

**Establishing a Groundwater Management Zone
at RCRA Facilities**

(October 12, 2001)

I. Introduction:

35 Ill. Adm. Code Part 620.250 allows for the establishment of a Groundwater Management Zone (GMZ) within any class of groundwater. A GMZ is a three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from a site. Pursuant to 35 Ill. Adm. Code 620.250(b), the GMZ cannot be established without the Illinois EPA concurrence that the conditions required by 35 Ill. Adm. Code 620.250(a) have been met. Furthermore, the groundwater management must continue as approved by the Illinois EPA for the GMZ to remain in effect.

Once it is confirmed that the groundwater corrective action has been completed and the groundwater quality standards applicable to the class of groundwater have been achieved the GMZ expires. If concentrations specified in 35 Ill. Adm. Code 620.450(a)(4)(B) will remain in groundwater after completion of the corrective action, the Illinois EPA will review the adequacy of controls and site management at least once every five (5) years, based on a written report submitted to the Illinois EPA.

The Bureau of Land (BOL) has prepared a form for owners or operators to submit written confirmation that adequate corrective action is being undertaken in a timely and appropriate manner as required by 35 Ill. Adm. Code 620.250(a)(2). The form is found in Appendix D of 35 Ill. Adm. Code Part 620. This form and method of establishing a GMZ does not apply to RCRA closures. This guidance sets forth the review procedures when establishing a GMZ under an existing corrective action process in accordance with 35 Ill. Adm. Code 620.250(a)(1) for RCRA closures.

II. Procedures:

For a GMZ to be established, the groundwater within the proposed GMZ must be managed to mitigate impairment caused by the release of contaminants from a site. Source removal actions to prevent additional contamination from reaching groundwater must occur along with groundwater management. Groundwater management to mitigate impairment can use various combinations of technology. These include techniques such as groundwater removal and in-situ treatment. However, any action must improve the quality of groundwater caused by the release of contaminants from the site. GMZs can only be approved for areas where groundwater improvement is occurring.

If a corrective action to remediate groundwater is approved by the Illinois EPA, the GMZ can only be approved to the effective limit of the remediation technology. In some cases in which corrective action is approved, the corrective action may not deal with all of the groundwater contamination from a site. In such cases only groundwater undergoing the corrective action

process can be included in the GMZ. For example, if a groundwater pump and treat system has an effective limit of 300 feet, contamination beyond 300 feet would not be included in the GMZ. Therefore any exceedences beyond the GMZ would be subject to enforcement action for violation of 35 Ill. Adm. Code Part 620 and require additional remediation technologies to address the contamination.

If a GMZ is proposed to extend off-site, two additional considerations must first be met:

1. The GMZ can only extend off-site if groundwater off-site is actively undergoing corrective action; and
2. The off-site landowner must concur in writing to the establishment of the GMZ.

The off-site landowner concurrence is important because establishment of the GMZ off-site substantially limits the off-site landowner's ability to seek compliance with the groundwater standards during the existence of the GMZ.

For the establishment of GMZs on-site, the outer limits of the GMZ should be restricted to the area where the concentrations of contamination are equal to or just less than the applicable standards. For small sites, however, the practicality of establishing GMZs may result in site boundaries being used.

III. Format to be Utilized for Establishing a GMZ:

A written report must be submitted and will be reviewed by the Illinois EPA to evaluate the information provided in order to determine the adequacy of the controls and the management of the GMZ at the site. The items below must be addressed thoroughly, and if appropriate, the current information associated with the proposed GMZ discussed. After review by the Illinois EPA, the Illinois EPA will issue a letter in regard to the: (1) adequacy of the GMZ; (2) the continued management of the GMZ; and (3) conditions necessary to ensure that the requirements of 35 Ill. Adm. Code Part 620 will be met.

The report addressing the GMZ must include, but need not be limited to, the following:

1. General information regarding the facility:
 - a. Facility name;
 - b. Facility address;
 - c. County in which facility is located
 - d. Illinois EPA, Bureau of Land, and USEPA Identification Numbers;
 - e. A general description of the type of industry, products manufactured, raw materials used, location and size of the facility, including SIC codes;

- f. An identification of specific units (operating or closed) present at the facility for which the GMZ is proposed;
 - g. A USGS topographic or county map showing the location of the site and a more detailed scaled map of the facility with each waste management unit identified in Item 1.f above. Map scale must be specific and the location of the facility must be provided with respect to Township, Section, and Range;
 - h. A description of the geology and hydrogeology within the proposed GMZ and the surrounding area;
 - i. Groundwater classification at the site;
 - j. A description of the circumstances under which the release from each waste management unit identified in Item 1.f above, to groundwater was identified.
2. Information Regarding the Release, including:
- a. The chemical constituents released to the groundwater;
 - b. Identification of the chemical constituents detected in groundwater that are above the applicable standard in 35 Ill. Adm. Code Part 620;
 - c. A description of how the site has been investigated to determine the source or sources of the release;
 - d. A description of how groundwater has been monitored to determine the rate and extent of the release;
 - e. A description of the groundwater monitoring network and groundwater sampling protocols in place at the facility;
 - f. The schedule for monitoring of the groundwater; and
 - g. A summary of the results of groundwater monitoring associated with the release at each waste management unit identified in Item 1.f above. The summary of groundwater results should provide the following information:
 - i. Dates of sampling;
 - ii. Identification of monitoring wells;
 - iii. Chemical constituents analyzed and concentrations in parts per million (ppm) for each monitoring well identified in Item 2.g.ii above;

3. Scaled drawings identifying the horizontal and vertical boundaries of the proposed GMZ.
4. Information regarding the approved remedial action including:
 - a. A description of the approved remedial action;
 - b. A description of how the approved remedial action has impacted the release;
 - c. A description of how the approved remedial action is operated and maintained; A projected schedule for completion of remediation;
 - d. An identification of any and all permits obtained from the Illinois EPA for the remedial action;
 - e. A description of how groundwater at the facility will be monitored following the future completion of the remedy to ensure that the groundwater quality standards have been attained;
 - f. A discussion addressing the adequacy of the controls and management of the proposed GMZ at the site; and
 - g. Course of action for future activities and/or request for modification in regards to the proposed GMZ at the site.

5. Point of Compliance:

In any GMZ, the goal is remediation of the groundwater to the level of the standards applicable to that class of groundwater. This goal does not mean all groundwater within the GMZ must be returned to the groundwater standard. On the other hand, groundwater within the GMZ that is beyond the point of compliance as established under 35 Ill. Adm. Code Part 620.505(a) is to be remediated to the level applicable to that groundwater class. However, groundwater contamination within the three-dimensional zone between the compliance point wells and the waste management unit could still exceed the applicable standards at completion of the corrective action. If this is the case, post-remediation monitoring may be necessary.