We Have a Reclamation Certificate, But is it Good Enough? Long-term Reclamation Monitoring of Oil and Gas Footprints

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Recovery of ecological conditions at certified wellsites, pipelines, and other oil and gas infrastructure in Alberta may continue long after the reclamation certificate issue date, but this ecological recovery, or lack thereof, is not tracked or documented. Alberta's growing inventory of certified industrial footprints that may not have fully recovered to the intended objective of equivalent capability is perceived as a potential liability that detracts from government's stewardship commitments, and from industry's social license to operate on public and private land. The effectiveness of reclamation after site certification in Alberta's cropland, native prairie and forest land is not presently monitored, and published studies suggest that vegetation communities at reclaimed sites often differ from undisturbed areas (e.g. Desserud et al.

2010; Raab & Bayley 2012).

Over the past 50 years, expectations of Alberta's reclamation program have shifted from retuning useable land to its owners to addressing concerns of multiple stakeholders, with the overall trend being toward achieving historically relevant vegetation and wildlife (Powter et al. 2012). In keeping with Alberta's history of continuously [adapting] its industrial land conservation and reclamation program and related legislation in response to changing public expectations and improvements in reclamation science (Powter et al. 2012), this project will evaluate ecological condition of reclaimed/certified sites (and how this varies among ecosites and over time after certification) and achieve two principal objectives:

- Create a scientifically robust, transparent, and financially sustainable long-term reclamation monitoring system.
- Conduct a retrospective study of historical well sites to address key knowledge gaps that currently constrain the assessment of ecological recovery after reclamation.

The initial focus on well sites will provide a foundation for further work on other energy sector footprints.

A scientifically robust, transparent, long-term reclamation monitoring system will support the Alberta government's monitoring mandate and industry's social

license to operate on public and private land. Stakeholders expect the best available knowledge to be applied to environmental problems; there will be considerable uncertainty in the ability of operators to achieve meaningful reclamation (e.g. Lemphers et al. 2010) without credible, reliable data on the progression of recovery on reclaimed land.

The broader policy issues addressed by this project include those identified in Alberta Environment and Sustainable Resource Development's (2011) business plan, which lists the following priorities for advancing a cumulative effects management system:

- enabled by integrated environmental policies and a jurisdiction-leading regulatory system;
- informed by scientifically rigorous and transparent monitoring, evaluation and reporting;
- delivered in partnership with key stakeholders at the provincial, regional and local level

In addition to these policy issues, this project also addresses key knowledge gaps related to the recovery of ecological capability and function in reclaiming industrial footprints, through a retrospective study of historical well sites (see above).

Policy Issue The effectiveness of industrial footprint reclamation or functional restoration. One of the primary challenges facing the oil and gas industry is effectively returning a range of landscapes to

predisturbance or design conditions.

Knowledge Gap Reclamation effectiveness

Report