTN/N	FALSE	7	6a	R
	APL M GN GY FXL, F+MAF PHENO, FLOW BANDING NEAR GNEISS CONTACT					
15379	FALSE	SMTN/N	FALSE	7	1	R
	SCHISTOSE GNEISS, BANDED, CHL, 2% CPY+PY					
15380	FALSE	SMTN/N	FALSE	7	1	R
	CHL CC SCHIST GN GY FGR, <1% PY					
15381	FALSE	MR/S	FALSE	10	6a	G
	APL VFXL W Q PHENO, HEAVILY SHEARED					
15382	FALSE	MR/S	FALSE	10	6a	G
	APL AA LIGHTER COLOR					
15383	FALSE	DUPLICATE 15479	FALSE	N/A	N/A	D
	N/A					
15384	FALSE	DUPLICATE 15478	FALSE	N/A	N/A	D
	N/A					
15385	FALSE	DUPLICATE 15477	FALSE	N/A	N/A	D
	N/A					
15386	FALSE	DUPLICATE 15476	FALSE	N/A	N/A	D
	N/A					
15387	FALSE	DUPLICATE 15472	FALSE	N/A	N/A	D
	N/A					

15388	FALSE	DUPLICATE 15468	FALSE	N/A	N/A	D
	N/A					
15389	FALSE	DUPLICATE 15466	FALSE	N/A	N/A	D
	N/A					
15390	FALSE	SMTN/N	FALSE	7	1	J
	Q-F-BIO SCHIST, BOUDIN QV, 1% SUL					
15391	FALSE	S CLAIM 7	FALSE	7	6c	J
	GD STRONGLY SHEARED					
15392	FALSE	S CLAIM 7	FALSE	7	6c	J
	GD					
15393	FALSE	SMTN/S	FALSE	7	6b	R
	APL SL GN 2% F PHENO 1-3mm					
15394	FALSE	SMTN/S	FALSE	N/A	4b	R
	LAP-XL TUFF DK GN GY, LAP~2mm, 5% Q XL					
15395	FALSE	SMTN/S	FALSE	N/A	6b	R
	APL PLAG+Q+BIO PHENO					
15396	FALSE	SMTN/S	FALSE	N/A	4b	R
	MAF TUFF DK GY, SHEARED, WEATH RUSTY					
15397	FALSE	SMTN/S	FALSE	7	4a	R
	GWACKE RUSTY, INTBD W CLAST SUPPORTED CGL					
15398	FALSE	SMTN/S	FALSE	7	4b	R
	LAP TUFF M GY GN, WEATH RUSTY					
15399	FALSE	SMTN/N	FALSE	7	1	R
	FAULT BREC SEMI-LITHIFIED STEEL BL-GY					
15400	FALSE	DUPLICATE 15811	FALSE	N/A	N/A	D
	N/A					
15401	FALSE	MR	FALSE	10	4b	J
	MAF TUFF GY GN, SHEARED, EP+CU					
15402	FALSE	MR	FALSE	10	4b	J
	MAF LAP TUFF MAR GN, EP CHL AMPH?					
15403	FALSE	MR	FALSE	10	6d	J
	Q-MONZ/DIOR P					
15404	FALSE	MR	FALSE	10	4b	J
	MAF BEDDED LAP TUFF					
15405	TRUE	MR	FALSE	10	4b	J
	FEL TUFF W 30% MAF LAP, SHEARED					
15406	FALSE	MR	FALSE	10	6a	J
	APL					
15407	FALSE	MR	FALSE	10	6a	J
	APL					
15408	TRUE	MR	FALSE	10	4b	J
	BRN BLADED P FLOW, PORPH TO 7mm					
15409	FALSE	MR	FALSE	10	4b	J
	TUFF V DK GY, SHEARED					
15410	TRUE	MR	FALSE	10	4b	J
	LAP LITH TUFF DK GY					
15411	TRUE	MR	FALSE	10	4b	J
	INT-FEL TUFF, GOSSANOUS, ABNT MICRO PY					
15412	FALSE	MR	FALSE	10	4b	J
	LAP TUFF BLK					
15413	TRUE	MR	FALSE	10	4b	J
	LAP TUFF W BOUDINED LAP SL MAR DK GY-BLK, STRONGLY SHEARED					
15414	FALSE	MR	FALSE	10	6a	J
	Q-F-BIO GRAN VCXL, STRONGLY SHEARED					

15415	FALSE	MR	FALSE	10	3	J
	ARG DENSE, NEAR INTR CONTACT, INKLIN SED?					
15416	FALSE	MR	FALSE	10	6a	J
	SAME AS 15414					
15417	FALSE	MR	FALSE	10	6a	J
	GRAN, QV					
15418	FALSE	MR	FALSE	10	6a	J
	QAV IN GRAN					
15419	FALSE	MR	FALSE	10	6a	J
	SHEAR ZONE APL					
15420	FALSE	MR	FALSE	10	6a	J
	QAV IN SHEAR ZONE					
15421	TRUE	MR	FALSE	10	2	J
	TUFF MX (UNIT?)					
15422	FALSE	L0S/0W	FALSE	6	1	J
	PPM SCHIST GY GN					
15423	FALSE	L0S/0W	FALSE	6	6a	G
	APL FXL W 1% CGR Q XL, 1% MAF, WEATH RUSTY					
15424	FALSE	L0S/25W	FALSE	6	6a	J
	APL VFXL					
15425	FALSE	L0S/50W	FALSE	6	6a	J
	APL VF-FXL, TR CGR Q, 3% MGR ASP					
15426	FALSE	L0S/50W	FALSE	6	1	J
	PPM SCHIST SIL CALC SED OR VOLC					
15427	FALSE	L25S/55W	FALSE	6	1	G
	META-ARG/SS VF BANDED LT GY-WH W CC VEINING					
15428	FALSE	L25S/50W	FALSE	6	6a	G
	APL HRL Q FRAC, 5% ASP					
15429	FALSE	L25S/35W	FALSE	6	6a	G
	APL VFXL, 5% ACIC ASP					
15430	FALSE	L25S/25W	FALSE	6	6a	G
	APL VFXL, <<1% MAF, SHEARED					
15431	FALSE	L25S/5W	FALSE	6	6a	G
	ASP V, MNR Q					
15432	FALSE	L25S/10E	FALSE	6	6a	R
	APL LT GY CXL W CONTAMINATED WALL ROCK					
15433	FALSE	L50S/10E	FALSE	6	1	J
	PPM BANDED CHL-Q-F-SCHIST					
15434	FALSE	L50S/5W	FALSE	6	6a	J
	APL VFXL HRL Q FRAC					
15435	FALSE	L50S/25W	FALSE	6	6a	J
	APL VFXL, OCC M-CXL Q					
15436	FALSE	L50S/50W	FALSE	6	6a	J
	APL VFXL, 2% VFXL WEATH SUL					
15437	FALSE	L50S/64W	FALSE	6	6a	J
	APL MX, TR PP WEATH SUL					
15438	FALSE	L50S/64W	FALSE	6	1	J
	PPM STRONGLY FOL AREN, VF LAM SILTY ARG SCHIST					
15439	FALSE	L75S/80W	FALSE	6	1	R
	PPM GNEISS BANDED LT GN-DK BRN, FGR, WEATH RUSTY					
15440	FALSE	L75S/75W	FALSE	6	6a	R
	APL MX-FXL, 1% MAF NEAR PPM/APL CONTACT, HEAVILY SHEARED					
15441	FALSE	L75S/30W	FALSE	6	6a	R
	APL FXL W 5% CGR Q, 1% ASP, Q FRAC INF, RUSTY					

15442	FALSE	L75S/3W	FALSE	6	6a	R
	APL FXL, 3% Q XL, 2% F, 2% MAF, Q FRAC INF					
15443	FALSE	L75S/10E	FALSE	6	1	R
	QV IN PPM					
15444	FALSE	L75S/10E	FALSE	6	1	R
	PPM Q-F AUGEN SCHIST MGR					
15445	FALSE	L100S/7E	FALSE	6	1	G
	PPM WEAKLY BANDED META-ARG SILTY VFGR					
15446	FALSE	L100S/9W	FALSE	6	6a	G
	QAV					
15447	FALSE	L100S/17W	FALSE	6	6a	G
	ASP V W APL+HRL Q					
15448	FALSE	L100S/25W	FALSE	6	6a	G
	APL 2% EUH ASP, HRL QV, BLOCKY PY					
15449	FALSE	L100S/50W	FALSE	6	6a	G
	APL VFXL, 2% EUH ASP					
15450	FALSE	L100S/52W	FALSE	6	1	G
	PPM META-ARG SILTY DK GY GN VFGR					
15451	FALSE	L125S/55W	FALSE	10	1	J
	SCHIST LT GY WH MICRO LAM, 90% Q-F LAM					
15452	FALSE	L125S/50W	FALSE	10	6a	J
	APL VF-FXL, 1-2% CGR BLOCKY ASP					
15453	FALSE	L125S/45W	FALSE	10	6a	J
	QV 3% VCGR BLOCKY + LAM ASP					
15454	FALSE	L125S/25W	FALSE	10	6a	J
	APL VFXL, QV 5mm TR ASP					
15455	FALSE	L125S/10W	FALSE	10	6a	J
	QV TR BLOCKY ASP+PY, SHEARED					
15456	FALSE	L125S/5W	FALSE	10	6a	J
	APL VFXL-MX					
15457	FALSE	L125S/0W	FALSE	10	1	J
	PPM SCHIST M GN GY MXL W Q BOUDIN					
15458	FALSE	L150S/5E	FALSE	10	1	R
	PPM FOL ARG W SILTY LENSES					
15459	FALSE	L150S/2W	FALSE	10	6a	R
	APL FXL, 1% Q PHENO TO 3mm, 1% MAF					
15460	FALSE	L140S/25W	FALSE	10	6a	R
	QAV BANDED ASP+SCORO					
15461	FALSE	L145S/30W	FALSE	10	6a	R
	QAV BANDED ASP 15%, <1% PY					
15462	FALSE	L150S/35W	FALSE	10	6a	R
	APL FXL 1% Q XL, <1% MAF, WEATH SUL					
15463	FALSE	L150S/66W	FALSE	10	6a	R
	AP FXL BLOCKY+VEINED ASP, <1% MAF, WEATH RUSTY					
15464	FALSE	L150S/68W	FALSE	10	1	R
	PPM FOL M GN GY ARG <1% SUL					
15465	FALSE	L175S/55W	FALSE	10	1	G
	PPM GN GY VFGR, 2% SUL					
15466	FALSE	L175S/50W	FALSE	10	6a	G
	APL VFXL, HRL Q VLETS, TR ASP					
15467	FALSE	L175S/37W	FALSE	10	6a	G
	APL W BLOCKY ASP					
15468	FALSE	L175S/25W	FALSE	10	6a	G
	APL VFXL, 5-7% EUH ASP					

15469	FALSE	L165S/10E	FALSE	10	1	G
		PPM META-SS ARG, 50% Q-F LAM				
15470	FALSE	L200S/17E	FALSE	10	1	J
		Q-F SCHIST ARG MGY				
15471	FALSE	L200S/10W	FALSE	10	6a	J
		QV TR ASP VLETS PARALLEL APL BANDS				
15472	FALSE	L200S/25W	FALSE	10	6a	J
		APL <1% ASP				
15473	FALSE	L205S/50W	FALSE	10	6a	J
		QV W APL LAM, TR CGR ASP				
15474	FALSE	L200S/50W	FALSE	10	6a	J
		APL				
15475	FALSE	L200S/67W	FALSE	10	6a	J
		QV TR WEATH SUL				
15476	FALSE	L195S/67W	FALSE	10	6a	J
		APL TR WEATH SUL				
15477	FALSE	L200S/71W	FALSE	10	1	J
		1)MAR GY CREN SCHIST(15385). 2)DK GY ARG SCHIST W 5mm ASP V(15477). SAMPLES RERUN OK				
15478	FALSE	L225S/25W	FALSE	10	6a	R
		APL FXL, 2-3% CGR Q, 1% BIO, HRL FRAC				
15479	FALSE	L225S/18W	FALSE	10	6a	R
		APL FXL, 3% CGR Q, <<1%MAF				
15480	FALSE	L225S/18E	FALSE	10	1	R
		PPM METAGWACKE LT+M GY GN BANDING, HIGHLY SHEARED, <1% PY				
15481	FALSE	SE CLAIM 7	FALSE	7	1	J
		GNEISS M GY VF LAYERED, 5cm FROM APL CONTACT				
15482	FALSE	SE CLAIM 7	FALSE	7	1	J
		GNEISS MGY				
15483	FALSE	DUPLICATE 15721	FALSE	N/A	N/A	D
		N/A				
15484	FALSE	DUPLICATE 15727	FALSE	N/A	N/A	D
		N/A				
15485	FALSE	DUPLICATE 15728	FALSE	N/A	N/A	D
		N/A RERUN FOR AU+AG LOWER VALUES POSTED				
15486	FALSE	DUPLICATE 0059	FALSE	N/A	N/A	D
		N/A				
15487	FALSE	DUPLICATE 15824	FALSE	N/A	N/A	D
		N/A				
15488	FALSE	DUPLICATE 0151	FALSE	N/A	N/A	D
		N/A				
15601	FALSE	SMTN/N	FALSE	10	4b	J
		MAF FLOW 5% F PHENO				
15602	FALSE	SMTN/N	FALSE	10	4b	J
		MAF BLADED FP FLOW, RUBBLE, FE+BORN STN				
15603	FALSE	SMTN/N	FALSE	10	6a	J
		APL SILL IN FP FLOW, 20% PHENO				
15604	FALSE	SMTN/N	FALSE	10	4b	J
		MAFIC FLOW 1% PHENO				
15605	FALSE	MR/NE	FALSE	6	6a	R
		APL FXL OCC CXL PLAG+Q, 2-3% MAF, TR ASP?				
15606	FALSE	MR/NE	FALSE	6	1	R
		PPM Q-BIO SCHIST COM DISM PY+CPY, TR ASP?				
15607	FALSE	MR/NE	FALSE	6	1	R
		PPM Q-BIO-MUSC SCHIST 4% DISM PY TR ASP+CPY				

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 15608 FALSE  MR/NE                  FALSE  6        1      R
       PPM Q-BIO SCHIST POORLY FOL, TR PY
 15609 FALSE  MR/NE                  FALSE  6        1      R
       Q-BIO-MUSC SCHIST FOL, 1% PY
 15610 FALSE  MR/NE                  FALSE  6        6a     R
       APL FAULT BREC F-MGR FRAG, 5% MAF
 15611 FALSE  MR/NE                  FALSE  6        1      R
       PPM MGY MASS, 10% F DISM PY, 3%CXL PLAG
 15612 FALSE  MR/NE                  FALSE  6        1      R
       Q-MICA SCHIST FOL+CREN, 2-3% PY
 15701 FALSE  SMTN/N                 FALSE  10       3      J
       ARG MICRO PY, WK FE STN, TR MALACHITE
 15702 FALSE  SMTN/N                 FALSE  10       4b     J
       PYROCLASTIC BREC, OX
 15703 FALSE  SMTN/N                 FALSE  10       4b     J
       MAF TUFF NEAR INTR CONTACT
 15704 FALSE  SMTN/N                 FALSE  10       6a     J
       FP INTR NEAR CONTACT
 15705 FALSE  SMTN/N                 FALSE  10       4b     J
       INT LITH TUFF TR BORN+PY
 15706 FALSE  SMTN/N                 FALSE  10       4b     J
       MAF FLOW 3% F PHENO
 15707 FALSE  SMTN/N                 FALSE  7        1      R
       SCHIST BANDED, FE STN
 15708 FALSE  SMTN/N                 FALSE  7        1      R
       SCHIST/GNEISS BANDED 2% PY
 15709 FALSE  SMTN/N                 FALSE  7        6d     R
       DIOR FP
 15710 FALSE  SMTN/N                 FALSE  7        6a     R
       APL  OX
 15711 FALSE  SMTN/N                 FALSE  7        6a     R
       ASP V, SCORO
 15712 FALSE  SMTN/N                 FALSE  7        4b     R
       TUFF GN GY-BLK W LIGHTER GN GY CLASTS, COM DISM PY
 15713 FALSE  SMTN/N                 FALSE  7        4b     R
       TUFF GN GY HEAVILY SHEARED
 15714 FALSE  SMTN/N                 FALSE  7        1      R
       QV SHEARED IN BANDED GNEISS, OCC MASS PY V
 15715 FALSE  MR/S                   FALSE  10       6a     G
       GRAN CGR
 15716 FALSE  MR/S                   FALSE  10       6a     G
       GRAN CGR TR BIO, MASS TO WK FOL, WEATH OR
 15717 FALSE  MR/S                   FALSE  10       6a     G
       GRAN CGR TR BIO, WEATH OR
 15718 FALSE  MR/S                   FALSE  10       6a     G
       GRAN CGR WK FOL, BIO BOOKLETS
 15719 FALSE  MR/S                   FALSE  10       6a     G
       GRAN TR MAF, TR ASP
 15720 FALSE  MR/S                   FALSE  10       6a     G
       GRAN A.A./APL CONTACT, TR ASP
 15721 FALSE  MR/S                   FALSE  10       6a     G
       APL  VFXL  HIGHLY SHEARED
 15722 FALSE  MR/S                   FALSE  10       2      G
       TUFF/FLOW  M-DK GY  MX, <1% PY
```

15723	FALSE	MR/S	FALSE	10	1	G	PFM? (CARB) ACIC FIB Q+CC+ACT+CHL
15724	FALSE	MR/S	FALSE	10	1	G	QAV 1m WIDE
15725	FALSE	MR/S	FALSE	10	1	G	MICA-Q-F SCHIST LT GY-M MAR, VF LAM, <1% PY
15726	FALSE	MR/S	FALSE	10	6d	G	ASP+SCORO V, FRAC
15727	FALSE	MR/S	FALSE	10	6d	G	DIOR CGR <1% PY
15728	FALSE	MR/S	FALSE	10	6d	G	A.A. W MNR ASP V
15729	FALSE	MR/RIDGE	FALSE	6	6a	G	APL VFXL
15730	TRUE	MR/RIDGE	FALSE	6	2	J	A)ARG S)SANDY ARG=PETROGRAPHIC SAMPLE
15731	TRUE	MR/RIDGE	FALSE	6	2	J	TUFF MX W PY
15732	FALSE	MR/RIDGE	FALSE	6	6a	J	APL LT GY MX
15733	TRUE	MR/RIDGE	FALSE	6	2	J	TUFF M GY BRN W PY ON SHEAR SUR
15734	FALSE	DUPLICATE 15772	FALSE	N/A	N/A	D	N/A
15735	FALSE	DUPLICATE 15781	FALSE	N/A	N/A	D	N/A
15736	FALSE	MR/RIDGE	FALSE	6	2	J	ARG DK GY
15737	FALSE	DUPLICATE 15787	FALSE	N/A	N/A	D	N/A
15738	FALSE	DUPLICATE 15810	FALSE	N/A	N/A	D	N/A
15739	FALSE	SMTN	FALSE	7	4a	J	SHALE W PLANT STEMS (INTBD W CGL)
15740	FALSE	SMTN	FALSE	7	4a	J	SS+CGL
15741	FALSE	SMTN	FALSE	7	6b	J	Q-F-BIO GRAN CGR EQUIGRANULAR, <5% MAF
15742	FALSE	SMTN	FALSE	7	6b	J	A.A.
15743	FALSE	SMTN	FALSE	7	6b	G	Q-F-BIO GRAN, CGR
15744	FALSE	SMTN	FALSE	7	6b	J	Q-F-BIO-HB GRAN 15% MAF
15745	FALSE	SMTN	FALSE	7	6b	G	APL LT BEIGE FXL Q PHENO 1-3mm WEATH OR
15746	FALSE	SMTN	FALSE	7	6b	J	APL WH VFXL <2% MAF, WEATH OR
15747	FALSE	SMTN	FALSE	7	6b	G	APL FXL Q PHENO 1-2mm, HRL Q FRAC, WEATH BUFF
15748	FALSE	SMTN	FALSE	7	6b	J	APL LT DIRTY BROWN-BUFF VFXL, 5% MAF, WEATH BUFF
15749	FALSE	SMTN	FALSE	7	6b	G	APL FXL HRL Q FRAC

15750 FALSE SMTN FALSE 7 6b G
A.A.
15751 FALSE MR/S FALSE 6 1 G
MICA-Q-F SCHIST DK GY-MAR GY F GR, F LAM
15752 FALSE MR/S FALSE 6 1 G
ASP V 100X3m
15753 FALSE MR/E FALSE 6 1 G
PPM Q-F-MICA SCHIST FGR, F LAM, 1% PY
15754 FALSE MR/E FALSE 6 6a R
APL BUFF FXL, WEATH RUSTY
15755 FALSE L50N/7W FALSE 6 6a G
APL VFXL /ASP V
15756 FALSE L50N/6E FALSE 6 1 R
PPM FGR NON FOL
15757 FALSE L50N/33W FALSE 6 6a R
APL CRM WH FXL, 5% Q PHENO, HRL Q FRAC, 1%PY
15758 FALSE L50N/50W FALSE 6 6a R
APL CRM BUFF VFXL, 5% Q PHENO <1mm, <1% MAF
15759 FALSE L50N/83W FALSE 6 6a R
APL PALE GN(GN IN APL=SCORO) BUFF VFXL, <1% MAF, MOD SHEARED
15760 FALSE L50N/101W FALSE 6 6a R
APL CRM BUFF FXL, <4% MAF, TR PY, WEATH RUSTY
15761 FALSE L50N/114W FALSE 6 1 R
PPM DK GY-BLK FGR MASS W Q BOUDINS
15762 FALSE L75N/135W FALSE 6 1 J
PPM SCHIST DK BRN GY, <10% Q-F LAMINAE 3-5mm, VOLC PROTO
15763 FALSE L75N/125W FALSE 6 6a J
APL LT BUFF WH VFXL, OCC MGR WEATH SUL, OCC CGR Q, WEATH LT OR
15764 FALSE L75N/100W FALSE 6 1 J
PPM WEAKLY FOL SCHIST, VAR GN+BRN, MX SHEARED, MNR PYR LAM, TUFF PROTO?
15765 FALSE L75N/75W FALSE 6 6a J
APL WH VFXL BREC + STRONGLY SHEARED, WEATH LT OR GY-WH, OCC HRL QV TR SCORO
15766 FALSE L75N/50W FALSE 6 6a J
APL WH VF-FXL, OCC CGR Q, 3% CGR BIO, OCC 2-3mm QV, MASS, WEATH LT GY
15767 FALSE L75N/25W FALSE 6 6a J
APL WH BUFF VF-FXL, TR WEATH SUL, OCC HRL QV TR SCORO, MOD JTS, WEATH WH GY
15768 FALSE L75N/10W FALSE 6 6a J
APL WH VFXL SUCR, TR PP WEATH SUL, OCC MGR Q, MOD JTS, WEATH OR
15769 FALSE L75N/0W FALSE 6 1 J
QV PODIFORM 2'X8'
15770 FALSE L75N/10E FALSE 6 1 J
PPM SCHIST M-DK GN GY, STRONGLY FOL, BANDING 1-4mm Q-F + ARG-MICA, SED PROTO
15771 FALSE L100N/2E FALSE 6 1 G
PPM CHL-F-Q SCHIST GN GY, <1% PY
15772 FALSE L100N/20W FALSE 6 6a G
APL WH FXL, COM HRL FRAC, Q PHENO TO 3mm, 1% PY
15773 FALSE L100N/47W FALSE 6 6a G
APL CRM WH TO GN-GY WH, VFXL, COM HRL QV
15774 FALSE L100N/77W FALSE 6 6a G
APL VFXL, 5% MAF, Q PHENO, HRL FRAC
15775 FALSE L100N/100W FALSE 6 6a G
APL DARKER COLOR MAY INDICATE WALL ROCK CONTAMINATION, VFXL
15776 FALSE L100N/125W FALSE 6 6a G
APL VFXL, Q PHENO TO 4mm

15777 FALSE L100N/135W FALSE 6 1 G
PPM SCHIST GN BRN POORLY FOL, 1% PY
15778 FALSE L125N/100W FALSE 6 1 G
PPM DK GY TO LT GN-BLK, <1% PY
15779 FALSE L125N/77W FALSE 6 6a G
APL VFXL, HRL Q FRAC INF, 2% MAF
15780 FALSE L125N/55W FALSE 6 6a G
APL VFXL, Q PHENO TO 4mm, HRL Q FRAC INF
15781 FALSE L125N/29W FALSE 6 6a G
APL CRM WH VFXL, <1% ASP
15782 FALSE L125N/2E FALSE 6 1 G
PPM MASS DK GN GY VFGR
15783 FALSE L150N/8E FALSE 6 1 R
PPM BANDED BIO-Q SCHIST, FGR, <<1% PY
15784 FALSE L150N/0W FALSE 6 1 R
Q BOUDIN MOD FRAC IN PPM
15785 FALSE L150N/5W FALSE 6 6a R
APL CRM BUFF FXL, BORN STN
15786 FALSE L150N/30W FALSE 6 6a R
APL CRM BUFF FXL, HRL Q FRAC INF, 5% CXL Q, 1% BIO
15787 FALSE L150N/55W FALSE 6 6a R
APL CRM BUFF, 6% Q-F PHENO TO 6mm, POSS ASP
15788 FALSE L150N/80W FALSE 6 6a R
APL CRM BUFF, 1% Q PHENO, 2-5% MAF
15789 FALSE L150N/105W FALSE 6 6a R
APL BUFF-PALE GN FXL, Q FRAC NEAR PPM CONTACT
15790 FALSE L150N/117W FALSE 6 1 R
PPM Q-BIO-F GNEISS FGR, WELL FOL, <1% PY
15791 FALSE L175N/130W FALSE 6 1 G
PPM SCHIST MAR - GN GY, 1% PY, CI 60-100
15792 FALSE L175N/111W FALSE 6 6a G
APL GY-CRM WH VFXL, 5cm ASP V
15793 FALSE L175N/85W FALSE 6 6a G
APL CRM WH VFXL, <1% ASP, HRL Q FRAC INF
15794 FALSE L175N/60W FALSE 6 6a G
APL VFXL, 2% MAF, HRL Q FRAC INF
15795 FALSE L175N/35W FALSE 6 6a G
APL VFXL, Q PHENO TO 3mm, 2% MAF
15796 FALSE L175N/0W FALSE 6 1 G
PPM CHL-MICA SCHIST DK GN GY, VFGR, <1% PY, CI 60-100
15797 FALSE L165N/2W FALSE 6 1 G
QAV WEATH
15798 FALSE L180N/5E FALSE 6 1 G
QAV MASS PY 10%
15799 FALSE L200N/0W FALSE 6 1 R
PPM Q-BIO-MUSC SCHIST, 5% PY+ASP
15800 FALSE L200N/23W FALSE 6 6a R
APL VFXL STOCKWORK QV
15801 FALSE L195N/36W FALSE 6 6a R
APL FXL EUH PY, BORN STN
15802 FALSE L200N/61W FALSE 6 6a R
APL FXL, 2% Q PHENO, IN PART BREC
15803 FALSE L200N/86W FALSE 6 6a R
APL FXL

15804 FALSE L200N/111W FALSE 6 6a R
APL FXL WEATH SUL
15805 FALSE L200N/135W FALSE 6 6a J
APL WH VFXL, OCC CGR RD Q GN W 5% MGR BIO, NO SUL, WEATH GY WH
15806 FALSE L200N/160W FALSE 6 6a J
APL BUFF VFXL-MX, V STRONGLY SHEARED W HEM COATING SHEARS EVERY 5mm, STRONG JTS
15807 FALSE L200N/185W FALSE 6 6a J
APL WH VFXL, IN PART 5% MGR BIO
15808 FALSE L200N/200W FALSE 6 6a J
QAV 30cm 50% ASP WEATH TO SCORO
15809 FALSE L200N/220W FALSE 6 6d J
DIOR M GY, 30% VCGR F PHENO
15810 FALSE L200N/232W FALSE 6 1 J
PPM M GY BRN-MAR SCHIST, LAM 2-3mm, VOLC PROTO
15811 FALSE L220N/330W FALSE 11 2 J
ARG FINELY LAM FISS W STRONG LIM STN, 3% CGR PY
15812 FALSE L230N/320W FALSE 11 1 J
PPM M MAR-GN GY, FINELY LAM, BOUDIN, SED PROTO, W MICA 1% PY
15813 FALSE L234N/320W FALSE 11 6a J
APL WH BUFF MX, W 1-5mm QV, LT LIM STN 5' FROM PPM CONTACT
15814 FALSE L230N/265W FALSE 11 6a J
SHEAR ZONE IN APL 2'-8' WIDE IN GULLEY, GOUGE, RR TR SCORO
15815 FALSE L230N/250W FALSE 6 6a J
APL WH VFXL TR PP SUL, OCC 1mm QV
15816 FALSE L230N/210W FALSE 6 6a J
APL WH VFXL, <1% PP SUL, RR 1mm QV, WEATH LT BUFF OR
15817 FALSE L225N/210W FALSE 6 6a J
QAV 3.5', 5% ASP+SCORO
15818 FALSE L225N/123W FALSE 6 6a J
APL BUFF WH VFXL W OCC MGR Q, 3% FGR BIO, OCC 1mm QV
15819 FALSE L225N/73W FALSE 6 6a J
APL WH VF-FXL, SUCR, WEATH GY WH
15820 FALSE L225N/0W FALSE 6 1 J
PPM FINELY LAM MAR-GN GY SCHIST W 3-5mm LAM, OCC BOUDIN QV TO 8X4cm, TR PY
15821 FALSE L250N/0W FALSE 6 1 G
PPM Q-MICA SCHIST DK-LT GY W ACT V (ALT CC?), <1% PY
15822 FALSE L250N/50W FALSE 6 6a G
APL GY-CRM WH VFXL, <1% MAF, Q PHENO TO 4mm
15823 FALSE L245N/83W FALSE 6 6a G
QAV 40X1m ASP VLETS
15824 FALSE L250N/100W FALSE 6 6a G
APL VFXL, 2% MAF, RD Q PHENO TO 6mm
15825 FALSE L250N/150W FALSE 6 6a G
APL VFXL W 1cm ASP V, <1% PY
15826 FALSE L250N/200W FALSE 6 6a G
APL VFXL, 2% MAF, Q PHENO TO 7mm, <1% ASP
15827 FALSE L250N/250W FALSE 6 6a G
APL CRM WH VFXL, 1% MAF
15828 FALSE L240N/290W FALSE 11 6a G
APL GY-CRM WH VFXL, <1%SUL
15829 FALSE L250N/315W FALSE 11 1 G
PPM DK GN GY VFGR, MNR Q-F LAM 1mm, <1% PY

SAMPLE #	Au +100	Au -100	Au OZ/T	Au ppb	Ag ppm	Cu ppm	Pb ppm	As ppm	Sb ppm	Mo ppm	Zn ppm
42	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
0056	4.396	.934	1.152	39497.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
0057	-1.000	-1.000	-1.000	635.0	13.5	143.0	340.0	37600.0	140.0	-1.0	-1.0
0058	-1.000	-1.000	-1.000	89.0	.2	11.0	72.0	1310.0	30.0	-1.0	-1.0
0059	-1.000	-1.000	-1.000	24.0	.9	23.0	30.0	400.0	40.0	-1.0	-1.0
0060	-1.000	-1.000	-1.000	24.0	1.8	4.0	25.0	600.0	30.0	-1.0	-1.0
0061	-1.000	-1.000	-1.000	221.0	2.9	14.0	25.0	310.0	70.0	-1.0	-1.0
0062	-1.000	-1.000	-1.000	20.0	1.2	58.0	15.0	1180.0	80.0	-1.0	-1.0
0063	-1.000	-1.000	-1.000	2271.0	8.1	157.0	1230.0	210.0	50.0	35.0	-1.0
0064	-1.000	-1.000	-1.000	285.0	3.6	51.0	251.0	190.0	50.0	27.0	-1.0
0065	-1.000	-1.000	-1.000	249.0	5.6	147.0	71.0	90800.0	570.0	24.0	-1.0
0066	-1.000	-1.000	-1.000	187.0	6.8	549.0	36.0	93600.0	660.0	36.0	-1.0
0067	-1.000	-1.000	-1.000	187.0	3.8	199.0	21.0	2290.0	100.0	25.0	-1.0
0068	-1.000	-1.000	-1.000	48.0	2.6	40.0	4.0	290.0	30.0	31.0	-1.0
0069	-1.000	-1.000	-1.000	29.0	2.3	12.0	.0	80.0	40.0	41.0	-1.0
0070	-1.000	-1.000	-1.000	46.0	2.5	238.0	26.0	40.0	40.0	47.0	-1.0
0071	-1.000	-1.000	-1.000	23.0	.7	20.0	63.0	10.0	20.0	44.0	-1.0
0072	-1.000	-1.000	-1.000	46.0	.4	11.0	52.0	70.0	40.0	26.0	-1.0
0073	-1.000	-1.000	-1.000	.0	3.7	20.0	24.0	290.0	40.0	39.0	-1.0
0074	-1.000	-1.000	-1.000	51.0	4.0	37.0	17.0	140.0	40.0	332.0	-1.0
0075	-1.000	-1.000	-1.000	14.0	4.0	25.0	26.0	250.0	40.0	31.0	-1.0
0076	-1.000	-1.000	-1.000	12.0	1.4	55.0	6.0	100.0	30.0	36.0	-1.0
0077	-1.000	-1.000	-1.000	29.0	4.5	97.0	13.0	120.0	50.0	42.0	-1.0
0078	-1.000	-1.000	-1.000	.0	4.3	10.0	11.0	140.0	40.0	38.0	-1.0
0079	-1.000	-1.000	-1.000	45.0	8.9	43.0	48.0	80.0	40.0	1601.0	-1.0
0080	-1.000	-1.000	-1.000	1962.0	26.2	238.0	649.0	210.0	50.0	224.0	-1.0
0081	-1.000	-1.000	-1.000	25.0	3.3	156.0	8.0	90.0	40.0	29.0	-1.0
0082	-1.000	-1.000	-1.000	34.0	2.6	23.0	23.0	400.0	30.0	27.0	-1.0
0083	-1.000	-1.000	-1.000	1418.0	1.4	40.0	17.0	120.0	10.0	8.0	-1.0
0084	-1.000	-1.000	-1.000	84.0	2.5	174.0	16.0	.0	20.0	21.0	-1.0
0085	-1.000	-1.000	-1.000	85.0	1.2	18.0	.0	80.0	20.0	16.0	-1.0
0086	-1.000	-1.000	-1.000	17.0	2.3	114.0	.0	.0	20.0	14.0	-1.0
0087	-1.000	-1.000	-1.000	44.0	2.0	209.0	2.0	.0	20.0	25.0	-1.0
0088	-1.000	-1.000	-1.000	32.0	1.7	56.0	.0	.0	30.0	4.0	-1.0
0089	-1.000	-1.000	-1.000	18.0	2.5	64.0	13.0	150.0	20.0	74.0	-1.0
0090	-1.000	-1.000	-1.000	144.0	3.3	42.0	11.0	340.0	40.0	33.0	-1.0
0091	-1.000	-1.000	-1.000	106.0	1.0	30.0	.0	370.0	20.0	21.0	-1.0
0092	-1.000	-1.000	-1.000	200.0	1.4	155.0	.0	250.0	20.0	101.0	-1.0
0093	-1.000	-1.000	-1.000	128.0	3.1	49.0	2.0	130.0	30.0	38.0	-1.0
0094	-1.000	-1.000	-1.000	23.0	3.3	24.0	6.0	110.0	20.0	14.0	-1.0
0095	-1.000	-1.000	-1.000	67.0	1.7	15.0	2.0	170.0	30.0	16.0	-1.0
0096	-1.000	-1.000	-1.000	67.0	2.1	10.0	10.0	150.0	20.0	24.0	-1.0
0097	-1.000	-1.000	-1.000	20.0	.8	47.0	47.0	60.0	10.0	69.0	-1.0
0098	-1.000	-1.000	-1.000	.0	.2	18.0	13.0	60.0	20.0	118.0	-1.0
0099	-1.000	-1.000	-1.000	9.0	.8	36.0	.0	10.0	40.0	20.0	-1.0
0100	-1.000	-1.000	-1.000	19.0	1.4	38.0	30.0	70.0	40.0	26.0	-1.0
0101	-1.000	-1.000	-1.000	119.0	.2	51.0	42.0	13900.0	20.0	-1.0	-1.0
0102	-1.000	-1.000	-1.000	47.0	1.6	16.0	63.0	3160.0	30.0	-1.0	-1.0
0103	-1.000	-1.000	-1.000	4059.0	50.0	643.0	286.0	46400.0	190.0	-1.0	-1.0
0104	-1.000	-1.000	-1.000	39.0	1.6	79.0	34.0	380.0	20.0	-1.0	-1.0
0105	-1.000	-1.000	-1.000	56.0	2.1	51.0	7.0	.0	30.0	30.0	-1.0
0106	-1.000	-1.000	-1.000	142.0	2.8	10.0	.0	160.0	20.0	26.0	-1.0
0107	-1.000	-1.000	-1.000	42.0	1.9	20.0	2.0	120.0	20.0	10.0	-1.0
0108	-1.000	-1.000	-1.000	17.0	4.6	130.0	42.0	18500.0	80.0	16.0	-1.0

0109	-1.000	-1.000	-1.000	67.0	1.5	83.0	3.0	140.0	20.0	21.0	-1.0
0110	-1.000	-1.000	-1.000	256.0	6.3	1038.0	53.0	140.0	20.0	13.0	-1.0
0111	-1.000	-1.000	-1.000	166.0	1.3	38.0	7.0	180.0	50.0	13.0	-1.0
0112	-1.000	-1.000	-1.000	122.0	.8	33.0	8.0	120.0	50.0	11.0	-1.0
0113	-1.000	-1.000	-1.000	129.0	1.4	6.0	11.0	250.0	10.0	18.0	-1.0
0114	-1.000	-1.000	-1.000	.0	1.8	91.0	28.0	70.0	30.0	13.0	-1.0
0115	-1.000	-1.000	-1.000	212.0	.3	17.0	10.0	110.0	20.0	11.0	-1.0
0116	-1.000	-1.000	-1.000	57.0	.5	168.0	6.0	170.0	40.0	14.0	-1.0
0117	-1.000	-1.000	-1.000	50.0	1.8	82.0	20.0	200.0	10.0	6.0	-1.0
0118	-1.000	-1.000	-1.000	61.0	.4	8.0	29.0	30.0	30.0	25.0	-1.0
0119	-1.000	-1.000	-1.000	.0	4.0	141.0	222.0	440.0	20.0	39.0	-1.0
0120	-1.000	-1.000	-1.000	12.0	.7	11.0	23.0	350.0	20.0	19.0	-1.0
0121	-1.000	-1.000	-1.000	45.0	2.6	70.0	13.0	150.0	50.0	15.0	-1.0
0122	-1.000	-1.000	-1.000	36.0	1.0	63.0	7.0	390.0	40.0	11.0	-1.0
0123	-1.000	-1.000	-1.000	84.0	.8	9.0	8.0	420.0	20.0	23.0	-1.0
0124	-1.000	-1.000	-1.000	38.0	.5	8.0	13.0	100.0	30.0	30.0	-1.0
0125	.012	.072	.071	2434.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
0126	-1.000	-1.000	-1.000	54.0	2.3	27.0	10.0	70.0	50.0	42.0	-1.0
0127	-1.000	-1.000	-1.000	36.0	2.0	5.0	6.0	.0	80.0	22.0	-1.0
0128	-1.000	-1.000	-1.000	15.0	4.4	127.0	.0	10.0	80.0	27.0	-1.0
0129	-1.000	-1.000	-1.000	.0	2.3	4.0	18.0	560.0	50.0	31.0	-1.0
0130	-1.000	-1.000	-1.000	.0	2.7	39.0	46.0	110.0	50.0	34.0	-1.0
0131	-1.000	-1.000	-1.000	16900.0	2.0	2954.0	21.0	40.0	30.0	-1.0	-1.0
0132	.002	.003	.003	102.9	2.0	53.0	38.0	9220.0	50.0	7.0	12.0
0133	.021	.002	.002	68.6	2.2	37.0	24.0	2950.0	20.0	20.0	21.0
0134	.003	.027	.027	925.7	56.6	595.0	494.0	61000.0	270.0	10.0	551.0
0135	.004	.010	.010	342.9	3.7	233.0	28.0	32200.0	100.0	58.0	25.0
0136	.003	.003	.003	102.9	1.9	101.0	25.0	5780.0	20.0	85.0	15.0
0137	.003	.003	.003	102.9	2.8	50.0	24.0	7370.0	30.0	47.0	10.0
0138	.013	.008	.009	308.6	5.3	190.0	41.0	10790.0	150.0	74.0	29.0
0139	.003	.005	.005	171.4	13.6	96.0	545.0	17500.0	180.0	80.0	18.0
0140	.008	.016	.016	548.6	9.1	365.0	116.0	70500.0	320.0	28.0	15.0
0141	.004	.006	.006	205.7	2.0	157.0	40.0	13100.0	60.0	85.0	43.0
0142	.009	.005	.005	171.4	.3	50.0	32.0	13000.0	40.0	42.0	89.0
0143	-1.000	-1.000	.003	102.9	1.7	14.0	9.0	90.0	40.0	69.0	105.0
0144	-1.000	-1.000	.000	.0	2.5	96.0	27.0	2970.0	30.0	55.0	182.0
0145	.052	.076	.073	2502.9	19.9	364.0	463.0	241000.0	700.0	43.0	38.0
0146	.002	.006	.006	205.7	10.4	608.0	89.0	16800.0	80.0	79.0	157.0
0147	-1.000	-1.000	.005	171.4	4.0	240.0	76.0	4990.0	40.0	63.0	187.0
0148	.035	.027	.027	925.7	175.4	892.0	1226.0	198000.0	730.0	43.0	179.0
0149	-1.000	-1.000	.011	377.1	63.3	406.0	490.0	50500.0	250.0	17.0	180.0
0150	.004	.004	.004	137.1	7.1	70.0	51.0	5710.0	20.0	11.0	13.0
0151	-1.000	-1.000	-1.000	39.0	1.9	140.0	5.0	150.0	50.0	-1.0	-1.0
0152	-1.000	-1.000	-1.000	37.0	.7	102.0	11.0	180.0	50.0	-1.0	-1.0
0153	-1.000	-1.000	-1.000	20.0	.7	60.0	6.0	250.0	60.0	-1.0	-1.0
0154	-1.000	-1.000	-1.000	17.0	.2	18.0	.0	510.0	40.0	-1.0	-1.0
0155	-1.000	-1.000	-1.000	52.0	.6	4.0	17.0	340.0	40.0	-1.0	-1.0
0156	-1.000	-1.000	-1.000	76.0	.4	6.0	.0	.0	20.0	22.0	-1.0
0157	-1.000	-1.000	-1.000	.0	.2	18.0	34.0	280.0	30.0	23.0	-1.0
0158	-1.000	-1.000	-1.000	14.0	1.1	77.0	27.0	400.0	50.0	26.0	-1.0
0159	-1.000	-1.000	-1.000	13.0	.0	12.0	7.0	.0	30.0	40.0	-1.0
0160	-1.000	-1.000	-1.000	10.0	1.3	42.0	19.0	140.0	20.0	34.0	-1.0
0161	-1.000	-1.000	-1.000	.0	.1	20.0	16.0	.0	40.0	6.0	-1.0
0162	-1.000	-1.000	-1.000	16.0	3.8	40.0	34.0	570.0	40.0	22.0	-1.0

0163	-1.000	-1.000	-1.000	15.0	4.1	34.0	12.0	260.0	60.0	61.0	-1.0
0164	-1.000	-1.000	-1.000	22.0	3.7	15.0	14.0	620.0	20.0	45.0	-1.0
0165	-1.000	-1.000	-1.000	13.0	3.1	65.0	8.0	390.0	40.0	54.0	-1.0
0166	-1.000	-1.000	-1.000	17.0	1.1	30.0	17.0	20.0	40.0	32.0	-1.0
0167	-1.000	-1.000	-1.000	21.0	2.2	139.0	21.0	70.0	50.0	30.0	-1.0
0168	-1.000	-1.000	-1.000	17.0	1.9	127.0	5.0	90.0	60.0	28.0	-1.0
0169	-1.000	-1.000	-1.000	24.0	2.3	128.0	2.0	160.0	70.0	41.0	-1.0
0170	-1.000	-1.000	-1.000	15.0	8.4	20.0	71.0	640.0	80.0	38.0	-1.0
0171	-1.000	-1.000	-1.000	.0	1.3	3.0	7.0	.0	10.0	48.0	-1.0
0172	-1.000	-1.000	-1.000	13.0	.1	9.0	11.0	.0	30.0	45.0	-1.0
0173	-1.000	-1.000	-1.000	3.0	.4	53.0	100.0	.0	40.0	41.0	-1.0
0174	-1.000	-1.000	-1.000	.0	2.0	27.0	34.0	10.0	50.0	25.0	-1.0
0175	-1.000	-1.000	-1.000	342.0	53.3	91.0	2407.0	780.0	430.0	9606.0	-1.0
0176	-1.000	-1.000	-1.000	11.0	.0	16.0	.0	.0	50.0	92.0	-1.0
0177	-1.000	-1.000	-1.000	17.0	.7	8.0	45.0	.0	60.0	60.0	-1.0
0178	-1.000	-1.000	-1.000	6.0	.2	3.0	19.0	.0	40.0	42.0	-1.0
0179	-1.000	-1.000	-1.000	12.0	1.1	4.0	13.0	.0	40.0	44.0	-1.0
0180	-1.000	-1.000	-1.000	21.0	.8	10.0	19.0	180.0	30.0	31.0	-1.0
0181	-1.000	-1.000	-1.000	22.0	.5	9.0	24.0	150.0	40.0	48.0	-1.0
0182	-1.000	-1.000	-1.000	10.0	.5	13.0	5.0	40.0	30.0	41.0	-1.0
0183	-1.000	-1.000	-1.000	17.0	1.5	28.0	7.0	70.0	50.0	42.0	-1.0
0184	-1.000	-1.000	-1.000	5.0	.3	5.0	29.0	100.0	30.0	37.0	-1.0
0185	.271	.098	.116	3977.1	156.1	253.0	678.0	24200.0	270.0	15.0	18.0
0186	.012	.004	.005	171.4	10.1	156.0	149.0	6530.0	30.0	10.0	16.0
0187	.016	.012	.013	445.7	9.7	3.0	237.0	3370.0	20.0	14.0	37.0
0188	-1.000	-1.000	.008	274.3	10.2	36.0	106.0	7680.0	30.0	17.0	33.0
0189	.021	.090	.085	2914.3	20.0	87.0	62.0	32600.0	80.0	20.0	20.0
0190	-1.000	-1.000	.007	240.0	11.5	36.0	38.0	16600.0	40.0	8.0	7.0
0191	.034	.093	.092	3154.3	16.1	179.0	33.0	73000.0	350.0	3.0	11.0
0192	-1.000	-1.000	.029	994.3	10.4	33.0	50.0	6370.0	30.0	7.0	8.0
0193	.185	.139	.143	4902.9	108.7	2731.0	440.0	93300.0	390.0	12.0	25.0
0194	-1.000	-1.000	.007	240.0	11.1	22.0	32.0	3190.0	10.0	18.0	10.0
0195	.028	.013	.014	480.0	1.6	63.0	30.0	7880.0	.0	.0	14.0
0196	-1.000	-1.000	.013	445.7	1.5	64.0	59.0	3110.0	.0	.0	13.0
0177	.127	.184	.178	6102.9	100.0	576.0	906.0	20100.0	90.0	3.0	40.0
0198	.054	.014	.017	582.9	31.6	297.0	645.0	10500.0	.0	9.0	44.0
0199	.055	.050	.050	1714.3	5.1	167.0	42.0	11000.0	.0	7.0	20.0
0200	.050	.042	.043	1474.3	3.1	189.0	23.0	82000.0	30.0	3.0	14.0
0201	-1.000	-1.000	-1.000	27.0	1.6	8.0	.0	.0	30.0	33.0	-1.0
0202	-1.000	-1.000	-1.000	40.0	1.6	64.0	9.0	120.0	30.0	27.0	-1.0
0203	-1.000	-1.000	-1.000	15.0	.2	8.0	2.0	110.0	30.0	27.0	-1.0
0204	-1.000	-1.000	-1.000	14.0	1.2	9.0	.0	180.0	30.0	26.0	-1.0
0205	-1.000	-1.000	-1.000	19.0	1.0	8.0	33.0	140.0	40.0	62.0	-1.0
0206	-1.000	-1.000	-1.000	17.0	3.4	18.0	173.0	290.0	60.0	85.0	-1.0
0207	-1.000	-1.000	-1.000	11.0	1.7	38.0	23.0	220.0	50.0	50.0	-1.0
0208	-1.000	-1.000	-1.000	1322.0	96.6	117.0	3345.0	3050.0	290.0	236.0	-1.0
0209	.008	.031	.032	1097.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
0210	-1.000	-1.000	-1.000	30.0	.5	15.0	14.0	110.0	40.0	40.0	-1.0
0211	-1.000	-1.000	-1.000	14.0	1.2	7.0	27.0	120.0	40.0	65.0	-1.0
0212	-1.000	-1.000	-1.000	5.0	.8	116.0	.0	40.0	50.0	26.0	-1.0
0213	-1.000	-1.000	-1.000	3.0	1.2	125.0	.0	140.0	40.0	28.0	-1.0
0214	-1.000	-1.000	-1.000	32.0	1.8	15.0	12.0	.0	60.0	31.0	-1.0
0215	-1.000	-1.000	-1.000	28.0	3.2	8.0	15.0	.0	50.0	40.0	-1.0
0216	-1.000	-1.000	-1.000	17.0	.8	7.0	20.0	70.0	60.0	43.0	-1.0

0217	-1.000	-1.000	-1.000	.0	1.7	6.0	24.0	90.0	50.0	37.0	-1.0
0218	-1.000	-1.000	-1.000	41.0	.9	4.0	9.0	40.0	40.0	62.0	-1.0
0219	-1.000	-1.000	-1.000	39.0	2.6	1.0	14.0	.0	50.0	47.0	-1.0
0220	-1.000	-1.000	-1.000	.0	.4	8.0	.0	120.0	40.0	37.0	-1.0
0221	-1.000	-1.000	-1.000	379.0	1.0	36.0	7.0	180.0	50.0	58.0	-1.0
0222	-1.000	-1.000	-1.000	215.0	2.0	140.0	1.0	20.0	30.0	32.0	-1.0
0223	-1.000	-1.000	-1.000	71.0	3.3	41.0	35.0	50.0	80.0	30.0	-1.0
0224	-1.000	-1.000	-1.000	119.0	3.0	14.0	47.0	150.0	60.0	23.0	-1.0
0225	-1.000	-1.000	.004	137.1	.3	57.0	237.0	20.0	.0	.0	39.0
0226	-1.000	-1.000	.003	102.9	.0	82.0	20.0	.0	.0	15.0	25.0
0227	-1.000	-1.000	.002	68.6	.0	65.0	21.0	40.0	.0	4.0	16.0
0228	-1.000	-1.000	.006	205.7	.0	272.0	16.0	.0	.0	37.0	30.0
0229	-1.000	-1.000	.008	274.3	.0	22.0	.0	.0	.0	21.0	4.0
0230	.040	.018	.020	685.7	1.0	201.0	9.0	68700.0	.0	14.0	12.0
0231	-1.000	-1.000	.005	171.4	10.2	22.0	510.0	2120.0	.0	.0	8.0
0232	.242	.200	.203	6960.0	555.3	651.0	2887.0	98200.0	800.0	13.0	48.0
0233	.006	.028	.028	960.0	3.6	58.0	100.0	6800.0	.0	4.0	13.0
15351	-1.000	-1.000	-1.000	40.0	3.7	16.0	19.0	310.0	30.0	-1.0	-1.0
15352	-1.000	-1.000	-1.000	37.0	4.2	19.0	9.0	110400.0	70.0	-1.0	-1.0
15353	-1.000	-1.000	-1.000	48.0	7.7	35.0	16.0	140.0	90.0	-1.0	-1.0
15354	-1.000	-1.000	-1.000	77.0	7.0	32.0	18.0	340.0	40.0	-1.0	-1.0
15355	-1.000	-1.000	-1.000	56.0	5.4	20.0	4.0	90.0	110.0	-1.0	-1.0
15356	-1.000	-1.000	-1.000	126.0	6.8	43.0	1.0	40.0	80.0	-1.0	-1.0
15357	-1.000	-1.000	-1.000	76.0	5.5	48.0	12.0	90.0	110.0	-1.0	-1.0
15358	-1.000	-1.000	-1.000	37.0	5.4	45.0	.0	50.0	60.0	-1.0	-1.0
15359	-1.000	-1.000	-1.000	46.0	5.1	50.0	20.0	50.0	50.0	-1.0	-1.0
15360	-1.000	-1.000	-1.000	53.0	4.2	30.0	18.0	120.0	120.0	-1.0	-1.0
15361	-1.000	-1.000	-1.000	26.0	7.0	47.0	16.0	70.0	90.0	-1.0	-1.0
15362	-1.000	-1.000	-1.000	926.0	6.1	38.0	18.0	120.0	120.0	-1.0	-1.0
15363	-1.000	-1.000	-1.000	41.0	5.9	33.0	41.0	110.0	100.0	-1.0	-1.0
15364	-1.000	-1.000	-1.000	47.0	5.8	51.0	18.0	40.0	60.0	-1.0	-1.0
15365	-1.000	-1.000	-1.000	31.0	4.6	23.0	15.0	120.0	80.0	-1.0	-1.0
15366	-1.000	-1.000	-1.000	57.0	1.6	16.0	7.0	180.0	60.0	-1.0	-1.0
15367	-1.000	-1.000	-1.000	37.0	3.3	16.0	12.0	220.0	80.0	-1.0	-1.0
15368	-1.000	-1.000	-1.000	38.0	2.6	7.0	11.0	50.0	70.0	-1.0	-1.0
15369	-1.000	-1.000	-1.000	44.0	4.5	8.0	6.0	210.0	10.0	-1.0	-1.0
15370	-1.000	-1.000	-1.000	37.0	4.4	2.0	.0	60.0	60.0	-1.0	-1.0
15371	-1.000	-1.000	-1.000	24.0	25.0	21.0	40.0	70.0	.0	-1.0	-1.0
15372	-1.000	-1.000	-1.000	1356.0	39.3	80.0	793.0	10.0	390.0	-1.0	-1.0
15373	-1.000	-1.000	-1.000	46.0	6.3	60.0	10.0	20.0	10.0	-1.0	-1.0
15374	-1.000	-1.000	-1.000	28.0	1.1	13.0	9.0	270.0	20.0	-1.0	-1.0
15375	-1.000	-1.000	-1.000	42.0	.6	50.0	7.0	270.0	10.0	-1.0	-1.0
15376	-1.000	-1.000	-1.000	35.0	1.6	24.0	1.0	100.0	.0	-1.0	-1.0
15377	-1.000	-1.000	-1.000	60.0	.7	3.0	4.0	170.0	10.0	-1.0	-1.0
15378	-1.000	-1.000	-1.000	31.0	.8	.0	3.0	150.0	.0	-1.0	-1.0
15379	-1.000	-1.000	-1.000	23.0	.0	37.0	25.0	40.0	.0	-1.0	-1.0
15380	-1.000	-1.000	-1.000	23.0	.8	23.0	51.0	220.0	70.0	-1.0	-1.0
15381	-1.000	-1.000	-1.000	35.0	.5	59.0	19.0	1400.0	.0	-1.0	-1.0
15382	-1.000	-1.000	-1.000	22.0	1.0	24.0	33.0	680.0	.0	-1.0	-1.0
15383	-1.000	-1.000	-1.000	45.0	.9	7.0	15.0	810.0	50.0	-1.0	-1.0
15384	-1.000	-1.000	-1.000	33.0	.0	29.0	4.0	410.0	50.0	-1.0	-1.0
15385	.000	.000	.000	.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15386	-1.000	-1.000	-1.000	38.0	1.7	24.0	32.0	1110.0	80.0	-1.0	-1.0
15387	.000	.000	.000	.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0

15388	-1.000	-1.000	-1.000	38.0	.0	16.0	47.0	490.0	90.0	-1.0	-1.0
15389	-1.000	-1.000	-1.000	28.0	1.3	21.0	33.0	650.0	30.0	-1.0	-1.0
15390	-1.000	-1.000	-1.000	22.0	.5	31.0	22.0	50.0	30.0	-1.0	-1.0
15391	-1.000	-1.000	-1.000	22.0	.4	3.0	8.0	30.0	10.0	-1.0	-1.0
15392	-1.000	-1.000	-1.000	25.0	.4	6.0	22.0	.0	20.0	-1.0	-1.0
15393	-1.000	-1.000	-1.000	17.0	.1	3.0	28.0	30.0	.0	-1.0	-1.0
15394	-1.000	-1.000	-1.000	18.0	1.2	32.0	25.0	50.0	10.0	-1.0	-1.0
15395	-1.000	-1.000	-1.000	17.0	1.6	4.0	6.0	.0	10.0	-1.0	-1.0
15396	-1.000	-1.000	-1.000	16.0	2.9	34.0	7.0	20.0	.0	-1.0	-1.0
15397	-1.000	-1.000	-1.000	21.0	.7	22.0	24.0	530.0	10.0	-1.0	-1.0
15398	-1.000	-1.000	-1.000	16.0	1.6	44.0	71.0	120.0	20.0	-1.0	-1.0
15399	-1.000	-1.000	-1.000	72.0	1.1	39.0	58.0	1880.0	20.0	-1.0	-1.0
15400	-1.000	-1.000	-1.000	.0	1.0	35.0	1.0	300.0	90.0	-1.0	-1.0
15401	-1.000	-1.000	-1.000	42.0	2.2	24.0	.0	50.0	190.0	-1.0	-1.0
15402	-1.000	-1.000	-1.000	42.0	5.6	1.0	.0	80.0	150.0	-1.0	-1.0
15403	-1.000	-1.000	-1.000	31.0	4.1	.0	.0	1400.0	110.0	-1.0	-1.0
15404	-1.000	-1.000	-1.000	20.0	6.5	23.0	.0	20.0	110.0	-1.0	-1.0
15405	-1.000	-1.000	-1.000	22.0	4.5	3.0	.0	.0	60.0	-1.0	-1.0
15406	-1.000	-1.000	-1.000	62.0	5.2	22.0	16.0	.0	40.0	-1.0	-1.0
15407	-1.000	-1.000	-1.000	23.0	4.1	20.0	13.0	.0	10.0	-1.0	-1.0
15408	-1.000	-1.000	-1.000	65.0	5.7	82.0	9.0	.0	200.0	-1.0	-1.0
15409	-1.000	-1.000	-1.000	57.0	4.4	24.0	3.0	5030.0	180.0	-1.0	-1.0
15410	-1.000	-1.000	-1.000	25.0	1.9	22.0	34.0	30.0	60.0	-1.0	-1.0
15411	-1.000	-1.000	-1.000	20.0	.1	35.0	9.0	110.0	40.0	-1.0	-1.0
15412	-1.000	-1.000	-1.000	29.0	.8	9.0	42.0	850.0	20.0	-1.0	-1.0
15413	-1.000	-1.000	-1.000	25.0	.6	12.0	38.0	20.0	80.0	-1.0	-1.0
15414	-1.000	-1.000	-1.000	31.0	1.8	4.0	.0	340.0	.0	-1.0	-1.0
15415	-1.000	-1.000	-1.000	43.0	1.9	21.0	27.0	130.0	50.0	-1.0	-1.0
15416	-1.000	-1.000	-1.000	13.0	2.2	29.0	8.0	140.0	.0	-1.0	-1.0
15417	-1.000	-1.000	-1.000	126.0	.8	5.0	17.0	6130.0	.0	-1.0	-1.0
15418	-1.000	-1.000	-1.000	783.0	8.4	17.0	142.0	14660.0	.0	-1.0	-1.0
15419	-1.000	-1.000	-1.000	90.0	.7	40.0	19.0	670.0	10.0	-1.0	-1.0
15420	-1.000	-1.000	-1.000	1448.0	15.4	76.0	44.0	158000.0	550.0	-1.0	-1.0
15421	-1.000	-1.000	-1.000	56.0	2.7	46.0	.0	880.0	40.0	-1.0	-1.0
15422	-1.000	-1.000	-1.000	94.0	2.5	7.0	27.0	550.0	10.0	-1.0	-1.0
15423	-1.000	-1.000	-1.000	35.0	.6	6.0	9.0	360.0	.0	-1.0	-1.0
15424	-1.000	-1.000	-1.000	57.0	.9	8.0	.0	1560.0	.0	-1.0	-1.0
15425	.000	.002	.000	.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15426	-1.000	-1.000	-1.000	42.0	1.3	30.0	.0	160.0	10.0	-1.0	-1.0
15427	-1.000	-1.000	-1.000	22.0	.8	25.0	1.0	390.0	.0	-1.0	-1.0
15428	-1.000	-1.000	-1.000	65.0	2.1	126.0	33.0	7320.0	.0	-1.0	-1.0
15429	-1.000	-1.000	-1.000	105.0	.9	7.0	4.0	490.0	10.0	-1.0	-1.0
15430	-1.000	-1.000	-1.000	103.0	1.3	44.0	7.0	500.0	10.0	-1.0	-1.0
15431	-1.000	-1.000	-1.000	1605.0	371.0	9601.0	2589.0	145200.0	990.0	-1.0	-1.0
15432	-1.000	-1.000	-1.000	54.0	1.0	56.0	.0	100.0	20.0	-1.0	-1.0
15433	-1.000	-1.000	-1.000	882.0	2.0	55.0	.0	130.0	.0	-1.0	-1.0
15434	-1.000	-1.000	-1.000	119.0	.6	10.0	7.0	140.0	.0	-1.0	-1.0
15435	-1.000	-1.000	-1.000	127.0	1.0	3.0	.0	400.0	20.0	-1.0	-1.0
15436	.000	.000	.000	.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15437	-1.000	-1.000	-1.000	139.0	.3	6.0	.0	220.0	10.0	-1.0	-1.0
15438	-1.000	-1.000	-1.000	22.0	.0	9.0	.0	.0	60.0	-1.0	-1.0
15439	-1.000	-1.000	-1.000	42.0	.0	74.0	.0	.0	30.0	-1.0	-1.0
15440	-1.000	-1.000	-1.000	38.0	1.4	19.0	36.0	770.0	50.0	-1.0	-1.0
15441	-1.000	-1.000	-1.000	41.0	.5	33.0	17.0	180.0	40.0	-1.0	-1.0

15442	-1.000	-1.000	-1.000	68.0	2.6	19.0	39.0	3510.0	30.0	-1.0	-1.0
15443	-1.000	-1.000	-1.000	42.0	.0	66.0	44.0	.0	30.0	-1.0	-1.0
15444	-1.000	-1.000	-1.000	34.0	.9	16.0	84.0	40.0	130.0	-1.0	-1.0
15445	-1.000	-1.000	-1.000	37.0	1.4	16.0	84.0	30.0	230.0	-1.0	-1.0
15446	.100	.059	.063	2160.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15447	-1.000	-1.000	-1.000	236.0	6.8	350.0	89.0	17400.0	90.0	-1.0	-1.0
15448	.000	.000	.000	.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15449	.000	.000	.000	.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15450	-1.000	-1.000	-1.000	58.0	.0	57.0	43.0	150.0	240.0	-1.0	-1.0
15451	-1.000	-1.000	-1.000	31.0	.0	9.0	8.0	260.0	50.0	-1.0	-1.0
15452	-1.000	-1.000	-1.000	174.0	1.3	140.0	44.0	7490.0	.0	-1.0	-1.0
15453	.026	.015	.016	548.6	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15454	-1.000	-1.000	-1.000	47.0	1.8	53.0	15.0	2200.0	20.0	-1.0	-1.0
15455	-1.000	-1.000	-1.000	43.0	.0	14.0	12.0	620.0	.0	-1.0	-1.0
15456	-1.000	-1.000	-1.000	23.0	1.6	24.0	144.0	510.0	50.0	-1.0	-1.0
15457	-1.000	-1.000	-1.000	27.0	.1	8.0	10.0	650.0	160.0	-1.0	-1.0
15458	-1.000	-1.000	-1.000	20.0	.3	12.0	7.0	390.0	230.0	-1.0	-1.0
15459	-1.000	-1.000	-1.000	38.0	.0	10.0	17.0	6650.0	50.0	-1.0	-1.0
15460	.003	.010	.010	342.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15461	.039	.002	.002	68.6	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15462	-1.000	-1.000	-1.000	76.0	3.0	47.0	61.0	330.0	30.0	-1.0	-1.0
15463	-1.000	-1.000	-1.000	33.0	.0	41.0	9.0	6660.0	40.0	-1.0	-1.0
15464	-1.000	-1.000	-1.000	11.0	.6	65.0	23.0	50.0	160.0	-1.0	-1.0
15465	-1.000	-1.000	-1.000	56.0	.0	189.0	157.0	40.0	150.0	-1.0	-1.0
15466	-1.000	-1.000	-1.000	32.0	.4	5.0	20.0	410.0	50.0	-1.0	-1.0
15467	.000	.000	.000	.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15468	-1.000	-1.000	-1.000	.0	.0	14.0	67.0	980.0	20.0	-1.0	-1.0
15469	-1.000	-1.000	-1.000	33.0	.0	24.0	9.0	120.0	100.0	-1.0	-1.0
15470	-1.000	-1.000	-1.000	42.0	1.5	357.0	10.0	160.0	150.0	-1.0	-1.0
15471	-1.000	-1.000	-1.000	46.0	3.9	13.0	70.0	40.0	610.0	-1.0	-1.0
15472	.014	.046	.045	1542.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15473	-1.000	-1.000	-1.000	226.0	.5	27.0	56.0	6650.0	30.0	-1.0	-1.0
15474	-1.000	-1.000	-1.000	47.0	.9	16.0	3.0	650.0	20.0	-1.0	-1.0
15475	-1.000	-1.000	-1.000	42.0	.6	8.0	.0	110.0	10.0	-1.0	-1.0
15476	-1.000	-1.000	-1.000	30.0	1.4	21.0	44.0	1110.0	40.0	-1.0	-1.0
15477	.183	.010	.020	685.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15478	-1.000	-1.000	-1.000	31.0	.3	27.0	28.0	410.0	30.0	-1.0	-1.0
15479	-1.000	-1.000	-1.000	51.0	.0	3.0	9.0	20.0	.0	-1.0	-1.0
15480	-1.000	-1.000	-1.000	33.0	.0	22.0	2.0	.0	120.0	-1.0	-1.0
15481	-1.000	-1.000	-1.000	23.0	.4	7.0	6.0	50.0	20.0	-1.0	-1.0
15482	-1.000	-1.000	-1.000	17.0	3.7	21.0	77.0	70.0	10.0	-1.0	-1.0
15483	-1.000	-1.000	-1.000	28.0	3.4	66.0	25.0	730.0	10.0	-1.0	-1.0
15484	-1.000	-1.000	-1.000	34.0	3.2	8.0	18.0	50.0	10.0	-1.0	-1.0
15485	-1.000	-1.000	-1.000	2469.0	17.2	60.0	605.0	17700.0	570.0	-1.0	-1.0
15486	-1.000	-1.000	-1.000	20.0	3.6	30.0	15.0	700.0	.0	-1.0	-1.0
15487	-1.000	-1.000	-1.000	39.0	.9	12.0	23.0	380.0	20.0	-1.0	-1.0
15488	-1.000	-1.000	-1.000	25.0	1.1	86.0	55.0	190.0	30.0	-1.0	-1.0
15601	-1.000	-1.000	-1.000	54.0	4.6	38.0	20.0	.0	30.0	-1.0	-1.0
15602	-1.000	-1.000	-1.000	35.0	4.2	48.0	19.0	.0	70.0	-1.0	-1.0
15603	-1.000	-1.000	-1.000	40.0	4.8	19.0	9.0	.0	40.0	-1.0	-1.0
15604	-1.000	-1.000	-1.000	35.0	6.5	34.0	14.0	100.0	140.0	-1.0	-1.0
15605	-1.000	-1.000	-1.000	39.0	.0	25.0	6.0	160.0	50.0	-1.0	-1.0
15606	-1.000	-1.000	-1.000	31.0	.5	108.0	34.0	360.0	120.0	-1.0	-1.0
15607	-1.000	-1.000	-1.000	47.0	.0	25.0	13.0	.0	140.0	-1.0	-1.0

15608	-1.000	-1.000	-1.000	21.0	.3	159.0	11.0	20.0	320.0	-1.0	-1.0
15609	-1.000	-1.000	-1.000	92.0	1.7	77.0	13.0	30.0	130.0	-1.0	-1.0
15610	-1.000	-1.000	-1.000	39.0	1.1	13.0	5.0	120.0	10.0	-1.0	-1.0
15611	-1.000	-1.000	-1.000	34.0	1.2	53.0	6.0	110.0	220.0	-1.0	-1.0
15612	-1.000	-1.000	-1.000	23.0	.7	76.0	30.0	50.0	140.0	-1.0	-1.0
15701	-1.000	-1.000	-1.000	42.0	5.9	43.0	9.0	10.0	150.0	-1.0	-1.0
15702	-1.000	-1.000	-1.000	31.0	4.7	39.0	8.0	70.0	140.0	-1.0	-1.0
15703	-1.000	-1.000	-1.000	29.0	6.7	48.0	10.0	770.0	150.0	-1.0	-1.0
15704	-1.000	-1.000	-1.000	34.0	3.1	29.0	12.0	.0	40.0	-1.0	-1.0
15705	-1.000	-1.000	-1.000	53.0	13.6	43.0	28.0	290.0	30.0	-1.0	-1.0
15706	-1.000	-1.000	-1.000	60.0	.5	47.0	29.0	80.0	10.0	-1.0	-1.0
15707	-1.000	-1.000	-1.000	38.0	1.1	84.0	19.0	250.0	100.0	-1.0	-1.0
15708	-1.000	-1.000	-1.000	33.0	.0	18.0	18.0	60.0	140.0	-1.0	-1.0
15709	-1.000	-1.000	-1.000	22.0	1.0	6.0	16.0	.0	130.0	-1.0	-1.0
15710	-1.000	-1.000	-1.000	34.0	.0	7.0	50.0	450.0	30.0	-1.0	-1.0
15711	-1.000	-1.000	-1.000	68.0	1.9	22.0	150.0	740.0	20.0	-1.0	-1.0
15712	-1.000	-1.000	-1.000	32.0	.0	15.0	9.0	110.0	100.0	-1.0	-1.0
15713	-1.000	-1.000	-1.000	26.0	.5	16.0	10.0	100.0	110.0	-1.0	-1.0
15714	-1.000	-1.000	-1.000	30.0	.0	17.0	5.0	.0	70.0	-1.0	-1.0
15715	-1.000	-1.000	-1.000	40.0	.0	16.0	.0	.0	90.0	-1.0	-1.0
15716	-1.000	-1.000	-1.000	98.0	.0	17.0	12.0	2470.0	120.0	-1.0	-1.0
15717	-1.000	-1.000	-1.000	45.0	.9	12.0	20.0	100.0	120.0	-1.0	-1.0
15718	-1.000	-1.000	-1.000	34.0	.1	7.0	15.0	60.0	140.0	-1.0	-1.0
15719	-1.000	-1.000	-1.000	43.0	.6	23.0	7.0	1480.0	50.0	-1.0	-1.0
15720	-1.000	-1.000	-1.000	54.0	.0	20.0	3.0	1190.0	100.0	-1.0	-1.0
15721	-1.000	-1.000	-1.000	47.0	2.2	60.0	163.0	750.0	.0	-1.0	-1.0
15722	-1.000	-1.000	-1.000	97.0	1.8	68.0	52.0	5280.0	20.0	-1.0	-1.0
15723	-1.000	-1.000	-1.000	22.0	8.7	47.0	30.0	290.0	10.0	-1.0	-1.0
15724	-1.000	-1.000	-1.000	30.0	2.8	30.0	27.0	156000.0	1510.0	-1.0	-1.0
15725	-1.000	-1.000	-1.000	32.0	.8	24.0	5.0	220.0	10.0	-1.0	-1.0
15726	-1.000	-1.000	-1.000	37.0	2.0	78.0	39.0	213000.0	2200.0	-1.0	-1.0
15727	-1.000	-1.000	-1.000	23.0	1.0	7.0	12.0	500.0	.0	-1.0	-1.0
15728	-1.000	-1.000	-1.000	38.0	4.5	105.0	85.0	30000.0	50.0	-1.0	-1.0
15729	-1.000	-1.000	-1.000	37.0	.7	17.0	10.0	250.0	.0	-1.0	-1.0
15730	-1.000	-1.000	-1.000	32.0	1.0	29.0	29.0	760.0	130.0	-1.0	-1.0
15731	-1.000	-1.000	-1.000	27.0	.0	13.0	21.0	360.0	.0	-1.0	-1.0
15732	-1.000	-1.000	-1.000	28.0	.0	5.0	30.0	220.0	.0	-1.0	-1.0
15733	.000	.000	.000	.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15734	.010	.019	.019	651.4	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15735	-1.000	-1.000	-1.000	26.0	.2	19.0	23.0	1220.0	50.0	-1.0	-1.0
15736	-1.000	-1.000	-1.000	44.0	4.2	25.0	2.0	390.0	50.0	-1.0	-1.0
15737	-1.000	-1.000	-1.000	35.0	.0	5.0	2.0	250.0	50.0	-1.0	-1.0
15738	-1.000	-1.000	-1.000	32.0	1.1	34.0	17.0	.0	130.0	-1.0	-1.0
15739	-1.000	-1.000	-1.000	18.0	4.0	37.0	12.0	130.0	20.0	-1.0	-1.0
15740	-1.000	-1.000	-1.000	17.0	2.6	16.0	10.0	60.0	30.0	-1.0	-1.0
15741	-1.000	-1.000	-1.000	20.0	4.0	8.0	191.0	110.0	30.0	-1.0	-1.0
15742	.000	.000	.000	.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15743	-1.000	-1.000	-1.000	35.0	.5	6.0	17.0	10.0	.0	-1.0	-1.0
15744	-1.000	-1.000	-1.000	41.0	.0	3.0	92.0	.0	.0	-1.0	-1.0
15745	-1.000	-1.000	-1.000	43.0	1.6	2.0	.0	70.0	.0	-1.0	-1.0
15746	.000	.000	.000	.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15747	-1.000	-1.000	-1.000	34.0	1.4	.0	17.0	40.0	.0	-1.0	-1.0
15748	-1.000	-1.000	-1.000	24.0	1.2	1.0	3.0	.0	10.0	-1.0	-1.0
15749	-1.000	-1.000	-1.000	20.0	.0	.0	.0	.0	.0	-1.0	-1.0

15750	-1.000	-1.000	-1.000	23.0	1.0	1.0	8.0	120.0	.0	-1.0	-1.0
15751	-1.000	-1.000	-1.000	33.0	.1	50.0	11.0	450.0	.0	-1.0	-1.0
15752	-1.000	-1.000	-1.000	259.0	122.9	1410.0	173.0	241000.0	950.0	-1.0	-1.0
15753	-1.000	-1.000	-1.000	174.0	6.0	52.0	41.0	1280.0	.0	-1.0	-1.0
15754	-1.000	-1.000	-1.000	4490.0	.9	63.0	32.0	1600.0	.0	-1.0	-1.0
15755	-1.000	-1.000	-1.000	182.0	3.7	1709.0	62.0	13400.0	10.0	-1.0	-1.0
15756	-1.000	-1.000	-1.000	54.0	.6	23.0	9.0	50.0	130.0	-1.0	-1.0
15757	-1.000	-1.000	-1.000	59.0	.7	11.0	25.0	610.0	.0	-1.0	-1.0
15758	-1.000	-1.000	-1.000	10.0	1.0	5.0	26.0	450.0	20.0	-1.0	-1.0
15759	-1.000	-1.000	-1.000	34.0	.6	1.0	24.0	200.0	40.0	-1.0	-1.0
15760	-1.000	-1.000	-1.000	47.0	2.2	11.0	117.0	440.0	2140.0	-1.0	-1.0
15761	-1.000	-1.000	-1.000	16.0	.6	27.0	.0	120.0	40.0	-1.0	-1.0
15762	-1.000	-1.000	-1.000	17.0	.7	19.0	49.0	580.0	90.0	-1.0	-1.0
15763	-1.000	-1.000	-1.000	20.0	.0	13.0	34.0	290.0	360.0	-1.0	-1.0
15764	-1.000	-1.000	-1.000	22.0	.8	40.0	.0	580.0	1320.0	-1.0	-1.0
15765	-1.000	-1.000	-1.000	60.0	.0	21.0	7.0	1920.0	20.0	-1.0	-1.0
15766	-1.000	-1.000	-1.000	46.0	.2	17.0	18.0	1590.0	.0	-1.0	-1.0
15767	-1.000	-1.000	-1.000	25.0	.7	13.0	6.0	190.0	.0	-1.0	-1.0
15768	-1.000	-1.000	-1.000	20.0	1.5	22.0	8.0	830.0	.0	-1.0	-1.0
15769	.015	.005	.005	171.4	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15770	-1.000	-1.000	-1.000	25.0	.7	42.0	12.0	50.0	30.0	-1.0	-1.0
15771	-1.000	-1.000	-1.000	19.0	.1	21.0	18.0	70.0	20.0	-1.0	-1.0
15772	.008	.003	.003	102.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15773	-1.000	-1.000	-1.000	67.0	1.2	127.0	.0	980.0	.0	-1.0	-1.0
15774	-1.000	-1.000	-1.000	36.0	1.0	20.0	23.0	570.0	10.0	-1.0	-1.0
15775	-1.000	-1.000	-1.000	25.0	.8	7.0	24.0	40.0	10.0	-1.0	-1.0
15776	-1.000	-1.000	-1.000	23.0	1.7	11.0	9.0	180.0	10.0	-1.0	-1.0
15777	-1.000	-1.000	-1.000	19.0	.9	10.0	.0	190.0	40.0	-1.0	-1.0
15778	-1.000	-1.000	-1.000	25.0	.2	35.0	23.0	150.0	50.0	-1.0	-1.0
15779	.008	.005	.006	205.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15780	-1.000	-1.000	-1.000	29.0	.5	9.0	3.0	170.0	30.0	-1.0	-1.0
15781	-1.000	-1.000	-1.000	35.0	1.4	17.0	35.0	1300.0	40.0	-1.0	-1.0
15782	-1.000	-1.000	-1.000	38.0	.9	109.0	21.0	70.0	50.0	-1.0	-1.0
15783	-1.000	-1.000	-1.000	26.0	3.3	4.0	29.0	240.0	60.0	-1.0	-1.0
15784	-1.000	-1.000	-1.000	28.0	.9	20.0	18.0	10.0	40.0	-1.0	-1.0
15785	-1.000	-1.000	-1.000	21.0	1.3	16.0	.0	340.0	40.0	-1.0	-1.0
15786	-1.000	-1.000	-1.000	34.0	1.8	7.0	3.0	570.0	30.0	-1.0	-1.0
15787	-1.000	-1.000	-1.000	31.0	1.8	5.0	4.0	90.0	40.0	-1.0	-1.0
15788	-1.000	-1.000	-1.000	32.0	.7	8.0	10.0	80.0	20.0	-1.0	-1.0
15789	-1.000	-1.000	-1.000	21.0	1.2	9.0	2.0	60.0	30.0	-1.0	-1.0
15790	-1.000	-1.000	-1.000	26.0	1.5	20.0	58.0	.0	50.0	-1.0	-1.0
15791	-1.000	-1.000	-1.000	23.0	1.8	22.0	2.0	30.0	30.0	-1.0	-1.0
15792	.012	.012	.012	411.4	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15793	-1.000	-1.000	-1.000	24.0	1.4	11.0	2.0	.0	40.0	-1.0	-1.0
15794	-1.000	-1.000	-1.000	36.0	.6	8.0	5.0	620.0	30.0	-1.0	-1.0
15795	-1.000	-1.000	-1.000	29.0	1.0	9.0	.0	380.0	30.0	-1.0	-1.0
15796	-1.000	-1.000	-1.000	22.0	1.0	35.0	15.0	.0	40.0	-1.0	-1.0
15797	-1.000	-1.000	-1.000	25921.0	8.3	73.0	123.0	191000.0	1000.0	-1.0	-1.0
15798	7.160	2.536	2.904	99565.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15799	.005	.008	.007	240.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15800	-1.000	-1.000	-1.000	55.0	.5	2.0	.0	190.0	30.0	-1.0	-1.0
15801	-1.000	-1.000	-1.000	120.0	2.0	4.0	6.0	710.0	10.0	-1.0	-1.0
15802	-1.000	-1.000	-1.000	25.0	.6	11.0	2.0	370.0	20.0	-1.0	-1.0
15803	-1.000	-1.000	-1.000	81.0	1.5	7.0	40.0	510.0	20.0	-1.0	-1.0

15804	-1.000	-1.000	-1.000	28.0	.7	4.0	.0	190.0	20.0	-1.0	-1.0
15805	-1.000	-1.000	-1.000	48.0	.5	11.0	.0	380.0	30.0	-1.0	-1.0
15806	-1.000	-1.000	-1.000	31.0	.7	20.0	57.0	940.0	20.0	-1.0	-1.0
15807	-1.000	-1.000	-1.000	50.0	.2	22.0	15.0	900.0	20.0	-1.0	-1.0
15808	12.131	1.135	1.817	62297.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15809	-1.000	-1.000	-1.000	20.0	1.1	13.0	7.0	90.0	40.0	-1.0	-1.0
15810	-1.000	-1.000	-1.000	25.0	.1	18.0	12.0	280.0	50.0	-1.0	-1.0
15811	-1.000	-1.000	-1.000	59.0	.6	18.0	13.0	990.0	100.0	-1.0	-1.0
15812	-1.000	-1.000	-1.000	41.0	1.3	12.0	4.0	.0	70.0	-1.0	-1.0
15813	-1.000	-1.000	-1.000	83.0	1.6	11.0	21.0	1830.0	40.0	-1.0	-1.0
15814	-1.000	-1.000	-1.000	107.0	6.5	37.0	112.0	3040.0	50.0	-1.0	-1.0
15815	-1.000	-1.000	-1.000	106.0	1.9	16.0	48.0	790.0	30.0	-1.0	-1.0
15816	-1.000	-1.000	-1.000	57.0	3.4	16.0	49.0	300.0	20.0	-1.0	-1.0
15817	-1.000	-1.000	-1.000	412.0	3.8	45.0	233.0	15000.0	160.0	-1.0	-1.0
15818	-1.000	-1.000	-1.000	46.0	.4	17.0	12.0	770.0	20.0	-1.0	-1.0
15819	-1.000	-1.000	-1.000	76.0	.4	13.0	6.0	1180.0	30.0	-1.0	-1.0
15820	-1.000	-1.000	-1.000	39.0	1.1	54.0	.0	.0	210.0	-1.0	-1.0
15821	-1.000	-1.000	-1.000	108.0	.4	54.0	5.0	40.0	140.0	-1.0	-1.0
15822	-1.000	-1.000	-1.000	34.0	.1	17.0	22.0	1560.0	10.0	-1.0	-1.0
15823	.119	.039	.042	1440.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
15824	-1.000	-1.000	-1.000	70.0	.6	15.0	81.0	2530.0	30.0	-1.0	-1.0
15825	-1.000	-1.000	-1.000	1419.0	36.6	307.0	818.0	8850.0	50.0	-1.0	-1.0
15826	-1.000	-1.000	-1.000	40.0	1.2	21.0	5.0	700.0	30.0	-1.0	-1.0
15827	-1.000	-1.000	-1.000	43.0	.4	17.0	10.0	390.0	20.0	-1.0	-1.0
15828	-1.000	-1.000	-1.000	95.0	.3	8.0	14.0	150.0	30.0	-1.0	-1.0
15829	-1.000	-1.000	-1.000	46.0	.4	36.0	2.0	20.0	100.0	-1.0	-1.0

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SAMPLE	PETRG	LOCATION	TRENCH	CLAIM #	ROCK UNIT	SAMPLER	2ND LINE DESCRIPTION
S100	FALSE	MR/S	FALSE	10	4b	G	"B" HZN ~3cm DEEP
S101	FALSE	MR/S	FALSE	10	6a	G	"A" HZN ~ 6cm, POOR "B" HZN ~ 1cm OR LESS
S102	FALSE	MR/S	FALSE	10	6a	G	"A" HZN ~ 3cm, "B" HZN ~ 5cm BUT VARYING DUE TO CHANGING "C" HZN POSITION
S103	FALSE	MR/S	FALSE	10	6a	G	"A" HZN ~ 1cm (MINIMAL), "B" HZN ~ 3cm?, COULD BE B+C OR JUST "C" HZN
S104	FALSE	MR/S	FALSE	10	6a	G	"A" HZN ~ 12cm, "B" HZN ~ 6cm
S105	FALSE	MR/S	FALSE	10	6a	G	"A" HZN ~ 3cm, "B" HZN ~ 4cm BUT HAS BEEN MIXED WITH SOME "C" HZN
S106	FALSE	MR/S	FALSE	10	6a	G	"A" HZN ~ 1cm, "B" HZN ~ 12cm-MIGHT BE MIXED WITH "C" HZN AS PEBBLES WERE INTERMIXED
S107	FALSE	MR/S	FALSE	10	1	G	"A" HZN <1cm, "B" HZN ~ 8cm
S108	FALSE	SMTN/N	FALSE	10	4b	G	"A" HZN ~ 2cm, "B" HZN ~ 4cm
S109	FALSE	SMTN/N	FALSE	10	4b	G	"A" HZN ~ 3cm, "B" HZN ~ 5cm....GOOD PROFILE
S110	FALSE	MR/S	FALSE	10	4b	G	"A" HZN ~ 4cm, "B" HZN ~ 7cm-ALTHOUGH INCL PEBBLES 4-8mm
S111	FALSE	MR/S	FALSE	10	4b	G	"A" HZN ~ 3cm, "B" HZN ~ 3cm
S112	FALSE	MR/S	FALSE	10	4b	G	"A" HZN ~ 15cm, "B" HZN MNL ~ 1cm, LOTS OF A+C INTMXD W/ "B"
S113	FALSE	MR/S	FALSE	10	4b	G	NO "B" HZN EVID, SMPL TAKEN WAS A MIX OF "A"+"B" HZNS
S114	FALSE	MR/S	FALSE	10	4b	G	"A" HZN ~ 6cm, "B" HZN MNL ~ 1cm, MNL AMT OF VEG IN SOIL. TYPICAL "B" HZN, NE SIDE OF OX TALUS
S115	FALSE	MR/S	FALSE	7	1	R	"A" HZN ~ 1-2cm, "B" HZN ~ 4cm, WELL TEX W/ SAND & PEBBLES (ABNT)
S116	FALSE	MR/S	FALSE	7	1	R	"A" HZN ABSENT (VERY MNL), "B" HZN WELL DEV 4cm, "C" HZN WELL DEV 8cm
S117	FALSE	MR/S	FALSE	7	1	R	"A" HZN 2cm, "B" HZN WELL DEV 8cm. MAINLY SAND & PEBBLES
S118	FALSE	MR/S	FALSE	7	1	R	'"A" HZN 3cm, :B: HZN 12cm & WELL DEV. VERY GOOD PROFILE ON STEEP BANK
S119	FALSE	MR/S	FALSE	6	1	R	"A" HZN ~ 2cm, "B" HZN ~ 10cm OF SANDY/PEBBLY SOIL,VERY GOOD PROFILE
S120	FALSE	MR/S	FALSE	6	1	R	"A" HZN ~ 3cm, "B" HZN ~ 2cm W/ CLAY, SAND, ROOTS. LARGE "C" HZN W/ SAND & PEBBLES 40CM
S121	FALSE	MR/E	FALSE	6	1	G	MNL "A"+"B" HZNS. SMPL IS MAINLY "C" HZN W/ A BIT OF "B" INTMXD
S122	FALSE	MR/E	FALSE	6	1	G	"A" HZN 1-2cm, "B" HZN IS MIXED W/ "C" AS "B" IS AGAIN MNL. SMPL IS A MIXTURE OF THE TWO
S123	FALSE	MR/E	FALSE	6	1	G	"A" HZN ~ 1cm. THIS SMPL IS OF "C" HZN AS IT WAS QUITE RUSTY IN COLOR
S124	FALSE	MR/E	FALSE	6	1	G	"A" HZN ~ 1cm MNL, "B" HZN
S125	FALSE	MR/N	FALSE	6	1	G	"A" HZN ~ 3cm. NO "B" HZN, SO "C" HZN WAS COLLECTED. RUSTY COLOR BUT NOT AS MUCH AS S123
S126	FALSE	MR/N	FALSE	6	1	G	"A" HZN ~ 5cm, "B" HZN ~ 1-2cm & POSS MIXED W/ "C" HZN. MODERATELY DRY

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 S127  FALSE  MR/N                 FALSE  6        1          G
     "A" HZN ~ 2cm. AGAIN "B" IS MIXED W/ "C" GIVING A MORE RUSTY COLOR AS IN S125
 S128  FALSE  MR/N                 FALSE  6        1          G
     DRIED OUT AT CREEK BED.  "A" HZN ~ 2cm, PEB VIS IN ~ 2-4cm ON "B" HZN.SANDY BEIGE COLOR,MOD WET
 S129  FALSE  MR/N                 FALSE  6        1          G
     "A" HZN ~ 15cm ABNT OF VEG IN "A". "B" HZN ~ 1-2cm DK SANDY BEIGE    COLOR
 S130  FALSE  MR/N                 FALSE  6        1          R
     "A" HZN ~ 2cm. "B"+"C" HZNS ARE MXD TOGETHER. SMPL TAKEN AT ~ TOP OF  "C" HZN.
 S131  FALSE  MR/N                 FALSE  6        6a         R
     "A" HZN ~ 4cm. "B" HZN IS MED BRN. SMPL AREA CONTAINED PEB & COBBLES  OF VARIOUS SIZES.
 S132  FALSE  MR/N                 FALSE  11       6a         R
     "A" HZN ~ 1-2cm. SMPL TAKEN IS PROB A MIX OF "B"+"C". STEEP OXIDIZED  TALUS SLOPE AREA.
 S133  FALSE  MR/N                 FALSE  11       6a         R
     "A" HZN 3-4cm. NO "B" HZN EVID. SMPL IS "C" HZN MED BRN, NUMEROUS PEB & ROOTS
 S134  FALSE  MR/N                 FALSE  11       6a         R
     NO "B" HZN EVID. "C" WAS TAKEN W/ A LITTLE BIT OF "A". LOTS OF ROOTS &ROCKS BUT LESS SAND & CLAY
 S135  FALSE  MR/N                 FALSE  11       6a         R
     POOR DEV SOIL PROFILE,NO "B" HZN NO CR DSTN BTW "A" OR"C", SMPL TAKEN FROM"C" MED BRN W/ PEB,SND,RTS
 S136  FALSE  MR/N                 FALSE  11       6a         R
     "A" HZN 6cm BLK BRN, "B" HZN ABSENT, "C" HZN BRN SMPL TAKEN FROM     UPPER "C".
 S137  FALSE  MR/N                 FALSE  11       6a         R
     "A" HZN 6cm, BLK BRN SMPL TAKEN FROM "C" HZN ~ 15cm FROM TOP OF      PROFILE.
 S138  FALSE  MR/N                 FALSE  11       6a         R
     NO "B" HZN,"A" HZN 4cm BLK BRN, SOIL TAKEN FROM TOP OF "C" HZN (MED,  BRN, RTS, SND, PEB)
 S139  FALSE  MR/N                 FALSE  11       2          R
     PFL HARD TO FIND, LGE 10cm "A" HZN, VERY CLAYEY W/ SOME PEB & SND
 S140  FALSE  MR/N                 FALSE  11       2          R
     NO "B" HZN, LGE "A" HZN 12cm & IS BLK BRN, "C" HZN IS RED BRN & SMPL  TAKEN NEAR TOP OF "C".
 S141  FALSE  MR/N                 FALSE  11       2          R
     "A" HZN WELL DEV IS BLK BRN 10-15cm, NO "B" HZN, "C" HZN IS MED BRN & TYP SND TEX.
 S142  FALSE  SMTN/N               FALSE  10       6a         G
     "A" HZN ~ 2cm, "B" HZN ~ 4cm, NICE PFL IE:SND BEIGE CR, MINM AMT OF   PEB.
 S143  FALSE  SMTN/N               FALSE  7        6a         G
     "A" HZN ~ 5cm ABNT OF VEG, NO "B" HZN, "C" HZN W/ DK GREY TO BLK PEB  COLLECTED.
 S144  FALSE  SMTN/N               FALSE  7        6a         G
     "A" HZN<1cm, "B" HZN APPEARS TO BE MXD W/ "C". SMPL TAKEN HAS A SMALL AMOUNT OF PEB.
 S145  FALSE  SMTN/N               FALSE  7        1          G
     "A" HZN NEARLY ABSENT, "B" HZN ~ 1-2cm. SM PEB ARE EVID IN "B" LAYER, MX W/ "C"?
 S146  FALSE  SMTN/N               FALSE  7        1          G
     "A" HZN APPEARS ABSENT, "B" HZN IS QUITE PEBBLY TO COARSE SAND. MOD   DRY.
 S147  FALSE  SMTN/N               FALSE  7        1          G
     "A" HZN ~ 3cm, "B" HZN ~ 2cm, CONTAINS PEBB RANGING IN SIZES. LT      BEIGE COLOR, VERY WET.
 S148  FALSE  SMTN/N               FALSE  7        1          G
     "A" HZN ~ 8cm, "B" HZN ~ 5cm, MOD AMT VEG, WET, LIGHT BRN, MORE CLAYEYTHAN SANDY.
 S149  FALSE  SMTN/N               FALSE  7        1          G
     "A" HZN ~ 2cm, "B" HZN ~ 5cm, MINM AMT OF PEBB, MED BRN, MOD WET,     V SANDY.
 S150  FALSE  SMTN/N               FALSE  7        1          G
     "A" HZN ~ 3cm, "B" HZN ~ 6cm, ABNT OF PEBB, MAY BE MXD W/ "C", MORE OFA SANDY TEX.
 S151  FALSE  SMTN/N               FALSE  7        1          G
     'A' HZN ~ 2cm, B' HZN IS ABST. SMPL TAKEN IS 'C' HZN. COBBLES DIRECT- LY BENEATH 'A' W/ SOME SAND.
 S152  FALSE  SMTN/N               FALSE  7        1          G
     'A'+'B' HZNS ~ 4cm EACH. SANDY TEX LIGHT TO MED BRN, VERY FEW PEBB    VISIBLE.
 S153  FALSE  SMTN/N               FALSE  7        1          G
     MINM 'A' HZN, 'B' HZN ~ 10cm. MORE SANDY THAN CLAYEY, MED TO NORM BRN.
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S154 FALSE SMTN/N FALSE 7 1 G
'A' HZN ~ 6cm, 'B' HZN IS DK BRN DUE TO PRESENCE OF PEBB. IT MAY BE MXD W/ 'C'
S155 FALSE SMTN/NE FALSE 7 1 G
'A' HZN ~ 3cm, 'B' HZN ~ 5cm. ABNT VEG, LIGHT TO MED BRN 50% CLAY/ 50% SAND, MOD WET.
S156 FALSE SMTN/NE FALSE 7 1 G
'A'HZN ~ 6cm, 'B'HZN ~ 1cm, ABNT VEG IN 'A'+'B', GOOD PROFILE (ie SANDY).
S157 FALSE SMTN/E FALSE 7 1 G
'A' HZN ~ 4cm, 'B' HZN IS ABST, SMPL TAKEN IN 'C' HZN. LIGHT RUSTY BRNSANDY W/ ANGULAR PEBB.
S158 FALSE SMTN/E FALSE 7 1 G
'A'HZN ~ 2cm, 'B'HZN ~ 8cm, GOOD PROFILE, MINM AMT OF PEBB, FAIRLY DRYSAND > CLAY IN TEX.
S159 FALSE SMTN/E FALSE 7 1 G
ALL 'A','B'+'C' HZNS SEEM TO BE COMBINED. SMPL COLOR IS DK BRN TO BLK.
S160 FALSE SMTN/E FALSE 7 1 G
'A' HZN~4cm, 'B' HZN~4cm, SAND>CLAY IN TEX, FAIRLY DRY, MED BRN, MINM AMT OF PEBB & VEG.
S161 FALSE SMTN/E FALSE 7 1 G
'A'HZN~4cm, 'B'HZN~15cm, LIGHT BRN, MOD DRY, COURSE SAND GRAINS IN SMPL.
S162 FALSE SMTN/E FALSE 7 1 G
'A'HZN~12cm, 'B'HZN~4cm, MOD WET, SAND>CLAY IN TEX, LIGHT TO MED BRN, LOTS OF VEG.
S163 FALSE SMTN/E FALSE 7 1 G
'A'HZN~7cm, 'B'HZN IS ABST. SMPL TAKEN IS 'C'HZN, MOD WET.
S164 FALSE SMTN/E FALSE 7 4b G
'A'HZN~16cm, 'B'HZN MAY BE ABST. LGE PEBB AMONG SANDY PROFILE, MED BRN, MOD WET.
S165 FALSE SMTN/E FALSE 7 4b G
'A'HZN~1', 'B'HZN IS ABST. SMPL TAKEN IS 'C'HZN, VERY WET + PEBB, MED TO DK BRN.
S166 FALSE SMTN/E FALSE 7 4b G
'A'HZN~15cm, 'B'HZN~2cm, MED TO DK BRN, MED AMT OF PEBB & VEG IN SMPL.
S167 FALSE SMTN/E FALSE 7 4b G
'A'HZN 1-2cm, 'B'HZN 1-2cm, LOTS OF PEBB-MAY BE MXD W/ 'C'HZN, DK BRN,MOD DRY.
S168 FALSE SMTN/E FALSE 7 4b G
'A'HZN~11cm, 'B'HZN~6cm, ABNT OF VEG, MOD WET, OCC PEBB, MED BRN.
S169 FALSE SMTN/E FALSE 7 4b G
'A'HZN~6cm, 'B'+'C' HARD TO DISTINGUISH, TEX IS 0.5 CL- AY & 0.5 SAND, MOD DRY.
S170 FALSE SMTN/E FALSE 7 4b G
'A'HZN~20cm, NO 'B'HZN, SMPL TAKEN IS 'C'HZN, MOD DRY, MED TO DK BRN
S171 FALSE SMTN/E FALSE 7 4b G
'A'HZN~20cm, NO 'B'HZN, LGE COBBLES OBSERVED DIRECTLY BELOW 'A'HZN, DRY, MED TO DK BRN.
S172 FALSE SMTN/E FALSE 7 4A G
'A'HZN~12cm, NO 'B'HZN, SMPL IS 'C'HZN, TEX IS CLAY>SAND, MED BRN.
S173 FALSE SMTN/E FALSE 7 4A G
'A'HZN~10cm, 'B'HZN ABSENT OR MAY BE MXD W/ 'C' BECAUSE OF PEBB, MED BRN.
S174 FALSE SMTN/E FALSE 7 4b G
NO 'B'HZN EVID & 'C' IS TOO COARSE. A DEEP 'A'HZN WAS SMPLED. BLK & MOD DRY, LOTS OF VEG.
S175 FALSE SMTN/E FALSE 7 4a G
'A'HZN~3cm, 'B'HZN~6cm, VERY FINE TEX, MNL AMT OF PEBB, SLIGHT RUST- BRN COLOR, FAIRLY DRY.
S176 FALSE SMTN/E FALSE 7 4a G
'A'HZN~20cm, NO 'B'HZN. COULD 'A' BE MXD W/ 'C'?
S177 FALSE SMTN FALSE 7 1 G
NO 'A'HZN, 'B'HZN~10cm, LIGHT BEIGE, ABNT OF VEG + SM PEBB, MOD DRY.
S178 FALSE SMTN FALSE 7 1 G
'A'HZN~5cm, 'B'HZN~8cm, MOD DRY, MED AMT OF VEG & PEBB.
S179 FALSE SMTN FALSE 7 1 G
'A'HZN~10cm, 'B'HZN~5cm, MOD WET, LIGHT BRN, MINOR PEBB, NO VEG.
S180 FALSE SMTN FALSE 7 6b G
'A'HZN~10cm, 'B'+'C'HZNS APPEAR INTMXD, TEX SAND>CLAY, MED BRN, MOD WET.

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S181  FALSE  SMTN                    FALSE  7              6b              G
        'A'HZN~1', 'B'HZN BOUNDRY INTMXD, VERY COURSE, MOD WET.
S182  FALSE  SMTN                    FALSE  7              6b              G
        'A'HZN~15cm, 'B'HZN~10cm, BUT APPEARS INTMXD W/ 'C'HZN. LIGHT BRN,     FAIRLY WET.
S183  FALSE  SMTN                    FALSE  7              6b              G
        'A'HZN~20cm, 'B'HZN~6cm, TEX CLAY>SAND, MOD DRY, MED TO DK BRN.
S184  FALSE  SMTN                    FALSE  7              6b              G
        'A'HZN~8cm, 'B'HZN~5cm, ABNT OF VEG, MED TO DK BRN, FAIRLY DRY.
S185  FALSE  SMTN                    FALSE  7              6b              G
        'A'HZN~10cm, 'B'HZN~1-2cm, LIGHT BEIGE, MOD DRY, MED AMT OF VEG & PEBB
S186  FALSE  SMTN                    FALSE  7              4b              G
        'A'HZN~10cm, NO 'B'HZN, 'C'HZN WAS TAKEN, DK BRN, MOD WET.
S187  FALSE  SMTN                    FALSE  7              6b              G
        'A'HZN~3cm, 'B'HZN~12cm, TEX CLAY>SAND, LIGHT TO MED BRN, MOD WET.
S188  FALSE  SMTN                    FALSE  7              6b              G
        'A'HZN~5cm, 'B'HZN~8cm, SL RUSTY BRN, MOD WET, TEXTURE SAND=CLAY
S189  FALSE  SMTN                    FALSE  7              6b              G
        'A'HZN~12cm, 'B'HZN~15cm, TEX CLAY>SAND, VERY WET, DK BEIGE.
S190  FALSE  SMTN                    FALSE  7              4b              G
        'A'+'B'HZNS~15cm EACH, TEX SAND>CLAY, MOD WET, SLIGHTLY RUSTY BRN
S191  FALSE  SMTN                    FALSE  7              1               G
        'A'HZN~15cm, 'B'HZN~5cm, TEX CLAY>SAND, MOD WET, DK BRN.
S192  FALSE  SMTN                    FALSE  7              1               G
        'A'HZN~2cm, 'B'HZN~6cm, TEX SAND>CLAY, LIGHT RBN, FAIR AMT OF PEBB &  VEG.
S193A FALSE  MR/N                    FALSE  6              1               G
        HUMUS SMPL, DK BRN, MOD DRY, ABNT OF VEG.
S193B FALSE  MR/N                    FALSE  6              1               G
        LIGHT TO RUSTY BRN, TEX CLAY>SAND, 1' THICK, FAIRLY WET.
S193C FALSE  MR/N                    FALSE  6              1               G
        LIGHT GREY, TEX SAND>CLAY, FAIRLY COURSE COMPARED TO THAT OF B.
S194A FALSE  MR/N                    FALSE  6              1               G
        2 'A'HZNS. 2nd ONE TAKEN AS SMPL. BLK IN COLOR. FAIRLY DRY, VERY      LITTLE VEG.
S194B FALSE  MR/N                    FALSE  6              1               G
        LIGHT TO RUSTY BRN, TEX CLAY>SAND, SECOND 'B' LAYER TAKEN MOD WET.
S194C FALSE  MR/N                    FALSE  6              1               G
        LIGHT BRN TO GREY, TEX CLAY>SAND, QTZ PEBB ABNT, COARSER THAN B.
S195A FALSE  MR/N                    FALSE  6              1               G
        A2--DK BRN TO BLK, MOD DRY, ,MNL AMT OF VEG.
S195B FALSE  MR/N                    FALSE  6              1               G
        VERY WET, TEX--CLAY>SAND, MED BRN, MNL AMT OF PEBB & VEG.
S196A FALSE  MR/N                    FALSE  6              1               G
        HUMUS SMPL, BLK W/ ABNT OF VEG, MOD DRY.
S196B FALSE  MR/N                    FALSE  6              1               G
        ~27'', MOD WET, TEX--SAND<CLAY, MED RBN TO SLIGHT RUSTY BRN.
S197A FALSE  MR/N                    FALSE  6              1               G
        ~2-3'', MOD DRY. MNL AMT OF VEG, DK BRN TO BLK.
S197B FALSE  MR/N                    FALSE  6              1               G
        ~6'' MED AMT OF PEBB + VEG, MED TO DK BRN, TEX--SAND>CLAY.
S197C FALSE  MR/N                    FALSE  6              1               G
        ~9'', LIGHT BRN, NO VEG, MOD DRY, MED AMT OF PEBB.
S198A FALSE  MR/N                    FALSE  11             6a              G
        HUMUS SMPL, VERY WET, DK BRN TO YEL BRN, ABNT OF VEG.
S198C FALSE  MR/N                    FALSE  11             6a              G
        ~22'', MED TO LIGHT GREY, TEX--CLAY>SAND, MOD WET.
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S199B FALSE MR/N FALSE 11 6a G
2-'B'HZNS, BOTH SMPLD LIGHT BRN, MOD WET, TEX--SAND>CLAY.
S200 FALSE NMTN/S FALSE N/A 6a G
'A'HZN<1cm, 'B'HZN~5cm, VERY DRY, TEX--SAND>CLAY, LIGHT BRN, MNL AMT OF PEBB & VEG.
S201 FALSE NMTN/S FALSE 3 6a G
AS ABOVE, EXCEPT THAT THERE IS MORE VEG IN THE 'B'HZN.
S202 FALSE NMTN/S FALSE 3 6a G
'A'HZN~2cm, 'B'HZN~8cm, VERY DRY, LIGHT BRN TO SLIGHT RUSTY BRN, TEX- SAND>CLAY.
S203 FALSE NMTN/S FALSE 3 6a G
ABNT VEG. NO 'A'HZN. 'B'HZN~6cm, VERY DRY, TEX--SAND>CLAY.
S204 FALSE NMTN/S FALSE 3 6a G
SAME AS ABOVE.
S205 FALSE NMTN/S FALSE 3 6a G
'A'HZN<1cm, 'B'HZN~10cm, VERY DRY, LIGHT BRN, MED AMT OF PEBB, BUT LITTLE VEG.
S206 FALSE NMTN/S FALSE CAT 6a G
'A'HZN<4cm, 'B'HZN~20cm, TEX--SAND<CLAY, VERY LIGHT BRN, ABNT OF VEG.
S207 FALSE NMTN/S FALSE CAT 6a G
NO 'A'HZN. 'B'HZN~12cm, VERY LIGHT BRN, MOD DRY, TEX--SAND>CLAY.
S208 FALSE NMTN/S FALSE CAT 6a G
'A'HZN~1cm, 'B'HZN~10cm, MOD DRY, TEX--SAND<CLAY, VERY LIGHT BRN.
S209 FALSE NMTN/S FALSE CAT 6a G
NO 'A'HZN. 'B'HZN~4cm, MOD DRY, VERY LIGHT BRN, TEX--SAND>CLAY.
S210 FALSE NMTN/S FALSE CAT 6a G
'A'HZN~2cm, 'B'HZN~5cm, MED BRN, MOD WET, TEX--SAND=CLAY.
S211 FALSE NMTN/S FALSE CAT 1 G
'A'HZN~4cm, 'B'HZN~4cm, MOD WET, MED TO LIGHT RUSTY BRN, TEX--SAND< CLAY.
S212 FALSE NMTN/S FALSE CAT 1 G
'A'HZN~4cm, 'B'HZN~15cm, MOD WET, MED TO DK BRN, TEX--SAND<CLAY.
S213 FALSE NMTN/S FALSE CAT 1 G
MNL 'A'HZN. 'B'HZN~15cm, MOD DRY, LIGHT TO MED BRN, TEX--SAND<CLAY.
S214 FALSE NMTN/S FALSE CAT 1 G
MNL 'A'HZN, 'B'HZN~10cm, MED BRN, TEX SAND=CLAY, MED AMT FO VEG, FAIR AMT PEBB.
S215 FALSE NMTN/S FALSE CAT 1 G
2'A'HZNS, 2'B'HZNS,TOTALLING 20cm, LOWER HZN TAKEN AS SMPL, VERY WET, MED BRN.
S216 FALSE NMTN/S FALSE CAT 1 G
NO 'A'HZN, JUST HUMUS. 'B'HZN~10cm, LIGHT BRN, TEX SAND<CLAY.
S217 FALSE NMTN/S FALSE CAT 1 G
NO 'A'HZN, JUST HUMUS. 'B'HZN~8cm, FAIRLY DRY, TEX--SAND=CLAY, LIGHT TO MED BRN.
S218 FALSE NMTN/S FALSE CAT 1 G
NO 'A'HZN. 'B'HZN QUESTIONABLE DUE TO PEBB CONTENT. MOD WET, MED BRN, TEX--SAND<CLAY.
S219 FALSE NMTN/S FALSE CAT 1 G
NO 'A'HZN. 'B'HZN~5cm, MOD DRY, DK BRN, TEX--SAND<CLAY
S220 FALSE NMTN/S FALSE CAT 1 G
'A'HZN~3cm, 'B'HZN~5cm, FAIRLY DRY, MED TO DK BRN, VERY PEBB.
S221 FALSE NMTN/S FALSE CAT 1 G
MNL 'A'HZN, 'B'HZN~7cm, MOD DRY, MED AMT OF PEBB, LIGHT TO MED BRN.
S222 FALSE NMTN/S FALSE 5 1 G
NO 'A'HZN. 'B'HZN~10cm, MED BRN, RELATIVELY DRY, NO PEBB OR VEG.
S223 FALSE NMTN/E FALSE N/A 3 G
NO 'A'HZN. 'B'HZN~8cm, VERY DRY, TEX--SAND>CLAY, LIGHT TO MED BRN.
S224 FALSE NMTN/E FALSE N/A 3 G
'A'HZN~2cm, 'B'HZN~4cm, DK BRN, MOD DRY, TEX--SAND=CLAY.
S225 FALSE NMTN/E FALSE N/A 3 G
NO 'A'HZN. 'B'HZN~7cm, LIGHT TO MED BRN, FAIRLY DRY, TEX--SAND<CLAY.

S226	FALSE	NMTN/S	FALSE	5	1	G
	MNL 'A'HZN. 'B'HZN~4cm, VERY PEBB & FULL OF VEG, MOD DRY, MED TO DK BRN.					
S227	FALSE	NMTN/S	FALSE	5	1	G
	NO 'A'HZN. 'B'HZN~5cm, TEX--SAND<CLAY, DK RED BRN, MOD DRY,					
S228	FALSE	NMTN/S	FALSE	5	1	G
	MNL 'A'HZN. B'BHZN~5cm, MED BRN, VERY DRY, TEX--SAND=CLAY.					
S229	FALSE	NMTN/S	FALSE	5	1	G
	MNL 'A'HZN. 'B'HZN~5cm, TEX--SAND>CLAY, LIGHT BRN, VERY DRY.					
S230	FALSE	NMTN/S	FALSE	5	1	G
	NO DEVELOPED 'A'HZN. 'B'HZN~7cm, MED BRN, TEX SAND<CLAY.					
S231	FALSE	NMTN/S	FALSE	5	2	G
	'A'HZN~2cm, 'B'HZN~7cm, MMED TO DK BRN, VERY DRY, TEX--SAND<CLAY.					
S232	FALSE	NMTN/S	FALSE	5	2	G
	'A'HZN~5cm, 'B'HZN~5cm, MED REDDISH BRN, QUITE DRY, TEX--SAND<CLAY.					
S233	FALSE	NMTN/S	FALSE	5	2	G
	'A'HZN~2cm, 'B'HZN~7cm, TEX--SAND<CLAY, MED BRN, VERY FINE & DRY.					
S234	FALSE	NMTN/E	FALSE	5	2	G
	'A'HZN<1cm, 'B'HZN~7cm, VERY DRY, LIGHT TO MED BRN, TEX--SAND<CLAY					
S235	FALSE	NMTN/E	FALSE	5	2	G
	'A'HZN~3cm, 'B'HZN~6cm, VERY DRY, MED BRN, TEX--SAND>CLAY.					
S236	FALSE	NMTN/E	FALSE	5	2	G
	MNL 'A'HZN. 'B'HZN~8cm, DK BRN,VERY DRY, TEX--SAND>CLAY..					
S237	FALSE	NMTN/E	FALSE	5	2	G
	NO DEVELOPED 'A'HZN, JUST HUMUS. NO 'B'HZN. 'C'HZN TAKEN, LIGHT BEIGE,NO VEG.					

CURRAGH RESOURCES
Serial no: 20320
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SAMPLE #	Au +100	Au -100	Au OZ/T	Au ppb	Ag ppm	Cu ppm	Pb ppm	As ppm	Sb ppm	Mo ppm	Zn ppm
S100	-1.000	-1.000	-1.000	47.0	.5	65.0	23.0	120.0	120.0	-1.0	-1.0
S101	-1.000	-1.000	-1.000	37.0	.6	43.0	20.0	100.0	140.0	-1.0	-1.0
S102	-1.000	-1.000	-1.000	69.0	1.0	78.0	37.0	360.0	240.0	-1.0	-1.0
S103	-1.000	-1.000	-1.000	117.0	2.0	131.0	112.0	2790.0	260.0	-1.0	-1.0
S104	-1.000	-1.000	-1.000	38.0	1.1	149.0	44.0	7020.0	390.0	-1.0	-1.0
S105	-1.000	-1.000	-1.000	44.0	1.1	189.0	61.0	3510.0	450.0	-1.0	-1.0
S106	-1.000	-1.000	-1.000	184.0	7.7	334.0	240.0	6800.0	340.0	-1.0	-1.0
S107	-1.000	-1.000	-1.000	33.0	2.1	176.0	259.0	3460.0	330.0	-1.0	-1.0
S108	-1.000	-1.000	-1.000	25.0	1.1	78.0	36.0	230.0	180.0	-1.0	-1.0
S109	-1.000	-1.000	-1.000	20.0	.9	41.0	34.0	220.0	230.0	-1.0	-1.0
S110	-1.000	-1.000	-1.000	19.0	.7	75.0	7.0	80.0	230.0	-1.0	-1.0
S111	-1.000	-1.000	-1.000	33.0	.9	94.0	12.0	110.0	250.0	-1.0	-1.0
S112	-1.000	-1.000	-1.000	18.0	.9	53.0	10.0	100.0	180.0	-1.0	-1.0
S113	-1.000	-1.000	-1.000	24.0	1.0	79.0	26.0	140.0	120.0	-1.0	-1.0
S114	-1.000	-1.000	-1.000	22.0	1.2	74.0	8.0	40.0	210.0	-1.0	-1.0
S115	-1.000	-1.000	-1.000	.0	2.6	154.0	329.0	4520.0	330.0	-1.0	-1.0
S116	-1.000	-1.000	-1.000	111.0	2.8	131.0	295.0	3740.0	320.0	-1.0	-1.0
S117	-1.000	-1.000	-1.000	51.0	.9	54.0	54.0	1580.0	210.0	-1.0	-1.0
S118	-1.000	-1.000	-1.000	13.0	.7	35.0	28.0	770.0	120.0	-1.0	-1.0
S119	-1.000	-1.000	-1.000	36.0	.9	35.0	37.0	250.0	100.0	-1.0	-1.0
S120	-1.000	-1.000	-1.000	21.0	.8	33.0	19.0	190.0	160.0	-1.0	-1.0
S121	-1.000	-1.000	-1.000	24.0	.4	34.0	24.0	260.0	190.0	-1.0	-1.0
S122	-1.000	-1.000	-1.000	56.0	1.1	36.0	113.0	1010.0	180.0	-1.0	-1.0
S123	-1.000	-1.000	-1.000	10.0	.7	30.0	44.0	590.0	110.0	-1.0	-1.0
S124	-1.000	-1.000	-1.000	43.0	.3	20.0	73.0	290.0	50.0	-1.0	-1.0
S125	-1.000	-1.000	-1.000	49.0	.5	21.0	40.0	440.0	80.0	-1.0	-1.0
S126	-1.000	-1.000	-1.000	49.0	.0	19.0	24.0	480.0	100.0	-1.0	-1.0
S127	-1.000	-1.000	-1.000	47.0	.1	70.0	35.0	600.0	80.0	-1.0	-1.0
S128	-1.000	-1.000	-1.000	55.0	1.1	72.0	29.0	740.0	40.0	-1.0	-1.0
S129	-1.000	-1.000	-1.000	37.0	1.2	111.0	163.0	1010.0	80.0	-1.0	-1.0
S130	-1.000	-1.000	-1.000	68.0	1.6	33.0	29.0	1480.0	80.0	-1.0	-1.0
S131	-1.000	-1.000	-1.000	145.0	1.1	68.0	49.0	2600.0	60.0	-1.0	-1.0
S132	-1.000	-1.000	-1.000	82.0	.6	35.0	11.0	410.0	70.0	-1.0	-1.0
S133	-1.000	-1.000	-1.000	78.0	.5	38.0	25.0	720.0	80.0	-1.0	-1.0
S134	-1.000	-1.000	-1.000	34.0	1.0	80.0	43.0	990.0	220.0	-1.0	-1.0
S135	-1.000	-1.000	-1.000	48.0	.7	97.0	48.0	1110.0	310.0	-1.0	-1.0
S136	-1.000	-1.000	-1.000	25.0	1.3	96.0	44.0	1060.0	320.0	-1.0	-1.0
S137	-1.000	-1.000	-1.000	42.0	.6	117.0	32.0	1090.0	350.0	-1.0	-1.0
S138	-1.000	-1.000	-1.000	57.0	1.1	145.0	28.0	730.0	300.0	-1.0	-1.0
S139	-1.000	-1.000	-1.000	32.0	.7	78.0	12.0	720.0	250.0	-1.0	-1.0
S140	-1.000	-1.000	-1.000	51.0	.8	98.0	39.0	3100.0	270.0	-1.0	-1.0
S141	-1.000	-1.000	-1.000	35.0	1.3	99.0	56.0	1200.0	280.0	-1.0	-1.0
S142	-1.000	-1.000	-1.000	31.0	.8	40.0	30.0	50.0	190.0	-1.0	-1.0
S143	-1.000	-1.000	-1.000	45.0	.9	142.0	45.0	60.0	120.0	-1.0	-1.0
S144	-1.000	-1.000	-1.000	48.0	.9	126.0	54.0	490.0	350.0	-1.0	-1.0
S145	-1.000	-1.000	-1.000	61.0	1.1	90.0	87.0	2330.0	320.0	-1.0	-1.0
S146	-1.000	-1.000	-1.000	59.0	1.5	66.0	349.0	1630.0	330.0	-1.0	-1.0
S147	-1.000	-1.000	-1.000	47.0	1.4	84.0	241.0	1210.0	290.0	-1.0	-1.0
S148	-1.000	-1.000	-1.000	39.0	1.3	31.0	36.0	250.0	160.0	-1.0	-1.0
S149	-1.000	-1.000	-1.000	47.0	.7	10.0	26.0	200.0	150.0	-1.0	-1.0
S150	-1.000	-1.000	-1.000	39.0	1.2	29.0	42.0	170.0	140.0	-1.0	-1.0
S151	-1.000	-1.000	-1.000	42.0	.8	39.0	47.0	240.0	130.0	-1.0	-1.0
S152	-1.000	-1.000	-1.000	35.0	.7	22.0	20.0	30.0	160.0	-1.0	-1.0
S153	-1.000	-1.000	-1.000	44.0	.5	25.0	32.0	40.0	180.0	-1.0	-1.0

S154	-1.000	-1.000	-1.000	21.0	.9	18.0	33.0	60.0	190.0	-1.0	-1.0
S155	-1.000	-1.000	-1.000	45.0	1.2	22.0	26.0	40.0	160.0	-1.0	-1.0
S156	-1.000	-1.000	-1.000	49.0	.8	34.0	57.0	110.0	180.0	-1.0	-1.0
S157	-1.000	-1.000	-1.000	46.0	.7	26.0	43.0	180.0	190.0	-1.0	-1.0
S158	-1.000	-1.000	-1.000	41.0	.4	27.0	35.0	210.0	140.0	-1.0	-1.0
S159	-1.000	-1.000	-1.000	30.0	.0	19.0	45.0	70.0	130.0	-1.0	-1.0
S160	-1.000	-1.000	-1.000	36.0	1.2	29.0	25.0	110.0	240.0	-1.0	-1.0
S161	-1.000	-1.000	-1.000	51.0	1.2	39.0	55.0	130.0	160.0	-1.0	-1.0
S162	-1.000	-1.000	-1.000	33.0	1.6	29.0	6.0	100.0	130.0	-1.0	-1.0
S163	-1.000	-1.000	-1.000	44.0	1.9	33.0	19.0	150.0	70.0	-1.0	-1.0
S164	-1.000	-1.000	-1.000	37.0	1.9	31.0	27.0	170.0	120.0	-1.0	-1.0
S165	-1.000	-1.000	-1.000	30.0	1.1	28.0	18.0	190.0	30.0	-1.0	-1.0
S166	-1.000	-1.000	-1.000	40.0	1.4	25.0	18.0	170.0	40.0	-1.0	-1.0
S167	-1.000	-1.000	-1.000	40.0	1.7	28.0	23.0	140.0	150.0	-1.0	-1.0
S168	-1.000	-1.000	-1.000	31.0	1.1	20.0	15.0	100.0	130.0	-1.0	-1.0
S169	-1.000	-1.000	-1.000	37.0	1.2	34.0	16.0	170.0	260.0	-1.0	-1.0
S170	-1.000	-1.000	-1.000	34.0	.9	33.0	13.0	130.0	200.0	-1.0	-1.0
S171	-1.000	-1.000	-1.000	28.0	1.2	34.0	4.0	100.0	170.0	-1.0	-1.0
S172	-1.000	-1.000	-1.000	38.0	.9	27.0	13.0	260.0	80.0	-1.0	-1.0
S173	-1.000	-1.000	-1.000	32.0	.3	30.0	2.0	250.0	80.0	-1.0	-1.0
S174	-1.000	-1.000	-1.000	25.0	1.0	14.0	18.0	110.0	70.0	-1.0	-1.0
S175	-1.000	-1.000	-1.000	36.0	.2	8.0	30.0	260.0	60.0	-1.0	-1.0
S176	-1.000	-1.000	-1.000	39.0	2.2	2.0	31.0	.0	100.0	-1.0	-1.0
S177	-1.000	-1.000	-1.000	43.0	1.7	12.0	59.0	40.0	100.0	-1.0	-1.0
S178	-1.000	-1.000	-1.000	55.0	.9	22.0	52.0	190.0	120.0	-1.0	-1.0
S179	-1.000	-1.000	-1.000	52.0	.6	6.0	24.0	310.0	70.0	-1.0	-1.0
S180	-1.000	-1.000	-1.000	54.0	1.3	11.0	15.0	20.0	80.0	-1.0	-1.0
S181	-1.000	-1.000	-1.000	66.0	.0	.0	21.0	.0	40.0	-1.0	-1.0
S182	-1.000	-1.000	-1.000	14.0	.6	5.0	85.0	.0	70.0	-1.0	-1.0
S183	-1.000	-1.000	-1.000	50.0	.5	23.0	69.0	230.0	90.0	-1.0	-1.0
S184	-1.000	-1.000	-1.000	46.0	2.0	51.0	26.0	230.0	110.0	-1.0	-1.0
S185	-1.000	-1.000	-1.000	28.0	2.2	7.0	38.0	1380.0	130.0	-1.0	-1.0
S186	-1.000	-1.000	-1.000	12.0	1.9	.0	27.0	.0	100.0	-1.0	-1.0
S187	-1.000	-1.000	-1.000	22.0	1.7	.0	65.0	.0	130.0	-1.0	-1.0
S188	-1.000	-1.000	-1.000	20.0	2.3	6.0	15.0	.0	60.0	-1.0	-1.0
S189	-1.000	-1.000	-1.000	22.0	.4	4.0	37.0	.0	80.0	-1.0	-1.0
S190	-1.000	-1.000	-1.000	17.0	1.1	4.0	5.0	100.0	50.0	-1.0	-1.0
S191	-1.000	-1.000	-1.000	23.0	.9	6.0	31.0	130.0	60.0	-1.0	-1.0
S192	-1.000	-1.000	-1.000	13.0	.7	.0	5.0	50.0	110.0	-1.0	-1.0
S193A	-1.000	-1.000	-1.000	.0	.3	8.0	7.0	55.0	.0	-1.0	-1.0
S193B	-1.000	-1.000	-1.000	62.0	.6	20.0	26.0	90.0	20.0	-1.0	-1.0
S193C	-1.000	-1.000	-1.000	38.0	1.4	18.0	30.0	.0	30.0	-1.0	-1.0
S194A	-1.000	-1.000	-1.000	107.0	1.1	37.0	31.0	90.0	10.0	-1.0	-1.0
S194B	-1.000	-1.000	-1.000	62.0	.5	40.0	29.0	100.0	20.0	-1.0	-1.0
S194C	-1.000	-1.000	-1.000	47.0	.6	61.0	40.0	80.0	20.0	-1.0	-1.0
S195A	-1.000	-1.000	-1.000	66.0	.3	81.0	99.0	930.0	20.0	-1.0	-1.0
S195B	-1.000	-1.000	-1.000	79.0	.0	96.0	69.0	950.0	20.0	-1.0	-1.0
S196A	-1.000	-1.000	-1.000	38.0	.4	43.0	37.0	1001.0	21.0	-1.0	-1.0
S196B	-1.000	-1.000	-1.000	165.0	.2	88.0	83.0	1420.0	10.0	-1.0	-1.0
S197A	-1.000	-1.000	-1.000	263.0	1.3	51.0	43.0	300.0	10.0	-1.0	-1.0
S197B	-1.000	-1.000	-1.000	126.0	2.7	47.0	43.0	720.0	.0	-1.0	-1.0
S197C	-1.000	-1.000	-1.000	13.0	.8	33.0	27.0	820.0	.0	-1.0	-1.0
S198A	-1.000	-1.000	-1.000	.0	.1	18.0	12.0	70.0	7.0	-1.0	-1.0
S198C	-1.000	-1.000	-1.000	34.0	1.0	17.0	17.0	130.0	10.0	-1.0	-1.0

S199B	-1.000	-1.000	-1.000	38.0	.9	20.0	16.0	410.0	.0	-1.0	-1.0
S200	-1.000	-1.000	-1.000	19.0	3.9	57.0	62.0	.0	30.0	38.0	-1.0
S201	-1.000	-1.000	-1.000	9.0	5.9	57.0	116.0	140.0	50.0	44.0	-1.0
S202	-1.000	-1.000	-1.000	12.0	6.0	60.0	20.0	10.0	80.0	36.0	-1.0
S203	-1.000	-1.000	-1.000	17.0	4.5	149.0	35.0	20.0	60.0	39.0	-1.0
S204	-1.000	-1.000	-1.000	6.0	2.0	67.0	34.0	.0	30.0	34.0	-1.0
S205	-1.000	-1.000	-1.000	22.0	5.1	164.0	39.0	690.0	50.0	36.0	-1.0
S206	-1.000	-1.000	-1.000	27.0	3.9	110.0	33.0	590.0	40.0	32.0	-1.0
S207	-1.000	-1.000	-1.000	9.0	1.8	103.0	28.0	350.0	50.0	31.0	-1.0
S208	-1.000	-1.000	-1.000	14.0	4.9	129.0	30.0	220.0	30.0	31.0	-1.0
S209	-1.000	-1.000	-1.000	14.0	5.3	114.0	157.0	30.0	50.0	68.0	-1.0
S210	-1.000	-1.000	-1.000	41.0	5.7	151.0	58.0	320.0	40.0	44.0	-1.0
S211	-1.000	-1.000	-1.000	7.0	5.7	118.0	41.0	1140.0	40.0	59.0	-1.0
S212	-1.000	-1.000	-1.000	28.0	2.7	375.0	99.0	220.0	20.0	25.0	-1.0
S213	-1.000	-1.000	-1.000	22.0	5.0	193.0	25.0	30.0	50.0	32.0	-1.0
S214	-1.000	-1.000	-1.000	12.0	4.0	147.0	46.0	10.0	20.0	46.0	-1.0
S215	-1.000	-1.000	-1.000	12.0	4.6	323.0	15.0	250.0	30.0	43.0	-1.0
S216	-1.000	-1.000	-1.000	10.0	4.4	247.0	7.0	300.0	40.0	32.0	-1.0
S217	-1.000	-1.000	-1.000	9.0	4.2	218.0	21.0	250.0	30.0	36.0	-1.0
S218	-1.000	-1.000	-1.000	11.0	3.2	164.0	29.0	200.0	30.0	34.0	-1.0
S219	-1.000	-1.000	-1.000	14.0	6.7	315.0	37.0	220.0	20.0	38.0	-1.0
S220	-1.000	-1.000	-1.000	.0	4.2	98.0	26.0	230.0	30.0	36.0	-1.0
S221	-1.000	-1.000	-1.000	17.0	6.0	154.0	56.0	570.0	50.0	28.0	-1.0
S222	-1.000	-1.000	-1.000	18.0	4.4	142.0	124.0	340.0	20.0	12.0	-1.0
S223	-1.000	-1.000	-1.000	6.0	3.2	60.0	43.0	80.0	40.0	24.0	-1.0
S224	-1.000	-1.000	-1.000	33.0	1.3	49.0	29.0	.0	30.0	7.0	-1.0
S225	-1.000	-1.000	-1.000	56.0	3.4	45.0	33.0	.0	40.0	4.0	-1.0
S226	-1.000	-1.000	-1.000	21.0	3.2	241.0	92.0	710.0	30.0	.0	-1.0
S227	-1.000	-1.000	-1.000	13.0	1.1	293.0	38.0	480.0	30.0	14.0	-1.0
S228	-1.000	-1.000	-1.000	22.0	1.6	128.0	79.0	440.0	30.0	.0	-1.0
S229	-1.000	-1.000	-1.000	32.0	1.7	128.0	55.0	20.0	40.0	8.0	-1.0
S230	-1.000	-1.000	-1.000	33.0	3.4	220.0	63.0	760.0	40.0	.0	-1.0
S231	-1.000	-1.000	-1.000	14.0	1.4	145.0	88.0	210.0	20.0	17.0	-1.0
S232	-1.000	-1.000	-1.000	18.0	1.1	147.0	53.0	160.0	20.0	8.0	-1.0
S233	-1.000	-1.000	-1.000	.0	1.3	240.0	43.0	80.0	40.0	16.0	-1.0
S234	-1.000	-1.000	-1.000	16.0	1.9	134.0	55.0	90.0	30.0	8.0	-1.0
S235	-1.000	-1.000	-1.000	14.0	1.3	138.0	30.0	20.0	70.0	41.0	-1.0
S236	-1.000	-1.000	-1.000	20.0	2.7	72.0	46.0	160.0	40.0	32.0	-1.0
S237	-1.000	-1.000	-1.000	33.0	1.6	95.0	34.0	50.0	40.0	34.0	-1.0

Northern Analytical Laboratories ltd.

SAMPLE PREPARATION

Soils

Incoming soils are sorted, counted and logged. The soils are placed in an oven devoted to geochem and dried at 150 F.

When soils are dry, they are sieved through an 80 mesh screen. If 20g of -80 # soil is not obtained, the +80 # is then sieved through a 40 # sieve and placed in a separate bag. The reject is stored in its´ origional bag.

Rocks

Incoming rocks are sorted, counted and logged. Rocks are first crushed through a jaw crusher set at 1/2" gap and then crushed through a 1/8" gap.

The crushed sample is split using a Jones Riffle until a 250g sample is obtained. The reject is placed in its´ origional bag and stored.

The sample is then dried at 150 F and pulverized to -150 # using a ring pulverizer.

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ATOMIC ABSORPTION ANALYSIS

Geochem Digestion [Trace Level Analysis]

0.500g of sample is weighed into a 16 x 150 mm test tube. 2 mls of 1:1 Nitric Acid is added and the test tube is placed in a hot water bath for 20 minutes. 3 ml of HCl is added and the sample is heated for 40 minutes. When digestion is completed, the sample is cooled in a cold water bath. The test tube is then bulked to 10 mls using a reference, stirred and allowed to settle. The sample is now ready to run on the A.A.

For ICP the sample is digested in one step using 5 mls of 3 parts HCl, 1 Part Nitric Acid and 2 parts water and heated for one hour in a hot water bath.

Assay Digestion [Ore Level Analysis]

1.000g of sample is weighed into a class A 100 ml volumetric flask. 5 mls of Nitric Acid is added and the flask is placed on a 400 F hot plate until the red fumes indicating reaction subside. 20 mls of water* and 10 mls of HCL are added and placed on the hot plate for 5 minutes. The flask is then bulked to the neck with water and brought to a boil. The flask is then cooled, bulked to the mark, shaken and allowed to settle prior to running on the A.A.

* Some elements require special treatment. For example, Sb requires 20 mls 10% Tartaric acid.

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TRACE LEVEL GOLD FIRE ASSAY

15g of sample is mixed with a suitable flux in a 30g crucible, inquarted with 2 mg Ag and fused at 1900 F. The contents of the crucible is poured into a mold and allowed to cool. The slag is broken off and discarded. The lead button is then pounded into a cube.

The lead button is placed into a bone ash cupel which has been preheated to 1800 F. When the lead is completely molten, the temperature is dropped to 1750 F. The dampers are opened to allow air inside the furnace. When cupelation is complete, the cupel is taken out and allowed to cool.

The silver-gold prill is picked out of the cupel and dropped into a 16 x 150 mm test tube. 2 mls of 1:1 Nitric Acid is added and the test tube is heated to dissolve the silver. 3 mls of HCl is then added to dissolve the gold. The test tube is made up to 10 mls using a reference, mixed and run on the A.A.

ORE GRADE GOLD FIRE ASSAY

The furnace procedure is identical to the above method except that 30g or one Assay Ton of sample is usually weighed.

The resulting silver-gold prill is picked out of the cupel and hammered flat and dropped into a porcelein crucible. 1:9 Nitric acid is added and the crucible is placed on a 250 F hot plate until all the silver is dissolved. Some Conc. Nitric is added to ensure complete dissolution of the silver. The Silver Nitrate solution is decanted off and the gold is washed three times with D.I. water. The crucible is then replaced on the hot plate to dry.

The gold is annealed using a propane torch and allowed to cool to room temperature. The gold is now weighed on a micro-balance to one microgram. After calculations, oz/t or g/t gold is reported.

FREE GOLD FIRE ASSAY

Free or metallic gold in the origional sample pulp is screened off using a 100 mesh sieve. The -100 mesh pulp is assayed as above for ore grade gold fire assay. The entire +100 mesh fraction is fire assayed and the metallic gold is weighed. the result is a calculated weighted average with both the + and -100 mesh assays reported.

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BONDAR-CLEGG

Geochemical Lab Report

REPORT: V89-04363.0 (COMPLETE)

REFERENCE INFO:

CLIENT: CURRAGH RESOURCES CORP.
PROJECT: CATFISH

SUBMITTED BY: J. DAVIS
DATE PRINTED: 31-AUG-89

ORDER		ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	AU	GOLD - FIRE ASSAY	3	5 PPB	FIRE-ASSAY	FIRE ASSAY AA
2	AG	SILVER	3	0.1 PPM	HNO3-HCL HOT EXTR	ATOMIC ABSORPTION
3	CU	COPPER	3	1 PPM	HNO3-HCL HOT EXTR	ATOMIC ABSORPTION
4	AS	ARSENIC	3	0.5 PPM	HNO3-HCL HOT EXTR	HYDRIDE-AAS
5	PB	LEAD	3	2 PPM	HNO3-HCL HOT EXTR	ATOMIC ABSORPTION
6	SB	ANTIMONY	3	2 PPM		X-RAY FLUORESCENCE

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
0 ORGANIC OR HUMUS	3	2 -150	3	SIEVE -10	3
				PULVERIZING	3
				FAX CHARGE	1

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INVOICE TO: MS. JANET NYBERG

APPENDIX II
GEOCHEMICAL SURVEY: ROCK AND SOIL
LIST OF ABBREVIATIONS

AA	AS ABOVE
ABNT	ABUNDANT
ABST	ABSENT
ACIC	ACICULAR
ACT	ACTINOLITE
AGGL	AGGLOMERATE
ALT	ALTERATION
AMPH	AMPHIBOLITE
AMT	AMOUNT
ANH	ANHEDRAL
APH	APHANITIC
APL	APLITE
AREN	ARENITE
ARG	ARGILLITE/ACEOUS
ARK	ARKOSE
ASP	ARSENOPYRITE
	APPROXIMATELY
BDD	BANDED
BIO	BIOTITE
BL	BLUE
BLK	BLACK
BORN	BORNITE
BREC	BRECCIA
BRN	BROWN
BTW	BETWEEN
C	COARSE (LY)
CC	CALCITE
CALC	CALCAREOUS
CARB	CARBONACEOUS
CGL	CONGLOMERATE
CHL	CHLORITE (IC)
CI	COLOR INDEX
CM	CENTIMETRES
COM	COMMON
CPX	CRYPTOCRYSTALLINE
CPY	CHALCOPYRITE
CR	COLOR
CREN	CRENULATED
CRM	CREAM
CU	COPPER
DEV	DEVELOPED
DISM	DISSEMINATED
DIOR	DIORITE
DK	DARK
DSTN	DISTINCTION
E	EAST
EVID	EVIDENT

EP	EPIDOTE
EUH	EUHEDRAL
EXT	EXTREMELY
F	FELDSPAR (SPATHIC)/OR FINE
FE	IRON
FEL	FELSIC
FIB	FIBROUS
FISS	FISSILE
FOL	FOLIATION
FRAC	FRACTURE (S)
FRAG	FRAGMENTS
GAL	GALENA
GD	GRANODIORITE
GN	GREEN
GR	GRAINED
GRAN	GRANITE
GWACKE	GREYWACKE
GY	GREY
HB	HORNBLENDE
HEM	HEMATITE
HRL	HAIRLINE
HZN	HORIZON
INCL	INCLUDING
INF	INFILLING
INJ	INJECTION
INTBD	INTERBEDDED
INTMXD	INTERMIXED
INTR	INTRUSIVE
IRR	IRREGULAR
JTS	JOINTS
K	POTASSIC
L	LINE
LAM	LAMINAE
LAP	LAPILLI
LGE	LARGE
LIM	LIMONITE
LS	LIMESTONE
LT	LIGHT

M	MEDIUM
MAF	MAFIC (S)
MAR	MAROON
MASS	MASSIVE
MGD	MESOZOIC GRANODIORITE
MIN	MINERALIZED
MINM	MINIMUM
MM	MILLIMETRE
MNL	MINIMAL
MNR	MINOR
MO	MOLYBDENITE
MOD	MODERATELY
MONZ	MONZONITE
MOTT	MOTTLED
MR	MIDDLE RIDGE
MTN	MOUNTAIN
MUSC	MUSCOVITE
MX	MICROCRYSTALLINE
MXD	MIXED
N	NORTH
NORM	NORMAL
OR	ORANGE
OX	OXIDIZED
P	PORPHYRY
PEB	PEBBLES
PFL	PROFILE
PHENO	PHENORYSTS
PLAG	PLAGIOCLASE
POOR	POORLY
PORPH	PORPHYROBLASTS
POSS	POSSIBLE
PP	PIN POINT
PPM	PRE-PERMIAN METAMORPHICS
PROB	PROBABLY
PROTO	PROTOLITH
PURP	PURPLE
PX	PYROXENE
PY	PYRITE
Q	QUARTZ
QAV	QUARTZ-ARSENOPYRITE VEIN
QV	QUARTZ VEIN
RR	RARE
REXL	RECRYSTALLIZATION
RTS	ROOTS
RX	ROCK (S)

S	SOUTH
SCORO	SCORODITE
SED	SEDIMENTARY
SEG	SEGREGATION
SER	SERICITE
SHRD	SHEARED
SIL	SILICIFIED
SILTY	SILTY
SL	SLIGHTLY
SM	SMALL
SMPL	SAMPLE
SND	SAND
SPH	SPHALERITE
SS	SANDSTONE
STN	STAIN
STUH	STUHINI
SUCR	SUCROSIC
SUL	SULPHIDES
SUR	SURFACE (S)
TEX	TEXTURE
TR	TRACE
TWIN	TWINNED
TYP	TYPICAL
V	VEINS/VERY
VAR	VARIEGATED
VEG	VEGETATION
VIS	VISIBLE
VLETS	VEINLETS
VOLC	VOLCANIC
W	WEST/OR WITH
WEATH	WEATHERED
WH	WHITE
WK	WEAR
X-CUTS	CROSS CUTTING
XL	CRYSTALLINE
YEL	YELLOW

APPENDIX III

LIST OF PERSONNEL

APPENDIX III
LIST OF PERSONNEL

J.H. Davis, P.Geol., Consultant	@	$200/day	133
R. Scheele, Junior Geologist	@	$100/day	64
G. Grubisa, Junior Geologist	@	$100/day	64
G. McAdam, Senior Prospector	@	$115/day	5

APPENDIX IV

RAW STRUCTURE DATA FOR STEREONET PLOTS

RAW STRUCTURE DATA FOR STEREONET PLOTS

FOLIATION DATA

N=90

1 - 110 , 80 , W , 15706
2 - 139 , 80 , E , 15706
3 - 146 , 74 , W , 15601
4 - 140 , 78 , W , 15356
5 - 160 , 70 , W , 15358
6 - 140 , 63 , W , 15359
7 - 168 , 83 , W , 15401
8 - 158 , 71 , W , 15402
9 - 172 , 71 , W , 15406
10 - 158 , 59 , W , 15406
11 - 166 , 82 , W , 15409
12 - 007 , 87 , E , 15417
13 - 173 , 87 , E , 15418
14 - 136 , 90 , W , 15391
15 - 142 , 69 , W , 15729
16 - 136 , 45 , W , 15736
17 - 133 , 62 , S , 15736
18 - 140 , 50 , W , 15739
19 - 164 , 85 , W , 15482
20 - 155 , 69 , E , 15770
21 - 146 , 80 , W , 15762
22 - 134 , 17 , S , 15809
23 - 159 , 45 , W , 15809
24 - 129 , 47 , W , 15820
25 - 154 , 47 , W , 0061
26 - 144 , 58 , W , 0061
27 - 126 , 47 , S , 0062
28 - 168 , 72 , E , 0073
29 - 048 , 49 , S , 0076
30 - 007 , 75 , W , 0077
31 - 169 , 64 , E , 0105
32 - 141 , 55 , E , 0105
33 - 143 , 87 , E , 0106
34 - 124 , 65 , S , 0108
35 - 160 , 53 , W , 0108
36 - 010 , 72 , W , 0111
37 - 170 , 40 , E , 0078
38 - 179 , 55 , E , 0080
39 - 085 , 77 , S , 0080
40 - 006 , 86 , E , S217
41 - 177 , 59 , E , 0114
42 - 020 , 67 , E , 0115
43 - 016 , 78 , E , 0116
44 - 001 , 90 , E , 0117
45 - 167 , 75 , E , 0119
46 - 170 , 76 , E , 0119
47 - 165 , 73 , E , 0120
48 - 146 , 80 , W , 0124
49 - 165 , 80 , E , 0126
50 - 014 , 90 , E , 0126
51 - 000 , 89 , E , 0126
52 - 159 , 74 , E , 0127
53 - 146 , 80 , E , 0129
54 - 175 , 81 , W , 0143
55 - 170 , 77 , E , 0144
56 - 175 , 88 , E , 0147
57 - 172 , 85 , E , 15720
58 - 138 , 79 , W , 15751
59 - 136 , 82 , E , 15752
60 - 165 , 48 , W , 15782
61 - 010 , 52 , W , 15778
62 - 141 , 79 , W , 15796
63 - 141 , 56 , W , 15821
64 - 172 , 55 , W , 15829
65 - 015 , 64 , E , S216
66 - 156 , 48 , W , 0161
67 - 027 , 86 , E , 0162
68 - 020 , 86 , E , 0163
69 - 168 , 60 , E , 0164
70 - 169 , 85 , E , 0165
71 - 007 , 45 , E , 0174
72 - 172 , 64 , E , PCK
73 - 142 , 80 , E , 15707
74 - 155 , 75 , E , 15708
75 - 174 , 73 , E , 15376
76 - 140 , 78 , E , 15390
77 - 142 , 90 , E , 15752
78 - 140 , 52 , W , 15783
79 - 170 , 50 , W , 15790
80 - 168 , 87 , W , 15800
81 - 166 , 82 , E , 15606
82 - 160 , 65 , E , 0153
83 - 130 , 61 , S , 0063
84 - 155 , 61 , E , 0084
85 - 170 , 55 , E , 0085
86 - 170 , 58 , E , 0086
87 - 150 , 70 , E , 0088
88 - 167 , 75 , E , 0091
89 - 175 , 79 , E , 0092
90 - 170 , 39 , E , 0099

APPENDIX IV

RAW STRUCTURE DATA FOR STEREONET PLOTS

BEDDING DATA

N=10

1 - 010 , 75 , W , 15701
2 - 112 , 60 , S , 15601
3 - 099 , 42 , S , 15352
4 - 046 , 72 , N , 15358
5 - 021 , 56 , E , 15404
6 - 118 , 68 , S , 15739
7 - 100 , 59 , S , S172
8 - 122 , 48 , S , 15397
9 - 100 , 43 , S , 15397
10 - 120 , 32 , S , 15398

APPENDIX IV

RAW STRUCTURE DATA FOR STEREONET PLOTS

JOINT DATA

N=44

1 - 051 , 88 , N , 15601
2 - 177 , 85 , W , 15601
3 - 012 , 72 , W , 15601
4 - 036 , 60 , E , 15352
5 - 171 , 46 , E , 15352
6 - 044 , 33 , W , 15354
7 - 115 , 90 , S , 15354
8 - 066 , 80 , S , 15417
9 - 071 , 68 , N , 15392
10 - 055 , 78 , N , 15731
11 - 062 , 85 , S , 15806
12 - 074 , 73 , S , 0132
13 - 178 , 77 , W , 0132
14 - 121 , 70 , N , 0138
15 - 053 , 81 , S , 0139
16 - 076 , 72 , S , 0141
17 - 135 , 65 , E , 0141
18 - 043 , 80 , E , 0144
19 - 078 , 88 , N , 0150
20 - 137 , 74 , E , 0186
21 - 008 , 42 , E , 0186
22 - 065 , 71 , S , 0188
23 - 030 , 76 , E , 0195
24 - 163 , 80 , E , 0195
25 - 114 , 72 , N , 0195
26 - 144 , 83 , E , 0199
27 - 073 , 80 , S , 0231
28 - 139 , 49 , E , 0231
29 - 180 , 44 , W , 0231
30 - 175 , 86 , E , 0178
31 - 095 , 82 , S , 0178
32 - 030 , 50 , E , 0179
33 - 094 , 77 , S , 0179
34 - 161 , 80 , E , 0182
35 - 085 , 85 , S , 0182
36 - 044 , 86 , W , 15364
37 - 000 , 71 , E , 15364
38 - 070 , 85 , S , 15396
39 - 170 , 75 , W , 0210
40 - 090 , 80 , S , 0210
41 - 096 , 88 , S , 0216
42 - 172 , 88 , E , 0216
43 - 105 , 76 , S , 0217
44 - 095 , 76 , S , 0219

APPENDIX IV

RAW STRUCTURE DATA FOR STEREONET PLOTS

VEIN DATA

N=57

1 - 078 , 84 , S , L125S
2 - 062 , 78 , S , SGRID
3 - 073 , 85 , S , SGRID
4 - 097 , 77 , S , 15455
5 - 078 , 84 , S , SGRID
6 - 045 , 90 , E , 15724
7 - 052 , 76 , S , 15808
8 - 058 , 85 , N , 15817
9 - 060 , 90 , S , 0102
10 - 109 , 69 , N , 0074
11 - 003 , 66 , E , 0078
12 - 074 , 74 , S , 0079
13 - 074 , 90 , S , 0079
14 - 083 , 76 , S , 0134
15 - 070 , 77 , S , 0135
16 - 074 , 80 , S , 0137
17 - 053 , 81 , S , 0139
18 - 053 , 80 , S , 0139
19 - 053 , 82 , S , 0139
20 - 016 , 59 , E , 0145
21 - 043 , 78 , W , 0148
22 - 070 , 90 , S , 0185
23 - 080 , 90 , S , 0186
24 - 070 , 90 , S , 0189
25 - 069 , 90 , S , 0189
26 - 071 , 90 , S , 0189
27 - 065 , 60 , S , 0197
28 - 144 , 85 , E , 0200
29 - 135 , 71 , E , 0230
30 - 073 , 90 , N , 0232
31 - 098 , 86 , S , L25S
32 - 016 , 68 , E , L100S
33 - 084 , 54 , S , L100S
34 - 045 , 90 , S , 15724
35 - 014 , 71 , W , 15726
36 - 030 , 65 , E , 15752
37 - 040 , 58 , W , 15797
38 - 090 , 74 , S , 15798
39 - 103 , 60 , S , 15823
40 - 076 , 66 , S , 15828
41 - 068 , 72 , S , 0056
42 - 107 , 67 , S , 0172
43 - 082 , 70 , S , 0175
44 - 108 , 64 , S , 0177
45 - 100 , 73 , S , 0181
46 - 090 , 82 , S , 15372
47 - 153 , 74 , E , L75S
48 - 073 , 85 , S , 15460
49 - 076 , 78 , S , 15461
50 - 095 , 90 , S , 0089
51 - 080 , 76 , S , 0098
52 - 104 , 80 , S , 0206
53 - 043 , 75 , E , 0208
54 - 032 , 75 , E , 0208
55 - 090 , 85 , S , 0211
56 - 100 , 72 , S , 0213
57 - 085 , 76 , S , 0218

APPENDIX V

VANCOUVER PETROGRAPHICS LTD. REPORT

Vancouver Petrographics Ltd.

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Invoice 8394

September 6th, 1989

Samples:

20 rock samples from the Catfish Project, for sectioning and petrographic study.

Samples are numbered as follows:

42	15359
0067	15405
0107	15408
0110	15410
0122	15411
0124	15413
0127	15421
0128	15730/S
0129	15731
0130	15733

Samples 0107, 0124, 0127, 0128 and 0129 were prepared as polished thin sections. The remainder were prepared as conventional thin sections.

Summary:

The rocks of this suite are of diverse character. They are generally non-foliated, and seem not to be regionally metamorphosed, though some of them show probable thermal effects. Alteration in the volcanic and pyroclastic rocks is predominantly to sericite and, in some cases, to secondary biotite.

4 main groups may be distinguished. Note that some uncertainty exists in the differentiation of intrusive volcanic or pyroclastic character.

a) Probable Minor Intrusives:

Samples 0110 and 0122 are porphyritic rocks of amphibole-rich composition. The first is extremely mafic, and best classified as a lamprophyre; the second is of related composition, but contains more plagioclase, and could be classed as a diorite porphyry.

Sample 15408 is a porphyry of andesitic composition. Mafic components show strong alteration to secondary biotite; plagioclase phenocrysts are fresh.

Sample 0107 is of quartzo-feldspathic (dacitic) composition. It shows strong, platy recrystallization, and may be a sheared porphyry. It contains disseminated pyrite.

b) Probable volcanics:

Sample 15421 is an andesite showing strong alteration to secondary biotite. It could be fragmental (autobrecciated?).

Samples 15731 and 15733 are porphyritic rhyodacites having sericitized K-spar phenocrysts in a groundmass of quartz and sericitized felsite - probably of original glassy character. They contain traces of tourmaline.

c) Probable pyroclastics:

Samples 0124, 15405, 15410, 15411 and 42 are quartz-poor, felsic to intermediate lithic tuffs, or lapilli tuffs, consisting largely of sericitized felsite or altered glass. 1510 contains fine-grained secondary biotite; 15411 shows pervasive tourmalinization; 42 is distinctive for the presence of coarse porphyroblasts of andalusite - possibly the effect of thermal metamorphism.

Sample 0130 may be a breccia of welded tuff fragments or an autobrecciated flow. It is distinct from the previous group in lacking sericite. It contains chlorite and a little epidote and amphibole, and may be of intermediate (andesitic) composition.

d) Sediments and metasediments:

Samples 15359 and 15413 are black carbonaceous siltstones or wackes; the latter sample is a possible slump breccia.

sample 15730/S is a typical greywacke of volcanic lithic clasts and quartz grains.

Samples 0127 and 0129 are magnesian marbles, showing more or less strong development of porphyroblastic tremolite - probably indicative of thermal metamorphism.

Samples 0067 and 0128 are of uncertain origin. They are granoblastic carbonate rocks with pockety segregations of chlorite (or possibly serpentine). The second sample has a similar carbonate composition (mixed calcite and ankerite) as the previous group, and contains accessory tremolite - suggesting a kinship with the tremolite marble group. In Sample 0062 the carbonate is entirely calcite. The morphology of the chlorite (serpentine) suggests the possibility that it may represent the total alteration of skarnic forsterite aggregates in a marble.

Individual petrographic descriptions and illustrative photomicrographs are attached.

J.F. Harris Ph.D.

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SAMPLE 42 ALTERED ANDESITE (TUFF?)

Estimated mode

Sericite	45
Chlorite	10
Plagioclase	18
Quartz	1
Andalusite(?)	18
Apatite	trace
Opaques	8

Macroscopically this is a speckled rock of apparent porphyritic aspect. The slide includes a small area of a fine-grained, streaky unit - in apparent bedded(?) contact with the speckled lithotype.

In thin section the rock is found to consist predominantly of minutely fine-grained sericite, as a non-foliated, felted aggregate of grain size 1 - 10 microns.

Accessory constituents are intimately intergrown chlorite, felsitic plagioclase and disseminated, sub-opaque and opaque material.

A diffuse, cryptofragmental or porphyritic texture, on a scale of 0.1 - 1.0mm, is defined by patchy variations in the proportions of intergrown chlorite and felsite in the sericite. The felsite may represent remnants of an original plagioclase-rich volcanic or tuff, now largely converted to sericite.

The disseminated opaques - as granules 5 - 20 microns in size, aggregating to equant grains of 100 microns or more - tend to form patchy clusters which locally emphasize the relict volcanic texture. They are probably mainly pyrrhotite.

Apatite is seen as occasional individual, tiny subhedra. Quartz forms a few tiny pockets and rare, fragment-like patches of chert-like aggregate.

The speckled appearance of the rock, on the macroscopic scale, is found to be the result of porphyroblastic development, in the form of diffuse to sharply prismatic areas, 0.2 - 1.5mm in size, of a moderate relief, low-birefringent mineral thought to be andalusite. In part, these are aggregates of minute granules, but locally they develop optical homogeneity.

The phase making up one end of the slide is of generally similar character to the dominant lithotype, except that it lacks andalusite porphyroblasts. It is also notably less sericitized, and is composed largely of felsite. Opaques in this area tend to segregate as sub-prismatic patches and rimming forms of pseudomorphous aspect.

Sample 42 cont.

The contact between the two phases is demarked by a streaky, foliated, sericite-rich zone.

The sample is an altered andesite - possibly a tuff.

The presence of andalusite porphyroblasts is suggestive of a thermal (contact metamorphic) overprint on the andesite, resulting from proximity to an intrusive body.

SAMPLE 0067 **SERPENTINE MARBLE**

Estimated mode

Serpentine	44
Chlorite	1
Carbonate	50
Sericite	3
Pyroxene	trace
Opaques	2

This rock is a streaky/pockety intergrowth of two main constituents - a carbonate and a fibrous-textured mineral having the aspect of serpentine.

X-ray diffraction checks show that the carbonate is entirely calcite. The identity of the other component remains uncertain; it gives a very subdued XRD response which, on balance, is a better match for serpentine than chlorite.

The calcite is in the form of an even, polygonal mosaic, of grain size 0.1 - 0.4mm.

The serpentine occurs as extensive, sharply defined, irregular patches of pseudo-crustified/cellular to spherulitic habit. Occasional inclusions of calcite are seen within the serpentine masses, and there is a tendency for mutual intergrowth in the contact zones. Serpentine also occurs as small, interstitial pockets within the carbonate mosaic.

Opaques occur as fine, duty disseminations and cellular networks in the serpentine, and as granular clusters in the carbonate - especially in association with some localized, elongate zones of rather coarse, well-formed sericite or muscovite flakes.

A single, small grain of fresh pyroxene was seen within carbonate.

The origin of this rock is obscure. It appears to be a marble. The serpentine could possibly be a pseudomorphic replacement (total alteration) of clumps of original skarnic forsterite, or some other magnesian silicate.

SAMPLE 0107 **SHEARED FELSIC PORPHYRY(?)**

Estimated mode

Plagioclase	56
Quartz	22
Sericite	17
Rutile	trace
Pyrite	5

This is a rock of distinctive, sinuously laminar texture.

It is composed principally of fresh plagioclase with accessory quartz. The fabric appears strongly recrystallized, and consists of an aggregate of more or less strongly elongate, crenulate-margined grains, 20 - 200 microns in size. Coarser, sub-prismatic (relict primary) plagioclase grains, to 1.0mm in size, occur as scattered individuals, generally oriented parallel to the marked foliation, and as augen-like, or blocky kernels within the finer, recrystallized felsite.

Quartz occurs in indeterminate accessory proportions throughout the recrystallized plagioclase matrix, and also concentrates as occasional irregular clumps and lenses.

Sericite mainly occurs in strikingly segregated manner, as slightly sinuous schlieren, 0.1 - 1.0mm in thickness, and spaced 0.3 - 2.0mm apart. These are composed of lines of well-crystallized flakes, grading to minutely foliated wisps. Minor amounts of sericite are also seen as small, discontinuous, intergranular wisps within the feldspathic matrix.

Pyrite - apparently without any associated accessory sulfides - occurs as strings of irregular/elongate to subhedral grains, 20 - 200 microns in size - locally aggregating to lenses of 2mm or more in length. These are closely associated with the micaceous schlieren, and show intimate textural intergrowth with the sericite flakes.

This rock is of uncertain origin. It is clearly of igneous ancestry, and may be an intensely sheared and extensively recrystallized dacite porphyry, or possibly a crystal tuff. The striking freshness of the plagioclase (having the composition of oligoclase) favours the former possibility.

The sulfides appear to have been sheared and recrystallized along with the matrix.

SAMPLE 0110 **LAMPROPHYRE(?)**

Estimated mode

Amphibole	82
Plagioclase	10
Epidote	3
K-feldspar	1
Carbonate	trace
Sphene) Rutile)	3
Opaques	1

This is a mafic igneous rock of prominently porphyritic texture.

Phenocrysts make up about 50% of the rock. They consist predominantly of sharply angular (equant/prismatic) masses of felted/fibrous, pale green to brownish amphibole, 0.3 - 3.0mm in size, sometimes with minor included epidote and opaques. These are clearly pseudomorphs after some original mafic silicate. No actual remnants of this survive, and distinctive crystal outlines are seldom seem; it most probably originated as hornblende.

Less abundant, generally smaller, elongate, prismatic phenocrysts of plagioclase are also seen. These tend to show rather diffuse outlines, and appear partially assimilated by the groundmass.

The latter consists largely of a minutely felted mass of colourless, acicular, secondary-type amphibole, as randomly oriented, interlocking needles, 10 - 100 microns in size. Tiny granules of sphene and/or rutile are evenly disseminated accessories in the groundmass, and there is probably also an interstitial low-birefringent component which may be felsitic plagioclase or glass.

Scattered prominent clumps of granular/radiate epidote, rimmed by, or intergrown with, fine-grained K-feldspar and traces of carbonate, have the appearance of amygdules. A few of these show more angular form, suggesting that they may, in fact, be a type of altered (feldspar?) phenocryst.

The slide is cut by a sharply demarked microfracture or fault showing slight lateral displacement.

This rock could be a form of altered porphyritic volcanic, but its strongly amphibolitic composition and textural features suggest that it is most likely a type of lamprophyre.

SAMPLE 0122 DIORITE PORPHYRY OR LAMPROPHYRE

Estimated mode

Amphibole	52
Plagioclase	32
K-feldspar	8
Sericite	3
Epidote	4
Sphene	trace
Opaques	1

This is a rock of somewhat similar composition to the previous sample (0110). However, it has a distinctly higher content of feldspar and lacks the extreme textural bimodality of the previous sample.

Phenocrysts make up a high proportion of the rock. They are of two main kinds. The coarsest (up to 6mm in size) are equant/angular, often 6-sided crystals, now totally pseudomorphed by felted/fibrous, secondary-type, green amphibole - often intergrown with accessory proportions of K-feldspar and epidote, and sometimes with fine-grained opaques. These pseudomorphs probably originated as euhedral hornblende.

The other type of phenocryst consists of elongate, prismatic grains of plagioclase, 0.2 - 2.0mm in size. These are generally more or less turbid as a result of pervasive alteration to minutely fine-grained sericite and clays. The feldspar prisms show a crudely tangential orientation around and between the coarser amphibole pseudomorphs.

A matrix or interstitial phase, composed of minutely felted amphibole with indeterminate proportions of felsitic plagioclase and minor specks of sphene or rutile, constitutes the remainder of the rock - occupying the spaces between the close-packed phenocrysts. The mineralogical similarity between the groundmass and the altered mafic phenocrysts, plus the turbid, indistinct nature of the plagioclase, gives the rock a very diffuse, ill-defined appearance in thin section.

The slide is cut by a network of hairline veinlets of fibrous amphibole (paler in colour and better crystallized than the groundmass amphibole).

This rock could be classified as a diorite porphyry or a type of lamprophyre.

SAMPLE 0124 **FELSIC TUFF**

Estimated mode

Plagioclase	40
Quartz	5
K-feldspar	2
Sericite	38
Chlorite	3
Carbonate	6
Sub-opaque dust	2
Pyrite	4

The cut-off block of this sample has the appearance of a coarse, matrix-less breccia in which the constituent fragments - of a fine-grained, porcellanous rock - are distinguished by various degrees and types of alteration. Fine-grained volcanic and/or pyroclastic textures are distinguishable within the coarse breccia fragments.

In thin section the rock is found to consist predominantly of cryptocrystalline felsite and sericite. The former constitutes a matrix to abundant vari-sized altered feldspar crystal clasts and lithic fragments. These are mainly in the size range 0.3 - 1.0mm, but a few lithic clasts, up to 5mm or more, are also present.

The crystal clasts are totally converted to minutely felted sericite, with minor wisps and patches of carbonate. A few equant crystal clasts of quartz are also seen.

The lithic clasts are also composed predominantly of minute fine-grained sericite and, in many cases, have the ragged, streaked-out appearance and crypto-pumiceous texture of original glass. A few of the coarser fragments are recognizably porphyritic, and contain small phenocrysts of quartz and partially unaltered plagioclase, sometimes in a devitrified mosaic-textured glass matrix.

The rock contains irregular pockety and wispy segregations of quartz, chlorite and K-feldspar (in various proportions). It is also distinguished by a substantial content of disseminated pyrite. The latter occurs randomly, without apparent structural control or consistent relation to fragments or matrix, as irregular to subhedral, sometimes poikilitic grains, 0.02 - 1.0mm in size, locally coalescing to irregular clumps. Sometimes the pyrite is associated with the quartz/chlorite pockets, but this is not a consistent feature.

SAMPLE 0127 **TREMOLITIZED MARBLE**

Estimated mode

Carbonate	72
Tremolite	27
Chlorite	1

This is an altered marble of simple composition.

The portion sectioned includes two distinct assemblages in apparent replacement contact.

About 40% of the slide consists of a homogenous, fine-grained carbonate aggregate, of grain size 20 - 150 microns. The remaining 60% is a skarn-like assemblage of fibrous/acicular tremolite, intimately intergrown, in sheaf-like, skeletal, porphyroblastic mode, with coarser, sparry-textured carbonate.

The tremolite-carbonate phase has apparent inclusions (unreplaced remnants?) of the fine-grained marble, and the latter is penetrated - at the irregular contact - by diffuse veniform apophyses of very fine-grained tremolite (presumably representing the first stages of an advancing replacement front).

XRD analysis shows the presence of major proportions of both calcite and ankerite. Judging from the relative reactivity to dilute acid in the cut-off block, the fine-grained aggregate is predominantly ankerite, and the coarser, invasive phase (with tremolite) is calcitic.

The only other constituent is chlorite, as a few radiate/fibrous-textured pockets and diffuse streaks within the altered marble close to the contact.

SAMPLE 0128 CARBONATE-CHLORITE ROCK

Estimated mode

Carbonate	58
Tremolite	8
Chlorite	28
Biotite	3
Talc(?)	1
Sphene) Rutile)	1
Pyrite	1
Pyrrhotite	trace
Chalcopyrite	trace

This is a heterogenous-textures rock of metasomatic aspect. It shows some similarities to Samples 0127 and 0067.

Macroscopic examination of the cu-off block, or the slide, reveals a pockety, concentrically-zoned distribution of several different phases, possibly suggestive of cementation and replacement of an original breccia.

The relationships of one phase to another are obscure. The principal constituents are as follows:

a) varigranular, micritic to coarsely recrystallized carbonate, locally strongly clouded with micron-sized opaque dust (mainly pyrrhotite, partly altered to Fe oxides) and/or speckled with individual euhedral pyrite grains, 0.02 - 0.3mm in size.

b) inclusion-free carbonate, with varying proportions of randomly intergrown, acicular tremolite. This phase contains rare individual specks of chalcopyrite.

c) felted chlorite, locally grading to pale brown biotite (phlogopite). Fine flecks and granules of rutile and sphene are a common accessory in this phase.

These three components occur as more or less sharply defined, concentric bands, in the order listed, and locally show complex intermingling.

Minor patches of possible felted talc are seen in the carbonate.

XRD analysis shows the presence of calcite and somewhat less abundant ankerite. By analogy with Sample 0129, the type a) carbonate is probably the ankerite, and the type b) carbonate is the calcite.

This rock is of uncertain origin, but is probably a form of altered marble (c.f. Sample 0067).

SAMPLE 0129 **MARBLE**

Estimated mode

Carbonate	84
Tremolite	16
Chlorite	trace
Rutile) Sphene)	trace
Pyrite	trace
Arsenopyrite	trace
Pyrrhotite	trace
Limonite	trace

This is another tremolite-bearing marble, clearly of related type to Sample 0127.

It consists predominantly of a rather homogenous, very fine-grained, anhedral aggregate of carbonate, of grain size 10 - 50 microns. XRD analyses show that this consists of a mixture of ankerite and somewhat less abundant calcite.

The micritic carbonate aggregate is traversed by a diffuse network of more or less abundant veniform and pockety zones of slightly coarser carbonate with intergrown, fine-grained acicular tremolite. One localized streaky segregation of felted chlorite was also seen. The veniform carbonate is reactive to dilute acid, and appears to be the calcite - the fine-grained matrix being ankeritic.

Rare elongate clumps of sparry, actinolite-free carbonate contain fine-grained disseminated sulfides (pyrite, arsenopyrite and pyrrhotite - partially oxidized).

SAMPLE 0130 INTERMEDIATE TUFF

Estimated mode

Plagioclase	68
Quartz	3
Chlorite	18
Epidote	2
Tremolite	3
Sphene) Leucoxene)	5
Pyrite	1

This is a fine-grained rock of uncertain origin. It has an ill-defined, patchy, cryptofragmental texture, and is probably a form of autobrecciated, devitrified, glassy volcanic or breccia of welded tuff.

It is made up essentially of minutely fine-grained felsitic plagioclase, of grain size 5 - 20 microns. This contains more or less abundant flecks and granules of accessory chlorite and sphene/ leucoxene (and possibly some cryptocrystalline epidote). The distribution of the accessories defines a small-scale, wispy foliation - resembling flow-banding or the texture of a welded tuffite.

A fragmental structure, on the scale 0.5 - 10.0mm or more, is distinguishable by virtue of differing directions of the wispy foliation in adjacent areas. The rock appears to be a breccia of close-packed, non-matching, angular fragments of the same rock type (autobreccia?).

Occasional angular clasts or pockets of cherty quartz are seen.

The rock is cut by a sparse network of hairline veinlets and streaky gash-like segregations of fibrous tremolite, and of felted chlorite.

Sporadic irregular clusters of fine-grained sulfides (apparently mainly pyrite) are also seen. These show no consistent relationship to the fragmental structure or the microfractures.

SAMPLE 15359 **BLACK ARGILLITE**

Estimated mode

Quartz	9
Plagioclase	6
Sericite	8
Sericitized felsite	44
Carbonaceous material	33
Pyrite	trace

This rock is a typical example of a fine-grained carbonaceous siltstone or argillite.

Its appearance in thin section is dominated by the abundant, pervasive opaque pigmentation. Under high magnification this can be seen to constitute a wispy, micro-foliated matrix, separating and wrapping around individual tiny clasts of more or less intensely sericitized felsite and of less abundant crystalline plagioclase, quartz and discrete sericite flakes.

The constituent clasts are in the size range 20 - 150 microns, and are equant/angular to somewhat elongate in form.

A few laminae or lenses of slightly coarser, carbon-poor sediment occur. These consist largely of quartz grains in a felted sericite matrix. There are also a few threadlike, concordant wisps of pyrite.

The rock is cut by a few oblique microshears which are the locus of redistribution and concentration of carbonaceous material.

Overall, this is a rather homogenous, undisturbed sediment, showing well-preserved, primary, clastic textures.

SAMPLE 15405 **SERICITIZED LITHIC TUFF**

Estimated mode

Fragments	
Sericite	54
Plagioclase	1
Apatite	trace
Matrix	
Chlorite) Cryptocrystalline material)	40
Sub-opaque dust	5

Low-power examination of the etched cut-off block clearly indicates the fragmental character of this rock. Sub-rounded to irregular-shaped, lithic clasts, up to lapilli of 8mm or more in size, make up >50% of the rock. The majority of these are of ragged, streaked-out, or ripped-off form - as in glass fragments still soft at the time of accumulation - and show a weak tendency for a preferred elongation.

In thin section these clasts are found to consist essentially of structureless, minutely felted sericite - almost certainly representing altered glass. Some exhibit pumiceous or shard-like fabrics. The fragments sometimes contain small feldspar phenocrysts which are also totally sericitized, and patches of low birefringent material which may be chloritic, whilst a few contain rare subhedral phenocrysts of fresh plagioclase, to 1mm in size. Tiny euhedral crystals of apatite are also seen.

The fragments are set in a featureless, cryptocrystalline, sub-opaque matrix. This is of similar appearance to the fragments, but of lower birefringence, and more or less densely dusted with micron-sized sub-opaque material. It possibly contains an indeterminate proportion of chlorite.

The sub-opaques (rutile) locally concentrate as rare, dense clusters of fragmental aspect.

SAMPLE 15408 **ALTERED ANDESITE PORPHYRY**

Estimated mode

Plagioclase	64
Sericite	2
Secondary biotite	28
Secondary amphibole(?)	2
Rutile) Opaques)	4

This is a rock of notably different type to any previous samples of the suite. It is a coarsely porphyritic volcanic or minor intrusive of probable andesitic composition, in which plagioclase phenocrysts are notably fresh, but mafics are totally altered - with development of a distinctive, red-brown, secondary-type biotite.

Phenocrysts make up 50 - 60% of the rock. They are of two kinds. The commonest consist of subhedral prismatic plagioclase crystals, 1 - 6mm or more in size. These are often well-twinned (indicating a composition of andesine) sometimes show fracturing and local granulation. They are generally fresh, but occasionally show veining and partial replacement by minutely felted sericite and/or secondary biotite.

The other phenocryst type is now totally converted to compact or diffuse masses of minutely felted, red-brown biotite. In a few cases, these show cores of similarly-textured, pale green, secondary-type amphibole.

These biotitized masses presumably represent original mafic phenocrysts, though their form is generally indistinct and sometimes streaked-out. This is possibly the result of a tendency for the original mafic phenocrysts to cluster, combined with more or less extensive dispersion and redistribution of the secondary biotite. This fills microfractures, and forms diffuse, pervasive replacements and microbreccia fillings in plagioclase phenocrysts and the groundmass.

The groundmass is a minutely fine-grained meshwork to sub-trachytic aggregate of felsitic and microlitic plagioclase, with interstitial altered mafics (now represented by red-brown biotite) and abundant, disseminated granules of rutile and opaques. Groundmass grain size is in the range 10 - 100 microns.

SAMPLE 15410 **LITHIC TUFF**

Estimated mode

Sericite	42
Felsite	35
Secondary biotite	20
Quartz	trace
K-feldspar	trace
Sub-opaque dust	3

This sample is unambiguuously identifiable as a felsic to intermediate lithic tuff. The etched cut-off block clearly reveals the presence of abundant, equant to somewhat elongate, ragged-shaped clasts, ranging up to lapilli of 8mm or more. The majority of the clasts are in the size range 0.2 - 2.0mm.

In thin section the clasts are found to be composed of more or less strongly sericitized, cryptocrystalline felsite. Some of the larger clasts are recognizably microporphyritic, with partially sericitized plagioclase phenocrysts to 0.5mm or more in size; others show streaky and pellety textures, and clearly originated as glass; and a few appear to be refragmented tuffs.

Clasts make up some 80% of the rock, and range down to 0.05mm or less in size, the smaller lithic detritus being packed interstitially between the coarser fragments.

A matrix phase - presumably representing finely comminuted glass dust - cements the whole aggregate. It is characterized by a high content of micron-sized opaques and sub-opaques, and of diffuse orange-brown biotite.

The same, minutely-felted, orange-brown biotite (similar to that seen in Sample 15408) is also seen as patches (altered mafics?) in some of the porphyritic clasts. Some smaller clasts are composed entirely of this material (biotitized glass?).

Rare, tiny clasts of quartz and chert, and a few individual crystal clasts of plagioclase, are also present.

The rock shows a weak foliation which clearly represents original bedding. It is remarkable for its clearly defined, primary fragmental features and lack of any apparent recrystallization.

SAMPLE 15411 ALTERED LAPILLI TUFF

Estimated mode

Sericite	80
Felsite	5
Chert?) Albitite?)	5
Chlorite	5
Tourmaline	2
Rutile) Leucoxene)	3
Limonite	trace

This is clearly another pyroclastic rock - though with less well defined fragment outlines than in the previous sample. The constituent clasts appear to be predominantly much larger than in 15410 - commonly being in the range 3 - 15mm or more. The majority of them display a streaky, flecked macroscopic texture.

In thin section the clasts are found to consist essentially of minutely felted sericite, with wisps and patches of similar-textured but lower birefringent material which may be of more felsitic and/or chloritic composition. The distribution of the more and less sericitic material within the clasts is a patchy/streaky contorted one, suggestive of original pumiceous, glassy character.

Wisps and irregular pockety concentrations of micron-sized opaque/ sub-opaque material occur throughout - probably mainly in an interclast relationship.

One large sub-rounded clast is composed of a microgranular mosaic of chert (or possibly albite), and similar material is also seen as small, diffuse shreds elsewhere in the slide.

Interclast contacts tend to be defined by local microshears, with oriented sericite and concentrations of chlorite and opaque dust.

A distinctive feature, not seen in previous samples, is the presence of pervasive tourmalinization. This is manifested as tiny, disseminated, acicular crystals, up to 0.1mm in length, often as radiate sheafs. The tourmaline needles are seen randomly within the body of the sericitized clasts, and tend, in particular, to concentrate in the shear-like interclast wisps.

SAMPLE 15413 SLUMP BRECCIA(?) OF CARBONACEOUS WACKE

Estimated mode

Sericite	28
Plagioclase) Felsite)	10
Quartz	8
Chlorite(?)	38
Carbonaceous matter	16

Macroscopic features indicate that this rock is another fragmental product. However, its overall black colour suggests carbonaceous character, which appears more consistent with a sedimentary rather than a pyroclastic origin. The cut-off block includes several coarse, angular fragments of a platy lithotype which has the aspect of a black shale, and suggests possible affinities with Sample 15359.

In thin section the rock is seen to be an aggregate of fragments of widely different sizes, ranging from 0.05 - 10.0mm or so.

Overall it has the appearance of a polylithic wacke composed of close-packed, angular to ovoid clasts of cryptocrystalline/felted sericite and chlorite, and/or felsitic material, plus notable amounts of mineral clasts of quartz and chert. These are set in a minimal matrix of chloritic material with varying proportions of pervasive opaque (carbonaceous?) dust.

Some of the larger clasts are of ragged shape and streaky/pellety texture, and clearly originated as glass.

The coarsely fragmental structure is defined by areas of the wacke lithotype showing different average grain size and proportions of opaque matter. Some of these are highly enriched in the latter component - the angular, shaly fragments referred to in the macroscopic description being essentially totally opaque, with pellety patches of felted chlorite.

The rock appears to be a melange - possibly of slump origin - of carbonaceous shale, volcanic wacke or tuff, and chert.

SAMPLE 15421 ALTERED ANDESITE

Estimated mode

Plagioclase	43
Chlorite	10
Secondary biotite	40
Quartz	3
Rutile) Leucoxene)	2
Carbonate	trace
Opaques	2

This sample does not show clearly defined features on the macroscopic scale. A possible cryptofragmental texture, defined by a network of irregular unetched wisps in the predominantly strongly etched matrix, is distinguishable in the cut-off block.

In thin section the rock is found to be distinguished by its high content of the red-brown, minutely felted, secondary-type biotite seen in some other samples of the suite (notably 15408).

More or less compact, aggregated, clumpy to diffuse areas of the fine-grained biotite alternate patchily, on a scale of 0.1 - 0.5mm, with a fine-grained volcanic material consisting of felsitic plagioclase, chlorite and micron-sized rutile/leucoxene and occasional recognizable plagioclase phenocrysts to 0.5mm in size.

The nature of this intergrowth is unclear. It may represent a fragmented andesitic volcanic, cemented and diffusely pervaded by the biotite. Alternatively, it could be a more or less homogenous volcanic in which the biotite patches and streaks represent totally altered pseudomorphs of semi-coalescent clumps of small mafic phenocrysts. Some diffuse dispersion of the secondary biotite may also have taken place.

Other constituents are quartz, as semi-continuous hairline veinlets, scattered tiny grains and small pockety segregations - presumably indicative of incipient silicification.

Opaques (apparently mainly pyrite or pyrrhotite) are sometimes associated with the diffuse threads of quartz, but most commonly show a distinctive mode of occurrence as dense clusters of tiny grains concentrated in discrete, rounded to sub-prismatic patches of minutely microgranular quartz. Traces of carbonate are sometimes intergrown, and one sulfide cluster is located within a patch composed totally of fine-grained carbonate. These features may represent centres of alteration, or could possibly be amygdules.

SAMPLE 15730/S **GREYWACKE**

Estimated mode

Plagioclase) Felsite)	62
K-feldspar	1
Quartz	16
Biotite	18
Rutile	2
Carbonaceous matter	1
Pyrrhotite	trace

This is an even-grained rock having the macroscopic appearance of a bedded clastic sediment.

This impression is confirmed in thin section, where the rock is seen to be a typical greywacke composed largely of volcanic lithic clasts.

The slide includes two bedded units in contact. In the coarser one the clasts range up to 0.5mm in size, whereas in the finer they are seldom more than 0.1mm. The two units are separated by a thin sinuous intercalation of carbonaceous siltstone.

In the (predominant) coarser wacke unit, the clasts are mainly composed of cryptocrystalline felsitic material. In some cases this may contain indeterminate proportions of intergrown chlorite. The felsitic clasts show varying degrees of pervasive alteration to minutely fine-grained, felted, orange-brown biotite. This also tends to concentrate as an interclast network, and, in redistributed form, as discordant streaks and microshears, often containing fine-grained pyrrhotite.

A proportion of the clasts are composed almost entirely of felted biotite, sometimes with disseminated granules of rutile; these presumably represent a somewhat more mafic form of altered aphanitic volcanic.

Quartz is a relatively prominent constituent, as individual angular to sub-rounded clasts, 0.0 - 0.5mm in size, and occasional microgranular lenses. The quartz clasts (and rare crystalline plagioclase clasts) are randomly and rather evenly scattered through the aggregate of close-packed, somewhat ill-defined, partially elongate lithic clasts.

The finer-grained siltstone unit is of similar mineralogy, but the shapes of individual lithic clasts are seldom distinguishable, and the rock consists of small quartz clasts scattered through a streaky, turbid, diffusely biotitized matrix of felsite. The latter appears to be of distinctly potassic composition (see stained cut-off block), compared with the dominant material of the coarser unit.

SAMPLE 15731 **ALTERED RHYODACITE**

Estimated mode

Plagioclase) Felsite)	45
Quartz	14
K-feldspar	5
Sericite	30
Biotite	6
Tourmaline	trace
Rutile	trace
Apatite	trace
Opaques	trace

The matrix texture of this rock, as revealed in thin section, somewhat resembles that of a fine-grained wacke - being an even, diffusely microgranular aggregate of quartz, plagioclase and sericitized felsite, on the scale 50 - 100 microns. However, this texture is also characteristic of the devitrified groundmass of many felsic volcanics. The presence of prominent, euhedral, phenocryst-like forms in the stained cut-off block favours the latter possibility.

The phenocrysts, 0.3 - 2.0mm in size, are composed of potassic feldspar - now strongly altered to patches and networks of minutely felted sericite.

The rock also contains smaller, sub-prismatic phenocrysts of felted, brown, secondary-type biotite - often with included fine-grained rutile or opaques. These are presumably pseudomorphs of some primary mafic silicate.

Secondary biotite also occurs, to a minor degree, in dispersed form throughout the matrix.

Tourmaline is a notable trace accessory, as sporadic small clumps and radiate sheafs. These are sometimes associated with biotite/ rutile patches (mafic pseudomorphs) or with sericitized glass remnants.

The rock includes some ragged, wispy patches of sericite, which appear to be xenoliths of altered pumiceous glass. Alternatively,they may represent undevitrified (possibly autobrecciated) remnants of the originally glassy matrix.

A weak tendency to preferred orientation is exhibited by the biotitized phenocrysts, sericitized glassy xenoliths and a few diffuse laminar quartzose zones. These are probably flow-related features in what is most likely an altered rhyolitic volcanic.

There is no direct evidence favouring a tuffaceous character for the rock.

SAMPLE 15733 **ALTERED RHYODACITE**

Estimated mode

K-feldspar	6
Sericite	22
Plagioclase) Felsite)	46
Biotite	8
Quartz	18
Tourmaline	trace
Apatite	trace
Opaques	trace

This is a macroscopically similar rock to the previous sample (compare the stained cut-off blocks).

The similarity is confirmed in thin section, where the rock is seen to consist predominantly of an equigranular matrix of diffusely sericitized felsite, evenly sprinkled with flecks and small elongate clumps of quartz, 20 - 150 microns in size.

A feature of the matrix, not seen in Sample 15731, is an abundance of tiny, fluidally-oriented, microlitic forms, apparently composed mainly of biotite.

The macroscopically prominent K-feldspar phenocrysts are 0.3 - 3.0mm in size, and show strong diffuse alteration to minutely felted sericite. A minor proportion of altered mafic phenocrysts is also present, now pseudomorphed by felted secondary biotite.

A few of the biotite clumps have intimately intergrown opaques and clusters of acicular green tourmaline.

Tiny elongate euhedra of apatite are a notable trace accessory.

A weak, flow-related, preferred orientation is apparent in the distribution of phenocrysts, and as streaky mineralogic segregations and a sub-trachytic microlitic fabric in the groundmass.

This rock appears to be a pervasively sericitized, porphyritic, felsic volcanic, having a devitrified glassy groundmass. It is of rhyodacite composition.

PHOTOMICROGRAPHS

All photos are by cross-polarized transmitted light, at a scale of 1cm = 0.17mm, except where otherwise stated.

a) INTRUSIVES

SAMPLE 0110: Neg. 157-8: Lamprophyre. Typical field, showing mafic phenocrysts pseudomorphed by secondary amphibole with opaque inclusions (grey-green and yellow-brown flaky masses; bottom left, bottom centre right); elongate prismatic feldspar phenocrysts (grey; lower centre, right); and clump of granular epidote (bright colours; centre) partially rimmed by K-feldspar (grey). Groundmass is composed largely of felted amphibole, low-birefringent cryptocrystalline material and sub-opaque granules.

SAMPLE 0122: Neg. 157-9: Lamprophyre. Majority of field consists of part of a large altered mafic phenocryst, pseudomorphed by fibrous secondary amphibole (yellow brown) with intergrown K-feldspar (grey) and opaque granules (black). Lower part of field includes turbid (saussuritized) prismatic plagioclase phenocrysts in a matrix of felted secondary amphibole.

SAMPLE 15408: Neg. 157-16: Andesite porphyry. Shows fresh plagioclase phenocrysts (grey, twinned) in a groundmass rich in secondary biotite (red-brown) and rutile/opaques, showing a sub-trachytic fabric of plagioclase microlites. Clumpy concentrations of red-brown felted biotite (at upper left and top right) are probably altered mafic phenocrysts.

SAMPLE 0107: Neg. 157-7: Sheared felsic porphyry. Shows strongly foliated (sheared) fabric consisting of schlieren of sericite (yellow-blue-green) in platy alternation with recrystallized/ granulated quartz and fresh plagioclase (white-grey). Field includes two relict plagioclase phenocrysts (upper left; centre bottom). Note concordant lens of pyrite grains (opaque, black).

b) VOLCANICS

SAMPLE 15421: Neg. 157-21: Biotitized andesite. Typical field showing patchy alternations of fine-grained andesite (grey, flecked areas e.g. top centre, bottom right) and concentrations of minutely felted biotite (orange brown). Note some diffuse pervasion of the andesite matrix areas by the fine-grained secondary biotite. Field also includes two amygdule-like patches of microgranular quartz (white-grey) with cores of aggregated pyrite granules (opaque, black).

SAMPLE 15731: Neg. 157-23: Rhyodacite. Typical field, showing matrix of sericitized felsite (speckled) with diffuse flecks and clumps of quartz (white-grey). Field includes a clump of brown biotite (upper right) probably representing an altered phenocryst. Minutely fine-grained brown biotite is also seen in dispersed form throughout the matrix.

SAMPLE 15733: Neg. 157-24: Rhyodacite. Similar quartz-flecked felsite matrix (devitrified glass) to 15731. Field includes parts o two diffusely sericitized K-feldspar phenocrysts (top right, bottom right). These are much less clearly defined in thin section than on the macroscopic scale. Brown area at upper left is a mafic phenocryst pseudomorphed by felted secondary biotite and opaque granules. Note smaller clumps and diffuse dustings of biotite throughout the matrix.

c) PYROCLASTICS

SAMPLE 42: Neg. 157-4: Altered tuff. Note relict fragmental or porphyritic textures (lighter patches and wisps) in matrix of minutely felted sericite dusted with micron-sized opaques. Field includes several of the prominent phenocryst-like forms which are thought to be porphyroblasts of andalusite. These are predominantly made up of aggregates of minute spongy granules which appear sub-opaque in thin section. Some better crystallized, more transparent patches are also present. Note how the andalusite prisms are clearly developing in situ in the matrix - the patchy fabric of which can still be distinguished within them

SAMPLE 15411: Neg. 157-18: Altered lapilli tuff. Shows large, altered glassy clasts with streaky/flecked pumiceous fabric defined by more sericitic (lighter coloured) and more chloritic (darker) material, and wisps of sub-opaque dust. Opaque material (probably mainly rutile) tends to concentrate interstitially to the clasts (e.g. centre, top).

SAMPLE 15411: Neg. 157-19: Plane polarized light: Scale 1cm = 85 microns. Higher magnification to show acicular tourmaline crystals (pale grey-green; some examples circled). Note concentration of tourmaline and opaques in crenulate microsheared zones demarking clast boundaries.

SAMPLE 15410: Neg. 157-17: Lithic tuff. Typical field showing sharply defined lithic clasts in a matrix loaded with fine-grained sub-opaques and secondary biotite (brownish). Clast at bottom right is recognizably porphyritic. Clast at top left is of sericitized felsite.

SAMPLE 15405: Neg. 157-15: Sericitized lithic tuff. Shows ill-defined fragmental textures in minutely fine-grained sericitic and/or chloritic felsite. Field includes some small, intensely sericitized clasts or phenocrysts (whitish) and a few tiny fresh feldspar grains (grey). Note general streaky appearance suggestive of original glassy character.

SAMPLE 0130: Neg. 157-13: Intermediate tuff. Shows coarse, angular fragmental, autobrecciated structure in cryptocrystalline felsite with abundant chlorite and sub-opaques (dark). Note weak, foliated fabric within the coarse fragments; this may be a relict welded tuff texture. Field includes a few flecks or pockets of quartz (white).

SAMPLE 0124: Neg. 157-10: Felsic tuff. Typical field, showing small sericitized clasts (lighter brownish grey) in matrix of felsite (speckled darker grey). Field includes individual grains and clumps of quartz (white; grey) and disseminated pyrite (opaque, black) - in part associated with a clump of quartz (top).

d) SEDIMENTS

SAMPLE 15359: Neg. 157-14: Black argillite. Typical field showing small grains of quartz and plagioclase (white, grey) and flakes of sericite (pink, blue), together with felsitic clasts (speckled, barely distinguishable from the dark background), set in a pervasive matrix of opaque, probably carbonaceous material (black). Note weak but distinct foliation.

SAMPLE 15413: Neg. 157-20: Breccia of carbonaceous wacke. Plane polarized light. Shows clasts of quartz or chert (white) and felsitic/chloritic material (darker, speckled) in a chloritic matrix more or less densely impregnated with opaque (carbonaceous?) matter. Note concentration of opaque material (left) separating coarse blocks of the carbonaceous wacke.

SAMPLE 15730/S: Neg. 157-22: Greywacke. Typical wacke of angular quartz grains (white, grey) and rather even-sized, close-packed felsitic lithic clasts (speckled). Note that many of the lithic clasts are more or less strongly enriched in minutely fine-grained felted brown biotite.

SAMPLE 0128: Neg. 157-12: Altered marble. Field shows banded/crustified zones of minutely fine-grained brown carbonate with disseminated pyrite (bottom left); recrystallized, somewhat flattened mosaic of carbonate with acicular/skeletal tremolite (colours; centre); and fine-grained, felted chlorite (blue-black, with minor brownish biotite; upper right).

SAMPLE 0127: Neg. 157-11: Tremolitized marble. Shows remnant of original fine-grained ankeritic carbonate at bottom right, in contact with invasive phase of skeletal/bladed tremolite (bright colours) intergrown with coarser calcitic carbonate (tan colours).

SAMPLE 0067: Neg. 157-6: Altered marble. Shows part of pocket of fibrous, aggregate-textured serpentine (blue grey-black; right) in contact with coarse-grained mosaic aggregate of carbonate (brownish to pale pastel colours) with elongate flakes of muscovite (green, orange, blue-violet). Note minor pockets of serpentine in the carbonate near the contact, and occasional tiny flecks of carbonate in the main serpentine area.