

## **Improvement of TEPCO's ALARA process**

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### **Abstract**

Radiation exposures to be maintained ALARA becomes more and more important with increasing material inspection and preventive maintenance work. The involvement of radiation protection staff in refueling outage work planning process is essential for success of ALARA implementation at NPP. For example, providing the radiation protection's expectation to the work-planning step enables radiation work more efficiently with worker's ALARA awareness. We reviewed the "As-Is" ALARA program and improved the dose planning and evaluating process by focusing on the interface with radiation protection staff and maintenance staff.

### **Introduction**

Tokyo Electric Power Company (TEPCO) had made a great effort to reduce radiation exposure by radiation field control and ALARA management. Radiation Protection (RP) staff members had played an important role of the dose reduction with chemistry members. As long as conventional dose reduction measures concerned, RP put more weight on cost effectiveness of dose reduction measures than the system of ALARA process. It is high time for us to pay more attention to the improvement of ALARA process. TEPCO organized project team to improve our ALARA program.

### **Approach**

Conventional ALARA process was reshaped by;

- Reviewing "As-Is" ALARA process
- Identifying a gap between "As-Is" and "To-Be" process
- Focusing on the interface between RP and maintenance work process at planning and post-outage steps

The objective is to incorporate ALARA considerations into work process more efficiently and effectively.

### **"As-Is" ALARA problems**

The project team firstly did brainstorming for identifying gaps of current process. Then the team focused the following problems;

#### **(1) Lack of long-term target**

In "As-Is" process, there is an annual dose plan in every station. We estimate the annual and the outage dose plan. We track the trend and also analyze the differences between the plans and actual dose as well.

However, the annual plan is just a projection, not a goal where TEPCO should go.

#### **(2) Lack of communication of RP and maintenance group**

Although RP is currently involved in maintenance work processes, there are some weak points from the viewpoint of communication between RP and maintenance. RP should involve more positively to the maintenance group. In these points, RP could provide more suggestions or feedbacks to the maintenance personnel for reducing dose.

**Improved Process**

Figure.1 shows the scope of the activities. The team dedicated to improve two main processes. In setting mid- and long- term dose target process, we made a new process of basic policy for long term dose goal and improved current dose target process. Basic policy for the long-term dose target is authorized by nuclear power plant management department director with their to-be expectations, such as achieving world BWR’s top-quartile of exposure reduction performance. The policy could be assessed with the annual dose results and reviewed if necessary. In the mid-/long-term and annual plans, the site president decides his vision of dose performance by considering two performances. One is expected performance which is based on basic policy and benchmarking. The other is the projection-based performance which is assumed by some data, such as future schedule (e.g. operation plan, improvement works, dose reduction measures) and past performance (e.g. general outage dose, improvement work dose, operational dose). Setting “targets” in the basic policy as well as mid/long-term and annual plans, will clarify the direction of our exposure reduction. As for outage dose target process, we focused on three maintenance steps: work planning, work reviewing and post outage step. In these steps, RP personnel can communicate to enhance the relations by;

- Proposing dose reduction measures to maintenance team and join before outage contract.
- Sharing information of detailed work schedule with maintenance team and contractors.
- Preparing outage report with lessons learned in the outage and reporting out to maintenance team.

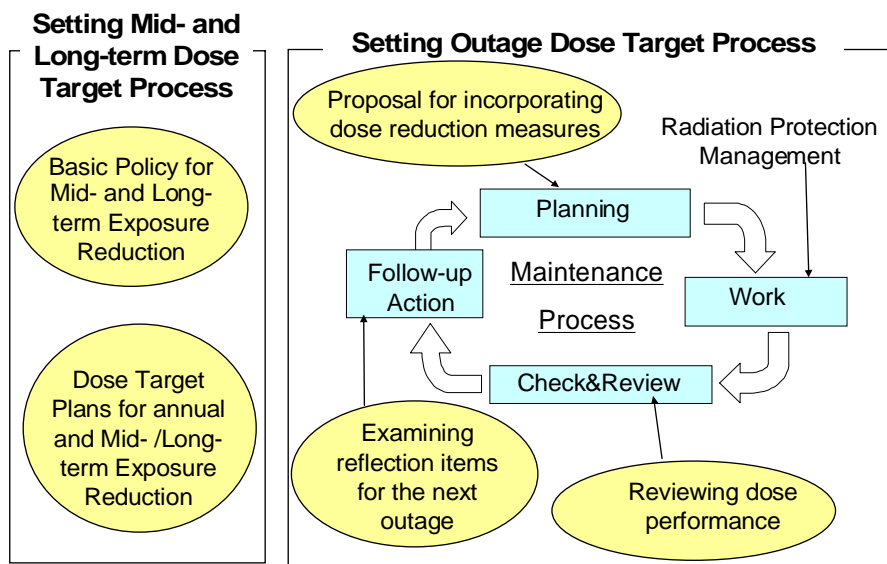


Figure.1 Scope of activities

**Implementation Program**

Mid- and long-term dose target process is now being implemented by identifying site slogan and target value beyond 2007. Outage dose target process is also conducted at each station with choosing one or two plants

for the trial. Each site selects a couple of high radiation jobs for the trial implementation which identifies validity of process and issues before the start of full implementation. Process performance will be evaluated after this year's implementation.

### **Summary**

This improvement of TEPCO ' s ALARA process is expected that ;

- Setting "targets" in the basic policy as well as mid/long-term and annual plans, will clarify the expectation of the management and the vision of exposure reduction.
- RP can provide more suggestions or feedbacks to the maintenance personnel in the outage dose target process by enhancing communications, then ALARA activities goes more effectively and efficiently.