



State of Oregon

Department of Environmental Quality Guidelines

Alternative Guidelines for Estimating Leakage from Smaller (less than 2 acres) Existing Sewage Lagoons.

1. Background

In 1991, the Department developed *Guidelines for Estimating Leakage from Existing Sewage Lagoons*. The purpose of these Guidelines was to provide for relatively inexpensive test equipment and procedures to be used for prioritizing problem lagoons used for treating domestic sewage. The most recent revision of the guideline was issued in 1994. The application of these procedures is appropriate for larger lagoon systems, which are typically required to have accurate flow measurement. However, the procedure is relatively expensive for smaller lagoon system owners, which may have no dedicated flow measurement devices. Therefore, this guidance document provides for an alternative procedure for those smaller systems that have less potential to contaminate groundwater.

2. Applicability

The following alternative guidelines apply to existing lagoon systems that received domestic sewage only. These guidelines do not apply to the following:

- Lagoon systems that are over two acres in surface area.
- Lagoon systems located in a Groundwater Management Area where an identified contaminant of concern may be associated with domestic wastewater or sludge.
- Lagoon systems located within 1000 feet of an existing public or private drinking water supply well.
- Lagoon systems located within a designated Wellhead Protection Area.

Lagoons in one of the above categories should follow the guidelines in *Guidelines for Estimating Leakage from Existing Sewage Lagoons* and/or begin a Preliminary Groundwater Assessment.

3. General Approach

This alternative method for smaller lagoon systems is similar to that described in *Guidelines for Estimating Leakage from Existing Sewage Lagoons* with the modification that it involves ceasing discharge to a lagoon, and the test is run for a shorter duration during a period of no or minimal rainfall. If it is a two-lagoon system and the lagoons can be isolated, influent sewage may be diverted to one lagoon while the other lagoon is tested for seepage. Then the first lagoon may be tested. For single lagoon systems, the facility may be shut down for the duration of the test.

4. Procedures and Equipment Requirements

The procedures and equipment requirements are essentially the same as that described in *Guidelines for Estimating Leakage from Existing Sewage Lagoons* with the following changes:

- The minimum duration of the test is 5 days. However, for tests run during July and August, the test should be extended to a minimum of 8 days because of the increased

evaporation rates. Tests may also need to be extended because of rainfall, wind, or other environmental conditions.

- The lagoon tested should be filled to near capacity, while still maintaining the required freeboard.
- Because influent is diverted, no flow monitoring of the influent is required.
- For better accuracy, lagoon depth measurements should be made with a pressure transducer that automatically compensates for barometric pressure and is enclosed in a stilling well. An accurate depth measurement may be very difficult to obtain, during unstable summer weather, without accounting for barometric pressure effects on depth gauge readings. The pressure transducer should be connected to a recording device that records lagoon depths at least once per hour.

5. Reports

Reports should be in the same format as *Guidelines for Estimating Leakage from Existing Sewage Lagoons*. However, leakage reports for lagoon systems of less than one-half acre do not need certified and signed by a registered engineer or professional hydrologist. For these smaller systems, the reports may be prepared and signed by any qualified wastewater professional.

6. Inquiries

Inquiries about these guidelines should be directed to DEQ regional water-quality plan review engineers.

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