

GL 2008-01 Resolution Projected Out Look

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Water Hammer, Void in RCS, PIRT, Operability Flow Chart

Training Models (Op, Eng'g, Maintenance)

Void Transport (Purdue Test) - 7/31/10

Simplified Equation - 8/16

Roadmap Project (2010)

(Pump Void Acceptance Criteria)

1. Industry Webcast - 6/17
2. Survey Distribution - 6/25
3. Survey Completion - 7/27
4. Expert Panel - 8/25 & 26
5. Possible Completion - 12/31

TSTF Submittal - 6/30

Guidance Based on RAIs

1. Dynamic Venting
2. Leakage Characterization
3. Training
4. System / Operation Modes
5. Surveillance Frequency
6. Void Measurement

NEI 09-10 Revision 1 - December 2010

Guidance Based on RAIs

Topic	Where / Plan to Address
Dynamic Venting	Gas Transport Report
Pump Void Acceptance Criteria	Simplified Equation / Roadmap
Leakage Characterization	NEI 09-10 Rev. 1
SI Flow Delay Due to Gas Voids	NEI 09-10 Rev. 1 OG-08-293 / BWROG-09034
PUMP NPSHr	APC letter / GSI-191
Training	INPO

Guidance Based on RAIs (con't)

Topic	Where / Plan to Address
System / Operation Modes	NEI 09-10, Rev. 1
Surveillance Frequency	NEI 09-10, Rev. 1
Void Measurement	NEI 09-10, Rev. 1
Vortex	WCAP-11916 on Mid-Loop
Physical Pump Monitoring	NEI 09-10, Rev. 1
TSTF	

Possible Dynamic Venting Guidance

■ Flush Out Most of Gas Pockets

■ $T = \phi * (V\text{-system} / Q)$

Where T : The minimum time required to flush out voids

$V\text{-system}$: Downstream system water volume

Q : Dynamic flow rate

ϕ : Number of sweeps of system as function of Fr .

No credit for dynamic venting for Fr less than 0.8

$\phi = 20$ for $0.8 \leq Fr < 1.0$

$\phi = 10$ for $1.0 \leq Fr < 1.2$

$\phi = 5$ for $1.2 \leq Fr < 1.5$

$\phi = 3$ for $1.5 \leq Fr < 2.0$

$\phi = 2$ for $2.0 \leq Fr$