Remote Landfills" and "Subsurface Characterization and Monitoring Techniques, Volumes I and II." Both documents may be found in the docket for this rulemaking (F–95–AGAP– FFFFF).

While many of these early detection methods, such as gypsum blocks and resistivity surveys, do not measure any of the specific chemical parameters listed in Appendix I and II of Part 258, the Agency agrees with commentors that they are well-established, reliable indicators of moisture that are affordable for many small MSWLFs to employ. Detection of moisture by an early detection system can be a way to predict potential leachate movement from a MSWLF unit. The Agency recognizes that the presence of moisture does not necessarily mean that there is contamination leaving the MSWLF unit, but detection of moisture can be an effective first step in a phased approach to detecting contamination. EPA believes that these systems can be cost effective in such applications and believes that the States and Tribes can use site-specific information to determine when to use these systems.

Commentors were in agreement that a phased approach would be the most feasible and cost-effective method of implementation. In such an approach, an effective low cost technology could be used to detect moisture movement beneath a MSWLF unit. The ground water would be sampled to determine ground-water quality in a second phase. Later, should ground-water contamination be detected, an expanded monitoring system would be employed to provide greater detail on the nature and extent of contamination.

The Agency agrees with this approach for implementing the ground-water monitoring requirements of RCRA Section 4010(c). The Agency believes that if low-cost moisture detection devices (such as gypsum blocks) were used as the initial monitoring technique and moisture was detected beneath or near the landfill, expanded monitoring would be implemented to confirm whether an actual release from the landfill had occurred or if the moisture detection devices were reacting to infiltrating water from another source. One example of an expanded monitoring technique for this situation could be the use of small diameter sampling tools that are temporarily driven into the ground by hydraulically powered hammers to recover subsurface solids, liquids, or gases for laboratory analysis.

In cases where the recovery and analysis of ground water is necessary, several commentors pointed out that the Agency should allow limited saturated zone monitoring for a narrow set of indicator elements and/or parameters in place of the Appendix I constituents. The Agency agrees that alternative parameters used in lieu of current Appendix I constituents may be appropriate for these facilities on a sitespecific basis. A further discussion regarding the use of alternative parameters may be found in Section IV.B.1 of today's preamble.

Several commentors provided case studies on the use of existing agricultural and drinking water supply wells in ground-water monitoring. The Agency believes that the use of existing agricultural and drinking water supply wells may be acceptable where the wells are located so that they detect potential contamination from the MSWLF unit. An owner/operator could determine the suitability of existing wells for detecting a release by conducting a characterization of the site hydrogeology, including analysis of existing well logs.

For MSWLF units in Alaska, commentors indicated that conditions are so unique in the State that alternative monitoring techniques in Alaska would not usually be considered appropriate for the 48 contiguous States. For example, commentors stated that, in many instances, surface-water monitoring would be more appropriate than ground-water monitoring. This is because lateral migration of leachate is more probable and is of greater concern than migration to ground water, due to low permeability subsurface soils and the presence of permafrost in some areas. Commentors recommended monitoring surface/subsurface temperatures at frozen landfills located in permafrost areas. Commentors from Alaska also recommended modifying the frequency of ground-water monitoring such that monitoring occurs when leachate and water contamination problems are most likely to be detected. The Agency believes that conditions in Alaska are so unique that the State regulatory authority, once approved, would be in the best position to understand the local conditions and corresponding monitoring techniques appropriate for those conditions.

2. Comments on 40 CFR 258.50(b), Demonstration of No Potential for Migration

The final MSWLF criteria in 40 CFR part 258 contained two types of exemptions from ground-water monitoring: (1) the small landfill exemption that was later vacated by the U.S. Court of Appeals and (2) an exemption that can be granted by the

Director of an approved State or Tribe based on a demonstration that there is no potential for migration of hazardous constituents from the MSWLF unit to the uppermost aquifer during the facility's active life and post-closure care period. This no-migration exemption was not vacated by the U.S. Court of Appeals decision, and is available to all MSWLFs, regardless of size, where authorized by approved State regulations. The requirements for this demonstration are established in 40 CFR 258.50(b) and call for: (1) "sitespecific field collected measurements, and sampling, and analysis of physical, chemical, and biological processes affecting contaminant fate and transport" and (2) "contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and the environment.'

In EPA's announcement of the public meetings, the Agency, in addition to requesting comments on ground-water monitoring alternatives, requested any information on the ability of owners and operators of qualifying small MSWLFs to demonstrate no potential for migration. Although the Agency was not re-proposing 40 CFR 258.50(b) in that request for comment, the Agency was trying to evaluate the extent to which § 258.50(b) would accommodate qualifying small MSWLFs. In response, commentors indicated that the Agency should establish guidance to simplify and streamline this process for small communities. Commentors also suggested that the Agency provide guidance on the type and quality of data that are necessary to substantiate a "nomigration" demonstration for small landfills located in arid locations.

The Agency believes that the regulatory standard for demonstrating no potential for migration should not be changed, and that any variance from ground-water monitoring based on this standard should be granted only after the site-specific conditions of 40 CFR 258.50(b) are satisfied. The Agency plans to issue a technical guidance document to provide additional information to assist owners and operators of qualifying small MSWLFs in making a demonstration of nomigration, where such an exemption is available from approved States and Tribes. The Agency plans to make this guidance readily available to qualifying small MSWLFS. Additional discussion on the demonstration of no potential for migration is contained in the October 9, 1991 Solid Waste Disposal Facility Criteria final rule (56 FR 51061).