

EXECUTIVE SUMMARY

This report describes the results of the OSART mission conducted for Tricastin Nuclear Power Plant (NPP) in France, from 28 November to 15 December 2022.

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 Long Term Operation.

The mission was coordinated by an IAEA Team Leader and Deputy Team Leader and the team was composed of experts from Armenia, Bulgaria, Belgium, Canada, Czech Republic, Finland, Slovenia, Ukraine, the IAEA staff members and one observer from the United Arab Emirates. The collective nuclear power experience of the team was 418 years.

The team identified 14 issues, three resulting in recommendations, and 11 in suggestions. Seven good practices were also identified.

Several areas of good practice were noted:

- The plant had established the position of a regional liaison and communication officer, to reinforce the plant's interaction with the region's general public, the elected officials and economic decision-makers, and to establish a strategy for creating a network of allies to support the future long-term operation of the plant.
- The plant uses personal hydrazine exposure measurement devices for the plant personnel who have the potential to be exposed to hydrazine.
- The plant uses 'Calculator' for identifying fire risk-sensitive jobs. The plant had available to all personnel a tool to identify jobs with specific fire-related hazards. The IT-based tool used straightforward questions to assign a score that reflects the likelihood and potential severity of fire-related hazards.

The most significant issues identified were:

- The plant should consider ensuring that the management expectations are systematically set and consistently reinforced to ensure that observed performance deficiencies are addressed in an effective and timely manner.
- The plant should enhance the rigor with which operators carry out field walkdowns in line with plant expectations.
- The plant should enhance its work management system to ensure that work is completed to schedule and maintenance backlogs are minimized.

Tricastin Nuclear Power Plant management expressed a determination to address the areas identified for improvement and indicated a willingness to accept a follow up visit in about 18 to 20 months.

INTRODUCTION AND MAIN CONCLUSIONS

INTRODUCTION

At the request of the government of France, an IAEA Operational Safety Review Team (OSART) of international experts visited Tricastin Nuclear Power Plant from 28 November to 15 December 2022. 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 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 Tricastin OSART mission was the 215th in the programme, which began in 1982. The team was composed of experts from Armenia, Bulgaria, Belgium, Canada, Czech Republic, Finland, Slovenia, Ukraine, the IAEA staff members and one observer from the United Arab Emirates. The collective nuclear power experience of the team was 418 years.

Tricastin NPP is strongly mobilized to deploy a large-scale industrial programme spanning the decade 2018 to 2028, known as the Grand Carénage, the plant refit programme. This involves the completion of a 4th cycle of ten-year outage inspections known as VD4 including French regulatory periodic safety review (PSR), whereby the plant seeks permission to continue operating its reactors up until the 50-year mark. The plant is the first in France's 900 MW fleet to roll out the Grand Carénage while also being the first of the 900 MW plants to have completed a VD4. To date, the 4th cycle of ten-year outage inspections had been successfully completed on reactor Units 1, 2 and 3. The last one is planned at the beginning of year 2024 on Unit 4. Tricastin's workforce had produced a wealth of unique operating experience that it has shared with the other 900 MW plants in order to help them successfully complete the other VD4 outage inspections being carried out across the fleet.

Before visiting the plant, the team studied information provided by the IAEA and the Tricastin 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 Tricastin NPP are committed to improving the operational safety and reliability of their plant.

The team found good areas of practice including the following:

- The plant had established the position of a regional liaison and communication officer, to reinforce the plant's interaction with the region's general public, the elected officials and economic decision-makers, and to establish a strategy for creating a network of allies to support the future long-term operation of the plant.
- The plant uses personal hydrazine exposure measurement devices for the plant personnel who have the potential to be exposed to hydrazine.
- The plant uses 'Calculator' for identifying fire risk-sensitive jobs. The plant had available to all personnel a tool to identify jobs with specific fire-related hazards. The IT-based tool used straightforward questions to assign a score that reflects the likelihood and potential severity of fire-related hazards.

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

- The plant should consider ensuring that the management expectations are systematically set and consistently reinforced to ensure that observed performance deficiencies are addressed in an effective and timely manner.
- The plant should enhance the rigor with which operators carry out field walkdowns to ensure plant expectations are met.
- The plant should enhance its work management system to ensure that work is completed to schedule and maintenance backlogs are minimized.

Tricastin Nuclear Power Plant management expressed a determination to address the areas identified for improvement and indicated a willingness to accept a follow up visit in about 18 to 20 months.