

567—137.9(455H) Risk evaluation/response action.

137.9(1) Purpose. The purpose of risk evaluation/response action is to utilize information from the site assessment as a basis for:

a. Determining whether current exposures result in risks deemed to be excessive, based on evaluation against appropriate background, statewide, or site-specific standards.

b. Determining whether future exposures may result in risks deemed to be excessive, based on evaluation against appropriate background, statewide, or site-specific standards. This will likely include:

(1) Evaluation of potential changes in usage, e.g., installation of a new well, change in land use, or other activities, which result in unacceptable, potential exposures not evaluated as current exposures, and

(2) Evaluation of exposure concerns related to the movement of contamination such that potential exposures might arise which are not considered under current exposure assumptions, e.g., groundwater plume migration creating a potential for future contamination of existing wells or creating newly contaminated areas in which new well installation may result in unacceptable exposures.

c. Proposing an appropriate and acceptable response action or strategy to address the identified, unacceptable exposures or potential exposures.

d. Establishing the test criteria to be applied under rule 137.10(455H) for determining final compliance with the selected standard. In some cases this may consist of proving that standards are currently met; in other cases it may result in an assessment of whether the response action succeeds in bringing about compliance with a selected standard.

The risk evaluation/response action is intended only for application to the specific contaminants and situations for which the site is enrolled.

137.9(2) Risk evaluation. The risk evaluation/response action document shall identify all locations or areas, and associated exposure pathways, where exposure currently exceeds a statewide standard or where a statewide standard may be exceeded in the future, due to either a change in exposure-related usage or contaminant migration. Current and future exposure pathways shall be evaluated and presented separately. This evaluation shall not be limited to exposure pathways for which the department has formulated risk-based values in rule 137.5(455H) (the statewide standard) or 137.6(455H) (the site-specific standard) but should include any pathway related to the situation for which the site is enrolled, for which a no further action certificate is sought, or for which an unacceptable risk may now or in the future exist, e.g., high concentrations of volatile compounds in proximity to a confined space, high concentrations of solvents in proximity to a water distribution line, or environmental concerns unrelated to human health.

In a case where a background standard is to be applied and there is no violation of a statewide standard, it will be necessary to identify only locations or areas where the background standard is exceeded.

In some instances it is anticipated that the risk evaluation may be appropriately abbreviated from the preceding description, based on the specific details of the contamination and the proposed response action. Participants are strongly urged to discuss the appropriate scope of their risk evaluation with the department.

137.9(3) Establishing cleanup standards. The risk evaluation/response action document shall identify the cleanup standards to be applied in accordance with rule 137.4(455H), 137.5(455H), or 137.6(455H) of this chapter, outlining respectively the background, statewide, or site-specific standards. These standards may be applied in any combination to address specific components of the contamination problem for which the site is enrolled. If cleanup standards other than those specifically formulated under the statewide standard (rule 137.5(455H)) are to be applied, then the rationale behind the determination of such standards shall be justified, in the document, to the department's satisfaction.

137.9(4) The use of models. The department recognizes that the use of numerical models will likely be necessary in order to evaluate potential future exposures or that models may be used to develop target levels.

a. Standard models. Standard models may be used to predict future contaminant concentrations at potential points of exposure to contaminants or at other locations used for determining compliance when such models are appropriate, as determined by the department. Applicable Tier 2 models approved for use in accordance with 567—Chapter 135 for underground storage tanks (USTs) and applicable Tier 2 models provided in American Society for Testing of Materials (ASTM) standards are acceptable standard models. Models which provide a two-dimensional representation of groundwater flow will not be considered to be

appropriate when significant three-dimensional components to groundwater flow are anticipated. Default values for input parameters for ASTM and UST Tier 2 models, as provided in applicable ASTM standards and approved for use in accordance with 567—Chapter 135, may be utilized without approval by the department. The department will maintain a guidance document which includes a list of other chemical-specific default values for all chemicals having statewide standards. The use of other, site-specific input parameters is addressed under site-specific modeling in paragraph “b” below.

b. Site-specific models. Site-specific models may be used to predict future contaminant concentrations at potential points of exposure to contaminants or at other locations used for determining compliance when such models are appropriate, as determined by the department. Site-specific models may include standard models with site-specific input parameters or models utilizing more sophisticated analytical techniques. The department will utilize versions of A Modular Three-Dimension Finite-Difference Ground-Water Flow Model (MODFLOW) as developed by the United States Geological Survey in conjunction with A Modular Three-Dimensional Transport Model (MT3D) by S.S. Papadopoulos & Associates, Inc. as a site-specific model for assessment of potential future exposures to contaminants in groundwater. MODFLOW and MT3D will be considered to be appropriate site-specific groundwater and contaminant transport models for any situation. Other site-specific groundwater and contaminant transport models may be utilized with the approval of the department. In general, a site-specific groundwater model shall have proven reliability and be able to simulate, as needed:

- A fixed contaminant source,
 - Groundwater and contaminant flow in three dimensions,
 - Groundwater and contaminant flow through as many distinct geologic layers as necessary for the site in question,
 - Effects of pumping,
 - Effects of groundwater recharge and discharge,
 - Impacts of hydrologic boundaries,
 - Contaminant advection, dispersion and chemical reactions, as appropriate for the site in question,
- and
- Other site-specific variables as appropriate.

Default values for input parameters approved for standard models will be approved for use in site-specific models. Otherwise, input parameters used in site-specific models are subject to the department’s approval.

137.9(5) Response action. The risk evaluation/response action document shall include a proposal for a response action or strategy to achieve and maintain compliance with the selected standard(s). This may consist of activities designed to remove or treat contaminants, prevention of exposure to unacceptable levels of contamination through technological/institutional controls or monitoring, or it may consist of a combination thereof. If the response action involves the use of a standard which is less stringent than the statewide standard, it will generally be necessary to implement institutional controls to prevent the type of exposure on which the statewide standard is based. It is the intent of the department to permit the participant to identify and carry out those options by which this may be accomplished, insofar as the department deems the selected options to be reasonable, protective of human health and the environment, and consistent with provisions of the rule.

137.9(6) Free product and gross contamination. The response action or strategy for an enrolled site shall take into account a stated policy of the Act to encourage environmental cleanup. To this end, the department requires that contaminants present as free product and gross contamination shall not be addressed through the implementation of institutional or technological controls. For purposes of this rule, gross contamination will be considered to be contamination present at concentrations in excess of a standard by an amount sufficient to reasonably expect that institutional or technological controls will not be adequately protective of human health or the environment.

The department recognizes that treatment or removal of free product or gross contamination may not, in some cases, be feasible. In such cases the department may grant a variance to this portion of the rule. It will be the responsibility of the participant to make a sufficient case that such a variance is warranted.

137.9(7) *Compliance verification strategy.* The risk evaluation/response action document shall outline a strategy for determining whether the relevant standards are met by the site and will continue to be met in the future. In some cases this may consist of sampling and statistical tests to verify that the standard has already been met, while in other cases the sampling and statistics may be used to demonstrate that a response action has achieved its stated goals and the site is now in compliance with standards. Some response strategies may also call for longer term monitoring. In this latter case, standard-based values shall be identified which, if exceeded, would indicate a failure of the response action and necessitate the development and implementation of a new response action. The terms under which monitoring may cease should also be proposed. The proposed strategy shall be consistent with rule 137.10(455H), dealing with demonstration of compliance, and shall indicate the standard to be applied and the point of compliance at which it is to be applied, consistent with rules 137.4(455H), 137.5(455H), and 137.6(455H) (the background, statewide, and site-specific standards, respectively).

137.9(8) *Risk evaluation/response action document submission.* A risk evaluation/response action document shall be submitted for review by the department. When considered in conjunction with the site assessment report, these documents shall present a complete picture of the site from its characterization, through the evaluation of risk, to the development of a strategy to address the situation. An effort shall be made to ensure that the reviewer, or other interested parties, can easily move back and forth through the documents to gain an understanding of the existing situation and proposed actions. The risk evaluation/response action document shall include a summary of findings regarding present risks and potential future risks; a pathway-specific identification of the standards to be applied, including the supporting rationale, if appropriate; a discussion of the proposed response actions, including remedial actions to be taken and institutional or technological controls to be implemented; and a discussion of the proposed verification strategy. Any modeling used for purposes of assessing future risk or establishing site-specific standards shall be presented in sufficient detail to permit evaluation of the results by the department. Any permits which will be necessary to implement the response action shall be identified to the department for inclusion in a consolidated standards permit.

137.9(9) *Department review and approval.* It is strongly recommended that the document be submitted for review and approval prior to proceeding with implementation of the response action. The final, department-approved document will be the basis for assessing subsequent activities at the site. Parties choosing to proceed with response actions without prior review and approval by the department proceed at their own risk and may not assume the response action implemented will result in a no further action certificate.

Parties choosing to implement a response action without prior review and approval by the department shall submit to the department a proposed risk evaluation/response action document accompanied by an explanation of the reason(s) for proceeding without prior approval. Documentation shall also include a schedule for implementation, a description of construction or other activities to be undertaken, and date for submission of the final report demonstrating compliance, as described in rule 137.10(455H).

The department shall provide opportunity to comment on proposed response actions to any party that is potentially impacted by off-site migration of contaminants for which notification is required in accordance with subrule 137.8(6). The department shall consider reasonable comments from potentially impacted parties in determining whether to approve or disapprove a proposed response action or site closure.