

INTRODUCTION AND MAIN CONCLUSIONS

INTRODUCTION

At the request of the government of the People's Republic of China, an IAEA Operational Safety Review Team (OSART) of international experts visited Hongyanhe Nuclear Power Plant from 6-23 February 2012. The purpose of the mission was to review operating practices in the areas of Management organization and administration; Operations; Maintenance; Technical support; Radiation protection; Operating Experience, Chemistry; Emergency planning and preparedness; and Commissioning. 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.

Hongyanhe plant is located at Hongyanhe Town, Wafangdian City, Liaoning Province, on the eastern seashore of Liaodong Bay, Bohai Sea. It is 270km south of Shenyang, the capital city of Liaoning Province, and 110km north of Dalian, the second largest City of Liaoning Province.

The phase I of Hongyanhe NPP (shortly known as HNPP) was the first nuclear power project approved by the government in the National 11th Five-Year Plan (2006-2010). HNPP phase I has four PWR units, named as CPR1000, the capacity of each unit is 1,000MW. They will be put into operation successively from 2012 to 2014.

Liaoning Hongyanhe Nuclear Power Co., Ltd., shortly known as LHNP, is established on August 28th, 2006. It is jointly invested by the China Guangdong Nuclear Power Holding Corporation (CGNPC), the China Power Investment Corporation (CPI), and Dalian Construction and Investment Company (DCI) with 45%, 45% and 10% equity ratio respectively, taking charge of construction and commercial operation of the HNPP.

The scope of the Pre-operational OSART review was unit 1. Arrival of fuel at the site is scheduled for April 30th, 2012, first fuel loading for unit 1 July 1st, 2012

The HNPP Pre-operational OSART mission was the 167 in the programme, which began in 1982. The team was composed of experts from Belgium, Bulgaria, Hungary, France, South Africa, the United Kingdom, the United States of America, WANO and together with the IAEA staff members and observers from Bulgaria, Czech Republic and Finland. The collective nuclear power experience of the team was approximately 380 years.

Before visiting the plant, the team studied information provided by the IAEA and the Hongyanhe 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.

MAIN CONCLUSIONS

The OSART team concluded that the managers of Hongyanhe NPP are committed to establishing a good level of operational safety at HNPP as they approach first fuel loading.

The OSART team has identified some good practices at Hongyanhe NPP such as the use of the simulators data control system to monitor operators human performance; the use of photos on the Events Screening Team Meeting to facilitate a quick and common understanding by all participants of the problems; and the computerized emergency decision support system.

The team also identified proposals for management consideration to improve its activities. The team addressed in the commissioning part of the report areas where improvements are needed before reaching the up coming safety milestones like fuel on site and fuel loading. The most important examples are:

- There should be a single set of standards drawn up under the leadership of the plant for commissioning and transfer activities, and with the strong support of the construction company.
- Both LHNP and CNPEC should re-enforce compliance with standards through field supervision industrial safety.
- The plant should perform a systematic independent assessment of all safety related activities.
- The plant should re-enforce its expectations to CNPEC in the area of high standards for foreign material exclusion, housekeeping and cleanliness in order to avoid potential damage to safety equipment.
- And temporary modifications should be taken into account systematically after turn over if they are still active.

In addition to these, the team identified issues that have an impact on a longer term, among them:

- The plant should implement a performance based self-assessment program of training activities and higher standards of training performance.
- In several areas the plant shall re-enforce strict adherence to standards and expectations, improve processes and practices.
- In some activities some programs are not yet fully effective.

Even if the plant staffs are young and sometimes lack of experience, the team considers that their eagerness to learn, their openness, and their dedication are real strength. The start-up period is unique for them to get familiar with systems and components and build their knowledge and experience.

The senior management of the plant expressed a determination to address the areas identified for improvement and indicated a willingness to accept a follow up visit in about eighteen months.