Appendix-1

A report on installation of the Circulating Cooling System for Spent Fuel Pool, Unit 1, Fukushima Daiichi Nuclear Power Station (summary)

1. Summary

At Unit 1 of Fukushima Daiichi Nuclear Power Station (“Unit 1”), due to the Tohoku-Taiheiyou-Oki Earthquake, both external electricity supply and emergency generators were lost and the function of the Spent Fuel Pool Cooling and Filtering (Clean up) System (“FPC”) that removes the decay heat from fuel stored in the Spent Fuel Pool was lost.

At this moment, as a temporary measure, we connected a fire hose to piping of the FPC and are supplying freshwater to account for the water evaporated from the Spent Fuel Pool intermittently.

As such, using the existing FPC facilities (FPC system pumps, FPC system heat exchangers etc) and temporary secondary system pools, air fin coolers etc (“Circulating Cooling System”), there is a need to remove the decay heat from the spent fuel continuously, reduce the volume of water evaporation from the Spent Fuel Pool and at the same time, contain reduction of water level in the Spent Fuel Pool and ensure that spent fuels are submerged.

2. Implementation plan

(1) System configuration

The system is comprised of (i) a system that circulates water in the Spent Fuel Pool through the heat exchanger (“Primary System”) and (ii) a system that releases heat from the Primary System to ambient air by a cooling tower (“Secondary System”). Please refer to attachment 2.

① Primary System: use the existing FPC. FPC is comprised of pumps, a heat changer, piping, valves and I&C equipments.

② 二 Secondary System: comprised of pumps, a cooling tower, a surge tank, valves and I&C equipments. Heat from the Primary System is transferred to the Secondary System by the heat exchanger and released to the ambient air by the air fin cooler.

(2) Performance

The evaluation result was, six days and a half after full operation of this Circulating Cooling System (after reaching rated flow), the water temperature of the Spent Fuel Pool went down to approx 65 ℃. We are of the opinion that the Circulating Cooling System

has sufficient cooling capacity. One month after, the temperature will be approx 53 ℃.

(3) Construction schedule

We are planning to begin the installation work at the site from early July and complete early August.

3. Safety principle

Stable cooling of the Spent Fuel Pool is of high priority in restoring the incident. Safe, steady and swift implementation is the principle.

4. Measures for securing safety

(1) Soundness of the facility

a. durability and seismic resistance

In order to protect the facility from aftershocks and maintain the operability and soundness, we will adopt the earthquake-resistant design of at least the same as ordinary industrial facilities.

b. Possible impact by Tsunami

The possibility of Tsunami influencing the Primary System of the Circulating Cooling System is assumed low. We are able to maintain submersion of the spent fuel by resuming intermittent water supply by the fire engine in stand-by at the west side of Main Anti-Earthquake Building.

c. Anti-corrosion measures

As countermeasures for anti corrosion to the Spent Fuel Pool, we are supplying deoxygenized freshwater and injecting chemicals.

(2) Anti leakage measures

In order to minimize leakage from the Primary System to outside of the system and outdoor, we will implement the following to the Circulating Cooling System:

- We will install radiation monitors to the Secondary System of the heat exchanger in order to detect leakage from the Primary System to the Secondary System by setting off alarm. In the event of leakage, we manually stop the Circulating Cooling System.

(3) Protection from radiation

する。In order to lower exposure of workers during installation and operators during operation as reasonably achievable, we will implement the following:

- In order to shorten the installation time, to unitize the connecting piping and supports.

- Avail the remote supervision of operation status by a monitor in the Main Anti-Earthquake Building.

(4) Operation and maintenance of the facility

We will implement operation and maintenance of the facility in order to maintain the long term stable cooling of the Spent Fuel Pool by the Circulating Cooling System.

a. operation

- To check abnormalities such as leakage
- To check signs of malfunctions and take appropriate measures at an early stage

b. maintenance

- Replace consumables as appropriate

5. Duration of operation

By maintaining the facility per above 4 (4), we believe that the facility can be operated continuously.