

Nova Scotia Energy Research & Development Forum
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CEAA EEM Review- Exploratory Drilling



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EEM Review Report

- The review was completed in October 2004.
- A copy of the final report is available on the Petroleum Research Atlantic Canada (PRAC) website under Library/Reports http://www.prac.ca/prac_4242.html

Regulatory Background

- **CEA Act** requires that federal authorities, such as the Offshore Petroleum Boards, **ensure an EA is carried out** prior to project approval
- **Most proposed projects** undergo a CEAA '**Screening**'; **Large scale projects** typically require either a **Panel Review** or a **Comprehensive Study**
- **CEAA regulations**: Inclusion List, Exclusion List, Law List, and **Comprehensive Study List**
- **Exploratory drilling** was included in the **Comprehensive Study List**

CEAA RAC

- The **CEA Agency's Regional Advisory Committee (RAC)** is composed of members from regulatory agencies, industry and non-governmental and fisheries organizations.
- A special sub-committee of the CEA Agency's Regional Advisory Committee (RAC) was formed to **review the inclusion of exploration drilling in the *Comprehensive Study List Regulations***.

CEAA Review of Exploratory Drilling

- This special sub-committee was **tasked** to determine whether:
 - an exploratory drilling **project** in a previously **'unassessed' area** should continue to require a **comprehensive study**
 - an exploratory drilling **activity** should require a **comprehensive study**
 - a **'screening'** level was **more appropriate** for exploratory drilling

EEM Review

- An important underlying consideration is the **state of science** associated with the potential environmental effects of exploratory drilling activities.
- To this end, the sub-committee designated Geoffrey **Hurley**, M. Sc. and Joanne **Ellis**, Ph.D. to carry out a **review of EEM** information
- The review was **funded** by CEAA , industry and various provincial governments and was administered by Petroleum Research Atlantic Canada (PRAC)

Purpose

Answer the following questions:

- *What **impacts** of exploratory drilling are **known**?*
- *What **impacts** are **uncertain**?*
- *What **gaps** currently exist in the scientific understanding of the **interaction** between exploratory drilling and the **receiving environment** including consideration of **cumulative effects**?*

Objective

- Identify and quantify effects of exploration on the natural environment specifically the potential impact, quantify its magnitude, estimate the likelihood of the occurrence, and indicate the level of certainty surrounding the scientific conclusions reached.

Scope

The review was not to include:

- consideration of **socio-economic** issues, **aboriginal** and traditional knowledge, public concern, industrial/employment **benefits**, **policy** issues, and **fisheries** conflicts;
- whether the effects are **significant**

Approach

1. Review of **scientific literature** to provide a synthesis of the broader scientific knowledge between exploratory drilling and the receiving environment
2. Review of pertinent **offshore Canadian EEM data** to evaluate the interactions between exploratory drilling and the receiving environment

Literature Review

- Key **summary reports** (i.e., EEM workshops held at the B.I.O. (2003 & 2001); US EPA; & the MMS)
- **Personal communications** with subject matter experts (i.e., Payne, Cranford, Gray, Neff)
- **Ellis** – *drilling wastes*
- **Hurley** – *routine & accidental discharges, rig emissions (i.e., noise, lights, flaring), physical environment*

Literature Review – Drilling wastes

- Composition
- Transport & Fate
- Physical & Biological effects

Canadian EEM Programs

- **Grand Banks** – White Rose Project; Terra Nova Project; Hibernia Project
- **Scotian Shelf** - Cohasset-Panuke Project, Encana H-08; SOEP NT #1; Chevron-Texaco Newburn-23
- **Beaufort Sea** – scientific study associated with drill ship and dredge noise and potential impacts on whales

Canadian EEM Programs

- **Radial gradient sampling design** – main axis along predominant current path
- **Far-field reference** station(s)
- **Pre** (baseline) & **post** drilling EEM surveys
- **Environmental components:** sediment quality, benthic habitat/communities; taint/body burden; fish health

Drilling Projects

- Number of wells
- Volume of discharges
- Mud types
- Drill site environment

The Rowan Gorilla V – Jack-up



West Navion - Drill Ship



Erik Raude - Semi-submersible



Results - Summary

- Multi-wells at same location had larger **contaminant zones of detection** than single wells (several km versus less than 1000 m)
- Changes in the **diversity and abundance of benthic organisms** were generally restricted to within 1000 m of drill site(s)
- Drilling discharges had minor effects on **fish health**

Results - Summary

- **Taint** has not been detected for any fish or shellfish species tested (one exception)
- Drilling **noise** levels are within the range of other marine industrial sources
- Potential **cumulative effects** of exploration drilling on the marine environment need to be considered in light of existing anthropogenic activities

Outcome

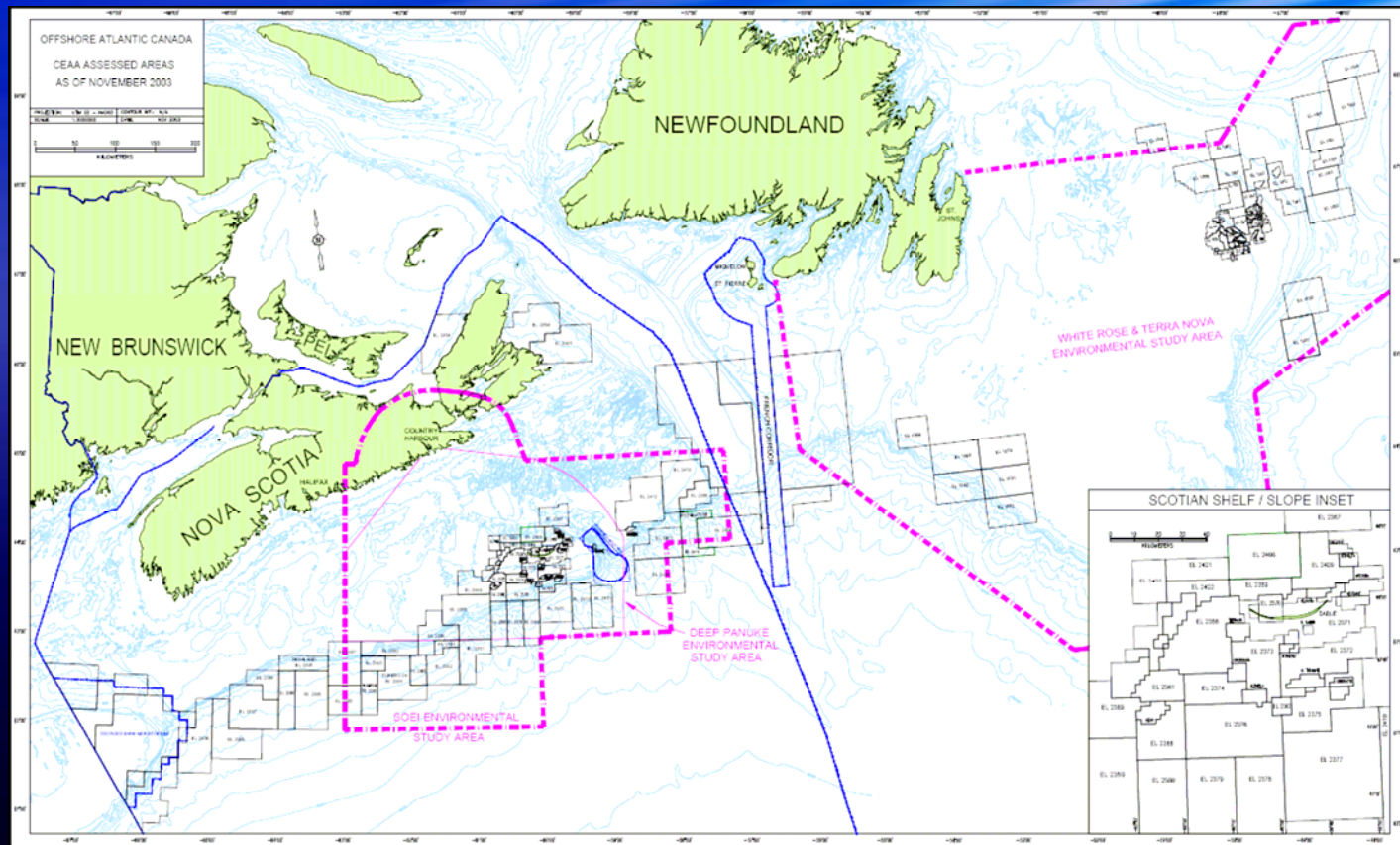
- The **results** of the review **were responsible in part** for a decision by the Honourable Stéphane Dion (Minister of the Environment and Minister responsible for the CEA Agency) to **change the Regulation** under the CEA Act

Outcome

- In his **announcement** of the decision on November 17, 2005, the Minister stated that:

*“The **science indicates** that the **environmental effects** of offshore oil and gas exploratory drilling are, in general, **minor, localized, short in duration and reversible**. Under the legislated criteria, a **screening** type assessment would provide an **appropriate** level of assessment for such projects.”*

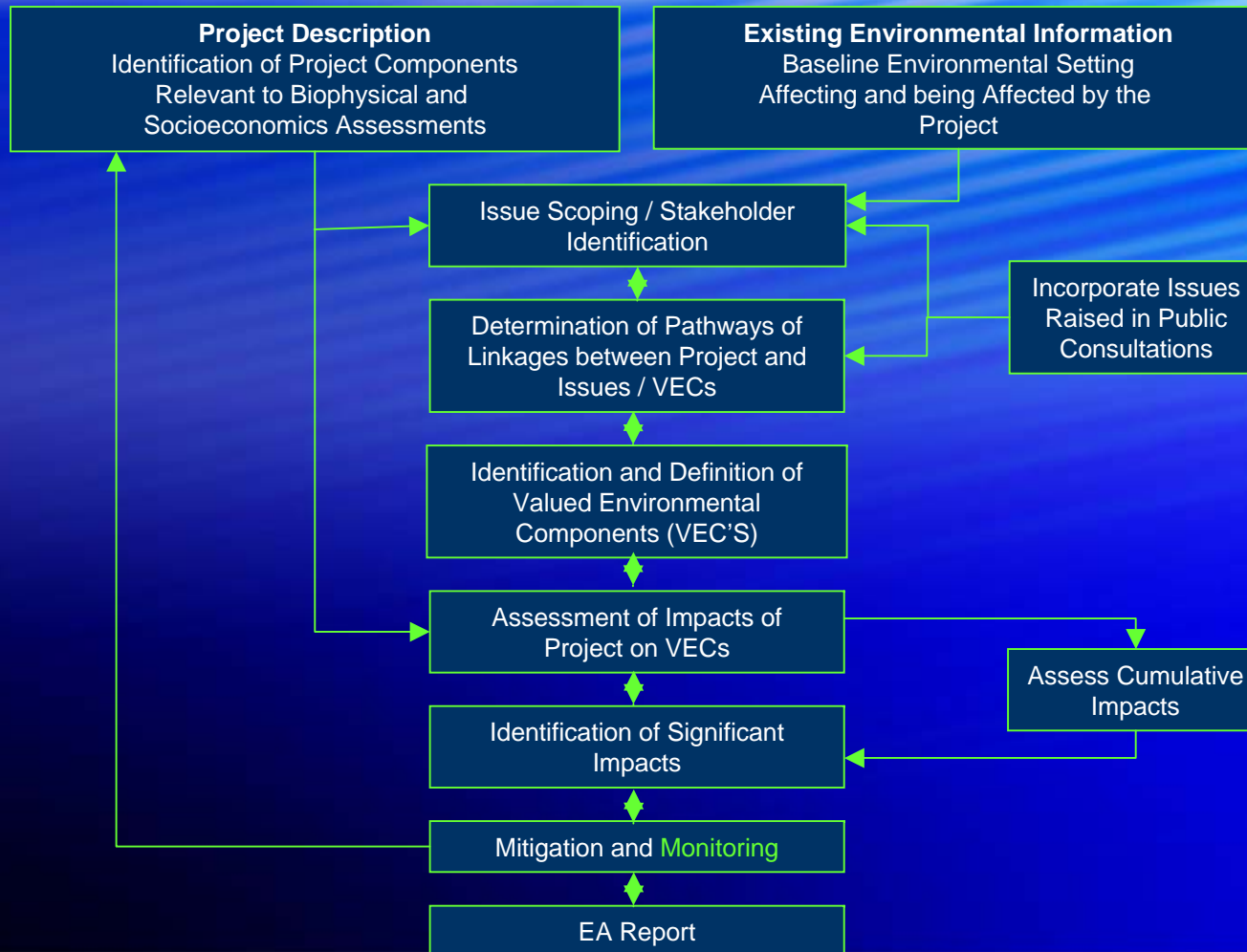
Implications – 'non-assessed' areas



Implications – EA Process

- Technical review and documentation similar
- Main differences are procedural

EA Process – Technical



EA Process – Procedural

	CS	Screening
Public Participation	Yes	Discretion of RA
Participant Funding	Yes	No
Ministerial Decision-making	Yes	No
EA Duration	12-18 months	3-10 months

Thank You

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