
EXAMPLES OF INDUSTRY-INITIATED JET IMPINGEMENT TESTING

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JET IMPINGEMENT TEST OBJECTIVES

- In general, testing was performed to reduce the Zone of Influence (ZOI)
- There were two different but related end purposes
 - Demonstrate reduced the Zone of Influence (ZOI) for existing in situ materials and material configurations
 - Demonstrate performance of designs to protect materials

TEST DESCRIPTION

- Test conditions are as follows:
 - Initial Temperature of Fluid Source: 530 °F
 - Initial Pressure of Fluid Source: 2050 psia
 - Nozzle Size (nominal diameter): 3-inch
 - Volume of Fluid Reservoir is sufficiently large to allow for a 30-second blowdown
- Jet simulation
 - Use of a double rupture disc configuration
 - Provides for inclusion of “shock wave” loading
- Test articles located in jet path
 - Distance from jet nozzle specified

TESTS COMPLETED IN 2006

Diablo Canyon

- Exposed electrical cables
 - Continental, silicone rubber, with a silicone rubber jacket, 2 conductor # 16 AWG, Stock Code 94-5656
 - Raychem, cross linked polyethylene (XLPE) with a XLPE jacket, 4 conductor #14 AWG, Stock Code 94-5381
 - Okonite, ethylene propylene rubber (EPR) with a Hypolon bonded jacket, single conductor #8 AWG, Stock code 79-0993 Reduced ZOI for cables
 - Reduced ZOI for cables
- Min-K Insulation on Steam Generator
 - Demonstrated performance of jet deflector
- Protected electrical cable trays
 - Demonstrated performance of cable tray covers

TESTS COMPLETED IN 2006

- Callaway/Wolf Creek
 - Encapsulated Min-K thermal insulation
 - Configuration typical of the plant
 - “Wagon Wheel” at bio-shield penetration
 - Ex-core detector at reactor vessel (cavity) shell
 - Reactor vessel top head
 - Demonstrated performance of existing design
 - Jacketed NUKON® thermal insulation
 - Demonstrated no damage at 13 D ZOI
- PWR Owners Group
 - Lead Blankets
 - Demonstrated post-accident survivability

SAMPLE OF TESTS PLANNED FOR 2007

- Focus is on demonstrating reduced ZOI for the materials tested
- TVA
 - Min-K
 - 3M Fire Wrap
- Callaway/Wolf Creek
 - Additional jacketed NUKON® thermal insulation
- Diablo Canyon
 - At least one additional cable test

Initial Photographic Documentation of Jet Impingement Tests

DCPP Cable Test – 5D

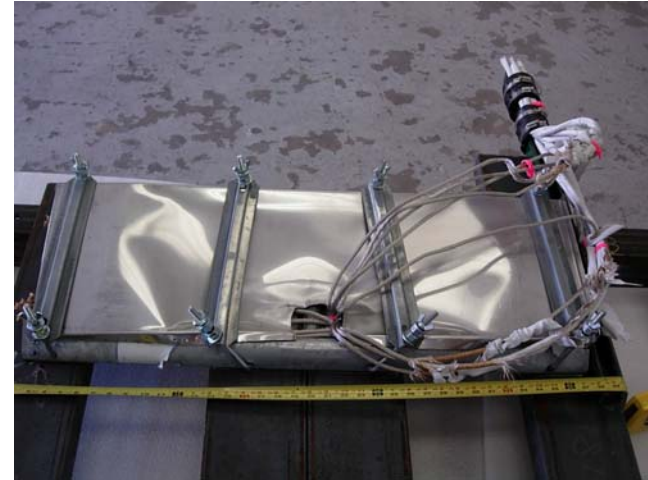
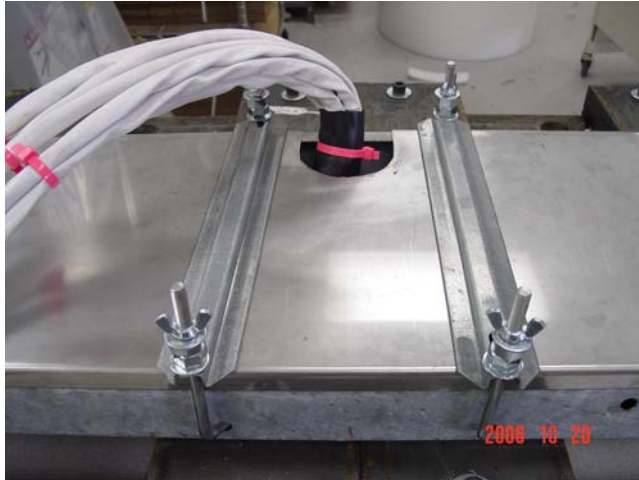


Pre-test Photos of Cables



Post-test Photo of Cables

DCPP Cable Tray Shield Test – 2D



Pre-test Photos

Post-test Photos

Callaway/Wolf Creek NUKON[®]



Pre-test Photos



Post-test Photo:
No Damage to Jacketed Insulation