

## Scoping the Cleanup Investigation

### Background

The Oregon Environmental Cleanup Law (ORS 465.200 *et seq.*) gives the Oregon Department of Environmental Quality the authority to lead or oversee investigation and cleanup of chemicals or other hazardous substances released to the environment that pose an unacceptable risk to human health and the environment. An early step in the investigation is to decide what to look for and where to look. DEQ does that by investigating:

- Site ownership and operations
- Geology, hydrogeology and climate
- Risk presented by chemical releases
- Who might be exposed

### Ownership and operational history

A thorough review of site ownership and operational history identifies activities that have taken place at the site. DEQ and the U.S. Environmental Protection Agency have developed, through years of experience, information on the kind of chemicals that are typically used by specific industries. This information serves as the starting point in creating a list of chemicals that may have been used and released at the site. DEQ also collects information on chemical storage, areas of use and waste management practices from current and former owners, operators and employees. This information serves to fill out the list of chemicals and identifies potential source areas for further investigation.

For example, at a former solvent recycler we would look for the different solvents that were received during the time the facility operated. We would look in the areas where the solvents were received, stored and processed, and investigate the waste management practices. Our experience shows that in the past, it was not uncommon that wastes from the reclamation process were buried on the property rather than being sent to a landfill.

### Geology, hydrogeology and climate

The migration of chemicals, once released to the environment, is governed by their properties and the basic laws of physics. Chemical properties, for example, determine if the chemicals absorb to soil particles, vaporize into the air, dissolve in water, float on the water surface or continue to sink downward. Local geology and climate also affect the way chemicals move into the soil, groundwater or surface water, or vaporize into buildings or the air. These properties are also considered in the investigation to determine

where the chemicals are now and where they might end up if they are not cleaned up. This is a simple explanation of complicated processes. The subsurface geology is often very complex and multifaceted, causing contaminants to move in unexpected ways. The complexity can result in a lengthy investigation to decipher what is really going on in the subsurface. This describes the basic process for deciding what to look for and where to look.

### Next steps

**Risk Screening:** The Legislature established risk levels to set the standards a site must meet to be considered protective of human health and the environment. The acceptable risk level and protective assumptions about potential exposure are used to screen the site to determine if additional investigation is needed.

When sites that need additional investigation have collected adequate information to assess all potential exposure pathways, a site-specific risk assessment is completed. The risk assessment considers what the current and reasonably likely future uses of the site are, and what the threat is to site workers or residents, and neighboring residential or commercial properties. Risks to animals and plants are also evaluated, when appropriate.

**Preliminary Hot Spot Identification:** Areas that have high concentrations of chemicals or chemicals that continue to migrate may be defined as “hot spots.” Typically, the initial identification of potential hot spots is completed as part of the remedial investigation and site-specific risk assessment.

Sometimes DEQ starts an “Interim Removal Action” at this point in the process. This can accomplish several objectives:

- Reduce the risk of exposure to chemicals
- Stop or slow migration of chemicals
- Reduce future costs of remediation
- Produce information on cost and performance of specific treatment technologies

**Feasibility Study:** All the information produced in the remedial investigation, risk assessment and any Interim Removal Action are used to develop and evaluate several remedial action alternatives in a Feasibility Study. After taking public comment, DEQ selects or approves the remedial action alternative that best meets the selection criteria specified in the Environmental Cleanup Law.



State of Oregon  
Department of  
Environmental  
Quality

Land Quality  
Division  
Environmental  
Cleanup Program  
811 SW 6<sup>th</sup> Avenue  
Portland, OR 97204  
Phone: (503) 229-5913  
Fax: (503) 229-5850  
Toll Free: (800) 452-4011  
Contact: Annette Dietz

[www.oregon.gov/DEQ/](http://www.oregon.gov/DEQ/)

**Alternative formats**  
Alternative formats of this document (Braille, large type), may be made available. Contact DEQ's Office of Communications and Outreach, Portland, at (503) 229-5696 or call toll-free in Oregon 1-800-452-4011, x 5696.