RulemakingComments Resource

From: Wender, Samuel A <swender@firstenergycorp.com>
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To: RulemakingComments Resource
Cc: Halnon, Gregory H
Subject: [External_Sender] FENOC Response to proposed 10 CFR 50 Appendix I Changes DOCKET ID NRC-2014-0044
Attachments: FENOC Response to 10 CFR 50 Appendix I Change.doc

Rulemaking.Comments@NRC.gov

Dear Sirs,

The attached file is the response from First Energy Nuclear Operating Company (FENOC) pertaining to Docket ID NRC 2014-0044: 10 CFR Part 50, Appendix I, Reactor Effluents, Advance Notice of Proposed Rulemaking.

Submitted by:

Respectfully,

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FirstEnergy Nuclear Operating Company

TO: Rulemaking.Comments@nrc.gov **DATE:** 09/30/2015

FROM: ghalnon@firstenergycorp.com
Gregory H. Halnon
FENOC Vice President, Regulatory Affairs and Laboratory Services

SUBJECT:

Docket ID NRC-2014-0044: 10 CFR Part 50, Appendix I, Reactor Effluents, Advanced Notice of Proposed Rulemaking –

FENOC Comments on Advanced Notice of Proposed Rulemaking for 10 CFR Part 50, Appendix I, Reactor Effluents

On May 4, 2015, an Advanced Notice for Proposed Rulemaking (ANPR) was published in Federal Register Notice (80 FR 25237, Docket ID NRC-2014-0244) to revise the Nuclear Regulatory Commission's regulations in 10 CFR Part 50, governing radioactive effluents from nuclear power plants, and requested comments by September 1, 2015.

On August 25, 2015, a Federal Register Notice (80 FR 51841) extended the comment period to October 1, 2015.

FirstEnergy Nuclear Operating Company (FENOC) has reviewed the ANPR, and appreciates the opportunity to provide comments.

FENOC endorses the Nuclear Energy Institute's (NEI) September 29, 2015, letter written on behalf of the nuclear energy industry and recommends that the NRC not make the changes proposed in the ANPR because they are unnecessary from a health and safety standpoint, are unlikely to be cost-beneficial, and will provide little or no incremental improvement in the health and safety of workers, the public, or the environment.

FENOC supports all aspects of the current regulation and considers the proposed changes as discretionary without technical merit. The current regulation provides and guarantees that the industry is performing and providing adequate sampling, analysis and reporting to protect the safety of its workers and the public. FENOC adamantly opposes any change to the current regulations on the bases of unnecessary accumulative effects with no improvement in technical accuracy or increased margin to nuclear safety.

FENOC provides the following specific responses to the questions provided by the NRC for consideration:

Option 1a: Do not change the basis of 10 CFR 50, Appendix I, and continue to use the existing requirements and NRC guidance.

Questions:

Question 1–1:

What are the advantages and disadvantages of the NRC selecting option 1a?

Response:

FENOC strongly endorses option 1a. Our facilities are designed, constructed and licensed to fully meet the current regulations, which provide adequate protection to control dose to levels below the regulatory limits. ICRP 103 provides measures that go beyond what is needed for adequate protection.

Advantages:

- Maintains historical consistency with many years of documented performance monitoring of our plants performance and environmental stewardship.

- Prevents undesirable and unnecessary cumulative effects to personnel and financial resources of our corporation.

- Current regulation provides more than adequate protection to workers, the public, and the environment.

Disadvantages:

- 10 CFR Part 50, Appendix I design objectives would remain based on total body and critical organ dose concepts and models which are based on ICRP 2.

- The objection that ICRP 2 is no longer taught as a dose assessment methodology and it takes resources to train new personnel on an outdated methodology, has been provided. However, the dose modeling is embedded into the methods contained within US NRC Regulatory Guide 1.109, and licensee Off Site Dose Calculation Manual (ODCM) documents. As such, maintaining the use of the older ICRP method requires only training to the license basis.

Option 1b: Revise the terminology and methodology for dose assessments in 10 CFR Part 50, Appendix I, to more closely align with the recommendations of ICRP Publication 103

“This approach would ensure a consistent application of regulatory criteria between 10 CFR Part 20 and 10 CFR Part 50, Appendix I. This option would offer the opportunity to use to a common regulatory basis for calculating and reporting doses.”

Note: The following questions are based upon the NRC selecting option 1a.

Questions:

Question 1–2:

What are the advantages and disadvantages of more closely aligning the 10 CFR Part 50, Appendix I, terminology and methodology for dose assessments with those of the ICRP Publication 103 recommendations?

Response:

FENOC does endorse the implementation of option 1a.

Advantages:

- Potential reduction in confusion by using one dose concept and model vs. having different dose concepts and models.

Disadvantages:

- Potential significant resources associated with plant modifications, will be required to reevaluate monitor setpoints, changes to existing software, procedures, and training programs, etc.
- No measurable gain in protection margin.
- Appendix I was implemented as a design objective, not a protection standard.

Question 1–3:

At this time, the NRC is contemplating a parallel rulemaking effort, one for 10 CFR Part 20 and one for 10 CFR Part 50, Appendix I, with a common effective or compliance date for both rules. What are the advantages or disadvantages of the NRC conducting such a parallel rulemaking effort?

Response

Implementing 10 CFR Part 20 and 10 CFR Part 50, Appendix I in parallel with commensurate effective dates of compliance has both positive and negative consequences. The following list summarizes the advantages and disadvantages associated with parallel rule implementation.

Advantages:

- It is cost effective to implement both rules in addressing software revisions, procedure changes, training requirements, instrument/equipment upgrades, etc. concurrently rather than as separate tasks.
- The overall length of time needed to implement both rules in parallel will provide the additional time that may be required to address potential equipment modifications and change management for impacted personnel.
- Dual implementation would provide for improved consistency between 10 CFR 20 and 10 CFR 50 Appendix I.
- Concurrent implementation facilitates streamlining of radiation dose assessment practices (liquid and gaseous effluent ODCM dose calculations used in 40 CFR 190 dose assessments) and radiation protection programs in meeting dose protection standards.
- There may be some operational latitude and flexibility in the development of Regulatory Guides, NUREGS, and/or Regulatory Issue Summary (RIS) type documents by the NRC.

Disadvantages:

- Adopting this change would require significant engagement from corporate and site resources over an extended period of time.
- There is no imperative need or inherent benefit in executing 10 CFR 20 and 10 CFR 50 Appendix I rule changes concurrently. The industry has demonstrated that operating under existing 10 CFR 20 and 10 CFR 50 Appendix I does support ALARA and provides for the safety and health of the public.
- Additional delays and conflicts could result from regulatory guidance that may not being available if one rule is implemented independently from the other. Supporting documents 10 CFR 20 and 10 CFR 50 Appendix I have different requirements which may present challenges based on different revisions or the creation of new regulatory documents to support the implementation process.

Question 1–4:

What are the backfitting implications of applying option 1b to 10 CFR Part 50 licensees? What are the issue finality implications of applying option 1b to those persons who hold NRC approvals under 10 CFR Part 52 (e.g., combined license holders and applicants, a holder of a standard design certification)?

Response:

FENOC is in complete agreement with the statements provided by NEI for response to this question. As stated in their document; “The ANPR acknowledges that: Achieving a closer alignment between 10 CFR 50, Appendix I, and the ICRP Publication 103 recommendations would involve changing the underlying terminology and methodology for dose assessment in 10 CFR 50, Appendix I. This closer alignment, if adopted by the NRC, would pose several challenges for the NRC, including the need to revise guidance documents and implementing procedures, and updating computer codes. Likewise, a closer alignment would require licensees to retrain workers and use a new dose assessment system, revise implementing procedures and programs, and revise record keeping and data reporting practices.” “As recognized in the ANPR, Option 1b would require changes to licensee implementing procedures and programs that are required to operate nuclear power plants. Examples of these procedures include the Offsite Dose Calculation Manual, technical procedures which implement the R. G. 1.21 program (i.e. Radiological Effluent Release Report), radiological liquid and gaseous effluent sampling procedures, and effluent monitor instrument setpoint procedures. Given Appendix I provides “design objectives for light-water-cooled nuclear powers licensed under 10 CFR 50 or part 52,” it is also possible that design and hardware changes may be required if an amendment to Appendix I were applied to operating plants.”

Question 1–5:

What cost savings would be realized over the life of the operational programs if dose calculation methods (for 10 CFR Part 20 and 10 CFR Part 50, Appendix I) are standardized?

Response:

FENOC does not believe a change to dose methodologies would lead to any cost savings over the life of the operational programs. FENOC believes the change would actually result in an additional resource burden to the corporation, without justifiable improvement to worker, public, or environmental safety. Current compliance is provided by the approved Off Site Dose Calculation Manuals (ODCM) for each station. The current calculations are not based on the same ICRP models being proposed. Changing to ICRP Publication 103 would require many changes to the ODCM, station

operating procedures, training programs, and computer software changes. Verification and validation efforts would be extensive. Additionally, the retraining and associated learning curve for the new required methods may result in human performance challenges and a diversion from other safety focus areas.

The perceived resource impact to FENOC is considered significant. Again there is no overriding benefit from changing the methodology in 10CFR 50 Appendix I to ICRP publication 103 dose methods.

Question 1–6:

What operational impacts and costs (per reactor unit) would be incurred by licensees (e.g., in updating licensee programs, procedures, computer codes, training)?

Response:

The operational impacts are considered extensive. A gross of at least $400,000 per operating site will be required to implement such a change. A detailed analysis will be needed to provide a more accurate cost. Some of the considerations are: licensing basis changes, overhauling the ODCM calculation methodology, site specific operating procedures, hardware needs, computer software code changes, setpoint calculation review, and affected training programs.

Question 1–7:

Would licensee costs and the operational impacts of complying with a revised 10 CFR Part 50, Appendix I, be similar for both BWRs and PWRs?

Response:

FENOC does not see any obvious substantial differences in costs between BWRs and PWRs for complying with a revised 10 CFR Part 50.

Question 1–8:

Should all of the conforming changes to the dose based criteria in 10 CFR Part 50 (e.g., the TEDE criteria in 10 CFR 50.34(a)(1)(ii), 10 CFR 50.67, and Appendix A, ‘‘General Design Criteria for Nuclear Power Plants,’’ Criterion 19, ‘‘Control Room’’) be changed coincident with the changes to 10 CFR Part 50, Appendix I, or should conforming changes to other Parts of the regulations be conducted in a separate, later rulemaking?

Response:

FENOC believes that separate rulemaking would be required to effectively evaluate the potential impacts to the industry and should not be coincident with the 10 CFR Part 50 Appendix I change. Changes to all the dose based criteria in 10CFR 50 will require re-analysis and assessment of site specific design and emergency planning.

Question 1–9:

Should the NRC expand the number of age groups from 4 to 6 as recommended in ICRP Publication 103.

Response:

FENOC does not recommend the expansion from 4 to 6 age groups. The primary reason for this is to maintain consistency with historical data gathered over the lifetime of the plants. Changing the age groups does not effectively alter the dose factors of the current groups as much as the consumption rates which impacts the total amount of radioactive material entering the body. The current method for documenting this information is effective and can easily be compared to historical data. The NEI response provides ample information to technically justify why this change is not necessary.

Option 2a: Limited Scope Revision (no changes to the numerical values)

"Under this option, the proposed revision would include very limited changes to 10 CFR part 50, appendix I (e.g., to change the design objectives for total body dose only), and would involve very limited changes to only one regulatory guide (e.g., the dose coefficients in RG 1.109, Table B–1, ‘‘Dose Factors for Exposure to a Semi-Infinite Cloud of Noble Gases,’’ and Tables E–6, ‘‘External Dose Factors for Standing on Contaminated Ground,’’ to E–14, ‘‘Ingestion Dose Factors for Infant,’’ only)."

Option 2b: Full Scope Revision

"Under this option, the NRC would consider a complete revision to 10 CFR Part 50, appendix I, and all NRC guidance documents, which would include a total of more than 30 regulatory guides, NUREGs, generic communications, and associated software programs. A full scope revision also involves evaluating new radwaste systems, updating dispersion models, new source terms, rewriting RG 1.109, RG 1.110, RG 1.111, and RG 1.112."

Option 2c: Expanded Scope Revision

"Under this option, the NRC would include more substantive changes to the regulations and applicable guidance documents than included in Option 2a and potentially substantially less than that listed in Option 2b."

Questions

Question 2–1:

Which Option (i.e., what scope of changes to NRC guidance documents) seems most appropriate, and are other options available?

Response:

Option 2a:

Option 2a is the most reasonable should a revision to 10 CFR Part 50 Appendix I be implemented. This option bounds licensees' commitment to the revision. Fewer personnel resources would be required for procedure revisions and training. Option 2a also provides a limited scope revision to the sites' Off-Site Dose Calculation Manual (ODCM). This would require fewer resources to implement the change as monitoring equipment is unlikely to need upgrading. Software modifications would likely only entail updates to data tables/fields, and not source code. Additionally, historical data and trending would also be maintained.

Option 2b:

Option 2b is the least reasonable and impractical should a revision to 10 CFR Part 50 Appendix I be implemented. This option is expansive and requires significant resource commitment from licensees and the NRC while yielding little or no additional protection to the health and safety of the public. This option would require a dedicated project team for each site or utility that would be needed for such things as procedure revisions, personnel training, full-scope revision to site ODCM, software and equipment modifications, etc. and could potentially lead to an increase in human performance errors.

This option is not practical due to the large volume of regulatory guidance documents that would require revision. The personnel and resource requirements cannot be justified for the little or no benefit that would be gained in protecting the health and safety of the public or the environment.

Option 2c:

FENOC, along with many in the industry, finds commenting on a revision to 10 CFR Part 50 Appendix I using Option 2c nearly impossible to due to a lack of specific details. This option considers a scope spanning all possibilities between Option 2a and Option 2b, and thus cannot be quantified with any accuracy. Therefore, the nuclear power

industry, recommends that the NRC better define the expanded scope proposed in Option 2c.

Question 2–2:

What are the advantages and disadvantages of each of the three options?

Response:

No Revision

Advantages:

- Will not change "design objectives" for current radioactive waste treatment systems previously designed under 10 CFR 50 Appendix I.
- Using "other methods" is currently allowed by NRC guidance.
- No additional resource burden or no measurable increase in health and safety of the public and the environment.
- Allows for easier comparison of future dose results (and hence performance) to past performance by reporting doses in a consistent manner to the past.

Disadvantages:

- May create additional alignment challenges with potential revisions to 10 CFR Part 20 or 40 CFR Part 190.
- Continued training on ICRP 2 methodology to the extent that the methodology is used as the basis for ODCM calculations.

Option 2a: Limited Scope Revision

Advantages:

- Fewer resource expenditures required for the ODCM, site specific procedure revisions, associated training programs software and equipment modifications, etc.

Disadvantages:

- Inputs to dose calculations having inconsistent bases (i.e. using updated dose coefficients but old consumption rates).

- Continued training on ICRP 2 methodology to the extent that the methodology is used as the basis for ODCM calculations.

Option 2b: Full Scope Revision

Advantages:

- Aligns the basis of 10 CFR Part 50 Appendix I and related documents.

Disadvantages:

- Significant personnel resources required for procedure revisions, training, software and equipment modifications, and more importantly the potential for increase human performance challenges.

- Significant time commitment required.

- Loss of consistency with historical data.

Option 2c: Expanded Scope Revision

Option 2c cannot be adequately evaluated as proposed for advantages and disadvantages due to a lack of detail.

Option 3a: Maintain the numerical values of the 10 CFR Part 50, Appendix I, design objectives as they are currently written without any modification.

Option 3b: Eliminate the use of organ dose as design objectives in 10 CFR Part 50, Appendix I, for liquid and gaseous effluents.

Option 3c: Eliminate the use of annual gamma and beta-air doses for gaseous effluents.

Option 3d: Update cost-benefit criteria in Section II.D of 10 CFR Part 50, Appendix I

Option 3e: Disposition of Docket RM–50–2, ‘‘Guides on Design Objectives for Light-Water-Cooled Nuclear Power Reactors,’’ in the ‘‘Concluding Statement of Position of the Regulatory Staff,’’ pp. 25–30 February 20, 1974)—the NRC staff would remove Docket RM–50–2 from 10 CFR Part 50, Appendix I, Section V, if the NRC staff determines that it is no longer applicable to any pending applications

NOTE: The following options for potential revisions to 10 CFR Part 50, Appendix I, are unrelated to the alignment with the ICRP Publication 103 terminology and methodology but have some implications for associated NRC guidance.

Option 3f: Light-water-cooled reactor provisions of 10 CFR Part 50, Appendix I—the NRC staff would expand scope of 10 CFR Part 50, Appendix I, to include designs other than Light-Water-Cooled Reactors.

Option 3g: Consolidation of NRC licensing guidance implementing 10 CFR Part 50, Appendix I—the NRC staff would consolidate some NRC guidance documents, if appropriate, and update the following RGs and NUREGs:

a. RG 1.21
b. RG 1.109
c. RG 1.206
d. RG 4.15
e. NUREG–1301
f. NUREG–1302
g. NUREG–0133
h. NUREG–0543
i. NUREG/CR–4013—LADTAP
j. NUREG/CR–4653—GASPAR
k. NUREG–0800

Questions

Question 3–1:

Should the NRC focus on only those changes necessary to align 10 CFR Part 50, Appendix I, with ICRP Publication 103 dose calculation methods (e.g., Issue 3, options 3a thru 3e) or should all of the specific changes identified in options 3a thru 3g be evaluated?

Response:

FENOC does not recommend the NRC change 10 CFR Part 50, Appendix I to align with ICRP 103 or make any changes identified in options 3a thru 3g.

Question 3–2:

What significant impacts would be expected if 10 CFR Part 50, Appendix I, were revised to include all of the options (Issue 3, options 3a thru 3g)?

Response:

Significant impacts to FENOC nuclear sites and supporting regulatory guidance would exist if 10 CFR 50 Appendix I were revised to include all of the options presented within Issue 3. Revising station procedures to include updated numerical values, new terminology, design objectives, and references to new regulatory documents. Costs include expending man-hours in identifying effected station procedures and incorporating changes:

- Revising Offsite Dose Calculation Manuals
- Revising Final Safety Analysis Report
- Training personnel on new regulatory guidance documents
- Costs include man-hours spent in training, updating training materials and subsequent approval process
- Potential for additional human error through accumulative effects from significant updates to programs.
- Software revisions costs from IT staff, training personnel, purchasing/upgrading new software, and the potential for human error with utilizing software with new design basis.
- A loss of consistency with historical data. Additional analysis would be needed to compare new data with old data for reporting purposes.

Question 3–3:

Given the scope of the regulatory and technical issues associated with making all of the specific changes identified in Issue 3, options 3a thru 3g, is there any merit in addressing selected options in future implementation phases of this rulemaking (or in separate rulemaking efforts)? If so, which of the options should be delayed?

Response:

The FENOC position is that there is no merit in addressing any of the proposed options 3a thru 3g for rulemaking now under consideration or in the foreseeable future. As previously stated the potential benefit from changing 10 CFR 50, Appendix I is minimal

when the current regulation provides adequate protection of the health and safety the public and the environment.

Question 3–4:

Should licensees still report doses separately for organs, such as skin and thyroid, whenever airborne effluent releases are dominated by radioactive iodines and noble gases?

Response:

Based on the premise that additional rulemaking is not required and will not be implemented, the answer is “Yes,” doses should continue.

Question 3–5:

Should licensees continue to report skin doses, skin dose rates, total body dose rates, and organ doses (including thyroid doses) if organ doses are eliminated? Why or why not?
Response:

The reporting of dose rates is not required. The instantaneous dose rate limits of the technical specifications are a means of limiting short term airborne concentrations, which in turn are based on controlling potential acute exposure. The technical specification dose rate limits are unrelated to the 10 CFR 50, Appendix I ALARA guidance and primarily serve as the bases for the noble gases process effluent radiation monitor setpoints

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The reporting of ICRP 2 based cumulative organ, skin, total body doses and noble gas gamma beta and skin air dose should continue in order to provide a means of direct comparison with historical data.

Question 3–6:

Should the categories of releases described in 10 CFR Part 50, Appendix I (liquid activity, noble gases in gaseous releases, radioactive iodines, tritium, other nuclides in gaseous releases), be expanded or otherwise revised

Response:

No. The categories of 10 CFR 50, Appendix I design objectives are based on the necessity of designing and operating radioactive waste treatment systems for the different physical forms of effluents. Because of this no revision is unnecessary.

Questions:

Question 4-1:

Should the annual radioactive effluent release reports [ARERR] contain both metric and English units (e.g., metric units first, followed by English units in parentheses)? Would this be an undue burden or hardship, as identified in the Commission's 1996 review of the 1992 metrication policy (61 FR 31171; June 19, 1996)? Explain and provide examples.

Response:

While the nuclear energy industry supports regulation that expresses radiation and exposure in both traditional and SI units, we believe that regulations should allow licensees the option to continue to use and record doses in traditional units at nuclear energy facilities. As stated previously, FENOC believes this to be an elective change and have no added benefit to the margin for improving the health and safety to the public.

Question 4-2:

What costs or other impacts to operational programs would be incurred if metrication was changed as described above?

Response:
In reality while it may appear that the transition of units in the ARERR would be as simple as using a software transition package the industry recognizes that to effectively use SI Units and reduce the potential for human error in making the required conversions, a true transition requires a total shift in the thought process of the utility individuals involved in effluent monitoring and control and also in other offsite stakeholders.

As such, transition to the dual SI unit structure would require significant resources for each site to address these issues including:

- Significant changes to existing site specific procedures

- Retraining all industry site and corporate radiation workers

- Retraining of shared contract radiation workers

- Replacement of current radiation monitoring instrumentation

- Replacement of plant process radiation monitors

- Replacement of plant installed area radiation monitors

- Retraining of local and state emergency management contacts

- Modification of effluent release prediction software used for emergency management. This change has a potential to be very expensive due to the lack of coding expertise on older platforms

- Concerns with public relations by changing from terms in micro-Curies (uCi), which represent small numerical values to Becquerel's (Bq), which are relatively large numerical values in comparison. This will require extensive education of the general public.

- Concerns with the change in reporting methodology in the Annual Radiological Environmental Operating Report (AREOR)

Retraining and associated equipment changes for this transition could approach a 3 to 5 million dollar price tag per station. The majority of this expenditure would be to replace existing General Electric, Victoreen, and Eberline equipment that is no longer manufactured or not supported.

Question 4-3:

Should the requirements of 10 CFR 20.2101(a) and the guidance of RGs 1.21 and 4.15 be revised and integrated with those in 10 CFR Part 50, Appendix I, thereby allowing licensees to provide records and reports in SI units only?

Response:

FENOC supports regulation that includes both traditional and SI units, however, FENOC believes that such language should allow licensees the option to continue to use traditional units and to provide reports in those units. With this philosophy in mind, no revision to 10 CFR Part 20.2101(a) and RGs 1.21 and 4.15 is required.

Questions

Question 5–1:

If the NRC conducts a parallel rulemaking effort (amending its regulations in both 10 CFR Part 20 and 10 CFR Part 50, Appendix I), should there be a separate, later compliance date (i.e., a period of time between the rules' effective date and a date when licensees must be in compliance with the rules)? If so, when should the compliance date be set, e.g., 1 year after the effective date? Two years? Another length of time? Please explain the rationale or justification for any such compliance date.

Response:

Should such rulemaking on 10CFR20 and 10CFR50, Appendix I occur, FENOC recommends that the compliance date for 10CFR50, Appendix I be completely separate from and significantly later than the compliance date for 10CFR20.

The basis for this statement is related to the monumental tasks as defined in the previous question. Additionally, a complex and comprehensive change management plan would be required for each operating site. This would be necessary because the instrumentation and site specific emergency planning responses are unique to every site.

Due to the above listed concurrent actions and should the rule changes occur in parallel, the FENOC recommends that the compliance date for changes to 10CFR50, Appendix I be set for a minimum four year period after the compliance date for changes to 10CFR20 are implemented.

Question 5–2

What actions could be taken to reduce or minimize the implementation time?

Response:

FENOC recommends that to reduce/minimize the implementation time for licensees, the NRC should complete, approve, and have available for stakeholder use all of the

associated regulatory guidance documents (e.g., regulatory guides, NUREG's, etc.)Sufficient time before the implementation date for either 10CFR20 or 10CFR50, Appendix I. The availability of these documents is essential in providing licensees acceptable methods and justification for implementing revisions to existing program documents and policies.

Question 5–3:
What other requirements, regulations, or orders, whether issued or promulgated by the NRC or another Federal agency, may compete with, or take priority over implementing any potential changes to 10 CFR Part 50, Appendix I? If so, what are the consequences, including associated costs, and how should they be addressed?

Response:

As previously stated, the design objectives of 10 CFR Part 50, Appendix I, are not radiation protection standards, but are design criteria. As such, requirements, regulations, or orders that impact actual radiation protection standards must take priority over implementing any potential Appendix I changes. Current regulatory changes that are being discussed at this time:

- 40 CFR 190
- 10 CFR 20
- 10 CFR 37

As stated in the NEI response the costs to implement 40 CFR 190 and 10 CFR 20, excluding facility modifications and/or emergency preparedness changes necessary to comply with regulatory requirements could approach $25M and $200M, respectively.

Question 5–4:

If 10 CFR Part 50, Appendix I, is amended, what unintended consequences, including associated costs, may arise that would negate the benefits to revising it? What could be done to minimize unintended consequences?

Response:

The overall potential unintended consequences, similar to those encountered with cyber security regulations, are difficult to predict. Until the industry actually sees the actual changes the unintended consequences are unpredictable. Some consideration must be given to the following:

- Increased potential for human errors in recording data/calculating releases;

- Possible human performance errors resulting from the re-assignment of experienced effluent personnel to address implementation of changes;

- Unintentional misreporting of required data to regulators and stakeholders due to errors in radiation unit conversions by licensees; and

- Difficulty in comparing reported data to previous decades of data which could lead to a reduction in public confidence (e.g., past reports were in small units such as micro-Curies while “new” reports would be in significantly larger units such as kilo-Becquerel’s.)

Should the NRC proceed with the changes discussed in the ANPR, FENOC would suggest prioritizing the licensee implementation schedule based on increased public/environmental protection, as well as forecasted resources required for implementation of each issue. FENOC urges that reasonable implementation dates should be established long term with specific goals specified in years, not months. Consideration must taking into account the monetary and human resources necessary to implement any proposed changes based on current economic factors.

If there are any questions, or if additional information is required, please contact:

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