

ENVIRONMENTAL FOLLOW-UP AND MONITORING AT CANADA'S NATIONAL ENERGY BOARD

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Abstract

The National Energy Board (NEB) regulates the construction and operation of interprovincial and international pipelines, the construction and operation of international and designated interprovincial power lines, and frontier oil and gas activities outside of accord areas. The NEB primarily carries out its duties under the *National Energy Board Act* (NEB Act), the *Canada Oil and Gas Operations Act* (COGOA). The NEB also has responsibilities under the *Canadian Environmental Assessment Act* (CEA Act).

Environmental follow-up as defined under the CEA Act may differ from environmental monitoring as contemplated under the NEB Act. A rationale for the distinction between the terms follow-up and monitoring is provided. Follow-up is issue-specific while monitoring initially covers a broad range of environmental issues related to a project, then focuses on areas and issues of continuing concern. Monitoring can complement CEA Act follow-up. Through both types of activities, adaptive management takes place to protect the environment.

Companies can meet the requirements of both Acts as they design follow-up and monitoring programs for federally regulated pipelines in Canada. Examples of environmental follow-up and monitoring programs which have occurred on NEB-regulated projects are discussed.

Key words: follow-up, monitoring, National Energy Board.

Introduction

Canada's National Energy Board (NEB) considers environmental matters related to oil and gas projects under the *National Energy Board Act* (NEB Act), the *Canada Oil and Gas Operations Act* (COGOA), and the *Canadian Environmental Assessment Act* (CEA Act). Environmental follow-up and monitoring are two of the tools used by the NEB to promote environmental protection during construction and operation of federally-regulated energy infrastructure projects.

The terms follow-up and monitoring are often used interchangeably by environmental assessment (EA) practitioners when referring to programs designed to observe and develop actions to respond to environmental issues resulting from development projects. However, these terms have distinct meanings in legislation and guidance materials used by the NEB. As EA, management practices, and regulatory language have evolved, the NEB's approach to the concepts of follow-up and monitoring has also evolved.

This paper will compare and contrast follow-up programs as defined in the CEA Act and monitoring programs as defined in the NEB's *Onshore Pipeline Regulations, 1999* (NEB's OPR) and discuss the requirements for each. The NEB's experience with environmental follow-up and monitoring will be discussed¹.

Background

The NEB is a Canadian independent federal agency that regulates:

- Interprovincial and international pipelines;
- Pipeline transportation, tolls and tariffs;
- International and designated interprovincial power lines;
- Exports of oil, natural gas and electricity; and
- Frontier oil and gas activities outside of Accord areas (i.e., areas under COGOA).

The purpose of the NEB is to promote safety, environmental protection and economic efficiency in the Canadian public interest within the mandate set by Parliament in regulation of pipelines, energy development, and trade².

The NEB takes a life cycle approach to regulation of facilities and more specifically to regulation of environmental matters. The life cycle approach involves the following steps.

- Assess environmental implications of projects, including the facility design, construction and operation activities, decommissioning and abandonment;
- Issue regulatory decisions, and where approval is granted, issue authorizations with appropriate terms and conditions;

¹ The views, judgments, opinions and recommendations expressed in this paper do not necessarily reflect those of the National Energy Board, its Chairman or members, nor is the Board obligated to adopt any of them.

² For more information, refer to the NEB's web-site at www.neb-one.gc.ca.

- Conduct environmental inspections of facilities, ensuring compliance with terms and conditions, and assessing the effectiveness of mitigation;
- Monitor ongoing operation, ensuring reclamation and maintenance of the project site to acceptable standards; and
- Conduct environmental audits, evaluating environmental management systems and environmental programs.

The need for follow-up and monitoring programs is determined at the application phase. During construction and operation phases the NEB ensures that follow-up and monitoring programs are implemented.

To comply with conditions of authorizations, companies report the results of follow-up and monitoring programs. These reports not only provide feedback for use in future projects to encourage innovation, efficiency and adaptive management, they also ensure that companies are taking the appropriate steps to protect the environment during the construction and operation phases. Company submissions are also used to prioritize NEB environmental inspections. The results of these inspections, and NEB audits, are considered in assessing future applications.

Defining Follow-up and Monitoring

Legislation and regulations under which the NEB operates define the terms follow-up and monitoring. The NEB considers a follow-up program in the context of the CEA Act which defines it as, "...a program for verifying the accuracy of the environmental assessment of a project, and determining the effectiveness of any measures taken to mitigate the adverse environmental effects of the project." The NEB's OPR guidance notes define monitoring as "...ongoing observations made on a regular basis in an effort to ensure pipeline operation is within defined normal parameters." There can be overlap in the scope of these programs designed for NEB projects, but each program serves to accomplish different objectives.

The following table compares environmental follow-up programs as required under the CEA Act and environmental monitoring programs under the NEB's OPR.

Table 1: Comparison of Environmental Follow-up and Monitoring Programs

Follow-up	Monitoring
Focuses on a specific issue (e.g. particular effect of a project on an identified population of a species)	Broadly covers all environmental issues related to a project initially, then focuses on remaining areas and issues of concern; programs may apply to a specific project or to entire company operations
Verifies the accuracy of environmental assessment predictions	Not designed to verify the accuracy of environmental assessment predictions
Determines the effectiveness of mitigation measures (implies study and assessment due to uncertainty)	Ensures proper implementation of proven mitigation measures to achieve the mitigation goal (implies observation and corrective action)

Follow-up	Monitoring
Addresses unanticipated effects within the scope of the follow-up program	Addresses unanticipated issues or effects of the project in general

Guidance is provided on the use of the terms follow-up and monitoring in the NEB's Filing Manual³.

Whether a follow-up or monitoring program is used, if the results indicate an environmental issue, the NEB will require companies to implement corrective action to ensure adequate environmental protection. Adaptive management is applied in this context by evaluating the effects which are occurring, then changing or adding mitigative measures as appropriate to limit or reverse the environmental effects.

Compliance monitoring carried out by companies or the NEB may be a component within either type of program, used to confirm that mitigation measures are properly implemented. However, compliance monitoring is not sufficient on its own to meet the requirements of a follow-up program.

Follow-up Programs

Under the CEA Act the NEB must consider whether a follow-up program for the project is appropriate at a screening level and, if so, must ensure a follow-up program is designed and implemented. For an environmental assessment by mediation, review panel, or comprehensive study the NEB ensures an appropriate follow-up program is designed and implemented. The NEB is required to post information about any follow-up program and its results on the Canadian Environmental Assessment Registry⁴.

According to the Agency's operational guidance (CEA Agency, 2002), follow-up programs may be warranted when:

- There is a need to address project-related issues of public concern;
- There is a need to test the accuracy of the predictions of the environmental assessment;
- There is a need to verify that mitigation measures were effective or successful;
- The environmental effects of a project were assessed using new or unproven analytical or modeling techniques or the proposed project involves technology or mitigation measures that are new or unproven;
- There is limited experience implementing the type of project being proposed in the environmental setting under consideration; or
- The scientific knowledge used to predict the environmental effects of the proposed project is limited.

³ The Filing Manual identifies the information that regulated companies are expected to consider when they file an application with the NEB.

⁴ www.ceaa-acee.gc.ca/050/index_e.cfm

Follow-up programs can be time and resource intensive and should only be required where there is an identified need for a program based on the criteria set out above. In some instances, a monitoring program as discussed in the following section may be fully adequate to address any environmental issues and ensure that the environment is protected.

The NEB Filing Manual requires applicants to evaluate the need for a follow-up program in their applications. At the EA stage (i.e., under the CEA Act), other federal departments may be engaged in the review of an application. The NEB may receive specific comments or recommendations from federal departments such as Fisheries and Oceans Canada or Environment Canada. The NEB then considers the information provided by the applicant as well as the other federal departments in deciding whether it will require the applicant to conduct a follow-up program and for what issues.

The NEB requires companies to design their own follow-up programs. Through its decisions or conditions of authorizations, the NEB may communicate expectations for follow-up programs and identify expectations for consultation when developing the programs. This could require the company to further consult with a federal department or agency or other stakeholders. Companies are expected to allow stakeholders and the NEB adequate time to review and comment on program documents.

Monitoring Programs

Under section 39 of the NEB's OPR, a monitoring program is always required by for pipelines within its jurisdiction. The monitoring program provides an opportunity for a company to assure the NEB and the public that it is protecting the environment by implementing the measures committed to in its application and that the mitigation is functioning as intended.

The NEB's OPR indicates that a monitoring program may:

- Identify any issues or potential concerns that may compromise the protection of the environment;
- Include methods for developing measures to prevent or mitigate the effect of the identified issues;
- Provide for continued monitoring of sites to evaluate success of mitigative measures undertaken;
- Provide a system for implementing additional mitigative measures as necessary; and
- Provide a feedback system that allows for adaptation of successful mitigation to future pipeline projects.

Because of the NEB's broad mandate, the flexibility exists for it to expand monitoring programs to incorporate the objectives of follow-up programs as defined by the CEA Act. However, there is a need to make a distinction between the programs because of the difference in requirements between the CEA Act and the NEB's OPR.

For many pipeline construction projects in its jurisdiction, the NEB requires the filing of environmental post-construction monitoring reports as a condition of its authorizations.

NEB Experience –Monitoring

From 1989 to 1999, section 58(1) of the NEB's OPR allowed for environmental post-construction reporting at six months, one year and two years after construction for all approved pipeline projects where required by condition of authorization. In 1999 the NEB's OPR was amended and the section specific to post-construction environmental monitoring reports was removed from the regulations. Currently the NEB considers the need for post-construction environmental monitoring reporting on a case by case basis and requirements for reports are established through approval conditions. This change in the NEB's OPR allows the NEB to determine an appropriate reporting time-frame for the project and the reclamation goals, resulting in higher quality and more meaningful reporting.

Historically, little guidance has been provided to regulated companies as to what should be included in post-construction monitoring reports or on the level of detail required. As a result there have been substantial differences in the quality and usefulness of such monitoring reports. The NEB's Filing Manual⁵ provides new guidance for companies on the content of environmental post-construction monitoring reports. The information in monitoring reports should include: confirmation of proper implementation of mitigation and reclamation measures used, identification of the outstanding environmental issues, and discussion of the company's plans for how outstanding issues will be resolved. The guidance is intended to increase:

- Quality of the reports;
- Usefulness to the NEB in identifying known areas of concern; and
- Usefulness to future applicants in their preparation of EAs.

These types of historical monitoring reports and the NEB's own inspection program have identified several common areas of concern that arise from pipeline projects including: trench subsidence, erosion and slope stability, weeds, poor re-vegetation success, changes to crop productivity, access control, and station noise.

The objectives of monitoring programs must be clearly specified, so that the information reported is useful for assessing environmental effects and risks of similar future activities. Documenting and tracking mitigation practices is important as it can increase the confidence in the mitigation measures and therefore increase the predictive powers of future environmental assessments. Companies and regulators often make risk-based decisions and the greater the certainty around proposed mitigation, the lower the risks associated with that decision making. Monitoring can therefore be a useful tool to better understand the environmental implications of NEB-regulated projects.

⁵ Refer to Guide AA.

NEB Experience - Follow-up

Follow-up programs have been required by the NEB to address issues such as: soil heating, access control, protection of rare, threatened or endangered species, native prairie reclamation, and wetland protection. As a follow-up program is very specific to a particular project and issue, the design of the program will vary depending on the issue.

Examples of follow-up programs including the objectives, the design, and an overview summary of the results are provided.

North Suffield Pipeline⁶

The North Suffield Pipeline in southern Alberta, Canada transects the geographic range of Ord's kangaroo rat (*Dipodomys ordii*). Kangaroo rats are listed as a species of "special concern" nationally and have been recommended to be listed as "endangered" in Alberta. At the time of the application, no precedents existed upon which to base recommendations for mitigating of the effects of pipeline construction on the kangaroo rats. Therefore recommendations for mitigation were based on pre-existing knowledge of kangaroo rat behaviour and life history. A follow-up program was designed to evaluate whether the pipeline construction activities associated with the North Suffield Pipeline caused any measurable detriment (i.e., survivability) to kangaroo rats in the vicinity. Existing data about the population provided a meaningful context within which to understand the significance of the effects of the pipeline activities. The study design involved matching resident kangaroo rats along the pipeline route with a control group to allow comparisons of: summer, winter, and annual survival; reproductive rates; home range sizes and movements; foraging rates, and winter hibernation characteristics. (Gummer and Robertson, 2003)

Based on the results of the follow-up program, the study team concluded that the mitigation used was appropriate and reasonably effective at protecting the resident kangaroo rats. Adequate baseline data was an integral component to the design of the program. In the final report for the follow-up program, the study team made specific recommendations for mitigation measures for linear projects which interact with kangaroo rats.

Saint John Lateral

Maritimes & Northeast Pipeline Limited (M&NP) constructed the Saint John Lateral Pipeline Project in the fall of 2000. The project included a follow-up program to verify EA predictions that there would be no significant environmental effects associated with pipeline construction and operation in wetlands. The program was designed to specifically assess wetland habitat through comparison of pre-construction (i.e., baseline) and post-construction environmental conditions.

⁶ The pipeline was proposed and constructed by AEC Suffield Gas Pipeline Inc., but is now under new ownership.

The report concluded that the impacts on wetlands resulting from pipeline construction closely corresponded with those predicted in the EA. Protective measures detailed in the environmental protection plan were applied appropriately and appear to have successfully minimized impacts on wetlands. The report concluded that overall wetland integrity appears unchanged, including the hydrology, vegetation, and wildlife usage. (AMEC 2003)

Communication of Results

Follow-up and monitoring results are currently available through the NEB library, but there is a recognized opportunity to improve the availability and the communication of key results in the future. Communication of results both within the NEB and to external parties is key to improving future project design, mitigation and environmental assessment.

Summary

There are distinct purposes and requirements for follow-up and monitoring programs in relation to projects regulated by the NEB. There is some overlap between the programs but they serve to complement each other.

Applicants should consult the NEB's Filing Manual and the CEA Act guidance material when determining if follow-up may be warranted. Where warranted, the NEB requires companies to design their own follow-up programs through consultation with appropriate stakeholders. Follow-up programs can be time and resource intensive and should only be required where there is an identified need.

Monitoring programs are always required by the NEB's OPR, and post-construction environmental monitoring reports may be required as a condition of approval. Monitoring initially covers a broad range of environmental issues related to a project, then focuses on areas and issues of continuing concern.

By clearly defining the terms follow-up and monitoring the NEB can assist regulated companies in meeting the requirements of legislation and the expectations of stakeholders. Over time effective programs can improve the accuracy of EA predictions and increase the certainty of mitigation, contributing to environmental protection in the Canadian public interest.

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