

Millstone License Renewal Application (LRA) Submittal Presentation

Handout

February 6, 2004

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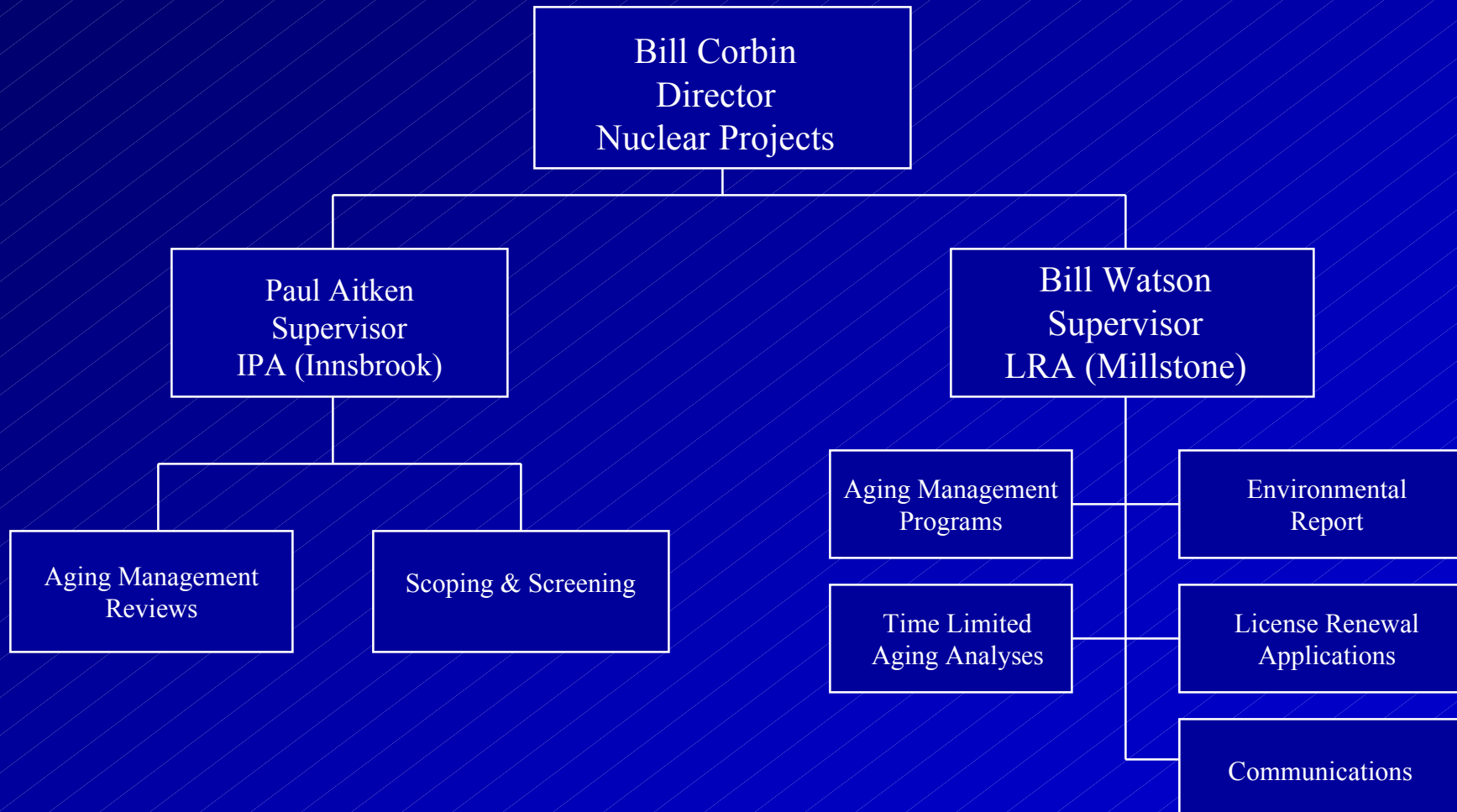
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Presentation Overview:

- ◆ Project Organization
- ◆ Application Organization
- ◆ Commonality Matrix
- ◆ GALL Consistency Summary

Project Organization:



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Follows NUREG-1800 (SRP) and NEI 95-10 format
(uses the Standard License Renewal Application format)

- ◆ Administrative Information
- ◆ Scoping and Screening Methodology
- ◆ Aging Management Review (AMR) results
- ◆ Time Limited Aging Analyses (TLAAs)
- ◆ Appendix A – FSAR Supplement
- ◆ Appendix B – Aging Management Programs (AMPs)
- ◆ Appendix C – AMR Methodology
- ◆ Appendix D – Technical Specification Changes
- ◆ Appendix E – Environmental Report

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Section 1.0 – Administrative Information

- 1.1 Application format and content
- 1.2 Plant description
- 1.3 10CFR54.17 & 10CFR54.19 information
- 1.4 Abbreviations
- 1.5 Communications
- 1.6 References

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Section 2.0 – Scoping and Screening Methodology for Identifying Structures and Components Subject to Aging Management Review and Implementation Results

- Table 2.0-1 “Intended Function: Abbreviations & Definitions”

2.1 Scoping and Screening Methodology including:

- Subsection 2.1.6, “Discussion of Interim Staff Guidance”

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Section 2.0 – Scoping and Screening Methodology (continued...)

2.2 Plant Level Scoping Results

Table 2.2-1 = Systems within the scope of license renewal

Table 2.2-2 = Systems not within the scope of license renewal

Table 2.2-3 = Structures within the scope of license renewal

Table 2.2-4 = Structures not within the scope of license renewal

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Section 2.0 (continued...)

2.3 Scoping and Screening Results: Mechanical Systems

Each subsection contains the following for each system/major component:

- a. System/component description (including why the system/major component is in the scope of license renewal)
- b. All pertinent FSAR section references
- c. Applicable license renewal drawings (list)
- d. Subcomponents subject to AMR (including reference to Section 3 AMR table)

Table 2.3.X-X

“Super Group” number
SSC/commodity group #

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Section 2.0 (continued...)

2.4 Scoping and Screening Results: Structures

- Same arrangement as mechanical systems

2.5 Scoping and Screening Results: E and I&C Systems

- Same arrangement as mechanical systems, except there are no license renewal drawings (commodities)

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Section 3.0 – Aging Management Review Results

- First 10 pages describe the Section 3 tables and table usage
- Subsection includes Tables 3.0-1 and 3.0-2 (internal and external environments tables)

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Sections 3.1 through 3.6 = Aging Management of:

- 3.1 RV, RVIs, RCS
- 3.2 ESF Systems
- 3.3 Aux Systems
- 3.4 Steam & Power Conversion Systems
- 3.5 Containment, Structures and Component Supports
- 3.6 Electrical and I & C

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Sections 3.1 through 3.6 (continued...)

Each subsection (3.1 – 3.6) contains the following:

- INTRODUCTION
- RESULTS
- CONCLUSION
- REFERENCES

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Sections 3.1 through 3.6 (continued...)

1. INTRODUCTION:

- List of the system or structure/commodity groupings addressed in the subsection, with reference to the Section 2.0 description

- Reference to Table 3.X.1 (called "table 1")
 - Super Group number
 - First Section 3 Table Type
- Example: For RCS = Table 3.1.1

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Sections 3.1 through 3.6 (continued...)

2. RESULTS:

- A listing of the results tables for each major SSC

- Table 3.X.2-X
(called "Table 2")
 - Super Group number
 - Second Section 3 Table Type
 - The system or structure/commodity group #
- Example: For RCS, RV = Table 3.1.2.1

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Sections 3.1 through 3.6 (continued...)

2. RESULTS (continued...)

- Listing of the following – By system or structure/commodity group
 - Materials
 - Environments
 - Aging Effects Requiring Management
 - Aging Management Programs
- Further Evaluation of Aging Management as Recommended by NUREG-1801 (aligned with SRP section numbers)

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Sections 3.1 through 3.6 (continued...)

3. CONCLUSION

- Justifies why there is reasonable assurance that the intended function(s) of the SSCs within the scope of license renewal will be maintained consistent with the current licensing basis throughout the period of extended operation.

4. REFERENCES

5. TABLES

- Table 1 and Table 2 for each structure/commodity group

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5. TABLES (continued...)

Table 1 = Based on NUREG-1801, Volume 1 table

- Compares the results of the aging management reviews to NUREG-1801 summary results
- AMR subcomponents are rolled up using the same NUREG-1801 table format to provide linkage or exception to the NUREG-1801 aging effects and aging management programs
- An Item number column facilitates cross-referencing between Chapter 3 tables
- A discussion column clarifies and explains table/program alignment with NUREG-1801

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5. TABLES (continued...)

- NUREG-1801, Volume 1 Table, Compared to MPS Unit 2 LRA Table 1:

Table 1. Summary of Aging Management Programs for the Reactor Coolant System Evaluated in Chapter IV of the GALL Report

| Type | Component | Aging Effect/ Mechanism | Aging Management Programs | Further Evaluation Recommended | Item Number in GALL |
|-------------|---|---|--|---|---|
| BWR/ PWR | Reactor coolant pressure boundary components | Cumulative fatigue damage | TLAA, evaluated in accordance with 10 CFR 54.21(c) | Yes, TLAA | IV.A1.1-b, IV.A1.2-a, IV.A1.2-b, Continued.. |
| PWR | Steam generator shell assembly | Loss of material due to pitting and crevice corrosion | Inservice inspection; water chemistry | Yes, detection of aging effects is to be further evaluated | IV.D1.1-c, IV.D2.1-e |
| BWR | Isolation condenser | Loss of material due to general, pitting and crevice corrosion | Inservice inspection; water chemistry | Yes, plant specific | IV.C1.4-b |

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5. TABLES (continued...)

- NUREG-1801, Volume 1 Table, Compared to MPS Unit 2 LRA Table 1:

Table 3.1.1 Summary of Aging Management Evaluations in Chapter IV of NUREG-1801 for Reactor Vessel, Internals, and Reactor Coolant System

| Item Number | Component | Aging Effect/ Mechanism | Aging Management Programs | Further Evaluation Recommended | Discussion |
|-------------|--|---|--|--|---|
| 3.1.1- 01 | Reactor coolant pressure boundary components | Cumulative fatigue damage | TLAA, evaluated in accordance with 10 CFR 54.21(c) | Yes, TLAA | This TLAA is evaluated in Section 4.3, Metal Fatigue. |
| 3.1.1- 02 | Steam generator shell assembly | Loss of material due to pitting and crevice corrosion | Inservice inspection; water chemistry | Yes, detection of aging effects is to be further evaluated | Consistent with NUREG-1801. Loss of material is managed with the Chemistry Control for Secondary Systems Program. This program takes some exceptions to the NUREG-1801 AMP. Further evaluation is documented in Subsection 3.1.2.2.2.1. |
| 3.1.1- 03 | BWR Only | | | | |

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5. TABLES (continued...)

- Table 2 = Plant-specific AMR results
 - Provides AMR results divided into the six SRP Super Groups, then into systems or structural/commodity groups
 - Contains 9 columns
 - Provides a means to cross-reference to Table 1, to NUREG-1801, to LRA Section 2 and to Appendix B
 - Contains a “Notes” column for referencing to explanations regarding alignment with NUREG-1801

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5. TABLES (continued...)

Table 2: (Individual table for each system or structure/commodity group)

- 9 columns:

- Subcomponent
- Intended Function(s)
- Material
- Environment
- Aging Effects Requiring Management
- Aging Management Programs
- NUREG-1801 Volume 2 Item
- Table 1 Item
- Notes

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5. TABLES (continued...)

- Millstone Unit 2 LRA Table 2
- “Subcomponents” column directly correlates to column #1 of LRA Section 2 “Subcomponents Subject to Aging Management Review” table

Table 3.1.2-1 Reactor Vessel, Internals, and Reactor Coolant System – Reactor Vessel – Aging Management Evaluation

| Subcomponent | Intended Function(s) | Material | Environment | Aging Effect Requiring Management | Aging Management Programs | NUREG-1801 Volume 2 Item | Table 1 Item | Notes |
|----------------------------|----------------------|-----------------|---------------------------|-----------------------------------|---|--------------------------|--------------|-------|
| Bottom Head (and cladding) | PB; SS | Low-alloy Steel | (E) Air | Cracking | Inservice Inspection Program: Systems Components and Supports | IV.C2.1-c | 3.1.1-36 | D, 5 |
| | | | (E) Borated Water Leakage | Loss of Material | Boric Acid Corrosion | IV.A2.1-a | 3.1.1-38 | C |
| | | Stainless Steel | (I) Treated Water | Cracking | Chemistry Control for Primary Systems Program | IV.A2.1-c | 3.1.1-38 | D, 5 |
| | | | | Loss of Material | Chemistry Control for Primary Systems Program | | | H |

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Section 4.0 – Time Limited Aging Analyses (TLAAs)

- Section 4.1 = Introduction and general information:
- Section 4.2 through 4.7 = TLAAs
- Section 4.8 = References

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Section 4.0 – Time Limited Aging Analyses (TLAAs)

- Section 4.1 = Introduction and general information:
 - 4.1.1 = Identification Process of the Time Limited Aging Analyses
 - 4.1.2 = Identification of Exemptions
 - Table 4.1-1, Time-Limited Aging Analysis Categories
 - Table 4.1-2 Comparison of Millstone Unit 2 (or Unit 3) TLAAs to NUREG-1800 TLAAs

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Section 4.0 – Time Limited Aging Analyses (TLAAs)

- Section 4.2 through 4.7 = TLAAs
 - Each TLAA subsection contains the following:
 - Description of the TLAA
 - Conclusion that identifies which option was used to address each TLAA

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Section 4.0 – Time Limited Aging Analyses (TLAAs)

- Section 4.8 = References
 - Reference documents used to develop section 4.0

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Appendix A – FSAR Supplement

- A1 = Introduction and alphabetical listing of AMPs, along with the indication as to whether or not they currently exist
- A2 = AMP descriptions and proposed commitments
- A3 = TLAA descriptions and proposed commitments
- A4 = TLAA support programs
- A5 = Exemptions
- A6 = License Renewal Commitments (proposed)

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Appendix B – Aging Management Programs

- Section B1 = Introduction
- Section B2 = Aging Management Programs
- Section B3 = TLAA Support Programs

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Appendix B:

- B1 = INTRODUCTION:
 - Overview
 - Method of discussion
 - Consistent with NUREG-1801
 - Consistent, with exception, to NUREG-1801
 - Plant specific
 - Quality Assurance Program and Administrative Controls
 - Operating experience
 - Aging Management Programs list (indicates new and existing programs)
 - TLAA Aging Management Programs

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Appendix B:

- B2 = AGING MANAGEMENT PROGRAMS:
 - Table comparing MPS Units 2 and 3 AMPs w/ NUREG-1801 AMPs
 - AMP descriptions
 - Consistent with NUREG-1801
 - Program description
 - NUREG-1801 Consistency
 - Exceptions to NUREG-1801
 - Enhancements
 - Operating Experience
 - Conclusion
 - Consistent, with exception, to NUREG-1801
 - Same sections as above, with exceptions defined and enhancements (if any) identified – by program element
 - Plant specific

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Appendix B:

- B3 = TLAA SUPPORT PROGRAMS:
 - Electrical Equipment Qualification
 - Metal Fatigue of Reactor Coolant Pressure Boundary

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- Appendix C = Aging Management Review Methodology
- Appendix D = Technical Specification Changes
- Appendix E = Environmental Report

Commonality Matrix

| <u>Section #</u> | <u>Common?</u> | <u>Notes</u> |
|------------------|----------------|---|
| 1 | Yes | |
| 2 | No | |
| 3 | No | |
| 4 | No | Many TLAA types/approaches are similar |
| Appendix A | No | Much of this section reads the same |
| Appendix B | Yes | Unit differences are clearly identified |
| Appendix C | Yes | |
| Appendix D | No | However, this appendix reads the same |
| Appendix E | Yes | Separate Volume |

**Millstone
License Renewal Application (LRA)
Submittal Presentation**

Questions/Comments?

Consistency with NUREG-1801

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Consistency Determination

- LRA Section 3:
 - Consistency is clearly delineated via “Notes” column
 - Notes explain alignment
 - Notes A through E indicate alignment with NUREG-1801
 - Notes F through J indicate varying degrees of alignment with NUREG-1801 and the need to look for past precedence

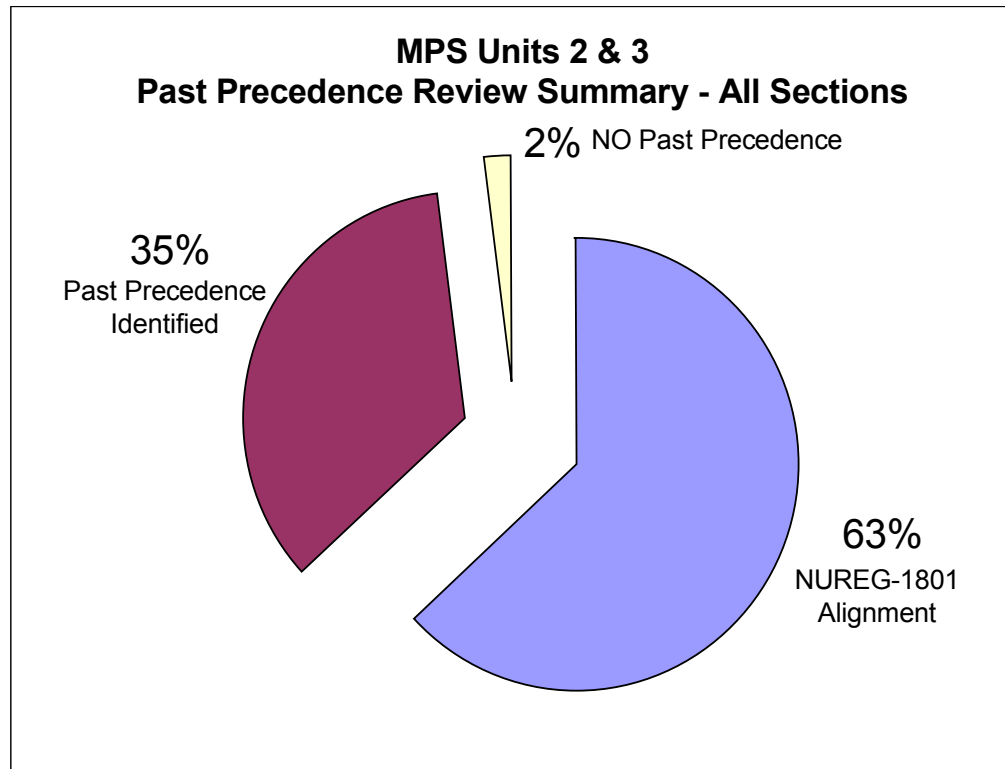
Section 3 Past Precedence

- Past Precedence (PASP) Review
 - A PASP review was performed for AMR results that did not align with NUREG-1801
 - PASP reviews considered LRAs and SERs from 4 previous applicants with renewed licenses:
 - 1) Surry/North Anna
 - 2) St. Lucie
 - 3) McGuire/Catawba
 - 4) Ft. Calhoun
 - PASP reviews were performed on a material/environment/aging effect/program (MEAP) basis

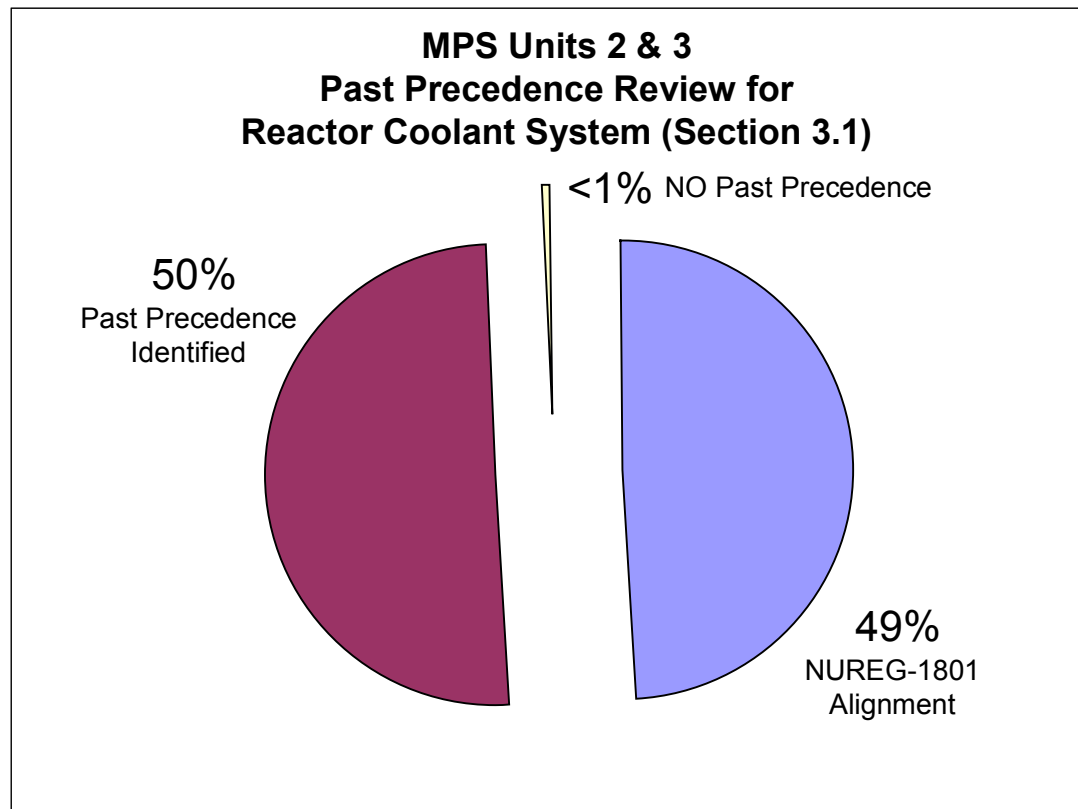
Section 3 Past Precedence

- Past Precedence (PASP) Review (continued...)
 - PASP info was determined from corresponding system(s), if available. If not, the review was expanded
 - PASP was considered established when previous applicants' LRA results were accepted by the NRC as documented in an SER

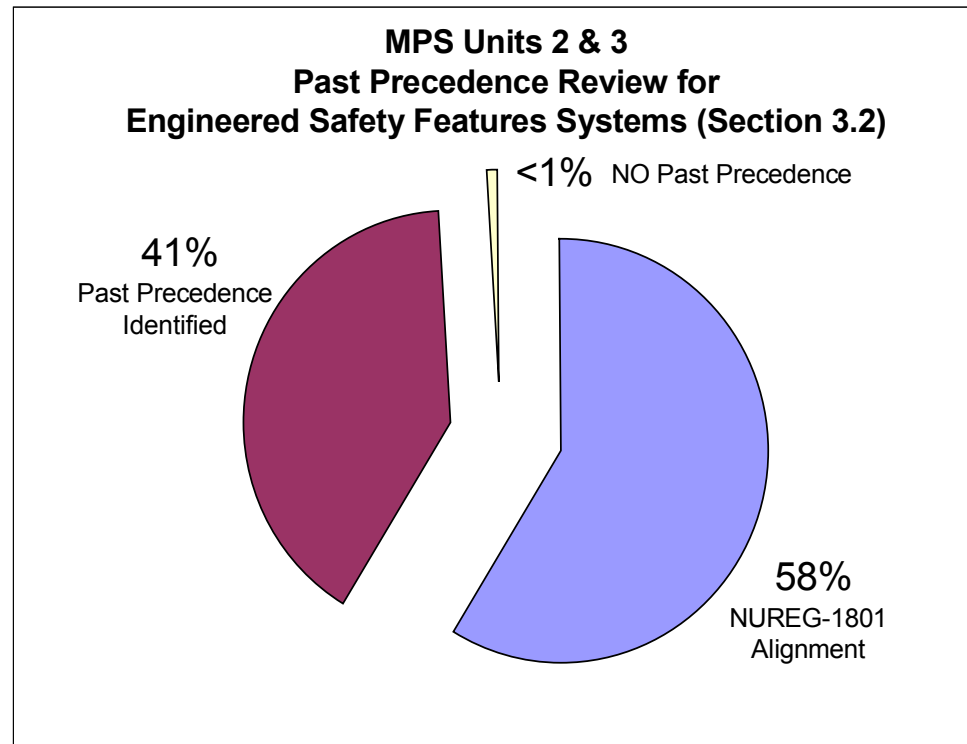
Past Precedence Review Results



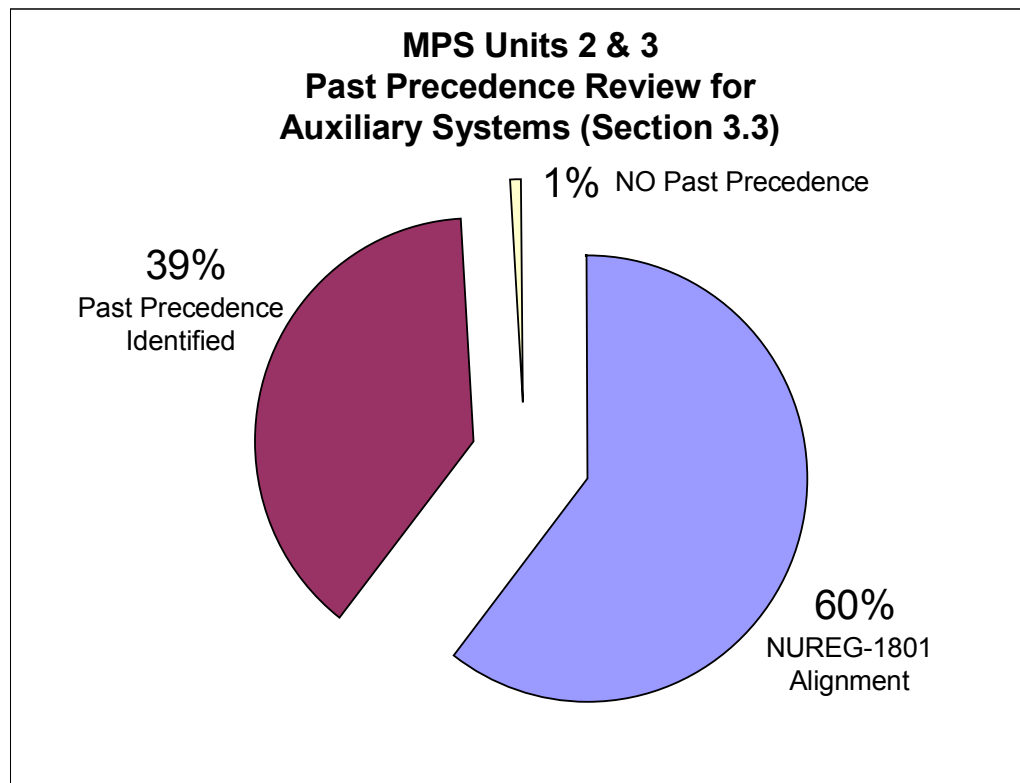
Past Precedence Review Results



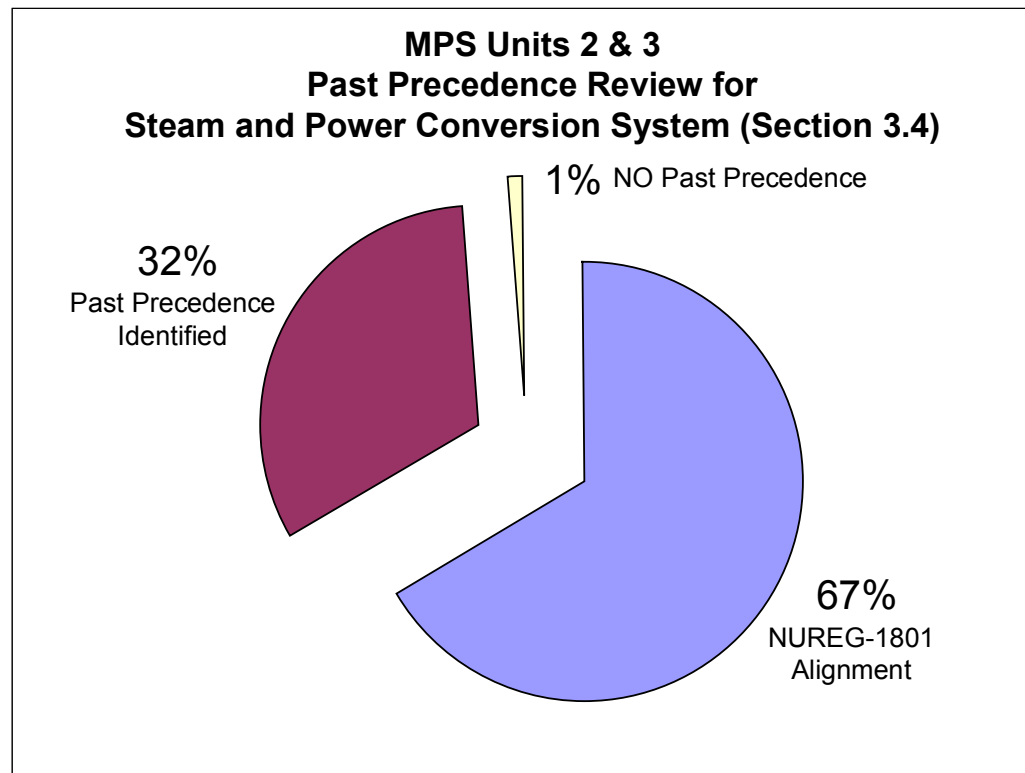
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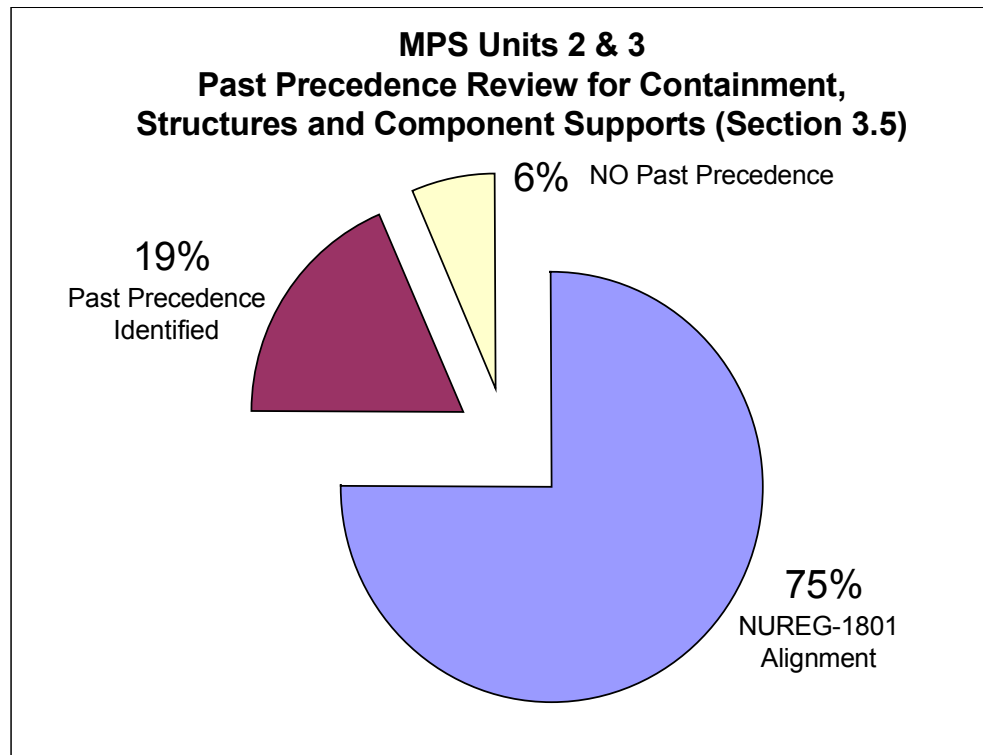
Past Precedence Review Results



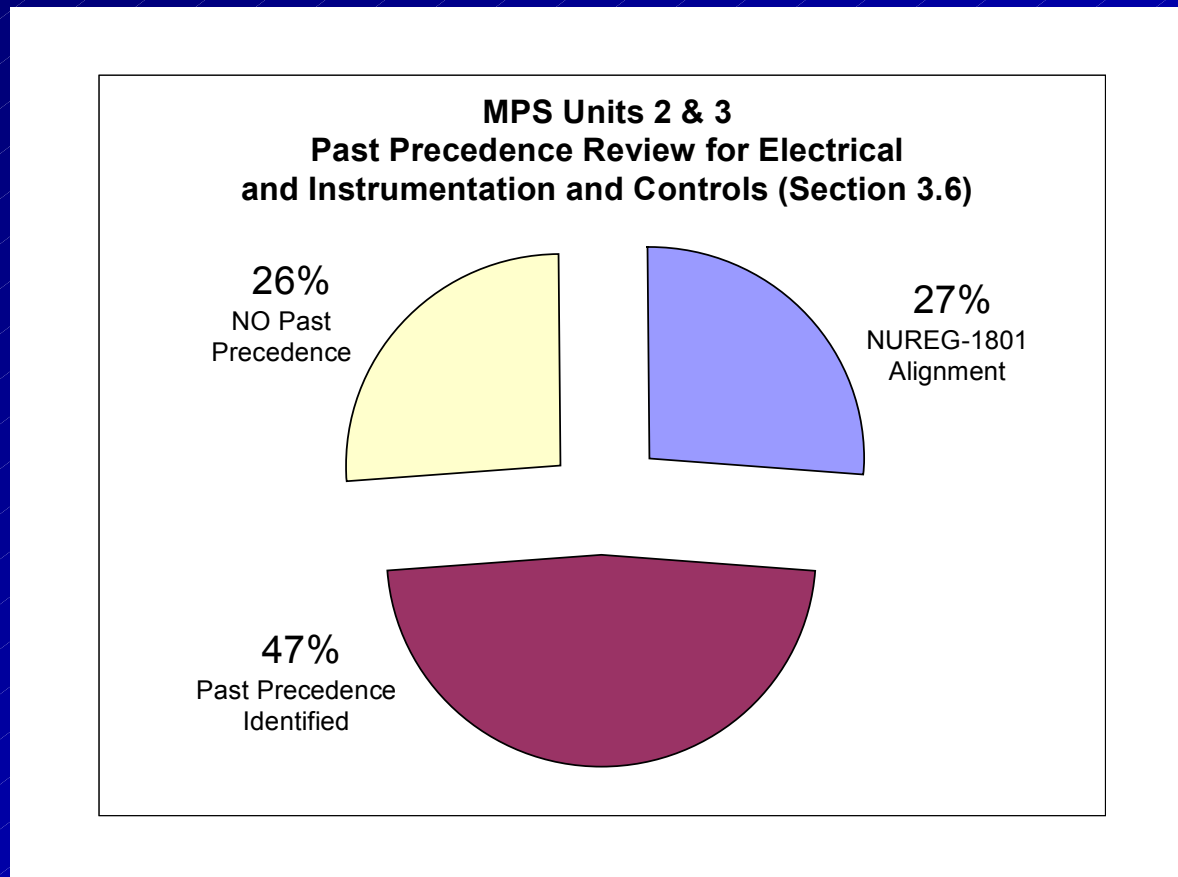
Past Precedence Review Results



Past Precedence Review Results



Past Precedence Review Results



AMP Past Precedence Review

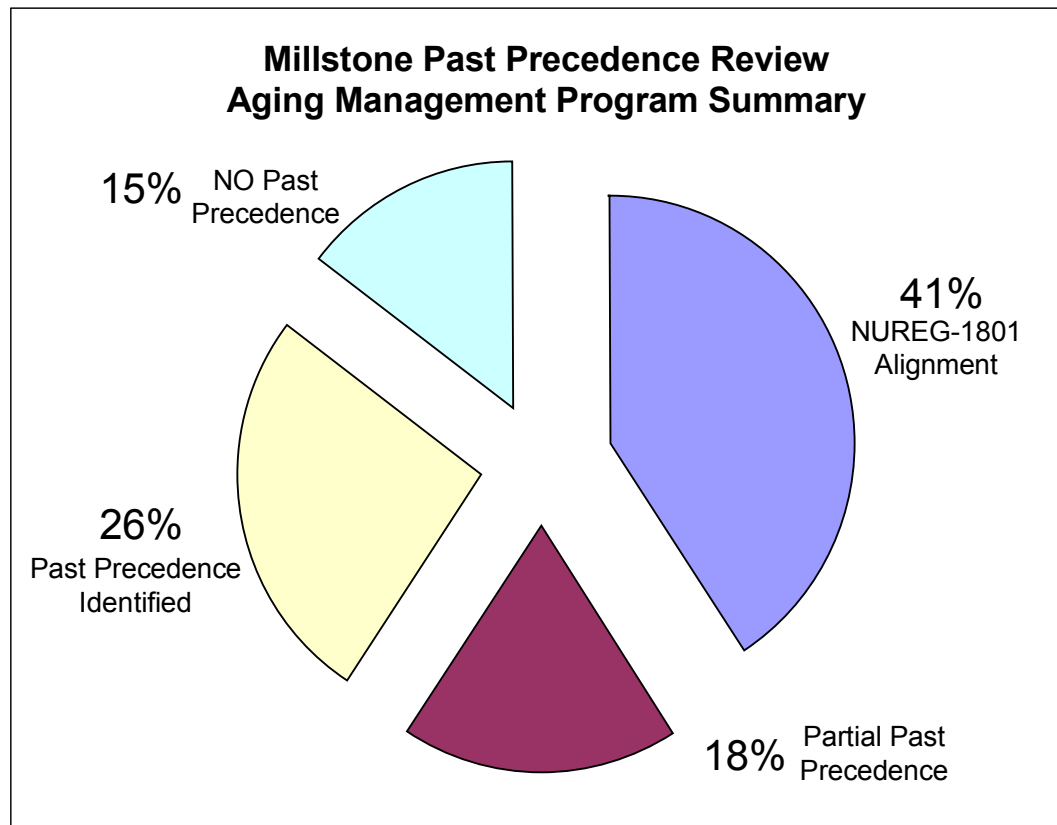
2. Appendix B = Clearly delineated via the “NUREG-1801 Consistency” subsection of each AMP description
 - Exceptions are identified, along with:
 - The program elements affected and how they are affected
 - A justification as to why the exception is acceptable
 - Where AMPs had exceptions and where there were plant-specific AMPs, past precedence was investigated

AMP Past Precedence Review

2. Appendix B = AMP Past Precedence Determination:

- Exceptions and plant specific programs were investigated
 - Comparison made to four plants: Surry/North Anna, St. Lucie, McGuire/Catawba & Fort Calhoun
 - LRA investigated
 - SERs & RAIs reviewed
 - A comparison was made and an evaluation was performed to make a consistency determination

AMP Past Precedence Review Results



**Millstone
LRA Section 3 & AMP
Past Precedence**

Questions/Comments?