

Title 10 – DEPARTMENT OF NATURAL RESOURCES
Division 20 – Clean Water Commission
Chapter 10 – Underground Storage Tanks – Technical Regulations

PROPOSED RULE

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.

10 CSR 20-10.079 Corrective Action Plan

(1) Remediating parties shall undertake corrective actions necessary to manage risk 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:

- (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.

(2) Remediating parties 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 exceeds the relevant risk-based target levels;
- (B) The maximum or representative concentration of one or more chemicals of concern for each complete route of exposure do not exceed the relevant risk-based target levels, but the risk assessment was based on site-specific assumptions that must be preserved; or
- (C) 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 default target levels or other residential levels approved by the department, the remediating party shall either:

- (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 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 non-residential target levels and 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) The remediating party shall first obtain from the owner of the adjacent or nearby property written and signed approval for any actions to be taken on their property and implementation of long-term stewardship measures that pertain to or affect their property. A copy of the neighboring owner's written and signed approval shall be provided to the department.

(D) If denied access by the owner of the adjacent or nearby property, the remediating party 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.

(4) Corrective action plan. The remediating party shall develop a corrective action plan that encompasses all activities necessary to manage 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 of risk and development of risk-based 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
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 concentrations of one 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 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.
3. The installation of engineering 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.

(C) The corrective action plan submitted to the department shall include the following, as appropriate:

1. Rationale explaining why the corrective action plan was prepared and the specific objectives of the corrective action plan.
2. Reference to the approved risk assessment report.
3. An explanation of technologies or approaches to be used to reduce mass, concentration, or mobility of chemicals of concern to meet the risk-based target levels determined for the site or specific engineering activities to be used to mitigate excess risks.
4. If needed, a plan for monitoring to demonstrate plume stability or the effectiveness of monitored natural attenuation.
5. An explanation of the data to be collected and procedures for collection, documentation, analysis and reporting during the implementation of the corrective action plan.
6. An explanation of the type of long-term stewardship measure that will be used, its intended purpose, and how and when it will be executed shall be included. The long-term viability of the long-term stewardship measure shall be documented and any actions necessary to ensure that long-term viability identified. An explanation of the type of documentation that will be provided to demonstrate that the long-term stewardship measure is and will remain in effect shall be included.
7. A schedule for implementation of the corrective action plan, including all major milestones and all deliverables to the department.
8. Specific criteria to determine whether corrective actions are effective and the corrective action plan has been successfully implemented.
9. As needed, 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. A plan to address the public participation and notice requirements in 10 CSR 20-10.080 or an explanation of how such requirements have been met.

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

(5) Management of LNAPL. The remediating party shall comply with the requirements of 10 CSR 20-10.074. LNAPL removal initiated under 10 CSR 20-10.074 shall continue until a work plan for LNAPL recovery is approved by the department and implemented by the remediating party.

(A) LNAPL recovery work plan. The remediating party shall develop a work plan for LNAPL recovery at the site based on the information developed in accordance with 10 CSR 20-10.076(18). The remediating party shall submit the work plan to the department for approval prior to implementation. The remediating party shall implement the work plan within forty five (45) days of approval by the department. The LNAPL recovery work plan developed by the remediating party shall:

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 department based on practicability of LNAPL recovery and the actual and potential risk posed by the LNAPL and chemicals of concern in the LNAPL to human and ecological receptors.

1. Once all acute risks related to the LNAPL have been mitigated, the remediating party shall remove LNAPL to the extent that:
 - A. The LNAPL and associated dissolved and vapor-phase plumes are stable or decreasing; 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 the remediating party regarding the practicability of LNAPL recovery and actual and potential risk the LNAPL poses to human and ecological receptors in determining the extent to which LNAPL recovery is required by 10 CSR 20-10.074.

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 the remediating party in writing, that the method employed will not achieve the goals or will not do so in a timely manner, in which case the remediating party 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. The remediating party 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.
 4. Once LNAPL removal limits or goals have been reached, the remediating party 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.
 - (C) At sites where LNAPL will remain in place following the department-approved cessation of removal activities, whether cessation is based on practicability limits or risks the LNAPL poses to human and ecological receptors, a long-term stewardship measure approved by the department shall be recorded in the chain of title of the property under which the LNAPL will remain.
- (6) Application of risk-based target levels to excavation. At sites where contaminated soils are to be removed by excavation and replaced with dissimilar fill material, the remediating party 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 risk management 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 is not representative of the fill to be used in which case the remediating party 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:
 1. Perform a soil type determination for the fill soil in accordance with 10 CSR 20-10.076(11) and identify the tier one risk-based target levels applicable to the excavated and backfilled area. 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. Develop tier two site-specific target levels for the soil to be used as fill based on analysis of specific soil properties for the soil to be used as fill in accordance with 10 CSR 20-10.076(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) Completion of corrective action. Upon successful implementation and completion of corrective actions required by the approved corrective action plan, the remediating party 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;
2. A request for a determination of no further remedial action for the site by the department subject to the conditions in 10 CSR 20-10.082(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.