Westinghouse Jet Pump Slip Joint Extension (SJE) is the industry’s first proven root cause solution for Flow-induced Vibration (FIV).

The SJE offers a low-cost, low-risk effective solution that eliminates jet pump FIV by changing the flow across the slip joint from divergent (unstable) to convergent (stable).

**Benefits**

- Addresses the root cause of FIV, reducing vibration to near background levels
- Eliminates the need for existing countermeasures (“jewelry”) hanging from the components
  - Reduces foreign object risks
- Simple to install
  - No jet pump disassembly
  - No cutting or drilling
- Does not rely on physical restraint
- Does not inhibit movement or thermal growth of the jet pump
- Effective in both normal and single-loop operation
- Does not change the design basis of the jet pump

**Westinghouse Slip Joint Extension (SJE)**

![Diagram of SJE installation](image)

**Typical Jet Pump vibration plot without corrective measures**

![Graph of vibration levels](image)

**Jet Pump vibration levels to near background with Westinghouse SJE installed**

![Graph of vibration levels with SJE](image)
Description

The SJE is a two-piece clamp device that attaches directly to the existing slip joint. It is designed with:

- Stainless steel construction
- No drilling or modifications needed to the existing slip joint
- Radial clearance to allow for movement and thermal growth during operation
- Clearance to allow leakage flow into and out of the slip joint region, depending on the differential pressure at the joint
- All fasteners locked or restrained to prevent potential foreign objects

Westinghouse Slip Joint Extension (SJE)

Additional Benefits

- Alternative to jet pump replacement
  - Mitigates effects of prior wear or slip joint damage
- Creates optimal flow through the slip joint

Delivery

Supplied as an integrated service, including:

- Hardware
- Design and qualification package
- Engineering change package
- Installation
  - Typically installed in two to four hours
  - Done by trained and qualified technicians
  - Uses standard long-handled tools
  - Requires no jet pump disassembly

Testing

- Successfully tested at Electric Power Research Institute’s (EPRI) Fast Flux Test Facility (FFTF) in March 2017

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