ORPAS Programme Implementation: Results achieve, Statistics, Guidelines & Collaboration Platform

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Objective: To promote an internationally harmonized approach to ORP through the development and application of Safety Standards for optimizing protection and safety, restricting exposures and applying current radiation protection techniques in the workplace.

To ensure an appropriate control of occupational exposure due to external and internal irradiation from both artificial sources and natural sources of radiation.

This is achieved through provision of operational services for radiation monitoring and protection to the Agency’s own operations; and through assistance to Member States in establishing, maintaining and, where necessary, improving programs for the radiation protection of workers.

Activities are targeting workers, employers, regulatory authority staff and radiation protection professionals.
ORPAS

• First developed in 2001 (brief guidelines) and formulated with the IAEA/ ILO International Action Plan on Occupational Exposure (2003)
  – Peer review missions to appraise occupational radiation protection

• “detailed checklist based on the aforementioned safety guides in appraising all aspects of occupational radiation protection in the host countries” (purpose is kept the same)

• Objective: To determine whether the host country has made adequate arrangements for ORP and whether these arrangements are functioning to the extent that the practical provisions for radiation protection of workers are effective and generally optimized
• ORPAS provides a **cross-cutting review**, against the relevant IAEA safety standards (mainly GSR Part 3 & GSG-7 and GSR Part 1/4), of the regulatory framework for ORP and the application of the requirements at all facilities and activities utilising radiation technologies in the host State.

• Provides an opportunity for a MS to have its ORP program independently assessed and evaluated
  - As a part of ORPAS preparation, MS is encouraged to complete the self-assessment in the form of questions (ORPAS questionnaire) tailored to the three set of participants involved in an ORPAS mission.
  - Preparation and data collection (review material) through questionnaires, Self-assessment of Regulatory Infrastructure for Safety (SARIS) (& RASIMS TSA 2)
ORPAS Guidelines

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- All ORPAS implementation **MUST** follow the Guidelines
- No deviation (exception requires agreement to make the Missions flexible enough to meet the request of MS)
- Follows to same approach with other IAEA Review Missions
- Terminology has changed
- Easy to communicate with countries (requesting MS, National Coordinator, National Counterparts and Team)
- Easy for the team for adoption and preparation
- Requires training (needs to be read!)
ORPAS Guidelines

• Similarities with IRRS Guidelines
• Recommendations, Suggestions and Good Practices (clear guidance on how to identify and address with cross references)
• 13 steps approach
• Preparation, conduct and post-mission activities
• Samples
  • Schedules (Preparatory, mission & follow-up agendas)
  • Identification of national counterparts
  • First Impression template
  • Terms of References, ARM
  • Responsibilities
  • Final ORPAS report with drafting schedule
The necessary **legislative and regulatory infrastructure for ORP** is in place and functioning.

**Operators** are aware of their responsibilities and have effective occupational radiation protection programmes in place and functioning, with the aim of ensuring optimized radiation protection.

**TSPs** are available and able to provide radiation protection services, in compliance with the GSR Part 3 & GSG-7, in respect of:

- Assessment of occupational exposure from external sources of radiation
- Assessment of occupational exposure due to intakes of radionuclides
- Workplace monitoring
- Recording of occupational exposure
- Advisory services

All involved organizations have **management systems** in place and functioning to ensure ongoing adherence to the standards.
Team work- Leader & members

• ORPAS: an assessment conducted by international experts selected
  – Experience in such reviews,
  – Knowledge of international guidance and best practices,
  – Ability to recognise and understand the strengths of different national systems and arrangements.
Site visits during the ORPAS mission

- Interviews and direct observations to be carried out at sites
- A site visit commences with an opening statement, including a summary of the scope of the ORPAS, the purpose of the visit and matters to be addressed
- ORPAS Team members must be accompanied by a host country counterpart
- Main goal is to have direct and face to face interactions
- Following a site visit, members discuss their findings with the others at the daily team meeting
• All necessary information
• Review process
• How to request
• How to conduct self-assessment
• Calendar
• Worldwide ORPAS
• References
• Questionnaires
• List of completed missions
• Guidelines

Introduction

Under the terms of Article VI of its Statute, the International Atomic Energy Agency (IAEA) has the mandate to establish or adopt, in consultation and, where appropriate, in collaboration with competent organizations, standards for the protection of health and safety of persons in work and for the protection of the environment against radioactivity. These standards and recommendations are intended to ensure a high level of safety. As part of its providing for the application of safety standards, the IAEA provides safety advice and guidance, to assist Member States in providing appropriate guidance in their national situation.

ORPAS is the only service that assesses all aspects of occupational radiation protection in Member States; regulatory regimes; and users and technical services/occupational hygiene assistance. In addition, exposure is conducted in an environment of close cooperation and communication with Member States; with a view to enhancing the ownership of ORPAS recommendations.

This document is a product of the ORPAS Workshop held at Vienna International Centre from 5 to 7 February 2019. The main purpose of the workshop was to provide feedback and guidance to the IAEA Secretariat on ways to improve the ORPAS methodology and discuss the strategies for possible improvements, and it is not intended to discuss or address the findings and recommendations made by ORPAS missions. The agenda of the workshop is provided in Annex I.
**ORPAS – Analysis**

**Strengths**
- Unique and focused peer review of the Agency in the field of radiation protection of workers with published Guidelines and 20 completed missions
- 20 years of experience (app 50% of missions in the last 3 years)
- Flexibility for implementation (extending countries)
- Suitability for nuclear embarking and nuclear countries
- Broad scope for facilities & activities (e.g., single for NORM sites)
- LA region experience (%50) is crucial to streamline the process & future activities
- EB contributions and TC support

**Weaknesses**
- Completely different implementation strategy (including final reports), limited follow-ups, no reporting mechanism on outcomes, no assessments (database, training events, QMS, PIs)
- Complicated and incomplete Qs
- Limited number of publicly available ORPAS report
SWOT of ORPAS

• **Opportunities**
  - All stakeholders process (RBs, TSPs, Operators)
  - **NOT an inspection or audit** (there are some Agency PRs, e.g., QUANUM, QUAADRIL)
  - Leadership & involvement of international experts and product of mutual team work (Secretariat has the coordination role)
  - Not only regulatory arrangements, TSPs and operators are the core & detailed review
  - Possibility to harmonize the mission process and addressing findings (Guidelines)
  - Flexible enough to form the scope of the mission according to host country request (TOR)
  - Nuclear embarking countries (UAE, Kenya, Ghana)
  - Strong GC resolution & PRASC reviews
  - Annual Nuclear Safety Reviews (ORPAS is included)

• **Threats**
  - Not visible enough in terms of outcomes (Action Plans, feedback, footprint of ORPAS)
  - Regional balance is needed
  - Lose of EB support
  - TC projects (not a review mechanism anymore)
Situation at the moment ...

- **Postponed missions** - ORPAS missions scheduled for 2020 to Bolivia, Philippines, Nigeria and Kenya and follow-up missions to Morocco, Peru UAE and Costa Rica were postponed due to the C-19 pandemic

- **Implementation phase** - Slovak Republic

- **Ongoing negotiations** - Czech Republic, Brazil, Argentina, Cuba, Cameroon, Ethiopia and follow-ups for Paraguay, Dominic Republic

  – The # number of requests for ORPAS missions continues to be high with ongoing negotiations with MSs for future planning.

  – This indicates a continued need for guidance, training for RPOs & QEs and extension of the advisory & monitoring scope of technical service providers to strengthen the ORP.
Virtual ORPAS

- Not easy but possible for preparatory and follow-up missions with the Agency’ leading role & guidance (virtual events through WebEx)

- **Follow-ups in 2022** - UAE, Morocco, Peru and Costa Rica
  - Team composition is limited (TL, selected Reviewers from the mission, IC)
  - To check the implementation of recommendations and suggestions
  - Advanced review - Published report is essential
  - Separate sessions for different national counterparts with focused questions (to be shared in advance)

- **Preparatory in 2022** - 10 missions
  - Team Leader and Agency Coordinator
  - To hold with the host institute (National Coordinator)
  - To hold meetings with the identified National Counterparts to present the appraisal process, and the ORPAS self-assessment questionnaires / SARIS
  - To agree on the TOR and the program of the mission

- Generic video for opening and closing
2019 White Paper

Recommendations

• ORPAS Guidelines - published, September 2020
• SARIS and ORPAS questionnaires - new developments and Qs are available at CP

Promotion

– ORP Webinar series – **ORPAS Webinar (Sep 2019)**
– ORPNET newsletter mailing list – **established** (1613 registry)
– ORPAS CP – **renewed with Guidelines**

• ORPAS training – **developed**
• ORPAS database, QMS & PIs – **under development**
ORPAS Webinar

ORPAS: Means to Assess the Occupational Radiation Protection Programme in Your Country

Webinar Series organized jointly with

- Greek Atomic Energy Commission
- Hamad Medical Corporation
- Institute of Radioprotection and Dosimetry
- Australian Radiation Protection and Nuclear Safety Agency

- 3 September 2019
  - Eleftheria Carinou
  - M. Hassan Kharita
  - Luiz Ernesto Santos de Carvalho Matta
  - Stephen Andrew Long

Statistics show 139 registrations and 70 of them participated in the live event.

https://www.iaea.org/topics/radiation-safety/webinars
Database

• ORPAS database (information exchange platform)
  • One single shop for missions' details (planning and assessment)
  • Other per reviews have some software (IRRS, OSMIR)
  • To provide a complete information about all missions;
  • To identify the strengths and weaknesses of each country/counterpart;
  • To provide information (statistics) in implementing recommendations and suggestions after ORPAS follow-up missions
• Working docs are available
ORPAS Mission Report

• Format and typical content is available in the Guidelines
• Serious changes are made and must be followed for the new missions
• A sample is the ORPAS report to Sri Lanka
• Available at ORPAS CP
Peer Review and Advisory Services for Embarking Countries

**Infrastructure for Nuclear Power**

1. **Phase 1** (1-3 years)
   - Inception
   - National policy and strategy for safety
   - Site survey

2. **Phase 2** (3-7 years)
   - Essential legal and regulatory framework
   - Site selection and assessment
   - Global nuclear safety regime
   - Site permit
   - Submission of application for construction license (SACL)

3. **Phase 3** (7-10 years)
   - Construction license
   - Submission of application for operating license (SAL)
   - Core fault load
   - Operating license

**Generic Peer-Review Services**

- **ARTEMIS**
  - Provisional Program Review
- **EPREV**
  - Program Implementation Review
- **IRRS**
  - NPP Tailored Module
- **Pre-OSART**
- **SEED**
  - Site selection process (External hazards)
  - Site evaluation, environmental impact assessment
- **TSR**
  - Safety requirements, generic reactor safety
  - Design safety, probabilistic safety assessment

**Specific Peer-Review Services**

- **ISCA**
- **CRPSAS**
- **PROSPER**
- **SALTO**
- **IPPASS**

**Advisory Services**

- **Nuclear Safety and Security Peer Review and Advisory Services** offered upon request with an indicative timeline and link to the licensing process.

**Acronyms**

- ARTEMIS: Integrated Review Team/Database and Site Peer Management
- EPREV: Emergency Preparedness and Response
- IRRS: Integrated Regulatory Review Service
- ISCA: Independent Safety Culture Assessment
- CRPSAS: CRP Soviet-era Plant Appraisal Service
- PROSPER: Operational Safety Performance Experience
- SALTO: Safety Assessment of Long-Term Operation
- IPASS: Site and External Events Design Review
- TSIS: Technical Safety Review
Lessons learned

- Methodology: host institution is the key for proper implementation (National Coordinator)
- Selection of National Counterparts (proper representatives of common practices)
- Technical Service Providers are quite divergent (Management systems, external; and internal, workplace)
- Useful background documentation for RASIMS TSA 2
- ORPAS missions are supported by the Technical Cooperation Department through national or regional cooperation projects (use of ORPAS as a verification tool) & ORPAS Extrabudgetary funding is crucial for proper implementation
IAEA Peer review and Advisory Services that focus on elements of ORP, are the following:

- Integrated Regulatory Review Service (IRRS)
- Emergency Preparedness Review Service (EPREV)
- Operational Safety Review Team (OSART)
- Integrated Safety Assessment of Research Reactors (INSARR)
- Integrated Mission of Programme of Action for Cancer Therapy (ImPACT)
- Quality Improvement Quality Assurance Team for Radiation Oncology (QUATRO)
- Quality Management Audits in Nuclear Medicine Practices (QUANUM)
- Quality Improvement Quality Assurance Audit for Diagnostic Radiology Improvement and Learning (QUAADRIL)
- Education and Training Appraisal (EduTA)

- Include a component linked to occupational radiation protection arrangements
- Inevitably some overlap of the above services
- Provide an opportunity for identifying insights
- Missions are conducted in an environment of close cooperation
To conclude

- ORPAS is peer review service provided by the Agency upon the request from the Member States.
- ORPAS missions provides specialized appraisal services in the area of occupational radiation protection (and unique in nature but similar in terms of implementation with other services with a view to enhancing the ownership of the recommendations and suggestions by the Member State).
- Combining the ORPAS methodology with the ILO process for verification ILO Convention 115 has never been achieved.
- IRRS recommendations with regard to review of ORP program in the host country and encouragement to request ORPAS is a strong motivation.

**ORPAS Guidelines**

*Quote* “A successful ORPAS mission would benefit from a prior Integrated Regulatory Review Service (IRRS) mission, which mainly reviews the legislative and regulatory infrastructure.” *Unquote*
Thank you!

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IAEA ORPAS: https://gnssn.iaea.org/main/ORPAS/SitePages/Home.aspx
IAEA website – Worker Protection: https://www.iaea.org/topics/workers
IAEA ORPNET: https://nucleus.iaea.org/sites/orpnet/home/SitePages/Home.aspx