

INTRODUCTION AND MAIN CONCLUSIONS

INTRODUCTION

At the request of the Government of Japan, an IAEA Operational Safety Review Team (OSART) of international experts visited Mihama Nuclear Power Plant from 20 January to 5 February 2009.

The plant is located at the northwest tip of the Tsuruga Peninsula 11 kilometers northwest of Tsuruga City, 47 kilometers southwest of Fukui City, in the town of Mihama, Mikata County, Fukui Prefecture. The plant is owned and operated by the utility KANSAI ELECTRIC POWER CO. INC. (KEPCO).

The Mihama site contains three units with pressurized water reactors with total capacity of 1666 MW. Unit 1 has two loops Westinghouse/Mitsubishi Nuclear with rated output 340 MW commenced operation in November 1970, Unit 2 has two loops Mitsubishi Nuclear with rated output 500 MW commenced operation in July 1972 and Unit 3 three loops Mitsubishi Corporation rated output 826 MW commenced operation in December 1976.

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; and Emergency planning and preparedness. 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 Mihama OSART mission was the 150th in the programme, which began in 1982. The team was composed of experts from Czech Republic, France, Germany, Hungary, Romania, the Slovak Republic, South Korea, Sweden, United States of America, together with the IAEA staff members and an observer from China. 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 Mihama plant to familiarize themselves with the plant's main features and operating performance, staff organization and responsibilities, and important programmes and procedures. The team studied Unit the 3 secondary system cooling system pipe rupture event and KEPCO countermeasures against the recurrence of similar events. 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.

MAIN CONCLUSIONS

The OSART team concluded that the managers of KEPCO and Mihama site are committed to improving the operational safety and reliability of their plant. This is clearly demonstrated by KEPCO President Declaration "Ensuring safety is my mission and company mission", five Fundamental action policies and implemented measures for safety improvements. Many programmes and activities were established, implemented, reviewed, and improved after August

2004 pipe rupture event. The team was impressed with the scope and quality of these programmes and activities. The team recognized that Mihama site management and staff are committed to safety and are knowledgeable and very professional.

The team found good areas of performance, including the following:

- KEPCO and their NPP sites developed a comprehensive process to assess their own safety culture every year. From this assessment, issues were identified and countermeasures are planned, implemented, and reviewed
- The instructors at the Nuclear Operations Support Center (NOSC) and Nuclear Power Training Center (NPTC) have been selected from amongst those with senior experience and skills in the nuclear power plant
- A surveillance camera network that operates simultaneously with the fire alarm was established for the safety of, inter alia, operators during the initial response in the case of a fire incident
- Field supervisors conduct pre-job "Tool Box Meetings" to give instructions on the day's work and reinforce safety, quality, and other precautions to workers
- Sharing near-miss information through the Near-Miss Reporting Conference jointly organized by Mihama NPP and contractors
- Automatic resin separation by the use of the colour tone charge coupled device camera (CCD) in the demineralizer resins regeneration process
- Comprehensive off-site emergency drills, including resident evacuation have been conducted every year with Mihama NPP participating every four years. Fukui Prefecture conducts annual off-site emergency drills with participation of hundreds of local residents, which are quite comprehensive
- Plant material conditions, cleanliness, and housekeeping are good taking into account the age of the units

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

- The plan should consider the consistent application, throughout all sections, of the development, trending, and use of performance indicators
- The plant should consider implementing a control process which provides requirements which must be followed to ensure an operator, who has been absent from licensed duties for an extended period of time, has the required skills/knowledge/abilities evaluated and restored
- The plant should further improve the practice of combustible materials control to make it more efficient
- The plant should consider enhancing the trending of surveillance test results with the aim to detect any degradation of systems, structures, and components at an early stage
- The plant should further develop and control procedures and improve quality control practices in the chemistry laboratory
- The plant should update the emergency preparedness arrangements for taking all practicable measures to provide protection for all individuals who are on the site during radiological emergencies
- The plant should consider a broader exposure of personnel to overseas practices

Mihama 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.