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August 5, 2002

SUBJECT: Transmittal of Additional Information on AP1000 Piping Systems Qualified for Leak-Before Break

At our meeting on July 17, 2002 at your offices regarding our approach to applying Design Acceptance Criteria for AP1000 Design Certification, we informed the staff that we would provide a comparison table describing the piping analysis packages where Leak-Before Break analysis would be applied.

Attachment 1 provides this comparison table titled, "AP1000 Piping System Comparison of Lines Qualified for LBB." Hopefully, you will find this information useful in your preparation for our upcoming meeting at our offices later this month.

Please contact me if you have any questions regarding this information.

Very truly yours,

A handwritten signature in black ink, appearing to read "M. M. Corletti".

M. M. Corletti
Passive Plant Projects & Development
AP600 & AP1000 Projects

/Attachment

- 1) "AP1000 Piping System Comparison of Lines Qualified for LBB," dated August 5, 2002

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Attachment 1

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AP1000 Piping System Comparison of Lines Qualified for LBB			
Piping System	AP600 Description	AP1000 Description	Comment
Reactor Coolant Loop (RCL)	31" Hot Leg, 22" Cold Leg	No change in RCL piping size Increased Equipment Size (RPV, SG, RCP)	Based on extensive experience and high success rate of qualifying Reactor Coolant Loop piping for LBB in operating plants and AP600, and the similarity of the AP600 and AP1000 design, there is a high confidence that the RCL piping will be qualified for AP1000.
1 st , 2 nd , 3 rd Stage Automatic Depressurization System	6", 8", and 14" piping (LBB) 4" non-LBB	No changes in pipe size, routing, and support configuration for LBB (Class 1) portion. Safety valve discharge increased from 6" / 8" to 8" / 10". Discharge piping modified to accommodate taller pressurizer.	Based on <u>W</u> experience with AP600, and the similarity of the AP600 & AP1000 design, there is a high confidence that this piping system can be qualified for LBB. The consequences of not qualifying this system for LBB is limited to the piping system arrangement (i.e. supports, whip restraints, and jet shields, etc.) that would need to be modified. There are no sub-compartment pressurization impacts or flooding impacts.
Pressurizer Surge Line	18" piping	No changes in pipe size, routing, and support configuration.	Based on extensive experience and high success rate of qualifying surge line piping for LBB in operating plants and AP600, and the similarity of the AP600 and AP1000 design, there is a high confidence that the surge line will be qualified for AP1000.

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AP1000 Piping System Comparison of Lines Qualified for LBB			
Piping System	AP600 Description	AP1000 Description	Comment
4 th Stage ADS (East)	12" and 10" piping	Pipe size increased to 18" and 14" piping respectively. Pipe routing and support configuration remain the same.	Based on <u>W</u> experience with AP600, and similarity of pipe routing for AP1000, there is a high confidence that this line can be qualified for LBB. The consequences of not qualifying this line to LBB include changes to the piping system arrangement (i.e. supports, whip restraints, and jet shields, etc.) that would need to be incorporated. Potential increases in the subcompartment pressurization loads can be accommodated by the structure. There are no flooding impacts.
4 th Stage ADS (West)	12" and 10" piping	Pipe size increased to 18" and 14" piping respectively. Pipe routing and support configuration remain the same.	Same as 4 th Stage ADS (East)
<u>Normal Residual Heat Removal Suction</u>	20" and 12" piping	No changes in pipe size, routing, and support configuration.	Based on <u>W</u> experience with operating plants and with AP600, and the similarity of the AP600 & AP1000 design, there is a high confidence that this piping system can be qualified for LBB. There is a high confidence in qualifying this piping system because the design is the same as AP600.

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AP1000 Piping System Comparison of Lines Qualified for LBB			
Piping System	AP600 Description	AP1000 Description	Comment
<u>Passive RHR Return</u>	10" piping	Pipe size increased from 10" to 14" Piping layout and support configuration remain the same.	Based on <u>W</u> experience with AP600, and similarity of pipe routing for AP1000, there is a high confidence that this line can be qualified for LBB. The consequences of not qualifying this line to LBB include changes to the piping system arrangement (i.e. supports, whip restraints, and jet shields, etc.) that could be incorporated. Potential increases in the subcompartment pressurization loads can be accommodated by the structure. There are no flooding impacts.
<u>Direct Vessel Injection – A</u>	6" and 8" piping	Majority of LBB portion remains the same, i.e. pipe size, routing, and support configuration. Piping from IRWST and Cont. Recirc. Screen increased from 6" to 8". Small portion is LBB.	Based on <u>W</u> experience with AP600, and the similarity of the AP600 & AP1000 design, there is a high confidence that this piping system can be qualified for LBB.
DVI – B	6" and 8" piping	Majority of LBB portion remains the same, i.e. pipe size, routing, and support configuration. Piping from IRWST and Cont. Recirc. Screen increased from 6" to 8". Small portion is LBB.	Same as DVI-A
<u>Core Makeup Tank A Inlet Line</u>	8" piping	No changes in pipe size, routing, and support configuration.	Based on <u>W</u> experience with AP600, and the similarity of the AP600 & AP1000 design, there is a high confidence that this piping system can be qualified for LBB.

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AP1000 Piping System Comparison of Lines Qualified for LBB			
Piping System	AP600 Description	AP1000 Description	Comment
Core Makeup Tank B Inlet Line	8" piping	No changes in pipe size, routing, and support configuration.	Same as CMT A
Main Steam Line A	32" piping	Pipe size increased from 32" to 38" Routing modified to accommodate larger Steam Generators No change to support configuration	Based on extensive experience and high success rate of qualifying main steam line piping for LBB in previous designs (System 80+ and AP600), there is a high confidence that the main steam line piping will be qualified for AP1000.
Main Steam Line B	32" piping	Pipe size increased from 32" to 38" Routing modified to accommodate larger Steam Generators No change to support configuration	Same as Main Steam Line B