Regional District of Kitimat-Stikine – Septic System Management Program Working Group

Agenda for Working Group Meeting Wednesday 24 Oct. 2012 – 9:00 am to 12:00 pm RDKS Board Room

1. Confirm/Accept Minutes from Meeting : 26 September 2012
   9:00 – 9:15
   - Amendments to previous meetings and/or accept minutes (5 minutes)
   - New information (10 minutes)
     - Information: Doug McLeod’s on his recent tank pumping experience [Linda]
     - Information: PennState paper on tank inspection and cleanout information [Linda]
     - Meeting schedule reminder – note date and time changes - and Work Plan for this meeting

<table>
<thead>
<tr>
<th></th>
<th>Cleanout &amp; Inspection Program: Database information and gathering</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 August 2012</td>
<td>Cleanout &amp; Inspection Program: Cleanout &amp; Inspection frequency and responsibilities</td>
</tr>
<tr>
<td>05 September 2012</td>
<td>Note: Action and outstanding items from 01 August have been added to this meeting</td>
</tr>
<tr>
<td>26 September 2012</td>
<td>Cleanout &amp; Inspection Program: Approach to working with non-compliant system owners</td>
</tr>
<tr>
<td>24 October 2012</td>
<td>Program Communication Plan; System Education Plan; Water quality</td>
</tr>
<tr>
<td>20 November 2012</td>
<td>Review draft Program Report and Working Group recommendations</td>
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<tr>
<td>11:00 am – 2:00 pm</td>
<td>Note date and time change from original schedule</td>
</tr>
<tr>
<td>12 December 2012</td>
<td>Finalize Program Report</td>
</tr>
<tr>
<td>9:00 am to 12:00</td>
<td>Note date change from original schedule</td>
</tr>
</tbody>
</table>

2. Action and Outstanding Items from 05 and 26 Sept. 2012 Meetings
   9:20 – 9:25
   - Survey Monkey questionnaire and follow up plan [Roger]
   9:25 – 9:40
   - Handouts: Flow chart and table of Program development to-date [Linda; WG confirmation]
   9:40 – 10:00
   - Handouts: Initial inspection form; Routine inspection form [Linda; WG discussion]
   10:00 – 10:30
   - How are the inspections going to be used under the Program [Linda; WG discussion] From 05 Sept 2012 meeting

3. Risk Management (Compliance/Non-Compliance)
   10:30 – 11:00
   - High Risk Systems/Moderate Risk Systems (previously called non-compliant) [Linda; WG discussion]
   11:00 – 11:15
   - No information provided to RDKS [Linda; WG Discussion]

4. Education Component and Water Quality Component
   11:15 – 11:30
   - Discuss and determine education and water quality components [Linda]

5. Program Communication Plan
   11:30 – 11:45
   - Discuss conceptual program communication plan

6. New Items and Next Meeting
   11:45 – 11:50
   - Carry-forward /Next-steps:
     - Action and Outstanding items from today
     - Updated cost estimated based on Program developed to date – RDKS
   11:50 – 12:00
   - Confirm next meeting time and location

7. Questions Related to Other Projects
   12:05 – 12:20
   - As brought forward by Working Group members
<table>
<thead>
<tr>
<th>No.</th>
<th>Step</th>
<th>Description</th>
<th>Option 1</th>
<th>Cost</th>
<th>Accuracy/Conformance Audit</th>
<th>Cost Recovery</th>
<th>WG</th>
</tr>
</thead>
</table>
| 1   | System Existence / Inventory | Determine existence of on-site sewage systems in Service Area. Database of Properties within Service Area maintained based on property folio number. Contains:  
* System Type/Description of System  
* Location (UTM)  
* Drawing (if available)  
* RHA permit/ROWP Registration  
* Record of Inspection date (if exists)  
* Record of clean-out dates (if exists)  
* Conformance requirements  
* Owner contact information  
* Property use survey (survey monkey) information | Letters and checklist to Owners  
Owner provides survey info  
Pumpers provide info to RDKS with inspection notes  
GPS location  
Scum/sludge  
Etc. | TBD | Annual | RDKS User Fee |
| 2   | System Functional Status | Determined during initial inspection and subsequent inspections | Owner organizes inspection  
Allows for alternatives if owner desires | TBD | One-time | Owner direct |
| 3   | Initial program pump-out and Inspection | Initial system status inspection to determine risk status of system. Checklist of visual observations by service provider. | Private contractor hired by homeowner  
Data to RDKS database  
Regular maintenance | TBD | Per-Use | Owner direct |
|     | Subsequent pump-out and Inspection | Frequency: minimum every 5 years or at recommendation based on:  
* Risk assessment during initial and recent subsequent inspection  
* Owner plan  
Checklist of visual observations by service provider | Owner arranges Progress Schedule  
Allows for alternatives if owner desires  
Data to RDKS database | TBD | Per-Use | Owner direct |
| 4   | Action taken by homeowner | For high-risk systems:  
Proposed action to reduce risk status and submits to RDKS database | Owner develops plan to achieve low risk status (e.g., habits, frequency of pumping, infrastructure repairs or upgrades) within 6 months. | TBD | Annual | RDKS User Fee |
| 5   | Letter to N/A if no action taken | Letter to homeowner informing owner that no action is needed | Owner develops plan to achieve low risk status (e.g., habits, frequency of pumping, infrastructure repairs or upgrades) within 6 months. | TBD | Annual | RDKS User Fee |
| 6   | Letter to N/A if no owner plan is developed or subsequent inspections return the same or higher risk status letter from RDKS to homeowner | No action taken | Owner develops plan to achieve low risk status (e.g., habits, frequency of pumping, infrastructure repairs or upgrades) within 6 months. | TBD | Annual | RDKS User Fee |
| 7   | By-law Enforcement/Fines | If no action is taken within 2 months of the letter from RDKS (step 5) bylaw strategy for property owner to take action will be implemented. | Fines/Ticket with option to appeal if action taken immediately | TBD | Annual | RDKS User Fee |

Risk Assessment:  
- Low Risk: System is inspected and determined to be low risk. System is placed into database, and regular maintenance and re-inspection schedule established (e.g., every 3 years or more frequent at owner's discretion).  
- High Risk: System is inspected and determined to be high risk. System is placed into database, and owner develops plan to achieve low risk status (e.g., habits, frequency of pumping, infrastructure repairs or upgrades) within 6 months.
<table>
<thead>
<tr>
<th>No.</th>
<th>Step</th>
<th>Description</th>
<th>Option 1</th>
<th>Cost</th>
<th>Cost Recovery</th>
<th>WG</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>System Existence / Inventory</td>
<td>Determine existence of on-site sewage systems in Service Area. Database of Properties within Service Area maintained based on property folio number. Contains: System Type/Description of System, Location (UTM), Drawing (if available), Risk permit/ROWP Registration, Record of Inspection date (if exists), Record of clean-out dates (if exists), Conformance requirements, Owner contact information, Property use survey (survey monkey) information.</td>
<td>Letters and checklist to Owners, Owner provides survey info, Pumpers provide info to RDKS with inspectors, GPS location, Scanned/digitized, Etc. RDKS puts into database. For flagged house and maintained by RDKS. Site inspection directly to RDKS.</td>
<td>TBD</td>
<td>Annual</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>System Functional Status</td>
<td>Determined during initial inspection and subsequent inspections. System Functional Status Determined during initial inspection and subsequent inspections.</td>
<td>Owner organization inspection. Owner organization inspection.</td>
<td>TBD</td>
<td>One-Time</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Initial program pump-out and inspection</td>
<td>Initial system status inspection to determine risk status (use habits, frequency of pumping, infrastructure repairs or remediation within 6 months). System is placed into database, and status (use habits, frequency of pumping, infrastructure repairs or remediation within 6 months).</td>
<td>Private company hired by homeowner. Data to RDKS database.</td>
<td>TBD</td>
<td>Per-Use</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Action taken by homeowner</td>
<td>For high risk systems. Owner is given 60 days to reduce risk factors and submit to RDKS. System Functional Status (use habits, frequency of pumping, infrastructure repairs or remediation within 6 months).</td>
<td>Owner directed to achieve low risk status (use habits, frequency of pumping, infrastructure repairs or remediation within 6 months).</td>
<td>TBD</td>
<td>Annual</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Letter from RDKS to homeowner for action</td>
<td>Letter to homeowner describing system status and outlining owner plan for improvements.</td>
<td>Owner directed to achieve low risk status (use habits, frequency of pumping, infrastructure repairs or remediation within 6 months).</td>
<td>TBD</td>
<td>Annual</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Letter to RDKS from homeowner</td>
<td>If no owner plan is submitted within 6 months, RDKS may move to step 7.</td>
<td>RDKS may move to step 7.</td>
<td>TBD</td>
<td>Annual</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>By-laws Enforcement/Fine/Ticket</td>
<td>If no action is taken within 2 months of the letter from RDKS (step 5) by law strategy for property owner to take action or implement action.</td>
<td>Fee/Ticket with option to void if action taken immediately.</td>
<td>TBD</td>
<td>Annual</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Low Risk</td>
<td>System is inspected and determined to be low risk. System is placed into database, and regular maintenance and re-inspection schedule established.</td>
<td>Inspection form data to RDKS database.</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>High Risk</td>
<td>System is inspected and deemed to be high risk. System is placed into database, and owner develops plan to achieve low risk status (use habits, frequency of pumping, infrastructure repairs or remediation within 6 months).</td>
<td>Inspection form data to RDKS database.</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>

Cambria Gordon Ltd.
Please fill in the blanks or make changes to any information that is not current.

**GENERAL INFORMATION**

1. Date and Time: ____________________________ (DD/MM/YYYY: 2400hr)
2. Company/Pumper Name: ____________________________
3. Property Address: ____________________________
4. Property Owner: ____________________________
5. Land Use: ____________________________
   - single family residence
   - multi-family residence
   - Non-residential (food or lodging)
   - non-residential (other)
6. Full or part time use (circle one) ____________________________
   - year-round (full-time)
   - year-round (part-time)
   - seasonal
7. Number of bedrooms: ____________________________
8. Number of people: ____________________________
9. Water Source: (circle one) ____________________________
   - Dug well
   - Drilled well
   - Surface water
   - none

**SYSTEM DESCRIPTION**

9. Is septic system shared: (circle one) yes/no
10. How old is the septic system: ____________________________
11. Is there NHA Permit: (circle one) yes/no
   - Permit number (if known): ____________________________
12. Tank material: (circle one) ____________________________
   - concrete
   - fiberglass
   - polyethylene
   - other
13. Design flow: (circle one) ____________________________
14. # compartments: ____________________________
15. Total Volume: ____________________________ ft³/m³/ft³/gallons (circle one)
16. Access risers: yes/no
17. Effluent filter: yes/no
18. Grease trap: yes/no
19. UTM Coordinates of access hatch: ____________________________ E, ____________________________ N
20. Last pump-out (and inspection if applicable): ____________________________ (DD/MM/YYYY)
21. Has there been any changes to the system since the last pump-out: yes/no

**SYSTEM SKETCH**

The tank is concrete or plastic, is structurally sound, and holds effluent. The tank is less than 1/3 full, and the invert is not more than 5 inches thick. The tank is sufficiently level to operate correctly. The invert of the outlet pipe in the tank is at or slightly above the effluent level. The baffles in the tanks are intact and functioning correctly. The tank does not show signs of excessive staining above the invert of the outlet pipe. The pump and alarm operate correctly (N/A if no pump and/or alarm) The effluent filter is working correctly (N/A if no effluent filter) There is no apparent soil settling or saturation over the d-box which indicates collapse or damage. There is no effluent on top of the tank, on the ground, or in a surface water body. Effluent flows freely into the tank when 35 gal of water are placed into the tank. Effluent flows freely out of the tank with no runback when 35 gal of water are placed into the tank. Excessive runback does not occur when the tank is pumped. Probing the absorption area shows normal liquid levels and biomat formation. The system does not discharge to a stream, tile, ditch or the surface to dispose of waste.

Answer yes or no to each of the following.

Signed: ____________________________ Dated: ____________________________
Please fill in the blanks or make changes to any information that is not current.

**GENERAL INFORMATION**

1. Date and Time: 
   
2. Company/Pumper Name: 

3. Property Address: 

4. Property Owner: 

5. Land Use: 
   - single family residence
   - multi-family residence
   - Non-residential
   - Lodging
   - non-residential (other)

6. Full or part time use (circle one) 
   - year-round (full)
   - year-round (part-time)
   - seasonal

7. Number of bedrooms:

8. Number of people:

9. Water Source (circle one) 
   - Dug well
   - Drilled well
   - Cave water
   - None

10. **SYSTEM DESCRIPTION**

   9. Is septic system shared: (circle one) yes / no

   10. How old is the septic system: 

   11. Is there a NHA Permit: (circle one) yes / no

   12. Tank material: (circle one) concrete / fiberglass / other

   13. Design flow: 
       
   14. # compartments: 

   15. Total Volume: 

   16. Access risers: 
       
   17. Grease trap: yes / no

   18. UTM Coordinates of access hatch:

   19. Last pump out (and inspection if applicable): 

   20. Has there been any changes to the system since the last pump out: yes / no

**SYSTEM SKETCH**

**FUNCTIONAL STATUS / FIELD CHECK**—To be completed by approved Service Provider

Answer yes or no to each of the following:

The tank has a safety secured tight-fitting lid. 

The tank is concrete on all sides or an approved plastic tank, is structurally sound, and holds effluent. 

The tank is less than 1/3 full of sludge and sludge levels are no more than 5 inches thick. 

The tank is sufficiently level to operate correctly. 

The invert of the outlet pipe in the tank is at or slightly above the effluent level. 

The baffles in the tank are intact and functioning correctly. 

The tank does not show signs of excessive staining above the invert of the outlet pipe. 

The pump and alarm operate correctly (N/A if no pump and/or alarm) 

The effluent filter is working correctly (N/A if no effluent filter) 

There is no apparent soil settling or saturation over the d-box which indicates collapse or damage. 

There is no effluent on top of the tank, on the ground, or in a surface water body. 

Effluent flows freely into the tank when 35 gal of water are placed into the tank from the structure. 

Effluent flows freely out of the tank with no runback when 35 gal of water are placed into the tank. 

Excessive runback does not occur when the tank is pumped. 

Probing the absorption area shows normal liquid levels and biomat formation. 

The system does not discharge to a stream, tile, ditch or the surface to dispose of waste. 

Signed: ___________________________  Dated: ___________________________
SYSTEM SKETCH
RDKS Septic System Program Working Group
Conceptual Clean-out and Maintenance Program
Revision 5, October 2012

1
System Existence / Inventory
Approximately 625 systems

Database Information: Location (UTM), DW Well, Septic system Type, Inspection dates, Clean-out dates, Conformance requirements, etc.
Obtained from: initial information request, survey monkey

2
System Functional Status
Initial program pump-out and inspection: low-risk status
Subsequent pump-out and inspections: meets criteria for low-risk status (i.e. compliant status)

3
Inspections and clean-outs as required by Program
Meets criteria for low-risk status (i.e. compliant status)

4
Action taken by homeowner to reduce risk factor within 6 months & sends notification to RDKS for entry into database

5
If nothing from homeowner in 6 months: Letter and warning from RDKS to take action
Homeowner seeks advice and contacts RDKS to reduce risk factor within 2 months

6
Letter to NHA (cc homeowner) from RDKS requiring NHA take action

7
Bylaw Enforcement / Fines
Ticket with void if action taken

To NHA
# Septic System Management Program
## Qualification and Risk Assessment

<table>
<thead>
<tr>
<th>Pump-out Frequency</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once/1-2 years - enter 0</td>
<td></td>
</tr>
<tr>
<td>Once/3-4 years - enter 1</td>
<td></td>
</tr>
<tr>
<td>Once/5+ years - enter 3</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Adequate tank capacity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bedrooms</strong></td>
<td><strong>Yes - enter 0</strong></td>
</tr>
<tr>
<td><strong>3 or fewer</strong></td>
<td><strong>Don’t know - enter 1</strong></td>
</tr>
<tr>
<td><strong>4 - 5</strong></td>
<td><strong>No - enter 3</strong></td>
</tr>
<tr>
<td><strong>6 or more</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Septic System Age</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10 years old - enter 0</td>
<td></td>
</tr>
<tr>
<td>11-20 years old - enter 1</td>
<td></td>
</tr>
<tr>
<td>21+ years old - enter 2</td>
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</tbody>
</table>

Sewage is pumped out of the basement to the septic tank (instead of using gravity flow), and/or a sump pump is connected to the septic system?  
- **No - enter 0**  
- **Yes - enter 1**

Number of ‘No’ answers to the functional status questions?  
- Enter number of ‘No’ responses

- **Front-loading clothes washer (or a water conserving top loading washer)**  
  - **Yes - enter 0**  
  - **No - enter 1**

- **There is a water conditioning unit for which recharge water is connected to the septic system**  
  - **No - enter 0**  
  - **Yes, 1 unit - enter 1**  
  - **Yes, 2 units (or more) - enter 2**

- **Garbarator or dish washer with a food disposer**  
  - **No - enter 0**  
  - **Use 1 to 2 times / week - enter 1**  
  - **Use daily - enter 2**

- **Laundry**  
  - **Spread out, 2/day max - enter 0**  
  - **Loads/day, several times/week - enter 1**  
  - **More than above - enter 2**

- **Low flow showerheads, toilets, and fixtures leak quickly?**  
  - **Yes - enter 0**  
  - **Some fixtures/Sometimes - enter 1**  
  - **No - enter 2**

- **In-home business that increases water use? (i.e. daycare, taxidermy, hair salon, bed & breakfast)**  
  - **No - enter 0**  
  - **Yes - enter 1**

<table>
<thead>
<tr>
<th>Score</th>
<th>Risk Level</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>Based on your system and positive use habits, your system qualifies for the regular inspection and clean-out program</td>
<td></td>
</tr>
<tr>
<td>High Risk</td>
<td>Based on your system and use habits your system does not qualify for the regular inspection and clean-out program. Major changes to your habits or septic system are required to qualify for the inspection and clean-out program</td>
<td></td>
</tr>
</tbody>
</table>

*Note to WG: Statistics from survey monkey to be used to fine tune risk level ratings*
INTRODUCTION

Septic System Management Program Overview

Groundwater and surface water quality in Lakelse Lake, Jackpine flats and the surrounding area is a highly valued regional amenity and the Regional District of Kitimat-Stikine (RDKS) and others are working closely together towards the protection of this resource. To address this, in part, the Liquid Waste Management Plan (February 2009) recommended the creation of a Septic System Management Program specific to the Lakelse Lake and Jackpine Flats area. The purpose of this program is to ensure all septic systems and disposal fields are in place and functioning properly. The RDKS, with the guidance of a Working Group with representatives from local resident groups, has developed the Lakelse Lake and Jackpine Flats Septic System Management Program to assist property owners and users with this overall project.

Components of the Septic System Management Program are:

- **An Inspection and Clean-out Component** - Administered by the RDKS, the program will require owners to have septic tanks pumped out and inspected periodically (minimum every 5 years) to ensure the septic tanks and disposal fields are functioning as well as possible.

- **An Education Component** - Education will target operation and maintenance of septic systems and drinking water wells.

- **A Water Quality Monitoring Component** - Surface water and groundwater conditions will be monitored in Lakelse Lake and Jackpine Flats area.

Communications Plans Overview

This communications plan describes the intended audiences, communications goals, messaging, and delivery options for communicating the RDKS Septic System Management Program to service area and non-service area stakeholders.

The RDKS has already started the education process on septic tank operation and well-head protection with brochures and pamphlets enclosed in the Program update #2 mail-out to property owners in the Lakelse Lake and Jackpine Flats area.

Appendix A presents an overview and detailed communications table showing delivery options for each key message and audience.
TARGET AUDIENCES AND DELIVERY STYLE
Communications for the Program should be timely and effective with specific consideration given to the delivery style of each message.

Target Audiences
Selected groups and individuals represent the intended target recipient of messaging. In general, target audiences can be placed into two groups.

Internal Target Audiences
- Working Group members
- RDKS Board of Directors
- RDKS committees (where relevant)
- RDKS Electoral Area C Director
- RDKS staff and management
- ??

External Target Audiences
- Service Area residents and businesses
- Service Area Community groups
- Neighbouring area community groups
- Neighbouring area residents and businesses
- Media
- RDKS service providers (Pumper truck owner/operators)
- ??

Delivery Style
Messages will be framed in such a way that they are easily understood and well received by the target audiences.

Notification: Some messages are designed to inform, or increase awareness, and should answer the basic question: What does this mean to me?

Public Engagement: Other messages require specific responses from selected groups and should answer the basic question: What do you want me to do?
KEY MESSAGES
Specific messaging will differ depending on the audience and stage of program implementation; however, it will generally be one of the following subject areas:

Septic System Management Program
- Program Components
- Cost and cost recovery
- Legislation & regulatory (i.e. bylaw req’s)

I. Clean-out and Inspection Component
   - Reason for program
   - Requirements for compliance
   - Roles & responsibilities
   - Cost and cost recovery

II. Environmental Effects Monitoring Component
    - Reason for component
    - Affect to audience
    - Groundwater
    - Surface water
    - Annual report

III. Education Component
    - Septic system basics
    - Septic system operation & maintenance
    - Drinking water and well-head protection
COMMUNICATIONS DELIVERY OPTIONS
Communications pieces can be delivered to their intended audiences in a number of ways.

**Traditional Media**
- Public Service Announcement
- News Releases
- Letters to the Editor
- Website

**Collateral Materials**
Collateral materials used may be existent or produced to fulfill a requirement of the Key Messages. These materials may be distributed by mail to individual households or made available at tradeshows, the RDKS office, or other appropriate locations.
- Newsletters
- Flyers/Brochures
- Posters

**Electronic**
- Email distribution of WG meeting minutes
- The Regional District of Kitimat-Stikine website
- Septic System Management Program sub-website

**Community Contacts**
- Specific Area Group meetings
- Workshops
- AV presentations
- Site tours
- Open-houses
- Tradeshows
- Community events (i.e, fall fair)

**Technical Documents**
- Septic System Management Program Report
- Technical Memos
## Appendix A - Communications Table

### Table 1: Overview Communications Table (Option 1)

<table>
<thead>
<tr>
<th>Communication Item</th>
<th>Service Area Residents</th>
<th>All RDKS Residents</th>
<th>RDKS Board of Directors</th>
<th>RDKS Employees</th>
<th>Service Providers</th>
<th>NHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mail-outs</td>
<td>To all residents in the service area. Summary document describing Program</td>
<td></td>
<td></td>
<td>Mail-outs To all residents in the service area. Summary document describing Program</td>
<td></td>
<td>Mail-outs To all residents in the service area. Summary document describing Program</td>
</tr>
<tr>
<td>Program Status</td>
<td></td>
<td>Program Status Report Describes roles and responsibilities as they apply to RDKS</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Community</td>
<td></td>
<td>Program Report Describes all aspects of program and 3 components</td>
<td></td>
<td>Program Report Describes all aspects of program and 3 components</td>
<td></td>
<td>Program Report Describes all aspects of program and 3 components</td>
</tr>
<tr>
<td>Group Presentnt</td>
<td></td>
<td>Open-house Information Information to be presented at the open-house will be disseminated to RDKS BOD</td>
<td></td>
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<td></td>
<td>Open-house Information Information to be presented at the open-house will be disseminated to RDKS BOD</td>
</tr>
<tr>
<td>Open-house</td>
<td>One prior to Program start and one at start</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Website</td>
<td>Sub-site to RDKS-bc.ca hosting Program Report</td>
<td>Website Sub-site to RDKS-bc.ca hosting Program Report</td>
<td></td>
<td>Website Sub-site to RDKS-bc.ca hosting Program Report</td>
<td></td>
<td>Website Sub-site to RDKS-bc.ca hosting Program Report</td>
</tr>
<tr>
<td>Septic System</td>
<td>Management Program:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>Component</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Monitoring</td>
<td>Component</td>
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<td>Component</td>
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</tbody>
</table>
SEPTIC SYSTEM MANAGEMENT PROGRAM OVERVIEW

Groundwater and surface water quality in Lakelse Lake, Jackpine Flats and the surrounding area is a highly valued regional amenity and the Regional District of Kitimat-Stikine (RDKS) and others are working closely together towards the protection of this resource. To address this, in part, the Liquid Waste Management Plan (February 2009) recommended the creation of a Septic System Management Program specific to the Lakelse Lake and Jackpine Flats area. The purpose of this program is to ensure all septic systems and disposal fields are in place and functioning properly. The RDKS, with the guidance of a Working Group with representatives from local resident groups, has developed the Lakelse Lake and Jackpine Flats Septic System Management Program to assist property owners and users with this overall project.

Components of the Septic System Management Program are:

- **An Inspection and Clean-out Component** - Administered by the RDKS, the program will require owners to have septic tanks pumped out and inspected periodically (minimum every 5 years) to ensure the septic tanks and disposal fields are functioning as well as possible.

- **An Education Component** - Education will target operation and maintenance of septic systems and drinking water wells.

- **A Water Quality Monitoring Component** - Surface water and groundwater conditions will be monitored in Lakelse Lake and Jackpine Flats area.

ENVIRONMENTAL MONITORING OVERVIEW

The Water Quality Monitoring Component of the Lakelse Lake and Jackpine Flats Septic System Management Program will monitor groundwater and surface water quality in the Lakelse Lake and Jackpine Flats area. The monitoring will compare water quality results to provincial and federal guidelines to determine the health of ground- and surface water in the area.

Groundwater and surface water samples will be taken from representative sites including residential wells and sent to an accredited laboratory for analysis. Results will be compared to British Columbia Ministry of Environmental and Canadian Council of Ministers of Environmental criteria and guidelines for drinking water, aquatic life, and recreational use/aesthetics, as appropriate.

Methodology for groundwater and surface water sampling will follow established industry standards, found in the British Columbia Field Sampling Manual. ¹

http://www2.gov.bc.ca/wa/c/data/samples/field_sampling_manual/field_man_pdfa/land_man_03.pdf

Lakelse Lake and Jackpine Flats Septic Tank Management Program
CONCEPTUAL Environmental Monitoring Plan
GROUNDWATER AND SURFACE WATER SAMPLING

Sample Locations
Specific sampling locations are yet to be determined.

Generally, groundwater and surface water will be sampled at:
- 12 sample sites at Lakelse Lake
- 12 sample sites in Jackpine Flats

Groundwater samples will be taken from existing groundwater wells (domestic wells or GW monitoring boreholes) and surface water will be sampled from area creeks and Lakelse Lake.

Sampling Frequency
Samples should be taken so that results represent the short-term temporal variability that may occur.

Groundwater should be sampled quarterly, in conjunction with surface water sampling, in:
- February (winter low flow)
- May (spring freshet)
- August (summer low flow)
- October (fall runoff)

After, two years of sampling at this frequency results can be analyzed to determine if a lower frequency can be justified (e.g. 2-3 times per year).

Parameters for Laboratory Analysis

<table>
<thead>
<tr>
<th>ANALYTE</th>
<th>CONTAINER</th>
<th>PREPARATION</th>
<th>PRESERVATION</th>
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<tr>
<td>General Parameters</td>
<td>1000ml plastic</td>
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<td>Cold</td>
</tr>
<tr>
<td>BOD₃</td>
<td>1000ml plastic</td>
<td>- no headspace</td>
<td>Cold</td>
</tr>
<tr>
<td>Coliforms (total, fecal, E.coli)</td>
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<tr>
<td>Colour</td>
<td>120ml Plastic</td>
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</tr>
<tr>
<td>Ammonia</td>
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<td>H₂SO₄</td>
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<tr>
<td>Nitrate/Nitrite</td>
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<td>Cold</td>
</tr>
<tr>
<td>Phosphorus (total)</td>
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<td>Cold</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)</td>
<td>100ml Plastic</td>
<td>N/A</td>
<td>Cold</td>
</tr>
<tr>
<td>Total Organic Carbon (TOC)</td>
<td>120ml Plastic</td>
<td>N/A</td>
<td>H₂SO₄</td>
</tr>
<tr>
<td>Chloride</td>
<td>120ml Plastic</td>
<td>N/A</td>
<td>Cold</td>
</tr>
</tbody>
</table>
Field Measurements
The following parameters will be measured in the field:
- Time & Date
- Field Conditions
- Sample location conditions (well/borehole condition)
- Sample site coordinates
- Depth to water
- Depth to bottom of bore hole
- pH
- Conductivity
- Turbidity

ANNUAL REPORTING
Annual reporting will summarize the sampling activities of the previous year and include:
- Time, date and field conditions
- Sampling site locations and coordinates
- Field measurement results
- Laboratory analysis results
- Result comparison to BCMOE and CCME standards
- Deviations from program (and reason)
- Recommended changes to program

COSTING
To Be Determined
Regional District of
Kitimat-Stikine

Lakelse Lake and Jackpine Flats
Septic System Management Program

Conceptual Communication Plan

October 24, 2012
INTRODUCTION

Septic System Management Program Overview

Groundwater and surface water quality in Lakelse Lake, Jackpine flats and the surrounding area is a highly valued regional amenity and the Regional District of Kitimat-Stikine (RDKS) and others are working closely together towards the protection of this resource. To address this, in part, the Liquid Waste Management Plan (February 2009) recommended the creation of a Septic System Management Program specific to the Lakelse Lake and Jackpine Flats area. The purpose of this program is to ensure all septic systems and disposal fields in this area are in place and functioning properly. The RDKS has developed the Lakelse Lake and Jackpine Flats Septic System Management Program to assist property owners and users with this overall project.

Components of the Septic System Management Program are:

- **A Clean-out Inspection and Component** - administered by the RDKS, the program will require owners to have septic tanks pumped out and inspected periodically (minimum every 5 years) to ensure the septic tanks and disposal fields are functioning as well as possible.

- **An Education Component** – education will target the proper operation and maintenance of septic systems and drinking water wells.

- **A Water Quality Monitoring Component** - surface water and groundwater conditions will be monitored in Lakelse Lake and Jackpine Flats areas.

Communications Plans Overview

This communications plan describes the intended audiences, communications goals, messaging, and delivery options for communicating the RDKS Septic System Management Program to service area and non-service area stakeholders.

The RDKS has already started the education process on septic tank operation and well-head protection with brochures and pamphlets enclosed in the program update #2 mail-out to property owners in the Lakelse Lake Jackpine Flats area.

Appendix A presents an overview and detailed communications table showing delivery options for each key message and audience.
TARGET AUDIENCES AND DELIVERY STYLE
Communications for the Program should be timely and effective with specific consideration given to the delivery style of each message.

Target Audiences
Selected groups and individuals represent the intended target recipient of messaging. In general, target audiences can be placed into two groups.

Internal Target Audiences
- Working Group members
- RDKS Board of Directors
- RDKS committees (where relevant)
- RDKS Electoral Area C Director
- RDKS staff and management
- ??

External Target Audiences
- Service Area residents and businesses
- Service Area Community groups
- Neighbouring area community groups
- Neighbouring area residents and businesses
- Media
- RDKS service providers (Pump truck owner/operators)
- ??

Delivery Style
Messages will be framed in such a way that they are easily understood and well received by the target audiences.

Notification: Some messages are designed to inform, or increase awareness, and should answer the basic question: *What does this mean to me?*

Public Engagement: Other messages require specific responses from selected groups and should answer the basic question: *What do you want me to do?*
**KEY MESSAGES**
Specific messaging will differ depending on the audience and stage of program implementation; however, it will generally be one of the following subject areas.

**Septic System Management Program**
- Program Components
- Cost and cost recovery
- Legislation & regulatory (i.e. bylaw req’s)

I. **Clean-out and Inspection Component**
   - Reason for program
   - Requirements for compliance
   - Roles & responsibilities
   - Cost and cost recovery

II. **Environmental Effects Monitoring Component**
   - Reason for component
   - Affect to audience
   - Groundwater
   - Surface water
   - Annual report

III. **Education Component**
   - Septic system basics
   - Septic system operation & maintenance
   - Drinking water and well-head protection
COMMUNICATIONS DELIVERY OPTIONS
Communications pieces can be delivered to their intended audiences in a number of ways.

Traditional Media
- Public Service Announcement
- News Releases
- Letters to the Editor

Social Media
- Facebook Group
- Twitter account
- Blog

Collateral Materials
Collateral materials used may be existent or produced to fulfill a requirement of the Key Messages. These materials may be distributed by mail to individuals households or made available at tradeshows, the RDKS office, or other appropriate locations.
- Newsletters
- Flyers/Brochures
- Posters

Electronic
- Email distribution of WG meeting minutes
- The Regional District of Kitimat-Stikine website
- Septic System Management Program sub-website

Community Contacts
- Specific Area Group meetings
- Workshops
- AV presentations
- Site tours
- Open houses
- Tradeshows
- Community events (i.e. fall fair)

Technical Documents
- Septic System Management Program Report
- Technical Memos
<table>
<thead>
<tr>
<th>Communication Item</th>
<th>NHA</th>
<th>Service Area</th>
<th>Resdents Directors</th>
<th>Resdents Board of Directors</th>
<th>RDKS Board of Directors</th>
<th>Resdents</th>
<th>NHA Service Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open House Group</td>
<td></td>
<td>Program</td>
<td>Program</td>
<td>Program</td>
<td>Program</td>
<td>Program</td>
<td>Program</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inspection/Prep</td>
<td></td>
<td>Program</td>
<td>Program</td>
<td>Program</td>
<td>Program</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monitoring Component</td>
<td></td>
<td>Program</td>
<td>Program</td>
<td>Program</td>
<td>Program</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Education Component</td>
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<td>Program</td>
<td>Program</td>
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<td>Program</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specific System Management</td>
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<td>Program</td>
<td>Program</td>
<td>Program</td>
<td>Program</td>
</tr>
</tbody>
</table>

Table 1: Overview Communications Table (option 2)
Septic tanks are commonly used as a part of on-lot wastewater disposal systems. Septic tanks remove settleable and floatable solids from the wastewater. The clarified septic tank effluent is then passed on to additional treatment processes or is distributed to the soil absorption area. Removing the solids from the wastewater protects the soil absorption area from clogging and failure.

The septic tank is a single- or multi-chamber tank that receives the raw wastewater from the home. Until recently, septic tanks were most often single chamber tanks. Based on recent research results, Pennsylvania Department of Environmental Protection now requires all new and upgraded on-lot wastewater disposal systems to have a two-chamber septic tank similar to the one shown in Figure 1. The two-chamber tank provides enhanced removal of solids by passing the wastewater through each of the two tank chambers. This allows the heavier solids to settle as sludge and the lighter particles to float to the surface as scum. Up to 50 percent of the solids retained in the tank decompose; the remainder accumulate in the tank. Biological and chemical additives are not needed to aid or accelerate decomposition. The septic tank outlet must also be equipped with a solids retainer that further enhances the tanks ability to capture solids.

As the on-lot wastewater disposal system is used, sludge continues to accumulate in the bottom of the septic tank chambers. Properly sized septic tanks (see Table 1) are large enough to safely store up to three years of sludge and scum. As the tank volume filled with sludge and scum increases, wastewater is retained in the tank for less time and the solids removal process becomes less effective and more solids escape into the soil absorption area. If too much sludge accumulates, the wastewater’s solids will flow to the soil absorption field causing system failure. To prevent this, the tank must be pumped periodically. The material pumped is known as septime.

![Diagram of a two-chamber septic tank](image-url)

Figure 1. Cross-section of a two-chamber septic tank.
Table 1. Required septic tank size.

<table>
<thead>
<tr>
<th>Number of bedrooms in the home</th>
<th>Estimated daily flow (gallons per day)</th>
<th>Minimum septic tank size (gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>400</td>
<td>900</td>
</tr>
<tr>
<td>4</td>
<td>500</td>
<td>1,250</td>
</tr>
<tr>
<td>5</td>
<td>600</td>
<td>1,400</td>
</tr>
<tr>
<td>6</td>
<td>700</td>
<td>1,550</td>
</tr>
<tr>
<td>7</td>
<td>800</td>
<td>1,700</td>
</tr>
<tr>
<td>8</td>
<td>900</td>
<td>1,850</td>
</tr>
<tr>
<td>9</td>
<td>1,000</td>
<td>2,000</td>
</tr>
</tbody>
</table>

The frequency of pumping depends on several factors:
- Capacity of septic tank
- Volume of wastewater (related to size of household)
- Amount of solids in the wastewater (i.e., garbage disposals produce more solids)

Table 2 lists estimated pumping frequencies according to septic tank capacity and the number of persons living in the household. The frequencies were calculated to provide a minimum of 24 hours of wastewater retention assuming 50 percent digestion of the retained solids.

Under current Pennsylvania law a 900 gallon septic tank is the minimum size that may be used for a home with three bedrooms or less. If six people reside in a three-bedroom house, the tank should be pumped every 1.3 years. If the same system serves a family of two, the tank would need pumping every 5.2 years. Systems installed before the current rules and regulations were implemented may need to be pumped more often, perhaps every year or less. As indicated in the footnote to Table 2, the use of garbage grinders will increase the frequency of pumping.

Table 2. Estimated septic tank pumping frequency. Based on single family dwelling occupancy (# of people). Example: for a tank size of 1000 gallons and a household size of five, the septic tank should be pumped every two years.

<table>
<thead>
<tr>
<th>Tank size (gal)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Years between pumping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500*</td>
<td>5.8</td>
<td>2.6</td>
<td>1.5</td>
<td>1.00</td>
<td>0.7</td>
<td>0.4</td>
<td>0.3</td>
<td>0.2</td>
<td>0.1</td>
<td>—</td>
</tr>
<tr>
<td>750*</td>
<td>9.1</td>
<td>4.2</td>
<td>2.6</td>
<td>1.8</td>
<td>1.3</td>
<td>1.0</td>
<td>0.7</td>
<td>0.6</td>
<td>0.4</td>
<td>0.3</td>
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<tr>
<td>900</td>
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<td>5.2</td>
<td>3.3</td>
<td>2.3</td>
<td>1.7</td>
<td>1.3</td>
<td>1.0</td>
<td>0.8</td>
<td>0.7</td>
<td>0.5</td>
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<tr>
<td>Example 1000</td>
<td>12.4</td>
<td>5.9</td>
<td>3.7</td>
<td>2.6</td>
<td>2.0</td>
<td>1.5</td>
<td>1.2</td>
<td>1.0</td>
<td>0.8</td>
<td>0.7</td>
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<td>7.5</td>
<td>4.8</td>
<td>3.4</td>
<td>2.6</td>
<td>2.0</td>
<td>1.7</td>
<td>1.4</td>
<td>1.2</td>
<td>1.0</td>
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<tr>
<td>1500</td>
<td>18.9</td>
<td>9.1</td>
<td>5.9</td>
<td>4.2</td>
<td>3.3</td>
<td>2.6</td>
<td>2.1</td>
<td>1.8</td>
<td>1.5</td>
<td>1.3</td>
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<tr>
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<td>2000</td>
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<td>5.9</td>
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<td>3.1</td>
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<tr>
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<td>14.0</td>
<td>9.1</td>
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<td>5.2</td>
<td>4.2</td>
<td>3.5</td>
<td>3.0</td>
<td>2.6</td>
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<td>4.0</td>
<td>3.5</td>
<td>3.0</td>
<td>2.6</td>
</tr>
</tbody>
</table>
If you have just moved into a home, you may not know the size of the tank. In this case, you should have the tank pumped and inspected. The company pumping the tank will tell you its size, age, and condition.

Septic tanks may not fail immediately if they are not pumped. However, a poorly maintained septic tank will not effectively protect the soil absorption area from solids. Continued neglect may result in system failure and even replacement of the soil absorption area.

**Tank Pumping**

Septic tank pumping and haul contractors can pump your septic tank. It is a good idea to supervise cleaning to ensure that it is done properly. To extract all the material from the tank, the scum layer must be broken up and the sludge layer mixed with the liquid portion of the tank. This is usually done by alternately pumping liquid from the tank and re-injecting it into the bottom of the tank. The septic tank must be pumped through the two large central access ports (manholes), not the small baffle inspection ports located above each baffle. Pumping a tank through the baffle inspection ports can damage the baffles and yield incomplete removal of sludge and scum.

The use of additives in septic tanks to reduce the sludge volume or as a substitute for pumping is not recommended. In fact, relying on additives rather than conventional tank pumping may result in failure of the septic system.

**Before closing the tank, check the condition of the baffles.** If they are missing or deteriorated, replace them with appropriate sanitary tee baffles. It should never be necessary to enter a septic tank. Any work to replace the baffles or repair the tank should be done from the outside. Decomposing wastes in the septic tank produce toxic gases which can kill a human in a matter of minutes. When working on a tank be sure the area is well ventilated and that someone is standing nearby. **Never go into a septic tank** to retrieve someone who has fallen in and was overcome by toxic gases without a self-contained breathing apparatus (SCBA). If a SCBA is not available, call for emergency services and put a fan at the top of the tank to blow in fresh air.

To facilitate future cleaning and inspection, **install risers from the central access ports and inspection ports** to the surface before burying the tank. Also mark the location of the tank, so it can be easily located for future pumpings.

**Schedule Septic Tank Pumping**

Homeowners should get in the habit of having the septic tank pumped. If you are able and willing to have your septic tank pumped on a routine basis (such as every 2 years), it may be possible to further enhance the effectiveness of your entire on-lot wastewater disposal system. Research at Penn State has shown that your soil absorption system will benefit from periodic resting (a period during which no wastewater is added to the system). To get the greatest benefit from pumping your septic tank, it is recommended that you have your septic tank pumped every two years on the day before you, and your family, leave for your summer vacation. This means the whole system, especially the soil absorption area, will have the opportunity to dry out and any partially decomposed organic waste that may have moved into the soil absorption area will quickly decompose in the absence of water.

**Summary**

The septic tank is only one part of an on-site wastewater system. It is designed to remove solids prior to the effluent proceeding to the soil absorption area, provide for the digestion of a portion of those solids, and store the remaining solids. Biological and chemical additives are not needed to aid or accelerate decomposition. Garbage grinders impose an additional solids load on the system. Solids must be removed periodically to prevent them from entering the soil absorption area. Your septic tank should be pumped and inspected every 1 to 3 years.

**For More Information**

Other Penn State Fact Sheets relating to domestic wastewater treatment systems include the following:

F 162, *Preventing Septic System Failures*
F 163, *Site Evaluation for On-Lot Sewage Systems*
F 164, *Mound Systems for Wastewater Treatment*
F 165, *Septic Tank-Soil Absorption*
F 169, *Individual Residential Spray Irrigation System (IRISS)*
F 170, *A Lexicon for Alternate On-Site Wastewater Treatment Systems*
F 171, *At-Grade On-Lot Sewage Disposal System*
For a list of septic tank pumping and hauling contractors in your area, contact:

Pennsylvania Septage Management Association
P. O. Box 7096
Mechanicsburg, PA 17050-7096

For more agricultural and biological engineering fact sheets, see our website:
www.ab.e.psu.edu/factsheets

Agricultural and Biological Engineering Department
246 Agricultural Engineering Building
University Park, PA 16802
Telephone: 814-865-7685
FAX: 814-863-1031

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