MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

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INTEROFFICE COMMUNICATION

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OPERATIONAL MEMO 115-15

November 19, 1999

TO: Waste Management Division Supervisors

FROM: Jim Sygo, Chief, Waste Management Division

SUBJECT: Tracer Monitoring Systems and Programs

This Operational Memo replaces the April 26, 1999 Operational Memo 115-15, Revision 1, regarding the above subject.

An unmonitorable landfill unit cannot use a tracer monitoring system/program in lieu of installing and monitoring an effective leak detection system.

Monitorability or unmonitorability of a landfill unit is based on the condition of the facility groundwater. If the groundwater has been impacted by current, past, or adjacent landfilling activities, the facility is considered unmonitorable. A facility can be monitorable if the owner/operator has proven that the groundwater impact is from an adjacent activity other than landfilling and that other substances can be used as reliable indicators of leakage from the unit. The Department of Environmental Quality does not consider a tracer to be a reliable indicator of leakage from the unit because of the uncertainties in hydrogeologic conditions, flow interpretations, etc., and, therefore, a tracer would not be considered an "other substance." A tracer system cannot make a previously unmonitorable unit into a monitorable one.

Discussion

R 299.4421(2) provides that, "All new units and lateral extensions of existing units that are unmonitorable units shall contain a leak detection system which is in compliance with the provisions of R 299.4424."

R 299.4424 describes the design standards for secondary collection systems (SCSs) and leak detection systems (LDSs). R 299.4424(1) states that, "A secondary collection system shall be designed to operate as a leak detection system." R 299.4424(2) describes a secondary collection system where the purpose of the secondary collection system is, "... capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time through all areas of the top liner that are likely to be exposed to waste or leachate during the active life and post-closure care period... ."

R 299.4424(3) requires the Director to approve alternative materials to those specified in subrule 424(2) if, "the owner and operator demonstrate that the alternate design is capable of detecting a primary leak at least as effectively."

Thus, in order for a tracer monitoring system/program to be approvable under R 299.4424(3), it would need to meet two conditions:

1. It would need to be a material alternative to those specified in R 299.4424(2); and,
2. It would need to be capable of detecting a primary leak at least as effectively as the material and design specified in R 299.4424(2).

Neither of these two conditions is met. First, the materials specified in subrule R 299.4424(2) are construction materials; tracers pertain to a methodology. The two are simply not equivalent. Second, a tracer monitoring system and program cannot detect leaks from a primary liner failure at an earliest practicable time. In relation to a properly installed and operating SCS/LDS, a tracer monitoring program's ability to detect a primary liner leak is hindered greatly by the site hydrogeologic conditions, groundwater flow interpretations, modeling predictions, and groundwater monitoring system design.

Therefore, the rules do not authorize tracer monitoring systems and programs as an alternative to SCSs/LDSs for unmonitorable landfill units.