

SEDO

Safety Evaluation of Fuel Cycle Facilities

During Operation

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IAEA

International Atomic Energy Agency

SEDO - BACKGROUND

PURPOSE

- To assist the requesting Member State to enhance the operational safety of their fuel cycle facilities
- To promote the continuous development of operational safety in all Member States operating fuel cycle facilities by disseminating information on good safety practices

SEDO - BACKGROUND

OBJECTIVES

- Objectively assess operational safety
- Provide useful information on opportunities for improving operational safety
- Identify good practices
- Broaden the experience of facility staff through informal exchange of information
- Instruct the facility staff in the use of the SEDO methodology which could be used for conducting future self assessments

SEDO - BACKGROUND

WHAT IT DOES NOT DO

- Does not assess against national regulatory requirements
- Does not assess the overall safety of a facility
- Does not rank the operational safety performance of the host facility in comparison with other facilities
- SEDO is not a regulatory inspection

SEDO – STRUCTURE AND SCOPE

FUEL CYCLE FACILITIES IN SEDO

- **Front End:**
 - Conversion & enrichment facilities
 - Fuel fabrication facilities
- **Back End:**
 - Spent fuel storage facilities
 - Reprocessing & associated waste treatment facilities
- **Other:**
 - Fuel cycle R&D facilities



SEDO – STRUCTURE AND SCOPE

REVIEW AREAS

1. Management, organization and administration (MOA)
2. Training and qualification (TQ)
3. Operation (OP)
4. Maintenance and periodic tests (MPT)
5. Modifications (MOD)
6. Other technical support (TS)
 - Radiochemical & chemical analytical services
 - Decontamination services
 - Information technology

SEDO – STRUCTURE AND SCOPE

REVIEW AREAS Cont.

7. Criticality safety (CS)
8. Radiation protection (RP)
9. Waste management (WM)
10. Fire, chemical and industrial safety management (FCIS)
11. Emergency planning and preparedness (EPP)
12. Effluent management and environmental protection (EMEP)

SEDO – STRUCTURE AND SCOPE

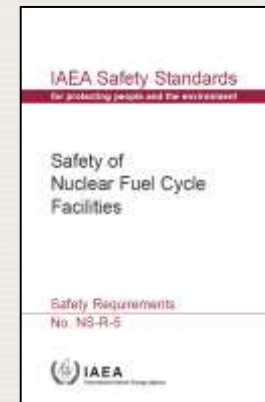
IAEA FUEL CYCLE FACILITY SAFETY STANDARDS SUPPORTING SEDO:

Safety Requirements:

- NS-R-5 Safety of Fuel Cycle Facilities (2008)

Specific Safety Guides:

- SSG-5 Safety of Conversion and Enrichment Facilities (2010)
- SSG-6 Safety of Uranium Fuel Fabrication Facilities (2010)
- SSG-7 Safety of MOX Fuel Fabrication Facilities (2010)



IAEA Safety Standard for protecting people and the environment	IAEA Safety Standard for protecting people and the environment	IAEA Safety Standards for protecting people and the environment
Safety of Conversion and Enrichment Facilities	Safety of Uranium Fuel Fabrication Facilities	Safety of Uranium and Plutonium Mixed Oxide Fuel Fabrication Facilities
Specific Safety Guide No. SSG-5	Specific Safety Guide No. SSG-6	Specific Safety Guide No. SSG-7

SEDO – STRUCTURE AND SCOPE

**PREPARATORY
MEETING**

(12 months)

**SEDO
MISSION**

(12 to 18 months)

**FOLLOW-UP
VISIT**

- Duration: 2 days
- Team: 1 to 2 IAEA staff
- Objective: Mission preparation
- Duration: 2 weeks
- Team: 2 IAEA staff + external experts and observers
- Objective: Conduct of the mission
- Duration: 5 days
- Team: 1 IAEA staff + 3 external experts
- Objective: Evaluation of safety improvements

SEDO – PREPARATORY MEETING

- SEDO is requested by IAEA Member State
- IAEA Team Leader arranges a PREPARATORY MEETING at the facility site with the operating managers and the regulatory authority in order to define, by consensus:
 - The scope of the SEDO mission
 - The physical limits
 - Information to be provided
 - Logistics

SEDO - PREPARATIONS

PREPARATION BY FACILITY

- Facility prepare for mission using the SEDO Guidelines and related IAEA safety standards
- Facility conduct a self assessment and implement any resulting improvements before the SEDO mission:
 - Involve individuals/groups closest to the work
 - Adopt a questioning attitude
 - Challenge the status quo
 - Identify areas for improvement

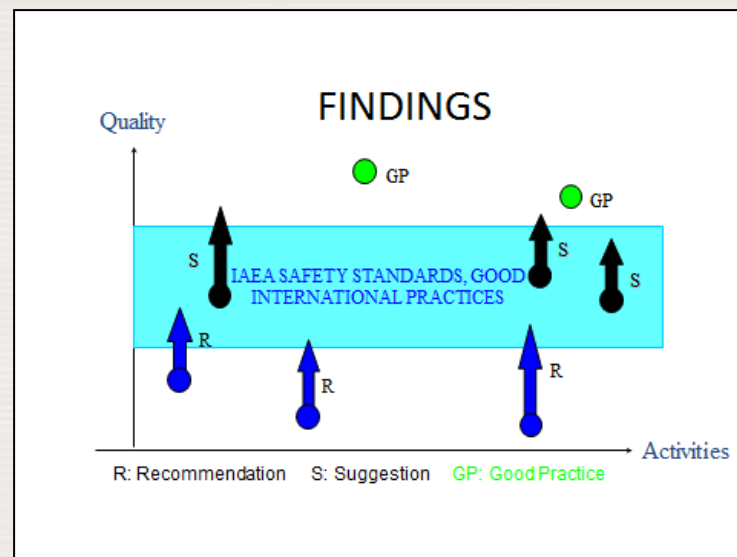
SEDO – METHODOLOGY

- Each SEDO team member is assigned a review area
- Each SEDO team member has a facility counterpart as a technical contact person
- The SEDO team uses four steps to acquire the information:
 - Review of written material
 - Interviews and discussions with personnel
 - Direct observation of activities
 - Discussions of evaluations and tentative conclusions with other team members

SEDO – METHODOLOGY

EVALUATION CRITERIA

- The basis for the evaluation criteria is the internationally accepted IAEA Safety Standards
- Findings from the SEDO mission are established by consensus within the SEDO team
- Findings:
 - Recommendation
 - Suggestion
 - Good practice

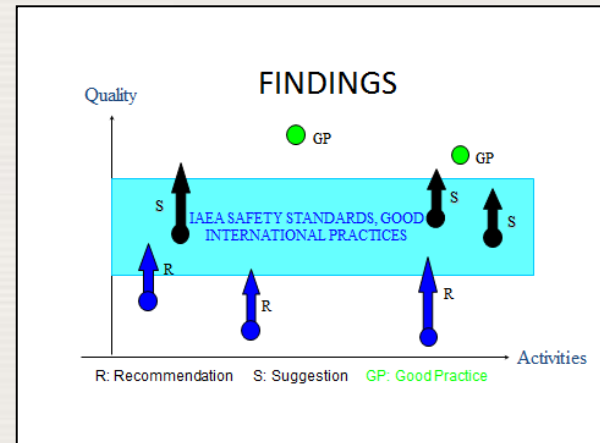


SEDO - METHODOLOGY

DEFINITIONS

Recommendation:

- Advice on what operational safety improvements are needed to fulfil the requirements in the IAEA safety standards
- Based on IAEA safety standards and address the root cause, rather than the symptom, of the issue.
- A recommendation does not include the methods for satisfying the safety requirements.

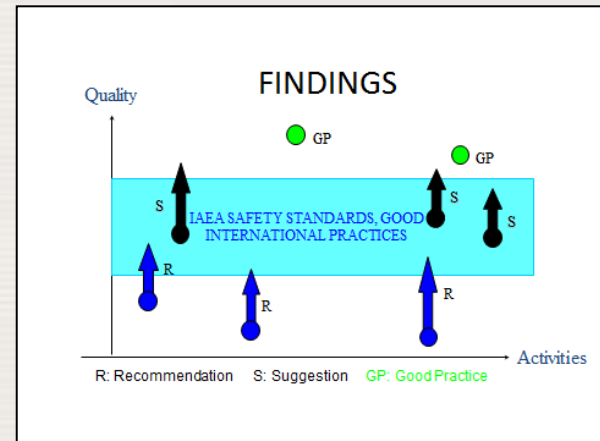


SEDO - METHODOLOGY

DEFINITIONS Cont.

Suggestion:

- Additional proposal in conjunction with a recommendation or may stand on its own
- Intended to make an acceptable performance more effective
- Designed to stimulate the facility management and staff to continue to consider ways for enhancing safety performance.

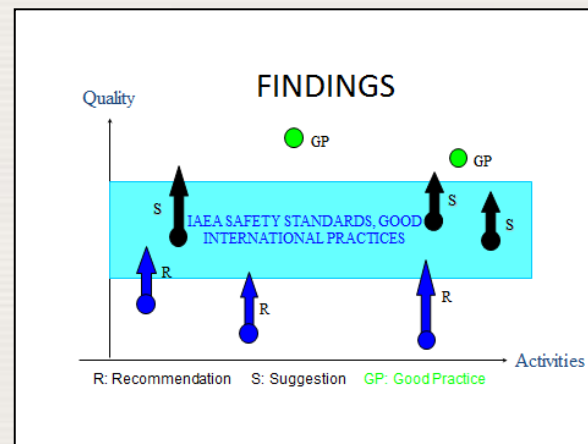


SEDO - METHODOLOGY

DEFINITIONS Cont.

Good Practice:

- Is a proven performance, activity or process which contributes directly or indirectly to operational safety and a sustained good performance
- Should have broad application to be brought to the attention of other fuel cycle facilities



SEDO – MISSION SCHEDULE

Example SEDO Mission Schedule

	Sat	Sun	Mon	Tue	Wed	Thu	Fri
Week 1	Team Training	Facility orientation tour Personal work on AIP	Entry meeting	Review			
			Complete tour with counterparts				
Team meetings							
Week 2	Free	Free	Review	Review			Review tech notes with counterparts
				Issue development with counterparts			
			Team meetings				
Week 3	Prepare for exit meeting Exit meeting	Travel back					

SEDO – REPORTING RESULTS

Technical Notes:

- During the review each SEDO team member writes detailed Technical Notes on their observations, issues and conclusions, including their findings

SEDO Report:

- The official IAEA document prepared by the team leader at the end of the mission based on the Technical Notes.
- Summarizes the team's main observations, conclusions and findings (recommendations, suggestions and good practices)
- Restricted initial distribution to the IAEA, members of the review team, and the facility and regulatory authority staff involved
- Unless otherwise requested by the Member State the report is derestricted after 90 days

SEDO - FOLLOW UP VISIT

12-18 months later

The response to the formal conclusions and findings in the SEDO report rests with the Member State.

The purpose of the follow-up visit is:

- To review the facility Action Plan
- To form judgments on whether adequate actions have been taken to address the recommendations and suggestions

SEDO - FOLLOW UP VISIT

BENEFITS

Facility

- Provides a target date for implementing the improvements identified during SEDO mission
- May assist in obtaining resources needed to complete improvements
- Provides an outside perspective on adequacy of the measures taken and the progress made

IAEA

- Valuable source of feedback on effectiveness of SEDO missions



SEDO - SUMMARY

- Assist requesting Member State to enhance the operational safety of their fuel cycle facilities
- Structured approach
 - Preparatory Meeting
 - SEDO Mission
 - Follow-up Visit
- Based on international safety standards
- 12 review areas
- Team of internationally recruited reviewers
- Help in identifying and prioritising safety issues
- Encourages a self critical approach and conduct of self assessments
- Motivating factor for enhancing safety culture

SEDO – Thank you for your attention!



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