

## EXECUTIVE SUMMARY

This report describes the results of the Pre-Operational Safety Review Team (Pre-OSART) mission conducted at Unit 3 of Mochovce Nuclear Power Plant in the Slovak Republic from 18 November to 5 December 2019.

The purpose of a Pre-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 Pre-OSART mission reviewed twelve 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; Human, Technology and Organization Interactions, and Commissioning.

The mission was coordinated by an IAEA Team Leader and Deputy Team Leader and the team was composed of experts from Brazil, Canada, China, Czech Republic, Finland, France, Germany, Hungary, Romania, Russian Federation, and UK, together with the IAEA staff members and observers from Austria, Italy, and Russian Federation. The collective nuclear power experience of the team was approximately 350 years.

The team identified 22 issues, resulting in 14 recommendations, and 8 suggestions. One good practice was also identified.

Several areas of good performance were noted:

- The plant has implemented the automatic actuation of low-pressure safety injection into the reactor should the water level fall below a set value during shutdown states to improve safety.
- The plant has developed and demonstrated a plant online crisis staff decision support tool to support event classification and prognosis in case of emergencies.
- The plant has adopted an effective way of interfacing and communicating with external organizations and interested parties, in particular with youth, to improve the awareness of nuclear power.

The most significant issues identified were:

- The plant has not fully developed and implemented an integrated and strategic approach to support the safe commissioning of the plant.
- High standards and expectations are not always set or applied with rigour to ensure safe operation.
- Unsafe behaviours and conditions in the plant are not always challenged and corrected by managers and supervisors in a timely manner to ensure safety of personnel and equipment.

Mochovce 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 the Slovak Republic, an IAEA Pre-Operational Safety Review Team (Pre-OSART) of international experts visited Unit 3 of Mochovce Nuclear Power Plant from 18 November to 5 December 2019. 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; Human, Technology and Organization Interactions, and Commissioning. 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 Mochovce 3 OSART mission was the 209 in the programme, which began in 1982. The team was composed of experts from Brazil, Canada, China, Czech Republic, Finland, France, Germany, Hungary, Romania, Russia Federation, and UK, together with the IAEA staff members and observers from Austria, Italy, and Russian Federation. The collective nuclear power experience of the team was approximately 350 years.

Before visiting the plant, the team studied information provided by the IAEA and the 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 Pre-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 Pre-OSART team were based on the plant's performance compared with good international practices.

The following report is produced to summarize the findings in the review scope, according to the OSART Guidelines document. In cases where common facilities, processes and staff are shared between Unit 3 and Unit 1 and 2 of Mochovce NPP, facts of relevant aspects of Unit 1 and 2 are included. 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 Pre-OSART team concluded that the managers of Unit 3 of Mochovce NPP are committed to improving the operational safety and reliability of their plant. The team found areas of good performance, including the following:

- The plant has implemented the automatic actuation of low-pressure safety injection into the reactor should the water level fall to below a set level during shutdown states to improve safety.
- The plant has developed and demonstrated a plant online crisis staff decision support tool to support event classification and prognosis in case of emergencies.
- The plant adopted an effective way of interfacing and communicating with external organizations and interested parties, in particular with young people, to improve the awareness of nuclear power.

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

- The plant has not fully developed and implemented an integrated and strategic approach to support the safe commissioning of the plant.
- High standards and expectations are not always set or applied with rigour to ensure safe operation.
- Unsafe behaviours and conditions in the plant are not always challenged and corrected by managers and supervisors in a timely manner to ensure safety of personnel and equipment.

Mochovce 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.