



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 9, 2023

LICENSEE: Constellation Energy Generation, LLC

FACILITY: Braidwood Station, Units 1 and 2; Byron Station, Units 1 and 2; Calvert Cliffs Nuclear Power Plant, Units 1 and 2; and R. E. Ginna Nuclear Power Plant

SUBJECT: SUMMARY OF JANUARY 30, 2023, PUBLIC MEETING WITH CONSTELLATION ENERGY GENERATION, LLC (CONSTELLATION) TO DISCUSS ITS REQUEST FOR ALTERNATIVES FOR CERTAIN STEAM GENERATOR WELD INSPECTIONS

On January 30, 2023, the U.S. Nuclear Regulatory Commission (NRC) staff held a public teleconference with representatives from Constellation Energy Generation (Constellation or the licensee) via the Microsoft TEAMS meeting application. The purpose of the meeting was to discuss NRC's review of the licensee's submittal of alternative requests for Braidwood Station, Units 1 and 2 (Braidwood), Byron Station, Units 1 and 2 (Byron), Calvert Cliffs Nuclear Power Plant, Units 1 and 2 (Calvert Cliffs), and R. E. Ginna Nuclear Power Plant (Ginna). The meeting notice and agenda, dated January 30, 2023, are available in the Agencywide Documents Access and Management System at Accession (ADAMS) No. ML23019A021. A list of attendees is enclosed.

The NRC staff reinforced that the meeting was an information gathering dialogue only, no regulatory decisions would be made. Additionally, the staff stated that none of the information provided in the meeting was to be taken as a request by the licensee or a decision by the NRC staff.

The purpose of the meeting was to discuss the inspection sample size for the alternative requests for Braidwood, Byron, and Calvert Cliffs, and why Constellation's proposed alternative did not meet the level of quality and safety required for an alternative approval. The licensee asked how the NRC staff made that determination and if it is considered a forward fit. The staff provided slides (attached) on how it made its determination including an example calculation supporting a performance monitoring program resulting in a 25 percent sampling size as an example of a potential path forward. The staff also stated that presentations from previous public meetings held on March 4, 2022 (ML22053A171); May 25-26, 2022 (ML22144A345); and August 22, 2022 (ML22234A046), also discussed the same topic.

Regarding the forward fit, the NRC staff stated that a response will be issued in the next couple of weeks.

The licensee stated that it will let the NRC staff know by Friday, February 3, 2023, on how it plans to proceed on the alternative requests that NRC has not issued.

Members of the public were not in attendance; no public meeting feedback forms were received.

Please direct any inquiries to me at 301-415-8004 or Sujata.Goetz@nrc.gov.

/RA/

Sujata Goetz, Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-317, 50-318 and 50-224

Enclosures:

1. List of Attendees
2. Presentation Slides

cc: Listserv

LIST OF ATTENDEES

JANUARY 30, 2023, PUBLIC MEETING WITH CONSTELLATION

REGARDING SUBMITTED ALTERNATIVE REQUESTS FOR BRAIDWOOD STATION,
UNITS 1 AND 2; BRYON STATION, UNITS 1 AND 2; CALVERT CLIFFS NUCLEAR POWER
PLANT, UNITS 1 AND 2; AND R. E. GINNA NUCLEAR POWER PLANT

Name	Organization
Sujata Goetz	U.S. Nuclear Regulatory Commission (NRC)
Hipo Gonzalez	NRC
Joel Wiebe	NRC
Dan Widrevitz	NRC
David Dijamco	NRC
John Tsao	NRC
Daniel Lamond	NRC
David Rudland	NRC
Gregory Suber	NRC
Bernie Thomson	NRC
Isaac Anchonodo Lopez	NRC
Jay Collins	NRC
Joel Wiebe	NRC
John Wise	NRC
Matthew Mitchel	NRC
Michael Benson	NRC
Sunil Weekakkody	NRC
Ching Ng	NRC
Cory Parker	NRC
Thomas Loomis	Constellation Nuclear
Joseph Buchanan	Constellation Nuclear
Kevin Lueshen	Constellation Nuclear
David Gullott	Constellation Nuclear
Richard Schliessmann	Constellation Nuclear
Art Simpson	Constellation Nuclear
Christopher Azmeh	Constellation Nuclear
Antoinette Walter	Constellation Nuclear
Adriene Smith	Constellation Nuclear
Mark Weis,	Constellation Nuclear
Rebecca Rice,	Constellation Nuclear
Darani Reddick	Constellation Nuclear
Sheldon Waiters	Constellation Nuclear
Jacky Shoulders	Constellation Nuclear
Thomas Basso	Constellation Nuclear, NEI Loanee

Enclosure 2- Presentation Slides

ML23033A667

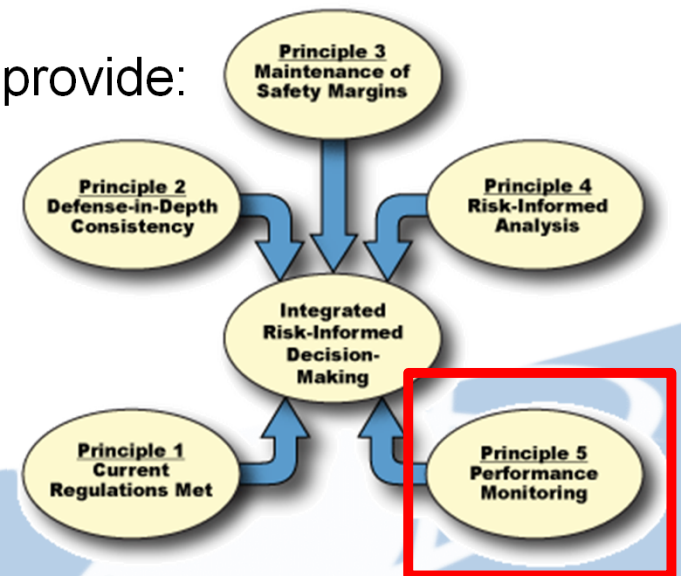
Performance Monitoring

Performance monitoring is a necessary component of Risk-Informed Approach (otherwise it is likely risk-based).

When used for justification for inspection relief, performance monitoring relies heavily on volumetric inspection but also includes information from other monitoring techniques, operational experience, research, etc.

Acceptable performance monitoring approach must provide:

- Direct evidence of presence and/or extent of degradation
- Validation/confirmation of continued adequacy of analyses
- Timely method to detect novel/unexpected degradation



Performance Monitoring Optimization



ASME Code required ISI is a form of performance monitoring providing assurance of component integrity.

- Manages known and unknown (novel) degradation

Risk insights were provided in the application regarding known degradation and ISI inspection scenarios using PFM.

- Leaves the appropriate vigilance regarding **potential future novel degradation** as the primary question regarding proposed future inspections.

Performance Monitoring – Managing Unknowns 1

In assessing the potential of proposed inspections to identify novel degradation, assurance stems from answering,

Can the proposed performance monitoring program detect novel degradation in a timely manner?

This question can be addressed statistically.

The staff considered a number of scenarios to evaluate the applicant's proposal.

Performance Monitoring – Managing Unknowns 2

The staff performed statistical analysis to identify an appropriate level of performance monitoring for the subject steam generators. The staff believe that an acceptable statistical scenario would:

At a 5% population incidence of novel degradation, have a 90% probability of detecting at least “one” occurrence in a steam generator sampled

For the subject applications this suggests a reduction in the total number of “inspections” of SGs (not individual welds) can be reduced by 75% (e.g. $\frac{1}{4}$ of the total inspections required by ASME)*

* - Previously the NRC has approved 50% reductions for a more significant component, RPVs

Performance Monitoring – Managing Unknowns 3

The applicant's proposed number of inspections in the September, 2022, RAI supplement would result in nearly no chance of detecting novel degradation in a timely manner.

The proposal consisted of substantially less than a single SG.

Performance Monitoring – Considerations 1

Qualitative considerations:

- Our statistical analysis was conducted on a per-SG basis, e.g. not counting individual welds
 - This side-steps complex considerations of weld comparability and focused on the key interest: integrity of SG
- Later inspections are more likely to detect novel degradation (if it is growing), and consequently are more impactful
 - Additional time likely to correlate to increased population incidence and “detectability”
 - Early inspections may be more “timely,” but also less likely to detect “rare” novel degradation

Performance Monitoring – Considerations 2



Qualitative considerations:

- Staff credits multiple full ASME Code interval inspections on subject components
- Other consideration not addressed in this presentation, e.g., OE, other monitoring, are also important in the development of a PM plan
- This presentation presumes credit given for OE, other monitoring (e.g. leak detection), research, etc.
- This presentation presumes that if novel degradation is found, substantial inspection scope expansion would occur

Summary

Based on the information presented here by the staff, one acceptable proposal could be:

- To perform $\frac{1}{4}$ of the ASME Code-required inspections of a component type (SG, PZR) for all of the units covered under the proposed alternative (rounded up to one more component inspection, if necessary)
- To perform each of the remaining inspections on different components (i.e., to not inspect the same SG or PZR more than once), and
- To perform each of the remaining inspections in the 1st Period of the last ASME Code Interval for the unit at which the inspection is to be performed (based on current 10-year intervals).

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CONSTELLATION ENERGY GENERATION, LLC TO DISCUSS ITS
REQUEST FOR ALTERNATIVES FOR CERTAIN STEAM GENERATOR
WELD INSPECTIONS DATED FEBRUARY 9, 2023

DISTRIBUTION:

PUBLIC
RidsNrrPMCalvertCliffs Resource
RidsNrrPMBraidwood Resource
RidsNrrPMByon Resource
RidsNrrPMREGinna Resource
RidsACRS_MailCTR Resource
RidsNrrDorlLpl1 Resource
RidsNrrLAKEntz Resource
RidsOpaMail Resource
RidsNrrDorl Resource

ADAMS Accession Nos.:

Package: ML23037A890

Meeting Summary: ML23033A666

Slides: ML23033A667

OFFICE	NRR/DORL/LPL1/PM	NRR/DORL/LPL1/LA	NRR/DORL/LPL1/BC	NRR/DORL/LPL1/PM
NAME	SGoetz	KEntz	HGonzalez	SGoetz
DATE	02/02/2023	2/8/2023	2/9/2023	2/9/2023

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