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## **Kelowna Waste Water Management and Reclamation Program**

W.S. (Stu) Fleming, Municipal Administrator, District of Summerland

June, 1991

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This case has been chosen for the following reasons:

1. The program was critical to the future development of Kelowna, and without it, the development in Kelowna had reached an impasse;
2. The complexity of process involving local, provincial and federal interests;
3. The inherent risk in proposing a new technology (untried in Canada) and dealing with those who were skeptical;
4. The successful outcome and its bearing on the development of Kelowna today;
5. The long range thinking that was embodied in the program, and the option which it gave to Council in the j future;
6. The demand on the C.A.O. for leadership (his neck), guidance, coordination, determining strategy, and deciding on involvement and above all the willingness to take risks and be accountable for the program recommended.

## SUMMARY

### KELOWNA WASTE WATER MANAGEMENT AND RECLAMATION PROGRAM

#### 1. History and Need for Program

The subject of Waste Water Management had occupied the energies of Kelowna Councils and its Administration since 1967. Up until 1979 the city had expended in excess of \$400,000 in engineering studies by various groups trying to come up with an answer that would satisfy the political demand for taking the flow out of the lake and providing alternative solutions to the management of waste water programs.

#### 2. Essential Elements to be Included in Program

The essential elements were as follows:

- 1) The current need to increase the capacity of the existing treatment plant to meet the requirements of predicted population growth for the next 10 to 15 years;
- 2) The need for the plan to encompass the then provincial policy of **no** more discharges to the Okanagan Lake system;
- 3) The programs had to contain sufficient flexibility to allow for the use of new technology and the possibility of more than one plant at a later date.

#### 3. Objectives and Options

The objective was to provide for a Waste Water Plant that

- 1) upgraded the existing plant level of treatment;
- 2) was able to use the treated effluent or waste water on the land for agricultural purposes; and
- 3) could be treated to such a standard, that if the land option would not work, then the quality of the water was high enough to be accepted into the lake.

"Options", there was no option, they had all been tried over the past several years. This was "make or break".

#### 4. Municipal Council

Municipal Council over the years have been subject to intense public pressure on the subject of its Waste Water Treatment Program and its stand on whether discharge to Okanagan Lake should be allowed. It had cost one Mayor his job, and caused considerable embarrassment and problems for municipal councils, hence the large expenditure of monies on consultants.

It was necessary for the program proposed to give Council comfort to do the job required, and that they could stand together, adopt it, and then defend it if necessary.

#### 5. The Program

The program was,

- 1) the use of bardenpho treatment, a technology from South Africa, hitherto untried in British Columbia;
- 2) the taking of water from the lake to Southeast Kelowna where reservoirs and dry lands had been identified in sufficient quantity to meet the needs of the proposal.

#### 6. The Ministry of Environment Pollution Control Branch

The role of this Branch was critical in the program. Kelowna was required to apply for an amendment to its existing permit (which it was already exceeding) in order to enlarge its plant, and either go to the use of water on land or continue to discharge on the lake.

#### 7. Approach to Informing the Public

The Administrator decided that the approach to dealing with the public was to be an informative-open one, also aggressive. We would seek to be asked to come and address public interest groups such as Spec, No Effluent Wanted, and other environmental interest groups. We

also dealt with the Southeast Kelowna Irrigation District trustees on an intimate basis both with regard to

- 1) asking them to become part of the plan as wholesalers of the treated effluent, and seeking their support for accepting water into their area;
- 2) the approach that was decided on to deal with government agencies was to get sufficient support for the plan that the Pollution Control Branch would not have any problems in amending the permit.

#### 8. General Summary of Program Presentation and Outcome

The program was presented to Council in the form of a report and recommendations as attached to this summary. It was agreed by Council after they had adopted all the recommendations that they would stand by the program until such time it was plainly evident that it would not be successful.

The Administrator assumed responsibility for presenting the program and dealing with all the government agencies.

In the end, this process was totally successful, even though opposition from the Medical Health Officer was very strong.

Finally the plant was built as presented, on time and very close to budget.

Without this major event in the development of Kelowna, the lack of a Waste Water Management Program would have stifled the growth of the city and almost bring it to a halt. It was probably the most critical item of the decade to be dealt with.

It is interesting to note that the latest Waste Water Management Plan has retained most of the elements that were contained in the original program, including the possibility of building a second treatment plant; and it is also interesting to note that the current waste water planning process of the Ministry of Environment parallels in large measure the experience of the City of Kelowna.

KELOWNA WASTEWATER MANAGEMENT & RECLAMATION PROGRAMS"HIGHLIGHTS"

Stage 1 of the program recommends:

- \* - Adoption of Land Disposal and Water re-use concept.
- \* - Calls for the reduction of effluent flows to the lake by 85% to 95% by 1986. Balance of flow pending total removal will be of high quality with nitrogen and phosphorus discharges to Okanagan Lake reduced by 98%.
- \* - Increases plant capacity to 5 Million imp. gal/day (i.m.g.d.)
- \* - Total capital expenditure Stage I estimated \$14.88 Million.
- \* - Requires increase in sewage rates of 35% or \$26.00 per household per year.
- \* - Flexibility to adapt to changing technology built into proposals.
- \* - Policy option for more than one treatment facility preserved.  
Program recommended will allow the Development Plan to be implemented making possible the economic and orderly growth of the City.
- \* - Stages II and III call for total removal of flows to the Lake by 1991. (Can be accelerated based on demand for reclaimed water).

KELOWNA WASTEWATER MANAGEMENT & RECLAMATION PROGRAMS MAY, 1979RECOMMENDATIONS

A.

1. Pollution Control Board Permit No. PE-60

That the City of Kelowna apply to amend P.C.B. Permit No. PE-60 to reflect the following:

- i) Increase capacity of Pollution Control Centre to 5 Million imp. gal/day (i.m.g.d.)
- ii) Convert Treatment Process to "Bardenpho" in order to produce high quality reclaimed water.
- iii) Discharge of reclaimed water to be by a staged program to the land leading to removal of total discharge to Lake Okanagan.

(See attached Draft Permit Amendment)

2. Land Disposal

- i) Adopt principle of water re-use for agricultural and other land disposal uses.
- ii) Authorize City staff to continue to work with South East Kelowna Irrigation District and others to implement water re-use program.
- iii) Authorize City staff to continue working with Provincial and Federal Government agencies to optimize agricultural use of reclaimed water.
- iv) Authorize City staff to work with Provincial Health and Environmental agencies and the South Okanagan Union Board of Health to develop suitable programs to ensure that all concerns related to the wastewater re-use program, are resolved.
- v) Authorize City staff to continue to monitor State of California programs in the field of Water Reclamation. (It should be noted that extensive research programs are now underway which will be of benefit from both health and agricultural aspects).

**B.**

3. Finance

- i) City Council adopt financial plan (Stage I) contained in this report subject to the following additional recommendations:-
- ii) City staff be authorized to continue negotiations with Provincial Agencies with a view to maximizing use of existing government assistance programs.
- iii) City Council continue to negotiate with the Provincial Government for the establishment of an additional source of financial assistance to the Okanagan Valley municipalities in order to minimize local costs of land disposal and to provide financial assistance to encourage the use of reclaimed water for agricultural and other land disposal purposes.

**C.**

4. Policy

- i) That City Council's Sewage Treatment Advisory Committee continue to function as a monitoring and advisory committee to Council on all aspects of the program.
- ii) That City Council on adoption of these recommendations proceed to adoption of the Development Policy Program (subject to A.L.R. appeal results) as prepared by the Planning Department of the City.
- iii) Following adoption of (ii) that a detailed program and timetable be prepared for sewer development of appropriate areas of the City and policy conditions under which sanitary sewer service will be established.

D. Administrative

1. a) That the firm of Knight & Piesold Ltd. be retained for the purposes of Sewage Treatment Plant design and construction.  
b) That the firm of Knight & Piesold Ltd. be required to engage as sub-consultants Dr. James Barnard and Dr. W. Oldham, to assist in the design process.  
c) That all fees are to be negotiated by the City and approved by Council before agreements are signed.
2. That the City proceed to obtain design and operating assistance from the Federal Government (via Wastewater Technology Centre, Burlington, Ontario (Dr. Bruce E. Jank)).
3. That the Director of Engineering Services be authorized to call for proposals for suitable Engineering Consultants for the design and construction of Land Disposal Works (Phase I).
4. That the "Ad Hoc Technical Committee" continue in existence to assist the City in the implementation of the program e.g. Dr. D. Clarke, S.O.H.U. and representatives from Ministry of Environment, Ministry of Agriculture, Dr. D. Stevenson, Summerland Research Station, Water Investigations Branch, A.R.D.A., and S.E.K.I.D.
5. That the tentative program schedule attached be adopted.
6. That materials for Public Information be developed for the purpose of holding public information meetings and having printed material available for **public distribution.**

PARTICIPATING AGENCIES AND ACKNOWLEDGEMENTS

This report was prepared by an Ad Hoc Task Force of City Staff assisted by many government agencies and the staff and Trustees of South East Kelowna Irrigation District.

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