

DISCUSSION PAPER NO. 4

Regional District of Kitimat-Stikine Stage 3 Liquid Waste Management Plan

Estimated Costs of Operating a Septic System Management Program

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Septic tanks are the main component of a Type 1 on-site wastewater treatment system. It is important that these tanks are properly maintained, i.e. pumped out and inspected, if the septic systems are to function on a sustainable basis. Under the proposed changes to liquid waste management in the study area, some of the lots around Lakelse Lake would be taken off individual disposal fields and connected through a STEP (septic tank effluent pump) system to either a cluster-type septic system (on the west side of Lakelse Lake) or to a communal wastewater treatment plant. However, all properties would still have septic tanks (or a version of them) as the point where the solids settle and the effluent pump is located. As a result, both Type 1 septic tanks and STEP system tanks would still need to be pumped out and inspected on a regular basis.

Based on the above, one of the main components of the proposed Lakelse Lake – Jackpine Flats Liquid Waste Management Plan (LWMP) is a program that will help manage the operation of the septic tank systems within the study area including around Lakelse Lake and in Jackpine Flats. The main components of this program will include the following:

- An education program regarding the location and operation of septic systems and drinking water wells. This program will be conducted through twice-yearly educational flyer mailouts.
- A surface water and well water monitoring program to monitor conditions in the Lakelse Lake, Williams Creek, Sockeye Creek and in the groundwater in Jackpine Flats. This program would be based on annual sampling to identify any trends in water quality deterioration that may occur.
- A program, administered by the RDKS that would have the septic tanks on all lots in the study area pumped out and inspected once every three years, regardless of usage. This would help to ensure that the operation of both the septic tanks and disposal fields that remain and the septic tanks used in the STEP-based systems are in good operating order.

The RDKS has already started the education program process on septic tank operation and well-head protection with brochures and pamphlets enclosed in other mailouts to property owners in the Jackpine Flats- Lakelse Lake area. This program should continue with regular, e.g. twice per year, e.g. March and October, information mailouts to help ensure that septic systems are operated and maintained properly and that they do not encroach on drinking water wells (or vice versa).

During the course of this LWMP, water samples were collected from Lakelse Lake, several tributaries to Lakelse Lake, Sockeye Creek, William Creek and several drinking water wells in the Jackpine Flats area. These sampling locations can be used as “sentinels”, to show whether there are significant changes to the

water quality in the lake, the creeks, or the ground water over time. The water quality monitoring program will, at the minimum, take annual samples, log the results, and compare the current results to the historical results and the appropriate BC or Federal water quality guidelines.

Previous sampling programs conducted by the BC Ministry of Environment have included 27 Lakelse Lake sites and 4 Jackpine Flats sites. In addition, the RDKS has sampled 10 drinking water wells in the Jackpine Flats area. It is anticipated that approximately 8 sites at Lakelse Lake and 8 sites at Jackpine Flats could be used as the sentinels. These samples would be taken in the summer, possibly by an RDKS summer student who would also up-date the data base and write a report that identifies any trends in the data. Sample analysis would cost about \$300/sample.

The septic system management program would most likely be based on the “Public-Private” model discussed previously in Stage 2 of the LWMP. In this model, the ownership and responsibility for the maintenance and repair of septic systems would remain with homeowners (“Private”). However, the RDKS (“Public”) would provide a service that would coordinate the once-per-three year pump-out and inspection of the septic tanks and, as necessary, the disposal fields. The RDKS would also arrange contracts with septic-tank pump and inspection companies so that the cost can be minimized. The RDKS would pay the contractor. Property owners would pay the RDKS for this service and the administration of the overall program components, as described above. Owners of systems that would be connected to an off-site treatment system, i.e. a cluster or communal treatment system would pay fees, in addition to the septic system management fees.

A senior RDKS staff person would oversee the septic system management program. The bulk of the program coordination, education program, record keeping and billing would be done by other RDKS staff on part-time basis. A conceptual budget, based on servicing 625 septic tanks in the study area, is presented in Table 1.

It is anticipated that the numbers in Table 1 will be further refined at the time of program implementation. At this point in the process, it is anticipated that the average annual cost to the septic tank owners will be in the order of \$120 to \$125 per year per septic tank (including the STEP tanks but excluding the cost of cluster or communal wastewater treatment for those that receive that service).

In comparison, a “Private-Private” model, in which the individual home owners are responsible for arranging the tri-annual cleanouts and inspections is also possible. In this model, the RDKS would still administer the records of the cleanouts and inspections but the level of effort would decrease, relative to the Public-Private model. However, in the Private-Private model is anticipated that individuals would not get as low a price on the cleanouts and inspections as the RDKS could (through a competitive contracting process). The resulting cost estimate for the Private-Private model is shown in Table 2. As may be seen, the results are virtually the same as in Table 1 for the Public-Private model, i.e. \$120 to \$125 per year per lot.

On the basis of the above, it is likely that the extra control offered by the Public-Private model means that it would be the better of the two models to be used to help protect the Lake and groundwater quality.

Table 1 Estimated Cost of Implementing a Public-Private Septic Tank Management System

| Item | Units | No. of Units | Cost per Unit | Extension |
|--|----------------|--------------|-------------------------------|-----------------------|
| Administration Staff (approx. 2 hr per week) | FTE | 0.05 | \$ 70,000 | \$ 3,500 |
| Program Staff - 1 hr per client coordinating pump-outs, record keeping, etc. | FTE | 0.12 | \$ 50,000 | \$ 6,000 |
| Dedicated Computer (annual allowance) | Annual | 1 | \$ 1,000 | \$ 1,000 |
| Monitoring Program (including retrieving samples and record keeping) | Sampling | 16 | \$ 300 | \$ 4,800 |
| Education Program | FTE | 0.06 | \$ 50,000 | \$ 3,000 |
| Stationary and Supplies (annual allowance) | Annual | 1 | \$ 1,000 | \$ 1,000 |
| Number of clients | Septic Systems | 625 | | |
| Postage for mailouts (notices, bills, etc) (2 per year) | Stamps | 1250 | \$ 1 | \$ 650 |
| | | | Sub-total = | \$ 19,950 |
| | | | Total Admin Cost Per System = | \$ 32 |
| Cost of Clean-out/inspection - via contracted services | Clean out | 1 | \$ 200 | \$ 200 |
| Frequency of inspection | Years | 0.333 | | |
| Nominal average cost per year - cleanout and inspection | | | | \$ 67 |
| Sub-total cost per lot per year (admin cost plus pump out cost) | | | | \$ 99 |
| Contingency Allowance | Percent | 20 | \$ 20 | \$ 20 |
| Total Cost per year per client | | | | \$ 119 |
| | | | Say | \$120 to \$125 |

Tank inspection info:

| | | |
|---|-----------------------------------|-----------|
| No. of pump-outs/inspections per year (average) | Tanks | 209 |
| (April to October inclusive) | Ave. No. of inspections per month | Tanks 30 |
| | Ave. No. of inspections per week | Tanks 7.5 |
| | Ave. No. of inspections per day | Tanks 1.5 |

Table 2 Estimated Cost of Implementing a Private-Private Septic Tank Management System

| Item | Units | No. of Units | Cost per Unit | Extension |
|--|----------------|--------------|-------------------------------|-----------------------|
| Administration Staff (approx. 1 hr per week) | FTE | 0.03 | \$ 70,000 | \$ 2,000 |
| Program Staff - 0.5 hr per client coordinating pump-outs, record keeping, etc. | FTE | 0.06 | \$ 50,000 | \$ 3,000 |
| Dedicated Computer (annual allowance) | Annual | 1 | \$ 1,000 | \$ 1,000 |
| Monitoring Program (including retrieving samples and record keeping) | Sampling | 16 | \$ 300 | \$ 4,800 |
| Education Program | FTE | 0.06 | \$ 50,000 | \$ 3,000 |
| Stationary and Supplies (annual allowance) | Annual | 1 | \$ 1,000 | \$ 1,000 |
| Number of clients | Septic Systems | 625 | | |
| Postage for mailouts (notices, bills, etc) (2 per year) | Stamps | 1250 | \$ 1 | \$ 650 |
| | | | Sub-total = | \$ 15,450 |
| | | | Total Admin Cost Per System = | \$ 25 |
| Cost of Clean-out/inspection - via contracted services | Clean out | 1 | \$ 225 | \$ 225 |
| Frequency of inspection | Years | 0.333 | | |
| Nominal average cost per year - cleanout and inspection | | | | \$ 75 |
| Sub-total cost per lot per year (admin cost plus pump out cost) | | | | \$ 100 |
| Contingency Allowance | Percent | 20 | \$ 20 | \$ 20 |
| Total Cost per year per client | | | | \$ 120 |
| | | | Say | \$120 to \$125 |

Tank inspection info:

| | | |
|---|-----------------------------------|-----------|
| No. of pump-outs/inspections per year (average) | Tanks | 209 |
| (April to October inclusive) | Ave. No. of inspections per month | Tanks 30 |
| | Ave. No. of inspections per week | Tanks 7.5 |
| | Ave. No. of inspections per day | Tanks 1.5 |