NRC Advanced Reactor Construction Oversight Process (ARCOP)

Stakeholder Workshop Series

Workshop #4

Introduction and Guidelines

Planned Workshop Sessions
(Meeting Summary ML)

Session 1, February 28 and March 20, 2024:
Introduction to NRC Advanced Reactor Construction Oversight, and the ARCOP Framework.
(ML24078A063)

Session 2, April 3, 2024:
Inspection Scoping
(ML24123A214)

Session 3, May 22, 2024:
Enforcement and SDP
(ML24177A120)

Session 4, July 17, 2024:
Assessment
Tabletop Summary
Feedback/Wrap Up

Workshop #4 Agenda

Assessment Key Proposals

Tabletop Exercise Summary

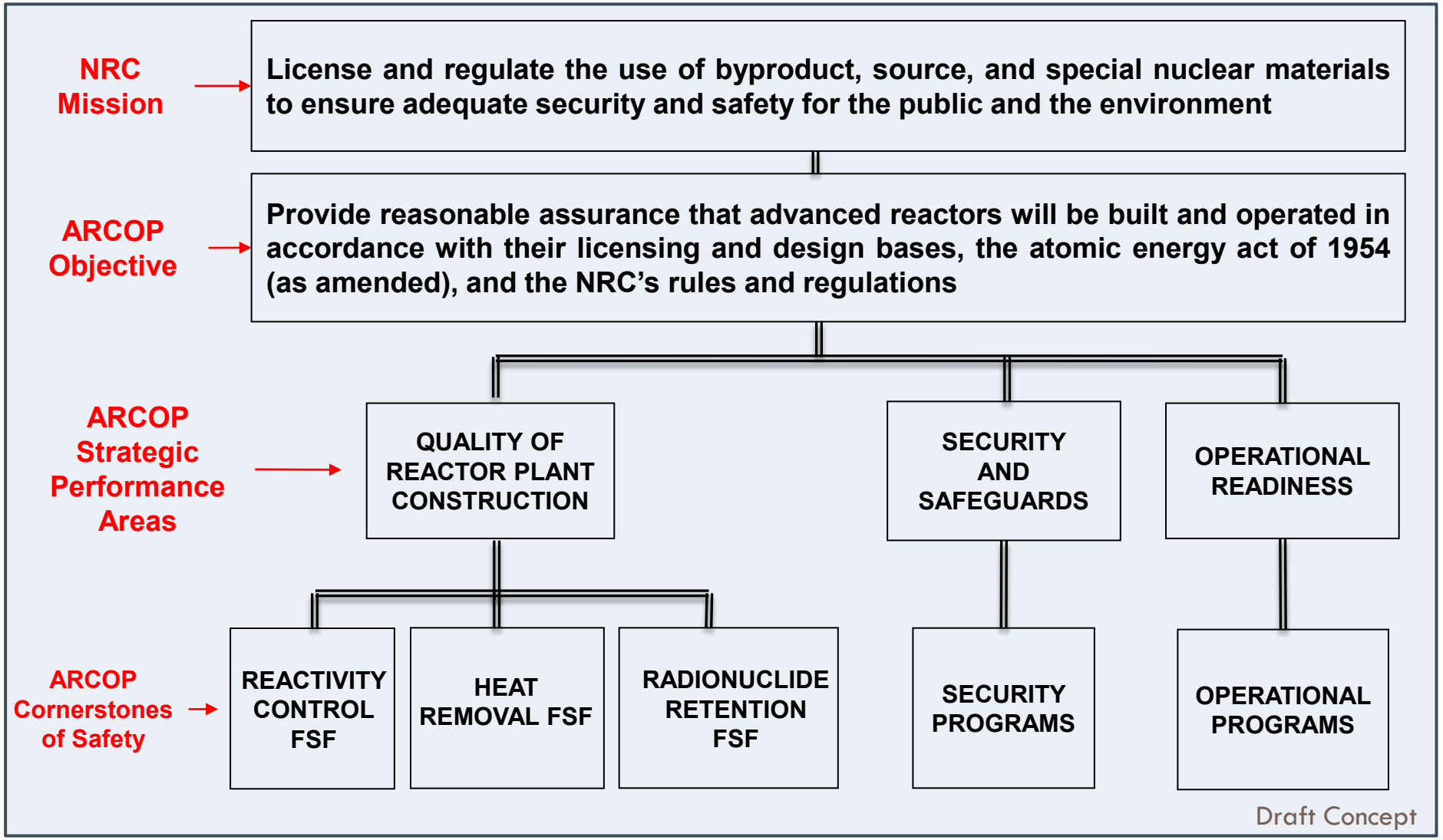
Workshops 1-3 Follow-up Topics

Purpose and Desired Outcome

- Discuss the objectives & conceptual framework for the Advanced Reactor Construction Oversight Process (ARCOP).
- Initiate dialogue with stakeholders including the public about the ARCOP options.
- Gain perspectives on the various ARCOP options being considered.

NRC guidance discussions are preliminary and are not meant to convey a final regulatory position.

Conceptual ARCOP Framework



Construction Assessment Objectives

1. To arrive at an objective assessment of a licensee's/permit holder's/manufacturer's effectiveness in assuring quality by:
   - Continuously assessing inspection results and adjusting the inspection program, as necessary; and
   - Adjusting, as appropriate, the scope of the inspection program for subsequent N^{th} of-a-kind reactors/reactor plants.

   This is intended to support a decision to issue an operating license pursuant to 10 CFR 50.57 or to allow operations to commence in accordance with 10 CFR 52.103(g).

Construction Assessment Objectives (continued)

2. To provide guidance for making timely decisions regarding appropriate agency actions in a predictable, scrutable, and repeatable manner.

3. To communicate the staff's assessments of the manufacturing and construction quality of the reactor plant to stakeholders and interested members of the public.

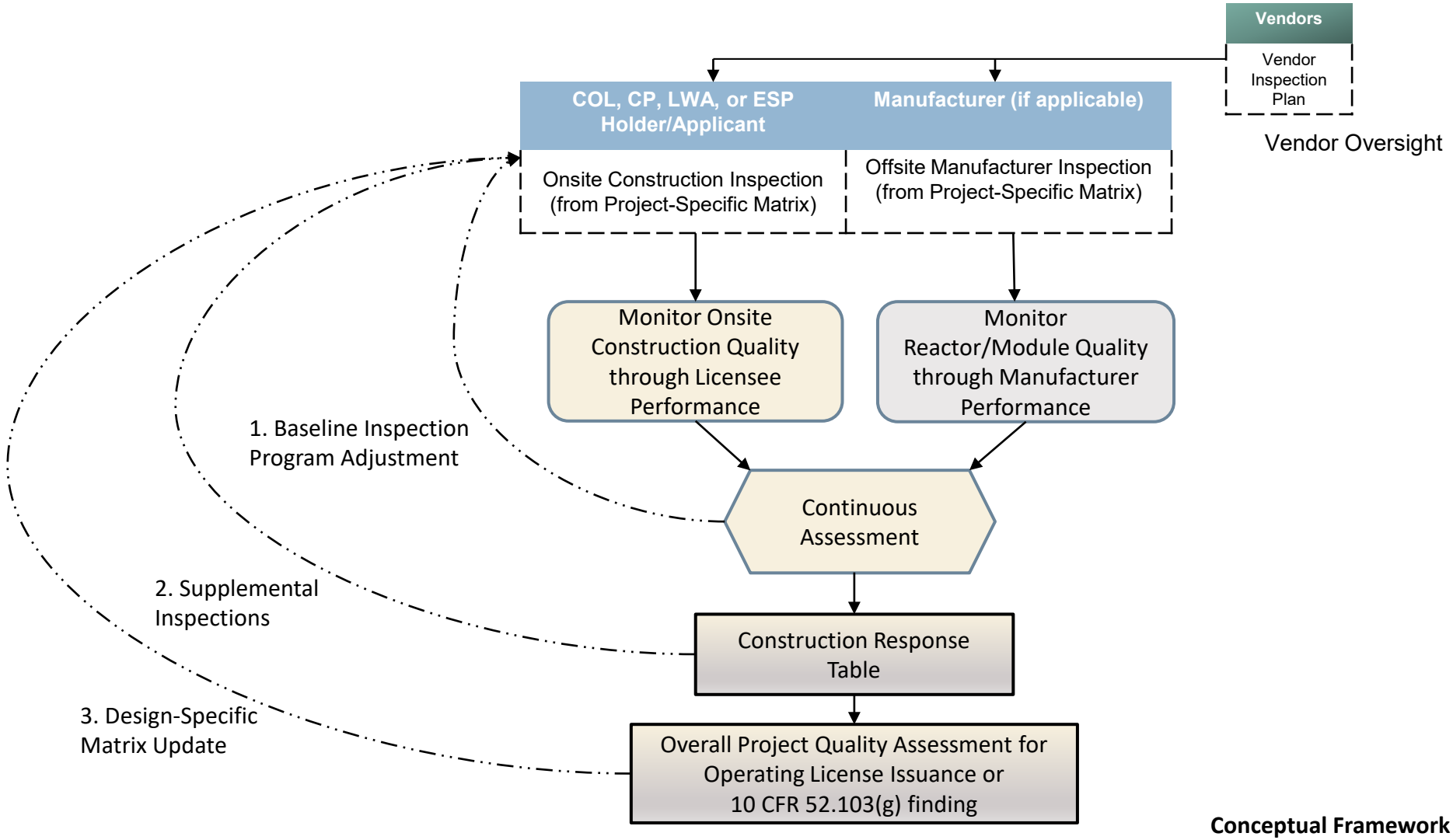
Assessment Process

- The Reactor Oversight Process (ROP) is cyclical and runs on an annual basis culminating with the End-of-Cycle (EOC) assessment.
- Construction is linear in that it has a beginning and end. Under ARCOP, assessments in each inspection area will be performed on a continuous basis.
- Inspection reports will provide brief assessment statements for the inspection areas inspected.
- ARCOP proposes to replace EOC letters and EOC public meetings with an annual report on the state of manufacturing and construction.

Assessment Process (Cont'd)

- Public engagements will continue to occur on periodic and as-needed basis.
- The annual report will support the Agency Action Review Meeting (AARM).

ARCOP Assessment Road Map



Conceptual Framework

ARCOP Assessment Feedback Mechanisms

1. Baseline Inspection Program Adjustments

2. Supplemental Inspections of Risk-Significant Inspection Issues

3. Design-Specific Inspection Scoping Matrix Update

Proposed Options for Feedback Mechanism #2 (Supplemental Inspections)

A. Traditional Action Matrix concept for each project (combines manufacturers and applicants/licensees).

B. Traditional Action Matrix concept for each manufacturer and licensee/applicant (separately).

C. Construction Response Table describes licensee and NRC response to specific finding types and significance.

Construction Action Matrix Concept

		Licensee Response Column (Column 1)	Regulatory Response Column (Column 2)	Degraded Performance Column (Column 3)	Multiple/ Repetitive Degraded Cornerstone Column (Column 4)	Unacceptable Performance Column (Column 5)
RESULTS		All Inspection Findings Green; Cornerstone Objectives Fully Met	One or Two White Findings in a strategic performance area; Cornerstone objectives met with minimal degradation in safety performance	One degraded cornerstone (3 white findings or 1 yellow finding) or any 3 white findings in a strategic performance area; Cornerstone objectives met with moderate degradation in safety performance	Repetitive degraded cornerstone, multiple degraded cornerstones, multiple yellow findings, or 1 red finding; Cornerstone objectives met with longstanding issues or significant degradation in safety performance	Overall unacceptable performance; Construction suspended in the area of concern
RESPONSE	Regulatory Performance Meeting	None	Branch Chief (BC) or Division Director (DD) Meet with Licensee	RA/DRA (or Designee) Meet with Senior Licensee Management.	Office of the Executive Director for Operations (EDO)/Deputy Executive Directors for Operations (DEDO) (or Designee) meet with Senior Licensee Management	EDO/DEDO (or Designee) Meet with Senior Licensee Management
	Licensee Action	Licensee Corrective Action	Licensee Root cause Evaluation and corrective action with U.S. Nuclear Regulatory Commission (NRC) Oversight	Licensee cumulative root cause evaluation with NRC Oversight	Licensee Performance Improvement Plan with NRC Oversight	Licensee Performance Improvement Plan / Construction Restart Plan with NRC Oversight
	NRC Inspection	Risk-Informed Baseline Inspection Program	Baseline and supplemental Inspection Procedure 90001	Baseline and supplemental Inspection Procedure 90002	Baseline and supplemental Inspection Procedure 90003	Baseline and Supplemental as Practicable, Plus Special Inspections per Construction Restart Checklist.
	Regulatory Actions[1]	None	Supplemental inspection only	Supplemental inspection only Plant discussed at Agency Action Review Meeting (AARM) if conditions met	-10 CFR 2.204 Demand for Information -10 CFR 50.54(f) Letter - CAL/Order Plant discussed at AARM	Order to Modify, Suspend, or Revoke Licensed Activities Plant discussed at AARM
COMMUNICATION	Assessment Letters	BC or DD review/sign assessment letter (w/ inspection plan)	DD review/sign assessment letter (w/ inspection plan)	DRA review/sign assessment letter (w/ inspection plan)	RA review/sign assessment letter (w/ inspection plan)	RA review/sign assessment letter (w/ inspection plan)
	Public Stakeholders	Various public stakeholder options (see section 12) involving the Senior Resident Inspector or BC	Various public stakeholder options (see Section 12) involving the BC or DD	RA/DRA (or Designee) Discuss Performance with Senior Licensee Management	EDO/DEDO (or Designee) Discuss Performance with Senior Licensee Management	EDO/DEDO (or Designee) Discuss Performance with Senior Licensee Management
	External Stakeholders[2]	None	State Governors	State Governors, DHS, Congress	State Governors, DHS, Congress	State Governors, DHS, Congress
	Commission Involvement	None	None	Possible Commission Meeting if Licensee Remains for 1½ years	Commission Meeting with Senior Licensee Management Within 6 mo.[3]	Commission Meeting with Senior Licensee Management
	INCREASING SAFETY SIGNIFICANCE→					

Conceptual Framework

Construction Response Table

RESULTS		GREEN INSPECTION FINDING	WHITE INSPECTION FINDING	YELLOW INSPECTION FINDING	UNACCEPTABLE QUALITY* *see IMC for guidance
RESPONSE APPLIED TO EACH LICENSEE OR NON-LICENSEE FINDING	Regulatory Engagement Meeting	None	Branch Chief (BC) or Division Director (DD)	Regional Administrator or designee meet with senior management	Executive Director for Operations or designee meet with senior management
	Enforcement Action Recipient Response	Corrective Action Program	Causal evaluation and corrective actions	Causal evaluation and corrective actions	Performance Improvement Plan with NRC Oversight.
	NRC Inspection	Baseline Inspection	Supplemental Inspection and evaluation for additional baseline inspection(s) in area(s) of concern.	Supplemental Inspection and evaluation for additional baseline inspection(s) in area(s) of concern.	Possible Order/ Confirmatory Action Letter. Supplemental team inspection(s). Evaluation for expanded baseline inspections.
COMMS	Inspection Report or Letter	Branch Chief review/sign inspection report. IR posted on public website.	DD review/sign inspection report (w/ inspection plan). IR posted on public website.	RA review/sign inspection report (w/ inspection plan). IR posted on public website.	RA or EDO review/sign assessment letter (w/ inspection plan). Letter posted on public website. Consider public meeting.

Option Requiring Further Development

Option C: Construction Response Table

- Relatively simpler to understand and implement.
- Does not comingle licensee and non-licensee, or manufacturer and on-site inspection findings.
- Eliminates the need to have quarterly, semi-annual, or annual assessment periods to determine the proper NRC response.
- Focuses on the significance of the issue with appropriately scaled response.

Questions/Break

Workshop #4, Part 2

Summary
Workshop #3
Tabletop Exercise
(ML24177A120)

In-person Participant Handout ADAMS Accession No.: ML24163A042
In-person NRC facilitator handout ADAMS Accession No.: ML24163A041

Tabletop Exercise Summary

The staff noted the following during the exercises:

- The unique designs and deployment models will require knowledgeable trained inspectors to ensure that issues are dispositioned consistent with the NRC's principles of good regulation.
- While the current fleet of operating reactor licensees is well versed in how inspectors disposition issues, new vendors and licensees would benefit from additional workshops and training to solidify their knowledge and familiarity of the process.
- Inspector training and guidance is needed to understand the Part 50 licensing process and how it will impact inspection planning and issue disposition.
- Inspector guidance is needed on crediting design features in fulfillment of fundamental safety functions when assessing the risk significance of issues, particularly for those features that are not subject to construction inspection, like fuel design features.

NRC Follow-Up on Stakeholder Feedback from Previous Workshops

Questions

Questions/Comments - General

- How will the FSFs be used in ARCOP and how does this relate to SSC classification in the license application?
- What are the meanings of the words “construction,” “manufacturer,” and “vendor” in the ARCOP lexicon?
- Can performance indicators be used in ARCOP?
- Do you plan to interface with other countries to increase efficiency? How?

Questions/Comments - Inspection

- What is the difference between a Design vs Project-specific inspection scoping matrix? How will the licensee be engaged during matrix development?
- How are inspection areas determined and how will non-safety related systems be scoped into construction inspection?
- How are Risk Importance measures for Design and Construction determined and how will they be used for inspection scoping?
- How will ARCOP adjust the inspection scope when changes are made to the design or PRA during part 50 construction?

Questions/Comments – Inspection (continued)

- How is the PSAR/CP application used for construction inspection when design is not final (Part 50)?
- How will NRC management control (i.e., programmatic control) the scope of inspections?
- How will the NRC prevent inspection scope creep into the nuclear supply chain?

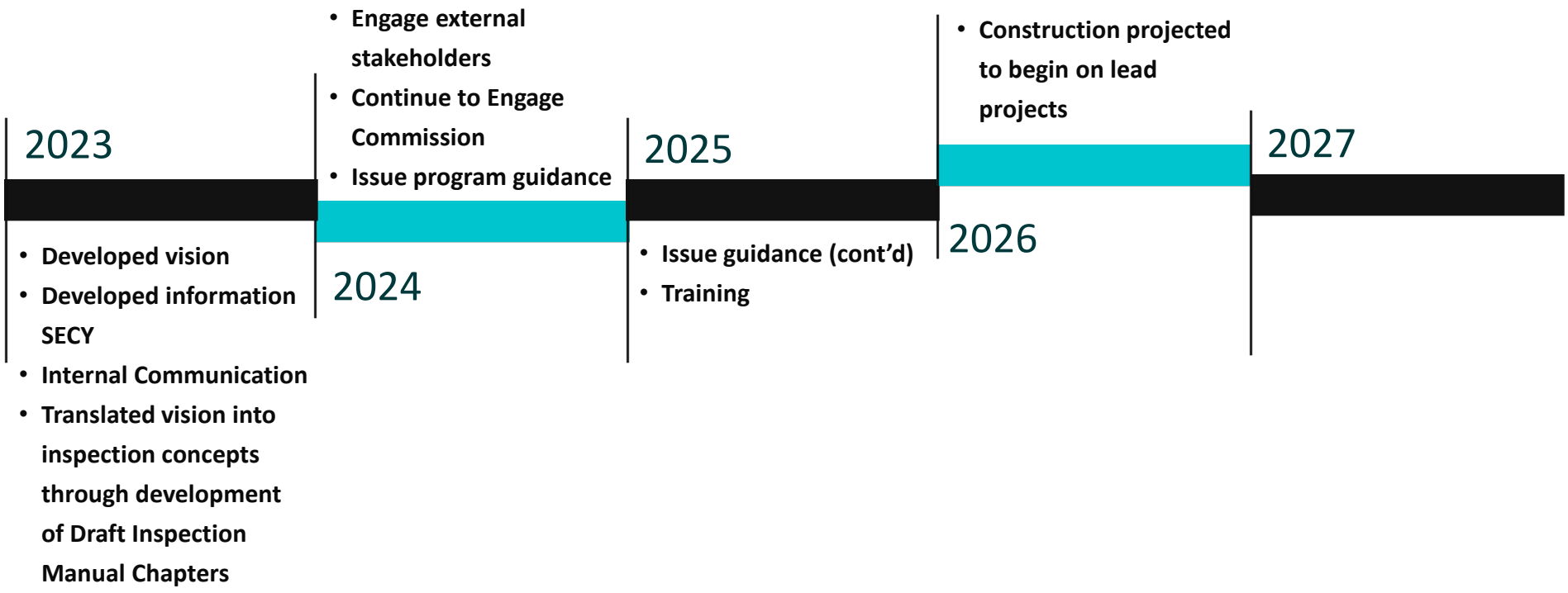
Questions/Comments - Dispositioning Issues

- Will manufacturers and constructers be “given a chance” to identify noncompliances before we use enforcement? (i.e., in-situ work findings.)
- How are “design features” credited in the SDP?
- How will radionuclide retention FSF be assessed?
- For the SDP, instead of using loss of “1”, “2” systems for an FSF, use “single”, “multiple” because not all designs have more than a specific # of systems.

Questions/Comments - Dispositioning Issues (continued)

- The term “trains” may not be applicable for some designs. Consistent/technology-inclusive language should be used.
- Need to define substantial corrective action as it is applied to some screening questions.
- ARCOP SDP should not result in a higher significance level than if the issue were to occur during operations under the ROP.

ARCOP Development Timeline



NRC on Social Media

Twitter: https://twitter.com/nrcgov

Facebook: https://www.facebook.com/nrcgov/

Instagram: https://www.instagram.com/nrcgov/

YouTube: https://www.youtube.com/user/NRCgov

Flickr: https://www.flickr.com/photos/nrcgov/sets

LinkedIn: https://www.linkedin.com/company/u-s--nuclear-regulatory-commission/

GovDelivery: https://service.govdelivery.com/accounts/USNRC/subscriber/new

Feedback on this Public Meeting

https://feedback.nrc.gov/pmfs/feedback/form?meetingcode=20240894

Acronyms

ARCOP	Advanced Reactor Construction Oversight Program
COL	Combined Operating License
ConE	Construction Experience
CP	Construction Permit
ESP	Early Site Permit
FSF	Fundamental Safety Function
ITAAC	Inspection, Test, Analysis, and Acceptance Criteria
LWA	Limited Work Authorization
ML	Manufacturing License
NCV	Non-cited Violation
NON	Notice of Nonconformance
NOV	Notice of Violation
OpE	Operating Experience
QAP	Quality Assurance Program
RAW	Risk Achievement Worth
SCN	Self Identified Construction Noncompliance
SDP	Significance Determination Process
SSC	Structure, System, or Component