Technical Memorandum No. 5

Regional District of Kitimat-Stikine

Lakelse Lake/Jackpine Flats Stage 2 Liquid Waste Management Plan (LWMP) Review of the New Sewerage System Regulation

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Regional District of Kitimat-Stikine
Lakelse Lake/Jackpine Flats
Stage 2 Liquid Waste Management Plant (LWMP)

Review of the New Sewerage System Regulation

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1 Introduction

Stage 1 of the Regional District of Kitimat-Stikine (RDKS) Lakelse Lake-Jackpine Flats Liquid Waste Management Plan (LWMP) noted that virtually all of the residences and establishments in the Lakelse Lake-Jackpine Flats area are on septic systems. Stage 1 also indicated that some of the septic systems might not be operating as intended. As a result, Stage 1 identified the need to investigate procedures that will deal with non-compliant/failed septic systems to ensure that they will be brought back into compliance, either through replacement of the existing septic tank system, upgrading the level of treatment, or connection to a "cluster"-type treatment system.

Since beginning the Lakelse Lake-Jackpine Flats LWMP planning process, the British Columbia Health Act Sewage Disposal Regulation has been repealed and replaced with the Sewerage System Regulation, effective May 31, 2005. Due to the predominant use of septic systems for wastewater disposal and treatment in the LWMP area, this technical memorandum will summarize the changes in the new regulation to show how they may impact the implementation of the Lakelse Lake-Jackpine Flats LWMP.

2 New Sewerage System Regulation

The new Sewerage System Regulation was approved on July 6, 2004 and came into effect May 31, 2005. This regulation replaces the preceding prescriptive Sewage Disposal Regulation with an outcome-based, industry-driven approach. The new regulation requires that "registered practitioners" or "professionals" plan, install, and maintain onsite wastewater systems, such as septic tanks. Practitioners currently in the business, who are not designated as a "professional" as defined by the regulation, are required to become registered.

Under the new regulation, the Applied Science Technologists & Technicians of British Columbia (ASTTBC) is the governing body responsible for the registration process for "registered practitioners". Prior to becoming "registered practitioners" with ASTTBC, all prospective registrants are required to meet the British Columbia OnSite Sewage Association (BCOSSA) educational requirements for system installation, planning or maintenance.
Changes that have occurred under the new Sewerage System Regulation are provided below, with explanations provided in italics.

- Industry accountability replaces Health Authority directed regulation.

  This means that "registered practitioners" and/or "professionals" are now responsible for planning, installing, and maintaining the wastewater systems. The Health Authority may still enforce this regulation through the Health Act. If a health hazard exists or a system is likely to cause a health hazard, the Health Officer has the authority to hold liable the owner of the system and/or the "registered practitioner" or "professional" that designed, installed, or was contracted to maintain the system.

- A non-prescriptive or outcome-based regulation replaces a prescriptive regulation.

  This means that the regulation no longer tells you how to design, construct or operate a system, but outlines the expected outcome of the design, construction, and operation of the treatment system.

- Permits will no longer be required.

  This means that, instead of the homeowner, a "registered practitioner" or "professional" who is accountable for all aspects of the siting, design and installation of the system is responsible for making a registration with the Health Authority. Section 8(2) of the Sewerage System Regulation requires that an "authorized person" must file with the Health Authority information regarding the proposed sewerage system, including the name, address and telephone number of the owner, the type of structure that the sewerage system will serve, conditions relating to the soil, plans and specifications of the sewerage system and written assurances that the plans and specifications are consistent with standard practice. Standard practice is defined in a companion document, the "Sewage System Standard Practice Manual" http://www.hlth.gov.bc.ca/protect/bcsrspm.pdf.

  This approach should result in fewer delays with processing and the assurance that a permanent record of the treatment system located on a property is kept on file. As a permanent record, the registration will be a valuable record for assessment during real estate transactions and refinancing, and will allow the lender or purchaser to ensure that the system meets required standards.

- The new regulation requires the training and registration of industry practitioners.

  This means that only properly trained "registered practitioners" and "professionals" will be qualified to site, design and install systems. Previously, there was no required level of educational training or related work experience for anyone siting, designing, or installing a system to have in order to conduct these tasks.
The new regulation provides flexibility.

This change in the regulation promotes the use of new and emergent technologies for the on-site treatment of domestic wastewater – and does not assume that a prescribed system design could be utilized for all sites meeting certain requirements.

The new regulation uses specified outcome standards.

This means the new regulation will have clear outcome standards that reflect the appropriate treatment method. For sites requiring a simple septic tank, the system will be “Type 1”. For sites requiring secondary treatment, the system will be “Type 2” and utilize a plant that will produce at least a biochemical oxygen demand (BOD) of less than 45 mg/L and total suspended solids (TSS) of less than 45 mg/L. For sites requiring advanced treatment, the system will be a “Type 3” and utilize a system that will produce at least a BOD of less than 10 mg/L, a TSS of less than 10 mg/L and a coliform count of less than 400 per/100 mL. The “Type” of system used depends on the design flow, site constraints, setback requirements, and land area available for the disposal system the aforementioned design criteria. The use of “Type 1”, “Type 2”, and “Type 3” replaces previous nomenclature, i.e. “conventional”, “alternate”, “unconventional”, etc.

Best practice standards will be available to support “registered practitioners” and “professionals” with system design, installation, and maintenance.

Committee-developed best practice standards ensure support and guidance is provided to industry stakeholders for design, installation, and maintenance of systems. This is the “Sewerage System Standard Practice Manual” mentioned previously.

The new regulation requires operation and maintenance of systems.

Compared to the old regulation, which did not require the ongoing maintenance of systems, the new regulation requires that the system be maintained in accordance with a maintenance plan filed with the registration. In addition, the new regulation requires the owner or operator of the system to keep up to date records of the maintenance performed, for the purpose of future assessment by anyone interested in the maintenance and condition of the system. The registration document provides an ongoing record of the sewerage system and any changes that the system undergoes due to repair, replacement or changes in the maintenance plan.

The new regulation does not apply to systems constructed prior to May 31, 2005.

Since the new regulation, including its maintenance requirements, does not apply to systems constructed prior to May 31, 2005, which includes the majority of the systems in
the Lakelse Lake-Jackpine Flats area. As a result, the LWMP should likely include provisions to deal with non-compliant/failed septic systems. However, the new regulation does apply to any significant alteration or repair to an existing system, i.e. adding a bedroom to a house, relocating a tank for a garage, replacing a failed/ruined system, etc. Under these circumstances, the existing treatment system must be registered with the Health Authority.

- The new regulation will cost homeowners more.

The increase in cost is attributed to both elevated treatment system standards and the revoked subsidy for system assessment and design provided by the Health Authority. To counteract reduced involvement of the Health Authority, domestic wastewater treatment has become the primary outcome of the new regulation through the use of the Standard Practice Manual where treatment systems now are typically larger and more complicated to help ensure sewage is properly treated. The site assessment now incorporates a more substantial soils analysis because the natural soil structure and consistency of the area that the treated sewage infiltrates into is very important in the treatment process. There is also a mandatory $200 filing fee to help offset the costs associated with managing the filings, investigating complaints, and resolving issues.

3 Impact of the New Regulation on the LWMP

In order to address liquid waste management issues impacting the Lakelse Lake-Jackpine Flats area, the Stage 1 LWMP Executive Summary provided recommendations for Stage 2 of the LWMP planning process. Specific recommendations for Stage 2 work, pertaining to septic tank disposal systems, are provided below. Each recommendation is followed with comments in italics regarding how the new Sewerage System Regulation may impact the proposed recommendation.

For the complete study area, recommendations and associated impacts include:

- Review of the current zoning bylaws for the study area in light of the potential need to increase the minimum lot size to the 3000 m² range (from 1700 m²) to sustainably accommodate on-site septic tank disposal systems and, potentially, control permitted uses.

The new regulation provides greater flexibility in the type of system used. New systems must be sited, designed, and installed by a "registered practitioner" or "professional" based on design flow, site constraints, setback requirements, and land area available for the disposal system. The aforementioned design requirements should ensure that systems are designed appropriately, considering the lot size and other constraints that may be present.

However, there is concern with existing systems. Many existing systems are located on very small lots with limited disposal fields and virtually no room for new disposal fields or raised beds. Existing systems do not have to comply with the new regulation, unless any
significant alteration or repair is to be made to an existing system, i.e. adding a bedroom to a house, relocating a tank for a garage, replacing a failed/ruined system, etc. As such, it may be appropriate for the RDKS to review and revise, if required, the current zoning bylaws in order to protect the environment from poorly sited systems - both existing and new.

- Investigate the development of a program to identify and map well and septic tank disposal field locations in order to avoid health problems due to groundwater contamination.

Under the new regulation, all new systems and existing systems undergoing repair or replacement of any major item of the system must be registered. The registration process will assist the RDKS in the development of a program to identify and map septic disposal field locations because septic tank disposal field locations will be available from the registration information. To complete the identification process, the RDKS will need to locate all water wells and existing septic tank disposal fields.

- Investigation of procedures that will deal with non-compliant/failed septic systems to ensure that they will be brought back into compliance, either through replacement of the existing septic tank system, upgrading the level of treatment or connection to a "cluster"-type treatment system.

Considering some installed systems are not functioning as intended, and therefore, may be polluting Lakelse Lake with untreated or partially treated wastewater, the RDKS needs to develop procedures to more proactively identify non-compliant/failed septic systems and implement measures to amend these systems.

The Health Authority's roles and responsibilities under the new regulation continue to include the authority to inspect and take corrective action to alleviate health hazards related to onsite wastewater systems. It may be beneficial for the RDKS to develop a program collectively with the Health Authority to investigate and remedy non-compliant/failed septic systems.

- Investigate the development of an educational program regarding the location, construction, and the care and maintenance of septic tank systems.

Although the new regulation requires all new systems and those existing systems requiring repair or replacement to be designed, installed and maintained by "registered practitioners" and/or "professionals", a public education program covering location, construction, and care and maintenance of on-site sewerage systems would likely be beneficial for all owners - regardless of whether their systems are new or existing.

Since some existing wastewater treatment systems are not functioning correctly due to high groundwater infiltration and poor soil conditions, a public education program would ensure
that owners are informed to make decisions to safeguard Lakelse Lake and the surrounding environment from non-compliant, non-maintained systems.

- Investigate the need for a monitoring and maintenance management program for existing and future septic systems in the study area.

The new regulation requires a maintenance program for all registered systems, both newly-installed and newly-repaired systems. However, a monitoring system may be required to investigate all newly installed, or recently repaired systems in the study area. Additionally, both a monitoring and maintenance program may be required for all existing systems in the study area.

- Further investigation of alternative waste management technologies, such as those used at lake front properties in Ontario.

Although the new regulation makes "registered practitioners" and/or "professionals" responsible for planning, installing, and maintaining all newly installed or newly repaired wastewater systems, the RDKS may still investigate alternative waste management technologies to provide a strategy for dealing with non-compliant existing systems.

For the Lakelse Lake West area, recommendations and associated impacts include:

- Investigation of wastewater treatment and disposal options for areas of Lakelse Lake West that are encroaching on the flood plain.

Under the new regulation "registered practitioners" and/or "professionals" are responsible for planning, installing, and maintaining all newly installed or newly repaired wastewater systems based on design flow, site constraints, setback requirements, and land area available for the disposal system. The RDKS may still investigate wastewater treatment and disposal options for areas encroaching on the flood plain.

Considering that existing systems in the floodplain may be "non-compliant", even though they may not have been identified as such, the RDKS may want to take a proactive role in developing monitoring and maintenance requirements to ensure that areas in the floodplain are complying with the treatment requirements.

For the Lakelse Lake East area, recommendations and associated impacts include:

- Further investigation of on-site versus cluster wastewater treatment options.

Even though the new regulation makes "registered practitioners" and/or "professionals" responsible for planning, installing, and maintaining all newly installed or newly repaired
wastewater systems, on-site versus cluster wastewater treatment options may still be investigated.

For the Jackpine-Flats area:

- Review the current septic tank disposal field trench design to confirm its effectiveness in slowing the natural percolation rates and providing adequate treatment.

  "The new regulation's Standard Practice Manual details trench construction criteria, effluent infiltration monitoring well, sizing, dimensions, and distribution box options. The standard practice manual could be used by the RDKS to review the current septic tank disposal field trench design to confirm its effectiveness in slowing the natural percolation rates and providing adequate treatment."

- Develop a viable strategy to deal with the older "grandfathered" septic systems that do not have the "slow drain" disposal fields. This could include excavation and replacement of the disposal fields using less pervious soils, i.e., soils with more fine grained material or in requirement to implement raised bed disposal fields.

  "In developing strategies to deal with older "grandfathered" septic systems that do not have the "slow drain" disposal fields, the RDKS must first develop an approach to identify septic systems that are "grandfathered" and do not have the required "slow drain" disposal field. After an approach to identify these systems has been established, strategies to effectively deal with these "grandfathered" systems can be developed and implemented."

  "The new regulation will assist the RDKS in dealing with "grandfathered" systems because it requires owners to seek the services of "registered practitioners" and/or "professionals" to repair systems that are non-compliant, which in the case of Jackpine Flats, may mean too permeable soils/percolation rates that are too fast."

4 Summary

Stage 1 of the LWMP identified issues currently impacting the Lakelse Lake/Jackpine Flats study area and also provided recommendations to alleviate many of the problems associated with failing septic systems. These recommendations are being further developed in Stage 2 of the LWMP planning process. As part of the Stage 2 work, this technical memorandum reviewed changes to the new Sewerage System Regulation and how the new regulation may impact the recommendations made in the RDKS Stage 1 LWMP Summary Report.

With the sewerage system new regulation in effect, the RDKS will be ensured that new systems are designed by "registered practitioners" and/or "professionals" based on design flow, site constraints, setback requirements, and land area available for the disposal system. "Registered practitioners" and/or "professionals" will also be involved in the repair of non-compliant systems. However, as
noted in Section 3 of this technical memorandum, many of the issues and related recommendations cannot be entirely addressed by the new regulation alone, or by off-loading all the responsibility onto “registered practitioners” and/or “professionals”, or the Health Authority. The RDKS can contribute by establishing requirements for mandatory monitoring and maintenance for all systems, not just those enforced under the new regulation. This will assist the Health Authority in identifying non-compliant systems and thereby fast track the repair of these failing systems.

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