

81-#606  
9402

HIGHMARK RESOURCES LIMITED

ASSESSMENT REPORT

DIAMOND DRILLING PROGRAMME

MAM MINERAL CLAIMS GROUPS

BLUE - LAKE KRUGER MOUNTAIN AREA

OSOYOOS MINING DIVISION

BRITISH COLUMBIA

82E/4E

Latitude: 49° 03.5 North      Longitude: 119° 33.3' West

Diamond Drill Contractors:

N. Dootoff Drillers, Surrey, B. C.  
Tonto Drilling Company  
Vancouver, B.C.

Chemists,

Cantest Ltd, Vancouver, B.C.  
Chemex Labs Ltd, North Vancouver, B.C.

Engineers:

Weymark Engineering Ltd  
Vancouver, B.C.

Geological Interpretation:

William J. Weymark, P. Eng.  
1063 Balfour Avenue, Vancouver, B.C.

20<sup>th</sup> June 1981

WEYMARK ENGINEERING LIMITED  
1063 Balfour Avenue  
Vancouver, B. C.

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OSOYOOS MINING DIVISION

BRITISH COLUMBIA

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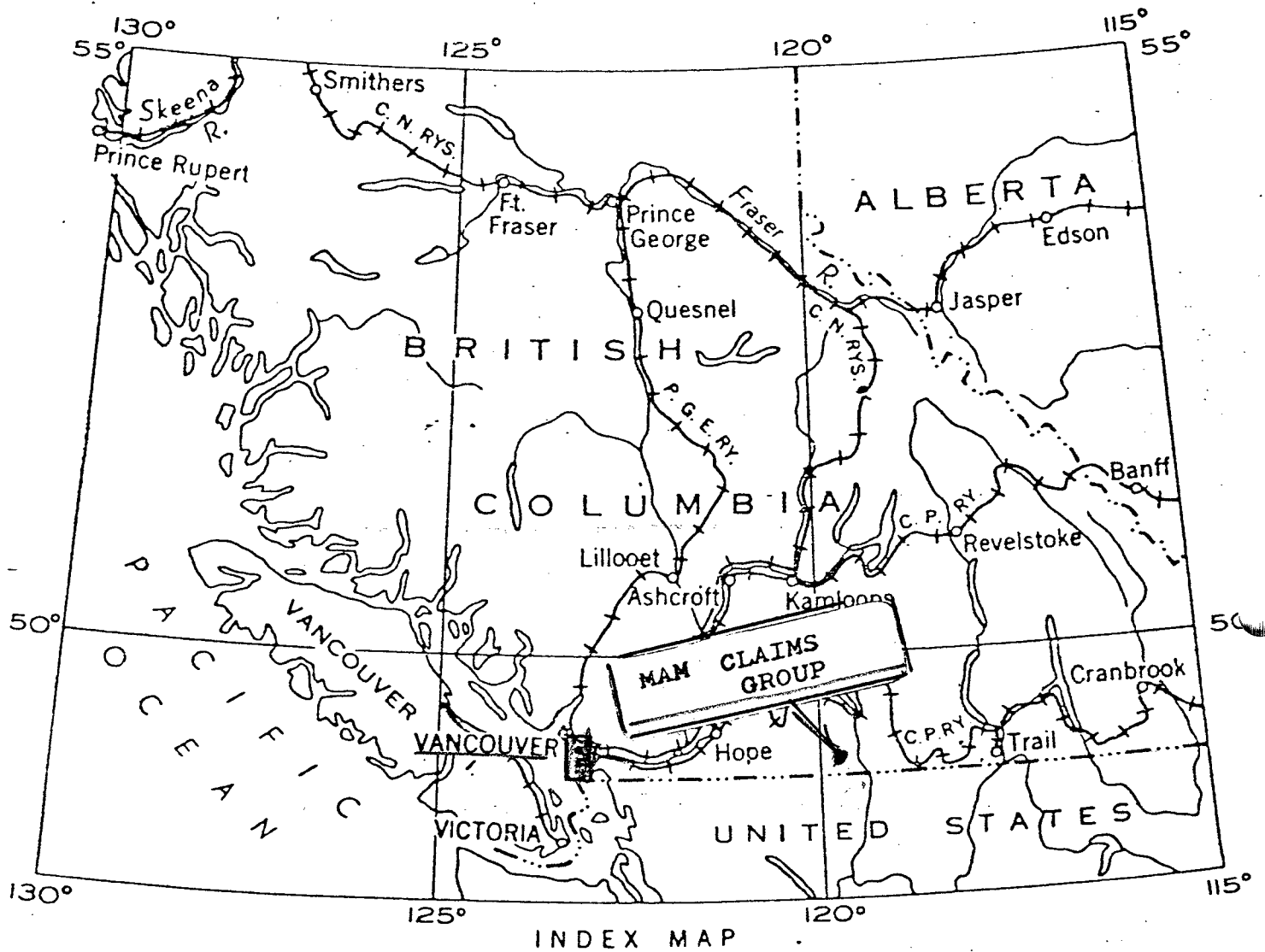
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LOCATION

MAM MINERAL CLAIMS GROUP

OSOYOOS MINING DIVISION

BLUE LAKE - KRUGER MOUNTAIN AREA

BRITISH COLUMBIA

WEYMARK ENGINEERING LTD.

*Consulting Engineers*

3310 WESTMOUNT ROAD  
WEST VANCOUVER, B.C.  
CANADA

TELEPHONE  
922-1536

20 June 1981

Highmark Resources Ltd  
1440 - 625 Howe Street  
Vancouver, B. C.

Gentlemen:

Re: Assessment Report  
Diamond Drill Surveys

We are pleased to submit for your information, this Diamond Drilling Assessment Report relating to the Diamond Drilling Programme undertaken on the Mam Mineral Claims Groups, Blue Lake - Kruger Mountain Area, Osoyoos Mining Division completed during the 1980 - 1981 field season.

Drilling was conducted in two phases, the first EXT sized programme involved about 2000 feet of core drilling and was completed by N. Dootoff Drilling of Surrey, British Columbia and the second phase involved 3786 Feet of BW-BQ sized drilling completed by Tonto Drilling of Vancouver. Grid Lines and survey control had been previously established for other ground surveys, but were extended to envelope the areas drilled.

Background information relating to the claims area is given in the Geological-Geochemical-Geophysical Surveys Assessment Report dated 20<sup>th</sup> April 1980 by Weymark Engineering. Ltd.

1.0 Property:

The claims area covered by this Assessment Report involves the following:

1. JJ#1 and #2, Record Nos 519 and 520 (8)
2. Mam Mineral Claims, 10 units Record Nos 822 (9)
3. Lots Nos 799 and 800 (9), reverted crown grants
4. ES Mineral Claims, 15 Units, Record No: 1245 (9)
5. MS Mineral Claims, 15 Units, Record No: 1246 (9)
6. CM, Mineral Claims, 6 Units, Record No: 1247 (9)
7. WR, Mineral Claims, 14 Units, Record No: 1248 (9)
8. BW, Mineral Claims, 8 Units Record No: 1256 (10)
9. GM, Mineral Claims, 14 Units Record No. 1257 (10)

The Reference Claim Map is 82E - 4E, See Figure: 2 and the Geographical Reference is 49° 03' North Latitude and 119° 32.5 West Longitude. The claims are within the Osoyoos Mining Division and the Kamloops Land Registry District.

Reference Map is Land Status, Keremeos No 82E-4E,  
See Figure: 3.

## 2.0 Access and Location:

Access to the claims is easy via automobile via Highway No: 3 from Keremeos or Osoyoos, being about 3-miles Northerly from Osoyoos, onto a maintained logging road connecting the Blue Lake residents to the Highway, See Figure: 3. Restricted access occurs only during heavy snowfall or fire peril periods.

## 3.0 Climate:

Climatic conditions are Southern-Interior with Hot Summers and cold winters. Precipitation is light being of the order of about 10 - 15 inches per year. Exploration work can be carried out year round, except during extreme snowfall or fire-peril periods.

## 4.0 Physiography:

The Claims Area is moderately rugged being mostly the Western Slope of Kruger Mountain with elevations ranging to 3000 feet, See Figure: 3. The trend of the draws and ridges is Northerly. Most of the area is covered with tree growth, with coneiferous dominant and birch, cottonwood-aspen deciduous varieties. Overburden is glacial till with movement being northerly - northeasterly, see Figure: 4. Depths vary to 10 or more feet. There is ample water available in the ponds and small lakes to support mine-exploration work. Permits are required for the use of water and timber resources.

## 5.0 Geology:

Geological References are Map 341A, Keremeos District by H. S. Bostock and previous contributors, 1929 - 1930 and subsequent editions by H. W. Little, Map 15-1961, Geology, Kettle River, West Half, British Columbia, Geological Survey of Canada, See Figure: 4.

Base Formations are the Kobau Group, Carboniferous, Palaeozoic age, consisting of Quartzite, Schist and Greenstone. Figure-4. Intrusions are the Nelson Plutonic Rocks, granodiorite, quartz Diorite, Diorite, granite, quartz monzonite, syenite, monzonite, with boundary phase mixes. Structural features are the dominant Blue Lake Northeasterly trending Fault with related cross-faults, shears and fractures. The trend of the bedding is generally northerly with dips 65 - 75° to the south-westerly.

Mineralogical occurrences (Metallic) in the area are Silver, Copper, Gold, molybdenum, Lead-Zinc and related metallics. Mineral occurrences of commercial significance are generally related to quartz filled fissure veins, ranging in width from a few inches to ten or more feet in width and varying shoot lengths to several Hundred feet. Previous mine operations was the Gem-Dividend Lake-view, located about a mile west of Osoyoos, operated during the 1930s. The current mine operation is Dankoe, located some 5 miles to the North of the Mam Claims, producing silver, gold and related metallics.

Local Geology

Mineralogically, the areas of interest of the claims are the fissure quartz veins. The principal one occurs on Claims J1 - J2. Strikes Northwesterly - Southeasterly and dips 70 - 80 ° to the southwest. It varies in width from a few inches to over five feet and traced for 800 feet, on surface. Metallic minerals are pyrite, chalcopyrite, pyrrhotite and secondary malachite, azurite and bornite.

The geological setting, as presently interpreted, is an altered diorite - granodiorite, greenish grey in colour, medium grained, locally porphyritic with secondary calcite - quartz and altered plagioclase feldspar and ferromagnesian to saussurite and chlorite and carbonates. Included are remnants of sheared-schist andesites and other volcanics ?, which sometimes are on the hanging or footwalls. Alteration extends considerable distances on either side of the vein. Shearing and fissuring is extensive. In places the rocks carry a mottled appearance and is brecciated. See Fig: 5.

..., fissuring, shearing and fracturing appears to be related to the Northeasterly trending Blue Lake Fault, see Figure: 4.

6.0 Diamond Drill Programme:

Initially, a programme of EXT sized core drilling was undertaken to determine shallow-depth characteristics of the main vein zone. Sixteen holes were drilled Numbered 80 - 2 through 80 - 16. The location of these holes is given on Figure: 5. The Logs are given in Annex- A, including the assay results of sections tested. Assays for gold ranged from L.002 to 5.06 ounces per ton, for Silver from L0.002 to 2.48 ounces per ton and with values in copper. Intersections of parallel quartz zones were made in some of the holes. Difficulties were experienced in penetrating the shear-schist zones of the vein and so most holes had to be abandoned without achieving cross-vein core objectives.

The total footage drilled was 1988 feet.

The second phase involved 3786 feet of BQ core drilling targeted to intersect the main zone at about the 250-foot horizon below surface. Again, objective results were not achieved because penetration of the main zone was not obtained in most of the holes. However, the length was extended 150 feet to the north and 100 feet to the southend, as previously established. The location of the holes, - Nos 81 - 1 through 81 - 8 is shown on Figure-5 and the logs together with assays in Annex - B. Assays ranged from L0.002 to 0.072 oz per ton, Silver from L0.002 to 0.63 oz per ton. Values in Copper were tested geochemically. Assay values for gold and silver were lower in this second phase for both gold and silver and was attributable to the free state occurrence of these metals. Tests are now being carried out to determine source occurrence of these metallics and the relationship within the structural and lithologic controls.

The costing of the programmes is given in Annex - C

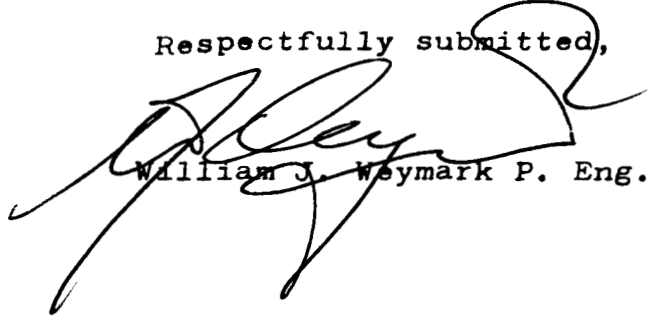
The cores are stored at 1063 Balfour Avenue, Vancouver, British Columbia.

The Report on the Petrography of Specimens is Annex - D

7.0 Recommendations:

On the basis of the results obtained from this partial testing of the geological, structural and lithological and mineralogical characteristics of the gold-silver-copper metallics bearing of the main vein zone presently located on the Mam Mineral Claims Group, further definitive tests should to be carried out to determine continuity controls. Additionally bulk sampling should be included to determine metallurgical characteristics.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Weymark', is written over the typed name. The signature is fluid and cursive, with a large loop at the end.

William J. Weymark P. Eng.

20 June 1981

CERTIFICATE

I, William James Weymark, P. Eng., Consulting Engineer, President of Weymark Engineering Ltd., of the District of West Vancouver, of the Province of British Columbia, hereby certify that:

1. I am a graduate of Mining Engineering of Queen's University Kingston, Ontario, B. Sc., 1940 and have been practising my Profession for thirty-five years.
2. I am a member of the Association of Professional Engineers of the Province of British Columbia, the Consulting Engineers' Division of the Association of Professional Engineers of the Province of British Columbia and of the Association of Consulting Engineers of Canada.
3. I am a practising Consulting Engineer and reside at 3310 Westmount Road, West Vancouver, British Columbia.
4. I am a member of the Canadian Institute of Mining and Metallurgy, and of the American Institute of Mining, Metallurgical and Petroleum Engineers and of the American Geophysical Union.
5. I have no direct or indirect interest whatsoever in Highmark Resources Ltd. or in the Mam Mineral Claims Group, nor do I expect any interest, direct or indirect in this organization or property or any affiliate or any security of the company.
6. The findings of the accompanying Report are based on my personal examination of the Mam Mineral Claims Group on the 4<sup>th</sup> August 1979 and the 15<sup>th</sup> - 16<sup>th</sup> September 1979 and during March - April 1980 - July - Sept 1980 and January - May 1981.

DATED at West Vancouver, British Columbia, this 20<sup>th</sup> Day of June 1981.

  
William J. Weymark P. Eng.  
President  
Weymark Engineering Ltd.



APPENDICES

# DIAMOND DRILL HOLE RECORD

MINE HIGHMARK RESOURCES LTD

DATE 15 October 1980

LE No. Mam 80 - 1 SIZE EXT

Co-ordinates of Collar  
230 West  
88 North

LOCATION MAM - 822

DIRECTION N5° West

N.            E.           

DEPTH 170/ DIP -45°

STARTED 20 June 1980

POSITION Surface ELEV. COLLAR 2625'

FINISHED 28 June 1980

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER	Gold Oz/Ton	Silver Oz/T	Copp % Cu
0	6		Casing				
0	40	30	Granodiorite, Quartz phenocrysts, altered feldspar, chlorites, hornfels, epidotized som sericite, pyrite silicified 33 - 36'				
40	82	30	Granodiorite, the same as above sheared Mineralized 51- 55', sheared				
82	15		Same, felsite dyklet 97-98' Silicified and mineralized 111 - 115'	# 7836D	0.32		
15	144	30	Same, sheared, some rusty slips and fractures silicified and mineralized 116 - 122'	# 8010D	0.03	0.01	0.0
44	171	17	Same, sheared				
	171		Hole Stopped, caved at 160'				

L 107' \* 62.6

REMARKS:

DRILLERS N. Dootoff

EXAMINED BY W. J. Weymark P. Eng.

ASSAYER CANTEST DATE

File No. 6636D-2

Date July 30, 1980

**can test ltd.**

650 PANDORA STREET, VANCOUVER, B.C. V5L 1L6

Sample Identification			Diamond Drill Cores		Filters		Sample Id
			GOLD	COPPER	COPPER		
			Ounces Per Ton	Percent Cu	Percent		
8551	MAM 80-1	0-5	L 0.002	0.005	0.013		7051
8552	"	5-10	L 0.002	0.005	0.013		7052
8553	"	10-15	L 0.002	0.008	0.007		7053
8554	"	15-20	L 0.002	0.010	0.001		7054
8555	"	20-25	L 0.002	0.007	L 0.001		7055
8556	"	25-30	L 0.002	0.006	0.008		7056
8557	"	30-35	0.004	0.010	L 0.001		7057
8558	"	35-40	L 0.002	0.006	L 0.001		7058
8559	"	40-45	L 0.002	0.005	0.015		7059
8560	"	45-50	L 0.002	0.009	0.001		7060
8561	"	50-55	L 0.002	0.006	0.005		7061
8562	"	55-60	0.003	0.006	0.008		7062
8563	"	60-65	0.002	0.003	L 0.001		7063
8564	MAM 80-1	65-70	L 0.002	0.002	0.002		7064
8565	"	70-75	L 0.002	0.006	0.005		7065
8566	"	75-80	L 0.002	0.005	0.006		7066
8567	"	80-85	0.002	0.006	0.002		7067
8568	"	85-90	L 0.002	0.005	0.002		7068
8569	MAM 80-1	90-95	---	0.011	0.006		7069
8570	"	95-100	L 0.002	0.002			

# DIAMOND DRILL HOLE RECORD

MINE..... HIGHMARK RESOURCES LTD  
 HOLE No. MAM - 00 - 2 SIZE EXT  
 LOCATION MAM 822  
 DIRECTION 205°  
 DEPTH 200 DIP -45°  
 POSITION Surface ELEV. COLLAR 2625'

DATE 15 October 1980  
 Co-ordinates of Collar  
230 West  
090 North  
 N..... E.....  
 STARTED 28 June 1980  
 FINISHED 4 July 1980

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER			
	6'		Casing				
	52	30	Granodiorite, quartz phenocrysts, altered feldspar and chlorites-hornfels silicified in sections, rusty slips and fractures, scattered pyrite sericite; rusty 21-24				
	100	30	Same, quartz veinlet 55'; 51-62; 88-90' 96 - 99 Silicified				
	27	30	Same, sheared and silicified in sections				
	173	30	Same, sheared				
	203	20'	Same, sheared				

TO 140' % 70%  
 REMARKS:

DRILLERS..... N. Dootoff  
 EXAMINED BY..... W. J. Weymark P. Eng.  
 ASSAYER..... CANTEST DATE.....

can test ltd.

Date July 30/80

1650 PANDORA STREET, VANCOUVER, B.C. V5L 1L6

			Diamond Drill Cores		Filters	
Sample Identification			GOLD	COPPER	COPPER	Sample Id
			Ounces Per Ton	Percent Cu	Percent Cu	
7071	MAM 80-2	0-5	L 0.002	0.006	0.010	8571
7072	"	5-10	L 0.002	0.006	0.009	8572
7073	"	10-15	L 0.002	0.011	0.017	8573
7074	"	15-20	L 0.002	0.006	0.003	8574
7075	"	20-25	L 0.002	0.005	0.007	8575
9040	"	25-30	L 0.002	0.005	0.004	8376
9041	"	30-35	L 0.002	0.010	0.004	8377
9042	"	35-40	L 0.002	0.006	L 0.001	8378
9043	"	40-45	L 0.002	0.007	0.005	8379
9044	"	45-50	L 0.002	0.008	0.008	8380
9045	"	50-55	L 0.002	0.007	0.004	8381
9046	"	55-60	0.002	0.006	0.002	8382
9047	"	60-65	0.005	0.007	0.002	8383
9048	"	65-70	L 0.002	0.008	0.007	8384
9049	MAM 80-2	70-75	L 0.002	0.011	0.013	8385
9050	"	75-80	L 0.002	0.010	0.008	8386
8291	"	80-85	L 0.002	0.009	0.008	8387
8392	"	85-90	L 0.002	0.006	0.002	8388
8393	"	90-95	L 0.002	0.008	0.005	8389
"	"	95-100	---	---	0.010	8390
"	"	100-105	---	---	0.004	8398
"	"	105-110	---	---	0.012	8399
"	"	110-115	---	---	0.010	8400
"	"	115-120	---	---	0.004	No Tag
"	"	120-125	---	---	0.010	No Tag
"	"	130-135	---	---	0.007	No Tag

File No: 7241D

August 26, 1980

	GOLD (ppm Au)	COPPER (ppm Cu)	COPPER (ppm Cu)
MAM 80 - 2 125 - 130		-	26.
MAM 130 - 135		-	32.
MAM 135 - 140		-	10.
MAM 140 - 145A		-	38.
MAM 140 - 145B		-	56.
MAM 145 - 150		-	14.
MAM 150 - 155		-	86.
MAM 155 - 160		-	24.
MAM 160 - 165	0.05	88.	40.
MAM 165 - 170	0.04	72.	72.
MAM 170 - 175	0.06	130.	80.
MAM 175 - 180	0.06	106	88.
MAM 180 - 185	0.05	108.	42.
MAM 185 - 190	0.06	110.	68.
MAM 190 - 195	0.10	74.	34.
MAM 195 - 200	0.05	62.	

# DIAMOND DRILL HOLE RECORD

MINE HIGHMARK RESOURCES LTD

DATE 15 October 1980

HOLE No. Mam 80 -3 SIZE FXT

Co-ordinates of Collar

LOCATION Mam - 822

785 West  
040 South

DIRECTION N 35° East

N. E.

DEPTH 203' DIP - 60°

STARTED 4 July 1980

POSITION Surface ELEV. COLLAR 2870

FINISHED 10 July 1980

SECTION			LOG	ASSAY			
DM	TO	RECY		NUMBER	Gold Oz/Ton	Silver Oz/T	Copper % Cu
0	2		Casing				
0	35	30	Granodiorite, quartz phenocrysts, altered feldspar, hornfels, chlorites, some sericite and pyrite, sheared rusty slips and sections 6-8'; andesite dyklets 20 - 24; 31 - 32'				
8	85	30	Same ; rusty slips and section 50 - 52 andesite dyklet 40 - 40.5 Quartz vein and fault section 60 - 72.6	67.5-72.6 #7836	0.010		
5	100	30	Same, sheared ; rusty section 107 - 108	#8010	0.06	10.01	10.0
2	148	30	Same, sheared 144 - 146, rusty slips 143 - 148				
3	181	30	Same, sheared 150 - 175				
1	200	15	Same, sheared				
	200		Hole Ended				

TOT 165' % 82.5'

DRILLERS N. Dootoff

EXAMINED BY W. J. Weymark P. Eng.

ASSAYER CANTEST DATE

(OVER)

REMARKS:



**can test ltd.**

1650 PANDORA STREET, VANCOUVER, B.C. V5L 1L6

File No. 6813D-3

Date July 30, 1980

Sample Identification		GOLD		COPPER		COPPER	
		Ounces Per Ton		Percent	Cu	Percent	Cu
		Diamond Drill Cores				Filters	
MAM 80-3	35-40	L 0.002		0.006			
"	40-45	L 0.002		0.009			
"	45-50	0.007		0.007			
"	50-55	L 0.002		0.006			
"	55-60	L 0.002		0.010			
"	60-65	0.005		0.012			
"	65-70	0.013		0.012		0.012	
"	70-75	L 0.002		0.009		0.009	
"	75-80	L 0.002		0.010		0.006	
"	80-85	L 0.002		0.005		0.004	
"	85-90	L 0.002		0.010		0.007	
"	90-95	L 0.002		0.008		0.011	
"	95-100	L 0.002		0.003		0.007	
"	100-105	L 0.002		0.005		0.014	
"	105-110	0.006		0.011		0.010	
"	110-115	0.004		0.006		0.008	
"	115-120	L 0.002		0.008		0.012	
MAM 80-3	120-125	L 0.002		0.008		0.006	
"	125-130	L 0.002		0.007		0.007	
"	130-135	0.003		0.009		0.008	
"	135-140	L 0.002		0.006		0.008	
"	140-145	0.004		0.005		0.010	
"	145-150	0.010		0.008		0.010	
"	150-155	L 0.002		0.009		0.006	
"	155-160	L 0.002		0.010		0.008	
"	160-165	0.004		0.010		0.008	
"	165-170	L 0.002		0.015		0.010	
"	170-175	L 0.002		0.014		0.009	
"	175-180	L 0.002		0.015		0.005	
"	180-185	0.003		0.012		0.006	
"	185-190	L 0.002		0.005		0.005	
"	190-195	0.004		0.010		0.008	
"	195-200	L 0.002		0.006		0.008	

<u>FILTERS</u>		File No.	7241D	COPPER (ppm Cu)
MAM 80 - 3	0 - 5			- 86.
MAM	5 - 10			- 88.
MAM	10 - 15			- 160.
MAM	15 - 20			- 90.
MAM	20 - 25			- 68.
MAM	25 - 30			- 14.
MAM	30 - 35			- 22.
MAM	35 - 40			- 136.
MAM	40 - 45			- 16.
MAM	45 - 50			- 42.
MAM	50 - 55			- 16.
MAM	55 - 60			- 44.
MAM	60 - 65			- 32.

# DIAMOND DRILL HOLE RECORD

MINE HIGHMARK RESOURCES LTD

DATE 15 October 1980

HOLE No. MAM 80 - 4 SIZE EXT

Co-ordinates of Collar

LOCATION MAM 822

660 West  
040 South

DIRECTION North 25° East

N..... E.....

DEPTH 198 DIP - 60°

STARTED 11 July 1980

POSITION SURFACE ELEV. COLLAR 2780

FINISHED 19 July 1980

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER	Gold Oz/Ton	Silver Oz/T	Copp % C
0	6		Casing				
0	35	30	Granodiorite, Greenish, quartz phenocrysts altered feldspar, chlorites hornfels, scattered pyrite, sericite, , rusty slips	60-72			
35	72	30	Same, Quartz-fault, vein 56 - 62', rusty ground, andeiste , sheared 66- 72'	#783600.006 #801000.04	LO.01	LO.0	
72	116	30	Same, Sheared granodiorite , rusty 89-94				
116	147	30	Same, sheared				
147	175	30	Same, andesite dyklet 158 - 160; 173 - 175				
175	198	17	Same, sheared, rusty slips				
	198		Hole Stopped , lost water at 187				

TO 167 % 84.4

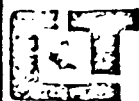
REMARKS:

DRILLERS N. Dootoff Drillers

EXAMINED BY W. J. Weymark P. Eng.

ASSAYER CANTEST DATE .....





can test ltd.

1650 PANDORA STREET, VANCOUVER, B.C. V5L 1L6

File No. 7020D

August 25, 1980

SAMPLE IDENTIFICATION SLUDGES		Sludges		Filters
		GOLD (ppm Au)	COPPER (ppm Cu)	COPPER p.p.m. Cu)
MAM 80-4	0 - 5	L 0.01	180.	35.
MAM	5 - 10	0.01	72.	23.
MAM	10 - 15	0.01	68.	15.
MAM	15 - 20	L 0.01	84.	18.
MAM	20 - 25	0.02	45.	26.
MAM	25 - 30	0.04	54.	85.
MAM	30 - 35	0.01	94.	109.
MAM	35 - 40	0.03	97.	29.
MAM	40 - 45	0.02	52.	47.
MAM	45 - 50	0.02	89.	33.
MAM	50 - 55	0.04	50.	47.
MAM	55 - 60	0.37	57.	47.
MAM	60 - 62.6	1.30	173.	77.
MAM	62.6 - 65	0.19	107.	93.
MAM	65. - 67.6	0.06	94.	95.
MAM	67.6 - 70	0.10	58.	103.
MAM	70 - 75	0.07	72.	75.
MAM	75 - 80	0.07	86.	96.
MAM	80 - 85	0.04	54.	34.
MAM	85 - 90	0.02	58.	59.
MAM 80-4	90 - 95	0.03	63.	55.
MAM	95 - 100	0.08	66.	67.
MAM	100 - 105	0.09	57.	43.
MAM	105 - 110	0.10	67.	35.
MAM	110 - 115	0.04	56.	82.
MAM	115 - 120	0.04	57.	29.
MAM	120 - 125	0.03	71.	24.
MAM	125 - 130	0.03	40.	33.
MAM	130 - 135	0.06	52.	46.
MAM	135 - 140	0.17	56.	22.
MAM	140 - 145	0.04	78.	48.
MAM	150 - 155	0.01	43.	36.
MAM	155 - 160	0.04	44.	29.
MAM	160 - 165	0.03	55.	39.
MAM	165 - 170	0.43	59.	76.
MAM	170 - 175	0.09	46.	26.
MAM	175 - 180	0.03	40.	86.
MAM	180 - 185	0.03	48.	55.
MAM	185 - 190	0.02	56.	82.

# DIAMOND DRILL HOLE RECORD

MINE HIGHMARK RESOURCES LTD

DATE 15 October 1980

HOLE No. MAM 80 - 5 SIZE EXT

Co-ordinates of Collar

LOCATION MAM - 822

0585 West  
040 South

DIRECTION North 5° East

N.                      E.                     

DEPTH 140' DIP - 60°

STARTED 20 July 1980

POSITION Surface ELEV. COLLAR 2720

FINISHED 23 July 1980

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER	Gold	Silver	Copper
0	6		Casing				
0	34	30	Granodiorite, quartz phenocrysts, greenish altered feldspar, hornfels, chlorites, sheared, fractured rust stained 8-10; 19-20, 24-26' scattered pyrite - sericite				
4	86	30	Same, fault vein section 53 - 61, quartz rusty, andesite dyke 53- 54'	53-71 #7836D #8010D	0.010 0.04	LO.01	LO.01
6	23	30	Same, sheared 115- 123, rusty 101 - 115				
3	140	6	Same, sheared				
	140		Hole Stopped, caving				

TO 96' % 68.5%

DRILLERS N. Dootoff

EXAMINED BY W. J. Weymark P. Eng.

ASSAYER CANTEST DATE                     

(OVER)

REMARKS:

File No: 7020D

Aug 25, 1980

**can test ltd.**

1650 PANDORA STREET, VANCOUVER, B.C. V5L 1L6

			Sludges		Filters
Sample Identification			GOLD (ppm Au)	COPPER (ppm Cu)	COPPER (ppm Cu)
MAM	80-5	0 - 5	L 0.01	71.	50.
MAM		5 - 10	0.03	53.	44.
MAM		10 - 15	0.05	40.	92.
MAM		15 - 20	0.05	49.	36.
MAM		20 - 25	L 0.01	88.	90.
MAM		25 - 30	0.02	128.	132.
MAM		30 - 35	0.01	110.	38.
MAM		35 - 40	0.02	61.	36.
MAM		40 - 45	L 0.01	91.	27.
MAM		45 - 50	L 0.01	50.	37.
MAM		50 - 55	0.31	61.	47.
MAM		55 - 60	0.33	98.	115.
MAM		60 - 65	0.12	60.	66.
MAM		65 - 70	0.12	66.	36.
MAM		70 - 75	0.14	60.	77.
MAM		75 - 80	0.17	65.	79.
MAM	80-5	80 - 85	0.04	65.	81.
MAM		85 - 90	0.05	67.	77.
MAM		90 - 95	0.03	48.	70.
MAM		95 - 100	0.04	39.	50.
MAM		100 - 110	0.04	24.	44.
MAM		110 - 115	0.03	48.	53.
MAM		115 - 120	0.03	28.	54.
MAM		120 - 125	0.04	37.	69.
MAM		125 - 130	0.05	41.	57.
MAM		130 - 135	0.04	56.	31.

# DIAMOND DRILL HOLE RECORD

MINE..... HIGHMARK RESOURCES LTD

DATE<sub>1</sub> 15 October 1980

LE No. MAM 80 - 6 SIZE EXT

Co-ordinates of Collar

LOCATION MAM 822

530 West  
050 South

DIRECTION N 10<sup>th</sup> East

N..... E.....

DEPTH 76' DIP - 60°

STARTED 24 July 1980

POSITION Surface ELEV. COLLAR 2700

FINISHED 26 July 1980

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER	Gold Oz/Ton	Silver Oz/T	Copp % Cu
0	18						
0	60	30	Andesite, sheared to 27', rusty slips				
			Quartz and silicified sections 5-11'; 14-15'	5-19 #7836D	0.010		
			Rusty sheared section 25 - 26'	#8010D	0.02	2.48	0.02
			Sheared Granodiorite - 27 - 60, rusty slips quartz phenocrysts, altered feldspar, hornfels, sericite and pyrite cemented at 48'				
60	76'	12	Sheared Granodiorite, same as above				
	76		Hole Stopped				

T<sub>1</sub> 42' % 55.3%

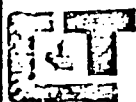
REMARKS:

DRILLERS N. Dootoff

EXAMINED BY W. J. Weymark P. Eng.

ASSAYER Cantest DATE

(OVER)



**can test ltd.**

1650 PANDORA STREET, VANCOUVER, B.C.

File No. 7020D

August 25, 1980

SAMPLE IDENTIFICATION			Sludges		Filters
			GOLD (ppm Au)	COPPER (ppm Cu)	- COPPER (ppm Cu)
MAM	80-6	0 - 5	0.03	114.	105.
MAM		5 - 7.6	0.18	202.	149.
MAM		7.6- 10	0.08	136.	97.
MAM		10 - 12.6	0.57	191.	146.
MAM		12.6-15	0.13	251.	97.
		15 - 20A			136.
MAM		20 - 25	0.14	210.	84.
MAM		25 - 30	4.10	251.	77.
MAM		30 - 35	0.08	79.	42.
MAM		35 - 40	0.02	65.	46.
MAM		40 - 45	0.04	40.	
MAM		45 - 50	0.03	60.	163.
MAM		50 - 55	0.05	42.	77.
MAM		55 - 60	0.03	33.	
MAM		60 - 65	0.03	64.	370.
MAM		65 - 70	0.06	92.	
MAM		70 - 75	0.04	59.	193.

# DIAMOND DRILL HOLE RECORD

MINE..... HIGHMARK RESOURCES LTD

DATE... 15 October 1980

Core No. .... MAM 80 - 7      SIZE..... EXT.....

Co-ordinates of Collar

LOCATION MAM - 822 .....

530 West  
050 South

DIRECTION N 10° East .....

N..... E.....

DEPTH 148 ..... DIP - 75° .....

STARTED 26 July 1980

POSITION Surface ..... ELEV. COLLAR 2700' .....

FINISHED 31 July 1980

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER	Gold Oz/Ton	Silver Oz/T	Copper % Cu
	2		Casing				
	68	30	Andesite - Sheared - greyish green 31.6 - 40 fault zone, quartz silicified, rusty sections Lost core - 49 - 53	26-35 #7836D #8010D	0.010  0.03		L0.01 L0.01
			Granodiorite - sheared - greyish green, altered feldspars and hornfels	41-45 #7836D #8010D	0.008  0.01		L0.01 L0.01
58	108	30	Granodiorite, as above, ground				
08	139	30	Granodiorite, same as above sheared				
139	148	2	Granodiorite, sheared, ground lost core				
	148		Hole Stopped, , caved				

TC 92 \* 62.2

REMARKS:

DRILLERS..... N. Dootoff.....

EXAMINED BY W. Weymark P. Eng.....

ASSAYER..... CANTEST..... DATE.....



# DIAMOND DRILL HOLE RECORD

MINE HIGHMARK RESOURCES LTD

DATE 15 October 1980

LE No. MAM 80 - 8      SIZE EXT

Co-ordinates of Collar

LOCATION MAM - 822

440 West  
050 South

DIRECTION North 5° West

N. \_\_\_\_\_ E. \_\_\_\_\_

DEPTH 120      DIP -60+

STARTED 31 July 80

POSITION Surface      ELEV. COLLAR 2670

FINISHED 5 Aug 80

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER	Gold Oz/Ton	Silver Oz/T	Copp % Cu
0	20		Casing				
	39	30	Granodiorite. quart. phenocrysts, greenish to grey, depending upon alteration chlorites - hornfels, rusty joints sheared 16 - 19' sheared - silicified				
9	74	30	Granodiorite, same as above but black hornfels dominate, rusty seams and sections				
74	120	28	Same, silicified and rusty section 87 - 91 lost water at 87'	100-104 #7836D #8010D	0.008 0.02	10.01	10.0
	120		Hole Stopped				

88'      % 73.3%

REMARKS:

DRILLERS N. Dootoff

EXAMINED BY W. J. Weymark P. Eng.

ASSAYER CANTEST      DATE \_\_\_\_\_





# DIAMOND DRILL HOLE RECORD

MINE..... Highmark Resources Ltd  
 HOLE No. .... MAM - 80 -9 SIZE EXT  
 LOCATION..... Mam - 822  
 DIRECTION..... 205°  
 DEPTH..... 61' DIP..... -45°  
 POSITION..... Surface ELEV. COLLAR..... 2660

DATE..... 15 October 1980  
 Co-ordinates of Collar  
 400 West  
 100 North  
 N..... E.....  
 STARTED 5 Aug 1980  
 FINISHED 7 Aug 1980

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER	Gold Oz/Ton	Silver Oz/T	Copper % Cu
0	22		Casing				
0	33	30	Granodiorite - Greenish, Qtz phenocrysts altered feldspar, hornfels chloritic - some epidote and sericite - pyrite, rusty joints and fractures	17-21 #7836D #8010D	0.006 0.04	0.01	0.0
			felsite dyklets 13 - 14; 18-19 Sheared - 14 - 15'				
33	61	16'	Same; rusty sheared fractured 35 - 42'				
			Fault zone - 45 - 61' cemented 58 - 61'				
	61		Hole Stopped - caving				

TOF 46' \* 75.3%

REMARKS:

DRILLERS..... N. Dootoff  
 EXAMINED BY..... W. J. Weymark P. Eng.  
 ASSAYER..... CANTEST DATE.....



# DIAMOND DRILL HOLE RECORD

MINE..... Highmark Resources Ltd

DATE..... 15 October 1980

LE No. MAM 80 - 10 SIZE..... EXT.....

Co-ordinates of Collar

LOCATION Mam - 822

400 West  
100 North

DIRECTION..... 205°

N..... E.....

DEPTH..... 148' DIP..... -60°

STARTED 7 Aug 1980

POSITION..... Surface ELEV. COLLAR..... 2660'

FINISHED 10 Aug 1980

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER	Gold Oz/Ton	Silver Oz/T	Copper % Cu
	2		Casing				
	32	30	Granodiorite; greenish, altered feldspar and chloritic, hornfels, some epidote and sericite, pyrite rusty and sheared sections 27 - 28'	27-29 #7836D	0.010		
				#8010D	0.06	L0.01	L0.0
32	59	30	Same, rusty sheared sections				
59	113	30	Same, Quartz silicified section 104 - 108 Lost core 108 - 112'	104-106 #7836D	5.06		
				#8010D	0.04	L0.01	L0.0
113	148	24'	Same to 116; fractured rusty qtz at 115.5 - 116'				
			116 - 146 Porphyritic andesite qtz crystals some pyrite	121-124 #7836D	0.010		
			146 - 148' Granodiorite fractured	#8010D	0.01	L0.01	0.0
	148		Hole Stopped, caved				

TOTAL 114 % 77.0%

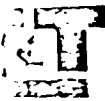
REMARKS:

DRILLERS..... N. Dootoff

EXAMINED BY..... W. J. Weymark P. Eng.

ASSAYER..... CANTEST..... DATE.....

(OVER)



can test ltd.

1650 PANDORA STREET, VANCOUVER, B.C.

File No. 7201D

September 19, 1980

SAMPLE IDENTIFICATION	GOLD(ppm)		COPPER (ppm)	
		- sludges -		filters
80-10				
F-0-5				677.
S-05-10	0.01	160.		316.
S-10-15	0.11	75.		246.
S-15-20	0.02	104.		224.
S-20-25	0.10	135.		78.
S-25-30	0.15	99.		104.
S-30-35	0.41	246.		231.
S-35-40	6.10	837.		440.
S-45-50	0.53	550.		44.
S-55-60	0.27	150.		39.
S-60-65	0.61	25.		29.
S-65-70	0.12	50.		51.
S-70-75	0.44	63.		52.
S-75-80	0.33	490.		72.
S-80-85	0.25	59.		70.
S-85-90	0.12	345.		40.
S-90-95	0.05	75.		no
S-95-100	0.02	40.		21.
S-100-105	0.07	48.		45.
S-105-110	0.10	48.		53.
S-110-115	0.08	59.		78.
S-115-120	0.13	90.		62.
S-120-125	0.15	71.		64
S-125-130	0.07	72.		73.
S-130-135	0.28	116.		375.
S-135-140	0.40	126.		170.
S-140-145	0.14	128.		123.
S-145-150	0.18	74.		58.

# DIAMOND DRILL HOLE RECORD

MINE..... HIGHMARK RESOURCES LTD

DATE.. 15 October 1980

Core No. MAM 80 - 11 SIZE EXT

Co-ordinates of Collar

LOCATION..... Mam 822

150 West  
038 North

DIRECTION. 215°

N..... E.....

DEPTH. 116 DIP. -45°

STARTED. 10 Aug 1980

POSITION Surface ELEV. COLLAR 2620

FINISHED. 14 Aug 1980

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER			
0	6		Casing				
6	60	30	Granodiorite - Greenish, Qtz Phenocrysts, altered feldspar and chlorites some epidote and pyrite altered hornfels and pyrite rusty joints, shearing, ground caved 50 - 55'				
0	116	25	Same, ground cemented 112 - 116 didn't hold				
	116		Hole Stopped, caved				

TC 55' \* 47.4%

REMARKS:

DRILLERS..... N. Dootoff  
EXAMINED BY..... W. J. Weymark P. Eng  
CANTEST  
ASSAYER..... DATE.....

# DIAMOND DRILL HOLE RECORD

MINE HIGHMARK RESOURCES LTD

DATE 15 October 1980

WELL No. MAM 80 - 12 SIZE EXT

Co-ordinates of Collar

LOCATION MAM 822

150 West  
040 North

DIRECTION 215°

N.    E.   

DEPTH 32' DIP - 60

STARTED 14 Aug 1980

POSITION Surface ELEV. COLLAR 2620

FINISHED 15 Aug 1980

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER	Gold	Silver	Copper
0	6.0		Casing		Oz/Ton	Oz/T	% Cu
6.0	32.011		Granodiorite - Greenish, Qtz Phenocrysts, Altered chlorites, rusty seams and fractures sheared, some sericite - hornfels		feldspar		
	32.0		Hole Cemented, caved, Stopped				
				9-14 #7836D	0.030		
				#8010D	0.002	10.01	10.0

TO 11' % 34.4

REMARKS:

DRILLERS N. Dootoff

EXAMINED BY W. J. Weymark P. Eng.

ASSAYER Cantest DATE





# DIAMOND DRILL HOLE RECORD

MINE Highmark Resources Ltd

DATE 15 October 1980

LE No. MAM 80 - 13 SIZE EXT

Co-ordinates of Collar

LOCATION MAM - 822

030 West  
100 South

DIRECTION North 26° East

N.                      E.                     

DEPTH 100 Feet DIP -60°

STARTED 16 Aug 1980

POSITION Surface ELEV. COLLAR 2640'

FINISHED 18 Aug 1980

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER			
0	6		Casing				
6	22.6	12'	Granodiorite, Qtz phenocrysts, greenish altered feldspar, chlorites, some sericite - pyrite - altered hornfels				
2.6	48.0	22'	Granodiorite - Greyish, black hornfels quartz crystals, pyrite, sericite shearing, some rusty fractures Quartz vein - 39 - 42' - 6" recovered Quartz vein - silicification 48' - 50 pyrite - 12" recovered				
48.0	100.0	28'	Granodiorite - Greyish - hornfels dominate Same as above				
	100.0		Hole Stopped due to caving				

TOTAL 62' \* 62.0 %

DRILLERS N. Dootoff

REMARKS:

EXAMINED BY W. J. Weymark P. Eng.

ASSAYER Cantest DATE                     

(OVER)

# DIAMOND DRILL HOLE RECORD

MINE HIGHMARK RESOURCES LTD

DATE 15 October 1980

HOLE No. MAM 80 - 14 SIZE EXT

Co-ordinates of Collar

LOCATION MAM - 822

030 West  
100 South

DIRECTION N 4° West

N.....E.....

DEPTH 75' DIP -60°

STARTED 19 August 80

POSITION Surface ELEV. COLLAR 2640'

FINISHED 21 August 80

SECTION			Log	ASSAY			
DM	TO	RECY		NUMBER			
0	49'	30	Granodiorite, quartz phenocrysts, altered feldspar, chlorites, greenish some epidote and sericite pyrite, altered hornfels rusty slips and joints Lost water at 39', caved Quartz- silicified section 39.6' - 41' 39.6 - 45' Lost Core - 2' recovered				
9'	75'	14	Same, ground, Lost water at 70', cemented				
	75'		Hole Stopped, caved				

TO 44' % 58.6%

DRILLERS N. Dootoff  
 EXAMINED BY W. J. Weymark P. Eng.  
 ASSAYER Cantest DATE .....

REMARKS:

# DIAMOND DRILL HOLE RECORD

MINE Highmark Resources Ltd

DATE 15 October 1980

LE No Mam 80 - 15 SIZE EXT .....

Co-ordinates of Collar

LOCATION HAM - 822

030 West  
100 South

DIRECTION N56° East

N. ..... E. .....

DEPTH 110 Feet DIP -45°

STARTED 21 August 1980

POSITION Surface ELEV. COLLAR 2640'

FINISHED 24 August 1980

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER	Gold	Silver	Copp
0	6.0		Casing		Oz/Ton	Oz/T	% C
6.0	38.0	30'	Granodiorite, Quartz phenocrysts, rusty slips and joints, altered feldspar and chlorites, some epidote, seriviyte, pyrite altered hornfels				
38.0	72.0	29'	Same, Lost water at 67', cemented				
67.0	110.0	23'	Same, Quartz-silicified section 83 - 87' only one foot recovered, ground, some pyrite				
	110.0		Hole Stopped, cement did not hold				
				81-91			
				#7836D	2.52		
				#8010D	0.002	LO.01	LO.0

AL 82' % 74.5%

REMARKS:

DRILLERS N. Dootoff

EXAMINED BY W. J. Weymark P. Eng.

ASSAYER Cantest DATE .....

(OVER)



# DIAMOND DRILL HOLE RECORD

MINE Highmark Resources Ltd

DATE 15 October 1980

WELL No. MAM 80 - 16 SIZE EXT.....

Co-ordinates of Collar

LOCATION MAM - 822

160  
145 South

DIRECTION N 26° East

N..... E.....

DEPTH 90 Feet DIP 60°

STARTED 25 August 80

POSITION Surface ELEV. COLLAR 2650'

FINISHED 28 August 80

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER			
0	36.5	30'	Granodiorite; Qtz pheno, greenish, Altered Feldspar and chlorites, Rusty joints, caving 0 - 14' cemented				
36.5	67.1	30'	Same, scattered pyrite, some epidote				
67.1	90	14'	Same, caved, cemented				
	90'		Hole Stopped due to caving				

WELL No. 74' % 82.2%

DRILLERS N. Dootoff

REMARKS:

EXAMINED BY W. J. Weymark P. Eng.

ASSAYER Cantest DATE.....

## DIAMOND DRILL HOLE RECORD

MINE HIGHMARK RESOURCES LTDDATE 31 March 1981HOLE No. 81 - 1SIZE BQ

Co-ordinates of Collar

LOCATION MAM 822850 West  
125 SouthDIRECTION N 47° EastN.                      E.                     DEPTH 502'DIP 65°STARTED 10 Jan 1981POSITION SurfaceELEV. COLLAR 2870FINISHED 11 Jan 1981

SECTION			LOG	ASSAY		
FROM	TO	RECY		NUMBER		
0	12'		Casing			
0	502	495	Granodiorite quartz phenocrysts, altered feldspar, hornfels, chlorides some sericite, scattered py, cp sheared - gouge zones, rusty slips and joints, mostly fine to medium grained, whitish to dark green, epidotized sections Greenish - grey diorite, fine grained, sheared 413 - 431			
			10 - 12' Ground, weathered, rusty			
			60 - 61 Mineralized sulphides			
			74 - 75 Sheared, bluish tone			
			97 - 98 Sheared, rusty zone			
			109 - 111 Sheared			
			150 - 166 Sheared, some silicification			
			166 - 175 Ground, Fractured, epidotized, Quartz Sections, min py, cp			
			193 - 198 Ground, sheared			
			209 - 211 Ground sheared, epidotized			
			241 - 242 Ground, sheared			
			250 - 253 Ground, sheared			
			291 - 291 Quartz sections			
			315 - 316 Sheared, gouge			
			335 - 345 Quartz, sheared			
			353 - 356 Sheared			
			373 - 383 Sheared, Quartz veinlets			
			383 - 384 Andesitized			
			384 - 390 Sheared, Quartz veinlets			
			413 - 432 Sheared, andesite - diorite			
			435 - 445 Sheared, vuggy, quartz veinlets			
			452 - 454 Sheared, gouge			
			475 - 477 Sheared, gouge			
			493 - 494 Quartz veinlet			
			502 End of Hole			
TOTAL	495	% 98.6				

REMARKS:

DRILLERS Tonto Drilling CompanyEXAMINED BY W. J. Weymark P. Eng.ASSAYER Cantest Ltd DATE Feb - Mar 1981

(OVER)

# CORE AND SLUDGE SAMPLES

SECTION		ASSAY		REMARKS
FROM	TO	NUMBER	RESULTS	
Sample Identification		GOLD	SILVER	
		Ounces Per Ton	Ounces Per Ton	
<b>DRILL CORES</b>				
CANTEST	Hole 81-1			
0589E	108-110	L 0.002	0.30	
19-2-81	155-160	L 0.002	L 0.01	
	160-165	L 0.002	L 0.01	
	335-340	L 0.002	L 0.01	
	372-379	L 0.002	L 0.01	
	379-384	0.019	L 0.01	
	436-446	0.096	0.04	
	435-440	0.039		
9657D	440-445	0.009	- 5-2-81	
<b>Drill Core</b>				
CANTEST	HOLE 81 - 1			
9852D	150-160	0.003	1.63	
10-2-81	160-165	0.044	0.44	
	170-175	L 0.002	0.08	
	335-345	0.013	0.03	
	370-375	L 0.002	L 0.01	
	375-380	0.033	L 0.01	
	380-385	0.002	L 0.01	
	385-390	L 0.002	L 0.01	
L - Less than				



# CAN TEST LTD.

1650 PANDORA STREET, VANCOUVER, B.C. V5L 1L6 • TELEPHONE 254-7278 • TELEX 04-54210

Report On Geochemical Analysis File No. 0585E

Reported to Weymark Engineering Ltd. Report No. \_\_\_\_\_  
1063 Balfour Ave. Date Feb. 27/81  
Vancouver, B.C.

Eighty-three (83) samples.

<u>Sample Identification</u>	<u>P.P.M. Au (Gold)</u>	<u>P.P.M. Ag (Silver)</u>
Hole 81-1-175-180	L 0.01	0.1
180-185	L 0.01	0.1
185-190	L 0.01	0.1
190-195	L 0.01	0.2
195-200	0.01	0.2
245-250	0.02	0.2
250-255	L 0.01	0.1
260-265	L 0.01	0.1
270-275	L 0.01	0.1
280-285	L 0.01	0.1
285-290	L 0.01	0.5
290-295	L 0.01	0.1
295-300	L 0.01	0.1
310-315	L 0.01	0.1
330-335	0.02	0.1
460-465	0.11	0.1
485-490	0.05	0.1
495-502	0.05	0.2





# CAN TEST LTD.

1650 PANDORA STREET, VANCOUVER, B.C. V5L 1L6 • TELEPHONE 254-7278 • TELEX 04-54210

Report On Geochemical Analysis File No. 0122E  
Reported to Weymark Engineering Report No. \_\_\_\_\_  
1063 Balfour Ave. Date Mar. 10/81  
Vancouver, B.C.

### Fifteen (15) Samples of Sludge:

<u>Sample Identification</u>	<u>P.P.M. Au (Gold)</u>	<u>P.P.M. Ag (Silver)</u>	<u>P.P.M. Cu (Copper)</u>
Hole 81-1 200-205	0.01	0.1	68.
205-210	L 0.01	0.2	55.
210-215	L 0.01	0.1	65.
215-220	L 0.01	0.1	37.
220-225	L 0.01	0.1	98.
225-230	0.01	0.3	75.
230-235	0.02	0.1	48.
240-245	0.01	0.1	64.
255-260	L 0.01	0.2	48.
275-280	L 0.01	0.1	84.
345-350	L 0.01	0.4	225.
405-410	L 0.01	0.5	960.
410-415	L 0.01	0.3	290.
455-460	0.15	0.3	115.
470-475	0.02	0.3	54.

CAN TEST LTD.

F.C. Burgess,  
Chief Assayer

/bm



# CHEMEX LABS LTD.

212 BROOKSBANK AVE  
 NORTH VANCOUVER B.C.  
 CANADA V7J 2C1  
 TELEPHONE (604)984-0221  
 TELEX 043-52597

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

## CERTIFICATE OF ANALYSIS

TO : Weymark Engineering Ltd.,  
 1063 Balfour Ave.  
 Vancouver, B.C.  
 V6H 1X2

CERT. # : A8110246-001-1  
 INVOICE # : I8110246  
 DATE : 19-FEB-81  
 P.O. # : NONE

Sample description	Prep code	Cu ppm	Ag ppm	Au -(AA) ppb			
81-1 235-240	205	36	0.1	10	--	--	--
81-1 265-270	205	84	0.1	<10	--	--	--
81-5 230-235	205	24	0.1	10	--	--	--
81-6 220-225	205	44	0.2	30	--	--	--
225-230	205	28	0.1	<10	--	--	--
230-235	205	24	0.1	10	--	--	--
235-240	205	26	0.2	40	--	--	--
240-245	205	26	1.0	100	--	--	--
245-250	205	40	0.1	10	--	--	--
250-255	205	36	0.1	30	--	--	--
255-260	205	26	0.1	<10	--	--	--
260-265	205	20	0.1	<10	--	--	--
265-270	205	22	0.1	<10	--	--	--
270-275	205	24	0.1	<10	--	--	--
275-280	205	18	0.1	<10	--	--	--
280-285	205	26	0.1	<10	--	--	--
285-290	205	16	0.1	<10	--	--	--
290-295	205	24	0.1	20	--	--	--
295-300	205	18	0.1	10	--	--	--
300-305	205	22	0.1	<10	--	--	--
305-310	205	30	0.2	20	--	--	--
310-315	205	38	0.1	10	--	--	--
315-320	205	38	0.1	<10	--	--	--
320-325	205	26	0.1	<10	--	--	--
325-330	205	28	0.1	<10	--	--	--
330-335	205	48	0.1	<10	--	--	--
335-340	205	38	0.1	<10	--	--	--
340-345	205	38	0.1	<10	--	--	--
345-350	205	42	0.1	10	--	--	--
350-355	205	24	0.1	<10	--	--	--
355-360	205	30	0.1	<10	--	--	--
81-6 360-365	205	26	0.1	<10	--	--	--
81-7 10-20	205	22	0.1	<10	--	--	--
20-30	205	26	0.1	<10	--	--	--
30-40	205	126	0.2	<10	--	--	--
40-50	205	74	1.0	<10	--	--	--
50-60	205	52	0.1	<10	--	--	--
60-70	205	26	0.1	<10	--	--	--
70-80	205	28	0.1	<10	--	--	--
81-7 80-90	205	30	0.2	<10	--	--	--

*Hart Bisher*

Certified by .....



# DIAMOND DRILL HOLE RECORD

MINE HIGHMARK RESOURCES LTD  
Mam Mineral Claims

DATE 31 March 1981

HOLE No. 81 - 2 SIZE BQ

Co-ordinates of Collar

LOCATION MAM - 822

850 West  
125 South

DIRECTION N17° East

N.            E.           

DEPTH 494' DIP -60°

STARTED 12 Jan 1981

POSITION Surface ELEV. COLLAR 2870'

FINISHED 13 Jan 1981

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER			
0	12		Casing				
0	494'	425	Granodiorite, quartz phenocrysts, altered feldspar, hornfels, altered chlorites, some sericite, scattered pyrite, sheared zones, rusty slips and sections fine to medium grained, whitish to darker - greenish color				
			126 - 127 - Ground Mud seam				
			131 - 136 Andesite dyke brecciated on both sides				
			167 - 174 Silicified with medium sized quartz pheno				
			170 - 185 Quartz vein, rusty sections and slips, mineralized cp, py sulphides				
			182 - 183 Andesite dyke				
			186 - 188 Sheared				
			215 - 216 Sheared				
			231 - 232 Sheared				
			241 - 243 Sheared				
			251 - 253 Sheared - mud				
			278 - 285 Sheared				
			290 - 295 Sheared - some silicification				
			295 - 300 Quartz vein, miner py, cp				
			316 - 317 Brecciated - Qtz and Feldspar fragments				
			327 - 333 Sheared				
			387 - 388 Andesite dyke				
			370 - 395 Quartz vein and silcified sections, cp, py				
			430 - 433 Alteration section, carbonates				
			445 - 446 Gouge				
			465 - 466 Shearing, Gouge, Qtz stringers				
			478 - 478.5 Shearing Gouge				
			494 End of Hole				

TOTAL 86% %

REMARKS:

DRILLERS.....

EXAMINED BY.....

ASSAYER..... DATE.....

(OVER)

# CORE AND SLUDGE SAMPLES

We hereby Certify that the following are the results of

	Sample Identification	GOLD Ounces Per Ton	SILVER Ounces Per Ton	REMARKS
FROM	<u>DRILL CORE</u>			
	<u>Cantest</u> 9677D 30 Jan 81			
	MAM 81-2			
	170 - 175	0.019	0.14	
	175 - 180	0.014	L 0.01	
	180 - 185	0.012	L 0.01	
	295 - 300	0.072	0.63	
	370 - 375	L 0.002	L 0.01	
	375 - 380	0.007	L 0.01	
	380 - 385	0.002	L 0.01	
	385 - 390	0.028	1.87	
	390 - 395	0.010	2.09	
	 Hole 81-2			
	170-175	0.002	L 0.01	
	175-180	0.015	0.03	
	180-185	0.017	L 0.01	
	295-300	L 0.002	L 0.01	
	374-376	L 0.002	L 0.01	
	385-390	0.006	L 0.01	
	390-395	L 0.002	L 0.01	
	L - Less than			
	<u>SLUDGE</u>			
	<u>CANTEST</u> File 9677D Jan 30 81			
	MAM 81-2			
	170 - 175	0.019	0.14	
	175 - 180	0.014	L 0.01	
	180 - 185	0.012	L 0.01	
	295 - 300	0.072	0.63	
	370 - 375	L 0.002	L 0.01	
	375 - 380	0.007	L 0.01	
	380 - 385	0.002	L 0.01	
	385 - 390	0.028	1.87	
	390 - 395	0.010	2.09	
	L - Less than			



1650 PANDORA STREET, VANCOUVER, B.C. V5L 1L6 • TELEPHONE 254-7278 • TELEX 04-54210

Report On Geochemical Analysis File No. 0587E  
Reported to Weymark Engineering Report No. \_\_\_\_\_  
1063 Balfour Avenue Date March 2, 1981  
Vancouver, B.C.

One-hundred and four (104) samples were tested and report as follows:

RESULTS OF TESTING:

<u>SAMPLE IDENTIFICATION</u>	<u>GOLD (Au)</u> <u>P.P.M.</u>	<u>SILVER (Ag)</u> <u>P.P.M.</u>
Hole 81-2 20-30	0.10	0.3
30-40	0.06	0.2
40-50	0.03	0.1
50-60	0.01	0.6
60-70	0.02	0.7
70-80	0.04	0.1
80-90	0.03	0.1
90-100	0.04	0.1
100-110	L 0.01	0.1
110-120	L 0.01	0.1
120-130	0.06	0.1
130-140	L 0.01	0.1
140-150	0.02	0.1
150-160	L 0.01	0.1
160-165	0.07	0.1
165-170	0.06	0.4
185-190	0.06	0.3
190-195	0.04	0.1
195-200	0.03	0.3
200-205	0.02	0.1
205-210	L 0.01	0.1
210-215	0.01	0.1
215-220	0.02	0.1
220-225	0.02	0.1
225-230	L 0.01	0.2

L- Less than

WEYMARK ENGINEERING

SAMPLE IDENTIFICATION		GOLD (Au) P.P.M.	SILVER (Ag) P.P.M.
Hole 81-2	230-235	0.03	0.1
	235-240	L 0.01	0.1
	240-245	0.02	0.1
	245-250	0.04	0.1
	250-255	0.02	0.2
	255-260	0.07	0.2
	260-265	0.04	0.1
	265-270	0.03	0.2
	270-275	L 0.01	0.2
	275-280	0.01	0.1
	280-285	0.02	0.1
	285-290	0.04	0.5
	290-295	0.12	0.2
	305-310	0.09	0.4
	310-315	0.06	0.2
	315-320	0.07	0.2
	320-325	0.08	0.1
	325-330	0.03	0.1
	330-335	0.04	0.1
	335-340	0.02	0.1
	340-345	0.03	0.1
	345-350	0.02	0.1
	350-355	0.04	0.1
	355-360	0.04	0.1
	365-370	0.03	0.1
	395-400	0.20	0.1
	400-405	0.15	0.1
	405-410	0.39	0.2
	410-415	0.05	0.1
	415-420	0.05	0.1
	420-425	0.07	0.1
	425-430	0.04	0.1
	430-435	0.02	0.1
	435-440	0.02	0.1
	440-445	0.02	0.1
Hole 81 - 2	445-450	0.02	0.1
	450-455	L 0.01	0.1
	455-460	L 0.01	0.1
	460-465	0.01	0.1
	465-470	0.01	0.1

L - Less than

WEYMARK ENGINEERING

SAMPLE IDENTIFICATION		GOLD (Au) P.P.M.	SILVER (Ag) P.P.M.
Hole 81-2	470-475	0.03	0.2
	475-480	L 0.01	0.1
	480-485	L 0.01	0.1
	485-490	L 0.01	0.1
	490-494	0.04	0.4
Hole 81-3	20-30	0.02	0.1
	90-100	0.01	0.1
	130-145	0.03	0.2
	140-150	0.03	0.1
	150-160	0.02	0.2
	160-165	0.03	0.3
	165-170	0.04	0.7
	170-175	0.41	2.1
	175-180	0.08	1.0
	180-185	0.06	0.2
	185-190	0.03	0.3
	190-195	0.06	0.2
	195-200	0.09	0.7
	200-205	0.02	0.5
	205-210	0.04	0.4
	210-215	0.21	1.3
	215-220	0.26	1.4
	220-225	0.02	0.2
	225-230	0.03	0.3
	230-235	0.02	0.1
	235-240	0.03	0.5
	240-245	0.09	0.8
	245-250	0.02	0.4
	250-255	0.01	0.5
	255-260	no sample	no sample
Hole 81-3	260-265	0.05	0.3
	265-270	0.09	0.7
	270-275	0.02	0.3
	275-280	0.08	0.8
	280-285	0.08	0.5
Hole 81-3	285-290	0.11	0.7
	290-295	0.09	0.6
	295-300	0.03	0.2
	300-305	0.03	0.1
Hole 81-4	340-350	0.03	0.1
	350-360	0.06	0.4

L - Less than

CAN TEST LTD.

*F.C. Burgess*F.C. Burgess  
Chief Assayer

# DIAMOND DRILL HOLE RECORD

MINE HIGHMARK RESOURCES LTD  
MAM MINERAL CLAIMS GROUP

DATE 31 March 1981

HOLE No. 81 - 3 SIZE BQ

Co-ordinates of Collar

LOCATION MAM 822

0600 West  
238 South

DIRECTION N 5° East

N.          E.         

DEPTH 397 DIP 60°

STARTED 14 Jan 1981

POSITION Surface ELEV. COLLAR 2850

FINISHED 15 Jan 1981

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER			
0	10		Casing				
10	397	375	Granodiorite:, Quartz phenocrysts, altered Feldspar, hornfels, chlorides - greyish green, some sericite, scattered py, cp sheared - gouge zones, rusty slips and joints, mostly fine to medium grained, whitish to greenish tone, epidotized sections dykes or inclusions of andesite - diorite with elongated feldspar phenocrysts				
			0 - 36 Sheared, weathered, rusty jts				
			49 - 49.2 Quartz veinlet, rusty jts				
			52 - 53.5 Quartz veinlet, min py, cp				
			56 - 58 Quartz, sheared				
			82 - 84 Quartz, sheared				
			86 - 90 Sheared, silicified				
			121 - 123 Quartz, epidote, gouge				
			182 - 186 Sheared				
			221 - 223 Quartz, sheared				
			232 - 234 Quartz				
			234 - 236 Quartz				
			271 - 273 Quartz, sheared				
			286 - 290 Sheared				
			295 - 297 Quartz				
			312 - 313.5 Andesite dyke				
			342 - 343.5 Sheared - sil				
			351 - 351.5 Silicified py				
			397 End of Hole				

TOTAL % 94.4

REMARKS:

DRILLERS Tonto Drilling Company

W. J. Weymark P. Eng.

EXAMINED BY         

ASSAYER Cantest DATE         

(OVER)



**CORE AND SLUDGE SAMPLES**

SECTION		ASSAY		REMARKS	
FROM	TO	NUMBER	RESULTS		
			GOLD	SILVER	COPPER
			Ounces Per Ton	Ounces Per Ton	Percent    Cu
Sample Identification			<u>DRILL CORE</u>		
	HOLE 81 - 3				
	<b>Cantest</b>				
	<b>0307E-1</b>	52-53.5	0.009	L 0.01	0.12
	<b>16-3-81</b>	56.7-58	0.002	L 0.01	0.01
		82-84	L 0.002	L 0.01	0.01
		121-123	L 0.002	L 0.01	0.01
		221-222.5	0.011	L 0.01	0.01
		295-297	L 0.002	L 0.01	L 0.01
		232-234	0.031	L 0.01	0.01
		234-236	0.036	L 0.01	L 0.01
		271-273	0.003	L 0.01	L 0.01

WEYMARK ENGINEERING

SAMPLE IDENTIFICATION		GOLD (Au) P.P.M.	SILVER (Ag) P.P.M.
Hole 81-2	470-475	0.03	0.2
	475-480	L 0.01	0.1
	480-485	L 0.01	0.1
	485-490	L 0.01	0.1
	490-494	0.04	0.4
Hole 81-3	20-30	0.02	0.1
	90-100	0.01	0.1
	130-145	0.03	0.2
	140-150	0.03	0.1
	150-160	0.02	0.2
	160-165	0.03	0.3
	165-170	0.04	0.7
	170-175	0.41	2.1
	175-180	0.08	1.0
	180-185	0.06	0.2
	185-190	0.03	0.3
	190-195	0.06	0.2
	195-200	0.09	0.7
	200-205	0.02	0.5
	205-210	0.04	0.4
	210-215	0.21	1.3
	215-220	0.26	1.4
	220-225	0.02	0.2
	225-230	0.03	0.3
	230-235	0.02	0.1
	235-240	0.03	0.5
240-245	0.09	0.8	
245-250	0.02	0.4	
250-255	0.01	0.5	
255-260	no sample	no sample	
Hole 81-3	260-265	0.05	0.3
	265-270	0.09	0.7
	270-275	0.02	0.3
	275-280	0.08	0.8
	280-285	0.08	0.5
Hole 81-3	285-290	0.11	0.7
	290-295	0.09	0.6
	295-300	0.03	0.2
Hole 81-4	340-350	0.03	0.1
	350-360	0.06	0.4

L - Less than

CAN TEST LTD.

*F.C. Burgess*F.C. Burgess  
Chief Assayer

# DIAMOND DRILL HOLE RECORD

MINE ..... HIGHMARK RESOURCES LTD  
 MAM MINERAL CLAIMS GROUP  
 HOLE No. .... 81 - 4 ..... SIZE ..... BQ  
 LOCATION ..... MAM 822 .....  
 DIRECTION ..... N 17° East .....  
 DEPTH ..... 700 Ft ..... DIP ..... 60° .....  
 POSITION ..... Surface ..... ELEV. COLLAR ..... 2835' .....

DATE 31 March 1981  
 Co-ordinates of Collar  
 0460 West  
 185 South  
 N. .... E. ....  
 STARTED 16 Jan 1981  
 FINISHED 19 Jan 1981

SECTION			LOG	ASSAY		
FROM	TO	RECY		NUMBER		
0	16'		Casing			
0	700	664	Grano-Diorite - Quartz phenocrysts, altered Feldspar, hornfels, chlorides some sericite,, scattered py, cp sheared - gouge sections, rusty slips and joints, fine to medium grained matrix, - whitish to green tone, inclusions, andesitized - dioritic sections - schist. 0 - 40 Ground weathered, rusty slips 28 - 29 Quartz, sheared 52 - 53 Sheared andesite dyke 55 - 57 Ground 104 - 106 Quartz, sheared 156 - 157 Quartz, sheared 178 - 180 Quartz, sheared 185 - 192 Quartz, sheared 200 - 202 Quartz, sheared, rusty 242 Andesite Dyke 250 - 293 Ground, sheared, rusty joints 317 Andesite - diorite? sheared 402 - 403 Quartz 403 - 410 Andesite - diorite? sheared 435 - 440 Sheared - ground 451 - 453 Quartz - sheared 470 - 471 Quartz, sheared 492 - 493 Quartz, sheared 493 - 498 Ground - gouge, sheared 621 - 622 Quartz - sheared 627 - 629 Ground 690 - 700 Fault, ground - gouge 700 End of Hole - Abandoned due to impossible drilling			

AL 94.8 %  
 REMARKS:

See Petrographic Analysis DRILLERS Tonto Drilling Company  
 4-32 - Chlorite Epidote Schist  
 4-172 - Foliated Quartz Diorite W. J. Weymark P. Eng.  
 4-406 - Pyritic Meta Dacite EXAMINED BY  
 4-698 - Altered Qtz Diorite CANTEST Ltd  
 ASSAYER ..... DATE .....



Petrography of specimens  
4-172, 4-698, 4-406, and 4-32,  
submitted by Weymark Engineering Ltd.

Four samples from the Cougar Mountain area near Osoyoos, British Columbia, were submitted for petrographic analysis. Samples 4-172 and 4-698 are altered and foliated quartz diorite, sample 4-32 is a chlorite-epidote schist, and sample 4-406 is an altered meta-dacite. All of the samples are foliated and metamorphosed to lower greenschist (quartz-chlorite-muscovite-epidote-albite) facies of regional metamorphism.

Additionally the samples contain quartz-carbonate-chlorite-muscovite veinlets of at least two generations which cut foliation and are themselves deformed in later shearing episodes. These veinlets also contain apatite.

Pyrite mineralization is spatially related to these quartz-carbonate veinlets, particularly the earlier set, and is seen only in sample 4-406. Epidote is conspicuously absent from this assemblage. Sample 4-406 has textures consistent with a shallow intrusion or porphyritic extrusion; field relations are necessary to determine the genesis of this rock type.

Petrographic Descriptions:

Sample 4-172

Foliated quartz diorite.

Estimated mode of thin section (visually):

quartz	22%
plagioclase	41%

Sample 4-172 (continued):

anorthite percent	5%
epidote	10%
carbonate	7%
sericite	9%
chlorite	4%
sphene	1%
leucoxene	trace
apatite	trace

Thin section description: the rock is composed of altered and weakly strained medium to coarse-grained quartz and plagioclase phenocrysts in a fine-grained matrix of quartz, plagioclase, micas and carbonate. Medium-grain size clots of chlorite, epidote and sphene have layers of dusty opaques and leucoxene and can be interpreted as altered biotite phenocrysts. Quartz grains show undulatory extinction and some small grains along grain boundaries, indicating significant strain.

Alteration mineralogy includes plagioclase altered to sericite +carbonate+chlorite+epidote, biotite altered to chlorite+epidote+ sphene, and veinlets of quartz+carbonate+chlorite.

Sample 4-698

Foliated and altered quartz diorite.

Estimated mode of thin section (visually):

quartz	20%
plagioclase	35%
anorthite percent	10%

Sample 4-698 (continued):

3.

epidote	15%
carbonate	5%
sericite	15%
chlorite	8%
apatite	1%

Thin section description: The rock is composed of altered and moderately strained quartz and plagioclase phenocrysts. Chlorite, sericite, epidote and quartz are evenly distributed in a finer-grained matrix. Quartz phenocrysts and veinlets show undulatory extinction, polygonalization, and growth of small grains along boundaries, all indicating strain features more intense than those of 4-172.

Plagioclase is altered to white mica + epidote + carbonate. Veinlets of carbonate + quartz + chlorite + epidote are discontinuous and fractured. Carbonate twins are kinked, supporting post-veining deformation. Small euhedral grains of apatite are part of the vein mineral assemblage.

Sample 4-406

Pyritic meta-dacite.

Estimated mode of thin section (visually):

quartz	30%
plagioclase	25%
anorthite percent	8%
carbonate	7%
sericite	15%
chlorite	12%

Sample 4-406 (continued):

apatite	2%
pyrite	1%

Thin section description: The rock is composed of scarce medium-grain size phenocrysts of quartz and plagioclase in a fine-grained matrix of quartz + sericite + chlorite + carbonate. Strain textures are strong, showing broken plagioclase grains and rounded quartz phenocrysts. The grains have a preferred orientation.

Plagioclase is altered to quartz + white mica + carbonate + sericite. Veinlets are composed of medium to fine-grained quartz + carbonate + chlorite + sericite. Pyrite grains are included in veinlets or proximal to veinlets. Apatite is part of the vein assemblage. Epidote is conspicuously absent from this sample.

Sample 4-32

Chlorite epidote schist

Estimated mode in thin section (visually):

plagioclase	45%
carbonate	15%
chlorite	30%
epidote	10%

Thin section description: The rock is composed of chlorite and plagioclase rich layers. Carbonate and epidote are most common in plagioclase rich layers. Plagioclase occurs as large porphyroblasts and fine-grained laths. Epidote occurs as radiating



clusters and individual grains.

Plagioclase is altered to sericite + carbonate. The carbonate-epidote layer is a section of an early veinlet which cuts foliation in hand specimen.

Mineral textures and composition suggest that this rock represents a metamorphosed, quartz-absent volcanic rock.

Hand specimen and thin section textures suggest a history of deformation and alteration of the specimens. This history is composed of:

1. Volcanism and plutonism of country rock
2. Regional metamorphism to lower greenschist facies
3. Injection of quartz-carbonate veinlets, with pyrite in 4-406
4. Continued shearing deformation
5. Injection of quartz-carbonate veinlets

Furthur information would be necessary to define which of these factors controls ore distribution.

# DIAMOND DRILL HOLE RECORD

MINE..... HIGHMARK RESOURCES LTD  
Mam Mineral Claims Group

DATE..... 31 March 1981

OLE No. 81 - 5..... SIZE.....

Co-ordinates of Collar

LOCATION..... MAM 822.....

1050 West  
60 South

DIRECTION..... N 35° East.....

N..... E.....

DEPTH..... 509 ft..... DIP..... -60°.....

STARTED..... 20 Jan 1981

POSITION..... Surface..... ELEV. COLLAR..... 2860 ft.....

FINISHED..... 21 Jan 1981

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER			
0	23		Casing				
0	509	452	Granodiorite: Quartz phenocrysts, altered feldspar hornfels - greenish, chlorides some sericite, scattered py, cp sheared - gouge zones, rusty slips and joints, mostly fine to medium grained, whitish to greenish tone Inclusions of sheared diorite - andesite with Feldspar elongated phenocrysts				
			57 - 60 Quartz vein, cp, py				
			147 - 149 Quartz vein and sil section				
			157 - 158.2 quartz vein, sheared andesitized diorite, feldspar pheno				
			192 - 193.5 quartz vein and sil section				
			197 - 199 quartz vein and sil section				
			206 - 207 sheared andesitic - diorite feldspar pheno, rusty slips				
			248 - 249 quartz vein and sil section				
			367 - 368 quartz vein and sil section				
			312 - 413 quartz vein and sil section				
			419 - 420 sheared - rusty section				
			413 - 417 quartz vein sil section				
			494 - 501 sheared andesitic - diorite section, fine grained, feldspar pheno - elongated				
			509 End of Hole				

TOTAL % 88.8

REMARKS:

DRILLERS..... Tonto Drilling Company.....

EXAMINED BY..... W. J. Weymark P. Eng......

ASSAYER..... Cantest..... DATE.....

(OVER)

# CORE AND SLUDGE SAMPLES

SECTION		ASSAY		REMARKS	
FROM	TO	NUMBER			
		<b>HOLE 81 - 5</b>		<u>DRILL CORE</u>	
		<u>CANTEST</u>		0.003	L 0.01
		57-60		0.003	L 0.01
		0307E-1	147-148.5	L 0.002	L 0.01
		16-3-81	157-158.2	L 0.002	L 0.01
			192-193.5	L 0.002	L 0.01
			197-199	L 0.002	L 0.01
		Sample Identification		GOLD	SILVER
				Ounces Per Ton	Ounces Per Ton
					COPPER
					Percent Cu
		<b>HOLE 81-5</b>		<u>DRILL CORE</u>	
		<u>Cantest</u>	248-249	L 0.002	L 0.01
			367-368	L 0.002	L 0.01
		0397E-1	412-413	L 0.002	L 0.01
		16-3-81	415-417	L 0.002	L 0.01
		Sample Identification		GOLD	SILVER
				Ounces Per Ton	Ounces Per Ton
		<b>Hole 81-5</b>		<u>SLUDGE</u>	
		<u>Cantest</u>	40- 50	0.005	L 0.01
		9866D-2	50- 60	0.020	0.02
		30-3-81	120-130	0.026	0.04
			130-140	L 0.002	0.01
			140-150	0.002	0.06
			150-160	0.020	0.03
			185-190	L 0.002	L 0.01
			190-195	L 0.002	L 0.01
			195-200	L 0.002	L 0.01
			200-205	0.006	0.03
			240-245	L 0.002	L 0.01
			245-250	0.002	0.03
			405-410	0.002	0.04
			410-415	L 0.002	L 0.01
			415-420	0.002	0.05
		Note: Pu			
		Re			
		ALL REPO			
		CONCLUSI			
		OUR WRIT			
		FORM No			



# CHEMEX LABS LTD.

212 BROOKSBANK AVE  
NORTH VANCOUVER B C  
CANADA V7J 2C1  
TELEPHONE (604)984-0221  
TELEX 043-52597

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

## CERTIFICATE OF ANALYSIS

TO : Weymark Engineering Ltd.,  
1063 Balfour Ave.  
Vancouver, B.C.  
V6H 1X2

CERT. # : A8110246-001-  
INVOICE # : I8110246  
DATE : 19-FEB-81  
P.O. # : NONE

Sample description	Prep code	Cu ppm	Ag ppm	Au -(AA) ppb			
81-1 235-240	205	36	0.1	10	--	--	--
81-1 265-270	205	84	0.1	<10	--	--	--
81-5 230-235	205	24	0.1	10	--	--	--
81-6 220-225	205	44	0.2	30	--	--	--
225-230	205	28	0.1	<10	--	--	--
230-235	205	24	0.1	10	--	--	--
235-240	205	26	0.2	40	--	--	--
240-245	205	26	1.0	100	--	--	--
245-250	205	40	0.1	10	--	--	--
250-255	205	36	0.1	30	--	--	--
255-260	205	26	0.1	<10	--	--	--
260-265	205	20	0.1	<10	--	--	--
265-270	205	22	0.1	<10	--	--	--
270-275	205	24	0.1	<10	--	--	--
275-280	205	18	0.1	<10	--	--	--
280-285	205	26	0.1	<10	--	--	--
285-290	205	16	0.1	<10	--	--	--
290-295	205	24	0.1	20	--	--	--
295-300	205	18	0.1	10	--	--	--
300-305	205	22	0.1	<10	--	--	--
305-310	205	30	0.2	20	--	--	--
310-315	205	38	0.1	10	--	--	--
315-320	205	38	0.1	<10	--	--	--
320-325	205	26	0.1	<10	--	--	--
325-330	205	28	0.1	<10	--	--	--
330-335	205	48	0.1	<10	--	--	--
335-340	205	38	0.1	<10	--	--	--
340-345	205	38	0.1	<10	--	--	--
345-350	205	42	0.1	10	--	--	--
350-355	205	24	0.1	<10	--	--	--
355-360	205	30	0.1	<10	--	--	--
81-6 360-365	205	26	0.1	<10	--	--	--
81-7 10-20	205	22	0.1	<10	--	--	--
20-30	205	26	0.1	<10	--	--	--
30-40	205	126	0.2	<10	--	--	--
40-50	205	74	1.0	<10	--	--	--
50-60	205	52	0.1	<10	--	--	--
60-70	205	26	0.1	<10	--	--	--
70-80	205	28	0.1	<10	--	--	--
81-7 80-90	205	30	0.2	<10	--	--	--

Certified by *Hart Bickler* .....



MEMBER  
CANADIAN TESTING  
ASSOCIATION

# DIAMOND DRILL HOLE RECORD

MINE HIGHMARK RESOURCES LTD  
MAM MINERAL CLAIMS GROUP

DATE 31 March 1981

HOLE No. 81 - 6 SIZE BQ

Co-ordinates of Collar

LOCATION MAM 822

0330 West  
210 South

DIRECTION N17° East

N.            E.           

DEPTH 370 Feet DIP -60°

STARTED 22 Jan 1981

POSITION Surface ELEV. COLLAR ~2700 feet

FINISHED 24 Jan 1981

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER			
0	10		Casing				
0	370	345	Granodiorite, Quartz Phenocrysts, altered Feldspar, hornfels, chlorites, some sericite, scattered py, cp rusty slips and section sheared and gouge sections, fine to medium grained matrix, whitish to greenish tone inclusions of andesitic - diorite elongated feldspar pheno - altered				
			0 - 31 Weathered, ground, rusty slips				
			32 - 33 Silicified sections				
			80 - 82 Quartz - silicified section				
			87 - 90 Sheared				
			107 - 109 Sheared, silicified, quartz sections				
			109 - 112 Sheared, silicified, quartz section				
			143 Vuggy, rusty sheared				
			148 Sheared				
			153 Silicified				
			162 - 164 Silicified, sheared, quartz				
			183 - 188 Sheared - epidotized				
			186 - 188 Silicified, quartz				
			188 - 191 Silicified and quartz				
			237 - 242 Sheared, gouge - fault zone, andesitic				
			290 Andesite dyke				
			290 - 292 Silicified - quartz, sheared				
			292 - 293 Silicified - carb - alteration				
			342 - 370 Fault zone, sheared - gouge				
			367 - 370 Silicified section				
			370 End of Hole - Had to be abandoned because rods seized				

TOTAL % 93.2%

REMARKS:

DRILLERS Tonto Drilling Company

EXAMINED BY W. J. Weymark P. Eng.

ASSAYER CANTEST DATE





# CHEMEX LABS LTD.

212 BROOKSBANK AVE  
NORTH VANCOUVER, B.C.  
CANADA V7J 2C1  
TELEPHONE (604)984-0221  
TELEX 043-52597

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

## CERTIFICATE OF ANALYSIS

TO : Weymark Engineering Ltd.,  
1063 Balfour Ave.  
Vancouver, B.C.  
V6H 1X2

CERT. # : A8110246-001-  
INVOICE # : 18110246  
DATE : 19-FEB-81  
P.O. # : NONE

Sample description	Prep code	Cu ppm	Ag ppm	Au -(AA) ppb			
81-1 235-240	205	36	0.1	10	--	--	--
81-1 265-270	205	84	0.1	<10	--	--	--
81-5 230-235	205	24	0.1	10	--	--	--
81-6 220-225	205	44	0.2	30	--	--	--
225-230	205	28	0.1	<10	--	--	--
230-235	205	24	0.1	10	--	--	--
235-240	205	26	0.2	40	--	--	--
240-245	205	26	1.0	100	--	--	--
245-250	205	40	0.1	10	--	--	--
250-255	205	36	0.1	30	--	--	--
255-260	205	26	0.1	<10	--	--	--
260-265	205	20	0.1	<10	--	--	--
265-270	205	22	0.1	<10	--	--	--
270-275	205	24	0.1	<10	--	--	--
275-280	205	18	0.1	<10	--	--	--
280-285	205	26	0.1	<10	--	--	--
285-290	205	16	0.1	<10	--	--	--
290-295	205	24	0.1	20	--	--	--
295-300	205	18	0.1	10	--	--	--
300-305	205	22	0.1	<10	--	--	--
305-310	205	30	0.2	20	--	--	--
310-315	205	38	0.1	10	--	--	--
315-320	205	38	0.1	<10	--	--	--
320-325	205	26	0.1	<10	--	--	--
325-330	205	28	0.1	<10	--	--	--
330-335	205	48	0.1	<10	--	--	--
335-340	205	38	0.1	<10	--	--	--
340-345	205	38	0.1	<10	--	--	--
345-350	205	42	0.1	10	--	--	--
350-355	205	24	0.1	<10	--	--	--
355-360	205	30	0.1	<10	--	--	--
81-6 360-365	205	26	0.1	<10	--	--	--
81-7 10-20	205	22	0.1	<10	--	--	--
20-30	205	26	0.1	<10	--	--	--
30-40	205	126	0.2	<10	--	--	--
40-50	205	74	1.0	<10	--	--	--
50-60	205	52	0.1	<10	--	--	--
60-70	205	26	0.1	<10	--	--	--
70-80	205	28	0.1	<10	--	--	--
81-7 80-90	205	30	0.2	<10	--	--	--

*Hart Bickler*

Certified by .....



MEMBER  
CANADIAN TESTING  
ASSOCIATION

# DIAMOND DRILL HOLE RECORD

MINE HIGHMARK RESOURCES LTD  
MAM MINERAL CLAIMS GROUP

DATE 31 March 1981

HOLE No. 81 - 7 SIZE BQ

Co-ordinates of Collar

LOCATION MAM 822

0190 West  
100 South

DIRECTION N17° East

N.            E.           

DEPTH 335 ft DIP -70°

STARTED 24 Jan 1981

POSITION Surface ELEV. COLLAR 2675 ft

FINISHED 27 Jan 1981

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER			
0	10		Casing				
0	335	313	Granodiorite, Quartz phenocrysts, altered Feldspar, hornfels, chlorides some sericite, scattered py, cp, sheared - gouge zones, rusty joints and slips, mostly fine to medium grained matrix, whitish to greenish tone, epidotized sections - andesitized - diorite sections feldspar pheno, elongated				
			0 - 33 Weathered, ground, rusty slips	36 - 38	Quartz		
			80 - 84 Sheared - ground - gouge				
			87 - 89 Sheared, ground, quartz - silicified				
			129 - 130 Sheared - ground	121 - 143	Silicified section		
			134 - 135 Sheared - ground	160 - 162	Silicified		
			253 - 256 Quartz - sheared				
			257 - 259 Sheared - ground				
			264 - 268 Quartz, sheared, mineralized	265 - 69	silicified		
			268 - 269 Ground				
			326 - 330 Ground				
			330 - 335 Ground Gouge - Fault zone Had to abandon hole				
			335 End of Hole				

TOTAL

% 93.4%

REMARKS:

DRILLERS Tonto Drilling Company

EXAMINED BY W. J. Weymark P. Eng.

ASSAYER CANTEST Ltd DATE           

(OVER)







# CHEMEX LABS LTD.

212 BROOKSBANK AVE  
NORTH VANCOUVER, B.C.  
CANADA V7J 2C1  
TELEPHONE (604)984-0221  
TELEX 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

## CERTIFICATE OF ANALYSIS

TO : Weymark Engineering Ltd.,  
1063 Balfour Ave.  
Vancouver, B.C.  
V6H 1X2

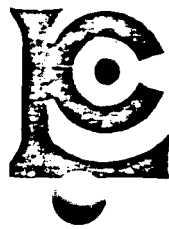
CERT. # : AB110246-002-A  
INVOICE # : I8110246  
DATE : 19-FEB-81  
P.O. # : NONE

Sample description	Prep code	Cu ppm	Ag ppm	Au -(AA) ppb			
81-7 90-100	205	22	0.1	<10	--	--	--
100-110	205	20	0.1	<10	--	--	--
110-120	205	16	0.1	<10	--	--	--
120-130	205	22	0.2	<10	--	--	--
130-140	205	24	0.1	<10	--	--	--
140-150	205	18	0.1	<10	--	--	--
150-160	205	18	0.1	<10	--	--	--
160-165	205	16	0.1	<10	--	--	--
165-170	205	14	0.1	10	--	--	--
170-175	205	20	0.1	<10	--	--	--
175-180	205	22	0.1	<10	--	--	--
180-185	205	22	0.2	<10	--	--	--
185-190	205	106	1.0	<10	--	--	--
190-195	205	28	0.1	<10	--	--	--
195-200	205	18	0.1	<10	--	--	--
200-205	205	24	0.1	<10	--	--	--
205-210	205	16	0.1	<10	--	--	--
210-215	205	26	0.1	<10	--	--	--
215-220	205	20	1.0	50	--	--	--
220-225	205	24	0.4	20	--	--	--
225-230	205	18	0.1	<10	--	--	--
230-235	205	18	0.1	<10	--	--	--
235-240	205	14	0.1	<10	--	--	--
240-245	205	18	0.1	<10	--	--	--
245-250	205	18	0.1	<10	--	--	--
250-255	205	14	0.1	<10	--	--	--
255-260	205	14	0.1	<10	--	--	--
260-265	205	14	0.1	<10	--	--	--
265-270	205	16	0.1	<10	--	--	--
270-275	205	20	0.1	<10	--	--	--
275-280	205	20	0.1	<10	--	--	--
280-285	205	16	0.1	<10	--	--	--
285-290	205	12	0.1	N.S.S.	--	--	--
290-295	205	16	0.1	<10	--	--	--
295-300	205	12	0.1	<10	--	--	--
300-305	205	20	0.1	<10	--	--	--
305-310	205	40	0.1	<10	--	--	--
310-315	205	18	0.1	<10	--	--	--
315-320	205	22	0.1	<10	--	--	--
81-7 320-325	205	16	0.1	<10	--	--	--

*Hart Bichler*

Certified by .....





# CHEMEX LABS LTD.

212 BROOKSBANK AVE  
NORTH VANCOUVER B C  
CANADA V7J 2C1  
TELEPHONE (604)984-0221  
TELEX 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

## CERTIFICATE OF ANALYSIS

ID : Weymark Engineering Ltd.,  
1063 Balfour Ave.  
Vancouver, B.C.  
V6H 1X2

CERT. # : A8110246-003  
INVOICE # : 18110246  
DATE : 19-FEB-81  
P.O. # : NONE

Sample description	Prep code	Cu ppm	Ag ppm	Au -(AA) ppb			
81-7-225-230	205	20	0.1	<10	--	--	--
81-7 330-335	205	24	0.2	<10	--	--	--

Certified by *Hart Bisher* .....

# DIAMOND DRILL HOLE RECORD

MINE..... HIGHMARK RESOURCES LTD  
MAM MINERAL CLAIMS GROUP

HOLE No. 81 - 8 SIZE..... BQ

LOCATION Mam 822

DIRECTION N 17° East

DEPTH 482 ft DIP -60

POSITION Surface ELEV. COLLAR 2660 ft

DATE 31 March 1981

Co-ordinates of Collar  
0170 East  
220 South

N..... E.....

STARTED 27 Jan 1981  
28 Jan 1981

FINISHED.....

SECTION			LOG	ASSAY			
FROM	TO	RECY		NUMBER			
0	15		Casing				
0	482	452	Granodiorite: Quartz phenocrysts, altered Feldspar, hornfels, chlorides some sericite, scattered py, cp sheared - gouge zones, rusty slips and sections, fine to medium grained matrix, whitish to green tone inclusions - andeistized - dioritic sections. 28 - 29 Quartz - silicified section 32 - 34 Quartz - silicified section 71 - 72 Quartz - silicified section 247 - 248 Andesite dyke 251 - 252 Quartz - silicified section 281 - 282 Sheared - andesitic - dioritic section 296 - 297 Sheared andesitic section 382 - 383 Silicified section some min 395 - 396 Quartz - silicified section 407 - 428 Sheared Andesitic - Dioritic section 418 - 419 Quartz - silicified section 430 Sheared 440 - 443 Quartz - silicified section 448 Gouge 440 - 482 Fault zone 456 - 458 Quartz - silicified section 482 End of Hole Had to be abandoned - rods seized				

TOTAL % 93.8%

REMARKS:

DRILLERS..... Tonto Drilling Company

EXAMINED BY..... W. J. Weymark P. Eng.

ASSAYER..... CANTEST DATE.....

# CORE AND SLUDGE SAMPLES

SECTION			ASSAY		REMARKS
FROM	TO	NUMBER	RESULTS		
			Sample Identification	GOLD Ounces Per Ton	
			<u>DRILL CORE</u>		
		Cantest 81 - 8	32-33	L 0.002	L 0.01
		0338E - 2	33-34	0.002	L 0.01
		16-3-81	71-72	L 0.002	L 0.01
			251-252	L 0.002	L 0.01
			395-396	0.010	0.01
			418-419	0.020	0.08
			440-443	0.003	L 0.01
			456-458	0.010	L 0.01
			Hole 81-8		
		Cantest			
		0551D-3	245-250	0.004	0.04
		30-3-81	250-255	0.002	0.06
			255-260	0.002	0.06
			260-265	L 0.002	L 0.01
			265-270	L 0.002	L 0.01
			270-275	0.004	0.05
			275-280	0.004	0.07
			280-285	0.004	0.06
			285-290	0.004	0.04
			290-295	0.004	0.05
			295-300	L 0.002	L 0.01
			300-305	L 0.002	L 0.01
			305-310	L 0.002	L 0.01
			310-315	L 0.002	L 0.01
			315-320	0.002	0.16
			320-330	0.002	0.10
			330-340	0.008	0.30

To

Weymark Engineering

1063 Balfour Avenue

Vancouver, B.C.

V6H 1X2



**can Test ltd.**

1650 PANDORA STREET, VANCOUVER, B.C. V5L 1L6

Telephone 254 7278

fax 04-54210

# Certificate of Assay

File No. 0551D-1

Date March 30, 1981

Attention:

We hereby Certify that the following are the results of assays made by us upon submitted **Sludge** samples.

Sample Identification :	GOLD	SILVER						
	Ounces Per Ton	Ounces Per Ton	Percent	Percent	Percent	Percent	Percent	Percent
Hole 81-8								
20- 30	0.002	0.11						
30- 40	L 0.002	0.16						
40- 50	L 0.002	0.12						
50- 60	L 0.002	0.12						
60- 70	L 0.002	0.14						
70- 80	L 0.002	0.13						
80- 90	L 0.002	0.13						
90-100	0.004	0.16						
100-110	0.002	0.20						
110-120	0.003	0.18						
120-130	L 0.002	0.08						
130-140	L 0.002	L 0.01						
140-150	L 0.002	0.03						
150-155	L 0.002	L 0.01						
155-160	L 0.002	L 0.01						
160-165	L 0.002	L 0.01						

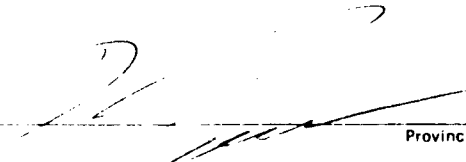
Note: Pulps retained three months.

L = Less Than

**CAN TEST LTD.**

Rejects retained two weeks.

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 Provincial Assayer

To:

Weym Engineering

1063 Balfour Avenue

Vancouver, B.C.

V6H 1X2

**can test ltd.**

1650 PANDORA STREET, VANCOUVER, B.C. V5L 1L6

Telephone 254 7278  
Telex 04 54210**Certificate of Assay**

File No. 0551D-2

Date March 30, 1981

Attention:

**We hereby Certify that the following are the results of assays made by us upon submitted Sludge.. samples.**

Sample Identification	GOLD	SILVER						
	Ounces Per Ton	Ounces Per Ton	Percent	Percent	Percent	Percent	Percent	Percent
Hole 81-8								
165-170	L 0.002	0.02						
170-175	L 0.002	0.03						
175-180	L 0.002	0.04						
180-185	L 0.002	0.04						
185-190	L 0.002	0.04						
190-195	L 0.002	0.05						
195-200	L 0.002	0.04						
200-205	L 0.002	0.03						
205-210	L 0.002	0.05						
210-215	L 0.002	L 0.01						
215-220	L 0.002	0.05						
220-225	L 0.002	0.04						
225-230	L 0.002	L 0.01						
230-235	0.002	0.06						
235-240	L 0.002	0.05						
240-245	0.002	0.03						

L = Less than

Note: Pulps retained three months.

Rejects retained two weeks.

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Form No. 13 C

**CAN TEST LTD.**

Provincial Assayer

To.



Weymark Engineering

1063 Balfour Avenue

Vancouver, B.C.

V6H 1X2



can test ltd.

1650 PANDORA STREET, VANCOUVER, B.C. V5L 1L6

Telephone 254 7278

x 04-54210

# Certificate of Assay

File No. 0551D-3

Date March 30, 1981

Attention:

We hereby Certify that the following are the results of assays made by us upon submitted

Sludge samples.

Sample Identification	GOLD	SILVER						
	Ounces Per Ton	Ounces Per Ton	Percent	Percent	Percent	Percent	Percent	Percent
Hole 81-8								
245-250	0.004	0.04						
250-255	0.002	0.06						
255-260	0.002	0.06						
260-265	L 0.002	L 0.01						
265-270	L 0.002	L 0.01						
270-275	0.004	0.05						
275-280	0.004	0.07						
280-285	0.004	0.06						
285-290	0.004	0.04						
290-295	0.004	0.05						
295-300	L 0.002	L 0.01						
300-305	L 0.002	L 0.01						
305-310	L 0.002	L 0.01						
310-315	L 0.002	L 0.01						
315-320	0.002	0.16						
320-330	0.002	0.10						
330-340	0.008	0.30						

L = Less Than

Note Pulps retained three months.

Rejects retained two weeks.

CAN TEST LTD.

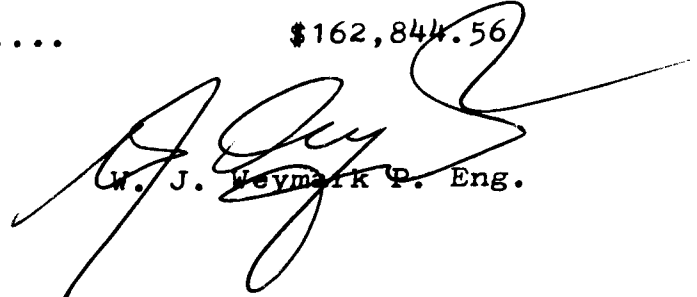
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ANNEX - C

COST DISTRIBUTION

1. Chemical Analyses, Cantest Ltd Vancouver, B. C. ....	\$10,542.75
..... Chemex Labs Ltd..... North Vancouver, B.C.	\$660.45
2. N. Dootoff Drilling, , Surrey, B. C.	\$31,536.22
3. Wm. Chang M. Sc. 1967 Flynn Cresc Coquitlam, B. C. - 29 hrs, Oct 14-29 Oct 31- Nov.1, 1980 Field Nov. 3,13, Dec 27, 28 1980 5 days x \$175.00 .... \$1,513 Field Expenses .... 385.45	1,898.45
4. Tonto Drilling Company 1215 West 7 <sup>th</sup> Vancouver .....	97,854.24
5. N. Dootoff, Surrey, B. C. 15 January - 22 February 1981 Fees and Expenses ....	4,431.75
6. Coots Petrographic Service Ltd Vancouver, B. C.	176.00
7. Weymark Engineering Ltd W. J. Weymark P. Eng. 1063 Balfour Ave, Vancouver, B.C. <u>Field</u> Sept:29,30;Oct-11,12,13 Nov-7,8,9; Dec-5,6 Jan - 7,8,9,10,11,16,17 24,25,30,31 Feb-1,7,8,9 13,14,27,28 Mar-6,7,27,28 Apr-18,19, May 17,18 June 13,14 - 39 days ... 7,800 <u>Office:</u> Oct: 7,8;28,29,31 Nov 6,10,11 Dec 4,7, Jan 5,6,12,19,22, 26,29 Feb-6,16,26, Mar5,26 Apr - 15,21, May - 14, June - 12, 16-20 ..... 30 days .. <u>6,000</u>	13,800 165.00 <u>1,780.00</u>
8. Maps and Reproductions .....	
9. Automotive and expenses .....	
Total .....	\$162,844.56

  
W. J. Weymark P. Eng.

Petrography of specimens  
4-172, 4-698, 4-406, and 4-32,  
submitted by Weymark Engineering Ltd.

Four samples from the Cougar Mountain area near Osoyoos, British Columbia, were submitted for petrographic analysis. Samples 4-172 and 4-698 are altered and foliated quartz diorite, sample 4-32 is a chlorite-epidote schist, and sample 4-406 is an altered meta-dacite. All of the samples are foliated and metamorphosed to lower greenschist (quartz-chlorite-muscovite-epidote-albite) facies of regional metamorphism.

Additionally the samples contain quartz-carbonate-chlorite-muscovite veinlets of at least two generations which cut foliation and are themselves deformed in later shearing episodes. These veinlets also contain apatite.

Pyrite mineralization is spatially related to these quartz-carbonate veinlets, particularly the earlier set, and is seen only in sample 4-406. Epidote is conspicuously absent from this assemblage. Sample 4-406 has textures consistent with a shallow intrusion or porphyritic extrusion; field relations are necessary to determine the genesis of this rock type.

Petrographic Descriptions:

Sample 4-172

Foliated quartz diorite.

Estimated mode of thin section (visually):

quartz	22%
plagioclase	41%

Sample 4-172 (continued):

anorthite percent	5%
epidote	10%
carbonate	7%
sericite	9%
chlorite	4%
sphene	1%
leucoxene	trace
apatite	trace

Thin section description: the rock is composed of altered and weakly strained medium to coarse-grained quartz and plagioclase phenocrysts in a fine-grained matrix of quartz, plagioclase, micas and carbonate. Medium-grain size clots of chlorite, epidote and sphene have layers of dusty opaques and leucoxene and can be interpreted as altered biotite phenocrysts. Quartz grains show undulatory extinction and some small grains along grain boundaries, indicating significant strain.

Alteration mineralogy includes plagioclase altered to sericite +carbonate+chlorite+epidote, biotite altered to chlorite+epidote+ sphene, and veinlets of quartz+carbonate+chlorite.

Sample 4-698

Foliated and altered quartz diorite.

Estimated mode of thin section (visually):

quartz	20%
plagioclase	35%
anorthite percent	10%

Sample 4-698 (continued):

3.

epidote	15%
carbonate	5%
sericite	15%
chlorite	8%
apatite	1%

Thin section description: The rock is composed of altered and moderately strained quartz and plagioclase phenocrysts. Chlorite, sericite, epidote and quartz are evenly distributed in a finer-grained matrix. Quartz phenocrysts and veinlets show undulatory extinction, polygonalization, and growth of small grains along boundaries, all indicating strain features more intense than those of 4-172.

Plagioclase is altered to white mica + epidote + carbonate. Veinlets of carbonate + quartz + chlorite + epidote are discontinuous and fractured. Carbonate twins are kinked, supporting post-veining deformation. Small euhedral grains of apatite are part of the vein mineral assemblage.

Sample 4-406

Pyritic meta-dacite.

Estimated mode of thin section (visually):

quartz	30%
plagioclase	25%
anorthite percent	8%
carbonate	7%
sericite	15%
chlorite	12%

## Sample 4-406 (continued):

apatite	2%
pyrite	1%

Thin section description: The rock is composed of scarce medium-grain size phenocrysts of quartz and plagioclase in a fine-grained matrix of quartz + sericite + chlorite + carbonate. Strain textures are strong, showing broken plagioclase grains and rounded quartz phenocrysts. The grains have a preferred orientation.

Plagioclase is altered to quartz + white mica + carbonate + sericite. Veinlets are composed of medium to fine-grained quartz + carbonate + chlorite + sericite. Pyrite grains are included in veinlets or proximal to veinlets. Apatite is part of the vein assemblage. Epidote is conspicuously absent from this sample.

## Sample 4-32

## Chlorite epidote schist

## Estimated mode in thin section (visually):

plagioclase	45%
carbonate	15%
chlorite	30%
epidote	10%

Thin section description: The rock is composed of chlorite and plagioclase rich layers. Carbonate and epidote are most common in plagioclase rich layers. Plagioclase occurs as large porphyroblasts and fine-grained laths. Epidote occurs as radiating

clusters and individual grains.

Plagioclase is altered to sericite + carbonate. The carbonate-epidote layer is a section of an early veinlet which cuts foliation in hand specimen.

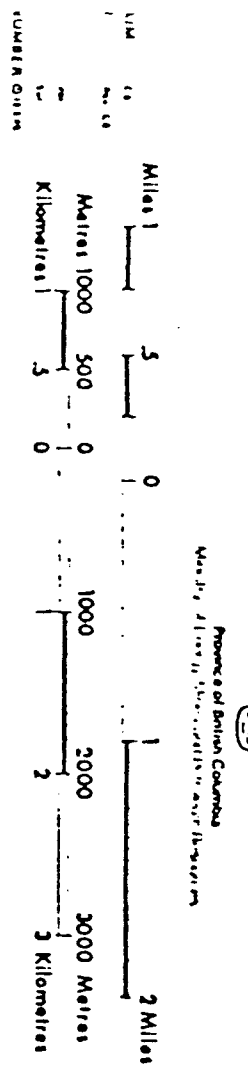
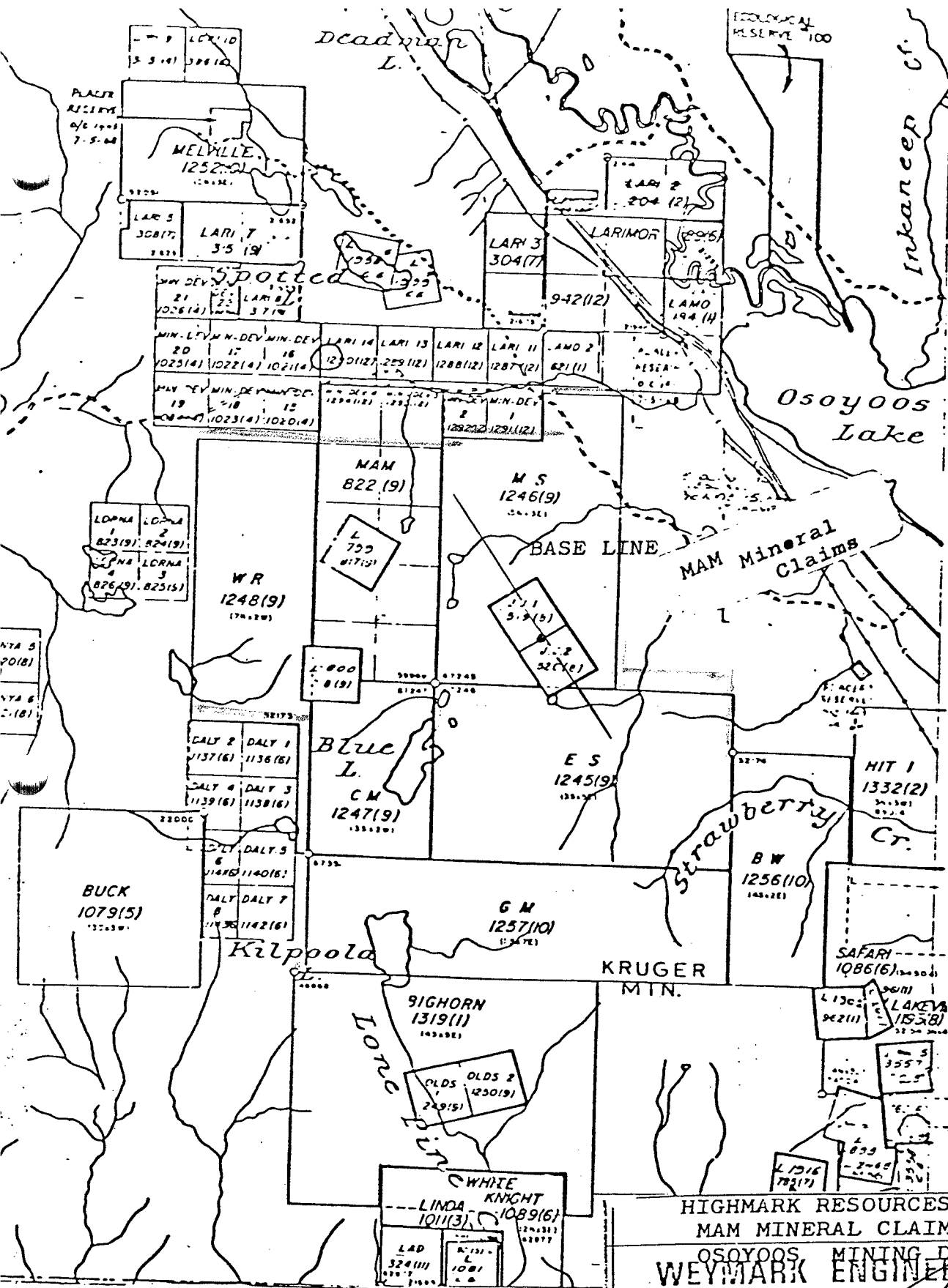
Mineral textures and composition suggest that this rock represents a metamorphosed, quartz-absent volcanic rock.

Hand specimen and thin section textures suggest a history of deformation and alteration of the specimens. This history is composed of:

1. Volcanism and plutonism of country rock
2. Regional metamorphism to lower greenschist facies
3. Injection of quartz-carbonate veinlets, with pyrite in 4-406
4. Continued shearing deformation
5. Injection of quartz-carbonate veinlets

Further information would be necessary to define which of these factors controls ore distribution.

ILLUSTRATIONS



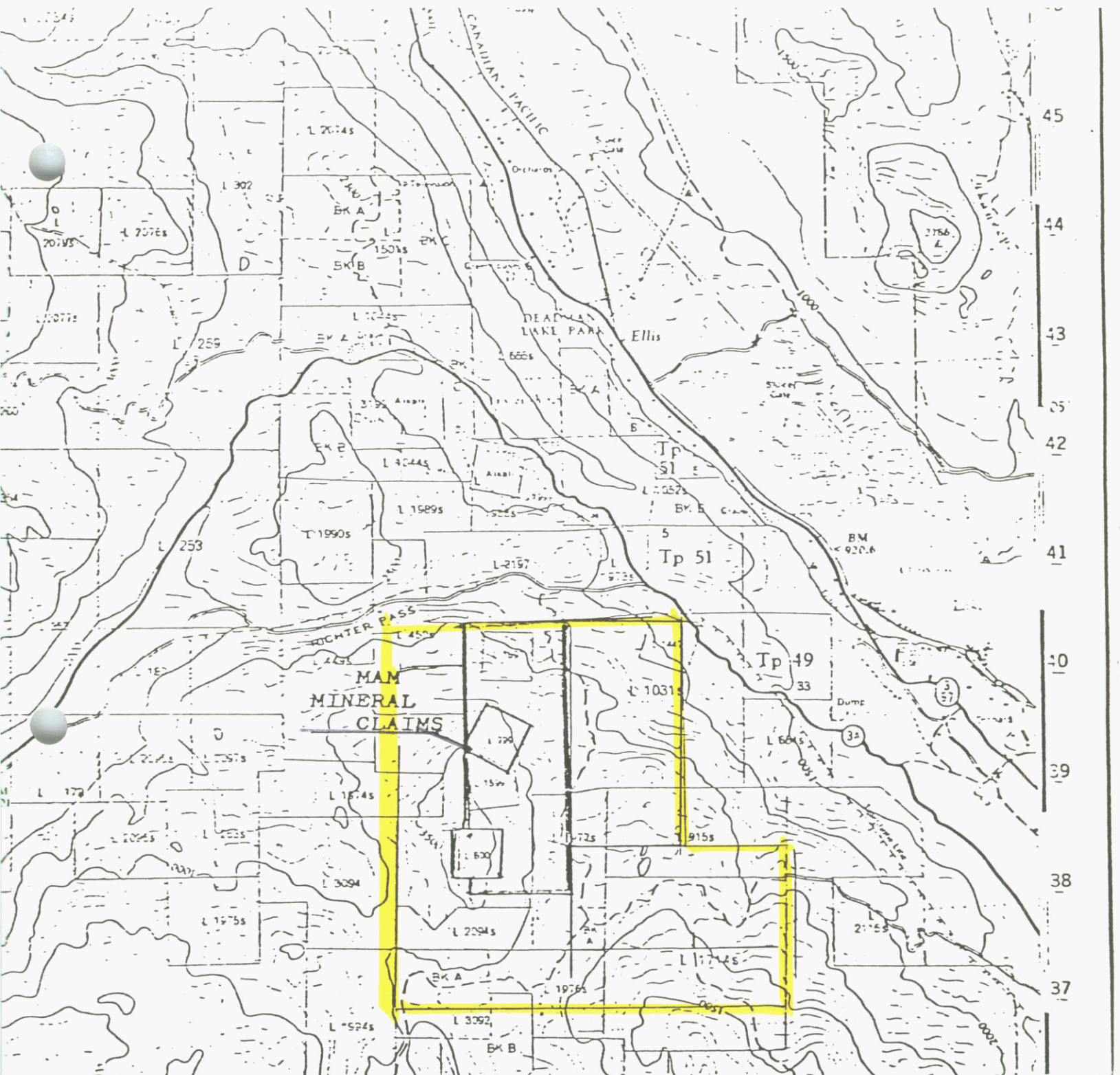
UNLESS VERIFIED ON SURVEYED THE MAP POS  
 LEGAL CORNER POST IS BASED ON THE LOCATOR'S SKETCH  
 THEIR INFORMATION, APPLY TO THE OFFICE OF THE MIN.  
 CONCERNED  
 DATE OF MICROFILM: 81.06.04

HIGHMARK RESOURCES LIMITED  
 MAM MINERAL CLAIMS GROUP  
 OSOYOOS MINING DIVISION  
**WEYMARK ENGINEERING LTD.**  
 CONSULTING ENGINEERS  
 WEST VANCOUVER, BRITISH COLUMBIA  
 CANADA

REFERENCE: Mineral Claim Map  
 E -4E(M)

CLAIMS - LOCATION	
DATE 20-6-81	SCALE: As Shown
SUBMITTED W.J.W.	CHECKED W.J.W.
DRAWN W.J.W.	FILE No HGH - 2
TRACED W.J.W.	CONTRACT HGH - 2





REFERENCE: Keremsoa  
 Surveys and Mapping Branch  
 NO: 82 E/4E

HIGHMARK RESOURCES LTD  
 MAM MINERAL CLAIMS GROUP

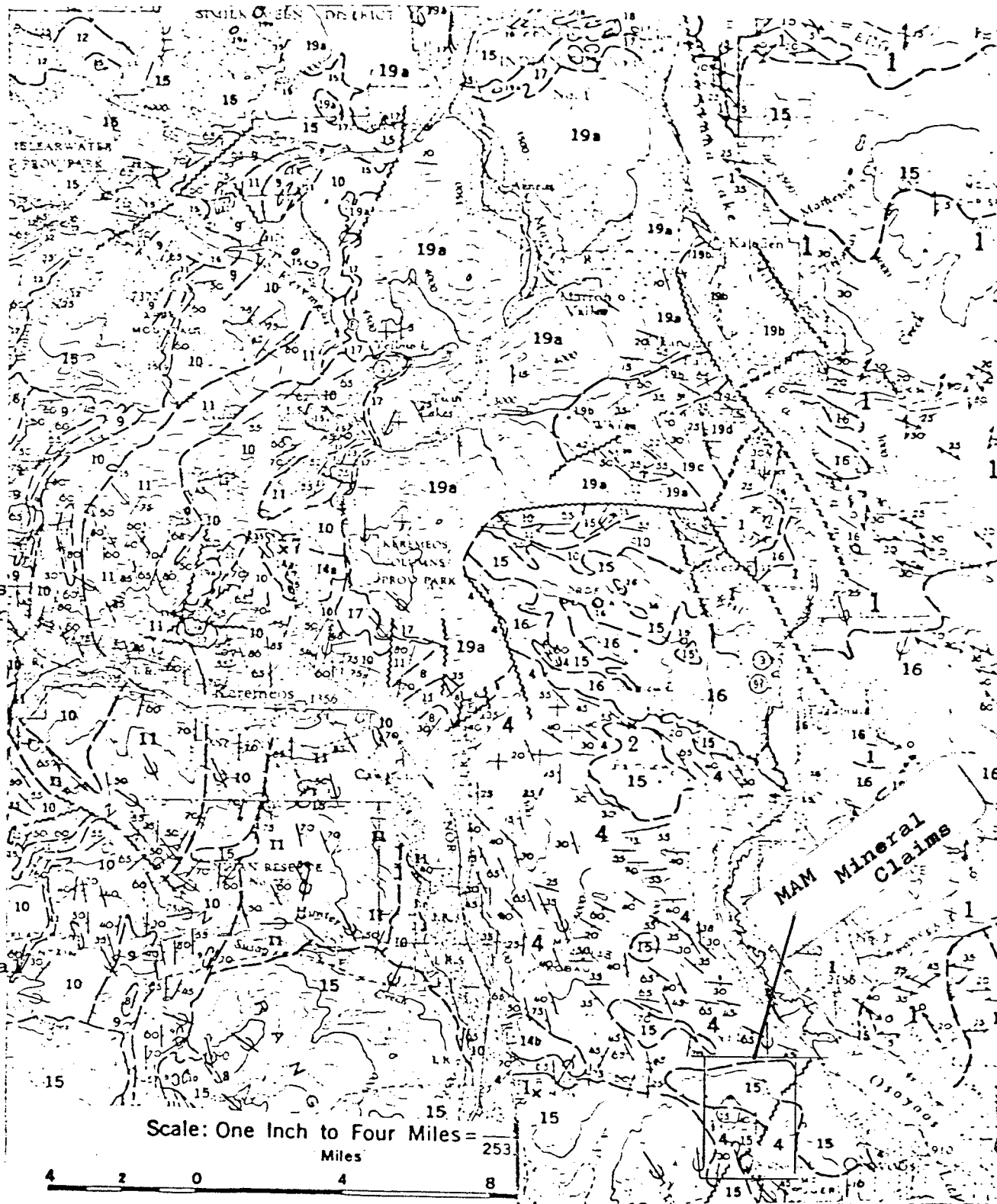
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 WEST VANCOUVER, BRITISH COLUMBIA  
 CANADA

ACCESS - TOPOGRAPHY

DATE 20/10/79  
 SUBMITTED WJW  
 DRAWN  
 TRACED

SCALE: 1 : 50,000  
 CHECKED WJW  
 FILE No. HIM - 1  
 CONTRACT HIM - 1

FIGURE: 3



**LEGEND**

**MESOZOIC**

Cretaceous

5 - Nelson  
Plutonic  
Granodiorite, qtz  
diorite  
diorite

**PALAEOZOIC**

Permian

Quartzite  
schist,  
greenstone

WM Fault

Geological  
Boundary

Bedding,  
strike-  
dip

Scale: One Inch to Four Miles =



49°00'

120°00'

PUBLISHED, 1961  
COPIES OF THIS MAP MAY BE OBTAINED FROM THE  
DIRECTOR, GEOLOGICAL SURVEY OF CANADA, OTTAWA

Reference: Map 15-1961  
Geology, Kettle River (West Half)  
British Columbia; Geological  
Survey of Canada  
Scale: One Inch = Four Miles

HIGHMARK RESOURCES LIMITED  
MAM MINERAL CLAIMS GROUP  
OSOYOOS MINING DIVISION

**WEYMARK ENGINEERING LTD.**  
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WEST VANCOUVER, BRITISH COLUMBIA  
CANADA

REGIONAL - GEOLOGY

DATE	20-6-81	SCALE	As Shown
SUBMITTED	WJW	CHECKED	WJW
DRAWN	WJW	FILE No	HGH - 2
TRACED	WJW	CONTRACT	HGH - 2



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1650 PANDORA STREET, VANCOUVER, B.C. V5L 1L6

### Certificate of Assay

Sample Identification	GOLD	SILVER
	Ounces Per Ton	Ounces Per Ton
MAM 80-1 111-15	0.32	-
MAM 80-3 67.5 - 72.6	0.010	-
MAM 80-4 60 - 72	0.006	-
MAM 80-5 53 - 71	0.010	-
MAM 80-7 26 - 35	0.010	-
MAM 80-7 41 - 45	0.008	-
MAM 80-8 100 - 104	0.008	-
MAM 80-9 17 - 20	0.006	-
MAM 80-10 27 - 29	0.010	-
MAM 80-10 104 - 106	5.06	-
MAM 80-10 121 - 124	0.010	-
MAM 80-12 9 - 14	0.030	-
MAM 80-15 81 - 91	2.52	-
MAM 80-6 5 - 19	0.010	-

Trench Sample No. Au Ag Ounces/Ton

55213	0.04	0.066
-------	------	-------

55214	0.40	0.194
-------	------	-------

55215	0.48	0.310
-------	------	-------

HIGHMARK RESOURCES LIMITED  
MAM MINERAL CLAIM GROUP: OSOYOOS

**WEYMARK ENGINEERING LTD.**  
CONSULTING ENGINEERS  
WEST VANCOUVER, BRITISH COLUMBIA  
CANADA

DIAMOND DRILL PROGRAMME  
LOCATIONS AND ASSAY RESULTS

DATE: 20-6-81	SCALE 1 inch=100'
SUBMITTED WJW	CHECKED WJW
DRAWN WJW	FILE No. HMK - 1
TRACED WJW	CONTRACT HMK - 1

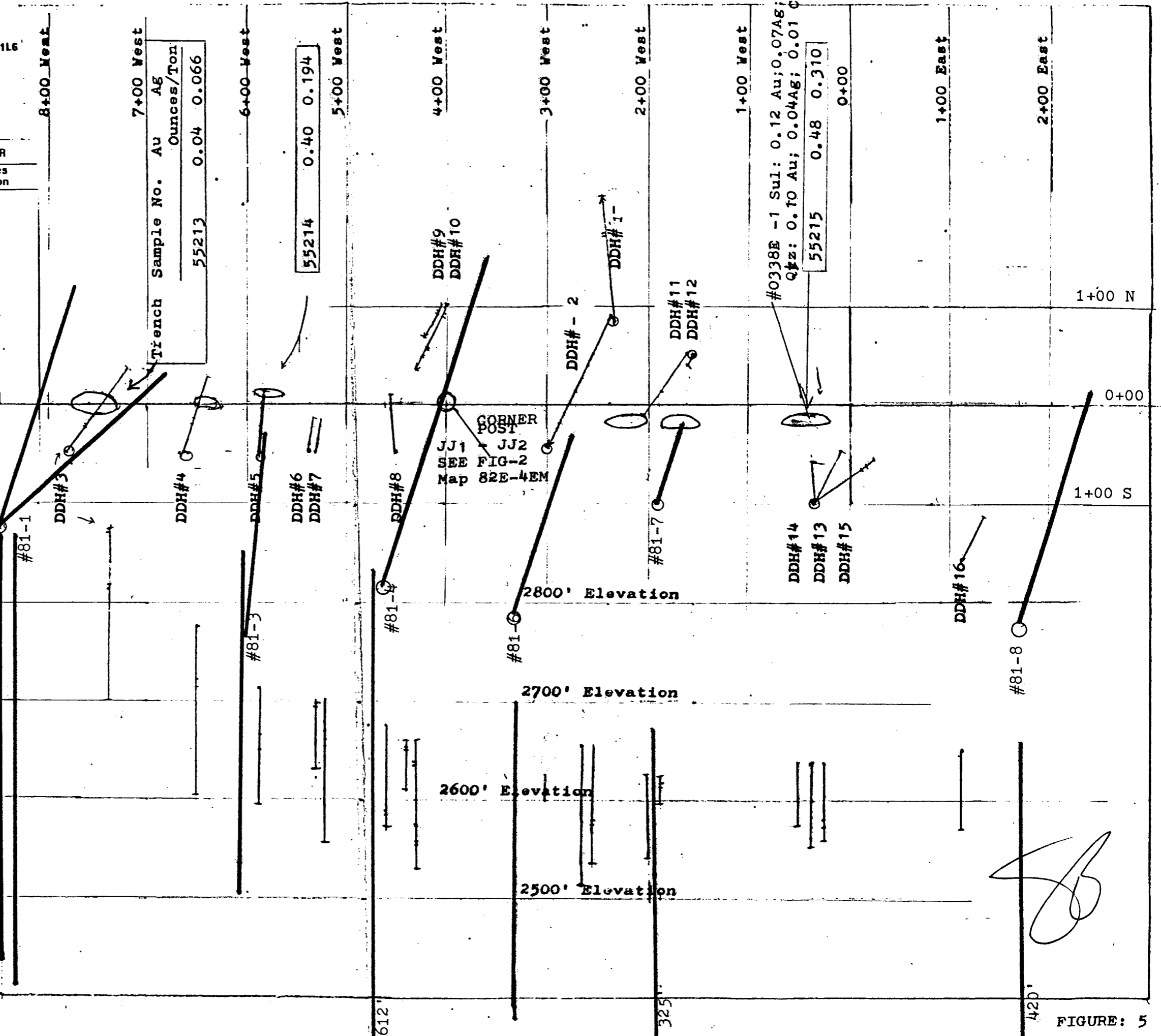


FIGURE: 5