if necessary, to assess the nature and extent of contamination.

(i) Directors of approved States can use the flexibility in paragraph (h) of this section for any non-municipal solid waste disposal facility that receives CESQG waste, if the non-municipal solid waste disposal facility:

(1) Disposes of less than 20 tons of non-municipal waste daily, based on an annual average, and,

(2) Has no evidence of ground-water contamination, and either,

(3) Serves a community that experiences an annual interruption of at least three consecutive months of surface transportation that prevents access to a regional waste management facility, or

(4) Serves a community that has no practicable waste management alternative and the non-municipal solid waste disposal facility is located in an area that annually receives less than or equal to 25 inches of precipitation.

(5) Owners/operators of any non-municipal solid waste disposal facility that meets the criteria in paragraph (i) of this section must place in the operating record information demonstrating this.

§ 257.22 Ground-water monitoring systems.

(a) A ground-water monitoring system must be installed that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield ground-water samples from the uppermost aquifer (as defined in § 257.21(b)) that:

(1) Represent the quality of background ground water that has not been affected by leakage from a unit. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the waste management area where:

(i) Hydrogeologic conditions do not allow the owner or operator to determine what wells are hydraulically upgradient; or

(ii) Sampling at other wells will provide an indication of background ground-water quality that is as representative or more representative than that provided by the upgradient wells; and

(2) Represent the quality of ground water passing the relevant point of compliance specified by the Director of an approved State or at the waste management unit boundary in an unapproved State. The downgradient monitoring system must be installed at the relevant point of compliance specified by the Director of an approved State or at the waste management unit boundary in an unapproved State that ensures detection of ground-water contamination in the uppermost aquifer. The relevant point of compliance specified by the Director of an approved State shall be no more than 150 meters from the waste management unit boundary and shall be located on land owned by the owner of the facility. In determining the relevant point of compliance the State Director shall consider at least the following factors: The hydrogeologic characteristics of the facility and surrounding land, the volume and physical and chemical characteristics of the leachate, the quantity, quality and direction of flow of ground water, the proximity and withdrawal rate of the ground-water users, the availability of alternative drinking water supplies, the existing quality of the ground water, including other sources of contamination and their cumulative impacts on the ground water, and whether the ground water is currently used or reasonably expected to be used for drinking water, public health, safety, and welfare effects, and practicable capability of the owner or operator. When physical obstacles preclude installation of ground-water monitoring wells at the relevant point of compliance at existing units, the down-gradient monitoring system may be installed at the closest practicable distance hydraulically down-gradient from the relevant point of compliance specified by the Director of an approved State that ensures detection of groundwater contamination in the uppermost aquifer.

(b) The Director of an approved State may approve a multi-unit ground-water monitoring system instead of separate ground-water monitoring systems for each unit when the facility has several units, provided the multi-unit ground-water monitoring system meets the requirement of § 257.22(a) and will be as protective of human health and the environment as individual monitoring systems for each unit, based on the following factors:

(1) Number, spacing, and orientation of the units;

(2) Hydrogeologic setting;

(3) Site history;

(4) Engineering design of the units, and

(5) Type of waste accepted at the units.

(c) Monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of ground-water samples. The annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the ground water.

(1) The owner or operator must notify the State Director that the design, installation, development, and decommission of any monitoring wells, piezometers and other measurement, sampling, and analytical devices documentation has been placed in the operating record; and

(2) The monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program.

(d) The number, spacing, and depths of monitoring systems shall be:

(1) Determined based upon site-specific technical information that must include thorough characterization of:

(i) Aquifer thickness, ground-water flow rate, ground-water flow direction including seasonal and temporal fluctuations in ground-water flow; and

(ii) Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer; including, but not limited to: Thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

(2) Certified by a qualified ground-water scientist or approved by the Director of an approved State. Within 14 days of this certification, the owner or operator must notify the State Director that the certification has been placed in the operating record.

§ 257.23 Ground-water sampling and analysis requirements.

(a) The ground-water monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide an accurate representation of ground-water quality at the background and downgradient wells installed in compliance with § 257.22(a). The owner or operator must notify the State Director that the sampling and analysis program documentation has been placed in the operating record and the program must include procedures and techniques for:

(1) Sample collection;

(2) Sample preservation and shipment;

(3) Analytical procedures;

(4) Chain of custody control; and

(5) Quality assurance and quality control.