

EXECUTIVE SUMMARY

This report describes the results of the OSART mission conducted for Belleville Nuclear Power Plant in France, from 15 November to 2 December 2021.

The purpose of an OSART mission is to review the operational safety performance of a nuclear power plant against the IAEA safety standards, make recommendations and suggestions for further improvement and identify good practices that can be shared with NPPs around the world.

This OSART mission reviewed eleven areas: Leadership and Management for Safety; Training and Qualification; Operations; Maintenance; Technical Support; Operating Experience Feedback; Radiation Protection; Chemistry; Emergency Preparedness and Response; Accident Management; and Human-Technology-Organization Interaction.

The mission was coordinated by an IAEA Team Leader and Deputy Team Leader and the team was composed of experts from Belgium, Canada, Czech Republic, Finland, Hungary, Romania, Slovakia, South Africa, United Kingdom, United States of America, and the IAEA staff members. The collective nuclear power experience of the team was approximately 400 years.

The team identified 16 issues, six were recommendations and 10 were suggestions. Five good practices were also identified.

Several areas of good performance were noted:

- The plant used a main control board layover plaque in the control room to increase awareness and high visibility on control rods status.
- The plant implemented the Human Performance Tool refresher training using the virtual ‘escape game’ approach at an on-site training facility.
- The plant developed an approach to identify essential equipment necessary to re-establish core cooling in extremely difficult situations with fluorescent tags.

The most significant issues identified were:

- Managers and supervisors should actively promote excellent performance in all activities important to safety.
- The plant should improve the control and implementation of reactivity manipulations to ensure precise plant control.
- The plant should improve the timeliness of corrective actions development and implementation and improve their quality and effectiveness to prevent recurrence of events.

Belleville NPP management expressed their commitment to address the issues identified and invited a follow up visit in about eighteen months to review the progress.

INTRODUCTION AND MAIN CONCLUSIONS

INTRODUCTION

At the request of the government of France, an IAEA Operational Safety Review Team (OSART) of international experts visited the Belleville Nuclear Power Plant from 15 November to 2 December 2021. The purpose of the mission was to review operating practices in the areas of Leadership and Management for Safety; Training and Qualification; Operations; Maintenance; Technical Support; Operating Experience Feedback; Radiation Protection; Chemistry; Emergency Preparedness and Response; Accident Management; and Human-Technology-Organization Interaction. In addition, an exchange of technical experience and knowledge took place between the experts and their plant counterparts on how the common goal of excellence in operational safety could be further pursued.

The Belleville OSART mission was the 213th in the programme, which began in 1982. The team was composed of experts from Belgium, Canada, Czech Republic, Finland, Hungary, Romania, Slovakia, South Africa, United Kingdom, United States of America, and the IAEA staff members. The collective nuclear power experience of the team was approximately 400 years.

Before visiting the plant, the team studied information provided by the IAEA and the Belleville Nuclear Power Plant to familiarize themselves with the plant's main features and operating performance, staff organization and responsibilities, and important programmes and procedures. During the mission, the team reviewed many of the plant's programmes and procedures in depth, examined indicators of the plant's performance, observed work in progress, and held in-depth discussions with plant personnel.

Throughout the review, the exchange of information between the OSART experts and plant personnel was very open, professional and productive. Emphasis was placed on assessing the effectiveness of operational safety rather than simply the content of programmes. The conclusions of the OSART team were based on the plant's performance compared with the IAEA Safety Standards.

The following report is produced to summarize the findings in the review scope, according to the OSART Guidelines document. The text reflects only those areas where the team considers that a Recommendation, a Suggestion, an Encouragement, a Good Practice or a Good Performance is appropriate. In all other areas of the review scope, where the review did not reveal further safety conclusions at the time of the review, no text is included. This is reflected in the report by the omission of some paragraph numbers where no text is required.

MAIN CONCLUSIONS

The OSART team concluded that the managers of Belleville NPP are committed to improving the operational safety and reliability of their plant.

The team found good areas of performance, including the following:

- The plant used a main control board layover plaque in the control room to increase awareness and high visibility on control rods status.
- The plant implemented the Human Performance Tool refresher training using the virtual ‘escape game’ approach at an on-site training facility.
- The plant developed an approach to identify essential equipment necessary to re-establish core cooling in extremely difficult situations with fluorescent tags.

A number of proposals for improvements in operational safety were offered by the team. The most significant proposals include the following:

- Managers and supervisors should actively promote excellent performance in all activities important to safety.
- The plant should improve the control and implementation of reactivity manipulations to ensure precise plant control.
- The plant should improve the timeliness of corrective action development and implementation and improve their quality and effectiveness to prevent recurrence of events.

Belleville management expressed a determination to address the areas identified for improvement and indicated a willingness to accept a follow up visit in about eighteen months.