

**Actions of Nuclear Safety Oversight Office**

**-Nuclear Safety Reform Plan Progress Report (4<sup>th</sup> Quarter, 2014)-**

**1. Recent Operational Performance.**

There were serious industrial accidents at all TEPCO sites in January. NSOO visited all the accidents scenes, talked with relevant staff and is observing the actions being taken to prevent recurrence of such events. TEPCO management is taking these events seriously and is making adequate effort to identify the causes, learn lessons and prevent recurrence. NSOO will continue to observe.

However, NSOO is concerned that human failings are sometimes seen as the primary cause of the accident. Even the best workers will make mistakes and it is TEPCO's responsibility to provide a safe place of work that protects the worker from the consequences of mistakes. Therefore NSOO has injected the following thinking into the reviews:

- Layers of Defense (LoD) logic should be used for Industrial Safety;
  - 1<sup>st</sup> LoD - Safe by Design; Wherever possible equipment should be designed without hazards.
  - 2<sup>nd</sup> LoD - Protect; Not all designs can be totally safe. Risk assessments must be carried out and guards, protection and warning notices installed.
  - 3<sup>rd</sup> LoD - Management of the Risks; Procedures should be in place and processes should ensure that only trained people can carry out the tasks.
  - 4<sup>th</sup> LoD - Personal Protective Equipment; PPE should be specified if required and always worn.
  - Underlying Defense - Safety Culture and Risk Awareness;
- NSOO is also concerned that the improvements currently being implemented might not be sustained in the longer term. These accidents follow on from other serious incidents. We have failed to learn from previous events effectively and quickly. NSOO has recommended that;
  - The learning process is reviewed by executive management to ensure it is fully effective – learning is fundamental to good safety.
  - Line management should develop and strengthen their own oversight and verification of lessons learned. Managers should instruct, trust but also verify

that the instructions are carried out – this should include verification of actions by TEPCO and also by contractors.

- Many of the contributing factors to these events are factors that NSOO has made observations and recommendations on before; e.g. schedule pressure, work control, risk assessment, failure to learn. So NSOO has analyzed why it has failed to prevent these accidents. NSOO concluded that it has not been strong enough or clear enough in setting and following up actions.

## **2. External Advice to NSOO**

NSOO constantly seeks external world class advice to benchmark its standards and to supplement its resource.

### **2.1 The Nuclear Safety Task Force<sup>1</sup> (NSTF) considered and provided advice on the recently completed TEPCO strategic document – Improvement of Nuclear Safety.**

The NSTF considered this a good strategic document which, when implemented, will improve safety. They noted the introduction of Corporate Functional Area Managers, the use of Key Performance Indicators, and the use of WANO Performance Objectives and Criteria and Traits of a Healthy Nuclear Safety Culture is impressive steps. The extra advice they gave concerned the need to implement the plans rigorously using strong leadership and project management discipline

### **2.2 NSTF gave advice on the performance and recent self assessment of NSOO.**

NSOO is in its second year and wants to improve its standards. It invited NSTF to provide guidance on improvement. NSTF were impressed at how well established and accepted NSOO had become in such a short time. The advice they provided included:

1. NSOO must continue its training and expand the skill set of the NSOO team.
2. NSOO is working on too wide a front. It should re-establish its main priorities.
3. NSOO should be more precise with its recommendations and make the escalation processes more robust so that its observations have a more immediate impact.

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<sup>1</sup> The NSTF is chaired by Lady Judge and has 6 international nuclear safety experts. It advises TEPCO on nuclear safety through NSOO. It met on February 7<sup>th</sup> and 8<sup>th</sup>.

### 2.3 NSOO facilitated the visit of an IAEA security expert<sup>2</sup> to give oversight of TEPCO's Physical Protection Standards.

The overall advice was that TEPCO is broadly in compliance with IAEA Nuclear Security Series No 13 – Physical Protection of Nuclear Material and Nuclear Facilities. TEPCO has started considering additional Physical Protection measures in accordance with the advice.

### 2.4 Mentors to NSOO

NSOO has continued its use of mentors. The UK mentor is familiar and experienced with regulation of Sellafield and Aldermaston and has recently provided valuable insight on industrial safety and radiological protection at 1F. We have recently expanded our team with a mentor from the US experienced in operating reactor oversight.



Inspection with a mentor from the UK



Inspection with a mentor from the US

### 2.5 Benchmarking of NSOO

NSOO has participated in US and European workshops on Nuclear Safety Oversight and has gained useful insight and training from recent meetings. NSOO will also benchmark itself through a visit to INPO and Hatch Nuclear Power Station in April.

## 3. NSOO Performance

### 3.1 Key Performance Indicator

The major NSOO KPI is the closure of actions raised by NSOO. At the time of writing the latest round of assessments have not yet been completed so the number of actions raised remains at 77. The current response status of these actions is as follows:

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<sup>2</sup> The expert is currently a member of the Director General, International Atomic Agency's (IAEA) Advisory Group on Nuclear Security. Prior to that he was the head of nuclear security regulation in the UK.

Table 3-1 Current status of recommendations from NSOO

	Status to 3 <sup>rd</sup> quarter		Status to 4 <sup>th</sup> quarter		
	Before 2 <sup>nd</sup> quarter	New	Before 2 <sup>nd</sup> quarter	New	Total
Recommendation accepted, action implemented	14	–	16	7	23
Recommendation accepted, action ongoing	22	37	22	26	48
Action not in progress	4		2	4	6
<b>TOTAL</b>	<b>77</b>		<b>40</b>	<b>37</b>	<b>77</b>

In addition NSOO oversees progress on the 10 Safety Actions from the Board in April 2014. There have been some impressive improvements with the introduction of KPIs and benchmarking with and learning from other nuclear operators. However there is still insufficient progress in some areas such as Management of Organisational Change, Safety Assurance and the assessment of the long term safety risks associated with the Decommissioning Road Map. Management is taking action in all these areas.

NSOO is reviewing all observations and actions to focus on the most important and clarify expectations with the acetones. Some of the key actions to follow up include: Criticality Control at 1F; Learning including oversight or verification by the line; Work Control; Control of Contractors; Competence of people transferred or appointed to safety related posts.

### 3.2 NSOO Forward Program.

NSOO has completed its forward program for the next 12 months. The focus of assessments is as follows;

1F – Safety Culture, Work Control, Hazard countermeasures (new regulation and emergency preparedness), Project safety including unit 3 spent fuel removal, frozen wall construction and core cooling improvements.

KK – Safety Enhancements (Units 6/7 then Units 1/5); Maintenance; Safety training of operators; Emergency Preparedness; safety Culture and implementation of the NSRP

2F - Work control, emergency preparedness and safety during cold shutdown.

Corporate – Implementation of the NSRP; Safety Culture; WANO Corporate Peer Review; Contractor Management; Governance.

### 3.3 NSOO Self Assessment.

NSOO has carried out a self assessment against the WANO PO&Cs and sought external assessment from the NSTF. Not surprisingly for such a new function there are gaps between our current performance and the world class standards of the PO&Cs. e.g. Training, QA, SRE role, Action follow up and the Escalation process. These are being managed by action plans.

### 3.4 Oversight Safety Evaluation Matrix.

NSOO color codes its observations of plant, process, culture, governance etc (blue - world class, green - acceptable, yellow - needs improvement and red – poor). Once a quarter we update maps of these observations. The charts give a pictorial impression of safety performance, help managers identify areas for action and help NSOO identify areas for further assessment. The coding is subjective and its value depends on the size of the data base. We have been collecting data for 12 months and the representation is now starting to prove useful.

