To: C.H. Coulson  
Head  
Hydrology Section

Date: April 18, 1989

Re: Meeting with Summerland Water Advisory Committee

On March 21, 1989 a meeting was held between the attendees listed below to discuss various aspects of the water supply for the District of Summerland:

Committee Members

Ron Dunsdon - Chairman
Buck Barkwill
Fred Gartrell
Ron Mayne
Tom Johnston

B.C. Ministry of Environment

Neil Banera, Head, Water Allocation, Penticton
B. Letvak, Hydrology Section, Victoria

I distributed and reviewed the attached information sheet and also reviewed the major aspects of the 1981 study by Eric Weiss. There was discussion regarding the above, about questions raised in R. Dunsdon's letter of February 3, and other items of interest. Major points discussed are described below:

1. The computer outputs attached to C.H. Coulson's letter of May 2, 1982 were discussed with regard to the possible value of diverting water from Penticton Creek or North Trout Creek into Headwaters Lakes Reservoirs. Note that these computer runs were for the case of expanded storage in Headwaters Lakes (4604 acre-feet total, or 1000 acre-feet increase) plus the proposed 1500 acre-feet Trout Creek reservoir. Single year droughts of 1 in 10 and 1 in 100 probabilities were tested. For these particular conditions it was demonstrated that there was no further benefit to the proposed diversion. The expanded storage as tested did provide an increase in water supply capability as opposed to the existing (1981) system. It was suggested that multiple year droughts should be analysed as the proposed diversion may provide benefits for this case. This will be done if the computer program and data sets used for the analysis are still functional.
Another significant item raised in the above discussion is that there is suspicion that the runoff estimate for the Crescent Lake to Headwaters Lakes sub-basins used in the Weiss study may be too high. This is possible, since the estimates are from a statistical model. In order to verify this, a rigorous data collection program would be required involving reservoir levels, diversion flows, reservoir release flows and spills. With regard to the benefits of the proposed diversion of Pitin Creek or North Trout Creek, the results of the computer analysis of monthly flows could of course be different if the runoff was significantly different from that used in the study.

The second information sheet which I prepared for the meeting had a column indicating the annual maximum and minimum storages for the sum of all the Summerland reservoirs. This includes Garnet Lake in the Eneas Creek portion of the Summerland system. It was agreed that it would be desirable to produce separate data for storages in the Trout Creek and Eneas Creek systems. The Summerland Committee agreed to do this. It is recommended that the ongoing data recording for the system storages be divided into the two sub-systems.

The overview information sheet could also benefit from columns showing annual values for snow water equivalent, runoff for a local representative watershed, and seasonal evaporation. This sheet would then give an overview of annual data relating to annual water supply.

The Weiss report (subject to the uncertainties described above) and the overview of system operation history (second page of the attachment) both indicate that the existing system is able to meet current levels of water use with a considerable level of safety. There is clearly no urgent need for system expansion or revision. However, it is appropriate to review the various aspects of system water supply capability, operations, data collection, etc. with regard to long term planning.

Data collection in the system can be valuable for assessing runoff in the various sub-basins, which is then used for operations, as well as assessment of system water supply capability and the effect of system changes. In order to produce runoff data of adequate quality for these uses it is necessary to design and diligently execute a rigorous program of data collection. This requires a serious commitment and takes a significant amount of resources (time and/or money), but is essential to support high quality management of a water supply system of this type. It should be possible for the Province to provide some
advice and assistance in the review of existing data collection and
the design of an improved program.

6. The value of a drought contingency plan was discussed and it was
suggested that Summerland undertake the development of such a plan.
The Province can probably provide some advice in this regard.

7. Further to the above, Mr. Dunsdon provided a copy of their minutes of
the meeting. A copy is attached with some suggested clarifications
added by hand. Regarding the item on data collection, it should be
emphasized that better data on runoff in the system (especially key
sub-basins) is required if better analysis of system water supply
capability is hoped for in the future.

8. A follow-up discussion with Buck Barkwill was held by telephone to
discuss runoff observations taken by the District for 1988. As an
offshoot of our discussions, I am forwarding copies of runoff data and
some plotted annual hydrographs for Bull Creek. This is to provide an
example of runoff timing and magnitude for an unregulated sub-basin of
Trout Creek. The years chosen were examples of high and low runoff
volumes and peaks, and early and late peaks. The "average" hydrograph
for the period of record is included for comparison. NOTE: two graph
scales are used because of the large variation in runoff for the years
in question.

D. B. Letvak
Senior Hydrological Engineer
Hydrology Section
Water Management Branch
387-9477

DBL/sz
AES/W3383

Attachment

cc: R. Dunsdon
    N. Banera
TROUT CREEK RUNOFF

Beckner Area

a) Above WSC gauge (764 km²) = 295 mi²
b) Sum of sub-basins above intake = 279 mi²

Runoff Estimates

a) W.S.C. station BNM158, 1970-82 (not adjusted for water use)
   Average annual runoff = 55 000 ac-ft
   Water use correction - average annual = 10 000
   "Natural" annual runoff = 55 000 ac-ft
   Runoff depth 4.1 inches

b) Runoff Estimates Model (used in Weiss report)
   Estimated runoff (sum of sub-basins) = 52 000 ac-ft
   Runoff depth 3.5 inches

c) Grid Square Estimates (Okanagan Basin Study)
   Estimated annual runoff = 82 000 ac-ft
   Runoff depth 5.1 inches
   Annual Precipitation 22.5 inches Guesstimates
   Annual Evaporation 17.4 inches

Annual runoff 23% annual precipitation
### TROUT CREEK - SUMMERLAND STORAGES AND WATER USE

(acre-feet)

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* Including Garnet Lake 1891 ac-ft. (Eneas Creek sub-system)

**F** - System full or "over-full"
THE WATER ADVISORY COMMITTEE MET IN THE COUNCIL CHAMBERS, SUMMERLAND, B.C. ON THURSDAY, MARCH 21, 1989 at 12:15 P.M.

Present: Chairman - R. Dunsdon
Members - B. Barkwill
- T. Johnston
- R. Mayne

The guests were Bruce Letvak and Neil Banera from the Water Branch, who made an extensive presentation and their comments, in summary, are as follows:

- Our system has sufficient water storage capacity to meet present needs;

- The Weiss report looked at the existing system and a new modified system with an extra 2500AF of storage in the system and the summary therein refers to multi-year drought events as well as single year events.

- Monitoring is expensive and must be done rigorously and Summerland's data collection should be improved; the total system is quite adequate to meet our present needs but parts of the system should be monitored, e.g. Headwaters sub-basins;

- Bruce would be prepared to give us advice on data collection and management of the system;

- There would be government funding and/or expertise available to assist in data collection and monitoring and it would be an economically beneficial exercise for system management and planning;

- Licences are issued based on demonstrated need and can be cancelled if streams are over-licenced but generally once you have them you keep them;

- Peachland Dam licencees will be required to pick up the responsibility of maintaining the dam which will cost money;

- Looking at the proposed diversion ditch, it appears we could go through a drought year without it;

- Dredging is too expensive;
Ø8NM133 BULL CREEK near CRUMP

1969-85

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