

Nuclear Security –Integrated licence for Operation of first unit of Barakah NPP in the United Arab Emirates

This paper presents the process of the licence for operation of Unit 1 of Barakah Nuclear Power Plant (NPP) that has been followed by Federal Authority for Nuclear Regulation (FANR) in regards with the nuclear security requirements of the United Arab Emirates (UAE). FANR, the nuclear regulator of the UAE in accordance with the Federal Law by Decree No. 6 of 2009 on Peaceful Uses of Nuclear Energy, has to issue, for nuclear power plant, a construction licence and an operation licence (for loading of the fuel and operating the unit); the commission part is inside construction and operation licences. Through its Integrated Management System (IMS), FANR has established an integrated (safety, nuclear security and radiation protection) process for both licences of nuclear power plant. In the construction phase, the security team of FANR has mainly to focus on the protection against theft of category III of nuclear material when the nuclear unirradiated fuel is stored. FANR has to ensure that this storage of nuclear material is in accordance with the requirements of the regulation FANR-REG-08, for Physical Protection of Nuclear Material and Nuclear Facilities. For the operation of Unit 1 of Barakah NPP, the focus has to be moved to look more at the radiological sabotage issue. The process of licence for operating a Nuclear Power Plant has begun with the submission by ENEC (Emirates Nuclear Energy Corporation) to FANR of the Final Safety Analysis Report (FSAR). The FSAR followed the Preliminary Safety Analysis Report (PSAR), provided for the construction phase of the Unit 1 of Barakah NPP and includes a Chapter 20 on physical protection. The Chapter 20 is a summary of the Physical Protection Plan (PPP), which contains sensitive nuclear information not to be disclosed to the public. FANR security team has reviewed the PPP for operation as well as the associated documents such as the target sets analysis, the cyber security program manual, the vulnerability assessment and the contingency plan. During the period of reviewing, from 2015 to 2019, FANR security team has Request Additional Information (RAIs) –150 - to ENEC and ENEC have answered in accordance with the regulation and/or the regulatory guides developed. The number of RAIs decreased to attain nil after the process is achieved. For the operation of the plant, it is also needed to verify that the plant has been constructed as per the requirements from the safety and the nuclear security. FANR has done this task through inspections. Especially, FANR security team verified that the physical protection system is conform to the description formulated in the PPP for operation. The findings were immediately communicate to ENEC to correct the observations before the loading of the fuel. Finally, FANR has to check the readiness of the unit to operate. FANR performed inspections and general exercises (emergency and security) to ensure that the unit is ready to operate. For example, FANR security team conducted inspection on the security organization on the site as well as all the related procedures. The security exercise has been performed by ENEC to demonstrate and improve the effectiveness of the Physical Protection Plan in the protection of the Nuclear Power Plant using scenarios up to and including the Design Basis Threat (DBT). For the issuance of the licence for operation of Unit 1 of Barakah NPP, FANR gathered the three following reports: the global Safety Evaluation Report (SER) on the FSAR, for both safety and nuclear security, the report on the findings of inspections (construction as design), the report on the findings following the inspection for readiness to operate and the results of exercises, for both safety and security.

Gender

Female

State

United Arab Emirates

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