WANO New Unit Assistance Programme
Alex Polyakov  
33 years nuclear experience: 22 years at South Ukraine NPP, followed by 4 y. in WANO-MC, and 7 y. in the IAEA.  
TL or DTL of IAEA OSART and SALTO missions, in Argentina, Armenia, Belgium, Brazil, Bulgaria, China, Czech Rep., Hungary, Mexico, South Africa, Sweden  
DTL of WANO PR at Bilibino NPP (Russia)  
TSM or IAEA WS Lead in over 50 missions from Kola to Koeberg (N - S) and from Atucha to Bilibino NPPs (W – E).  
March 16, 2018 started working for WANO – London as Member Support Programme Director.
WANO Mission

To maximise the safety and reliability of nuclear power plants worldwide by working together to assess, benchmark and improve performance through mutual support, exchange of information, and emulation of best practices.

WANO MISSION
WANO Vision

WANO and its members will be worldwide leaders in pursuing excellence in operational nuclear safety for commercial nuclear power.
The World Association of Nuclear Operators (WANO) unites every company and country in the world that has an operating commercial nuclear power plant to achieve the highest possible standards of nuclear safety. More than 150,000 nuclear professionals work for over 130 members of WANO. Together, they operate 450 reactors across the globe.

Four regional centres in Atlanta, Paris, Moscow and Tokyo, offices in London and Hong Kong.
Co-work of LO with RCs - GOSP model

Collaborate on setting process & standards
Collectively responsible for performance of all Regions
Provide peer-to-peer mutual support
Deliver the WANO policies and processes

Degree of responsibility

Regional Centres

London Office

Governance
Responsible to facilitate development of policies and processes

Oversight
Responsible for coordinating oversight

Support
Support when capable, but largely peer-to-peer

Perform
Limited execution of the policies and processes
WANO Programmes

WANO works through five main programmes:

1. Performance Analysis
   • Operating Experience
   • Performance Indicators

2. Peer Reviews

3. Training and Development

4. Member Support
   • Member Support Missions
   • Guidelines and Good Practices
   • New Unit Assistance
   • Support prioritisation and WANO Representatives

5. Corporate Communications

The programmes work together to drive continuous performance improvement.
There are 55 reactors under construction in the world (March 22, 2018).

These ambitious plans create challenging objectives for WANO.
While many operating reactors in Europe and North America are focused on extension of lifetime or decommissioning, many of the 55 new reactors are under construction in Countries which relatively recently joined “Nuclear Club”.

Ensure proper Governance, Oversight, Support and Performance for the new entrants – this is the working field for WANO.
Planned and potential NPPs by Country

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Focus Area 4:  
Instil superior standards among new units and new industry entrants

- Develop effective new unit and new entrant support arrangements
- Develop and implement effective new unit and new entrant governance
- Engage new entrant companies early in the planning and construction phase to foster a commitment to worldwide nuclear safety
- Strengthen cooperation with the IAEA towards all new entrant countries
New Unit Assistance (NUA)

The New Unit Assistance Programme supports new units and new industry entrants to be prepared for safe and reliable operation through participation in all WANO programmes.
Collaboration with the IAEA

AM and LTO for older units – point of interest

Routine operation - Improving Ops safety and performance

Early stage of Nuc programme development – early involvement and NUA modules.

Early engagement:
- Conferences
- TMIs
- ANSN
- IAEA TC funded activities
NUA Activities for New Entrants

Core NUA Modules

Focused NUA Modules

Early engagement, e.g. through collaboration with the IAEA. (MOA with IAEA, ISRSC)

Join WANO

Start of full scope assistance

Growth of Operating Organisation

- Bid
- Contract
- Construction
- Commissioning
- Simulator
- Fuel on site
- CFT
- HFT
- Fuel Load
- Criticality

~4-6 years

~2 years
NUA Modules

Seven Core Modules
- Nuclear Safety Culture
- Operator Fundamentals, Crew Performance & Teamwork
- Organisational Effectiveness & Oversight
- Operational Decision Making
- Training
- Significant Operating Experience Reports (SOER)
- Emergency Planning, Management & Leadership

Ten Supplementary Modules
- OE Programme
- Performance Improvement
- Fire Protection Management
- Maintenance Strategies
- Engineering Strategies
- Technical Recommendations
- Fuel & Reactor Management
- Equipment Performance & Condition
- Chemistry
- Radiological Protection
NUA Assistance Plan

- NUA missions (46 in 2017)

- Incorporation of Operating Experience

- Workshops and seminars (66 in 2017 – all WANO)

- Benchmarking visits and twinning

- ORA missions (3 in 2017)

- Pre-startup peer reviews (PSUR) (6 in 2017)
WANO Representatives

WANO representatives are assigned, in all WANO regional centres, to every member/plant and are responsible for:

- Planning and organising assistance
- Monitoring progress of interaction and assistance
- Providing links to information/assistance
WANO OE database

About 26,000 event reports from all the nuclear power plants
TOP 10 TRENDS

- Operations Fundamentals
- Fire Protection
- New Units Analysis (Equipment Performance/Operations Performance)
- Maintenance Fundamentals/Conduct of Maintenance
- Preventive Maintenance
- Leadership drivers
- Switchyard/Diesel Generators
- Fuel Performance
- Fatalities
- Emergency Preparedness
Reporting to WANO

Information from open sources:
17 July 2011 – Collapse of large amount of reinforcing steel rods of Containment structure at Leningrad NPP
14 June 2012 – event during transportation of condenser module at Kalinin NPP
✓ 04 June 2015 – fall of Reactor Protective Tubes Unit to the spent fuel pool at Leningrad NPP-2
15 March 2017 – Collapse of a wall of a warehouse at Leningrad NPP -2
✓ 10 July 2017 – Lifting event during manipulation with RPV at Belorussian NPP

Question to all participants: do you think reporting of events During Construction and Commissioning phase of newbuilds may help the Industry to improve?
Cooperation with the IAEA

- **IAEA Operational Safety Section:**
  - Coordination of IAEA pre-OSART missions and WANO PSURs

- **IAEA programme and strategy coordination section:**
  - Coordination of IAEA and WANO support to new entrants
  - IAEA Document NG-T-3.1, Responsibilities of Owner/Operator in New and Expanding Nuclear Power Programmes

- **IAEA Nuclear Infrastructure Development Section:**
  - Establishment of initial contact with new entrants

- **Other activity:**
  - Joint IAEA-WANO guideline, Independent Nuclear Safety Oversight – published 28.02.2018
WANO Member Support Programme is tuned to provide assistance to newbuilds through:

- Early engagement of new entrants, before they become full scope WANO members, through collaboration with other international organisation;
- Assistance to new entrants, with limited or no previous nuclear experience;
- Application of standardized NUA modules;
- Support during construction and commissioning phase on insights from operating experience and pre-start up peer review results;
- WANO permanent NUA industrial working group acts as a forum for exchanging experience and identification of topics of potential safety significance.
Thank You for Listening