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PROPOSED EXPLORATION AND DEVELOPMENT PROGRAM

on the

SCRANTON MINE
SLOCAN MINING DIVISION, BRITISH COLUMBIA
for
DAVID MINERALS LTD. (N.P.L.)

INTRODUCTION

This report has been prepared at the request of Mr. Orval Gillespie for David Minerals Ltd. (N.P.L.). The writer spent three days at the property and, during the examination, remapped the geology of the 5700 and 5900 levels of the West Sunset workings and visited the mill. Mining is in progress on known reserves between the 5700 and 5900 levels at a rate of approximately 50 T.P.D., which is being treated in the mill at Ainsworth and the concentrate shipped to the Cominco Smelter at Trail, B.C.

The property has been reported on most thoroughly; the most recent report being that written by Messrs. D. R. Cochrane, P.Eng., and D. J. Griffith, B.Sc., dated 12 April, 1977, with an appendixed report by F. E. Worthington & Associates Ltd., on the mill at Ainsworth. The report and maps by W. M. Sharp, B.Sc., the result of many years active association with the development of the Scranton property, were invaluable and all information was drawn heavily on in assessing the exploration and anticipated production potential of the property. The writer does not intend to present this information again, only as it pertains to the main objective of this report, which is to outline a proposal for phased exploration and development of the property, while, if possible, maintaining some production to the mill.

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SUMMARY AND CONCLUSIONS

1. There are three main exploration and development targets which are accessible from the 5700 and/or 5900 levels of the West Sunset workings.

(a) West Sunset

(i) The up and down dip continuation of the existing ore shoots. Approximately 26,000 tons may be proven up by a program of raising and subdrifting between the present stope above the 5900 level and surface. This zone could contain the most readily available source of mill feed on which to resume or maintain continuous production.

Some ore undoubtedly lies below the 5700 level stope, but until additional reserves, which may be present in the branch vein, referred to in (ii), are proven up, it is not considered economically feasible to rehabilitate the 5600 level and drive approximately 400 feet to the assumed location of this zone.

(ii) A vein branches into the hanging wall of the drift on the 5700 level, 35 feet southwest of the adit cross-cut and presumably re-enters the drift section 450 feet further to the southwest, at approximately the commencement of stoping. A series of short diamond drill or percussion holes would quickly indicate the mineralization characteristics of this section.

(b) Sunrise Basin-Grandview

This zone lies approximately 600 feet southwest of the face of the West Sunset 5700 level, on projection 700 feet vertically from surface

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trenching, shallow surface diamond drilling and stoped areas, and could be approximately 400 feet long. Establishing the presence and potential of this zone as a source of future production is placed in the longer term category, but drifting southwesterly should be commenced at an early date.

(c) S.W. Sunrise

This mineralized sector commences approximately 300 feet southwest of the Sunrise Basin and again its assumed position is determined by projecting about 700 feet vertically to the 5700 horizon from a drift at elevation 6467, which indicated mineralization over a length of 450 feet.

Due to the unknown variations in dip and plunge of the last two above-mentioned zones, it is anticipated that considerable diamond drilling and probably cross-cutting will be required to define these shoots, if indeed they do persist to the 5700 level. The potential of the intermediate sections should not be discounted and likewise will require at least lateral diamond drilling at regular intervals.

2. The grade of mill feed which may result from countinued development of the West Sunset, and exploration of the Sunrise Basin-Grandview and S.W. Sunrise sectors, is tabulated below, but estimates are subject to confirmation by more detailed assay data.

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SECTOR	oz/ton Gold	oz/ton Silver	%/ton Lead	%/ton Zinc	NET SMELTER RETURN $/ton
WEST SUNSET	0.15	3.5	4.4	4.0	65.20
SUNRISE BASIN-GRANDVIEW	0.03	6.9	5.5	1.9	52.00
S.W. SUNRISE	0.05	1.9	5.2	2.9	37.25

3. The above estimated grades, although calculated on minimal information, indicate that, with careful mining practise, an economically feasible operation may result from the proposed exploration and development program

4. Proposed Exploration and Development Program

Phase I Time required 1.5 months

(a) Diamond drilling 5700 level 450 ft. @ 12.50/ft., including assaying	$ 5,625.00
(b) Raise 5900 stope to 6040 level 150 ft. @ 60.00/ft.	9,000.00
(c) Sub-drift 6040 level 60 ft. @ 70.00/ft.	4,200.00
(d) Drifting 5700 level 150 ft. @ 63.40/ft.	9,510.00
(e) Overhead, camp operating 1.5 months	16,050.00
	$ 44,385.00
Contingencies	6,615.00
TOTAL ESTIMATED COST Phase I	$ 51,000.00

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Phase II Time required 4.5 months

Scranton Mine

(a)	Sub-drift 6040 level 300 ft. @70.00/ft.	$ 21,000.00
(b)	Raise 6040 level to surface 200 ft. @ 60.00/ft.	12,000.00
(c)	Drifting 5700 level to Sunrise Basin-Grandview zone 850 ft. x 63.40	53,890.00
(d)	Cross-cutting Sunrise Basin-Grandview zone 200 ft. x 63.40	12,680.00
(e)	Diamond Drilling 4200 ft. @ 9.00/ft.	37,800.00
(f)	Mill repair and maintenance - assay office	80,000.00
(g)	Mill operating 3 months 4500 T @ 11.54/T	51,930.00
(h)	Trucking 2000 tons at $6.00/ton	12,000.00
(i)	Mining 2500 tons at $37.00/ton	92,500.00
(j)	Assaying	11,000.00
(k)	Overhead 4.5 months	48,150.00
		$432,950.00
	Contingencies 15%	63,050.00
		$495,000.00
Less estimated revenue 4500 tons milled, net smelter return $65.20/ton		$293,000.00
Net estimated cost Scranton Mine		$201,600.00
Outside Properties - Acquisition and exploration		$100,000.00
Net Estimated Cost Phase II		$301,600.00
TOTAL NET ESTIMATED COST PHASE I AND PHASE II		$352,600.00

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5. It will probably be necessary to shut down the mill from the commencement of Phase I until about the middle of the second month of Phase II, a period of 3.5 months.

6. Geological mapping of the 5700 and 5900 levels indicate two possible controls of economic mineralization.

   (a) Flexure of the controlling shear structure from a strike of S55°W to S45°W, with dips flattening from 65° to approximately 55° southeasterly, which may be caused or influenced by

   (b) Faults which strike S70°E, dip steeply southerly and cut the main vein shear structure. The points of juncture in some cases are at the commencement of mineralized shoots.

7. It does not appear that the short adit of the 6040 level is on the main vein structure.

RECOMMENDATIONS

It is recommended that the proposed, phased exploration and development program be implemented as soon as possible to lessen mill down time and resume a cash flow position.

PROPERTY, DESCRIPTION AND LOCATION

The property consists of 6 Crown Granted mineral claims and two located mineral claims approximately 30 miles by Hiway #3 from Nelson, B.C., and 10 miles by good gravel road to the mine site at elevation 5600 feet. The mill is located on the shore of Kootenay Lake, one mile south of Ainsworth, B.C., or 14 miles from the mine. The claims are within Kokanee Glacier Provincial Park, which is a

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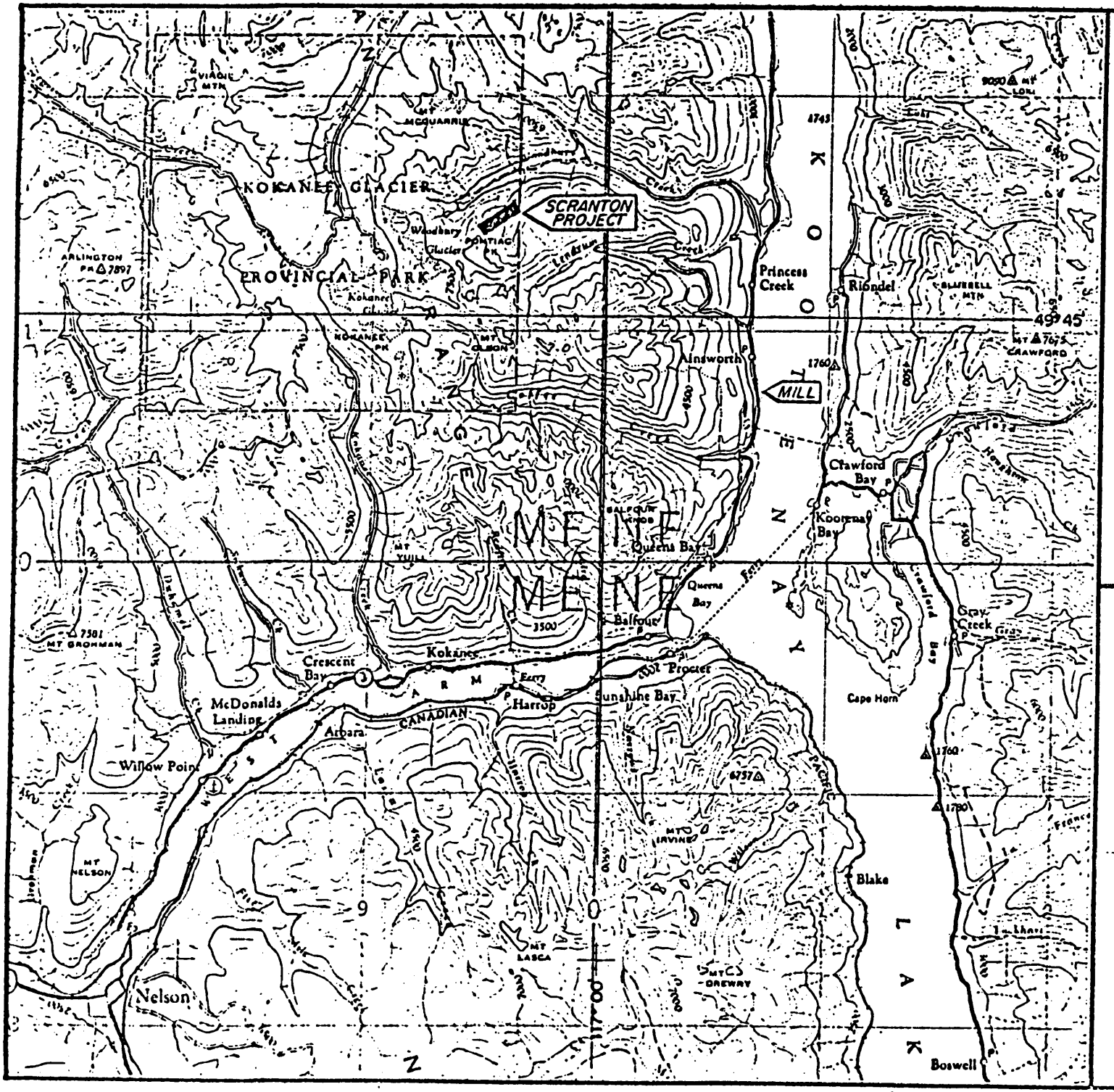

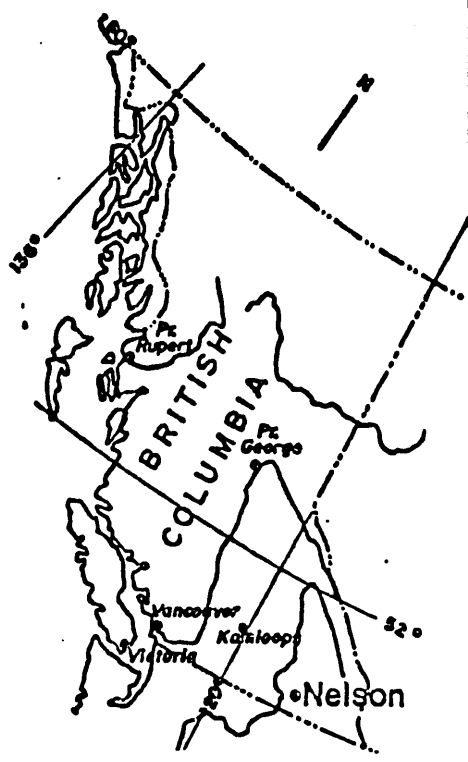

DAVID MINERALS LTD.

Scranton Mine Project

Woodbury - Pontiac Creek Area, Nelson M.D.
near Nelson, B.C. N.T.S. 82 F/14 E

0 5 10 km

1:250,000 1 inch = 4 miles

0 2 4 mi.

Class B park, which allows mining operations to be conducted under a Park Use Permit.

HISTORY AND PREVIOUS PRODUCTION

The several mineral occurrences comprising the property were first located during the 1890's. Early production came from the Pontiac-Tecumsie and Sunset zones, which are not considered as exploration targets in this report. The 17,600 tons recorded production indicates an average grade, calculated from smelter head assays, of 0.16 oz/ton gold, 6.2 oz/ton silver, 6.8%/ton lead, 5.5%/ton zinc and 0.08%/ton cadmium.

Mining is currently in progress from the West Sunset workings at a rate of approximately 50 tons per day.

GEOLOGY AND MINERALIZATION

The host rock is predominantly a coarse grained granodiorite with large pink feldspar phenocrysts in a grey ground mass of horneblende, biotite, quarts and plagioclase feldspar. The controlling vein system is a multiple-stranded shear structure which strikes southwesterly and dips steeply to the southeast and has been traced intermittently for at least 7000 feet, with seven sectors showing appreciable gold, silver, lead and zinc mineralization. Approximately one half of the strike length remains unexplored and existing workings are near surface, leaving great scope for future exploration.

The shear system attains widths in excess of 25 feet, but individual mineralized strands range from 1.0 feet to 4 feet in width and average about 2.5 feet. Quarts and carbonate are the common gangue minerals, while galena, sphalerite and pyrite are the common sulphide minerals.

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The grade of mineralization which may be anticipated can only be estimated from sketchy or incomplete data. There is some suggestion in the West Sunset workings that better grades are obtained at higher elevations.

(a) West Sunset

During its productive history, no sampling was carried out nor accurate record of tonnages maintained for the mine or mill, therefore any grade estimate must be based on concentrate head assays and tons delivered to the smelter, which of course gives no indication of mill through-put or percentage mill recovery. Recent mill head and tails assays from samples taken for six widely-separated day's production, suggest that mill recoveries are quite good.

The total production of 17,600 tons from the property during the years 1898 to 1976 indicates an average grade of 0.16 oz/ton gold, 6.2 oz/ton silver, 6.8%/ton lead, 5.5%/ton zinc and 0.08%/ton cadmium. Of this production, some 7200 tons came from the West Sunset sector during the period 1975-1976 with an indicated average grade of 0.14 oz/ton gold, 3.6 oz/ton silver, 4.7%/ton lead, 4.1%/ton zinc and 0.08%/ton cadmium.

Production in July and August 1977 amounted to approximately 1770 tons, which gave the following results:

	oz/ton Au	oz/ton Ag	%/ton Pb	%/ton Zn	%/ton Cd
Average 6 mill head assays	0.18	3.7	4.7	4.4	
Average Smelter head assays	0.16	2.7	3.5	3.4	0.07

From the above information, it is estimated that the average grade of mineralization for continued exploration and development of the West Sunset

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zone will be approximately 0.15 oz/ton gold, 3.5 oz/ton silver, 4.4%/ton lead, 4.0%/ton zinc and 0.08%/ton cadmium, for a net smelter return at today's prices of approximately $65.20/ton.

(b) Sunrise Basin-Grandview

W. M. Sharp has estimated the grade of this sector from intersections in five near-surface diamond drill holes at 0.03 oz/ton gold, 6.9 oz/ton silver, 5.5%/ton lead and 1.9%/ton zinc, over a 6.76 foot width, for a net smelter return at today's prices of approximately $52.00/ton.

(c) S. W. Sunrise

The estimated grade based on drift sample assays, reported by W. M. Sharp, is 0.092 oz/ton gold, 3.27 oz/ton silver, 9.1%/ton lead and 5.1%/ton zinc over a 2.3 foot average width. Expanded to a 4 foot mining width, the average grade would be 0.053 oz/ton gold, 1.88 oz/ton silver, 5.2%/ton lead, 2.9%/ton zinc, for a net smelter return at today's prices of approximately $37.25/ton.

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PROPOSED EXPLORATION AND DEVELOPMENT PROGRAM

The program is divided into two phases with the objective of Phase I being to develop the presently known mineralized shoot above the 5900 level, in anticipation of providing mill feed at an early date, explore a potential branch structure of the main vein system on the 5700 level and commence the southwesterly drive on the 5700 level towards the Sunrise Basin-Grandview sector. Phase II will entail continued development above the 5900 level through to surface, exploration of the Sunrise Basin-Grandview sector by drifting, cross-cutting and diamond drilling and resumption of milling with attendant mining as required.

Phase I

(a) On the 5700 level a mineralized branch of the main shear structure leaves the drift section 35 feet southwest of the adit cross-cut, presumably re-entering the drift 450 feet further southwest. A series of 18-25 foot diamond drill holes inclined at +30° are planned to test the width and grade of mineralization in this section. Future development will depend on results.

Total Footage	450			
Time to completion	1/2 month			
Cost	Labor, bits supplies, etc.	450 x $9.00	$4,050.00	
	Assaying	90 x $17.50	1,575.00	
				$ 5,625.00
Cost/foot	$12.50			

(b) A raise is to be driven from the southwest end of the stope above the 5900 level to the 6040 level at +50° for a distance of 150 feet. It is

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assumed that approximately 50% of this advance will be in ore-grade material.

Total Footage 150

Time to completion One month

Ore to stock pile 300 tons

Cost - Based on one 6 foot round/shift; 5 ft. x 8 ft. cross-section: 23 tons per round

	Cost/ft. Advance	
Steel and Powder	$19.50	
Labor	33.30	
Water, air & vent pipe and accessories	6.00	
Timber- ladders, etc.	1.20	
	$60.00 x 150	$ 9,000.00

(c) Sub-drifting will be commenced at the 6040 level on completion of the raise

Total footage 60

Time to completion 1/2 month

Ore to stockpile 80 tons

Cost Based on one 6 foot round/shift; 4 ft. x 7 ft. cross-section; 16 tons per round

as per drifting plus 10% = 70.00/ft. x 60 4,200.00

(d) Drifting on the 5700 level southwesterly towards the Sunrise Basin-Grandview mineralized zone will be commenced. No ore grade material is anticipated during this advance.

Total Footage 150

Time to completion One month

Cost - Based on one 8 foot round/shift; 6 ft. x 7 ft. cross-section 32 tons per round

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	Cost/ft. Advance	
Steel and Powder	21.00	
Labor	25.00	
Water, Air & Vent pipes and accessories	7.35	
Track	9.35	
Rock bolts, timber, etc.	.70	
	63.40 x 150 =	$ 9,510.00

(c) Overhead costs - detailed below

1.5 months @ $10,700./month	$ 16,050.00
	$ 44,385.00
Contingencies	6,615.00
TOTAL ESTIMATED COST PHASE I	$ 51,000.00

Total tonnage stockpiled for milling 380

Phase II

Scranton Mine

(a) Continuation of sub-drifting on the 6040 level, with a breakthrough to surface. It is unlikely that this heading will encounter the existing stub adit, as the latter does not appear to be on the main structure.

Total footage	300	
Time to completion	2.5 months	
Ore to stockpile	270 tons	
Cost	300 x $70.00/ft.	$ 21,000.00

(b) A raise through to surface is required to complete exploration of the mineralized zone above the 5900 and 6040 levels and provide ventilation. The raise will be driven at +50°.

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Total Footage	200	
Time to completion	1.75 months	
Ore to stockpile	380 tons	
Cost	200 x $60.00/ft.	$ 12,000.00

(c) Drift to the projected southwesterly limit of the Sunrise Basin-Grandview mineralized zone, which could have a length of approximately 450 ft.

Total Footage	850	
Time to completion	3 months	
Ore to stockpile	900 tons	
Cost - based on two 8 foot rounds per day 850 x $63.40/ft.		$ 53,890.00

(d) Two 100 foot cross-cuts are planned northeast from the drift, 200 feet apart in the Sunrise Basin-Grandview sector to provide lateral exploration of the main shear structure and bases for diamond drilling

Total footage	200	
Time to completion	1 month	
Cost - based on two 8 foot rounds per day 200 x $63.40/ft.		$ 12,680.00

(e) Diamond drilling is planned within the Sunrise Basin-Grandview sector at 100 foot centres along the drift, two 200 foot holes per section, one hole into each wall. Three inclined holes will be drilled from each cross-cut. In the intermediate

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sector between the present drift face and the projected location of the Sunrise Basin-Grandview zone, three sections will be drilled at 200 foot intervals with one 200 foot hole in each wall.

The drilling may be summarized as follows:

Sunrise Basin-Grandview Sector		
5 sections	400 ft./section	2,000 ft.
2 cross-cut sections	500 ft./section	1,000 ft.
Intermediate sector		
3 sections	400 ft./section	1,200 ft.
Total diamond drilling		4,200 ft.
Time to completion	2 months	

Cost - based on 2 shifts per day; 35 ft. per shift
4200 x $9.00/ft. $ 37,800.00

(f) F. E. Worthington & Associates recommended repair and maintenance of the mill and installation of an assay office for a total cost of $ 80,000.00

(g) The mill will probably be shut down during Phase I, and for the first 1.5 months of Phase II to effect the work recommended in item (f). Mill operating should be resumed for the last three months of Phase II, treating development muck, estimated to aggregate 2000 tons, plus 2500 tons to be mined. F. E. Worthington & Associates estimate a milling cost of $11.54/ton.

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Operating time	3 months	
rate	50 tons per day	
Operating Cost	4500 x $11.54/ton	$ 51,930.00

(h) Trucking 2000 tons development muck to the mill

2000 x $6.00/ton $ 12,000.00

(i) It will be necessary to mine 2500 tons during the last two months of Phase II to maintain the mill operation.

Production time	2 months	
rate	50 tons per day	

Cost

Item	Cost/ton	
Labor	$16.00	
Supplies	12.00	
Mine general	3.00	
Truck to mill	6.00	
Total	$37.00 x 2500 =	$ 92,500.00

(j) With the completion of the assay office at the mill, it is estimated that assay costs will be reduced to $8/sample. During the milling period five mill samples per day will be assayed, plus 8 to 12 samples from the mine, depending on diamond drill results, which will probably average 15 samples per day. A total of 1375 samples has been estimated for Phase II at a cost of $ 11,000.00

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(k) Overhead. The monthly breakdown of costs is as follows:

Equipment operating - fuel lubricants, etc. & including portal heater	$2,250.00		
Spare parts - maintenance	1,250.00		
		$ 3,500.00	
Cookery cost $20. per man day		4,200.00	
Expediting, transportation, other		500.00	
Engineering		2,500.00	
		$10,700.00	
Cost for 4.5 months			$ 48,150.00
			$432,950.00
Contingencies 15%			$ 63,050.00
			$495,000.00
Less estimated revenue from 4500 tons milled at net smelter return of $65.20/ton			$293,400.00
NET ESTIMATED COST - SCRANTON MINE PROPERTY			$201,600.00

(l) Examination acquisition and exploration of outside properties is planned in anticipation of supplementing mill feed from the property and ensuring a continuous milling operation. Expenditures may be for the supplying of engineering expertise, financial aid to leasers, or actual operation of other properties.

During Phase II the estimated expenditure is	$100,000.00
NET ESTIMATED COST PHASE II	$301,600.00
TOTAL NET ESTIMATED COST OF PROGRAM	$352,600.00

Respectfully submitted

Walter E. Clarke

WALTER E. CLARKE, B.Sc., P.Eng.
Consulting Engineer

25 October, 1977

C E R T I F I C A T E

I, Walter Ernest Clarke, of the City of Victoria, British Columbia, do hereby certify that:

1. I am a consulting geological and mining engineer with an office at 1362 Dallas Road, Victoria, British Columbia. V8S 1A1.

2. I am a graduate of Queen's University (1939) with a B.Sc. degree in Geology and Mineralogy.

3. I have practiced my profession continuously since graduation.

4. I am a member in good standing of the Association of Professional Engineers in the Provinces of British Columbia and Ontario.

5. I have no interest, either direct or indirect, in the properties or securities of David Minerals Ltd. (N.P.L.), nor do I expect to acquire any such interest in the future.

Walter E. Clarke

WALTER ERNEST CLARKE, P.Eng.

October, 1977