Fatigue Testing of High Strength Mechanically Connected Steel Riser
8” 15Ksi Mechanical Connector Qualification

Connector Design
- 8.625” OD x 0.980” WT
- 110 ksi min. yield strength
- 15,000 psi design pressure
- Yield tension capacity of 2,589 kips
C110-C110 Friction Welding Qualification

- **API C110 Material Preparation**
  - Cut and machine full scale material for fatigue specimen trial welds
  - Friction trial welds are fully heat treated
    - Austenitize for 1.5 hours at 1600 °F – water quench – Temper at 1280 °F for 2 hours
Mechanical Test Plan

- Mechanical Tests (per API 1104, API 5CT)
  - Tensile Tests
  - Charpy V-notch Tests (CVN)
  - Bend Tests
  - Macro Examination (etched cross-section)
  - Micro Examination
  - Hardness Surveys

- Non-Destructive Examination
  - Liquid Penetrant on Cut Test Blanks
Fatigue Test Plan

Pin & Box Connector Rough Blanks

Fatigue Extension Pipes

Friction Weld Pipes (Type 1)

Friction Weld Pipes (Type 2)