Industry Activities to Resolve GSI-191

December 20, 2006

General Status

- Strainer designs generally complete with installations either finished or planned for upcoming outages
- Strainer testing w/o chemical effects generally complete
- Strainer testing w/ chemical effects generally scheduled for 2007

General Status

- Estimates of chemical effects impact show significant headloss for “high fiber” plants
- Activities are underway to address chemical effects impact in two general categories
  - Reduce debris at screens
  - Reduce precipitant generation
- Chemical effects activities are being managed in parallel with pre-established schedules

Key Areas of Activity

- Outage Activities
- Strainer/Interceptor Tests
- Debris Transport/Settling
- Debris Generation Tests
- Debris Characterization
- Chemical Effects
- Downstream Evaluation

Outage Activities

- Strainer installations with associated modifications
- Insulation modification
- Latent debris reduction
- Material removal/relocation
- Buffer changes

Strainer/Interceptor Tests

- Strainer validation/qualification testing for each plant application continuing
  - Debris testing w/ and w/o chemical effects
  - Vortex testing
- Qualification testing of site specific "interceptor" designs

Debris Transport/Settling

- Plant sponsored testing to determine incipient, bulk and settling velocities for various materials, including
  - Coatings
  - Conductor jacketing material
  - Labels
  - Tape
  - Cable ties
- Refined transport analysis

Debris Generation/ZOI Testing

- Plant sponsored destruction pressure (ZOI) testing for various materials, including
  - Coatings
  - Encapsulated Temp Mat insulation
  - Double-jacketed Cal-Sil insulation
  - Single-jacketed Cal-Sil with banding at 3” centers
  - Encapsulated Min-K insulation
  - Jacketed NUKON
  - 3M insulation
  - Prz heater cable; Cable tray w/ PRZ heater cable & SS cover

Erosion/Dissolution Testing

- Plant sponsored erosion/dissolution testing for various materials, including
  - Cal-Sil insulation
  - Cable tray fire stop material
  - Nukon
  - Kaowool
- Plant sponsored DBA testing on delaminated coatings to characterize size distribution

Debris Characterization Studies

- Plant sponsored SEM investigations of various materials to support correlations, selection of surrogate materials, etc.
  - Mineral Wool
  - Cal-Sil
  - Bypass materials
- Coating Erosion/Abrasion testing in support of downstream effects

Chemical Effects

- Plant specific Aluminum inventory
- Modifications to source materials
- Plant sponsored Aluminum corrosion studies
- PWROG chemical effects model
  - Silica and Phosphate inhibition
  - Aluminum alloy corrosion data
- Buffer Modification

Potential Modeling Enhancements

- Crediting of limited lateral displacements at certain postulated break locations
- Extension of debris size categories to 4 from 2
- Conical vs. Spherical ZOI
- Transport model refinements

Other Design/Operation Modifications

- Water Management Initiative
  - Removal of Automatic Containment Spray operation for a LOCA
  - Termination of spray on recirculation
  - One ECCS train on recirculation
- Debris interceptors
- Flow diverters