INPO®

Document

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April 2013

Traits of a Healthy Nuclear Safety Culture

Addendum II: Cross-References

Revision 1

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INTRODUCTION

Addendum II, Cross-References, provides cross-references from INPO 12-012, *Traits of a Healthy Nuclear Safety Culture*, to the *Principles for a Strong Nuclear Safety Culture*, U.S. Nuclear Regulatory Commission cross-cutting area components and aspects, and the International Atomic Energy Agency safety culture characteristics and attributes. This cross-reference can help in understanding how the framework 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 organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance."

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Table 1

Traits to INPO Principles

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

Table 2

INPO Principles to Traits

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

Table 3

Traits Attributes to INPO Principles Attributes

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 emphasize the overriding importance of nuclear safety.			
	PA.1	Standards: Individuals understand the importance of adherence to nuclear standards. All levels of the organization exercise accountability for shortfalls in meeting standards.	1F	All personnel understand the importance of adherence to nuclear safety standards. All levels of the organization exercise healthy accountability for shortfalls in meeting standards.
			3H	Complete, accurate, and forthright information is provided to oversight, audit, and regulatory organizations.
	PA.2	Job Ownership: Individuals understand and demonstrate personal responsibility for the behaviors and work practices that support nuclear safety.	1B	Support groups, such as human resources, labor 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 organizational 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 and activities in order to identify discrepancies that might result in error or inappropriate action. All employees are watchful for assumptions, anomalies, values, conditions, or activities that can have an undesirable effect on plant safety.			
	QA.1	Nuclear Is Recognized as Special and Unique: Individuals understand that complex technologies can fail in unpredictable ways.	N/A	

Trait	Attribute	Description	Principle	Description
	QA.2	Challenge the Unknown: Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding.	6A	While individuals expect successful outcomes of daily activities, they recognize 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 think 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 recognize and plan for the possibility of mistakes, latent problems, or inherent risk, even while expecting successful outcomes.	N/A	
CO.	Effective Safety Communication – Communications maintain a focus on safety. Safety communication is broad and includes plant-level communication, job-related communication, worker-level communication, equipment labeling, operating experience, and documentation. Leaders use formal and informal communication to convey the importance of safety. The flow of information up the organization is seen as important as the flow of information down the organization.			
	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 organizational 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.

Trait	Attribute	Description	Principle	Description
			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 organization, and with oversight, audit, and regulatory organizations.	N/A	
	CO.4	Expectations: Leaders frequently communicate and reinforce the expectation that nuclear safety is the organization's overriding priority.	2E	Leaders recognize 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.
LA.	Leadership Safety Values and Actions – Leaders demonstrate a commitment to safety in their decisions and behaviors. 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 organization set an example for safety. Corporate policies emphasize 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.

Trait	Attribute	Description	Principle	Description
	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 behaviors and outcomes that reflect safety as the overriding priority.	1H	The system of rewards and sanctions is aligned with strong nuclear safety policies and reinforces the desired behaviors and outcomes.
			3G	Senior management incentive programs reflect a bias toward long-term plant performance and safety.
	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 firsthand.
			1E	The line organization, starting with the chief executive officer, is the primary source of information and the only source of direction. Other parties, such as oversight organizations 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.

Trait	Attribute	Description	Principle	Description
			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 in the organization 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 recognized 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 scrutinized through a variety of monitoring techniques, including assessments of nuclear safety culture.	N/A	
	LA.8	Leader Behaviors: Leaders exhibit behaviors that set the standard for safety.	2G	Informal opinion leaders in the organization are encouraged to model safe behavior and influence peers to meet high standards.
			7F	Employees have confidence that issues with nuclear safety implications are prioritized, tracked, and resolved in a timely manner.

Trait	Attribute	Description	Principle	Description
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.	4Ca	Plant personnel apply a rigorous approach to problem-solving.
	DM.2	Conservative Bias: Individuals use decision-making practices that emphasize 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.	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: Single-point accountability is maintained for nuclear safety decisions.	4D	Single-point accountability is maintained for important safety decisions, allowing for ongoing assessment and feedback as circumstances unfold.
WE.	Respectful Work Environment – Trust and respect permeate the organization. A high level of trust is established in the organization, 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.	1Ca	People and their professional capabilities, values, and experiences are regarded as the nuclear organization'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 respected.	2B	Management considers the employee perspective in understanding and analyzing 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 recognized as a natural result 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 organization.	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 learn about ways to ensure safety are 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 organization systematically and effectively collects, evaluates, and implements relevant internal and	7A	The organization avoids complacency and cultivates a continuous learning environment. The attitude that "it can happen here" is encouraged.

Trait	Attribute	Description	Principle	Description
		external operating experience in a timely manner.	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 organization routinely conducts self-critical and objective assessments of its programs and practices.	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 organization learns from other organizations to continuously improve knowledge, skills, and safety performance.	N/A	
	CL.4	Training: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.	2D	Managers and supervisors are personally involved in high-quality training that consistently reinforces expected worker behaviors.
			4A	The organization 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 behaviors.
			7B	Training upholds management standards and expectations. Beyond teaching knowledge and skills, trainers are adept at instilling nuclear safety values and beliefs.

Trait	Attribute	Description	Principle	Description
PI.	Problem Identification and Resolution – Issues potentially impacting safety are promptly identified, fully evaluated, and promptly addressed and corrected commensurate with their significance. Identification and resolution of a broad spectrum of problems, including organizational issues, are used to strengthen safety and improve performance.			
	PI.1	Identification: The organization implements a corrective action program with a low threshold for identifying issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the program.	6D	Workers identify conditions or behaviors 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 recognized. The organization is alert to detect and respond to indicators that may signal declining performance.
	PI.2	Evaluation: The organization thoroughly evaluates problems to ensure that resolutions address causes and extents of conditions commensurate with their safety significance.	4Ca	Plant personnel apply a rigorous approach to problem-solving.
			6B	Anomalies are recognized, thoroughly investigated, promptly mitigated, and periodically analyzed 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 organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance.	2Ab	Deviations from station expectations are corrected promptly.
			7E	Processes are established to identify and resolve latent organizational weaknesses that can aggravate relatively minor events if not corrected.
	PI.4	Trending: The organization periodically analyzes information from the corrective action program and other assessments in the aggregate to identify programmatic and common cause issues.	N/A	

Trait	Attribute	Description	Principle	Description
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.			
	RC.1	SCWE Policy: The organization effectively implements a policy that supports individuals' rights and responsibilities to raise safety 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 organization effectively 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 organization is involved in and fully supports the process.			
	WP.1	Work Management: The organization 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.	5A	Activities that could affect core reactivity are conducted with particular care and caution.
	WP.2	Design Margins: The organization operates and maintains equipment within design margins.	5B	Features designed to maintain critical safety functions, such as core cooling, are recognized as particularly important.

Trait	Attribute	Description	Principle	Description
		Margins are carefully guarded and changed only through a systematic and rigorous process. Special attention is placed on maintaining fission product barriers, defense-in-depth, and safety-related equipment.	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 defense-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 organization creates and maintains complete, accurate, and up-to-date documentation.	5F	Plant activities are governed by comprehensive, high-quality processes and procedures.
	WP.4	Procedure Adherence: Individuals follow processes, procedures, and work instructions.	N/A	

Table 4

INPO Principles Attributes to Traits Attributes

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, labor 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 behaviors and work practices that support nuclear safety.
1Ca	People and their professional capabilities, values, and experiences are regarded as the nuclear organization'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 firsthand.	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 organization, starting with the chief executive officer, is the primary source of information and the only source of direction. Other parties, such as oversight organizations 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 organization exercise healthy accountability for shortfalls in meeting standards.	PA.1	Standards: Individuals understand the importance of adherence to nuclear standards. All levels of the organization exercise accountability for shortfalls in meeting standards.
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 behaviors and outcomes.	LA.3	Incentives, Sanctions, and Rewards: Leaders ensure incentives, sanctions, and rewards are aligned with nuclear safety policies and reinforce behaviors and outcomes that reflect safety as the overriding priority.
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 organization thoroughly evaluates problems to ensure that resolutions address causes and extents of conditions, commensurate with their safety significance.

Principle	Description	Attribute	Description
2B	Management considers the employee perspective in understanding and analyzing 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 behaviors.	CL.4	Training: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.
2E	Leaders recognize 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 organization'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 organizational decisions are communicated in a timely manner.
2G	Informal opinion leaders in the organization are encouraged to model safe behavior and influence peers to meet high standards.	LA.8	Leader Behaviors: Leaders exhibit behaviors 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.

Principle	Description	Attribute	Description
3B	Personnel can raise nuclear safety concerns without fear of retribution and have confidence their concerns will be addressed.	RC.1	SCWE Policy: The organization effectively implements a policy that supports individuals' 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 organization.
3Eb	Supervisors are recognized 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.
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 organization 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 programs 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 behaviors and outcomes that reflect safety as the overriding priority.

Principle	Description	Attribute	Description
3H	Complete, accurate, and forthright information is provided to oversight, audit, and regulatory organizations.	PA.1	Standards: Individuals understand the importance of adherence to nuclear standards. All levels of the organization 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 organizational decisions are communicated in a timely manner.
4A	The organization maintains a knowledgeable workforce to support a broad spectrum of operational and technical decisions. Outside expertise is employed when necessary.	CL.4	Training: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.
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.	PI.2	Evaluation: The organization thoroughly evaluates problems to ensure that resolutions address causes and extents of conditions commensurate with their safety significance.
4Cb	Conservative actions are taken when understanding is incomplete.	DM.2	Conservative Bias: Individuals use decision-making practices that emphasize 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 ongoing assessment and feedback as circumstances unfold.	DM.3	Accountability for Decisions: Single-point accountability is maintained for nuclear safety decisions.

Principle	Description	Attribute	Description
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 organizational boundaries to ensure nuclear safety is maintained.
4Eb	Robust discussion and healthy conflict are recognized 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 emphasize 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 emphasize 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.
5A	Activities that could affect core reactivity are conducted with particular care and caution.	WP.1	Work Management: The organization 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 recognized as particularly important.	WP.2	Design Margins: The organization 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, defense-in-depth, and safety-related equipment.

Principle	Description	Attribute	Description
5Ca	Design and operating margins are carefully guarded and are changed only with great thought and care.	WP.2	Design Margins: The organization 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, defense-in-depth, and safety-related equipment.
5Cb	Special attention is placed on maintaining fission product barriers and defense-in-depth.	WP.2	Design Margins: The organization 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, defense-in-depth, and safety-related equipment.
5D	Equipment is meticulously maintained well within design requirements.	WP.2	Design Margins: The organization 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, defense-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 organization 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, defense-in-depth, and safety-related equipment.
5F	Plant activities are governed by comprehensive, high-quality processes and procedures.	WP.3	Documentation: The organization creates and maintains complete, accurate, and up-to-date documentation.

Principle	Description	Attribute	Description
5G	Employee mastery of reactor and power plant fundamentals, as appropriate to the job position, establishes a solid foundation for sound decisions and behaviors.	CL.4	Training: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.
6A	While individuals expect successful outcomes of daily activities, they recognize 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 proceeding.
6B	Anomalies are recognized, thoroughly investigated, promptly mitigated, and periodically analyzed in the aggregate.	PI.3	Resolution: The organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance.
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 proceeding.
6D	Workers identify conditions or behaviors that have the potential to degrade operating or design margins. Such circumstances are promptly identified and resolved.	PI.1	Identification: The organization implements a corrective action program with a low threshold for identifying issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the program.
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 proceeding.
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 think something is not correct.

Principle	Description	Attribute	Description
7A	The organization avoids complacency and cultivates a continuous learning environment. The attitude that "it can happen here" is encouraged.	CL.1	Operating Experience: The organization 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: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.
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 organization systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner.
7D	Expertise in root cause analysis is applied effectively to identify and correct the fundamental causes of events.	PI.2	Evaluation: The organization thoroughly evaluates problems to ensure that resolutions address causes and extents of conditions commensurate with their safety significance.
7E	Processes are established to identify and resolve latent organizational weaknesses that can aggravate relatively minor events if not corrected.	PI.3	Resolution: The organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance.
7F	Employees have confidence that issues with nuclear safety implications are prioritized, tracked, and resolved in a timely manner.	PI.3	Resolution: The organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance.
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 organization routinely conducts self-critical and objective assessments of its programs and practices.
8B	Periodic safety culture assessments are conducted and used as a basis for improvement.	CL.2	Self-Assessment: The organization routinely conducts self-critical and objective assessments of its programs and practices.

Principle	Description	Attribute	Description
8C	The pitfalls of focusing on a narrow set of performance indicators are recognized. The organization is alert to detect and respond to indicators that may signal declining performance.	PI.1	Identification: The organization implements a corrective action program with a low threshold for identifying issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the program.
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.
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 Recognized as Special and Unique: Individuals understand that complex technologies can fail in unpredictable ways.
N/A		QA.4	Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent problems, or 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 organization, and with oversight, audit, and regulatory organizations.
N/A		LA.7	Constant Examination: Leaders ensure that nuclear safety is constantly scrutinized through a variety of monitoring techniques, including assessments of nuclear safety culture.

Principle	Description	Attribute	Description
N/A		CL.3	Benchmarking: The organization learns from other organizations to continuously improve knowledge, skills, and safety performance.
N/A		PI.4	Trending: The organization periodically analyzes information from the corrective action program and other assessments in the aggregate to identify programmatic and common cause issues.
N/A		RC.2	Alternate Process for Raising Concerns: The organization effectively 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 organization 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 5

Traits Attributes to NRC Cross-Cutting Area Aspects

Trait	Attribute	Description	NRC	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 emphasize the overriding importance of nuclear safety.			
	PA.1	Standards: Individuals understand the importance of adherence to nuclear standards. All levels of the organization exercise accountability for shortfalls in meeting standards.	O.1(c)	The workforce demonstrates a proper safety focus and reinforces safety principles among their peers.
	PA.2	Job Ownership: Individuals understand and demonstrate personal responsibility for the behaviors and work practices that support nuclear safety.	N/A	
	PA.3	Teamwork: Individuals and work groups communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained.	N/A	
QA.	Questioning Attitude – Individuals avoid complacency and continuously challenge existing conditions and activities in order to identify discrepancies that might result in error or inappropriate action. All employees are watchful for assumptions, anomalies, values, conditions, or activities that can have an undesirable effect on plant safety.			
	QA.1	Nuclear Is Recognized 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 proceeding.	N/A	

Trait	Attribute	Description	NRC	Description
	QA.3	Challenge Assumptions: Individuals challenge assumptions and offer opposing views when they think something is not correct.	N/A	
	QA.4	Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent problems, or inherent risk, even while expecting successful outcomes.	N/A	
CO.	Effective Safety Communication – Communications maintain a focus on safety. Safety communication is broad and includes plant-level communication, job-related communication, worker-level communication, equipment labeling, operating experience, and documentation. Leaders use formal and informal communication to convey the importance of safety. The flow of information up the organization is seen as important as the flow of information down the organization.			
	CO.1	Work Process Communications: Individuals incorporate safety communications in work activities.	H.4(a)	The licensee communicates human error prevention techniques, such as holding prejob briefings, self- and peer-checking, and proper documentation of activities. These techniques are used commensurate with the risk of the assigned task, such that work activities are performed safely. Personnel are fit for duty. In addition, personnel do not proceed in the face of uncertainty or unexpected circumstances.
	CO.2	Bases for Decisions: Leaders ensure that the bases for operational and organizational decisions are communicated in a timely manner.	H.1(c)	The licensee communicates decisions and the basis for decisions to personnel who have a need to know that information in order to perform work safely, in a timely manner.

Trait	Attribute	Description	NRC	Description
	CO.3	Free Flow of Information: Individuals communicate openly and candidly, both up, down, and across the organization, and with oversight, audit, and regulatory organizations.	S.1(a)	Behaviors and interactions encourage free flow of information related to raising nuclear safety issues, differing professional opinions, and identifying issues in the CAP and through self-assessments. Such behaviors include supervisors responding to employee safety concerns in an open, honest, and non-defensive manner and providing complete, accurate, and forthright information to oversight, audit, and regulatory organizations. Past behaviors, actions, or interactions that may reasonably discourage the raising of such issues are actively mitigated. As a result, personnel freely and openly communicate in a clear manner conditions or behaviors, such as fitness for duty issues that may impact safety and personnel raise nuclear safety issues without fear of retaliation.
	CO.4	Expectations: Leaders frequently communicate and reinforce the expectation that nuclear safety is the organization's overriding priority.	O.4(d)	Senior managers and corporate personnel periodically communicate and reinforce safety such that personnel understand that safety is of the highest priority.
LA.	Leadership Safety Values and Actions – Leaders demonstrate a commitment to safety in their decisions and behaviors. 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 organization set an example for safety. Corporate policies emphasize 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.	H.2(d)	Adequate and available facilities and equipment, including physical improvements, simulator fidelity and emergency facilities and equipment.

Trait	Attribute	Description	NRC	Description
	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.	H.4(c)	The licensee ensures supervisory and management oversight of work activities, including contractors, such that nuclear safety is supported.
			O.1(b)	Management reinforces safety standards and displays behaviors that reflect safety as an overriding priority.
	LA.3	Incentives, Sanctions, and Rewards: Leaders ensure incentives, sanctions, and rewards are aligned with nuclear safety policies and reinforce behaviors and outcomes that reflect safety as the overriding priority.	S.2(c)	The potential chilling effects of disciplinary actions and other potentially adverse personnel actions (e.g., reductions, outsourcing, and reorganization) are considered and compensatory actions are taken when appropriate.
			O.1(a)	Accountability is maintained for important safety decisions in that the system of rewards and sanctions is aligned with nuclear safety policies and reinforces behaviors and outcomes which reflect safety as an overriding priority.
	LA.4	Strategic Commitment to Safety: Leaders ensure plant priorities are aligned to reflect nuclear safety as the overriding priority.	O.4(c)	Organizational decisions and actions at all levels of the organization are consistent with the policies. Production, cost and schedule goals are developed, communicated, and implemented in a manner that reinforces the importance of nuclear safety.
	LA.5	Change Management: Leaders use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority.	O.3	Management uses a systematic process for planning, coordinating, and evaluating the safety impacts of decisions related to major changes in organizational structures and functions, leadership, policies, programs, procedures, and resources. Management effectively communicates such changes to affected personnel.

Trait	Attribute	Description	NRC	Description
	LA.6	Roles, Responsibilities, and Authorities: Leaders clearly define roles, responsibilities, and authorities to ensure nuclear safety.	N/A	
	LA.7	Constant Examination: Leaders ensure that nuclear safety is constantly scrutinized through a variety of monitoring techniques, including assessments of nuclear safety culture.	N/A	
	LA.8	Leader Behaviors: Leaders exhibit behaviors that set the standard for safety.	N/A	
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.	H.1(a)	The licensee makes safety-significant or risk-significant decisions using a systematic process, especially when faced with uncertain or unexpected plant conditions, to ensure safety is maintained. This includes formally defining the authority and roles for decisions affecting nuclear safety, communicating these roles to applicable personnel, and implementing these roles and authorities as designed and obtaining interdisciplinary input and reviews on safety-significant or risk-significant decisions.

Trait	Attribute	Description	NRC	Description
	DM.2	Conservative Bias: Individuals use decision-making practices that emphasize 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.	H.1(b)	The licensee uses conservative assumptions in decision-making and adopts a requirement to demonstrate that the proposed action is safe in order to proceed rather that a requirement to demonstrate that it is unsafe in order to disapprove the action. The licensee conducts effectiveness reviews of safety-significant decisions to verify the validity of the underlying assumptions, identify possible unintended consequences, and determine how to improve future decisions.
	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 organization. A high level of trust is established in the organization, 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.	N/A	
	WE.3	High Level of Trust: Trust is fostered among individuals and work groups throughout the organization.	N/A	
	WE.4	Conflict Resolution: Fair and objective methods are used to resolve conflicts.	N/A	

Trait	Attribute	Description	NRC	Description
CL.	Continuous Learning – Opportunities to learn about ways to ensure safety are 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 organization systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner.	P.2(a)	The licensee systematically collects, evaluates, and communicates to affected internal stakeholders in a timely manner relevant internal and external OE.
			P.2(b)	The licensee implements and institutionalizes OE through changes to station processes, procedures, equipment, and training programs.
	CL.2	Self-Assessment: The organization routinely conducts self-critical and objective assessments of its programs and practices.	P.3(a)	The licensee conducts self-assessments at an appropriate frequency; such assessments are of sufficient depth, are comprehensive, are appropriately objective, and are self-critical. The licensee periodically assesses the effectiveness of oversight groups and programs such as CAP and policies.
			P.3(c)	The licensee coordinates and communicates results from assessments to affected personnel, and takes corrective actions to address issues commensurate with their significance.
	CL.3	Benchmarking: The organization learns from other organizations to continuously improve knowledge, skills, and safety performance.	O.2(b)	Personnel continuously strive to improve their knowledge, skills, and safety performance through activities such as benchmarking, being receptive to feedback, and setting performance goals. The licensee effectively communicates information learned from internal and external sources about industry and plant issues.

Trait	Attribute	Description	NRC	Description
	CL.4	Training: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.	O.2(a)	The licensee provides adequate training and knowledge transfer to all personnel on site to ensure technical competency.
			O.4(b)	Personnel are efficiently trained on these safety policies.
			H.2(b)	Training of personnel and sufficient qualified personnel to maintain work hours within working hour guidelines.
PI.	Problem Identification and Resolution – Issues potentially impacting safety are promptly identified, fully evaluated, and promptly addressed and corrected commensurate with their significance. Identification and resolution of a broad spectrum of problems, including organizational issues, are used to strengthen safety and improve performance.			
	PI.1	Identification: The organization implements a corrective action program with a low threshold for identifying issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the program.	P.1(a)	The licensee implements a corrective action program with a low threshold for identifying issues. The licensee identifies such issues completely, accurately, and in a timely manner commensurate with their safety significance.
	PI.2	Evaluation: The organization thoroughly evaluates problems to ensure that resolutions address causes and extents of conditions commensurate with their safety significance.	P.1(c)	The licensee thoroughly evaluates problems such that the resolutions address causes and extents of conditions, as necessary. This includes properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality. This also includes, for significant problems, conducting effectiveness reviews of corrective actions to ensure that the problems are resolved.

Trait	Attribute	Description	NRC	Description
	PI.3	Resolution: The organization takes effective corrective actions to address issues in a timely manner, commensurate with their safety significance.	P.1(d)	The licensee takes appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity.
	PI.4	Trending: The organization periodically analyzes information from the corrective action program and other assessments in the aggregate to identify programmatic and common cause issues.	P.1(b)	The licensee periodically trends and assesses information from the CAP and other assessments in the aggregate to identify programmatic and common cause problems. The licensee communicates the results of the trending to applicable personnel.
			P.3(b)	The licensee tracks and trends safety indicators which provide an accurate representation of performance.
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.			
	RC.1	SCWE Policy: The organization effectively implements a policy that supports individuals' rights and responsibilities to raise safety concerns and does not tolerate harassment, intimidation, retaliation, or discrimination for doing so.	S.2(a)	All personnel are effectively trained that harassment and retaliation for raising safety concerns is a violation of law and policy and will not be tolerated.
			S.2(b)	Claims of discrimination are investigated consistent with the content of the regulations regarding employee protection and any necessary corrective actions are taken in a timely manner, including actions to mitigate any potential chilling effect on others due to the personnel action under investigation.

Trait	Attribute	Description	NRC	Description
			O.4(a)	These policies require and reinforce that individuals have the right and responsibility to raise nuclear safety issues through available means, including avenues outside their organizational chain of command and to external agencies, and obtain feedback on the resolution of such issues.
	RC.2	Alternate Process for Raising Concerns: The organization effectively 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.	P.1(e)	If an alternative process (that is, a process for raising concerns that is an alternate to the licensee's corrective action program or line management) for raising safety concerns exists, then it results in appropriate and timely resolutions of identified problems.
			S.1(b)	If alternative processes (that is, a process for raising concerns or resolving differing professional opinions that are alternates to the licensee's corrective action program or line management) for raising safety concerns or resolving differing professional opinions exists, then they are communicated, accessible, have an option to raise issues in confidence, and are independent, in the sense that the program does not report to line management (that is, those who would in the normal course of activities be responsible for addressing the issue raised).
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 organization is involved in and fully supports the process.			

Trait	Attribute	Description	NRC	Description
	WP.1	Work Management: The organization 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.	H.3(a)	The licensee appropriately plans work activities by incorporating: risk insights; job site conditions, including environmental conditions which may impact human performance; plant structures, systems, and components; human-system interface; or radiological safety; and the need for planned contingencies, compensatory actions, and abort criteria.
			H.3(b)	The licensee appropriately coordinates work activities by incorporating actions to address: the impact of changes to the work scope or activity on the plant and human performance, the impact of the work on different job activities, and the need for work groups to maintain interfaces with offsite organizations, and communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance, the need to keep personnel apprised of work status, the operational impact of work activities, and plant conditions that may affect work activities, the licensee plans work activities to support long-term equipment reliability by limiting temporary modifications, operator work-around, safety systems unavailability, and reliance on manual actions. Maintenance scheduling is more preventive than reactive.

Trait	Attribute	Description	NRC	Description
	WP.2	Design Margins: The organization 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, defense-in-depth, and safety-related equipment.	H.2(a)	Maintaining long term plant safety by maintenance of design margins, minimization of long-standing equipment issues, minimizing preventative maintenance deferrals, and ensuring maintenance and engineering backlogs which are low enough to support safety.
	WP.3	Documentation: The organization creates and maintains complete, accurate, and up-to-date documentation.	H.2(c)	Complete, accurate, and up-to-date design implementation, procedures, and work packages and correct labeling of components.
	WP.4	Procedure Adherence: Individuals follow processes, procedures, and work instructions.	H.4(b)	The licensee defines and effectively communicates expectations regarding procedural compliance and personnel following procedures.

Table 6

NRC Cross-Cutting Area Aspects to Traits Attributes

NRC	Description	Attribute	Description
H.1(a)	The licensee makes safety-significant or risk-significant decisions using a systematic process, especially when faced with uncertain or unexpected plant conditions, to ensure safety is maintained. This includes formally defining the authority and roles for decisions affecting nuclear safety, communicating these roles to applicable personnel, and implementing these roles and authorities as designed and obtaining interdisciplinary input and reviews on safety-significant or risk-significant decisions.	DM.1	Consistent Process: Individuals use a consistent, systematic approach to make decisions. Risk insights are incorporated as appropriate.
H.1(b)	The licensee uses conservative assumptions in decision-making and adopts a requirement to demonstrate that the proposed action is safe in order to proceed rather that a requirement to demonstrate that it is unsafe in order to disapprove the action. The licensee conducts effectiveness reviews of safety-significant decisions to verify the validity of the underlying assumptions, identify possible unintended consequences, and determine how to improve future decisions.	DM.2	Conservative Bias: Individuals use decision-making practices that emphasize 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.
H.1(c)	The licensee communicates decisions and the basis for decisions to personnel who have a need to know that information in order to perform work safety, in a timely manner.	CO.2	Bases for Decisions: Leaders ensure that the bases for operational and organizational decisions are communicated in a timely manner.

NRC	Description	Attribute	Description
H.2(a)	Maintaining long term plant safety by maintenance of design margins, minimization of long-standing equipment issues, minimizing preventative maintenance deferrals, and ensuring maintenance and engineering backlogs which are low enough to support safety.	WP.2	Design Margins: The organization 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, defense-in-depth, and safety-related equipment.
H.2(b)	Training of personnel and sufficient qualified personnel to maintain work hours within working hour guidelines.	CL.4	Training: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.
H.2(c)	Complete, accurate, and up-to-date design implementation, procedures, and work packages and correct labeling of components.	WP.3	Documentation: The organization creates and maintains complete, accurate, and up-to-date documentation.
H.2(d)	Adequate and available facilities and equipment, including physical improvements, simulator fidelity and emergency facilities and equipment.	LA.1	Resources: Leaders ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety.
H.3(a)	The licensee appropriately plans work activities by incorporating: risk insights; job site conditions, including environmental conditions which may impact human performance; plant structures, systems, and components; human-system interface; or radiological safety; and the need for planned contingencies, compensatory actions, and abort criteria.	WP.1	Work Management: The organization 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.

NRC	Description	Attribute	Description
H.3(b)	The licensee appropriately coordinates work activities by incorporating actions to address: the impact of changes to the work scope or activity on the plant and human performance, the impact of the work on different job activities, and the need for work groups to maintain interfaces with offsite organizations, and communicate, coordinate and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance, the need to keep personnel apprised of work status, the operational impact of work activities, and plant conditions that may affect work activities, the licensee plans work activities to support long-term equipment reliability by limiting temporary modifications, operator work-around, safety systems unavailability, and reliance on manual actions. Maintenance scheduling is more preventive than reactive.	WP.1	Work Management: The organization 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.
H.4(a)	The licensee communicates human error prevention techniques, such as holding pre-job briefings, self and peer checking, and proper documentation of activities. These techniques are used commensurate with the risk of the assigned task, such that work activities are performed safely. Personnel are fit for duty. In addition, personnel do not proceed in the face of uncertainty or unexpected circumstances.	CO.1	Work Process Communications: Individuals incorporate safety communications in work activities.
H.4(b)	The licensee defines and effectively communicates expectations regarding procedural compliance and personnel following procedures.	WP.4	Procedure Adherence: Individuals follow processes, procedures, and work instructions.

NRC	Description	Attribute	Description
H.4(c)	The licensee ensures supervisory and management oversight of work activities, including contractors, such that nuclear safety is supported.	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.
O.1(a)	Accountability is maintained for important safety decisions in that the system of rewards and sanctions is aligned with nuclear safety policies and reinforces behaviors and outcomes which reflect safety as an overriding priority.	LA.3	Incentives, Sanctions, and Rewards: Leaders ensure incentives, sanctions, and rewards are aligned with nuclear safety policies and reinforce behaviors and outcomes that reflect safety as the overriding priority.
O.1(b)	Management reinforces safety standards and displays behaviors that reflect safety as an overriding priority.	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.
O.1(c)	The workforce demonstrates a proper safety focus and reinforces safety principles among their peers.	PA.1	Standards: Individuals understand the importance of adherence to nuclear standards. All levels of the organization exercise accountability for shortfalls in meeting standards.
O.2(a)	The licensee provides adequate training and knowledge transfer to all personnel on site to ensure technical competency.	CL.4	Training: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.
O.2(b)	Personnel continuously strive to improve their knowledge, skills, and safety performance through activities such as benchmarking, being receptive to feedback, and setting performance goals. The licensee effectively communicates information learned from internal and external sources about industry and plant issues.	CL.3	Benchmarking: The organization learns from other organizations to continuously improve knowledge, skills, and safety performance.

NRC	Description	Attribute	Description
O.3	Management uses a systematic process for planning, coordinating, and evaluating the safety impacts of decisions related to major changes in organizational structures and functions, leadership, policies, programs, procedures, and resources. Management effectively communicates such changes to affected personnel.	LA.5	Change Management: Leaders use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority.
O.4(a)	These policies require and reinforce that individuals have the right and responsibility to raise nuclear safety issues through available means, including avenues outside their organizational chain of command and to external agencies, and obtain feedback on the resolution of such issues.	RC.1	SCWE Policy: The organization effectively implements a policy that supports individuals' rights and responsibilities to raise safety concerns and does not tolerate harassment, intimidation, retaliation, or discrimination for doing so.
O.4(b)	Personnel are efficiently trained on these safety policies.	CL.4	Training: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.
O.4(c)	Organizational decisions and actions at all levels of the organization are consistent with the policies. Production, cost and schedule goals are developed, communicated, and implemented in a manner that reinforces the importance of nuclear safety.	LA.4	Strategic Commitment to Safety: Leaders ensure plant priorities are aligned to reflect nuclear safety as the overriding priority.
O.4(d)	Senior managers and corporate personnel periodically communicate and reinforce safety such that personnel understand that safety is of the highest priority.	CO.4	Expectations: Leaders frequently communicate and reinforce the expectation that nuclear safety is the organization's overriding priority.
P.1(a)	The licensee implements a corrective action program with a low threshold for identifying issues. The licensee identifies such issues completely, accurately, and in a timely manner commensurate with their safety significance.	PI.1	Identification: The organization implements a corrective action program with a low threshold for identifying issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the program.

NRC	Description	Attribute	Description
P.1(b)	The licensee periodically trends and assesses information from the CAP and other assessments in the aggregate to identify programmatic and common cause problems. The licensee communicates the results of the trending to applicable personnel.	PI.4	Trending: The organization periodically analyzes information from the corrective action program and other assessments in the aggregate to identify programmatic and common cause issues.
P.1(c)	The licensee thoroughly evaluates problems such that the resolutions address causes and extents of conditions, as necessary. This includes properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality. This also includes, for significant problems, conducting effectiveness reviews of corrective actions to ensure that the problems are resolved.	PI.2	Evaluation: The organization thoroughly evaluates problems to ensure that resolutions address causes and extents of conditions commensurate with their safety significance.
P.1(d)	The licensee takes appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity.	PI.3	Resolution: The organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance.
P.1(e)	If an alternative process (that is, a process for raising concerns that is an alternate to the licensee's corrective action program or line management) for raising safety concerns exists, then it results in appropriate and timely resolutions of identified problems.	RC.2	Alternate Process for Raising Concerns: The organization effectively 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.
P.2(a)	The licensee systematically collects, evaluates, and communicates to affected internal stakeholders in a timely manner relevant internal and external OE.	CL.1	Operating Experience: The organization systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner.

NRC	Description	Attribute	Description
P.2(b)	The licensee implements and institutionalizes OE through changes to station processes, procedures, equipment, and training programs.	CL.1	Operating Experience: The organization systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner.
P.3(a)	The licensee conducts self-assessments at an appropriate frequency; such assessments are of sufficient depth, are comprehensive, are appropriately objective, and are self-critical. The licensee periodically assesses the effectiveness of oversight groups and programs such as CAP and policies.	CL.2	Self-Assessment: The organization routinely conducts self-critical and objective assessments of its programs and practices.
P.3(b)	The licensee tracks and trends safety indicators which provide an accurate representation of performance.	PI.4	Trending: The organization periodically analyzes information from the corrective action program and other assessments in the aggregate to identify programmatic and common cause issues.
P.3(c)	The licensee coordinates and communicates results from assessments to affected personnel, and takes corrective actions to address issues commensurate with their significance.	CL.2	Self-Assessment: The organization routinely conducts self-critical and objective assessments of its programs and practices.

NRC	Description	Attribute	Description
S.1(a)	Behaviors and interactions encourage free flow of information related to raising nuclear safety issues, differing professional opinions, and identifying issues in the CAP and through self-assessments. Such behaviors include supervisors responding to employee safety concerns in an open, honest, and non-defensive manner and providing complete, accurate, and forthright information to oversight, audit, and regulatory organizations. Past behaviors, actions, or interactions that may reasonably discourage the raising of such issues are actively mitigated. As a result, personnel freely and openly communicate in a clear manner conditions or behaviors, such as fitness for duty issues that may impact safety, and personnel raise nuclear safety issues without fear of retaliation.	CO.3	Free Flow of Information: Individuals communicate openly and candidly, both up, down, and across the organization, and with oversight, audit, and regulatory organizations.
S.1(b)	If alternative processes (that is, a process for raising concerns or resolving differing professional opinions that are alternates to the licensee's corrective action program or line management) for raising safety concerns or resolving differing professional opinions exists, then they are communicated, accessible, have an option to raise issues in confidence, and are independent, in the sense that the program does not report to line management (that is, those who would in the normal course of activities be responsible for addressing the issue raised).	RC.2	Alternate Process for Raising Concerns: The organization effectively 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.

NRC	Description	Attribute	Description
S.2(a)	All personnel are effectively trained that harassment and retaliation for raising safety concerns is a violation of law and policy and will not be tolerated.	RC.1	SCWE Policy: The organization effectively implements a policy that supports individuals' rights and responsibilities to raise safety concerns and does not tolerate harassment, intimidation, retaliation, or discrimination for doing so.
S.2(b)	Claims of discrimination are investigated consistent with the content of the regulations regarding employee protection and any necessary corrective actions are taken in a timely manner, including actions to mitigate any potential chilling effect on others due to the personnel action under investigation.	RC.1	SCWE Policy: The organization effectively implements a policy that supports individuals' rights and responsibilities to raise safety concerns and does not tolerate harassment, intimidation, retaliation, or discrimination for doing so.
S.2(c)	The potential chilling effects of disciplinary actions and other potentially adverse personnel actions (e.g., reductions, outsourcing, and reorganization) are considered and compensatory actions are taken when appropriate.	LA.3	Incentives, Sanctions, and Rewards: Leaders ensure incentives, sanctions, and rewards are aligned with nuclear safety policies and reinforce behaviors and outcomes that reflect safety as the overriding priority.
N/A		DM.3	Accountability for Decisions: Single-point accountability is maintained for nuclear safety decisions.
N/A		LA.6	Roles, Responsibilities, and Authorities: Leaders clearly define roles, responsibilities, and authorities to ensure nuclear safety.
N/A		LA.7	Constant Examination: Leaders ensure that nuclear safety is constantly scrutinized through a variety of monitoring techniques, including assessments of nuclear safety culture.
N/A		LA.8	Leader Behaviors: Leaders exhibit behaviors that set the standard for safety.

NRC	Description	Attribute	Description
N/A		PA.2	Job Ownership: Individuals understand and demonstrate personal responsibility for the behaviors and work practices that support nuclear safety.
N/A		PA.3	Teamwork: Individuals and work groups communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained.
N/A		QA.1	Nuclear Is Recognized 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 proceeding.
N/A		QA.3	Challenge Assumptions: Individuals challenge assumptions and offer opposing views when they think something is not correct.
N/A		QA.4	Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent problems, or inherent risk, even while expecting successful outcomes.
N/A		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.
N/A		WE.3	High Level of Trust: Trust is fostered among individuals and work groups throughout the organization.
N/A		WE.4	Conflict Resolution: Fair and objective methods are used to resolve conflicts.

Table 7

Traits Attributes 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 emphasize the overriding importance of nuclear safety.			
	PA.1	Standards: Individuals understand the importance of adherence to nuclear standards. All levels of the organization 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 behaviors 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 organizational levels and for all individuals.
	PA.3	Teamwork: Individuals and work groups communicate and coordinate their activities within and across organizational 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 and activities in order to identify discrepancies that might result in error or inappropriate action. All employees are watchful for assumptions, anomalies, values, conditions, or activities that can have an undesirable effect on plant safety.			
	QA.1	Nuclear Is Recognized 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 proceeding.	N/A	

Trait	Attribute	Description	IAEA	Description
	QA.3	Challenge Assumptions: Individuals challenge assumptions and offer opposing views when they think something is not correct.	E.1	A questioning attitude prevails at all organizational levels.
	QA.4	Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent problems, or inherent risk, even while expecting successful outcomes.	N/A	
CO.	Effective Safety Communication – Communications maintain a focus on safety. Safety communication is broad and includes plant-level communication, job-related communication, worker-level communication, equipment labeling, operating experience, and documentation. Leaders use formal and informal communication to convey the importance of safety. The flow of information up the organization is seen as important as the flow of information down the organization.			
	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 organizational 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 organization, and with oversight, audit, and regulatory organizations.	B.8	Management shows a continual effort to strive for openness and good communication throughout the organization.
	CO.4	Expectations: Leaders frequently communicate and reinforce the expectation that nuclear safety is the organization's overriding priority.	N/A	

Trait	Attribute	Description	IAEA	Description
LA.	Leadership Safety Values and Actions – Leaders demonstrate a commitment to safety in their decisions and behaviors. 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 organization set an example for safety. Corporate policies emphasize 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 behaviors 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 delegates responsibility with appropriate authority to enable clear accountabilities to be established.
	LA.7	Constant Examination: Leaders ensure that nuclear safety is constantly scrutinized through a variety of monitoring techniques, including assessments of nuclear safety culture.	N/A	
	LA.8	Leader Behaviors: Leaders exhibit behaviors 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.
	DM.2	Conservative Bias: Individuals use decision-making practices that emphasize 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	

Trait	Attribute	Description	IAEA	Description
WE.	Respectful Work Environment – Trust and respect permeate the organization. A high level of trust is established in the organization, 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 behavior 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 organization.	B.10	Relationships between managers and individuals are built on trust.
			D.1	Trust permeates the organization.
	WE.4	Conflict Resolution: Fair and objective methods are used to resolve conflicts.	B.9	Management has the ability to resolve conflicts as necessary.
CL.	Continuous Learning – Opportunities to learn about ways to ensure safety are 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 organization systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner.	E.4	Organizational and operating experience (both internal and external to the facility) are used.
	CL.2	Self-Assessment: The organization routinely conducts self-critical and objective assessments of its programs and practices.	E.3	Internal and external assessments, including self-assessments, are used.

Trait	Attribute	Description	IAEA	Description
	CL.3	Benchmarking: The organization learns from other organizations to continuously improve knowledge, skills, and safety performance.	N/A	
	CL.4	Training: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.	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 competencies.
PI.	Problem Identification and Resolution – Issues potentially impacting safety are promptly identified, fully evaluated, and promptly addressed and corrected commensurate with their significance. Identification and resolution of a broad spectrum of problems, including organizational issues, are used to strengthen safety and improve performance.			
	PI.1	Identification: The organization implements a corrective action program with a low threshold for identifying issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the program.	E.2	Open reporting of deviations and errors is encouraged.
			E.5	Learning is facilitated through the ability to recognize and diagnose deviations, to formulate and implement solutions and to monitor the effects of corrective actions.
	PI.2	Evaluation: The organization thoroughly evaluates problems to ensure that resolutions address causes and extents of conditions commensurate with their safety significance.	N/A	
	PI.3	Resolution: The organization takes effective corrective actions to address issues in a timely manner, commensurate with their safety significance.	N/A	

Trait	Attribute	Description	IAEA	Description
	PI.4	Trending: The organization periodically analyzes information from the corrective action program and other assessments in the aggregate to identify programmatic and common cause issues.	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.			
	RC.1	SCWE Policy: The organization effectively implements a policy that supports individuals' 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 organization effectively 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 organization is involved in and fully supports the process.			
	WP.1	Work Management: The organization 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.

Trait	Attribute	Description	IAEA	Description
	WP.2	Design Margins: The organization 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, defense-in-depth, and safety-related equipment.	N/A	
	WP.3	Documentation: The organization 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:

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 8

IAEA Safety Culture Attributes to Traits Attributes

IAEA	Description	INPO	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 behaviors 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 behavior 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.
B.4	Leadership skills are systematically developed.	CL.4	Training: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.

IAEA	Description	INPO	Description
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 organization.	CO.3	Free Flow of Information: Individuals communicate openly and candidly, both up, down, and across the organization, and with oversight, audit, and regulatory organizations.
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 organization.
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.
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 organization exercise accountability for shortfalls in meeting standards.
C.4	Management delegates 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.

IAEA	Description	INPO	Description
C.5	'Ownership' for safety is evident at all organizational levels and for all individuals.	PA.2	Job Ownership: Individuals understand and demonstrate personal responsibility for the behaviors and work practices that support nuclear safety.
D.1	Trust permeates the organization.	WE.3	High Level of Trust: Trust is fostered among individuals and work groups throughout the organization.
D.3	The quality of documentation and procedures is good.	WP.3	Documentation: The organization 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 organization 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: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.
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 behaviors and outcomes that reflect safety as the overriding priority.
D.7	Good working conditions exist with regard to time pressures, work load, and stress.	LA.8	Leader Behaviors: Leaders exhibit behaviors 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 organizational 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 organization exercise accountability for shortfalls in meeting standards.

IAEA	Description	INPO	Description
E.1	A questioning attitude prevails at all organizational levels.	QA.3	Challenge Assumptions: Individuals challenge assumptions and offer opposing views when they think something is not correct.
E.2	Open reporting of deviations and errors is encouraged.	PI.1	Identification: The organization implements a corrective action program with a low threshold for identifying issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the program.
E.3	Internal and external assessments, including self-assessments, are used.	CL.2	Self-Assessment: The organization routinely conducts self-critical and objective assessments of its programs and practices.
E.4	Organizational and operating experience (both internal and external to the facility) are used.	CL.1	Operating Experience: The organization systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner.
E.5	Learning is facilitated through the ability to recognize and diagnose deviations, to formulate and implement solutions, and to monitor the effects of corrective actions.	PI.1	Identification: The organization implements a corrective action program with a low threshold for identifying issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the program.
E.6	Safety performance indicators are tracked, trended, evaluated and acted upon.	PI.4	Trending: The organization periodically analyzes information from the corrective action program and other assessments in the aggregate to identify programmatic and common cause issues.
E.7	There is systematic development of individual competencies.	CL.4	Training: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.
N/A		QA.1	Nuclear Is Recognized as Special and Unique: Individuals understand that complex technologies can fail in unpredictable ways.

IAEA	Description	INPO	Description
N/A		QA.2	Challenge the Unknown: Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding.
N/A		QA.4	Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent problems, or 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 organizational decisions are communicated in a timely manner.
N/A		CO.4	Expectations: Leaders frequently communicate and reinforce the expectation that nuclear safety is the organization's overriding priority.
N/A		LA.7	Constant Examination: Leaders ensure that nuclear safety is constantly scrutinized through a variety of monitoring techniques, including assessments of nuclear safety culture.
N/A		DM.2	Conservative Bias: Individuals use decision-making practices that emphasize 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 organization learns from other organizations to continuously improve knowledge, skills, and safety performance.

IAEA	Description	INPO	Description
N/A		PI.2	Evaluation: The organization thoroughly evaluates problems to ensure that resolutions address causes and extents of conditions commensurate with their safety significance.
N/A		PI.3	Resolution: The organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance.
N/A		RC.1	SCWE Policy: The organization effectively implements a policy that supports individuals' 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 organization effectively 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 organization 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, defense-in-depth, and safety-related equipment.
N/A		WP.4	Procedure Adherence: Individuals follow processes, procedures, and work instructions.

NOTE:

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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