global leadership in **nuclear safety**

WANO

GUIDELINE

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Traits of a Healthy Nuclear Safety Culture

Addendum II: Cross-References

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Introduction

This Addendum II, *Cross-References*, provides cross-references from WANO principle *PL 2013-1 Traits of a Healthy Nuclear Safety Culture*, to the previous *GL 2006-2 Principles for a Strong Nuclear Safety Culture* and the International Atomic Energy Agency safety culture attributes. This cross-reference can help in understanding how the common language was developed and can be useful in change management efforts in this important area. For convenience, the bulleted attributes in the *Principles for a Strong Nuclear Safety Culture* were annotated with a letter in this cross-reference. For example, use Table 4 to identify that the original principle 4.C.a, “Plant personnel apply a rigorous approach to problem-solving”, is captured in the attribute PI.3, “Resolution: The organisation takes effective corrective actions to address issues in a timely manner commensurate with their safety significance”.

Table 1: WANO Principles to Traits

WANO Principle	Trait
Everyone is personally responsible for nuclear safety.	Personal Accountability
Leaders demonstrate commitment to safety.	Leadership Accountability
Trust permeates the organisation.	Safety Communication
	Respectful Work Environment
	Environment for Raising Concerns
Decision-making reflects safety first.	Decision-Making
Nuclear technology is recognised as special and unique.	Work Processes
A questioning attitude is cultivated.	Questioning Attitude
Organisational learning is cultivated.	Continuous Learning
	Problem Identification and Resolution
Nuclear safety undergoes constant examination.	Continuous Learning
	Problem Identification and Resolution

Table 2: Traits to WANO Principles

Trait	WANO Principle
Personal Accountability	Everyone is personally responsible for nuclear safety.
Questioning Attitude	A questioning attitude is cultivated.
Safety Communication	Leaders demonstrate commitment to safety.
Leadership Accountability	Leaders demonstrate commitment to safety.
Decision-Making	Decision-making reflects safety first.
Respectful Work Environment	Trust permeates the organisation.
Continuous Learning	Organisational learning is cultivated.
	Nuclear safety undergoes constant examination.
Problem Identification and Resolution	Organisational learning is cultivated.
Environment for Raising Concerns	Trust permeates the organisation.
Work Processes	Nuclear technology is recognised as special and unique.

Table 3: Traits to WANO Principles

Trait	Attribute	Description	Principle	Description
PA.	Personal Accountability – All individuals take personal responsibility for safety. Responsibility and authority for nuclear safety are well defined and clearly understood. Reporting relationships, positional authority and team responsibilities emphasise the overriding importance of nuclear safety.			
	PA.1	Standards: Individuals understand the importance of adherence to nuclear standards. All levels of the organisation exercise accountability for shortfalls in meeting standards.	1F	All personnel understand the importance of adherence to nuclear safety standards. All levels of the organisation exercise healthy accountability for shortfalls in meeting standards.
			3H	Complete, accurate and forthright information is provided to oversight, audit and regulatory organisations.
	PA.2	Job Ownership: Individuals understand and demonstrate personal responsibility for the behaviours and work practices that support nuclear safety.	1B	Support groups, such as human resources, labour relations, and business and financial planning, also understand their roles in contributing to nuclear safety.
	PA.3	Teamwork: Individuals and work groups communicate and coordinate their activities within and across organisational boundaries to ensure nuclear safety is maintained.	4Ea	Candid dialogue and debate are encouraged when safety issues are being evaluated.
QA.	Questioning Attitude – Individuals avoid complacency and continuously challenge existing conditions, assumptions, anomalies and activities to identify discrepancies that might result in errors or inappropriate actions. All employees are watchful for assumptions, values, conditions or activities that can have an undesirable effect on plant safety.			
	QA.1	Nuclear Is Recognised as Special and Unique: Individuals understand that complex technologies can fail in unpredictable	N/A	

Trait	Attribute	Description	Principle	Description
		ways.		
	QA.2	Challenge the Unknown: Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before work proceeds.	6A	While individuals expect successful outcomes of daily activities, they recognise the possibility of mistakes and worst-case scenarios. Contingencies are developed to deal with these possibilities.
			6C	Personnel do not proceed in the face of uncertainty.
			6E	Employees understand that complex technologies can fail in unpredicted ways. They are aware that latent problems can exist, and they make conservative decisions considering this potential.
	QA.3	Challenge Assumptions: Individuals challenge assumptions and offer opposing views when they believe something is not correct.	6F	Group-think is avoided through diversity of thought and intellectual curiosity. Opposing views are encouraged and considered.
	QA.4	Avoid Complacency: Individuals recognise and plan for the possibility of mistakes, latent issues and inherent risk, even while expecting successful outcomes.	N/A	

Trait	Attribute	Description	Principle	Description
CO.	Safety Communication – Communications maintain a focus on safety. Safety communication is broad and includes plant-level communication, job-related communication, worker-level communication, equipment labelling, operating experience and documentation. Leaders use formal and informal communication to convey the importance of safety. The flow of information up the organisation is viewed as just as important as the flow of information down the organisation.			
	CO.1	Work Process Communications: Individuals incorporate safety communications in work activities.	N/A	
	CO.2	Bases for Decisions: Leaders ensure that the bases for operational and organisational decisions are communicated in a timely manner.	2F	The bases, expected outcomes, potential problems, planned contingencies and abort criteria for important operational decisions are communicated promptly to workers.
			3I	Managers regularly communicate to the workforce important decisions and their bases, as a way of building trust and reinforcing a healthy safety culture. Worker understanding is periodically checked.
	CO.3	Free Flow of Information: Individuals communicate openly and candidly, both up, down and across the organisation, and with oversight, audit and regulatory organisations.	N/A	
	CO.4	Expectations: Leaders frequently communicate and reinforce the expectation that nuclear safety is the organisation's overriding priority.	2E	Leaders recognise that production goals, if not properly communicated, can send mixed signals on the importance of nuclear safety. They are sensitive to detect and avoid these misunderstandings.

Trait	Attribute	Description	Principle	Description
LA.	Leadership Accountability – Leaders demonstrate a commitment to nuclear safety in their decisions and behaviours. Executives and senior managers are the leading advocates of nuclear safety and demonstrate their commitment both in word and action. The nuclear safety message is communicated frequently and consistently, occasionally as a stand-alone theme. Leaders throughout the nuclear organisation set an example for safety. Corporate policies emphasise the overriding importance of nuclear safety.			
	LA.1	Resources: Leaders ensure that personnel, equipment, procedures and other resources are available and adequate to support nuclear safety.	1Cb	Staffing levels are consistent with the demands related to maintaining safety and reliability.
			2H	Selection and evaluation of managers and supervisors consider their abilities to contribute to a strong nuclear safety culture.
	LA.2	Field Presence: Leaders are commonly seen in working areas of the plant, observing, coaching, and reinforcing standards and expectations. Deviations from standards and expectations are corrected promptly.	2Aa	Managers and supervisors practice visible leadership in the field by placing “eyes on the problem”, coaching, mentoring, and reinforcing standards.
			2C	Managers and supervisors provide appropriate oversight during safety-significant tests or evolutions.
	LA.3	Incentives, Sanctions and Rewards: Leaders ensure incentives, sanctions and rewards are aligned with nuclear safety policies and reinforce behaviours and outcomes that reflect nuclear safety as the overriding priority.	1Fb	All levels of the organisation exercise healthy accountability for shortfalls in meeting standards.
			1H	The system of rewards and sanctions is aligned with strong nuclear safety policies and reinforces the desired behaviours and outcomes.
			3G	Senior management incentive programmes reflect a bias toward long-term plant performance and safety.

Trait	Attribute	Description	Principle	Description
	LA.4	Strategic Commitment to Safety: Leaders ensure plant priorities are aligned to reflect nuclear safety as the overriding priority.	1Aa	The line of authority and responsibility for nuclear safety is defined from the board of directors to the individual contributor.
			1D	Board members and corporate officers periodically take steps to reinforce nuclear safety, including visiting sites to assess management effectiveness first hand.
			1E	The line organisation, starting with the chief executive officer, is the primary source of information and the only source of direction. Other parties, such as oversight organisations and committees, review boards and outside advisors, who provide management information essential to effective self-evaluation, are not allowed to dilute or undermine line authority and accountability.
			1G	Relationships among utilities, operating companies and owners, are not allowed to obscure or diminish the line of responsibility for nuclear safety.
			8E	Senior executives and board members are periodically briefed on the results of oversight group activities to gain insights into station safety performance.
	LA.5	Change Management: Leaders use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority.	3F	The effects of impending changes (such as those caused by sale or acquisition, bargaining unit contract renegotiations and economic restructuring) are anticipated and managed such that trust

Trait	Attribute	Description	Principle	Description
				in the organisation is maintained.
	LA.6	Roles, Responsibilities and Authorities: Leaders clearly define roles, responsibilities and authorities to ensure nuclear safety.	1Ab	Each of these positions has clearly defined roles, responsibilities and authorities designated in writing and understood by the incumbent.
			3Eb	Supervisors are recognised as an important part of the management team, crucial to translating safety culture into practical terms.
	LA.7	Constant Examination: Leaders ensure that nuclear safety is constantly scrutinised through a variety of monitoring techniques, including assessments of nuclear safety culture.	N/A	
	LA.8	Leader Behaviours: Leaders exhibit behaviours that set the standard for safety.	2G	Informal opinion leaders in the organisation are encouraged to model safe behaviour and influence peers to meet high standards.
			7F	Employees have confidence that issues with nuclear safety implications are prioritised, tracked and resolved in a timely manner.
DM.	Decision-Making – Decisions that support or affect nuclear safety are systematic, rigorous and thorough. Operators are vested with the authority and understand the expectation, when faced with unexpected or uncertain conditions, to place the plant in a safe condition. Senior leaders support and reinforce such conservative decisions.			

Trait	Attribute	Description	Principle	Description
	DM.1	Consistent Process: Individuals use a consistent, systematic approach to make decisions. Risk insights are incorporated as appropriate.	4Ca	Plant personnel apply a rigorous approach to problem-solving.
	DM.2	Conservative Bias: Individuals use decision-making practices that emphasise prudent choices over those that are simply allowable. For example, a proposed action is determined to be safe before proceeding, rather than determined to be unsafe before stopping.	4Cb	Conservative actions are taken when understanding is incomplete.
			4F	Decision-making practices reflect the ability to distinguish between "allowable" choices and prudent choices.
			4G	When previous operational decisions are called into question by new facts, the decisions and associated underlying assumptions are reviewed to improve the quality of future decisions.
	DM.3	Accountability for Decisions: Individual or Single-point accountability is maintained for nuclear safety decisions.	4D	Single-point accountability is maintained for important safety decisions, allowing for on-going assessment and feedback as circumstances unfold.
WE.	Respectful Work Environment – Trust and respect permeate the organisation, creating a respectful work environment. A high level of trust is established in the organisation, in part, fostered through timely and accurate communication. Differing professional opinions are encouraged, discussed and resolved in a timely manner. Employees are informed of steps taken in response to their concerns.			
	WE.1	Respect is Evident: Everyone is treated with dignity and respect.	1Ca	People and their professional capabilities, values and experiences are regarded as the nuclear organisation's most valuable asset.
			3A	People are treated with dignity and respect.

Trait	Attribute	Description	Principle	Description
	WE.2	Opinions are Valued: Individuals are encouraged to voice concerns, provide suggestions and raise questions. Differing opinions are also encouraged and respected.	2B	Management considers the employee perspective in understanding and analysing issues.
			3C	Employees are expected and encouraged to offer innovative ideas to help solve problems.
			3Da	Differing opinions are welcomed and respected.
			4B	Managers, supervisors and staff clearly understand and respect each other's roles in decision-making.
			4Eb	Robust discussion and healthy conflict are recognised as natural results of diversity of expertise and experience.
			8D	The insights and fresh perspectives provided by quality assurance, assessment, employee concerns and independent oversight personnel are valued.
	WE.3	High Level of Trust: Trust is fostered among individuals and work groups throughout the organisation.	3Ea	Supervisors are skilled in responding to employee questions in an open, honest manner.
	WE.4	Conflict Resolution: Fair and objective methods are used to resolve conflicts.	3Db	When needed, fair and objective methods are used to resolve conflict and unsettled differing professional opinions.
CL.	Continuous Learning – Opportunities to continuously learn are valued, sought out and implemented. Operating experience is highly valued and the capacity to learn from experience is well developed. Self-assessments, training and benchmarking are used to stimulate learning and improve performance. Nuclear safety is kept under constant scrutiny through a variety of monitoring techniques, some of which provide an independent or "fresh look".			

Trait	Attribute	Description	Principle	Description
	CL.1	Operating Experience: Relevant internal and external operating experience is systematically and effectively collected, evaluated and lessons learned are implemented in a timely manner by the organisation.	7A	The organisation avoids complacency and cultivates a continuous learning environment. The attitude that “it can happen here” is encouraged.
			7C	Individuals are well informed of the underlying lessons learned from significant industry and station events, and they are committed to not repeating these mistakes.
	CL.2	Self-Assessment: The organisation routinely conducts self-critical and objective assessments of its programmes, practices and performance.	8A	A mix of self-assessment and independent oversight reflects an integrated and balanced approach. This balance is periodically reviewed and adjusted as needed.
			8B	Periodic safety culture assessments are conducted and used as a basis for improvement.
	CL.3	Benchmarking: The organisation learns from other organisations in order to continuously improve knowledge, skills and safety performance.	N/A	
	CL.4	Training: High-quality training maintains a knowledgeable workforce and reinforces high standards for maintaining nuclear safety.	2D	Managers and supervisors are personally involved in high-quality training that consistently reinforces expected worker behaviours.
			4A	The organisation maintains a knowledgeable workforce to support a broad spectrum of operational and technical decisions. Outside expertise is employed when necessary.
			5G	Employee mastery of reactor and power plant fundamentals, as appropriate to the job position, establishes a solid foundation for sound decisions and behaviours.

Trait	Attribute	Description	Principle	Description
			7B	Training upholds management standards and expectations. Beyond teaching knowledge and skills, trainers are adept at instilling nuclear safety values and beliefs.
PI.	Problem Identification and Resolution – Issues potentially impacting safety are promptly identified, fully evaluated and promptly addressed and corrected, commensurate with their significance. The identification and resolution of a broad spectrum of problems, including organisational issues, are used to strengthen nuclear safety and improve performance.			
	PI.1	Identification: The organisation implements a corrective action programme with a low threshold for identifying issues. Individuals identify issues in a timely manner in accordance with the programme expectations.	6D	Workers identify conditions or behaviours that have the potential to degrade operating or design margins. Such circumstances are promptly identified and resolved.
			8C	The pitfalls of focusing on a narrow set of performance indicators are recognised. The organisation is alert to detect and respond to indicators that may signal declining performance.
	PI.2	Evaluation: The organisation thoroughly evaluates issues to ensure that problem resolutions and solutions address causes and extents of conditions, commensurate with their nuclear safety significance.	4Ca	Plant personnel apply a rigorous approach to problem-solving.
			6B	Anomalies are recognised, thoroughly investigated, promptly mitigated and periodically analysed in the aggregate.
			7D	Expertise in root cause analysis is applied effectively to identify and correct the fundamental causes of events.
	PI.3	Resolution: The organisation takes effective corrective	2Ab	Deviations from station expectations are corrected promptly.

Trait	Attribute	Description	Principle	Description
		actions to address issues in a timely manner, commensurate with their nuclear safety significance.	7E	Processes are established to identify and resolve latent organisational weaknesses that can aggravate relatively minor events, if not corrected.
	PI.4	Trending: The organisation periodically analyses information from the corrective action programme and other assessments in the aggregate to identify adverse trends or conditions.	N/A	
RC.	Environment for Raising Concerns – A safety-conscious work environment (SCWE) is maintained where personnel feel free to raise nuclear safety concerns without fear of retaliation, intimidation, harassment or discrimination. Station managers create, maintain and periodically evaluate policies and processes that allow personnel to freely raise concerns.			
	RC.1	SCWE Policy: The organisation implements a policy that supports individual rights and responsibilities to raise safety nuclear concerns and does not tolerate harassment, intimidation, retaliation or discrimination for doing so.	3B	Personnel can raise nuclear safety concerns without fear of retribution and have confidence their concerns will be addressed.
	RC.2	Alternate Process for Raising Concerns: The organisation implements a process for raising and resolving concerns that is independent of line management influence. Nuclear safety issues may be raised in confidence and with an expectation that they be resolved in a timely and effective manner.	N/A	

Trait	Attribute	Description	Principle	Description
WP.	Work Processes – The process of planning and controlling work activities is implemented so that nuclear safety is maintained. Work management is a deliberate process in which work is identified, selected, planned, scheduled, executed, closed and critiqued. The entire organisation is involved in and fully supports the work management process.			
	WP.1	Work Management: The organisation implements a process of planning, controlling and executing work activities such that nuclear safety is the overriding priority. The process includes the identification and management of nuclear safety risk commensurate with the work to be performed.	5A	Activities that could affect core reactivity are conducted with particular care and caution.
	WP.2	Design Margins: The organisation operates and maintains equipment within design margins. Margins are carefully guarded and changed only through a systematic and rigorous process. Special attention is placed on maintaining fission product barriers, defence-in-depth and the operability and function of safety-related equipment.	5B	Features designed to maintain critical safety functions, such as core cooling, are recognised as particularly important.
			5Ca	Design and operating margins are carefully guarded and are changed only with great thought and care.
			5Cb	Special attention is placed on maintaining fission product barriers and defence-in-depth.
			5D	Equipment is meticulously maintained, well within design requirements.
			5E	Insights from probabilistic risk analyses are considered in daily plant activities and plant change processes.
	WP.3	Documentation: The organisation creates and maintains complete, accurate and up-to-date documentation.	5F	Plant activities are governed by comprehensive, high-quality processes and procedures.

Trait	Attribute	Description	Principle	Description
	WP.4	Procedure Adherence: Individuals properly follow processes, procedures and work instructions.	N/A	

Table 4: WANO Principles to Traits

Principle	Description	Attribute	Description
1Aa	The line of authority and responsibility for nuclear safety is defined from the board of directors to the individual contributor.	LA.4	Strategic Commitment to Safety: Leaders ensure plant priorities are aligned to reflect nuclear safety as the overriding priority.
1Ab	Each of these positions has clearly defined roles, responsibilities and authorities designated in writing and understood by the incumbent.	LA.6	Roles, Responsibilities and Authorities: Leaders clearly define roles, responsibilities and authorities to ensure nuclear safety.
1B	Support groups, such as human resources, labour relations, and business and financial planning, also understand their roles in contributing to nuclear safety.	PA.2	Job Ownership: Individuals understand and demonstrate personal responsibility for the behaviours and work practices that support nuclear safety.
1Ca	People and their professional capabilities, values and experiences are regarded as the nuclear organisation's most valuable asset.	WE.1	Respect is Evident: Everyone is treated with dignity and respect.
1Cb	Staffing levels are consistent with the demands related to maintaining safety and reliability.	LA.1	Resources: Leaders ensure that personnel, equipment, procedures and other resources are available, and adequate to support nuclear safety.
1D	Board members and corporate officers periodically take steps to reinforce nuclear safety, including visiting sites to assess management effectiveness first-hand.	LA.4	Strategic Commitment to Safety: Leaders ensure plant priorities are aligned to reflect nuclear safety as the overriding priority.

Principle	Description	Attribute	Description
1E	The line organisation, starting with the chief executive officer, is the primary source of information and the only source of direction. Other parties, such as oversight organisations and committees, review boards and outside advisors, who provide management information essential to effective self-evaluation, are not allowed to dilute or undermine line authority and accountability.	LA.4	Strategic Commitment to Safety: Leaders ensure plant priorities are aligned to reflect nuclear safety as the overriding priority.
1F	All personnel understand the importance of adherence to nuclear safety standards. All levels of the organisation exercise healthy accountability for shortfalls in meeting standards.	PA.1	Standards: Individuals understand the importance of adherence to nuclear standards. All levels of the organisation exercise accountability for shortfalls in meeting standards.
1Fb	All levels of the organisation exercise healthy accountability for shortfalls in meeting standards.	LA.3	Incentives, Sanctions and Rewards: Leaders ensure incentives, sanctions and rewards are aligned with nuclear safety policies and reinforce behaviours and outcomes that reflect safety as the overriding priority.
1G	Relationships among utilities, operating companies and owners are not allowed to obscure or diminish the line of responsibility for nuclear safety.	LA.4	Strategic Commitment to Safety: Leaders ensure plant priorities are aligned to reflect nuclear safety as the overriding priority.
1H	The system of rewards and sanctions is aligned with strong nuclear safety policies and reinforces the desired behaviours and outcomes.	LA.3	Incentives, Sanctions and Rewards: Leaders ensure incentives, sanctions and rewards are aligned with nuclear safety policies, and reinforce behaviours and outcomes that reflect safety as the overriding priority.

Principle	Description	Attribute	Description
2Aa	Managers and supervisors practice visible leadership in the field by placing "eyes on the problem," coaching, mentoring and reinforcing standards.	LA.2	Field Presence: Leaders are commonly seen in working areas of the plant observing, coaching, and reinforcing standards and expectations. Deviations from standards and expectations are corrected promptly.
2Ab	Deviations from station expectations are corrected promptly.	PI.2	Evaluation: The organisation thoroughly evaluates issues to ensure that problem resolutions and solutions address causes and extents of conditions, commensurate with their safety significance.
2B	Management considers the employee perspective in understanding and analysing issues.	WE.2	Opinions are Valued: Individuals are encouraged to voice concerns, provide suggestions and raise questions. Differing opinions are respected.
2C	Managers and supervisors provide appropriate oversight during safety-significant tests or evolutions.	LA.2	Field Presence: Leaders are commonly seen in working areas of the plant observing, coaching, and reinforcing standards and expectations. Deviations from standards and expectations are corrected promptly.
2D	Managers and supervisors are personally involved in high-quality training that consistently reinforces expected worker behaviours.	CL.4	Training: High-quality training maintains a knowledgeable workforce and reinforces high standards for maintaining nuclear safety.
2E	Leaders recognise that production goals, if not properly communicated, can send mixed signals on the importance of nuclear safety. They are sensitive to detect and avoid these misunderstandings.	CO.4	Expectations: Leaders frequently communicate and reinforce the expectation that nuclear safety is the organisation's overriding priority.
2F	The bases, expected outcomes, potential problems, planned contingencies and abort criteria, for important operational decisions, are communicated promptly to workers.	CO.2	Bases for Decisions: Leaders ensure that the bases for operational and organisational decisions are communicated in a timely manner.

Principle	Description	Attribute	Description
2G	Informal opinion leaders in the organisation are encouraged to model safe behaviour and influence peers to meet high standards.	LA.8	Leader Behaviours: Leaders exhibit behaviours that set the standard for safety.
2H	Selection and evaluation of managers and supervisors consider their abilities to contribute to a strong nuclear safety culture.	LA.1	Resources: Leaders ensure that personnel, equipment, procedures and other resources, are available and adequate to support nuclear safety.
3A	People are treated with dignity and respect.	WE.1	Respect is Evident: Everyone is treated with dignity and respect.
3B	Personnel can raise nuclear safety concerns without fear of retribution and have confidence their concerns will be addressed.	RC.1	SCWE Policy: The organisation effectively implements a policy that supports individual rights and responsibilities to raise safety concerns and does not tolerate harassment, intimidation, retaliation or discrimination for doing so.
3C	Employees are expected and encouraged to offer innovative ideas to help solve problems.	WE.2	Opinions are Valued: Individuals are encouraged to voice concerns, provide suggestions and raise questions. Differing opinions are respected.
3Da	Differing opinions are welcomed and respected.	WE.2	Opinions are Valued: Individuals are encouraged to voice concerns, provide suggestions, and raise questions. Differing opinions are respected.
3Db	When needed, fair and objective methods are used to resolve conflict and unsettled differing professional opinions.	WE.4	Conflict Resolution: Fair and objective methods are used to resolve conflicts.
3Ea	Supervisors are skilled in responding to employee questions in an open, honest manner.	WE.3	High Level of Trust: Trust is fostered among individuals and work groups throughout the organisation.
3Eb	Supervisors are recognised as an important part of the management team, crucial to translating safety culture into practical terms.	LA.6	Roles, Responsibilities and Authorities: Leaders clearly define roles, responsibilities and authorities to ensure nuclear safety.

Principle	Description	Attribute	Description
3F	The effects of impending changes (such as those caused by sale or acquisition, bargaining unit contract renegotiations and economic restructuring) are anticipated and managed such that trust in the organisation is maintained.	LA.5	Change Management: Leaders use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority.
3G	Senior management incentive programmes reflect a bias toward long-term plant performance and safety.	LA.3	Incentives, Sanctions and Rewards: Leaders ensure incentives, sanctions and rewards are aligned with nuclear safety policies and reinforce behaviours and outcomes that reflect safety as the overriding priority.
3H	Complete, accurate and forthright information is provided to oversight, audit and regulatory organisations.	PA.1	Standards: Individuals understand the importance of adherence to nuclear standards. All levels of the organisation exercise accountability for shortfalls in meeting standards.
3I	Managers regularly communicate to the workforce important decisions and their bases, as a way of building trust and reinforcing a healthy safety culture. Worker understanding is periodically checked.	CO.2	Bases for Decisions: Leaders ensure that the bases for operational and organisational decisions are communicated in a timely manner.
4A	The organisation maintains a knowledgeable workforce to support a broad spectrum of operational and technical decisions. Outside expertise is employed when necessary.	CL.4	Training: High-quality training maintains a knowledgeable workforce and reinforces high standards for maintaining nuclear safety.
4B	Managers, supervisors and staff clearly understand and respect each other's roles in decision-making.	WE.2	Opinions are Valued: Individuals are encouraged to voice concerns, provide suggestions and raise questions. Differing opinions are respected.
4Ca	Plant personnel apply a rigorous approach to problem-solving.	DM.1	Consistent Process: Individuals use a consistent, systematic approach to make decisions. Risk insights are incorporated, as appropriate.

Principle	Description	Attribute	Description
4Ca	Plant personnel apply a rigorous approach to problem-solving.	PI.3	Resolution: The organisation takes effective corrective actions to address issues in a timely manner, commensurate with their safety significance.
4Cb	Conservative actions are taken when understanding is incomplete.	DM.2	Conservative Bias: Individuals use decision-making practices that emphasise prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop.
4D	Single-point accountability is maintained for important safety decisions, allowing for on-going assessment and feedback as circumstances unfold.	DM.3	Accountability for Decisions: Single-point accountability is maintained for nuclear safety decisions.
4Ea	Candid dialogue and debate are encouraged when safety issues are being evaluated.	PA.3	Teamwork: Individuals and work groups communicate and coordinate their activities within and across organisational boundaries to ensure nuclear safety is maintained.
4Eb	Robust discussion and healthy conflict are recognised as natural results of diversity of expertise and experience.	WE.2	Opinions are Valued: Individuals are encouraged to voice concerns, provide suggestions and raise questions. Differing opinions are respected.
4F	Decision-making practices reflect the ability to distinguish between “allowable” choices and prudent choices.	DM.2	Conservative Bias: Individuals use decision-making practices that emphasise prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop.
4G	When previous operational decisions are called into question by new facts, the decisions and associated underlying assumptions are reviewed to improve the quality of future decisions.	DM.2	Conservative Bias: Individuals use decision-making practices that emphasise prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop.

Principle	Description	Attribute	Description
5A	Activities that could affect core reactivity are conducted with particular care and caution.	WP.1	Work Management: The organisation implements a process of planning, controlling and executing work activities such that nuclear safety is the overriding priority. The work process includes the identification and management of risk commensurate to the work.
5B	Features designed to maintain critical safety functions, such as core cooling, are recognised as particularly important.	WP.2	Design Margins: The organisation operates and maintains equipment within design margins. Margins are carefully guarded and changed only through a systematic and rigorous process. Special attention is placed on maintaining fission product barriers, defence-in-depth and safety-related equipment.
5Ca	Design and operating margins are carefully guarded and are changed only with great thought and care.	WP.2	Design Margins: The organisation operates and maintains equipment within design margins. Margins are carefully guarded and changed only through a systematic and rigorous process. Special attention is placed on maintaining fission product barriers, defence-in-depth and safety-related equipment.
5Cb	Special attention is placed on maintaining fission product barriers and defence-in-depth.	WP.2	Design Margins: The organisation operates and maintains equipment within design margins. Margins are carefully guarded and changed only through a systematic and rigorous process. Special attention is placed on maintaining fission product barriers, defence-in-depth and safety-related equipment.

Principle	Description	Attribute	Description
5D	Equipment is meticulously maintained, well within design requirements.	WP.2	Design Margins: The organisation operates and maintains equipment within design margins. Margins are carefully guarded and changed only through a systematic and rigorous process. Special attention is placed on maintaining fission product barriers, defence-in-depth and safety-related equipment.
5E	Insights from probabilistic risk analyses are considered in daily plant activities and plant change processes.	WP.2	Design Margins: The organisation operates and maintains equipment within design margins. Margins are carefully guarded and changed only through a systematic and rigorous process. Special attention is placed on maintaining fission product barriers, defence-in-depth and safety-related equipment.
5F	Plant activities are governed by comprehensive, high-quality processes and procedures.	WP.3	Documentation: The organisation creates and maintains complete, accurate and up-to-date documentation.
5G	Employee mastery of reactor and power plant fundamentals, as appropriate to the job position, establishes a solid foundation for sound decisions and behaviours.	CL.4	Training: High-quality training maintains a knowledgeable workforce and reinforces high standards for maintaining nuclear safety.
6A	While individuals expect successful outcomes of daily activities, they recognise the possibility of mistakes and worst-case scenarios. Contingencies are developed to deal with these possibilities.	QA.2	Challenge the Unknown: Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before work proceeds.
6B	Anomalies are recognised, thoroughly investigated, promptly mitigated and periodically analysed in the aggregate.	PI.3	Resolution: The organisation takes effective corrective actions to address issues in a timely manner commensurate with their safety significance.

Principle	Description	Attribute	Description
6C	Personnel do not proceed in the face of uncertainty.	QA.2	Challenge the Unknown: Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before work proceeds.
6D	Workers identify conditions or behaviours that have the potential to degrade operating or design margins. Such circumstances are promptly identified and resolved.	PI.1	Identification: The organisation implements a corrective action programme with a low threshold for identifying issues. Individuals identify issues completely, accurately and in a timely manner, in accordance with the programme.
6E	Employees understand that complex technologies can fail in unpredicted ways. They are aware that latent problems can exist and they make conservative decisions considering this potential.	QA.2	Challenge the Unknown: Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before work proceeds.
6F	Group-think is avoided through diversity of thought and intellectual curiosity. Opposing views are encouraged and considered.	QA.3	Challenge Assumptions: Individuals challenge assumptions and offer opposing views when they believe something is not correct.
7A	The organisation avoids complacency and cultivates a continuous learning environment. The attitude that “it can happen here” is encouraged.	CL.1	Operating Experience: The organisation systematically and effectively collects, evaluates and implements relevant internal and external operating experience in a timely manner.
7B	Training upholds management standards and expectations. Beyond teaching knowledge and skills, trainers are adept at instilling nuclear safety values and beliefs.	CL.4	Training: High-quality training maintains a knowledgeable workforce and reinforces high standards for maintaining nuclear safety.
7C	Individuals are well informed of the underlying lessons learned from significant industry and station events, and they are committed to not repeating these mistakes.	CL.1	Operating Experience: The systematically and effectively collects, evaluates, and implements lessons from relevant internal and external operating experience information in a timely manner.

Principle	Description	Attribute	Description
7D	Expertise in root cause analysis is applied effectively to identify and correct the fundamental causes of events.	PI.3	Resolution: The organisation takes effective corrective actions to address issues in a timely manner commensurate with their safety significance.
7E	Processes are established to identify and resolve latent organisational weaknesses that can aggravate relatively minor events if not corrected.	PI.2	Evaluation: The organisation thoroughly evaluates issues to ensure that problem resolutions and solutions address causes and extents of conditions commensurate with their safety significance.
7F	Employees have confidence that issues with nuclear safety implications are prioritised, tracked, and resolved in a timely manner.	LA.8	Leader Behaviours: Leaders exhibit behaviours that set the standard for safety.
8A	A mix of self-assessment and independent oversight reflects an integrated and balanced approach. This balance is periodically reviewed and adjusted as needed.	CL.2	Self-Assessment: The organisation routinely conducts self-critical and objective assessments of its programmes, practices, and performance.
8B	Periodic safety culture assessments are conducted and used as a basis for improvement.	CL.2	Self-Assessment: The organisation routinely conducts self-critical and objective assessments of its programmes, practices and performance.
8C	The pitfalls of focusing on a narrow set of performance indicators are recognised. The organisation is alert to detect and respond to indicators that may signal declining performance.	PI.1	Identification: The organisation implements a corrective action programme with a low threshold for identifying issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the programme.
8D	The insights and fresh perspectives provided by quality assurance, assessment, employee concerns, and independent oversight personnel are valued.	WE.2	Opinions are Valued: Individuals are encouraged to voice concerns, provide suggestions, and raise questions. Differing opinions are respected.

Principle	Description	Attribute	Description
8E	Senior executives and board members are periodically briefed on the results of oversight group activities to gain insights into station safety performance.	LA.4	Strategic Commitment to Safety: Leaders ensure plant priorities are aligned to reflect nuclear safety as the overriding priority.
N/A		QA.1	Nuclear Is Recognised as Special and Unique: Individuals understand that complex technologies can fail in unpredictable ways.
N/A		QA.4	Avoid Complacency: Individuals recognise and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes.
N/A		CO.1	Work Process Communications: Individuals incorporate safety communications in work activities.
N/A		CO.3	Free Flow of Information: Individuals communicate openly and candidly, both up, down, and across the organisation, and with oversight, audit, and regulatory organisations.
N/A		LA.7	Constant Examination: Leaders ensure that nuclear safety is constantly scrutinised through a variety of monitoring techniques, including assessments of nuclear safety culture.
N/A		CL.3	Benchmarking: The organisation learns from other organisations to continuously improve knowledge, skills, and safety performance.
N/A		PI.4	Trending: The organisation periodically analyses information from the corrective action programme and other assessments in the aggregate to identify adverse trends or conditions.

Principle	Description	Attribute	Description
N/A		RC.2	Alternate Process for Raising Concerns: The organisation implements a process for raising and resolving concerns that is independent of line management influence. Safety issues may be raised in confidence and are resolved in a timely and effective manner.
N/A		WP.1	Work Management: The organisation implements a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. The work process includes the identification and management of risk commensurate to the work.
N/A		WP.4	Procedure Adherence: Individuals follow processes, procedures, and work instructions.

Table 7

Traits to IAEA Safety Culture Attributes

Trait	Attribute	Description	IAEA	Description
PA.	Personal Accountability – All individuals take personal responsibility for safety. Responsibility and authority for nuclear safety are well defined and clearly understood. Reporting relationships, positional authority, and team responsibilities emphasise the overriding importance of nuclear safety.			
	PA.1	Standards: Individuals understand the importance of adherence to nuclear standards. All levels of the organisation exercise accountability for shortfalls in meeting standards.	C.3	There is a high level of compliance with regulations and procedures.
			D.9	Housekeeping and material conditions reflect commitment to excellence.
	PA.2	Job Ownership: Individuals understand and demonstrate personal responsibility for the behaviours and work practices that support nuclear safety.	A.4	Individuals are convinced that safety and production go hand in hand.
			C.5	'Ownership' for safety is evident at all organisational levels and for all individuals.
	PA.3	Teamwork: Individuals and work groups communicate and coordinate their activities within and across organisational boundaries, to ensure nuclear safety is maintained.	D.8	Cross-functional and interdisciplinary cooperation and teamwork are present.
QA.	Questioning Attitude – Individuals avoid complacency and continuously challenge existing conditions, assumptions, anomalies and activities, in order to identify discrepancies that might result in error or inappropriate action. All employees are watchful for assumptions, values, conditions or activities that can have an undesirable effect on plant safety.			
	QA.1	Nuclear Is Recognised as Special and Unique: Individuals understand that complex technologies can fail in unpredictable ways.	N/A	
	QA.2	Challenge the Unknown: Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before work proceeds.	N/A	

Trait	Attribute	Description	IAEA	Description
	QA.3	Challenge Assumptions: Individuals challenge assumptions and offer opposing views when they believe something is not correct.	E.1	A questioning attitude prevails at all organisational levels.
	QA.4	Avoid Complacency: Individuals recognise and plan for the possibility of mistakes, latent issues and inherent risk, even while expecting successful outcomes.	N/A	
CO.	Safety Communication – Communications maintain a focus on safety. Safety communication is broad and includes plant-level communication, job-related communication, worker-level communication, equipment labelling, operating experience and documentation. Leaders use formal and informal communication to convey the importance of safety. The flow of information up the organisation is seen as important as the flow of information down the organisation.			
	CO.1	Work Process Communications: Individuals incorporate safety communications in work activities.	N/A	
	CO.2	Bases for Decisions: Leaders ensure that the bases for operational and organisational decisions are communicated in a timely manner.	N/A	
	CO.3	Free Flow of Information: Individuals communicate openly and candidly, both up, down and across the organisation, and with oversight, audit and regulatory organisations.	B.8	Management shows a continual effort to strive for openness and good communication throughout the organisation.
	CO.4	Expectations: Leaders frequently communicate and reinforce the expectation that nuclear safety is the organisation's overriding priority.	N/A	

Trait	Attribute	Description	IAEA	Description
LA.	Leadership Accountability – Leaders demonstrate a commitment to safety in their decisions and behaviours. Executive and senior managers are the leading advocates of nuclear safety and demonstrate their commitment both in word and action. The nuclear safety message is communicated frequently and consistently, occasionally as a stand-alone theme. Leaders throughout the nuclear organisation set an example for safety. Corporate policies emphasise the overriding importance of nuclear safety.			
	LA.1	Resources: Leaders ensure that personnel, equipment, procedures and other resources are available and adequate to support nuclear safety.	A.2	Safety is a primary consideration in the allocation of resources.
			B.5	Management ensures that there are sufficient competent individuals.
	LA.2	Field Presence: Leaders are commonly seen in working areas of the plant observing, coaching and reinforcing standards and expectations. Deviations from standards and expectations are corrected promptly.	B.3	There is visible leadership showing the involvement of management in safety-related activities.
	LA.3	Incentives, Sanctions and Rewards: Leaders ensure incentives, sanctions and rewards are aligned with nuclear safety policies and reinforce behaviours and outcomes that reflect safety as the overriding priority.	D.6	Factors affecting work motivation and job satisfaction are considered.
	LA.4	Strategic Commitment to Safety: Leaders ensure plant priorities are aligned to reflect nuclear safety as the overriding priority.	A.3	The strategic business importance of safety is reflected in the business plan.
			B.1	Senior management is clearly committed to safety.
			B.2	Commitment to safety is evident at all management levels.
			C.1	An appropriate relationship with the regulatory body exists, which ensures that the accountability for safety remains with the licensee.

Trait	Attribute	Description	IAEA	Description
	LA.5	Change Management: Leaders use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority.	B.7	Safety implications are considered in change management processes.
	LA.6	Roles, Responsibilities and Authorities: Leaders clearly define roles, responsibilities and authorities to ensure nuclear safety.	C.2	Roles and responsibilities are clearly defined and understood.
			C.4	Management delegate responsibility with appropriate authority to enable clear accountabilities to be established.
	LA.7	Constant Examination: Leaders ensure that nuclear safety is constantly scrutinised through a variety of monitoring techniques, including assessments of nuclear safety culture.	N/A	
	LA.8	Leader Behaviours: Leaders exhibit behaviours that set the standard for safety.	D.7	Good working conditions exist with regard to time pressures, work load and stress.
DM.	Decision-Making – Decisions that support or affect nuclear safety are systematic, rigorous and thorough. Operators are vested with the authority and understand the expectation, when faced with unexpected or uncertain conditions, to place the plant in a safe condition. Senior leaders support and reinforce conservative decisions.			
	DM.1	Consistent Process: Individuals use a consistent, systematic approach to make decisions. Risk insights are incorporated as appropriate.	A.5	A proactive and long-term approach to safety issues is shown in decision making.

Trait	Attribute	Description	IAEA	Description
	DM.2	Conservative Bias: Individuals use decision-making practices that emphasise prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop.	N/A	
	DM.3	Accountability for Decisions: Single-point accountability is maintained for nuclear safety decisions.	N/A	
WE.	Respectful Work Environment – Trust and respect permeate the organisation, creating a respectful work environment. A high level of trust is established in the organisation, fostered, in part, through timely and accurate communication. Differing professional opinions are encouraged, discussed and resolved in a timely manner. Employees are informed of steps taken in response to their concerns.			
	WE.1	Respect is Evident: Everyone is treated with dignity and respect.	N/A	
	WE.2	Opinions are Valued: Individuals are encouraged to voice concerns, provide suggestions and raise questions. Differing opinions are respected.	A.6	Safety conscious behaviour is socially accepted and supported (both formally and informally).
			B.6	Management seeks the active involvement of individuals in improving safety.
	WE.3	High Level of Trust: Trust is fostered among individuals and work groups throughout the organisation.	B.10	Relationships between managers and individuals are built on trust.
			D.1	Trust permeates the organisation.
	WE.4	Conflict Resolution: Fair and objective methods are used to resolve conflicts.	B.9	Management has the ability to resolve conflicts, as necessary.

Trait	Attribute	Description	IAEA	Description
CL.	Continuous Learning – Opportunities to continuously learn are valued, sought out and implemented. Operating experience is highly valued and the capacity to learn from experience is well developed. Training, self-assessments and benchmarking are used to stimulate learning and improve performance. Nuclear safety is kept under constant scrutiny through a variety of monitoring techniques, some of which provide an independent "fresh look".			
	CL.1	Operating Experience: The organisation systematically and effectively collects, evaluates and implements lessons from relevant internal and external operating experience information, in a timely manner.	E.4	Organisational and operating experience (both internal and external to the facility) are used.
	CL.2	Self-Assessment: The organisation routinely conducts self-critical and objective assessments of its programmes, practices and performance.	E.3	Internal and external assessments, including self-assessments, are used.
	CL.3	Benchmarking: The organisation learns from other organisations to continuously improve knowledge, skills and safety performance.	N/A	
	CL.4	Training: High-quality training maintains a knowledgeable workforce and reinforces high standards for maintaining nuclear safety.	B.4	Leadership skills are systematically developed.
			D.5	Individuals have the necessary knowledge and understanding of the work processes.
			E.7	There is systematic development of individual competences.
PI.	Problem Identification and Resolution – Issues potentially impacting safety are promptly identified, fully evaluated and promptly addressed and corrected, commensurate with their significance. The identification and resolution of a broad spectrum of problems is used to strengthen safety and improve performance.			

Trait	Attribute	Description	IAEA	Description
	PI.1	Identification: The organisation implements a corrective action programme with a low threshold for identifying issues. Individuals identify issues completely, accurately and in a timely manner, in accordance with the programme.	E.2	Open reporting of deviations and errors is encouraged.
			E.5	Learning is facilitated through the ability to recognise and diagnose deviations, to formulate and implement solutions and to monitor the effects of corrective actions.
	PI.2	Evaluation: The organisation thoroughly evaluates issues to ensure that problem resolutions and solutions address causes and extents of conditions, commensurate with their safety significance.	N/A	
	PI.3	Resolution: The organisation takes effective corrective actions to address issues in a timely manner, commensurate with their safety significance.	N/A	
	PI.4	Trending: The organisation periodically analyses information from the corrective action programme and other assessments in the aggregate to identify adverse trends or conditions.	E.6	Safety performance indicators are tracked, trended, evaluated and acted upon.
RC.	Environment for Raising Concerns – A safety-conscious work environment (SCWE) is maintained where personnel feel free to raise safety concerns without fear of retaliation, intimidation, harassment or discrimination. The station creates, maintains and evaluates policies and processes that allow personnel to freely raise concerns.			

Trait	Attribute	Description	IAEA	Description
	RC.1	SCWE Policy: The organisation implements a policy that supports individual rights and responsibilities to raise safety concerns and does not tolerate harassment, intimidation, retaliation or discrimination for doing so.	N/A	
	RC.2	Alternate Process for Raising Concerns: The organisation implements a process for raising and resolving concerns that is independent of line management influence. Safety issues may be raised in confidence and are resolved in a timely and effective manner.	N/A	
WP.	Work Processes – The process of planning and controlling work activities is implemented so that safety is maintained. Work management is a deliberate process in which work is identified, selected, planned, scheduled, executed, closed and critiqued. The entire organisation is involved in and fully supports the process.			
	WP.1	Work Management: The organisation implements a process of planning, controlling and executing work activities such that nuclear safety is the overriding priority. The work process includes the identification and management of risk commensurate to the work.	D.4	The quality of processes, from planning to implementation and review, is good.
	WP.2	Design Margins: The organisation operates and maintains equipment within design margins. Margins are carefully guarded and changed only through a systematic and rigorous process. Special attention is placed on maintaining fission product barriers, defence-in-depth and safety-related equipment.	N/A	

Trait	Attribute	Description	IAEA	Description
	WP.3	Documentation: The organisation creates and maintains complete, accurate and up-to-date documentation.	D.3	The quality of documentation and procedures is good.
	WP.4	Procedure Adherence: Individuals follow processes, procedures and work instructions.	N/A	

NOTE:

1. The following were not incorporated because of their broad nature:

   A.1 The high priority given to safety is shown in documentation, communications and decision-making.

   D.2 Consideration for all types of safety, including industrial safety and environmental safety, and of security is evident.

Table 6: IAEA Safety Culture Attributes to Traits

IAEA	Description	WANO	Description
A.2	Safety is a primary consideration in the allocation of resources.	LA.1	Resources: Leaders ensure that personnel, equipment, procedures and other resources are available and adequate to support nuclear safety.
A.3	The strategic business importance of safety is reflected in the business plan.	LA.4	Strategic Commitment to Safety: Leaders ensure plant priorities are aligned to reflect nuclear safety as the overriding priority.
A.4	Individuals are convinced that safety and production go hand in hand.	PA.2	Job Ownership: Individuals understand and demonstrate personal responsibility for the behaviours and work practices that support nuclear safety.
A.5	A proactive and long term approach to safety issues is shown in decision making.	DM.1	Consistent Process: Individuals use a consistent, systematic approach to make decisions. Risk insights are incorporated, as appropriate.
A.6	Safety conscious behaviour is socially accepted and supported (both formally and informally).	WE.2	Opinions are Valued: Individuals are encouraged to voice concerns, provide suggestions and raise questions. Differing opinions are respected.
B.1	Senior management is clearly committed to safety.	LA.4	Strategic Commitment to Safety: Leaders ensure plant priorities are aligned to reflect nuclear safety as the overriding priority.
B.2	Commitment to safety is evident at all management levels.	LA.4	Strategic Commitment to Safety: Leaders ensure plant priorities are aligned to reflect nuclear safety as the overriding priority.
B.3	There is visible leadership showing the involvement of management in safety-related activities.	LA.2	Field Presence: Leaders are commonly seen in working areas of the plant observing, coaching, and reinforcing standards and expectations. Deviations from standards and expectations are corrected promptly.

IAEA	Description	WANO	Description
B.4	Leadership skills are systematically developed.	CL.4	Training: High-quality training maintains a knowledgeable workforce and reinforces high standards for maintaining nuclear safety.
B.5	Management ensures that there are sufficient competent individuals.	LA.1	Resources: Leaders ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety.
B.6	Management seeks the active involvement of individuals in improving safety.	WE.2	Opinions are Valued: Individuals are encouraged to voice concerns, provide suggestions and raise questions. Differing opinions are respected.
B.7	Safety implications are considered in change management processes.	LA.5	Change Management: Leaders use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority.
B.8	Management shows a continual effort to strive for openness and good communication throughout the organisation.	CO.3	Free Flow of Information: Individuals communicate openly and candidly, both up, down and across the organisation, and with oversight, audit and regulatory organisations.
B.9	Management has the ability to resolve conflicts as necessary.	WE.4	Conflict Resolution: Fair and objective methods are used to resolve conflict.
B.10	Relationships between managers and individuals are built on trust.	WE.3	High Level of Trust: Trust is fostered among individuals and work groups throughout the organisation.
C.1	An appropriate relationship with the regulatory body exists, which ensures that the accountability for safety remains with the licensee.	LA.4	Strategic Commitment to Safety: Leaders ensure plant priorities are aligned to reflect nuclear safety as the overriding priority.
C.2	Roles and responsibilities are clearly defined and understood.	LA.6	Roles, Responsibilities and Authorities: Leaders clearly define roles, responsibilities and authorities to ensure nuclear safety.

IAEA	Description	WANO	Description
C.3	There is a high level of compliance with regulations and procedures.	PA.1	Standards: Individuals understand the importance of adherence to nuclear standards. All levels of the organisation exercise accountability for shortfalls in meeting standards.
C.4	Management delegate responsibility with appropriate authority to enable clear accountabilities to be established.	LA.6	Roles, Responsibilities, and Authorities: Leaders clearly define roles, responsibilities, and authorities to ensure nuclear safety.
C.5	'Ownership' for safety is evident at all organisational levels and for all individuals.	PA.2	Job Ownership: Individuals understand and demonstrate personal responsibility for the behaviours and work practices that support nuclear safety.
D.1	Trust permeates the organisation.	WE.3	High Level of Trust: Trust is fostered among individuals and work groups throughout the organisation.
D.3	The quality of documentation and procedures is good.	WP.3	Documentation: The organisation creates and maintains complete, accurate and up-to-date documentation.
D.4	The quality of processes, from planning to implementation and review, is good.	WP.1	Work Management: The organisation implements a process of planning, controlling and executing work activities such that nuclear safety is the overriding priority. The work process includes the identification and management of risk commensurate to the work.
D.5	Individuals have the necessary knowledge and understanding of the work processes.	CL.4	Training: High-quality training maintains a knowledgeable workforce and reinforces high standards for maintaining nuclear safety.
D.6	Factors affecting work motivation and job satisfaction are considered.	LA.3	Incentives, Sanctions and Rewards: Leaders ensure incentives, sanctions and rewards are aligned with nuclear safety policies, and reinforce behaviours and outcomes that reflect safety as the overriding priority.

IAEA	Description	WANO	Description
D.7	Good working conditions exist with regard to time pressures, work load and stress.	LA.8	Leader Behaviours: Leaders exhibit behaviours that set the standard for safety.
D.8	Cross-functional and interdisciplinary cooperation and teamwork are present.	PA.3	Teamwork: Individuals and work groups communicate and coordinate their activities within and across organisational boundaries to ensure nuclear safety is maintained.
D.9	Housekeeping and material conditions reflect commitment to excellence.	PA.1	Standards: Individuals understand the importance of adherence to nuclear standards. All levels of the organisation exercise accountability for shortfalls in meeting standards.
E.1	A questioning attitude prevails at all organisational levels.	QA.3	Challenge Assumptions: Individuals challenge assumptions and offer opposing views when they believe something is not correct.
E.2	Open reporting of deviations and errors is encouraged.	PI.1	Identification: The organisation implements a corrective action programme with a low threshold for identifying issues. Individuals identify issues completely, accurately and in a timely manner, in accordance with the programme.
E.3	Internal and external assessments, including self-assessments, are used.	CL.2	Self-Assessment: The organisation routinely conducts self-critical and objective assessments of its programmes, practices and performance.
E.4	Organisational and operating experience (both internal and external to the facility) are used.	CL.1	Operating Experience: The organisation systematically and effectively collects, evaluates and implements lessons from relevant internal and external operating experience information, in a timely manner.

IAEA	Description	WANO	Description
E.5	Learning is facilitated through the ability to recognise and diagnose deviations, to formulate and implement solutions and to monitor the effects of corrective actions.	PI.1	Identification: The organisation implements a corrective action programme with a low threshold for identifying issues. Individuals identify issues completely, accurately and in a timely manner, in accordance with the programme.
E.6	Safety performance indicators are tracked, trended, evaluated and acted upon.	PI.4	Trending: The organisation periodically analyses information from the corrective action programme and other assessments in the aggregate to identify adverse trends or conditions.
E.7	There is systematic development of individual competences.	CL.4	Training: High-quality training maintains a knowledgeable workforce and reinforces high standards for maintaining nuclear safety.
N/A		QA.1	Nuclear Is Recognised as Special and Unique: Individuals understand that complex technologies can fail in unpredictable ways.
N/A		QA.2	Challenge the Unknown: Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before work proceeds.
N/A		QA.4	Avoid Complacency: Individuals recognise and plan for the possibility of mistakes, latent issues and inherent risk, even while expecting successful outcomes.
N/A		CO.1	Work Process Communications: Individuals incorporate safety communications in work activities.
N/A		CO.2	Bases for Decisions: Leaders ensure that the bases for operational and organisational decisions are communicated in a timely manner.

IAEA	Description	WANO	Description
N/A		CO.4	Expectations: Leaders frequently communicate and reinforce the expectation that nuclear safety is the organisation's overriding priority.
N/A		LA.7	Constant Examination: Leaders ensure that nuclear safety is constantly scrutinised through a variety of monitoring techniques, including assessments of nuclear safety culture.
N/A		DM.2	Conservative Bias: Individuals use decision-making practices that emphasise prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop.
N/A		DM.3	Accountability for Decisions: Single-point accountability is maintained for nuclear safety decisions.
N/A		WE.1	Respect is Evident: Everyone is treated with dignity and respect.
N/A		CL.3	Benchmarking: The organisation learns from other organisations to continuously improve knowledge, skills and safety performance.
N/A		PI.2	Evaluation: The organisation thoroughly evaluates issues to ensure that problem resolutions and solutions address causes and extents of conditions commensurate with their safety significance.
N/A		PI.3	Resolution: The organisation takes effective corrective actions to address issues in a timely manner, commensurate with their safety significance.

IAEA	Description	WANO	Description
N/A		RC.1	SCWE Policy: The organisation implements a policy that supports individual rights and responsibilities to raise safety concerns, and does not tolerate harassment, intimidation, retaliation or discrimination for doing so.
N/A		RC.2	Alternate Process for Raising Concerns: The organisation implements a process for raising and resolving concerns that is independent of line management influence. Safety issues may be raised in confidence and are resolved in a timely and effective manner.
N/A		WP.2	Design Margins: The organisation operates and maintains equipment within design margins. Margins are carefully guarded and changed only through a systematic and rigorous process. Special attention is placed on maintaining fission product barriers, defence-in-depth and safety-related equipment.
N/A		WP.4	Procedure Adherence: Individuals follow processes, procedures and work instructions.

NOTE:

1. The following were not incorporated because of their broad nature:

   A.1 The high priority given to safety is shown in documentation, communications and decision-making.

   D.2 Consideration for all types of safety, including industrial and environmental, and of security, is evident.

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