

## Hydrology-Based Wetland Monitoring to Assess Potential Effects from Industrial Development in Alberta

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It is a condition of many recent *Environmental Protection and Enhancement Act* approvals for Alberta's industrial operators to monitor for potential effects to wetlands, specifically from groundwater or surface water withdrawals or from changes in surface flow patterns from construction of roadways, well pads or other infrastructure.

Wetland monitoring often focuses on changes in vegetation, which is an indirect effect of changes to hydrology, rather than on the direct effect: measurable and significant changes in water levels over time. Changes in vegetation in monitored wetlands, even if statistically different from control sites, are difficult to connect directly to industrial project activity. We have developed a different approach to wetland monitoring that is hydrology-based, addresses the approval conditions directly, and provides a defensible connection between impacts and project activity. This allows operators to understand how project activity or development is affecting local wetlands, and make appropriate changes to industrial practices in order to mitigate adverse effects.

### Jane Yetter

Ms. Yetter is the water resources manager at Integrated Environments. She is a geohydrologist specializing in contaminated site assessment and wetland hydrology with over 10 years' experience as an environmental consultant in Alberta. Her project experience includes groundwater and wetland work for clients in various industrial sectors including upstream and midstream oil and gas, minable and in-situ recovery oil sands projects, wood products, and fertilizer manufacturing. Jane understands the interactions of groundwater with surface water, bridging the gap between two traditionally separate fields.

### Pablo Pina Poujol

Dr. Pina Poujol is the lead hydrologist at Integrated Environments. He is an interdisciplinary expert with a background in hydrology, landscape ecology, and systems based theory. His work experience involves numerous interdisciplinary, collaborative-approach, and practice-oriented projects related to environmental planning and water resources in Alberta, other Canadian provinces, and abroad. His work contributes to a framework for integrated resources management that addresses the multiple challenges of today's landscapes and the sustainability of societies. Pablo is Vice-President of the Alberta chapter of the Canadian Water Resources Association.