Environmental Issue:

Focus on Electrical Distributors

AELenvironment

A division of Aeon Egmond Ltd.

AEL environment is a niche environmental engineering and consulting firm specializing in best management site characterization and cleanup solutions. The company is a division of Aeon Egmond Ltd.

AEL environment has assessed and cleaned over 50 electrical distribution sites across Ontario. We can assist you in quantifying your unknown environmental liabilities.

Services

- ***Environmental Site Assessments***

AEL can perform Phase I and Phase II ESAs in order to identify or rule out the presence of contamination at your sites.

- ***Site Cleanup***

AEL has experience in remediating a variety of contaminants in order to bring sites within applicable regulatory guidelines.

- ***Record of Site Condition (RSC)***

An RSC is a Ministry of Environment report officially documenting the environmental conditions at a property. It indemnifies the current owner from environmental liability in the future. AEL environment has filed RSCs for a number of remediate distribution sites.

- ***On-Site Testing***

AEL environment has advanced on site testing equipment in house that can accurately identify and quantify metals or petroleum hydrocarbon contamination at your site without the need for expensive and time consuming off site laboratory testing.

Contact

6800 Kitimat Rd., Unit 13
Mississauga, ON L5N 5M1
Phone: 416-657-2367
Toll Free: 1-888-267-4797
info@aelenv.com | www.aelenv.com

Do Your Distribution Sites Have Contamination Issues?

As an electrical distributor, your company is the owner and operator of thousands of kilometers of line, hundreds of transformers, many distribution sites and an unknown amount of environmental liability. With this substantial investment in real property and equipment, every distribution company owes it to themselves to be informed about the status of their potential environmental liabilities.

Case Study: Large Ontario Power Distributor, Former Distribution Site

Background: The client had inherited and operated a distribution site in Central Ontario since the 1960s. The properties use as an electrical distribution site meant that potentially contaminating activities had occurred at the site as defined in Ontario Brownfields Act (O.Reg 153/04). As such the client contacted AEL environment to perform an environmental site assessment to assess their environmental liabilities at the site.

Investigation: AEL environment performed a Phase II Environmental Site Assessment of the property. A site specific soil and groundwater sampling plan was developed in accordance with O.Reg. 153/04 whereby areas of potential concern were identified and investigated by drilling boreholes and installing monitoring wells in order to collect soil and groundwater samples.

Assessment: AEL environment identified the presence of arsenic contamination across the property and on two neighboring properties in excess of applicable standards. Source of contamination was determined to likely be past herbicide use at the site.

Cleanup: The client opted to bring the site within criteria and to submit a Record of Site Condition (RSC) to the Ministry of the Environment (MOE) in order to minimize future liabilities.

AEL supervised the excavation and disposal of over 1200 tonnes of arsenic contaminated soil. The site was backfilled and brought within applicable regulatory criteria quickly. An RSC was submitted and filed with the MOE in the summer of 2009.

AEL environment used a combination of best management practices at the site in order to minimize capital cost and pass the savings on to client. These included splitting the site into an environmentally-sensitive portion and a regular portion so that less stringent cleanup criteria could be used for an area of the site in order to minimize soil disposal costs. Onsite testing was also utilized during the cleanup to quickly delineate contamination and minimize the amount of soil on site.

Common Environmental Issues at Electrical Distribution Sites

Due to the industrial nature of electrical distribution sites there is a significant likelihood that at least one of the following contaminants is present at some of your company's distribution sites:

Arsenic - Very common contaminant due to its almost ubiquitous use as a herbicide (in the form of arsenic trichloride) at distribution sites across Ontario.

Polychlorinated Biphenyls (PCBs) - Manufactured as an insulating fluid in electrical transformers prior to its ban in 1977. Often included in "transformer oil," it may still be present in old transformers manufactured prior to 1977.

Petroleum Hydrocarbons (PHCs) - Transformer oils generally show up as Petroleum Hydrocarbons during an environmental investigation. Although different in composition from automotive oils and fuels, they fall under similar restrictions in the environmental regulations and need to be included.

Avoid Being Caught Off Guard

Unquantified environmental risk can be substantial, even for a smaller distribution company, affecting the rate structure. By recognizing this potential liability and taking action in the quantification of the risk, a utility can be sure it is managing the risk appropriately. Better to understand the depth of your contamination issues now then to be caught off guard in the future.

AELenvironment

Environmental and Geotechnical Engineers

AEL environment is a niche environmental engineering and consulting firm specializing in best management site characterization and cleanup solutions. The company is a division of Aeon Egmond Ltd.

Services

AEL offers high-quality, professional and innovative services such as:

- Site Assessment and Verification
  Used to make informed decisions about property transactions, identify certain baseline environmental conditions, assist in meeting regulatory requirements, and as an initial step in remediation.
  - Phase I ESA
  - Phase II ESA
  - Remediation
- Record of Site Condition
- Onsite testing
  Provides accurate real time laboratory results during an environmental site investigation or remediation.
- Report reviews
- Legal support
- Monitoring
- Database management
- Geophysics
  A method of imaging the subsurface using induced electromagnetic or magnetic fields.
- Geotech
- Solar surveys
- Risk assessment
- Tank removal & inspection
- Landfill assessment

Contact

6800 Kitimat Rd., Unit 13
Mississauga, ON L5N 5M1
Phone: 416-657-2367
Toll Free: 1-888-267-4797
info@aelenv.com | www.aelenv.com

AELenvironment
A division of Aeon Egmond Ltd.

Onsite Testing

Accurate real time laboratory results during an environmental site investigation or remediation can be an invaluable tool for directing field work and ensuring adequate information is collected. Using ultraviolet fluorescence (UVF) and x-ray fluorescence (XRF) technologies AEL is able support your environmental field work with high quality laboratory data for screening the most prevalent organic and inorganic compounds in soil and water. In addition, when data is downloaded into our GIS based data management and analysis software, real time site-wide data maps and cross-sections can be generated to show contaminant trends and information gaps.

UVF Analysis

UVF analysis can be completed in both soil and water. Target compounds of UVF testing include petroleum hydrocarbons (PHC), total BTEX (Benzene, Toluene, Ethylbenzene, and Xylenes), polychlorinated biphenyls (PCB) and polycyclic aromatic hydrocarbons (PAH). Detection limits vary depending on dilution but generally meet the most stringent cleanup criteria.

Detection Limits for Organics in Soil or Water

Compound	Calibration Std. MDL (ppm)	MOE Table 2 - Soil with Potable Water (ppm) Residential
Total BTEX*	<0.1	2.1 (Toluene)
PHC	<0.1	100 (PHC C16-34)
Total PAH*	<0.5	1.2 (Benzo(a)Pyrene)
PCB	<1.0	5

XRF Analysis

For XRF analysis target compounds include 15 "standard" elements that can be expanded to 24 by changing the radioactive source. Only effective for use in soil or sediments, detection limits vary based on site conditions and soil type. For priority compounds such as lead and arsenic, detection limits meet most cleanup criteria. Detection limits for reference calibration standards on 4 of 24 available elements include:

Detection Limits for Inorganics in Soil

Compound	Calibration Std. MDL (ppm)	MOE Table 2 - Soil with Potable Water (ppm)
Nickel	150	150
Copper	60	225
Arsenic	15	20
Lead	20	200

Onsite Analysis Benefits

Screening level results can be available in 5 minutes or less per sample. Maximum number of samples analyzed and reported generally averages 40-50/day. Our mobile laboratory is completely self contained and comes equipped with the most commonly required sampling and analytical supplies. Readily transportable, analytical work can be completed at remote sites on a worldwide basis.
Per unit analytical costs vary on sample volume and target contaminant but are much less than comparable laboratory charges. Field support and travel expenses are extra but are similar to those normally required in completing site work.

AEL's Commitment

Our goal is to provide our customers with quality site management and reporting. In setting high standards for our work, including the re-evaluation of methods and approaches used in our profession, AEL brings innovation to our field, allowing us access to high quality project data at a lower cost than alternative strategies enabling us to serve our clients more efficiently.

AELenvironment

Environmental and Geotechnical Engineers

AEL environment is a niche environmental engineering and consulting firm specializing in best management site characterization and cleanup solutions. The company is a division of Aeon Egmond Ltd.

Site Assessment and Verification

Environmental Site Assessments (ESAs) are used to make informed decisions about property transactions, identify certain baseline environmental conditions, assist in meeting regulatory requirements, and as an initial step in remediation. Generally ESAs follow a staged approach beginning with Phase I. AEL carries out ESA and remedial work in accordance with CSA and ASTM protocols and, in Ontario, the requirements of O.Reg. 153/04.

AEL is experienced with site assessments and has over 20 years experience to bring to its analysis and interpretation of site conditions. AEL's use of senior staff allows it to make use of experience and expertise in its understanding of site conditions, providing enhanced quality of work.

Phase I

Phase I ESAs require a non-intrusive investigation to understanding the environmental legacy at a site.

Our Phase I investigations, supplemented by 20 years of engineering experience, include detailed aerial photographs and mapping reviews, historical process audits, and detailed records searches.

Phase II

Phase II ESAs are intrusive investigations to review Phase I concerns and understand the size and scope of possible contamination impacts. This Phase, if required, consists of sampling and analysis to determine site conditions. Phase II investigations are supplemented with AEL's own on-site UVF and XRF onsite testing methods for the delineation of hydrocarbon and metal impacts respectively. AEL's proprietary sampling protocols also improve sample quality and recovery while allowing us to complete work in a shorter time frame. Our intent is to provide a clear understanding of the issues affecting a site with the collection of more high quality data while reducing assessment costs.

Phase III

Phase III ESAs are the cleanup or remediation phase which is based on Phase II findings related to scope and size of contamination.

Remediation is accomplished through design-tender or design-build contracting approaches. Regardless of the construction method, our remedial plans address potential issues relating to health and safety, environmental concerns, groundwater control, excavation and building support, remedial technologies and soil management.

Record of Site Condition (RSC)

Once remedial work is complete, or the ESA finds the site meets applicable quality standards, we recommend issuance of an RSC.

The extent or type of cleanup can be verified through an RSC which is registered for sites in Ontario with the Ministry of the Environment under O. Reg. 153/04. This provides regulatory protection against future liability with respect to a site.

AEL's Commitment

Our goal is to provide our customers with quality site management and reporting. In setting high standards for our work, including the re-evaluation of methods and approaches used in our profession, AEL brings innovation to our field, allowing us access to high quality project data at a lower cost than alternative strategies enabling us to serve our clients more efficiently.

Services

AEL offers high-quality, professional and innovative services such as:

- Site Assessment and Verification
  Used to make informed decisions about property transactions, identify certain baseline environmental conditions, assist in meeting regulatory requirements, and as an initial step in remediation.
  - Phase I ESA
  - Phase II ESA
  - Remediation
- Record of Site Condition
- On site testing
  Provides accurate real time laboratory results during an environmental site investigation or remediation.
- Report reviews
- Legal support
- Monitoring
- Database management
- Geophysics
  A method of imaging the subsurface using induced electromagnetic or magnetic fields.
- Geotech
- Solar surveys
- Risk assessment
- Tank removal & inspection
- Landfill assessment

Contact

6800 Kitimat Rd., Unit 13
Mississauga, ON L5N 5M1
Phone: 416-657-2367
Toll Free: 1-888-267-4797
info@aelenv.com | www.aelenv.com

AELenvironment
A division of Aeon Egmond Ltd.