OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

Ground Water Clean-up Frequently Asked Questions

Below are answers to several questions frequently asked about DEQ requirements for characterization and remediation of contaminated groundwater.

Q: How do I know what groundwater requirements apply to my project or activity?

The Department of Environmental Quality (DEQ) is designated as the groundwater protection agency for all activities that are within the agency's jurisdictional areas of environmental responsibility[1]. DEQ's charge under state law is to determine what actions are required to ensure the protection and quality of the state's groundwater.

Water quality standards are set by the Oklahoma Water Resource Board (OWRB)[2] and enforced by DEQ. DEQ rules that implement the water quality standards are found in DEQ's Water Quality Standards Implementation Plan[3] and DEQ's General Water Quality Standards[4]. LPD program rules, including hazardous waste, solid waste and UIC, and Federal requirements may also apply. If your project/ activity is not enrolled in one of the LPD programs, LPD can designate a Program Manager to work with you to determine applicable project requirements.

Q: Why does it matter that the groundwater has been contaminated, especially if no one is drinking the water?

The State of Oklahoma recognizes that water is a limited resource. Its quality and distribution must be protected to ensure safe supplies for humans and wildlife.

It is unlawful for any person to cause pollution of any waters of the state[5]. Oklahoma statutes define "waters of the State" to include groundwater[6]. DEQ is required by statute to develop groundwater protection practices to prevent groundwater contamination and take all actions necessary to ensure the protection and quality of the state's groundwater supply[7].

Groundwater contamination tends to move and disperse with the groundwater, spreading pollution over wider areas. A pollutant plume may intersect with water wells, or discharge into surface water in seeps and springs, expanding areas where the water supply is unsafe for humans and wildlife.

Q: This is an urban setting. All the groundwater is already contaminated. Why is contamination an issue?

DEQ's charge under state law is to determine what actions are required to insure the protection and quality of the state's groundwater supply. To date, DEQ has generally found groundwater in urban settings to be clean enough to determine the extent of contamination for a specific contaminant plume.

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Groundwater Clean-Up FAQs

Q: Does my groundwater project need to address every groundwater resource, no matter how small or severely contaminated it already is?

Oklahoma's groundwater quality standards are very broad. Only groundwater containing a mean concentration of Total Dissolved Solids of 10,000 milligrams per liter or greater need not be considered in your groundwater project. While developing your groundwater project you will need to consider:

- Groundwater includes all waters under the surface regardless of the geologic structure in which it is standing[8].

  The definition does not exclude perched water, low yield water, or groundwater in urban settings. These scenarios still need to be evaluated.

- Fresh groundwater has the potential to be drinking water or has the potential to affect drinking water and possibly surface water.

Q: What is the relationship between the groundwater classifications and beneficial uses established by the OWRB, and clean-up requirements recommended or imposed by DEQ?

Groundwater classifications and beneficial uses for groundwater are determined by the OWRB and are applicable to all water users. Your groundwater project must consider the existing classifications and beneficial uses. Decisions to remove a beneficial use or reclassify groundwater are made by the OWRB through its rule making process. DEQ does not make these changes but may provide input to OWRB rule making.

Q: Why do I need to study soils or surface water when my task is to clean up groundwater?

Protection of groundwater is possible only if the source or sources of the contamination are identified and addressed, whether by clean up or isolation, or other means. This requires an investigation of the contaminant plume and all possible pathways to and from the groundwater.

One possible exposure pathway from groundwater contamination is vapor intrusion into indoor air. Evaluation of exposure pathways is addressed in DEQ's Fact Sheet "Risk-Based Decision Making for Site Clean Up" at **https://go.usa.gov/xQnBc**.

Q: If I remediate groundwater underlying my property do I need to involve DEQ?

State rules require DEQ approval before commencing a groundwater clean-up project that falls under DEQ jurisdiction[9].

Q: What do I need to submit to DEQ to secure approval of my groundwater clean-up project?

You and your consultant are encouraged to contact LPD early at the phone number below to discuss your plans. Any person proposing a remediation project related to groundwater, or required to undertake such a project by the DEQ, must obtain prior approval by the DEQ of a site assessment plan and remediation plan[10]. A site assessment should establish the vertical and lateral boundaries of the contaminant plume.

Groundwater Clean-Up FAQs

Q: What does DEQ consider when evaluating site assessment and groundwater clean-up plans?

DEQ is charged with considering the OWRB water quality standards, classifications, antidegradation requirements and protection of beneficial uses.

DEQ rules require consideration of the following [11]:

- Corrective action or clean-up levels for pollutants specified in the OWRB water quality standards;
- Existing and future effects of the contamination;
- Existing and future uses of the affected aquifer and underlying aquifers
- Current technology for such clean up; and
- Current knowledge of health and environmental effects of varying concentrations of pollutants.

The following are considered by policy in all groundwater determinations, and may be required in some programs:

- All potential exposure pathways, and, for volatile contaminants, vapor intrusion into the indoor air pathway, should be evaluated.
- Groundwater clean up should be conducted whenever feasible.
- Source removal should be conducted whenever feasible. It is a requirement of the RCRA program and is applicable in other programs.
- Clean-up decisions should include means to protect groundwater or surface water against further contamination.
- If contamination has migrated off-site, DEQ will require affected property owners be notified, and access obtained for off-site investigation and remediation.

DEQ also considers Federal requirements and rules from other LPD programs when relevant.

Q: What types of clean-up methods does DEQ consider?

Clean-up methods include source removal and chemical or biological treatment to reduce contaminants. Passive methods, such as containment or monitored natural attenuation with regular monitoring, may also be acceptable.

- Passive clean-up remedies, such as monitored natural attenuation or containment, require extensive periods of monitoring to demonstrate continued natural attenuation or continued containment.
- Passive clean-up remedies can be extremely slow and, depending on contaminant concentrations, may not be acceptable as the sole remedy if contaminated groundwater has gone off-site under neighboring properties.
- Some clean-up remedies, such as containment or engineering controls to prevent exposure, will require a notice of remediation[12] that obligates owners and successors to maintain the remedy or use restrictions.

Groundwater Clean-Up FAQs

Q: We did a risk assessment. There is no risk. Why is groundwater contamination an issue?

A risk assessment is only one facet in decision making. A risk assessment is not a clean up and does not remove the need to meet regulatory requirements. Also, DEQ may not agree with the results of the risk assessment. Many risk assessments only look at current use and do not consider possible future use scenarios. The above link for DEQ's Fact Sheet, "Risk-Based Decision Making for Site Clean Up," has more information.

Q: How can I demonstrate that my clean up is done?

You will need to perform confirmatory sampling. In addition to the OWRB water quality standards, certain numerical levels are required for remediation under the Superfund and RCRA programs. In the absence of numerical requirements, DEQ will apply EPA's Maximum Contaminant Levels (MCLs) as the remedial goal. In the absence of MCLs, DEQ may use other criteria, including EPA health advisories or published risk-based levels. Clean ups performed under DEQ authority will generally have decision documents that spell out numerical clean-up levels, regulatory requirements, and any required institutional or engineering controls.

Q: Will my project need to be cleaned up to MCLs, or will DEQ approve alternative clean-up standards?

Alternative groundwater clean-up levels may be approved at sites that have extended periods of monitoring or post closure monitoring, financial assurances, and a plan for long term stewardship. Alternative clean-up levels do not apply to contamination that has left the site boundaries.

Soil or groundwater exceeding Toxicity Characteristic Leachate Procedure levels (TCLP)[13] can be viewed as improper disposal of hazardous waste. DEQ will not approve alternative clean-up levels that exceed the chemical specific TCLP, unless the site is classified as a hazardous waste facility requiring a RCRA Post-Closure or Corrective Action Permit, or sites with an equivalent enforceable order.

Q: Will a deed notice be required?

A notice to the deed identifying the remediation is required by state statute to be filed in the county records when any property is cleaned up to risk-based levels[14].

Deed notices cannot be used as a substitute for clean up, but are a means to notify potential purchasers of residual contaminants at the property.

Q: If I find soil or groundwater contamination is there any reporting requirement?

There are several state and federal statutes that may require you to provide notice:

- DEQ's hazardous waste rules[15] require owners and operators of facilities to notify DEQ when there is a release of hazardous waste.
- DEQ does not distinguish between current releases and past releases that continue to leach or migrate. Without clean up, contamination will likely move from surface to subsurface, from soil to groundwater, and from one property to off-site property. Clean up requirements may become more complex and more costly over time.

- CERCLA (also referred to as Superfund) requires that persons in charge of facilities or vessels immediately notify the National Response Center as soon as the person has knowledge of a release of hazardous substances that exceeds the reportable quantities (RQ) promulgated by EPA. Their number is (800) 424-8802.

- If you are uncertain whether you are required to report, DEQ encourages you to report the information to the DEQ Hotline at (800) 522-0206. The DEQ Hotline will accept information reported anonymously.

Q: If I report a release to DEQ does that make me liable to clean up the release?

Liability issues can be complex, and are beyond the scope of this fact sheet. Prospective purchasers of property at which there has been a historic release of hazardous waste are urged to discuss liability issues with their own attorneys before purchasing the property.

If you have further questions about groundwater remediation, please call the Land Protection Division at (405) 702-5100.

End Notes

[1]27A O.S. § 1-1-202(C)(1)

[2]OAC 785:45

[3]OAC 252:690

[4]OAC 252:611

[5]27A O.S. § 2-6-105(A)

[6]27A O.S. § 1-1-201

[7]27A O.S. § 1-1-202(C)(3 & 5)

[8]82 O.S. § 1020.1(1)

[9]OAC 252:611-5-1(b)

[10]OAC 252:611-5-1(b)

[11]OAC 252:611-5-3

[12] 27A O.S. § 2-7-123

[13]40 CFR 261.24

[14]27A O.S. § 2-7-123(C)

[15]OAC 252:205-13-1