

**SOLID WASTE MANAGEMENT DIVISION
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AGENCY OF NATURAL RESOURCES
STATE OF VERMONT**

**PROCEDURE ADDRESSING REQUIREMENTS FOR RUN-ON/RUN-OFF CONTROL
SYSTEMS FOR MUNICIPAL SOLID WASTE LANDFILLS**

May 27, 1994

ADOPTED:

Signature

**Barbara Ripley, Secretary
Agency of Natural Resources**

May 27, 1994

Date

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I. INTRODUCTION

On October 9, 1993 the RCRA Subtitle D regulations, 40 CFR Part 258, Solid Waste Disposal Criteria, went into effect. The effective date was delayed to April 9, 1994 for any existing municipal solid waste landfill ("MSWLF") unit that disposed of 100 tons or less of solid waste per day. Section 258.26 requires owners or operators of any MSWLF unit to design, construct, and maintain run-on and run-off control systems.

Section 6-606(a)(1) of the current Vermont Solid Waste Management Rules states that facilities shall be designed to minimize, to the greatest extent feasible, the possibility of an emission or discharge of contaminants from the facility, and should an emission or discharge occur from the facility, the threats from the emission or discharge to public health or the environment. Section 6-606(b)(2)(I) requires that the design for a landfill provide for surface water drainage so that off-site surface water is diverted from the disposal area. Section 6-606(b)(2)(J) requires that the engineering design and plan for lift development insure proper drainage on the landfill site and eliminate ponding on the landfill surface during the working life of the facility and after final cover has been applied and revegetation achieved.

This procedure addresses the design of run-on and run-off control systems. Construction and maintenance of the run-on/run-off control systems are not addressed. The Vermont Solid Waste Management Rules and facility certifications are adequate to insure that the run-on/run-off control systems are constructed and maintained to meet the design specifications. The design requirements of run-on control systems is presented in Section III. The design requirements of run-off control systems is presented in Section IV.

II. DEFINITIONS

For the purposes of this procedure, the following definitions apply.

Facility means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste.

Run-on means any rainwater, snow melt, or other liquid that drains over land onto any part of a facility.

Run-off means any rainwater, snow melt, leachate, or other liquid that drains over land from any part of a facility.

III. RUN-ON CONTROL SYSTEMS DESIGN REQUIREMENTS

Requirement: At a minimum, run-on control systems must prevent surface flow onto the active portion or closed portion of the MSWLF unit during the peak discharge from a 25-year, 24-hour storm.

Discussion: Typically, the run-on control systems will consist of an adequately sized grass-lined or rock-lined perimeter diversion swale. Information on the 25-year, 24-hour storm event and other storm events can be obtained from Technical Paper 40 "Rainfall Frequency Atlas of the United States for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years", prepared by the Weather Bureau under the Department of Commerce. Alternatively, local meteorological data can be analyzed to estimate the criterion storm. To estimate run-on, the local watershed must be identified and evaluated to document the basis for run-on design flows.

Two methods that are adequate for estimating peak flows for designing run-on control systems are the Soil Conservation Service (SCS) Method and/or the Rational Method. The SCS Method is described in the June, 1986 Technical Release 55, "Urban Hydrology for Small Watersheds". The TR-55 microcomputer program has been developed to automate the procedures contained in the TR. Design calculations including watershed maps and computer output sheets must be submitted with any application for certification. There are other methods for estimating peak flows which may be adequate for a particular MSWLF unit.

IV. RUN-OFF CONTROL SYSTEMS DESIGN REQUIREMENTS

A. LINED MUNICIPAL SOLID WASTE LANDFILLS

Requirement: During the active life of a facility, stormwater (including rain water or snow melt) that comes in contact with solid waste or leachate in the active portion of the MSWLF is considered contaminated and must be collected and treated as leachate. The impact to the leachate collection and storage system must be assessed for a 25-year, 24-hour storm.

Discussion: The Hydrologic Evaluation of Landfill Performance (HELP) Model will typically be used to determine leachate generation rates. The worst case scenario for leachate generation must be evaluated when accessing the impacts to the leachate collection and storage system.

Stormwater which collects on areas of the MSWLF liner system where no solid waste is disposed or runs off from areas of the MSWLF where an adequate intermediate cover system has been installed is considered uncontaminated. Under either of these circumstances the stormwater can be discharged to perimeter swales or other drainage facilities, if approved by the Department of Environmental Conservation. There must be no evidence of leachate sidewall breakouts which may contaminate the run-off stormwater. The design of the run-on control systems described in Section III above must include any additional discharge if uncontaminated stormwater is to be discharged to them.

After the MSWLF unit has been closed in accordance with the approved closure plans, stormwater run-off from the final cover system can be managed as stormwater and not leachate. The stormwater run-off can be combined with run-on at that time. The design of the run-on control system must include the run-off volume from the installed final cover system.

B. UNLINED MUNICIPAL SOLID WASTE LANDFILLS

Requirement: At a minimum, run-off control systems from the active portion(s) of the MSWLF must be designed to collect and control the peak discharge from a 25 year, 24 hour storm. Run-off from the active portion of the MSWLF must not cause a discharge of pollutants into waters of the state, including wetlands, that violate any requirements of the Clean Water Act, including but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements pursuant to section 402. These requirements apply to any unlined MSWLF receiving certification after January 1, 1995.

Discussion: Typically, the run-off collection control system for an unlined MSWLF will consist of adequately sized grass lined or rock perimeter swales and perimeter sediment basins. See references presented in Section III for methods used to estimate the run-off discharge from the active portion of the MSWLF. The design of the run-on control systems described in Section II above must include any additional discharge if run-off is to be discharged to them.