

EXECUTIVE SUMMARY

This report describes the results of the OSART mission conducted at Torness Nuclear Power Station in the UK from 22 January to 8 February 2018.

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 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 & Organizational Interaction; and Long Term Operation.

The mission was coordinated by an IAEA Team Leader and Deputy Team Leader and the team was composed of experts from Belgium, Bulgaria, Canada, Finland, France, Hungary, The Netherlands, Russian Federation, Sweden, United States of America and the IAEA staff members. The collective nuclear power experience of the team was approximately 362 years.

The team identified 19 issues, resulting in 4 recommendations and 15 suggestions. 8 good practices were also identified.

Several areas of good performance were noted:

- The station adopted an Advanced Gas-cooled Reactor fuel floor mock-up in support of improved Fuel Route Training.
- The station developed a Marine Ingress Weather Alert System.
- The station developed Corrosion Cards to support the corrosion programme.

The most significant issues identified were:

- The station should improve its action plans, self-assessment programme, performance targets and measures in a more challenging and aggressive manner.
- The station should improve the quality and practice of using of operating procedures to fully ensure safe station operation.

The station should enhance its screening and categorization process to ensure that events are assigned the appropriate priority and investigated in accordance with their actual or potential significance.

The management of Torness NPS 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 UK, an IAEA Operational Safety Review Team (OSART) of international experts visited Torness Nuclear Power Station from 22 January to 8 February 2018. 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 & Organizational Interaction; and Long Term Operation. 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 Torness OSART mission was the 199th in the programme, which began in 1982. The team was composed of experts from Belgium, Bulgaria, Canada, Finland, France, Hungary, The Netherlands, Russian Federation, Sweden, United States of America and the IAEA staff members. The collective nuclear power experience of the team was approximately 362 years

Torness is owned and operated by EDF Energy, a subsidiary of EDF S.A. in France. The plant is situated on the east coast of Scotland near the town of Dunbar, approximately 50km east of Edinburgh. The plant consists of two Advanced Gas-cooled Reactors each with an associated turbine generator. Unit 1 commenced commercial operation in 1988 and Unit 2 in 1989. Each unit has a nominal net electrical output of approximately 615 MW and each is connected to the national 400kV power grid. Cooling water is drawn from the North Sea in a once-through cooling cycle. The reactors are normally refuelled on load at reduced reactor power. As a result, maintenance and inspection outages are conducted on a three-year cycle.

Before visiting the plant, the team studied information provided by the IAEA and the Torness station 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 Torness NPS are committed to improving the operational safety and reliability of their plant. The team found good areas of performance, including the following:

- The station adopted an advanced Gas Cooled Reactor Fuel Floor Mock-Up in support of improved Fuel Route Training.
- The station developed a Marine Ingress Weather Alert System.
- The station developed Corrosion Cards to support the corrosion programme.

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

- The station should improve its action plans, self-assessment programme, performance targets and measures in a more challenging and aggressive manner.
- The station should improve the quality and practice of using of operating procedures to fully ensure safe station operation.
- The station should enhance its screening and categorization process to ensure that events are assigned the appropriate priority and investigated in accordance with their actual or potential significance.

Torness NPS 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.