

10 CFR 50.46c LOCA/ECCS Compliance Schedule Survey

Survey Background

Draft 10 CFR 50.46c (46c) rule language, issued for public comment in 2014, included a compliance time frame of 60 months. A significant disconnect between draft rule assumptions and industry proposals centered on the definition of what constitutes compliance. NRC staff has indicated they are willing to consider Industry's comments and suggestions as to a more realistic compliance time frame. There needs to be a compelling reason for a later date for 46c rule compliance, as NRC staff needs to justify the "delta" between their 60 months from effective date and the industry's compliance schedule completion date.

As a result of the NRC Public Workshop, held March 17-18, 2015, industry will construct a detailed fleet compliance schedule facilitating the NRC establishment of a 46c compliance backstop date for the Rule. NRC needs to develop reasonable assurance that a time frame longer than 60 months is acceptable and doable. The fleet compliance schedule being developed will be at-risk using the expected Rule language, since final Rule language will not be available until released by the Commissioners in spring 2016.

To make this effort possible, responding industry representatives need to know information about each plant in their fleet. The attached survey was developed to focus on useful information and document milestones. Each licensee is STRONGLY encouraged to contact their LOCA vendor to help answer the survey as needed. The time available to complete and submit this survey is quite compressed; we need this information as soon as possible but no later than April 15, 2015, because the NRC staff is beginning the near-final Rule language review process in May 2015.

For plants not providing a completed survey, it will be necessary to make implementation assumptions for them. Thus, there is the potential to place a plant in a future position requiring exemption requests and/or associated additional compliance costs.

Plant names in the survey results will not be shared with the public. The compliance schedule being developed will use generic names (e.g., Licensee 01, Licensee 02....), however, similar to the industry effort on the safety margin assessments, the NRC staff will need to know the Key for translating generic names to specific licensees. This Key is expected to be made available to limited NRC staff as proprietary information.

Expected Rule Scope

Since the final Rule language will not exist until the Rule is issued after the Commissioners approval in 2016, implementation considerations all will be made at-risk. Based on input from the NRC staff about the expected changes from the March 24, 2014, version of the Rule that was issued for comment, the following are the assumptions the Industry will use to develop an Implementation Schedule:

- No change to existing long-term cooling (LTC) requirements; LTC remains consistent with existing rule
- Methodology supplements only address new requirements

10 CFR 50.46c LOCA/ECCS Compliance Schedule Survey

- No post-quench-reheat transient confirmatory testing
- Deleted proposed LTC cladding ductility performance metric and cladding temperature analytical limit
- Breakaway Oxidation testing will become integrated into Vendor manufacturing / quality programs
- Resolution of debris related issues addressed outside of 50.46c whether by deterministic or risk-informed approach; debris will be addressed per existing owners group programs
- Allowance will be made for fuel manufactured prior effective date of Rule
- 10CFR50 Appendix K moved to a Regulatory Guide
- Owner Group margin assessments, used by NRC for its safety assessment, are adequate and can be updated to reflect plant changes on a fleet or plant-specific basis
- Vendor required testing and limit determinations, as well as NRC reviews and approvals, are timely
- Consideration is given for creating a Regulatory Issue Summary (RIS) & Review Standard (RS)

Purposes of the Questions

The purpose of the schedule created from the survey results is to facilitate the best outcome for the industry as a whole with respect to the compliance backstop date in the upcoming Rule. The industry compliance schedule will help set the timing of the availability of industry guidance for 46c compliance submittals. The NRC staff may use the industry compliance schedule in their development of a Review Standard supporting 46c compliance activities.

Question 1: The purpose of this question is so we know where you are right now.

Question 2: The purpose of this question is to identify where your plant will be solely for 46c rule compliance purposes, with no fuel product / vendor change. If your plant is in a position that the only possible way forward is a fuel / vendor change, elaborate in Question 2A under "Something else"

Question 2a: The purpose of this question is, using the Question 2 information, to identify what do you estimate is your level of effort. Please feel free to contact your vendor to help identify your level of effort category.

Question 2b: Answering this question is optional. The purpose of this question is to determine licensee sentiment regarding current perceived menu of solutions without a fuel / vendor change.

10 CFR 50.46c LOCA/ECCS Compliance Schedule Survey

Question 3: The purpose is to determine how many 46c License Amendment Requests (LARs) the NRC should expect. This will also help to develop broad "bins" of LAR types which will impact how NRC staff will craft a review standard.

Question 4: The purpose is to determine how many issues impacting LOCA exist, tied to docketed re-analyses commitments.

Question 4a: The purpose is to determine how many docketed re-analyses commitments could possibly be rescheduled to accommodate the compliance phase of the 46c rulemaking activity.

Question 5: The purpose is to determine what types of significant activities, impacting LOCA analyses, the plant may have from present to mid-2021. This will help to determine schedule impacts of trying to minimize the number of LOCA analyses which need to be performed.

Question 6: The purpose is the same as Question 5, just a longer time frame: mid-2021-2026.

Survey Effort Expected

This is provided as a Microsoft WORD file; please feel free to directly enter your answers. For the purposes of this survey, the amount of effort to complete should require no more than the 1-2 man hours per plant. Your response to this survey in no way constitutes a regulatory commitment. Answers don't need to be exact. Any expected submittal dates provided as part of Questions 5 & 6 will be assumed to have an uncertainty of +/- one year. We have made clear to NRC staff the schedule under development is a living document, subject to significant uncertainty at this point.

Going Forward

If you have survey questions please contact Tom Eichenberg -> tweichenberg@tva.gov

We do need action on the survey as soon as possible; no later than **April 15, 2015.**

Please use email subject, "LOCA Survey" to help facilitate our email review.
Please forward your completed Survey information to:

Tom Eichenberg, tweichenberg@tva.gov and Gordon Clefton, gac@nei.org

For PWR's cc your response to: christopher.staum@exeloncorp.com

For BWR's cc your response to: maarmenta@energy-northwest.com

10 CFR 50.46c LOCA/ECCS Compliance Schedule Survey

Licensee: _____ Site: _____ Plant: _____

If you have a multi-plant site, please provide survey results for each licensed plant, so we can be quite clear regarding future licensee directions.

1: What are your fuel product line (including clad type) and your evaluation model(s) for aspects of LOCA? (*e.g., you may have different topical reports governing large vs. small break, or maybe you have multiple topical reports because you have multiple fuel designs in your operating plant. Also, are your current methods Appendix K or Best estimate?*)

As an example:

This plant currently utilizes Westinghouse 15x15 Model X; ZIRLO cladding.

Large Break LOCA Topical Report WCAP-12345, Appendix K

Small break Topical Report WCAP-12346, Best estimate.

10 CFR 50.46c LOCA/ECCS Compliance Schedule Survey

2: What will be your LOCA evaluation model utilized for compliance with the new 46c rule, assuming **NO** fuel product change in the next 5 years? (*e.g., you may have different topical reports governing large vs. small break, or maybe you have multiple topical reports involved because you have/expect multiple fuel designs in your operating plant. Also, do you expect your future methods to be Appendix K or Best estimate?*)

As an example:

This plant will utilize Westinghouse 15x15 Model X; Optimized ZIRLO cladding.

Large and Small Break Topical Report WCAP-12345 (FS-LOCA), Best Estimate.

2a: Assuming **NO** fuel product line change prior to mid 2021, what do you expect the scope of your compliance submittal to be? (*e.g., after consulting with your vendor, how would you classify your path forward?*) Select from the following:

Level 1: Compliance with the 46c rule is expected to consist of an evaluation (no new LOCA analysis) using the current LOCA analysis of record results along with post-processing or interpretation

Level 2: Compliance with the 46c rule is expected to require a new LOCA analysis of record using the current LOCA evaluation model with updates required for 46c

Level 3: Compliance with the 46c rule is expected to require a new LOCA analysis of record using a new LOCA evaluation model.

Something else? Please elaborate.

2b: (*optional* answer) Based on questions 2 & 2a, is the level of effort/resources sufficient, by itself, to initiate a fuel product change?

Yes or No

As an example:

This plant might expend \$5M on straight reanalysis, but I might only spend \$4M on a commercial product change.

10 CFR 50.46c LOCA/ECCS Compliance Schedule Survey

3: Do you anticipate Plant compliance with the new rule in parallel with other sister Plant(s)? (*i.e., will all plants at a site expect to demonstrate compliance within the context of a single license amendment request as the result of all plants using the same fuel product line and LOCA methodology*)

Yes or No

If Yes, list sister plants.

4: Does this Plant have an existing commitment to perform re-analyses to address an open issue, such as thermal conductivity degradation?

Yes or No

4a: If yes, does this Plant intend to ask NRC for a change to the formal commitment date, such as addressing TCD in conjunction with 46c compliance?

Yes or No

10 CFR 50.46c LOCA/ECCS Compliance Schedule Survey

5: From the present through June 2021, have you or do you plan to submit a license amendment request on the following topics?

Power Uprate: Yes / No If yes, Expected Submittal Date:

Steam Generator Replacement Yes / No If yes, Expected Submittal Date:

Fuel Vendor / Product Transition: Yes / No If yes, Expected Submittal Date:

Other Significant Activity Potentially Impacting LOCA: Please elaborate.

6: During the July 2021 through 2026 time frame, do you plan to submit a license amendment request on the following topics?

Power Uprate: Yes / No If yes, Expected Submittal Date:

Steam Generator Replacement Yes / No If yes, Expected Submittal Date:

Fuel Vendor / Product Transition: Yes / No If yes, Expected Submittal Date:

Other Significant Activity Potentially Impacting LOCA: Please elaborate.