Isotope Generation

GE-Hitachi Nuclear Energy

Exelon Nuclear Corporation

October 4, 2007

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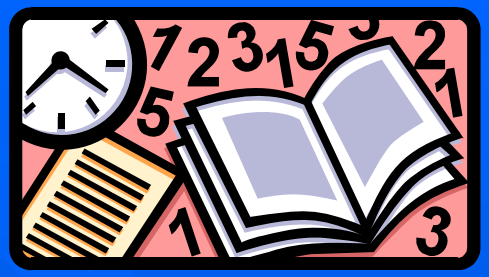
Introductions

- GE-Hitachi
  - Bill Russell, Chris Monetta, Jim Harrison, Peter Diller, Randy Jacobs, Russ Fawcett, Russ Higgins, Webb Mills, Barry Miles
- Exelon
  - Jim Malone, Jim Tusar, Richard Gropp

Partnership

- Exelon View
  - Jim Malone
- GE-Hitachi View
  - Chris Monetta

Meeting Objectives



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- NRC Questions and Answers

Agenda

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Introduction	60 min
Summary and Discussion	30 min

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Isotope Process Flow

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Composite Assembly

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Design Overview

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Key Design Features

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Short and Long Term Plans

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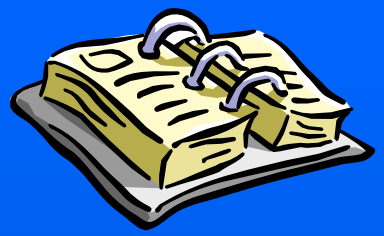
50.59 Considerations



- (i) Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the final safety analysis report (as updated)

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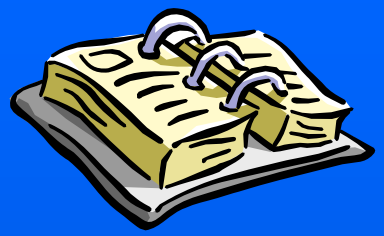
50.59 Considerations



- (ii) Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety ……

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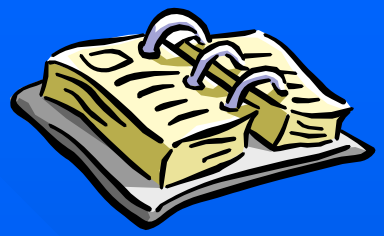
50.59 Considerations



- (iii) Result in <u>more than a minimal increase in the consequences</u> of an accident ……

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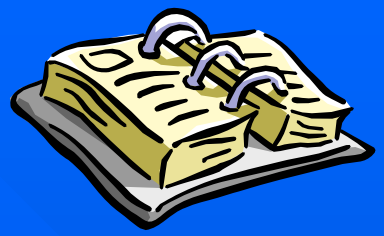
50.59 Considerations



- (iv) Result in <u>more than a minimal increase in the consequences of a malfunction</u> of an SSC important to safety ……

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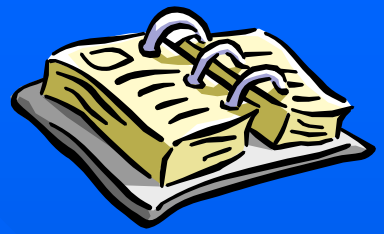
50.59 Considerations



- (v) Create a possibility for an accident of a different type than any previously evaluated ……

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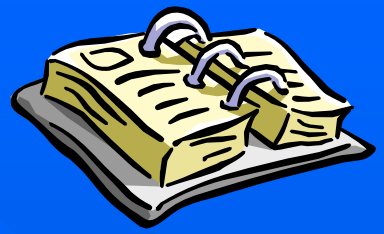
50.59 Considerations



- (vi) Create a possibility for a malfunction of an SSC important to safety with a different result than any previously evaluated ……

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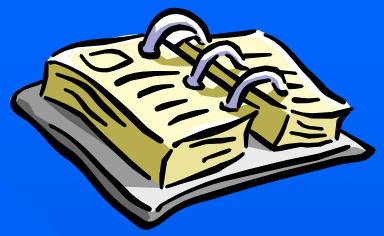
50.59 Considerations



- (vii) Result in a design basis limit for a fission product barrier as described in the FSAR (as updated) being exceeded or altered; or

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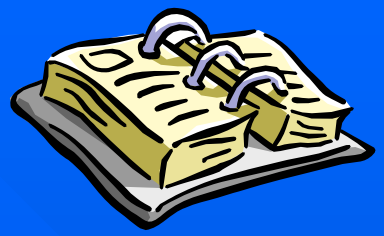
50.59 Considerations



- (viii) Result in a departure from a method of evaluation described in the FSAR (as updated) used in establishing the design bases or in the safety analyses.

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Summary

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Isotope Generation

Mechanical Design

Russ Higgins

October 4, 2007

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Use of Proven Materials/Processes

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Use of Proven Materials/Processes (continued)

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Summary

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Isotope Generation

Thermal-Mechanical Evaluation

Peter Diller

October 4, 2007

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Analysis Results

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ANSYS Results

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Summary

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Isotope Generation Nuclear Methods

Webb Mills

October 4, 2007

Areas of Review

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Nuclear Method Impact Review

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Nuclear Transmutation Reaction

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Benchmark Comparisons

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Benchmark Analysis

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Conclusion

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Process Description

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Conclusions

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Gamma Detector Response

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Gamma Detector Response

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Gamma Detector Response

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Conclusions

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Isotope Generation

CPR Considerations

Russ Fawcett

October 4, 2007

Overview

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Critical Power Predictions

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Statistics

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Summary

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Isotope Generation

Safety Analyses

Randy Jacobs

October 4, 2007

Areas of Review

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Stability

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Safety Analysis Conclusion

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Isotope Generation

Summary

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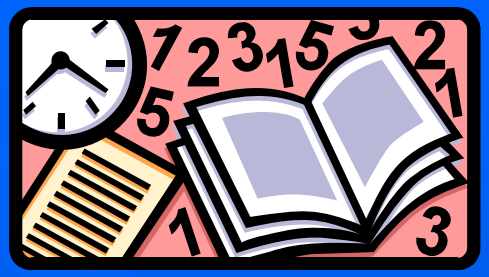
Meeting Objectives



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Introduction	60 min
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Summary

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