Point Lepreau Environmental Assessment Follow Up Program

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Abstract

In August 2003, NB Power Nuclear received environmental approval from the Canadian Nuclear Safety Commission and the New Brunswick Department of Environment for modifications to the Solid Radioactive Waste Management Facility. Subsequently, an amendment to the Waste Facility Operating Licence was issued in January 2004 which approved the proposed modifications.

Both the environmental approvals and the amended licence required a follow-up program, consistent with the original environmental assessment. The program, approved in November 2004, consists of five components. This paper describes the program, and provides a summary of its status.

1. Introduction

Following a detailed environmental assessment process, NB Power Nuclear received environmental approval from the Canadian Nuclear Safety Commission (CNSC) [2] and the New Brunswick Department of Environment and Local Government (DELG) for modifications to the Solid Radioactive Waste Management Facility (SRWMF) (August 2003). Subsequently, an amendment to the Waste Facility Operating Licence was issued (January 2004 [3]) which approved the proposed modifications at the waste site.

Both the environmental approval and the amended licence included the requirement for the establishment of a follow-up program consistent with the original environmental assessment. Consistent with the requirements of the Canadian Environmental Assessment Act, the follow-up program is intended to verify the accuracy of the assessment and to determine the effectiveness of the measures taken to mitigate the adverse environmental effects of the project.

NB Power drafted the initial version of the Environmental Assessment Follow Up Program (the "Program") and made it available for public comment in May and July, 2004. Following the review period (with very few comments) the Program document was revised [4] and submitted to the regulator, and it was formally accepted on November 23, 2004.

2. Environmental Assessment Follow Up Program

The following are the five components of the Program, which were developed consistent with the CNSC Screening Report and NB Power Nuclear's environmental assessment study report [1]:

1. Internal assessments of health, safety and environmental programs;
2. Expansion of NB Power Nuclear's existing operational environmental radiation monitoring program;
3. Implementation of baseline, non-radiological monitoring;
4. Implementation of a construction environmental protection program; and
5. Continuing public consultation.

Each component has been included as part of the formal project activities and the program has been actively managed by NB Power in close co-operation with AECL, using a combination of in-house resources and consultants.

2.1 Internal assessments of health, safety and environmental (HSE) programs

NB Power has an internal process whereby staff conduct assessments of programs or processes, with the objective of identifying areas or opportunities for improvements. As part of the Program, NB Power committed to reviewing specific construction related HSE activities to ensure they were effective, and to initiate improvements where appropriate.

Three specific assessments were identified as part of the Environmental Assessment (EA) follow-up program:

- An assessment of the construction-related training program
- An assessment of the construction environmental monitoring programs:
- An assessment of the construction environmental management oversight activities.

These assessments were carried out during the construction period (2006), and each is summarized below (this information is also available on the project web site at http://poweringthefuture.nbpower.com). The results of each self assessment were tracked through the Station correction action process.

2.1.1 Assessment of Construction Related Training Program

The assessment of the construction-related training program [5] was completed in late June 2006, in accordance with station processes related to assessing and improving performance. The key findings of the assessment included:

- There are currently two types of environmental training offered depending on the nature of the employees work: Contractor Environmental Training and Management Environmental Training. This is in addition to conventional safety training and task specific qualifications (i.e. crane operators).
- All employees on the SRWMF construction site have received the appropriate training.

- Records for all employee environmental training are maintained.

In addition, interviews with construction staff (supervisors, engineers, foremen, operators and labourers) revealed that all levels of the organization have a very solid knowledge and understanding of the environmental protection aspects.

Two areas for improvement were identified and are being addressed. The first is related to eliminating inconsistency in the titles of training courses referred to in various training documents. The second is related to improving the documentation of employee Workplace Hazardous Materials Information System, fire and security awareness training.

2.1.2 Assessment of Monitoring Programs

The assessment of the monitoring programs focussed on monitoring that is being undertaken as part of the Construction Environmental Protection Plan (CEPP) [6], which was issued to support the Solid Radioactive Waste Management Facility (SRWMF) extension construction activities.

The assessment included interviews with site personnel, with the third party consultant (ADI) who conducts the monitoring, as well as field observations of actual monitoring activity. Issued monitoring reports were also reviewed.

The assessment concluded that the environmental sampling is meeting the requirements of the CEPP, and is being undertaken diligently and with good attention to Quality Assurance (QA). Two areas for improvement of the existing sampling and reporting regime were identified, and have been acted upon.

2.1.3 Assessment of Environmental Management Oversight Activities

The assessment of the environmental management oversight activities focused on the effectiveness of the Construction Environmental Protection Committee (CEPC) that is identified in the CEPP.

The assessment involved reviewing two separate internal assessments conducted by AMEC (who are working on contract to Atomic Energy of Canada Limited) and AECL, to document strengths and weaknesses with the make-up and operation of the CEPC. In addition, interviews were held with CEPC members to discuss possible improvements.

The conclusion was that the CEPC is working well, and there are no significant issues requiring actions at this time. It was noted that the site is working very well from an environmental perspective with minimal issues.

2.2 Expansion of the operational environmental radiation monitoring program

The existing operational environmental radiation monitoring program [7] is designed, in part, to:

- provide data to confirm compliance with release guidelines and regulations
- maintain a database of results to facilitate the detection of trends.

With the construction and operation of new structures at the SRWMF, it was necessary to expand the existing program to incorporate the new structures.

A consultant was appointed and made recommendations for modifications to the existing radiation monitoring program at the SRWMF. The required additional boreholes have been identified and installed, well before any operations of the new facilities start. The associated procedures and sampling are being implemented.

2.3 Implementation of baseline, non-radiological monitoring

The EASR provided a review of available information about the existing environment, and notes that the area around the SRWMF, and indeed the entire PLGS site, is considered "clean" from the perspective of conventional contaminants. In addition, based on fieldwork undertaken for the EASR, it was concluded that there is no sensitive fish habitat in the vicinity of the SRWMF. Although the EASR predicted no impacts from conventional contaminants on fish or fish habitat, it was considered prudent to establish baseline information on these subjects prior to any work so that, in the unlikely event of an incident, potential effects could be assessed.

Baseline information was gathered as follows:

a. a baseline inventory of fish in the nearby stream;
b. non-radiological baseline chemistry in the nearby stream; and
c. non-radiological baseline chemistry in groundwater around the waste site
d. radiological sampling of the nearby stream.

The results of all the surface water analysis were within Canadian Drinking Water Guidelines (CDWG). The surface water samples were taken from on-site streams close to the SRWMF.

A few of the groundwater samples from in and around the SRWMF had some parameters that were above the Aesthetic Objectives within the CDWG, which is often the case in New Brunswick, and is consistent with historical data presented in the Environmental Assessment Study Report. Specific chemical parameters above the CDWG were iron, manganese, sodium and chloride. Elevated levels of these parameters often lead to high color and turbidity, which was reflected in the results.

The fisheries inventory in streams near the facility found only eels and no other fish species.

The radiological sampling did not identify any unusual or higher than expected radiological parameters, and the results were consistent with results from the operational radiological environmental monitoring program (see above).

2.4 Implementation of a construction environmental protection program (CEPP)

The purpose of the CEPP was to ensure that the modifications required for expanding the SRWMF were constructed in an environmentally responsible manner, and that such activities complied with applicable federal, NB and local environmental protection regulations, PLGS environmental protection requirements, the pertinent commitments of the EASR and the CNSC Screening Report. Consistent with the expectations PLGS environmental management

system, the CEPP defined requirements, responsibilities and processes for all staff while working at the construction site being managed by AECL.

The construction environmental protection program documentation was issued prior to construction starting, and has been in place for the entire the construction period. The internal assessments noted above indicate that the CEPP worked well.

2.5 Continuing public consultation

Consultations have been on-going through various communications media such as the Powering the Future website, newsletters, and a toll-free information line.

3. Conclusion

The conclusion of the work conducted to date is that the predictions made in the environmental assessment study report were accurate, and that there have been no significant environmental effects related to the project. In addition, it is concluded that the mitigation measures undertaken, in particular the construction environmental protection program and the related training have been effective in assuring the appropriate management of environmental issues on site.

4. References

[1] Jacques Whitford Environment Ltd. May, 2003. "Solid Radioactive Waste Management Facility Modifications Environmental Assessment Study Report". Prepared for NB Power. Document *87RF-07020-7000-001-ENAA* Rev. 03.
[2] Canadian Nuclear Safety Commission. August 25, 2003. Record of Proceedings, Including Reasons for Decision – Environmental Assessment Screening Report – Proposed Modifications to the SRWMF.
[3] Canadian Nuclear Safety Commission. January 13, 2004. Record of Proceedings, Including Reasons for Decision in Matter of Application for an Amendment to the Waste Facility Operating Licences for the Point Lepreau Solid Radioactive Waste Management Facility.
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[5] Parkinson, D.; J. Brake; C. Hickman and J. Tamm. June 2007. "Training for Effective Environmental Protection in the Nuclear Industry". Paper presented at CNS Annual Conference Saint John, NB.
[6] Wong, T. December 2005. "Solid Radioactive Waste Management Facility Construction Environmental Protection Program" Document number 87RF-10260-0001-001-PGP-A-01
[7] McCulley, J., "Operational Environmental Radiation Monitoring Program. Point Lepreau Generating Station". Document *RD-01364-L15*.