

Title 10 – DEPARTMENT OF NATURAL RESOURCES
Division 26 –Petroleum and Hazardous Substance Storage Tanks
Chapter 2 – Underground Storage Tanks – Technical Regulations

PROPOSED RULE

10 CSR 26-2.079 Corrective Action Plan

PURPOSE: This rule explains when a corrective action plan is required and sets forth requirements regarding what the plan must contain and how risk-based target levels are determined when corrective action is by excavation.

(1) Owners and operators shall undertake corrective actions necessary to [*manage*] **mitigate** risk posed by chemicals of concern to human health, public welfare and the environment at a **site**. The corrective actions shall prevent or reduce exposure to chemicals of concern so that acceptable risk levels are not exceeded under current and reasonably anticipated future land use conditions. Corrective actions shall manage risk at a site by achieving the following goals, either individually or in combination as appropriate:

Comment [n1]: Based on comments received, the Department intends to revise the definition of “site” to mean the property on which a tank is or was found and on which contamination originated. This revised definition will necessitate the revision of other language in the rule for clarity and consistency.

- (A) Reduce concentrations of chemicals of concern in affected media.
- (B) Prevent transport of chemicals of concern from affected media to receptors.
- (C) Preclude the presence of a receptor at a site.
- (D) Restrict certain receptor activities at a site.

(E) Ensure the presence of contamination above residential target levels and all related activity and use limitations are disclosed to future owners and users of the property on which the contamination is found and to which the activity and use limitations pertain.

Comment [n2]: Long-term stewardship

(2) Owners and operators shall develop a corrective action plan if one or more of the following conditions apply to a site.

- (A) The maximum or representative concentration of one or more chemicals of concern for one or more complete exposure pathways exceed applicable target levels;
- (B) The risk level of a chemical of concern exceeds acceptable risk levels specified at 10 CSR 26-2.077(4);

(C) The maximum or representative concentration of one or more chemicals of concern for each complete route of exposure do not exceed applicable target levels, but the risk assessment was based on site-specific assumptions that must be preserved via the application of long-term stewardship measures in accordance with 10 CSR 26-2.081; or

Comment [n3]: Long-term stewardship

(D) One or more chemicals of concern will remain on a property at concentrations above residential target levels and the property does not include active petroleum USTs.

(3) Adjacent or nearby properties. At sites where chemicals of concern have migrated onto one or more adjacent or nearby properties at concentrations above the default target levels in Table 1 of 10 CSR 26-2.077 or other residential risk-based target levels in Tables 2, 5, and 6 of 10 CSR 26-2.077 if approved by the department, owners and operators shall either:

Comment [n4]: Long-term stewardship

(A) Reduce concentrations of chemicals of concern in soil or groundwater on the adjacent or nearby property or properties to below default target levels or other residential risk-based target levels approved by the department; or

(B) Based on the department's reasonably anticipated future use decision for the adjacent or nearby property or properties, either:

1. Reduce concentrations of chemicals of concern in soil or groundwater on the adjacent or nearby property or properties to below residential or non-residential target levels and, if residential target levels are not met, mitigate remaining and contingent risk through the application of long-term stewardship measures; or

2. With the approval of the department, take no remedial action on the adjacent or nearby property or properties but mitigate risks solely through the application of long-term stewardship measures.

(C) *[Owners and operators shall obtain the approval of the owner of the adjacent or nearby property for any actions to be taken on their property and implementation of long-term stewardship measures that pertain to or affect their property.]*

(D) (C) If denied access by the owner of the adjacent or nearby property, owners and operators shall document to the department that all applicable target or risk levels have been met at or near the boundary of the source property and that actions have been taken to ensure that further migration off the source property of chemicals of concern at concentrations exceeding the default target levels or other residential target levels approved by the department will not occur in the future.

Comment [n5]: Long-term stewardship; in this case, because access has been denied, LTS is not possible on the adjacent property and, therefore, contaminants above residential concentrations may not migrate onto the property in the future.

(4) Corrective action plan. Owners and operators shall develop a corrective action plan that encompasses all activities necessary to manage mitigate risk to human health, public welfare and the environment at a site. The corrective action plan shall be submitted for approval by the department.

(A) The corrective action plan shall be designed to ensure that:

1. Site conditions relative to chemicals of concern are protective of human health and the environment under current and reasonably anticipated future conditions;

2. Assumptions made in the estimation assessment of risk and development of applicable target levels are not violated in the future, and that concentrations of chemicals of concern in groundwater and the extent of groundwater contamination are stable or decreasing; and

Comment [n6]: Long-term stewardship

3. Recoverable light non-aqueous phase liquid (LNAPL) is not present in the soil or groundwater in volumes that will result in any of the following conditions:

A. Expansion of the area of the LNAPL in soil or groundwater;

B. An expanding groundwater solute plume;

- C. An increase in **the representative** concentration[s] of one **(1)** or more chemicals of concern in groundwater to levels above applicable target levels;
- D. Unacceptable risk to human health or the environment; or
- E. Explosive, fire, or other acute hazards.

(B) The corrective action plan shall include, but need not necessarily be limited to, one or a combination of the following:

1. Active [*remedial*] **corrective** actions to reduce concentrations of chemicals of concern to meet applicable target levels.
2. Use of [*monitored natural attenuation to reduce concentrations of chemicals of concern to meet applicable target levels and contain the groundwater solute plume*] **monitoring to confirm, over time, that chemicals of concern are naturally attenuating and that the solute plume is not migrating.**
3. The installation of engineered controls to limit access to or migration of chemicals of concern in soil or groundwater.
4. Application of long-term stewardship measures to eliminate certain exposure pathways or receptors or to ensure that exposure pathways remain incomplete under current and reasonably anticipated future uses and conditions.

Comment [n7]: Long-term stewardship

(C) The corrective action plan submitted to the department shall address each of the following elements, including a detailed explanation for each element, or an explanation of why such element is not necessary to protect human health and the environment:

1. Why the corrective action plan was prepared and the specific objectives of the corrective action plan.
2. The findings, conclusions, and recommendations of the department-accepted risk assessment report.
3. The technologies or approaches to be used to reduce mass, concentration, or mobility of chemicals of concern to meet the applicable target levels for the site or the specific engineered activities to be used to mitigate excess risks.
4. Monitoring to demonstrate plume stability and, if applicable, the effectiveness of monitored natural attenuation.
5. Data to be collected, the purposes for which the data will be collected, and procedures for collection, documentation, analysis and reporting during the implementation of the corrective action plan.
6. The type of long-term stewardship measure or measures that will be used, its intended purpose, and how and when it will be executed; the long-term viability of the long-term stewardship measure; any actions necessary to ensure such long-term viability; and the type of documentation that will be provided to demonstrate that the long-term stewardship measure is and will remain in effect.
7. A schedule for implementation of the corrective action plan, including all major milestones and all deliverables to the department.

Comment [n8]: Long-term stewardship

8. The specific criteria to be measured or otherwise used to determine whether corrective actions are effective and the corrective action plan has been successfully implemented.

9. Contingency plans that will be implemented if the selected remedy fails to meet the overall objectives of the corrective action plan in a timely manner.

10. The public participation and notice requirements in 10 CSR 26-2.080 or an explanation of how such requirements have been met.

Comment [n9]: Public participation and notice

(D) The department will approve the corrective action plan as submitted or provide comments. Owners and operators shall address the department's comments and, upon receipt of approval, shall implement the corrective action plan.

(5) Management of LNAPL. Owners and operators shall comply with the requirements of 10 CSR 26-2.074. LNAPL removal initiated under 10 CSR 26-2.074 shall continue until a work plan for LNAPL recovery is approved by the department and implemented by the owner and/or operator, or initial removal efforts meet the LNAPL removal objectives at (14)(B)1.A and B of this rule and 10 CSR 26-2.074(1)(A) and (B) within ninety (90) days of beginning such efforts, in which case the work plan need not be submitted. Instead, owners and operators must submit the report required at (14)(B)4 of this rule and, in addition to the information required at (14)(B)4, include in the report documentation demonstrating that the objectives of (14)(B)1.A and B of this rule and 10 CSR 26-2.074(1)(A) and (B) have been met.

Comment [n10]: Work plan for LNAPL recovery

(A) LNAPL recovery work plan. Owners and operators shall develop a work plan for LNAPL recovery at the site based on the information developed in accordance with 10 CSR 26-2.076(18). Owners and operators shall submit the work plan to the department for approval prior to implementation. Owners and operators shall implement the work plan within forty five (45) days of approval by the department. The LNAPL recovery work plan developed by owners and operators shall:

Comment [n11]: Work plan for LNAPL recovery

1. Explain which method of LNAPL removal is most appropriate given site-specific conditions and how the method will be implemented at the site;
2. Explain the extent to which removal is believed to be practicable given the chosen method;
3. Explain the extent to which LNAPL removal is believed to be warranted based on risks posed by the LNAPL to human and ecological receptors;
4. Identify the metrics to be used to assess removal system effectiveness and explain the type and scope of monitoring that will be conducted to assess removal system effectiveness; and
5. Include a schedule for implementation and operation of the removal system and for monitoring system effectiveness.

(B) LNAPL recovery. The extent of LNAPL recovery required at a site shall be determined by the **owner or operator, subject to approval by the** department, based on practicability of LNAPL recovery and the actual and potential risk posed by chemicals of concern in the LNAPL to human and ecological receptors.

1. Once all acute risks related to the LNAPL have been mitigated in accordance with 10 CSR 26-2.071 and 10 CSR 26-2.074, owners and operators shall remove LNAPL to the extent that:

A. The LNAPL and associated dissolved and vapor-phase plumes are stable or decreasing with respect to both area and concentrations of chemicals of concern; and

B. The LNAPL and associated dissolved and vapor-phase plumes do not pose unacceptable risk to human or ecological receptors.

2. The department will consider information provided by owners and operators regarding the practicability of LNAPL recovery and actual and potential risk the LNAPL poses to human and ecological receptors in *[determining]* **approving or disapproving an owner or operator's determination of** the extent to which LNAPL recovery is required by 10 CSR 26-2.074.

3. LNAPL recovery in accordance with the provisions of the approved LNAPL recovery work plan shall continue until the goals of the work plan, as approved by the department, have been attained, unless the department determines based on a review of monitoring or other information, and informs owners and operators in writing, that the method employed will not achieve the goals or will not do so in a timely manner, in which case owners and operators shall evaluate the situation and propose an alternative recovery method in a work plan submitted to the department. The alternative remedy shall not be implemented until approved by the department. Owners and operators shall submit LNAPL recovery status reports to the department on a quarterly basis or other schedule as approved by the department, beginning three months after implementation of the approved LNAPL recovery work plan.

Comment [n12]: Work plan for LNAPL recovery

4. Once LNAPL removal limits or goals have been reached, owners and operators shall submit a final LNAPL removal report to the department. The final report must include conclusions and recommendations regarding any remaining LNAPL, including the type of long-term stewardship measure that will be used to provide information about and control risks associated with remaining LNAPL.

Comment [n13]: Long-term stewardship

(C) At sites where concentrations of chemicals of concern in excess of residential target levels will remain in place following the department-approved cessation of LNAPL removal activities, a long-term stewardship measure approved by the department shall be recorded in the chain of title of the property on which the concentrations of chemicals of concern in excess of residential target levels will remain.

Comment [n14]: Long-term stewardship

(6) Application of *[risk-based]* **site-specific** target levels to excavated areas. At sites where **site-specific target levels are applicable and** contaminated soils are to be removed by excavation and replaced with dissimilar fill material, owners and operators shall evaluate the type of fill that will be used and determine the target levels that will apply to the floor of the excavation prior to initiating excavation activities.

(A) The target levels for the area to be excavated and the process and methods by which they were developed shall be explained in the corrective action plan submitted

to the department for review and approval prior to beginning corrective action activities.

(B) If the excavation is to be filled with granular material such as gravel or sand, the tier one risk-based target levels [*for soil type one*] shall apply to the floor of the excavated area, unless the department determines that [*soil type one*] **the tier one risk-based target levels are not adequately protective because of the nature** [*is not representative*] of the fill to be used, in which case owners and operators shall develop site-specific target levels for the fill and obtain the approval of the department for such site-specific target levels prior to placement of the fill.

(C) If the excavation is to be filled with soil, target levels for the excavated area may be determined [by one of the following methods] **as follows**:

1. [*Perform a soil type determination for the fill soil in accordance with 10 CSR 26-2.076(11) and identify the tier one risk-based target levels applicable to the excavated and backfilled area based on the results of the soil type determination. The soil used as fill shall be compacted upon placement and the moisture content managed to ensure that, upon placement, the properties of the soil remain consistent with the corresponding soil type properties.*]

2. **1.** Develop tier two site-specific target levels for the soil to be used as fill and the floor of the excavated area based on analysis of specific soil properties for the soil to be used as fill in accordance with 10 CSR 26-2.076(12). The soil used as fill shall be compacted upon placement and the moisture content managed to ensure that, upon placement, the properties of the soil remain consistent with the corresponding soil properties determined by analysis.

(7) “Hot Spot” Remediation. Owners and operators shall determine if the concentration of any chemical of concern in any sample used in developing a representative concentration is equal to or greater than ten (10) times the representative concentration of that chemical of concern for any exposure pathway and exceeds the applicable risk-based or site-specific target level. If so and the sample location will not undergo corrective action as part of the owner or operator’s efforts to mitigate unacceptable risks, the owner or operator shall evaluate corrective action of the area represented by that sample location;

(A) The evaluation shall consider the extent to which the concentration of a chemical of concern in the sample is representative of a zone of higher chemical of concern concentration, relative to the exposure domain associated with the representative concentration, and the horizontal and vertical extent of that zone;

(B) The evaluation shall support a determination of whether the risk reduction that would be achieved through corrective action of the area represented by the sample is necessary to ensure adequate human health and environmental protection;

(C) If a corrective action plan is required, the evaluation shall be included in the corrective action plan. If a corrective action plan is not otherwise required, this evaluation may be submitted to the department as part of the risk assessment or in a separate letter or report;

(D) If the department determines that corrective action of the zone of higher chemical of concern concentration identified at subsection (7)(A) of this rule is necessary to ensure adequate human health and environmental protection, the department may require the owner or operator to develop and submit a corrective action plan or incorporate such corrective action into the corrective action plan.

(8) Completion of corrective action. Upon successful implementation and completion of corrective actions required by the approved corrective action plan, owners and operators shall submit a corrective action plan completion report to the department for approval.

(A) The corrective action plan completion report shall include:

1. Documentation of completion of all elements of the corrective action plan listed in section (4)(C) of this rule;
2. A request for a determination of no further [*remedial*] **corrective** action for the site by the department subject to the conditions in 10 CSR 26-2.082(4); and
3. If applicable, a request to plug and abandon all nonessential monitoring wells related to the environmental activities at the site.

(B) [*Corrective action activities shall continue until the department issues a no further remedial action determination for the site or provides written authorization to terminate the corrective action plan.*] **The department shall review the corrective action plan completion report and either concur with the findings and conclusions of the report or respond to the owner or operator with comments, questions, or directives for further action;**

1. **If the department determines that no further corrective action is needed, as provided for in 10 CSR 26-2.082, the department will issue a letter to that effect to the owner or operator;**
2. **If the department does not concur with any of the findings or conclusions of the report, the department will issue a letter to that effect that shall include an explanation of its conclusions.**

(C) **Tank owners and operators shall address the department's comments, questions, or directives for further action until such time as the department determines that no further corrective action is required.**

AUTHORITY: sections 319.109 and 319.137 RSMo Supp. 2007. Original rule filed February 13, 2009.

PUBLIC ENTITY COST: The proposed rule will cost public entities \$47,735,626 in the aggregate.

PRIVATE ENTITY COST: The proposed rule will cost private entities \$3,060,659 in the aggregate.

NOTICE OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: The Missouri Hazardous Waste Management Commission will hold a public hearing on this rule action and others beginning at 10:30 a.m. on August 20, 2009, at the Elm Street Conference Center, 1738 East Elm Street, Jefferson City, Missouri. Any interested person will have the opportunity to testify. Advance notice is not required. However, anyone who wants to make arrangements to testify may do so prior to the hearing by contacting the secretary of the Hazardous Waste Management Commission at (573) 751-2747.

Any person may submit written comments on this rule action. Written comments shall be sent to the director of the Hazardous Waste Program at PO Box 176, Jefferson City, MO 65102-0176. To be accepted, written comments must be postmarked by midnight on August 27, 2009. Faxed or emailed correspondence will not be accepted. Please direct all inquiries to the Rules Coordinator of the Hazardous Waste Program, at 1738 E. Elm, Jefferson City, MO 65102, telephone (573) 751-3176.