

Hydrovac Waste

Background

Hydro excavation (hydrovac) involves using a combination of high-pressure water and vacuum technology to excavate soil. This process is typically used to locate and expose existing underground infrastructure or for the installation of new underground infrastructure. It reduces the risk of damaging already-existing underground utilities and can minimize the ground surface disturbances.

Hydrovac waste is a common term used for the slurry waste created in the sub-surface soil excavation process. The resulting slurry that is created when the soil is extracted is generally comprised of about 60 per cent liquid and 40 per cent solid material – it is no longer soil and it is no longer water.

As a result, the slurry must be treated at a unique waste facility that is capable of separating the solid from the liquid.

Site Assessment

Generators should assess the site prior to excavation in order to determine the actual or potential presence of contaminants that could become part of the excavated material and would then have to be managed, stored or disposed of in accordance with the legislation. This is critical information so that informed decisions can be made as to where the wastes must be taken for treatment and/or disposal.

Conducting the site assessment prior to hydrovacating can help with planning for whether further sampling of the slurry should be conducted and the treatment and disposal options if contamination is detected. It could also decrease the need for any interim storage

while the disposal options are considered after the excavation has occurred.

A site assessment should look for potential contamination and include:

- site scan for historical activities;
- visual inspection for free product;
- evidence of spilled materials;
- review of adjacent activities (i.e. pipelines) and;
- preliminary screening analysis.

Preliminary screening analysis

Preliminary screening could include but is not limited to:

- hydrocarbons;
- pesticides;
- E.coli;
- metals;
- polychlorinated biphenyl (PCBs);
- polycyclic aromatic hydrocarbons (PAHs);
- pH and;
- salinity.

Alberta Tier 1 Soil and Groundwater Remediation Guidelines and the CCME Soil Quality Guidelines for the Protection of Human Health and the Environment could be used to identify potential risks associated with the excavation and the disposal options. To determine the disposal options, the resulting waste must be classified and characterized in accordance with the Waste Control Regulation (AR 192/96) and Alberta User Guide for Waste Managers.

Roles, Responsibilities and Regulatory Expectations

Generators

As a generator of a waste (as the owner of the land being hydro excavated and/or are the proponent for the hydrovac activity) you are removing from the ground, you are responsible to ensure that the waste that is generated is classified and characterized in accordance with the Waste Control Regulation.

If you have your own infrastructure (tankage or a storage pond), you have more options to phase separate your own waste. However, it will still have to be characterized to ensure appropriate disposal methods are determined.

Carriers

The *Environmental Protection and Enhancement Act* and the Waste Control Regulation (AR 192/96) state that “waste” must go to an approved waste management facility.

As a carrier (or transporter) of the “waste” you must take the waste to an authorized waste management facility.

As a carrier you must know what you are shipping; the waste must be must classified **prior** to shipment.

The waste acceptance is subject to prior permission of the waste facility operator and any approvals it holds.

Receivers

Waste acceptance, storage, treatment and disposal are all activities carried out by waste management facilities and are subject to the regulatory requirements of Alberta Environment and Parks as set out in *Environmental Protection and Enhancement Act*, the Waste Control Regulation and the Activities Designation Regulation.

While solid-liquid separation (by gravity) may not be considered waste treatment, the storage will require containment. Waste storage sites of this waste will also require the person responsible for the storage site to provide notice to Alberta Environment and Parks as set out in Schedule 3 of the Activities Designation Regulation.

Hazardous Wastes

When hazardous substances (i.e., heavy metals, oils, gasoline, solvents, etc.) are suspected more detailed analysis is required.

Analysis may include without limitation the testing of the following parameters:

- Flashpoint;
- pH;
- leachable metals and;
- leachable benzene, toluene, ethylbenzene and xylenes.

The Waste Control Regulation and the Alberta User Guide for Waste Managers provide details on how to classify and characterize a hazardous waste from a non-hazardous waste (see Schedules 1 and 2 of the Waste Control Regulation).

Additional legislative requirements are imposed for the management of hazardous wastes. As an example, manifests must be used for any shipments of hazardous waste and only certain classes of waste management facilities can accept hazardous wastes. See also Part 1 of the Waste Control Regulation which contains additional requirements for hazardous wastes.

Disposal Options

Off-site Options

As stated, waste must be taken only to an authorized waste management facility.

The options for off-site management (at a waste management facility) depend on local waste facilities that have been constructed in your area. The facility must have both the infrastructure and appropriate authorization to accept a slurry type of waste.

Depositing hydrovac waste on third-party land is not permitted. The generator, the carrier and the land owner would be liable for any remediation and may be subject to possible enforcement action.

On-Site Options

At uncontaminated sites, soils may be recovered mechanically on-site using centrifugal force or be interred in tank or similar containment unit where gravity can assist in the phase separation. On-site management is encouraged if it is possible.

1. Upon phase separation, interred soil material may then be replaced into the excavation site **but may not be used** as backfilling in other off-site applications.
 - Backfilling is not permitted if the soil is contaminated; it must be disposed at approved waste management facilities in accordance with the legislative requirements.
2. Upon phase separation, the resulting liquids may require additional treatment. The liquids will often contain high suspended solids and could contain contaminants. Testing would be required to verify that the wastewater is not contaminated before re-use can be considered.

- For questions on liquids re-use options please refer to the interim re-use guide available at:
 - <http://aep.alberta.ca/water/programs-and-services/municipal-wastewater-and-storm-water-management-program/documents/ReuseMunicipalIndustrialWastewater-2015.pdf>

Regulation References

Re-use Land Applications

Hydrovac waste (the slurry, wastewater or separated solids) cannot be applied to land without a written Director Authorization. All applications for a Director Authorization must include detailed information on the waste, wastewater, analytical data and the proposed land application.

- Spreading of hydrovac slurry waste to agricultural land is not permitted.
- Re-use as a construction fill (non-engineered fill, road bed, etc....) material is an example of a re-use that can only be considered for the non-impacted, separated soils.

Other Resources

For industrial sumps (such as mechanic shops) and car wash sumps please see the respective **Acceptable Industry Practices** for more details on how these wastes must be managed at:

- <http://aep.alberta.ca/waste/legislation-and-policy/default.aspx>

To find more information on waste and hazardous waste please see the waste website:

- www.aep.alberta.ca/waste

The Waste Control Regulation (AR 192/96) is available through the queen's printer at:

- www.qp.alberta.ca

The Alberta User Guide for Waste Managers is available at:

- <http://aep.alberta.ca/waste/legislation-and-policy/documents/AlbertaUserGuideWasteManagers-Aug1996.pdf>