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HOMESTAKE MINING (CANADA) LTD.

**GEOPHYSICAL REPORT ON A BOREHOLE PULSE EM SURVEY:
APPENDUM - HOLE T91041**

TWIN PROJECT, BRITISH COLUMBIA

LATITUDE: 51°07'N
LONGITUDE: 119°56'W

AUTHOR: Dennis V. Woods, Ph.D., P.Eng.
Consulting Geophysicist

DATE OF WORK: 17 - 18 October 1991
DATE OF REPORT: 9 December 1991

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

22,389

PART 3 OF 3

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INTRODUCTION:

During the period 17 to 18 October 1991, a borehole pulse EM survey was carried out at the Twin Project in south-central British Columbia for Homestake Mining (Canada) Ltd. The survey was carried out in drill hole T91041 with 2 separate passes using different positions of the transmitter loop. One other hole (T91040) was dummy probed and found to be blocked at shallow depth. A Crone 500 Watt Pulse EM system was used for the survey.

The results of the survey are presented in this appendix to an earlier report on a borehole Pulse EM survey of drill holes T91036, T91037, T91038 and T91039 on the Twin property carried out in June and July 1991 (Woods, 1991). The results from T91041 are interpreted in this appendix with particular reference to the previous results. Technical descriptions of the borehole Pulse EM method, survey location and procedures, data presentation, and interpretation procedures are not included in the appendix: the reader is referred to Woods (1991) for these descriptions.

SURVEY PROCEDURE:

The borehole PEM survey of T91041 was carried out using a 500 watt Crone PEM system and 200 m square transmitter loops. The transmitter generated from about 6 amps in the loops. Loop locations are shown in Figures 1 and the surveys are listed below in Table 1.

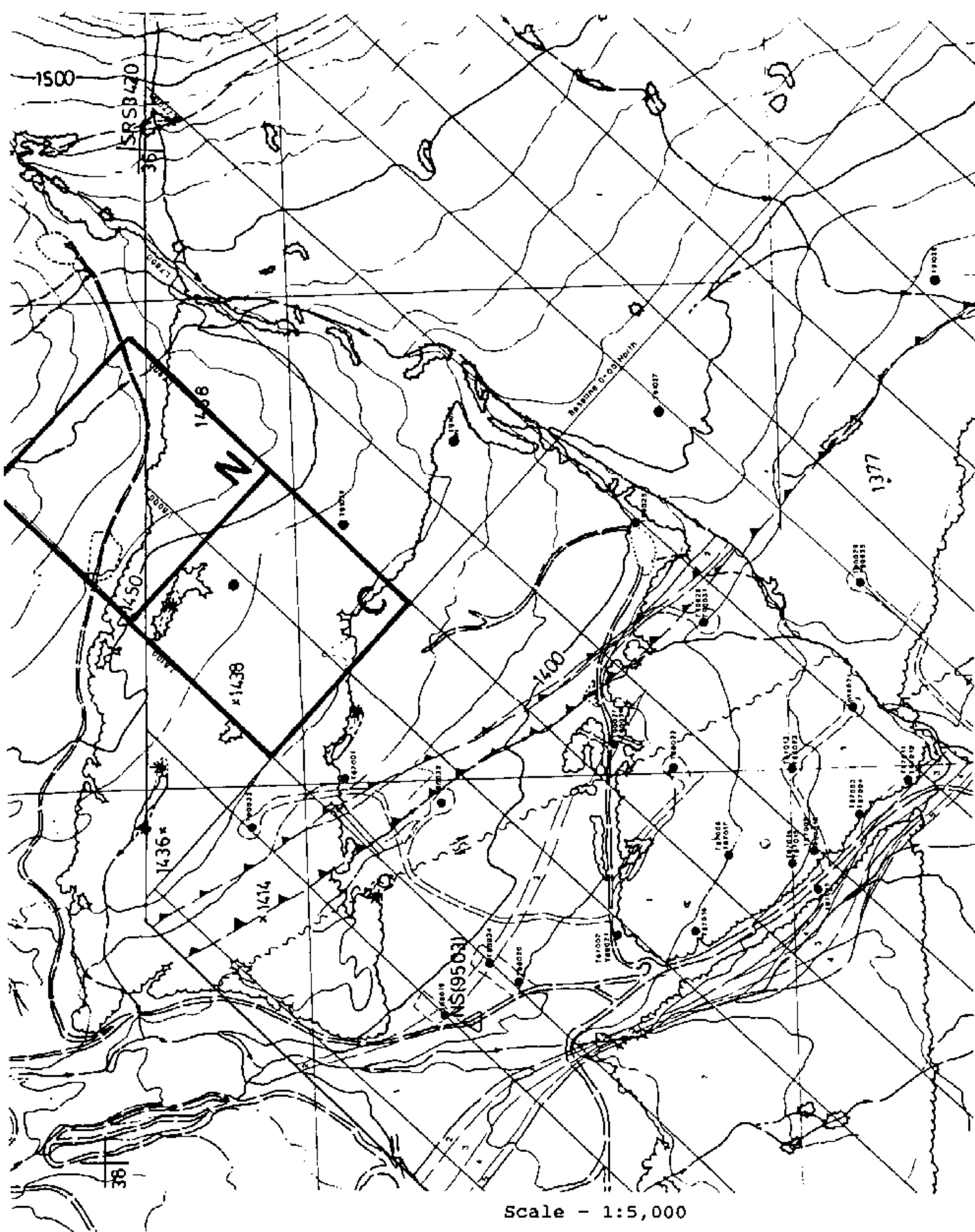


Figure 1. Bolehole Pulse EM Survey Map - DDH T91041
Twin Project - Homestake Mining (Canada) Ltd.

Table 1 Borehole Pulse EM Survey

Hole	Location	Attitude	Tx Loop	Survey (m)	Length (m)
T91041	-80+15E/-1+50N	225°/-85°	C	20 to 340	320
			N	20 to 340	320
				total	640

DISCUSSION OF RESULTS:

The results from the borehole Pulse EM survey from T91041 are shown in Profiles 1 and 2. The profiles are similar to the previous results from T91036 using the equivalent 200 m loops (Woods, 1991, Profiles 4 and 5). In addition to the background response due to regional EM induction in the conductive formations in the general vicinity of the holes, there are is a 2-3 channel anomaly centred at a depth of 290-310 m. This anomaly in T91041 has almost exactly the same form as the upper anomaly in T91036.

The background response, on the other hand, has a very different form: instead of paralleling the primary field, it appears to be a mirror image. This form of background response may be due to a small component of electric field leakage into the receiver probe - the operators had some water leakage problem and had to dismantle and dry the probe, hence the electric shield may have been disturbed. Regardless of cause, the background response does not significantly affect the observation or interpretation of the anomaly.

The anomaly in T91041 has the same unusual form as was observed in T91036. Since only two transmitter loop positions were used in the survey of T91041, it is not possible to be definitive about the shape and position of the conductor causing the anomaly, other than it must be at a depth in the hole of about 300 m. Hence, the interpretation from T91036 (Woods, 1991, Figure 8) would also be consistent with the results from T91041.

However, the fact that two drill holes spaced more than 100 m apart have the same anomaly, suggests that the anomalous response is due to some larger conductive structure than what was interpreted from T91036 alone. It seems too great a coincidence that the same irregularly positioned conductor would be missed by both holes in the same way. It is more likely that the anomaly is actually part of the background response and its unusual shape is due to large scale redistribution of the induced "smoke-ring" currents by the low-resistivity formations in the upper section of the two holes.

CONCLUSION AND RECOMMENDATIONS:

Given this possible alternative interpretation of the upper anomaly in T91036, based on the additional results from T91041, the small vertical conductor shown in Figure 8 in Woods (1991) should be considered speculative and should be given lower priority for any follow-up drilling. The apparently anomalous responses in both T91036 and T91041 at about 280 to 300 m depth may be simply related to the overall low resistivity of the Silver horizon, intersected at

about this depth. Hence, the formation causing the apparently anomalous response may already be adequately sampled by the present drill-core intersections.

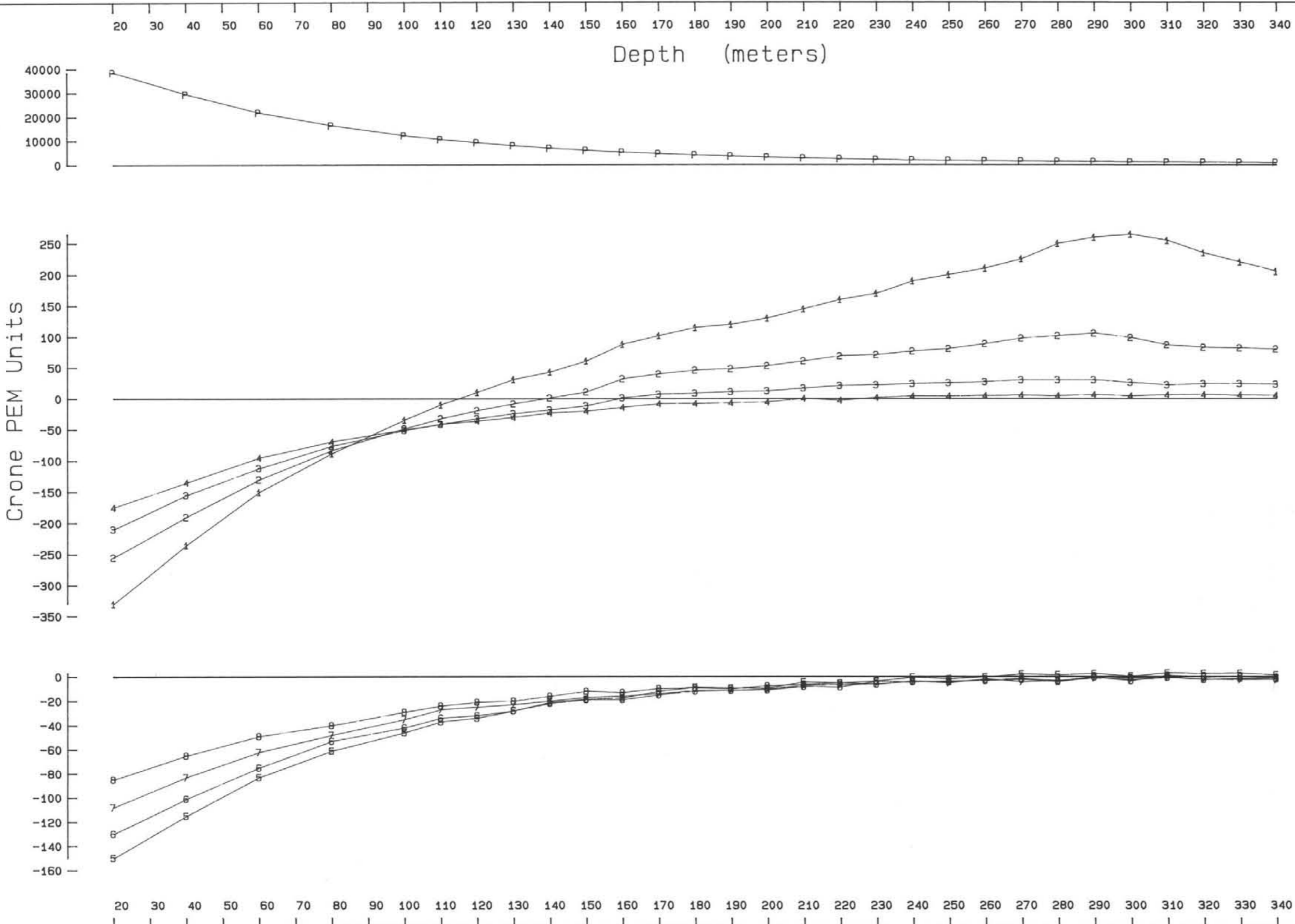
Respectfully submitted,

A circular professional seal for the Province of British Columbia, Engineering. The seal contains the text "PROFESSIONAL ENGINEER" around the perimeter and "PROVINCE OF BRITISH COLUMBIA" in the center. The name "D. V. WOODS" is stamped across the seal. To the right of the seal is a handwritten signature in black ink.

Dennis V. Woods, Ph.D., P.Eng.
Consulting Geophysicist

REFERENCES:

Woods, D.V.: Geophysical Report on a Borehole Pulse EM Survey, Twin Project, British Columbia; for Homestake Mining (Canada) Ltd., Woods Geophysical Consulting, August 1991.



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TWIN PROJECT
BOREHOLE PULSE EM SURVEY

HOLE T91041 LOOP C

Scale 1: 1000.0

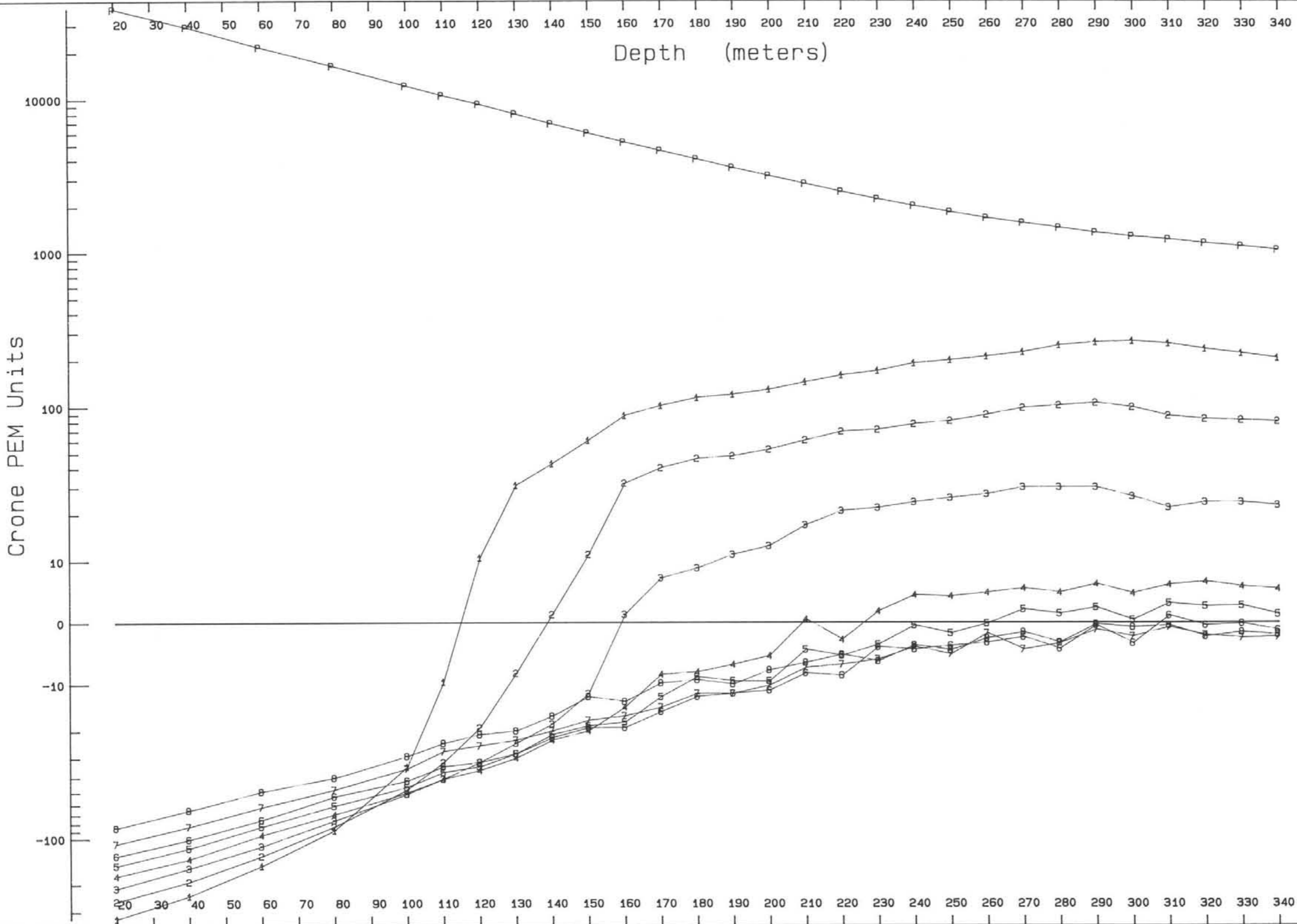


Date: Dec 1991

Survey: Oct 1991

Profile: 1a

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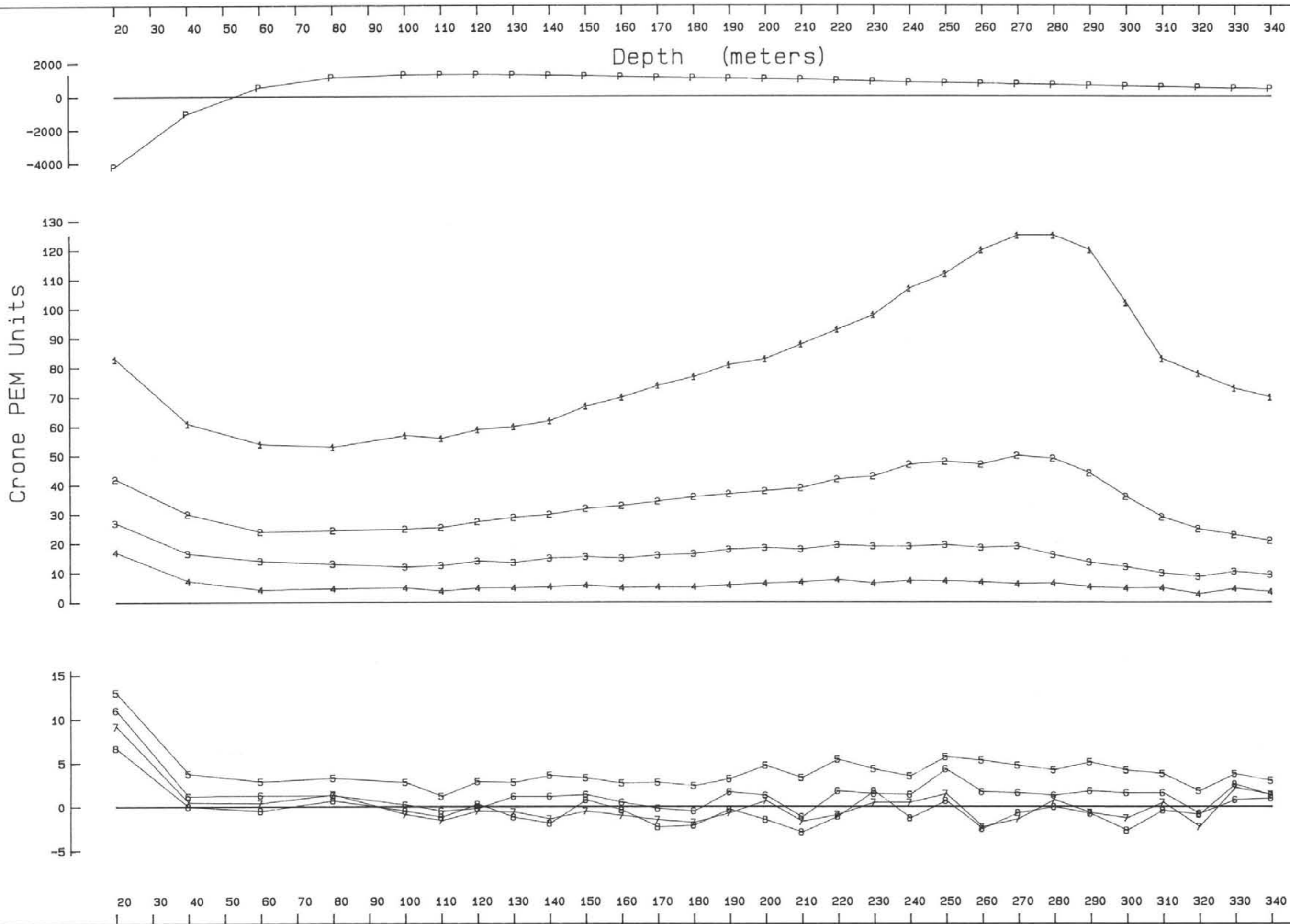
TWIN PROJECT
BOREHOLE PULSE EM SURVEY
HOLE T91041 LOOP C

Scale 1: 1000.0



Date: Dec 1991 Survey: Oct 1991 Profile: 1b

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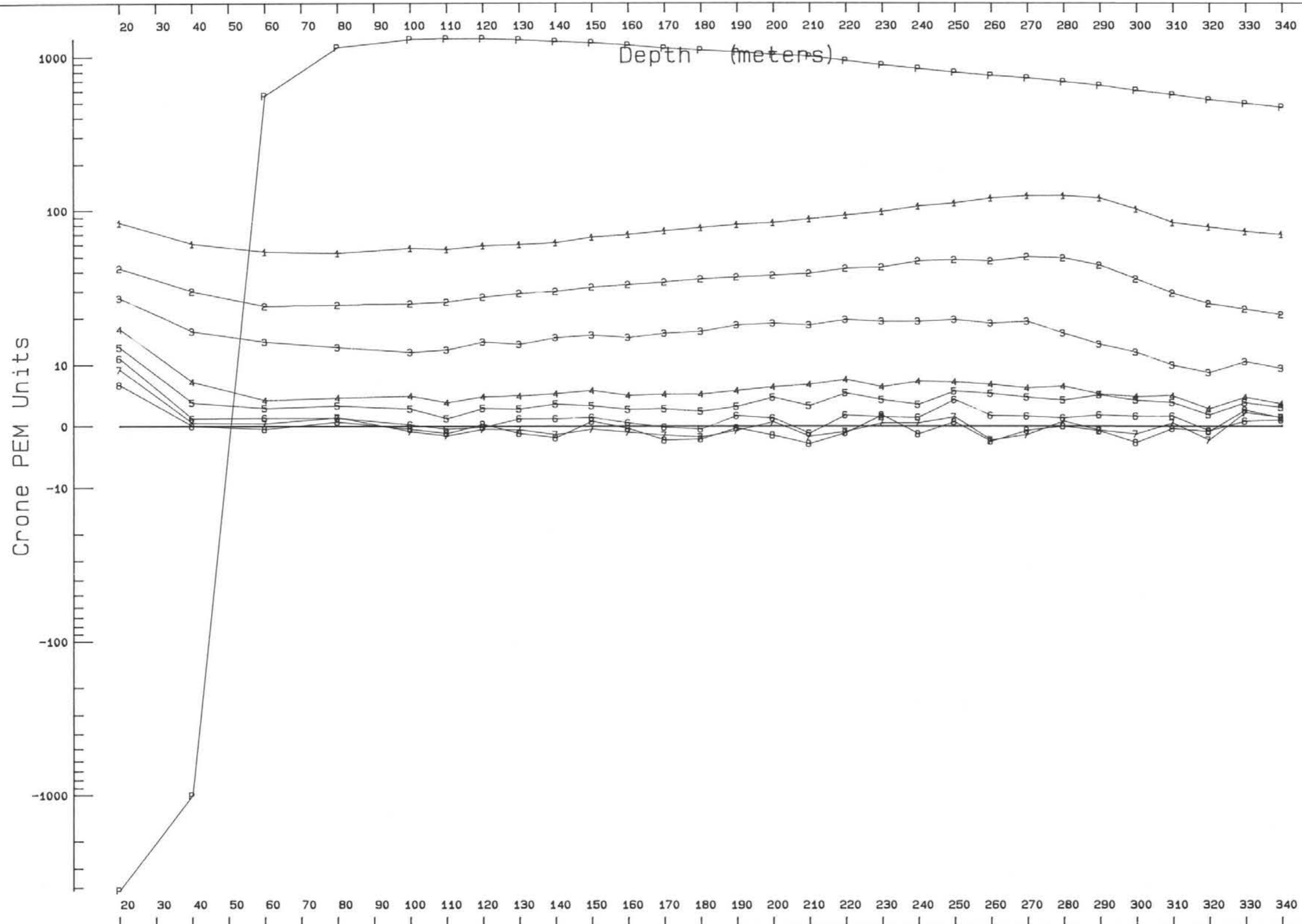
TWIN PROJECT
BOREHOLE PULSE EM SURVEY
HOLE T91041 LOOP N

Scale 1: 1000.0



Date: Dec 1991 Survey: Oct 1991 Profile: 2a

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BOREHOLE PULSE EM SURVEY
HOLE T91041 LOOP N

Scale 1: 1000.0



Date: Dec 1991 Survey: Oct 1991 Profile: 2b

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