

State of Vermont
Department of Environmental Conservation
Waste Management & Prevention Division
Sites Management Section
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Development Soils Factsheet

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What are Development Soils?

Development soil is defined in the Investigation and Remediation of Contaminated Properties Rule (IRule) as unconsolidated mineral and organic matter overlying bedrock that is contaminated solely by polycyclic aromatic hydrocarbons (PAHs), arsenic, or lead at concentrations which exceed Vermont Soil Standards and are not hazardous waste. If soil contains any other hazardous material at concentrations above a standard, it is not considered Development Soil.

Background

Due to the ubiquitous nature of PAHs, arsenic, and lead in soils in urban areas, and the challenges these compounds create during redevelopment, the legislature, through ACT 52 (2015), directed the Vermont Department of Environmental Conservation (DEC) to conduct a statewide background study of these compounds and develop more flexible management options to facilitate downtown redevelopment. Soil standards were established using the statewide background concentration for arsenic and the urban background concentrations for PAHs and lead, and a designated Urban Background Area was created. For more information on the background study, see: <https://dec.vermont.gov/waste-management/contaminated-sites/statewide-soil-report>.

Applicable Vermont Soil Standards for Development Soils

Lead		Arsenic	PAHs	
non-urban background area	urban background area	statewide background	non-urban background area	urban background area
41 mg/kg	111 mg/kg	16 mg/kg	residential	0.58 mg/kg
			0.076 mg/kg	

Release reporting requirements

Soil concentrations in exceedance of the values in the table above indicates a release to the environment may have occurred and results must be reported to VTDEC. Only soils located in a **designated urban background area** (per [the ANR Atlas](#)) which contain PAHs above 0.076 mg/kg but below 0.58 mg/kg or lead above 41 mg/kg but below 111 mg/kg do not constitute a release and do not need to be reported, unless transported to a **designated non-urban background area** (per [the ANR Atlas](#)). Residential standards apply to soils located outside of the designated urban background areas; any exceedance of the residential standards is considered a release and must be reported. Any

exceedance of the statewide background concentration for arsenic must be reported.

Management of soils with concentrations in excess of the applicable thresholds above will require development of a soil management plan or corrective action plan, in accordance with IRule Subchapter 6 or §35-804 to be approved by the SMS prior to initiation of onsite work.

Characterizing Development Soils

In order to determine appropriate soil management or disposal options, the IRule requires proper contaminant characterization methods. To determine if development soils are present, a work plan must be submitted to the SMS and must include the following:

- Soil samples must be collected within the area suspected of containing development soils. The collection method must be one of the following:
 - Discrete sampling methodology in a grid pattern, appropriately scaled in order to cover the entire proposed area of excavation, and sample points co-located in areas of concern;
 - Application of Incremental Sampling Methodology consistent with the Interstate Technology and Regulatory Council's (ITRC) Incremental Sampling Methodology; or
 - Other soil characterization methods, as approved by the VTDEC.

Options for reuse or disposal

If characterization of soils has identified them as development soils, additional sampling via Synthetic Precipitation Leaching Procedure (SPLP) is required if the soils are to be disposed of at a categorical solid waste disposal facility or a receiving site.

If soil is proposed to be disposed of at either a categorical solid waste facility or at an approved receiving site ([IRule §35-805\(c\)](#)), sample collection methods must consist of either the grid pattern method described above or incremental sampling methodology. In addition, Synthetic Precipitation Leaching Procedure analysis (SPLP) must be conducted (EPA Method 1312) to determine if there is a potential for contaminants to impact groundwater. Samples must be taken from the soils most likely to leach contaminants and from the most impacted soil locations based on laboratory analysis, field screening, and visual and olfactory evidence. Results of the SPLP analysis must be compared with the applicable Vermont Groundwater Enforcement Standards.

Contaminant	Contaminant concentrations			
	≤ residential	≥ residential; ≤ urban background	≥ urban background or statewide background; Passes SPLP	≥ urban background or statewide background; Fails SPLP
PAHs	Not regulated	Regulated outside of Urban Soil Background Areas**; can be moved anywhere within an Urban Background Area.	Regulated; disposal options include categorical facility, receiving site or use as ADC*.	Regulated; Not considered Development Soil; must be managed as contaminated soil.
Arsenic	Not regulated		Regulated; disposal options include categorical facility, receiving site or use as ADC*.	Regulated; Not considered Development Soil; must be managed as contaminated soil.
Lead	Not regulated	Regulated outside of Urban Soil Background Areas; may be moved to other areas within the urban background area. **	Regulated; disposal options include categorical facility, receiving site or use as ADC*.	Regulated; Not considered Development Soil; must be managed as contaminated soil.

* ADC: Alternative Daily Cover. Landfills may have additional sampling requirements and restrictions on disposal.
** Disposal options include categorical facility, receiving site or use as ADC.

Development Soil Disposal Options

- **Receiving Sites.** This option allows for soils to be brought to a property that has concentrations of PAHs, arsenic, or lead at concentrations equal or greater to those found on the origin development site, and at concentrations above a soil standard. To be approved as a receiving site, a request must be submitted to the Agency of Natural Resources that demonstrates that the property meets the conditions for receiving sites as detailed in the IRule §35-805(d).
- **Categorical Certifications.** The Solid Waste Rules allow for the disposal of Development Soils at certified categorical disposal facilities. An application to have a certified categorical facility permitted must be submitted in accordance with Section 6-309 the Solid Waste Management Rules, and must be approved by the Solid Waste Program.
- **Alternative Daily Cover.** Development soils can be disposed of at permitted solid waste facilities as Alternate Daily Cover (ADC) upon approval by the facility.

FAQs:

Am I required to sample soil prior to digging? If a property is not an active hazardous site or enrolled in the Brownfields Reuse and Environmental Liability Limitation Act ([BRELLA Program](#)), soil sampling is not required. The VTDEC Sites Management Section (SMS) has jurisdiction on active sites where releases have been identified, and sites which are enrolled in the BRELLA Program. Sampling may be required by disposal facilities, such as landfills, if soils are being transported to an offsite location.

Why should I sample soil? If you know that your construction project will generate excess soils, a disposal facility will most likely require testing before they accept the soil. An environmental professional should understand what the contaminants of concern are based on the property location and history, and what testing the disposal facility will require. Not sampling soil may result in the transport of contamination to previously uncontaminated areas, for which the original generator of the soil would be liable.

When is the best time to do this testing? It is best management practice to collect soil samples for testing PRIOR TO excavation. If soils are sampled in place, and test results show an exceedance of a standard, it will be easier to evaluate the data, understand the source and extent of contamination, and determine if additional work is required. It will also be less likely that testing needs to be repeated if the SMS is involved in the process up front.

When is SPLP required? When determining if soil contamination qualifies as Development Soil for purposes of identifying disposal options, i.e., a categorical facility or a receiving site.

What other work is necessary at my site if an exceedance of a standard is identified? If any hazardous material is reported above the applicable standard, this exceedance must be reported to the SMS. In addition, the degree, and extent of contamination must be characterized per §10 V.S.A. 6615b.