

## INTRODUCTION AND MAIN CONCLUSIONS

### INTRODUCTION

At the request of the Government of India, an IAEA Operational Safety Review Team (OSART) of international experts visited Rajasthan Atomic Power Station (Units 3&4) from 29 October – 15 November 2012. 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; Radiation protection; Chemistry; Emergency planning and preparedness and 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 Rajasthan OSART mission was the 171<sup>st</sup> in the programme, which began in 1982. The team was composed of experts from Belgium, Canada, Finland, Germany, Romania, Slovakia, Slovenia, Sweden and the IAEA staff members. The collective nuclear power experience of the team was approximately 350 years.

Rajasthan Atomic Power Station-3&4 (RAPS-3&4) is located at Rawatbhata town of Rajasthan state in the district of Chittorgarh, Rawatbhata. Rajasthan site is a multiunit site having five operating units with gross generation capacity of 1080 MWe and two construction units each of 700 MWe rated capacity. Rajasthan Atomic Power Station-3&4 consists of two identical Pressurized Heavy Water Reactor (PHWR) Units of 220 MWe each. RAPS-3 attained first criticality in December-1999, was synchronized with grid in March-2000 and began commercial operation in June-2000. RAPS-4 attained first criticality in November-2000, was synchronized with grid in November-2000 and began its commercial operation in the December-2000.

Before visiting the station, the team studied information provided by the IAEA and the Rajasthan Atomic Power Station to familiarize themselves with the station's main features and operating performance, staff organization and responsibilities, and important programmes and procedures. During the mission, the team reviewed many of the station's programmes and procedures in depth, examined indicators of the station's performance, observed work in progress, and held in-depth discussions with station personnel.

Throughout the review, the exchange of information between the OSART experts and station 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 station'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 Rajasthan Atomic Power Station are committed to improving the operational safety and reliability of their plant. The team found good areas of performance, including the following:

- Safety culture that cultivates a positive environment for conduct of work and a sense of ownership amongst plant personnel, and gives the opportunity to expand skills and training.
- Management of Training & Authorization system for effective management of training activities.
- Use of testing facilities and mock-ups to improve quality of maintenance work and reduce radiation doses.
- Easy accessibility of Operating Experience detailed information to plant personnel and effective use.
- Backup cooling connections as a post-Fukushima action and the operation crews routinely carry out exercises to execute preventive accident management measures with these backups.

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

- The fire doors inspection and maintenance program should be enhanced to identify and correct more effectively deficiencies which could affect fire doors function.
- The station should enhance actions to maintain cables conditions at high standard.
- The station's surveillance testing program by functional checks should be enhanced.
- The station should improve analyses of root causes in order to systematically identify all learning opportunities.
- Site emergency control centre should be upgraded for post-accident habitability and continuous environmental monitoring.

Rajasthan Atomic Power Station management expressed a determination to address the areas identified for improvement and indicated a willingness to accept a follow up visit in about fifteen months.