

generation *mPower* **NSSS Update**

May 22, 2013

(Redacted Version)

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This is a pre-application document and includes preliminary B&W mPower Reactor design or design supporting information and is subject to further internal review, revision, or verification.

generation
mPower
Agenda

Subject	Time
Introduction <ul style="list-style-type: none"> • Purpose/Objective • Background 	1-1:15PM
Overview of ECC <ul style="list-style-type: none"> • ECC response • ECC ADV and Injection Configuration Changes • ECC Long Term Cooling 	1:15-2:15PM
[] Design <ul style="list-style-type: none"> • Benefits • Design Changes 	2:15PM-3:15PM
Other Licensing/Design Change Topics <ul style="list-style-type: none"> • GSI 191 	3:15PM-3:45PM
Conclusions/Questions	3:45PM-4PM

[CCI per Affidavit 4(a)-(d)]



Purpose/Objective

- Provide overview of the ECC system
- Provide an update on the NSSS and [] designs
- Discuss other licensing topics
- Obtain NRC comments/feedback

[CCI per Affidavit 4(a)-(d)]



Overview of ECC



Overview of ECC

- ECC background
- ECC Injection and ADV Configuration Changes
- ECC Long Term Cooling



ECC Injection and ADV Changes



ECC ADV Configuration Changes



ECC ADV Configuration Changes

- Performed PRA to calculate CDF for internal events with only safety systems
 - Preliminary results showed a CDF []
 - Two options:
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ECC ADV Configuration Changes

- Biggest contributor to CDF was [common cause failure (CCF) of all identical ADVs (HP or LP)]

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ECC Injection Line Changes

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ECC Injection Line Changes

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Summary of Changes



Conclusions

- PRA informing the decision process
- New design is safe, reliable and risk informed
 - Diverse ADV design [improved CDF]

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ECC Long Term Cooling



ECC Operation

- ECC is designed to safely depressurize the RCS and provide long-term cooling



ECC Long-Term Operation – Loss of Heat Sink

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ECC Long-Term Operation – LOCA

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ECC Modification[

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ECC Modification[

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Functional Requirements ECC Long-Term Cooling

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[] Design Update



[] Benefits

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[] Design Changes

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[] **Design Considerations**

- Testing
- Inspection
- Leakage Detection
- Radiation Exposure
 - Performing shielding studies
 - Materials



[] **Design – Near Future**

- Continuing Work:

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- Beginning Work:

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Other Licensing Topics



Other Licensing/Design Change Topics

- GSI 191 Update
 - GSI 191 technical report is being prepared in accordance with RG 1.82 based on NRC feedback on the original GSI-191 paper received at the November 27, 2012 meeting
 - Planning to submit the technical report to NRC by the end of June 2013
 - Preliminary conclusions are:
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