

INTRODUCTION AND MAIN CONCLUSIONS

INTRODUCTION

At the request of the government of France, an IAEA Operational Safety Review Team (OSART) of international experts visited Flamanville 1&2 Nuclear Power Plant from 6 to 23 October 2014. The purpose of the mission was to review operating practices in the areas of Management, Organization and Administration; Training and Qualification; Operations; Maintenance; Technical Support; Operating Experience Feedback; Radiation Protection; Chemistry; Emergency Planning and Preparedness and Severe Accident Management. 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 1&2 Nuclear Power Plant is located at Flamanville, Manche, France on the Cotentin Peninsula. Flamanville NPP is one of the 19 French sites in the EDF Group. Flamanville NPP houses two PWRs that each produces 1300 Mwe and came into service in 1986 and 1987 respectively. Construction of a new EPR reactor at Flamanville 3 began on 4 December 2007. The new unit is an evolutionary type and is planned to have 1650 Mwe capacity.

The Flamanville 1&2 NPP OSART mission was the 179th in the programme, which began in 1982. The team was composed of experts from Belgium, Germany, Hungary, India, South Africa, Slovak Republic, Sweden, Russian Federation, United Arab Emirates (UAE), United Kingdom (UK), and the United States of America (USA), together with the IAEA staff members and observers from Brazil, UAE 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 Flamanville 1&2 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 Flamanville 1&2 NPP are committed to improving the operational safety and reliability of their plant. There is clear evidence that the plant has gained benefit from the OSART process. The IAEA Safety Standards and benchmarking with other French NPPs, recently hosting OSART missions, were used by the plant for self-assessment during the preparation for the mission.

The OSART team found several good practices, including the following:

- operational limits and conditions (OLC) display screens available in the main control rooms and tagging offices at each unit;
- comprehensive plant component tracking system (AIC) that is used at power and during outages, allowing operations personnel to easily track components that are not in the required position;
- maintenance logistical support teams, known as “Wrench time worksites” taking care of preparatory and post maintenance related activities and thus helping to improve the “hands-on-tool-time” of qualified maintenance workers;
- evident benefits to Flamanville 1&2 plant from availability of EDF nuclear rapid response team (FARN), set up following the Fukushima accident, to respond within 24 hours at a nuclear power plant affected by a severe accident in order to limit further deterioration of the situation;
- dispensers called "Radiabox" for small objects installed in dedicated places to provide quickly and easy dose rate meters to the workers outside the radiation controlled areas (RCA), thus reducing the need for entrance in the RCA to pick up dose rate meters needed for work performed outside of the RCA, as it used to be in the past.

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

- ensure adequate preparedness for the evacuation of the Flamanville and reinforce the preparation for protection of emergency workers;
- improve the management process for the preparation and revision of plant procedure and for control of staff adherence to plant procedures to ensure that the plant is always operated within established limits;
- enhance the rigor and supervision in the main control room during operator’s actions that impact important primary parameters;
- enhance maintenance work processes and practices to ensure high quality of plant maintenance;
- enhance the process of root cause analysis and perform analysis of operational events in sufficient depth.
- improve operational practices to ensure plant deficiencies are systematically identified and tagged adequately;

Flamanville 1&2 NPP management expressed a strong determination to address the areas identified for improvement and indicated a willingness to accept a follow up visit in about eighteen months.