would be detected. The Agency, therefore, solicited comments on alternative ground-water monitoring requirements in the publication of the proposed rule to extend the effective date of the MSWLF criteria (56 FR 40568, July 28, 1993), and later, held a series of related public meetings.

The Agency announced on May 9, 1994, that it would hold a series of four public meetings to provide an additional opportunity for interested parties to present the Agency with information regarding the costs of monitoring ground water at qualifying small MSWLF units, and on any costeffective alternatives to conventional ground-water monitoring (59 FR 23857). These four meetings were held in June, 1994, in Midland, Texas; Salt Lake City, Utah; Anchorage, Alaska; and Washington, DC. Approximately 60 commentors representing State and local governments, landfill owners and operators, geologists, engineers, and other parties involved in waste management presented testimony at those meetings. A copy of these comments may be found in public docket number F-95-AGAP-FFFFF.

Based on the public comments submitted in response to the 1988 proposed rule, the additional comments received at these public meetings, and on related Agency research, the Agency continues to believe that certain qualifying small MSWLFs warrant special consideration with respect to their ground-water monitoring requirements.

## B. Special Circumstances of Small Communities and Related Public Comments

In the preamble (56 FR 50989 through 50991, October 9, 1991) to the Solid Waste Disposal Facility Criteria Final Rule codified under 40 CFR part 258, the Agency discussed the particular circumstances of small remote communities and the hardships those communities would face if they had to comply with all of the ground-water monitoring requirements of part 258. These circumstances were, in part, the basis for the small landfill exemption described in the previous section of this preamble. Although the ground-water monitoring portion of the exemption has been deleted, the Agency still believes that it may not be necessary or appropriate to require qualifying small MSWLFs in arid or remote areas to comply with the full ground-water monitoring requirements in part 258.

As indicated in the preamble to part 258, circumstances that characterize small communities and their landfills may include: (a) Certain mitigating

hydrogeologic and climatic factors, and their influence on impacts to ground water; (b) limited financial resources and technical expertise to comply with the design and ground-water monitoring provisions; (c) financial and practical obstacles to providing regionalized solid waste management practices, such as large geographic distances between communities, or geographic isolation for extended periods of time due to winter weather conditions; and (d) the potential for increased illegal dumping if small landfills are no longer available or regionalization of solid waste is impractical or excessively expensive. The next section of the preamble describes these circumstances in more detail and discusses additional information provided by commentors at the four public meetings.

 Influence of Certain Hydrogeologic and Climatic Factors on Leachate Generation and Potential Ground-Water Contamination at Small Landfills

The risks of contamination posed by qualifying small MSWLFs vary from location to location and depend on an array of climatic, geologic, and hydrogeologic factors. It was asserted by most commentors that MSWLF units meeting the criteria of 258.1(f)(1) pose a relatively low risk of contamination to ground water. The reasons for this, the commentors noted, are that qualifying small, dry MSWLFs (and many of the remote MSWLFs in Alaska) are situated in areas receiving very small amounts of precipitation, and in such "dry" areas where evapotranspiration often exceeds precipitation annually, the amounts of leachate generated would be minimal. Several commentors reflected that, in general, lower levels of precipitation decrease the probability for leachate generation at MSWLFs, corresponding to a decreased potential for adverse environmental impacts. Commentors stated that the time of year and the frequency and intensity of a precipitation event may significantly affect the potential for leachate generation. Commentors also remarked that in many arid western locations, ground-water is located hundreds of feet below the surface and may be separated from the landfill by rock formations with relatively low permeabilities. Commentors contended that migration of leachate to the ground-water table in such climatic and geologic conditions would be unlikely.
When the D.C. Circuit Court of

When the D.C. Circuit Court of Appeals remanded the ground-water monitoring exemption in the final MSWLF criteria back to the Agency in Sierra Club v. U.S. EPA, the Court stated that the "record provides no basis to

conclude that \* \* \* the aridity of a facility's climate suffices to establish that ground-water monitoring is not 'necessary to detect contamination.' 992 F.2d at 345. Today's proposal, rather than using the aridity of a facility's climate to provide a groundwater monitoring exemption, uses aridity as a basis for allowing approved States and Tribes to permit the use of alternative monitoring techniques. The Agency is proposing to grant this authority to approved States and Tribes because it believes that small landfills located in arid areas of the U.S. are less likely to present a threat of contamination due to the dry climate and often great distance to ground water. It is important to note that this is not an exemption, but rather it enables approved States and Tribes to tailor monitoring programs based on sitespecific characteristics.

The Agency continues to believe that ground-water monitoring plays an important role in ensuring protection of human health and the environment. However, the Agency believes that the relative public health and environmental risks posed by very small landfills located in arid areas is quite low, based on several reasons.

First, as noted by the commentors, lower levels of precipitation decrease the probability for leachate generation at MSWLFs. Agency water balance studies used to predict leachate generation from MSWLFs indicate that landfills located in dry areas generate very little leachate available for release to the ground water. In addition, the Agency's Subtitle D Risk Model used to predict human health risk resulting from landfills based on a variety of factors, showed that while no single factor is responsible for determining overall risk (i.e., risk results from a complex interaction of factors), a much lower risk of contamination exists from landfills located in dry areas of the country experiencing low net infiltration of precipitation versus wet areas with high net infiltration.

The Agency's choice of 25 inches of precipitation per year as a cut-off for the small landfill exemption contained in the original final MSWLF criteria was based, in part, on case studies on ground-water contamination from MSWLFs developed from State data. (A copy of these case studies may be found in public docket F-95-AGAP-FFFFF. The 25 inch cut-off was selected because, in part, under these conditions, evapotranspiration exceeds precipitation, making very little precipitation available to infiltrate the soil. Evapotranspiration is the portion of precipitation returned to the atmosphere by direct evaporation, by transpiration