



First Nations Health Authority
Health through wellness

Assessment of Septic Systems – After the Flood

A suggested approach with First Nations

The operation of septic systems can be negatively affected by flooding. Those systems affected by rising lake levels are typically not as severe as those affected by flowing waters such as streams, creeks, and rivers. Septic systems consist of various components and are generally limited to septic tank (or package treatment plant), pump chamber (not all systems have), and a disposal field. Assessments of septic systems (boxes 3 and 5) should be conducted by an 'Authorized Person' (AP) – either a Registered On-site Wastewater Practitioner (ROWP) or Professional Engineer.

Flowing water: When streams, creeks, and rivers flood, they can scour the land and cause physical damage to the components of the septic system. In these cases, the septic system should be assessed by an AP. Figure 1 outlines the process for assessing the damage to septic systems for the purposes of rescinding Evacuation Orders. What happens in each step of the process is outlined below:

- Box 1.** The inspectors engaged by the First Nation (e.g. Environmental Health Officers) conduct a rapid damage assessment of properties that are affected by floodwaters and make observations regarding the structural integrity and safety of buildings (box 8) and of septic systems (box 2).
- Box 2.** Rapid assessment of septic system includes observing things such as: Are any of the components of the septic system under water? Is there obvious damage to the components of the septic system? Has the septic field been exposed by the cutting action of the floodwater? If the building is structurally sound **AND** the septic system unaffected the Evacuation Order can be rescinded (Box 9).
- Box 3.** The local authority hires an Authorized Person (AP) to conduct an assessment of the septic system under the Expenditure Authorization Form (EAF) process. A full assessment of the septic system is not required. Observations of the AP would include: Location of system components. Are components under water? Are components visibly damaged? Can the operating level of the septic tank be observed? Has the disposal field been covered by a thick layer of mud or debris? Does the septic system appear to be functioning as is? Should the system be reassessed once flood waters recede? *Note: To assist the AP the health authority will provide copies of the records of sewage system to the First Nation. The First Nation in turn will provide the records of sewage system to the AP conducting the assessment. FNHA will provide records of sewerage system directly to the AP upon receiving a written authorization from the First Nation to do so.*
- Box 4.** The AP reports his observations in Box 3 to the First Nation and the health authority. If the AP believes the septic system is working and unaffected by flooding, he recommends that the Evacuation Order can be rescinded. If components of the septic system are under water or obviously damaged, he recommends that a further assessment be completed once the flood waters have receded. Similar to lakes, it is recommended that this assessment occur when flood waters have receded to 90cm (measured vertically) from the ground surface in the area of the disposal field.

- Box 5.** The AP reassesses the septic system once flood waters have receded. The assessment criteria are similar to Box 3.
- Box 6.** The AP reports his observations to the First Nation and the health authority. If the AP believes the septic system is working and unaffected by flooding, he recommends that the Evacuation Order can be rescinded.
- Box 7.** If the septic system is damaged and requires repair, the Environmental Health Officer will visit the property and instruct that the system be fully assessed by an AP and/or instruct that it be repaired. The health authority sends copies of its directives to the land owner to the First Nation where applicable (i.e. when not band-owned housing).
- Box 8.** The inspector conducting the Rapid Damage Assessment makes a determination as to whether or not he/she believes the building is safe to reoccupy.
- Box 9.** First Nation rescinds Evacuation Order
- Box 10.** Evacuation Order remains in place.

FNHA graciously acknowledges the work of Interior Health in developing this document. Processes between health authorities are similar, but may differ in instances where Interior Health applies regulatory control and/or where FNHA Environmental Health Officers conduct assessments or inspections of properties on the request of First Nations.

Lakes: When lake levels rise, the components of septic systems may become covered by water. Under these conditions, the septic system will not function because the effluent being delivered to the drain field cannot be absorbed into the ground as intended. Septic systems affected by lake flooding will generally return to normal operation once the flood water recedes 45-60 cm (measured vertically) below the elevation of the distribution pipe in the disposal field. As there is cover material provided above the septic field, it is recommended that the homeowner wait until water has receded to 90 cm (measured vertically) below level of the ground in the area of the septic field before the septic system is used. A quick way to check if the septic system is working is to expose the inspection port of the outlet of the septic tank.

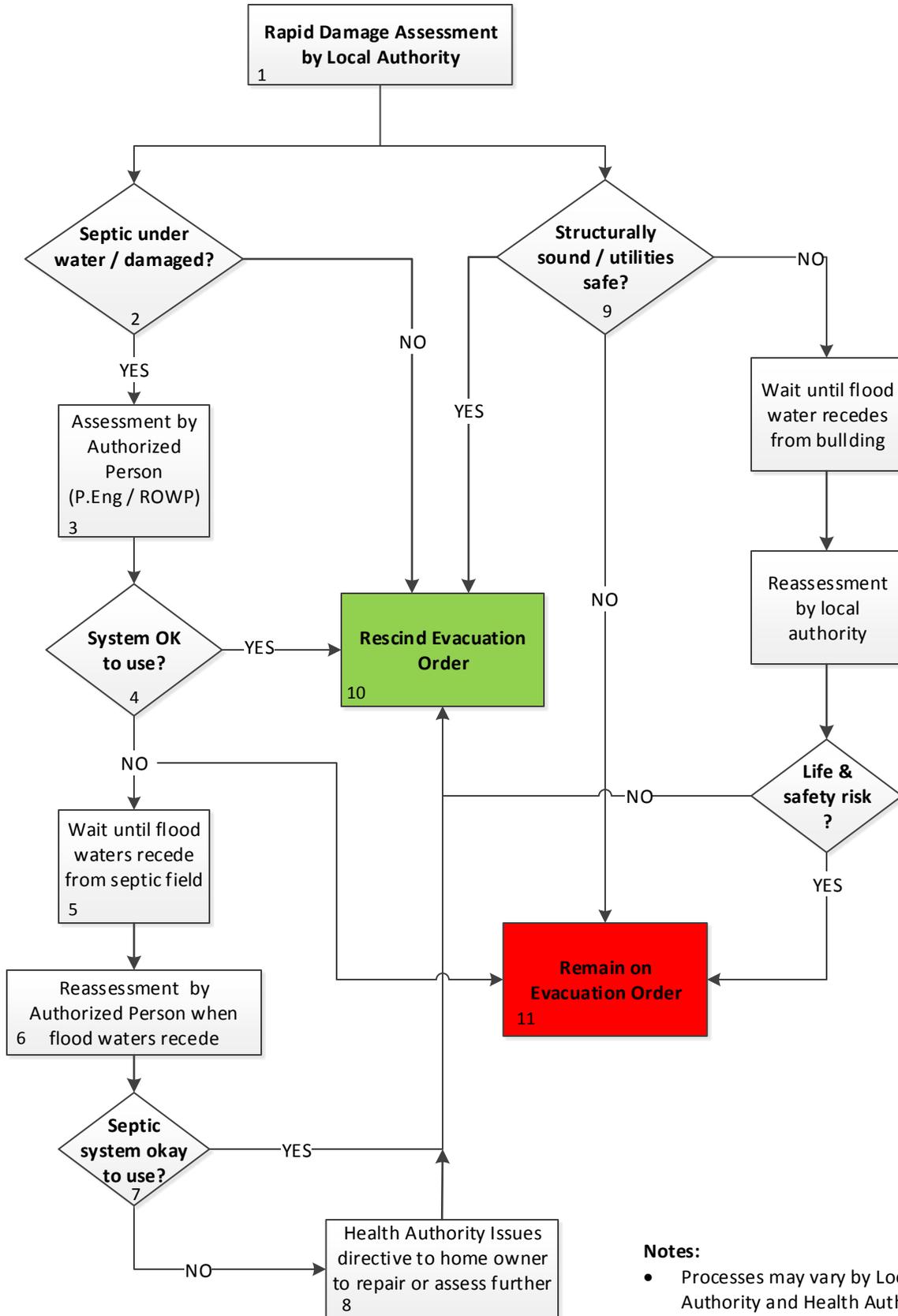
Key Messages for Homeowners:

- Do not pump septic tanks until surface and ground water recede; otherwise, hydraulic pressure may push the septic tank out of the ground (see photo).
- Do not use the septic system until water has receded 0.9 metres below ground surface where the septic field is located. This allows the distribution pipe in the septic field to drain properly.
- The quickest way to determine whether or not your system is operating properly is to check the water level in the septic tank. Water levels in the septic tank can be observed by opening the inspection port above the outlet. If operating properly, the water level will be at the bottom of the outlet pipe.
- If the water level in the septic tank is above the outlet pipe, it indicates the septic field is not accepting effluent and the system should be accessed by an 'Authorized Person' (AP) – either a Registered Onsite Wastewater Practitioner (ROWP) or a Professional Engineer.
- Use water sparingly when returning to your home, as the disposal field may still be saturated and will have limited capacity to absorb effluent.



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A suggested process for Local Authorities



Notes:

- Processes may vary by Local Authority and Health Authority.