OSART Good Practices
OPERATIONAL EXPERIENCE FEEDBACK
Sources of operating experience

Loviisa, Finland

Mission Date; 5-21 Mar., 2007

Direct information exchanges with other nuclear power plants.

Direct information exchanges with other nuclear power plants, especially other VVER plants, has contributed for getting lessons learned. Since the beginning of the plant operation, the information exchanges have been an important way of sharing OE. This has been accomplished through twinning and personnel exchange with other plants.

The following examples have been implemented through the direct information exchange:
−Regular annual workshops/seminars for more than 15 years on common topics (maintenance, operations, quality control, etc.) between VVER plants (total 20 nuclear power plants around the world)
−Common database for VVER steam generator (SG) chemistry regimes and tube damages based on operation and monitoring data (Dukovany, Bohunice, Mochovce, Temelin, Paks and the plant).
−Experts and maintenance workers twinning during outages (Paks and the plant)
−Modification of the SG feedwater distribution pipe (several Russian nuclear power plants, Paks, Rovno and the plant)
−Modification of the SG primary collector sealing and cover (Dukovany and the plant)
−Testing of the pressurizer pilot-valves (Paks and the plant)
−Common repair programme for the primary loop shut-down valves (Paks and the plant)
−Endoscope- inspection system of the turbines and related training (Paks, Kola and the plant)
−Exchange of turbine repair technology (Paks, Kola, Novo-Voronezh, Dukovany and the plant)

These activities have contributed to improving the level of nuclear safety of the plant.

Tihange, Belgium

Mission Date; 7-23 May, 2007

Operating Experience Feedback with operators from conventional plants.

All conventional and nuclear power plants of Electrabel are part of a network that shares information and experience related to equipments, organization, etc. The events that are addressed can be related to technical issues, human performance, health & safety and the environment. Operating Experience (OE) from all entities comes from various sources, including the Maintenance Competence Center, working in both conventional and nuclear generation.

The ensuing internal OE is formalized and made available to all sites in a common language (English). A point of contact is given on each report for additional information. Each plant analyses this OE and assesses the possibilities of incorporating it into its own organization. This specific way of experience feedback was implemented two years ago with about 15 reports per year. Out of them, 50 percent were used for analysis at the plant.

As an example, the plant received OE from the Maintenance Competence Centre (MCC) of Electrabel on the wrong operation of a high voltage circuit breaker. The MCC's recommendation was to open and close these circuit breakers using the pushbutton switch in test position after the disconnection of the low voltage but before removing the circuit-breaker from its compartment. This OE was used for analysis in Tihange NPP and led to the modification of the Operator's Handbook.

With this type of feedback from the conventional plants, the plant is able to improve its performance, especially in conventional areas like electrical systems, turbine generators and cooling towers. This could in turn help to improve nuclear safety as some of these systems or components may be involved in giving supply to nuclear safety systems.

Laguna Verde, Mexico

Mission Date; 1-18 Oct., 2012

A structured process of identification, evaluation and implementation of lessons learned and good practices from external events have resulted in important safety improvements.

The plant OE department regularly screens and analyzes external OE from INPO, WANO and US NRC with the aim of identifying any relevant lessons learned and good practices to improve the plant performance. During 2011-1012, several SOERs were reviewed and a number of lessons learned and good practices were identified, documented, and shared as follows:

-A structured evaluation is carried out by the plant departments;
-A responsible person is assigned to lead the action;
-Every key aspect is individually evaluated and documents using WANO evaluation methodology “How-To”;
-Results of evaluation and proposed corrective actions are approved by the Plant Operating Review Committee;
-OE department verifies the implementation of corrective actions.

This structured process of identification, evaluation and implementation of lessons learned and good practices from external events has resulted in 115 new corrective actions being placed to improve the plant performance and practices during normal operation as well as outages. To date, 92 of these corrective measures have been implemented.

The following major safety improvements were implemented:

-The Unit transformers were modified to include an online gas monitoring system of the cooling oil to allow early identification of any degradation to the winding insulation and to prevent transformer failure when in service.
-The plant operating procedures (OA-0829; OA-0845; OA-0853; OA-0854) related to loss of offsite power and station blackout systems were improved to include coordination with a grid operator in order to minimise the risk of Loss of Off-site Power.
-A contract has been placed with a grid operator to ensure that the plant is informed in a timely manner of any grid disturbance, or any planned maintenance works in electrical substations. The grid operator will ensure that preferred power supply will be available to the plant during the maintenance activities and testing of the plant emergency power supply systems.
-The plant procedures, controls and practices related to foreign material exclusion (FME) were significantly improved. The plant purchased new FME accessories and the maintenance personnel were trained to use them properly.

Dampierre, France

Mission Date; 31 Aug.-17 Sep., 2015

Learning from others via the Fleet Innovation Challenge by collection and systematic integration of good practices.

Each year, the Fleet Innovation Challenge collects best practices proposed by the 58 NPP units of the fleet and corporate entities. These improvement ideas are then presented and debated during a 2-day meeting, which is a good opportunity to understand what each site could implement locally.

The plant has developed a process to make sure that the fleet's best practices are screened and integrated on site, when useful, using the existing tools of the Corrective Action Programme . This ensures that the plant takes stock of the most useful best practices out of around 160 presented each year as part of the Challenge.

After a first screening during the Challenge, plant participants come back with a shortlist of ideas that could bring benefits to the plant. These ideas are then presented and further screened during multidisciplinary meetings. After validation, around 20 good practices are integrated into the Corrective Action Programme.

Benefits:

Good practices are part of the Corrective Action Programme process, designed to reinforce the tracking of these innovations. Deployment of these innovations is tracked by the «innovation representatives» and at the daily managerial Corrective Action Programme meeting.

This is a fully integrated initiative, since it uses the Plant's existing CAP tools to track all the fleet's good practices.

Every year, the plant integrates about 20 new good practices through this process. Examples include improvements to isolations, roleplay to practice using human error prevention tools, mockups for training, etc.

Olkiluoto, Finland

Mission Date; 27 Feb-16 Mar, 2017

Extended use of external operational experience

The plant has an enhanced practice to share and evaluate internal operating experience and to evaluate external operating experience together with Swedish licensees. The plant is a part of the Nordic Group for OE (NordERF) which supports the Swedish and Finnish plants in screening and evaluating event reports. Through NordERF participants share internal operating experience with each other including all event based reports and low level events on a weekly basis. All internal event reports are firstly screened by the Swedish nuclear power Center for training and simulator training (KSU) and by one of the licensees, and if any of them finds the report useful it is evaluated in the group. All evaluated events are analyzed and classified within a four level classification system by one licensee. The evaluations are discussed and confirmed in meetings held every two weeks. KSU also collects event reports from different external sources (all WANO WER, SER, Hot Topics, GP, IN reports and reports from the IRS database) and includes them in the screening process if KSU finds important information of any kind in particular report. Annually approximately 500 events reports are included in the screening process, approximately 250 are evaluated completely.
This practice saves limited resources of licensees in the OE area and provides opportunity to share information which may be overlooked if each licensee performs their own screening process of all external reports. Shared information is very important as the design of the Swedish and Finnish plants are very similar.

This cooperation proved very effective, in particular for implementation of immediate safety improvements at all plants following happening of important events on any of the plants in the region. Furthermore effective unformal communications on staff level is recognized.
This regional cooperation is not limited only to the exchange of information on operational events but is extended also to the cooperation for development of new probabilistic safety assessment methodologies and collection of data for establishing of equipment reliability data base. The outcomes are published in the Nordic T-book.