

ABSTRACT: APPLICATION OF GC X GC ANALYTICAL PACKAGES TO ENVIRONMENTAL PETROLEUM FORENSICS

Two-dimensional Gas Chromatography is the next step in environmental analytical capability. The application of this technology to environmental releases was brought to the forefront by research and academic groups following the Deep-Water Horizon release in the Gulf of Mexico. Data generated from this research demonstrated the capability to better fingerprint hydrocarbon releases to enable more accurate source apportionment and better characterize the evolution of releases over time in the environment. This enables more comprehensive risk assessment and more informed reclamation and remediation programs by better identification and characterization of the risk released product poses to the ecological setting they are found in and other sensitive receptors nearby. GC x GC also offers a definitive way to easily parse apart natural, biogenic signal common to high carbon soils in the Alberta's boreal region; potentially aiding in reducing the ecological footprint associated with remediation and reclamation activities in these sensitive areas.

SPEAKER: MATTHEW ENDSIN, M. SC., MANAGER, FORENSIC SCIENCE, AGAT LABORATORIES

Matthew has garnered a wealth of knowledge from his diversity of technical and professional experiences since first graduating from the U of R in 2008. Following his BSc, he began as a research technologist with the EVRAZ R&D centre—investigating materials properties, product optimization, method development, and metallurgical analysis and reporting of product failures.

In 2010, Matt returned to the U of R to earn his MSc in Biology, studying the genetic components of the endocrine stress response in Sea Lamprey. Following this Matt ventured to New Zealand to apply his chemistry background with the Fonterra R&D centre. Here, Matt worked on new method development, investigating new products composition—including sugars, fatty acids, and gangliosides—for new markets, product development, and product optimization. Upon his return to Canada, Matt joined with Applied Aquatic Research in Calgary as an Aquatic Biologist; consulting on a variety of projects—including aquatic construction, habitat assessment and remediation, and interpretation of water and soil chemistry data.

Since 2015 Matthew has been a strong contributor to the AGAT Laboratories network with his most recent role as the Forensics manager where he oversees AGAT's Environmental, Petroleum, and Arson Forensics team.



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