

INTRODUCTION AND MAIN CONCLUSIONS

INTRODUCTION

At the request of the government of the Russian Federation, an IAEA Operational Safety Review Team (OSART) of international experts visited Smolensk Nuclear Power Plant from 5 to 22 September 2011. 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; and Chemistry. 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.

Smolensk NPP is situated in the south of Smolensk region at a distance of 3 km from the town of Desnogorsk. The plant operates three 1000 MW units with RBMK type reactor. RBMK reactors are graphite moderated water cooled channel type reactors with a single cooling circuit. The units were commissioned in 1982, 1985 and 1990. The scope of the review was unit 1 with the common plant auxiliary and support systems needed for the operation of unit 1. The design lifetime of unit 1 expires in 2012. Activities to support lifetime extension including detailed safety assessment are on-going.

The Smolensk OSART mission was the 165 in the programme, which began in 1982. The team was composed of experts from China, India, Lithuania, Slovakia, South Africa, Sweden, UK, USA, WANO, together with the IAEA staff members and observers from Bulgaria and Sweden. The collective nuclear power experience of the team was about 300 years.

Before visiting the plant, the team studied information provided by the IAEA and the Smolensk 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 IAEA Safety Standards and good international practices.

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 Smolensk NPP are committed to improving the operational safety and reliability of their plant. The team found good practices, including the following:

- Illuminated hot spot wire to identify enhanced radiation is used in the radiation controlled area to reduce exposures when working in the controlled area;
- Modern and state-of-the-art training infrastructure and facilities, such as: Maintenance Training Centre, multimedia simulator for the refueling machine, and safety training facilities for radiation, fire and industrial safety;
- Set of handbooks for self study with an overview of events at plants in Russia and other countries;
- Comprehensive and fast-acting information system on the reactor status, including a detailed assessment of the neutron field in axial and radial directions.

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

- To ensure that a plant specific equipment qualification programme is developed and implemented;
- To improve the condition of cables trays and the routing of cables to ensure that the condition of cables is maintained at a high standard;
- To ensure that the surveillance programme for systems and equipment important to safety more effectively validates equipment's required safety performance;
- To improve the measurement methodology for the confinement system in order to ensure that the equivalent leak cross section is determined with sufficient accuracy.

Smolensk NPP management expressed a determination to address the areas identified for improvement and indicated a willingness to host a follow up visit in about eighteen months.