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1985/29. SIE logger casing collar locating tool handbook

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Abstract

Instructions are given for operating the SIE logger casing collar locating tool.

INTRODUCTION

This "Casing collar locating tool user manual" is a supplement to the "Field logging handbook for the SIE logger" (Unpublished Report 1985/07) and should be used in conjunction with it. This manual is based on both field experience and the SIE manuals provided with the equipment.

The casing collar locating tool (CCL) responds to magnetic material, specifically steel casing. It has shown nil response when tested with brass and aluminium. It was not expected to show any variation in PVC casing (due to casing variations) and this was verified in the test hole at the Department of Mines store, Mornington. The CCL has been tested with steel casing and was able to locate the joins and the end of the casing. It is thus useful for determining the lengths of casing used in a hole by locating their joins as a function of depth, it is useful for finding significant defects in casing, for finding the depth of the bottom of the casing and may have some application for finding magnetic items downhole or magnetic rock intersections.

OPERATOR CHECK LIST

- CCL tool complete with end cap, in carry case
- T36 CCL module
- T150 Ratemeter module
- Module changing tool

FIELD OPERATION

Set up the equipment in the logging position at the hole as described in the main manual, including connection of the CCL tool to the cable and insertion of the T36 CCL module into the T201 recorder slot normally occupied by the T2 Electric module (The T150 Ratemeter module must occupy the other T201 module slot. The T3 module, as always, occupies the far left slot).

- Set the winch NUCLEAR/ELECTRIC switch to NUCLEAR
- Turn the T210 recorder power switch to ON. The LED should illuminate giving indication of adequate battery power (for the recorder, but not necessarily for the winch motor).
- Turn the T150 Ratemeter module function switch to LINE and set the GAIN control knob on the T36 CCL module fully anti-clockwise (minimum gain). (No other controls on the T150 Ratemeter module are used).
- Prepare the chosen pen so that the ink flows smoothly onto the chart paper as the paper drive mechanism is advanced. Adjust the appropriate ZERO knob on the T3 control module so that the pen is centred on the chart scale. Slowly increase the T36 GAIN control (turn clockwise) until some noise is evident or the gain is about a third of maximum, whichever occurs first. The knob rotation required from minimum to maximum is about 330° clockwise.

- Switch the "CHART DIRECTION" switch to REVERSE and turn the "CHART SPEED" knob to the desired scale if you wish to run the chart on the way down the hole, otherwise set the "CHART SPEED" knob to OFF. - Locate the CCL tool in the hole at zero depth and set the depth counter(s) to zero.
- Lower the tool down the hole to the required depth. Adjust the GAIN control to achieve an acceptable signal to noise ratio.
- Switch the "CHART DIRECTION" switch to NORMAL and turn the "CHART SPEED" knob to the desired scale. Mark the depth measurement, identifying information and scales on the chart. Commence logging by winding up the tool. For best results, the cable speed should not exceed six metres per minute.
- When the tool reaches the top, mark this point (zero depth) on the chart, together with identifying information and scales.
- Turn the T150 Ratemeter module and T201 recorder power off. Remove the CCL tool from the hole and from the cablehead. Wipe the threads and "O" rings to remove any dirt and water. Replace protective caps.

SAMPLE OUTPUT

The casing collar locator was run in 5" waterbore casing at observation bore DOB4 near Wesley Vale. Figure 1 shows the detection of casing joins at three metre intervals and Figure 2 shows that the uncased and cased portions of the hole may be clearly distinguished from one another.

[3 July 1985]

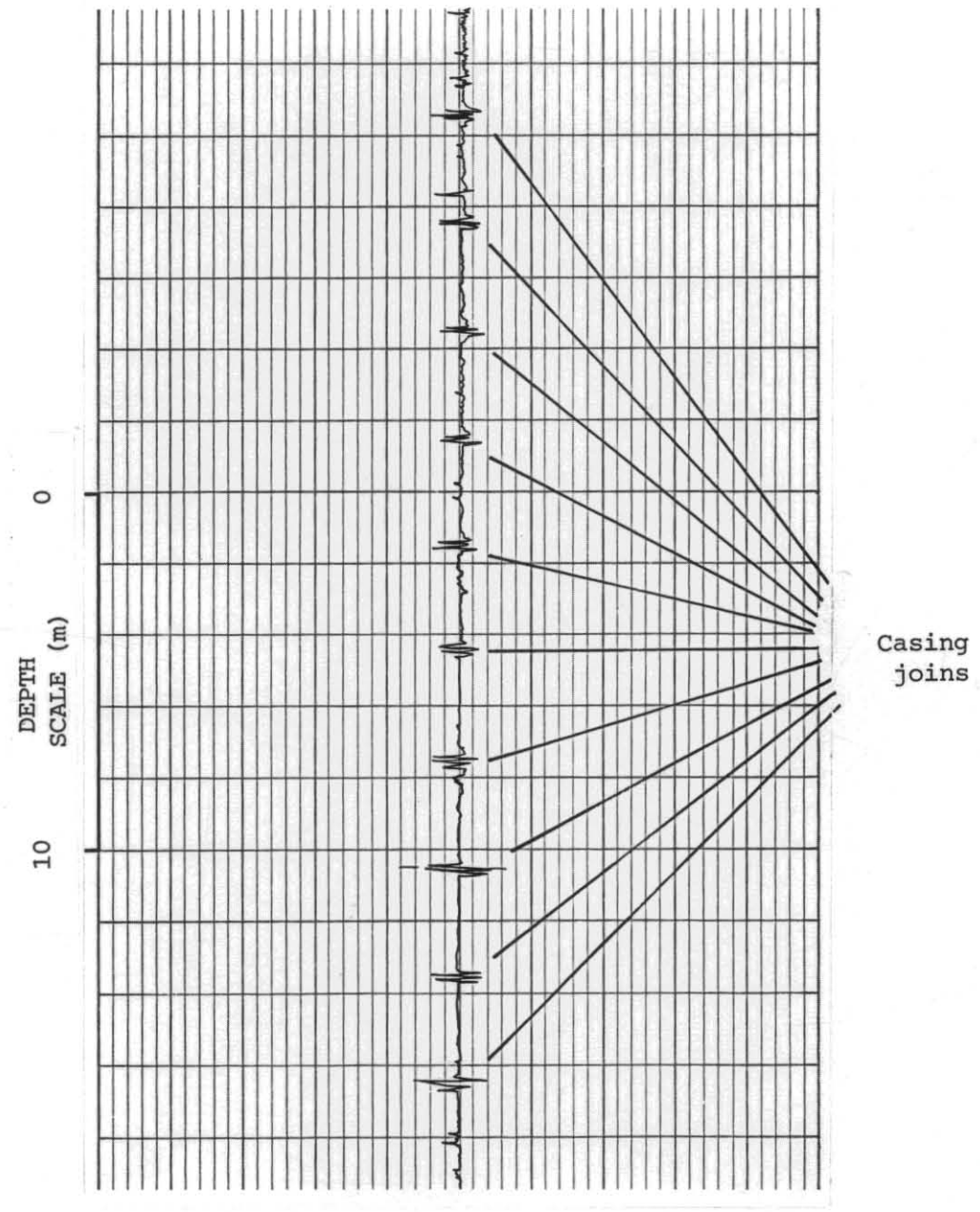

Figure 1. *CCL detection of 5" waterbore casing joins (Borehole DOB4)*

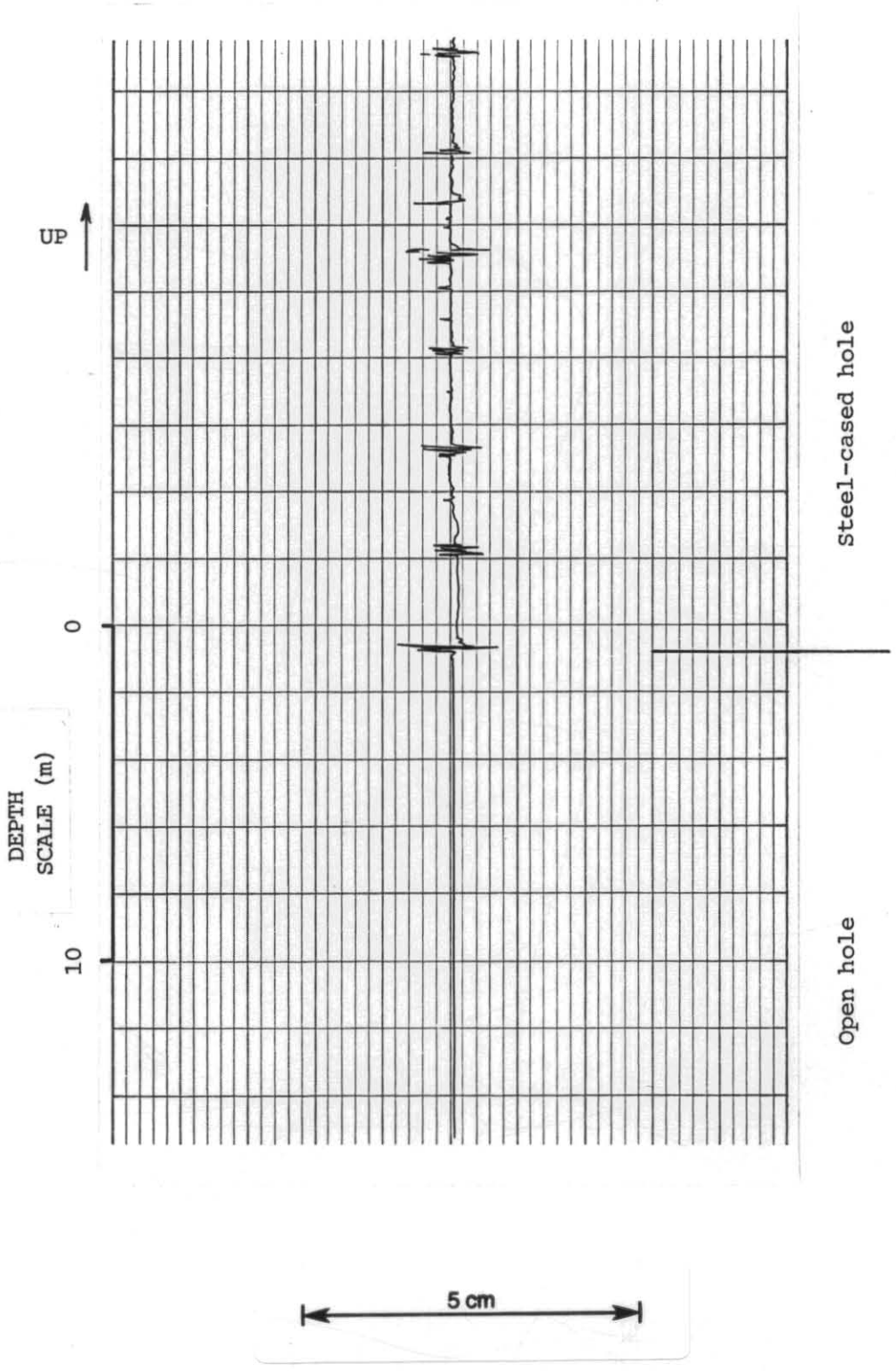

Figure 2. *CCL detection of end of casing and start of open hole (Borehole DOB4).*

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