

## **Environmental Indicators for Landfills**

### **Background**

The Governor directed each program in the Department of Ecology (Ecology) to provide performance measures for activities that affect the environment. The Waste 2 Resources Program (W2R) is developing environmental indicators (EI) for landfills that are regulated under Chapters 173-304, 173-351, 173-306, 173-350, 173-303 WAC. The EI focus is on environmental impacts and does not audit conformance with other regulatory requirements. The EI will be used by both Ecology and the jurisdictional Health Districts (JHD) to assess environmental impacts from landfills. Landfills are long term projects with life cycles that move from active to post-closure care and ultimately to the completion of the post-closure care period. These indicators will provide a snapshot of the relative environmental impacts of the landfills and will establish a benchmark for tracking and help prioritize work activities.

Only landfills that require (or did require) an environmental monitoring program in the above regulations are considered in this evaluation. These include the following types of landfills: municipal solid waste, ash, wood waste, limited purpose, closed hazardous waste, surface impoundments and treatment beds. Closed and abandoned landfills that do not require monitoring, such as landfills prior to Chapter 173-304 WAC (November 1985) or Chapter 173-304 WAC landfills that did not require environmental monitoring, will be inventoried in the future as part of the Beyond Waste initiative. Landfills undergoing MTCA cleanups administered by Ecology's Toxic Cleanup Program are not included in this compilation. The initial EI will include monitoring data through the 2004 Annual Reports that were submitted by July 1, 2005.

This evaluation is not meant to preclude a possible site hazard assessment (SHA) at some time in the future. SHAs are used by Ecology as a standardized ranking system for all types of facilities with a release of a hazardous substance. SHAs go into greater detail than the EI and consider additional criteria that are not included in the solid waste regulations.

### **Definitions**

“Environmental impact” is a release to the environment as defined within the applicable regulation where there has been either a statistically significant increase above background or a criteria has been exceeded. The applicable regulations are Chapters 173-304, 173-351, 173-306, 173-350, 173-303, 173-200, 173-201A, or 173-340 WAC.

“Compliance” means the landfill meets the regulatory criteria for adequacy of monitoring networks, sampling and analysis plans, reporting, and other necessary environmental monitoring.

“Corrective action” includes the following elements of a cleanup process: identification of the extent and nature of contamination, evaluation and selection of remedies, and implementation of the remedy. These would be considered beyond general closure requirements.

“Landfill” means any facility defined as a landfill under Chapters 173-304, 173-351, 173-306, 173-350, 173-303 WAC required to perform environmental monitoring.

## Environmental Indicators

The following are tabulated by region and for the state:

- Total number of landfills
- Total number of active landfills
- Total number of landfills in post closure
- Total number of landfills that have completed post-closure requirements
- Percent of landfills that report (note: these will be grouped by regulation)

The categories are divided into Chapters 173-304, 173-351/173-306, 173-350, 173-303 WAC landfills. The closure period of a landfill is included with the active status. The categories are as follows:

**A1: Active landfills that show no detections or low environmental impacts.**

This category includes landfills that show no detections or low environmental impacts in air, surface water, ground water, and soil. Some examples of sites with low impact to ground water include the following: (a) the site does not exceed Chapter 173-200 WAC standards for primary or carcinogen constituents, but may exceed secondary constituent standards. (b) constituents are noted at levels greater than background but less than Chapter 173-200 WAC standards. This category means there are no increasing trends in the environmental monitoring data and we will continue to review the quarterly/annual reports.

**A2: Active landfills that have on-going environmental compliance issues.**

This category includes landfills with the following environmental impacts: (a) impacts are unknown, (b) an increase trend in the environmental monitoring data, or (c) slightly above a regulatory standard but no need for additional corrective action. This also includes landfills that have inadequate monitoring networks for one or more appropriate environmental media (ground water, surface water, air), have inadequate sampling and analysis plans, or do not submit environmental reports.

**A3: Active landfills that should initiate corrective actions or have on-going corrective actions.**

This category is for landfills that have corrective action conditions within a solid waste permit or are under a MTCA order administered by Ecology’s Waste 2 Resources Program. Landfills that should initiate corrective actions are included in this category.

**PC1: Landfills in post-closure that show no detections or low environmental impacts.**

This category includes landfills that show no detections or low environmental impacts in air, surface water, ground water, and soil. Some examples of sites with low impacts to ground water include the following: (a) the site does not exceed Chapter 173-200 WAC standards for primary or carcinogen constituents, but may exceed secondary constituent standards. (b) constituents are noted at levels greater than background but less than Chapter 173-200 WAC standards. This category means there are no increasing trends in the environmental monitoring data and we will continue to review the quarterly/annual reports.

**PC2: Landfills in post-closure that have on-going environmental compliance issues.**

This category includes landfills with the following environmental impacts: (a) impacts are unknown, (b) an increasing trend in the environmental monitoring data, or (c) slightly above a regulatory standard but no need for additional corrective action. This also includes landfills that have inadequate monitoring networks for one or more appropriate environmental media (ground water, surface water, air), have inadequate sampling and analysis plans, or do not submit environmental reports.

**PC3: Landfills in post-closure that should initiate corrective action or have on-going corrective actions.**

This category is for landfills that have corrective action conditions within a solid waste permit or are under a MTCA order administered by Ecology's Waste 2 Resources Program. Landfills that should initiate corrective actions are included in this category.

**PC4: Landfills that have completed post-closure requirements.**

The category is for landfills where environmental impacts are low and cessation of post-closure maintenance and monitoring has been approved by the JHD in accordance with the applicable regulations.