

## LAKEHEAD UNIVERSITY CENTRE FOR ANALYTICAL SERVICES



The Lakehead University Environmental Laboratory offers chemical and nutrient analysis of various sample types. The laboratory offers project support to both teaching and research at Lakehead University, offering performance based analytical methods and commercial laboratory turnaround times. The laboratory is accredited to ISO 17025 for many water and biological samples tests (see CALA.ca for a complete scope). The laboratory also demonstrates proficiency for various water and biological sample parameters through the National Water Research Institute [NWRI], the Canadian Association for Laboratory Accreditation [CALA] and the BROOKSRAND LABs [USA] programs. LUEL offers regional access to its facility, which can prove critical in analyzing time sensitive samples. The laboratory is currently being used for a number of research and development projects in Northwestern Ontario. Knowledgeable staff can help you with your sampling requirements and provide you with sample bottles, coolers and ice packs for your project.



### SERVICES

- Nutrients Analysis: Total N, TKN, Ammonia, Total P, DOC, DIC
- Total and Dissolved Metals, Cations, Hardness, Extractable metals
- Silicates [SiO<sub>2</sub>]; N and P speciations
- Cyanide: Total, Free [WAD], Thiocyanates
- pH, Alkalinity, Conductivity
- Anions (F, Cl, Br, NO<sub>2</sub>, NO<sub>3</sub>, PO<sub>4</sub>, SO<sub>4</sub>)
- Mercury, Methylmercury
- Residual Chlorine
- Chlorophyll
- Suspended and Dissolved Solids
- Biological Oxygen Demand (BOD<sub>5</sub>), Chemical Oxygen Demand (COD)
- Impurities in Sodium Chlorite



### CALA-ISO17025 SERVICES

- Water [Alkalinity, pH, Conductivity, Nitrogen, Phosphorus, and TSS]
- Biological Samples [Metals, Mercury, Methylmercury]

### ON SITE SERVICES

- Environmental Effects Monitoring (EEM)
- On-Site Microcosms and Mesocosms studies
- Effluent time of travel and dispersion studies
- Bioremediation of disturbed land/ contaminated field
- Plant Re-establishments in remediated wetlands



## SAMPLE TYPES

- Water
- Wastewater
- Effluent
- Leachates
- Soils, Sediment
- Fish Tissue, Benthic tissue
- Plants, Foliage
- Hair



LUEL offers custom services for the determination of analytes in atypical matrices. Staff will work with the clients to develop performance based methods specific to their project requirements. If you require more in-depth research, projects can be developed that include work by Lakehead University graduate students.

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Dr. Peter Lee, the Academic Director has research interests in wetlands management and limnology. He has developed specialized techniques for characterization of aquatic sediments, aquatic plant aquaculture and plant toxicology-bioassay which have proven to be valuable for wetlands management. Dr. Lee with graduates students is currently working on research projects at a mine site in Northwest Ontario; these include research various water quality and lake mixing prediction models and apply the most appropriate model(s) to assigned lakes, another research involve *Remediation of Contaminated Soils from Mine Sites using Native Plants in Northwestern Ontario*.

Dr. Lee is also actively involved with the construction and monitoring of wetlands to improve the water quality leaving heavily impacted sites. He is particularly involved with the cultivation of wild rice. The Environmental Lab is specifically equipped for such projects. The Laboratory has been working with First Nations to evaluate contaminants in their food; such as fish, berries and wild game. The contaminants of interest were total heavy metals, total mercury and methylmercury. The laboratory also assessed level of these contaminants in human tissue using hair samples. The study was conducted in partnership with the First Nation Communities in Northwest Ontario, during the period of May 2012 to present and will continue over the next year. It is designed to determine the levels of environmental contaminants in the tissues of First Nations people; to correlate these levels with freshwater fish and wild game consumption; and to provide trends of human exposure to environmental contaminants. The laboratory will also investigate the rate of increase of mercury methylation from the increase discharge of sulfate in the water system, which in turn would increase the level of mercury in fishes.



[www.lucas.lakeheadu.ca](http://www.lucas.lakeheadu.ca)

## CONTACT INFORMATION

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