



BWR Owners' Group ECCS Suction Strainers Issue Resolution

Steve Scammon, Chairman
BWROG ECCS Suction
Strainers Committee

Regulatory Information
Conference

March 8, 2011
Bethesda, MD



March 8, 2011

1

Topics

- History
- BWR Industry Response
- BWROG Project Structure
- Subcommittee Activities
- Recent Interaction with NRC Staff
- Current and Near-Term Activities
- Acronyms

March 8, 2011

2

History

Boiling Water Reactor (BWR) strainer concerns first resolved in mid-1990's

Discoveries from Pressurized Water Reactor (PWR) sump screen project (GSI-191) prompted new questions for BWR strainers

Emergency Core Cooling System (ECCS) Suction Strainer performance during accidents is subject of new analysis

March 8, 2011

3

BWR Industry Response

BWR Owners' Group (BWROG) charged with updating validation of strainer performance based on recent PWR analyses

ECCS Suction Strainer Committee was created to drive resolution of new issues

Results of the closure of GSI-191 items drives strategy for BWROG program

March 8, 2011

4

BWROG Project Structure

Four subcommittees created:

- Source Term
- Downstream Effects – Fuel
- Downstream Effects – Components
- Strainer Head Loss

March 8, 2011

5

Source Term Issues

Latent debris

Zone Of Influence (ZOI) issues

- Size of destructive zone
- Coatings

Chemical effects

March 8, 2011

6

Downstream Effects – Fuel Issues

BWR industry uses fuel from three vendors; all must be analyzed for:

- Fuel bundle inlet debris filter plugging
- Local bundle plugging
- Debris deposition on fuel cladding
- Consequences for cladding temperature

March 8, 2011

7

Downstream Effects – Components

Components other than fuel may be affected by debris traveling past ECCS suction strainers

BWROG analyzing for:

- Plugging of pumps, valves and fittings
- Long-term effects of abrasion

March 8, 2011

8

Strainer Head Loss Issues

Near field effect

Thin bed effect

Calcium silicate and micro-porous insulations

Non-homogeneous debris beds

March 8, 2011

9

Recent Interactions with NRC Staff

Resolution strategy meetings covered twelve resolution topics

- Discussed technical rationale for resolving safety concerns
- Presented milestones by quarter through the end of the project
- Held monthly meetings August-November 2010

March 8, 2011

10

Current and Near-Term Activities

Data collection surveys are underway for details on the following:

- Strainer headloss testing
- Coatings assessment programs

Determination of applicability of 40% reduction in damage pressure

March 8, 2011

11

Current and Near-Term Activities (continued)

Strainer debris bypass testing

Qualified coatings ZOI assessment

Description of debris characteristics

Fuel test planning

March 8, 2011

12

Acronyms

BWR: Boiling Water Reactor
BWROG: Boiling Water Reactor Owners' Group
ECCS: Emergency Core Cooling System
GEH: GE Hitachi Nuclear Energy Americas, LLC
GSI: Generic Safety Issue
NRC: Nuclear Regulatory Commission
PWR: Pressurized Water Reactor
ZOI: Zone Of Influence

March 8, 2011

13
