EnCana Shallow Gas Infill Development In The Suffield National Wildlife Area

Public Hearing – Calgary,
October 24th 2008

By

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ALBERTA RESEARCH COUNCIL

Objectives

- Advise the JRP on issues related to EnCana's EIS with regard to analysis of impacts, reclamation planning, proposed mitigation measures, conservation of rare plants and ecosystem integrity
- Determine if there was enough information in the EIS to meet the requirements of the JRP, with regard to the environmental effects of the proposed project and the significance of those effects.

Project Description: Infill Drilling Development Project

- 1,275 shallow sweet natural gas wells in the Canadian Forces Base Suffield National Wildlife Area over a three-year period. In addition, this project would add
  ~ 220 km of pipelines
- Associated infrastructure with this project includes sumps, water and waste disposal will be based outside of the NWA
- The overarching question: given sensitivity of the Suffield NWA and the high density of species at risk (http://www.mb.ec.gc.ca/nature/whp/nwa/suffield/dd02s00.en.html), what level of development can this ecosystem sustain?

Observations -EIS

- Uncertainties regarding environmental effects and cumulative effects.
- Uncertainties regarding effectiveness of the measures to mitigate environmental effects from project activities.
- Uncertainties regarding the effects of the project on Species At Risk (SAR) and their critical habitat.
- Well in wetlands and setback distances so that viable population of endangered species are not affected.

Observations (Interveners Submissions)

- Spread of invasive species
- Protection of critical for endangered wildlife and plants.
- Conflict with other land uses: military training, oil and gas, livestock/wildlife
- Compliance
- Lack of baseline data related to the project.
- Lack of a management framework for the Suffield NWA.

ASRD Benchmark Data-Suffield

Suffield Exclosure

Location SE 5-15-09-W4 Texture Clay Loam
Elevation 754m Range Site Loamy
Landform Hummocky Morainal Range Health Healthy (83%)
Range Survey Year 2005
Soil Series Ronalaine (ROL)
Reference Plant Community DMGA3
Species Common Name Average % Composition
Carex Sedge 49.7
Stipa comata Needle and Thread 16.9
Sphaeralcea coccinea Scarlet Mallow 6.4
Bouteloua gracilis Blue Grama Grass 3.2
Agropyron smithii Western Wheat Grass 1.7
Artemisia frigida Fringed Sage 0.3
Koeleria macrantha June Grass 0.1
Taraxacum officinale Dandelion 0.1
Total vegetation 89.0
Total bare ground and rocks 2.6
Total moss and lichens 2.0

Suffield Grazed

Location SE 5-15-09-W4 Texture Clay Loam
Elevation 754m Range Site Loamy
Landform Hummocky Morainal Range Health Healthy (83%)
Survey Year 2005
Soil Series Ronalaine (ROL)
Reference Plant Community DMGA3
Species Common Name Average % Composition
Carex Sedge 28.0
Stipa comata Needle and Thread 11.8
Bouteloua gracilis Blue Grama Grass 8.4
Artemisia frigida Fringed Sage 5.4
Sphaeralcea coccinea Scarlet Mallow 5.3
Agropyron smithii Western Wheat Grass 4.0
Koeleria macrantha June Grass 0.6
Coryphantha vivipara Cushion Cactus 0.3
Erigeraon caespitosus Tufted Fleabane 0.2
Poa sandbergii Sandberg Bluegrass 0.1
Total vegetation 82.3
Total bare ground and rocks 3.3
Total moss and lichens 10.0

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Indicators

September 27, 2005

Site: Neutral Hills Diverse Seed Mix

Legal Land Description: SW 35-037-07-W4

GPS

COMMUNITY TYPE:

Rough Fescue/Northern Wheatgrass/Needle and Thread

PLANT COMMUNITY:

Species	Common Name	Average Cover
FESTHAL	Rough Fescue	32.2
SYMPOCC	Buckbrush	10
ARTEFRI	Fringe Sage	3.85
AGROTRA	Slender Wheatgrass	3.8
CIRSARV	Canada Thistle	3.2
POAPRAT	Kentucky Bluegrass	2.8
STIPSPA	Porcupine Grass	2.5
ARTELUD	Cudweed Sagewort	1
ASTRPEC	Narrow-leaved Vetch	0.5
PSORARG	Scurf Pea	0.3
KOELMAC	Junegrass	0.2
AGRODAS	Northern Wheatgrass	0.2
ANDROCC	Fairy Candelabra	0.1
CREPTEC	Annual Hawksbeard	0.1
POTESPP	Potentilla	0.1
ACHIMIL	Yarrow	0.1
ASTESPP	Aster	0.05
	Total Veg	97.5
	Total Moss	1.7
	Total Bare Ground	2

PRODUCTION:

ESTIMATED (lb./ac.):

Forage:

Litter: 1299

RANGE SITE: Lo

SLM: HND4/HR2h

(Hughendon) Till – 0.DB

Range Health Assessment:
Healthy w/Problems(60%)
Ecological Status9/24
Community Structure 4/6
Litter 15/15 Stability-Erosion 6/6
Stability-Exposure 2/3 Weeds 0/6

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Indicators

Use of Terrestrial Arthropods to Evaluate Restored Riparian Woodlands

Kathy S. Williams 1 1 Department of Biology, San Diego State University, San Diego, CA 92182-5700, U.S.A.

Ants as Indicators of Restoration Success at a Uranium Mine in Tropical Australia

Alan N. Andersen 1 1 Division of Wildlife & Ecology, CSIRO Tropical Ecosystems Research Centre, PMB 44 Winnellie, NT 0821, Australia.

Anthropogenic Footprint

The anthropogenic footprint created by features detectable using digitized air photos was calculated for a variety of different habitat types. This produced some idea of the percentage of an area that had been directly affected by human activity, but…..

Pipeline Reclamation in Suffield

- Effective habitat loss.

- Reference to the Southern Alberta Sustainability Strategy with regard to the spread of invasive species.

- Control of non-native invasive forages should include all stakeholders.

Seeded to wheat

Reclamation Plan

Roughened soils surface: discourage the establishment of crested wheatgrass; slow down wind erosion; catch snow

Provenance testing

EnCana's Mitigation Techniques

- New minimal disturbance techniques, such as spider- plough, matching equipment to terrain, narrow trench installation, special tires on vehicles and timing of project are measures if fully implemented can reduced impact to the landscapes
- Traffic control methodologies to protect the vegetation, seed bank and soils
- Remote monitoring of gas wells, reduced site visitations
- New seed sources, ensure that native plant communities can recover relatively quickly
- Willingness to control invasive species such as crested wheatgrass and weed problems (should involve all stakeholders)
- Environment planning would be better if we know the various constraints, thus we have to rely on the Pre-disturbance assessment (PDA) process and it is justified.

EnCana's Past Reclamation Experiences

- Examples of some successful revegetation in the old AEC wellsites and in the southern NWA.
- However, there are also examples of failures showing poor vegetation cover, increased bare ground, eroded soils, presence of crested wheatgrass on reclaimed areas and cement/drilling muds left behind.

- Many of these problems are post construction that needs that could have been easily addressed.

Corporate Responsibility

- EnCana is a responsible operator and work on this project is important for Flint, our employees, and the community.
- Flint has experience in working in environmentally sensitive and protected areas, and we follow all environmental regulations.
- We provide specific training for all personnel involved, and have policies for managing work in sensitive areas, and use specialized equipment to minimize impact.
- We care deeply about the environment and do our utmost to protect it during our work.

Source: Flint Energy presentation (Medicine Hat)

Rare Plants As Listed By SARA

- Tiny Cryptanthe (*Cryptantha minima*)
- Sand-verbena (*Tripterocalyx micranthus*)
- Slender Mouse-ear-cress (*Halimolobos virgata*)

Wild begonia
(*Rumex venosus*)
Rank: S2S3

Sand nut-grass
(*Cyperus schweinitzii*)
Rank: S2

Propagation of Rare Plants from Historic Seed Collections: Implications for Species Restoration and Herbarium Management

Marlin L. Bowles 1 Robert F. Betz 2 Marcella M. DeMauro 3 1 The Morton Arboretum, Route 53, Lisle, IL 60532, U.S.A. 2 Northeastern Illinois University, Chicago, IL 60625, U.S.A. 3 Forest Preserve District of Will County, Joliet, IL 60433, U.S.A.

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Well Near/In Wetlands – No net loss of wetland functions (http://dsp-psd.pwgsc.gc.ca/Collection/CW66-145-1996E.pdf)

Big Bob –Wetlands?

- Landscapes pitted with numerous depressions or varying sizes, along with their associated vegetation offers a scenic variety to the otherwise featureless landscapes.

- These wetlands are usually more productive and wildlife uses these areas more disproportionately than any other habitat.

- Critical source of food.

Migratory Bird Legislation

• Migratory Bird Act of 1918 Convention between USA and Canada to protect habitat and environs necessary for bird survival

• Ramsar Convention – International treaty to protect the fundamental ecological functions of wetlands and their economic, cultural, scientific and recreational value.

Critical Habitats

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Recommendations

- Examine ‘baseline database to gauge cumulative effects. Bench mark data were being collected by DND staff. Results from the analysis of these benchmark data can help determine “the level of development that is ecologically sustainable”.

- Finalize the EMP (to include a management plan for the Suffield NWA).
- Involve DND, SEAC in the decision making with regard to siting of the wells and other infrastructures.

Recommendations (Cont'd)

- Identify all critical habitat.
- Avoid wetlands as they are key habitats to wildlife and adhere to set-back distances so as to minimize project activities on species at risk, given an estimated 50 to 100 preliminary well locations are predicted to fall within the specified 100m buffer.
- Recovery plan for all species at risk and to work with other agencies.
- Liability (if species under SARA are affected).

Recommendations (Cont'd)

- Habitat loss and fragmentation have large impacts on wildlife in different ways (e.g. psychological stress, etc.) and these should be minimized whenever possible.
- Mitigation measures should at best taken into account the potential for restoration of the land to pre-disturbance conditions.

Recommendations (Cont'd)

- Constrained areas/sensitive areas such as steep gullies and slopes are avoided as they can be difficult to reclaim. Avoiding these areas is sometimes the best mitigation techniques for reducing impacts

- Appropriate Management plan for the Suffield NWA (to include dealing with invasive species) to ensure the protection of ecosystems within the NWA must be in place to ensure that gas extraction activities in addition to other land users leads to lessen impact on wildlife and their habitats.

Recommendations (Cont'd)

- Regular monitoring is essential to discover and rectify any impacts that were not predicted/missed in the EIS and to ensure guidelines as set by the SARA are complied with.
- Loss of habitat critical to "species-at-risk" should not be permitted. There could be small changes happening in the landscape to a point (thresholds) where at which large shifts occurs that might be difficult to reverse

Recommendations (Cont'd)

- All employees should receive environmental awareness training during orientation. Training should provide information on various kinds of impacts and effects of those impacts.
- Employees should be held accountable for non-compliance.

Recommendations (Cont'd)

- SEAC's role and mandate may have to be redefine given the added responsibility should the proposed project go ahead with view of the spider web of Quasi bodies but more importantly to handle issues with project activities and ensure compliance so that activities such as debris left on site, wells within wetlands, ruts, sites being not adequately revegetated, and protection of critical habitats.

Recommendations (Cont'd)

- Close scrutiny of all project activities with DND's approval, especially when it comes to final sitings of the wells and associated facilities
- Severe consequences should be associated with violating these conditions.
- It should not be "status quo", we should raise the "bar", given we are dealing with a National Wildlife Area.

According to the "World Conservation Union" A protected area is dedicated to protection & maintenance of diversity and associated cultural resourced managed through legal and established objectives.

Closing Remark

- Environmental liabilities from resource extraction and other land use in the Suffield NWA should not be passed on to future generations.
- We should consciously, purposefully protect its biological, functional and genetic diversity, which serve as the foundation of human dignity.
- Can the proposed project be ecologically sustainable?