# OPERATIONAL EXPERIENCE

In order to ensure that Operating Experience (*OPEX*) and best practices are shared across the nuclear industry, the World Association for Nuclear Operators (*WANO*) publishes Significant Operating Experience Reports (*SOERs*). SOERs address significant events or trends and include recommendations requiring WANO members to identify and implement appropriate corrective actions as part of their membership. The implementation of each SOER recommendation is then reviewed during a WANO Peer Review. A suite of documents is available to all WANO members for each SOER and includes a summary, training material, training slides, and 'how-to' guides (see www.wano.info/ for further details).

The Institute of Nuclear Power Operations (*INPO*) also provides operational experience feedback in the form of reviewing any significant events at nuclear electric generating plants. Through INPO information exchange and publications, lessons learned and best practices are communicated throughout the nuclear power industry (see www.inpo.info/Index.html for further information).

Further to this an international system established by the Nuclear Energy Agency (*NEA*), called the International Reporting System for Operating Experience (*IRS*), exists for the exchange of information relating to safety in nuclear power plants. The IRS is a worldwide system but is designed to complement each nation's national schemes. The information reported is assessed, analysed and fed back to all interested parties in the nuclear industry to help prevent similar occurrences. The ultimate objective is to enhance the safety of nuclear power plants by reducing the frequency and severity of safety significant events.

The IRS is also helpful in identifying "precursors". Precursors are conditions of ostensibly low safety significance which, if not properly monitored, have the potential to escalate into more serious incidents. Through the analysis of data reported to the IRS, identification of these precursors can be facilitated and appropriate actions taken to mitigate their consequences. It is also important to detect and report on low-level events and near misses as well as recurrent events. Operating experience is therefore a key element of the 'defence in depth' philosophy, which is a fundamental building block for safety throughout the nuclear power industry.

The Electric Power Research Institute (EPRI) undertakes research by collecting operating experience to inform decisions for flexible operations and to characterise associated impacts on plant health and grid reliability. EPRI also engages plant owners and government entities on technical evaluations, economic assessments and early demonstration projects to close the gaps for future full-scale deployment of co-generation configurations integrated with nuclear power. An example relates to 'Operating Experience Insights on Common-Cause Failures in Digital Instrumentation and Control Systems'.

Most of the organisations which compile OPEX, only make OPEX data available to their members i.e. the information is not open source. However, new reactor designers have been able to join such organisations.

Finally, each operator should ensure it has its own company-wide system in place to capture the operational experience of each of its nuclear power generating sites, to allow information sharing between different geographical locations.

## Additional Information & Guidance

- https://www.wano.info/
- http://www.inpo.info/Index.html
- https://nucleus.iaea.org/Pages/irs1.aspx
- Operating Experience and Learning. A Guide to Good Practice, Safety Directors Forum, April 2015.
- Operating Experience Insights on Common-Cause Failures in Digital Instrumentation and Control Systems. 1016731, Final Report, December 2008. EPRI Palo Alto.