Draft Appendix A to LIC-112, "Power Uprate Process"

Graded Approach for Determining Power Uprate Level of Review

This document has not been subject to complete NRC management or legal review, and its contents should not be interpreted as official agency positions. Preliminary draft information is being released to support interactions with internal and external stakeholders to facilitate feedback. This draft, iterative process is scheduled for initial implementation in early 2026 and will be refined over time using lessons learned and best practices.

The purpose of this guidance is to provide the U.S. Nuclear Regulation Commission (NRC) staff with a risk-informed framework for determining the appropriate level of review of power uprate (PUR) license amendment requests. The objective is to enhance the efficiency of technical review to support a finding of reasonable assurance of adequate protection of public health and safety.

The goal to streamline technical reviews is consistent with Executive Order 14300, "Ordering the Reform of the Nuclear Regulatory Commission," Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024 (ADVANCE Act 2024), subsection 505, the NRC's mission statement, and NRC's Principles of Good Regulation.

The guidance is consistent with NRC's NUREG-0800, "Standard Review Plan [SRP] for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition" (ML070630046), which states:

> Because the [NRC] staff's review constitutes an independent audit of the applicant's analysis, the staff may emphasize or de-emphasize particular aspects of an SRP section, as appropriate, for the application being reviewed
>
> ……
>
> In some cases, the staff may propose justification for not performing certain reviews called for by the SRP. These areas of increased or decreased emphasis are acceptable, if the reviewer has management approval and documents the scope and depth of the review in the [safety evaluation].
>
> …….
>
> Risk-insights can also be used in determining the depth of review.

These SRP concepts provide the basis and foundation for the graded approach screening tool. The tool is also consistent with the NRC's Be riskSMART framework which clarifies the definition of risk such that all technical NRC staff can see how their work embodies risk considerations beyond traditional probabilistic risk assessment (PRA)-based risk metrics such as the core damage frequency.

The NRC staff uses the review standard (RS)-001, "Review Standard for Extended Power Uprates," Revision 0 (ML033640024) to identify technical review areas for power uprate safety evaluations. This guidance provides a graded approach to categorize the RS-001 review areas into three bins based on the potential impact of a power uprate on individual review areas. The

three bins help focus review resources on the most safety-significant technical issues that require evaluation. Specifically, the approach considers the impact of a power uprate on the design and licensing basis of the plant, safety-significance of the impact, and the extent to which the safety case is based on the use of appropriate precedent and NRC-approved methods.

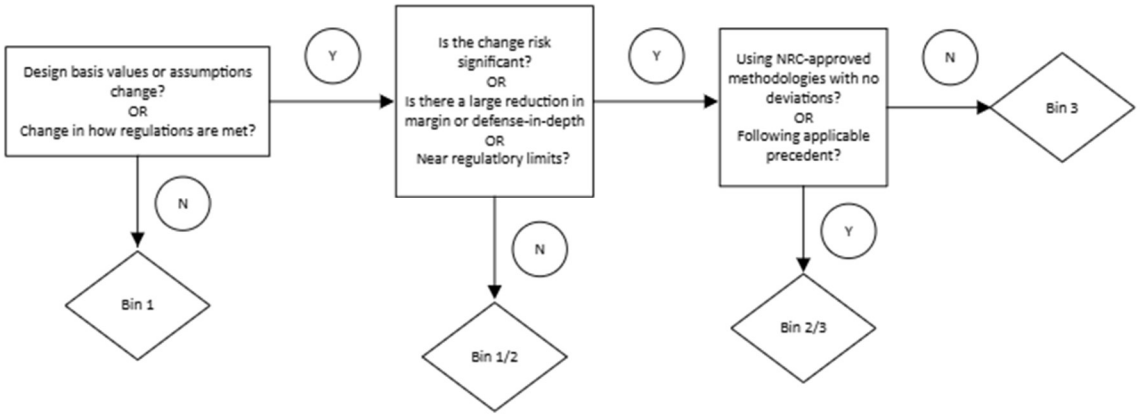
A key element of this framework is the commitment from technical branch chiefs and division directors to assess the scope and depth for each review (e.g., hours) using the risk-informed screening tool described in this guidance and implement appropriate review approaches.

During the acceptance review, the technical reviewer should determine the level of review for their assigned review areas. A screening tool (flowchart), shown in Figure 1, provides a decision-making process to help determine the appropriate level of review (e.g., binning). The framework defines three categories (bins) to grade the expected level of review effort:

> Bin 1 – minimal review (e.g., no Request for Confirmatory Information (RCIs), Request for Additional Information (RAIs), or audits).
>
> Bin 2 – limited review (e.g., may include RCIs but RAIs and audits should be limited).
>
> Bin 3 – comprehensive/detailed review (e.g., may include RCIs, RAIs, audits, confirmatory calculations, or contractor support as appropriate).

Bin categories help inform both the estimated NRC staff hours needed to complete the review and the appropriate review techniques to apply for each review area identified in RS-001. Based on the NRC staff's detailed technical review, an area's bin (level of review effort) may change. The NRC staff uses RS-001 for a range of power uprates (as a percent of currently licensed power).

Figure 1 – Graded approach binning flowchart



The flowchart asks a series of questions to screen review areas into three bins (Bin 1 – minimal review; Bin 2 – limited review; Bin 3 – comprehensive review).

Bin 1 (Minimal Review)

Bin 1 is defined as review areas expected to require minimal NRC staff review effort. This category includes review areas (or systems) that are not affected by the PUR because the PUR is not expected to significantly change the system's design or operation. For these review areas, the PUR will have no significant impact on system performance, operating conditions, or variables.

The reviewer should consider the following questions for Bin 1 determination.

Have design or licensing basis values OR assumptions changed?

The reviewer should focus on whether the proposed PUR affects the plant's licensing or design basis. The reviewer should also consider if any assumptions that support the licensing or design basis in the review area have changed as a result of the PUR.

Is there a significant change in how requirements are met?

The reviewer should determine whether the applicable regulations and regulatory criteria have been properly applied. The licensee should identify the regulatory criteria used to justify the PUR application. The NRC staff may use applicable guidance documents, such as the SRP or any approved review standards, to support their evaluation. The reviewer should note any significant deviations from approved guidance or review standards.

If the proposed PUR does not change the design or licensing basis values, assumptions, or how regulatory requirements are met, the review area should be categorized as Bin 1.

Examples of review areas that may fall into Bin 1 based on application of the screening tool are provided below:

Bin 1 Review Areas (Minimal Review)			**Boiling Water Reactor (BWR)/ Pressurized Water Reactor (PWR)**	**Binning Basis / Comments**
Materials and Chemical Engineering	Protective Coating Systems (Paints) – Organic Materials		BOTH	Experience shows no significant power uprate impacts.
Electrical Engineering	Direct Current (DC) Onsite Power System*		BOTH	Experience shows no significant power uprate impacts.
	Station Blackout*		BOTH	Experience shows no significant power uprate impacts.
Plant Systems	Flooding	Flood Protection	BOTH	Experience shows no significant power uprate impacts.
		Equipment and Floor Drains*	BOTH	
		Circulating Water System*	BOTH	
	Missile Protection	Internally Generating Missiles	BOTH	Experience shows no significant power uprate impacts.
		Turbine Generator	BOTH	
	Pipe Failures		BOTH	Experience shows no significant power uprate impacts.
	Fission Product Control	Fission Product Control Systems and Structures*	BOTH	Experience shows no significant power uprate impacts.
		Main Condenser Evacuation System	BWR	
		Turbine Gland Sealing System	BOTH	
		Main Steam Isolation Valve Leakage Control System	BWR	
	Balance of Plant (BOP) Systems	Main Steam Supply System*	BOTH	Bin 1, if there are no setpoint adjustments or equipment upgrades to accommodate the increased flow.
		Main Condenser*	BOTH	

Bin 1 Review Areas (Minimal Review)			**Boiling Water Reactor (BWR)/ Pressurized Water Reactor (PWR)**	**Binning Basis / Comments**
		Turbine Bypass*	BOTH	Experience shows no significant power uprate impacts. This Bin assignment may not apply if increase flow demand for the condensate and feedwater system necessitate modification to condensate pumps to maintain adequate Net Positive Suction Head (NPSH) to avoid cavitation, or significant modification to feedwater pumps, heaters, and drains to accommodate increased flow demand to match higher steam generation. In these cases, the system may screen into Bin 2.
		Condensate and Feedwater System*	BOTH	
	Component Cooling and Decay Heat Removal	Spent Fuel Pool (SFP) Cooling and Cleanup System	BOTH	Bin 1, if licensee demonstrates that the previous analysis remains bounding or that the offloading process is controlled by procedure.
	Emergency Diesel Engine Fuel Oil Storage and Transfer System*		BOTH	Experience shows no significant power uprate impacts. If load-based calculations were used for calculation of 7-day fuel oil requirements, then this review may move to Bin 2
	Refueling Light Load Handling System		BOTH	Experience shows no significant power uprate impacts.
	Waste Management Systems	Gaseous Waste Management System	BOTH	Bin 1, if there are no Technical Specification (TS) changes related to these systems.
		Liquid Waste Management System	BOTH	
		Solid Waste Management System	BOTH	

Bin 1 Review Areas (Minimal Review)		**Boiling Water Reactor (BWR)/ Pressurized Water Reactor (PWR)**	**Binning Basis / Comments**
Reactor Systems	New Fuel Storage	BOTH	Bin 1, if licensee proposes no increase in enrichment and the impact of PUR conditions on the fuel depletion is bounded by the previously approved analysis.
	Spent Fuel Storage	BOTH	
Source Terms and Radiological Consequences Analyses	Radiological Consequences of Gas Decay Tank Rupture	BOTH	Quantity of material in the gas system is normally limited by TS. Bin 1, if still limited by TS and the TS is not changing.
	Radiological Consequences of Liquid Waste Tank Rupture	BOTH	Quantity of material in the liquid system is normally limited by TS. Bin 1, if still limited by TS and the TS is not changing.
Health Physics – Occupational and Public Radiation Doses		BOTH	Bin 1, if there are no significant changes to the radiation protection program or nearing dose limits.

* Denotes that the review area is risk-amendable, meaning that relevant risk insights—such as cutset results, risk importance measures, risk contributions, or PRA model changes associated with the PUR—can be readily identified. These insights, together with deterministic and operational considerations, can help guide the scope and depth of NRC staff review.

Bin 2 (Limited Review)

Bin 2 is defined as review areas that are affected by a power uprate and require evaluation against NRC regulations but may not have a significant impact on nuclear safety. This category applies to review areas (or systems) where the power uprate may change system design, function, or operating conditions; however, these changes are not expected to exceed the system's design limits (e.g., pressure, temperature, flow). As a result, the impact on plant safety is expected to be minimal.

The reviewer should consider the following questions for Bin 2 determination. These questions are intended to assess the safety-significance of the review area by evaluating factors such as risk significance, proximity to regulatory limits and change in margin and defense-in-depth.

Is the change risk significant?

The NRC staff should use available risk insights to assess whether the affected systems are significant contributors to plant risk.

Division of Risk Assessment (DRA) is responsible for:

- Providing risk insights to technical reviewers. These risk insights may come from information submitted by the licensee or may be developed by NRC staff using the tools identified in Sections 4 and 6 of Appendix C to LIC-206, "Integrated Risk-Informed Decision-Making for Licensing Reviews," Revision 1 (ML19263A645);
- Supporting the technical reviewer's effective use of risk information and tools; and
- Ensuring documentation accurately reflects how risk insights were considered in the NRC staff's decision-making process.

Technical reviewers should use risk insights, when applicable, to help determine the appropriate scope, focus, and depth of their review commensurate with the risk significance of the proposed change. However, while risk insights can help guide the review process, they should not be used as the basis for safety evaluation findings because PUR submittals do not address the five key principles outlined in NRC Regulatory Guide (RG) 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," Revision 3 (ML17317A256).

Near regulatory limit?

The reviewer should emphasize the review on areas of the power uprate application that are near regulatory limits, while placing less emphasis on areas where there is significant margin to those limits. Engineering judgement should be used to determine whether the proposed change is likely to be near the regulatory limits in the technical area being evaluated.

Large reduction in margin?

A large reduction in margin could increase risk by reducing the plant's ability to tolerate uncertainty, equipment degradation, operational challenges, or unforeseen events, and therefore, may warrant increased emphasis in the review — even if the change does not challenge regulatory limits. This consideration aligns with the quality principle that

"change causes problems." The reviewer should use engineering judgment to determine what constitutes a large percentage change in margin for their specific technical area and assess whether the proposed change meets that threshold.

Is there a large reduction in defense-in-depth?

Defense-in-depth is an element of the NRC's safety philosophy that employs successive compensatory measures to prevent accidents or mitigate damage if a malfunction or accident occurs at a nuclear facility. The defense-in-depth philosophy ensures that nuclear safety does not rely on any single aspect of a facility's design, construction, maintenance, or operation. Instead, it provides multiple, independent, and reinforcing layers of protection. As a result, systems or facilities designed with defense-in-depth are generally more tolerant of equipment failures, human errors, and external challenges.

A large reduction in defense-in-depth may cause problems, and therefore, need more emphasis in the review. RG 1.174 provides detailed guidance on the meaning of defense-in-depth and the process for evaluating it. The reviewer should use engineering judgment in the specific technical area under review, to determine whether the change represents a large impact on defense-in-depth. This assessment should be qualitative and consider whether the proposed change significantly reduces defense-in-depth.

If the answers to these questions are "no", the review areas should be categorized as Bin 2 — or possibly Bin 1 if there are other bases that provide confidence that regulatory requirements would be met, such as relevant precedents and prior review experience.

Examples of review areas that may fall into Bin 2 based on application of the screening tool are provided below:

Bin 2 Review Areas (Limited Review)			**BWR/PWR**	**Binning Basis / Comments**
Materials and Chemical Engineering	Reactor Vessel (RV) Material Surveillance Program		BOTH	
	Pressure-Temperature (PT)Limits and Upper-Shelf Energy		BOTH	
	Pressurized Thermal Shock		PWR	
	Reactor (Rx) Internal and Core Support Materials		BOTH	
	Reactor Coolant Pressure Boundary Materials		BOTH	
	Leak-Before-Break		PWR	
	Flow-Accelerated Corrosion		BOTH	
	Steam Generator (SG) Tube Inservice Inspection		PWR	
	SG Blowdown System		PWR	
	Chemical and Volume Control System*		PWR	
	Reactor Water Cleanup System*		BWR	
Mechanical and Civil Engineering	Pipe Rupture Location and Dynamic Effects*		BOTH	Attributes supporting Bin 2: 1) Standard review plan (SRP) 3.6.1 and SRP 3.6.2 and Branch Technical Position (BTP) 3-3 and 3-4 are used to meet General Design Criteria (GDC) 4 requirements 2) All analysis and engineering changes must be complete (no work in progress and no unverified assumptions) 3) No nonconforming/degraded conditions exist at the time of NRC review.
	Pressure-Retaining	Nuclear Steam Supply Piping, Components, and Supports*	BOTH	Attributes supporting Bin 2:

Bin 2 Review Areas (Limited Review)			BWR/PWR	Binning Basis / Comments
	Components and Components Supports*	Balance-of-Plant Piping, Components, and Supports*	BOTH	(1) Use of NRC-approved methods (seismic, loss of coolant accident (LOCA), etc.); (2) Use of NRC approved codes/standards (American Society of Mechanical Engineers (ASME) Section III Division 1, ASME Operation and Maintenance (OM), etc.) (3) Applicable time-limited aging analyses have been addressed for Extended Power Uprate (EPU) impact (4) Technical and regulatory bases consistent with previously reviewed and approved power uprates. (5) All analysis and engineering changes must be complete (no work in progress and no unverified assumptions) and (6) No nonconforming/degraded conditions exist at the time of NRC review
		Reactor Vessel and Supports	BOTH	
		Control Rod Drive Mechanism*	BOTH	
		Reactor Coolant Pumps (PWR) Recirculation Pumps (BWR) and Support*	BOTH	
		Steam Generators and Supports*	PWR	
	Reactor Pressure Vessel Internals and Core Supports		BOTH	
	Safety-Related Valves and Pumps*		BOTH	
	Seismic and Dynamic Qualification of Mechanical and Electrical Equipment*		BOTH	
Electrical Engineering	Environmental Qualification (EQ) of Electrical Equipment*		BOTH	Bin 2, based on evaluation of potential changes in harsh environments due to PUR
	Offsite Power System*		BOTH	Bin 2, based on the evaluation of grid reliability and coordination with grid coordinator due to PUR.
	Alternating Current (AC) Onsite Power System*		BOTH	Bin 2, based on the evaluation of large transformers and other AC equipment due to PUR.
Instrumentation and Controls (I&C) – Reactor Protection, Safety Features Actuation, and Control Systems*			BOTH	

Bin 2 Review Areas (Limited Review)			BWR/PWR	Binning Basis / Comments
Plant Systems	Pressurizer Relief Tank		PWR	Bin 2, if margin is available to over pressurization following postulated transient and accident conditions. Otherwise, potentially Bin 3.
	Fire Protection*		BOTH	Bin 2, if power uprate impacts available time for operator actions or water supplies. Otherwise, potentially Bin 1.
	Component Cooling and Decay Heat Removal*	Station Service Water System	BOTH	Bin 2, due to additional heat loads at power uprate conditions, and the potential requirement for modifications to Service Water (SW), Closed Cooling Water (CCW), and Ultimate Heat Sink (UHS) systems to ensure they maintain their safety function with margin at the uprated power level. Modifications to these system SSCs would require review. Available water inventories for the Auxiliary Feedwater (AFW) and UHS would also require review.
		Reactor Auxiliary Cooling Water System	BOTH	
		Ultimate Heat Sink	BOTH	
		Auxiliary Feedwater	PWR	
Containment Review	Combustible Gas Control in Containment*		BOTH	
Secondary Containment Functional Design			BWR	
Habitability, Filtration, and Ventilation	Control Room (CR) Habitability System*		BOTH	Increased radiological source term effects CR doses and filter loading.
	Engineered Safety Feature Atmosphere Cleanup*		BOTH	
	Control Room Area Ventilation System*		BOTH	
	Spent Fuel Pool Area Ventilation System		BOTH	
	Auxiliary and Radwaste Areas and Turbine Area Ventilation Systems*		BOTH	
	Engineered Safety Feature Ventilation System*		BOTH	
	Containment Ventilation*		BOTH	
Reactor Systems	Emergency Systems	Functional Design of Control Road Drive System*	BOTH	
		Overpressure Protection During Power Operation*	BOTH	Bin 2, if licensee applies NRC-approved safety analysis methods within the range

Bin 2 Review Areas (Limited Review)				BWR/PWR	Binning Basis / Comments
			Overpressure Protection During Low Temp Operation	PWR	of applicability, proposes no significant deviations, and satisfies all applicable limitations and conditions. Otherwise, potentially Bin 3.
			Residual Heat Removal (RHR) System*	BOTH	Bin 2, if licensee shows no significant power uprate impacts (e.g., no hardware design changes). Otherwise, potentially Bin 3.
			Standby Liquid Control System*	BWR	
			Reactor Core Isolating Cooling (RCIC) System*	BWR	
	Fuel System Design			BOTH	Bin 2, if licensee applies NRC-approved safety analysis methods within the range of applicability, proposes no significant deviations, and satisfies all applicable limitations and conditions. Thermal and Hydraulic Design includes evaluation of Maximum Extended Load Line Limit Analysis Plus (MELLLA+) impacts on thermal-hydraulic stability for BWRs.
	Nuclear Design			BOTH	
	Thermal and Hydraulic Design			BOTH	
	Accident and Transient Analysis*	Increase in Heat Removal by the Secondary System	Decrease in Feedwater (FW) Temp, Increase in FW Flow, Increase in Steam Flow, and Inadvertent Opening of SG Relief [for PWR] or Main Steam Relief [BWR] or Safety Valve	BOTH	Bin 2, if licensee applies NRC-approved safety analysis methods within the range of applicability, proposes no significant deviations, and satisfies all applicable limitations and conditions. Bin 2, if limiting events in this category are analyzed on a cycle-specific basis or bounded by other analyses. Decrease in heat removal by secondary system may be Bin 3, if the analysis
			Steam System Piping Failures Inside and Outside Containment	PWR	
		Decrease in Heat Removal by	Loss of External Load, Turbine Trip, Loss of Condenser Vacuum, and	BOTH	

Bin 2 Review Areas (Limited Review)				BWR/PWR	Binning Basis / Comments
		the Secondary System	Steam Pressure Regulatory Failure		shows pressurizer becomes water-solid during the event.
			Loss of Nonemergency AC Power to the Station Auxiliaries	BOTH	
			Loss of Normal FW Flow	BOTH	
			FW System Pipe Breaks Inside and Outside Containment	BOTH	
		Decrease in Reactor Coolant System Flow	Loss of Forced Reactor Coolant Flow	BOTH	
			RCP Rotor Seizure and RCP Shaft Break	BOTH	
		Reactivity and Power Distribution Anomalies	Uncontrolled Control Rod Assembly Withdrawal from a Subcritical or Low Power Startup Condition	BOTH	
			Uncontrolled Control Rod Assembly Withdrawal at Power	BOTH	
			Control Rod Misoperation	PWR	
			Startup of an Inactive Loop at an Incorrect Temperature and Flow Controller Malfunction	BOTH	
			Chemical and Volume Control System Malfunction that Results in a decrease in Boron Concentration in the Reactor Coolant	PWR	
			Spectrum of Rod Ejection Accidents	PWR	
			Spectrum of Rod Drop Accidents	BWR	

Bin 2 Review Areas (Limited Review)				BWR/PWR	Binning Basis / Comments
		Inadvertent Operation of Emergency Core Cooling System (ECCS) and Chemical and Volume Control System Malfunction that Increases Reactor Coolant Inventory		BOTH	
		Decrease in Reactor Coolant Inventory	Inadvertent Opening of a PWR Pressurizer Pressure Relief Valve or a BWR Pressure Relief Valve	BOTH	
			SG Tube Rupture	PWR	
			Emergency Core Cooling System and Loss-of-Coolant Accidents	BOTH	Bin 2, if all of the following apply: (1) Licensee applies NRC-approved safety analysis methods within the range of applicability, proposes no significant deviations, and satisfies all applicable limitations and conditions. (2) (for BWRs) Maintains maximum rod-average burnup limit of 62 Gigawatt-days per Metric Ton of Uranium (GWD/MTU) and is operated in a manner consistent with current BWR core design and operational strategies. Otherwise, potentially Bin 3.
Source Terms and Radiological Consequences Analyses	Radiological Consequences of Main Steamline Failures Outside Containment			BOTH	Bin 2, if all of the following apply: (1) There is no source term methodology change; (2) There is no significant change to the design features that are credited or assumptions made in the dose calculations;
	Radiological Consequences of a Reactor Coolant Pumo (RCP) Locked Rotor			BOTH	
	Radiological Consequences of a Control Rod Ejection Accident			BOTH	
	Radiological Consequences of a Failure of Small Lines Carrying Primary Coolant Outside Containment			BOTH	
	Radiological Consequences of SG Tube Rupture			PWR	

Bin 2 Review Areas (Limited Review)		BWR/PWR	Binning Basis / Comments
	Radiological Consequences of Design Basis LOCA	BOTH	(3) The majority of the Design Basis Accidents (DBAs) can be handled by the Title 10 of the *Federal Code of Regulations*, Section 50.59 (10 CFR 50.59) process; (4) A large margin remains to the dose acceptance criteria; Otherwise, Bin 3. Bin 3, if bundling with source term methodology change.
	Radiological Consequences of Fuel Handling Accidents	BOTH	
	Radiological Consequences of Spent Fuel Cask Drop Accidents	BOTH	
	Steam Releases from Intact SG for Locked Rotor and Main Stream Line Break (MSLB) Radiological Dose Analysis	PWR	
	Source Terms for Radwaste Systems Analyses	BOTH	
	Radiological Consequences Analyses Using Alternative Source Terms	BOTH	
Human Factors	Changes to Emergency and Abnormal Procedures*	BOTH	
	Changes to Operator Actions Sensitive to Power Uprate*	BOTH	Bin 2, if one or all of the following apply to operator actions related to normal, transient, accident and special events: (1) The time available for operator actions has changed* (2) Creation of new operator actions. (3) Deletion of existing operator actions. (4) Operator actions have been automated. * NRC human factors staff should work with PRA analysts because there is the potential risk increase associated with implementing a power uprate due to increased heat loads at higher powers and the resulting reductions in the times available to perform specific accident response actions.
	Changes to Control Room Control, Displays, and Alarms*	BOTH	
	Changes to the Safety Parameter Display System*	BOTH	

Bin 2 Review Areas (Limited Review)		BWR/PWR	Binning Basis / Comments
	Changes to the Control Room Plant Reference Simulator and Operator Training*	BOTH	The licensee should address the revision of existing plant operating procedures related to the temporary operation above full-steady-stated licensed power level.
Power Ascension and Testing Plan		BOTH	
Risk Evaluation of EPU*		BOTH	
Steam Dryer Structural Integrity		BWR	Attributes supporting Bin 2: Note the list shown below is not an all-inclusive list of steam dryer design considerations. Licensee should follow a technical and regulatory basis consistent with previously reviewed and approved steam dryer designs (1) Use of endorsed NRC guidance (e.g., RG 1.20, Revision 3) (2) Power Ascension Test Plan consistent with NRC guidance (3) Comprehensive Vibration Assessment Program consistent with NRC guidance (4) Minimum Alternating Stress Ratio of 2.0 (5) Structural integrity evaluated to ASME Section III. Subsection NG (Core Support Structures) for normal, upset, emergency and faulted plant specific load combinations (6) Steam dryer material resistant to intergranular stress corrosion cracking and high cycle fatigue (7) Visual inspections of steam dryer consistent with industry guidance

Bin 2 Review Areas (Limited Review)	BWR/PWR	Binning Basis / Comments
		(8) Long-term steam dryer inspection plan based on industry operating experience along with the baseline inspection results The review of license conditions associated with potential adverse flow effects is outside the scope of RS-001.

* Denotes that the review area is risk-amendable, meaning that relevant risk insights—such as cutset results, risk importance measures, risk contributions, or PRA model changes associated with the PUR—can be readily identified. These insights, together with deterministic and operational considerations, can help guide the scope and depth of NRC staff review.

Note “supports” includes safety-related snubbers.

Bin 3 (comprehensive/detailed review)

Bin 3 is defined as review areas directly affected by the power uprate that warrant a detailed review by the NRC staff. This category includes review areas (or systems) that did not screen into Bins 1 or 2 based on the established criteria. Review areas in Bin 3 typically involve significant changes in system design, analyses, or operation; large reduction in margin or defense-in-depth, or otherwise challenge regulatory limits; risk-significant changes; or deviations from NRC-approved methodologies.

However, before assigning a review area to Bin 3, the NRC staff should consider whether a detailed Bin 3 review is truly necessary, given the extensive precedent from past power uprate reviews the proposed power increase or associated changes fall within established operating experience and use NRC-approved methods and approaches, a Bin 2 review may still be appropriate. The reviewer should consider the following questions for Bin 3 determination.

Using NRC-Approved methodologies with No deviations?

The reviewer should emphasize the review on areas of the application that apply new or novel approaches to support the power uprate. This may include the use of codes or methods outside their approved limitations and conditions, or deviations from approved regulatory guidance, methodologies, or acceptance criteria.

Changes based on new or novel approaches, or those that deviate from approved methods, will likely require a Bin 3 review.

“Approved Precedent?” AND “Follows Precedent?”

Precedent PUR licensing actions refer to previously completed reviews involving similar proposed changes supported by a comparable regulatory basis.

The reviewer should confirm that any cited precedents are applicable and used appropriately. While a previous approval precedent does not, by itself, justify a proposed change, it can support the review process by allowing the technical NRC staff to leverage information from similar, previously approved reviews. Although the licensee is not required to cite a precedent, the technical NRC staff should remain cognizant of relevant past licensing actions and applicable regulatory information.

Past precedents should be considered to determine the level of emphasis for identified review areas. Section 4.2, “Use of Precedent and References to Topical Reports” in NRC Office of Nuclear Reactor Regulation (NRR) Office Instruction LIC-101, “License Amendment Review Procedures,” Revision 6 (ML19248A539), provides additional information regarding the use of precedent.

Examples of review areas that may fall into Bin 3 based on application of the screening tool are provided below:

Bin 3 Review Areas (Comprehensive or Detailed Review)			**PWR/BWR**	**Binning Basis / Comments**
Containment Review	Primary Containment Functional Design		BOTH	These areas may be Bin 2 if licensee uses approved/accepted methodologies without changes in inputs and assumptions not related to PUR. Includes evaluation of MELLLA+ impacts on containment for BWRs.
	Subcompartment Analyses		BOTH	
	Mass and Energy Release – Postulated-LOCA		BOTH	
	Pressure Analysis for ECCS Performance Capability		BOTH	
	Mass and Energy release – secondary pipe ruptures		PWR	
	Containment heat removal*		BOTH	This item may be Bin 2 if RG 1.82, Rev 5 is followed on the use of Containment Accident Pressure (CAP) for NPSH analysis. Includes evaluation of MELLLA+ impacts on containment for BWRs.
Reactor Systems	Accident and Transient Analysis	Anticipated Transients without Scrams (AWTS)	BOTH	May be Bin 2 if the following apply: Sufficient margin to acceptance criteria; applies NRC-approved safety analysis methods within the range of applicability, with no deviations; satisfies all applicable limitations and conditions, as applicable. Includes evaluation of MELLLA+ impacts on ATWS and ATWS instability for BWRs.

* Denotes that the review area is risk-amendable, meaning that relevant risk insights—such as cutset results, risk importance measures, risk contributions, or PRA model changes associated with the PUR—can be readily identified. These insights, together with deterministic and operational considerations, can help guide the scope and depth of NRC staff review.