



Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

8 December, 1994

Ali Hashimi
Golder Associates, Inc.
1809 North Mill Street, Suite C
Naperville, Illinois 60563

Refer To: Yeoman Creek/Edwards Field Landfills
0971900005/Lake County
Superfund/Technical

Dear Mr. Hashimi:

Please find attached, as requested, a copy of the comments on the GROUNDWATER INFORMATION EXCERPTED FROM THE REMEDIAL INVESTIGATION REPORT provided by the IEPA's Groundwater Unit dated August 10, 1994. A Groundwater Management Zone is described in 35 IAC 620 as a three dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from a site. A GMZ is not determined by property boundaries or specific setback zones. To create a GMZ, the extent of the contaminate plume must be determined both horizontally and vertically for each contaminate of concern.

The RI Report does not define the extent of known contamination. This concern was discussed during the meeting on May 25, 1994, between the Agencies and representatives from Browning Farris Industries and Golder Associates. The IEPA has not changed its stance on the issue. If further information has been discovered which would assist in determining extent of contamination in the groundwater, please provide the information to the Agency.

Be aware that it has never been the Agency's contention that the Remedial Investigation must be extensive enough to determine the groundwater contamination plume for each contaminate of concern in order to establish GMZ(s) before the RD/RA process. Additional investigation can be accomplished during the RD/RA process for establishing the GMZ(s). The IEPA has highlighted the GMZ process during the RI/FS to help ensure that investigative planning and data collected during the RI/FS may reduce or eliminate the need for additional investigative procedures. According to the information currently supplied to the IEPA, additional investigation and analysis is required to establish a GMZ for the contaminants of concern.

To further help understand the IEPA requirements and concerns, a second attachment has been supplied for your information. Attachment 2 is the IEPA Bureau of Land's Administrative Procedure #2 which describes the procedure used by the agency to approve

GMZs.

If you have any further questions concerning this issue, please contact me at 217-782-9882.



Gregory P. Ratliff
State Project Manager
National Priorities List Unit

CC (with attachments):
Don Gimbel, DLC
Rich Boice, (Region 5)

CC (without attachments):
Division File
Terry Ayers

0971900005
Yeoman Creek
SF/tech
DRAFT

AUGUST 10, 1994

GREG RATLIFF - RPMS

KEN LOVETT - GROUNDWATER UNIT/PERMIT SECTION

0971900005 -- LAKE COUNTY
YEOMAN CREEK LANDFILL
SUPERFUND/TECHNICAL FILE

LP52-569

GROUNDWATER INFORMATION EXCERPTED FROM THE REMEDIAL
INVESTIGATION (RI) REPORT -- JULY 6, 1994

The above mentioned document was reviewed with regard to the adequacy of the data to determine the nature and extent of groundwater contamination and for establishing a Groundwater Management Zone (GMZ).

The data provided in the Report is not adequate to determine the nature and extent of contamination or establish a GMZ for the following reasons:

1. The cover letter and the Report cite high turbidity in shallow wells as a demonstration that metal concentrations are not representative of actual groundwater quality. The Report references the difference between filtered and unfiltered groundwater quality data to support this position.

Tables F.3, F.4 and F.5 of the Report show fluctuating turbidity from a low of 1 NTU to a high of 94 NTU. The USEPA document "Technical Enforcement Guidance Document (TEGD) suggests that if the owner/operator cannot demonstrate the high turbidity (>5 NTU) is from the formation, then either the well is not properly developed or an inadequate filter pack was installed. The USEPA recommends the filter pack grain size be equivalent to the 70% retained grain size from the formation, multiplied by a factor of 4. The Report does not contain grain size analysis data and therefore can not demonstrate that the monitoring wells have been constructed appropriately. As a result, the Report does not provide a demonstration that the unfiltered data is not representative of actual groundwater quality. 35 Illinois Administrative Code 620 requires totals (unfiltered) samples to demonstrate compliance with groundwater quality standards.

2. Concentrations of benzene in monitoring well MW212 have been detected as high as 20 ug/l. The source of benzene has not been identified. The Report indicates that the benzene may not be from the site because of the low chloride concentration. However, this does not adequately demonstrate that the benzene is from an alternative source.
3. Concentrations of inorganic constituents (i.e., lead, mercury, nickel, manganese, iron) detected in various wells at the site exceed applicable

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groundwater quality standards and background concentrations. The extent of contamination for inorganic parameters which exceed the 35 IAC 620 groundwater quality standards has not been defined.

In order to establish a GMZ, the extent of contamination must be defined and an approved corrective measure is in place. The approved corrective measure must be capable of containing and mitigating the horizontal and vertical extent of the contamination.

The data provided in the Report is adequate for characterizing the geology and hydrogeology of the site, but the Report has not defined all sources of groundwater contamination or defined the extent of known contamination. Therefore, a GMZ can not be established.

cc: Rob Watson - Permit Section



ADMINISTRATIVE PROCEDURE # 23

I. TITLE:

Approval of Groundwater Management Zones

II. PURPOSE:

This Administrative Procedure establishes the procedures by which the Bureau of Land approves the establishment of groundwater management zones under 35 Ill. Adm. Code 620.

III. BACKGROUND:

35 Ill. Adm. Code 620.250 allows for the establishment of groundwater management zones (GMZs) 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. Although GMZs may be established in any class of groundwater, they will probably be proposed most often for Class I groundwaters, due to the applicability of the alternate groundwater quality restoration standards provided under Section 620.450(a).

Section 620.250(a) prescribes two methods for establishing GMZs. Under either method, pursuant to Section 620.250(b), the GMZ cannot be established without Agency concurrence that the conditions required by 620.250(a) have been met. Furthermore, the groundwater management must continue as approved by the Agency for the GMZ to remain in effect. Once it is confirmed that the groundwater corrective action has been completed and the standards applicable to the class of groundwater have been achieved, the GMZ expires. If concentrations specified in Section 620.450(a)(4)(B) will remain in the groundwater after completion of the action, the Agency will review the adequacy of controls and site management at least once every 5 years, based on a written report submitted to the Agency.

The two methods for establishing a GMZ are as follows:

1. Approval by the Agency under an existing corrective action process.
2. Confirmation on a form prescribed by the Agency that adequate corrective action is being undertaken in a timely and appropriate manner.

BOL approves groundwater remediation through the actions of the LUST Section, RPM Section and Permits Section. This Administrative Procedure sets forth the procedures and types of actions these Sections are responsible for in establishing GMZs under Item 1 above (620.250(a)(1)).

BOL has prepared a form for owners or operators to submit written confirmations as specified in Item 2 above (620.250(a)(2)). This form

was included as Appendix D to Part 620. The form, however, does not apply to cleanup of RCRA sites or LUST sites. This Administrative Procedure sets forth the review procedures when written confirmations are submitted under 620.250(a)(2).

IV. PROCEDURE:

A. MANAGEMENT TO MITIGATE IMPAIRMENT

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. Groundwater management to mitigate impairment can use various combinations of technology. These can include techniques such as groundwater removal and in situ treatment. The groundwater management measures, whatever they are, need to be direct measures which contain and remediate groundwater contamination. Monitoring a plume of contamination, for instance, is not management which mitigates the impairment. Similarly, source removal actions, such as removing contaminated soil or leachate, are not measures which mitigate the impairment of contaminated groundwater. Such actions clearly prevent additional contamination from reaching groundwater, but do not remediate groundwater which is already contaminated. Groundwater management zones should only be approved for areas where groundwater improvement is being mitigated.

If a corrective action to remediate groundwater is approved by the Agency, then the GMZ can be approved to the effective limit of the remediation technology. There may be circumstances, particularly where groundwater remediation proceeds in phases (e.g. worst area addressed first), in which corrective action is approved which does not deal with all of the groundwater contamination resulting from a site. In such cases only the groundwater which is being managed to mitigate impairment under the corrective action process can be included in the GMZ. For instance, 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. Exceedences of groundwater standards beyond the GMZ could be subject to enforcement action for violation of 35 Ill. Adm. Code 620. For groundwater beyond the effective limits of a remediation technology to be included in the GMZ, additional remediation technologies to address such contamination must be utilized.

Where a GMZ is proposed to extend off-site, two additional considerations must be met. First, the GMZ can only extend off-site if groundwater off-site is being managed to mitigate impairment as set forth above. Second, the off-site landowner must concur in writing to the establishment of the GMZ. This factor is important because establishment of the GMZ substantially limits the off-site landowner's ability to seek compliance with the groundwater standards during the existence of the GMZ.



For GMZs established on-site only, the limits should be restricted to the area where the concentrations of contaminants are equal to or just less than the applicable standards. For small sites, however, such as LUST service stations, the practicality of establishing GMZs may result in site boundaries being used.

B. CORRECTIVE ACTION PROCESS

To be established under Section 620.250(a)(1), a GMZ must be affirmatively described in a document issued by BOL describing the GMZ or affirmatively described in a document submitted to BOL which BOL directly references in its approval document. In either case, the document must identify the three dimensional region which is the GMZ in a manner which allows clear location on appropriately scaled maps and geologic cross-sections. In addition, the GMZ designation must also specifically identify the constituent parameters. The GMZ designation will only apply to parameters so named.

GMZs can be established under the following corrective action processes:

1. Consent decrees and settlement agreements entered by the Agency as a result of enforcement actions brought before a Court or the Pollution Control Board.
2. Records of Decision issued by the Agency under 35 Ill. Adm. Code 750 (State Contingency Plan) or issued or concurred in by the Agency under 40 CFR 300 (National Contingency Plan).
3. Permits issued under Subtitle G RCRA regulations (35 Ill. Adm. Code 724) or Subtitle G landfill regulations (35 Ill. Adm. Code 811-815). Closure Plan and Post-Closure Plan approvals are included in this category.
4. Corrective action plans approved for LUST releases under 35 Ill. Adm. Code 731. For LUST releases, the owner or operator must use the form prepared by the LUST Section.
5. Notices issued under Section 4(q) for hazardous substance releases.
6. Notices and orders issued under Section 4(v) for LUST releases.
7. Work plan approvals for hazardous substance releases where a review and evaluation services agreement has been entered under Section 22.2(m).

For corrective actions approved prior to November 7, 1991 (effective date of Part 620) using one or more of the above listed processes, a

GMZ may be established by issuing a letter of approval without formally amending or re-issuing the original approval document. Such a letter of approval, however, must specifically designate the three-dimensional region and the parameters as required for the corrective action processes listed above.

Establishment of GMZs will be determined by the applicable Section responsible for each corrective action process. The approval document for the GMZ must be signed or approved by the Section Manager. When a GMZ is established under this procedure, a copy of the approval document and the document describing the GMZ and the parameters to which it applies must be sent to the Permit Section, Groundwater Unit for informational purposes in establishing a GMZ data base.

C. CONFIRMATION NOTICE REVIEW

To establish a GMZ under Section 620.250(a)(2), an owner or operator must provide confirmation of an adequate corrective action using a form prescribed by the Agency. For hazardous substance releases (except for releases subject to RCRA regulations), the owner or operator must use the form prepared by the RPM Section. (35 Ill. Adm. Code 620, Appendix D sets out the form as it existed on the effective date of Part 620.) The form must be completed and submitted to the RPM Section for review and approval as provided in Section 620.250(b).

For LUST releases the owner or operator must use the form prepared by the LUST Section. This form must be submitted to the LUST Section for review and approval as provided in Section 620.250(b).

If a site is undergoing or is required to undergo corrective action under one or more of the corrective action processes set forth in Section IV(A), then the GMZ designation request should be reviewed under the identified corrective action process (620.250(a)(1)) rather than under a confirmation notice (620.250(a)(2)). In addition, if the site is on the State Remedial Action Priority List (SRAPL) or the National Priority List (NPL), the GMZ designation request should be reviewed under the identified corrective action process rather than under a confirmation notice. An owner or operator who submits a confirmation notice for an activity subject to an identified corrective action process must be notified that the GMZ designation review will take place under the corrective action process.

D. 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 that 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 630.505(a) is to be remediated to the level applicable to that groundwater class. However, groundwater contamination within the 3 dimensional zone between the compliance point wells and the unit could still exceed the applicable standards at completion of the corrective action. If this is the case post-remediation monitoring may be necessary.

E. GMZ REVIEW, MODIFICATION AND TERMINATION

It is the responsibility of the Section approving the establishment of a GMZ to monitor the adequacy of the ongoing corrective action. GMZs may be modified to account for changes in groundwater contaminant levels as corrective action proceeds. If the corrective action does not proceed in accordance with the approval, the Section shall have authority to notify the owner or operator and terminate the GMZ.

When a GMZ is modified or expires, whether due to adequate completion or inadequate efforts, the Permit Section, Groundwater Unit should be notified.

PROGRAMS AFFECTED:

Permits Section, RPM Section, LUST Section, Legal Counsel.

WRITTEN BY:

Gary King, May 1992

GK:dls/0217r/1-6/sp