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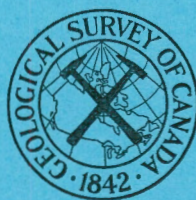
W. L. Lard

CANADA
DEPARTMENT OF MINES AND TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA
TOPICAL REPORT NO. 45

WATER SUPPLY, R. C. M. P. DETACHMENT,
ONION LAKE, SASKATCHEWAN

BY
A. M. TOTH



OTTAWA
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WATER SUPPLY, R.C.M.P. DETACHMENT
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Water Supply, R.C.M.P. Detachment, Onion Lake, Saskatchewan

(300 feet east of south west corner of south west quarter of Section 5, Township 55, Range 27, west of 3rd Meridian)

General Description

On September 22, 1961, Sargent K. W. MacLeod of the North Battleford R.C.M.P. office and A.M. Toth of the Geological Survey of Canada visited the R.C.M.P. Detachment at Onion Lake, Saskatchewan. The purpose of the visit was to advise the R.C.M.P. on locating a suitable water supply for their Onion Lake detachment.

The detachment is located on a hillside overlooking Onion Lake. 1,500 feet to the south and 75 feet below the R.C.M.P. buildings is the lake, the surface of which probably represents the ground water level in the sands and gravels surrounding the lake and the surrounding country-side. Presently the R.C.M.P. obtain their water supply from a rain water cistern and water hauled into this cistern by a local merchant for \$15.00 for 500 gallons (no competition) at an estimated annual cost of \$1,500. 500' north west of the detachment a shallow well located in a small valley or ravine in the hillside, supplies good water to the owner of the property. In the village of Onion Lake, people obtain their water supply from shallow wells. Due to the location of the detachment on a small 100' X 125' plot situated on a high isolated ridge, all possibilities of a shallow well water supply are ruled out.

Previous Work

A 30' test hole indicated dry sand and gravel to a depth of 10' and then dry clay. At the time the detachment was built in 1956, a 150' test hole was drilled on the property, with a show of water at 125', but due probably to no well development and well screening the

supply of water from this depth "petered out". No logs of this test hole are available.

Mr. Chorney, an Alberta water well driller, submitted a bid of \$2,500. to bore a 42" hole to a depth of 150' or until water at 125' ± 10' was encountered. There is no doubt that Mr. Chorney and his "one horse boring machine" could supply the detachment's water requirements. However, the \$2,500. drilling and cribbing costs + \$500. for pump costs are much too high to develop a small water supply.

Recommendations (In order of Importance)

1. Drill or bore a shallow well in the sands and gravels near the lake and pipe the water to the detachment. This water will be the most suitable quality and quantity of any water supply which could be developed

Cost - shallow well	\$250.
- pipeline @ .50 foot	\$750.
- pump	\$200.
- electrical hook-up	<u>\$200.</u>
	\$1,400.

2. Bore a shallow well on the ravine immediately east of the R.C.M.P. buildings

Cost - shallow well	\$250.
- pump + pipe	<u>\$300.</u>
	\$550.

3. Bore a shallow well 500' N.W. of the detachment near the cattle corral of the adjacent property to the west.

Cost -	\$700.
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4. As a last resort I would suggest deep well drilling of the property. Churn drilling or Rotary drilling would be acceptable.

Specifications

- A. Drill a test hole able to take a 4" casing to a depth of 125' [±] 10' or until the water bearing sand is penetrated.
- B. Take samples every 10' to submit to the Saskatchewan Provincial Water Resources Commission.
- C. Samples of the water bearing sand are required so as to determine the proper well screen. (Well screen length should be 3 feet)
- D. Cost per foot should be obtained if drilling to depths greater than 125' [±] 10' is required.
- E. The well should yield at least 2-3 gallons 1 minute.

An estimate of the costs of the outlined drill program would be:

- mobilization	\$125.
- 125 feet X \$6.00 1 foot	\$750.
- 3' of 4" well screen	\$125.
- balanced beam deep well pump	<u>\$500.</u>
	\$1,500.

(This cost is less than one half the cost bid by Mr. Chorney).

However, the chance of getting water is only 75% while with Mr. Chorney it is 100%.

The quality of water from a depth of 125' and more may be quite poor, as compared to the present water supply. It is possible that iron removal equipment and a higher capacity softener may be required.

The estimated cost of \$1,500. could be greatly increased if it were necessary to go to depths beyond 125' \pm 10'. However, drilling should be stopped once the shale has been encountered.

September 22, 1961.