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Dewatering During Construction and Post-Construction—Regulatory Paradigms and Options

Major construction projects, especially new office, residential and mixed-use buildings, often require dewatering to remove intercepted groundwater from subterranean areas. Intercepted water flows may continue even after construction is completed. When CDOT encountered high levels of arsenic in the groundwater during highway construction near Santa Fe and Broadway, it was precluded from disposing of the water by releasing it back into the stream. Consequently, CDOT trucked 200 million gallons of water to another location at a cost of \$1.6 million during the course of the project. Throughout the Denver metro area, developers continue to encounter elevated background levels of arsenic, selenium, other metals and nutrients—the types and amounts of such contaminants vary by location. Similar groundwater conditions are encountered in other areas of the state.

Two evaluations can be undertaken prior to construction, or even prior to land acquisition, to determine if a construction project may encounter natural groundwater with elevated levels of contaminants. First, if the site is proximate to other construction projects, discharge records for nearby projects can be examined to determine if contaminants of concern may be in the groundwater underlying your site. Second, sampling the groundwater at the site prior to construction can provide more specific data on any contaminants that may be present. In either case, developers may need to develop a plan for the release, discharge, or disposal of the waters. We assist clients in selecting appropriate short-term and long-term solutions for groundwater intrusion.

Short-term construction dewatering is generally governed by a general discharge permit. However, recently these authorizations under the general permit have required monitoring of specific contaminants or compliance with numeric limits for such contaminants. So, compliance with the general permit may be difficult for some sites.

Post-construction, long-term measures need to be implemented to dispose of the waters pumped from subterranean areas of the building. Many municipal wastewater treatment providers will not accept such pumped groundwater into their systems. The following options have been selected by other builders/owners for water disposal from their buildings:

- Obtain an individual discharge permit to cover the release of groundwater to nearby waterbodies. If the groundwater has elevated contaminant levels, then treatment may be necessary—the costs of which can vary depending on the level and extent of treatment required.
- Use the pumped groundwater for landscape irrigation if the water is needed for such uses and adequate storage is available to store the water during the non-growing season. Using the water for landscape irrigation will require a substitute water supply plan or an augmentation plan for the beneficial use of the groundwater.
- Inject the pumped groundwater via wells (i.e., return the pumped groundwater to the aquifers from which it came). This requires coordination with the U.S. Environmental Protection Agency.
- Convey pumped groundwater to an industrial wastewater treatment facility that accepts groundwater from dewatering systems. Doing so would likely require the water to be hauled to the treatment facility.
- Each option requires permitting from state or federal agencies. Some municipalities also have their own regulations for dewatering systems.

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Finally, a long-term solution may be developing site-specific standards that recognize the levels of background contaminants in the local groundwater area. Revisions to the groundwater standards must be considered and decided in rulemaking hearings before the Water Quality Control Commission.

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