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Independent Oversight



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Independent Oversight

Foreword

This WANO guideline GL 2018-01, *Independent Oversight*, has been developed with the International Atomic Energy Agency (IAEA) to support nuclear operators in developing and implementing their own independent oversight function, which is a vital part of an effective safety management system for nuclear facilities.

Many models of independent oversight and different organisational arrangements exist, and all of them can be effective. Careful consideration has been given to ensure that this guideline accommodates the needs of all WANO members and IAEA member states having large multi-unit utilities or small single-unit utilities. WANO PO&C 2013-1, *Performance Objectives and Criteria*, identifies independent oversight and corporate independent oversight as a cross-functional requirement for organisational effectiveness [1, 2].

This guideline has been developed using international experts experienced in and familiar with independent oversight function across the WANO members and IAEA member states.

1. Introduction

Independent oversight provides senior leaders at plant and corporate level up-to e.g. the Board of Directors (BoD) with relevant, objective and independent assessments of safety performance throughout the organisation. The outcomes of various processes within this function should be used to challenge and influence the improvement in safety performance and effectiveness of all organisational levels.¹ In addition, this function should identify areas for improvement of those behaviours, practices and processes affecting safety, in order to prevent major safety-related events or near misses happening or reoccurring.

The responsibilities for planning, undertaking and reporting of independent assessments should be defined to fit the purposes and structure of the individual operating organisation taking into account its particular size and complexity, as well as cultural aspects. The company operating a nuclear plant on a single site may organise its independent oversight by combining the activities in the plant and corporate levels. The company operating nuclear plants with multiple sites and with a large corporate organisation may need an independent oversight function at corporate level to complement the activities carried out by independent oversight units on the plant level. Of key importance when setting up the independent oversight function is to ensure that leaders and decision makers at various levels in the organisation have direct access to the results of the independent oversight.

In this document, there are references to plants and stations; however, this document is applicable to any nuclear installation or facility.

¹ Guidance provided here, describing good practices, represents expert opinion but does not constitute recommendations made on the basis of a consensus of IAEA member states.

2. Definitions and abbreviations

Assessment	The process, and the result, of systematically analysing and evaluating actual work practices, behaviours and performance results against applicable internal requirements, established corporate goals or other documented criteria.
Assessor	Person doing an assessment.
AFI	Area for improvement.
BoD	Board of Directors.
CAP	Corrective Action Programme.
CEO	Chief Executive Officer (or equivalent) - the most senior executive in an organisation.
CNO	Chief Nuclear Officer (or equivalent) - the most senior executive in charge of the nuclear safety aspects of the business.
CR	Condition Report - document written in the CAP to describe a performance gap.
Elevation	Formal internal independent oversight letter to a line manager - expressing concern over the lack of progress with a previously identified issue and requesting a formal plan of action. Lack of further progress will result in escalation.
Escalation	Formal internal independent oversight letter to a more senior manager (typically a plant manager, station director or CNO) expressing concern over the lack of progress with a previously identified issue.
Functional oversight	Group within the organisation that does not become directly involved with activities but monitors the success and performance of the line organisations in completing them.
Independence	Independence between oversight personnel and line organisation ensuring that the oversight organisation has authority and organisational freedom to identify issues and verify solution implementation.
Independent oversight	Independent Nuclear Safety Oversight.
Line organisation	The organisation that is performing and delivering the function. This can be a utility/company or a station/facility.
OE	Operating Experience.
QA Audit	Quality Assurance Audit. Audit to ensure that the organisation is compliant with relevant requirements.
PDS	Problem Development Sheet. A method used in determining the scope and breadth of a problem.

PO&C	Performance Objectives and Criteria.
Second level analysis	An analysis where data from various other analyses and/or observations is combined in order to identify common causes and precursors.
Targeted observation/monitoring	An examination, observation, surveillance, measurement or test undertaken to assess structures, systems and components, and materials, as well as operational activities, technical processes, organisational processes, procedures and personnel competence.

3. Independent oversight function

The primary focus of the independent oversight function should be on nuclear safety and reinforcing an integrated approach to the defence-in-depth. In particular, nuclear safety is ensured by fulfillment of the fundamental safety functions:

- Control of reactivity
- Removal of heat from the reactor core and from irradiated fuel
- Confinement of radioactive material, shielding against radiation and control of planned radioactive releases, as well as limitation of accidental radioactive releases

Nuclear safety is also ensured by effective emergency preparedness and response.

To achieve this, the purpose of the independent oversight function is to verify that the utility has the full capability to perform in a manner which achieves these safety functions through appropriate staffing, processes, activities, actions and monitoring.

An organisation operating nuclear power plants typically has various layers of oversight. One of these layers is independent oversight. The establishment and organisation interface of independent oversight function must also take the other layers into account and adjust accordingly. These layers are created to ensure that performance is monitored in several independent ways by different people with diverse perspectives, using various methods to avoid common mode risk. Examples of the layers are:

- In-process line organisation oversight (peer checking, self-assessment, etc.)
- Functional oversight (oversight performed by senior managers or via different forums, etc.)
- Independent oversight
- External oversight (regulators, WANO, IAEA, etc.)

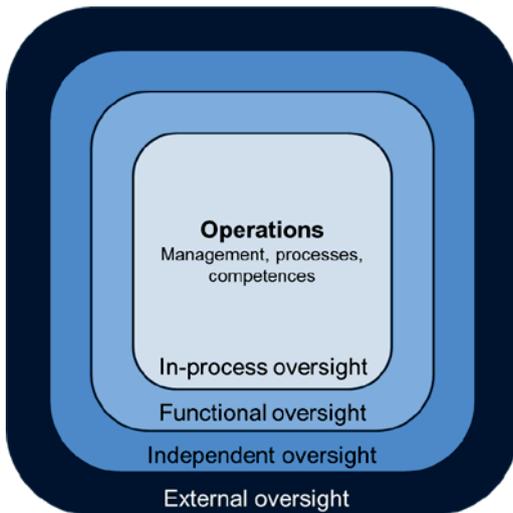


Figure 1: Illustration of typical oversight functions within a company

Independent oversight should align their activities and plans to avoid unintended overlapping of activities of other functional and external assessments (audits, peer reviews, etc.) and to ensure safety performance improvement. The independent oversight programme should define essential processes, procedures and working methods. The required processes within such a programme range from planning, assessment and analysis, to reporting and, if necessary, to elevation and escalation. The independent oversight processes should also include the follow-up of identified findings and review of the independent oversight effectiveness. The relationship of the independent oversight function with the national nuclear regulator should also be defined, particularly concerning communications and availability of independent oversight reporting.

The independent oversight organisation also has a special relationship to the Quality Assurance (QA) organisation or the organisation unit with similar assessment functions. Although different from each other, the two functions are complementary, each supporting efforts in continuous improvement. Collaboration could therefore be beneficial. The findings of compliance based audits could be used as inputs to independent oversight. QA and independent oversight should compare and structure their plans to avoid assessment fatigue of the organisation but ensure safety improvement. In many cases these functions are co-organised. Typically, traditional management system experts and QA unit performs management system compliance-based audits (i.e. to ensure the management systems comply with regulatory, corporate and station requirements), whereas independent oversight reviews and assessments are nuclear-safety-related compliance and performance-based and relate to best practices of the nuclear industry.

To perform effectively independent oversight groups must have adequate resources and should be sufficiently independent of the organisation's line organisation to ensure an independent assessment of organisational effectiveness. The individuals in the oversight group should have sufficient authority and access to the senior management up to the Board of Directors (BoD) at the corporate level. The responsibilities and the scope of the independent oversight function should also be described in the management system manual.

3.1 Organisation

The setup of an independent oversight function should be developed according to the unique structure and culture of the organisation. However, the general requirement is that the organisation should provide an environment that enables individuals working within it to challenge processes, procedures, decisions, behaviours and attitudes at all levels within the company.

The size and complexity of the operating organisation defines the boundary conditions for independent oversight activities. Some organisations may have a number of organisational units or teams performing independent oversight activities, whilst in others a few individuals carry out the work within a single independent oversight unit. For example, a company operating a nuclear plant on a single site may organise its independent oversight function by combining the independent oversight arrangements in the plant and at the corporate levels. A company operating several nuclear plants on multiple sites and with a large corporate organisation will need a corporate independent oversight function to complement the same activities carried out at the plant level. Furthermore, the size of the independent oversight organisation depends on whether the site is under construction, commissioning, operation or in its decommissioning phase.

Appendix 1 provides typical examples of how independent oversight activities can be organised in different company structures.

The independent oversight function should have a direct reporting line to the BoD or to the organisation's most senior officers, providing them with an independent perspective of safety performance at the nuclear facilities and the corporate organisation. The direct reporting should ensure that the assessment of safety performance provided by the line organisation is accurate. The independent oversight function should not take over the line organisation tasks, roles or responsibilities, rather it should identify gaps and opportunities for potential improvement on nuclear safety issues.

If tasks are not all carried out within a single independent oversight function then the specific responsibilities should be clearly defined, documented and understood by each department, function or individual. Special attention should be paid to the effectiveness of interactions between these different areas.

The organisational arrangements should ensure the effective management of the independent assessment activities and that the leaders and decision makers at various levels in the organisation have direct access to the results of the independent oversight processes.

3.2 Staffing

Regardless of organisational structure, the independent oversight assessors should have the necessary experience, training, skills and credibility to perform oversight activities. The key to success is to have a sustainable team of experienced personnel who understand the industry expectations and boundary conditions, who can identify both the safety performance and effectiveness gaps and perhaps more importantly are able to communicate these gaps to senior line organisation in a convincing manner.

The assessors should also possess significant breadth and depth of experience that enables them to recognise and understand the potential consequences of strategies, actions and behaviours at their sites, and to assess how the standards at their organisations relate to international best practices at other nuclear facilities.

Independent oversight assessors must possess the strength of character to effectively challenge the wider organisation if they sense it is moving in the wrong direction even when it appears that they are the only ones thinking in that way. Independence from those actually performing the work, the knowledge and experience of the assessors, the character to act when others choose not to and the willingness of the line organisation to receive and address issues identified by independent oversight are key attributes for an independent oversight function to be effective.

External experts and peers should occasionally be involved in independent oversight assessments to provide an outside perspective. This adds credibility and objectiveness to the assessments and provides additional added value for the area of organisation being evaluated. The independent oversight organisation should have sufficient permanent staff to undertake the baseline work and to act as the

challenging customer for any work to be undertaken by the external support. The allocation of resources and procedures needed should be proportionate to size and complexity of both the organisation and the oversight function.

Workload and staff vacancies should be actively monitored and succession plans developed. The independent oversight organisation should have processes and procedures that support the development, training and assessment of competency of its staff. Typical characteristics, knowledge and main competence areas needed for the organisation are:

- Nuclear engineering and technology
- Safety including operational safety
- Nuclear regulations and procedures
- Safety culture, human factors and organisational behaviour
- Assessment and reporting skills
- Communication skills
- Organisational skills
- Personal integrity
- Courage

These requirements are further described in Appendix 2 together with suggested competence and skill levels for each area. While not everyone in the group will have all these specific competencies they should exist in the group as a whole. If not in the group, then the competency should be attainable in some other way.

Where possible, plant/station based oversight staff should not be recruited from within the same plant/station, as it is more difficult to provide independent oversight of a culture and organisation that the assessor was previously part of.

A prerequisite for an effective and efficient independent oversight organisation is that its roles and responsibilities are well recognised in the company. One way to obtain this is to periodically rotate experienced staff from the line organisation into the independent oversight organisation and then back after typically a two- to four-year assignment. When these assessors return to the line organisation they should be usually better managers and will also be an independent oversight ambassadors. Moreover, the competences brought into independent oversight by the rotational people will increase credibility of the independent oversight function. Other considerations for rotation of the staff within the organisation are:

- Staying too long in the same position or location increases the risk of 'home blindness' or going 'native'.
- A position within the independent oversight organisation should be highly valued when recruiting for higher management positions. The experience gained is positive in both directions.

3.3 Independence

The independent oversight personnel should be sufficiently independent from the line organisation in order to be capable of providing objective oversight not hindered by line reporting relationships. They should not have responsibility for areas being assessed. In other words, the independent oversight personnel at the station/corporate level should be independent from the organisation's department or line managers, and report only to the most senior station or corporate officers.

The persons undertaking and reporting independent assessments should be free to raise challenging observations without fear of reprisal or sanctions. The independent oversight function should be free to look at any area of plant, performance and documentation and to carry out follow-up reviews to verify the implementation of corrective actions.

Independence also means that the independent oversight personnel are not responsible for suggesting, determining or implementing corrective actions for solving identified issues. That said, it can be beneficial for the experience and insights of the independent oversight to be considered by the line organisation when developing effective problem solutions.

3.4 Oversight committees, councils, and advisory boards

An important aspect of the overall safety management function is an independent view of performance by senior internal and external experts. To provide this external expertise, nuclear safety oversight committees, councils, and advisory boards could be arranged as a complement to, or as part of, the independent oversight. Based on the observations performed and on the reviewed assessments and performance reports, their advisory functions will provide recommendations to the most senior managers of the organisation, such as for example chief executive officer (CEO) and/or chief nuclear officer (CNO). These functions may have different tasks and organisational structures depending on the number of operated units, sites and the company structure.

This advisory function may review and assess the following areas:

- Safety performance, as well as operational risks, long-term plans and strategies.
- Nuclear safety, radiation safety, non-radiation safety, and environmental compliance status against established goals and objectives for reasonableness and appropriateness.
- Any significant events or incidents that have occurred at the plants as well as any significant external reports of fleet or station performance.
- Safety performance issues identified by independent oversight or external peer-review (WANO, IAEA).
- Performance of the independent oversight function.

In performing its independent review and advisory function, the focus should be on evaluations of those management systems and processes which address the issues critical for the long-term safe, reliable and efficient operation of a nuclear power plant. The role is to keep safety performance first when challenged by cost or schedule considerations. The role should be described in the relevant documentation, e.g. safety management manual, identifying reporting relationships.

4. Executive influence

The independent oversight organisation and its cross-functional processes can only be effective if they are empowered by senior corporate and site leaders. It is a sign of maturity in an organisation that the leadership and management actively seeks the viewpoints of independent oversight and acts to address their concerns in a timely manner. Independent oversight will be most effective when viewed and communicated by leaders as a valuable resource to line managers and not as a barrier to getting work done.

One input of the independent oversight function is their ability to influence the line managers to take action on an issue or take a different action than was originally planned without the need to elevate an issue to a higher organisational level. It is not sufficient to simply identify the performance shortfalls, it is necessary to ensure that line organisation understands the safety significance and take appropriate corrective actions.

When independent oversight identifies an elevated issue that has not been appropriately resolved (and which therefore requires involvement of a higher level of management), a formal escalation notice should

be prepared, approved and issued to the relevant level of the organisation. This process can only be meaningful and effective if the seriousness of its use is recognised and supported by the organisation's senior leadership. Escalation is viewed as a healthy exercise in accountability to identify important issues and trends when normal processes and communication are ineffective. Without this, the independent oversight function and their executive influencing tools will be limited in effectiveness.

5. Independent oversight programme

5.1 Scope

All the activities that may influence or contribute to nuclear safety are to be considered within the scope of the independent oversight function and incorporated into the independent oversight programme.

The independent oversight programme will be developed, implemented and maintained to cover all the independent assessment activities undertaken by the independent oversight function. Its scope should include a review of the robustness of the safety assessment required to support the design, construction, installation, commissioning, operation, modification, decommissioning and dismantling of any infrastructure, plant or equipment which may significantly affect nuclear safety.

The independent oversight programme should consider the timeliness and effectiveness of actions taken in response to assessments made by internal and external bodies as well as significant operating experience recommendations.

The independent oversight function will review the ability of the organisation and its leadership to ensure that high standards are set, monitored and achieved. It will evaluate the management system to ensure that the organisation's processes for planning, undertaking and reviewing its activities are effective. It also reviews the extent to which risks are being controlled in line with the expectations of senior management and requirements of the organisation's management system.

A significant proportion of independent assessments should be proactive rather than reactive. The assessments that contribute proactively to improving the safety performance are characterised as:

- A systematic method of monitoring and reviewing management systems and its processes (such as operating experience, safety reviews, management system, training and competence, human performance, operational decision making, plant modifications) including trending and analysis [Appendix 3].
- Observation and performance review of functional areas (such as Operations, Maintenance, Engineering, Training, Operating Experience, Fire Protection, etc. and interfaces amongst them).
- Assessment and review of other attributes such as leadership, effective management communication and safety behaviours including safety culture.

The independent oversight programme should review all of these individual elements against defined criteria or standards over a given period. The overall scope of activities being covered should be determined by the potential safety significance of each event and the available resources.

There should be clarity on what standards or criteria the independent oversight function is comparing the performance of the wider organisation against; be it corporate standards, national regulatory requirements, WANO or IAEA. This clarity should exist to ensure transparency, consistency and repeatability of messaging.

The reactive element of the internal oversight function relates to how well the organisation responds to and addresses emergent issues. Accordingly, the oversight group should monitor and determine whether the following issues are addressed:

- Do events that relate to nuclear safety (predominantly) receive the attention warranted by the risk or potential risk?
- Do the management processes ensure the appropriate level of rigour, and are the processes being effectively applied?

The independent oversight programme should also monitor and assess whether the organisation is proactively managing risks, and preventing events through effective use of improvement programmes or whether its activities are driven by events. The programme should also monitor the quality of the learning derived from event and the quality of the root cause analysis done by the organisation.

IAEA Safety Standards, OSART Guidelines and WANO Performance Objectives and Criteria could be utilised when evaluating the scope of independent assessments to ensure that company keeps abreast of best international practices [References 1-5].

5.2 Assessment types

5.2.1 Day-to-day assessments

The day-to-day independent oversight assessments are performed to evaluate the behaviours of plant and corporate personnel to ensure that activities are conducted in a safe manner. The conditions of the equipment which are important for nuclear safety and the status of the safety functions should also be subject to assessment.

In addition to the day-to-day independent assessments, larger scope or integrated assessments should be performed periodically. The frequency at which these assessments takes place should reflect the complexity of the organisation, the scope of the independent oversight programme and the frequency at which periodical reporting is required.

5.2.2 Special and topical assessments

The processes to provide proactively up-to-date independent assessment of start-up after outages, emergent events (reactor scrams, turbine trips, unit power down,) and incidents are part of special and topical assessments.

The determination of these areas and necessary frequencies can consider areas already specified in the IAEA Safety Standards, OSART Guidelines and in WANO Performance Objectives and Criteria [1-5]. In addition other areas could be included based on the national nuclear regulations. Individual assessments of special topics should be performed in line with the independent oversight annual and long-term plans, or ad-hoc as a reactive assessment. Some of the typical assessments are addressed in the following chapters.

5.2.2.1 Independent assessment of operating events

The independent oversight function should assess selected operational events at the plant to ensure that the analysis performed by the plant is appropriately conducted and rigorous enough. These assessments can be made from the point of view of:

- Principles of safety culture and conservative decision making
- Adherence to procedures and limits and conditions
- Identification of appropriate root causes and adequacy of adopted corrective measures

In addition, the independent oversight programme should include the process of assessing the performance of the operating organisation in handling the experience from operating events that have occurred, both within the organisation and outside the organisation at other plants and countries.

5.2.2.2 Independent assessment of organisational changes

Operating nuclear power plants should have in place a process to evaluate the risks related to organisational changes. An independent internal assessment can be done to confirm proactively that the organisational changes do not compromise the nuclear safety performance nor other relevant processes defined in the management system [3-6].

As minimum, the independent oversight should assess that:

- The basis for organisational change is sound
- The risks have been correctly identified, assessed, and then adequately mitigated
- Post implementation, the effectiveness of the change is measured and evaluated

The role of independent oversight providing an independent assessment should be emphasised. This safety assessment should be required to support planned changes to the organisation's resources and structures having a potentially significant impact on nuclear safety.

5.2.2.3 Periodic safety culture assessments

Independent assessments of leadership and safety culture should be conducted periodically and should cover the whole organisation, including its leaders and its headquarters' staff, as well as at the sites and workplaces. These assessments can be carried out by internal or external recognised experts but the results should be available as inputs to independent oversight assessments [3].

5.2.2.4 Modification assessment (plant, safety cases, etc.)

A representative sample of those modifications that are identified to have the potential to significantly impact nuclear safety should undergo independent assessment by the independent oversight organisation (or other independent organisations) to confirm that those engaged in their production have applied an appropriate level of rigour and that all the safety significant issues have been adequately considered and mitigated.

5.3 Prioritisation

The independent oversight programme should assess the most significant and relevant elements of safety performance. When the organisation is responsible for several sites the programme should take into account all potential variations in risks and requirements among the sites and across the operating organisation in a consistent manner.

The approach should consider all potential risks in order to determine priorities of the topics and areas included in the independent oversight programme. The relevant regulatory documents, IAEA Safety Standards, WANO guidelines and other guidance documents could be used to support the determination of priorities and for guiding the graded approach to support operational safety [7].

The following aspects may be considered during the planning phase as being of high priority:

- Changes of organisational structure and processes: planned or recently implemented organisational changes and process changes which may have a potentially significant impact on safety performance and organisational effectiveness.

- New types of activities being planned or undertaken: for example, the challenges and controls required for installation, commissioning, major modifications, and decommissioning are significantly different from those for an operating nuclear facility.
- Significant risk issues identified from previous assessments or events (onsite and offsite): changes in the organisation's assessment of low probability, high consequence nuclear events, such as those identified following of the Fukushima Daiichi accident.
- Deteriorating trends: higher probability, lower consequence events which have the potential to result in safety related issues or declining levels of safety culture.

6. Independent oversight processes and working methods

The basic and essential processes or procedures that are necessary to conduct an effective independent oversight assessment are:

- Planning
- Performance monitoring
- Data analysis and trending
- Gap identification
- Reporting and communication
- Follow-up
- Elevation/Escalation

The following subsections below address these areas in detail:

6.1 Planning

Advance planning is essential to conduct effective oversight. The plans make independent oversight proactive and provide means to verify that the scope of the independent oversight activities has been accomplished. The plans also ensure that the independent oversight programme collects independent information as well as up-to-date, relevant data from the line organisation. Sufficient transparency of planning ensures that there is enough support from the line organisation to result in a good level of acceptance. Since the emphasis should be more on the proactive assessments, it is important to observe behaviours and to identify potential safety performance shortfalls - instead of monitoring actions and activities after the issue becomes evident or after an event has occurred. However, when planning the proactive work, independent oversight should also reserve enough time for emerging issues.

Independent oversight should prepare and issue the following plans:

- The Long-Term Plan includes review areas for periodic assessment over multiple years. It should identify the full scope of planned activities and their indicative completion dates. Only part of the available resources should be allocated to the periodic review area assessments.
- The Annual Plan is to fix the planned activities and their schedule. It is based on the outputs proposed by independent oversight, senior managers, line managers and review areas given in the long-term plan. The activities should include routine oversight activities, in-field observations, observations in various meetings, shift turnovers and logs, and scheduled shutdowns.

- The Scope Document and Detailed Assessment Plan should identify the types of documents expected to be reviewed, the scheduled meetings to be attended and identify:
 - Assessment objectives, aims and boundaries
 - Method(s) to be employed
 - Criteria against which judgments will be made
 - Indicative scope and timetable for the assessment
 - Resource requirements, including where necessary key competency requirements
 - Proposed output of the assessment

Consideration should be given to preparing a standard assessment plan for the routine assessment activities. This will aid resource planning and support a consistent approach.

The Detailed Assessment Plan should ensure that the activity is supported by both operational and oversight management. It should be also subject to challenge by both the senior oversight management and the line organisation organisation. The timing and schedule should be adjusted as far as possible to minimise the disruption to operational priorities.

Plans should be updated regularly to track plan adherence, record completion and non-completion of activities. Even though consideration should be made for monitoring emergent events, they should not adversely affect the long-term assessment plan.

The plans should be monitored periodically to identify possible needs to carry out necessary changes to reach the intended goals and the targets.

6.2 Performance monitoring

The objective of performance monitoring is to gather data independently, in addition to the facts collected by or available from the line organisation. Independent oversight assessor(s) should use the internal assessment procedure, checklist and guidelines to gather facts and assess the theme.

The data and facts identified should ideally be recorded for use within a dedicated data base. Findings should preferably be entered into the corrective action programme (CAP) process to facilitate effective resolution of the issue – including trend analysis and tracking of actions.

Depending on the assessment type, the monitoring of activities can be broken down into the following key areas:

6.2.1 Planned monitoring –proactive

The areas for scheduled proactive monitoring are either decided in advance and performed according to a pre-determined assessment plan, or they are based on identified insights or other information indicating a potential issue - even if no events have occurred so far. The depth of the monitoring and assessment will depend on the perceived risk from the area under review.

6.2.2 Day-to-Day routine monitoring

Independent oversight should also carry out routine monitoring. The focus for these is to get a view on the nuclear safety status of the plant and to stay well-informed of planned and emergent issues at the site. This

can be accomplished by attending key meetings, performing plant walk-downs, overseeing event investigations and following operational decision-making processes.

6.2.3 Evaluation of emergent events

Consideration should be given to evaluate emergent events, such as reactor scrams or unscheduled power reductions.

6.2.4 Observations of plant status and plant activities

The full picture of performance in any organisation does not reveal itself until all or most of the relevant activities have been identified and placed in their proper context. Independent oversight actions should ensure that all relevant workplaces are periodically visited and observed to provide confirmation that risk controls are effective and work is being carried out safely and in accordance with expectations. Priority should be given to the observation of hazardous areas and those activities that influence nuclear, radiation and non-radiation safety, as well as plant reliability. The frequency and scope of observations should reflect the importance of these activities, how important the equipment is to safe and reliable plant operation, and the extent of current problems in given areas.

The purpose of an observation is not to criticise people, but to observe directly how they conduct their work activities. It is important to observe and document how the tasks are prepared and carried out, how the personnel apply given training, how procedures are followed and policies implemented. Thus, the goal is to identify individual as well as organisational behaviours and to recognise inappropriate working methods and reinforce good performances.

The observation results can be used to provide constructive feedback of factors affecting personnel performance and safety culture of the line organisation.

The method to carry out the observation of workplaces and task performance should be carefully planned and implemented. Further guidelines regarding observations can be found in Appendix 3.

6.2.5 Observations of management meetings

Meeting observations provide information, which should be used to focus the scope and direction of the independent oversight programme. Frequency of attendance at station and corporate meetings is a matter of judgment based on risk importance and should be balanced between relative priorities, meeting effectiveness and the need for task observation.

Assessors attending routine operational management meetings should understand the terms of reference of the meetings and ensure that they are familiar with previous operational issues. Assessors attending meetings do so as an observer and should not participate in decision making. However, they should provide relevant information on the topics being discussed and, if requested, they may provide advice but not solutions.

Observation results may be provided to the person leading the meeting immediately after it has been completed. However this view can be withheld, if the independent oversight is tracking a wider trend of adverse behaviours. Any future report can then highlight the areas where the processes, attitudes and behaviours did not meet expectations, or company policies were not complied with.

6.2.6 Review of documents

Different types of documents such as procedures, self-assessment reports, logbooks, records, performance indicators etc., should be reviewed during routine assessments, individual assessment of special topics, and topical team assessments.

Additional information taken from the CAP may also be used as a valuable source of facts, with event coding data, causal coding, and departmental trending reports. In addition, the station and functional self-assessment programmes provide useful data and facts, as do quality assurance (QA) audit reports, human performance observations (if not in CAP) and key performance indicators (KPIs). In addition to analysing and trending of KPIs, the target setting and choice of KPIs should be reviewed by independent oversight.

6.2.7 Interviews

Interviews are one of the most important methods in independent oversight, since they reveal how the plant and corporate staff evaluate and understand important issues in their work and workplace. Interviews can be individual or collective. Collective interviews may be used to get information from a representative group of a specific function (first line managers, sub-contractors, etc.).

Interviews with plant and corporate personnel are used to:

- Gather additional information not covered by documentation.
- Seek answers to open questions, and thus diminish possible independent oversight concerns arising from documentation reviews.
- Assess if plant and corporate staff understand their duties and responsibilities.
- Assess plant staff competence, behaviours/attitudes and commitment to nuclear safety.
- Provide the opportunity to exchange the necessary information between the independent oversight assessors and the plant and corporate personnel. These interviews should be open discussions and not interrogations.

Several different interview methodologies exist. Semi-structured and open-ended questions are used to minimise the risk that the interviewer takes too much control of the conversation, thereby biasing the information gathered. IAEA Operational Safety Review Team (OSART) Guidelines provide good guidance for efficient interview practices [Reference 5].

6.3 Data analysis and trending

Data analysis and trending should be performed regularly, with an emphasis on identification of potential emergent elements and new review opportunities. The day-to-day data analysis and trending should cover sufficient plant activities to allow assessment of the safety performance of the operating organisation.

In addition, all applicable plant data should be reviewed and analysed for background information and to recognise the source of potential issues. Operating experience data is an appropriate source to identify actual events that could result from current or continuing challenges in organisational performance and safety culture. By combining the available data in a second level analysis, common causes and precursors can be identified.

Data can be visualised, organised and communicated in a number of ways using a variety of tools to enable analysis of the wide range of facts and to arrange the findings in various ways (similar to the WANO 'Yellow Sticky' method (Appendix 3) or IAEA issue development procedure during OSART missions) to help to understand causal factors and subsequently to develop insights.

6.4 Gap identification

The goal of gap identification is to:

- Detect significant deviations from the expected performance.
- Understand the factors leading to the gap.
- Support the line function in preventing the problem from re-occurring. Typically, the independent oversight organisation would not be involved in the determination of solutions.

Upon completion of data analysis and grouping of facts or occurrences that appear to be repetitive, a tool and method such as Problem Development Sheet (PDS) can be used to identify the actual concern or issue. These are referred to as areas for improvement (AFIs) or as issues but may also be referred to as gaps to excellence. A more detailed description of the PDS method can be found in Appendix 3.

Gap identification produces the best results when conducted with the line organisations rather than the results just being presented to them. By incorporating the line organisations, the ownership of the issue is automatically assumed by proper line organisation, resulting in timely implementation of corrective actions and continuously improving self-learning process.

6.5 Reporting and communication

For independent oversight to be effective, communication should take place in a timely manner. Immediate, direct and routine informal communications are vitally important to the effectiveness of oversight in influencing the line organisation.

Individual observation reports on single issues or observations should be documented and issued as they are identified and included in reports when required. When the data from a number of observation reports are combined with other data, like performance indicators, operating experience, QA audits or management system assessments, to form an overall plant view or fleet view, these summaries are usually referred to as Assessment Reports.

Regular independent oversight observations, monitoring, assessments and insights should also be reported promptly to the station or corporate management.

It is important for an independent oversight organisational unit to demonstrate that it takes a comprehensive view of the operating organisation and that it observes, recognises, and acknowledges improvements being made. Creating a balanced communication improves the relationship between the line organisation and independent oversight and enables differentiation of those stations and facilities in a nuclear fleet that are more proactive in their improvement programmes.

Independent oversight should aim at accurate and concise reporting in order to transfer its messages and recommendations clearly to the senior management. The arrangements for reporting the assessment findings should be clearly defined.

The independent oversight organisation unit should have in place a verification and approval process that ensures accurate, high quality reports - as failure in this may undermine the reputation of the function.

6.5.1 Reporting lines

The independent oversight reporting lines should be outlined in the company management system. The results of Independent Nuclear Safety Oversight (ISNO) activities should be directly and formally communicated to plant senior managers, nuclear safety committees, and corporate senior management,

providing them with an ongoing independent evaluation of performance at the nuclear facilities and in the corporate organisation, in comparison with the industry performance.

6.5.2 Verbal communication

Day-to-day communication between independent oversight and line personnel is an essential element in promoting continuous improvement. Communications should be conducted routinely, including face to face meetings, and in a manner that ensures that both good performance and concerns are conveyed to the line organisation and senior management in a timely manner. Communications by independent oversight personnel are accomplished both formally and informally.

6.5.3 Reporting frequency

Higher frequency reports may be written or oral. They will typically cover:

- Insights on significant emergent issues.
- Examples of good practice for benchmarking and replication.
- Concerns regarding legal/regulatory requirements and significant emergent safety concerns of note or interest.

Lower frequency reports, such as quarterly, semi-annually or annually, are the means by which independent oversight routinely and formally provide an overall assessment of station or fleet safety performance. It is a formal process by which independent oversight share insights and concerns with the plant and company.

Lower frequency reports typically contain:

- Executive summary.
- Top independent oversight concerns and areas for improvement.
- Any issues not effectively addressed that required elevation.
- Results from routine planned and emergent observation and assessment activities.
- New actions and progress with previous actions.
- Future monitoring/assessment areas.

6.5.4 Reporting process

Regular reports should be formally presented to the line organisation at the appropriate level for understanding of the issue(s).

All actions resulting from independent oversight reports should be captured by the line organisation in the CAP process and tracked to completion.

6.6 Follow-up

The term 'follow-up' denotes an activity to evaluate adequacy of cause analysis, timely implementation of corrective actions and to evaluate the effectiveness of activities performed. Follow-up is particularly required for those issues identified as significant risks to nuclear safety.

Follow-up should be defined in the assessment plans. Any deviation from agreed implementation and related time schedules should be communicated to and agreed with independent oversight. The follow-up

activities should include but not be limited to definition of follow-up frequency (based on significance), identification of gaps in process, verification that appropriate justification exists for modified corrective action plans and that the issue has been resolved in agreed time schedule. Independent oversight should also review how operational managers take into consideration in their decision making process the findings identified by independent oversight. Further details regarding follow-up can be found in Appendix 3. It should be noted that not all identified issues need independent oversight follow-up.

In case that issues identified by independent oversight have not been satisfactorily solved by the respective operational level, the formal escalation process should be considered.

6.7 Elevation and Escalation

In the event of a safety issue being identified, independent oversight should provide a convincing message of the need to initiate action to address the identified gaps in timely manner. If that issue reported by independent oversight is not being resolved by the appropriate line manager, it should be elevated to the relevant organisational level. This process is often referred to as elevation.

When the response to an Elevation is deemed inadequate, inappropriate or assignments are not delivered in time, then the issue should be considered for the next level, escalation.

Escalation is a graded approach that is intended to induce improvement when there has not been acceptable performance or resolution of an issue at line manager level. Escalation should continue to higher levels of management, up to and including the CNO, the CEO or other equivalent position, until the concern has been resolved.

Issues that should be considered for elevation and escalation are typically significant from the nuclear safety viewpoint, have a regulatory impact or represent cross cutting areas, such as human performance, corrective actions, or safety culture. Additional considerations that may contribute to the need of escalation can be:

- Line organisation's unwillingness to accept an issue.
- Un-timely response to a formal question or request.
- Incorrect or untimely Condition Report classification.
- Untimely development of an action plan for a Condition Report.
- Inadequate proposed actions to resolve and issue.
- Inadequate or incomplete action taken.
- Un-timely response to safety related actions.
- Re-occurrence of a previously identified independent oversight issue.

When independent oversight identifies an issue that requires escalation to a higher level of management, a formal escalation letter should be prepared, approved and issued to the relevant level of the line organisation. The basis for the escalation will be clearly specified and a condition report written to formalise the escalation letter.

Escalation exit criteria should be agreed between the line organisation and independent oversight. A review of the effectiveness should be determined for final resolution and closure.

An example flow chart regarding elevation and escalation is given in Appendix 3.

7. Continuous improvement of independent oversight

Organisational learning is important for all parts of any organisation. Independent oversight should be a role model for other part of the organisation and show excellence in this field. The actions supporting organisational learning include processes of gathering, assessing, developing and implementing improvement opportunities and sharing of this information. In practice these processes are interconnected.

Results of the organisational learning process should be shared effectively inside the independent oversight organisation and taken into account when planning future activities. In order to enhance the credibility of the independent oversight organisation and to promote overall transparency of company processes, the results should be shared throughout the organisation.

7.1 Key performance indicators

The performance of the independent oversight function should be monitored. Qualitative and quantitative indicators should be determined to address the quality and effectiveness of the independent oversight processes. Performance indicators can be selected that cover the independent oversight organisation, oversight programme, assessment activities, monitoring and reviews. The following type of information should be gathered as minimum:

- Indicators of independent oversight own processes (see section 8 for possible ideas).
- Learnings and observations from independent oversight organisation's own activities.
- Assessment of how well the previous recommendations have been adopted by the line organization.
- Assessment of success of communication with line organization.
- Feedback from stakeholders, both gathered through regular feedback and prompt feedback from specific situations.
- Missed opportunities identified by an external group but not by independent oversight.
- Staff surveys.

A nuclear industry good practice guide on independent oversight gives further examples (Reference 8).

The frequency of the performance evaluation activities should reflect the complexity of the organisation and the scope of the independent oversight programme.

7.2 Self-assessment

The independent oversight organisation should implement a self-assessment process to support its own organisational learning. WANO and IAEA documents give guidance on performing self-assessments (Reference 2, 9). These guidelines are targeted mainly at nuclear power plant (NPP) line organisations, but can be adapted to an independent oversight organisation when the special characteristics of the independent oversight organisation are taken into account. The list of examples on warning signs given in chapter 8 can be used for self-assessments.

The implications of missed opportunities and any criticism of any assessment activity or adverse comments on the performance of individuals should be considered by management of the independent oversight function. Actions to prevent reoccurrence should be taken and progress monitored.

7.3 Review and assessments of effectiveness and feedback

Performance reviews of the independent oversight processes and the effectiveness of the independent oversight organisation should be undertaken according to arrangements defined in the organisation's management system. The performance reviews should cover both reviews of specific assessments (which can be performed directly after the assessment) as well as more general and periodic reviews of the independent oversight function.

The reviews should evaluate the extent to which independent assessments challenge the processes, decision making and behaviours within the organisation and whether the quality of the information provided to senior management is sufficient for reliable performance and safety culture evaluations.

The independent oversight organisation's programme, procedures and performance should be subject to periodic assessment by groups or organisations that are independent from the independent oversight function. This assessment should be defined in the management system. These assessments could be performed by certified organisations, peer groups or parent organisations as appropriate.

7.4 Benchmarking

Benchmarking of the independent oversight processes and practices should therefore be included within the independent oversight programme. These activities could be coordinated via organisations relevant to the operational nuclear safety industry sector such as IAEA, WANO, INPO or European Oversight Group. IAEA Safety Standards Series No. NS-G-2.4, *The Operating Organisation for Nuclear Power Plants* gives guidelines on performing benchmarking [10]. The guidelines are targeted mainly to NPP line organisation, but can be adapted for independent oversight organisation when the special characteristics are taken into account.

8. Warning signs of independent oversight function

Part of the self-assessment actions is to recognise possible gaps in independent oversight's own performance. The following list gives examples on signs that warn of the emergence of gaps associated with the development, implementation and conduct of independent oversight function:

- Lack of independence: Independent oversight should maintain its independence as far as possible. Therefore, the reporting should be separate from line reporting. Independent oversight should perform assessments and give insights but should not take part in the corrective actions and issue resolutions.
- Lack of visible formal advice and actions placed on the organisation.
- Lack of sufficient follow-up: Insights and assessments should be adequately followed until the issue/advice/actions have been finally resolved.
- Lack of escalation: Issues that are not resolved according to plan should be escalated.
- Incomplete coverage: All nuclear safety related areas should be covered by independent oversight activities. However, if prioritisation is necessary to adjust to resources, it should be performed from a risk based perspective.
- Accepting sub-standard conditions: Long-standing issues should continuously be challenged until satisfactorily resolved.

- Too long at same position: If a person performs independent oversight assessments at the same place for a long time, there is a risk that he/she finds it difficult to recognise adverse trends and declines.
- Lack of disagreements: Healthy tensions or disagreements are usually a sign that independent oversight activities are intrusive and challenging.
- Too reactive and event driven: A common mistake in independent oversight activities is spending too much time assessing events and acting upon revealed deficiencies.
- Too positively or negatively biased reports: Reporting should be balanced. Too positively biased reports could be a sign that independent oversight function is not sufficiently challenging or does not have the courage to act. On the other hand, an assessment with no positive findings is unlikely to have the desired influence, may lead to degradation of the relationships between independent oversight and the line organisation, and the damage reputation of the oversight function.
- Independent oversight is less demanding than the standards of the operational line and its own oversight.
- Failure to identify potential safety shortfalls or major events: Low competence can lead to the inability of independent oversight to notify line organisation of shortfalls and events important for safety.
- Focusing more on the compliance than on safety performance: Low competence and experience of independent oversight personnel can lead to putting undue emphasis on formal QA than on the safety performance itself.
- Large number of vacancies and duration of vacancies in the independent oversight organisation.

References

1. WANO PO&C 2013-1, *Performance Objectives and Criteria*
2. WANO GL 2001-07, *Effective Self-Assessment and Corrective Action Programmes*
3. IAEA Safety Standard Series No. GSR Part 2, *Leadership and Management for Safety* (2016)
4. IAEA Safety Standard Series No SSR-2/2 Rev. 1, *Safety of Nuclear Power Plants, Commissioning and Operation* (2016)
5. IAEA Service Series No. 12, *OSART Guidelines* (2015)
6. IAEA Nuclear Energy Series No. NG-T-1.1, *Managing Organisational Change in Nuclear Organisation* (2014)
7. INSAG-25, *A Framework for an Integrated Risk-Informed Decision Making Process* (2011)
8. IRWG, *A Nuclear Industry Good Practice Guide, Independent Oversight* (2014)
9. IAEA TECDOC Series No.1125, *Self-Assessment of Operational Safety for Nuclear Power Plants* (1999)
10. IAEA Safety Standards Series No. NS-G-2.4, *The Operating Organisation for Nuclear Power Plants* (2001, currently under revision)

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Appendix 2 – Independent Oversight Competence Model

A2-1. Introduction

This guideline provides the framework for the competences for the independent oversight. Whilst not everyone in the group will have all these specific competencies, they should exist in the group perspective. If not in the group, then the competency should be attained in some other way.

This document can be used as guidance for the individual training and development programme of the people involved in the independent oversight.

A2-2. Competence description

A competence is the ability of an individual to do a job properly. The competencies that are described relate to knowledge, skills and behaviours required to perform the independent oversight role. The table in this guideline contains the following main competence areas:

- Nuclear technology.
- Nuclear environment.
- Human factors.
- Reviewing skills.
- Communication skills.
- Attitude/personality.
- Organisational skills.
- Independent oversight tools.

Each competence area contains a series of sub competences which on their turn consist of a series of bullet points, providing more information on each topic.

The third column in the table describes the preferred level of competence, needed to perform the independent oversight tasks. The criteria includes the following range of skill levels: low, Basic, good, specialist and expert.

In the table below, certain areas require good or specialist levels of skill as a minimum – to achieve these competences, key staff will require significant, in depth levels of training.

A2-3. Competence Model

Competence Area	Competence Description	Skill Level
Nuclear Technology	<p>Power Generation Technology</p> <ul style="list-style-type: none"> • Basic structure of nuclear power plants. • Safety systems for operation and emergency measures (modify according to WANO/IAEA terminology). 	Specialist
	<p>Nuclear Fundamentals</p> <ul style="list-style-type: none"> • The nuclear lifecycle from siting, design, construction, commissioning, operation and decommissioning of nuclear installation and waste management facilities (except mining). • Radiation protection principles, basic radiation physics, accident and risk management from a radiation protection perspective. 	Specialist
	<p>Nuclear Safety Principles</p> <ul style="list-style-type: none"> • Technical standards, norms and regulations. • Requirements issued by national and international organisations, regulatory and industry bodies, the line organisation and/or the operating plant to protect the assets (people, environment, equipment, facility) against ionising radiation and to minimise danger to life etc. • Three main safety functions for nuclear installations: control of reactivity, cooling of radioactive material and confinement of radioactive material. 	Specialist
	<p>Reactor Design & Engineering</p> <ul style="list-style-type: none"> • Processes and results of developing a concept, detailed plans, supporting calculations and specifications for a facility and its parts in the range of design basis and beyond design basis. • Different levels of diverse equipment and procedures that prevent the escalation of anticipated operational occurrences. Also to maintain the effectiveness of physical barriers placed between a radiation source or radioactive material and workers, members of the public, or the environment, in operational states and in accident conditions (defence in depth). 	Specialist
	<p>Reactor Operations</p> <ul style="list-style-type: none"> • Administrative and operational activities about control of equipment, maintenance, refuelling, in-service inspections in all plant states. 	Specialist

Nuclear Environment	Nuclear Treaties, Conventions, Laws and Regulations <ul style="list-style-type: none"> • Knowledge of nuclear treaties such as the European Atomic Energy Community (EURATOM) Treaty and all relevant IAEA conventions (such as Nuclear Safety Convention, Convention of Safe Management of Waste and Spent Fuel, Convention on Early Notification of a Nuclear Accident). • IAEA nuclear safety principles and requirements. • IAEA safety standards and guides, according the attached list. • Country atomic law and derived regulations. 	Good
	Management System, Procedures and Practices <ul style="list-style-type: none"> • Management system basics rules and methodologies and QA processes. • Application of the standards of the legislation and Quality Management System (QMS) requirements. • Methods for compliance audits and adequacy audits and process of creation of documents in line with QMS and administration rules. • Internal systems such as Performance improvement and basic company procedures related to nuclear safety. 	Specialist
	Understanding of International Best Practices <ul style="list-style-type: none"> • Knowledge and usage of WANO PO&C, INPO principles according to the attached list. • Application of WANO guidelines and principles. • Methods of independent reviews (WANO, OSART). • Methods of nuclear safety monitoring and assessment. • Feedback and application of WANO Significant Operating Experience Report (SOER). • Use of event reporting systems (WANO Industry Event Report [IER], IAEA International Reporting System [IRS]). • Performance of root cause analysis. 	Specialist
	Assessment Methodologies <ul style="list-style-type: none"> • WANO/INPO peer review and member support missions (MSM) methodology. • General audit principles including auditing of management systems. • General audit principles including auditing of management systems. 	Specialist

<p>Human Factors</p>	<p>Human Performance</p> <ul style="list-style-type: none"> • Insights in how the likelihood of Incidents/accidents in the nuclear industry due to human error can be reduced: working on personal performance (training) and human factors (procedures). • Knowledge of industry human performance improvement plans: <ul style="list-style-type: none"> • Deep knowledge and insights of the WANO human performance tools. • Good understanding of how the WANO human performance tools can help to prevent accidents (human error preventing tools). • Knowledge of industry programmes to implement the use of these Tools. • Knowledge of the world class level of implementation of these tools. • Leadership: good understanding on how leadership skills can influence behaviour, performance and safety culture. 	<p>Specialist</p>
	<p>Nuclear Safety Culture and its Assessment</p> <ul style="list-style-type: none"> • Good understanding of WANO PL 2013-1, <i>Traits of a Healthy Nuclear Safety Culture</i>. • Skills and knowledge to explain these traits (by using examples) to all staff. • Skills to capture gaps in the implementation of these traits in the organization. • Knowledge of early signs of a declining safety culture and the capability to capture these signs. • Insights in how nuclear safety culture influences overall performance and personal behavior. • Knowledge of assessment methods of safety culture. 	<p>Specialist</p>
	<p>Cultural Diversity Awareness</p> <ul style="list-style-type: none"> • A basic understanding of the cultural characteristics of the staff working at the nuclear power plants. 	<p>Good</p>
<p>Reviewing Skills</p>	<p>Assessment Methodologies</p> <ul style="list-style-type: none"> • In house review methodology. 	<p>Specialist</p>
	<p>Task Observation Techniques</p>	<p>Good</p>

	<ul style="list-style-type: none"> • Knowledge of the principles to perform task observations effectively, with impact on the behaviour of the worker. • How to give feedback, how to dialogue effectively with the observed person. 	
	<p>Active Listening (intelligence gathering/interviewing)</p> <ul style="list-style-type: none"> • Accurately listening and understanding messages. • Asking open-ended and probing questions to understand views. • Showing interest and empathy. • Clarifying and summarising gathered information (feedback). 	Specialist
	<p>Challenging Behaviour</p> <ul style="list-style-type: none"> • Willing to understand the deeper causes, i.e. the reasons why. • Questioning attitude. 	Specialist
	<p>Root Cause Analysis</p> <ul style="list-style-type: none"> • Knowledge of, and experience with different techniques to perform an effective root cause analysis (e.g. analysis of events or a dysfunctional organisation). 	Good
	<p>Problem Analysis, Brain Storming and Solution Techniques</p> <ul style="list-style-type: none"> • Knowledge of, and experience with this techniques. 	Good
Communication Skills	<p>Report Writing</p> <ul style="list-style-type: none"> • Writing facts (from observations, interviews, walk-downs, document review), AFIs and recommendations. • Selecting and synthesising complex information (e.g. event transients). • Revising and editing documents. • Clarity and brevity. 	Specialist
	<p>Communication (written, presentational, verbal)</p> <ul style="list-style-type: none"> • Writing reports, documents and business emails. • Presentation techniques (logical structure, clear and short messages, visual aids, gather audience feedback, feel at ease with the audience). • Interview techniques (preparation in advance, opening, types of questions, closing, feedback and self-critique). • Obtaining the attention and engaging in constructive collaboration with the counterpart. 	Specialist

	<ul style="list-style-type: none"> • Giving and accepting criticism in a constructive way. • Balance positive and negative comments. • Communicate with teams. • Body language (non-verbal communication). 	
	<p>Influencing</p> <ul style="list-style-type: none"> • Assertiveness. • Demonstrate added value of suggestions. • Persuading and negotiating. • Manage disagreement and problem solving. • Build trust. 	Specialist
	<p>Resilience</p> <ul style="list-style-type: none"> • Conflicts management and resolution. • Flexibility. • Diplomacy. • Stress resistance. 	Specialist
<p>Attitude/ Personality and Organisational Skills</p>	<p>Time management and Organisational Discipline</p> <ul style="list-style-type: none"> • Understand and align with organisational governance and reporting processes. • Preparation and planning of work programme. • Flexibility and responsive to emergent issues – prioritisation skills. 	Good
	<p>Strategic Approach</p> <ul style="list-style-type: none"> • Understand business strategy and objectives. • Knowledge and understanding of required standards (WANO, IAEA, International Organisation for Standardisation (ISO) and nuclear safety principles). • Effective use of data to challenge performance. • Ability to identify common themes in organisational performance. • Capability and judgement to support creative solutions and learning. 	Specialist

	<p>Constructive Challenge and Influencing</p> <ul style="list-style-type: none"> • Know and understand the audience and develop credible open relationships (emotional goodwill). • Have a challenging behaviour. • Capability to set context - why it is good. • Prepare messages based on objective evidence and ensure depth of evidence. • Development and communication of open minded insights. • Know the standard and when to hold the line – personal standards and judgement and when to escalate. • Conflict resolution through objective review and solutions focus. 	<p>Specialist</p>
	<p>Role Modelling</p> <ul style="list-style-type: none"> • Know the standard and live it by doing the right thing. • Coaching skills – Goals, Reality, Options, Will (GROW). • Personal experience and expertise shared. 	<p>Specialist</p>
	<p>Self-Awareness</p> <ul style="list-style-type: none"> • Understand personal professional competence. • Recognise need for expert support on decision making. • Adapt approaches for different audience and situation. • Understand impact on individuals and organisation. 	<p>Good</p>
<p>Independent Oversight Tools</p>	<p>In House Independent Oversight Concept and Independent Oversight Tools</p> <ul style="list-style-type: none"> • Independent oversight – organisation (on site and corporate) • Independent oversight – processes and procedures. • Independent oversight – reports and way of communicating independent oversight messages. • Follow-up of independent oversight recommendations. • Process of elevation and escalation. • Internal assessment and independent oversight KPI’s. 	<p>Specialist</p>
	<p>Best International Independent Oversight Practices</p> <ul style="list-style-type: none"> • <i>WANO PO&C’s</i> (OR.5 and CO.4). 	<p>Good</p>

	<ul style="list-style-type: none"> • Independent oversight – processes and procedures. • Independent oversight – reporting and communicating independent oversight messages. • Independent oversight self-assessments. 	
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A2-4. References

IAEA SSR-2/2, Rev.1	<i>Safety of Nuclear Power Plants, Commissioning and Operation (2016)</i>
IAEA GSR Part 2	<i>Leadership and Management for Safety (2016)</i>
INSAG-12	<i>Basic Safety Principles for Nuclear Power Plants (1999)</i>
INSAG-15	<i>Key Practical Issues in Strengthening Safety Culture (2002)</i>
EURATOM	<i>Treaty establishing the European Atomic Energy Community, 1957</i>
WANO	<i>WANO Performance Objectives & Criteria 2013-1 (March 2013)</i>
WANO	<i>How to Review PO&C / CO.4, May 2014</i>
WANO	<i>How to Review PO&C 2013-1 (OR.5), December 2013</i>
International Conventions	http://www.iaea.org/Publications/Documents/Conventions/index.html
WANO	<i>WANO Pre-Startup Performance Objectives and Criteria (July 2012)</i>
WANO GL 2006-02	<i>Principles for a Strong Nuclear Safety Culture</i>
WANO G1-2012	<i>Guideline Peer Review Implementation</i>
WPG 01-2013	<i>WANO Programme Guideline – Peer Reviews</i>
WANO PL 2012-1	<i>Principles for Strong Governance and Oversight of Nuclear Power Organisation</i>
WANO GL 2011-7	<i>Principles for Effective Self-Assessment and Corrective Action Programme</i>
INPO Principles	<i>INPO Principles</i>
INPO GP	<i>INPO Good Practices</i>
NIEP	<i>Nuclear Industry Evaluation Programme, Performance Objectives and Attributes, NIEP-GUID-001-R08 (NQML)</i>

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Appendix 3 – Independent Oversight Working Methods

A3-1. Performance monitoring and identification of potential focus areas

The objective with monitoring is to gather own independent data in addition to the facts collected or available from other parts of the organisation. Plant, operational and organisational performance monitoring and trending should be performed on a continuing (daily) basis, with an emphasis on identification of potential emergent focus area elements and observation opportunities.

Historical data is often an appropriate source for example of actual consequences that could result from current or continuing performance issues and behaviours. The relevance of the data must be considered during the collection and analysis phase. Typically, with the exception of trending be careful to ensure that older facts remain relevant to support any areas for concern. Applicable plant data could therefore be used as a source of potential focus areas elements. Consider the following examples:

- Corrective action plan (CAP) reports and associated cause analyses as they relate to the functional area.
- Lower level CAP reports, based on key word searches.
- CAP trends.
- Line observations.
- Independent oversight observations.
- Performance indicators.
- Event history.
- Backlogs.
- Line self-assessments and external assessments and inspections.
- Independent oversight review, or assessment results, including issues from other plants in the fleet.
- System and programme health reports, especially those with yellow or red ratings.
- Risk significant activities.
- Highest rated Probabilistic Risk Assessment (PRA) systems.
- Outage critiques.
- Operational decision making records.
- Internal and industry operating experience.
- Major fleet or site improvement initiatives or projects.
- Outage preparation milestone adherence and rigour.

- External Nuclear Safety Advisory Board input and Training Review Committee documentation.
- Corporate governance and oversight activities.
- Information related to line oversight of assigned contractors and vendors.
- Information from independent oversight of assigned contractor and vendors, as well as independent assessments of the line organisation's ability to be a capable customer.

A3-2. Observations

A3-2.1 Preparing for the observations

The people, places, processes and products can be observed that are associated with:

- Work activities
- Training sessions
- Key meetings
- Teams working

A3-2.2 Conducting the observation

Observations should cover the entire activity to gain a complete understanding of the associated behaviours. When evaluating work procedures the observation should start with the pre-job brief. It should also be ensured that the observer stays long enough to allow the station employees to become accustomed to the situation and thereby act as they do normally.

When performing the observation, the entire work area, its surroundings and all the associated people activities should be observed.

In general the observation covers people, places, and processes (the 3Ps).

Regarding behaviours, the following terms can be used to describe what is meant:

- Behaviour describes an action and what people do, not who or what they are.
- Behaviour is active.
- Behaviour is an objective fact and not a matter of interpretation. Any two individuals should be able to see and describe the same thing.
- Behaviour is something that can be seen or heard. It can be captured on video or audio.

A3-2.3 Documenting the observation

Observations should be recorded in a format that is retrievable and has the ability to aggregate the facts into common themes. While it can be useful to acknowledge the expected behaviours, the goal of performing observations is to detect and document situations where people do not conduct it in a manner that is consistent with requirements (procedures and process), as well as management expectations.

One critical issue for success is to record facts that are clear and cannot be argued. A key element when describing performance is to identify the actual or potential consequences of the behaviour.

A work observation that describes worker behaviour with facts and consequences is powerful when identifying a problem or situation that needs to be corrected or improved.

Sufficient objective evidence in observations typically consists of:

- Performance gaps observed. (supported by facts)
- A brief conclusion statement that describes if the condition or performance observed was acceptable, and, if not, identifies the gap or improvement opportunity.
- Details that support the conclusion.
- Personnel interviewed.
- Documentation reviewed.
- Activities observed.
- Personnel debriefed.
- Causes, contributors, and other insights, as appropriate.

A3-2.4 The key to a successful observation

There are four key principles that are vital to implement in order to conduct effective observations:

1. The first key principle is: there are always problems to be found.

By being convinced that the performance is acceptable (prior to performing the observation), the observer is preconditioned to only see the performance as acceptable during the observation. On the other hand, by accepting reality, the observer will be more focused on finding problems, the significance of these problems may vary.

2. The second key principle is: you won't find what you aren't looking for.

During preparation, the observer should get acquainted with the standards and behaviours expected by the organisation and associated procedures and processes in order to be better prepared to identify any compliance shortfalls.

3. The third key principle is: the unseen problems.

Problems generally emerge when a task is not done correctly or not done, but should be done. During an observation it is more difficult to identify the latter problem.

Many observers get caught up in looking for deficiencies in conditions, processes, or activities they are seeing. In order to identify things that are not done but should be done, the observer needs to accept that some important problems have not been identified yet because they have not been seen.

4. The fourth key principle is: What needs to be improved?

Improvements should be based on industry excellence. It is therefore important that the observers have an understanding of what industry best practice looks like.

When observing situations that needs correcting it is important to give that feedback. By not giving corrective feedback the behaviour will become standard. Expectations is what are communicated and the standard is how people behave.

A3-3. Gap identification (problem development worksheet)

The problem development worksheet (PDW) is a tool to aggregate a series of related examples to a specific problem statement or description complete with contributing causes and insights. The sequence of block completion on the worksheet is important to promote clear, logical thinking about facts and conclusions gathered in the field.

The overall problem statement should not be determined until the other analyses are completed.

PDS should be performed when developing problem statements and/or seeking insights to issues that ultimately correspond to the more significant independent oversight concerns.

PDS should be considered for issues the station has not been able to identify or quickly resolve. Examples include declining or ineffective departmental performance, continued unacceptable or cyclic performance in a particular area, and problem areas in which the underlying causes may be poorly defined.

Following initial analysis, insights should be developed for trends that lead to area for improvement, when PDWs are developed. Attributes of an insight include:

- Information not known to the line organisation.
- Information known by the line organisation but presented in a way that helps explain the issue in a different light.
- Reflects a questioning process and is the result of asking why several times.
- Provides assistance in understanding why the issue is occurring or may lead to the cause of the condition.
- Information that will help bound the extent of the issue.
- Results from effort or questioning by an assessor.
- Results from independent oversight collegial reviews that provide other perspectives.

The problem identification produces the best results when conducted with the line organisation – rather than being just presented to them. By incorporating the line organisation, the ownership of the issue is automatically assigned to proper line organisation, resulting in timely implementation of corrective actions and provides means for improving self-learning process.

A3-3.1 Process for PDS

1. Evidence/Examples/Indicators

List the related issues. What we see during observations are usually indicators of a problem. Therefore, the indicators need to be analysed to find the real problems. Correcting only the indicator will not correct problems.

- a. Depending on the significance of the problems, there may be up to twelve compelling indicators. Typically, four to six examples of indicators are sufficient.
- b. Related issues are determined through a categorising process.
 - i. One method is to keep a board of yellow sticky labels, each containing an observed issue under an applicable topic heading. Non-related issues may require a separate problem development sheet.

2. Data Analysis

Analysis of the indicators is performed to find the real problem.

- a. Ask personnel involved why things are being done in a particular fashion.
- b. Consider the following since 85% of problems fall into these categories:
 - i. Resources – procedure adequacy, tools.
 - ii. Supervision – involvement, expectations.
 - iii. Discipline – meeting understanding expectations.
 - iv. Time – performed right the first time.
 - v. Training – personnel knowledge skills.
 - vi. Personnel selection.
- c. Review station cause codes to assist in identifying a problem. If the issue can be tied to a cause code, this will assist in correcting the problem.

3. Perspective

Provide information that might help to understand the problem to assist correction.

4. Problem Statement

State the final problem in a clear and concise manner.

- a. The problem is determined through examination of all the causes and contributors determined during the investigation. Look for common themes or statements made about the causes.
- b. Refer to applicable regulatory requirements, commitments, and/or WANO performance objectives or criteria.
- c. Validate the final problem statement, if necessary. Further investigation may be necessary, once a problem is determined. Look for other examples of the problem, and add to the original examples.

5. Priority

Make a statement as to whether the problem impacts:

- Safety
- Commitment
- Reliability
- Cost

A3-4. Yellow sticky method

The yellow sticky method can be used to manually organise large quantities of information into logical or unique groupings by physical movement of small notes detailing observation facts. This enables systematic and objective analysis of performance symptoms from a variety of information sources, and can be used to identify both problems and strengths. This may be used as an ongoing exercise in the team room, and as a tool to develop strengths and issues (AFIs), at the end of the review.

Categorisation of observation data will be based on the areas covered within the scope document for the review in progress. It is suggested that wall charts containing the desired headings are prepared prior to the surveillance and printed off before arrival on site.

A3-4.1 Methodology

- Transcribe each observation fact, in a few words, onto a yellow sticky label (one fact only per label). These should include (for example):
 - Observer's initials applied to the corner of the yellow sticky.
 - Against which standard/procedure/specification.
 - Facts or comments.
 - Source (observation record, condition report [CR] number).
 - + or – (strength or deficiency) – use of a different colour for each may assist.
- Place each yellow sticky onto the appropriately annotated wall chart.
- Arrange the yellow stickies in columns grouping them by these categories.
- Where necessary, produce duplicate yellow stickies to place the same fact in different categories.
- Continue to move the yellow stickies around if necessary to explore different patterns/potentials areas of concern.
- Once all yellow stickies are in their final category positions, analyse each column to identify problems or strengths.
- Real problems or strengths will typically be identified by the number of facts in a particular category. Avoid deriving problems or strengths out of columns containing only one or two yellow stickies.
- Evaluate the facts that have been grouped and write a single sentence to state the area for Improvement or strength.

Analysis of these groupings should be developed into detailed AFIs and strengths for inclusion in the final presentation and report.

This process can also be used to develop further focus areas for the surveillance, if a review and analysis is carried out on a daily, or more frequent, basis during the surveillance programme.

A3-5. Follow-up on independent oversight identified findings

Follow up of the issues posing more significant risks to nuclear safety or the high-level issues identified by the independent oversight can be done according to the following procedure:

1. Establish the appropriate follow-up frequency of each issue based on the following considerations:
 - Significance
 - Complexity
 - Overall timeline of issue resolution

2. The assigned reviewer should monitor the development of the initial response to the issue requiring follow-up.
 - Initial response review should be completed within 90 days of Condition Report (CR) initiation.
3. Evaluate the actions taken as appropriate using the following review criteria:
 - Was the issue screened appropriately for significance?
 - Was the cause evaluation and conclusion adequate in taking into account the significance level of the problem?
 - Were the shortfalls in process and behaviours identified?
 - When required, are extent of cause and extent of condition evaluations appropriate to the nature of the problem?
 - Evaluate corrective actions to ensure they address the identified issue and causes, including:
 - Interim corrective actions.
 - Completed corrective actions.
 - Proposed corrective actions.
 - Are the scheduled corrective action due dates acceptable?
 - Are the actions appropriately classified and prioritised?
 - Is the effectiveness review or performance monitoring identified as appropriate?
4. Monitor the progress of planned corrective actions as follows:
 - Ensure that the planned corrective actions are on schedule to meet the expected timeline for overall resolution of the issue.
 - Ensure that the changes to corrective actions or due dates are reasonable and in accordance with procedures.
 - Evaluate extensions and their bases for any nuclear safety culture implications and use the evaluation results as inputs when determining the need for elevation or escalation.
 - Ensure that the completed corrective actions taken align with the proposed corrective actions planned.
 - Evaluate the departures from proposed actions to determine if appropriate justification is provided for the departure and the actual action taken is reasonable and in accordance with procedures.
5. Closure should be as follows:
 - Evaluate the adequacy of the response.
 - Confirm that corrective action is accomplished as scheduled. Verify through some object means that the action taken was effective and correcting the deficient condition: i.e. desired results have been achieved (this means more than just that the action was taken).

A3-6. Communications

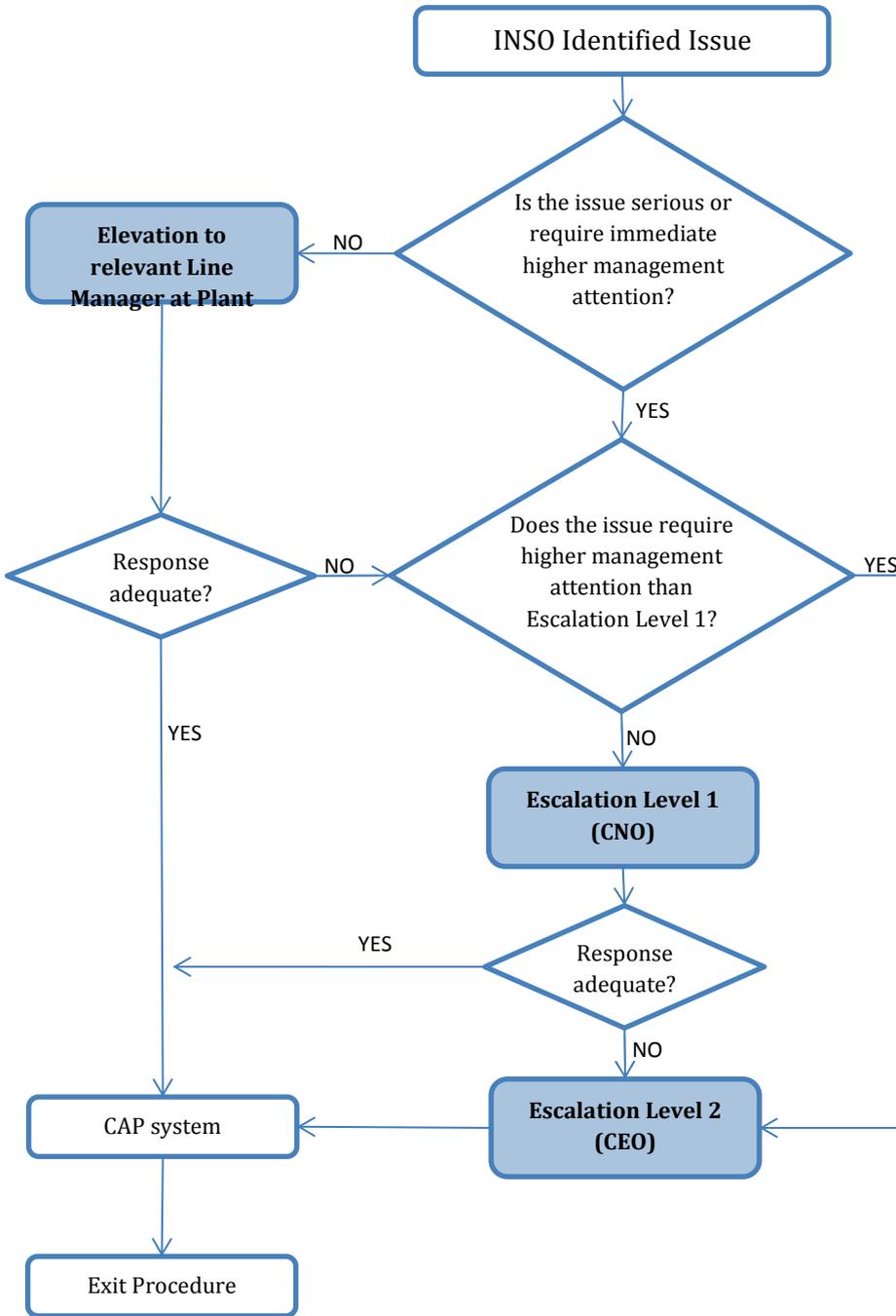
Depending on the issues to be discussed, the meetings should be held face-to-face. The following is a list of suggested formal interactions:

- Meetings with the site senior executive to include the vice-president, plant general manager, operations manager, should be held on a regular basis. Typically, the purpose of the meetings is to discuss independent oversight areas of concern, insights and station performance.
- Meetings with the functional area and/or department managers (or similar) to discuss areas of concern for their specific department or when they have received AFIs/ opportunities for improvement (OPIs) from an assessment.
- The duty shift manager and other shift managers as appropriate as part of focussed oversight on the conduct of operations.

Examples of informal verbal communications of assessment activities include: observation debriefs, daily debrief meetings, monthly debriefs of line organisation and routine one-on-one interface meetings with functional area management.

A3-7. Elevation/Escalation

The scheme below shows schematically how the elevation and escalation process can be designed.



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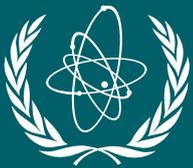
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