**Section 830.APPENDIX A: Early Detection and Groundwater Monitoring Program**

The operator of a compost facility subject to the monitoring requirements of 35 Ill. Adm. Code 830.205(b)(1)(A) or 35 Ill. Adm. Code 830.205(b)(2)(A) shall implement an Agency-approved monitoring program using, at a minimum, the procedures and standards set forth in this Appendix.

a) Program.

1) The operator shall perform a hydrogeologic site investigation pursuant to subsection (b) of this Appendix to characterize the subsurface and determine the location and quality of groundwater beneath the facility.

2) An appropriate monitoring system must be designed, capable of determining the compost facility's impact or potential impact on the quality of groundwater beneath the facility.

3) If the water table is located greater than ten (10) feet below ground surface and the soil has been classified as a soil exhibiting moderate or poor drainage by the U.S. Department of Agriculture's Soil Conservation Service on a published county soil survey map, the owner of operator shall install either an early detection system, pursuant to subsection (d)(1) of this Section, or a groundwater monitoring system, pursuant to subsection (d)(2) of this Section. Otherwise, a groundwater monitoring system must be installed, pursuant to subsection (d)(2) of this Section.

4) If either early detection monitoring or groundwater monitoring indicates an impact on underground water beneath the facility, a site evaluation must be performed, using the procedures set forth in subsection (e) of this Section, and remedial action implemented, if appropriate.

5) The results of the hydrogeologic site investigation and the proposed monitoring system design must be submitted to the Agency as part of an application for a facility permit.

b) Hydrogeologic Site Investigation. The operator shall conduct a hydrogeologic site investigation to obtain the following information:

1) The regional hydrogeologic setting of the facility, using material available from Illinois scientific surveys, state and federal organizations, water well drilling logs and previous investigations. A complete list of references and any well logs utilized must be submitted to the Agency with the results of the hydrogeologic site investigation;

2) The site-specific hydrogeologic setting of the facility, using continuously sampled borings of the site and information collected from on-site piezometers or monitoring wells. At a minimum, borings must be to a depth of ten (10) feet;

3) Soil characteristics, including soil types and physical properties of the underlying strata, including the potential pathways for contaminant migration. Any confining unit relative to waste constituents expected to be present must be identified;

4) Water-bearing sediments or geologic units beneath the facility, their classification pursuant to 35 Ill. Adm. Code 620 and the direction and rate of groundwater flow. Also, regional and local areas of groundwater discharge and recharge affecting groundwater at the facility must be identified; and

5) Water quality beneath the facility, including any potential impact on groundwater. The groundwater quality analysis must take into account the type of compost facility and its expected leachate constituents.

c) All drill holes, including exploration borings that are not converted into monitoring wells, monitoring wells that are no longer necessary to the operation of the facility, and other holes that may cause or facilitate contamination of groundwater, must be sealed in accordance with the standards of 35 Ill. Adm. Code 811.316.

d) Monitoring System

1) Early Detection System

A) Monitoring device(s) must be installed:

i) Hydraulically upgradient from the facility or at sufficient distance from the composting area so as not to be affected by it, to establish representative background water quality in the waters beneath (or near) the facility; and

ii) Beneath and around the composting area, sufficient to enable early detection of the downward migration of constituents related to the composting activities at the facility.

B) The parameters monitored must be those expected to be in the leachate, taking into consideration the type of compost facility.

C) If lysimeters are utilized, the following requirements must be used in designing an adequate monitoring system;

i) Lysimeters must be located, when possible, in a depression in the path of site runoff in each direction of flow and topographically low areas associated with the unit(s).

ii) At a minimum, each lysimeter must be sampled within 48 hours after each rain event exceeding 0.5 inches, provided that the rain event is not within two weeks after the date previous samples were successfully collected.

iii) Any lysimeter placed around the perimeter must be installed at an angle so that the cup of the lysimeter is beneath the unit(s).

2) Groundwater Monitoring System

A) Monitoring well(s) must be installed:

i) Hydraulically upgradient from the facility, to establish representative background water quality in the groundwater beneath (or near) the facility; and

ii) Hydraulically downgradient (i.e., in the direction of decreasing static head) from the compost facility. Locations and depths of monitoring wells must ensure detection of waste constituents that migrate from the waste management unit to the groundwater.

B) The parameters monitored must be those expected to be in the leachate, taking into consideration the type of compost facility.

C) The groundwater monitoring system must be installed at the closest practicable distance from the composting area boundary, or at an alternative distance specified by permit.

3) Approval of any early detection monitoring system or groundwater monitoring system must be obtained from the Agency prior to operation.

e) Evaluation

1) Further evaluation of an impact to underground water shall be required if:

A) An exceedence of the appropriate standard as stated in 35 Ill. Adm. Code 620 is confirmed;

B) A progressive increase in measured parameters other than pH is observed over two consecutive sampling events; or

C) Where groundwater monitoring wells are used, a statistical increase over background or upgradient concentrations, calculated in accordance with 35 Ill. Adm. Code 811.320(e), is observed.

2) An impact as described in subsection (e)(1)(A) or (e)(1)(C) of this Section must be confirmed by resampling the underground water within 30 days after the date on which the first sample analyses are received. The operator shall provide notification to the Agency of the results of the resampling analysis within 30 days after the date on which the sample analyses are received, but no later than 90 days after the first samples were taken.

3) Within 60 days after the confirmation of impact but no later than 120 days after the date on which the first sample was taken, the operator shall propose as a permit modification a plan to address the impact, which may include further evaluation of data, including the use of appropriate statistical methods, groundwater monitoring or remedial action.