830542

NTS	94K/11
Lat	58°33'N
Long	125°27'W

SUMMARY REPORT on the KEY PROPERTY Fort Nelson area, Liard Mining District British Columbia

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for

BGM DIVERSIFIED ENERGY INC. 1016-1030 West Georgia Street, Vancouver, B.C. Tel: (604) 688-2401 Fax: (604) 682-3736

by

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28 April 1995

Reliance Geological Services Inc. -

SUMMARY

This report was written at the request of BGM Diversified Energy Inc, to summarize previous exploration work done on the Key property (formerly Davis Keays).

The Key property comprises 16 contiguous mineral claims, totalling 61 units in the Fort Nelson area, B.C. The property is situated approximately 170 kilometers west-southwest of Fort Nelson. Access is by road approximately 30 kilometers south of the Alaska Highway, or by helicopter.

The area was active during the 1950's, 1960's, and early 1970's. Significant discoveries included the Davis Keays (Eagle vein), Churchill Copper (Magnum vein), Copper Keays (Neil vein), and Fort Reliance (Reliance vein). Churchill Copper produced from 1970-1974, milling 598,000 tons grading 3.00% copper.

The Key property was actively explored from 1967 to 1972. Work included over 7,000 meters of underground development, mapping, chip sampling, trenching, and minor diamond drilling.

The geology of the Key property consists of shales and dolomites belonging to the Precambrian Aida formation. The Eagle vein is associated with a fracture that is perpendicular to a fold axis. Mineralization consists of semi-massive to massive chalcopyrite within quartz carbonate veins. The vein has been traced over a strike length of 1220 meters and a depth of 460 meters. At least five additional copper and copper-cobalt veins were discovered that received limited exploration work.

Reserves were calculated by MacDonald Consultants in 1970 as part of a feasibility study, and by Chapman, Wood, and Griswold in 1971 as part of an evaluation study. Results are as follows:

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MacDonald Consultants

Category	Tons	<u>% Cu</u>
Proven	1,007,362	3.56
Probable	562,322	<u>3.18</u>
Sub-total	1,569,684	3.42
Possible	439,260	undetermined
Total	2,008,944	

Chapman, Wood & Griswold

Category	<u> </u>	<u> % Cu</u>
Semi-proven	1,233,700	3.43
Probable	142,000	2.92
Sub-total	1,375,700	3.38
Possible	750,000	undetermined
Total	2,125,700	

Reserves were calculated to the lowest underground level. Both studies concluded that the possibility of defining more reserves at depth is excellent.

Metallurgical testing was completed by Lakefield Research in 1970. The tests indicated that crushing and grinding, followed by flotation, would recover 95% of the copper at a concentrate grade of 28%. In 1994, Dr. M.J.V. Beattie, P.Eng. (Metallurgical Engineer) concluded that it is probable that the concentrate grade can be increased to 30-32% with minimal loss of recovery.

Further work consisting of geological mapping and prospecting, magnetic and VLF-EM surveys, diamond drilling, metallurgical testing, engineering studies and establishing a prefeasibility model has been recommended to test the Eagle vein at depth, and to explore additional targets. Estimated cost is \$506,000.

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1.0 INTRODUCTION

This report was prepared at the request of BGM Diversified Energy Inc to summarize work done on the Key property (formerly Davis-Keays) in the Fort Nelson area of northeast British Columbia.

Previous work, geology, reserves, and metallurgy are described, and recommendations are made for further work. This report is based largely on a feasibility study completed by MacDonald Consultants Ltd., 1970, and on an economic study completed by Chapman, Wood, and Griswold Ltd., 1971.

2.0 LOCATION, ACCESS and PHYSIOGRAPHY

The Key claims are located approximately 170 kilometers westsouthwest of Fort Nelson, B.C. (Figures 1 and 2).

The claims are located on Map Sheet NTS 94K/11, at latitude 58° 33' North, longitude 125° 27' West, and between UTM 6490300 m and 6494300 m North, and UTM 355000 m and 359000 m East.

Road access is from Mile 442 on the Alaska Highway. A dirt road leads south along the Toad River and Yedhe Creek for approximately 30 km to the central claim area. The road may be washed out in places and cannot be assumed passable at this time.

Alternative access is by helicopter from Fort Nelson.

The property is on moderate to steep terrain above treeline, with elevations from 4500 ft (1372 meters) to 7800 ft (2377 meters).

Climate is variable with higher elevations receiving precipitation almost daily during the summer. Winters are cold with approximately 60 cm of snow that stays from September to May.

Recommended work season is mid-June to mid-September.





3.0 PROPERTY STATUS

The property consists of 16 claims totalling 61 units (Figure 3) in the Liard Mining Division. The claims are owned 100% by Donald A. Simon. BGM Diversified Energy Inc. has an option to earn a 50% interest.

C1	aim	Record Number	Units		Rec	ord Date		Expi	ry Date
Кеу	1	313178	20	10	Sep	1992	10	Sep	1995
Key	2	313179	8	10	Sep	1992	10	Sep	1995
Key	3	313180	20	11	Sep	1992	11	Sep	1995
Key	4	313157	1	10	Sep	1992	10	Sep	1995
Key	5	313158	1	10	Sep	1992	10	Sep	1995
Key	6	313159	1	10	Sep	1992	10	Sep	1995
Key	7	313160	1	10	Sep	1992	10	Sep	1995
Key	8	313161	1	10	Sep	1992	10	Sep	1995
Кеу	9	313162	1	10	Sep	1992	10	Sep	1995
Кеу	10	313210	1	10	Sep	1992	10	Sep	1995
Кеу	11	313163	1	10	Sep	1992	10	Sep	1995
Key	12	313164	1	10	Sep	1992	10	Sep	1995
Кеу	13	313173	1	10	Sep	1992	10	Sep	1995
Кеу	14	313174	1	10	Sep	1992	10	Sep	1995
Кеу	21	313181	1	11	Sep	1992	11	Sep	1995
Кеу	22	313182	1	11	Sep	1992	11	Sep	1995
			61						

Details of the claims are as follows:

The total area covered by the claims is 1250 hectares, or 3088 acres, after correcting for overlap.

The writer is not aware of any particular environmental, political, or regulatory problems that would adversely affect mineral exploration and development on the Key property.



4.0 AREA HISTORY

During the 1940's, copper was discovered in the area while the Alaska Highway was being built. Exploration activity took place during the 1950's and early 1960's, but was most active during the late 1960's and early 1970's. The two main deposits in the area were the Davis Keays (Eagle vein) and the Churchill Copper deposit (Magnum vein).

From 1967 to 1969, Churchill Copper Corporation conducted drilling at 100 ft centers and some cross-cutting and raising on the Magnum vein, located 8 kilometers southeast of the Key property. Proven and probable reserves totalling 1,178,000 tons of 3.92% copper were delineated. The mine produced from 1970-1974, milling 598,000 tons of copper ore grading 3.00% copper. The property was later acquired by Teck Corporation.

Other significant copper vein occurrences in the area included the Copper Keays (Neil vein) and the Fort Reliance (Reliance vein).

The Neil vein was identified over a known strike length of 1186 meters and a vertical extent of at least 380 meters. Trench results graded up to 10.2% Cu over 3.0 meters. Eight holes were diamond drilled with results up to 3.44% Cu over 1.5 meters. Underground exploration was planned, but never started due to poor economic and political conditions in 1973.

On the Reliance vein, surface grades of chalcopyrite/malachite mineralization were reported to be 6.0% Cu over 2.4 m. Sixteen holes were diamond drilled in 1958-59. Reserves reported by Churchill Copper in 1966 were proven/probable of 127,000 tonnes grading 5.5% Cu, and possible of 109,000 tonnes of similar grade.

5.0 PREVIOUS WORK

The Key property, formerly Davis-Keays, was discovered in August, 1967, by prospectors Harris Davis and Robert Keays of Fort Nelson, B.C.

Between 1967 and 1972, underground development on the Eagle vein included over 4800 meters of drifting and cross-cutting, 1220 meters of sub-levels, and 1220 meters of raising. The vein was mapped and chip sampled at 3.0 meter intervals. At the same time, other vein style occurrences were prospected, trenched, and received a limited amount of drilling.

In 1970, MacDonald Consultants Ltd completed a Feasibility Study, which was complemented a year later by an Evaluation Report done by Chapman, Wood & Griswold Ltd.

Production was planned but never commenced, due to adverse economic and political conditions in the mid-1970's.

In 1992, while staking the Key claims, Reliance Geological Services investigated the condition of some of the underground workings and collected four rock samples from the Eagle vein.

6.0 REGIONAL GEOLOGY

(taken from Chapman et al, 1971)

"The Davis-Keays property lies within the eastern edge of the Rocky Mountains in an area of rugged topography. Excellent exposures exist above timberline revealing flat to locally contorted sedimentary rock formations dislocated by extensive regional faulting.

Proterozoic argillites, guartzites, and limestones contain all the known copper deposits, possess generally low dips, are intruded by post-ore diabase dykes of Proterozoic age, and are overlain by unmineralized Paleozoic formations of Cambrian and later ages. The Proterozoic strata occupy nearly the full width (40-50 miles) of the Rocky Mountains in the south part of the area. Northward they become separated into a north-trending eastern belt (mainly east of upper MacDonald Creek) and wider central and western belts which trend northwest and reach the Alaska Highway west of about Mile 436. The eastern and central belts join in the vicinity of Wokkpash Lake and neither is known to extend at surface north of the Alaska Highway. The Proterozoic strata are bounded partly by northwesterly-trending steep faults and elsewhere by overlaps of the Paleozoic formations, which occur mainly in downwarps of the Precambrian surface but are also present as outliers on the mountaintops within the Proterozoic belts.

The presently known quartz-carbonate veins, many of which contain chalcopyrite, occur mainly in the western half of the Precambrian with a more or less similar distribution to the subsequent diabase dykes.

The dykes cut the veins and are themselves only weakly mineralized on fractures containing carbonates (principally calcite) and quartz. In places dykes are more strongly mineralized by barren pyrite.

Veins may be much less numerous than dykes, many of which are discernible at a distance on the hill slopes. Dykes and veins generally have more or less similar attitudes, which are relatively constant in certain zones, belts, or parts of the area. Dykes and veins probably occur in, and may be virtually restricted to, these so-called mineral belts.

The best recognized to date is a belt approximately 6 miles wide and 40 miles long that trends north 35 degrees west and contains, from north to south, the known copper deposits of the Davis-Keays, Magnum, John, Lady, Churchill Creek, Ed and Anne properties.

This belt, which is further marked by a pattern of sporadically developed northwest-trending asymmetric folds with steep east limbs and by the occurrence within it of a huge local pile of Cambrian conglomerate that forms Mt. Roosevelt, contains dykes and veins that mostly strike east of north and possess steep westerly dips.

Most of the known mineralized veins of the region have strikingly similar mineral composition and structural characteristics."

7.0 **PROPERTY GEOLOGY AND MINERALIZATION** (Figure 4)

The geology of the Key property consists of a sedimentary sequence belonging to the Precambrian Aida formation. The main rock types include dark grey shale, and buff to orange weathering dolomite. Sediments are cut by numerous, northeast trending diabase dykes that range in width from a few meters to approximately 100 meters.

The Precambrian strata is folded about axes that plunge gently southeast. Folds are asymmetrical with steep northeast and gentle southwest limbs. Most folds are concentrated in a northeast trending belt approximately 2400 meters wide. The northeast trending veins on the Key property are associated with fractures that are perpendicular to the axes of folds.

The Eagle vein has been explored by underground development over a strike length of approximately 1220 meters and a depth of 460 meters. The vein strikes at 040° and dips vertically or steeply northwest. Widths vary from 5 centimeters to 3.5 meters, but average approximately 1.2 meters.

Mineralization consists of semi-massive to locally massive chalcopyrite within quartz-carbonate veins. Minor amounts of bornite; malachite, and azurite have been observed locally. Pyrite content was estimated to be less than one fifth that of chalcopyrite.

In 1992, P. Leriche, P.Geo, of Reliance Geological, visited the Eagle vein. The 5900, 6400, and 7300 level portals were blocked by scree material. The 6950 level tunnel was found to be in very good condition. Quartz-carbonate vein with chalcopyrite mineralization was observed throughout the 670 meter long tunnel.



Four rock samples were collected from the property and are described as follows:

Sample #	Туре	Width (m)	Copper %	Description
12207	Select	4	24.32	Dump material outside 7300 portal. Massive chalcopyrite in black argillite/brown siltstone. Minor malachite stain.
12208	Chip	1.2	7.04	East entrance to 6950 elevation tunnel. Quartz vein in graphitic argillite. Att.50/vert. Chalcopyrite stringers up to 50 cm wide. North and south wallrocks are brecciated with numerous quartz stringers.
12209	Panel	1.0m ²	5.75	6950 level tunnel, 621 m from east entrance. Brecciated quartz vein with blotches and stringers of massive chalcopyrite. Angular fragments of host argillite within the quartz vein.
12210	Select	-	9.87	6400 level dump outside west portal. Massive chalcopyrite with quartz stringers in a dark grey argillite.

Copper and gold assays, and 30-element ICP analysis were done by International Plasma Laboratories Ltd, Vancouver, B.C. Gold values were 176, 14, 37 and 173 ppb respectively. Results for other elements were not significant.

At least five other veins were discovered and worked on by the Davis Keays Mining Company. The following descriptions are taken from Archer-Cathro, Northern B.C. Mineral Inventory, 1981, and Preto, 1971.

Keays North - surface sampling yielded assays of 3.57% Cu across 8 feet and over a length of 220 feet.

- Harris surface sampling yielded assays of 3.77% Cu across 7 feet and over a length of 490 feet. Subsequent underground work and diamond drilling indicated narrowing at depth and along strike.
- Pink trench sampling from surface exposures averaged 0.26% cobalt and 0.47% copper over a width of 3 feet and a length of 100 feet.
- Ridge a chip sample from a single exposure assayed 1.35% Cu over 4 feet.
- Oscar a select sample from this massive galena vein assayed 94% Pb and 6.9 oz/t Ag.

8.0 RESERVES

MacDonald Consultants, 1970 (Figure 5)

Ore reserves were calculated before the 5950 level drift was completed. The vein was chip sampled at 3.0 meter intervals in all levels and raises by the Davis Keays Mining Company, and the resulting data was provided to MacDonald Consultants. MacDonald carried out an extensive program of check sampling, test hole drilling, and bulk sampling for metallurgical tests, to verify previous work.

A cut-off grade of 1.5% Cu over a minimum mining width of 1.5 meters (5 feet) was used. Reserves were classified into proven, probable, and possible ore by applying the performance standards of the Association of Professional Engineers of the Province of Ontario, 1969.

Category	Tons	<u>% Cu</u>
Proven	1,007,362	3.56
Probable	562,322	3.18
Sub-total	1,569,684	3.42
Possible	439,260	undetermined
Total	2,008,944	

With respect to the possibility of further reserves, the MacDonald report stated:

"This tonnage is calculated down to the 5,800 foot level only, but there is no geological reason to expect the vein to terminate at this level. There are excellent possibilities of extending these reserves, through a continuing exploration and development program, to depth on the Eagle vein and on other known veins as well."

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<u>Chapman, Wood and Griswold, 1971 (Figure 6)</u>

Mineable reserves were calculated by Chapman, Wood, and Griswold (C, W & G) that included factors for mining dilution and extraction. Limited check sampling was completed by C, W and G in three areas of the deposit. Results compared favourably with the MacDonald sampling, but in 2 of the 3 areas did not compare within acceptable limits with the Davis Keays Mining Company sampling. Results from the MacDonald sampling were used whenever possible.

The reserve included results from the recent development work done on the 5950 level. A cut-off grade of 2.0% Cu over a minimum mining width of 1.2 meters (4 feet) was used. Reserves were classified as semi-proven, probable and possible.

Category	Tons	<u>% Cu</u>
Semi-proven	1,233,700	3.43
Probable	142,000	2.92
Sub-total	1,375,700	3.38
Possible	750,000	undetermined
Total	2,125,700	

The C, W & G report commented on the potential for additional reserves.

"The potential for finding additional ore must be considered good. The full extent of the Eagle Vein has not been delineated and several other known veins on the property warrant additional exploration."



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9.0 METALLURGY

In 1970, MacDonald Consultants collected bulk samples from the Eagle vein and sent them to Lakefield Research, Peterborough, Ontario, to conduct eighteen metallurgical tests.

The tests indicated that conventional crushing and grinding to 65% minus 200 mesh, followed by single stage rougher flotation and a cleaner float would recover 95% of the copper at a concentrate grade of 28%. The material had a work index of 9.22 to 11.5.

In 1994, Dr. M.J.V. Beattie, P.Eng. (Metallurgical Engineer) was retained to review previous summary metallurgical data and to make recommendations for further testing. He concluded that the deposit metallurgy is very simple, involving the flotation of chalcopyrite from a quartz-carbonate gangue; and that through additional test work it is probable that the concentrate grade could be increased to 30-32%, with minimal loss of recovery.

10.0 DISCUSSION

The Key (formerly Davis-Keays) property is a high grade vein type copper deposit which will require underground mining, concentration of ore by flotation, and refining by smelting.

A proven-probable reserve has been calculated that exceeds 100 million pounds of copper. A possible reserve that was calculated from areas close to existing underground workings would add over 36 million pounds of copper to the mineral inventory. No exploration has been conducted below the lowest underground level. The possibility of locating additional reserves below this level is considered excellent.

The metallurgy of the deposit is favorable. Further testing is expected to establish that a concentrate in the order of 30% to 32% Cu should be achievable with a 95% recovery. The work index of the material is low combined with a relatively coarse grind. No minerals or elements have been defined that could create dilution of the concentrate or penalties at the smelter.

The MacDonald feasibility study (1970) concluded that, "it is apparent that a gross operating profit of the [expected] magnitude justifies the additional capital expenditure....to bring the property into production".

At least five other vein style occurrences are known to exist, that have received a limited amount of exploration. The Pink vein in particular hosts significant copper and cobalt mineralization. A cobalt price (5 Apr 95) of US\$27.50-28.25/lb (approx Cdn\$38.50) makes this target a higher priority for further work.

11.0 CONCLUSIONS

The Key property has excellent potential to host an economic vein-style copper deposit for the following reasons:

- a proven-probable reserve has been defined exceeding 100 million pounds of copper;
- the probability of finding additional reserves below the lowest underground level on the Eagle vein is very good;
- additional exploration potential exists with other known copper and copper-cobalt mineral occurrences.
- useful development work on the property has an appraised value of over \$10 million, which directly lowers the capital cost commitment by the same amount.

12.0 RECOMMENDATIONS

The objectives of the recommended program are to increase reserves on the Eagle vein and to identify and test other targets on the property.

- a) Establish approximately 50 line kilometers of grid;
- b) Geologically map on the grid, and prospect other known showings;
- c) Conduct a magnetic and VLF-EM survey to identify possible mineralized structures buried by overburden;
- d) Diamond drill to intersect the Eagle vein near the lowest level and at depth;
- e) Collect representative samples for metallurgy and conduct flotation tests;
- f) Resample portions of the underground workings for check sample and updating purposes; and
- g) Enter all data into a computer database, obtain old and/or create new underground drawings, conduct preliminary engineering studies, calculate an updated reserve, and finish creation of the prefeasibility financial model.

13.0 PROPOSED BUDGET		
Project Preparation		\$ 3,000
Underground drawings, acquisition		\$ 5,000
Ground Surveys:		
Mobilization	\$ 13,000	
Field Crew (2 geologists,		
2 geotechnicians	16,000	
Field Costs (including helicopter)	45,000	
Magnetic/VLF survey	10,000	84,000
Opening lower levels, incl safety and		
reclamation		16,000
Analysis:		
100 rock samples		
@ \$30/sample, incl freight	3,000	
Metallurgy	8,000	11,000
Diamond Drilling:		
3,300 ft. @ \$90/ft (all inclusive)		297,000
Engineering studies, reserve calculation	on,	
prefeasibility model		39,000
Report		5,000
Administration		46,000
	Total	\$506,000
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CERTIFICATE

I, GEORGE W.G. SIVERTZ, of 11708 - 246th Street, Maple Ridge, B.C., V4R 1K8, do hereby state that:

- 1. I received a B.Sc. (Honours) degree in Geology from the University of British Columbia in 1976.
- 2. I am registered as a member in good standing with the Association of Professional Engineers and Geoscientists of British Columbia.
- 3. I have pursued my career as a geologist for eighteen years in Canada, the United States, and Mexico.
- 4. This report is based on published and unpublished literature provided to me by Reliance Geological Services Inc. I have not visited the subject property.
- 5. I have no interest, direct or indirect, in the properties or securities of BGM Diversified Energy Inc., nor do I expect to receive any.
- 6. I consent to the use of this report, only in its entirety, in a Prospectus or Statement of Material Facts for the purpose of private or public financing.

RELIANCE GEOLOGICAT SERVICES INC.

Dated at North Vancouver, B.C., this 28th day of April, 1995.