

## Case History

# Transferring Surface Elevations Underground By E.D.M. Method

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Early last November, the Canadian Rock Salt Company, located in Windsor, came to the firm of R. A. Clarke, Land Surveyors, with an interesting problem. They have two test holes on their property which are properly logged and indicate the horizontal and vertical position of the particular bed of salt that is presently being mined. However, in order to determine the strike and dip of the bed and relate this to the present workings, a third set of three dimensional co-ordinates was required.

The only available location to accomplish the determination of the required co-ordinates was in the production shaft. The mine level is located approximately 1,000 feet below the ground surface. It was determined that the elevation had to be transferred to the mine level and that this had to be accomplished quickly, since it required closing down the production shaft.

Rather than use the old methods, it was decided to use E.D.M. as being the most efficient procedure. At the production shaft a working platform was constructed to rest on the upper end with a 7 inch diameter hole cut in the

centre. A similar platform was constructed at the mine level to cover a sump at the bottom of the shaft. Most of the time required in making the measurement was used up in getting the Distance Meter pointed properly so that the return signal was at maximum intensity. After this had been accomplished, it was a matter of a couple of minutes manipulating the dials to determine the distance.

It was necessary to determine the vertical location of the centres of measurement of both the Distance Meter and the A.G.A. prism. This was accomplished using an engineering level, both at the top of the shaft and at the bottom. The elevation at the top was related to a nearby geodetic elevation and at the bottom was transferred to a permanent bench mark in the mine.

The whole operation kept the production shaft closed down for half a day and the results were obtained with no difficulty at all. Atmospheric corrections to the measured distance were incorporated at the time of measuring and the resultant difference in elevation is considered to be within 0.02 feet.