

502041

DERRY, MICHENER & BOOTH
DIAMOND DRILL RECORD

B. V. KIRKHAM

CO - ORDS LAT: 6487.20 DEP: 6724.84

AZIMUTH. 128° 08'

DIP +57° 53'

ELEVATION: 1034.75

LENGTH: 220 Ft.

SECTION: 840W

PURPOSE: To explore area south of fault

HOLE NO: U98-80

PROPERTY: North Star

LOCATION: SLASH #2 1025 Drift

DATE STARTED: November 18, 1980

DATE COMPLETED: November 20, 1980

LOGGED BY: W. N. Pearson

DATE LOGGED: November 19-20, 1980

DRILL TYPE & SIZE: JV/AQ

DIP TESTS: 140 Ft.

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
0	33.0	LIGHT PURPLISH GREEN - QUARTZ-FELDSPAR PORPHYRY									
		[rhyodacite (?)]									
		- plagioclase phenocrysts and quartz eyes (2-3 mm long)									
		- minor quartz veinlets and small sections of quartz cemented breccia; both with minor py									
33.0	47.4	FELDSPAR ? Porphyry?									
(approx.)		- green to purple green;									
		- dacitic composition									
		- small quartz-calcite veinlets with minor py sporadically throughout section									
		32.6 - 32.9 Calcite-rich veins;									
		35.3 - 35.7 very irregular contacts									
		- contacts between units is gradational over approx. 2 ft.									
47.4	65.2	SILICIFIED VOLCANIC (?) BRECCIA	9389	47.4	52.5	5.1	0.10	0.006	0.02	0.02	<1% py
		- green to pale reddish volcanic fragments;	9390	52.5	57.1	4.6	0.09	0.004	0.01	0.04	<1% py
		local quartz cemented bx									

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	Ag	Cu	Pb	Zn	Mineralogy	
from	to			from	to							
		- matrix (~30-40%) is cherty textured quartz	9391	57.1	60.6	3.5	0.10	0.003	0.01	0.05	<1% py	
		- minor disseminated and local fracture-controlled py	9392	60.6	65.2	4.6	0.13	0.004	0.11	0.20	1% py, <1% gn	1% sph,
		57.1 - 60.6 two large silicified volcanic fragments (57.1-57.7; 58.8-60.0)										
		@58.8 contact with matrix is at 15° to core axis										
		- some movement along fracture (10° to core axis) in this section - slickensiding										
		- barite from 63.0-65.2										
		60.6 - 65.2 proportion of matrix increased to ~60-70%										
65.2	72.0	<u>QUARTZ VEIN BRECCIA</u>	9393	65.2	69.6	4.4	0.08	0.008	0.02	0.29	1% py,	<1% sph
		- scattered silicified volcanic fragments										
		66.0 - 66.3 elongate blebs of sph (1 cm long)	9394	69.6	72.0	2.4	0.11	0.016	0.03	0.19	1% py	
		69.6 - 72.0 % of breccia fragments increases to 35-40%										
72.0	82.2	<u>QUARTZ-BARITE VEIN</u>	9395	72.0	74.8	2.8	0.10	0.053	0.02	1.09	<1% py,	2-3% sph
		- subangular grains of quartz (2-3 mm thick) set in barite matrix	9396	74.8	77.8	3.0	0.22	0.150	0.04	0.48	1% py, <1% cp	<1% sph,
		- round grains of sph										
		- quartz: barite 1:1										
		- contact of vein with silicified wallrock @ 15° to core axis	9397	77.8	80.0	2.2	0.42	0.056	0.69	0.92	tr py, 1% gn,	1-2% sph, tr cp
		81.1 - 81.5 5 mm wide band rich in gn and sph 25° to core axis	9398	80.0	82.2	2.2	1.19	0.058	3.35	0.58	tr py, 1-2% gn	2-3% sph,
82.2	101.3	<u>SILICIFIED VOLCANIC (?) BRECCIA</u>										
		- matrix silicified preferentially c/o fragments	9399	82.2	84.3	2.1	0.14	0.054	0.14	0.08	tr py	
		- volcanic fragments	9400	84.3	87.3	3.0	0.11	0.107	0.06	0.05	tr py,	tr gn
		- silicified volcanic breccia or possibly a tectonic breccia with silicified rock flow ^{er} ? matrix	9401	87.3	89.2	1.9	0.15	0.116	0.03	0.04	<1% py,	tr cp
		87.3 - 87.6 barite-quartz vein	9402	89.2	92.1	2.8	0.05	0.028	0.01	0.03		
		87.3 - 89.2 breccia matrix is quartz-barite	9403	92.1	96.7	4.6	0.07	0.020	0.01	0.03	tr py	

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	Ag	Cu	Pb	Zn	Mineralogy
from	to			from	to						
		96.7 - 101.3 fragments comprise 60 - 65% of section whereas elsewhere 40% fragments	9404	96.7	101.3	4.6	0.10	0.061	0.01	0.04	1% py
101.3	104.4	<u>QUARTZ-BARITE BRECCIA</u> 1-2mm wide angular quartz veins set in a barite matrix - quartz:barite = 1:1 - silicified volcanic fragments in first foot of section - vein contacts 20° to core axis	9405	101.3	104.4	3.1	0.10	0.120	0.01	0.03	tr py, 1 cp
104.4	112.4	<u>SILICIFIED, CHLORITIZED BRECCIA</u> - probably a tectonic breccia because of the presence of quartz vein fragments	9406	104.4	108.4	4.0	0.08	0.118	0.01	0.05	1% py, tr cp
			9407	108.4	112.4	4.0	0.10	0.124	0.01	0.06	tr py, tr cp
112.4	114.1	<u>QUARTZ-BARITE BRECCIA</u> - similar to 101.3 - 104.4	9408	112.4	114.1	1.7	0.13	0.113	0.01	0.04	1-2%py, 1% cp
114.1	117.0	<u>ALTERED VOLCANIC (?) BRECCIA</u>	9409	114.1	117.0	2.9	0.09	0.024	0.01	0.02	1% py
117.0	119.1	<u>SILICIFIED BRECCIA</u> - gradational from above	9410	117.0	119.1	2.1	0.11	0.054	0.01	0.02	1-2%py
			9411	119.1	121.7	2.6	0.13	0.036	0.01	0.02	1-2%py
119.1	128.4	<u>QUARTZ BRECCIA</u> - quartz fragments (3-5mm) predominate; local pyrite fragments 127.1-127.6 - light purplish red volcanic fragment comprises approx. $\frac{1}{2}$ width of core over this section - last 8" of 9412 section silicified volcanic fragments - dissem. py in bx matrix	9412	121.7	125.0	3.3	0.52	0.142	0.04	0.09	2-3%py, tr sph
			9413	125.0	128.4	3.4	0.57	0.034	0.03	0.18	3-4%py
128.4	133.1	<u>SILICIFIED BRECCIA</u> - gradational contact over one foot - local barite - almost completely silicified volcanic fragments - ghost-like outlines - finely dissem. & veinlets of py.	9414	128.4	130.8	2.4	0.36	0.031	0.01	0.02	1% py
			9415	130.8	133.1	2.3	0.50	0.034	0.01	0.02	1-2%py

FOOTAGE		DESCRIPTION	SAMPLE №:	FOOTAGE		LENGTH	Ag	Cu	Pb	Zn	Mineralogy
from	to			from	to						
133.1	140.0	<u>QUARTZ VEIN BRECCIA</u> - silicified volcanic fragments - barite locally abundant - grades into quartz breccia - sulphides dissem and as irregular patches - gn and sph closely associated	9416	133.1	136.2	3.1	5.40	0.042	1.17	0.25	4-5% py
			9417	136.2	137.9	1.7	0.35	0.092	0.04	0.04	4-5% py
			9418	137.9	140.0	2.1	0.61	0.058	1.54	0.06	1-2% py, 1% sph, 1%gn
140.0	154.6	<u>QUARTZ BRECCIA</u> - rounded quartz fragments set in matrix of quartz, less calcite and local barite 144.1-144.3-patches of massive, fine-grained pyrite 145.4-147.3-patches of massive pyrite 2-4 cm across 147.3-149.0-bladed barite crystals 150.8-151.4-section 50% py - fine grained massive patches in matrix 152.1-152.4-sheared zone - contact of quartz breccia zone with mylonite gradational over 0.5' and at 10-15° to core axis	9419	140.0	143.0	3.0	0.38	0.092	0.02	0.04	6-7%py, 1-2% sph 1% gn
			9420	143.0	145.4	2.4	22.15	0.061	1.03	0.42	8-10% py, 3-5% sph, 1% gn
			9421	145.4	147.3	1.9	12.95	0.082	0.28	0.10	15-20%py, 2-3% sph, 1% gn
			9422	147.3	149.0	1.7	27.25	0.104	0.96	0.16	4-5% py, 5-6% sph, 2-3%gn
			9433	149.0	152.1	3.1	14.70	0.048	0.51	0.47	30-35%py, 3-5% sph, 1-2% gn
			9424	152.1	154.6	2.5	3.48	0.023	0.20	1.85	20-25%py, 2-3% sph
154.6	164.4	<u>SILICEOUS BLASTOMYLONITE</u> - foliated strongly silicified wallrock - foliation 20° to core axis - augen of quartz and pyrite ranging from 3mm-4cm wide	9425	154.6	155.6	1.0	0.49	0.009	0.03	0.12	1%py
			9426	155.6	157.6	2.0	0.28	0.006	0.02	0.03	2-3% py
			9427	157.6	159.6	2.0	0.21	0.005	0.01	0.02	3-5% py
			9428	159.6	164.5	4.9	0.16	0.004	0.01	0.03	3-5% py
164.4	187.0	<u>PURPLISH RED-GREENISH VOLCANIC BRECCIA</u> - first foot brecciated tectonically - most of section cut by numerous small quartz veins; local quartz cemented breccia - some volcanic fragments have a quartz alteration halo	9429	164.5	165.5	1.0	0.14	0.011	0.01	0.03	tr py
			9430	165.5	167.5	2.0	0.15	0.013	0.01	0.02	tr py
			9431	167.5	169.5	2.0	0.10	0.004	0.01	0.03	tr py

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH						
from	to			from	to							
187.0	196.5	<u>BRECCIATED VOLCANIC ROCK (Volcanic Breccia?)</u> - quartz cemented breccia and numerous quartz veinlets 193.0-195.0 foliated mylonitic breccia										
191.5	220.0	<u>PURPLISH RED VOLCANIC (?) BRECCIA</u> - numerous quartz veinlets - very irregular tension fracture fillings 217.0-220.0 broken, sheared HOLE ENDED 220.0 - bad ground - probably continuation of fault intersected in 2 other DDH's in section 840W										
END OF HOLE												

R. V. KIRKHAM

DERRY, MICHENER & BOOTH
DIAMOND DRILL RECORD

CO-ORDS. Lat. 6489.17 Long. 6722.47
AZIMUTH: 291° 15'
DIP: +88° 05' DRILL TYPE & SIZE: JV/AQ
ELEVATION: 1035.71 DIP TESTS:
LENGTH: 135 feet
SECTION: 840W
PURPOSE: TO CONFIRM ORE RESERVES

HOLE NO: U-99-80
PROPERTY: North Star
LOCATION: Slash #2 1025 DRIFT
DATE STARTED: November 21, 1980
DATE COMPLETED: November 23, 1980
LOGGED BY: William N. Pearson
DATE LOGGED: November 23, 1980

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	Ag	Cu	Pb	Zn	Mineralogy
from	to			from	to						
0.0	9.0	<u>FELDSPAR PORPHYRY</u> - purplish red - dacite composition - broken core 1.3-2.8 - local py stringers and quartz veinlets									
9.0	26.3	<u>SILICIFIED VOLCANIC (?) BRECCIA</u> - local quartz cemented breccia 15-20 2' lost core 24.8-26.0- lapilli tuff fragment (?)	9432	24.3	26.3	2.0	0.06	0.014	0.01	0.03	1%py
26.3	30.3	<u>QUARTZ-BARITE CEMENTED BRECCIA</u> - silicified volcanic fragments - quartz-barite and quartz fragments	9433 9434	26.3 28.8	28.8 30.3	2.5 1.5	0.19 0.36	0.083 0.208	0.01 0.01	0.04 0.03	1%py, 1% cp 1%py
30.3	35.2	<u>QUARTZ-BARITE VEIN</u> - mottled grey and white - barite massive white - contact 65° to core axis - quartz: barite ratio 1:1 - 3:2 32.5-35.2 - quartz dominant 15-20% barite	9435 9436	30.3 32.5	32.5 35.2	2.1 2.7	1.01 1.10	0.088 0.085	0.12 0.02	0.05 0.04	2-3% py, 1% sph, tr gn 6-7% py
35.2	40.4	<u>BARITE-QUARTZ VEIN</u> - 50-60% Barite	9437 9438	35.2 38.2	38.2 40.4	3.0 2.2	0.69 0.41	0.021 0.012	0.02 0.03	0.04 0.02	2-3% py 6-7% py, tr sph

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	Ag	Cu	Pb	Zn	Mineralogy
from	to			from	to						
40.4	42.4	<u>QUARTZ-BARITE VEIN</u> - gradational from above - two generations of quartz; early milky white quartz cut by later veins of grey quartz - barite relatively minor in first 1.5'	9439	40.4	42.4	2.0	1.12	0.082	0.04	0.49	1%py, tr sph argentitel(?)
42.4	44.8	<u>PYRITE QUARTZ BRECCIA</u> - fragments of milky quartz set in matrix of grey quartz and pyrite	9440	42.4	44.8	2.4	0.12	0.005	0.02	0.03	45-50% py, 1-2% sph
44.8	57.9	<u>QUARTZ-BARITE VEIN</u> - local quartz breccia - 45.7-49.0 bladed barite crystals 20-25% barite throughout most of section; locally as high as 60-90% - round blebs of honey brown (Zn-rich) sph - local chlorite-rich sections with some sheared 51.0-53.0 - bladed barite crystals 55.0-57.0	9441 9442 9443 9444	44.8 47.3 51.3 55.0	47.3 51.3 55.0	2.5 4.0 3.7 2.9	0.63 1.11 0.90 7.13	0.031 0.027 0.013 0.012	0.01 0.01 0.02 0.09	0.95 0.83 2.29 1.10	1-2% py, 1% sph 1-2% py, 2-3% sph 1-2% py, 2-3% sph 5-6% py, 2-3% sph, 1% gn
57.9	59.6	<u>GALENA-RICH VEIN</u> - gn-rich layers 3-4mm to 15mm wide @ 35-50° to core axis	9445	57.9	59.6	1.7	152.50	0.405	11.80	7.20	5%py, 10-15% sph, 25-30%gn
59.6	69.0	<u>QUARTZ VEIN</u> - local quartz breccia - honey brown sphalertie - bands of sulphides throughout most of section - local net-like texture - ground core 64.5-65.0 73.4-74.1 - vuggy section with blades of calcite	9446 9447 9448	59.6 63.0 65.6	63.0 65.6 69.0	3.4 2.6 2.4	11.75 3.67 21.40	0.020 0.023 0.037	0.84 0.24 0.68	2.91 2.79 3.31	2-3% py 6-8% sph 8-10% gn 1-2% py, 5-7% sph, 2-3% gn 8-10% py, 15% sph, 1% gn
69.0	72.2	<u>FAULT BRECCIA</u> - strongly altered (clays) fault breccia - locally vuggy	9449	69.0	72.2	3.2	3.05	0.065	0.42	1.67	10-15% py, 3-4% sph, tr gn
72.2	74.1	<u>QUARTZ VEIN</u>	9450	72.2	74.1	1.9	2.60	0.092	2.87	3.02	5% py, 10-12% sph, 5% gn

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	Ag	Cu	Pb	Zn	Mineralogy
from	to			from	to						
74.1	75.7	<u>SULPHIDE-RICH VEIN</u> - fractured grains (1-4mm wide) of pyrite set in sph, gn, and quartz matrix - texture similar to deformed massive sulphide ores - minor jasper	9451	74.1	75.7	1.6	14.25	1.29	4.28	13.90	15-20% py, 40-45% sph, 20% gn
75.7	81.0	<u>MYLONITIC BRECCIA</u> - fragments of pyrite and volcanic rock - green siliceous matrix (clays?) - weakly foliated @ 25-30° to core axis - very sharp contact with sulphide-rich vein - finely dissem. py 79.0-80.0 broken core - 2cm wide quartz vein at 79.3 80.0-81.0- progressively more chloritic	9452	75.7	76.7	1.0	1.15	0.047	0.22	1.02	3% py
			9453	76.7	79.0	2.3	0.29	0.011	0.03	0.08	2-3% py
			9454	79.0	81.0	2.0	0.21	0.009	0.02	0.06	1% py
80.3	102.6	<u>VOLCANIC (?) BRECCIA</u> - brecciated, chloritized, and silicified breccia	9455	81.0	83.0	2.0	0.12	0.008	0.01	0.04	
102.6	117.9	<u>VOLCANIC BRECCIA (?)</u> - granophyre fragments (?) up to 1 foot of core, length comprise most of this section									
117.9	122.0	<u>PURPLISH-RED ASH TUFF</u> - relatively unaltered									
122.0	128.0	<u>STRONGLY SILICIFIED ASH TUFF</u> - cherty texture, some jasper - last foot interbedded w/volcanic breccia	9456	122.0	126.4	4.4	0.10	0.01	0.01	0.04	tr py
128.0	135.0	<u>VOLCANIC BRECCIA</u> - purplish red									
END OF	HOLE										

R. J. KIRKHAM

DERRY, MICHENER & BOOTH
DIAMOND DRILL RECORD

CO-ORDS. Lat. 6493.49 Dep. 6718.65
AZIMUTH: 310° 00'
DIP: +46° 25'
ELEVATION: 1035.09
LENGTH: 93ft
SECTION: 840W
PURPOSE: TO CONFIRM ORE RESERVES

HOLE NO: U100-80
PROPERTY: Northstar
LOCATION: Slash #2 1025 Drift
DATE STARTED: November 23/80
DATE COMPLETED: November 24/80
LOGGED BY: WNP
DATE LOGGED: November 24/80

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	Ag (oz/ton)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
0	1.8	GROUND CORE - no recovery									
1.8	5.1	FELDSPAR PORPHYRY	9457	1.8	3.7	1.9	0.12	0.007	0.02	0.08	<1% py
		3.7-5.6 - strongly silicified and brecciated - stringers of pyrite	9458	3.7	5.6	1.9	0.04	0.008	0.02	0.08	1-2% py
5.6	17.0	SILICIFIED VOLCANIC (?) BRECCIA	9459	5.6	8.6	3.0	0.19	0.007	0.01	0.08	<1%py
		- local quartz-cemented bx.	9460	8.6	12.0	3.4	0.29	0.024	0.14	0.16	1-2% py, <1% sph
		- dissem. py; minor sph, gn.	9461	12.0	14.0	2.0	0.15	0.015	0.02	0.04	<1%gn
			9462	14.0	16.0	2.0	0.13	0.030	0.01	0.04	<1% py
			9463	16.0	17.0	1.0	0.18	0.022	0.01	0.04	tr py
17.0	23.0	QUARTZ-BARITE-CEMENTED BRECCIA	9464	17.0	19.0	2.0	0.41	0.191	0.02	0.10	1-2% py
		- silicified volcanic fragments and quartz vein	9465	19.0	21.8	2.8	0.39	0.152	0.01	0.05	2-3% py
			9466	21.8	23.0	1.2	0.32	0.187	0.01	0.03	1% py
23.0	54.6	QUARTZ-BARITE VEIN	9467	23.0	26.1	3.1	0.50	0.016	0.11	0.08	6-8% py, tr sph
		- massive white barite	9468	26.1	29.0	2.9	0.39	0.011	0.11	0.03	5-6% py <1% sph
		- particles and dissem. py	9469	29.0	31.7	2.7	0.51	0.022	0.07	0.06	5-6% py
		30.1-30.3 Quartz-Barite Breccia	9470	31.7	35.1	3.4	0.76	0.077	0.09	0.50	25-30% py, 2-3% sph
		31.7-34.6 Brecciated @ 36.0 - honey brown (Zn rich) sphalerite	9471	35.1	38.3	3.2	3.20	0.021	0.06	0.31	1% py, 1% sph
		38.9-39.2 - silicified volcanic fragment	9472	38.3	41.0	2.7	6.70	0.034	0.01	0.07	<1% py, tr spl

FOOTAGE		DESCRIPTION	SAMPLE №:	FOOTAGE		LENGTH	Ag	Cu	Pb	Zn	Mineralogy
from	to			from	to						
		42.2-44.7 - bladed barite crystals	9473	41.0	44.0	3.0	8.46	0.019	0.03	0.46	1% py, tr sph, tr gn
		46.8-50.0 - barite content minor	9474 9475	44.0 46.8	46.8 50.0	2.8 3.2	3.62 1.70	0.010 0.068	0.01 0.03	0.50 8.50	1% py, 1% sph 8-10% py 10-15% sph 2-3% gn
		50.0-52.0 bladed barite crystals	9476	50.0	52.0	2.0	2.80	0.048	1.12	4.62	7-8% py, 12-15% sph 1-2% gn
		52.0-54.6 - minor barite; irregular patches of sulphides	9477	52.0	54.6	2.6	16.85	0.076	4.06	5.98	5% py, 8-10% sph 8-10% gn
54.6	55.5	<u>MYLONITIC BRECCIA</u> - quartz and silicified volcanic fragments - moderately foliated 25° to core axis - finely dissem. and local augen of py	9478	54.6	55.5	0.9	2.40	0.014	0.16	0.58	2-3% py
55.5	59.8	<u>QUARTZ + BARITE VEIN</u> - bladed barite crystals to 57.7 - minor barite 57.7-59.8	9479 9480	55.5 57.5	57.5 59.8	2.0 2.3	3.16 3.52	0.018 0.024	0.18 0.14	1.04 1.33	5-6% py, 1-2% sph, 1% gn 15% py, 2% sph, 1% gn
59.8	62.0 (approx)	<u>MYLONITIC BRECCIA</u> - silicified volcanic and pyrite augen - moderately to strongly foliated in first foot	9481 9482	59.8 60.8	60.8 62.0	1.0 1.2	0.40 0.13	0.010 0.006	0.02 0.02	0.08 0.06	2-3% py 5% py
62.0	70.1	<u>VOLCANIC (?) BRECCIA</u> - fragments altered to chlorite - local small quartz filled tension fractures - local quartz cemented breccia	9483 9484	62.0 64.0	64.0 66.0	2.0 2.0	0.08 0.11	0.009 0.006	0.01 0.01	0.05 0.07	1% py
70.1	81.9	<u>LAMPROPHYRE DYKE</u> - 40° to core axis at lower contact (sharp); 90° to core axis at upper									
81.9	93.0	<u>PURPLE-RED VOLCANIC BRECCIA</u> - minor quartz veinlets									
		<u>END OF HOLE</u>									

DERRY, MICHENER & BOOTH
DIAMOND DRILL RECORD

R. V. KIRKHAM

CO - ORDS. LAT: 6286.89 DEP: 6693.28
 AZIMUTH. 230° 12'
 DIP 77° 47'
 ELEVATION: 1035.98
 LENGTH: 170
 SECTION: 1000-1030W
 PURPOSE: To reduce size of Ore Blocks

HOLE NO: U97-80
 PROPERTY: North Star Mine
 LOCATION: Slash #4 1000 x-cut
 DATE STARTED: November 16, 1980
 DATE COMPLETED: November 17, 1980
 LOGGED BY: W. N. Pearson
 DATE LOGGED: November 17, 1980

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
0	3.6	Ground Core - no recovery									
3.6	27.6	PURPLISH-RED TO GREENISH VOLCANIC BRECCIA - fragment mode 1-2 cm. - weakly chloritized throughout much of section - minor quartz veins									
27.6	100.4	PURPLISH-RED TO GREENISH DACITE (?) - Typically massive with local quartz eyes and zoned plagioclase									
		42.3-42.7 - quartz vein 15° to core axis									
		62.0-62.1 - epidote vein									
		70.0-73.0 - 60% recovery; broken core - moderately chloritized									
		73.4-73.7 - epidote vein									
		@78.4 - jasper									
		73.0-99.0 - very blocky ground; chloritic fractures every 3-4"									
		- some with slickensides; core tube blocked frequently									
		- minor quartz veins (0.5-1cm) in last 2 ft. of section									

FOOTAGE		DESCRIPTION	SAMPLE №:	FOOTAGE		LENGTH	Ag	Cu	Pb	Zn	Mineralogy
from	to			from	to						
100.4	100.7	<u>QUARTZ VEIN</u> - 30° to core axis; barren at contact between dacite (?) and volcanic breccia unit									
100.7	119.7	<u>PURPLISH RED-GREENISH VOLCANIC BRECCIA</u> - fragments range from 0.5-1 cm up to 8 cm; mode 1 cm 101.7 - 102.6 } quartz-cemented breccia with minor 104.3 - 105.4 } py									
119.7	129.6	<u>QUARTZ-CEMENTED BRECCIA</u> - colliform textures; local barite - volcanic fragments - matrix 10-15%	9369 9370 9371	124.7 126.5 128.6	126.5 128.6 129.6	1.8 2.1 1.0	0.01 0.01 0.20	0.015 0.029 0.075	0.01 0.01 0.01	0.12 0.04 0.03	tr py tr py <1%py
129.6	133.1	<u>BARITE-RICH VEIN BRECCIA</u> - chloritized volcanic fragments from 129.6-132.8	9372 9373	129.6 131.1	131.1 133.1	1.5 2.0	0.46 0.07	0.252 0.163	0.02 0.01	0.15 0.03	3-5% py <1% cp 3-5% py <1% cp
133.1	137.4	<u>BARITE-QUARTZ VEIN</u> - dissem py, sph, gn	9374 9375	133.1 134.6	134.6 137.4	1.5 2.8	0.49 2.97	0.481 0.122	0.03 0.21	0.04 0.05	25% py 2-3% py, 1% sph, 1-2% gr
137.4	138.6	<u>PYRITE VEIN (LENSE)</u> - massive, fine-grained py; 10-15% quartz	9376	137.4	138.6	1.0	9.30	0.080	0.16	0.06	85-90% py
138.6	149.3	<u>QUARTZ VEIN</u> - milky white to grey quartz; minor dissem py; tr sph and gn to 140.6 140.6 - 144.2 py stringers w/ associated chlorite alteration 145.0 - 145.3 minor jasper	9377 9378 9379 9380	138.6 140.6 144.2 145.3	140.6 144.2 145.3 149.3	2.0 3.6 1.1 4.0	3.20 5.64 22.70 33.95	0.005 0.006 0.020 0.015	0.02 0.09 0.48 0.05	0.07 0.36 0.88 0.06	1-2% py, tr sph, tr gn 3-4% py, tr gn 5-10% py, 2-3% sph, tr gn 2-3% py, 1% sph, tr gn
149.3	154.2	<u>QUARTZ-PYRITE VEIN</u> - sph, gn to 151.6 then minor afterwards	9381	149.3	151.6	2.3	5.90	0.011	0.32	1.67	20-25% py, 2-3% sph

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	Ag	Cu	Pb	Zn	Mineralogy
from	to			from	to						
			9382	151.6	154.2	2.6	6.80	0.024	1.70	5.18	20-25% py, 5-10% sph, 3-5% gr
154.2	155.0	<u>SILICEOUS BLASTOMYLONITE</u> - pyrite augen	9383	154.2	155.0	0.8	1.09	0.012	0.29	1.85	20-25% py, 2-3% sph
155.0	156.4	No core recovered - rods stuck and core ground									
156.4	159.3	<u>MYLONITE</u> - siliceous, very friable (altered to clays?) - finely dissem py 157.2 - 157.2 white bull quartz vein 60° to core axis	9384	156.4	157.8	1.4	0.20	0.004	0.04	0.24	3-5% py
			9385	157.8	159.3	1.5	0.01	0.003	0.01	0.04	1% py
159.3	164.7	<u>FAULT BRECCIA</u> - gradational from mylonite zone - volcanic fragments @162.9 - jasper	9386	159.3	162.1	2.8	0.03	0.004	0.01	0.04	41% py
			9387	162.1	164.7	2.6	0.01	0.003	0.01	0.03	tr py
164.7	170.0	<u>PURPLISH-RED VOLCANIC BRECCIA</u> 168.5 - 168.8 Fault zone	9388	164.7	166.7	2.0	0.01	0.003	0.01	0.03	
END OF HOLE											

DERRY, MICHENER & BOOTH
DIAMOND DRILL RECORD

W. N. PEARSON

CO-ORDS LAT: 6329.30 DEP: 6650.1
AZIMUTH: 225° 00'
DIP 73° 00'
ELEVATION: 1036.17
LENGTH 151 ft.
SECTION: 1000-1025W
PURPOSE: TO REDUCE SIZE OF ORE BLOCKS

HOLE NO. U95-80
PROPERTY: NORTH STAR MINE
LOCATION SLASH #3 1000 x-cut
DATE STARTED: Nov 10/80
DATE COMPLETED: Nov 12/80
LOGGED BY: W. N. PEARSON
DATE LOGGED: Nov 12/80

DRILL TYPE & SIZE: JV/AQ

DIP TESTS:

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
0	24.3	PURPLISH-RED LAPILLI TUFF									
		- 16.1 - 16.3 quartz vein									
		21.1 - 21.4 quartz vein w/round blebs of sph & minor py; 30° to core axis									
24.3	46.1	PURPLISH-RED VOLCANIC BRECCIA									
		- lapilli tuff grades into a coarse pyroclastic breccia									
		26.7 - 28.4 fragment of feldspar porphyry									
		30.0 - 34.5 chloritic alteration zone with broken core 30.3-32.0; minor py; probably fault zone									
		38.8 - 40.0 quartz vein; 27° to core axis									
		42.1 - 42.3 quartz vein 2-3cm wide; round blebs of sph, 2-3mm in diameter; lessor py & minor cp 23° to core axis									
		43.7 - 43.9 quartz vein 40° to core axis 1-2%py, 2-3%sph									
		44.4 - 44.7 quartz vein 25° to core axis vein textures similar to 42.1-42.3 1-2%py, 3-5%sph									
		- some fragments in volcanic breccia have dissem py (e.g @ 45.9)									

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
46.1	55.3	- 46.1 - 1.3cm wide vein quartz-calcite w/radiating crystals of actinolite (?); 20-25%py; 37° to core axis									
		- 46.6 - 46.7 ~2cm wide quartz vein with sph (round blebs 2mm in diameter) and py; contact almost parallel to core axis 3-5%py, 2-3%sph									
55.3	66.1	<u>ASH TUFF</u> - crystal fragments - apparent sharp contact with volcanic breccia unit marked by vein at 46.1 52.7 - 53.4 - vein breccias 55.3 - 56.0 - with dissem py (up to 10%) in matrix 53.5 - onwards tuff coarsens slightly.	9312	61.3	63.00	1.7	0.12	0.019	0.01	0.05	<1%py
		- local silicified volcanic (?) breccia - dissem py in matrix	9313	63.0	66.1	3.1	0.15	0.015	0.01	0.06	1%py
66.1	68.4	<u>SILICIFIED VOLCANIC (?) BRECCIA</u> - finely dissem py in matrix	9314	66.1	66.9	0.8	0.34	0.130	0.02	0.05	3-5%py
			9315	66.9	68.4	1.5	0.61	0.201	0.02	0.06	2-3%py
68.4	83.8	<u>BARITE-QUARTZ VEIN</u> - sharp contact with silicified wallrock 42° to core axis; barite 60-70% of vein; very white in colour	9316	68.4	71.0	2.6	1.12	0.011	1.14	0.22	1-2%sph 1-2%gn
		71.0 - 72.2 - essentially barite vein	9317	71.0	72.2	1.2	0.47	0.016	2.50	0.58	2-3%py, 1-2%sph 5%gn
		72.2 - 73.9 - quartz content more significant (~15%), pyrite content also increased	9318	72.2	73.9	1.7	0.60	0.020	1.52	0.19	15%py, <1%sph 5%gn
		73.9 - 75.2 - pyrite-rich zone; series of pods or lenses in vein; contacts of pyrite lenses with vein range	9319	73.9	75.2	1.3	1.75	0.022	1.46	0.09	55%py, 1%sph 1-2%gn

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
		from 40-50° to core axis.									
		- 74.3 - 74.7 - almost 100% coarsely crystalline pyrite; gn & sph within vein material between pyrite lenses.									
		- 75.2 - 78.6 - 3:2 to 2:1 barite: quartz; dissem gn & sph; py as irregular patches mainly near end of section	9320	75.2	78.6	3.4	0.32	0.004 ✓	0.49	0.10	2-4%py, 1% sph, 1-2%gn
		- 78.6 - 79.8 - massive pyrite lense; 90% pyrite; contact with vein 20° to core axis; pyrite coarsely crystalline - quartz associated with pyrite, apparently no barite.	9321	78.6	79.8	1.2	2.25	0.023 ✓	0.32	0.05	85-90%py
		- 79.8 - 83.8 - barite-quartz vein up to 82.5 then grades into a quartz dominant section.	9322	79.8	83.8	4.0	0.35	0.003 ✓	1.89	0.14	5%py, 1% sph, 2-3%gn
83.8	87.5	<u>PYRITE-QUARTZ VEIN</u> - 65-70% pyrite; locally coarsely crystalline - minor calcite	9323	83.8	87.5	3.7	1.22	0.032 ✓	0.22	0.13	65-70%py, tr sph
87.5	92.4	<u>QUARTZ-BARITE VEIN</u> - bladed barite crystals common throughout section; - 20-25% barite.	9324	87.5	89.9	2.4	0.81	0.029 ✓	0.25	0.51	5%py, 1% sph, 2-3%gn
			9325	89.9	92.4	2.5	1.79	0.013 ✓	0.04	0.39	3-4%py, 1% sph
92.4	99.3	<u>QUARTZ VEIN</u> - minor barite - local quartz breccia - colliform textured sphalerite - py & sph dissem & as irregular patches 1cm long + few mm wide @ 98.3 - 5mm wide red patch - pyrargrite (?)	9326	92.4	95.1	2.7	8.65	0.016 ✓	0.07	0.53	1-2%py, 1% sph, tr gn
			9327	95.1	97.9	2.8	20.50	0.019 ✓	0.05	1.05	3-4%py, 2-3% sph
			9328	97.9	99.3	1.4	26.95	0.031 ✓	0.13	0.68	10%py, 3-5% sph, tr gn, pyrargrite
99.3	105.6	<u>QUARTZ-BARITE VEIN</u> - dissem py, sph & gn - bladed crystals of barite - 104.2 - 104.7 - <u>NATIVE AG</u>	9329	99.3	102.0	2.7	62.50	0.015 ✓	1.25	0.28	3-5%py, 3-5% sph, 5-7%gn
			9330	102.0	105.6	3.6	42.05	0.011 ✓	0.15	0.12	3-5%py, 1-2% sph, 2-3%gn, NATIVE AG

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
105.6	114.9	- finely dissem native Ag; locally along fracture; in thin (0.5cm) elongate zone & parallel to core axis									
		<u>QUARTZ-SULPHIDE VEIN</u> - dissem & patches of sph, py & gn	9331	105.6	107.6	2.0	97.50	0.026 ✓	3.02	1.64	5%py, 4-5% sph, 8-10%gn, pyrrargyrite (?)
		- 107.6 - 108.7 - pyrrargyrite (?) especially at 108.0 - may be jasper	9332	107.6	108.7	1.1	5.28	0.009 ✓	0.56	2.48	20%py, 5-10% sph, pyrrargyrite (?)
		- 107.6 - 108.7 - radiating blades of barite crystals									
		- 108.7 - 113.4 - sulphide - rich zone - ~40-50% total. @ 113.4 - - sulphide band is at 66° to core axis	9333	108.7	111.0	2.3	24.80	0.024 ✓	3.33	8.50	15%py, 10-15% sph, 10-15%gn
		- gn-rich from 113.0 - 113.4 (~25-30% gn) - local chloritic sections (presumably altered wallrock inclusions).	9334	111.0	113.4	2.4	9.70	0.132 ✓	5.70	10.45	15-20%py, 15-20% sph, 8-10%gn
			9335	113.4	114.9	1.5	3.10	0.015 ✓	1.18	1.84	2-3%py, 5-7% sph
114.9	117.9	<u>QUARTZ-BARITE-SULPHIDE VEIN</u> - bladed barite crystals especially 115.5-116.7	9336	114.9	116.7	1.8	2.67	0.040 ✓	3.71	16.75	5-10%py, 25-30% sph, 5-10%gn
		- honey brown Zn-rich sphalerite	9337	116.7	117.9	1.2	1.23	0.104 ✓	1.48	11.25	10-15%py, 25% sph, 5%gn, 2-3%cp
117.9	120.1	<u>BLASTOMYLONITE</u> - very siliceous mylonite breccia; augen of pyrite and quartz vein	9338	117.9	118.7	0.8	0.23	0.010 ✓	0.07	0.39	15-20%py
		- zone is soft and friable indicating that cataclasis probably post-dated silicification.	9339	118.7	120.1	1.4	0.10	0.004 ✓	0.01	0.08	tr py
		- silicification up to 119.9 then chloritization to end of section. - foliation 50° to core axis.									
120.1	123.0	<u>CHLORITIZED FAULT BRECCIA</u> - above foliated breccia grades into poorly foliated, chaotic fault zone breccia	9340	120.1	121.6	1.5	0.11	0.004 ✓	0.01	0.07	tr py
		- fragments strongly chloritized - quartz vein fragments from 121.0-121.3	9341	121.6	123.0	1.4	0.10	0.003 ✓	0.01	0.06	tr py

FOOTAGE		DESCRIPTION	SAMPLE No:	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
123.0	151.0	<u>PURPLISH-RED VOLCANIC BRECCIA</u> - fragments range from <1cm to 5cm; mode 1-2cm - some local quartz cemented breccia (e.g. 140.7)	9342	123.0	125.0	2.0	0.10	0.003	0.01	0.05	
<u>END OF HOLE</u>											

R. V. KIRKHAM

DERRY, MICHENER & BOOTH
DIAMOND DRILL RECORD

CO-ORDS. LAT: 6288.90 DEP: 6695.53
AZIMUTH. 34°05'
DIP 85° 49'
ELEVATION: 1036.53
LENGTH: 200 ft.
SECTION: 870-1000W
PURPOSE: To reduce size of Ore Blocks

HOLE NO: U96-80
PROPERTY: North Star Mine
LOCATION: SLASH #4 1000 x-cut
DATE STARTED: November 13, 1980
DATE COMPLETED: November 15, 1980
LOGGED BY: W. N. Pearson
DATE LOGGED: November 15, 1980

DRILL TYPE & SIZE: JV/AQ
DIP TESTS: 140 ft.

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
0	3.7	Ground core - no recovery									
3.7	106.1	PURPLISH -RED LAPILLI TUFF									
		- local sections of volcanic breccia and ash tuff									
		- reddish colour varies from greyish (silicification) to greenish (chloritization) in altered zones throughout section to 72.8									
		- small quartz veins a few mm to 2 cm wide throughout section to 72.8									
		- some veins have chlorite selvages (e.g. at 45.0)									
		Quartz veins - minor associated alteration									
		78.4 - 78.6; 60° to core axis									
		79.6 - 79.7; 55° to core axis									
		86.5 - 86.6; minor py, barite; 40°									
		87.9 - 88.4; 35° to core axis									
		91.5 - 91.9; 2 veins separated by 1" of wallrock; 60° and 45° to core axis									
		97.9 - 98.2; 45°									
		101.2 - 101.6; 28°; round sph grains 2-3mm in diameter									
		103.4 - 103.8; 35°; minor py; chlorite margins									

FOOTAGE		DESCRIPTION	SAMPLE №:	FOOTAGE		LENGTH	Ag	Cu	Pb	Zn	Mineralogy
from	to			from	to						
106.1	107.6	<u>QUARTZ-BARITE VEIN</u>	9343	106.1	107.6	1.5	0.07	0.098	0.01	0.23	2-3% py, <1%cp
107.6	112.4	<u>QUARTZ-CEMENTED BRECCIA</u> - volcanic fragments set in quartz matrix; py and minor cp dissem in matrix	9344	107.6	108.8	1.2	0.01	0.047	0.01	0.06	<1% py
			9345	108.8	110.9	2.1	0.11	0.140	0.01	0.10	3-4% py, <1% cp
112.4	144.4	<u>BRECCIATED, SILICIFIED TUFF</u> - sections of silicified breccia and quartz- cemented breccia; both with dis-em py	9346	142.4	144.4	2.0	0.01	0.031	0.01	0.04	2-3% py
144.4	152.4	<u>BLASTOMYLONITE</u> - strongly brecciated, moderately foliated siliceous; volcanic, quartz vein and pyrite augen - finely dissem py in matrix - grades into quartz cemented breccia - last 0.5' of section is relatively soft and locally vuggy	9347	144.4	146.5	2.1	0.11	0.038	0.01	0.03	10% py
			9348	146.5	148.5	2.0	0.30	0.060	0.01	0.02	10-15% py
			9349	148.5	150.2	1.7	0.31	0.058	0.01	0.03	3-5% py
			9350	150.0	152.4	2.4	3.90	0.121	0.05	0.03	25% py
152.4	153.4	<u>PYRITE-RICH QUARTZ VEIN</u> - vuggy at 152.7	9351	152.4	153.4	1.0	31.50	0.106	1.10	0.68	70-75% py, 1-2% sph, 1-2% gn
153.4	171.6	<u>QUARTZ VEIN</u> - local barite sections - stringers of pyrite - milky white to greyish quartz 161.3-161.5 ground core - @162.8 - small stringer of gn - 164.3-164.8 - sheared, brecciated section	9352	153.4	156.1	2.7	3.30	0.020	0.05	0.07	5% py, <1% sph
			9353	156.1	158.7	2.6	8.95	0.034	0.08	0.49	15-20% py, 1-2% sph
			9354	158.7	161.3	2.6	2.49	0.008	0.06	0.34	10% py, <1% sph
			9355	161.3	164.3	3.0	4.51	0.012	0.70	0.27	10% py, tr sph, 1-2% gn
			9356	164.3	164.8	0.5	0.86	0.013	0.13	0.55	10-15% py
			9357	164.8	168.1	3.3	6.25	0.027	0.20	0.65	2-3% py, <1% sph
			9358	168.1	171.6	3.5	7.28	0.026	0.28	1.84	2-3% py, 3-5% sph
171.6	177.9	<u>QUARTZ-SULPHIDE VEIN</u> - sulphides as irregular bands and patches	9359	171.6	174.6	3.0	13.10	0.108	1.42	8.50	10-15% py, 15-20% sph, 3% gn

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	Ag	Cu	Pb	Zn	Mineralogy
from	to			from	to						
		- 175.9-176.2 bladed barite crystals	9360	174.6	177.9	3.3	10.80	0.031	1.14	2.63	25-30% py, 1-2% sph, 3-5% gn
177.9	183.5 (approx.)	<u>BLASTOMYLONITE</u> - volcanic fragments and pyrite augen - foliation 45° to core axis - highly siliceous - small quartz vein 180.4-180.6 60° to core axis - 179.7-180.0 - broken core	9361 9362 9363 9364	177.9 179.2 180.5 181.5	179.2 180.5 181.5 183.5	1.3 1.3 1.0 2.0	1.14 0.24 0.12 0.01	0.042 0.008 0.004 0.002	0.16 0.02 0.01 0.01	0.62 0.08 0.05 0.03	8-10% py 5-10% py 3-5% py 2-3% py
183.5	186.0	<u>CHLORITIZED, BRECCIATED CONGLOMERATE (?)</u> - 183.9-184.7 - granophyre cobble - matrix is coarse-grained subrounded to subangular quartz grains	9365	183.5	186.0	2.5	0.01	0.003	0.01	0.03	tr py
186.0	200.0	<u>PURPLE-RED VOLCANIC BRECCIA</u> - section has been brecciated during faulting yielding a chaotic fabric - 186.0-188.6 - greenish colour due to chloritization - 187.9-188.8 - Quartz vein; 45° to core axis - chlorite alteration along fractures throughout purple-red parts of section	9366 9367 9368	186.0 187.9 188.8	187.9 188.8 190.0	1.9 0.9 1.2	0.01 0.01 0.01	0.002 0.002 0.002	0.01 0.01 0.01	0.03 0.03 0.05	- - -
<u>END OF HOLE</u>											

W. N. Pearson

R. J. KRISHNA

DERRY, MICHENER & BOOTH
DIAMOND DRILL RECORD

CO-ORDS LAT. 6330.99 DEP: 6651.43
AZIMUTH: 41° 28'
DIP 75° 29'
ELEVATION: 1036.75
LENGTH: 154 ft.
SECTION: 1000-970 W
PURPOSE TO INTERSECT CORNER OR ORE BLOCKS

HOLE NO: U93-80
PROPERTY: NORTH STAR MINE
LOCATION: SLASH #3 - 1000 x-cut
DATE STARTED: Nov 4, 1980
DATE COMPLETED: Nov 7, 1980
LOGGED BY: W. N. PEARSON
DATE LOGGED: Nov 7, 1980

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
0	13.7	PURPLISH-RED ASH TUFF									
		- local lapilli-size fragments @ 7.9' - 1cm wide barren quartz vein, 60° to core axis									
		- minor quartz vein lets sporadically throughout section.									
13.7	27.7	PURPLISH-RED LAPILLI TUFF									
		- gradational from ash tuff									
		17.5 - 21.2 silicified, 1% py									
		19.0 - 19.8 veinlets of chlorite with minor pyrite									
		@ 20.5 - 1cm wide quartz vein with minor pyrite; 50° to core axis.									
27.7	39.3	PURPLISH-RED ASH TUFF									
		- minor lapilli tuff 37.8 - 39.0									

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
		33.0 - 34.00 - anastomosing quartz veins at variable angles to core axis; 15-20% of section is quartz; minor py 36.6-37.2 5% sph									
39.3	41.8	<u>ASH TUFF</u>									
		1 cm wide quartz vein at 41.5	9244	39.3	41.3	2.0	0.03	0.002	0.01	0.05	1% pg, tr sph
		- weak-strong silicification; m chloritization	9245	41.3	42.3	1.0	0.05	0.018	0.01	0.07	tr py, tr sph
41.8	44.7	<u>LAPILLI TUFF</u>									
		- gradational form ash tuff	9246	42.3	43.0	0.7	0.11	0.046	0.02	1.45	1-2% py, 1-2% sph
		42.5 - 42.8 - quartz vein gradational contacts with wallrock; 2-3% sph; 46° to core axis	9247	43.0	44.7	1.7	0.09	0.025	0.02	0.13	1-2% py, 4% sph
		- weak silicification; w-m chloritization									
44.7	54.1	<u>QUARTZ VEIN BRECCIA</u>									
		- green volcanic fragments few mm to several cm's wide set in quartz ± barite matrix.	9248	44.7	49.7	5.0	0.23	0.060	0.65	2.33	1% py, 3% sph, 3-5% gn.
		- from 44.7 - 49.7 matrix content ranges 30-50%									
		44.7 - 45.2 - white quartz with barite; minor fragments; 1-2% dissem py & sph.									
		46.0 - 46.7 - round grains of sph up to 0.5cm wide set in quartz-barite matrix; sph 15%.									
		49.7 - 54.1 - proportion of matrix reduced to 10-15% maximum.	9249	49.7	54.1	4.4	0.20	0.086	0.04	0.30	1%py, tr gn
54.1	69.0	<u>VOLCANIC BRECCIA</u>									
		- purplish red silicified pyroclastic breccias; fragments up to about 2cm wide	9250	54.1	59.0	4.9	0.09	0.030	0.01	0.03	2-3% py, tr sph
		- some sporadic quartz veins	9251	59.0	64.0	5.0	0.11	0.024	0.01	0.03	1%py, tr sph
		- w-m silicification; w chloritization	9252	64.0	69.0	5.0	0.21	0.062	0.01	0.04	1-2%py, trcp

FOOTAGE		DESCRIPTION	SAMPLE No.	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy	
from	to			from	to							
69.0	74.3	<u>QUARTZ BRECCIA</u> - white quartz fragments set in siliceous matrix	9253	69.0	74.3	4.3	1.71	0.098	0.22	0.07	1-2%py sph 1%	1-2% cp
74.3	78.6	<u>SILICIFIED BRECCIA</u> - quartz breccia grades into greyish silicified breccia with white quartz vein fragments; clear round quartz eyes and minor volcanic fragments.	9254	74.3	78.6	4.3	0.78	0.100	0.45	0.08	1% py 1% cp	1% sph
78.6	85.6	<u>QUARTZ-BARITE VEIN</u> - quartz-bar-sphalerite ± galena ± chalcopyrite vein - barite abundant throughout section, locally comprising 60-70% of the vein particularly from 83.0 - 85.0	9255 9256 9257	78.6 80.49 83.5	80.9 83.5 85.6	2.5 2.6 2.1	0.73 2.03 2.22	0.022 0.017 0.20	0.72 0.79 1.27	0.07 0.03 0.02	1% py 1% py 1% py	1% sph 2-3% sph 1-2% sph
85.6	93.7	<u>QUARTZ-PYRITE ± SPHALERITE ± GALENA VEIN</u> - pyrite as irregular patches and bands throughout section - local barite 90.4 - 91.9 - very pyritic; - sphalerite + galena dissem throughout section but are more concentrated in pyritic sections 91.8 - 91.9 - black to reddish jasper fragments(?)	9258 9259 9260 9261	85.6 88.0 90.4 91.9	88.0 90.4 91.9 93.7	2.4 2.4 1.5 1.8	2.02 1.46 2.21 0.89	0.036 0.025 0.055 0.013	2.52 1.20 0.22 0.79	0.08 0.08 0.04 0.16	15-20%py, 1-2% sph, 10-15%gn 10-15%py, 3-5% gn, 1% sph 45-50%py, 1% sph, 1%gn 10-20%py, 3-5% gn, 1-2% sph	
93.7	136.0	<u>QUARTZ-BARITE-SULPHIDE VEIN</u> - bladed barite crystals from 105.8-108.8; 112.0-114.0; 119.0 - 122.0; 124.0-128.5 gn abundant at 115.4 but negligible in rest of	9262 9263	93.7 98.3	98.3 100.6	4.6 2.3	0.29 0.24	0.006 0.004	0.12 0.21	0.13 0.10	3-5%py, 1-2% sph, 1%gn 2-3%py, 1% sph, 1-2%gn	

FOOTAGE		DESCRIPTION	SAMPLE №:	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
		assayed section (9268)	9264	100.6	103.4	2.8	6.78	0.112	0.70	0.68	20-25% py, <1% sph, 2-3% gn
		gn - rich section 120.5-121.0	9265	103.4	108.8	5.4	2.30	0.022	0.05	0.30	5-10% py, 2-3% sph.
		minor jasper 123.7	9266	108.8	112.0	2.2	6.06	0.044	0.07	0.14	20-25% py, 1-2% sph
		125.0-127.0 honey brown (Zn-rich) sphalerite; most of vein section has metallic (Fe-rich) sphalerite	9267	112.0	115.3	3.3	3.98	0.017	0.19	0.52	5% py, 2-3% sph.
			9268	115.3	118.5	3.2	20.25	0.094	0.38	1.13	20-25% py, 3-5% sph, 1-2% gn
		- galena closely associated with sphalerite	9269	118.5	122.5	4.0	21.75	0.021	0.79	0.40	2-3% py, 1-2% sph, 2-3% gn
		- barite content relatively minor after ~128'	9270	122.5	126.2	3.7	9.50	0.027	1.20	2.02	10-15% py, 10% gn, 5% sph
			9271	126.2	128.5	2.3	8.65	0.015	0.19	1.63	3-5% py, 3-5% sph, 2-3% gn
		131.3-133.4 - sph-gn-rich section; well developed colliform textures; honey-brown sphalerite	9272	128.5	131.3	2.8	12.70	0.023	2.32	8.95	10-15% py, 20-25% sph, 5-10% gn
			9273	131.3	133.4	2.1	37.10	0.058	8.20	12.75	5% py, 20-25% sph, 20-25% gn
		132.3-133.0 - gn-rich section									
		135-136 broken and ground core	9274	133.4	136.0	2.6	3.02	0.021	0.59	4.88	15% py, 15-20% sph, 2-3% gn
		134-136 pyrargyrite (?) sporadically throughout section but most abundant at 134.0-134.5									pyrargyrite (?)
		- barite absent 133.4-136.0									
136.0	139.8	<u>CHLORITE-RICH VEIN</u>	9275	136.0	139.8	3.8	0.62	0.015	0.17	2.29	10-15% py, 6-8% sph, 1% gn.
		- chlorite-rich section of vein; altered wallrock 137.2-138.0 quartz vein with veinlets of gn, sph. and py.									
		- ~75% core recovery									
139.8	145.2	<u>QUARTZ-BARITE-SULPHIDE VEIN</u>	9276	139.8	143.7	3.9	0.09	0.026	0.51	4.10	5-8% py, 3-4% sph. < 1% gn
		- bladed barite crystals abundant from 141.4-142.6 (~60-70% barite)									
		- 144.2-144.4 - almost 100% barite	9277	143.7	145.2	2.5	1.84	0.094	0.90	3.54	30-35% py, 3-5% sph, 1% gn
		- 144.5-145.2 pyritic "chert" with some barite (silicified wallrock)									

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
145.2	146.1	<u>QUARTZ VEIN BRECCIA</u> - quartz vein breccia with silicified fragments; grades into silicified volcanic rock	9278	145.2	146.1	0.9	0.23	0.009	0.04	0.10	5% py, tr sph.
146.1	154.0	<u>SILICIFIED VOLCANIC ROCK (tuff?)</u> 146.1-147.0 very pyritic; after 147.0 sparse pyrite except at 48.1 where a 0.5cm wide pyrite vein is present - 146.0-147.0 and 148.5-149.0 is sheared; broken core - hanging wall contact is faulted 149-154 several quartz veinlets	9279	146.1	147.1	1.0	0.17	0.004	0.02	0.04	<1% py
			9280	147.1	149.0	1.9	0.10	0.004	0.02	0.04	1% py
			9281	149.0	151.9	2.0	0.10	0.003	0.01	0.04	
		<u>END OF HOLE</u>									

B. J. KIRKHAM

**DERRY, MICHENER & BOOTH
DIAMOND DRILL RECORD**

HOLE NO. U94-80

CO-ORDS LAT: 6330.22 DEP:6650.73
AZIMUTH. 21° 48'

PROPERTY: NORTH STAR MINE

DIP 89° 07' DRILL TYPE & SIZE: JV/AQ LOCATION: SLASH #3, 1000 x-cut

ELEVATION 1,037.23 DIP TESTS: DATE STARTED: Nov 8, 1980
DATE COMPLETED Nov 10, 1980

LENGTH 152 ft. LOGGED BY: W. N. PEARSON
SECTION: 1000 W DATE LOGGED: NOV 10-11, 1980

PURPOSE TO REDUCE SIZE OF ORE BLOCKS

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
0	27.7	PURPLISH-RED LAPILLI TUFF									
		16.4 - 16.5 quartz vein w/dissemin pyrite; 32° to core axis									
		- chloritic alteration assoc. w/vein									
		22.5 - 23.0 ground core w/quartz vein (1cm wide) at 22.8									
		23.2 - 23.4 quartz vein w/dissemin py; 32° to core axis									
		- silicification adjacent vein									
27.7	30.6	COARSE VOLCANIC BRECCIA									
		- fragments of feldspar porphyry up to 0.5ft wide.									
30.6	42.1	PURPLISH-RED LAPILLI TUFF									
		- quartz veins form a few mm to several cm's wide scattered throughout section at variable angles to core axis.									

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
42.1	43.8	<u>PURPLISH-RED VOLCANIC BRECCIA</u> - pyroclastic unit gradational from lapilli tuff									
43.8	47.5	<u>FELDSPAR PORPHYRY (Large Fragment ?)</u> - andesitic composition; has sharp contact with volcanic breccia; 2.5cm wide quartz vein at contact - veinlets of quartz with py sporadically throughout unit 46.8 - 47.0 - quartz vein; small (2mm) blebs and some veinlets of py; 36° to core axis									
47.5	48.2	<u>BANDED QUARTZ VEIN</u> - patches of pyrite up to 2cm long; 28° to core axis	9282	47.5	48.2	0.7	0.72	0.062	0.02	0.28	5%py, 1%sph
48.2	53.6	<u>QUARTZ VEIN BRECCIA</u> - 5-10% quartz matrix: volcanic fragments of above units. - some py dissem in matrix. 53.3 - 53.6 - vuggy quartz-barite vein; rosettes of barite crystals in vug; minor py.									
53.6	56.5	<u>GREEN ASH TUFF</u> - some quartz cemented breccia zones but these are minor compared to previous section.									
56.5	62.5	<u>SILICIFIED VOLCANIC BRECCIA</u> - 5cm wide quartz vein at contact with tuff unit	9283	57.6	59.5	1.9	0.12	0.028	0.02	0.07	1-2%py
			9284	59.5	61.5	2.0	0.13	0.040	0.02	0.04	3-5%py
			9285	61.5	62.5	1.0	0.23	0.119	0.03	0.05	1-2%py; < 1%cp

FOOTAGE		DESCRIPTION	SAMPLE No.	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
62.5	63.9	<u>QUARTZ-BARITE VEIN</u>	9286	62.5	63.9	1.4	0.42	0.136	0.08	0.11	3-5%py, < 1%cp
63.9	67.0	<u>STRONGLY SILICIFIED BRECCIA (VOLCANIC?)</u> - white cherty silicified volcanic rock fragments; possible pyrite fragments.	9287	63.9	67.0	3.1	0.38	0.018	0.78	0.40	3-5%py, 2-3% sph tr gn, tr cp
67.0	68.9	<u>QUARTZ-PYRITE VEIN</u> - 20° to core axis	9288	67.0	68.9	1.9	0.89	0.188	0.06	0.07	10-15%py, tr sph
68.9	72.0	<u>VOLCANIC (?) BRECCIA</u> - minor quartz veins, lack significant silicification as in previous sections; finely disseminated py.	9289	68.9	72.0	3.1	0.40	0.048	0.03	0.04	1%py
72.0	77.3	<u>QUARTZ BARITE VEIN</u> - section from 72.0-72.5 has a black metallic mineral with a dull lustre - argentite(?) - vein locally brecciated 75.4 - 76.0 - inclusion of wallrock tuff 77.0 - 77.3 - vein brecciated	9290	72.0	74.5	2.5	1.08	0.031	0.83	0.05	1-2%py, 1% sph tr gn, tr cp argentite (?)
			9291	74.5	77.3	1.8	1.19	0.029	1.12	0.03	tr py, 1% sph 2-3% gn
77.3	78.4	<u>CRYSTAL LINED VUG</u> - rosettes of barite crystals pseudomorphed by quartz.	9292	77.3	78.4	1.1	0.40	0.004	0.90	0.02	tr py
78.4	80.2	<u>BARITE-QUARTZ VEIN</u> - disseminated gn, sph & py	9293	78.4	80.2	1.8	0.64	0.005	1.01	0.03	1%py, < 1% sph 2-3% gn Argentite (?)
80.2	83.6	<u>QUARTZ VEIN</u> - mottled grey-white texture - minor barite - disseminated, gn, sph & py - contact w/barite-rich zone 26° to core axis	9294	80.2	83.6	3.4	0.48	0.002	2.94	0.09	3-4%py, 1-2% sph 4-5% gn
83.6	87.3	<u>BARITE VEIN</u> - minor quartz; very vuggy with local rosette-shaped crystals from 83.6 - 87.3	9295	83.6	87.3	3.7	0.33	0.003	0.89	0.11	1-2%py, 1-2% sph, 2-3% sph

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	Ag (oz/st)	Cu	Pb	Zn	Mineralogy
from	to			from	to						
87.3	91.2	<u>BARITE-QUARTZ VEIN</u> - minor sulphides	9296	87.3	91.2	3.9	0.10	0.008	0.04	0.06	<1%py, <1%sph, tr cp
91.2	119.2	<u>QUARTZ-BARITE VEIN</u> - gradational over 1ft from barite dominant vein - barite occurs as bladed crystals throughout most of the section	9297	91.2	95.2	4.0	0.85	0.018	0.06	0.08	1-2%py, <1%sph 1%gn
		92.9 - 94.0 - vuggy	9298	95.2	99.2	4.0	2.35	0.022	0.14	0.38	<1%py, <1%sph 1%gn, <1%cp
		99.2 - 102.0 - very vuggy section with ground core; 1.3ft lost core (i.e. 50% recovery)	9299	99.2 (1.3ft lost core)	102.0	2.8	5.73	0.032	0.06	0.30	1%py
		@104.0 - small band of jasper	9300	102.0	105.3	3.3	3.58	0.029	0.10	0.34	4-5%py, 1-2%sph <1% gn
		105.4 - 105.6 - gn-rich section; 15-20%	9301	105.3	108.1	2.8	29.30	0.015	1.49	0.85	3-5%py, 1-2%sph 2-3%gn
		@110.8 - 1cm wide pyrite vein	9302	108.1	112.4	4.3	15.80	0.010	0.43	0.20	2-3%py, 1%sph 1%gn
		113.8 - 113.9 - 50% pyrite	9303	112.4	117.8	5.4	16.80	0.011	0.11	1.20	3-5%py, 1%sph
		116.6 - 117.5 - small sections of jasper-bearing quartz vein	9304	117.8	119.2	1.4	19.95	0.015	0.70	1.38	1-2%py, tr sph 1%gn
		112.4 - 117.8 - quartz predominates with only minor barite									
		117.8 - 119.2 - bladed barite crystals									
119.2	128.2	<u>QUARTZ-PYRITE VEIN</u> - sulphide content appreciably increased and barite content minor as compared to previous section	9305	119.2	122.8	3.6	11.10	0.032	0.82	3.68	20-25%py, 5%sph, 3-4%gn
		126.2 - 128.2 - sheared and altered to clays	9306	122.8	125.4	2.6	1.32	0.090	0.69	6.62	35-40%py, 3-5% sph, 1-2%gn
		@126.0 - bladed barite crystals	9307	125.4	128.2	2.8	1.16	0.093	0.40	3.69	20-25%py, 5%sph 2-3%gn, pyrrargyrite (?)

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	Ag (oz/st)	Cu %	Pb %	Zn %	Mineralogy
from	to			from	to						
128.2	131.7	<u>STRONGLY SHEARED, ALTERED VOLCANIC ROCK (TUFF?)</u> - core ground at 129.0 - strong chloritization - 80% recovery over section	9308	128.2	129.5	1.3	0.11	0.005	0.01	0.10	
				(C.3ft	lost core)						
			9309	129.5	131.7	2.2	0.10	0.007	0.01	0.06	
131.7	132.4	<u>SILICIFIED VOLCANIC ROCK (TUFF?)</u> - 40-45% sulphides	9310	131.7	132.4	0.7	2.03	0.247	1.52	9.05	25%py, 10-15% sph, 3-5%gn
132.4	152	<u>PURPLISH-RED LAPILLI TUFF</u> - minor quartz veins	9311	132.4	134.4	2.0	0.12	0.005	0.02	0.08	
<u>END OF HOLE</u>		- sharp contact at 132.4									