

680036

MEMORANDUM

DATE: June 3, 1992

TO: Mr. Leigh W. Freeman, Vice President - U.S.
Orvana Resources Corporation
Golden, Colorado

FROM: A. L. Larson, Geophysical Consultant

SUBJECT: Magnetometer Profile Interpretation, Eholt Ground
Magnetic Survey, British Columbia

Three east-west profiles were selected for magnetic modeling and inversion from a large anomaly, about 3500 nT peak to peak, on the Eholt ground magnetic survey in southern British Columbia. The work was carried out on data supplied by the client as digital data files which were used without modification. The data set included diurnally corrected magnetometer readings on three total field profiles crossing the anomaly, Lines 9640, 9820 and 9940 North with stations spaced at 10 meter intervals.

The work was carried out using Interpex, Ltd. Magix real time, interactive 2.75D modeling software. The plots attached display observed field magnetometer curves as small squares and the synthetic profiles as solid lines, with the models shown below in section. The program is auto scaling, requiring some care in comparing the three sections, particularly in anomaly amplitudes, body shapes and dips. Each body is annotated with magnetic susceptibility and half length.

The survey encompasses a skarn environment with sediments on the west and intrusive rocks on the east with a probable contact at the point of the anomaly. Several other strong responses are noted on the survey and a west to east upward background shift of about 1000 nT appears to occur at the site of the anomaly.

Many geological scenarios were attempted during the modeling session with only limited success. These included a contact at the anomaly site, various magnetic body geometries, combinations of magnetic bodies and several assumed orientations of the inducing field to simulate remanence in the source body. As can be seen from the attached sections, a thin, east dipping prism could be made to fit the positive portion of the response fairly well, but the deep negative to the west suggests a strong remanent component of unknown orientation and "Q factor". The northerly orientation of the body with a strong negative to the west nearly certainly requires a remanent component to fit the anomaly which cannot be done with out knowledge of the strength and orientation of the remanent.

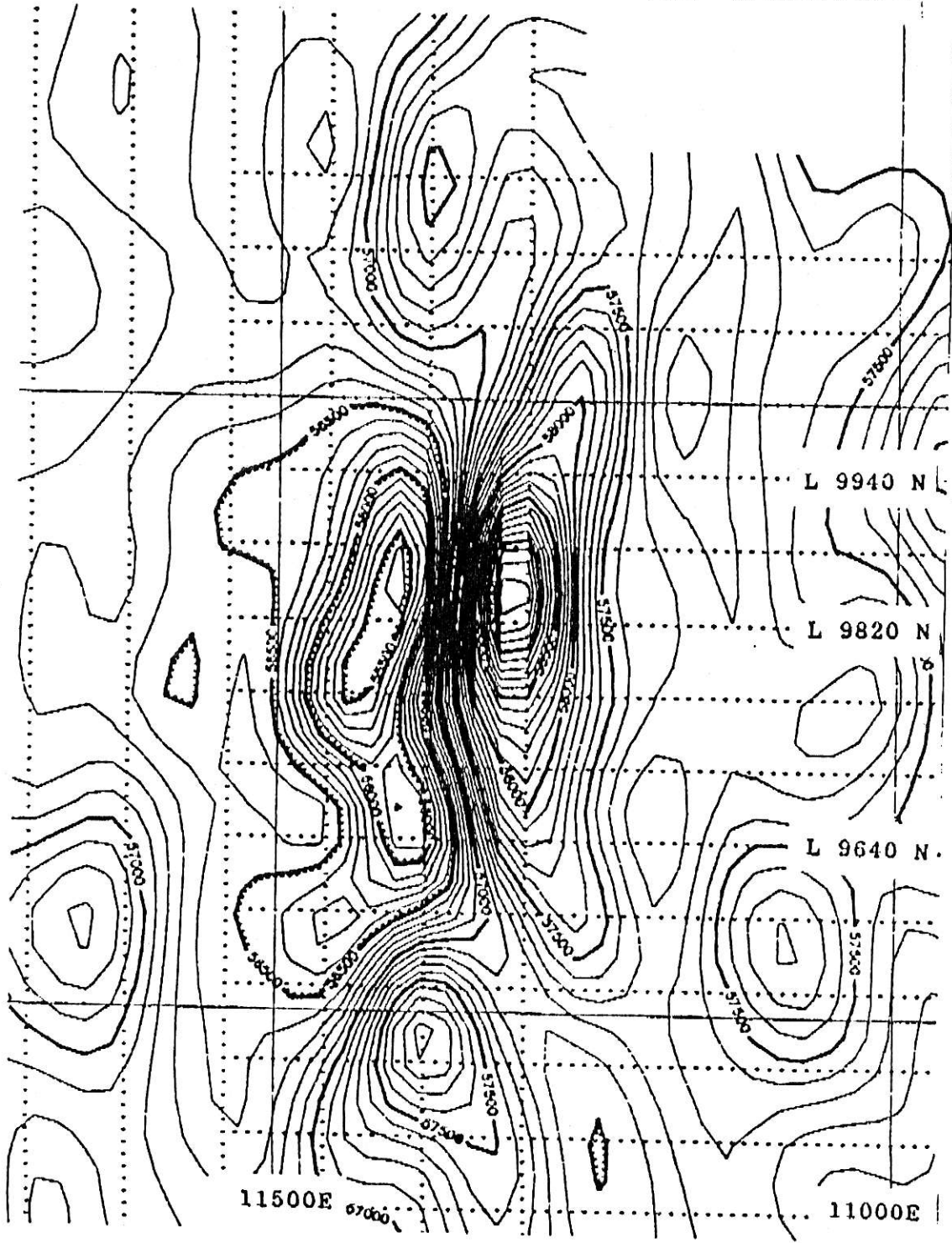
If the resulting models can be considered adequate, given the obvious limitations of remanence, each shows a depth to source of about 20 meters and a depth extent in the range of 125 meters. Thickness is less on the south and increases to 20 meters on Line 9820 N, and dips vary from 45 to 53 degrees east. Background magnetic susceptibility was set at 0.0001 cgs and the bodies' susceptibility resolved at 0.058 cgs. The background is somewhat high for a granite, but the 1000 nT offset from west to east suggests a fairly magnetic rock type to the east. The body itself requires a high susceptibility equivalent to near ten percent magnetite.

In summary, modeling of three profiles on the Eholt ground magnetic survey encountered a situation where strong magnetic remanence is probably associated with the source body. Lacking definitive information on the remanent component, a plausible series of three models was deduced from the data, ignoring the deep low to the west, which indicate a moderately easterly dipping body of high equivalent magnetite content.

Whether or not this model study was successful is probably less important than the fact that the anomaly has obvious potential as a skarn target, should not be difficult to intersect with a drill hole, and defines a highly favorable contact environment to the north and south which could easily be extended with magnetics and electrical methods.

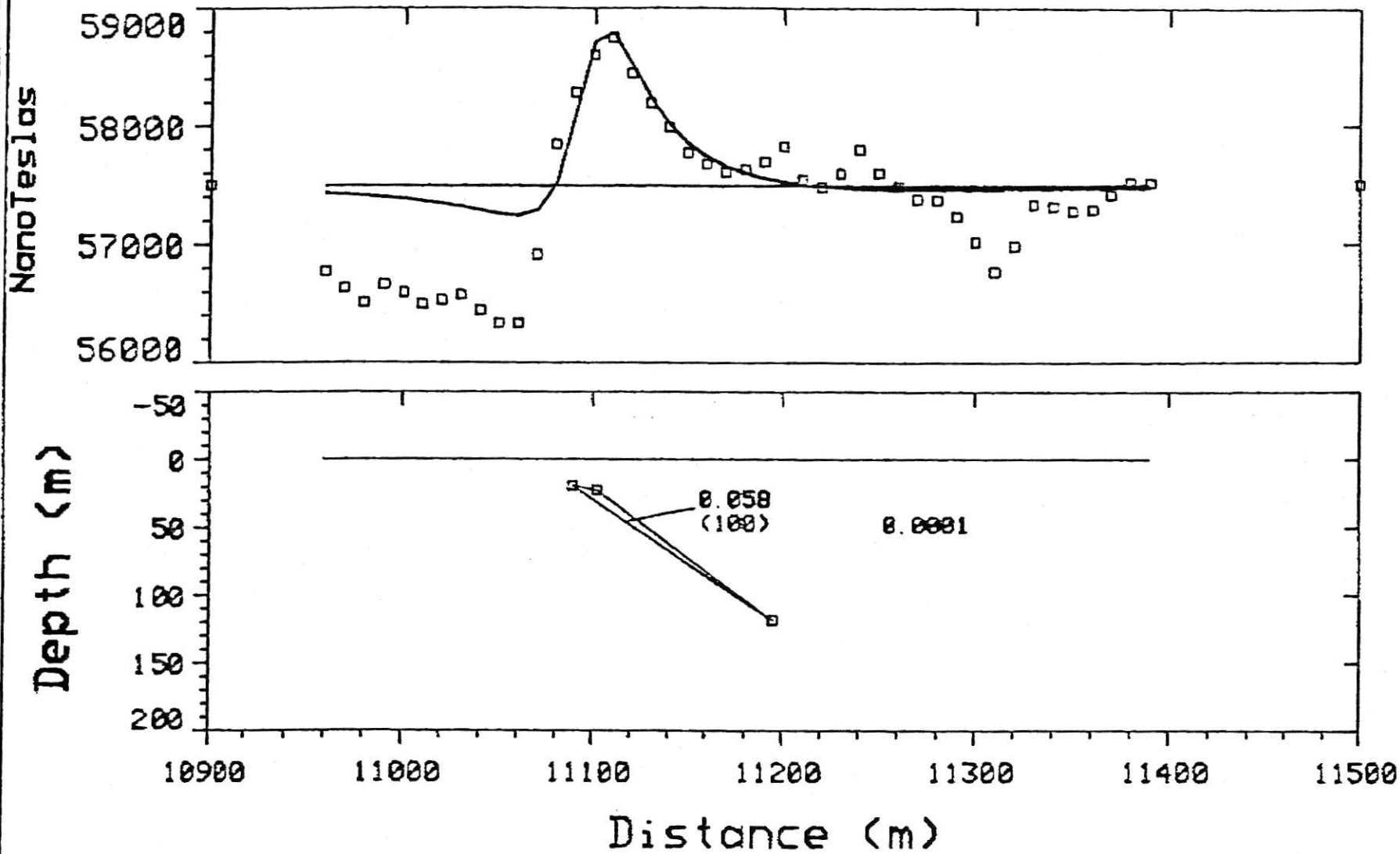
A.L.L.

EHOLT GROUND MAGNETIC SURVEY

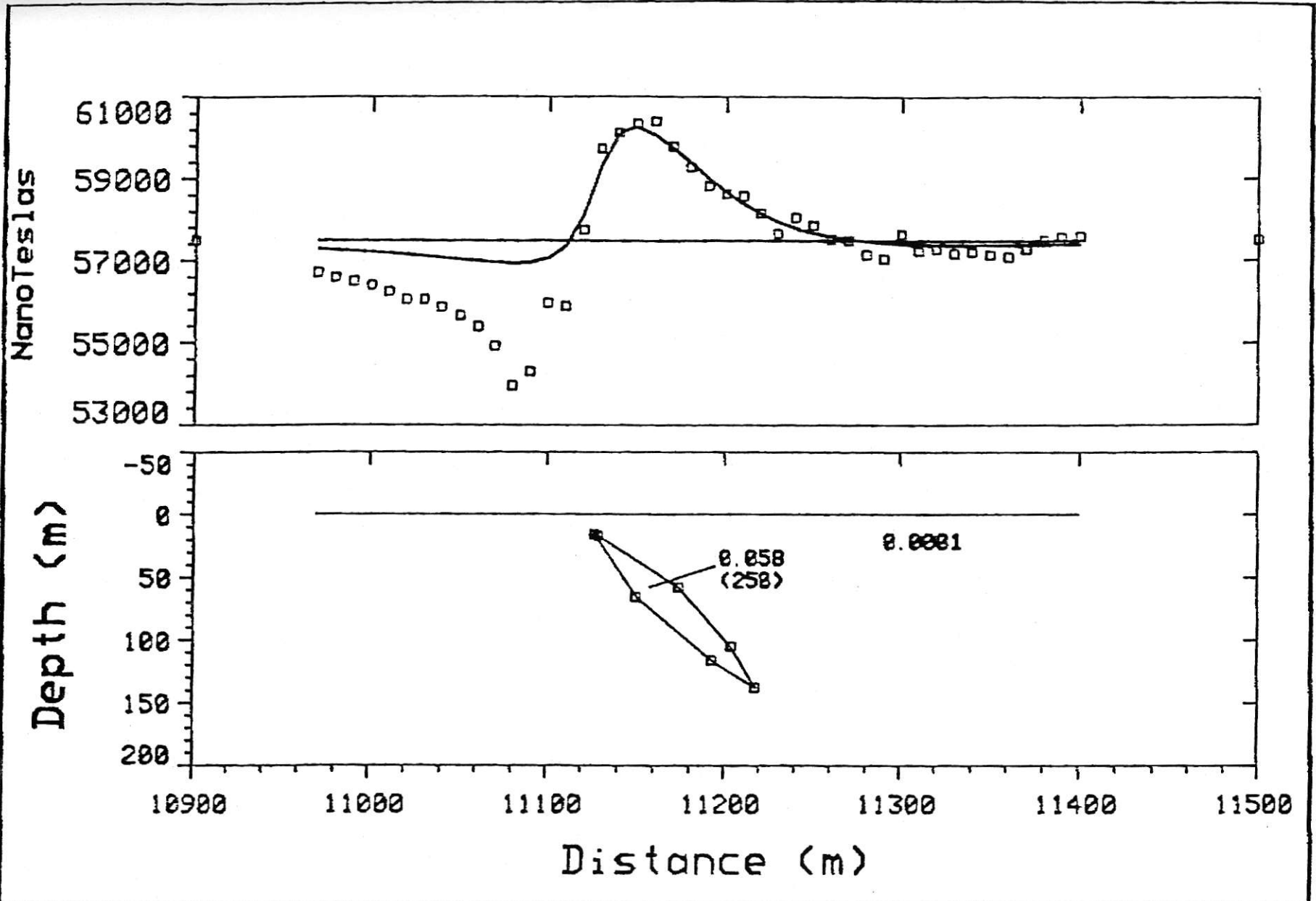


1:5000

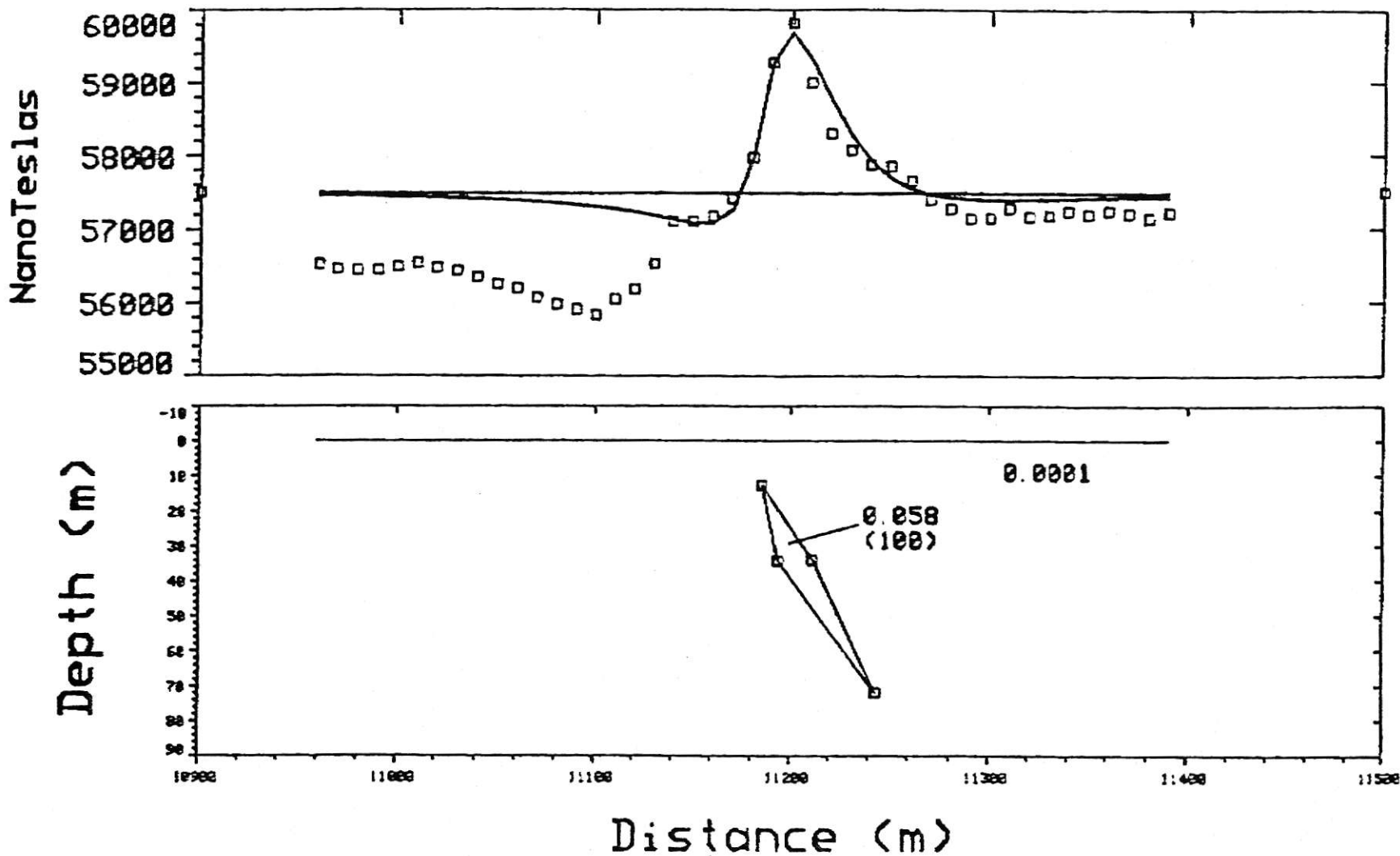
Contour Interval 100 nanoTeslas



Inducing field : 58500. nt	for: ORVANA RESOURCES CORPORATION		Southern British Columbia	
Inclination : 72.00 deg	by: Art Larson - Consulting Geophysicist		LINE 9640 NORTH	
Strike Direction : 340.00 deg	Data Set: L9640N	Date: 1 JUN 92	EHOLT GROUND MAGNETIC SURVEY	
Profile Direction : 430.00 deg	Scale: 1:2998	Profile: A-A'	Vertical Exaggeration: 0.78 : 1 n	
All Directions are Clockwise from Magnetic North				



Inducing field : 58500. nt	for: ORIANA RESOURCES CORPORATION		Southern British Columbia	
Inclination : 72.00 deg	by: Art Larson - Consulting Geophysicist		LINE 9820 NORTH	
Strike Direction : 340.00 deg	Data Set: L9820N	Date: 1 JUN 92	EHOLT GROUND MAGNETIC SURVEY	
Profile Direction : 430.00 deg	Scale: 1:2990	Profile: A-A'	Vertical Exaggeration: 0.70 : 1 n	
All Directions are Clockwise from Magnetic North				



Inducing field : 58600. nt	for: ORVANA RESOURCES CORPORATION	Southern British Columbia	
Inclination : 72.00 deg	by: Art Larson - Consulting Geophysicist	LINE 9940 NORTH	
Strike Direction : 348.00 deg	Data Set: BETTER	Date: 1 JUN 92	EHOLT GROUND MAGNETIC SURVEY
Profile Direction : 438.00 deg	Scale: 1:2990	Profile: A-A'	Vertical Exaggeration: 1.75 : 1 n
All Directions are Clockwise from Magnetic North			