

wastewaters from their containment systems.

*What were the key comments?* EPA received comments both opposing and supporting the proposed requirements that would have eliminated the allowance for overflows for swine, poultry, and veal CAFOs. Many commenters opposed to eliminating the overflow allowance argued that the cost to comply with such requirements would threaten the viability of their operations. Some stakeholders also stated that the use of impermeable lagoon covers (as a means for achieving compliance with the proposed requirements) would pose a number of operational challenges: freezing, biogas collection, clean storm water management, wind shear, cover repair, and disposal of spent covers. For these reasons, these stakeholders concluded the proposed zero discharge standard was technologically infeasible.

*Rationale.* The production area requirements established today for existing Large swine, poultry, and veal CAFOs will provide effective control of discharges of manure and other process wastewaters to surface water, consistent with the statutory factors the Clean Water Act requires EPA to consider in establishing effluent guidelines for existing sources (BPT, BCT, and BAT). These requirements are widely demonstrated as technologically achievable for these operations, and the containment requirements included in this rule have been applicable to Large CAFOs since they were promulgated in the 1974 ELGs. Further, USDA and ASAE cite the 25-year, 24-hour rainfall event as part of the standard to which storage structures should be constructed.

CAFOs must properly design, operate, and maintain storage structures to contain all manure, litter, and process wastewater including the runoff from a 25-year, 24-hour rainfall event. The determination of the necessary storage volume should reflect the maximum length of time anticipated between emptying events. The design storage volume must reflect manure, wastewater, and other wastes accumulated during the storage period; normal precipitation less evaporation on the surface area during the entire storage period; normal runoff from the facility's drainage area during the storage period; 25-year, 24-hour precipitation on the surface (at the required design storage volume level) of the facility; 25-year, 24-hour runoff from the facility's drainage area; residual solids after liquids have been removed; necessary freeboard (NRCS recommends a minimum of 1 foot of freeboard); and, in

the case of treatment lagoons, a minimum treatment volume necessary to allow anaerobic treatment to occur. Additional storage may also be required to meet management goals or other regulatory requirements. EPA encourages CAFOs to use relevant ASAE and NRCS standards as one method to ensure appropriate design and construction. This is also consistent with EPA's approach to estimating the costs of compliance with today's rule.

CAFOs should actively operate and maintain the manure storage structure, including solids removal or dewatering when appropriate, to retain the capacity for the 25-year, 24-hour rainfall event. Recent studies suggest proper operation and maintenance will prevent most, if not all, overflows and discharges from manure storage areas. One recent study from Iowa State University suggested 76 percent of earthen manure structures lacked appropriate accompanying management and maintenance activities. Another study in North Carolina stated more than 90 percent of violations were attributed to operation and management deficiencies. Other studies also list typical shortcomings as including: careless transfer of manure to application equipment; improper manure agitation practices; inadequate controls to prevent burrowing animals and plants from eroding the storage berms and sidewalls; lack of routine inspection of land application and dewatering equipment during lagoon drawdown; and infrequent visual confirmation of adequate freeboard. Therefore this rule establishes certain recordkeeping requirements that document the design basis for the structures, inspection and other maintenance activities related to the operation of the structures, and any overflows that occur. These records will help the CAFO operator to demonstrate that any overflows that do occur are consistent with the proper operation and maintenance of storage structures designed to contain all manure, litter, and process wastewater, including the runoff from a 25-year, 24-hour rainfall event.

As with the land application requirements, effluent limitations in the form of BMPs are particularly suited to the regulation of CAFOs. For many CAFOs, controlling discharges to surface waters is largely associated with controlling runoff and controlling overflows from manure storage structures. CAFO runoff can be highly intermittent and is usually characterized by very high flows occurring over relatively short time intervals. Whether the runoff or overflow will lead to a discharge, as well as the volume of any

discharge that does occur and the nature of the pollutants present in the discharge, can vary substantially depending on the operating practices and physical characteristics of the operation (e.g., paved vs unpaved surfaces, manure handling practices, climate, amount of area exposed to the precipitation).

EPA believes the production area BMPs included in this rule are necessary to ensure proper maintenance of the production area and prevent discharges except whenever precipitation causes an overflow of process wastewater from a facility designed, constructed, and operated to contain all manure, litter, and process wastewaters plus the runoff from a 25-year, 24-hour rainfall event. There are numerous reports of operations discharging pollutants from the production area during dry weather, discharges from CAFOs that failed to maintain the required storage capacity to contain the 25-year, 24-hour rainfall, and instances of leakage and catastrophic failure of lagoons and other manure storage structures. Information in the record for this rule indicates that many of the discharges could have been avoided if CAFOs had practiced the BMPs in this rule frequently enough to detect and correct discrepancies before they led to discharges.

For today's rule, EPA has determined that the cost to retrofit the many manure storage structures with covers, or to convert wet manure systems to dry manure systems, or to install other control techniques to achieve total containment of manure, litter, and other process wastewaters is not economically achievable for this subcategory. According to EPA's cost and economic impact analyses, requiring existing Large CAFOs subject to Part 412, Subpart D to comply with requirements for total containment (with no allowance for overflows) would result in facility closures at 11 percent of the CAFOs in Subpart D. (See the *Economic Analysis*.) EPA disagrees, however, with the comments that lagoon covers are technologically infeasible. EPA does agree that retrofitting existing lagoon systems with covers can pose substantial design challenges and some existing lagoons might need to be redesigned to accommodate a cover, substantially increasing the retrofit cost for existing sources. In spite of these design challenges and the operational challenges that covering lagoons can pose, EPA believes the record information on the demonstration status of impermeable lagoon covers adequately addresses these feasibility concerns. EPA has data from several