

# Risk Informing Subsequent License Renewal (RISLR): NEI proposed Revisions

June 2, 2022



# Purpose

To communicate staff's initial thoughts of two NEI-proposed risk-informed AMP revisions for:

- XI.M33 “Selective Leaching”
- XI.E3 “Inaccessible Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements”

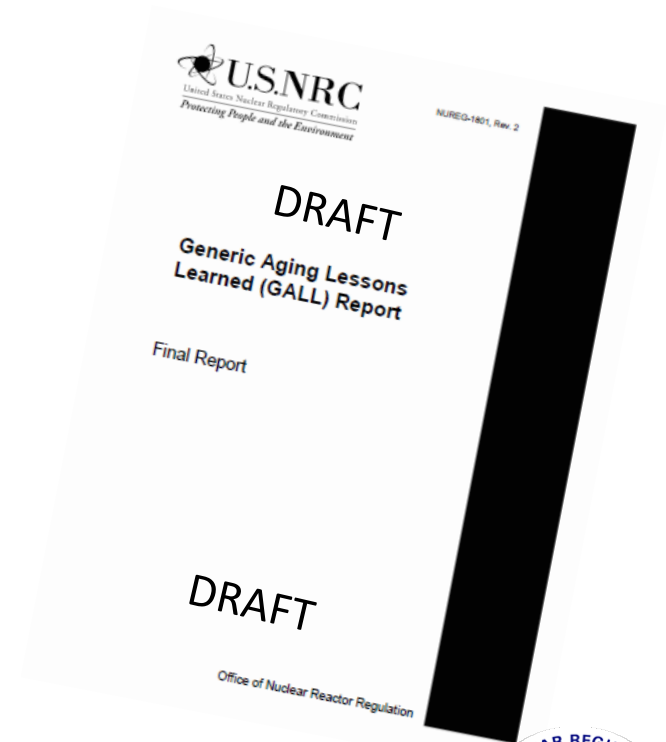
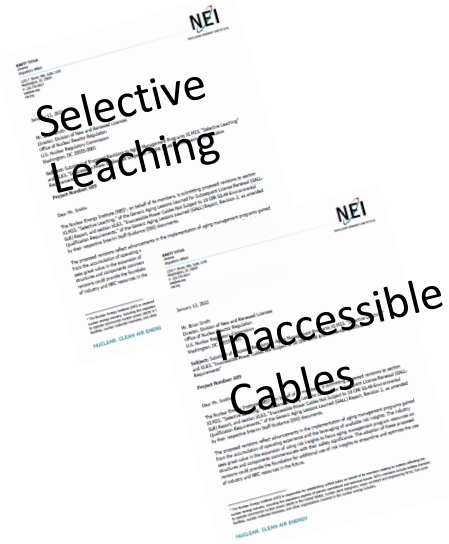
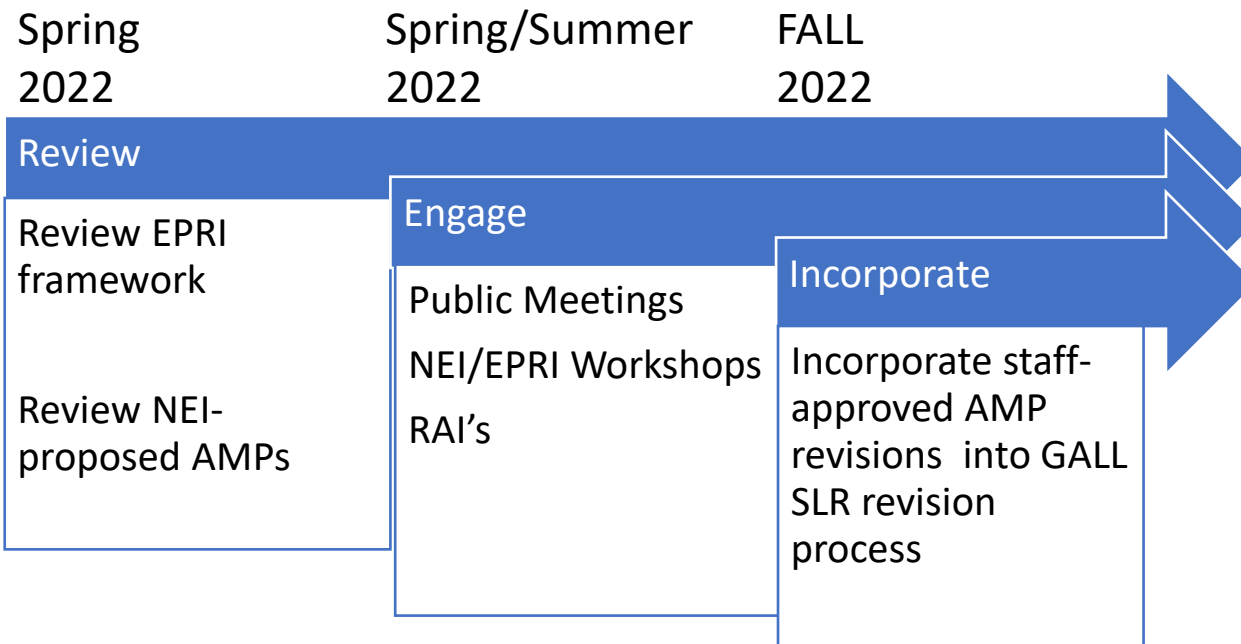


# Background

- Acknowledge PRA techniques can be used as a supplemental tool. (SOC)
- Engaged with EPRI and NEI on Risk Insights for Aging Management (RIAM)

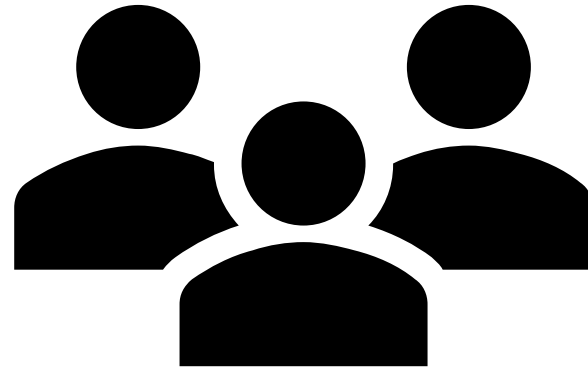


# Proposed Schedule For Incorporation



# Team

- NRR/DRA
- NRR/DNRL/NCSG
- NRR/DEX/ELTB



# Selective Leaching: Staff's Initial thoughts (#1)

## #1 Inspection Sample Size Reduction.

- The extent of inspections for selective leaching during the subsequent period of extended operation (i.e., 3 percent with a maximum of 10 components per GALL-SLR guidance) was reduced when compared to the extent of inspections for selective leaching during the initial period of extended operation (i.e., 20 percent with a maximum of 25 components per GALL Report, Revision 2 guidance) based on six deterministic factors outlined in NUREG-2222, "Disposition of Public Comments on the Draft Subsequent License Renewal Guidance Documents NUREG-2191 and NUREG-2192."
- The NEI document proposes a further reduction down to 2-3 components per population. Please provide the technical basis for this reduction.



# Selective Leaching: Staff's Initial thoughts (#2)

## #2 Re-Introduction of Hardness Testing.

- Hardness testing was replaced with mechanical examination techniques and destructive examinations with the issuance of GALL-SLR.
- Hardness testing can theoretically identify the presence of selective leaching but is unable to characterize the extent of selective leaching.
- Please provide the technical basis for re-introducing hardness testing.



# Selective Leaching: Staff's Initial thoughts (#3)

## #3 Credit for Undefined Future NDE Techniques

- The NEI document introduces “[n]ondestructive examination techniques demonstrated to be capable of detecting the presence and/or extent of selective leaching on the component” as an inspection method.
- The AMP should identify specific NDE techniques which are capable of detecting selective leaching in cast irons and copper alloys. (See reference below which notes that NDE for selective leaching has not achieved widespread acceptance.)
  - Uhlig’s Corrosion Handbook, 3rd Edition, page 148, "Several researchers have reported on attempts to develop method of in situ nondestructive inspection for dealloying, but they have not achieved widespread acceptance."





# Selective Leaching: Staff's Initial thoughts (#4)

## #4 Reliance on One Inspection Technique.

- GALL-SLR Report AMP XI.M33 recommends visual/mechanical and destructive examinations for each population.
- The NEI proposal states “[i]nspections and examinations may consist of any [of] the following methods” (referring to either visual/mechanical, hardness, nondestructive, or destructive examinations).
- Please provide the basis for going from two inspections techniques in our current guidance down to one inspection technique.



# Selective Leaching: Staff's Initial thoughts (#5)

## #5 Samples Based on Consequence.

- When using the risk-informed sampling methodology, inspections focus on consequence not risk (i.e., the product of susceptibility and consequence).
- Is susceptibility to selective leaching considered while using this methodology?



# Selective Leaching: Staff's Initial thoughts (#6)

## #6 Removal of Prescriptive Corrective Actions.

- The “corrective actions” program element of AMP XI.M33 (with the issuance of GALL-SLR) was revised to include specific recommendations for conducting extent of condition examinations when acceptance criteria are not met.
  - This is consistent with several other GALL-SLR Report AMPs.
- The NEI document proposes deleting this language, please provide a technical basis for this change.



# Inaccessible Cables: Staff's Initial Thoughts (#1)

## #1 No Specification of Duration between testing

- Please specify a duration between testing for the provision “have been tested at least twice in the “good” range” (is this once - 6 years prior to entering the period of extended operation and once more when entering the period of extended operation?).
- Do the test results need to be tested in the “good” range twice consecutively?



# Inaccessible Cables: Staff's Initial Thoughts (#2)

## #2 Insulation type vs. significant moisture effects?

- Which insulation type(s) does not have an operating experience of “good” cable failures due to significant moisture effects?



# Inaccessible Cables: Staff's Initial Thoughts (#3)

## #3 Data Trending

- NEI is proposing to increase the testing frequency by approximately 66% using two relatively undefined data points.
  - Explain how using only two data points can establish a meaningful trend to inform changes to testing frequency.



# Next Steps

- Review new information
- Future public engagement on topics of high interest



# QUESTIONS

