

rule was meant to require the operation of the gas collection and control system within 90 days after the initial liquids addition or within 90 days after the moisture content has reached 40 percent. Commenters stated that they believed the intent was to require operation of the gas collection and control system after the moisture content reached 40 percent. The commenters stated that it may take longer than 90 days of liquids addition to reach a moisture content of 40 percent.

Response: It was our intent that attaining 40 percent moisture triggers the operation of the control system, and not merely the introduction of liquids. If operation of the control system is based on the time of liquids addition and the landfill has not reached 40 percent moisture content within 90 days, then the rule (as proposed) would be requiring collection and control to be installed and operated prior to the landfill meeting the definition of a bioreactor. We have revised the final rule to clarify that the operation of the collection and control system is required within 180 days after the landfill starts liquids addition or within 180 days after the bioreactor has reached 40 percent moisture content (i.e. 180 days after the landfill has met the definition of bioreactor), whichever is later. Landfills must use the procedures in section 63.1980(g) and (h) to determine when 40 percent moisture content is reached. (No calculation is needed if you start operating the collection and control system within 180 days after the initial liquids addition.) Installation of the collection and control system is still required prior to liquids addition, as required in the supplemental proposal.

Comment: We received several comments pertaining to the exclusion of landfills that recirculate leachate and do not add any other liquids from the definition of a bioreactor landfill. Three commenters who supported the exclusion stated that liquids addition other than that provided by leachate recirculation is normally needed to achieve optimum moisture for bioreactors. Many landfills recirculate leachate as part of their leachate management system without creating bioreactor conditions. A commenter who opposed the exclusion contended that a landfill in a relatively moist climate could sustain an effective bioreactor operation on leachate recirculation alone. This commenter pointed out that there were odor problems at landfills in his State that began recirculating leachate without a collection and control system. The

commenter stated that his State now requires collection and control for all landfills that recirculate leachate. The commenter also expressed concern that landfills recirculating leachate only may reach the 40 percent moisture level in the waste by recirculating leachate from the entire landfill into a single bioreactor cell. Another commenter who opposed the exclusion contended that minimal data from landfills recirculating leachate has been collected to allow for the exclusion.

Response: We have not changed the bioreactor definition. A very small percentage of bioreactors in moist climates would reach moisture content of 40 percent with leachate recirculation only. Due to variations in rainfall throughout the year, it would be difficult to consistently maintain a high moisture content in the waste to function as a fully operational bioreactor. We expect that landfill owners that decide to create bioreactors in the future will typically plan to operate a large area as a bioreactor to achieve potential benefits such as earlier stabilization of waste, extended use of current sites and reduced need for new sites. Liquids addition would be needed to maintain such bioreactors.

It would be a large and unnecessary burden to require potentially hundreds of landfills that recirculate leachate, but do not add any other liquids, to calculate their percent moisture content and determine if they are a bioreactor, when we expect that they will not meet the 40 percent moisture criteria in the definition of a bioreactor. These landfills would still be subject to the final rule and EG/NSPS control requirements for conventional landfills, which will require gas collection and control after their estimated uncontrolled NMOC emissions reach 50 Mg/yr. State, local, or tribal agencies may develop more stringent State or local regulations for landfills recirculating leachate in cases where odor or air emissions warrant active landfill gas collection and control.

Comment: One commenter pointed out that the potential exists for smaller bioreactor landfills that add liquids, to generate significant air emissions that warrant timely installation of gas collection and control systems. The commenter recommended requiring control of bioreactors at landfills with design capacities less than 2.5 million Mg or 2.5 million m³.

Response: We have not changed our conclusion since proposal. In determining GACT for area sources, we decided not to require control at small area source conventional or bioreactor landfills. While bioreactors generate

larger amounts of landfill gas early in their life, we expect that their lifetime total landfill gas generation potential would not be significantly greater than a conventional landfill accepting the same total amount of waste. Therefore, potential emissions reductions from control of bioreactors would be similar to potential long-term emissions reductions from control of small conventional landfills. Requiring bioreactors at small landfills (i.e., landfills with design capacities less than 2.5 million Mg or 2.5 million m³) to install controls would result in additional control costs because they are not required to install controls by the EG/NSPS. The design capacity exemption excludes those landfills that can least afford the costs of collection and control systems including small businesses and, particularly, municipalities. Other reasons for exempting small landfills are described in the proposed landfills NESHAP (65 FR 66677, November 7, 2000) and also apply to bioreactors.

Comment: Four commenters encouraged us to include aerobic bioreactor operations by imposing the anaerobic bioreactor emissions requirements on aerobic bioreactor landfills. Two of these commenters provide references to available literature on MSW composting. They suggested that controls for aerobic bioreactor landfills may be warranted, although one of these commenters concluded that there is not enough scientifically valid data to develop a MACT standard for aerobic bioreactor landfills. Five other commenters agreed there is limited data, especially HAP emissions data, and believe it is important to exclude aerobic bioreactors at this time.

Response: The references provided for composting operations are not applicable because composting of MSW is not the same as operating an aerobic bioreactor within a MSW landfill. We know of no full scale aerobic bioreactors in operation in the United States, and an insufficient amount of aerobic landfill data are available to properly characterize HAP emissions from aerobic bioreactors. We expect a significant number of aerobic bioreactors will not be built in the next several years (in contrast to the trend for anaerobic bioreactors). For these reasons, we have determined that it is not appropriate to include aerobic bioreactors in the bioreactor definition or related timing requirements. Portions of a landfill that are operated as aerobic bioreactors would continue to be subject to the EG/NSPS and the final rule requirements for conventional landfills. Under section 112(f) of the CAA, we