

ILLINOIS POLLUTION CONTROL BOARD  
May 1, 1997

IN THE MATTER OF: )  
)  
TIERED APPROACH TO CORRECTIVE ) R97-12 (B)  
ACTION OBJECTIVES: AMENDMENTS ) (Rulemaking - Land)  
TO 35 ILL. ADM. CODE 742.505 and )  
742.900 )

Proposed Rule.

OPINION AND ORDER OF THE BOARD (by M. McFawn and J. Yi):

This rulemaking was originally opened to consider rules intended to fulfill the mandates of Title XVII of the Environmental Protection Act (Act) (415 ILCS 5/1 *et seq.*; 415 ILCS 5/58 (1994)). Title XVII was added to the Act by P.A. 89-431, which was signed and became effective on December 15, 1995. Pursuant to Section 58.11(d) of Title XVII, the Illinois Environmental Protection Agency (Agency) was required to propose rules concerning the Site Remediation Program by September 16, 1996 and the Board is required to conduct and complete rulemaking on the same in accordance with the Act and the Administrative Procedure Act (5 ILCS 100/1-1 *et seq.*) no later than June 16, 1997. On September 16, 1996, the Agency filed a proposal to add a new Part 740 to the Board's rules to create the Site Remediation Program. That same day, the Agency also proposed this rulemaking, a new Part 742 to the Board's rules, to create a tiered approach to establishing corrective action objectives (also known as TACO). TACO is to be used in conjunction with the Site Remediation Program, as well as several other programs. Therefore, the Board tracked this rulemaking with the Site Remediation Program rulemaking, *In the Matter of: Site Remediation Program and GroundWater Quality*, R97-11 (April 17, 1997), with the intention of adopting the TACO rules as final by June 16, 1997.

On November 7, 1996, the Board adopted the TACO proposal for first notice publication in the *Illinois Register*, which appeared at 20 Ill. Reg. 15429 (December 6, 1996). Five public hearings were held, followed by an extended public comment period. On April 17, 1997, the Board bifurcated this rulemaking and adopted for second notice under Docket (A) the majority of the proposed TACO rules at Part 742. The Board anticipates that the Joint Committee on Administrative Rules will complete its review of Docket (A) in May, and the Board will adopt the rules as final on or before June 16, 1997 with an effective date of July 1, 1997.

The Board, in the April 17, 1997 order opening Docket (B) under R97-12, also ordered those amendments to first notice pursuant to the Administrative Procedures Act (5 ILCS 100/1-1 *et seq.*) The Secretary of State has since informed the Board that it will not publish the Docket (B) amendments in the *Illinois Register* for first notice because these amendments are proposed to amend rules in the new Part 742, which has not yet been adopted as final. (5

ILCS 100/5-70) Accordingly, the Board vacates its opinion and order of April 17, 1997 in Docket (B). An opinion and order directing the proposed amendments to hearing pursuant to the Board's rulemaking authority under Sections 27 and 28 of the Act is adopted today in its place. (415 ILCS 5/27 and 28.)

The proposed Docket (B) contains two amendments to the new, not yet final, Part 742. These proposed amendments and the Agency's explanation of the same were all entered into the record after the close of hearings. The Agency's reasons for these proposed changes were contained in its "Final Comments" filed on February 20, 1997. (Public Comment 10 at page 11.) Thereafter, several commentators objected to these amendments as being unsupported in the record developed at hearing. (See Public Comments 3, 8, 20 and 21.) Because these amendments were proposed by the Agency only during the first notice public comment period, and the issues raised by them could not be resolved based upon the record developed during first notice, there is not sufficient time to resolve these issues and adopt any necessary amendments as part of the TACO rules prior to the Site Remediation Program statutory deadline. For these reasons, the Board finds it necessary to conduct public hearings about these two amendments and several related issues described in more detail below pursuant to our rulemaking authority under Sections 27 and 28 of the Act.

In Docket (A), the Board adopted the language proposed by the Agency bifurcating the mixture rule under Tier 2 to clarify that it is applicable to soil and groundwater remediation objectives for noncarcinogens. (See Errata Sheet No. 3.) The mixture rule requires that the effect of similar acting substances on the same target organ be factored into the risk based remediation objective established under TACO. That new language appears in Sections 742.720 and 742.805(c). At first notice, these same requirements were proposed at Section 742.610. The Board also adopted some of the language proposed by the Agency at Section 742.505(b) to the effect that the mixture rule will apply to the groundwater objectives under Tier 1 for noncarcinogens only. Under this Docket (B), we will consider whether this rule should apply to soil remediation objectives under Tier 1, whether the rule should apply to carcinogenic contaminants of concern as well as noncarcinogenic contaminants under Tiers 1 and 2, and whether similar language is required for Tier 3. The Board scheduled this matter for hearing at which the Agency and the public will be invited to testify with regard to this proposal.

The attached order includes language from Part 742, as adopted on April 17, 1997 for second notice in Docket (A), modified to include additional language at Sections 742.505 and 742.900. In conclusion, the Board will consider in Docket (B) the merits of these proposed amendments and related issues described above. Also, the hearing officer order of April 24, 1997 setting this matter for hearing is affirmed. The hearing dates established therein still apply to Docket (B). The Board intends to expedite this matter to resolve these outstanding issues as soon as possible after the Site Remediation Program in R97-11 is adopted as final so that there are no outstanding issues concerning TACO.

ORDER

The Board hereby vacates its opinion and order of April 17, 1997 in this matter (R97-12(B)) and replaces it with this opinion and order. The Board hereby directs this matter to hearing as scheduled in the hearing officer's order of April 24, 1997. The underlining and strike-through below identifies the amendments proposed to the second notice language adopted in R97-12(A) on April 17, 1997.

## TITLE 35: ENVIRONMENTAL PROTECTION

## SUBTITLE G: WASTE DISPOSAL

## CHAPTER I: POLLUTION CONTROL BOARD

## SUBCHAPTER f: RISK BASED CLEANUP OBJECTIVES

## PART 742

## TIERED APPROACH TO CORRECTIVE ACTION OBJECTIVES

## SUBPART E: TIER 1 EVALUATION

## Section

742.500	Tier 1 Overview
742.505	Tier 1 Soil and Groundwater Remediation Objectives
742.510	Tier 1 Remediation Objectives Tables

## SUBPART I: TIER 3 EVALUATION

## Section

742.900	Tier 3 Overview
742.905	Modifications of Parameters
742.910	Alternative Models
742.915	Formal Risk Assessments
742.920	Impractical Remediation
742.925	Exposure Routes
742.930	Derivation of Toxicological Data

NOTE: Capitalization indicates statutory language.

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Section 742.505 Tier 1 Soil and Groundwater Remediation Objectives

a) Soil

1) Inhalation Exposure Route

- A) The Tier 1 soil remediation objectives for this exposure route based upon residential property use are listed in Appendix B, Table A.
  - B) The Tier 1 soil remediation objectives for this exposure route based upon industrial/commercial property use are listed in Appendix B, Table B. Soil remediation objective determinations relying on this table require use of institutional controls in accordance with Subpart J.
- 2) Ingestion Exposure Route
- A) The Tier 1 soil remediation objectives for this exposure route based upon residential property use are listed in Appendix B, Table A.
  - B) The Tier 1 soil remediation objectives for this exposure route based upon industrial/commercial property use are listed in Appendix B, Table B. Soil remediation objective determinations relying on this table require use of institutional controls in accordance with Subpart J.
- 3) Soil Component of the Groundwater Ingestion Route
- A) The Tier 1 soil remediation objectives for this exposure route based upon residential property use are listed in Appendix B, Table A.
  - B) The Tier 1 soil remediation objectives for this exposure route based upon industrial/commercial property use are listed in Appendix B, Table B.
  - C) The pH-dependent Tier 1 soil remediation objectives for identified ionizable organics or inorganics for the soil component of the groundwater ingestion exposure route (based on the total amount of contaminants present in the soil sample results and groundwater classification) are provided in Appendix B, Tables C and D.
  - D) Values used to calculate the Tier 1 soil remediation objectives for this exposure route are listed in Appendix B, Table F.
- 4) Evaluation of the dermal contact with soil exposure route is not required under Tier 1.

## b) Groundwater

- 1) The Tier 1 groundwater remediation objectives for the groundwater component of the groundwater ingestion route are listed in Appendix B, Table E.
- 2) The Tier 1 groundwater remediation objectives for this exposure route are given for Class I and Class II groundwaters, respectively.
- 3) The requirements of 35 Ill. Adm. Code 620.615 regarding mixtures of similar-acting chemicals shall be met for Class I groundwater at the point of human exposure.

~~The Class I groundwater remediation objectives set forth in Appendix B, Table E shall be corrected for cumulative noncarcinogenic effect of mixtures of similar acting chemicals in accordance with the methodologies set forth in either subsection (A) or (B), if more than one chemical listed in Appendix B Table E is detected at the site and if such chemicals affect the same target organ (i.e., has the same critical effect as defined by the RfD):~~

- A) Calculate the weighted average using the following equations:

$$W_{ave} = \frac{x_1}{CUO_{x_1}} + \frac{x_2}{CUO_{x_2}} + \frac{x_3}{CUO_{x_3}} + K + \frac{x_a}{CUO_{x_a}}$$

where:

$W_{ave}$  = Weighted Average

$x_1$  through  $x_a$  = Concentration of each individual contaminant at the location of concern. Note that, depending on the target organ/mode of action, the actual number of contaminants will range from 2 to 14.

$CUO_{x_a}$  = A Tier 1 remediation objective must be developed for each  $x_a$ .

- ii) If the value of the weighted average calculated in accordance with the equations above is less than or equal to 1.0, then the remediation objectives are met for those chemicals.

- ii) If the value of the weighted average calculated in accordance with the equations above is greater than 1.0, then additional remediation must be carried out until the level of contaminants remaining in the remediated area have a weighted average calculated in accordance with the equation above less than or equal to one;
- B) Divide each individual chemical's remediation objective by the number of chemicals in that specific target organ group that were detected at the site. Each of the contaminant concentrations at the site is then compared to the remediation objectives that have been adjusted to account for this potential additivity.

SOURCE: Adopted at 21 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

\* \* \*

#### Section 742.900 Tier 3 Overview

- a) Tier 3 sets forth a flexible framework to develop remediation objectives outside of the requirements of Tiers 1 and 2. Although Tier 1 evaluations and Tier 2 evaluations are not prerequisites to conduct Tier 3 evaluations, data from Tier 1 and Tier 2 can assist in developing remediation objectives under a Tier 3 evaluation.
- b) The level of detail required to adequately characterize a site depends on the particular use of Tier 3. Tier 3 can require additional investigative efforts beyond those described in Tier 2 to characterize the physical setting of the site. However, in situations where remedial efforts have simply reached a physical obstruction (e.g., a building), additional investigation may not be necessary for a Tier 3 submittal.
- c) Situations that can be considered for a Tier 3 evaluation include, but are not limited to:
  - 1) Modification of parameters not allowed under Tier 2;
  - 2) Use of models different from those used in Tier 2;
  - 3) Use of additional site data to improve or confirm predictions of exposed receptors to contaminants of concern;
  - 4) Analysis of site-specific risks using formal risk assessment, probabilistic data analysis, and sophisticated fate and transport models (e.g.,

requesting a target hazard quotient greater than 1 or a target cancer risk greater than 1 in 1,000,000) ;

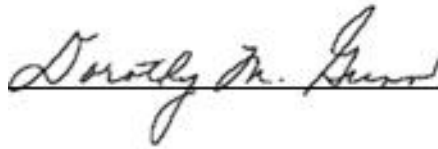
- 5) Requests for site-specific remediation objectives because a "common sense" assessment indicates further remediation is not practical (e.g., the remaining contamination is under a structure such as a permanent building);
- 6) Incomplete human exposure pathway(s) not excluded under Subpart C;
- 7) Use of toxicological-specific information not available from the sources listed in Tier 2; and
- 8) Land uses which are substantially different from the assumed residential or industrial/commercial property uses of a site (e.g., a site will be used for recreation in the future and cannot be evaluated in Tiers 1 or 2).
- 9) Requests for remediation objectives which exceed Tier 1 groundwater remediation objectives so long as the following is demonstrated:
  - A) TO THE EXTENT PRACTICAL, THE EXCEEDENCE OF THE GROUNDWATER QUALITY STANDARD HAS BEEN MINIMIZED AND BENEFICIAL USE APPROPRIATE TO THE GROUNDWATER THAT WAS IMPACTED HAS BEEN RETURNED; AND
  - B) ANY THREAT TO HUMAN HEALTH OR THE ENVIRONMENT HAS BEEN MINIMIZED. (Section 58.5(D)(4)(A))
- d) For requests of a target cancer risk ranging between 1 in 1,000,000 and 1 in 10,000 at the point of human exposure or a target hazard quotient greater than 1 at the point of human exposure, the requirements of Section 742.915 shall be followed. Requests for a target cancer risk exceeding 1 in 10,000 at the point of human exposure are not allowed.
- e) Requests for approval of a Tier 3 evaluation must be submitted to the Agency for review under the program under which remediation is performed. When reviewing a submittal under Tier 3, the Agency shall consider WHETHER THE INTERPRETATIONS AND CONCLUSIONS REACHED ARE SUPPORTED BY THE INFORMATION GATHERED. (Section 58.7(e)(1) of the Act) The Agency shall approve a Tier 3 evaluation if the person submits the information required under this Part and establishes through such information that public health is protected and that specified risks to human health and the environment have been minimized.

- f) Contaminants of concern which affect the same target organ, organ system or similar mode of action shall be specifically addressed. At a minimum, the chemical subject to this requirement are identified in Appendix A, Tables E and F.

SOURCE: Adopted at 21 Ill. Reg. \_\_\_\_\_ , effective \_\_\_\_\_.

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, do hereby certify that the above order was adopted on the 1<sup>st</sup> day of May, 1997, by a vote of 7-0.

A handwritten signature in cursive script, reading "Dorothy M. Gunn", written over a horizontal line.

Dorothy M. Gunn, Clerk  
Illinois Pollution Control Board