

Collaborative Initiative to Review Sulphur Management Guidance

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Elemental sulphur is a unique contaminant with significant liability implications where present. The majority of sour gas plants built in the 1950s to early 1970s stored elemental sulphur in blocks, with hectare-sized base pads distributed among several dozen locations in Alberta. In northern Alberta, large stockpiles have also been extracted from oil sands, and sulphur impacts are also found near oil and gas refineries, sulphur transportation and storage locations. Several legacy sour gas plants are close to end of life and require final closure, while new facilities with sulphur handling continue to be constructed.

Sulphur is unique and challenging to manage because it is most often distributed heterogeneously onsite; creates both primary and secondary impacts; and, requires specialized and costly landfill disposal where applicable. Following removal of the original sulphur block, industry representatives and environmental consultants have found that managing residual sulphur impacts can represent up to 40 percent of a site's remediation cost! If not remediated, sulphur contributes to soil acidification and degradation, as well as extensive groundwater impacts, which may impede regulatory site closure.

Guidance for the management of sulphur-impacts is provided through Alberta Environment and Parks' (AEP) 2011 *'Guidelines for Landfill Disposal of Sulphur Waste and Remediation of Sulphur Containing Soils'*. With advances in environmental management approaches and changes in regulations since the document was issued, industry and practitioners have identified a need to explore options for updating guidance and management of sulphur impacts. A variety of management options have been independently evaluated and implemented by stakeholders over the years, which may broaden available approaches for remediating and achieving regulatory closure of sulphur-impacted sites.

A collaborative, industry-funded project has been developed by InnoTech Alberta, Matrix Solutions and S2 Environmental. The project includes outreach within the community of practice, involvement of regulators and industry associations, and development of a gap analysis document to address deficiencies and elaborate the challenges in current sulphur management requirements. Opportunities for managing impacts in ways that are more sustainable and economically feasible will be developed and presented. This talk will provide an overview of the project at its inception, including opportunities for engagement with the project.

Simone Levy

Ms. Simone Levy identifies and develops innovative approaches for the assessment, remediation and reclamation of land and water affected by industrial activities. Key focus areas include: improving process efficiency in addressing upstream oil and gas liabilities in Alberta; soil handling and remediation; risk assessment; accidental release prevention and management; and, program development to guide multi-stakeholder innovation initiatives. Her work also includes development, validation and optimization of remediation and reclamation technologies and processes, and integration of digital technologies to this line of work.

Sheila Luther

Ms. Sheila Luther is a Professional Agrologist with over 20 years of experience with environmental assessment and research projects with a focus on soil reclamation, contamination assessment and remediation. Her experience includes contaminated soils assessment and remediation, preconstruction and postreclamation assessments for oil and gas industry sites, environmental monitoring, literature reviews, technology transfer and research on soilwater contaminant interactions. She is a Principal Soil Scientist with Matrix Solutions Inc. and her current responsibilities include senior technical review, client liaison and portfolio management, and assessment, remediation, and reclamation program design and management.

James Freeman

James Freeman is an environmental consultant and entrepreneur, having worked in the US and western Canadian environmental services industry since 1985. In 1991 he founded Groundwater Solutions, which he merged with 3D Reclamation to form Matrix Solutions in 1998. As a Founder, Director and Principal Hydrologist at Matrix, James helped to grow that business to more than 650 employees by 2013.

In 2016, James left Matrix to form PIR-a Corp., which is committed to providing advice, products and delivery that meet clients' environmental objectives simply and efficiently. PIR-a does this in 2 ways, by rethinking and automating environmental workflows and through collaboration with industry partners. PIR-a's initial software offering, the Sample Management App, is currently in a beta testing phase for automating Phase 2 ESAs. In addition, he is the Program Director of S2 Environmental JV Inc., which is conducting a large remediation and reclamation program for CNOOC on the northeastern edge of Calgary.