

DIAMOND DRILLING REPORT

ON

REXSPAR PROPERTY

PAR 1, PAR 2, PAR 4, PAR 7, PAR 9 - 13, JT 1, JT 4, JT 5,  
REX 2, REX 3 - 5, ELLA 3 - 7, RADIO 19 - 26 MINERAL CLAIMS  
(TOTAL 79 UNITS)

KAMLOOPS MINING DIVISION

NTS 82M / 12W

LATITUDE: 51° 34' N

LONGITUDE: 119° 54' W

OWNER OF CLAIMS:  
CONSOLIDATED REXSPAR MINERALS AND CHEMICALS LIMITED

OPERATOR:  
PLACER DEVELOPMENT LIMITED

S.W. Campbell

December, 1982

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**10,934**

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## 1. SUMMARY

A total of 539.5 meters of diamond drilling in one hole was completed on the Rexspar property to test an exploration model for deep molybdenum. The core was logged and split on the site and sampled in 3 to 6 meter sections. Samples were sent to Placer's Research Centre for Mo, Cu, Zn, Pb, U, W, Sn and other analyses. Samples were also submitted to Chemex Laboratories for F analysis.

Diamond drill hole 82-P-1 encountered trachytic (to rhyodacitic?) massive lapilli tuff and thinly bedded tuff to 206 m, phyllitic, interbedded tuff, tuffaceous argillite and shaly tuff from 206 to 404 m, and interlaminated tuffaceous shale, shale and graphitic shale from 404 to 539.5 m. Pyrite is ubiquitous throughout the drill hole, but the rocks are only very sparsely mineralized with minor molybdenite and trace chalcopyrite, generally associated with quartz veins or in very small scale "crackle zones". Analytical results show that there is an abrupt break in Mo, Pb, Cd, U, Mn and F values at about 206 m, with insignificant values below this depth.

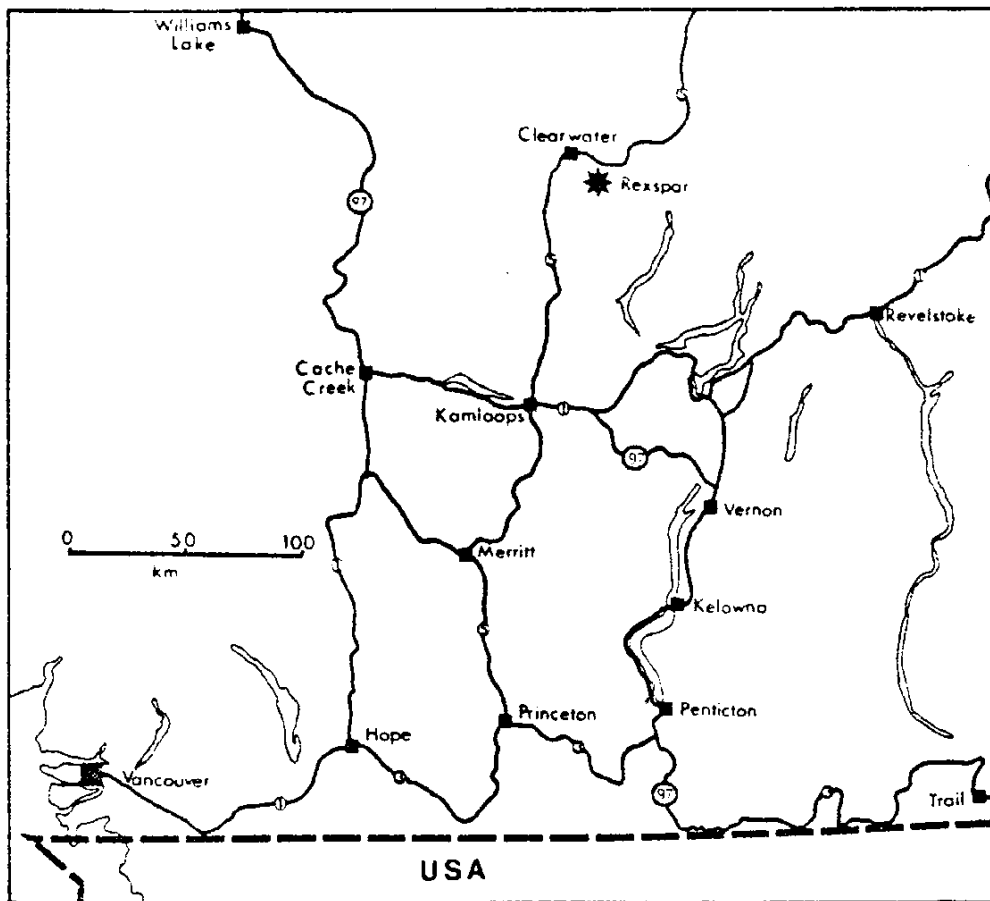
## 2. INTRODUCTION

During the period July 6 to 20, 1982, Placer Development Limited completed one diamond drill hole (82-P-1) on the Rexspar property. Drilling was under contract to Olympic Drilling and Consulting Ltd. of Vancouver, B.C. Results of the diamond drilling are submitted for assessment work on the following claims: PAR 1, PAR 2, PAR 4, PAR 7, PAR 9 --13, JT 1, JT 4, JT 5, REX 2, REX 3 - 5, ELLA 3 - 7 and RADIO 19 - 26.

## 3. PROPERTY DEFINITION

The Rexspar property is located 130 km north of Kamloops (see Figure 1) and more specifically, 5 km south of Birch Island in the area of Foghorn, Clay and Lute Creeks. Access is by a road suitable to fourwheel drive vehicle. Highway #5, the Canadian National Railway line, and the North Thompson River are immediately north of the property.

Spatial position of the mineral claims which make up the Rexspar property is shown in Figure 2. A complete list of Crown Grants and lot numbers, claims and record numbers and expiry dates is present in Appendix A1.



(Freto, 1979)

FIGURE 1 Location Map of Rexspar Property

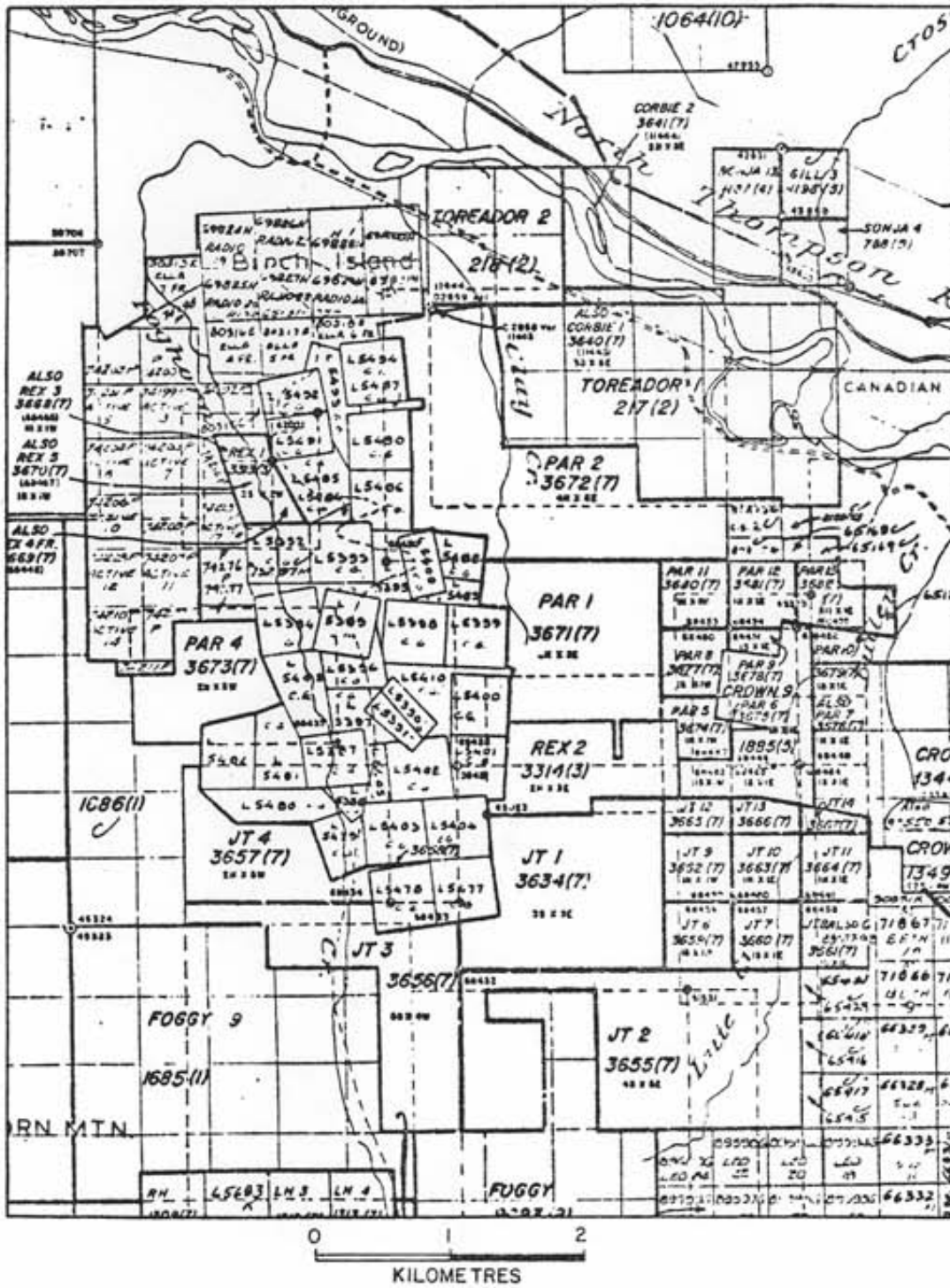


FIGURE 2 Claim Location Map

Placer Development optioned the Rexspar property from Consolidated Rexspar Minerals and Chemicals Limited in October 1981, in order to explore for suspected deep source molybdenum and possible associated tin or tungsten mineralization.

#### 4. WORK HISTORY

The property has been known since the early 1900's. During the 1940's work was concentrated on the fluorite occurrences. Interest switched to another commodity when uranium mineralization was discovered in 1949. Previous work on the Rexspar property includes geologic mapping, geophysical and geochemical surveys, surface and underground diamond drilling, and some drifting, cross cutting, and raising. Work conducted by Placer Development during October, 1981, includes ground magnetometer and VLF - EM surveys over 34.6 km of cut line, primarily over the PAR 1, REX 2 and JT 4 claims.

#### 5. GENERAL GEOLOGY

The area east-southeast of Clearwater and northwest of the northern tip of Adams Lake is underlain by a diverse and complex assemblage of metavolcanic and metasedimentary rocks of the early Paleozoic Eagle Bay Formation. This formation is intruded to the north by quartz monzonite and granodiorite of the early Cretaceous Raft Batholith and to the south by similar rock types of the Cretaceous Baldy Batholith.

Eagle Bay Formation lies structurally above gneissic and schistose rocks of the Shuswap Metamorphic Complex of Proterozoic to Paleozoic age, which are exposed north of Adams Lake. Immediately south and southeast of Clearwater, Eagle Bay Formation is in contact with Upper Paleozoic greenstone and minor interbedded argillaceous rocks belonging to the Fennell Formation. The nature of most contact relationships between Eagle Bay Formation and other map units is uncertain.

Rocks of the Eagle Bay Formation show moderate to strong foliation. This phyllitic to schistose foliation is sub-parallel to bedding. Polyphase deformation is recorded in these folded metavolcanic and metasedimentary rocks and late stage northerly-trending faults are apparent in the Foghorn, Clay and Lute Creek areas.

## 6. PROPERTY GEOLOGY AND MINERALIZATION

### 6.1 Geology

Much of the Rexspar property is underlain by quartz-sericite schist, chlorite schist, phyllite and trachytic flows and pyroclastics of the Eagle Bay Formation. Rocks possibly of the Fennell Formation and shale and argillite, which may be part of the Carboniferous Milford Group, are exposed in the westerly part of the claim block.

The trachytic assemblage of feldspar porphyry, volcanic breccia and tuff appears to overlie conformably a metasedimentary sequence of quartz sericite schist with interbedded carbonaceous and phyllitic units. On the western side of the property sericite schist occurs both above and below the trachyte and is, in turn, overlain by andesite probably of the Fennell Formation.

Rocks exposed on the property are folded with sedimentary rocks becoming highly schistose and the more competent volcanic rocks becoming fractured and faulted. The schistosity has a northeasterly strike and a dip of  $\leq 30^\circ$  to the northwest and is, in general, sub-parallel to bedding of the units.

In the vicinity of the mineralized zones the trachytic unit is rusty weathered, pale grey, pyritic alkali feldspar porphyry and trachytic breccia. The former varies from massive to strongly schistose and lineated, or to brecciated. The latter contains fragments of feldspar porphyry, trachyte, more felsic tuffaceous rock and feldspar crystal fragments. These rock fragments vary in size from  $\leq 1$  cm to 20 cm.

### 6.2 Mineralization

Uranium-thorium mineralization is found in the trachytic assemblage. Drilling showed that the best grade material occurred in a series of discontinuous, tabular masses or lenses, generally  $\leq 20$  m thick and as much as 130 to 140 m long. These lenses consist of abundant fluorphlogopite and pyrite along with fragments of trachyte and variable fluorite. Principal uranium and thorium minerals include uraninite, thorian uraninite, torbenite, metatorbenite, thorianite and thorite. They occur as tiny, discrete grains within fluorphlogopite grains or scattered in the pyrite-fluorphlogopite matrix. The mineralized lenses show both conformable and cross-cutting relationships to



schistosity in the trachyte.

As well as the uranium-thorium occurrences, fluorite and molybdenite are present on the property. Three of the uranium zones partly surround a fluorite zone almost 400 m long and with an average true thickness of 24 m. The fluorite occurs as disseminated grains, fragments, massive patches and vein-type material. Molybdenite is associated with the fluorite, occurring as finely disseminated grains.

A bog manganese occurrence is found north of the main uranium and fluorite zones. It appears as a sub-soil deposit of black oxide.

Spatial relationships among these different types of mineralization are shown in Figure 3.

## 7. EXPLORATION MODEL

The mineralization observed on surface and in underground workings and diamond drill core resembles the classic fluorine-uranium-molybdenum association. It shows a central area of fluorite containing up to 0.09 percent  $\text{MoS}_2$  surrounded by three small uranium deposits. All of these appear to lie within a trachytic horizon that shows extensive brecciation and alteration, including silicification and pyrite flooding. These features suggest a large hydrothermal system with the center of activity capped by the fluorite zone and fringed by uranium mineralization. At depth then, was the possibility of a large intrusive body with associated molybdenum (+ tin or tungsten) mineralization.

## 8. EXPLORATION PROGRAM

During July, 1982 a diamond drill hole was drilled to test the model for deep source molybdenum. The hole was located just east of the Fluorite Zone and was collared between two previous drill holes, #249 and #250, at an approximate elevation of 1300 m (see Figure 4). This location was chosen because the hole would be most likely to penetrate into a center to the hydrothermal system in this area.

Placer contracted Olympic Drilling and Consulting Ltd. of #200 - 2695 Granville Street, Vancouver, B.C. to do the diamond drilling. A unitized Longyear Super 38 was skidded up the hill to the site on July 6. Just prior to this a D8H cat built an additional 500 m of road at an average grade of 10 percent so that

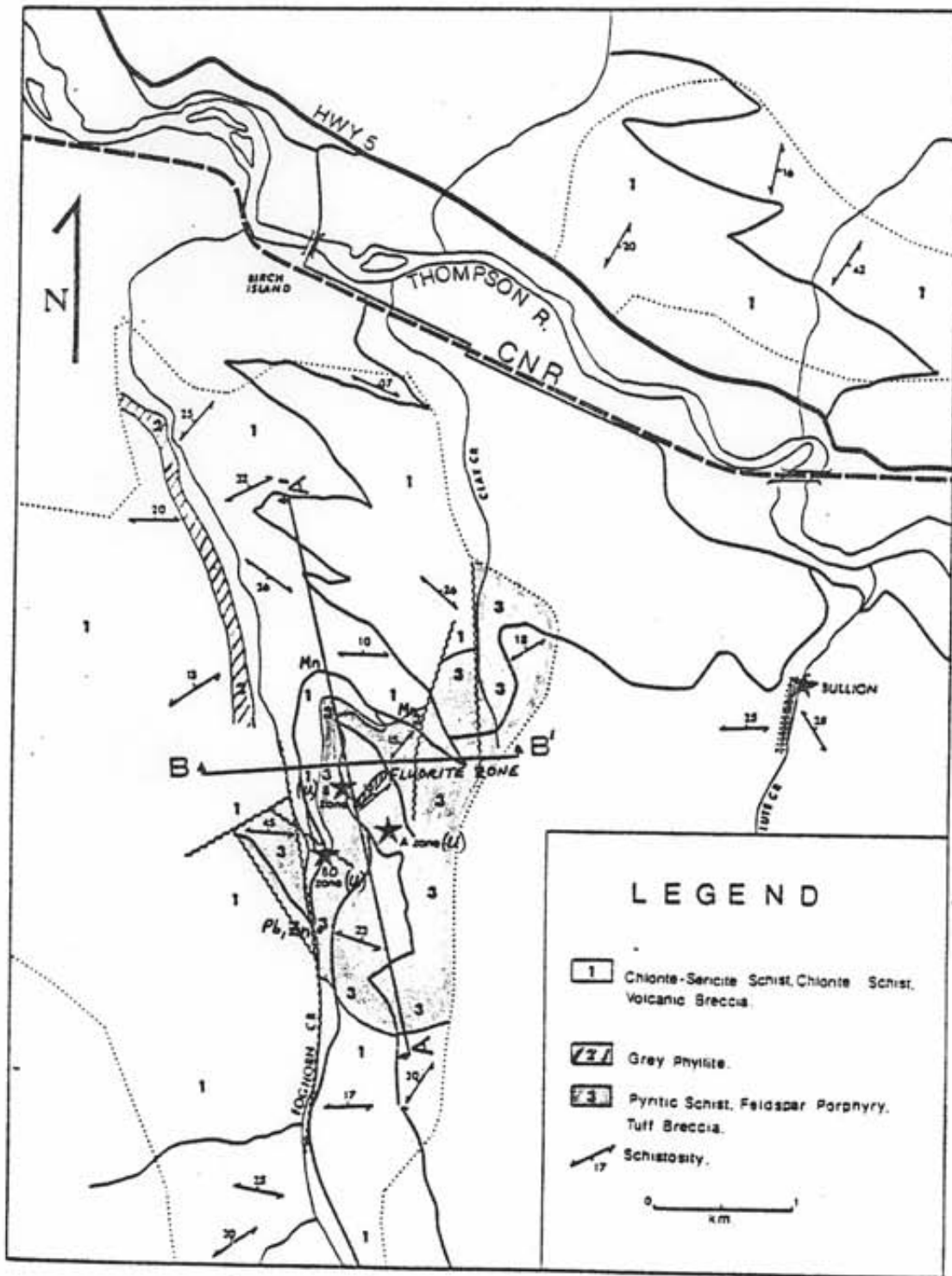


FIGURE 3 Generalized Geology and Mineralized Zones on the Rexspar Property

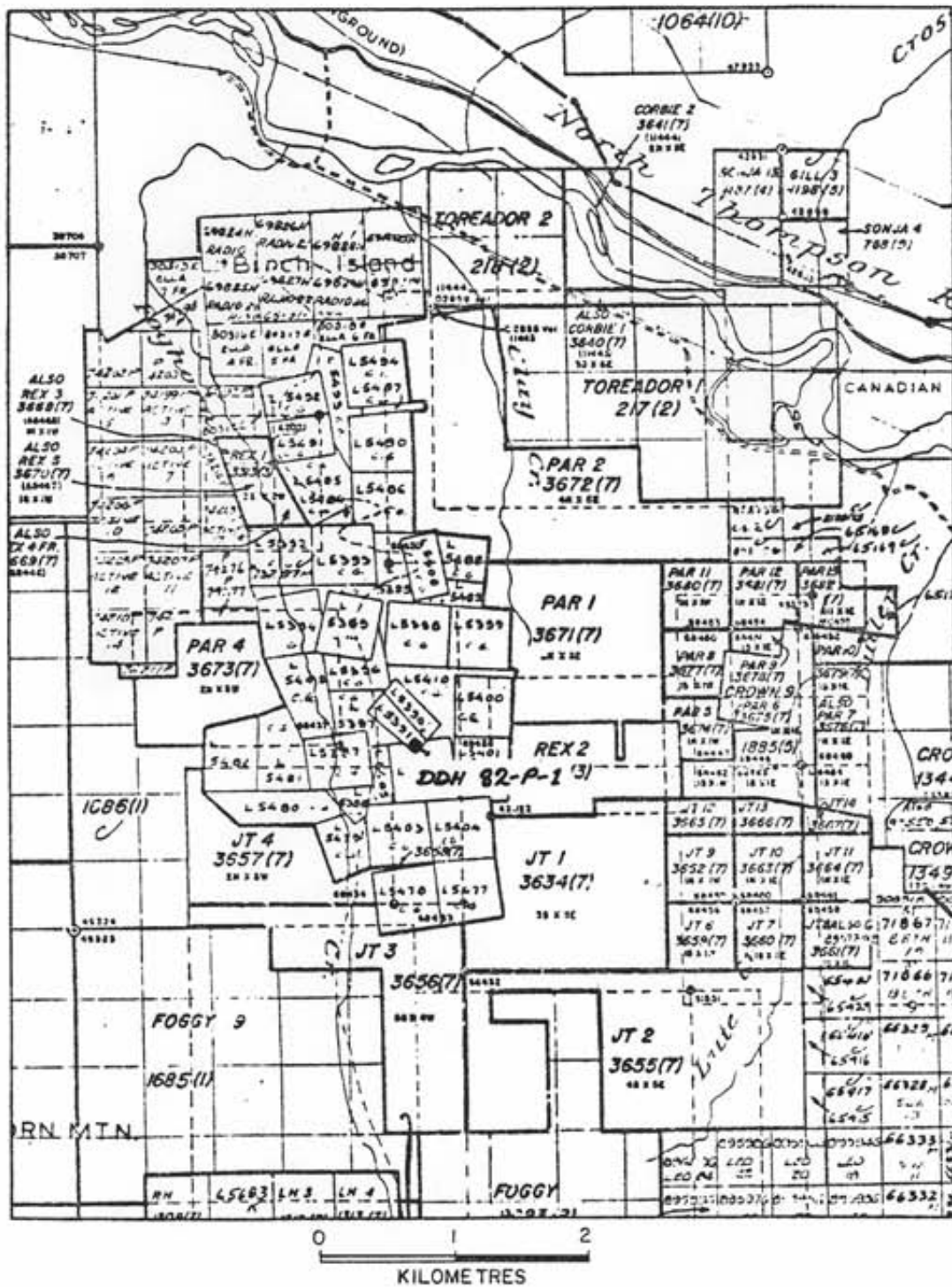


FIGURE 4 Approximate Location of DDH 82-P-1 Oriented  $-70^{\circ}$  in the Direction  $121^{\circ}$

the drill site was more easily accessible.

The hole was spotted at  $-70^\circ$  in the direction  $121^\circ$ . Work related to the drilling commenced July 6 and was completed July 20. Part of one day was lost due to a problem of insufficient water supply. Drilling was set up to run as two ten-hour shifts per day. NQ size core was drilled. The drill hole was stopped at 539.5 m. A singleshot test at the bottom of the hole read  $-66^\circ$  in the direction  $117^\circ$ . The drill core was logged and split on site and later transported down the hill and stored in Rexspar's house at Birch Island.

## 9. DIAMOND DRILL HOLE: 82-P-1

### 9.1 Rock Types

Briefly, the drill hole may be divided into three segments. From 1.3 to 206 m massive to thinly bedded tuff, lapilli tuff, and lapilli crystal tuff of trachytic (to rhyodacitic?) composition is encountered. There is a 2 m wide fault zone, starting at 105 m, with shearing parallel to bedding. A sequence of thinly interbedded and banded fine-grained tuff, crystal tuff, tuffaceous argillite and shaly tuff with minor shale is present between 206 and 404 m. This segment is typically phyllitic and grades to quartz sericite schist and chlorite schist. Lamprophyre dykes occur at about 250 m and their cross cutting attitude creates a  $45^\circ$  to  $50^\circ$  angle with the bedding. A much greater sedimentary component is present in the rock from 404 to 539.5 m. There, thinly interbedded tuffaceous shale, shale and graphitic shale, with only minor fine-grained tuff, are encountered.

### 9.2 Structure

In general the dip of the tuffaceous and sedimentary sequence is shallow throughout the length of the drill hole. the coarser pyroclastic trachytic rocks are generally massive, but sedimentary units show a phyllitic to schistose foliation developed sub-parallel to bedding.

A 2 m wide fault zone occurs within the trachytic horizon and shows partial healing by albite, quartz and carbonate with minor fluorite and sericite.

Below the more massive trachytic unit, the interbedded tuffs and argillaceous sedimentary rocks display a pronounced banded to ribbon structure with foliation varying from weak to strong.

### 9.3 Mineralization

The drill core reveals only very sparse mineralization, becoming negligible with increased depth of the hole. Molybdenite first appears at about 80 m depth and effectively dies out before 300 m depth. It has two modes of occurrence: (1) sporadically disseminated grains in quartz + albite + carbonate + fluorite veins and stringers; and (2) as micro-fracture fillings in 10 to 50 cm wide zones, which could be termed miniature crackle zones. Very minor, sporadic chalcopyrite may be associated with the molybdenite.

Fluorite occurs as patches and in veinlets in the rock, but rapidly disappears below 206 m depth. Quartz veins, which may or may not carry trace amounts of sulphide, decrease in abundance below a depth of 300 m. Pyrite is ubiquitous throughout the drill core and occurs as disseminations and in veinlets.

### 9.4 Analytical Results

The drill core was split in half and one-half of the core, over sections varying from 1 to 6 m in length and averaging 3 to 4 m, was bagged as samples for chemical analyses. Samples were sent to Placer Development's Research Lab in Vancouver for Mo, Cu, Zn, Pb, Cd, Ni, Co, U, W, Mn, Sr and Sn analyses and to Chemex Labs Ltd. in North Vancouver for F analysis. Methods of analyses and detection limits are given in Table 1. Analytical results are presented in Table 2. Cross sections of the drill hole with rock types and certain analytical results are presented in Figures 5a and 5b.

## 10. DISCUSSION OF RESULTS

Rock types encountered in diamond drill hole 82-P-1 show an upward progression from argillaceous and carbonaceous sedimentary rocks to a section of tuffaceous shale and argillite with interbedded finegrained tuff to a horizon of banded to massive tuff, lapilli tuff, and lapilli crystal tuff of trachytic to rhyodacitic composition. This transition down the hole from a dominant volcanic component to a dominant sedimentary component shows that the area drilled is actually distal to any possible vent system.

Visible mineralization in the drill core is sparse and disappears with depth. Disseminated and fracture-filling or vein-related molybdenite and trace chalcopyrite are most prevalent

TABLE 1

STANDARD ANALYTICAL METHODS AND DETECTION  
LIMITS USED AT PLACER'S GEOCHEM LAB, VANCOUVER

<u>ELEMENT</u>	<u>UNITS</u>	<u>WEIGHT (grams)</u>	<u>ATTACK USED</u>	<u>TIME RANGE (hours)</u>		<u>METHOD</u>
Mo	ppm	0.5	CONC. HClO <sub>4</sub> /HNO <sub>3</sub>	4	1-1000	ATOMIC ABSORPTION
Cu	ppm	0.5	CONC. HClO <sub>4</sub> /HNO <sub>3</sub>	4	2-4000	ATOMIC ABSORPTION
Zn	ppm	0.5	CONC. HClO <sub>4</sub> /HNO <sub>3</sub>	4	2-3000	ATOMIC ABSORPTION
Pb	ppm	0.5	CONC. HClO <sub>4</sub> /HNO <sub>3</sub>	4	2-3000	A.A. BACKGROUND CORRECTION
Cd	ppm	0.5	CONC. HClO <sub>4</sub> /HNO <sub>3</sub>	4	0.2-200	A.A. BACKGROUND CORRECTION
Ni	ppm	0.5	CONC. HClO <sub>4</sub> /HNO <sub>3</sub>	4	2-2000	ATOMIC ABSORPTION
Co	ppm	0.5	CONC. HClO <sub>4</sub> /HNO <sub>3</sub>	4	2-2000	ATOMIC ABSORPTION
U	ppm	0.25	DIL. HNO <sub>3</sub>	2	1.0-1000	FLUORIMETRY SOLV. EXTRACTION
W	ppm	1.0	CON. HF/HNO <sub>3</sub> /HCl/H <sub>2</sub> SO <sub>4</sub>	4	5-500	A.A. SOLVENT EXTRACTION
Mn	ppm	0.5	CONC. HClO <sub>4</sub> /HNO <sub>3</sub>	4	2-3000	ATOMIC ABSORPTION
Sr	ppm	0.5	CONC. HF/HClO <sub>4</sub> /HNO <sub>3</sub> /HCl	6	10-2000	ATOMIC ABSORPTION
Sn	ppm	1.0	NH <sub>4</sub> I FUSION	0.25	5-500	A.A. SOLVENT EXTRACTION

TABLE 2

GEOCHEMICAL DATA FOR DIAMOND DRILL HOLE 82-P-1

<u>METERAGE</u>		<u>SAMPLE NO.</u>	<u>MOPPM</u>	<u>CUPPM</u>	<u>ZNPPM</u>	<u>PBPPM</u>	<u>CDPPM</u>	<u>NIPPM</u>	<u>COPPM</u>
1.3	4.0	73301	23	168	75	46	0.1	12	21
4.0	6.7	73302	62	50	103	179	0.2	12	16
6.7	9.4	73303	130	48	183	296	0.8	12	14
9.4	12.6	73304	33	41	222	219	1.1	11	15
12.6	16.0	73305	62	66	149	213	0.8	12	14
16.0	19.1	73306	91	88	117	226	0.4	11	14
19.1	22.2	73307	42	78	245	225	2.0	11	13
22.2	26.4	73308	22	77	120	136	0.8	20	14
26.4	30.0	73309	13	31	40	42	0.1	6	10
30.0	34.3	73310	16	25	30	78	0.1	8	12
34.3	37.5	73311	360	84	700	520	3.7	16	19
37.5	40.3	73312	44	82	600	354	2.9	12	16
40.3	43.9	73313	71	61	240	151	0.7	14	17
43.9	47.3	73314	160	55	2120	730	12.3	13	19
47.3	51.6	73315	96	35	252	175	0.8	17	20
51.6	54.1	73316	57	34	242	244	1.2	17	16
54.1	57.1	73317	78	53	302	186	1.2	15	19
57.1	61.7	73318	46	31	860	700	5.1	15	16
61.7	64.7	73319	42	28	530	460	3.4	19	21
64.7	69.2	73320	87	37	770	840	4.8	20	20
69.2	72.6	73321	440	98	420	278	1.9	33	36
72.6	75.2	73322	250	54	51	74	0.1	25	29
75.2	77.8	73323	470	78	214	192	0.6	32	35
77.8	79.8	73324	180	30	630	79	3.7	13	15
79.8	83.0	73325	50	47	57	650	0.1	11	16
83.0	86.4	73326	86	45	112	210	0.3	12	17
86.4	88.8	73327	94	32	450	318	3.5	13	13
88.8	91.9	73328	28	43	209	183	1.5	17	17
91.9	93.9	73329	85	35	290	127	2.4	13	13
93.9	96.1	73330	76	33	70	357	0.5	14	12
96.1	99.3	73331	110	28	121	147	0.7	13	15
99.3	103.3	73332	103	31	111	168	0.6	14	13
103.3	107.0	73333	95	45	650	500	4.3	17	14
107.0	109.7	73334	47	26	263	281	1.2	10	12
109.7	112.2	73335	35	19	200	287	0.8	9	10
112.2	116.5	73336	39	20	97	88	0.4	13	15
116.5	120.0	73337	46	20	480	680	2.4	13	14
120.0	124.2	73338	40	19	167	321	1.0	12	13

<u>METERAGE</u>		<u>SAMPLE NO.</u>	<u>MOPPM</u>	<u>CUPPM</u>	<u>ZNPPM</u>	<u>PBPPM</u>	<u>CDPPM</u>	<u>NIPPM</u>	<u>COPPM</u>
124.2	128.0	73339	42	19	550	378	3.0	13	12
128.0	131.5	73340	32	21	308	293	1.7	14	16
131.5	134.5	73341	15	19	115	138	0.1	13	18
134.5	138.5	73342	14	34	550	341	2.6	13	19
138.5	141.1	73343	17	18	167	146	0.5	10	14
141.1	144.9	73344	22	27	147	132	0.1	15	21
144.9	147.8	73345	50	23	86	160	0.1	16	15
147.8	150.8	73346	40	26	80	124	0.2	14	15
150.8	152.7	73347	40	34	58	95	0.1	16	18
152.7	156.8	73348	28	34	300	175	1.0	18	19
156.8	160.4	73349	104	40	450	690	2.5	15	15
160.4	164.7	73350	97	66	510	750	3.1	13	14
164.7	168.0	73351	47	43	75	333	0.2	13	14
168.0	171.5	73352	30	43	115	209	0.1	14	16
171.5	174.0	73353	12	33	109	112	0.1	15	17
174.0	177.0	73354	14	31	76	108	0.1	13	15
177.0	180.0	73355	16	34	82	80	0.2	12	13
180.0	183.3	73356	6	33	59	110	0.1	11	14
183.3	184.9	73357	22	84	640	510	2.6	21	23
184.9	188.2	73358	14	30	170	153	0.6	13	15
188.2	192.4	73359	6	36	176	115	0.8	12	14
192.4	195.4	73360	5	24	90	65	0.3	10	13
195.4	198.4	73361	29	29	66	69	0.1	15	16
198.4	202.4	73362	63	20	48	196	0.1	13	15
202.4	206.2	73363	56	27	40	55	0.2	13	13
206.2	209.6	73364	14	30	73	95	0.4	29	20
209.6	212.8	73365	4	41	54	9	0.1	41	14
212.8	215.8	73366	4	25	67	13	0.2	36	10
215.8	218.8	73367	4	41	38	21	0.1	34	19
218.8	221.6	73368	8	35	74	510	0.1	43	19
221.6	225.2	73369	6	20	42	14	0.1	37	13
225.2	229.1	73370	6	38	84	26	0.1	45	19
229.1	231.6	73371	4	36	82	24	0.1	41	17
231.6	234.1	73372	3	40	97	26	0.1	45	19
234.1	237.0	73373	6	38	99	76	0.1	42	21
237.0	240.4	73374	3	33	73	32	0.1	78	32
240.4	243.6	73375	4	28	88	84	0.1	42	21
243.6	246.0	73376	4	37	188	89	0.4	47	22
246.0	249.0	73377	5	33	104	41	0.1	51	21
249.0	252.0	73378	5	28	104	123	0.1	46	24
252.0	254.0	73379	4	23	49	25	0.1	33	18
254.0	256.2	73380	2	34	66	12	0.1	148	51
256.2	258.8	73381	3	32	45	15	0.1	38	17
258.8	261.7	73382	2	12	51	22	0.1	17	10
261.7	263.8	73383	3	22	115	41	0.1	32	27
263.8	266.4	73384	1	12	40	8	0.1	13	10



<u>METERAGE</u>		<u>SAMPLE NO.</u>	<u>MOPPM</u>	<u>CUPPM</u>	<u>ZNPPM</u>	<u>PBPPM</u>	<u>CDPPM</u>	<u>NIPPM</u>	<u>COPPM</u>
266.4	268.8	73385	2	16	35	8	0.1	11	9
268.8	271.8	73386	3	11	33	22	0.1	15	10
271.8	274.8	73387	2	16	36	17	0.1	10	9
274.8	277.9	73388	2	7	46	11	0.1	13	13
277.9	280.5	73389	5	103	97	35	0.1	41	18
280.5	284.2	73390	4	31	84	35	0.1	44	19
284.2	287.3	73391	3	32	109	32	0.1	49	23
287.3	290.3	73392	5	32	78	6	0.1	48	21
290.3	294.0	73393	3	33	62	6	0.1	46	21
294.0	297.0	73394	3	24	103	13	0.1	47	21
297.0	300.0	73395	3	28	75	12	0.1	47	20
300.0	303.0	73396	5	31	78	15	0.1	44	19
303.0	305.0	73397	3	30	88	7	0.1	46	19
305.0	308.0	73398	4	43	83	10	0.1	46	17
308.0	310.7	73399	3	35	71	10	0.1	44	16
310.7	314.0	73400	5	39	105	36	0.1	53	20
314.0	316.0	73401	3	30	44	16	0.1	32	23
316.0	319.3	73402	3	31	58	17	0.1	27	24
319.3	324.0	73403	4	36	122	82	0.1	30	23
324.0	327.0	73404	5	28	101	39	0.1	28	25
327.0	330.2	73405	3	29	55	25	0.1	32	26
330.2	334.0	73406	9	42	47	20	0.1	53	18
334.0	338.5	73407	7	14	92	55	0.1	30	19
338.5	342.8	73408	4	45	104	57	0.1	28	27
342.8	347.1	73409	5	38	173	100	0.4	38	40
347.1	350.5	73410	7	181	560	234	1.8	134	72
363.6	367.0	73411	5	95	193	18	0.1	68	51
376.9	379.8	73412	3	25	93	10	0.1	151	74
381.9	384.7	73413	3	12	168	7	0.1	139	73
384.7	389.0	73414	3	39	86	12	0.1	87	62
395.0	398.0	73415	4	242	262	237	0.2	14	24
398.0	401.0	73416	6	209	360	270	0.2	20	30
401.0	404.1	73417	4	90	700	338	1.3	29	32
417.3	420.7	73418	3	28	76	62	0.1	25	17
420.7	424.0	73419	2	30	72	14	0.1	45	23
424.0	427.0	73420	3	31	76	58	0.1	27	19
440.8	444.9	73421	6	9	59	5	0.1	18	32
444.9	448.8	73422	8	9	67	4	0.1	17	33
472.0	473.9	73423	5	52	84	17	0.1	75	41
476.6	480.0	73424	6	74	90	40	0.1	75	35
515.1	518.0	73425	6	41	81	9	0.1	63	29
520.2	522.3	73426	6	53	57	7	0.1	35	27
526.4	530.0	73427	3	15	128	138	0.1	16	25

<u>METERAGE</u>		<u>SAMPLE NO.</u>	<u>UPPM</u>	<u>WPPM</u>	<u>F %</u>	<u>MNPPM</u>	<u>SRPPM</u>	<u>SNPPM</u>
1.3	4.0	73301	16	2.5	0.39	138	790	2.5
4.0	6.7	73302	14	15	0.82	1130	3900	7
6.7	9.4	73303	17	10	0.92	1290	3800	2.5
9.4	12.6	73304	19	8	0.43	2480	2280	2.5
12.6	16.0	73305	16	9	0.88	790	3750	2.5
16.0	19.1	73306	15	10	0.72	580	3010	2.5
19.1	22.2	73307	14	10	0.50	390	1180	6
22.2	26.4	73308	9	8	0.22	760	1000	2.5
26.4	30.0	73309	6	9	0.15	1450	490	2.5
30.0	34.3	73310	9	10	0.20	920	760	2.5
34.3	37.5	73311	50	7	1.16	4500	820	2.5
37.5	40.3	73312	68	7	0.52	2180	430	2.5
40.3	43.9	73313	36	9	0.65	1990	530	2.5
43.9	47.3	73314	26	7	0.87	1480	420	2.5
47.3	51.6	73315	25	7	0.97	1180	360	2.5
51.6	54.1	73316	32	9	0.47	1340	180	2.5
54.1	57.1	73317	39	8	0.40	2480	340	2.5
57.1	61.7	73318	24	9	0.77	3300	260	5
61.7	64.7	73319	19	23	0.68	1420	400	2.5
64.7	69.2	73320	26	8	0.69	710	420	2.5
69.2	72.6	73321	75	8	2.65	157	1070	7
72.6	75.2	73322	30	12	1.98	71	620	5
75.2	77.8	73323	86	17	2.52	124	1170	2.5
77.8	79.8	73324	22	6	0.88	73	370	5
79.8	83.0	73325	15	2.5	0.33	257	280	9
83.0	86.4	73326	21	2.5	0.13	245	670	2.5
86.4	88.8	73327	20	2.5	0.25	490	560	9
88.8	91.9	73328	14	2.5	0.45	193	180	2.5
91.9	93.9	73329	25	2.5	0.99	121	280	2.5
93.9	96.1	73330	16	2.5	0.13	680	400	2.5
96.1	99.3	73331	14	2.5	0.90	79	280	2.5
99.3	103.3	73332	23	2.5	0.99	500	360	2.5
103.3	107.0	73333	20	2.5	0.72	1980	400	2.5
107.0	109.7	73334	25	2.5	0.73	1750	250	2.5
109.7	112.2	73335	24	2.5	0.44	1900	200	12
112.2	116.5	73336	16	2.5	0.35	620	190	11
116.5	120.0	73337	39	5	0.85	1970	220	2.5
120.0	124.2	73338	26	5	0.63	1160	350	10
124.2	128.0	73339	26	5	0.73	4200	320	12
128.0	131.5	73340	8	2.5	0.38	980	270	2.5
131.5	134.5	73341	7	2.5	0.24	590	300	2.5
134.5	138.5	73342	4	2.5	0.18	1080	420	2.5
138.5	141.1	73343	9	2.5	0.18	900	270	2.5

<u>METERAGE</u>		<u>SAMPLE NO.</u>	<u>UPPM</u>	<u>WPPM</u>	<u>F %</u>	<u>MNPPM</u>	<u>SRPPM</u>	<u>SNPPM</u>
141.1	144.9	73344	10	2.5	0.29	1010	300	2.5
144.9	147.8	73345	13	2.5	0.36	890	340	2.5
147.8	150.8	73346	19	2.5	0.34	480	200	2.5
150.8	152.7	73347	30	2.5	0.78	590	440	2.5
152.7	156.8	73348	11	2.5	0.34	690	280	2.5
156.8	160.4	73349	12	2.5	0.82	690	300	7
160.4	164.7	73350	37	2.5	0.40	710	370	5
164.7	168.0	73351	20	2.5	0.24	990	1670	2.5
168.0	171.5	73352	16	2.5	0.45	2010	490	2.5
171.5	174.0	73353	10	5	0.32	1860	490	2.5
174.0	177.0	73354	8	6	0.30	1530	290	2.5
177.0	180.0	73355	8	5	0.30	1540	450	11
180.0	183.3	73356	9	5	0.29	1800	290	5
183.3	184.9	73357	10	2.5	1.04	8100	1440	2.5
184.9	188.2	73358	13	6	0.26	2390	340	2.5
188.2	192.4	73359	9	6	0.21	2930	220	7
192.4	195.4	73360	3	5	0.22	2240	270	5
195.4	198.4	73361	14	2.5	0.60	1050	340	2.5
198.4	202.4	73362	16	2.5	0.40	164	330	2.5
202.4	206.2	73363	10	2.5	0.29	310	310	2.5
206.2	209.6	73364	8	5	0.22	126	70	2.5
209.6	212.8	73365	2	2.5	0.05	480	260	2.5
212.8	215.8	73366	1	2.5	0.03	204	350	2.5
215.8	218.8	73367	2	2.5	0.07	380	300	2.5
218.8	221.6	73368	1	2.5	0.06	510	220	65
221.6	225.2	73369	6	2.5	0.05	310	200	7
225.2	229.1	73370	5	2.5	0.06	247	310	2.5
229.1	231.6	73371	4	2.5	0.04	146	190	2.5
231.6	234.1	73372	0.5	2.5	0.04	161	270	2.5
234.1	237.0	73373	1	2.5	0.05	240	340	2.5
237.0	240.4	73374	1	2.5	0.05	530	840	2.5
240.4	243.6	73375	0.5	2.5	0.03	280	300	2.5
243.6	246.0	73376	3	2.5	0.04	218	290	7
246.0	249.0	73377	0.5	2.5	0.04	251	340	2.5
249.0	252.0	73378	0.5	2.5	0.04	240	320	6
252.0	254.0	73379	0.5	2.5	0.04	263	350	2.5
254.0	256.2	73380	0.5	2.5	0.06	810	1780	2.5
256.2	258.8	73381	0.5	2.5	0.04	260	390	2.5
258.8	261.7	73382	0.5	2.5	0.05	380	100	12
261.7	263.8	73383	6	2.5	0.03	510	320	9
263.8	266.4	73384	0.5	2.5	0.04	183	110	2.5
266.4	268.8	73385	2	2.5	0.05	183	140	2.5
268.8	271.8	73386	2	2.5	0.04	154	70	2.5
271.8	274.8	73387	1	2.5	0.03	156	70	2.5

<u>METERAGE</u>		<u>SAMPLE NO.</u>	<u>UPPM</u>	<u>WPPM</u>	<u>F %</u>	<u>MNPPM</u>	<u>SRPPM</u>	<u>SNPPM</u>
274.8	277.9	73388	0.5	2.5	0.04	126	80	2.5
277.9	280.5	73389	0.5	2.5	0.05	212	380	2.5
280.5	284.2	73390	0.5	2.5	0.03	205	330	2.5
284.2	287.3	73391	0.5	2.5	0.03	320	190	2.5
287.3	290.3	73392	1	2.5	0.03	365	320	8
290.3	294.0	73393	0.5	2.5	0.03	240	160	9
294.0	297.0	73394	0.5	2.5	0.03	230	200	2.5
297.0	300.0	73395	0.5	2.5	0.03	227	210	2.5
300.0	303.0	73396	1	2.5	0.03	228	260	2.5
303.0	305.0	73397	0.5	2.5	0.03	230	200	2.5
305.0	308.0	73398	1	2.5	0.04	140	220	2.5
308.0	310.7	73399	0.5	2.5	0.03	178	320	2.5
310.7	314.0	73400	0.5	2.5	0.04	236	420	2.5
314.0	316.0	73401	5	2.5	0.06	900	920	2.5
316.0	319.3	73402	3	2.5	0.05	840	820	2.5
319.3	324.0	73403	9	2.5	0.05	540	460	2.5
324.0	327.0	73404	10	2.5	0.04	540	630	2.5
327.0	330.2	73405	7	2.5	0.04	680	810	2.5
330.2	334.0	73406	9	2.5	0.06	320	200	2.5
334.0	338.5	73407	2	2.5	0.06	340	230	2.5
338.5	342.8	73408	7	2.5	0.08	237	190	2.5
342.8	347.1	73409	11	2.5	0.08	250	160	2.5
347.1	350.5	73410	0.5	2.5	0.06	1620	450	2.5
363.6	367.0	73411	0.5	2.5	0.05	1880	340	2.5
376.9	379.8	73412	0.5	2.5	0.03	1860	310	2.5
381.9	384.7	73413	0.5	2.5	0.04	1830	310	10
384.7	389.0	73414	0.5	2.5	0.04	220	450	2.5
395.0	398.0	73415	0.5	2.5	0.04	149	70	5
398.0	401.0	73416	0.5	2.5	0.03	480	70	10
401.0	404.1	73417	0.5	2.5	0.03	660	120	2.5
417.3	420.7	73418	0.5	2.5	0.05	222	120	2.5
420.7	424.0	73419	2	2.5	0.04	285	230	5
424.0	427.0	73420	0.5	2.5	0.05	280	200	2.5
440.8	444.9	73421	2	2.5	0.03	770	220	2.5
444.9	448.8	73422	1	2.5	0.04	760	230	6
472.0	473.9	73423	1	2.5	0.04	1060	150	2.5
476.6	480.0	73424	1	2.5	0.04	1050	110	2.5
515.1	518.0	73425	4	2.5	0.03	660	130	10
520.2	522.3	73426	3	2.5	0.04	660	280	12
526.4	530.0	73427	1	2.5	0.02	1160	310	7

in the trachytic horizon, especially between 70 and 206 meters. The scarcity of mineralization and quartz veining suggests that any possible major hydrothermal (and mineralizing) event has not greatly affected the stratified sequence in the area drilled. In fact, the greatest abundance of quartz + albite + fluorite + carbonate veining and associated molybdenite + chalcopyrite is largely restricted to the trachytic pyroclastic sequence and shows no apparent "roots" to anything at depth.

The geochemical results on thirteen elements from samples of the drill core are all generally low. The most significant Mo values range from 103 to 470 ppm and, except for one isolated value of 104 ppm at 157 to 160 m, they lie within the first 103 m of the surface. Similarly, the best W values are within the upper 80 m, and F values within the upper 200 m of the drill hole. Sn shows a definite break to lower values below 26 m depth. Such a sharp break is demonstrated in the quantities of other elements too. Mn values drop significantly below 198 m, whereas Mo, Cd, U and F all show a cut-off to lower values below 210 m. This meterage corresponds very closely with the lithologic break from trachytic pyroclastic rocks to interbedded tuffaceous and sedimentary units.

## 11. CONCLUSIONS AND RECOMMENDATIONS

Diamond drill hole 82-P-1 has shown that the area believed to be most favorable as a probable center of hydrothermal activity is, in fact, distal to any possible volcanic vent. The drill hole tells us where the hydrothermal center isn't, but it doesn't help to narrow down where else the center may be located.

The scarcity of molybdenite and other mineral occurrences as well as infrequency of major veining are not encouraging. Analytical results are generally low and highest values for the main elements are confined to the top 100 m or at most, 200 m of the drill hole, suggesting that the best mineralization may have already been eroded off or may occur laterally along the trachyte horizon.

DDH 82-P-1 was drilled in the location believed to be the best for testing the deep molybdenum model at Rexspar. The result of the test was negative without any encouraging signs. With the present and apparent long term slump in the molybdenum market and current economic recession it is recommended that no further drilling be carried out on the Rexspar property and that Placer Development relinquish its option.

## 12. SUMMARY OF COSTS

The following expenses were incurred by Placer Development Limited for the July, 1982 diamond drilling conducted on the Rexspar property, B.C.

<u>Salaries</u>			<u>Cost</u>
C. Rennie	July 13 - 16	4 days @ \$250/day	1000.00
S. Campbell	July 6 - 20	15 days @ \$200/day	3000.00
H. Goddard	July 6 - 12	7 days @ \$150/day	1050.00
B. Ott	July 11 - 15	5 days @ \$150/day	750.00
			<hr/>
			\$5,800.00

### Camp Operations

Accommodaiton	15 days @ \$40.00/day	600.00
Groceries		260.00
Meals		265.00
		<hr/>
		\$1,125.00

### Site Preparation and Road Building

D8H Cat	25 hours @ \$105./hour	\$2,625.00
Hauling		300.00
		<hr/>
		\$2,925.00

### Drilling Costs

Drilling	\$31,940.00
Mobilization and Demobilization	1,600.00
Set-up and Tear-down	3,000.00
Travel	800.00
Standby	1,200.00

Tractor Rental		3,514.50
Hole Test		75.00
Materials		1,225.26
Core Boxes		417.58
Parts for Core Splitter		61.69
		<hr/>
		\$43,834.03

Assay Costs

Core Samples	127 for 13 elements @ \$36.80/sample	\$ 4,673.60
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Report Preparation

S. Campbell	4 days @ \$200.00/day	800.00
D. Dussault	1 day @ \$ 90.00/day	90.00
		<hr/>
		\$ 890.00

Computer Costs

\$ 50.00

Total Expenditure

\$59,297.63

SWC/dd

APPENDIX A1 - LIST OF CROWN GRANTS AND CLAIMS

Crown Granted Mineral Claims  
all located in the Kamloops Mining Division of  
British Columbia

<u>CLAIM NAME</u>	<u>LOT No.</u>	<u>ANNIVERSARY DATE</u>
Black Daimond 2	5387	July 1st, 1983
Black Diamond 1	5388	" " "
Smuggler	5389	" " "
Spar 1	5390	" " "
Spar 2	5391	" " "
Rex 26	5392	" " "
Rex 25	5393	" " "
Rex 27	5394	" " "
Jane 2Fr.	5395	" " "
Rex 19	5396	" " "
Rex 20	5397	" " "
Rex 17	5398	" " "
Rex 18	5399	" " "
Rex 15	5400	" " "
Rex 16	5401	" " "
Rex 12	5402	" " "
Rex 13	5403	" " "
Rex 14	5404	" " "
Jane 4Fr.	5405	" " "
Rex 30	5408	" " "
Jane 1Fr.	5409	" " "
Jane 3Fr.	5410	" " "
Lil 39Fr.	5411	" " "
Rex 24	5477	" " "
Rex 23	5478	" " "
Rex 22	5479	" " "
Jane 7Fr.	5480	" " "
Jane 9Fr.	5481	" " "
Jane 8 Fr.	5482	" " "
Jane 16 Fr.	5484	" " "
Lil 18	5485	" " "
Spar 36	5486	" " "
Gord 8	5487	" " "
Lil 7	5488	" " "
Lil 5	5489	" " "
Lil 13	5490	" " "
Lil 20	5491	" " "
Gord 6Fr.	5493	" " "
Lil 15	5494	" " "
Lil 24	5492	" " "



Mineral Claims Located in the  
Kamloops Mining Division of British Columbia

<u>CLAIM NAME</u>	<u>UNITS</u>	<u>TAG No.</u>	<u>RECORD No.</u>	<u>ANNIVERSARY DATE</u>
Rex 1	( 4)	62021	3313	March 9th, 1984
Rex 2	( 6)	62022	3314	" " "
Rex 3	( 1)	68465	3668	July 14th, 1984
Rex 4Fr.	( 1)	68446	3669	" " "
Rex 5	( 1)	68467	3670	" " "
JT 1	( 9)	68431	3654	" " "
JT 4	( 6)	68434	3657	" " "
JR 5Fr.	( 1)	68436	3658	" " "
JT 12	( 1)	68462	3665	" " "
JT 13	( 1)	68463	3666	" " "
JT 14	( 1)	68464	3667	" " "
Par 1	( 9)	68435	3671	" " "
Par 2	(20)	68430	3672	" " "
Par 4	( 6)	68437	3673	" " "
Par 5	( 1)	68447	3674	" " "
Par 6	( 1)	68448	3675	" " "
Par 7	( 1)	68449	3676	" " "
Par 8	( 1)	68450	3677	" " "
Par 9	( 1)	68451	3678	" " "
Par 10	( 1)	68452	3679	" " "
Par 11	( 1)	68453	3680	" " "
Par 12	( 1)	68454	3681	" " "
Par 13	( 1)	68455	3682	" " "
Active 1			74197	November 8th, 1987*
Active 2Fr.			74198	" " "
Active 3			74199	" " "
Active 4			74200	" " "
Active 5			74201	" " "
Active 6			74202	" " "
Active 7			74203	" " "
Active 8			74204	" " "
Active 9			74205	" " "
Active 10			74206	" " "
Active 11			74207	" " "
Active 12			74208	" " "
Active 13Fr.			74209	" " "
Active 14			74210	" " "
Active 15Fr.			74211	" " "
Active 16Fr.			74212	" " "
Active 17Fr.			74213	" " "
Active 80Fr.			74276	" " "
Active 81Fr.			74277	" " "

Ella 3Fr.		80315	May 26th, 1984
Ella 4Fr.		80316	" " "
Ella 5Fr.		80317	" " "
Ella 6Fr.		80318	" " "
Ella 7Fr.		80319	" " "
Radio 19		69824	July 15th, 1984
Radio 20		69825	" " "
Radio 21		69826	" " "
Radio 22		69827	" " "
Radio 23		69828	" " "
Radio 24		69829	" " "
Radio 25		69830	" " "
Radio 26		69831	" " "
JT 2	(20)	3655	July 14th, 1984
JT 3	(20)	3656	" " "
JT 6	( 1)	3659	" " "
JT 7	( 1)	3660	" " "
JT 8	( 1)	3661	" " "
JT 9	( 1)	3662	" " "
JT 10	( 1)	3663	" " "
JT 11	( 1)	3664	" " "

\* Under the Uranium Moratorium for B.C.

SWC/dd

APPENDIX A2 - ENGLISH VERSION OF GEOLOG FOR DDH 82-P-1

The following geological log is the English translation of the Geolog System, which was used to log the core from DDH 82-P-1 in the field.

HOLE B2P-1 NO GRID NORTH 7647.00 GRID EAST 7457.00

GRID AZIMUTH OF HOLE 121. VERTICAL ANGLE -70.

TRUE AZIMUTH OF HOLE 121

TOTAL DEPTH OF HOLE: 539.5 mt.

Logged by: SWC on (day/mo/yr)...B2JUL

FROM 0.00MT. TO 1.30MT.  
OVERBURDEN

FROM 1.30MT. TO 4.00MT.  
med. dark TRACHITIC LAPILLI TUFF with QUARTZ, MICA,  
Textures noted: MASSIVE, PORPHYRITIC  
Structures noted: FRACTURE SET dip 075, STRINGER dip 015  
5% QUARTZ as blebs  
1% BIOTITE as disseminations and scattered crystals  
.01% FLOURITE as disseminations and scattered crystals  
10% CARBONATE as microveins  
2.5% PYRITE as macroveins  
40% K-SPARS as disseminations and scattered crystals  
.3% CHLORITE as patches  
2.5% HEMATITE as coatings and encrustations

FROM 1.60MT. TO 1.75MT. 80% of this subinterval is  
PYRITE MICA ROCK  
Textures noted: BANDED  
Structures noted: BANDING dip 005,  
30% BIOTITE as pervasive mineralization  
.01% FLOURITE as disseminations and scattered crystals  
30% PYRITE as pervasive mineralization  
TYPICAL PYRITE-MICA ROCK WITH SOME HE-LI AFTER PYRITE. VISIBLE  
CRYSTALS AND CRYSTAL FRAGS OF FELDSPAR MAKE UP ROUGHLY 15  
PERCENT OF ROCK.

FROM 1.80MT. TO 2.10MT. 90% of this subinterval is  
medium TRACHITIC LAPILLI TUFF  
Textures noted: MASSIVE  
10% QUARTZ as spots  
? FLOURITE as disseminations and scattered crystals  
.3% CARBONATE as microveins  
.1% PYRITE as disseminations and scattered crystals  
30% K-SPARS as disseminations and scattered crystals  
.3% HEMATITE as coatings and encrustations  
CONTAINS SURROUNDED FRAGMENTS OF A VERY DARK GREY, APHANITIC,  
SILICEOUS VOLCANIC ROCK AND SUBANGULAR CRYSTAL FRAGMENTS OF  
FELDSPAR. IN PART THIS ROCK APPEARS PORPHYRITIC.

FROM 2.15MT. TO 2.30MT. 100% of this subinterval is the same as 1.30MT. to 4.00MT. except as noted  
Structures noted: MACROVEIN dip 010, MACROVEIN dip 020  
10% PYRITE as macroveins  
PYRITE VEINING CONCENTRATED IN THIS SECTION.

FROM 4.00MT. TO 12.60MT.  
medium TRACHITIC LAPILLI TUFF with CARBONATE, PYRITE,  
Textures noted: LAMINATED, BANDED, LENSOID-BANDED (STREAKY), RIBBONED, RIBBON-LIKE  
Structures noted: BANDING dip 015, MACROVEIN dip 015  
10% QUARTZ as patches  
2.5% FLOURITE as microveins  
10% CARBONATE as laminations, bedded  
1% PYRITE as macroveins

30% K-SPARS as disseminations and scattered crystals  
 30% MUSCOVITE OR SERICITE as laminations, bedded  
 10% CHLORITE as laminations, bedded  
 2.5% HEMATITE as coatings and encrustations  
 THIS ROCK HAS A VERY RIBBONY TO LAMINATED IN APPEARANCE. HAS  
 STRINGERS AND BANDS OF FLUORITE AND SUBPARALLEL RIBBONS OF  
 CARBONATE. CONTAINS BOTH LITHIC AND CRYSTAL FRAGMENTS. FRACTURES  
 FROM 010 TO 075 DIP WITH HEMATITE-LIMONITE COATING.

515 530DARK GREY-BLACK CRYSTAL FRAGMENTS? MINERAL IS HARD - HB?  
 600 670ABUNDANT CARBONATE RIBBONS. PYRITE BANDS AT 6.17M.  
 670 750NUMEROUS FRACTURES AT 015 DIP WITH COATING OF HM-LI.  
 815 870ABUNDANT FRACTURES AT 020 DIP WITH HM-LI COATING, GENERALLY  
 815 870ASSOCIATED WITH CARBONATE.  
 900 940INCREASE IN NUMBER OF FELDSPAR CRYSTAL FRAGMENTS, WHICH APPEAR  
 900 940AUGEN OR LENS-SHAPED PARALLEL TO LAMINATION.

FROM 10.40MT. TO 12.60MT. 100% of this subinterval is  
 medium TRACHITIC LAPILLI TUFF with CARBONATE, MICA,  
 Textures noted: LAMINATED, RIBBONED, RIBBON-LIKE  
 Structures noted: BANDING dip 015,  
 5% QUARTZ as patches  
 .3% FLUORITE as macroveins  
 5% CARBONATE as laminations, bedded  
 .3% PYRITE as disseminations and scattered crystals  
 20% K-SPARS as disseminations and scattered crystals  
 10% MUSCOVITE OR SERICITE as laminations, bedded  
 10% CHLORITE as laminations, bedded  
 .1% HEMATITE as coatings and encrustations  
 ABOUT 25 PERCENT ROCK FRAGMENTS, SUBROUNDED TO SUBANGULAR, DARK  
 GREY TO NEARLY BLACK, AND APHANITIC.

FROM 12.60MT. TO 18.50MT.  
 medium TRACHITIC LAPILLI TUFF  
 Textures noted: LAMINATED, RIBBONED, RIBBON-LIKE, BANDED, MASSIVE  
 Structures noted: FRACTURE SET dip 010, MACROVEIN dip 050  
 5% QUARTZ as blebs  
 .03% FLUORITE as microveins  
 5% CARBONATE as patches  
 1% PYRITE as macroveins  
 20% K-SPARS as disseminations and scattered crystals  
 10% MUSCOVITE OR SERICITE as laminations, bedded  
 2.5% CHLORITE as laminations, bedded  
 .1% HEMATITE as coatings and encrustations  
 THIS UNIT DOES NOT SHOW AS STRONG A LAMINATION AS THE ABOVE PGI.  
 SECTIONS OF THIS UNIT ARE MASSIVE TO ONLY SLIGHTLY BANDED.  
 BLACK CRYSTAL FRAGMENTS AND APHANITIC ROCK FRAGMENTS AS WELL AS  
 FELDSPAR CRYSTAL FRAGMENTS TEND TO BE MORE PERVASIVE THROUGHOUT  
 THIS UNIT. FRAGMENTS ARE SUBANGULAR TO SUBROUNDED. ROCK FRAG-  
 MENTS MAKE UP ABOUT 30 PERCENT OF UNIT.

FROM 18.50MT. TO 19.10MT.  
 med. light TRACHITIC LAPILLI CRYSTAL TUFF  
 Textures noted: MASSIVE  
 5% QUARTZ as blebs  
 1% FLUORITE as laminations, bedded  
 5% CARBONATE as patches  
 1% PYRITE as disseminations and scattered crystals  
 20% K-SPARS as disseminations and scattered crystals  
 2.5% MUSCOVITE OR SERICITE as patches  
 .3% CHLORITE as patches

10% HEMATITE as coatings and encrustations  
DARK GREY MINERAL MAYBE LEUCITE? CHARACTERIZED BY ABUNDANCE OF  
FRAGMENTS - BOTH CRYSTAL AND ROCK AND BY HEMATITE-LIMONITE ALONG  
FRACTURES.

FROM 19.10MT. TO 20.20MT.

medium TRACHITIC LAPILLI TUFF  
Textures noted: MASSIVE , BANDED  
Structures noted: STRINGER dip 010,  
5% QUARTZ as blebs  
.03% FLOURITE as spots  
2.5% CARBONATE as patches  
2.5% PYRITE as disseminations and scattered crystals  
20% K-SPARS as disseminations and scattered crystals  
20% MUSCOVITE OR SERICITE as pervasive mineralization  
5% CHLORITE as pervasive mineralization  
MASSIVE TO SLIGHTLY FOLIATED LAPILLI TUFF WITH ONE OR TWO  
STRINGERS OF PYRITE.

FROM 20.20MT. TO 26.40MT.

med. light TRACHITIC LAPILLI TUFF with MUSCOVITE OR SERICITE , CARBONATE ,  
Textures noted: LAMINATED , RIBBONED,RIBBON-LIKE , BANDED  
Structures noted: FOLIATION dip 015,  
5% QUARTZ as blebs  
.03% FLOURITE as laminations, bedded  
5% CARBONATE as patches  
1% PYRITE as disseminations and scattered crystals  
20% K-SPARS as disseminations and scattered crystals  
30% MUSCOVITE OR SERICITE as pervasive mineralization  
GREENISH STREAKY APPEARANCE DUE TO MU - PROBABLY SERICITE. WELL  
FOLIATED AND RIBBONY WITH GREENISH SC, CR-OZ, AND FL-BEARING  
BANDS. NARROW SECTIONS CONTAIN DARK GREY CRYSTAL FRAGS, ABOUT 2  
MM ACROSS.

FROM 22.20MT. TO 24.70MT. 100% of this subinterval is

med. light TRACHITIC LAPILLI TUFF  
Textures noted: LAMINATED , SCHISTOSE  
Structures noted: FOLIATION dip 015,  
1% PYRITE as disseminations and scattered crystals  
30% K-SPARS as disseminations and scattered crystals  
30% MUSCOVITE OR SERICITE as pervasive mineralization  
2.5% CHLORITE as laminations, bedded  
10% HEMATITE as coatings and encrustations  
THIS SECTION IS OXIDIZED VERSION OF ABOVE PGI. HE-LI LEAVES A  
BOXWORK TEXTURE AFTER PYRITE. CHLORITE OCCURS IN BANDS ABOUT  
5 TO 20 MM.

FROM 25.60MT. TO 26.40MT. 100% of this subinterval is

medium TRACHITIC LAPILLI TUFF with QUARTZ , FELDSPAR ,  
Textures noted: RIBBONED,RIBBON-LIKE , STOCKWORKED  
Structures noted: BANDING dip 015,  
10% QUARTZ as blebs  
.01% FLOURITE as spots  
2.5% CARBONATE as laminations, bedded  
1% PYRITE as disseminations and scattered crystals  
30% K-SPARS as disseminations and scattered crystals  
20% MUSCOVITE OR SERICITE as laminations, bedded  
1% CHLORITE as laminations, bedded  
MORE STRONGLY FOLIATED AND APPEARS TO BE MORE SILICIC. SILICEOUS  
VOLCANIC FRAGMENT, SUBANGULAR AND MEASURING 5 CM ACROSS. MORE

MICACEOUS PART OF ROCK TENDS TO WRAP AROUND ROCK AND CRYSTAL FRAGMENTS.

FROM 26.40MT. TO 34.30MT.

medium TRACHITIC LAPILLI TUFF with FELDSPAR, CARBONATE,  
Textures noted: BANDED, FOLIATED, LENSOID-BANDED (STREAKY)  
Structures noted: MACROVEIN dip 010,  
30% QUARTZ as pervasive mineralization  
.3% FLOURITE as spots  
10% CARBONATE as patches  
2.5% PYRITE as disseminations and scattered crystals  
5% K-SPARS as disseminations and scattered crystals  
20% MUSCOVITE OR SERICITE as pervasive mineralization  
.3% CHLORITE as patches

WISPS OF QZ AND/OR CB OCCUR AT A 010 DEGREE DIP MOSTLY, BUT ALSO AT OTHER ANGLES UP TO ABOUT 65 DEGREES. PYRITE ALSO OCCURS IN VEINLETS AND ANASTOMOSING STRINGERS.

FROM 30.00MT. TO 34.00MT. 100% of this subinterval is

medium TRACHITIC LAPILLI CRYSTAL TUFF with FELDSPAR, FELDSPAR OR FELDSPATHOID,  
Textures noted: BANDED, LENSOID-BANDED (STREAKY)  
Structures noted: BANDING dip 015,  
10% QUARTZ as blebs  
.3% FLOURITE as spots  
2.5% CARBONATE as patches  
20% K-SPARS as disseminations and scattered crystals  
30% MUSCOVITE OR SERICITE as pervasive mineralization  
1% CHLORITE as patches

TRACHYTIC? LAPILLI-CRYSTAL TUFF. STILL CONSIDERABLE QZ AS BLEBS AND PERVASIVE ALTERATION. CONTAINS ROCK FRAGMENTS OF RHYOLITIC APHANITIC ROCK, FELDSPAR PORPHYRY, AND RD TUFF. ALSO CRYSTAL FRAGMENTS OF ALBITE, MICROCLINE AND/OR A FELDSPATHOID? (DARK GREY MINERAL).

FROM 34.30MT. TO 43.90MT.

medium TRACHITIC LAPILLI TUFF with FELDSPAR, QUARTZ,  
Textures noted: MASSIVE, FOLIATED  
2.5% QUARTZ as blebs  
1% FLOURITE as spots  
.3% CARBONATE as patches  
5% PYRITE as disseminations and scattered crystals  
30% K-SPARS as disseminations and scattered crystals  
30% MUSCOVITE OR SERICITE as pervasive mineralization

SUBANGULAR TO SUBROUNDED FRAGMENTS OF APHANITIC, SILICEOUS VOLCANIC, FELDSPAR PORPHYRY, AND FINE-GRAINED TUFF (DACITIC?). ROCK FRAGMENTS PREDOMINATE OVER CRYSTAL FRAGMENTS. SOME ROCK FRAGMENTS ARE VERY PALE PURPLISH-GREY TO GREY-WHITE. FRAGMENTS ARE STRETCHED OUT WITH A LENGTH TO WIDTH RATIO OF ABOUT 4:1. PYRITE AND PALE GREENISH MS OCCUR THROUGHOUT MATRIX. BANDS OF PY UP TO 1CM WIDE.

FROM 37.50MT. TO 40.30MT. 100% of this subinterval is the same as 34.30MT. to 43.90MT. except as noted

medium TRACHITIC LAPILLI TUFF  
5% QUARTZ as blebs  
20% K-SPARS as disseminations and scattered crystals

DECREASE IN NUMBER AND VARIETY OF ROCK FRAGMENTS. PYRITE OCCURS IN A NARROW 3CM SEAM AT 39.2M.

FROM 42.00MT. TO 42.20MT. 100% of this subinterval is

med. dark PYRITE MICA ROCK

Structures noted: FOLIATION dip 020,  
20% BIOTITE as pervasive mineralization  
30% PYRITE as pervasive mineralization

FROM 43.90MT. TO 61.70MT.

medium TRACHITIC LAPILLI TUFF

Textures noted: LAMINATED , BANDED , MASSIVE

Structures noted: FOLIATION dip 010,

2.5% QUARTZ as blebs

1% FLOURITE as patches

10% PYRITE as disseminations and scattered crystals

30% K-SPARS as disseminations and scattered crystals

30% MUSCOVITE OR SERICITE as pervasive mineralization

5% CHLORITE as pervasive mineralization

HAS A GREATER PROPORTION OF FELDSPAR CRYSTAL FRAGMENTS TO ROCK  
FRAGMENTS. ALSO HAS SHORT SECTIONS WITH ABUNDANT, FOLIATED GREEN  
SERICITE. IN-BETWEEN THE MASSIVE AND WELL FOLIATED VARIETIES OF  
TRACHYTIC FRAGMENTAL.

FROM 47.30MT. TO 47.90MT. 100% of this subinterval is the same as 43.90MT. to 61.70MT. except as noted

TRACHITIC LAPILLI TUFF

Structures noted: FOLIATION dip 025,

5% FLOURITE as patches

20% PYRITE as disseminations and scattered crystals

FROM 51.20MT. TO 51.60MT. 100% of this subinterval is the same as 43.90MT. to 61.70MT. except as noted

Structures noted: CONTACT dip 015,

60% MUSCOVITE OR SERICITE as pervasive mineralization

A COUPLE OF RD TUFF FRAGMENTS MEASURING 7 TO 8 CM ACROSS OCCUR  
AT 51.6 METERS.

FROM 52.80MT. TO 53.10MT. 100% of this subinterval is the same as 43.90MT. to 61.70MT. except as noted

pale

50% QUARTZ as pervasive mineralization

.03% FLOURITE as spots

.1% PYRITE as disseminations and scattered crystals

POSSIBLY A LARGE FRAGMENT OF SILICEOUS VOLCANIC IN THE TRACHYTE,

FROM 54.00MT. TO 54.10MT. 100% of this subinterval is

QUARTZ CARBONATE VEIN

90% QUARTZ as massive

1% MUSCOVITE OR SERICITE as disseminations and scattered crystals

QUARTZ(-SERICITE) VEIN. SCHEELITE?!

FROM 56.90MT. TO 57.10MT. 100% of this subinterval is

med. dark PYRITE MICA ROCK

10% BIOTITE as pervasive mineralization

40% PYRITE as pervasive mineralization

30% MUSCOVITE OR SERICITE as pervasive mineralization

5590 5610 ABUNDANT QUARTZ-CARBONATE-FLUORITE VEINS AT 020 DEGREE DIP.

5600 5700 FRACTURES AT 075 TO 090 DEGREE DIP. EXTREMELY VARIABLE WITH

5600 5700 BANDS AND PATCHES RICH IN SERICITE OR IN FRAGMENTS.

5870 5870 FLUORITE BAND 1CM THICK AT AN ANGLE OF 015 DEGREES.

6120 6120 FLUORITE BAND 3.5CM THICK.

FROM 61.70MT. TO 64.10MT.

med. dark TRACHITIC LAPILLI TUFF

Textures noted: MASSIVE , BRECCIATED

10% QUARTZ as patches



.03% FLOURITE as spots  
5% CARBONATE as patches  
.3% PYRITE as disseminations and scattered crystals  
10% K-SPARS as disseminations and scattered crystals  
30% MUSCOVITE OR SERICITE as pervasive mineralization  
5% CHLORITE as pervasive mineralization  
NUMEROUS IRREGULAR STRINGERS AND MICROVEINLETS OF QUARTZ,  
CARBONATE, AND SERICITE. FLUORITE STRINGERS AND SEAMS UP TO 2CM  
WIDE AT 020 AND 025 DEGREES AND INCREASE IN PERCENTAGE OF FX  
CRYSTAL FRAGMENTS AND SERICITE(-EPIDOTE?) FROM 63.1M TO 63.7M.  
PYRITE STRINGER AT 010 DEGREES AT 64.1M.

FROM 64.10MT. TO 65.60MT.

medium TRACHITIC LAPILLI CRYSTAL TUFF  
Textures noted: MASSIVE , PORPHYRITIC  
Structures noted: MICROVEIN dip 040,  
.3% FLOURITE as microveins  
2.5% CARBONATE as patches  
.1% PYRITE as disseminations and scattered crystals  
40% K-SPARS as disseminations and scattered crystals  
20% MUSCOVITE OR SERICITE as pervasive mineralization  
DOMINANTLY A CRYSTAL TUFF WITH NUMEROUS THIN VEINLETS OF FL AT  
HIGH ANGLES AND STRINGERS OF PY AT 015 DEGREES. FL VEINS APPEAR  
TO BE LARGELY AFTER THE PYRITE.

FROM 65.60MT. TO 69.20MT.

medium TRACHITIC LAPILLI TUFF  
Textures noted: LAMINATED , MASSIVE , RIBBONED, RIBBON-LIKE  
Structures noted: MACROVEIN dip 015,  
10% QUARTZ as blebs  
1% FLOURITE as microveins  
2.5% CARBONATE as patches  
2.5% PYRITE as microveins  
10% K-SPARS as disseminations and scattered crystals  
20% MUSCOVITE OR SERICITE as pervasive mineralization  
PYRITE STRINGERS AT 66.5M, 67M, AND 67.6M, 68M, AND 69M.  
FLUORITE SEAMS AT 65.8 AND 68.6M.

FROM 69.20MT. TO 75.20MT.

medium TRACHITIC LAPILLI TUFF  
Textures noted: LAMINATED , LENSOID-BANDED (STREAKY) , FOLIATED  
Structures noted: MACROVEIN dip 080, BANDING dip 010  
5% QUARTZ as microveins  
10% FLOURITE as microveins  
1% CARBONATE as spots  
5% PYRITE as laminations, bedded  
.01% CHALCOPYRITE as spots  
20% K-SPARS as disseminations and scattered crystals  
30% MUSCOVITE OR SERICITE as pervasive mineralization  
CONTAINS, ABOUT 40 PERCENT FRAGMENTS, BOTH ROCK AND CRYSTAL IN AN  
EXTREMELY FINE-GRAINED MATRIX. ROCK IS WELL FRACTURED WITH HIGH  
ANGLE FRACTURES FILLED BY QUARTZ-FLUORITE. FLUORITE ALSO OCCURS  
IN PATCHES IN THE ROCK - OLDER THAN FL VEINING. ABUNDANCE OF  
FLUORITE AND PYRITE AND HIGH ANGLE FL-QZ VEINING DISTINGUISHES  
THIS UNIT.

FROM 69.60MT. TO 70.40MT. 100% of this subinterval is the same as 69.20MT. to 75.20MT. except as noted

TRACHITIC LAPILLI TUFF  
5% FLOURITE as microveins  
FLUORITE ALSO IN PATCHES -ABOUT SAME PERCENTAGE.

FROM 70.60MT. TO 70.70MT. 100% of this subinterval is the same as 69.20MT. to 75.20MT. except as noted  
TRACHITIC LAPILLI TUFF  
10% QUARTZ as microveins  
5% FLOURITE as laminations, bedded

FROM 71.00MT. TO 71.20MT. 100% of this subinterval is the same as 69.20MT. to 75.20MT. except as noted  
TRACHITIC LAPILLI TUFF  
2.5% FLOURITE as patches  
SOME BIOTITE OR PHLOGOPITE ASSOCIATED WITH THIS FL-RICH SECTION.

FROM 71.70MT. TO 71.80MT. 100% of this subinterval is the same as 69.20MT. to 75.20MT. except as noted  
5% FLOURITE as laminations, bedded

FROM 72.60MT. TO 72.80MT. 100% of this subinterval is the same as 69.20MT. to 75.20MT. except as noted  
20% FLOURITE as pervasive mineralization  
10% PYRITE as disseminations and scattered crystals  
ROCK SHOWS FRACTURING AND LATER HEALING WITH QZ AND FL.

FROM 73.00MT. TO 73.40MT. 100% of this subinterval is the same as 69.20MT. to 75.20MT. except as noted  
30% FLOURITE as patches  
10% PYRITE as disseminations and scattered crystals

FROM 74.30MT. TO 74.40MT. 100% of this subinterval is the same as 69.20MT. to 75.20MT. except as noted  
20% FLOURITE as pervasive mineralization  
2.5% PYRITE as disseminations and scattered crystals  
IN-BETWEEN THE FL-RICH SECTIONS PY IS ABUNDANT AS STRINGERS  
PARALLEL TO THE FOLIATION. BLEBS OF PYRITE ARE OFTEN STRETCHED.

FROM 74.70MT. TO 75.00MT. 100% of this subinterval is the same as 69.20MT. to 75.20MT. except as noted  
20% FLOURITE as pervasive mineralization  
10% PYRITE as laminations, bedded  
DARK GREY-BLACK, VITREOUS MINERAL IS PRESENT.

FROM 75.20MT. TO 77.80MT.  
medium TRACHITIC LAPILLI TUFF  
Textures noted: LAMINATED , BANDED , FOLIATED  
Structures noted: BANDING dip 025,  
10% QUARTZ as blebs  
2.5% FLOURITE as patches  
1% CARBONATE as spots  
10% PYRITE as laminations, bedded  
20% MUSCOVITE OR SERICITE as pervasive mineralization  
BOTH ROCK AND CRYSTAL FRAGMENTS ARE PRESENT. PYRITE SEAMS ARE  
PARALLEL TO FOLIATION. PYRITE CONTENT VARIABLE.

FROM 76.00MT. TO 76.70MT. 100% of this subinterval is  
medium TRACHITIC LAPILLI TUFF  
Textures noted: MASSIVE , BANDED  
20% QUARTZ as pervasive mineralization  
10% PYRITE as macroveins  
PYRITE VEINS AND STRINGERS FORM AN ANASTOMOSING NETWORK THROUGH  
THIS ROCK.

FROM 76.80MT. TO 77.20MT. 100% of this subinterval is the same as 75.20MT. to 77.80MT. except as noted

20% PYRITE as laminations, bedded

FROM 77.80MT. TO 79.80MT.

medium TRACHITIC LAPILLI TUFF  
Textures noted: MASSIVE , LENSOID-BANDED (STREAKY)  
20% QUARTZ as pervasive mineralization  
1% FLOURITE as spots  
.3% CARBONATE as patches  
.3% PYRITE as disseminations and scattered crystals  
30% K-SPARS as disseminations and scattered crystals  
20% MUSCOVITE OR SERICITE as pervasive mineralization  
MAY BE QUITE HIGHLY SILICIFIED. ROCK IS IN-BETWEEN A COARSE-  
GRAINED TUFF AND A LAPILLI TUFF.

FROM 79.80MT. TO 86.40MT.

light TRACHITIC LAPILLI TUFF  
Textures noted: MASSIVE  
Structures noted: MACROVEIN dip 075, MACROVEIN dip 040  
5% QUARTZ as blebs  
1% FLOURITE as macroveins  
.3% CARBONATE as patches  
5% PYRITE as disseminations and scattered crystals  
K-SPARS as disseminations and scattered crystals  
30% MUSCOVITE OR SERICITE as pervasive mineralization  
ROCK IS DISTINCTLY PALER GREENISH-GREY THAN PREVIOUS MX TFLP.  
PY IS RELATED TO FRACTURE-FILLINGS IN PART. SOME QZ-? VEINING.  
CONTAINS AN AVERAGE 20 PERCENT FELDSPAR CRYSTAL FRAGMENTS AND  
25-30 PERCENT ROCK FRAGMENTS (ALL VOLCANIC). POSSIBLY SOME  
PERVASIVE TO PATCHY EPIDOTE CAUSING THE PALE APPLE-GREEN COLOR.

FROM 83.00MT. TO 86.40MT. 100% of this subinterval is

medium TRACHITIC LAPILLI TUFF  
Textures noted: MASSIVE

FROM 80.50MT. TO 80.60MT. 100% of this subinterval is the same as 79.80MT. to 86.40MT. except as noted

Structures noted: CONTACT dip 050,  
80% QUARTZ as macroveins  
10% FLOURITE as macroveins  
10% PYRITE as macroveins  
2.5% CHLORITE as macroveins  
.1% MOLYBDENITE as spots  
SCHEELITE AS WELL ? FIRST SIGN OF MOLYBDENITE.

FROM 86.40MT. TO 88.80MT.

medium TRACHITIC LAPILLI TUFF  
Textures noted: MASSIVE , LAMINATED  
10% QUARTZ as pervasive mineralization  
1% FLOURITE as macroveins  
.3% CARBONATE as patches  
1% PYRITE as macroveins  
10% MUSCOVITE OR SERICITE as pervasive mineralization  
.01% MOLYBDENITE as macroveins  
CONTAINS NUMEROUS VEINLETS AND STRINGERS OF QZ FL PY MS - IN  
PART FORMS A STOCKWORK. ROCK IS MADE UP OF VOLCANIC ROCK AND  
FELDSPAR CRYSTAL FRAGMENTS. DISTINCT BECAUSE OF THE 25 PERCENT  
VEINING.

FROM 88.80MT. TO 93.90MT.

med. dark TRACHITIC LAPILLI TUFF  
Textures noted: LAMINATED , BANDED , MASSIVE  
Structures noted: BANDING dip 015, MACROVEIN dip 020  
10% QUARTZ as macroveins  
1% FLOURITE as macroveins  
5% CARBONATE as macroveins  
2.5% PYRITE as macroveins  
20% K-SPARS as disseminations and scattered crystals  
5% MUSCOVITE OR SERICITE as pervasive mineralization  
.3% CHLORITE as pervasive mineralization  
NUMEROUS SMALL FRACTURES AT STEEP AND SHALLOW ANGLES (FEW IN-  
BETWEEN). CONTAINS ABOUT 25 PERCENT ROCK FRAGMENTS AND 15 PER-  
CENT FELDSPAR CRYSTAL FRAGMENTS. STRINGERS OF PYRITE AT SHALLOW  
ANGLES. ABUNDANT QUARTZ AND CARBONATE FRACTURE FILLINGS, SOME  
WITH FLUORITE.

FROM 91.90MT. TO 93.90MT. 100% of this subinterval is the same as 88.80MT. to 93.90MT. except as noted

Structures noted: MACROVEIN dip 020,  
10% QUARTZ as macroveins  
5% FLOURITE as macroveins  
10% CARBONATE as macroveins

FROM 93.90MT. TO 94.50MT.

QUARTZ CARBONATE VEIN  
Structures noted: CONTACT dip 045,  
70% QUARTZ as pervasive mineralization  
5% ALBITE as patches  
5% PYRITE as disseminations and scattered crystals  
10% K-SPARS as disseminations and scattered crystals  
.01% MOLYBDENITE as spots  
CONTAINS ABOUT 10 PERCENT TRACHYTIC TUFF SIMILAR TO ABOVE PGI  
ONLY MORE SILICIFIED.

FROM 94.50MT. TO 96.10MT.

light TRACHITIC LAPILLI TUFF  
Textures noted: MASSIVE , LAMINATED  
Structures noted: BANDING dip 020,  
10% QUARTZ as patches  
.3% FLOURITE as microveins  
1% CARBONATE as macroveins  
1% PYRITE as microveins  
10% K-SPARS as disseminations and scattered crystals  
.3% MUSCOVITE OR SERICITE as microveins  
CONTAINS NERULOUS PATCHES AND VEINS OF QUARTZ. ALSO ERRATIC  
STRINGERS OF PYRITE, CARBONATE, AND ALBITE.

FROM 96.10MT. TO 99.30MT.

medium TRACHITIC LAPILLI TUFF  
Textures noted: MASSIVE , LAMINATED  
Structures noted: BANDING dip 020,  
10% QUARTZ as macroveins  
2.5% FLOURITE as microveins  
2.5% CARBONATE as microveins  
5% ALBITE as macroveins  
1% PYRITE as macroveins  
20% K-SPARS as disseminations and scattered crystals  
10% MUSCOVITE OR SERICITE as pervasive mineralization  
MASSIVE TO SLIGHTLY FOLIATED (LAMINATED?) TUFF WITH 20 PERCENT  
FELDSPAR CRYSTAL FRAGMENTS AND 30 PERCENT ROCK FRAGMENTS. ROCK

IS RIDDLED WITH STRINGERS AND MICROVEINLETS OF QUARTZ, ALBITE, CARBONATE, FLUORITE, AND PYRITE. SOME FLUORITE VEINING AT 035 DEGREE DIP WHICH HAS SINCE BEEN FRACTURED AND SUFFERED NUMEROUS MINOR OFFSETS. SOME FL VEINING AFTER PYRITE STRINGERS.

FROM 99.30MT. TO 100.90MT.

med. TRACHITIC LAPILLI TUFF with ALBITE, CARBONATE,  
Textures noted: MASSIVE  
Structures noted: MACROVEIN dip 070, MACROVEIN dip 020  
10% QUARTZ as macroveins  
10% FLUORITE as macroveins  
5% CARBONATE as macroveins  
2.5% ALBITE as macroveins  
1% PYRITE as disseminations and scattered crystals  
20% K-SPARS as disseminations and scattered crystals  
10% MUSCOVITE OR SERICITE as pervasive mineralization  
SIMILAR TO PREVIOUS PGI EXCEPT GREATER ABUNDANCE OF LARGER QUARTZ, ALBITE, AND FLUORITE VEINS.

FROM 100.90MT. TO 105.00MT.

med. dark TRACHITIC LAPILLI TUFF  
Textures noted: MASSIVE, LENSOID-BANDED (STREAKY)  
Structures noted: MACROVEIN dip 030,  
5% QUARTZ as macroveins  
10% FLUORITE as patches  
2.5% CARBONATE as microveins  
2.5% ALBITE as macroveins  
5% PYRITE as laminations, bedded  
10% MUSCOVITE OR SERICITE as pervasive mineralization  
BOTH CRYSTAL AND ROCK FRAGMENTS ARE PRESENT. ABUNDANT MICROVEINS AND FRACTURES THROUGHOUT THIS PYROCLASTIC ROCK.

FROM 105.00MT. TO 107.00MT.

med. light FAULT ZONE  
Textures noted: HOMOGENOUS, BEDDED  
Structures noted: SHEAR dip 030,  
10% QUARTZ as pervasive mineralization  
2.5% FLUORITE as patches  
5% CARBONATE as patches  
20% ALBITE as pervasive mineralization  
1% PYRITE as patches  
10% MUSCOVITE OR SERICITE as patches  
FAULT ZONE HAS BEEN PARTLY HEALED BY ALBITE-QUARTZ-CARBONATE, AND MINOR FLUORITE AND PYRITE. SERICITE IS GREENISH IN COLOR.

FROM 107.00MT. TO 112.20MT.

med. dark TRACHITIC LAPILLI TUFF  
Textures noted: MASSIVE, BANDED  
Structures noted: MICROVEIN dip 035, MICROVEIN dip 020  
10% QUARTZ as microveins  
5% FLUORITE as microveins  
2.5% CARBONATE as microveins  
10% ALBITE as microveins  
.3% PYRITE as disseminations and scattered crystals  
40% K-SPARS as disseminations and scattered crystals  
10% MUSCOVITE OR SERICITE as pervasive mineralization  
ABOUT 40 PERCENT FELDSPAR CRYSTAL FRAGMENTS AND 10 PERCENT ROCK FRAGMENTS. INCREASE IN FLUORITE CONTENT FROM 107.7 TO 107.9 M, 108.7 TO 108.9 M, 111.3 TO 111.4 M, AND 111.8 M. ROCK IS PERMEATED WITH TINY FRACTURES, SOME FILLED WITH QUARTZ, ALBITE,

CARBONATE, FLUORITE, OR PYRITE.

FROM 112.20MT. TO 116.50MT.

medium TRACHITIC LAPILLI TUFF

Textures noted: LAMINATED , BANDED , FOLIATED

Structures noted: BANDING dip 020, MICROVEIN dip 080

20% QUARTZ as pervasive mineralization

1% FLUORITE as macroveins

.3% CARBONATE as microveins

20% ALBITE as macroveins

2.5% PYRITE as laminations, bedded

20% K-SPARS as disseminations and scattered crystals

20% MUSCOVITE OR SERICITE as pervasive mineralization

MORE SILICIFIED THAN NORMAL, ROCK SHOWS A MOTTLED LAMINATION WITH WHITE QUARTZ-ALBITE BANDS AND DARKER GREENISH-GREY SERICITE-RICH BANDS. NUMEROUS MICRO-FRACTURES AT HIGH ANGLES. FROM 115.3 TO 115.8 M APPEARS VERY STREAKY OR FINELY LAMINATED. QZ-AB OCCURS AS HIGH-ANGLE MICRO-FRACTURE FILLINGS.

FROM 116.50MT. TO 128.00MT.

med. dark TRACHITIC LAPILLI CRYSTAL TUFF

Structures noted: MACROVEIN dip 015, MACROVEIN dip 055

5% QUARTZ as blebs

1% FLUORITE as macroveins

.3% CARBONATE as macroveins

2.5% PYRITE as macroveins

50% K-SPARS as disseminations and scattered crystals

.1% MUSCOVITE OR SERICITE as macroveins

.03% MOLYBDENITE as macroveins

? SCHEELITE as macroveins

LESS THAN 10 PERCENT VOLCANIC ROCK FRAGMENTS. QUARTZ-ALBITE VEIN FROM 121.7 TO 121.9 M, WHICH CONTAINS PYRITE, CARBONATE, APATITE , AND TRACE MOLYBDENITE. HIGH-ANGLE MICRO-FRACTURES ARE FAIRLY ABUNDANT. ANOTHER QUARTZ-ALBITE-FLUORITE VEIN AT 124.2 M, WITH MOLYBDENITE VISIBLE. FROM 125.0 TO 125.8M NUMEROUS SMALL VEINS OF QZ-AB-FL AND SQUIGGLY STRINGERS OF PY.

FROM 128.00MT. TO 144.90MT.

med. light TRACHITIC LAPILLI TUFF

Textures noted: LAMINATED , BANDED , RIBBONED, RIBBON-LIKE

Structures noted: BANDING dip 015, MICROVEIN dip 040

10% QUARTZ as blebs

.03% FLUORITE as spots

.1% CARBONATE as microveins

10% ALBITE as patches

2.5% PYRITE as disseminations and scattered crystals

20% K-SPARS as disseminations and scattered crystals

30% MUSCOVITE OR SERICITE as pervasive mineralization

.3% MOLYBDENITE as microveins

SHOWS ALTERNATING PALE GREY-WHITE AND DARKER GREEN-GREY. AT 128.9 TO 129.0 M THERE IS CONSIDERABLE QUARTZ-ALBITE-FLUORITE AND ALSO PYRITE AS RIBBONS AND STRINGERS. ROCK SHOWS VARIABLE AMOUNT FELDSPAR CRYSTAL FRAGMENTS. PROBABLY Pervasively SILICIFIED. MOLYBDENITE OCCURS IN ERRATIC MICRO-STRINGERS AT 131.5 TO 131.6 M. IT IS CUT BY PY STRINGER + QZ-AB-FL VEIN, WHICH IN TURN IS CUT BY THE PYRITE.

13360 13380PYRITE MORE ABUNDANT ( 10 PERCENT) IN THIS INTERVAL.

13820 13820PYRITE VEIN AT 050 DEGREES.

FROM 134.00MT. TO 134.60MT. 100% of this subinterval is the same as 128.00MT. to 144.90MT. except as noted

Structures noted: BANDING dip 010,  
40% MUSCOVITE OR SERICITE as pervasive mineralization

FROM 136.10MT. TO 136.90MT. 100% of this subinterval is the same as 128.00MT. to 144.90MT. except as noted

ROCK FRAGMENTS (SUBANGULAR) ARE MORE CONSPICUOUS IN THIS  
INTERVAL.

FROM 138.50MT. TO 141.10MT. 100% of this subinterval is the same as 128.00MT. to 144.90MT. except as noted

12800 14490SPOTTY MOLYBDENITE OCCURS SPORADICALLY ALONG THE LENGTH OF THE  
12800 14490INTERVAL. (ALSO TINY STRINGERS.)  
12800 14490AMOUNT OF SERICITE VARIES GIVING PALE GREENISH-GREY BANDS .  
13850 14110DOMINANTLY FRAGMENTS OF VOLCANIC ROCK RATHER THAN CRYSTAL  
13850 14110FRAGMENTS. THEY SHOW UP WELL AGAIN A GREEN SERICITIC BACKGROUND.  
14200 14220MORE MASSIVE AND FRAGMENTS MORE ABUNDANT - COULD BE A LARGER  
14200 14220ROCK FRAGMENT MAKING UP THIS INTERVAL.

FROM 144.90MT. TO 150.80MT.

medium TRACHITIC LAPILLI TUFF

Textures noted: LAMINATED , BANDED , MASSIVE

Structures noted: MICROVEIN dip 060, BANDING dip 020

10% QUARTZ as blebs

1% FLOURITE as patches

.3% CARBONATE as microveins

5% ALBITE as macroveins

2.5% PYRITE as macroveins

20% K-SPARS as disseminations and scattered crystals

20% MUSCOVITE OR SERICITE as pervasive mineralization

.03% MOLYBDENITE as spots

THIS ROCK IS BETWEEN A MX AND LM TFLP. THE MAJORITY OF FRAGM (I)  
ARE SUBANGULAR AND ALL ARE VOLCANIC. SERICITE TENDS TO WRAP  
AROUND MANY OF THE FRAGMENTS. MAYBE SOME FRAGMENTS UP TO 12  
ACROSS. SLICKENSIDED SHEAR PLANES AT 035 DEGREE DIP.

FROM 150.80MT. TO 152.70MT.

medium TRACHITIC LAPILLI TUFF

Textures noted: MASSIVE , LAMINATED

Structures noted: MACROVEIN dip 015, MACROVEIN dip 045

10% QUARTZ as macroveins

5% FLOURITE as macroveins

1% CARBONATE as microveins

10% ALBITE as macroveins

1% PYRITE as macroveins

20% K-SPARS as disseminations and scattered crystals

.01% MOLYBDENITE as spots

? SCHEELITE as patches

15080 15120LARGE VEIN OF QZ-AR-FL-PY.

15080 15270SOME OF VEINS SHOW PTYGMATIC FOLDING.

15080 15270VEINING MAKES UP 15 PERCENT OF THE ROCK.

FROM 152.70MT. TO 156.80MT.

medium TRACHITIC LAPILLI TUFF

Textures noted: LAMINATED , FOLIATED , BANDED

Structures noted: BANDING dip 015, CONTACT dip 025

10% QUARTZ as blebs

2.5% FLOURITE as laminations, bedded

1% CARBONATE as microveins

10% ALBITE as patches

5% PYRITE as disseminations and scattered crystals  
10% K-SPARS as disseminations and scattered crystals  
20% MUSCOVITE OR SERICITE as pervasive mineralization  
/ MOLYBDENITE as spots  
SOME MICROFRACTURING AT HIGH ANGLES TO FOLIATION-LAMINATION.  
CONTACT AT BASE OF THIS INTERVAL.

FROM 156.80MT. TO 160.40MT.

medium TRACHITIC LAPILLI TUFF  
Textures noted: MASSIVE , BANDED  
Structures noted: MICROVEIN dip 080, BANDING dip 015  
10% QUARTZ as patches  
10% FLUORITE as patches  
1% CARBONATE as microveins  
5% ALBITE as patches  
1% PYRITE as disseminations and scattered crystals  
30% K-SPARS as disseminations and scattered crystals  
10% MUSCOVITE OR SERICITE as pervasive mineralization  
? MOLYBDENITE as microveins  
CRYSTAL AND VOLCANIC ROCK FRAGMENT TUFF. SIMILAR TO PREVIOUS MX  
TFLP. COMPOSED OF 30 PERCENT FELDSPAR CRYSTALS AND 20 PERCENT  
ROCK FRAGMENTS. PYRITE OCCURS WITH FLUORITE IN SOME OF THE BANDS  
, BUT ALSO OCCURS AS DISSEMINATED GRAINS AND PATCHES.

FROM 160.40MT. TO 164.70MT.

medium TRACHITIC LAPILLI CRYSTAL TUFF  
Textures noted: LAMINATED , BANDED , FOLIATED  
Structures noted: BANDING dip 020, BANDING dip 010  
20% QUARTZ as pervasive mineralization  
2.5% FLUORITE as macroveins  
1% CARBONATE as patches  
.3% PYRITE as disseminations and scattered crystals  
20% K-SPARS as disseminations and scattered crystals  
30% MUSCOVITE OR SERICITE as pervasive mineralization  
.01% MOLYBDENITE as macroveins  
LESS THAN 10 PERCENT ROCK FRAGMENTS.  
16120 16140QUARTZ-ALBITE-FLUORITE VEINING PLUS TRACE MOLYBDENITE.  
16180 17000PERVASIVE SERICITE UP TO 40 PERCENT.  
16320 16370PERVASIVE SERICITE ABOUT 35 PERCENT.

FROM 164.70MT. TO 171.50MT.

med. dark TRACHITIC LAPILLI TUFF  
Textures noted: LAMINATED , BANDED , BEDDED  
Structures noted: MICROVEIN dip 075, MACROVEIN dip 030  
10% QUARTZ as macroveins  
.03% FLUORITE as microveins  
.1% CARBONATE as microveins  
10% ALBITE as macroveins  
2.5% PYRITE as disseminations and scattered crystals  
20% K-SPARS as disseminations and scattered crystals  
20% MUSCOVITE OR SERICITE as pervasive mineralization  
? CASSITERITE as disseminations and scattered crystals  
.1% MOLYBDENITE as macroveins  
UNKNOWN BROWNISH-BLACK, METALLIC WITH BROWNISH-BLACK STREAK ,  
ELONGATE TO PLATY MINERAL IN QZ-AB VEIN AT 164.9 M. MOLYBDENITE  
ALSO OCCURS IN THIS VEIN. MO IS IN BOTH THE LARGE VEINS WITH QZ  
AND AB AND THE TINY STRINGERS ALONG HIGH-ANGLE FRACTURES BY  
ITSELF.  
16470 16570ROCK IS CRACKLED IN APPEARANCE WITH TINY MO AND PY STRINGERS AND  
16470 16570LARGER QUARTZ-ALBITE.



16570 17150MUCH MORE TYPICALLY LAMINATED AND BANDED THROUGH THIS SECTION.  
16570 17150MO IS PRESENT AS FINELY DISSEMINATED SPOTS SPORADICALLY THROUGH  
16570 17150THE ROCK - GENERALLY SPATIALLY CLOSE TO QZ-AR VEINING.  
16570 17150THE LAMINATION IS GENERALLY AT 010 TO 015 DEGREE DIP.

FROM 171.50MT. TO 173.00MT.

med. dark TRACHITIC LAPILLI TUFF  
Textures noted: LAMINATED , BANDED  
Structures noted: MICROVEIN dip 080, BANDING dip 015  
10% QUARTZ as laminations, bedded  
1% FLOURITE as microveins  
.3% CARBONATE as patches  
10% ALBITE as laminations, bedded  
1% PYRITE as disseminations and scattered crystals  
10% K-SPARS as disseminations and scattered crystals  
30% MUSCOVITE OR SERICITE as pervasive mineralization  
.01% MOLYBDENITE as spots

ROCK HAS A STREAKY, BANDED APPEARANCE WITH FRAGMENTS STRETCHED  
OUT PARALLEL TO THE LAMINATION.

FROM 173.00MT. TO 183.30MT.

med. dark TRACHITIC LAPILLI TUFF  
Textures noted: LAMINATED , BANDED , MASSIVE  
Structures noted: MACROVEIN dip 030, BANDING dip 015  
10% QUARTZ as blebs  
.3% FLOURITE as spots  
.1% CARBONATE as patches  
5% ALBITE as microveins  
2.5% PYRITE as disseminations and scattered crystals  
20% K-SPARS as disseminations and scattered crystals  
20% MUSCOVITE OR SERICITE as pervasive mineralization  
.01% MOLYBDENITE as spots

ROCK FRAGMENTS ARE SUBANGULAR AND INCLUDE TRACHYTE, FELDSPAR  
PORPHYRY, AND SILICEOUS, APHANITIC FLOW OR TUFFACEOUS ROCK.  
CONTAINS 35 PERCENT ROCK FRAGS. AND 15 PERCENT CRYSTAL FRAGS.  
ALTHOUGH THIS PGI CONTAINS A GREATER PERCENTAGE OF ROCK FRAGS,  
IT DOES HAVE SECTIONS OF FINELY LAMINATED COARSE ASH TUFF TO  
SMALL LAPILLI TUFF, WHICH ARE 0.1 TO 0.3 M THICK.

FROM 183.30MT. TO 188.20MT.

med. dark TRACHITIC LAPILLI CRYSTAL TUFF  
Textures noted: LAMINATED , BANDED , MASSIVE  
Structures noted: MICROVEIN dip 085, BANDING dip 010  
10% QUARTZ as blebs  
.03% FLOURITE as microveins  
.1% CARBONATE as microveins  
2.5% ALBITE as microveins  
.3% PYRITE as disseminations and scattered crystals  
.01% CHALCOPYRITE as spots  
40% K-SPARS as disseminations and scattered crystals  
20% MUSCOVITE OR SERICITE as pervasive mineralization  
.03% MOLYBDENITE as microveins

CONTAINS LESS THAN 5 PERCENT ROCK FRAGMENTS. SOMEWHAT VARIABLE  
BETWEEN WELL BANDED, FINE-GRAINED TUFF AND MORE MASSIVE, WIDER  
BANDS OF CRYSTAL TUFF.

18360 18390LARGE QUARTZ-FELDSPATHIC FRAGMENT? TOTALLY BRECCIATED AND  
18360 18390RIDDED WITH QZ-AR-FL, CL, AND CR VEINLETS AND STRINGERS. ALSO  
18360 18390PRESENT ARE STRINGERS OF MO AND PYRITE AND TRACE SPOTTY CP. SAME  
18360 18390THING PRESENT AT 184.7 TO 184.9 M.  
18800 18820QUARTZ-ALBITE STRINGER AT 070 DIP CARRYING CP AND MO.

FROM 188.20MT. TO 192.40MT.

med. dark TRACHITIC LAPILLI TUFF  
Textures noted: LAMINATED , MASSIVE  
Structures noted: MICROVEIN dip 085, MACROVEIN dip 020  
10% QUARTZ as macroveins  
.1% FLUORITE as spots  
.1% CARBONATE as microveins  
5% ALBITE as macroveins  
.3% PYRITE as patches  
20% K-SPARS as disseminations and scattered crystals  
20% MUSCOVITE OR SERICITE as pervasive mineralization  
.01% MOLYBDENITE as spots  
ROUGHLY EQUAL AMOUNTS OF FELDSPAR CRYSTAL FRAGS. AND ROCK FRAGS.  
ROCK IS POORLY LAMINATED TO LOCALLY MASSIVE. NUMEROUS VEINLETS  
AND STRINGERS OF QZ-AB. FRAGMENTS ARE LARGELY SUBANGULAR.

FROM 192.40MT. TO 193.00MT.

med. dark TUFF  
Textures noted: LAMINATED , BANDED , FOLIATED  
Structures noted: BANDING dip 010,  
10% QUARTZ as perv. or dis. min'l. w/ some vns, microvns, selv. & envel.  
.1% FLUORITE as spots  
.1% CARBONATE as microveins  
.3% PYRITE as laminations, bedded  
10% K-SPARS as disseminations and scattered crystals  
30% MUSCOVITE OR SERICITE as pervasive mineralization  
FINELY LAMINATED, SERICITIZED TUFF OR COARSE ASH. PYRITE VEINS  
ARE PARALLEL TO THE LAMINATION.

FROM 193.00MT. TO 198.40MT.

med. dark TRACHITIC LAPILLI TUFF  
Textures noted: LAMINATED , BANDED , MASSIVE  
Structures noted: BANDING dip 015,  
10% QUARTZ as blebs  
5% FLUORITE as laminations, bedded  
1% CARBONATE as patches  
2.5% ALBITE as microveins  
1% PYRITE as disseminations and scattered crystals  
20% K-SPARS as disseminations and scattered crystals  
10% MUSCOVITE OR SERICITE as pervasive mineralization  
.01% MOLYBDENITE as spots  
ROUGHLY 30 PERCENT ROCK FRAGMENTS - ALL VOLCANIC. BAND RICH IN  
FLUORITE AT 196.75 M.

FROM 198.40MT. TO 206.20MT.

medium TRACHITIC LAPILLI TUFF  
Textures noted: MASSIVE , BANDED  
Structures noted: BANDING dip 010, MACROVEIN dip 050  
10% QUARTZ as macroveins  
5% FLUORITE as macroveins  
10% ALBITE as macroveins  
2.5% PYRITE as disseminations and scattered crystals  
20% K-SPARS as disseminations and scattered crystals  
20% MUSCOVITE OR SERICITE as pervasive mineralization  
.1% MOLYBDENITE as macroveins  
19840 19920 QUARTZ-ALBITE-FLUORITE VEINING ABUNDANT WITH TWO GENERATIONS  
19840 19920 OF FLUORITE - ONE IN THE QZ-AB VEINS AND A YOUNGER  
19840 19920 GENERATION OF FLUORITE IN STRINGERS AT 15 DEGREES DIP.  
20040 20580 MORE QUARTZ-ALBITE-FLUORITE VEINING AT ABOUT A 30 DEGREE DIP

20040 20580AT THE FOLLOWING: 200.4 M, 202.3 TO 202.4 M. 203.1 TO 205.8  
20040 20580M. SPOT MOLYBDENITE OCCURS IN THE VEINS WITH PYRITE.  
19840 20620SOME STRINGERS AND SEAMS RUN PARALLEL TO THE LAMINATION, WHILE  
19840 20620MOLYBDENITE CAN BE ALONG MINUTE STRINGERS AT HIGH ANGLES IN  
19840 20620THE CRACKLE-ZONES.

FROM 206.20MT. TO 209.60MT.

medium TUFFITE  
Textures noted: VEINED , LAMINATED  
Structures noted: BEDDING dip 020, BEDDING dip 030  
.3% PYRITE as disseminations and scattered crystals  
THINLY BANDED AND BEDDED TUFFITE. OCCASIONAL LENSES OR FRAG-  
MENTS, BUT GENERALLY APHANITIC.

FROM 209.60MT. TO 210.90MT.

dark TUFFACEOUS SHALE  
Textures noted: VEINED , LAMINATED , BANDED  
Structures noted: BEDDING dip 025,  
1% PYRITE as disseminations and scattered crystals  
TUFFACEOUS SHALE SHOWING GRADED BEDDING, THIN INTERBEDS OF FINE-  
GRAINED TUFF, AND LAMINAE OF GRAPHITIC SHALE.

FROM 210.90MT. TO 215.80MT.

extremely dark SHALE  
Textures noted: VEINED , BANDED , LAMINATED  
Structures noted: BEDDING dip 020, MICROVEIN dip 080  
1% PYRITE as microveins  
HIGHLY GRAPHITIC AND WITH HIGH-ANGLE TINY VEINS OF QZ-AR AND PY.

FROM 214.40MT. TO 215.80MT. 30% of this subinterval is

dark TUFFACEOUS SHALE  
Textures noted: VEINED , BANDED , LAMINATED  
Structures noted: BEDDING dip 020,  
2.5% PYRITE as laminations, bedded  
TUFFACEOUS LAYERS ARE 1 TO 7 CM THICK. SOME QZ-AR-PY VEINING AT  
045 DEGREE DIP AND AT 215.6 M.

FROM 215.80MT. TO 216.90MT.

dark TUFFACEOUS SHALE  
Textures noted: VEINED , LAMINATED , BANDED  
Structures noted: BEDDING dip 020,  
2.5% QUARTZ as macroveins  
2.5% ALBITE as macroveins  
2.5% PYRITE as laminations, bedded  
THINLY INTERBEDDED SHALE AND TUFFACEOUS SEDIMENT. QUARTZ-ALBITE  
VEINLETS AT HIGH ANGLE TO BEDDING.

FROM 216.90MT. TO 218.80MT.

med. dark TUFF  
Textures noted: VEINED , LAMINATED , BANDED  
Structures noted: BEDDING dip 020,

FROM 218.80MT. TO 221.60MT.

dark TUFFACEOUS SHALE  
Textures noted: VEINED , LAMINATED , BANDED  
Structures noted: BEDDING dip 015, MICROVEIN dip 085  
2.5% QUARTZ as microveins  
2.5% ALBITE as microveins  
.3% PYRITE as disseminations and scattered crystals  
SECTION WITH HIGH-ANGLE STRINGERS OF QUARTZ-ALBITE. TUFF FROM

220.1 TO 220.4 M - FAIRLY FINE-GRAINED WITH A FEW CRYSTAL  
FRAGMENTS UP TO 3 MM ACROSS. SOMEWHAT SHALY.

FROM 221.60MT. TO 225.20MT.

dark TUFFACEOUS SHALE  
Textures noted: VEINED , LAMINATED , BANDED  
Structures noted: BEDDING dip 015,  
SHOWS MORE INTERBEDDING BETWEEN TUFF AND SHALE AND TUFF IS  
COARSER-GRAINED THAN IN TUFFITE. TUFFACEOUS SECTIONS LOOK HIGHLY  
SILICIFIED AND SERICITIZED.

22460 22480QZ-AB-CB VEIN WITH MINOR PY, CL, AND POSSIBLY MO.

FROM 225.20MT. TO 229.10MT.

light QUARTZ SERICITE SCHIST  
Textures noted: FOLIATED , BANDED  
Structures noted: BEDDING dip 010, MICROVEIN dip 085  
2.5% QUARTZ as microveins  
.1% CARBONATE as microveins  
1% ALBITE as microveins  
.01% PYRITE as disseminations and scattered crystals  
QUARTZ-SERICITE SCHIST WITH HIGH-ANGLE QZ-AB-(CB) STRINGERS.

FROM 229.10MT. TO 234.10MT.

light QUARTZ SERICITE SCHIST  
Textures noted: FOLIATED , BANDED , RIBBONED, RIBBON-LIKE  
Structures noted: BEDDING dip 010, MICROVEIN dip 060  
1% QUARTZ as microveins  
1% ALBITE as microveins  
.03% PYRITE as disseminations and scattered crystals  
30% MUSCOVITE OR SERICITE as laminations, bedded  
ALSO QUARTZ-SERICITE SCHIST, BUT WITH RIBBONS OF REDDISH  
MATERIAL THROUGHOUT - HEMATITIC? CONTAINS FELDSPAR CRYSTAL  
FRAGMENTS. ORIGINALLY A FINE-GRAINED CRYSTAL TUFF. SILICEOUS  
BANDS ALTERNATE WITH REDDISH MATERIAL AND GREENISH SERICITIC  
RIBBONS. LESS THAN 5 PERCENT ROCK FRAGMENTS.

FROM 234.10MT. TO 239.10MT.

light QUARTZ SERICITE SCHIST  
Textures noted: FOLIATED , RIBBONED, RIBBON-LIKE  
Structures noted: BEDDING dip 015, MACROVEIN dip 075  
10% QUARTZ as macroveins  
.03% CARBONATE as macroveins  
5% ALBITE as macroveins  
2.5% PYRITE as laminations, bedded  
VERY FINE-GRAINED PHYLLITIC TO SCHISTOSE META-VOLCANIC ROCK.  
STILL SHOWS SOME FRAGMENTS - BOTH CRYSTAL AND ROCK (ABOUT 5-10  
PERCENT). THESE FRAGMENTS ARE GENERALLY MUCH LESS THAN 1 CM  
ACROSS. SMALL 1.5 CM WIDE STRINGER OF LAMPROPHYRE? AT 50 DEGREE  
DIP AND AT 238.7 M.

FROM 239.10MT. TO 240.40MT.

very dark LAMPROPHYRE DYKE  
Textures noted: MASSIVE , PORPHYRITIC  
Structures noted: CONTACT dip 060,  
APHANITIC GROUNDMASS WITH 1-3 MM OLIVINE PHENOCRYSTS MAKING UP  
ABOUT 20 PERCENT OF THE ROCK. CUT BY HIGH-ANGLE QZ-AB VEIN WITH  
MINOR PY AND SERICITE.

FROM 240.40MT. TO 252.00MT.

light QUARTZ SERICITE SCHIST

Textures noted: FOLIATED , BANDED , RIBBONED, RIBBON-LIKE  
Structures noted: BEDDING dip 015, MACROVEIN dip 085  
10% QUARTZ as macroveins  
.3% FLOURITE as macroveins  
10% ALBITE as macroveins  
1% PYRITE as macroveins  
40% MUSCOVITE OR SERICITE as pervasive mineralization  
.1% MOLYBDENITE as macroveins

OTHER QZ-AB PY FL MO ARE SUBPARALLEL TO FOLIATION.

24280 24320 METAVOLCANIC RETAINS SOME OF ORIGINAL FRAGMENTAL NATURE.  
24360 24400 SSSH WITH RIBBONS OF REDDISH MATERIAL AND/OR REDDISH GREY MORE  
24360 24400 NEARLY MEDIUM-GRAINED TUFF.  
24470 24530 SAME AS 243.6 TO 244.0 M.  
24560 24600 SAME AS 243.6 TO 244.0 M.  
24610 24630 QZ-AB-(MS) VEINING WITH DISSEMINATED MO DIPPING AT 30 DEGREES.  
24610 24630 ALSO MINOR CARBONATE IN VEIN.  
24720 24730 SAME AS 246.1 TO 246.3 M.  
25170 25200 SAME AS 243.6 TO 244.0  
24040 25200 BEDDING FOLIATION VARIES FROM 010 TO 030 DEGREE DIP.

FROM 252.00MT. TO 254.00MT.

medium TUFF

Textures noted: FOLIATED , BANDED  
Structures noted: BEDDING dip 020, MICROVEIN dip 065  
5% QUARTZ as microveins  
2.5% ALBITE as microveins  
.1% PYRITE as laminations, bedded  
20% K-SPARS as disseminations and scattered crystals  
30% MUSCOVITE OR SERICITE as pervasive mineralization  
10% CHLORITE as laminations, bedded

VARIES FROM A PALER GREENISH-GREY PHYLLITIC FINE-GRAINED TUFF TO  
A SOMEWHAT LAMINATED FELDSPAR CRYSTAL TUFF, WHICH IS A DARKER  
GREENISH-GREY. SECTION FROM 253.2 TO 254.0 M CONTAINS PERVASIVE  
CHLORITE AND EIHEDRAL SCATTERED CRYSTALS OF PYRITE.

FROM 254.00MT. TO 256.20MT.

very dark LAMPROPHYRE DYKE

Textures noted: MASSIVE  
Structures noted: CONTACT dip 060,  
SIMILAR TO PRECEDING DYKE.

FROM 256.20MT. TO 258.80MT.

light QUARTZ SERICITE SCHIST

Textures noted: FOLIATED , LAMINATED , BANDED  
Structures noted: BEDDING dip 025, MACROVEIN dip 075  
2.5% QUARTZ as macroveins  
.1% CARBONATE as patches  
1% ALBITE as macroveins  
.3% PYRITE as spots  
30% MUSCOVITE OR SERICITE as pervasive mineralization  
ACTUALLY MORE PHYLLITIC THAN SCHISTOSE. SOME QZ-AB STRINGERS ARE  
SUBPARALLEL TO FOLIATION.

FROM 258.80MT. TO 261.70MT.

light SERICITE CHLORITE SCHIST

Textures noted: FOLIATED  
Structures noted: MACROVEIN dip 030,  
20% QUARTZ as macroveins  
30% ALBITE as macroveins  
5% PYRITE as disseminations and scattered crystals

30% MUSCOVITE OR SERICITE as pervasive mineralization  
10% CHLORITE as pervasive mineralization  
.1% CASSITERITE as macroveins  
.3% MOLYBDENITE as macroveins  
? SCHEELITE as macroveins  
SERICITE-CHLORITE SCHIST RIDDLED WITH LARGE QZ-AB VEINS,  
GENERALLY 20 T 50 CM WIDE. SMALL AMOUNTS OF MO, CASSITERITE?  
AND SCHEELITE? ARE FOUND AS SPORADIC AND SPOTTY OCCURRENCES IN  
THE VEINING.

FROM 261.70MT. TO 262.40MT.

light TUFF  
Textures noted: LAMINATED , RIBBONED,RIBBON-LIKE , FOLIATED  
Structures noted: BEDDING dip 005,  
10% QUARTZ as laminations, bedded  
5% ALBITE as laminations, bedded  
.1% PYRITE as disseminations and scattered crystals  
30% MUSCOVITE OR SERICITE as laminations, bedded  
IN PART A CRYSTAL TUFF WITH 2 MM LONG FELDSPAR CRYSTAL FRAGGS.

FROM 262.40MT. TO 262.70MT.

very dark SHALE  
Textures noted: LAMINATED  
Structures noted: BEDDING dip 010, MACROVEIN dip 075  
5% QUARTZ as macroveins  
.3% CARBONATE as macroveins  
1% ALBITE as macroveins  
.3% PYRITE as disseminations and scattered crystals  
QZ-CL-CB STRINGERS AT 75 DEGREE DIP. ALSO MINOR VEINLETS  
PARALLEL TO LAMINATION.

FROM 262.70MT. TO 268.80MT.

med. light TUFF  
Textures noted: LAMINATED , RIBBONED,RIBBON-LIKE , FOLIATED  
Structures noted: BEDDING dip 015, MACROVEIN dip 020  
10% QUARTZ as macroveins  
20% ALBITE as macroveins  
5% PYRITE as disseminations and scattered crystals  
.03% MOLYBDENITE as macroveins  
FROM 262.7 TO 263.0 M ROCK IS INTERBEDDED SHALE AND TUFF,  
PYRITIC. QZ-AB VEINING FROM 263.0 TO 263.8 M, 266.0 TO 266.4 M,  
AND 267.0 TO 267.8 M.

FROM 268.80MT. TO 277.90MT.

med. light TUFF  
Textures noted: LAMINATED , BANDED , FOLIATED  
Structures noted: BEDDING dip 015,  
2.5% QUARTZ as macroveins  
.3% CARBONATE as macroveins  
5% ALBITE as macroveins  
1% PYRITE as disseminations and scattered crystals  
30% MUSCOVITE OR SERICITE as pervasive mineralization  
2.5% CHLORITE as patches  
? MOLYBDENITE as macroveins  
FINE-GRAINED, THINLY BEDDED TUFF (TRACHYTIC OR RHYODACITIC?).  
SOME QZ-AB-CL VEINING (0.5 TO 3 CM WIDE) PARALLEL TO BEDDING.  
MICRO-FRACTURES AT 050 DEGREE FILLED WITH CHLORITE.  
SOME SECTIONS LOOK MORE SILICIC THAN OTHERS.

27740 27790 INTERBEDDED MEDIUM.GRAINED TUFF AND CRYSTAL TUFF AND BLACK SHALE  
27740 27790 WITH DISSEMINATED PYRITE.

FROM 277.90MT. TO 280.50MT.

med. light TUFFITE

Textures noted: LAMINATED , BANDED , FOLIATED

Structures noted: BEDDING dip 015,

INTERBEDDED TUFFACEOUS SHALE (DARKER BRONISH-GREY BANDS) AND CRYSTAL TUFF. SOME ELONGATE LENSES OF QZ-AB.

FROM 280.50MT. TO 284.20MT.

med. light TUFF

Textures noted: LAMINATED , BANDED , FOLIATED

Structures noted: BEDDING dip 020, MICROVEIN dip 085

10% QUARTZ as laminations, bedded

10% ALBITE as laminations, bedded

.3% PYRITE as disseminations and scattered crystals

30% MUSCOVITE OR SERICITE as pervasive mineralization

.03% MOLYBDENITE as spots

INTERLAMINATED FINE-GRAINED OR ASH TUFF AND CRYSTAL TUFF (ALSO FINE-GRAINED). BEDDING IS 2 MM TO 2 CM.

QUARTZ-ALBITE VEIN FROM 282.4 TO 282.5 M.

28390 28410 QUARTZ-ALBITE VEIN WITH SOME SERICITE AND SPOT DISSEMINATED

28390 28410 MOLYBDENITE.

FROM 284.20MT. TO 287.30MT.

medium TUFF

Textures noted: LAMINATED , BANDED , FOLIATED , RIBBONED, RIBBON-LIKE

Structures noted: BEDDING dip 020, MACROVEIN dip 025

2.5% QUARTZ as macroveins

5% ALBITE as macroveins

.1% PYRITE as spots

.01% CHALCOPYRITE as spots

.1% MUSCOVITE OR SERICITE as macroveins

.03% MOLYBDENITE as spots

BANDED TUFF WITH CL-RICH, AND QZ-FX-RICH BANDS.

28560 28590 QZ-AB-MS VEINS WITH DISSEMINATED MO, PY, CP, AND POSSIBLY

28560 28590 BISMUTHINITE?!

FROM 287.30MT. TO 294.00MT.

med. dark TUFF

Textures noted: LAMINATED , BANDED , FOLIATED , RIBBONED, RIBBON-LIKE

Structures noted: BEDDING dip 020, MACROVEIN dip 015

2.5% QUARTZ as macroveins

2.5% ALBITE as macroveins

20% MUSCOVITE OR SERICITE as laminations, bedded

20% CHLORITE as laminations, bedded

FINE-GRAINED TUFF BORDERING ON CHLORITE SCHIST (BANDED).

FROM 289.1 TO 289.4 M - QZ-AB-(CL) VEIN, BUT NO VISIBLE

MINERALIZATION OTHER THAN TRACE PYRITE.

FROM 294.00MT. TO 305.00MT.

medium TUFFITE

Textures noted: LAMINATED , BANDED , FOLIATED , RIBBONED, RIBBON-LIKE

Structures noted: BEDDING dip 020,

.3% PYRITE as disseminations and scattered crystals

30% MUSCOVITE OR SERICITE as laminations, bedded

10% CHLORITE as laminations, bedded

SAME AS TUFF FROM 287.3 TO 294.0 EXCEPT PALER COLOR AND LESS CHLORITE. ALSO SOME REDDISH BANDS SHOWING UP ALONG PARTS OF THE SECTION. SOME QZ-AB STRINGERS PARALLEL TO FOLIATION. BECOMES GRADUALLY MORE GREYISH THAN GREENISH-GREY GOING DOWN THE HOLE.

SHOWS SOME WARPING AND CRENLATING OF BANDS - THAT IS, WAVY IN APPEARANCE

30100 30180MORE BLUISH-GREY COLOR TO ROCK WITH NO REDDISH COLORED LAMINAE.  
30230 30500GREATER VOLUME OF QZ-ALBITE VEINING AT 15 DEGREE DIP. QZ-AB VEIN  
30230 30500AT 303.2 TO 303.3 M CONTAINS MINOR DISSEMINATED CP AND PO.

FROM 305.00MT. TO 307.00MT.

med. dark TUFF

Textures noted: BANDED , LAMINATED , FOLIATED

Structures noted: BEDDING dip 010,

SOME QZ-AB VEINING PARALLEL TO BEDDING. THE LAMINAE TEND TO BE LESS THAN 0.5 CM AND GENERALLY MEASURE ABOUT 2 TO 3 MM.

FROM 307.00MT. TO 310.70MT.

med. light TUFFITE

Textures noted: BANDED , LAMINATED

Structures noted: BEDDING dip 010, MACROVEIN dip 080

.3% PYRITE as macroveins

? CASSITERITE as macroveins

.03% MOLYBDENITE as macroveins

AT 310.0 M THERE IS A 090 DEGREE DIPPING QZ-AB VEINLET WITH MINOR DISSEMINATED MQ, PY, AND CASSITERITE(?). BANDING IS DUE TO REDDISH-BROWN VERY FINE-GRAINED TUFFACEOUS ARGILLITE AND PALE GREY TO GREENISH-GREY FINE-GRAINED TUFF. SOME MICRO-FRACTURING AT 045 DEGREE DIP.

FROM 310.70MT. TO 314.00MT.

dark TUFFACEOUS SHALE

Textures noted: BANDED , LAMINATED , FOLIATED

Structures noted: BEDDING dip 010, BEDDING dip 015

MICRO-FRACTURES AT 80 DEGREE DIP. ROCK IS COMPOSED OF: THINLY INTERBEDDED SHALE AND TUFFACEOUS SEDIMENT. LAMINAE AVERAGE 2 TO 3 MM THICK. QZ-AB SEAMS RUN PARALLEL TO BEDDING.

FROM 314.00MT. TO 319.30MT.

med. dark TUFFACEOUS SHALE

Textures noted: BANDED , LAMINATED , FOLIATED

Structures noted: CONTACT dip 020,

.1% PYRITE as disseminations and scattered crystals

INTERBEDDED BLACK SHALE AND TUFF. TUFF IS MORE ABUNDANT IN THIS SECTION THAN ABOVE P61. TUFF IS FINE-GRAINED WITH A FEW FX AND ROCK FRAGMENTS STRETCHED OUT PARALLEL TO FOLIATION. A FEW QZ-AB STRINGERS PARALLEL TO FOLIATION.

FROM 319.30MT. TO 324.00MT.

light TUFF

Structures noted: BANDING dip 015, MACROVEIN dip 060

5% QUARTZ as macroveins

5% ALBITE as macroveins

.3% PYRITE as macroveins

.3% PYRRHOTITE as macroveins

SOME QZ-AB SEAMS PARALLEL TO FOLIATION. MOST OF FRAGMENTS ARE SILICEOUS VOLCANICS AND FELDSPAR CRYSTAL FRAGS.

32180 32250FINER-GRAINED, THINLY BANDED TUFFITE OR TUFFACEOUS SEDIMENT.

FROM 324.00MT. TO 330.20MT.

dark TUFFACEOUS SHALE

Textures noted: LAMINATED , BANDED

Structures noted: BANDING dip 015,

THINLY (2 MM TO 1 CM) INTERLAMINATED VERY FINE-GRAINED TUFF AND



SHALE.

FROM 330.20MT. TO 331.70MT.

extremely dark SHALE

Textures noted: LAMINATED , BANDED

Structures noted: BANDING dip 025, MACROVEIN dip 030

2.5% QUARTZ as macroveins

2.5% ALBITE as macroveins

.1% PYRITE as macroveins

.3% PYRRHOTITE as macroveins

THINLY INTERBEDDED BLACK AND DARK GREY SHALE WITH LESS THAN 10 PERCENT TUFFACEOUS MATERIAL. PYRRHOTITE OCCURS IN THIN WISPS AND SEAMS PARALLEL TO FOLIATION AS WELL AS IN QZ-AB VEINS.

FROM 331.70MT. TO 334.00MT.

TUFF

Textures noted: LAMINATED , BANDED , MASSIVE

Structures noted: BANDING dip 015,

VARIES FROM THINLY BANDED TO MASSIVE. CONTAINS QZ-AB VEINING (2 MM TO 3 CM WIDE) PARALLEL TO BANDING. PO AND PY OCCUR AS DISSEMINATED GRAINS IN TUFF AND IN VEINS.

33320 33330 CRACKLE ZONE WITH PO ALONG FRACTURES PERP. TO QZ VEINING AND BN.

FROM 334.00MT. TO 335.30MT.

med. light TUFFITE

Structures noted: BANDING dip 030, MACROVEIN dip 025

.3% QUARTZ as macroveins

.1% CARBONATE as macroveins

.1% ALBITE as macroveins

.03% PYRITE as disseminations and scattered crystals

INTERLAMINATED SILTY SHALE AND FINE-GRAINED TUFF. HAS AN ALMOST BROWNISH-GREY COLOR TO SOME OF THE BANDS.

FROM 335.30MT. TO 336.50MT.

med. dark TUFF

Textures noted: LAMINATED , BANDED

Structures noted: BANDING dip 020, MACROVEIN dip 020

10% QUARTZ as macroveins

.3% CARBONATE as macroveins

10% ALBITE as macroveins

1% PYRITE as macroveins

.03% PYRRHOTITE as macroveins

20% MUSCOVITE OR SERICITE as pervasive mineralization

? CASSITERITE as macroveins

DISSEMINATED PY AND PO IN VEINS. CASSITERITE OR RUTILE ALSO PRESENT AS TRACE AMOUNT.

FROM 336.50MT. TO 338.50MT.

dark TUFFACEOUS SHALE

Textures noted: BANDED , LAMINATED , MASSIVE

Structures noted: BANDING dip 015, MACROVEIN dip 070

2.5% QUARTZ as macroveins

2.5% ALBITE as macroveins

.3% PYRITE as disseminations and scattered crystals

1% CHLORITE as macroveins

INTERBEDDED TUFF (FINE-GRAINED WITH 30 PERCENT CRYSTAL FRAGS.), GREYWACKE-LIKE MATERIAL, AND BLACK SHALE.

FROM 338.50MT. TO 347.10MT.

med. dark TUFFITE

Textures noted: BANDED , MASSIVE , LAMINATED  
Structures noted: BANDING dip 020, MICROVEIN dip 045  
.1% QUARTZ as microveins  
.1% ALBITE as microveins  
1% PYRITE as disseminations and scattered crystals  
POORLY BANDED TO MASSIVE. PY IS STRETCHED OUT PARALLEL TO LM.  
SOME ROCK AND FX CRYSTAL FRAGS. IN MORE TUFFACEOUS MATERIAL.

FROM 347.10MT. TO 369.60MT.

med. dark TUFF

Textures noted: BANDED , LAMINATED  
Structures noted: BANDING dip 015, MACROVEIN dip 015  
5% QUARTZ as macroveins  
.1% CARBONATE as macroveins  
5% ALBITE as macroveins  
10% PYRITE as disseminations and scattered crystals  
20% MUSCOVITE OR SERICITE as pervasive mineralization  
10% CHLORITE as pervasive mineralization

THINLY LAMINATED GREENISH FINE-GRAINED TUFF RICH IN DISSEMINATED  
AND LM PYRITE. MORE CHLORITIC THAN PREVIOUS LM TUFF. AT 357.9 M  
QZ-AB-(CB) VEIN AT 80 DEGREE DIP (APPEARS TO BE FILLING A SHEAR.  
PYRITE CONTENT LOCALLY APPROACHES 20 TO 25 PERCENT.

35650 36100BECOMES MORE INTERLAMINATED WITH TUFFACEOUS SEDIMENT , BUT STILL  
35650 36100DOESN'T CLASSIFY AS A TUFFITE UNIT.  
34710 36960SOME QZ-AB STRINGERS AT 40 DEGREE DIP. BANDING VARIES FROM 5  
34710 36960DEGREES TO 20 DEGREES DIP.  
36120 36220PYRITE IS ABUNDANT, ALSO NUMEROUS QZ-AB STRINGERS PARALLEL TO  
36120 36220LAMINATION, AND MAUVISH-BROWN 3 TO 5 MM WIDE CLAY LAMINAE. PY IS  
36120 36220ABOUT 30 PERCENT BY VOLUME.  
36300 36600NUMEROUS TINY STRINGERS OF QZ-AB AT 70 TO 85 DEGREES DIP.  
36510 36960ABOUT 15 PERCENT FX CRYSTAL FRAGMENTS.  
36690 36700QUARTZ-ALBITE-(PY-PO) VEINS AT 040 DEGREE DIP. LAMINATION IS  
36690 36700ABOUT 30 DEGREE DIP IN THIS PART OF SECTION.

FROM 369.60MT. TO 370.90MT.

dark TUFFACEOUS SHALE

Textures noted: BANDED , LAMINATED  
Structures noted: BANDING dip 015,

FROM 370.90MT. TO 379.80MT.

med. light TUFF

Textures noted: BANDED , LAMINATED  
Structures noted: BANDING dip 020, MACROVEIN dip 075  
5% QUARTZ as macroveins  
2.5% CARBONATE as macroveins  
5% ALBITE as macroveins  
.1% PYRITE as disseminations and scattered crystals

MIXTURE OF TUFF AND MEDIUM-GRAINED CRYSTAL TUFF.

37340 37410CRYSTAL TUFF WITH 20 PERCENT FELDSPAR CRYSTAL FRAGMENTS.  
37090 37980AT 375.8 M THERE IS A QZ-AB-(CB) VEIN WITH AN UNKNOWN BRIGHT  
37090 37980GREEN MINERAL - APPEARS TO BE MICACEOUS.- FUSCHITE.  
37090 37980LAMINATED FINE-GRAINED TUFF SECTIONS CONTAIN THIN SEAMS OF QZ-AB  
37090 37980OR QZ-AB-CB PARALLEL TO BANDING.  
37960 37980CRYSTAL TUFF AGAIN.  
37090 37980ABUNDANT QZ-AB-(CB) VEINING AT 374.9 TO 375 M, 376.3 TO 376.9 M,  
37090 37980AND 378.1 TO 378.6 M.

FROM 379.80MT. TO 384.70MT.

light TUFFITE

Structures noted: BANDING dip 015, MACROVEIN dip 020

1% QUARTZ as macroveins  
.1% CARBONATE as macroveins  
.3% ALBITE as macroveins  
.03% PYRITE as disseminations and scattered crystals  
.3% CHLORITE as macroveins  
MONOTONOUS VERY THINLY LAMINATED TUFFITE WITH SPARSE QZ-AB, OR  
CL VEINLETS.

FROM 384.70MT. TO 387.50MT.

pale TUFFITE  
Textures noted: LAMINATED , BANDED  
Structures noted: BANDING dip 010,  
10% QUARTZ as macroveins  
5% CARBONATE as macroveins  
10% ALBITE as macroveins  
CONTAINS BRIGHT GREEN MICACEOUS MINERAL IN QZ-AB-CB VEIN.

FROM 387.50MT. TO 389.00MT.

light TUFFITE  
Textures noted: LAMINATED , BANDED  
Structures noted: BANDING dip 020, FRACTURE SET dip 070  
1% PYRITE as microveins  
.3% PYRRHOTITE as microveins  
MICRO-FRACTURES NEARLY PERPENDICULAR TO BEDDING. SOME ARE OPEN,  
OTHERS CONTAIN QZ-AB OR PY OR PO. BANDS RANGE FROM PALE BROWN  
TO GREY TO DARK GREY AND GREY-BLACK. FRACTURING FORMS SOMEWHAT  
OF A CRACKLE ZONE.

FROM 389.00MT. TO 394.40MT.

med. dark TUFFACEOUS SHALE  
Textures noted: LAMINATED , BANDED  
Structures noted: BANDING dip 015, MACROVEIN dip 015  
SEAMS OF QZ-AB-(CB) PARALLEL TO BANDING. THINLY (2 MM TO 2 CM)  
INTERLAMINATED FELDSPAR CRYSTAL TUFF, FINE-GRAINED TUFF, AND  
SILTSTONE TO SHALE. SOME MICROFRACTURES FILLED WITH QZ-AB AT  
65 TO 75 DEGREE DIPS.

39410 39440QZ-(AB-CB)-MS VEIN.

FROM 394.40MT. TO 404.10MT.

medium TUFF  
Textures noted: LAMINATED , BANDED , FOLIATED  
Structures noted: BANDING dip 030, BANDING dip 020  
1% QUARTZ as macroveins  
.3% CARBONATE as macroveins  
1% ALBITE as macroveins  
.03% PYRITE as macroveins  
.03% PYRRHOTITE as macroveins  
.01% MOLYBDENITE as macroveins  
(QUARTZ)-SERICITE SCHIST, ORIGINALLY TUFFACEOUS. SERICITE IS  
VERY FINE-GRAINED AND FEELS LIKE TALC. AT 400 M QZ-AB(-CB) VEIN  
CONTAINS MINOR PY, PO, AND MO, AND TRACE GALENA.

FROM 404.10MT. TO 405.60MT.

extremely dark SHALE  
Textures noted: BANDED , LAMINATED  
Structures noted: CONTACT dip 030, BANDING dip 015  
.3% PYRITE as disseminations and scattered crystals  
.3% PYRRHOTITE as disseminations and scattered crystals

FROM 405.60MT. TO 414.70MT.

medium TUFF

Textures noted: BANDED , LAMINATED , MASSIVE

Structures noted: BANDING dip 015, MICROVEIN dip 070

.3% QUARTZ as microveins

.3% ALBITE as microveins

.3% PYRITE as disseminations and scattered crystals

.1% CHLORITE as microveins

BLEBS AND SEAMS OF QZ-AB PARALLEL TO BANDING. CONTAINS ABUNDANT SERICITE AND SOME CHLORITE. QZ-AB-CL MICROVEINS AT 412.2 TO 412.3 M. CONTAINS ABOUT 25 PERCENT FX CRYSTAL FRABS.

FROM 414.70MT. TO 417.30MT.

pale TUFF

Textures noted: BANDED , LAMINATED

Structures noted: BANDING dip 010, MICROVEIN dip 065

.3% PYRITE as disseminations and scattered crystals

ELONGATE BLEBS, LENSES, AND SEAMS OF QUARTZ PARALLEL TO BANDING.

FROM 417.30MT. TO 420.70MT.

light TRACHITIC LAPILLI CRYSTAL TUFF

Textures noted: BANDED , LAMINATED

Structures noted: BANDING dip 015, MACROVEIN dip 080

.3% QUARTZ as macroveins

.3% ALBITE as macroveins

1% PYRITE as disseminations and scattered crystals

1% PYRRHOTITE as disseminations and scattered crystals

.1% CHLORITE as macroveins

CONTAINS ABOUT 25 PERCENT FX CRYSTAL FRAGMENTS. QZ-AB-CL VEIN.

FROM 420.70MT. TO 429.60MT.

pale TUFF

Textures noted: BANDED , LAMINATED

Structures noted: MICROVEIN dip 070, BANDING dip 010

MICRO-FRACTURES VARY FROM 65 TO 85 DEGREE. DIP. GENERALLY FILLED WITH QZ-AB-CB OR PY-PQ. SOME INDICATE LATER SHEARING.

42240 42500 MORE SILICEOUS -1E-POSSIBLY RHYOLITIC.

FROM 429.60MT. TO 432.80MT.

very dark SHALE

Structures noted: BANDING dip 010, CONTACT dip 010

1% PYRITE as disseminations and scattered crystals

.3% PYRRHOTITE as disseminations and scattered crystals

SHOWS MINOR QZ-AB STRINGERS AT HIGH ANGLES TO BEDDING. ALSO THIN (1 TO 5 MM WIDE) BANDS OF FINE-GRAINED TUFF, GREYWACKE, AND SILTSTONE. CRENLATIONS ON FOLIATION PLANE.

FROM 432.80MT. TO 448.80MT.

medium TUFF

Textures noted: LAMINATED , BANDED , RIBBONED, RIBBON-LIKE

Structures noted: BANDING dip 010,

.3% QUARTZ as macroveins

.1% CARBONATE as macroveins

.1% ALBITE as macroveins

.03% PYRITE as disseminations and scattered crystals

FEW MM TO 4CM WIDE BANDS OF PALE GREY TO DARKER GREENISH-GREY FINE-GRAINED TUFF. CONTAINS ABOUT 10 TO 15 PERCENT FELDSPAR CRYSTAL FRABS. IRREGULAR STRINGERS AND VEINLETS OF QZ-AB-CB AT ANGLES OF 40 TO 75 DEGREES. PY AND PQ SPORADICALLY DISSEMINATED. SOME SEAMS OF QZ-AB PARALLEL TO BEDDING. AT 447.15 TO 447.25 M A LAYER OF BLACK SHALE. FROM 447.2 TO 447.6 M A 80 DEGREE

DIPPING QZ-AB-PY-PO VEIN.

FROM 448.80MT. TO 451.30MT.

extremely dark SHALE with GRAPHITE , ,  
Textures noted: BANDED , LAMINATED , FOLIATED  
Structures noted: BANDING dip 005, BANDING dip 010  
1% PYRITE as disseminations and scattered crystals  
1% PYRRHOTITE as disseminations and scattered crystals  
CONTAINS DISSEMINATED PY AND PO - EUHEDRAL CRYSTALS PROBABLY  
FORMED DURING METAMORPHISM. SOMEWHAT GRAPHITIC. SOME QZ-AB  
VEINING PARALLEL TO BEDDING.

FROM 451.30MT. TO 458.90MT.

light TUFF  
Textures noted: BANDED , LAMINATED  
Structures noted: CONTACT dip 010, BANDING dip 010

FROM 458.90MT. TO 502.90MT.

extremely dark SHALE  
Textures noted: BANDED , LAMINATED  
Structures noted: BANDING dip 015, BANDING dip 020  
.3% PYRITE as disseminations and scattered crystals  
.3% PYRRHOTITE as disseminations and scattered crystals  
PYRITIC AND PYRRHOTITIC SHALE WITH MINOR INTERLAMINATED TUFF,  
SILTSTONE, AND ARGILLITE. CHLORITIC DUE TO METAMORPHISM. VARIES  
TO GRAPHITIC. SOME QZ-CB VEINING AT 469.9 TO 470 M. SOME  
SHEARING AT 60 DEGREE DIP. FROM 470.0 TO 470.4 M THERE'S AN  
INTERBEDDED TUFF LAYER WITH ABUNDANT QZ-CB VEINING WITH PY AND  
PO. FROM 476.6 TO 477.2 M ANOTHER FINE TO NEARLY MEDIUM-GRAINED  
TUFFACEOUS UNIT WITH QUARTZ + MINOR CB-MS VEINING. MORE TUFF AND  
QZ-(CB-MS) VEINING - CRACKLE ZONE AS WELL WITH MULTI-DIRECTIONAL  
FRACTURING PERMEATED BY PO AND PY FROM 478.1 TO 479.1 M. QZ-FX  
VEINING WITH MINOR MS, CL, AND PY-PO AT 487.0 TO 487.1 M,  
489.0 TO 489.3 M, AND 496.2 TO 496.3 M.

FROM 502.90MT. TO 504.80MT.

very dark TUFFACEOUS SHALE  
Textures noted: BANDED , LAMINATED  
Structures noted: BANDING dip 015,  
.3% PYRITE as disseminations and scattered crystals  
.3% PYRRHOTITE as disseminations and scattered crystals  
INDIVIDUAL LAMINAE ARE 0.5 TO 2 CM THICK. BANDING IS VARIABLE  
FROM 10 TO 35 DEGREES DIP. SOME QZ-FX (WITH OR WITHOUT PY OR PO)  
AT 60 DEGREES DIP.

FROM 504.80MT. TO 512.80MT.

extremely dark SHALE  
Textures noted: BANDED , LAMINATED  
Structures noted: BANDING dip 015, MACROVEIN dip 060  
.3% PYRITE as disseminations and scattered crystals  
.3% PYRRHOTITE as disseminations and scattered crystals  
QZ-FX VEINING PYRITE OR PYRRHOTITE AT 60 DEGREE DIP, SIMILAR  
TO ABOVE UNIT. NUMEROUS IRREGULARITIES IN BEDDING PLANES - SOME  
A PRIMARY FEATURE MOST LIKELY, OTHERS DUE TO MINOR FOLDING AND  
CRENULATION ON THE FOLIATION. SHALE IS CHLORITIC TO LARGELY  
GRAPHITIC. SOME QZ SEAMS PARALLEL TO BEDDING, BUT NOT PROMI-  
NENT.

FROM 512.80MT. TO 515.10MT.

very dark TUFFACEOUS SHALE

Textures noted: BANDED , LAMINATED  
Structures noted: BEDDING dip 010,  
.1% PYRITE as disseminations and scattered crystals  
.1% PYRRHOTITE as disseminations and scattered crystals  
INTERBEDDED FINE- TO NEARLY MEDIUM-GRAINED CRYSTAL TUFF AND  
SHALE WITH MINOR SILTY MATERIAL. TUFF CONTAINS 2 TO 3 MM WIDE  
FELDSPAR CRYSTALS (30 PERCENT) AND LESS THAN 10 PERCENT ROCK  
FRAGMENTS UP TO 1CM ACROSS. DISSEMINATED PY AND PO OCCURS IN  
BOTH THE TUFF AND SHALE. TUFF AT 512.8 TO 513.8 M AND 514.7 TO  
515.1 M.

FROM 515.10MT. TO 516.80MT.

very dark SHALE  
Textures noted: BANDED , LAMINATED  
Structures noted: BEDDING dip 010, MACROVEIN dip 075  
2.5% QUARTZ as macroveins  
2.5% ALBITE as macroveins  
.3% PYRITE as macroveins  
.3% PYRRHOTITE as macroveins  
.1% CHLORITE as macroveins  
NUMEROUS QZ FX VEINS, SEAMS, AND STRINGERS. ALSO METAMORPHIC  
DEVELOPMENT OF SOME MINERAL (CHLORITE AFTER ? HB?)

FROM 516.80MT. TO 518.00MT.

med. light TUFF  
Textures noted: BANDED , LAMINATED  
Structures noted: BEDDING dip 005, MACROVEIN dip 030  
LARGER QZ-AB VEINS CHLORITE WITH SMALLER FRACTURE-FILLINGS OF  
PY OR PO.

FROM 518.00MT. TO 520.20MT.

very dark SHALE  
Textures noted: BANDED , LAMINATED  
Structures noted: BEDDING dip 010,

FROM 520.20MT. TO 522.30MT.

med. light TUFF  
Textures noted: BANDED , LAMINATED  
Structures noted: BEDDING dip 010,  
IS PARTLY CRACKLED WITH NEAR VERTICAL FRACTURES FILLED WITH  
PY AND PO. QUARTZ VEINING PARALLEL TO BD AT THE END FOR 0.1 M  
WIDTH.

FROM 522.30MT. TO 526.40MT.

extremely dark SHALE  
Textures noted: BANDED , LAMINATED  
Structures noted: BEDDING dip 010, MICROVEIN dip 060  
10% QUARTZ as microveins  
2.5% ALBITE as microveins  
.3% PYRITE as microveins  
.3% PYRRHOTITE as microveins  
GRAPHITIC TO CHLORITIC WITH DISSEMINATED EUHEDRAL CRYSTALS OF  
PY AND PO. LOCALLY BECOMES 100 PERCENT BLACK SHALE WITH NO  
INTERLAMINATED SILTSTONE OR TUFF. PY OCCURS AS SEAMS, STRINGERS,  
AND DISSEMINATED CRYSTALS.

FROM 526.40MT. TO 539.50MT.

med. light TUFF  
Textures noted: LAMINATED , MASSIVE  
Structures noted: BEDDING dip 020, MACROVEIN dip 070

5% QUARTZ as macroveins  
 2.5% ALBITE as macroveins  
 .3% PYRITE as macroveins  
 .1% PYRRHOTITE as macroveins

TUFF VARIES FROM A FINE-GRAINE OR ASH TUFF TO A SLIGHTLY COARSER  
 GRAINED CRYSTAL TUFF. SMALL STRINGERS OF QUARTZ FROM 50 TO 90  
 DEGREE DIP. LARGER QZ-FX VEINS ARE PARALLEL TO BEDDING. PY AND  
 PO ARE ALSO DISSEMINATED THROUGHOUT THE TUFF.

53950END OF HOLE.

A001								
AUMM	SAMPLEPPM MOPPM CUPPM ZNPPM PBPPM CDPMM NIPPM CO							
ALAB	NO. PLACERPLACERPLACERPLACERPLACERPLACERPLACER							
A002								
AUMM	SAMPLEPPM	UPPM	WPPM	MNPPM	SRPPM	SN	%	F
ALAB	NO. PLACERPLACERPLACERPLACERPLACERPLACERCHEMEX							
A002	13	40						73301
A002	40	67						73302
A002	67	94						73303
A002	94	126						73304
A002	126	160						73305
A002	160	191						73306
A002	191	222						73307
A002	222	264						73308
A002	264	300						73309
A002	300	343						73310
A002	343	375						73311
A002	375	403						73312
A002	403	439						73313
A002	439	473						73314
A002	473	516						73315
A002	516	541						73316
A002	541	571						73317
A002	571	617						73318
A002	617	647						73319
A002	647	692						73320
A002	692	726						73321
A002	726	752						73322
A002	752	778						73323
A002	778	798						73324
A002	798	830						73325
A002	830	864						73326
A002	864	888						73327
A002	888	919						73328
A002	919	939						73329
A002	939	961						73330
A002	961	993						73331
A002	993	1033						73332
A002	1033	1070						73333
A002	1070	1097						73334
A002	1097	1122						73335
A002	1122	1165						73336
A002	1165	1200						73337
A002	1200	1242						73338
A002	1242	1280						73339
A002	1280	1315						73340
A002	1315	1345						73341
A002	1345	1385						73342
A002	1385	1411						73343
A002	1411	1449						73344
A002	1449	1478						73345

A002 1478	1508	73346
A002 1508	1527	73347
A002 1527	1568	73348
A002 1568	1604	73349
A002 1604	1647	73350
A002 1647	1680	73351
A002 1680	1715	73352
A002 1715	1740	73353
A002 1740	1770	73354
A002 1770	1800	73355
A002 1800	1833	73356
A002 1833	1849	73357
A002 1849	1882	73358
A002 1882	1924	73359
A002 1924	1954	73360
A002 1954	1984	73361
A002 1984	2024	73362
A002 2024	2062	73363
A002 2062	2096	73364
A002 2096	2128	73365
A002 2128	2158	73366
A002 2158	2188	73367
A002 2188	2216	73368
A002 2216	2252	73369
A002 2252	2291	73370
A002 2291	2316	73371
A002 2316	2341	73372
A002 2341	2370	73373
A002 2370	2404	73374
A002 2404	2436	73375
A002 2436	2460	73376
A002 2460	2490	73377
A002 2490	2520	73378
A002 2520	2540	73379
A002 2540	2562	73380
A002 2562	2588	73381
A002 2588	2617	73382
A002 2617	2638	73383
A002 2638	2664	73384
A002 2664	2688	73385
A002 2688	2718	73386
A002 2718	2748	73387
A002 2748	2779	73388
A002 2779	2805	73389
A002 2805	2842	73390
A002 2842	2873	73391
A002 2873	2903	73392
A002 2903	2940	73393
A002 2940	2970	73394
A002 2970	3000	73395
A002 3000	3030	73396
A002 3030	3050	73397
A002 3050	3080	73398
A002 3080	3107	73399
A002 3107	3140	73400
A002 3140	3160	73401
A002 3160	3193	73402
A002 3193	3240	73403
A002 3240	3270	73404
A002 3270	3302	73405



A002 3302 3340 73406  
A002 3340 3385 73407  
A002 3385 3428 73408  
A002 3428 3471 73409  
A002 3471 3505 73410  
A002 3636 3670 73411  
A002 3769 3798 73412  
A002 3819 3847 73413  
A002 3950 3980 73415  
A002 3980 4010 73416  
A002 4010 4041 73417  
A002 4173 4207 73418  
A002 4207 4240 73419  
A002 4240 4270 73420  
A002 4408 4449 73421  
A002 4449 4488 73422  
A002 4720 4739 73423  
A002 4766 4800 73424  
A002 5151 5180 73425  
A002 5202 5223 73426  
A002 5264 5300 73427  
/END

A002 3847 3890 73414

STATEMENT OF QUALIFICATIONS

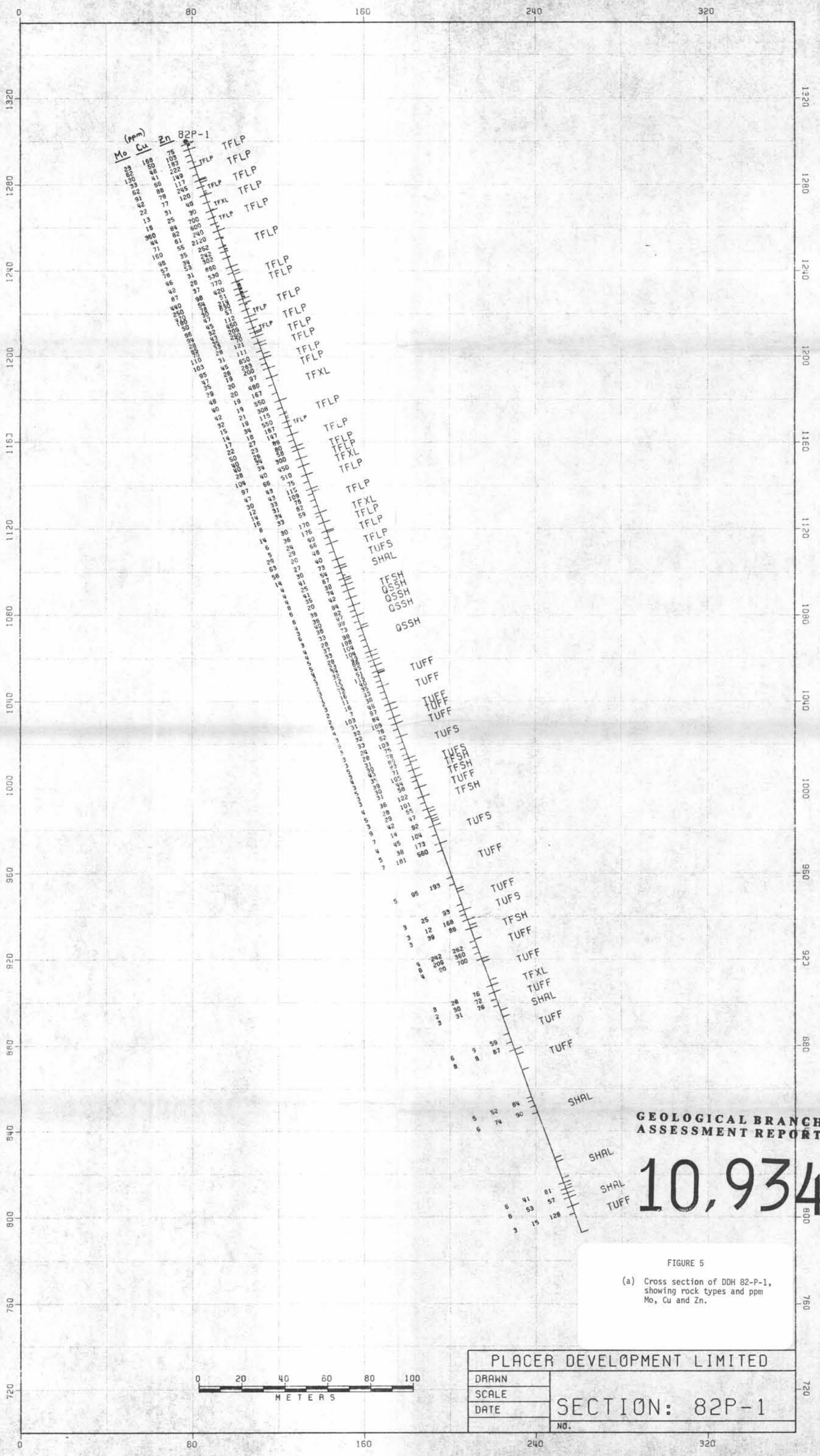
I, S.W. Campbell, of Placer Development Limited do hereby certify that:

1. I am a project/research geologist with Placer Development Limited, whose business address is 1600 - 1055 Dunsmiur Street, Vancouver, B.C.
2. I am a graduate of the University of British Columbia, Vancouver, with a Ph.D. (1981) and of the University of Manitoba, Winnipeg, with an M.Sc. (1973) and a B.Sc. (HONS.) (1972).
3. I have engaged in the practice of mineral exploration, seasonally since 1969, and permanently since 1981 in NW Ontario, Northern Manitoba, Northwest Territories, Yukon Territory, British Columbia and Southwest Africa (Namibia).
4. I personally assessed and interpreted the data from the diamond drilling program.

*Sue W. Campbell.*

S.W. Campbell

SWC/dd



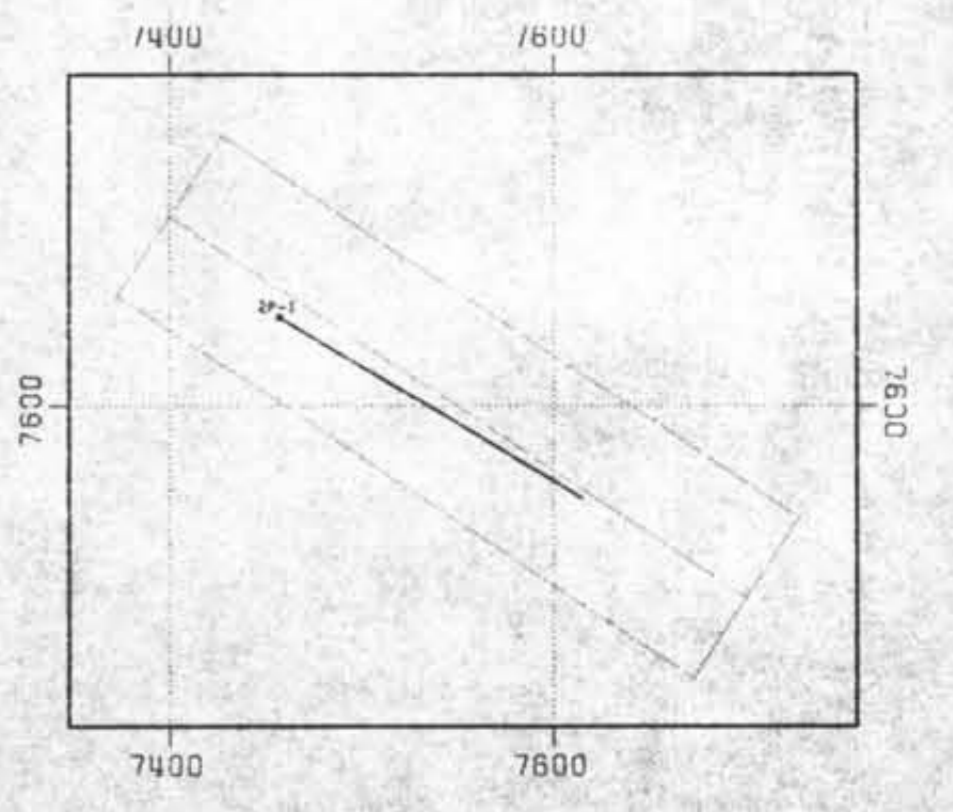
**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

# 10,934

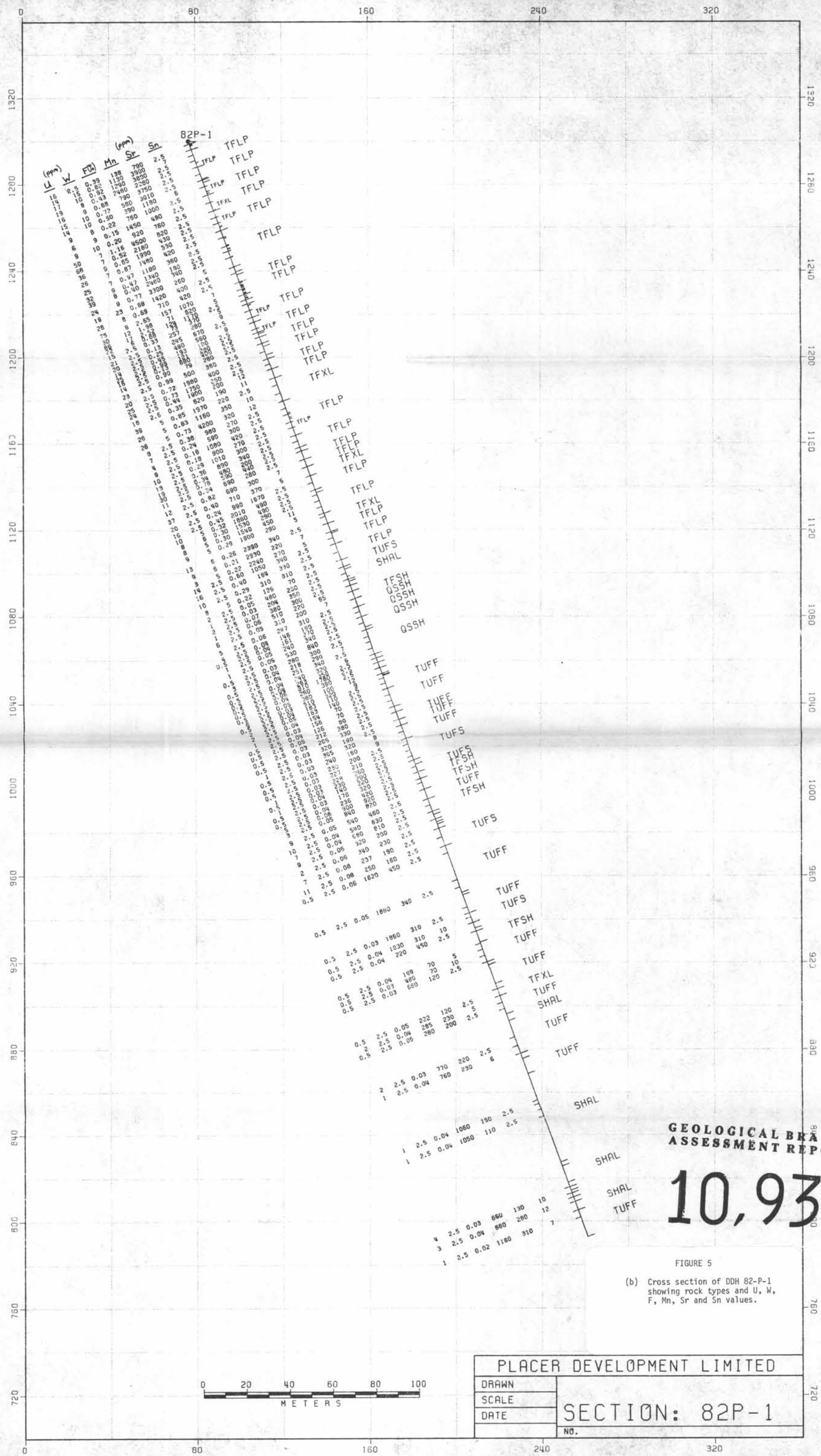
**FIGURE 5**  
(a) Cross section of DDH 82P-1, showing rock types and ppm Mo, Cu and Zn.



PLACER DEVELOPMENT LIMITED	
DRAWN	
SCALE	
DATE	
SECTION: 82P-1	
NO.	



B-RCH ISLAND 1:1000 MO, CU, ZN



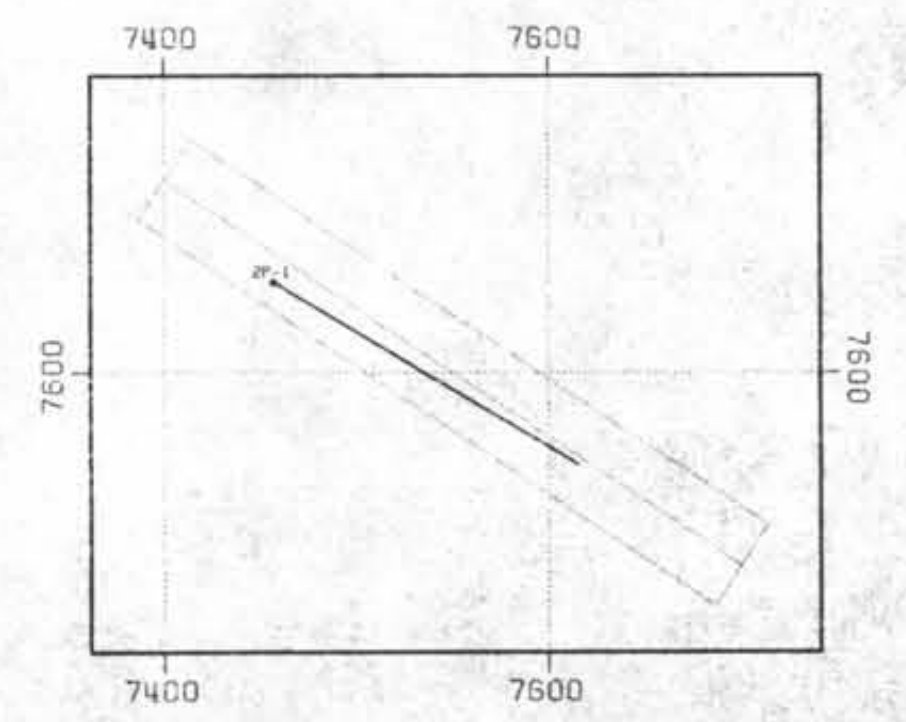
**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**10,934**

FIGURE 5  
(b) Cross section of DDH 82P-1 showing rock types and U, W, F, Mn, Sr and Sn values.



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SCALE	
DATE	
SECTION: 82P-1	
NO.	



2.5L0-1 PPM U, PPM W, % F, PPM MN, PPM SR, PPM SN.