

## EXECUTIVE SUMMARY

This report describes the results of the Pre-OSART mission conducted at Flamanville Unit 3 Nuclear Power Plant in France from 17 June to 4 July 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 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; 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 Canada, Finland, Germany, Russia, Spain, Sweden, USA, and the IAEA staff members and observers from Russian Federation and Republic of Korea. The collective nuclear power experience of the team was 350 years.

The team identified 21 issues, resulting in 6 recommendations, and 15 suggestions. 8 good practices were also identified.

Several areas of good performance were noted:

- Liaison officer dedicated to Operating experience in sister plant Taishan for in-depth Operating experience sharing;
- Use of ‘post-Fukushima Box’ for fuel handling in adverse conditions;
- Effective implementation of a holistic Human Factors approach throughout the life cycle of the plant.

The most significant issues identified were:

- The plant should fully implement its Foreign Material Exclusion programme throughout all departments and areas to attain a high standard level of implementation;
- The plant should consider implementing procedures and practices to ensure that the potential impact of unsecured items on safety related equipment in seismically qualified areas is minimised;
- The plant should improve the arrangements and practices targeting the integrity of fire barriers and prompt fire suppression to ensure that fire risk is always minimized.

Flamanville 3 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 Pre-operational Safety Review Team (Pre-OSART) of international experts visited Flamanville Unit 3 Nuclear Power Plant from 17 June to 4 July 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 Flamanville 3 NPP OSART mission was the 206th in the programme, which began in 1982. The team was composed of experts from Canada; Finland; Germany; Russia; Spain; Sweden; United States of America; the IAEA staff members and observers from Russian Federation and Republic of Korea. 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 Flamanville Unit 3 NPP to familiarize themselves with the plant's main features and current 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 Flamanville Unit 3 NPP are committed to improving the operational safety and reliability of their plant. The team found good areas of performance, including the following:

- Liaison officer dedicated to Operating experience in sister plant Taishan for in-depth Operating experience sharing;
- Use of 'post-Fukushima Box' for fuel handling in adverse conditions;
- Effective implementation of a holistic Human Factors approach throughout the life cycle of the plant.

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

- The plant should fully implement its Foreign Material Exclusion programme throughout all departments and areas to attain a high standard level of implementation.

- The plant should consider implementing procedures and practices to ensure that the potential impact of unsecured items on safety related equipment in seismically qualified areas is minimised.
- The plant should improve the arrangements and practices targeting the integrity of fire barriers and prompt fire suppression to ensure that fire risk is always minimized.

Flamanville Unit 3 NPP 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.