CVD

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Memorandum

Vancouver, B. C.
1983-06-16

RE: GEOPHYSICS ON THE HEATHER OPTION

EARL D. DODSON:
C. DYSON:
G. WALTON:

A visit was paid to the property on 14/06/83 by G. Walton, C. Dyson and myself for familiarization and to examine the prospect from a geophysical point of view. In particular, the geophysical questions to be answered were:

1. Would the type of mineralization seen on the property or Westmin type of mineralization be amenable to geophysical techniques?

2. If yes, would ground or airborne work be most feasible?

3. What specific tochnique should be chosen?

I. Geophysical Feasibility

I have no direct knowledge of geophysical results over Westmin except a comment from a contractor that they had been asked to fly one of the deposits because a response was expected to be obtained. Looking at the mineralization on the Heather property, I feel that if there were a sufficient quantity of the massive material seen that it would be seen by both EM and IP systems.

A further point on the amenability of the Westmin mineralization to detection by geophysies is that three other companies have contracted to fly airborne surveys in the Sicker Group this summer implying that there is some unanimity in opinion.

II. Airborne or Ground

If one were just examining the present showing or small areas near the geochemical anomalies, an argument could be made for a ground survey. However, the possible source areas for the geochemistry are not well defined nor is the possible orientation of the showing. Consequently, a large amount of ground work would be required. In difficult terrain, such as this, ground geophysical costs would be extremely high. In my opinion ground work would need to be used in a detailed mode ever well defined targets which do not exist as yet.

I would recommend approaching the exploration on this property by an airborne survey. It would have to be a helicopter-borne system. If the helicopter used were powerful enough, then the terrain on the property could be managed. A test flight in a Bell 206B showed that that machine was not capable.

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Geophysics on the Heather Option (Cont'd)

The belt of Myra rocks should be flown from end to end within the claim block as little would be gained by trying to reduce the size as there are logistical reasons why short lines are difficult in this area. As well, the attitude of the mineralization could be along or across strike of the Myra Formation. As we have no guide as to a preferred strike direction for the mineralization, it would be necessary to fly both along and across strike of the Myra.

III. Recommended Geophysical Technique

I would recommend that the Heather property be flown by an airborne EM system. As the topography is difficult and as there is a possibility that mineralization could be deep, I would recommend that the most deeply penetrating EM system available be used. As it turns out, helicopter-borne Input is now available and it is this system which will be used for the other three surveys in the area.

In a fixed wing mode, Input has been demonstrated to have a superior depth of penetration to conventional helicopter-borne EM systems. Information is not yet available to know if this is true with the helicopter Input system, but there is theoretical reason to believe that this is so. Another point of advantage of the helicopter Input system is that it is flown in a Bell 205 helicopter which is powerful enough to manage the terrain where the only helicopter which could be used for a conventional system would be an Allouette Lama which is a scarce helicopter in Canada.

The disadvantage of the helicopter Input system is its price which at approximately $160. per line kilometer is double the price of a conventional system. However, technical and logistical considerations must overrule this concern on this property.

IV. Summary

It is recommended that the Heather property be flown by a helicopter-borne Input EM system. The entire section of the Myra Group which we have examined should be flown in two perpendicular directions at a 100 meter line spacing. This would result in approximately 325 line kilometers of flying at an approximate price of $75,000. inclusive of mobilization and weather.

I would also recommend that test lines be flown over the Mount Sicker Twin J deposit and several Westmin deposits at different depths which would add perhaps $7 to $10,000. to the price.

J. P. STEELE

JPS:am

M524

June 20, 1983.

Questor Surveys Limited,
6380 Viscount Road,
Mississauga, Ontario.

Attention: A. E. Storey

Dear Al,

Please find enclosed a map showing the proposed survey lines for the Helicopter-borne Input survey on Vancouver Island. We would like to cover the area with lines spaced at 100 meters in two perpendicular directions. The area in heavy pencil in the middle of the flight zone represents the unit of interest. As you can see, it changes direction and, consequently, I have changed the flight line directions to correspond (i.e. the green lines and the orange lines).

I will set up the contract as soon as I receive your basic contract and a firm cost proposal now that you have the exact flight area.

I am looking forward to seeing your system in action.

Best regards,

CHEVRON CANADA RESOURCES LIMITED

JOHN P. STEELE

JPS:am
Encl.

Vancouver, B. C.
1983-11-02

RE: AIRBORNE ELECTROMAGNETIC RESULTS -
HEATHER PROJECT - M524

EARL D. DODSON:

We received, today, the electromagnetic results and the Interpretational Report for the Helicopter-borne Input Survey flown over the Heather property in August 1983. The magnetic data is yet to come. It should be noted that Questor Surveys, who flew this survey, actually got this report to us within the six week period allowed in the contract (contrary to their performance on other work for us).

The results of the survey were, in the whole, negative. No response was seen in either flight direction over the showing on the property. The largest anomaly was a three channel anomaly (out of a possibility of 6 channels) on one line with nothing on lines 50 meters on either side. In addition, only one zone correlated on the two flight directions. The majority of responses seen were one channel and in most cases were probably surficial or noise related to flying motion.

I cannot recommend any of these anomalies as high or even medium priority for ground follow-up. However, so as to be completely exhaustive in examining this property, I would propose the following program to examine the known showing and to delineate the only anomalies found which have a chance of being bedrock related.

Proposed Program

1. Conduct a Mise-a-la-Masse survey on the known showing in an attempt to trace its extent. This would involve putting a short hole into the mineralization and inserting an electrode; energizing the electrode and then measuring the earth potential throughout the surrounding area.

2. Conduct a small ground electromagnetic survey over the known showing to see if this type of mineralization is conductive.

3. Conduct a ground electromagnetic survey over Zone 1 and Zone 4 discovered in the Input survey (report attached) as these are the only responses seen which may be bedrock related. I would propose using a Time-Domain Electromagnetic system which would have the deepest possible depth of penetration and which would be sensitive to poor conductors. The Geonics EM-37 system would fit this bill.

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4. Most importantly, I would recommend that geochemical surveys be conducted in the vicinities of all the anomalous zones seen on the Input survey and that the ground geophysics not be performed until these results are obtained and only if favourable assays are found.

Estimate of Cost - Geophysical Surveys

1.	Contract Geophysics - 15 days	$37,500.
2.	Helicopter (Zone 4)	3,500.
3.	Supervision	5,000.
		$46,000.

Plus the cost of the geochemistry .

JOHN P. STEELE

JPS:am

Attach: Questor Input Report

MEMORANDUM

December 12, 1983

TO: E. Dodson
C. Dyson

FROM: J. Steele

RE: Heather Project - Decision to Continue this Project into 1984

After this summer's airborne geophysical work was concluded there were no clearcut targets to pursue. There was no response obtained over the showing and other responses were weak and tenuous. Consequently, it was not possible to recommend any top priority geophysical work on the property.

However, we were faced with a $25,000 payment on January 1, 1984 and to be totally certain that it was worthwhile making this payment, it was decided to conduct a ground geophysical program over the showing and over the two airborne EM responses which had any merit at all (one had a spatially adjacent geochemical anomaly).

The scenario was that if the ground geophysical work failed to develop these targets further then the January 1, 1984 payment would not be made. As our J.V. partner had to be advised of our decision by December 9, 1983 it was necessary to organize the ground surveys very quickly, to work at a time of year that was not optimum (hence more expensive) and to interpret the data very quickly.

All this was done and the ground work failed to give positive results. According to the planned scenario, we would then have not proceeded further with this project. However, it was decided on December 9 to make the payment anyway.

I am drawing this process to your attention just to gently suggest that if the conversation which resulted in the decision to proceed with the payment irrespective of the ground geophysical work had taken place prior to doing the geophysics we could probably have not done as much work (as we would only have done it had we had other non geophysical indicators to guide us). We could have saved money and we would not have had to organize and interpret complicated ground surveys in such a rush. As well, they could have been supervised better as there have been many other projects going on this fall.

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I am raising these points only because I am not satisfied that this geophysical work was carried out as efficiently as I would have liked and I would have liked to have been able to do a better job. The lithogeochemistry sounds like it has a good chance of producing further targets on the property.

John P. Steele

Vancouver, B. C.
1983-12-19

HEATHER PROJECT - M524
DECISION TO CONTINUE

J. P. STEELE:

Thank you for your memo of December 12, 1983.

I sympathize with your comments regarding Heather and the sequence of events. I understand and sympathize whole-heartedly with your reservations about the quality of the ground surveys - under the difficult conditions imposed.

It is, I think, important that you be aware of the two items which most affected my thinking in making the decision to continue.

1. In visiting Westmin, while we gained no direct insight into geophysical expression of the known deposits, we learned a good deal about both the Lynx and the HW deposits. Major areas of both these deposits would not represent good geophysical conductors. Discontinuous mineralization, barite, sphalerite, chalcopyrite intergrowths, high sphalerite content in MS, and even some of the "stockwork mineralization" appear unlikely to provide satisfactory EM anomalies.

   We also learned that the stockwork deposits were similar in appearance to the mineralization known at Heather,but, unlike Heather, are not precious metal bearing.

2. The 'broad and weak' resistivity anomaly at Heather, while not a respectable geophysical target, added another element of doubt to the extent of the 'stockwork' exposed in the road cut.

The result was that an extremely difficult decision, whether to go or not to go, was turned in favour of proceeding.

I would very much like to talk with you about what geophysical methods might best be used to further define the known showing and perhaps even to evaluate the favourable stratigraphy beyond the areas known to date.

E.

EARL D. DODSON

EDD:am

m524

file
cmD

Memorandum

Vancouver, B. C.
1984-02-20

SUMMARY OF 1983 EXPLORATION WORK ON THE CAROL, TANIA, LUCIA, MARINO AND EFREM CLAIMS BY CHEVRON CANADA RESOURCES LIMITED

EARL D. DODSON:

In 1983 Chevron spent approximately $200,000. on exploration surveys on the Heather Creek claims in the Cowichan Lake area of Vancouver Island.

Surveys included:

- reconnaissance geological mapping, prospecting and soil sampling along logging roads and in some cases between roads.
- backhoe trenching (one trench - 90 m long, 2 m wide, 4 m deep).
- airborne INPUT EM/mag survey (432 line km).
- ground geophysics: EM-37 and Mise-a-la-Masse.

Sicker Group rocks were mapped in several areas on the claims with the sub-unit Myra Formation (host to Westmin style mineralization) recognized in at least two areas. Reconnaissance soil geochemistry was concentrated in the western belt of Myra rocks and indicated anomalous values for gold and copper in two areas in this belt, one of which coincided with a showing located by E. Specogna in 1982. This showing was trenched by backhoe with selected samples of mineralization from the trench assaying 0.284 oz/t Au, 0.66% Cu, and 0.25 oz/t Au, 0.18% Cu. The airborne EM survey covered the entire western belt of Myra rocks and was essentially negative apart from several weak 1-3 channel, spot anomalies.

Final results of ground EM-37 and Mise-a-la-Masse surveys over two of the airborne anomalies are pending. Preliminary interpretation is that no major anomalies are present.

C. V. DYSON

CVD:am

cc: E. Specogna, Canamin Resources Ltd.,
J. Gammon, Falconbridge Limited.

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23 August 1984

Mr. John Gammon
Regional Manager
Falconbridge Nickel Mines Limited
6415 64th Street
Delta, B.C.
V4K 4E2

Dear John:

Re: Cowichan Claim Program, Vancouver Island

On August 21, 1984, I reviewed the results of the 1984 program on the Cowichan claims with Terry Chandler followed by an on-site visit to the property.

Our mapping surveys confirm that two separate belts of Myra formation are present on the claim. Our prospecting and geochemical surveys have shown that the western belt, which hosts the main showing that was trenched in 1983, is of most interest.

In this western Myra belt, the main showing remains the prime target. The showing "horizon" has been traced along strike for a distance in excess of two kilometers and has been recognized at six different localities. The best sulphide concentration is in the main showing area which is also targeted by coincident copper, zinc and gold soil and rock geochemical anomalies plus sodium and potassium lithogeochemical depletion anomalies.

We propose that a short diamond drill program be carried out on the main showing. This drilling would also test a weak, shallow geophysical anomaly interpreted present by the 1983 program.

We expect to be able to fund most of the proposed drill program (300m estimate total) from the current approved budget, subject to drill availability, preferably from contractors currently working on Vancouver Island.

If you concur with our proposal we would anticipate drilling in early October 1984. This will allow adequate time to analyze and interpret results prior to any joint venture option payment to Canamin in December.

Yours truly,

CHEVRON CANADA RESOURCES LIMITED

C.V. Dyson, Senior Geologist

CVD:kjf

Memorandum

Vancouver, B. C.
1984-08-29

RE: DIAMOND DRILL PROPOSAL
HEATHER - M524

EARL D. DODSON:

Mapping surveys conducted over the entire HEATHER property in May -June 1984 confirm that two separate belts of Myra Formation (Sicker Group) rocks are present on the claims. Prospecting and soil and rock geochemical surveys, performed concurrently with the mapping, show the western belt of Myra rocks is of most interest. The western belt of Myra rocks hosts the "main showing" which was trenched and sampled in 1983.

Mineralization in the "main showing" consists of pyrite (sometimes massive) and minor chalcopyrite within and associated with elongated pods of white and grey quartz which are aligned parallel to cleavage surfaces.

The showing host lithology is highly cleaved, recessive weathering, phyllitic tuff which has been traced along regional strike for a distance in excess of two kilometres. It has been recognized at six different localities with variable sulphide and quartz content at each locality.

The best assay values (0.284 oz/t Au, 0.66% Cu; 0.25 oz/t Au, 0.18% Cu) are from the "main showing" which lies in the area of strongest geochemical response on the property. The showing area is targeted by coincident copper, zinc and gold soil and rock geochemical anomalies and by sodium and potassium lithogeochemical depletion anomalies.

A short (300 m) diamond drill program is proposed to test the "main showing" at depth. This drilling would also test the "weak, shallow flat-lying anomaly" located in the main showing area by EM-37 and Mise-a-la-Masse surveys in 1983.

The proposed drill program can be funded mostly from the current approved budget.

Falconbridge have verbally approved the drill program.

Drilling should start in early October 1984 to allow adequate time to analyze core and interpret results prior to the Can. $50,000. option payment to Canamin due December 31, 1984.

C. V. DYSON

CVD:am

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