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Director
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Additional Water Supply for Williams Lake 0239014A

The mayor of Williams Lake, Mr. A.J. Fraser, has requested in a letter to the Minister dated August 13, 1975 for participation in the installation cost of a third production well. A review of the present well supply and of the groundwater conditions at Williams Lake was conducted to assess the feasibility of a third production well.

The present water supply for the town comes from two production wells located on Scout Island at the west end of Williams Lake east of the town. When additional water is required during the summer months, lake water supplements the town supply. This latter source however is not desirable because of taste and odour problems.

The first production well (10-inch diameter, rated at 1000 USgpm) was installed in 1963 by the Groundwater Section following a geologic mapping and test drilling program by the Section. The second production well (14-inch diameter, rated at 1200 USgpm) was installed 100 feet east of the first well in 1971 by Dayton and Knight Limited, Consulting Engineers. Present production rates of wells 1 and 2, are 720 and 1200 USgpm respectively. The immediate and future additional requirement of the town is for 2000 USgpm (pers. comm., Dayton and Knight, September 1975).

Previous geologic mapping and test drilling suggest the aquifer is linear in shape with its long axis extending eastward beneath Williams Lake. Drill sites located anywhere on Scout Island should intersect the aquifer. An aquifer transmissivity of 620,000 USgpd/ft. and storage coefficient of 1×10^{-4} are considered representative of the aquifer on the basis of completed pump tests. Specific capacities of well 1 and 2 range from 64 to 78 and 75 to 82 USgpm/ft. of drawdown respectively for various pumping periods tested. Theoretical interference drawdown in wells 1 and 2 for pumping periods of 100 days are less than 4 feet. This magnitude of interference drawdown appears consistent with observed drawdowns in the production wells and nearby observation wells monitored from 1968 to 1975.

On the basis of the above aquifer characteristics, well productivity and recorded well performance, it would be possible to install a third production well at the site. Allowing for a minimum well spacing of 100 feet there is adequate space available on Scout Island. A suggested site west of well 1

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suitable to the town would be appropriate with the three wells in line to facilitate pump test analyses. For a yield of 2000 USgpm a 16-inch well casing is recommended for pump installation. The aquifer could be screened for example with 40 feet of 150-slot, 12-inch nominal screen which has a transmitting capacity of 2976 USgpm at an optimum screen entrance velocity of 0.1 fps. Final screen design would depend upon grain size analysis results of the aquifer samples during drilling. The theoretical interference drawdown of the proposed well pumping at 2000 USgpm would be less than 7 feet in well 1 and less than 6 feet in well 2.

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