IAEA
International Atomic Energy Agency

Corporate OSART Guidelines

Guidelines for Peer Review by Operational Safety Review Teams (OSARTs) for the Corporate Functions of Organizations Operating or Preparing for Operation of Nuclear Power Plants and Closely Related Organizations

Vienna, November 2022

IAEA Services Series 47

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CORPORATE OSART GUIDELINES

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IAEA SERVICES SERIES No. 47

CORPORATE OSART GUIDELINES

GUIDELINES FOR PEER REVIEW BY OPERATIONAL SAFETY REVIEW TEAMS (OSARTS) FOR THE CORPORATE FUNCTIONS OF ORGANIZATIONS OPERATING OR PREPARING FOR OPERATION OF NUCLEAR POWER PLANTS AND CLOSELY RELATED ORGANIZATIONS

INTERNATIONAL ATOMIC ENERGY AGENCY
VIENNA, 2022

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CORPORATE OSART GUIDELINES
IAEA, VIENNA, 2022
IAEA-SVS-47
ISSN 1816–9309

Printed by the IAEA in Austria
November 2022

FOREWORD

The IAEA Operational Safety Review Team (OSART) programme provides advice and assistance to IAEA Member States to enhance the safety of nuclear power plants and closely related organizations (e.g. large maintenance contractors, commissioning organizations) during construction, commissioning, operation and the transition from operations to decommissioning. The OSART programme, initiated in 1982, is available to all Member States with nuclear power plants under commissioning or in operation.

In 2013, the IAEA extended its OSART service to include a review of corporate functions of organizations with nuclear power plants whether operating or preparing for operation, known as Corporate OSART missions. The guidelines for this Corporate OSART service were not included in IAEA Services Series No. 12 (Rev. 1), OSART Guidelines, 2015 Edition, as at the time of publication sufficient experience in conducting Corporate OSART missions was not available.

The Corporate OSART Guidelines provide overall information on how to conduct Corporate OSART missions for both the international review team and their counterparts in Member States to ensure the consistency and comprehensiveness of the peer review service.

The IAEA officers responsible for this publication were Y. Martynenko and K. Nagashima of the Division of Nuclear Installation Safety.

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1. INTRODUCTION

1.1. BACKGROUND

The Operational Safety Review Team (OSART) programme is one of the IAEA's safety review services. Established in 1982, the OSART programme has provided advice and assistance to Member States for 40 years, to enhance the operational safety of nuclear power plants during construction, commissioning, operation and transition from operation to decommissioning. It has also been greatly valued for providing an opportunity for operating organizations in all countries to assist other operating organizations through the dissemination of information on best practices and lessons learned.

The main purpose of the IAEA's OSART programme is to assist Member States in strengthening the operational safety of their nuclear power plants and closely related organizations by comparing actual practices with the IAEA safety standards. For the purpose of this publication, the term 'closely related organizations' means organizations that provide supporting roles covering major operational functions (e.g. maintenance, commissioning, transition to decommissioning) or roles that may affect nuclear safety (e.g. engineering support for plant modifications, optimization of fuel performance, power uprates). Each OSART mission is conducted by a team of experts from all regions of the world. Each of these experts has acquired extensive knowledge and experience in operating organizations or technical support organizations.

In 2013, the IAEA extended its OSART service to include a review of corporate functions of organizations operating or preparing for operation of nuclear power plants — the Corporate OSART. By definition, 'Corporate OSART' is an OSART mission organized to review those centralized functions of the operating organization (and closely related organizations) which affect the safety aspects of the nuclear power plants at any stage of their lifetime.

The Corporate OSART mission differs in scope from the OSART mission. This new Services Series publication provides comprehensive guidelines of the Corporate OSART mission for the operating organizations and relevant technical support organizations of nuclear power plants and other relevant nuclear installations on how to prepare for a Corporate OSART mission, considering the following:

- The review process, schedule, and methodologies focusing on those centralized functions of the operating organization, which affect the safety aspects of the organization's nuclear installations under commissioning, in operation, and in the process of transition from operation to decommissioning;
- Expectations for typical review areas for corporate functions and relevant IAEA safety standards.
- Arrangements for using the OSART methodology to assess corporate activities at closely related organizations that provide supporting roles covering major operational functions (e.g. maintenance, commissioning) or roles that may affect nuclear safety (e.g. engineering support for plant modifications, optimization of fuel performance, power uprates).

The OSART programme is an important tool for ensuring better conformance and alignment with the IAEA safety standards, related to operational safety of nuclear installations. The present and new guidelines used to review performance and programmes at corporate level of the operating organization are based on these standards.

1.2. OBJECTIVE

The Corporate OSART guidelines are primarily intended for members of an IAEA Corporate OSART peer review team. They provide a basic structure and common terms of reference, across the various areas of review covered by a Corporate OSART mission and across all the missions in the programme. As such, they provide guidance on how to prepare for and conduct a Corporate OSART mission to:

- The team members of the Corporate OSART mission;
- The host organization receiving the Corporate OSART mission;
- The host country that has invited the Corporate OSART mission;
- The nuclear power plant's operating organization and other organizations which will be visited during the Corporate OSART mission.

The reference documentation, provided in Section 6 of this publication, will also prove valuable reading for staff at the host organization and closely related organizations to be reviewed as appropriate.

1.3. SCOPE

These guidelines cover the following elements:

- Overview and objectives of the Corporate OSART peer review service;
- The Corporate OSART mission process;
- The review methodology of the Corporate OSART mission;
- Practical tips for the Corporate OSART reviewers;
- Specific guidelines for each review area in the Corporate OSART mission.

1.4. STRUCTURE

This Services Series publication is structured into six Sections and three Annexes. Section 1 provides the background of the IAEA's Corporate OSART programme, and describes the objectives, scope and structure of the Corporate OSART guidelines. Section 2 provides an overview, objectives and benefits of the Corporate OSART peer review service. Section 3 provides a description of the review process of the Corporate OSART mission. Section 4 provides the review methodology of the Corporate OSART mission. Section 5 provides practical tips for reviewers in the frame of the Corporate OSART mission. Section 6 provides detailed information about each review area, the relevant IAEA safety standards, and expectations. Annexes I to III provide additional information for the Corporate OSART mission preparations, conduct and reporting.

2. CORPORATE OSART PEER REVIEW SERVICE

2.1. OVERVIEW OF THE CORPORATE OSART SERVICE

The peer review of the Corporate OSART mission is mainly focused on the fulfilment of safety requirements established in the IAEA Safety Standards Series No. SSR-2/2 (Rev.1), Safety of Nuclear Power Plants: Commissioning and Operation [1], and the associated recommendations provided in the IAEA Safety Standards Series. A complete list of IAEA basis publications for nuclear power plants is provided in Section 6.

The scope of the Corporate OSART mission does not address the assessment or review of the activities related to the design of nuclear power plants and closely related organizations.

The Corporate OSART review includes, but is not limited to: the documents that describe the operating organization and its organizational structure, policies and management system, management and administrative procedures; interviews and discussions with corporate level personnel of the operating organization; observations during site visits, meetings and committees; discussions with visited plants' management and staff about the support provided by the Corporate Organization[1]; and reviewing of both operational safety performance records and reports. The review focuses on those centralized functions of the operating organization, which affect all the safety aspects of their nuclear power plant(s) and other nuclear facilities. The centralized functions to be reviewed are various managerial aspects, such as:

- Direction (establishing policies, influencing priorities, practices);
- Leadership (communicating, motivating, inspiring and encouraging);
- Control (monitoring, decision making, corrective actions and effectiveness);
- Support (providing human and financial resources and technical functions);
- Communications.

A Corporate OSART review can also take place at a nuclear installation during its critical commissioning phases, when many organizational and technical decisions are being taken that will affect operational safety performance of the nuclear power plant's operating organization and closely related organizations. For a Corporate OSART which includes commissioning, these usually take place within six months of the expected first milestone for nuclear fuel loading.

In addition, a Corporate OSART review can take place at a Corporate Organization for nuclear power plants or a closely related organization which is going to transition from operation to decommissioning. The transitional period starts when the public announcement of the permanent shutdown date is made and continues until all nuclear fuel has been permanently removed from both the reactor core and on-site spent fuel storage. As the duration of this period is dependent on the circumstances surrounding each operating organization, the timing of the Corporate OSART mission, including the review of the transitional period to decommissioning, is determined in consultation with the host organization, but as a guide, it takes place three to five years before the permanent shutdown, to allow time for follow-up of the results of the mission.

Specific review guidelines are presented in Sections 6.1 to 6.15, covering the following Corporate OSART review areas:

1) Corporate Management (CM);
2) Corporate Independent Oversight (IO);
3) Corporate Support to Provide Human Resources (HR);
4) Corporate Communications (CMN);
5) Corporate Procurement (PROC);
6) Corporate Support to Maintenance (C-MA);
7) Corporate Technical Support (C-TS);
8) Corporate Support to Operating Experience Feedback (C-OEF);
9) Corporate Support to Radiation Protection (C-RP);
10) Corporate Support to Chemistry (C-CH);

[1] In these guidelines, the corporate (headquarter) level of the operating organization to be reviewed by the Corporate OSART mission is referred to as the 'Corporate Organization' or 'the host organization'.

11) Corporate Support to Emergency Preparedness and Response (C-EPR);
12) Corporate Support to Accident Management (C-AM);
13) Corporate Support to Long Term Operation (C-LTO);
14) Corporate Support to Commissioning (C-COM);
15) Corporate Support to Transition from Operation to Decommissioning (C-TRAD).

Since a Corporate OSART mission may be carried out at any time from commissioning to the transitional period from operation to decommissioning of the nuclear power plants and closely related organizations, the areas to be reviewed will depend on those centralized functions that an operating organization has to perform at the time of the Corporate OSART review.

The scope of the review may be adapted to the size and functions of the operating organization. The review areas (subjects) can be tailored, at the request of the host organization. The scope of the Corporate OSART mission is defined and agreed during the preparatory meeting, which is normally conducted around 12–18 months before the mission.

The specific guidelines in Section 6 for each review area are intended to help each expert in preparing for the review and are based on the requirements within the relevant IAEA safety standards. These guidelines are not all-inclusive and should not limit the expert's reviews; rather, they are considered as illustrating the comprehensive requirements for the review. Therefore, it is expected that — based on the advance information package, including the results of the Corporate Organization's self-assessment against the IAEA safety standards, where applicable, and the results of the initial part of the review — the experts apply judgments to decide which topics need more in-depth evaluation.

If the host organization has only single site dedicated for the nuclear power plant or the closely related facility, it is desirable to review both the operational practices of that site and the corporate functions as organizational support for the site by a combined mission of OSART and Corporate OSART. Corporate functions may include, but are not limited to, the following:

1) Corporate Management;
2) Corporate Independent Oversight;
3) Corporate Support to Provide Human Resources;
4) Corporate Communications;
5) Corporate Procurement.

The Corporate OSART mission is a peer review conducted by a team of international experts with direct experience applicable to the areas of evaluation. The review mission is neither a regulatory inspection, nor an audit against national regulatory requirements. Instead, it is a review based on technical exchange of experiences and practices, aimed at identifying opportunities for strengthening policies, programmes, procedures, behaviours, and practices utilizing the IAEA safety standards as the basis for the review.

2.2. OBJECTIVES AND BENEFITS OF THE CORPORATE OSART SERVICE

The key objectives of a Corporate OSART mission are to provide:

- The host organization with an opportunity to review its conformance and alignment with the IAEA safety standards and identify possible self-identified issues by conducting a self-assessment during the preparation phase prior to the mission;

- The host country (specifically regulatory body, operating organization, holder of the operating licence and governmental authorities) with an objective and independent assessment of corporate functions with respect to the IAEA safety standards;

- The host organization with an opportunity to improve their performance based on recommendations and suggestions and to enhance operational safety of their nuclear power plant(s) and closely related organizations.

Additional benefits of the peer review service are to provide:

- The host organization with support for their continuous improvement of their corporate functions and support (through capacity building) for self-identification, self-analysis, and self-resolution of issues having an impact on operational safety;

- The host organization with feedback on how corporate expectations are set up, communicated and followed in nuclear power plant(s) and closely related organizations and to what extent their corporate supports meet the needs of them;

- Key staff of the host organization, OSART team members and observers with an opportunity to conduct informal exchanges of operating experience and to broaden their knowledge in their own field and on the IAEA safety standards;

- All IAEA Member States with information regarding good practices identified in the course of OSART reviews, thus facilitating their application;

- IAEA staff with an opportunity to identify areas where the IAEA safety standards could be further strengthened.

3. CORPORATE OSART MISSION PROCESS

A standard Corporate OSART process follows the steps and the time frame identified in Fig. 1.

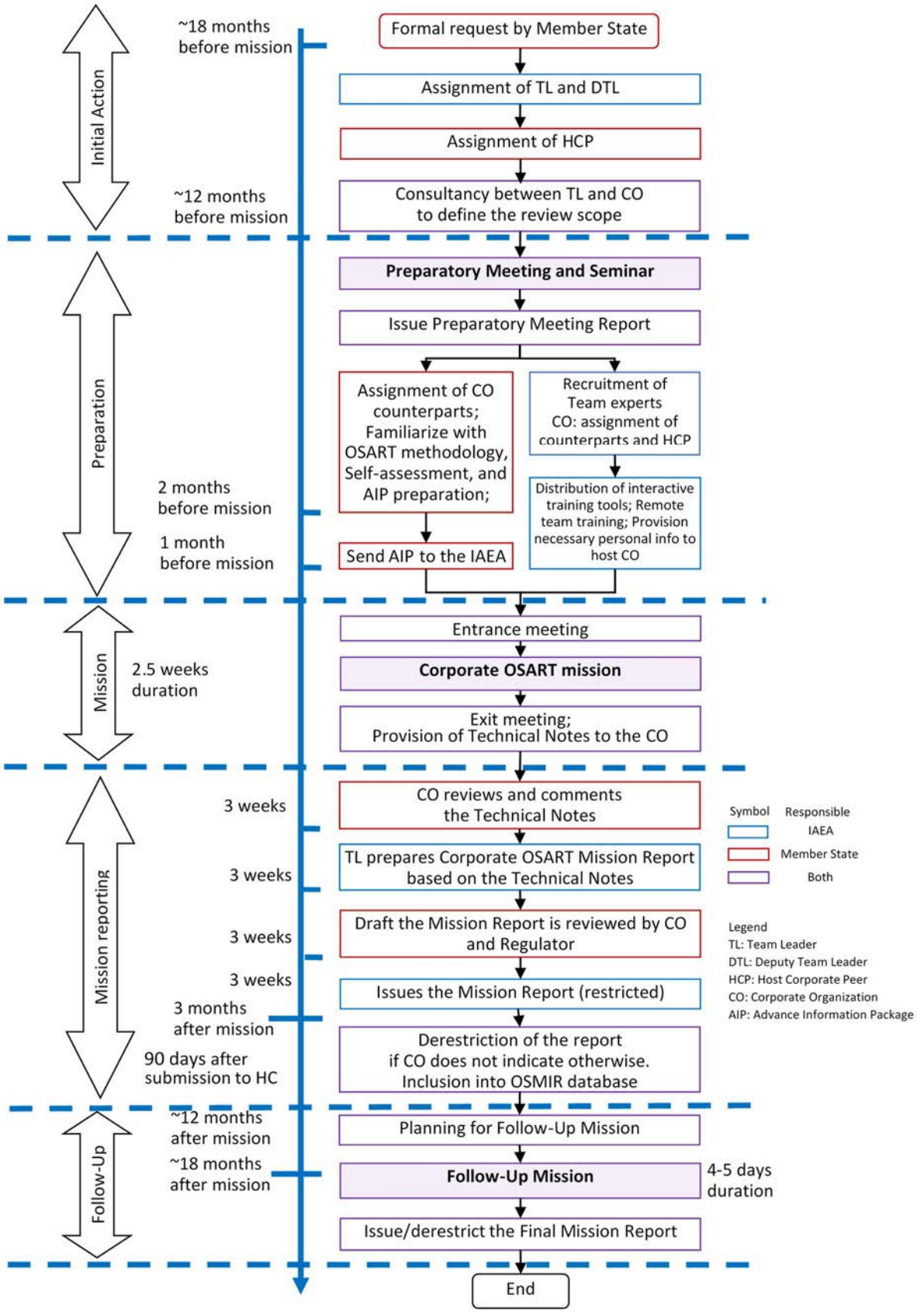

FIG. 1. A standard Corporate OSART process

3.1. INITIATING A CORPORATE OSART MISSION

This Section provides initial actions of a Corporate OSART mission.

3.1.1. Member State request for a Corporate OSART mission

A Corporate OSART mission is requested by an operating organization of nuclear power plant(s) or closely related organization via its corporate level, its national nuclear safety regulatory body or other relevant governmental body. A request for a Corporate OSART mission should be transmitted to the IAEA Deputy Director General, Head of the Nuclear Safety and Security Department, 18–24 months before its proposed date.

The following information should be included in the request for a Corporate OSART mission:

- The name of the host organization;
- The proposed period of the Corporate OSART mission;
- The proposed scope of the Corporate OSART mission, if already available;
- A point of contact (name, position, telephone, e-mail address).

3.1.2. IAEA initial response

On receipt of a request for a Corporate OSART mission, an IAEA team leader and deputy team leader will be assigned to establish liaison contacts with the host organization and regulatory body, and arrange a preparatory meeting with the senior management of the host organization and other organizations involved. The IAEA will coordinate with other international peer review services to avoid scheduling conflict for the OSART mission.

3.1.3. Host Corporate peer assignment

When requesting a Corporate OSART mission, the host organization should designate a host corporate peer with the following roles and responsibilities:

- The host corporate peer is a corporate staff member with good overall knowledge of the host organization, its strategies, policies, programmes, procedures and staff, and good English language skills are preferred.
- The host corporate peer's main role is to act as liaison officer between the host organization team and the IAEA team leadership.
- During the Corporate OSART mission, the host corporate peer is expected to be dedicated to the OSART mission.
- The host corporate peer participates in the Corporate OSART team meetings, and advises the team members when information may not be completed or correct.
- In case of misunderstandings or issues needing further clarification, the host corporate peer points the Corporate OSART team towards the responsible or knowledgeable staff in specific areas who could provide clarification and clear any misunderstandings.

3.1.4. Consultancy on the scope

The designated IAEA team leader, in the frame of preparatory activities, may conduct a set of consultancy meetings or workshops with Corporate Organization representatives or host corporate peer aimed at identifying a detailed scope of the mission, reflecting actual corporate functions that affect safe operation of the nuclear power plant(s) and closely related organizations.

Activities within the consultancy meetings result in:

- A list of the review areas which characterize the corporate functions to support safe operation of its nuclear power plant(s);
- A list of external organizations that provide support to the Corporate Organization and can be involved in the Corporate OSART review;
- A list of potential gaps in the Corporate Organization's activities as compared with the IAEA Safety Requirements and Safety Guides.

The review areas can be tailored to the needs of the host organization and are finally agreed upon during the preparatory meeting. This period ends with the Corporate OSART preparatory meeting, as described in Section 3.2.1 of these guidelines. Figure 2 can be used for that purpose.

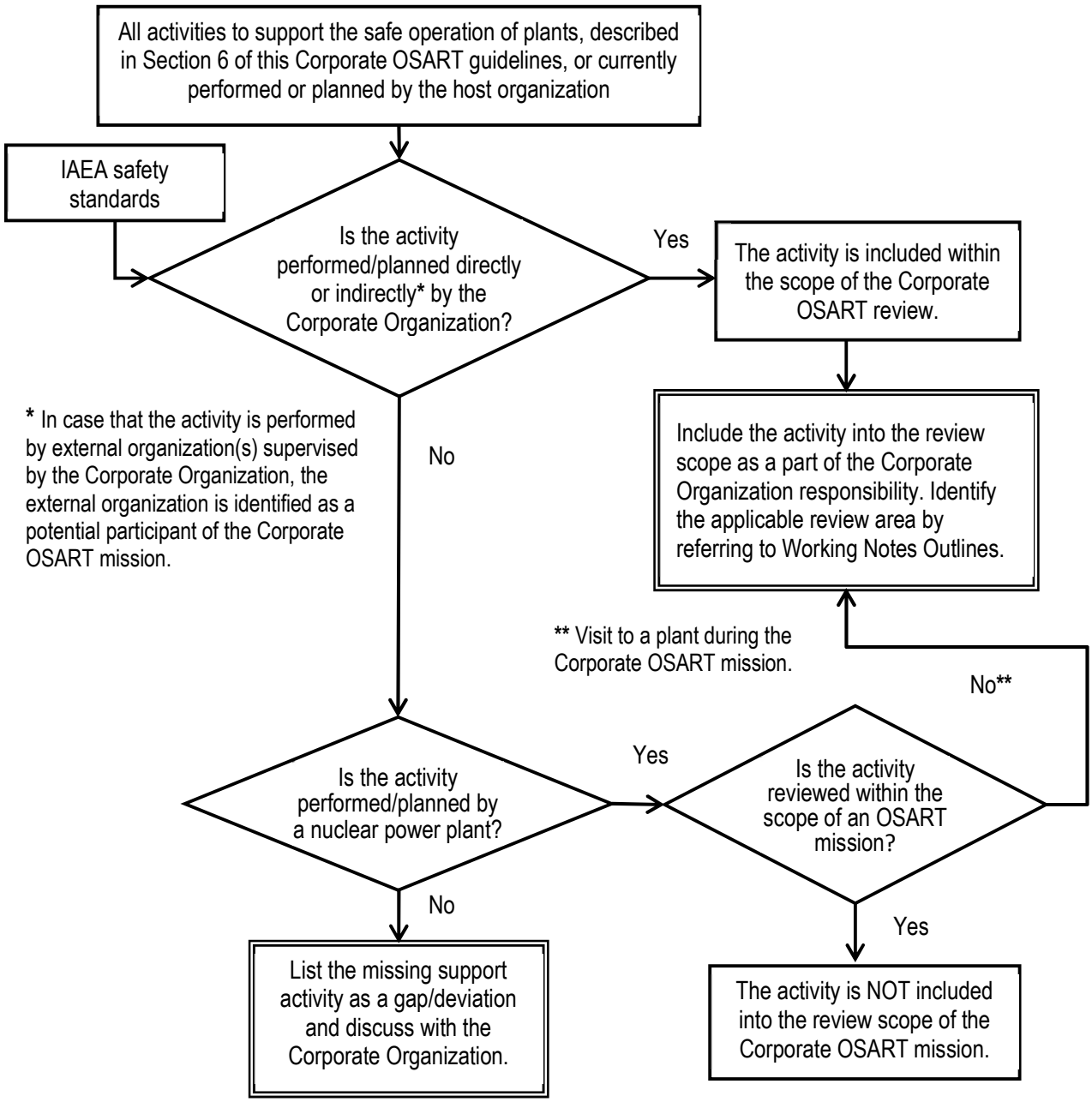

FIG. 2. Flow chart for identifying the scope of the Corporate OSART mission

3.2. CORPORATE OSART MISSION PREPARATION

This Section provides preparation of a Corporate OSART mission.

3.2.1. Preparatory meeting and seminar

The purpose of the three-day Corporate OSART mission preparatory meeting is to familiarize the host organization's staff with the Corporate OSART methodology and to discuss the necessary arrangements which have to be implemented prior to the mission. The preparatory meeting, usually attended by the IAEA team leader and the deputy team leader, is held at the host organization's Headquarters (approximately 12–18 months prior to the mission) to ensure that the senior management and counterparts of the host organization and other organizations involved can all participate[2]. As part of preparation for the seminar, the staff of the host organization familiarize themselves with the Corporate OSART guidelines and the IAEA safety standards related to activities of the Corporate Organization that affect operational safety of the nuclear power plant(s) which form the basis of the Corporate OSART review.

During the preparatory meeting, the following subjects are covered:

- The main features of the Corporate OSART methodology;
- The scope of the review, reflecting the request of the host organization;
- Working notes outlines (WNOs);
- Nuclear power plant site(s) and closely related organizations to be visited and the scope of the related review;
- Preparations for the review by host organization;
- The self-assessment by host organization;
- Preparation of the advance information package (AIP);
- Logistical support required;
- Financial arrangements for the Corporate OSART mission and its follow-up mission.

A significant portion of the preparatory meeting is dedicated to a detailed presentation of the Corporate OSART methodology to staff of the host organization. In addition, the staff are trained to apply 'issue development' techniques through practical exercises within the host organization. The preparatory meeting is designed to help the host organization conduct its self-assessment and prepare for the Corporate OSART mission. The host organization will be offered the opportunity to send (an) observer(s)/reviewer(s) on (an)other Corporate OSART(s) before the mission, to gain practical experience on the way a Corporate OSART missions is conducted.

3.2.2. Report of the preparatory meeting

Upon the return from the preparatory meeting, the team leader prepares a report of the preparatory meeting, copies of which will be sent for review and comment to the host corporate peer.

3.2.3. Recruitment of team experts

Following the preparatory meeting (9–3 months before the OSART mission), the designated IAEA team leader starts assembling the mission team. The Corporate OSART team is composed of a team

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In exceptional circumstances (e.g. pandemic), the preparatory meeting can be undertaken as a virtual meeting with the team leader, the deputy team leader and host organization's personnel.

leader and a deputy team leader (who are always IAEA staff), reviewers (according to the scope of the review), and up to three observers. The guidelines for observers in the Corporate OSART mission is given in Annex III. The reviewers are professionals from diverse backgrounds involving:

- Plant manager;
- Head of a corporate oversight;
- Senior corporate managers (corporate department managers);
- Managers with plant and corporate experience;
- Senior advisors to Chief Executive (or Operating/Nuclear) Officer;
- Senior managers recently retired from the above positions;
- Other reviewers with sufficient corporate experience or representatives from technical support organizations.

The reviewers should have experience working at a corporate level, as well as experience on any OSART mission. The team will not include a member from the host country, or experts who might have conflicts of interest.

3.2.4. Preparations by the host organization

The senior management of the Corporate Organization should designate one counterpart for each area of review to be the contact person for the corresponding team member during the review. The senior management of the host organization should ensure that the same counterpart can be fully dedicated throughout the review period and work cooperatively with reviewers to take responsibilities for issues found in their own area.

An important aspect of preparation for a Corporate OSART mission is the conduct of a thorough self-assessment of the Corporate Organization's activities affecting operational safety performance of nuclear power plant(s) using the WNOs that will be used during the mission. The results of the self-assessment should contain the following key components:

- For each review area, a description of how each individual expectation, as described in Section 6, is met, using the sub-heading in each of the WNO areas. This information is typically presented on 3 to 4 pages;
- Specific gaps where performance or programmes do not fully meet the IAEA safety standards;
- Where gaps are identified, an explanation of what corrective actions are being taken and/or planned to address the gap, including budget commitments, staffing, document preparation, increased or modified training, equipment purchases, etc.

The host organization may decide to declare a gap, identified during its self-assessment of the operational safety performance, compared to the IAEA safety standards as a self-identified issue.

In doing so, the host organization presents an identified gap in the format of an issue, including all the required attributes of the issue, such as:

- Issue statement: fundamental overall problem (FOP);
- Supporting facts: programme and performance based, as necessary supporting FOP, recent events in the nuclear power plant could also be included as supporting facts;
- Statement on the significance of the issue to the operational safety (the safety consequence);
- Statement of the necessary action to be taken to solve the identified issue, based on a causal analysis (contributing, apparent and root causes);

- References to the appropriate IAEA safety standards;
- Action plan towards resolution of the issue.

The host organization should categorize each issue as either a recommendation or a suggestion, depending on the significance of the problematic area to the operational safety (see Section 4.4).

This suite of information associated with the self-identified issue(s) (including an action plan) will then be included into the relevant chapter of the AIP that the host organization needs to prepare and send to the IAEA for distribution amongst the OSART team members at least one month prior to the mission.

If the host organization proposed the issue(s) prior to the Corporate OSART mission, the team will assess the issue(s) during review of the AIP. During the Corporate OSART mission, as part of the concerned area review, the team will build its opinion on the issue proposed by the host organization as well as on the associated action plan. The mutual agreement on the status of the issue has to be reached. When the team agrees that a proposed issue is valid and the host organization's effort in addressing the issue is reasonable, it will be categorized as a self-identified issue.

The results of the self-assessment may be included in the AIP in sufficient detail for the Corporate OSART team members to understand any challenges which the host organization might currently face. The AIP should also contain adequate information and data to ensure a good understanding of the overall host organization's vision of safety policies, safety goals and targets, organizational structures, current operating practices, the key operational features and safety performance indicators.

While the contents of the AIP should cover essential information related to operational safety, they should also be concise. All descriptions in the AIP should be in English, as this is the Corporate OSART mission working language. A typical content of an AIP is given in Annex I.

All information that may be needed for the IAEA and the Corporate OSART team members to access the office(s) of the Corporate Organization, the nuclear power plant(s) and closely related organizations to be visited is communicated in advance by the host corporate peer. This information and relevant forms which need to be completed, should be provided to the team members in sufficient time to allow for their completion prior to the team arrival.

3.2.5. IAEA preparatory activities

Three months to two weeks before the Corporate OSART mission, the team leader ensures timely distribution of WNOs and interactive training tools to the mission team members to provide for remote team training to familiarize themselves with or refresh Corporate OSART methodology and the publications used as the review basis (see IAEA basis in Section 6).

The team leader ensures that the host corporate peer identifies and communicates to the IAEA and the Corporate OSART team members all the information that may be needed for team members to be granted access to the plant or the office. This information and relevant paperwork which need to be completed, should be provided to team members in sufficient time to allow for their completion, prior to arrival on the site.

The team leader maintains contact with the host corporate peer during this period to confirm that all arrangements are progressing as planned, i.e. (a) the host organization has made arrangements for a hotel, with a workspace and PC hardware, printer and projector needed for the Corporate OSART

team members; (b) the AIP has been sent to the OSART team members; (c) the host organization has received all the information necessary to ensure that the Corporate OSART team members will have access to the office(s) of the Corporate Organization, nuclear power plant(s) and closely related organizations; (d) all logistical support needed for the mission is ensured; and (e) the team is made aware of initial arrangements regarding transport from the airport and any initial activities.

In the morning of the first day of the Corporate OSART mission, the team will meet at the specified venues, including that at the host organization headquarters. During this meeting:

- The team leader and the deputy team leader conduct the IAEA Corporate OSART team training;
- The team members deliver reports and discuss comments on the AIP review including the Corporate Organization's potential strengths, weak points and a list of questions they may have;
- The training is given to the Corporate OSART team members by the host organization to grant their access to the office, if needed;
- The team leader and the deputy team leader check that the Local-Area Network (LAN) to be used by the Corporate OSART team is set up and that Corporate OSART common folders have been created, where the information needed to perform the Corporate OSART mission is uploaded.

3.3. CORPORATE OSART MISSION

This Section describes the process during a Corporate OSART mission.

3.3.1. Entrance meeting

In the morning on the first day of the mission, after the team training, an entrance meeting is held. This meeting is attended by senior management or representatives of the host organization, the regulatory body and other concerned authorities, the Corporate OSART team members and their counterparts from the host organization.

3.3.2. The review

In the afternoon following the entrance meeting, the review starts. The team will conduct the Corporate OSART mission activities in accordance with the review schedule agreed with the host organization in advance. A typical Corporate OSART review schedule is presented in Table 1. In addition, each reviewer will prepare a review schedule for his or her own area and agree it with the respective counterpart.

TABLE 1. A TYPICAL CORPORATE OSART REVIEW SCHEDULE[3]

<table>
<tr><td></td><td>Saturday</td><td>Sunday</td><td>Monday</td><td>Tuesday</td><td>Wednesday</td><td>Thursday</td><td>Friday</td></tr>
<tr><td rowspan="2">Week 1</td><td rowspan="2"></td><td rowspan="2">Travel</td><td colspan="2">at corporate headquarters</td><td colspan="2">Site Visits (Nuclear Power Plant(s), Engineering Centres, Regional Emergency Centre)</td><td>at corporate headquarters</td></tr>
<tr><td>Team training

Entrance meeting

Start reviews

Daily Meeting</td><td>Morning: Reviews

Afternoon: Travel to sites</td><td>Reviews at the sites

Daily Meeting (videoconf.)</td><td>Morning:

Reviews at the sites

Afternoon: travel back</td><td>Reviews

Daily Meeting

Daily meetings between team leader and Chief Nuclear Officer</td></tr>
<tr><td rowspan="2">Week 2</td><td colspan="2">at hotel</td><td colspan="5">at corporate headquarters</td></tr>
<tr><td>Team meeting to evaluate results of sites visits

Prepare potential issues and prepare for the review</td><td>Team rest</td><td colspan="2">Reviews</td><td>Morning: Reviews

Afternoon: Development of issues and Good Practices</td><td>Develop Draft Technical Notes and discussion with counterparts

Meeting to finalize Technical Notes</td><td>Exit meeting

Press conference

Travel home</td></tr>
<tr><td colspan="4">Daily Meetings.

Daily meetings between team leader and Chief Nuclear Officer</td><td colspan="3"></td></tr>
</table>

In the evening of each working day of the review, at the team meeting each reviewer summarizes his or her concerns developed during the day, including perceived strengths and weaknesses. This creates an opportunity for other reviewers to contribute their views, further strengthening the experience base of the evaluation. Audio or video conference will be organized during the site visits.

On the second day of the mission, work starts with individual interviews, review of the policies, programmes and procedures and discussions with counterparts in each of the Corporate OSART review areas. From 16:00 to 16:30 on every review day, the Corporate OSART members debrief the results of the day, discuss facts to obtain an agreement and the schedule for the next day with the counterparts. The Corporate OSART members prepare daily reports from 16:30 to 16:55 and then the Corporate OSART team holds its daily meeting to exchange information on main concerns from 17:00 to 18:00. The host corporate peer is invited to attend the Corporate OSART daily team meetings and, if needed, provide additional clarification. During the evening, each reviewer is expected to transform his or her daily notes into working notes, which ultimately form the basis of the Technical Notes of the Corporate OSART team.

[3] The review duration as given in Table 1 will depend on the specific situation of each reviewed Corporate Organization and maybe 1–2 days shorter or longer than this typical schedule. The schedule will be agreed at the preparatory meeting.

The last two days of the mission are reserved for completing the mission's Technical Notes, and for the team to reach consensus on all the recommendations, suggestions, self-identified issues, good practices, encouragement, and good performances. The review methodology and evaluation criteria are described in Section 4.

The team will perform the mission in accordance with the Code of Conduct (see Annex II).

3.3.3. Exit meeting

The exit meeting, during which each Corporate OSART reviewer presents the results in his or her review area, takes place in the morning of the last day of the mission. This meeting is attended by senior management of the Corporate Organization, the regulatory body and any other closely related organizations, along with their staff. The dates of the Corporate OSART follow-up mission are also agreed between the host corporate peer and the team leader. If requested by the host Member State, the IAEA (the team leader and an IAEA press officer) prepares a press release on the results of the Corporate OSART mission together with the host and the IAEA headquarters.

Upon completion of the exit meeting, the IAEA team leader could be invited to present during a press conference, if so requested and organized by the host organization. If the host organization requests a press conference, the host organization invites the IAEA press officer to support the press conference with at least three months' notice to the IAEA prior to the mission. The host organization normally covers funding for the press officer's travel.

3.4. REPORTING

This Section describes the reporting process of a Corporate OSART mission.

3.4.1. Technical notes

During the review, each team member writes notes on his or her observations and conclusions, including any potential recommendations, suggestions, self-identified issues or good practices. The Technical Notes are agreed by the OSART team and the host organizations, and are considered by the IAEA to be 'restricted documents'. Each recommendation, suggestion and self-identified issue contained in the Technical Notes makes reference to the relevant paragraph(s) of the IAEA safety standard(s) and/or the International Labour Office publication(s). A copy of the Technical Notes is given to the host organization manager prior to the exit meeting.

3.4.2. The Corporate OSART report

On completion of the Corporate OSART review, the team leader will prepare the Corporate OSART report, based on the above Technical Notes. This is an official IAEA document, which summarizes the team's main observations and conclusions, including all recommendations, suggestions, self-identified issues and good practices. The report may also include encouragements for improvements on concerns that do not meet the definitions for recommendations or suggestions, respectively. The report may also include good performances that do not fulfil the definition of a good practice. Before the text is finalized, the Corporate Organization and regulatory body concerned have the opportunity to provide their comments. The final report is submitted through official channels to the Member State which requested the Corporate OSART. The copies of the report are sent to the country's Permanent Mission to the United Nations in Vienna, senior management of the Corporate Organization and the regulatory body. The team leader also sends electronic copies to both senior management of the Corporate Organization and the regulatory body. Good practices are published on

the IAEA website and in the OSART Mission Result (OSMIR) database immediately after the mission for the benefit of other Member States.

The IAEA restricts the initial distribution of the report to in-house users and to the Corporate Organization and the regulatory body involved. The report will be derestricted by the IAEA, 90 days after the submission to the Member State, unless the responsible person in the Member State requests that it remains restricted. To support the transparency of a national nuclear safety programme, the regulatory body, the host organization and/or relevant interested parties are encouraged to make the OSART report publicly available and to provide their consent, enabling the IAEA to post the completed OSART report on its public website. The Agency will also incorporate the issues into the OSMIR database if the report is derestricted.

3.5. CORPORATE OSART FOLLOW-UP MISSION

This Section describes the process of conducting a Corporate OSART follow-up mission.

3.5.1. Follow-up mission planning

The Corporate OSART follow-up mission usually takes place 12–18 months after the original OSART mission. The duration of the follow-up mission is 4–5 days, depending on the number of issues (i.e. recommendations and suggestions identified during the original OSART mission). The team leader determines the number of team members necessary for the mission, usually 1–4 members of the original Corporate OSART team, plus the team leader and the deputy team leader. The reason for using the original review team in the follow-up mission is to keep consistency of the scope and objectives until the mission is closed. The team leader liaises with the Corporate Organization and agrees on dates, financing and the contact details of the host corporate peer for the Corporate follow-up mission.

Approximately three months prior to the Corporate follow-up mission, the IAEA produces the relevant format of the follow-up Technical Notes for the Corporate Organization to complete its responses, i.e. the original OSART report is amended by the following five additions:

- At the end of the INTRODUCTION AND MAIN CONCLUSIONS section, of the sub-section entitled "[*Corporate Organization Name*] Self-Assessment for the Follow-Up Mission", which the Corporate Organization completes prior to the mission;
- After the above sub-section entitled "[*Corporate Organization Name*] Self-Assessment for the Follow-Up Mission", the sub-section entitled "Corporate OSART Team Follow-Up Main Conclusions", which the team leader completes at the end of the mission;
- After the IAEA basis of each issue, the sub-section entitled "Corporate Organization Response/Action", which the Corporate Organization completes prior to the mission;
- After the above "Corporate Organization Response/Action", the sub-section entitled "IAEA Comments", which the follow-up team members complete following review of the actions taken by the Corporate Organization on the issue;
- After the above "IAEA Comments", the "Conclusion", which is the team's consensus opinion on the extent of resolution of the issue by the Corporate Organization.

Each "Corporate Organization Response/Action" should include the analysis conducted on the issue, the root cause identified, corrective action plans developed for the root cause, the progress to date on those actions, and the evaluation of the effectiveness for the corrective action. The description of "Plant Response/Action" should be limited to one or two pages.

This document is sent to the Corporate Organization so that they can complete its responses. Once it has been sent back to the IAEA, this document becomes the document used by the team leader for the start of the follow-up mission. This document containing the "Corporate Organization Response/Action" for all issues is sent one month in advance of the mission to all follow-up team members. Prior to the follow-up mission, a preparatory meeting can be organized at the request of the host organization with the aim of providing support to strengthen the responses and actions.

If an exceptional circumstance (e.g. pandemic) is recognized at the planning phase, the follow-up mission could be conducted in two separate periods of time on a case by case basis, as follows:

- Period 1: Two to three experts from the original mission analyse the Corporate Organization responses to the recommendations and suggestions, and produce the first draft of the follow-up mission report. The team leader and the deputy team leader then analyse the draft report and discuss with experts to identify what additional information is required and if any verifications are required to make a complete assessment. Period 1 concludes before Period 2.
- Period 2: The team leader and the deputy team leader visit the Corporate Organization for up to a week to obtain additional information and to undertake verifications. The team leader and the deputy team leader exchange information with the experts during the site visit and a copy of the draft report will be presented to the host organization at the end of the follow-up mission on the site.

This arrangement is different from the 'staged approach', which is applied considering the progress of the Corporate Organization's response(s) for the issue(s) as defined in Section 4.5.

3.5.2. The review of the Corporate Organization's response for issues

At the start of the mission, the team members agree to the review schedule with their counterparts and proceed in determining the status of resolution of the issues (recommendations, suggestions, self-identified issues) in accordance with the definitions of issue status, as indicated below. A team meeting is held each day, and the results of the review are discussed and agreed on where relevant. The host corporate peer also participates in this meeting.

If during this evaluation a new significant safety finding is identified, the implications of such a finding needs to be discussed and agreed within the review team. Then the counterpart should be informed of the finding, and the review team may look for other facts related to the finding to make an informed conclusion. If the finding meets the definition for a recommendation or suggestion, the team leader presents the issue to the senior management of the Corporate Organization for their benefit and includes it in the full report.

In the exceptional case where an action plan for the resolution of recommendation or suggestion has just been implemented prior to the follow-up mission and there is no way to assess its progress and/or effectiveness and, therefore, the definition of 'insufficient progress to date', by its nature, cannot be applied, the Corporate OSART team and the senior management of the host organization may decide to use the 'staged approach' (see Section 4.5). In addition, the approach taken in Section 4.5, can be used to address any new issues identified during the follow-up mission.

If a significant number[4] of issues show 'insufficient progress to date' during the Corporate follow-up mission, it will be recommended to the Member State that an invitation be issued for another follow-up mission in one year's time to evaluate further the progress on those issues classed as 'insufficient progress to date'. In such a case, a support mission or workshop can be offered to the host organization prior to the second follow-up mission.

An exit meeting is held on the last day of the mission, and this presents an opportunity for each team member to formally present the team's conclusions on each issue.

3.5.3. Final Corporate OSART mission report

Following the Corporate follow-up mission, the team leader ensures that a full report is prepared in accordance with the standard IAEA format, copies of which will be sent for review and comments to the host corporate peer and the regulatory body, as was the case with the original Corporate OSART report. Copies of the final report are sent to the country's Permanent Mission to the United Nations in Vienna, senior management of the Corporate Organization, and the regulatory body.

4. REVIEW METHODOLOGY

4.1. REVIEW TECHNIQUES

Safe operation requires effective leadership, management, competent personnel, and strong safety culture as well as effective management system processes, programmes and procedures. The Corporate OSART is a 2.5 week objective assessment to improve the operational safety of the Corporate Organization, its nuclear power plant(s) and the closely related organizations. It does this by conducting a review of the application of the IAEA safety standards in key operational safety areas. It assesses the written procedures and also how the written procedures are being implemented by the Corporate Organization, its nuclear facilities or the closely related organizations.

For this purpose, the Corporate OSART team typically uses the following techniques to acquire the information needed to develop its recommendations and suggestions, and to evaluate self-identified issues. These are:

- Reviews of documented information;
- Interviews with personnel in the Corporate Organization, staff in the nuclear power plant(s) operating organization, and representatives of other organizations, contractors, or regulatory body, as appropriate;
- Observations during meetings and committees as well as direct observations of staff behaviours and performance in the field, equipment material conditions and housekeeping.

To be able to make informed assessments, reviewers are expected to cover each topic to the extent necessary, based on the key elements contained in the WNOs for each of the specific review areas. Review findings should be described and supported by accurate notes containing several facts to the degree required to make the significance of findings understandable. Formulation of recommendations, suggestions and self-identified issues should be based on the identified gaps as compared to the IAEA safety standards. Meanwhile, good practices that are identified during the

[4] For example, the case that more than 50% of the 10 or more issues are classified as 'insufficient progress to date'.

process of the review should be documented for the benefit of other Member States and described in the Corporate OSART report in sufficient detail as to be readily understood.

It is expected that Corporate Organization's daily activities (e.g. routine meetings during the Corporate OSART mission) will follow the established work schedule, so that the team will be able to observe typical activities in the Corporate Organization or visited site(s).

The reference publications for the basis of the OSART review are limited to the IAEA safety standards and the publications of the International Labour Office listed in the Bibliography. All other publications listed in the Bibliography, such as INSAG Series, Safety Reports Series, EPR Series, TECDOC and Services Series, introduce specific ways to realize the recommendations in the documents used for the basis and might be used in communication with counterparts, but are not included in the Technical Notes. It should be noted that changes in the Bibliography will occur as these documents the aforementioned publications are being revised. Therefore, at the time of the preparatory meeting, the list of reference publications to be used as IAEA basis, and the appropriate versions of the WNOs reflecting them, will be discussed.

Security issues are not in the scope of the Corporate OSART review, but synergy between safety and security should be reviewed to ensure that safety measures do not compromise security and security measures do not compromise safety. If such issues are identified by the team, they should be brought to the attention of the senior management of the Corporate Organization.

4.1.1. Corporate documented information review

Documents of general interest to the whole team, including the results of the self-assessment, are included in the AIP. In addition, during the review, each reviewer may decide to review additional documents, specific to his or her area and used by the Corporate Organization, plant(s) and other organizations, taking into account translation constraints.

Such documented information for review may include, but is not limited to:

- Strategies, policies, programmes, plans;
- Organization structure, job descriptions;
- Management system documents and records, and procedures;
- Historical performance data and event investigations, indicators and key performance indicators;
- Training programmes and qualification records;
- The language and terminology used by various groups which provide information and insight into review results and conclusions.

The aim of a document review is to gather information on the requirements and management expectations, including how the host organization prioritizes safety through its management system documentation and how responsibilities and authority are distributed in the organization. Document reviews provide the basis for insight into differences between stated intent and actual performance. The documented information may also be reviewed to check and confirm the information gathered during the interviews or direct observations during site visit(s).

4.1.2. Interviews

Interviews are another important method used in the Corporate OSART review process. Interviews are conducted with an individual or a small group of people and may be held face-to-face or virtually.

Interviews with personnel are used by the Corporate OSART team to:

- Gather additional information not covered by documentation review;
- Seek answers to questions and, thus, satisfy possible concerns arising out of the documentation review;
- Assess personnel's understanding of their duties and responsibilities;
- Assess personnel's competence, professionalism and commitment to nuclear safety;
- Provide the opportunity for all important information to be exchanged between reviewers and counterparts/interviewees.

These interviews should be open discussions and not interrogations of the counterparts by the reviewers. Properly conducted, these interviews are an important part of the Corporate OSART mission.

4.1.3. Observations during site visit(s)

Visits to the nuclear power plant(s) and other closely related organizations site(s), agreed during the preparatory meeting, have to be conducted in the first week of the Corporate OSART mission to identify potential areas or themes for follow-up during the second week at the corporate headquarters.

The interviews and observations should include nuclear and industrial safety practices, compliance with corporate policies, procedures and expectations, attitudes and behaviours of staff in the field and supervision and management control. However, on-site field observations are not the focus of the corporate OSART mission.

Based upon the reviews of documented information as well as interviews and observations, the reviewer can then assess performance. It may take several iterations of documented information reviews, interviews and observations to gain sufficient facts to complete an assessment.

4.2. DAILY REPORTING

During the interviews, documented information reviews and direct observations when at site, the reviewer takes copious working notes to reflect facts, discussions and observations. Writing working notes is a step by step process which begins the first day and continues every day. In the evening, the reviewer enters notes in the WNOs.

The WNOs are the basis for reporting facts and developing issues and is used as a fact collecting and reporting document. It is a tool used:

- To document review results each day during the evening, including recognition of good practices;
- To develop, document and communicate draft issues, recommendations, suggestions, good practices (using the IAEA safety standards) and the evaluative description of each topic;
- As an aid in developing the Technical Notes.

The WNOs should include an assessment emphasizing how programmes and policies are established, implemented and what performance is being achieved, how procedures and instructions are being followed, and how effective actions are in improving performance.

Good working notes should contain:

- Simple words, short sentences and impersonal language;
- Official names of organizations, programmes and systems (with counterpart's help);
- Spelt out abbreviations when they are used for the first time.

The WNOs are to be followed to form a skeleton for interview topics and observations when at site. The working notes are then used to form the area summaries for the Technical Notes. The version of WNOs to be used in each mission is provided to the host organization by the team leader and the deputy team leader before the mission during the preparatory meeting. The identified version of WNOs is provided to the reviewers with the remote team training tool (see Section 3.2.5).

4.3. ISSUE DEVELOPMENT

Issue development starts by grouping similar collected facts under a common concern and theme. An issue statement is then formed by providing a description of a weakness as a standalone statement. The statement usually begins with one sentence describing the FOP which is followed by a group of the most significant supporting facts (described based on the working notes), and a short statement of safety consequence.

The FOP should be supported by facts, relate to underlying causes, and be stated in terms consistent with the facts.

A statement of safety consequence is one sentence on how this issue will affect, or potentially affect, safety if the FOP is not addressed by the host organization.

Based on the evaluation criteria described in Section 4.4, a recommendation or suggestion is proposed that logically results from the issue statement which:

- Begins with a one sentence statement of the basic improvement that should be achieved. This sentence should be inverse of the FOP;
- Describes what performance should be achieved, not how;
- Includes a specific vocabulary ('should' for recommendations and 'should consider' for suggestions).

The recommendation or suggestion is followed by the IAEA basis which contains the references to associated IAEA Safety Standards Series publications.

A simple check list to verify that the issue has the correct characteristics is shown below:

- Is the FOP described in one sentence?
- Does the FOP describe a problem, not a solution?
- Is the correct problem described in the FOP?
- Is the FOP adequately supported by the facts?
- Are these facts directly addressing the FOP?
- Are these facts agreed by the counterpart?
- Does it contain at least one performance-based fact that could substantiate the FOP?

- Is there a suitable balance between performance-based facts and programme-based facts? Or, in other words, are the programme-based facts supported by performance-based facts?
- Are the safety consequences clearly stated?
- Can the problem as stated be resolved?
- Is it worthy of the organization's attention?
- Can the issue be understood by a non-team member?
- Are the appropriate IAEA safety standards representing the IAEA basis referenced?

4.4. EVALUATION CRITERIA AND CONCLUSIONS OF THE OSART MISSION

The focus of a Corporate OSART mission is on identifying gaps in performance from the IAEA safety standards.

Other publications, such as INSAG reports, Safety Reports and TECDOCs, also provide additional information relevant to the Corporate OSART review. These publications are provided as the OSART materials prior to each mission. However, these publications cannot be the basis for finding an issue, and an issue should only be based on the appropriate paragraph(s) of any IAEA safety standard(s).

In the evening of each working day of the review, at the meeting called by the team leader, each expert summarizes his or her concerns developed during the day, including perceived strengths and weaknesses. This creates an opportunity for other team members to contribute their views, further strengthening the experience base of the evaluation.

The Corporate OSART review thus provides an objective comparison of the observed corporate practices and visited plant(s) safety performance with the IAEA safety standards. This comparison may result in a recommendation, a suggestion, a good practice (see Fig. 3) or confirmation of a self-identified issue (see Glossary in this publication).

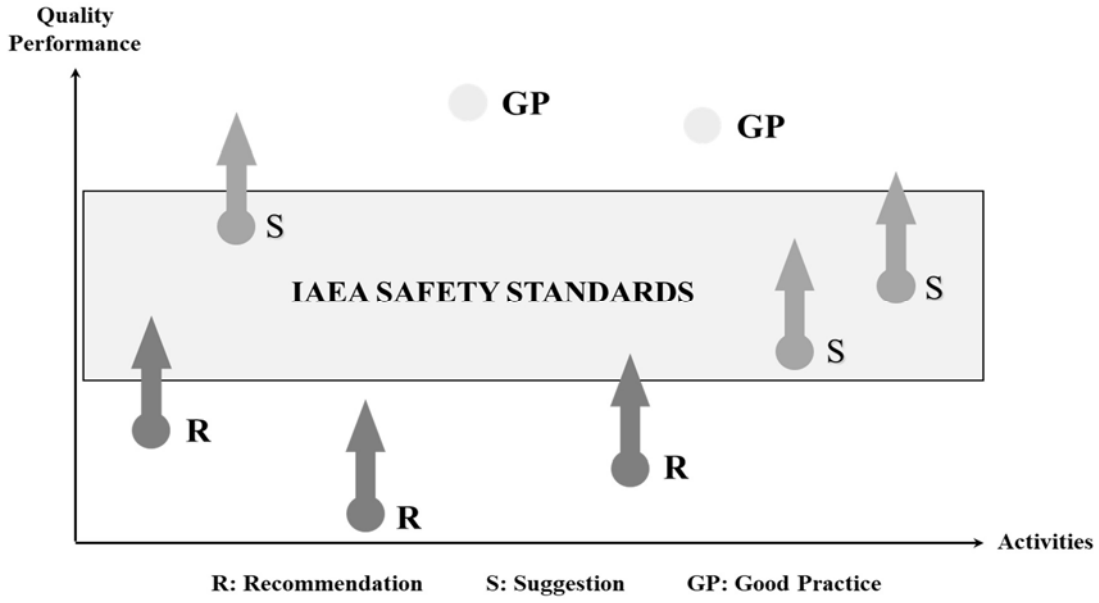

FIG. 3. Summarizing Recommendation, Suggestion, and Good Practice

4.5. EVALUATION CRITERIA AND CONCLUSIONS OF THE FOLLOW-UP MISSION

In the follow-up mission, the IAEA assessment of the progress achieved with the resolution of Corporate OSART recommendations, suggestions and self-identified issues is made, in accordance with the definitions in the following Sections 4.5.1. to 4.5.9.

4.5.1. Recommendation or Suggestion – Issue resolved

All necessary actions have been taken to deal with the root cause of a recommendation or suggestion rather than to just eliminate the facts identified by the team. A management review has been carried out to ensure that actions taken have eliminated the root cause. Actions have also been taken to check that it does not recur. Alternatively, an issue is no longer valid due to, for example, changes in the operating organization.

4.5.2. Recommendation or Suggestion – Satisfactory progress to date

Actions have been taken, including root cause determination, which lead to a high level of confidence that a recommendation or suggestion will be resolved within a reasonable time frame, after the follow-up mission. These actions might include, for example, budget commitments, staffing, document preparation, increased or modified training, and equipment purchases. This category implies that a recommendation or suggestion could not reasonably have been resolved prior to the follow-up mission, either due to its complexity or the need for long term actions. This category also includes recommendations and/or suggestions which have been resolved using temporary or informal methods, or when resolution has only recently taken place and its effectiveness has not been fully assessed.

4.5.3. Recommendation or Suggestion – Insufficient progress to date

Actions taken or planned do not lead to the conclusion that a recommendation or suggestion will be resolved within a reasonable time frame. This category includes recommendations and/or suggestions in response to which no action has been taken, barring recommendations and/or suggestions that have been withdrawn.

4.5.4. Self-identified issue – Issue resolved

All necessary actions have been taken, as defined in the self-assessment and the corresponding action plan, to address the root cause of an issue. A management review has been carried out to ensure that actions taken have eliminated the issue. Actions have also been taken to check that it does not recur.

4.5.5. Self-identified issue – Satisfactory progress to date

Actions have been taken, as defined in the self-assessment made and the corresponding action plan to deal with the root cause and contributing causes, which lead to a high level of confidence that the issue will be resolved within a reasonable time frame.

4.5.6. Self-identified issue – Insufficient progress to date

The action plan developed to resolve the issue was not implemented as expected or did not achieve the expected results.

4.5.7. Recommendation or Suggestion – Withdrawn

The recommendation or suggestion is not appropriate due to, for example, a change in operating organization and/or structure and/or the emergence of new, previously non-existent, circumstances associated with the identified issue.

4.5.8. Staged approach

In the exceptional case when an action plan for the resolution of recommendation or suggestion has just taken place prior to the follow-up mission and there is no way to assess its progress and/or effectiveness and, at the same time, the definition of 'insufficient progress to date', by its nature, cannot be applied, the IAEA team and the senior management of the operating organization may decide to come back to review the operating organization's response to the recommendation or suggestion using a 'staged approach' in the course of the 'Second Stage' follow-up mission[5]. This case will be described in the Chapter 'First stage follow-up main conclusions' of the 'First stage follow-up report'. In case of application of the 'staged approach', a Member State will issue an invitation to the IAEA for a 'second stage follow-up mission' to be conducted in about one year after the first stage follow-up mission.

An application of the 'staged approach' towards recommendations and/or suggestions should be made by the host organization in advance, during the preparation phase for the follow-up mission, by notifying the team leader for the follow-up mission, and appropriate information should be provided in the 'Technical Notes for the follow-up mission'.

4.5.9. New issue during the follow-up mission

In exceptional cases, a new issue can be developed using the same format by the IAEA team during the follow-up mission, if a significant deviation directly affecting safety is observed and agreed within the team. Such an issue will be brought to the attention of the senior management of the operating organization by the team leader and an agreement reached on a suitable period of time to review the status of the actions taken to address the issue.

5. PRACTICAL TIPS FOR REVIEWERS

5.1. INTRODUCTION ON PRACTICAL TIPS FOR REVIEWERS

The process used to obtain information during the review of operational safety practices in a Corporate Organization or closely related organization should be based on document reviews, interviews, observations during meetings and committees and the visits of site(s), with a focus on essential aspects of operational safety performance.

As far as possible, documented information reviews, interviews of personnel, observations during meetings and committees as well as visits of site(s) or closely related organization should serve as evidence to enable the reviewer to assess the operational safety performance. However, these review activities should be conducted effectively within the limited time. This section provides practical tips for performing document reviews, interviews and observations effectively.

[5] A reasonable time frame is normally considered as one year and a half (maximum) from the time of the follow-up mission.

5.2. DOCUMENTED INFORMATION REVIEW

Review of documented information is a sound way of collecting data by reviewing existing documents and records. It helps to verify compliance with management values and expectations, clarity of roles and authorities, management system processes, and effectiveness of working procedures. The review may also provide insights related to management practices and safety performance at the nuclear installation and closely related organizations. The evidence and data gained from documented information analysis usually provides additional supporting information to be used during other assessment methods.

Examples of documents of general interest to the whole review team are included in the AIP. In addition, during the review, each expert will review documented information, specific to his or her area and used by the host organization, such as (non-exhaustive list):

- Corporate policies, programmes and plans;
- Organization structure and job descriptions;
- Goals, objectives and key performance indicators;
- Databases and registers;
- Training programmes and qualification records;
- Minutes of meetings and reports;
- Assessment, self-assessment and quality records, including corrective and improvement actions;
- Documentation of the management system;
- Lessons learned and operating experience information, including event and incident reports from the organization's nuclear installation(s);
- Records on organizational changes.

5.2.1. Performing documented information review

To obtain valuable data from the documented information review it is essential to define clearly what documents or records are required. For this purpose, the set of Working Notes Outlines should be used.

Documented information offers specific and stable data, which is unaffected by the presence of interviewee and reviewer. Additionally, it helps to focus on the questions that might be asked in interviews and to better understand what to look for during observations when at site(s) or closely related organizations. It is particularly useful when focusing on a particular aspect of the review area is required.

The themes underlying the review of the documented information include the following considerations:

- Consistency and inconsistency of documented information (e.g. chronology) in various sources;
- Prioritization of safety aspects across the documented information;
- Accuracy and validity of presented information, including alignment with the IAEA safety standards;
- Missing documentation (e.g. policies, programmes, procedures or records);
- Backlogs (e.g. delayed actions, safety upgrades, organizational changes, document revisions);
- Culture for safety and human factor management;

- Availability of trend information and its use;
- Depth of root cause analyses in terms of organizational issues;
- Timeliness of actions taken to address safety concerns.

5.2.2. Documented information review techniques

Documented information could be reviewed from the following perspectives:

- Document quality: assess in terms of structure, format and content, and in particular for the presence or absence of safety focus, operating experience and best practice;
- Information consistency: where possible, several documents of the same type are reviewed to assess the extent to which the information from various sources is consistent or inconsistent;
- Validity: check if the document has required requisites (e.g. date of issue, signatures, revision number and time frame for validity, when applicable);
- Document usability: while difficult to assess by document review, some indirect indicators related to the use or implementation of a document could be considered (e.g. clear, comprehensive and user friendly).
- Consistency with reference publications: check if the document is in line with reference publications (e.g. the IAEA safety standards).

5.3. INTERVIEWS

The main objective of the interviews is to gather additional information not covered by documented information review or observations during meetings and committees as well as visits of site(s) or closely related organizations. Interviews allow for a greater flexibility in questioning, with the possibility for follow-up questions, making it easier to gain a better understanding of the approach or philosophy of the organization, to 'unfold' the actual organizational processes and to obtain deeper meanings. They can also show how people interpret policies and programmes, safety concerns or events and learn from these.

Considering that interviews are not anonymous, and can therefore evoke caution or anxiety in the interviewees, a cautious approach should be taken to the interpretation of the information gained from the interview as the interviewee may not feel comfortable; this could diminish the quality of information gained. Thus, it is important to inform the interviewee about the purpose of the interview and that the results of interviews should be treated as a reflection on an organizational or programmatic characteristic, not of an individual, and no name will be recorded to ensure anonymity outside the interview room.

5.3.1. Conducting interviews

Interviews can be very stressful, but the key to decreasing the stress and increasing the benefits is the selection of a right format and careful interview preparation. Interviews are complex interactions and hence have limitations. Therefore. several aspects need to be taken into account during the preparation:

- What to ask: consider which topics and activities should be discussed and develop a list of several significant questions to confirm staff understanding of programmes they are involved in, safety implications of their duties and responsibilities, competence, and commitment to safety, in line with the WNOs;
- How to ask: use a mix of closed questions and open questions, where the interviewee can answer in a way that provides explanations of how and why[6];
- Who and when to ask: If interviews are to be conducted with contractors or subordinates of your counterpart, the counterpart's permission should be obtained the day before. Depending on the arrangements, interviews may be conducted with the participation of their supervisor or the main contractor.

At the beginning of the interview, the reviewer should explain the topic(s) to be discussed. The interviewee should understand that the purpose of the interview is not to collect personal opinion or complaints, but to have additional insights to programmes and practices. It is also important to choose the right place and the right time for the interview, if possible.

Depending on the type of interview, questions play a significant role in shaping the content and flow of conversation. The interviewer should use general questions to gather information on specific topics, for example: "Can you explain how operational safety decisions are made?" Review of the related documented information may be a part of the interview, but it should be requested at appropriate times, when it is necessary to confirm interviewee statements or provide additional details for deeper understanding of the topic discussed.

Interviewees are sensitive to the behaviour of the interviewer; therefore their efficiency could be increased by following simple rules or protocol:

For the interviewer:

- Be polite, listen carefully and avoid the impression of interrogation;
- Maintain an inquisitive attitude;
- Keep an open mind and remove barriers (noise, perception and prejudice, stress, distortions, intrusion of personal space (keep the right distance);
- Focus on facts, ask for confirmation, do not lecture on how you did, how you do, or how you will do;
- Do not assume — ask additional questions;
- Maintain a professional attitude at all times.

For the interviewee:

- Be relaxed and provide the answer to your best knowledge;
- If the asked question is not in your scope of work, suggest the right person to answer.

For both interviewer and interviewee:

- Establish trust and good relationship;
- Make sure your words are clear and easy to understand and avoid jargon;

[6] The interviewer may use closed questions to check whether their understanding is correct or not. Such closed questions could be used to follow-up on negative facts, which can be stressful for the interviewees. Therefore, the interviewer should use open questions as much as possible, so that his or her questions are ones that will get people talking about good practices as well, not just looking for negative gaps.

- If you do not understand the question or answer, ask for clarification (do not assume);
- Be aware and respect the difference of communication cultures of each other, but maintain a straightforward and unambiguous communication;
- Control and try to interpret body language positively.

In cases when simple answers like "Yes" or "No" are provided, subsequent open questions (using 'how' or 'why') could be developed to identify particular problems. Notes from the interviews are important to be kept, allowing for an appropriate follow-up of the interview (including summarizing results with the counterpart(s) at the end of the interview).

5.3.2. Interview techniques

Some useful tips for the success of interviews:

- Allow the WNOs and data from the team review to define the aspects to be discussed and questions to be asked;
- Make sure that the questions are clear and unambiguous;
- Ask the most important questions to a number of different people (if possible);
- When interviewing a small group, consider differences and inconsistencies in reasoning and perceptions;
- Remain conscious of interpretation bias (preconception);
- Do not provoke or criticise the senior management;
- Be aware of the degree of confidentiality that interviewees can expect;
- Take notes of the facts and documents presented to confirm statements or facts[7];
- When interviewing through an interpreter, consider making sure that the question is correctly understood and changing the way to ask questions in order to obtain clear answers.

5.4. OBSERVATIONS

Observations of ongoing activities is a supplemental part of the OSART methodology for Corporate OSART missions, combined with other review techniques. It is part of the review process to determine the results being achieved in operational safety by the host organization.

A Corporate OSART mission may include observations during meetings and committees, as well as direct observations of equipment material conditions and housekeeping in the field, when at site or at the closely related organization. Observations can be conducted by one expert or a small group of experts.

The expert should have a broad outlook and be critical of his or her surroundings and of ongoing activities. Information obtained through observation becomes an important component of the basis for the overall review results. By refining his or her observation skills, the expert can see conditions and situations that are generally symptomatic. Attention to detail is paramount.

In selecting an activity and/or facility and planning for the observation segment of the review, there are several questions that can be considered to help decide on the most beneficial activities to observe. Some basic questions, with commentary, include the following:

[7] In some cases, it may be best to keep notetaking to a minimum (e.g. writing down questions that come to mind during an interview), as notetaking can interfere with natural conversation and make interviewees uncomfortable.

- Is the meeting or committee important for operational safety? Observations need not necessarily involve operational safety related meetings or committees; however, if the meeting or committee is operational safety related or important to safety, the results of the observations will carry considerably more weight. That is, meetings or committees important to operational safety should be structured and led in a manner that promotes excellence and focus on safety issues. If deficiencies in this type of meeting or committee are noted, they may be significant in themselves.
- Should the nuclear power plant or other nuclear facility be visited? In most cases, observing the plant(s) or other nuclear facility can provide important information on how corporate policies and expectations are understood and implemented in the field. It also shows how effective the Corporate Organization is in managing, overseeing, and supervising its facilities.
- Does the closely related organization provide operational safety related support or services? Observations on the performance of such organization (e.g. large maintenance contractors and commissioning organizations) often provide a significant input to evaluate the Corporate Organization.

In selecting an activity and/or facility to observe, the expert is looking for information or facts that are representative of the ability of the Corporate Organization to implement its policies, requirements and expectations. With an appropriate selection of activities and/or facilities, the results of the observations will provide an overall reflection of the host organization's performance. Care should be taken not to identify the individual(s) involved in the observation. Instead, the results of observations should be treated as being characteristic of the functioning of the Corporate Organization, and the person(s) involved should remain anonymous.

5.4.1. Conducting observations

Preparation is the key element of all phases of an observation as it is for the other methods of the review. The two most important parts of the preparation phase are the determination of 'what' and 'where'. The 'what to observe' can be determined by establishing a liaison with the host organization to ascertain what activities will be going on during the period of the review. This will enable the expert to plan for observation of specific meetings or committees and to conduct the necessary review and study. Other activities will be observed as they arise. The 'where to observe' question is answered best by determining 'the most important facility or closely related organization'.

Most observations should be planned, agreed and announced in advance, and arrangements made as to when and where the expert(s) will perform an observation of the meeting or facility. By conducting direct observations at the Corporate Organization's nuclear facility or closely related organization, the reviewer gains considerable insight into potential areas of concern. This then enables the reviewer to properly direct his or her activities during the remainder of the mission. The guiding principle for preparation is for the reviewer to read the appropriate IAEA safety standards, procedures, and similar documents, prior to observing any activity or facility. If observing a meeting, an agenda for the meeting and other associated documents should be requested and obtained in advance and cross-referenced to consider whether the key strategic objectives of the meeting are referenced in the discussion.

The following examples are valid for observations during a Corporate OSART mission and illustrate the type of meetings or committees that provide a good indication of overall performance (non-exhaustive list):

- Corporate Organization Executive Team meeting;
- Corporate Organization manager's weekly or monthly meeting;
- Safety and safety culture committee meeting;
- Strategy planning or business development committee;
- Human resource development committee meeting;
- Management review meeting.

When observing meetings or committees, arrangements should be made for the observer(s) to be introduced to the Chair. The Chair may ask the observer(s) to explain what they are doing, so it is important for the reviewer(s) to provide a short description of the process and present themselves.

Arrangements should be made to ensure that the observer(s) is in place well in advance of the meeting to avoid causing disruption. As an observer of the meeting, it is important not to interrupt the normal flow of the meeting or participate in the meeting but to maintain a neutral position throughout.

It is not unusual for a Chair to request feedback as part of the observation process. It is good etiquette to give the Chair of the meeting first access to the feedback and explain how this will be shared with the OSART team. The main observations could be shared at this stage and framed in constructive terms, avoiding details.

The following illustrate particular items to be noted during observation of meetings and committees that are important in understanding how the Corporate Organization is working:

- How was preparation for conducting a successful meeting arranged?
- What are actual start and finish times of the meeting?
- Are meeting participants prepared for the meeting?
- What are behaviours and ways in which the meeting is led and managed?
- Is focus on safety issues and concerns maintained throughout?
- Is there opportunity for all participants to raise safety concerns and contribute to meeting success?
- How much time is dedicated to, and what is the content of, each of the individual items under discussion?
- Do they discuss items that were not identified on the agenda?
- What are behaviours and ways in which debates are held? Do all participants contribute to the debates and discussions?
- What is the decision making approach and is there mutual respect?

When making observations during the visits to plants or other closely related organization, establishing good relationships with their representatives is important. They should understand that the purpose of the visit and observation is not to criticize them personally, but to look for possible improvements as well as good performance. This includes observations during walkdowns and task performance.

During observation in the field at the site or at the closely related organization the following illustrate particular items to be noted:

- Adequacy of labelling and safety signs;
- Industrial safety and equipment material conditions;
- Housekeeping: cleanliness, storage areas, debris, etc.;

- Staff safety behaviour and use of personal protective equipment;
- Use of predefined routes for the tours on the site.

The expert should be looking, in a broad manner, at many items during the observation process. As well as observing the activity taking place, the reviewer should also consider asking some additional questions to gain a broader understanding of the factors which could influence the way the activity is being carried out:

- To what degree does the individual being observed understand the basic objectives and policies of the host organization regarding quality work and adherence to procedures?
- What training have the individuals received that relates to their activities during this observation?
- Do the individuals involved in task performance communicate effectively and ensure peer check?
- What is the industrial safety and material conditions in all areas encountered during this observation?
- Do supervisors monitor the work activity? Do they provide appropriate guidance and training?

Questions are a necessary part of any observation, but should only be asked at appropriate times, when they do not adversely affect the performance of the individual being questioned.

After observing the work activity, the reviewer should thank the observed staff and offer their feedback before leaving. The reviewer should then analyse their observations and identify facts (deviations from standards) and/or good practices. This process generally results in the need for follow-up action to resolve unanswered questions. This follow-up may require a return to the physical area of the facility to confirm initial conclusions or gather further information.

Except in the case of an immediate hazard to equipment or personnel safety, reviewers should not interfere with nuclear power plant or closely related organization evolutions. Any unsafe deficiencies should be corrected as soon as possible, however, the corrective actions, such as revision of procedures or training, should not be taken immediately, but should be taken based on the root causes identified following the result of the review.

In the field, the reviewer should ask their counterpart to take as many pictures as necessary to illustrate facts collected. Care should be taken to ensure that photographs do not identify individuals. In addition, instructions from the host organization should be followed with regard to items that should not be taken for security reasons. Pictures will be downloaded into the Local Area Network (LAN) as soon as possible.

5.4.2. Observation techniques

- Take detailed notes which should be factual, accurate and sufficiently detailed — sometimes apparently irrelevant material becomes meaningful when analysing and summarizing an activity.
- Log the time when taking notes. These can be used to correlate both plant responses and personnel actions noted by other reviewers in other areas of the facility.
- Include document numbers and other reference information for follow-up.
- Include questions and items to follow-up in the notes. Information could be lost if memory is trusted for recall later.

- Include the preparatory activities being undertaken for the observation, if possible. Watch the tagout. Watch how the personnel gathers tools and parts.
- Do not assume — ask questions. Even if operator A told you the answer, ask operator B (however, do not entrap people).
- Constantly ask yourself, 'Why is the person being observed doing that? Is it the correct thing to do?' Note details.
- Do not just observe the activity, observe the individual(s) and the surroundings. Look under, over, and around. Think beyond the evolution, for example:
    - Why does the snubber not have oil in it?
    - Why is the wrench in use painted red?
    - Where did that instrument come from?
    - Why does the operator keep changing settings?
    - How many management personnel have I seen?
- Follow-up after the evolution is completed. Track paperwork, review the job with supervisors, and question those who performed the task.
- For evolutions of a longer duration, make periodic observations. Several 30-minute periods spread throughout the day can be more meaningful than one three hour period.
- Ask for the relevant work procedure in advance to get familiar with the work process.

5.5. WORKING WITH COUNTERPARTS

It is important to keep an open mind and establish a good cooperative relationship early to gain the trust and support of counterparts by professional and honest interactions. The counterpart should be encouraged to take joint responsibility for the quality of the review by helping to maintain the review schedule and obtain correct and complete information so that the reviewer has a complete and accurate understanding.

A strong supportive relationship between the reviewer and the counterpart creates the opportunity for high quality issues to be identified and increases the sense of ownership of the issues by the counterpart at the end of the mission.

6. SPECIFIC GUIDELINES

The organizational structure of Corporate Organizations and assignment of responsibilities vary from country to country. This will influence the scope of a Corporate OSART review. The reviewers should be sensitive to differences in national legislation and culture, and strive to be objective and consistent as well as being balanced and fair. The scope should be defined in the request and/or during the preparatory activities for the mission and should reflect the needs of the organization that invited the review. The outline of a Corporate OSART scope is presented below:

The review area 'Corporate management' includes management for support to the nuclear power plant(s) and management of the corporate entity. It involves:

- Direction (establishing the organization's mission, vision, strategy, policies, goals and objectives, corporate approach to safety);
- Management system, including interested parties, risk and quality management, assessment/audit programme, graded application;

- Leadership (developing values and fostering a strong safety culture, communicating, motivating, encouraging and influencing priorities, practices, behaviours);
- Learning organization and continuous safety performance improvement;
- Control (monitoring, decision making and corrective actions, effectiveness evaluation);
- Resource management, including providing material and infrastructure, financial and human resources, information and knowledge consistent with needs of the nuclear power plant(s);
- Change management, including organizational change management;
- Crisis management.

The review area 'Corporate independent oversight' involves:

- Independent oversight programme;
- Organization and staffing;
- Independent oversight processes and working methods;
- Monitoring and review of effectiveness of independent oversight function.

The review area 'Corporate support to provide human resources' involves:

- Ensuring availability of appropriate staff through recruitment, selection and hiring;
- Appropriate training and qualification including leadership skills;
- Information and knowledge management;
- Succession planning and staffing changes;
- Individual performance assessment;
- Motivation;
- Union affairs.

The review area 'Corporate communication' covers:

- Internal and external outreach communication strategies;
- Role of communications personnel;
- Communication tools;
- Training of spokespersons and communications staff;
- Employee feedback mechanisms;
- Crisis communication plan content and its periodic review.

Corporate support in technical functions is typically provided in areas requiring unique technical expertise, for emergent issues beyond the technical capabilities or resources of the nuclear power plant(s), or for utilizing the economies of scale (cost advantages that the utility obtains due to the size of the fleet). For these functions, the OSART Guidelines, 2022 Edition [2], can be used with certain tailoring, reflecting the function sharing among the Corporate Organization and the plants' organization. There may be specific subjects specified by the Corporate Organization as a separate area of review in addition to the standard review areas listed in Section 2.1, or such subjects may be a part of a standard area.

Examples of that may include:

- Procurement and supply chain (Leadership and Management for Safety (LMS), Maintenance (MA)[8]):
  - Procurement of equipment, materials;
  - Outsourcing policy, outside services;
  - Obsolescence management;
  - Evaluation and control of the supply chain.
- Asset management (Maintenance (MA), Leadership and Management for Safety (LMS), Technical Support (TS)):
  - Equipment reliability;
  - Outage management;
  - In-service inspection;
  - Material testing;
  - Ageing management;
  - Long term operation (LTO).
- Fuel management and reactor core design (Technical Support (TS));
- Design engineering (Technical Support (TS)):
  - Design authority;
  - Plant modifications;
  - Configuration management.
- Information technology (Leadership and Management for Safety (LMS));
- Management of safety related risks (Leadership and Management for Safety (LMS), Technical Support (TS), Radiation Protection (RP)):
  - Nuclear safety;
  - Industrial safety;
  - Radiation safety;
  - Fire safety;
  - Seismic risks.
- Safety–Security interface:
  - Environmental protection;
  - Requirements management, including changes of requirements;
  - Licensing and regulatory interactions.
- Resilience management:
  - Emergency preparedness and response (EPR);
  - Accident management (AM).

6.1. CORPORATE MANAGEMENT

The safe and reliable operations of a nuclear power plant(s) imply the management of numerous activities in various areas — including nuclear safety, health, radiation protection, non-radiation safety, environment, security, quality — and of social and economic elements. All these elements should be integrated into the Corporate Organization's management system to ensure that safety is not compromised and remains the first priority. Senior management of the Corporate Organization should establish, implement and continuously improve the management system, and define policies, strategies, plans, as well as goals and objectives to be achieved. The management system is developed in a way that provides for a graded application of its requirements.

[8] The following abbreviations in this section refer to OSART review areas.

The management system should also describe organizational structures, processes, responsibilities, and levels of authority within the Corporate Organization, and the interfaces with external organizations. The management system and establishment of Corporate Organization's leadership for safety is such as to foster and sustain a strong safety culture in the organization and its nuclear power plants.

The corporate management evaluation includes a review of the effectiveness of the management system in ensuring and enhancing safe and reliable operation of nuclear power plant(s). It also ensures regular assessments of leadership for safety and culture for safety at all organizational levels and for all functions within the Corporate Organization.

The strength of this review is the identification of common themes through the integration of information collected from all the other review areas of the Corporate OSART mission as well as additional information collected by the reviewer(s) for this area. The additional information is collected to better understand how the values, attitudes, and beliefs of plant personnel impact their interaction with the technology and organization. The reviewer(s) for this area collaborates with all other reviewers, in particular with the reviewer of corporate independent oversight as the two review areas relating to the integrated management system overlap, as the nuclear installations need to implement an integrated management system that includes safety, health, environmental, security, quality, human-and-organizational-factor, societal and economic elements, so that safety is not compromised. Integral to this approach is an understanding of the culture of the organization in which the individuals, technology, and organization interact with each other.

Corporate management is a cross-functional and complex area. Therefore, it may be covered by two reviewers and any input from the reviewers of other review areas is beneficial to support the corporate management area.

During the review, appropriate attention should be paid to special features of organizational culture for safety, which may have a strong influence on management practices. However, the OSART review focuses on the artefacts (observables including behaviour) and the values (claimed and tacit) that can be identified during the Corporate OSART mission. For a full assessment of the safety culture, a methodology applying a broader use of data collection methods and cultural analysis is needed. This is provided in the IAEA Independent Safety Culture Assessment[9] (ICSA) which is offered as an add-on area of review in the frame of an OSART Mission.

IAEA Basis

SSR-2/2 (Rev.1) [1]; SF-1 [3]; GSR Part 2 [4]; GSR Part 4 (Rev.1) [5]; SSR-2/1 (Rev.1) [6]; GS-G-3.1 [7]; GS-G-3.5 [8]; SSG-28 [9]; SSG-71 [10]; SSG-72 [11]; SSG-74 [12]; SSG-75 [13]; SSG-76 [14]; ILO-OSH 2001 [42]; ILO – Safety and health in construction [43]; ILO – Safety in the use of chemicals at work [44].

[9] An Independent Safety Culture Assessment provides deeper insight into the drivers that shape organizational patterns of behaviours, safety consciousness, and safety performance. By combining a safety culture assessment with an OSART Mission, facilities gain a snapshot-in-time of their operating safety performance and the cultural dimensions that influence these results. By exploring the connection between OSART findings and safety culture findings, facilities can begin to identify and systematically address systemic challenges to safety performance.

Key Requirements

"The registrant or the licensee — starting with the senior management — shall ensure that the fundamental safety objective of protecting people and the environment from harmful effects of ionizing radiation is achieved" (GSR Part 2 Requirement 1) [4].

"Managers shall demonstrate leadership for safety and commitment to safety" (GSR Part 2 Requirement 2) [4].

"Senior management shall be responsible for establishing, applying, sustaining and continuously improving a management system to ensure safety" (GSR Part 2 Requirement 3) [4].

"Senior management shall establish goals, strategies, plans and objectives for the organization that are consistent with the organization's safety policy" (GSR Part 2 Requirement 4) [4].

"Senior management shall ensure that appropriate interactions with interested parties takes place" (GSR Part 2 Requirement 5) [4].

"The management system shall integrate its elements, including safety, health, environmental, security, quality, human-and-organizational-factor, societal and economic elements, so that safety is not compromised" (GSR Part 2 Requirement 6) [4].

"The management system shall be developed and applied using a graded approach" (GSR Part 2 Requirement 7) [4].

"The management system shall be documented. The documentation of the management system shall be controlled, usable, readable, clearly identified and readily available at the point of use" (GSR Part 2 Requirement 8) [4].

"Senior management shall determine the competences and resources necessary to carry out the activities of the organization safely and shall provide them" (GSR Part 2 Requirement 9) [4].

"Processes and activities shall be developed and shall be effectively managed to achieve the organization's goals without compromising safety" (GSR Part 2 Requirement 10) [4].

"The organization shall put in place arrangements with vendors, contractors and suppliers for specifying, monitoring and managing the supply to it of items, products and services that may influence safety" (GSR Part 2 Requirement 11) [4].

"Individuals in the organization, from senior management downwards, shall foster a strong safety culture. The management system and the leadership for safety shall be such as to foster and sustain a strong safety culture" (GSR Part 2 Requirement 12) [4].

"The effectiveness of the management system shall be measured, assessed and improved so as to enhance safety performance, including minimizing the occurrence of problems relating to safety" (GSR Part 2 Requirement 13) [4].

"Senior management shall regularly commission assessments of leadership for safety and of safety culture in its own organization" (GSR Part 2 Requirement 14) [4].

“The operating organization shall establish a formal system for ensuring the continuing safety of the plant design throughout the lifetime of the nuclear power plant” (SSR-2/1 (Rev.1) Requirement 3) [6].

“The operating organization shall have the prime responsibility for safety in the operation of a nuclear power plant” (SSR-2/2 (Rev.1) Requirement 1) [1].

“The operating organization shall establish, implement, assess and continually improve an integrated management system” (SSR-2/2 (Rev.1) Requirement 2) [1].

“The structure of the operating organization and the functions, roles and responsibilities of its personnel shall be established and documented” (SSR-2/2 (Rev.1) Requirement 3) [1].

“The operating organization shall be staffed with competent managers and sufficient qualified personnel for the safe operation of the plant” (SSR-2/2 (Rev.1) Requirement 4) [1].

“The operating organization shall establish and implement operational policies that give safety the highest priority” (SSR-2/2 (Rev.1) Requirement 5) [1].

“The operating organization shall ensure that all activities that may affect safety are performed by suitably qualified and competent persons” (SSR-2/2 (Rev.1) Requirement 7) [1].

“The operating organization shall ensure that safety related activities are adequately analysed and controlled to ensure that the risks associated with harmful effects of ionizing radiation are kept as low as reasonably achievable” (SSR-2/2 (Rev.1) Requirement 8) [1].

“The operating organization shall establish a system for continuous monitoring and periodic review of the safety of the plant and of the performance of the operating organization” (SSR-2/2 (Rev.1) Requirement 9) [1].

“The operating organization shall establish and implement a programme to manage modifications” (SSR-2/2 (Rev.1) Requirement 11) [1].

“The operating organization shall establish and maintain a system for the control of records and reports” (SSR-2/2 (Rev.1) Requirement 15) [1].

“The operating organization shall prepare an emergency plan for preparedness for, and response to, a nuclear or radiological emergency” (SSR-2/2 (Rev.1) Requirement 18) [1].

“The operating organization shall establish and implement a programme for the management of radioactive waste” (SSR-2/2 (Rev.1) Requirement 21) [1].

“The operating organization shall establish an operating experience programme to learn from events at the plant and events in the nuclear industry and other industries worldwide” (SSR-2/2 (Rev.1) Requirement 24) [1].

“The operating organization shall develop and implement programmes to maintain a high standard of material conditions, housekeeping and cleanliness in all working areas” (SSR-2/2 (Rev.1) Requirement 28) [1].

"The operating organization shall ensure that effective programmes for maintenance, testing, surveillance and inspection are established and implemented" (SSR-2/2 (Rev.1) Requirement 31) [1].

"The operating organization shall establish and implement arrangements to ensure the effective performance, planning and control of work activities during outages" (SSR-2/2 (Rev.1) Requirement 32) [1].

6.2. CORPORATE INDEPENDENT OVERSIGHT

Corporate independent oversight provides for the assessment of the organization's safety performance to the corporate senior management and executive level up-to the Board of Directors that is fully independent of the operational line. The main purpose of corporate independent oversight is to identify potential safety issues and opportunities for improvement of corporate and plant(s) safety performance. The corporate independent oversight also assesses the effectiveness of the management system. The responsibilities for planning, undertaking and reporting of corporate independent oversight assessments are designed to fit the purposes and structure of the organization considering the particular size and complexity of the Corporate Organization. To perform effectively, the nuclear oversight groups in the Corporate Organization need to have adequate resources and to be sufficiently independent of their own line management to ensure an independent evaluation. The individuals assigned to the tasks have also sufficient authority and direct access to the senior management up to the Board of Directors at the corporate level. The independent nuclear oversight function for the operating organization, including responsibilities and the scope of activities, is described in the organizations' integrated management system.

IAEA Basis

SSR-2/2 (Rev.1) [1]; GSR Part 2 [4]; GS-G-3.1 [7]; GS-G-3.5 [8]; SSG-72 [11].

Key Requirements

"Managers shall demonstrate leadership for safety and commitment to safety" (GSR Part 2 Requirement 2) [4].

"Senior management shall be responsible for establishing, applying, sustaining and continuously improving a management system to ensure safety" (GSR Part 2 Requirement 3) [4].

"Senior management shall establish goals, strategies, plans and objectives for the organization that are consistent with the organization's safety policy" (GSR Part 2 Requirement 4) [4].

"The management system shall be developed and applied using a graded approach" (GSR Part 2 Requirement 7) [4].

"Senior management shall determine the competences and resources necessary to carry out the activities of the organization safely and shall provide them" (GSR Part 2 Requirement 9) [4].

"The effectiveness of the management system shall be measured, assessed and improved so as to enhance safety performance, including minimizing the occurrence of problems relating to safety" (GSR Part 2 Requirement 13) [4].

"Senior management shall regularly commission assessments of leadership for safety and of safety culture in its own organization" (GSR Part 2 Requirement 14) [4].

"The operating organization shall have the prime responsibility for safety in the operation of a nuclear power plant" (SSR-2/2 (Rev.1) Requirement 1) [1].

"The operating organization shall establish a system for continuous monitoring and periodic review of the safety of the plant and of the performance of the operating organization" (SSR-2/2 (Rev.1) Requirement 9) [1].

6.3. CORPORATE SUPPORT TO PROVIDE HUMAN RESOURCES

To achieve and maintain high safety performance, the Corporate Organization and nuclear power plant(s) are required to be staffed by an adequate number of highly qualified, competent and experienced personnel necessary to conduct the activities and carry out functions assigned and achieve established goals and objectives.

To ensure and maintain a high level of personnel competence, requirements for competence for individuals at all levels are specified and appropriate recruitment, training, qualification, knowledge management and succession planning programmes are established at the Corporate Organization and the plant(s) and kept under constant review, to ensure their relevance to staff needs. The Corporate Organization sustains competences for leadership at all management levels, and for fostering and maintaining a strong safety culture, as well as expertise for understanding technical, human and organizational aspects related to safe operation.

It is the responsibility of the Corporate Organization to ensure that all personnel receive appropriate training, and that only personnel with suitable qualifications are assigned for job functions. During employment, qualifications are maintained by participation in continuing training programmes that are directed towards maintaining and upgrading the knowledge and skills of personnel both at the Corporate Organization and the nuclear power plant(s). The knowledge and the information of the Corporate Organization are also managed as a resource.

IAEA Basis

SSR-2/2 (Rev.1) [1]; GSR Part 2 [4]; GS-G-3.1 [6]; GS-G-3.5 [8]; SSG-3 [15]; SSG-25 [16]; SSG-71 [10]; SSG-72 [11]; SSG-74 [12]; SSG-75 [13]; SSG-76 [14].

Key Requirements

"The registrant or the licensee — starting with the senior management — shall ensure that the fundamental safety objective of protecting people and the environment from harmful effects of ionizing radiation is achieved" (GSR Part 2 Requirement 1) [4].

"Senior management shall ensure that appropriate interactions with interested parties take place" (GSR Part 2 Requirement 3) [4].

"Senior management shall determine the competences and resources necessary to carry out the activities of the organization safely and shall provide them" (GSR Part 2 Requirement 9) [4].

"Processes and activities shall be developed and shall be effectively managed to achieve the organization's goals without compromising safety" (GSR Part 2 Requirement 10) [4].

"The organization shall put in place arrangements with vendors, contractors and suppliers for specifying, monitoring and managing the supply to it of items, products and services that may influence safety" (GSR Part 2 Requirement 11) [4].

"The effectiveness of the management system shall be measured, assessed and improved so as to enhance safety performance, including minimizing the occurrence of problems relating to safety" (GSR Part 2 Requirement 13) [4].

"Senior management shall regularly commission assessments of leadership for safety and of safety culture in its own organization" (GSR Part 2 Requirement 14) [4].

"The operating organization shall have the prime responsibility for safety in the operation of a nuclear power plant" (SSR-2/2 (Rev.1) Requirement 1) [1].

"The operating organization shall be staffed with competent managers and sufficient qualified personnel for the safe operation of the plant" (SSR-2/2 (Rev.1) Requirement 4) [1].

"The operating organization shall ensure that all activities that may affect safety are performed by suitably qualified and competent persons" (SSR-2/2 (Rev.1) Requirement 7) [1].

"The operating organization shall ensure that safety related activities are adequately analysed and controlled to ensure that the risks associated with harmful effects of ionizing radiation are kept as low as reasonably achievable" (SSR-2/2 (Rev.1) Requirement 8) [1].

"Systematic safety assessments of the plant, in accordance with the regulatory requirements, shall be performed by the operating organization throughout the plant's operating lifetime, with due account taken of operating experience and significant new safety related information from all relevant sources" (SSR-2/2 (Rev.1) Requirement 12) [1].

"The operating organization shall establish an operating experience programme to learn from events at the plant and events in the nuclear industry and other industries worldwide" (SSR-2/2 (Rev.1) Requirement 24) [1].

6.4. CORPORATE COMMUNICATIONS

The Corporate Organization efforts need to be taken to ensure early, frequent and transparent routine and crisis communication within, between and among relevant interested parties. One aspect of transparent communication is the quality of content and not necessarily the quantity.

Transparency, effective communication and dissemination of information in context help decision makers, the public and other interested parties assimilate the necessary information, understand the nature of an emergency, and make informed decisions to ensure public health and safety.

There is a clear link between routine and crisis communications. Public trust is the basis for organizational credibility, so the focus for communicators involved in response to a nuclear emergency needs to be on building, strengthening, maintaining and, when necessary, rebuilding this trust. The trust and credibility that are achieved before an emergency can be instrumental in maintaining public confidence and facilitating management of response actions during and after an emergency. Emergency preparedness in the area of communication can be strengthened by developing and implementing procedures that ensure effective communication before, during and after an emergency.

IAEA Basis

SSR-2/2 (Rev.1) [1]; GSR Part 2 [4]; GSR Part 7 [17]; GS-G-2.1 [18]; GS-G-3.1 [7]; GS-G-3.5 [8]; SSG-54 [19]; SSG-72 [11]; SSG-75 [13].

Key Requirements

"Managers shall demonstrate leadership for safety and commitment to safety" (GSR Part 2 Requirement 2) [4].

"Senior management shall ensure that appropriate Interactions with interested parties takes place" (GSR Part 2 Requirement 5) [4].

"The management system shall be documented. The documentation of the management system shall be controlled, usable, readable, clearly identified and readily available at the point of use" (GSR Part 2 Requirement 8) [4].

"Senior management shall determine the competences and resources necessary to carry out the activities of the organization safely and shall provide them" (GSR Part 2 Requirement 9) [4].

"Individuals in the organization, from senior management downwards, shall foster a strong safety culture. The management system and the leadership for safety shall be such as to foster and sustain a strong safety culture" (GSR Part 2 Requirement 12) [4].

"The effectiveness of the management system shall be measured, assessed and improved so as to enhance safety performance, including minimizing the occurrence of problems relating to safety" (GSR Part 2 Requirement 13) [4].

"Senior management shall regularly commission assessments of leadership for safety and of safety culture in its own organization" (GSR Part 2 Requirement 14) [4].

"The operating organization shall have the prime responsibility for safety in the operation of a nuclear power plant" (SSR-2/2 (Rev.1) Requirement 1) [1].

"The structure of the operating organization and the functions, roles and responsibilities of its personnel shall be established and documented" (SSR-2/2 (Rev.1) Requirement 3) [1].

"The operating organization shall establish and implement operational policies that give safety the highest priority" (SSR-2/2 (Rev.1) Requirement 5) [1].

"The operating organization shall ensure that safety related activities are adequately analysed and controlled to ensure that the risks associated with harmful effects of ionizing radiation are kept as low as reasonably achievable" (SSR-2/2 (Rev.1) Requirement 8) [1].

"The operating organization shall prepare an emergency plan for preparedness for, and response to, a nuclear or radiological emergency" (SSR-2/2 (Rev.1) Requirement 18) [1].

"The operating organization shall establish, and shall periodically review and as necessary revise, an accident management programme" (SSR-2/2 (Rev.1) Requirement 19) [1].

6.5. CORPORATE PROCUREMENT

A responsibility of the Corporate Organization is to ensure that safety related components operate as intended, so that they perform their intended safety function. The Corporate Organization ensures that items procured for safety related systems meet their original design requirements. The procurement function plays a key role in nuclear safety. Beyond ensuring that the required parts and consumables are available when needed for operation and maintenance activities, the procurement

function helps to ensure that the correct equipment and components are installed in the correct locations in the plant, helping to maintain proper configuration management and safety functions. The procurement organization is typically the interface between the nuclear power plants and suppliers and ensures that they share the same values and commitment to nuclear safety.

IAEA Basis

SSR-2/2 (Rev.1) [1]; GSR Part 2 [4]; GS-G-3.1 [7]; GS-G-3.5 [8]; SSG-48 [20]; SSG-72 [11]; SSG-74 [12]; SSG-75 [13]; SSG-76 [14].

Key Requirements

"Senior management shall be responsible for establishing, applying, sustaining and continuously improving a management system to ensure safety" (GSR Part 2 Requirement 3) [4].

"Senior management shall determine the competences and resources necessary to carry out the activities of the organization safely and shall provide them" (GSR Part 2 Requirement 9) [4].

"Processes and activities shall be developed and shall be effectively managed to achieve the organization's goals without compromising safety" (GSR Part 2 Requirement 10) [4].

"The organization shall put in place arrangements with vendors, contractors and suppliers for specifying, monitoring and managing the supply to it of items, products and services that may influence safety" (GSR Part 2 Requirement 11) [4].

"Individuals in the organization, from senior management downwards, shall foster a strong safety culture. The management system and the leadership for safety shall be such as to foster and sustain a strong safety culture" (GSR Part 2 Requirement 12) [4].

"The operating organization shall establish and implement operational policies that give safety the highest priority" (SSR-2/2 (Rev.1) Requirement 5) [1].

"The operating organization shall ensure that all activities that may affect safety are performed by suitably qualified and competent persons" (SSR-2/2 (Rev.1) Requirement 7) [1].

"The operating organization shall ensure that effective programmes for maintenance, testing, surveillance and inspection are established and implemented" (SSR-2/2 (Rev.1) Requirement 31) [1].

6.6. CORPORATE SUPPORT TO MAINTENANCE

The Corporate Organization ensures that nuclear power plants and other closely related organizations are regularly inspected, tested and maintained in accordance with approved procedures to ensure that structures, systems and components (SSCs) continue to be available and to operate as intended, and retain their capability to meet the design objectives and requirements of the safety analysis. The Corporate Organization prepares and implements maintenance programmes for plant(s) SSCs which are important to safety. Maintenance programmes cover equipment to be used for severe accidents.

The Corporate Organization establishes requirements for work planning and control, keeping and analysing of maintenance records, material, components and spare parts management, in order to ensure reliability and availability of equipment.

For the purpose of these guidelines, maintenance covers in-service inspection, spare parts, materials and outage management.

IAEA Basis

SSR-2/2 (Rev.1) [1]; GSR Part 2 [4]; GS-G-3.1 [7]; GS-G-3.5 [8]; GSG-7 [20]; SSG-3 [15]; SSG-25 [16]; SSG-28 [9]; SSG-30 [20]; SSG-40 [21]; SSG-48 [22]; SSG-50 [23]; SSG-71 [10]; SSG-72 [11]; SSG-73 [24]; SSG-74 [12]; SSG-75 [13]; SSG-76 [14].

Key Requirements

"Senior management shall establish goals, strategies, plans and objectives for the organization that are consistent with the organization's safety policy" (GSR Part 2 Requirement 4) [4].

"Senior management shall determine the competences and resources necessary to carry out the activities of the organization safely and shall provide them" (GSR Part 2 Requirement 9) [4].

"The effectiveness of the management system shall be measured, assessed and improved so as to enhance safety performance, including minimizing the occurrence of problems relating to safety" (GSR Part 2 Requirement 13) [4].

"The structure of the operating organization and the functions, roles and responsibilities of its personnel shall be established and documented" (SSR-2/2 (Rev.1) Requirement 3) [1].

"The operating organization shall be staffed with competent managers and sufficient qualified personnel for the safe operation of the plant" (SSR-2/2 (Rev.1) Requirement 4) [1].

"The operating organization shall establish and implement operational policies that give safety the highest priority" (SSR-2/2 (Rev.1) Requirement 5) [1].

"The operating organization shall ensure that all activities that may affect safety are performed by suitably qualified and competent persons" (SSR-2/2 (Rev.1) Requirement 7) [1].

"The operating organization shall establish a system for continuous monitoring and periodic review of the safety of the plant and of the performance of the operating organization" (SSR-2/2 (Rev.1) Requirement 9) [1].

"Systematic safety assessments of the plant, in accordance with the regulatory requirements, shall be performed by the operating organization throughout the plant's operating lifetime, with due account taken of operating experience and significant new safety related information from all relevant sources" (SSR-2/2 (Rev.1) Requirement 12) [1].

"The operating organization shall ensure that an effective ageing management programme is implemented to ensure that required safety functions of systems, structures and components are fulfilled over the entire operating lifetime of the plant" (SSR-2/2 (Rev.1) Requirement 14) [1].

"The operating organization shall establish and implement a radiation protection programme" (SSR-2/2 (Rev.1) Requirement 20) [1].

"The operating organization shall establish an operating experience programme to learn from events at the plant and events in the nuclear industry and other industries worldwide" (SSR-2/2 (Rev.1) Requirement 24) [1].

"The operating organization shall develop and implement programmes to maintain a high standard of material conditions, housekeeping and cleanliness in all working areas" (SSR-2/2 (Rev.1) Requirement 28) [1].

"The operating organization shall ensure that effective programmes for maintenance, testing, surveillance and inspection are established and implemented" (SSR-2/2 (Rev.1) Requirement 31) [1].

"The operating organization shall establish and implement arrangements to ensure the effective performance, planning and control of work activities during outages" (SSR-2/2 (Rev.1) Requirement 32) [1].

6.7. CORPORATE TECHNICAL SUPPORT

Corporate technical support covers all the activities of the technical and engineering groups involved in safety assessment, surveillance testing, plant performance monitoring, plant modifications, reactor engineering, fuel handling, and application of plant process computers. The Corporate Organization's activities on integration of technical and engineering support — with its specialist functions — into the plant organization is important in order to support and ensure the safe operation of the nuclear power plant and nuclear installations.

IAEA Basis

SSR-2/2 (Rev.1) [1]; SF-1 [3]; GSR Part 2 [4]; GSR Part 4 (Rev.1) [5]; SSR-2/1 (Rev.1) [6]; GS-G-3.1 [7]; GS-G-3.5 [8]; SSG-2 (Rev.1) [25]; SSG-3 [15]; SSG-25 [16]; SSG-28 [9]; SSG-38 [26]; SSG-39 [27]; SSG-48 [22]; SSG-50 [23]; SSG-61 [28]; SSG-70 [29]; SSG-71 [10]; SSG-72 [11]; SSG-73 [24]; SSG-74 [12]; SSG-75 [13]; SSG-76 [14].

Key Requirements

"The operating organization shall have the prime responsibility for safety in the operation of a nuclear power plant" (SSR-2/2 (Rev.1) Requirement 1) [1].

"The structure of the operating organization and the functions, roles and responsibilities of its personnel shall be established and documented" (SSR-2/2 (Rev.1) Requirement 3) [1].

"The operating organization shall be staffed with competent managers and sufficient qualified personnel for the safe operation of the plant" (SSR-2/2 (Rev.1) Requirement 4) [1].

"The operating organization shall establish and implement operational policies that give safety the highest priority" (SSR-2/2 (Rev.1) Requirement 5) [1].

"The operating organization shall ensure that safety related activities are adequately analysed and controlled to ensure that the risks associated with harmful effects of ionizing radiation are kept as low as reasonably achievable" (SSR-2/2 (Rev.1) Requirement 8) [1].

"The operating organization shall establish a system for continuous monitoring and periodic review of the safety of the plant and of the performance of the operating organization" (SSR-2/2 (Rev.1) Requirement 9) [1].

"The operating organization shall establish and implement a system for plant configuration management to ensure consistency between design requirements, physical configuration and plant documentation" (SSR-2/2 (Rev.1) Requirement 10) [1].

"The operating organization shall establish and implement a programme to manage modifications" (SSR-2/2 (Rev.1) Requirement 11) [1].

"Systematic safety assessments of the plant, in accordance with the regulatory requirements, shall be performed by the operating organization throughout the plant's operating lifetime, with due account taken of operating experience and significant new safety related information from all relevant sources" (SSR-2/2 (Rev.1) Requirement 12) [1].

"The operating organization shall ensure that an effective ageing management programme is implemented to ensure that required safety functions of systems, structures and components are fulfilled over the entire operating lifetime of the plant" (SSR-2/2 (Rev.1) Requirement 14) [1].

"The operating organization shall establish and maintain a system for the control of records and reports" (SSR-2/2 (Rev.1) Requirement 15) [1].

"Where applicable, the operating organization shall establish and implement a comprehensive programme for ensuring the long term safe operation of the plant beyond a time-frame established in the licence conditions, design limits, safety standards and/or regulations" (SSR-2/2 (Rev.1) Requirement 16) [1].

"The operating organization shall ensure that the implementation of safety requirements and security requirements satisfies both safety objectives and security objectives" (SSR-2/2 (Rev.1) Requirement 17) [1].

"Operating procedures shall be developed that apply comprehensively (for the reactor and its associated facilities) for normal operation, anticipated operational occurrences and accident conditions, in accordance with the policy of the operating organization and the requirements of the regulatory body" (SSR-2/2 (Rev.1) Requirement 26) [1].

"The operating organization shall ensure that effective programmes for maintenance, testing, surveillance and inspection are established and implemented" (SSR-2/2 (Rev.1) Requirement 31) [1].

6.8. CORPORATE SUPPORT TO OPERATING EXPERIENCE FEEDBACK

The Corporate Organization ensures effective implementation of an operating experience feedback (OEF) programme in order that:

- OEF is reported in a timely manner to reduce the potential for recurring events in-house and in the industry;
- Sources of OEF are considered in the OEF programme of the Corporate Organization to improve plant(s) safety and reliability from lessons learned;
- OEF information is appropriately screened to select and prioritize those items requiring further investigation at the Corporate Organization level;
- Analysis is performed for appropriate events, depending on their severity or frequency, to ensure root causes and corrective actions are identified;

- Corrective actions are defined, prioritized, scheduled and followed up to ensure effective implementation across the Corporate Organization's fleet and effective improvement of plant safety and reliability;
- OEF information is used throughout the nuclear power plant(s) of the Corporate Organization to effectively improve plant safety and reliability;
- Learning attitude within the Corporate Organization is encouraged;
- OEF information is analysed and trended both at the nuclear power plant and the Corporate Organization level, and the results are used to improve plant safety and reliability;
- Assessments and indicators are effectively used to review and monitor plant performance and the effectiveness of the OEF programme at the Corporate Organization and nuclear power plant level.

The review of a Corporate Organization's OEF programme is a cross-functional process. Therefore, any input from the reviewers of other review areas is beneficial to support the review of the OEF programme.

IAEA Basis

SSR-2/2 (Rev.1) [1]; GSR Part 2 [4]; GS-G-3.1 [7]; SSG-25 [16]; SSG-28 [9]; SSG-50 [23]; SSG-72 [11]; SSG-75 [13].

Key Requirements

"The operating organization shall have the prime responsibility for safety in the operation of a nuclear power plant" (SSR-2/2 (Rev.1) Requirement 1) [1].

"The structure of the operating organization and the functions, roles and responsibilities of its personnel shall be established and documented" (SSR-2/2 (Rev.1) Requirement 3) [1].

"The operating organization shall establish and implement operational policies that give safety the highest priority" (SSR-2/2 (Rev.1) Requirement 5) [1].

"The operating organization shall ensure that all activities that may affect safety are performed by suitably qualified and competent persons" (SSR-2/2 (Rev.1) Requirement 7) [1].

"Systematic safety assessments of the plant, in accordance with the regulatory requirements, shall be performed by the operating organization throughout the plant's operating lifetime, with due account taken of operating experience and significant new safety related information from all relevant sources" (SSR-2/2 (Rev.1) Requirement 12) [1].

"The operating organization shall establish an operating experience programme to learn from events at the plant and events in the nuclear industry and other industries worldwide" (SSR-2/2 (Rev.1) Requirement 24) [1].

6.9. CORPORATE SUPPORT TO RADIATION PROTECTION

The Corporate Organization establishes an effective radiation protection programme and verifies, by means of surveillance, inspections and audits, that the radiation protection programme is being properly implemented and that its objectives are being met. The radiation protection programme at a nuclear power plant and closely related organizations should ensure that in all operational states,

doses due to exposure to ionizing radiation in the plant or due to any planned releases of radioactive material from the plant are kept below prescribed limits and are as low as reasonably achievable (ALARA). The radiation protection controls during operation of the plant and other nuclear installations, including the management of radioactive effluents and waste arising from the plant, should be directed not only at protecting workers and members of the public from radiation exposure, but also at preventing or reducing potential exposures and mitigating their potential consequences.

IAEA Basis

SSR-2/2 (Rev.1) [1]; GSR Part 3 [30]; GSG-7 [31]; GS-G-3.1 [7]; SSG-3 [15]; SSG-25 [16]; SSG-28 [9]; SSG-40 [21]; SSG-48 [22]; SSG-50 [23]; SSG-71 [10]; SSG-72 [11]; SSG-73 [24]; SSG-74 [12]; SSG-75 [13]; RS-G-1.8 [32].

Key Requirements

"The operating organization shall have prime responsibility for safety in the operation of a nuclear power plant" (SSR-2/2 (Rev.1) Requirement 1) [1].

"The structure of the operating organization, and the functions, roles and responsibilities of its personnel, shall be established and documented" (SSR-2/2 (Rev.1) Requirement 3) [1].

"The operating organization shall be staffed with competent managers and sufficient qualified personnel for the safe operation of the plant" (SSR-2/2 (Rev.1) Requirement 12) [1].

"The operating organization shall establish and implement operational policies that give safety the highest priority" (SSR-2/2 (Rev.1) Requirement 5) [1].

"The operating organization shall ensure that all activities that may affect safety are performed by suitably qualified and competent persons" (SSR-2/2 (Rev.1) Requirement 7) [1].

"The operating organization shall establish a system for continuous monitoring and periodic review of the safety of the plant and of the performance of the operating organization" (SSR-2/2 (Rev.1) Requirement 9) [1].

"The operating organization shall establish and maintain a system for the control of records and reports" (SSR-2/2 (Rev.1) Requirement 15) [1].

"The operating organization shall prepare an emergency plan for preparedness for, and response to, a nuclear or radiological emergency" (SSR-2/2 (Rev.1) Requirement 18) [1].

"The operating organization shall establish and implement a radiation protection programme" (SSR-2/2 (Rev.1) Requirement 20) [1].

"The operating organization shall establish and implement a programme for the management of radioactive waste" (SSR-2/2 (Rev.1) Requirement 21) [1].

"The operating organization shall establish an operating experience programme to learn from events at the plant, and events in the nuclear industry and other industries worldwide" (SSR-2/2 (Rev.1) Requirement 24) [1].

6.10. CORPORATE SUPPORT TO CHEMISTRY

The Corporate Organization ensures activities for chemical treatment to maintain the integrity of the barriers retaining radioactivity, including fuel cladding and the primary circuit. Chemistry activities have a direct impact in limiting all kinds of corrosion processes causing either direct breaches of safety barriers or their weakening, so as to prevent failures which could occur during a transient. In addition, chemical treatment includes consideration of its effects on the out-of-core radiation fields that in turn influence radiation doses to which workers are exposed, as well as the external impact in case of a severe accident. For the purpose of these guidelines, radiochemistry is included in the chemistry considerations.

Therefore, the Corporate Organization establishes and implements a chemistry programme to provide the necessary support for chemistry and radiochemistry at its plant(s) and other nuclear facilities. The programme provides for the necessary information and assistance for chemistry and radiochemistry to ensure safe operation, long term integrity of SSCs, and minimization of radiation levels.

IAEA Basis

SSR-2/2 (Rev.1) [1]; GSR Part 2 [4]; GSR Part 3 [30]; GSR Part 4 (Rev.1) [5]; GSR Part 7 [17]; SSG-3 [15]; SSG-13 [33]; SSG-28 [9]; SSG-48 [22]; SSG-61 [28]; SSG-70 [29]; SSG-71 [10]; SSG-74 [12]; SSG-76 [14].

Key Requirements

"The management system shall be documented. The documentation of the management system shall be controlled, usable, readable, clearly identified and readily available at the point of use" (GSR Part 2 Requirement 8) [4].

"The effectiveness of the management system shall be measured, assessed and improved so as to enhance safety performance, including minimizing the occurrence of problems relating to safety" (GSR Part 2 Requirement 13) [4].

"The operating organization shall have the prime responsibility for safety in the operation of a nuclear power plant" (SSR-2/2 (Rev.1) Requirement 1) [1].

"The structure of the operating organization and the functions, roles and responsibilities of its personnel shall be established and documented" (SSR-2/2 (Rev.1) Requirement 3) [1].

"The operating organization shall be staffed with competent managers and sufficient qualified personnel for the safe operation of the plant" (SSR-2/2 (Rev.1) Requirement 4) [1].

"The operating organization shall ensure that the plant is operated in accordance with the set of operational limits and conditions" (SSR-2/2 (Rev.1) Requirement 6) [1].

"The operating organization shall ensure that all activities that may affect safety are performed by suitably qualified and competent persons" (SSR-2/2 (Rev.1) Requirement 7) [1].

"The operating organization shall ensure that safety related activities are adequately analysed and controlled to ensure that the risks associated with harmful effects of ionizing radiation are kept as low as reasonably achievable" (SSR-2/2 (Rev.1) Requirement 8) [1].

"The operating organization shall establish a system for continuous monitoring and periodic

review of the safety of the plant and of the performance of the operating organization" (SSR-2/2 (Rev.1) Requirement 9) [1].

"The operating organization shall ensure that an effective ageing management programme is implemented to ensure that required safety functions of systems, structures and components are fulfilled over the entire operating lifetime of the plant" (SSR-2/2 (Rev.1) Requirement 14) [1].

"The operating organization shall establish and maintain a system for the control of records and reports" (SSR-2/2 (Rev.1) Requirement 15) [1].

"The operating organization shall establish an operating experience programme to learn from events at the plant and events in the nuclear industry and other industries worldwide" (SSR-2/2 (Rev.1) Requirement 24) [1].

"The operating organization shall develop and implement programmes to maintain a high standard of material conditions, housekeeping and cleanliness in all working areas" (SSR-2/2 (Rev.1) Requirement 28) [1].

"The operating organization shall establish and implement a chemistry programme to provide the necessary support for chemistry and radiochemistry" (SSR-2/2 (Rev.1) Requirement 29) [1].

"The operating organization shall be responsible and shall make arrangements for all activities associated with core management and with on-site fuel handling" (SSR-2/2 (Rev.1) Requirement 30) [1].

"The operating organization shall ensure that effective programmes for maintenance, testing, surveillance and inspection are established and implemented" (SSR-2/2 (Rev.1) Requirement 31) [1].

6.11. CORPORATE SUPPORT TO EMERGENCY PREPAREDNESS AND RESPONSE

The goal of an emergency preparedness is to ensure that an adequate capability is in place for a timely, managed, controlled, coordinated and effective response to an emergency at a nuclear power plant and closely related organization, local, regional, national and as appropriate, international level. Emergency response is the performance of those actions. The goals of emergency response[10] can only be achieved by having sound emergency preparedness in place as part of the overall infrastructure for protection and safety. Corporate OSART will review the support provided by the Corporate Organization to the nuclear power plant(s) and closely related organization(s), both in terms of emergency preparedness and response.

Off-site emergency preparedness and response arrangements are reviewed in frames of the interface between the Corporate Organization and the off-site emergency response authorities and organizations. A further off-site review may be performed on a case by case basis, depending on the scope defined in the request for a Corporate OSART review; however, off-site reviews normally fall within the scope of an Emergency Preparedness Review Service (EPREV) mission that can be requested from the IAEA as well.

[10] Defined in para. 3.2 of GSR Part 7 [17].

IAEA Basis

SSR-2/2 (Rev.1) [1]; SF-1 [3]; GSR Part 2 [4]; GSR Part 3 [30]; GSR Part 4 (Rev.1) [5]; GSR Part 7 [17]; GS-G-2.1 [18]; GSG-2 [34]; GSG-7 [31]; GSG-11 [35]; SSG-3 [15]; SSG-4 [36]; SSG-25 [16]; SSG-28 [9]; SSG-54 [19]; SSG-61 [28]; SSG-72 [11]; SSG-75 [13]; SSG-76 [14].

Key Requirements

"The government shall make provisions to ensure that roles and responsibilities for preparedness and response for a nuclear or radiological emergency are clearly specified and clearly assigned" (GSR Part 7 Requirement 2) [17].

"The government shall ensure that a hazard assessment is performed to provide a basis for a graded approach in preparedness and response for a nuclear or radiological emergency" (GSR Part 7 Requirement 4) [17].

"The government shall ensure that protection strategies are developed, justified and optimized at the preparedness stage for taking protective actions and other response actions effectively in a nuclear or radiological emergency" (GSR Part 7 Requirement 5) [17].

"The government shall ensure that authorities for preparedness and response for a nuclear or radiological emergency are clearly established" (GSR Part 7 Requirement 20) [17].

"The government shall ensure that overall organization for preparedness and response for a nuclear or radiological emergency is clearly specified and staffed with sufficient personnel who are qualified and are assessed for their fitness for their intended duties" (GSR Part 7 Requirement 21) [17].

"The government shall ensure that arrangements are in place for the coordination of preparedness and response for a nuclear or radiological emergency between the operating organization and authorities at the local, regional and national levels, and, where appropriate, at the international level" (GSR Part 7 Requirement 22) [17].

"The government shall ensure that plans and procedures necessary for effective response to a nuclear or radiological emergency are established" (GSR Part 7 Requirement 23) [17].

"The operating organization shall have the prime responsibility for safety in the operation of a nuclear power plant" (SSR-2/2 (Rev.1) Requirement 1) [1].

"The structure of the operating organization and the functions, roles and responsibilities of its personnel shall be established and documented" (SSR-2/2 (Rev.1) Requirement 3) [1].

"The operating organization shall be staffed with competent managers and sufficient qualified personnel for the safe operation of the plant" (SSR-2/2 (Rev.1) Requirement 4) [1].

"The operating organization shall establish a system for continuous monitoring and periodic review of the safety of the plant and of the performance of the operating organization" (SSR-2/2 (Rev.1) Requirement 9) [1].

"The operating organization shall establish and implement a programme to manage modifications" (SSR-2/2 (Rev.1) Requirement 11) [1].

"Systematic safety assessments of the plant, in accordance with the regulatory requirements, shall be performed by the operating organization throughout the plant's operating lifetime, with due account taken of operating experience and significant new safety related information from all relevant sources" (SSR-2/2 (Rev.1) Requirement 12) [1].

"The operating organization shall prepare an emergency plan for preparedness for, and response to, a nuclear or radiological emergency" (SSR-2/2 (Rev.1) Requirement 18) [1].

"The operating organization shall establish an operating experience programme to learn from events at the plant and events in the nuclear industry and other industries worldwide" (SSR-2/2 (Rev.1) Requirement 24) [1].

6.12. CORPORATE SUPPORT TO ACCIDENT MANAGEMENT

The Corporate Organization ensures consideration of accidents more severe than the design basis accidents at nuclear power plants as an essential component of the defence in depth approach used in ensuring nuclear safety. The probability of occurrence of such accidents is very low but such an accident may lead to significant radiological consequences. The objectives of accident management are to prevent accidents that can lead to fuel damage, and to terminate the progress of fuel damage once it has started, maintain the integrity of the containment as long as possible, minimize releases of radioactive material, and achieve a long term stable state. Therefore, the Corporate Organization ensures that accident management strategies, programmes and guidelines are in place and take into account representative and dominant severe accident scenarios, and specify the measures to mitigate the consequences of accidents that exceed the design limits, as an integral part of nuclear safety. Procedures for managing design basis accident conditions are also envisaged. A training programme that includes the periodic confirmation of the competence of personnel involved in severe accident management is also expected. A further review on the design and the safety assessment against the severe accident may be done on a case by case basis, depending on the scope defined in the request for an Corporate OSART review; however, comprehensive reviews, including the review for the process of development, verification and validation of accident management programmes and design of safety features for accident management, normally fall within the scope of a Technical Safety Review of Accident Management (TSR-AM) peer review service that can be requested from the IAEA.

IAEA Basis

SSR-2/2 (Rev.1) [1]; GSR Part 4 (Rev.1) [5]; SSR-2/1 (Rev.1) [6]; GSG-2 [34]; GS-G-2.1 [18]; SSG-3 [15]; SSG-4 [36]; SSG-25 [16]; SSG-28 [9]; SSG-54 [19]; SSG-61 [28]; SSG-71 [10]; SSG-75 [13]; SSG-76 [14].

Key Requirements

"The operating organization shall have the prime responsibility for safety in the operation of a nuclear power plant" (SSR-2/2 (Rev.1) Requirement 1) [1].

"The operating organization shall be staffed with competent managers and sufficient qualified personnel for the safe operation of the plant" (SSR-2/2 (Rev.1) Requirement 4) [1].

"The operating organization shall ensure that all activities that may affect safety are performed by suitably qualified and competent persons" (SSR-2/2 (Rev.1) Requirement 7) [1].

“The operating organization shall establish a system for continuous monitoring and periodic review of the safety of the plant and of the performance of the operating organization” (SSR-2/2 (Rev.1) Requirement 9) [1].

“The operating organization shall establish and implement a system for plant configuration management to ensure consistency between design requirements, physical configuration and plant documentation” (SSR-2/2 (Rev.1) Requirement 10) [1].

“The operating organization shall establish and implement a programme to manage modifications” (SSR-2/2 (Rev.1) Requirement 11) [1].

“Systematic safety assessments of the plant, in accordance with the regulatory requirements, shall be performed by the operating organization throughout the plant’s operating lifetime, with due account taken of operating experience and significant new safety related information from all relevant sources” (SSR-2/2 (Rev.1) Requirement 12) [1].

“The operating organization shall prepare an emergency plan for preparedness for, and response to, a nuclear or radiological emergency” (SSR-2/2 (Rev.1) Requirement 18) [1].

“The operating organization shall establish, and shall periodically review and as necessary revise, an accident management programme” (SSR-2/2 (Rev.1) Requirement 19) [1].

“The operating organization shall establish an operating experience programme to learn from events at the plant and events in the nuclear industry and other industries worldwide” (SSR-2/2 (Rev.1) Requirement 24) [1].

“Operating procedures shall be developed that apply comprehensively (for the reactor and its associated facilities) for normal operation, anticipated operational occurrences and accident conditions, in accordance with the policy of the operating organization and the requirements of the regulatory body” (SSR-2/2 (Rev.1) Requirement 26) [1].

“The operating organization shall ensure that effective programmes for maintenance, testing, surveillance and inspection are established and implemented” (SSR-2/2 (Rev.1) Requirement 31) [1].

6.13. CORPORATE SUPPORT TO LONG TERM OPERATION

The Corporate Organization establishes the strategy and the key elements for long term operation (LTO) for nuclear power plant(s) and other nuclear installation(s), including implementing appropriate activities to ensure that safety will be maintained during the LTO period.

The Corporate Organization’s activity considers ageing management in conjunction with the decision to pursue LTO. Effective ageing management programmes are key elements in the safe and reliable operation of nuclear power plant(s) and other nuclear installation(s), both during design based operation and for the period of design lifetime extension.

The Corporate Organization establishes policy documents, dedicated organizational structures and action plans to perform evaluations for LTO well before the nuclear installation enters into LTO. The Corporate Organization specifies subjects for evaluation for LTO and assesses the current physical status of relevant SSCs during the preparation phase for LTO.

For a deeper review of the LTO area, the IAEA provides a SALTO (Safety Aspects of Long Term Operation) review service, which is a comprehensive safety review focused on activities for safe LTO of nuclear power plants. The SALTO Review Guidelines are used as guidance for the SALTO review service.

IAEA Basis

SSR-2/2 (Rev.1) [1]; GSR Part 2 [4]; SSR-2/1 (Rev.1) [6]; GS-G-3.1 [7]; NS-G-2.13 [37]; SSG-25 [16]; SSG-48 [22]; SSG-61 [28].

Key Requirements

> "The operating organization shall have the prime responsibility for safety in the operation of a nuclear power plant" (SSR-2/2 (Rev.1) Requirement 1) [1].
>
> "The operating organization shall be staffed with competent managers and sufficient qualified personnel for the safe operation of the plant" (SSR-2/2 (Rev.1) Requirement 4) [1].
>
> "The operating organization shall establish a system for continuous monitoring and periodic review of the safety of the plant and of the performance of the operating organization" (SSR-2/2 (Rev.1) Requirement 9) [1].
>
> "Systematic safety assessments of the plant, in accordance with the regulatory requirements, shall be performed by the operating organization throughout the plant's operating lifetime, with due account taken of operating experience and significant new safety related information from all relevant sources" (SSR-2/2 (Rev.1) Requirement 12) [1].
>
> "The operating organization shall ensure that an effective ageing management programme is implemented to ensure that required safety functions of systems, structures and components are fulfilled over the entire operating lifetime of the plant" (SSR-2/2 (Rev.1) Requirement 14) [1].
>
> "Where applicable, the operating organization shall establish and implement a comprehensive programme for ensuring the long term safe operation of the plant beyond a time-frame established in the licence conditions, design limits, safety standards and/or regulations" (SSR-2/2 (Rev.1) Requirement 16) [1].

6.14. CORPORATE SUPPORT TO COMMISSIONING

The Corporate Organization manages commissioning as the process during which plant SSCs are tested and placed in operation, with the objective of verifying that their design assumptions are valid. This process continues until the plant is at full power and all required testing at this power level has been conducted. In order to meet the expected performance criteria, the plant is verified as-built, and pre-operational plant adjustments are made. Commissioning also includes testing prior and subsequent to fuel loading. It is therefore essential for safety that the commissioning programme and individual system testing be designed in such a way that those design assumptions can be verified and quality can be assured throughout the commissioning process. During commissioning, an extensive amount of data is collected on SSCs. This baseline data will be the reference for subsequent operational testing in order to prevent SSC degradation. The commissioning programme and its results are an important part of the licensing process of the plant. Clear and well defined responsibilities and requirements for the operational, commissioning and regulatory organizations are essential to satisfy the licensing requirements for the plant in a timely manner.

The commissioning results greatly depend on the interfaces among the construction functions, operations and designers. The boundaries of responsibility vary from site to site. The levels of cooperation between these groups will influence the quality of commissioning.

Responsibility for the plant is eventually transferred to the Corporate Organization. This could be done gradually or in specified stages. A high quality and comprehensive handover is necessary to ensure that the plant meets its design intent and adequate knowledge management is established.

IAEA Basis

SSR-2/2 (Rev.1) [1]; GS-G-3.1 [7]; SSG-12 [38]; SSG-28 [9].

Key Requirements

"The safety assessment shall cover all the stages in the lifetime of a facility or activity in which there are possible radiation risks" (GSR Part 4 (Rev.1) Requirement 12) [5].

"The operating organization shall have the prime responsibility for safety in the operation of a nuclear power plant" (SSR-2/2 (Rev.1) Requirement 1) [1].

"The structure of the operating organization, and functions, roles and responsibilities of its personnel shall be established and documented" (SSR-2/2 (Rev.1) Requirement 3) [1].

"The operating organization shall be staffed with competent managers and sufficient qualified personnel for the safe operation of the plant" (SSR-2/2 (Rev.1) Requirement 4) [1].

"The operating organization shall ensure that the plant is operated in accordance with the set of operational limits and conditions" (SSR-2/2 (Rev.1) Requirement 6) [1].

"The operating organization shall ensure that all activities that may affect safety are performed by suitably qualified and competent persons" (SSR-2/2 (Rev.1) Requirement 7) [1].

"The operating organization shall establish and maintain a system for the control of records and reports" (SSR-2/2 (Rev.1) Requirement 15) [1].

"The operating organization shall establish an operating experience programme to learn from events at the plant, and events in the nuclear industry and other industries worldwide" (SSR-2/2 (Rev.1) Requirement 24) [1].

"The operating organization shall ensure that a commissioning programme for the plant is established and implemented" (SSR-2/2 (Rev.1) Requirement 25) [1].

6.15. CORPORATE SUPPORT TO TRANSITION FROM OPERATION TO DECOMMISSIONING

The Corporate Organization establishes an effective planning of the transitional period from operation to decommissioning. The duration of the transitional period will be variable depending upon the circumstances surrounding each individual nuclear installation — the key point is that standards of safety are maintained during the transitional period. The transitional period starts when the public announcement of the final shutdown date is made, and continues until all fuel has been permanently removed from the reactor core and spent fuel pool. A large number of changes to the organization, its

management system, staff responsibilities and plant configuration can be made during the transitional period.

The Corporate Organization has to be prepared to face new radiation protection challenges, and to manage significant increases in the generation and characterization of radioactive waste.

The policy for the management of human resources focuses on:

- Motivation of site personnel for the new tasks and objectives;
- Adaptation of competences for specific decommissioning activities;
- Retention of the necessary pool of experienced site personnel for the planned activities;
- Amendment of the policy for the management of human resources to mitigate the possible negative consequences of downsizing.

IAEA Basis

SSR-2/2 (Rev.1) [1]; GSR Part 6 [39]; GS-G-3.5 [8]; SSG-13 [34]; SSG-25 [16]; SSG-47 [40]; SSG-61 [28]; SSG-70 [29]; SSG-71 [10]; SSG-74 [12]; SSG-76 [14]; SSG-77 [41].

Key Requirements

"Exposure during decommissioning shall be considered to be a planned exposure situation, and the relevant requirements of the Basic Safety Standards shall be applied accordingly during decommissioning" (GSR Part 6 Requirement 1) [39].

"Safety shall be assessed for all facilities for which decommissioning is planned and for all facilities undergoing decommissioning" (GSR Part 6 Requirement 3) [39].

"The licensee shall plan for decommissioning and shall conduct the decommissioning actions in compliance with both the authorization for decommissioning and requirements derived from the national legal and regulatory framework. The licensee shall be responsible for all aspects of safety, radiation protection and protection of the environment during decommissioning" (GSR Part 6 Requirement 6) [39].

"The licensee shall ensure that its integrated management system covers all aspects of decommissioning" (GSR Part 6 Requirement 7) [39].

"The licensee shall select a decommissioning strategy that will form the basis for planning the decommissioning. The strategy shall be consistent with the national policy on the management of radioactive waste" (GSR Part 6 Requirement 8) [39].

"Responsibilities in respect of financial provisions for decommissioning shall be set out in national legislation. These provisions shall include establishing a mechanism to provide adequate financial resources for ensuring safe decommissioning and to ensure that they are available when necessary" (GSR Part 6 Requirement 9) [39].

"Prior to execution of decommissioning actions, a final decommissioning plan shall be prepared and shall be submitted to the regulatory body for approval" (GSR Part 6 Requirement 11) [39].

"The licensee shall implement the final decommissioning plan, including management of radioactive waste, in compliance with national regulations" (GSR Part 6 Requirement 12) [39].

“Emergency response arrangements for decommissioning, commensurate with the hazards, shall be established and maintained, and events significant to safety shall be reported to the regulatory body in a timely manner” (GSR Part 6 Requirement 13) [39].

“Radioactive waste shall be managed for all waste streams in decommissioning” (GSR Part 6 Requirement 14) [39].

“The operating organization shall have the prime responsibility for safety in the operation of a nuclear power plant” (SSR-2/2 (Rev.1) Requirement 1) [1].

“The structure of the operating organization, and functions, roles and responsibilities of its personnel, shall be established and documented” (SSR-2/2 (Rev.1) Requirement 3) [1].

“The operating organization shall be staffed with competent managers and sufficient qualified personnel for the safe operation of the plant” (SSR-2/2 (Rev.1) Requirement 4) [1].

“The operating organization shall ensure that the plant is operated in accordance with the set of operational limits and conditions” (SSR-2/2 (Rev.1) Requirement 6) [1].

“The operating organization shall ensure that all activities that may affect safety are performed by suitably qualified and competent persons” (SSR-2/2 (Rev.1) Requirement 7) [1].

“The operating organization shall establish and implement a system for plant configuration management to ensure consistency between design requirements, physical configuration and plant documentation” (SSR-2/2 (Rev.1) Requirement 10) [1].

“The operating organization shall establish and implement a programme to manage modifications” (SSR-2/2 (Rev.1) Requirement 11) [1].

“The operating organization shall establish and maintain a system for the control of records and reports” (SSR-2/2 (Rev.1) Requirement 15) [1].

“The operating organization shall ensure that effective programmes for maintenance, testing, surveillance and inspection are established and implemented” (SSR-2/2 (Rev.1) Requirement 31) [1].

“The operating organization shall prepare a decommissioning plan and shall maintain it throughout the lifetime of the plant, unless otherwise approved by the regulatory body, to demonstrate that decommissioning can be accomplished safely and in such a way as to meet the specified end state” (SSR-2/2 (Rev.1) Requirement 33) [1].

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ANNEX I
STANDARD STRUCTURE AND CONTENT OF ADVANCE INFORMATION PACKAGE FOR AN IAEA CORPORATE OSART MISSION

The AIP is prepared by the Corporate Organization hosting the Corporate OSART mission and is used to convey information relevant to the team members for the preparation of their review.

The package should contain adequate information and data to understand the overall organizational structures and current operating practices. It should also include an overview of the Corporate Organization approach to operational safety, the key operational features and the organizational setup. While the contents of the package should cover essential Corporate Organization features, it should also be compact. The workload in preparing the package should be minimized. The compilation of information should be based on and/or utilize existing documents such as routinely prepared reports, procedures and training materials. Focus on the content is encouraged, with limited effort spent on editing. The package should be in English (including tables and figures, such as the performance indicators and organizational charts).

To the extent possible, the format of the AIP should follow the same review areas as that of the Corporate OSART guidelines.

I–1. ADMINISTRATIVE INFORMATION

- Arrival logistics (airport, hotel, venue, Corporate headquarters);
- Transportation airport–hotel, hotel–headquarters, headquarters–hotel, hotel–airport, headquarters–plants, and plants–headquarters (for visits);
- Hotel accommodation information (name, telephone number, website address, internet access), including for site(s) to be visited;
- Contact points at the Corporate Organization and list of counterparts (names, e-mail addresses, telephone numbers);
- Accommodation (site access controls, controlled area access, meeting rooms),
- OSART offices, clerical and interpreting support, office equipment and lunch arrangements;
- Summary of site-specific radiological, industrial and fire safety rules, and emergency response provisions for site(s) to be visited.

I–2. GENERAL INFORMATION

I–2.1. External organizations

Brief description of the main functions, structures and interactions of external organizations liaising with the Corporate Organization:

- Industry organizations;
- Regulatory authorities;
- Main suppliers and subcontractors;
- Other essential external organizations.

I–2.2. Self-assessment

- For each review area, a description of how each individual area expectation is met;
- Specific gaps where performance or programmes do not fully meet the IAEA safety standards;
- For each gap identified, an explanation of what corrective actions are being taken and/or planned to close the gap, including budget commitments, staffing, document preparation, increased or modified training, equipment purchases, etc.

I–3. TECHNICAL INFORMATION

- Outline of operating licence;
- Safety performance indicators;
- Proposal of a detailed review schedule for each area;
- List of abbreviations and acronyms used in the Corporate Organization;
- List of designations of organizational units (e.g. department, division, section, group) and positions (e.g. superintendent, manager, chief, head);
- List, terms of reference and timetables of the most significant regular meetings at the Corporate Organization.

I–4. INFORMATION ON REVIEW AREAS

I–4.1. Corporate Management

- The Corporate Organization and structure;
- Overall management programme, including a management philosophy;
- Management objectives and expectations, goals and nuclear safety policies;
- Overview of management system, including management system process, their graded application, monitoring and improvement;
- Management system overview, including quality management, documentation hierarchy and document control system;
- Statistics on staff turnover and current age profile;
- Recent annual report issued by the Corporate Organization;
- The process for procedures and instructions development, use and revision;
- Reviewing bodies (safety committees – internal and external);
- Overview of corporate risk management process;
- Overview of organizational change process;
- Overall approach to promote a strong safety culture.

I–4.2. Corporate Independent Oversight

- Independent oversight programme;
- Organization and staffing;
- Independent oversight processes and working methods;
- Monitoring and review of effectiveness of independent oversight function.

I–4.3. Corporate Support to Provide Human Resources

- The Corporate Organization process for recruitment, selection and hiring;
- Training and qualification requirement;

- Knowledge management;
- Succession planning and staffing changes;
- Individual performance assessment;
- Union affairs.

I–4.4. Corporate Communications

- Internal and external outreach communication strategies;
- Role of communications personnel;
- Communication methods and tools;
- Training of spokespersons and communications staff;
- Employee feedback mechanisms;
- Crisis communication plan content and its periodic review.

I–4.5. Corporate Procurement

- Procurement of equipment, materials and services;
- Outsourcing policy, outside services;
- Obsolescence management;
- Evaluation and control of the supply chain;
- Spare parts and material storage programme and facilities.

I–4.6. Corporate Support to Maintenance

- Maintenance strategy (included safety classification) and organization;
- Overall programme for corrective and preventive maintenance;
- Evaluation, analysis and trending of maintenance activities;
- Overview of in-service inspection programme;
- List of major maintenance programmes and procedures.

I–4.7. Corporate Technical Support

- Technical support organization and structure, including interface with and support of external organizations such as international and national organizations, design authority, manufacturers and other institutions;
- Overview of surveillance programme;
- Design integrity and configuration control approach;
- Modification process, with a list of past and planned major modifications;
- Corporate requirements for probabilistic safety analysis;
- Corporate requirements for periodic safety report and current status of the safety analysis report;
- Strategy for the management of fresh and spent nuclear fuel;
- Overview of computer-based systems important to safety.

I–4.8. Corporate Support to Operating Experience Feedback

- Corporate operating experience organization and management;
- Reporting and review process of internal and external experience;
- Reportable events for the last three years;

- Sources of operating experience;
- Process for management of the corrective action programme;
- System for analysis and trending of events;
- Effectiveness of the operating experience organization at and by the corporate level;
- Human performance investigations;
- Use made of operating experience;
- Overview of assessment of plant(s) and closely related organizations, and indicators of operating experience;
- Sharing operating experience with the rest of the nuclear industry.

I–4.9. Corporate Support to Radiation Protection

- Corporate radiation protection organization and management;
- Overview of the radiation protection policies, criteria, procedures, administrative limits, goals established;
- Corporate training and qualification programmes regarding radiation protection;
- Radiation work authorization;
- Programme for dose planning and limitation and optimization of exposure, radioactive waste and discharges;
- Implementation and optimization of the ALARA (as low as reasonably achievable) principle;
- Health surveillance arrangements;
- Corporate laboratory facilities, equipment and instruments; interlaboratory comparisons;
- Corporate programme for radioactive waste management, monitoring and control of radioactive discharges.

I–4.10. Corporate Support to Chemistry

- Corporate chemistry organization;
- List of the Corporate Organization chemistry programmes, administrative and management procedures;
- Overview of chemistry specifications;
- Corporate laboratory facilities, equipment and instruments;
- Interlaboratory comparisons;
- Corporate requirements for chemistry surveillance programme.

I–4.11. Corporate Support to Emergency Preparedness and Response

- National, corporate and plant level organization;
- EPR documentation hierarchy diagram;
- Emergency response process;
- Outline of corporate emergency arrangements and interfaces with external organizations;
- Overview of corporate emergency facilities;
- Emergency notification and communication;
- Corporate emergency training, drills and exercises and feedback.

I–4.12. Corporate Support to Accident Management

- Overview of accident management approach at the Corporate Organization;
- Analytical support for severe accident management;
- Accident management strategies, programmes and guidelines;
- Scope of the supporting analyses;
- Use of results of the analyses.

I–4.13. Corporate Support to Long Term Operation

- Corporate policy for LTO and related organization;
- LTO related requirements, codes and standards;
- LTO programme overview;
- LTO programme implementation;
- Ageing management programme;
- Use of periodic safety review.

I–4.14. Corporate Support to Commissioning

- Corporate support to commissioning process;
- Corporate organization and management of commissioning;
- Corporate support to commissioning management documents and procedures;
- Corporate oversight during commissioning, including occupational health and safety, fire safety, environmental aspects, and quality control arrangements;
- Process for management of interfaces;
- Corporate requirements for control of plant configuration;
- Use of probabilistic safety assessment and OEF.

I–4.15. Corporate Support to Transition from Operation to Decommissioning

- Corporate policy for transition from operation to decommissioning, organization and staffing level;
- Corporate support to technical activities for the transition period;
- Use of operating experience;
- Radiation protection and waste management for the transition period;
- Core management and fuel handling;
- Plan for chemistry during decommissioning.

ANNEX II
CODE OF CONDUCT FOR THE CORPORATE OSART TEAM

A. Review gaps to the IAEA safety standards

Thresholds for identifying recommendations and suggestions are based on the most important nuclear safety and personnel safety gaps in the Corporate Organization being reviewed. These gaps may concern current performance and important historical performance of the host organization.

B. Focus on the key interested parties of the Corporate OSART mission

Team members have to bear in mind that OSART results will be used by a wide range of interested parties. The key interested parties include the Member State, the Corporate Organization staff, the global nuclear industry, and the IAEA. Improving the safety performance of the host organization is the highest priority when developing recommendations and suggestions.

C. Corporate OSART teams are well prepared before arriving on the site

The AIP material is reviewed and analysed to the maximum extent possible before the on-site portion of the mission.

D. Corporate OSART teams are out in the Corporate Organization and closely related organizations, amongst both people and equipment, observing meetings, nuclear facilities and important activities

Team members need to be proactive and inquisitive, and be present during meetings and committees, activities at nuclear facilities that may impact nuclear and personnel safety. This may include weekend observations.

E. Key events and performance are thoroughly understood

Team members need to fully understand the most consequential events and performance gaps. Team members conduct an independent review of information provided by the Corporate Organization and closely related organizations staff.

F. The Corporate OSART recommendations and suggestions are based on facts

The team and the Corporate Organization staff work together to validate facts. It is the team's responsibility to draw objective conclusions from the facts, and determine recommendations and suggestions.

G. Corporate OSART teams build strong professional relationships with counterparts

Reviewers and team leaders strive to be models in communication and to be models of integrity and professionalism. Reviewers should listen closely to their counterparts and strive to understand their perspectives of performance.

H. Strength is with the team, not one individual

Team members strive to fulfil their roles on a Corporate OSART mission team and professionally challenge each other's opinions.

I. The Corporate OSART team reinforces the integrity, impartiality, and independence of the review process

Team members uphold the principles of the Corporate OSART mission methodology. This includes insisting that the Corporate Organization staff be open during their interactions with the Corporate OSART team and that a normal schedule of work activities be maintained during on-site periods. Team members do not back down on issues if faced with inappropriate counterpart defensiveness. The team members support each other, recognizing that the Corporate OSART report is a result of a teamwork, and the team member upholds high standards of integrity, impartiality and independence during the review and interactions with the host plant.

ANNEX III
GUIDELINES FOR OBSERVERS IN THE CORPORATE OSART MISSION

III–1. OBJECTIVE OF PARTICIPATION AS OBSERVER

The IAEA's OSART programme provides Member States with advice and assistance in their enhancement of operational safety of nuclear facilities by systematic reviews of operational safety practices. One of the features of the programme is the participation of observers who benefit from participation and training in one or more of the areas covered in a particular Corporate OSART mission. Observers are mainly staffs working at nuclear power plants, which may host OSART missions in the near future. Participation as observers is particularly encouraged from countries developing their nuclear programmes and from those countries which would benefit from greater exposure to international practices.

Participation in a Corporate OSART mission gives to an observer an opportunity to:

- Obtain an overview of a review of operational safety at the Corporate Organization and closely related organizations with respect to international standards;
- Receive an understanding of different factors which contribute to operational safety, such as management and organization; independent oversight, training; human and material resources; management system; policies; programmes; plans; procedures; reporting systems; and culture for safety;
- Broaden an observer's experience and knowledge in his or her own field through reviewing documents, observing activities and listening and participating in discussions with peers from different countries concerning practices in the observer's specific field;
- Obtain information, for any particular topics, on the practices adopted in the various countries represented by the members of the team;
- Take back potential improvements in programmes and practices for consideration by the observer's own country and plant in areas where performance falls short of best international practices;
- Learn review methodology and techniques;
- Obtain information, at first hand, on Corporate OSART mission (Note: useful for countries and/or Corporate Organizations that are planning to host a Corporate OSART mission);
- Make personal contacts with the host organizations staff and team members for further cooperation and information exchange.

III–2. ROLE OF AN OBSERVER IN A CORPORATE OSART MISSION

- An observer participates in a Corporate OSART mission in a certain review area or, as an exception, in more than one area which he or she has indicated in their application to the Agency. At the beginning of the mission, final arrangements for participation are agreed with the team leader so that the interests of all observers and experts are met.
- During a mission an observer takes part in the review of the designated areas mainly by observing, but they are encouraged to assist in the review. However, the responsibility for the conduct of the review, the production of Technical Notes and the presentation of results at the exit meeting lies with the review area expert. (The team leader may ask the observer to continue with the assessment of the review area if the lead expert is incapacitated due to sickness or unavailability, and the observer has the appropriate experience for the review area.)

- To prepare for the mission, an observer should read the material provided by the IAEA and the host organization. They should develop a list of items on the Corporate OSART programme that are of special interest for developing programmes or practices in the observer's Corporate Organization or country. Before the commencement of the review, the observer should give to the team leader and the corresponding expert their overall objectives for the mission and list of areas of interest.
- The observer's main task is to identify operational practices which might be applicable to his or her own Corporate Organization or country, and to assess whether they are suitable when taking into account the particularities of their own country, such as organization, technological development, reactor technologies, and organizational culture. To achieve this task, the observer will be supported primarily by the corresponding expert, but also by the rest of the team, if required. In this way, the observer gathers information not just from the Corporate Organizations being reviewed, but also from the expert they are attached to and other team members.

To maximize his or her participation in a Corporate OSART mission, an observer is asked to work systematically throughout the mission. The observer should:

- Take part in the daily review activities of the designated areas mainly by observing and assisting in the review;
- Write a daily summary of topics and items which were reviewed, particularly those of special interest to them, and provide a copy to the team leader, deputy team leader and the expert reviewing the designated areas;
- Write daily notes of the topics reviewed, concentrating on the aspects and practices which are different from those applied in his or her own country or Corporate Organization (e.g. from the point of view of the organization; techniques; allocation of resources; coverage or intensity of programmes; aspects included or level of details in programmes and procedures; and overall attitudes, objectives and culture for safety).
- Include also those aspects of the Corporate OSART process that might be useful for observers in future Corporate OSART missions;
- Compile daily notes into a report. The first draft of the report should be submitted to, and discussed with, the team leader and the expert reviewing the designated areas concerned at the end of the first week. A full two-week report that incorporates information from the first week should be submitted at the end of the second week. Both reports should indicate progress in meeting overall objectives and obtain information on items of special interest;
- Identify good ideas, practices or programmes for possible use in his is her own country;
- Discuss any concerns or problems, should they occur, with the team leader and the expert.

III–3. QUALIFICATION AND EXPERIENCE OF AN OBSERVER

To satisfactorily meet the objectives of participation as observers in the Corporate OSART mission, each observer should have relevant experience and qualifications. The following items should be considered when nominating observers:

- Practical experience and sound knowledge of the review area to be observed;
- Knowledge of the corporate management aspects, safety culture characteristics and nuclear technology to be reviewed;
- Sufficient level of the English language to be able to follow and contribute to a conversation and to write reports;
- Good communicative skills to be able to interact effectively with the expert in the area and with other team members and plant staff.

GLOSSARY

encouragement. If an item does not have sufficient safety significance to meet the criteria of a 'recommendation' or 'suggestion', but the expert or the team feels that mentioning it is still desirable, the given topic may be described in the text of the report using the phrase 'encouragement' (e.g. the team encouraged the host organization to…).

facts. A fact is something that is known to have happened or to exist, especially something for which proof exists, or about which there is information. A fact is evidence of a deficiency in programmes or performance. Based on the grouping of facts of similar nature, each reviewer develops an issue stated as a fundamental overall problem which can have a safety consequence.

fundamental overall problem. A fundamental overall problem is a generic deficiency in programmes or performance which is supported by multiple, agreed facts, stated in terms that are consistent with the facts, agreed by the team and which can lead to a safety consequence.

good performance. A good performance is a superior objective that has been achieved or a good technique or programme that contributes directly or indirectly to operational safety and sustained good performance, that works well at the nuclear installation. However, it might not be necessary to recommend its adoption by other nuclear installations, because of financial considerations, differences in design or other reasons.

good practice. A good practice is an outstanding and proven programme, activity or equipment in use that contributes directly or indirectly to operational safety and sustained good performance. A good practice is markedly superior to that observed elsewhere, not just the fulfilment of current requirements or expectations. It should be superior enough and have broad enough application to be brought to the attention of other nuclear operating organizations and be worthy of their consideration in the general drive for excellence. A good practice is novel; has a proven benefit; is replicable (it can be used in other organizations); and does not contradict an issue. Normally, good practices are brought to the attention of the team on the initiative of the host organization. An item may not meet all the criteria of a 'good practice', but still be worthy to take note of. In this case it may be referred as a 'good performance' and documented in the text of the report.

issue. An issue is an identified problem or an area of improvement, which has been identified based on the IAEA safety standards. An issue has a safety consequence that justifies the review team making a recommendation or suggestion.

peer review service. An examination or review of commercial, professional or academic efficiency, competence, etc., by experts in the relevant field. An IAEA peer review service is a process designed to facilitate the review of the degree of conformance of selected regulatory and technical elements of the national infrastructure for nuclear safety, with the IAEA safety standards. The review is conducted by a team of experts and coordinated by IAEA staff.

recommendation. A recommendation is advice on what improvements in operational safety should be made in the activity or programme that has been evaluated. It is based on inadequate conformance with the IAEA safety standards and addresses the general concern rather than the symptoms of the identified concern. Recommendations are specific, realistic and designed to result in tangible improvements.

safety consequence. A safety consequence is an adverse effect on safety that could result from deficient programmes or poor performance.

self-identified issue. A self-identified issue is documented by the OSART team in recognition of actions taken to address inadequate conformance with the IAEA safety standards identified in the self-assessment made by the host organization prior to the mission and reported to the OSART team by means of the Advance Information Package. Credit is given for the fact that actions have been taken, including root cause determination, which leads to a high level of confidence that the issue will be resolved within a reasonable time frame. These actions should include all the necessary provisions such as, for example, budget commitments, staffing, document preparation, increased or modified training, equipment purchases, as necessary.

suggestion. A suggestion is advice on an opportunity for safety improvement not directly related to inadequate conformance with the IAEA safety standards. It is primarily intended to make performance more effective, to indicate useful expansions to existing programmes and to point out possible superior alternatives to ongoing work.

LIST OF ABBREVIATIONS

AIP	advance information package
EPR	emergency preparedness and response
FOP	fundamental overall problem
LTO	long term operation
OEF	operating experience feedback
OSART	Operational Safety Review Team
SSCs	structures, systems and components
WNOs	working notes outlines

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