The ecological direct soil contact pathway is currently ubiquitously applied to all land use scenarios at all depths; however, at some depth, ecological exposure will no longer occur (CCME 2006). The depth at which the ecological direct contact pathway is no longer a relevant factor has not been determined. Remediation due to the assumption that the ecological direct soil contact pathway applies to various chemicals of potential concern (COPC) at all depths may lead to unnecessary surficial disturbance and degradation to overlying vegetation, without resulting in risk reduction.

Millennium EMS Solutions Ltd. (MEMS) in association with InnoTech Alberta (InnoTech) and funding from Petroleum Technology Alliance Canada (PTAC) looked to assess the applicability of the ecological direct soil contact pathway as it relates to agronomic receptor species for the White Area of the province of Alberta. Phase 1 (Agronomic Receptor Evaluation) included evaluating representative agronomic species found in Alberta and characterizing their effective rooting depths. In addition, the identified species were also evaluated based on their sensitivity to a common salinity parameter (i.e., electrical conductivity [EC]), which was selected as a surrogate COPC for the ecological direct contact pathway.

Using publicly sourced information (census data), nine species were found to represent more than 95% of the agricultural land use in the province. Of these species, one was identified to have the deepest rooting depth, with an effective rooting zone of approximately 1.5 m, and was identified as having a relatively low EC threshold limit. Results of the evaluation will be presented, along with implications of these findings to site management.

**André Christensen**

Mr. Christensen is an Environmental Scientist with Millennium EMS Solutions Ltd. He has been with MEMS for over 5 years and specializes in contaminated site risk assessment and porous media transport. He is passionate about developing innovative solutions to environmental challenges and enjoys working with individuals and organizations in the pursuit of progressing the industry towards a more sustainable future. Mr. Christensen holds a degree in Environmental and Conservation Sciences as well Soil Science from the University of Alberta.