

Canadian TSO Experience during Major National Exercise (Unified Response)

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The role of the Canadian Nuclear Safety Commission (CNSC) during a nuclear emergency is to provide assurance that appropriate actions are taken by the licensee and response organizations to limit the risk to health, safety, security of the public and the environment. This includes an independent assessment of the onsite conditions and potential offsite consequences as well as assessing and confirming both the licensee's and the responsible government's recommendations concerning protective measures. The Technical Support Branch (TSB) of the CNSC is the integrated TSO of the Canadian nuclear regulator and is responsible for conducting this independent assessment.

In May 2014, Exercise Unified Response (ExUR), a three day national level emergency preparedness exercise, was conducted at Darlington Nuclear Generating Station (DNGS). More than 50 government agencies and regional organizations, including the Government of Canada, the CNSC, the Government of Ontario, Ontario Power Generation, the Regional Municipality of Durham and the Municipality of Clarington worked together to test and validate emergency response plans and processes to demonstrate Canada's collective ability to respond to a nuclear emergency.

ExUR was a full scale severe accident emergency based on a single-unit loss-of-coolant accident followed by a tornado-initiated full station (4 unit) blackout. Day 3 of the exercise included a simulated radiological release in order to include participation from local authorities in carrying out protective measures for the public.

The CNSC fully activated its Emergency Operations Centre (EOC) for the duration of the exercise. Select staff from TSB formed the Technical Assessment Section which provided round the clock assessments of the accident progression, potential source term estimates, and subsequent dispersion and dose evaluations. The team established communication links with international players including the US NRC and the IAEA in order to share technical information and plant status updates.

The exercise highlighted many positive aspects of the CNSC response, but also identified areas for improvement. On a positive note the Technical Assessment Section's response indicated that it has a clear role and is able to carry out this role with well established procedures. However, the section was limited in its capability due to the limited plant data available. As well, with the large number of national and international players, the continuous requests for information showed that the section was undermanned.

The CNSC has noted all lessons learned and is committed to take the necessary steps to improve its technical response capability. An EOC Improvement Team has been established and will be focusing its efforts in five key areas:

1. Re-assessing the EOC venue;
2. Reviewing current manning levels so that all national and international obligations are met;
3. Improving plant data transfer during accidents from the licensee to the regulator;
4. Implementing a program to develop a state-of-the-art accident assessment tool package; and
5. Developing a comprehensive e-library repository of nuclear power plant information.

Implementation of the EOC Improvement Project will ensure that the CNSC Technical Assessment Section's processes and capabilities are in line with best international practices and allow the CNSC to fully meet its mandate during a nuclear emergency.

Country or International Organisation

Canada

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