



MEMORANDUM

To: Dr. J. D. Foweraker, Head
Groundwater Section
Water Management Branch
Minsitry of Environment

Date: January 31, 1985

File: 92 B12#15

Re: Groundwater Quality, Mill Bay Area

Please find attached report prepared by Mr. Kwong following his review of groundwater quality information in the above area. Previously well interference was identified as a concern in this area (see attached copies of correspondence). It would appear from the limited quality data available that groundwater withdrawals from bedrock irrigation wells in this area maybe having an affect upon local groundwater quality in the bedrock. Where monitored since 1981, in Observation Well 256, the affect appears to be a slight overall increase in dissolved mineralization (TDS from 397 to 448 mg/L), increase in hardness (35.4 to 84.5 mg/L) and increase in total alkalinity, (106 to 137 mg/L). This maybe caused in part by induced recharge of shallow bicarbonate type groundwaters by pumping of the deeper bedrock zones or induced movement of bicarbonate type waters preferentially through limestone zones. Limestone bedrock is commonly associated with the higher capacity bedrock wells in the area. The areal distribution of available data is presently insufficient to assess whether salt-water intrusion is occurring in the area.

Due to the magnitude of well interference affects which are occurring and subsequent changes in groundwater quality, additional water quality monitoring in the area is recommended as follows:

1. - continued monitoring of quality in Observation Well 256 which has been recording significant interference affects of the irrigation wells. Two samples each fiscal year are recommended; one prior to the irrigation season during the period February to April and one immediately following, in October.

Mr. Brady
Continued monitoring as
proposed in 1, 2 & 3 of
Mr. Kohut's memo is
recommended.

JF 5/2/85
Agreed
13 Feb 1985

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Ms. Kwong
Mr. Kohut *apk.*
File
Please proceed as
recommended.
7 Feb 1985.

2. - a field inventory of selected wells in the area including field determinations of pH, electrical conductivity, temperature, alkalinity, hardness, chloride and iron. This information should indicate whether salt-water intrusion is taking place.
3. - A limited amount of laboratory analyses (six for example) at selected sites depending upon the results of 2 above.

Apart from annual water quality sampling of the observation well it will require 2 man weeks of field time to carry out the field inventory work and limited sampling for laboratory analysis. Costs for laboratory analyses will be approximately \$1,200.



A. P. Kohut
Senior Geological Engineer
Groundwater Section
Water Management Branch

APK:nh
Attach.