

412.37(b) and (c). These records must be available to the permitting authority and the Regional Administrator, or his or her designee, for review upon request. Records must be maintained for 5 years from the date they are created.

*What did EPA propose?* EPA proposed to establish effluent guidelines that include the requirements promulgated in today's rule, and that would also have required all Large beef and dairy CAFOs (including heifers) to prevent discharges to the ground water beneath the production area (animal confinement areas, manure stockpiles, and impoundments) where there is a direct hydrologic connection to surface waters.

*What were the key comments?* EPA received numerous comments on the proposed inclusion of ground water monitoring and protection requirements for beef and dairy CAFOs. Many commenters opposed the proposed ground water requirements, stating that EPA lacks the authority to regulate ground water contamination in this rule and that the cost to comply with the proposed requirements would threaten the viability of these operations. The commenters also felt that EPA would need to define the term "direct hydrologic connection to surface water" if ground water requirements were to be implemented. EPA also received comments supporting the inclusion of ground water requirements in this rule, arguing that individual State programs are not always protective of these types of discharges.

EPA received a number of comments suggesting the rule should allow for less frequent inspections of the production area; should establish effluent limitations that would allow CAFOs to discharge treated manure, litter, and process wastewaters (as opposed to the requirements in the 1974 ELGs based on the containment of these wastes); and should allow CAFOs to dispose of mortalities in surface impoundments designed for that purpose. Other commenters stated that EPA should retain the existing zero discharge requirement established by the 1974 ELGs and should not allow CAFOs to discharge the wastes they currently must contain, even if the wastes are treated before being discharged.

*Rationale.* The production area requirements established today for Large beef, dairy, and heifer CAFOs will provide effective control of discharges of manure and other process wastewaters to surface water. These requirements are widely demonstrated as achievable and are in use at most beef, dairy, and heifer CAFOs and the containment requirements included in

this rule have been applicable to Large CAFOs since they were promulgated in the 1974 ELGs. Furthermore, 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 (USDA's Natural Resources Conservation Service (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. For example, if the permitting authority needs further controls to assure compliance with site-specific water quality standards, EPA encourages CAFOs to consider relevant ASAE and NRCS standards as one method to ensure appropriate design and construction.

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 record keeping 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 process wastewater, including the runoff from a 25-year, 24-hour rainfall event.

Although most CAFOs already have containment structures properly sized to contain their process wastes and the contributions from rainfall up to a 25-year, 24-hour rainfall event, many of these operations are not properly maintaining their systems to retain the capacity for such a rainfall event. Therefore, today's rule specifies that surface and liquid impoundments (e.g., lagoons, ponds, and tanks) are required to have depth markers installed. The depth marker indicates the maximum volume that should be maintained under normal operating conditions allowing for the volume necessary to contain the 25-year, 24-hour rainfall event. Without such a depth marker, a CAFO operator might allow lagoons and other impoundments to fill to a level such that the capacity to contain the direct precipitation and runoff from a 25-year, 24-hour rainfall event is not maintained, leading to overflows that are inconsistent with the proper operation and maintenance of the system. In addition, closed or covered liquid impoundments are required to have depth markers installed to properly maintain these storage systems, such that dry weather discharges do not occur. Depth markers are necessary tools that allow operators to actively manage (e.g., dewater, remove solids) the liquid levels in their impoundments and ensure that adequate capacity is retained for the 25-year, 24-hour rainfall event. Remote sensors can also be used to monitor liquid levels in lagoons and impoundments. This sensor technology can be used to monitor changes in liquid levels, either rising or dropping levels. These sensors can also trigger an alarm when the level is changing rapidly or when the liquid level has reached a critical level. The alarm can transmit to a wireless receiver to alert the CAFO owner or operator and can also alert the permitting authority. The