IDTEXPO
innovation + design + technology

Technology Meeting

Hilton Garden Inn | Houston, Texas

Thursday, December 5, 2019 | 9:00 – 11:15 AM

IDTEXPO.com

Today's Schedule

MORNING SESSION

9:00 AM to 9:15 AM
Welcome and Introductions (Chris Alexander, IDT EXPO)

9:15 AM to 9:45 AM
Pipeline Research / Recent PHMSA awards (Gary Hines, PRCI)

9:45 AM to 10:15 AM
Achieving alignment with advanced pipeline research (Mark Piazza, Colonial)

10:15 AM to 10:50 AM
Recent Joint Industry Programs:
- Spoolable Pipe Technologies (Chantz Denowh, ADV)
- MMT (Simon Bellemare, MMT)

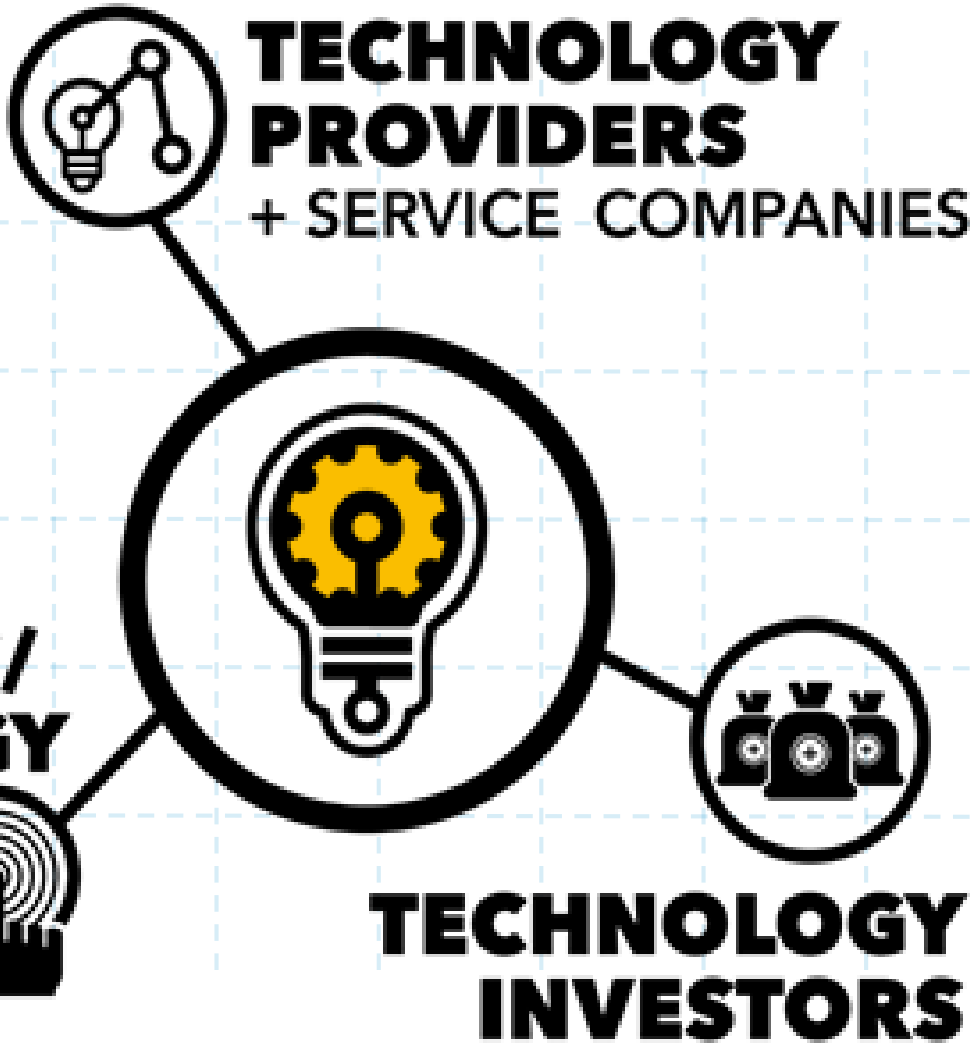
10:50 AM to 11:00 AM
Morning Wrap-up (Chris)

Why are we here?

*The concept for IDT EXPO really started back in 2009 with the formation of the **Composite Repair Users Group…***

- The energy industry continues to drive innovation and the development of advanced technologies
- Challenges exist in connecting operators with advanced technology companies
- IDT EXPO has been created to *mind the gap*

The Key Stakeholders



Pipeline Research / Recent PHMSA Awards

Gary Hines (PRCI)

(9:15– 9:45 AM)

Achieving Alignment with Advanced Pipeline Research

Mark Piazza (Colonial)

(9:45- 10:15 AM)

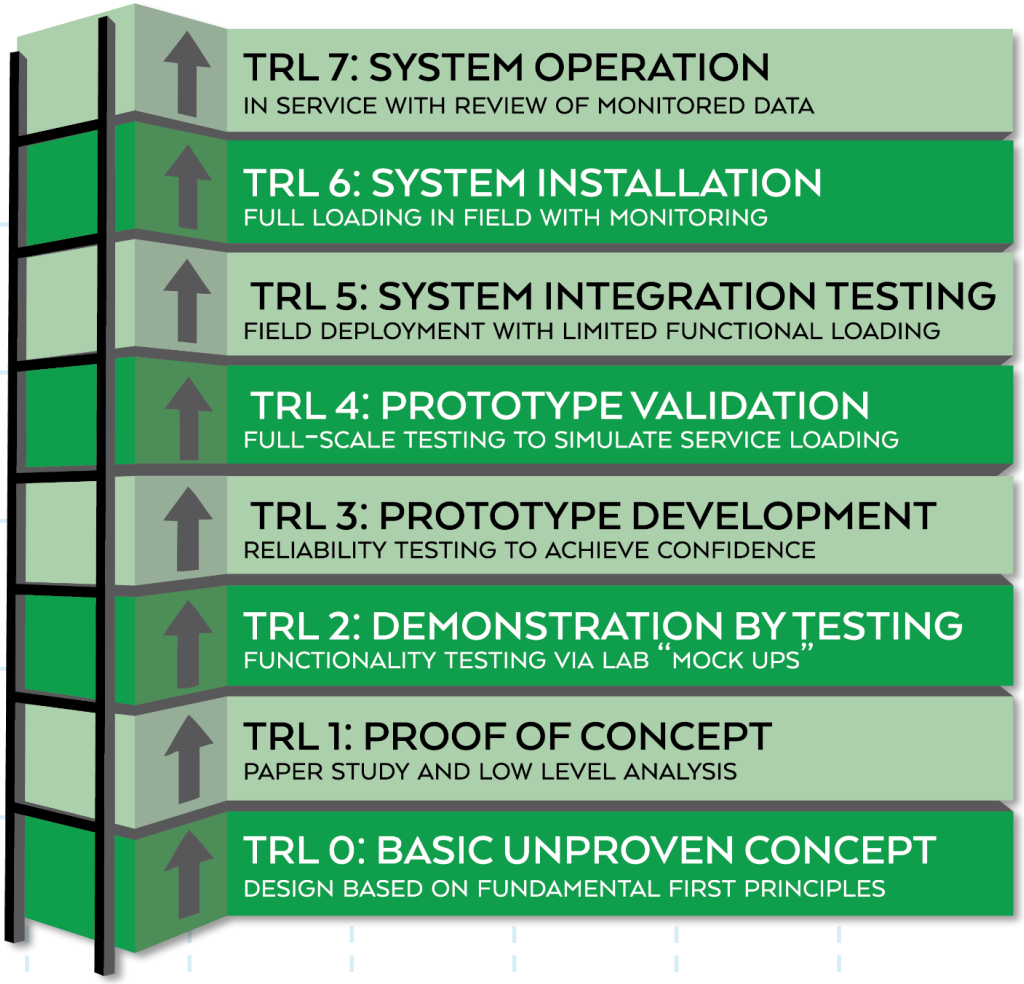
Recent Joint Industry Programs

Spoolable Pipe Technologies (Dr. Chris Alexander, ADV)
Technology Validation (Dr. Simon Bellemare, MMT)

(10:15– 10:50 AM)

Technology Readiness Levels (TRLs)

The TRL "ladder" provides us with a *process* to advance technologies from concept to full implementation.

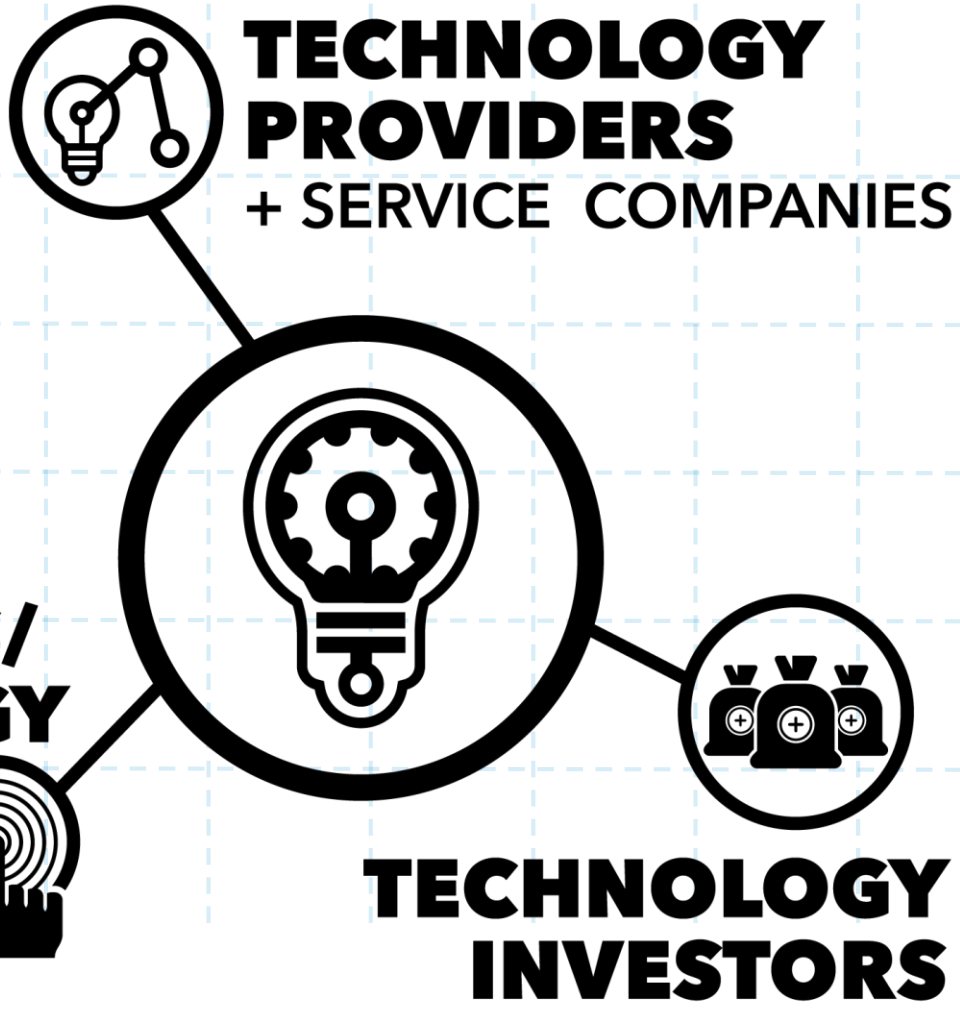


“Why” use the TRL?

- Technology development and implementation are difficult
- There is a tendency of “over-sell” technology performance
- Industry needs a platform for evaluating technology
- Integrating TRLs is the “How” to the “Why”

Technology Participants

Why is the TRL important for each of these participants?



What is a JIP?

- Typically, focused on an industry problem, concern, or question
- Involves multiple companies and people
- Collaboration – getting people to work together
- Pipeline industry has been an ideal environment for conducting JIPs
- The bigger the “challenge”, the greater the interest in participation

What makes JIPs Attractive?

- Solve significant problems that might be too expensive to solve in a single project
- Leveraged benefits both financially and through shared experiences
- Opportunity to simultaneously evaluate multiple technologies
- Can provide technical data to open discussions with regulators
- JIPs create marketplace “awareness”

Tips for organizing JIPs

- Identify an industry need
- Identify the key players (e.g., operators and technology companies)
- Determine benefits for all participants
- Identify what participants are willing to pay
- Determine the minimum required participation level
- Identify if JIP results will impact regulations
- Don’t be afraid to break up big problems into phases

Presentation Overview

- JIP participants (operators & manufacturers)
- Test matrix
- Testing configurations
- Project schedule
- Path forward: *Roles & Responsibilities*

JIP Participants

OPERATORS (6)	MANUFACTURERS (7)
BP	BHGE (Polyflow)
Chevron	FlexSteel
ExxonMobil	NOV
OXY	Pipelife (Soluforce)
PG&E	Primus Line
TransCanada	Shawcor

Main Testing Themes

- Develop an understanding on **end connector** bending capacity
- Quantify pipe-end connector **stiffness** based on load-deflection data
- **Low cycle / high strain** loading being integrated into the program
- Apply **cyclic pressures** combined with bending loads
- Integrating **inspection technology** into program (Sonomatic's DRS and CT)

Test Matrix in Review

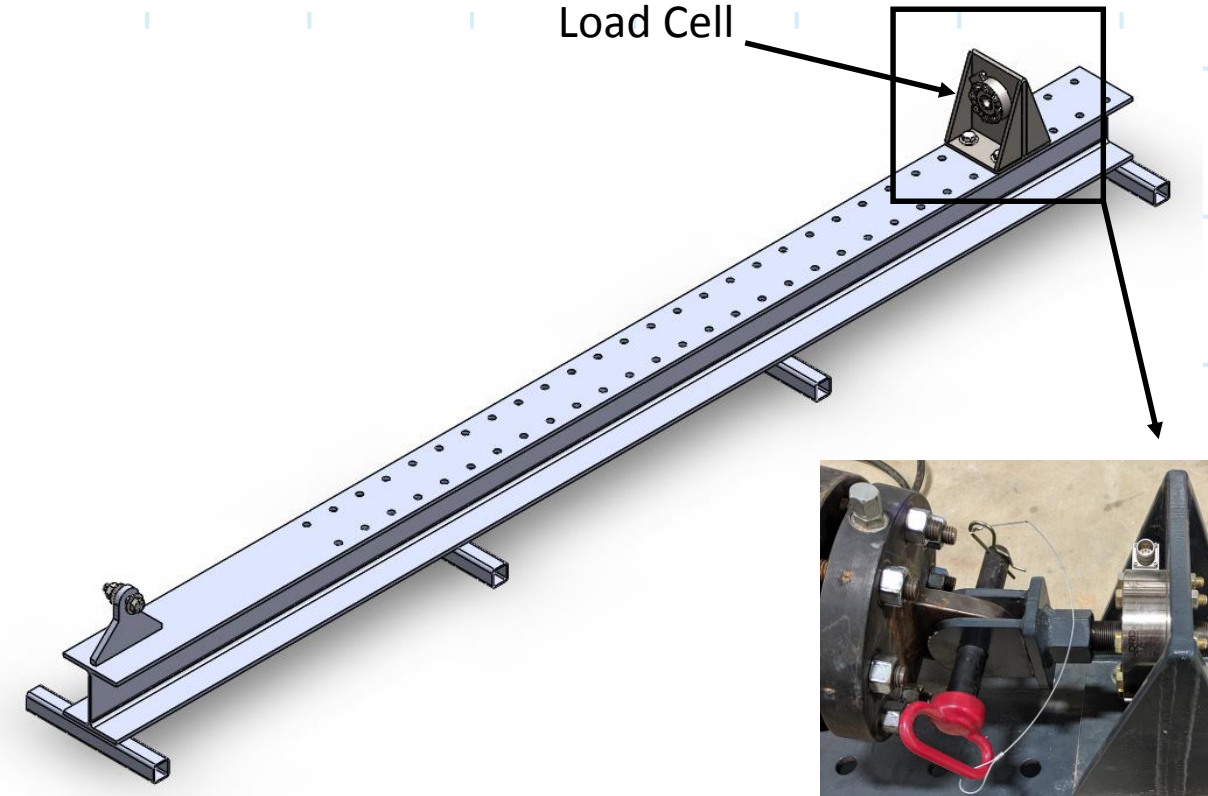
1. Static pressure with axial tension and bending loads
2. Cyclic pressure with constant bending (1)
3. Cyclic pressure with constant bending (2)
4. Cyclic pressure with constant bending (3)
5. Extra “contingency” pipe sample

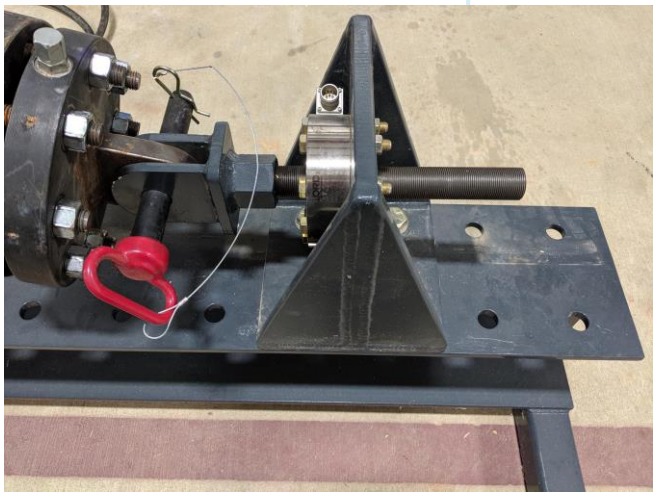
Additional Sample Details

- Sample size and maximum pressure rating
  - 4-inch, 1,500 psi
- ANSI #600 flanged end fittings
- Total sample length of approximately 15-ft
  - Flange to flange
- All samples purposefully manufactured straight
  - Prevent preloading in fixture from forcing samples straight

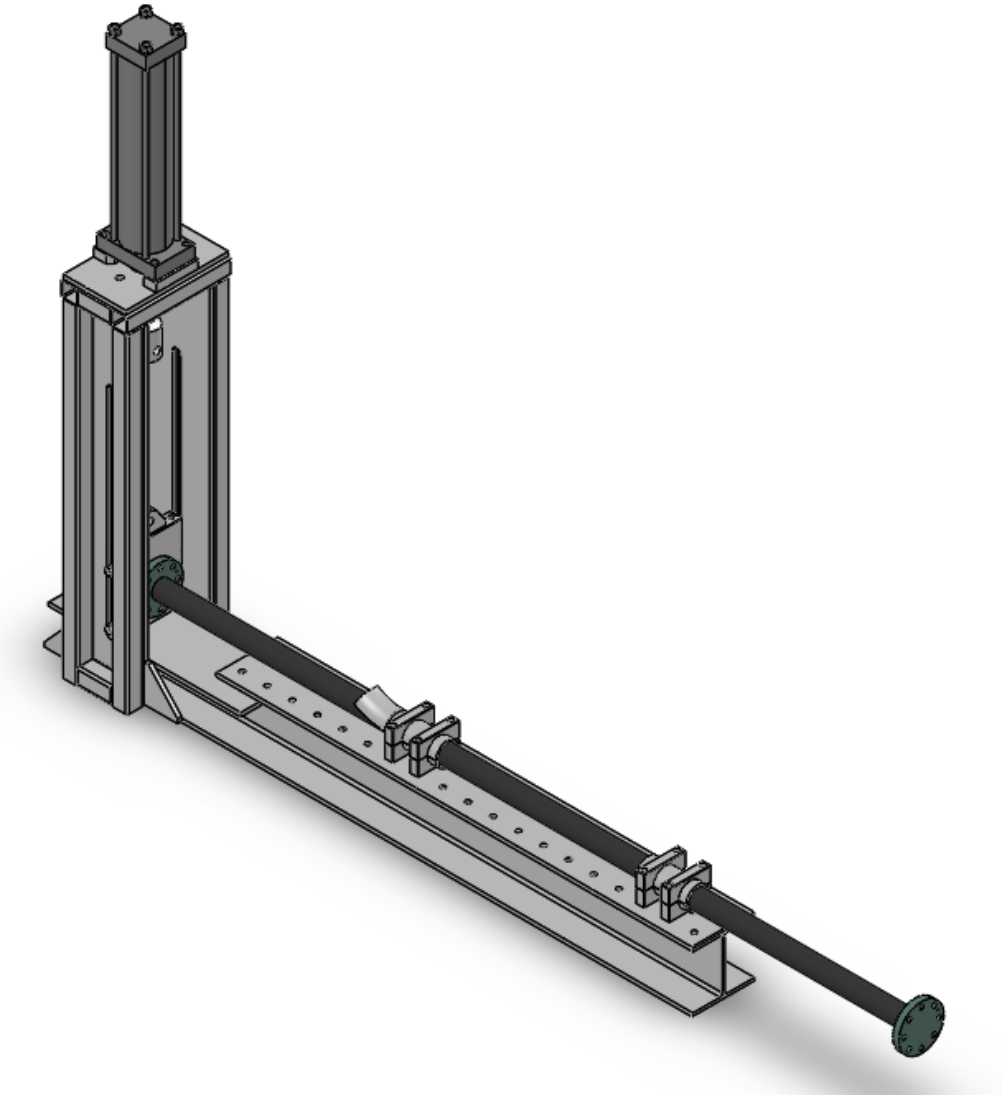
Spoolable Pipe Joint Industry Program Load Frames (CLASPS-01)

Axial Tension Frame



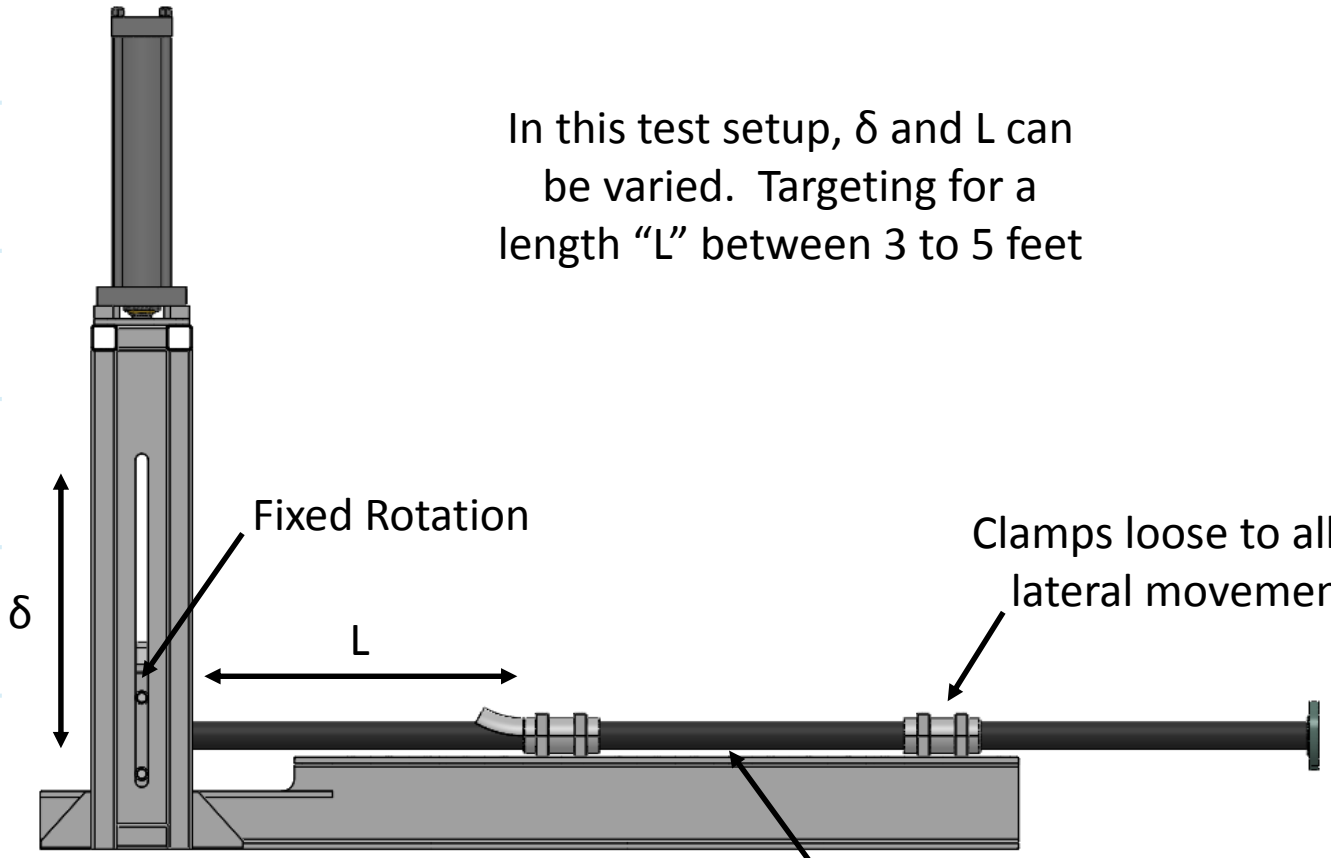


CLASPS Test Fixture (1/3)

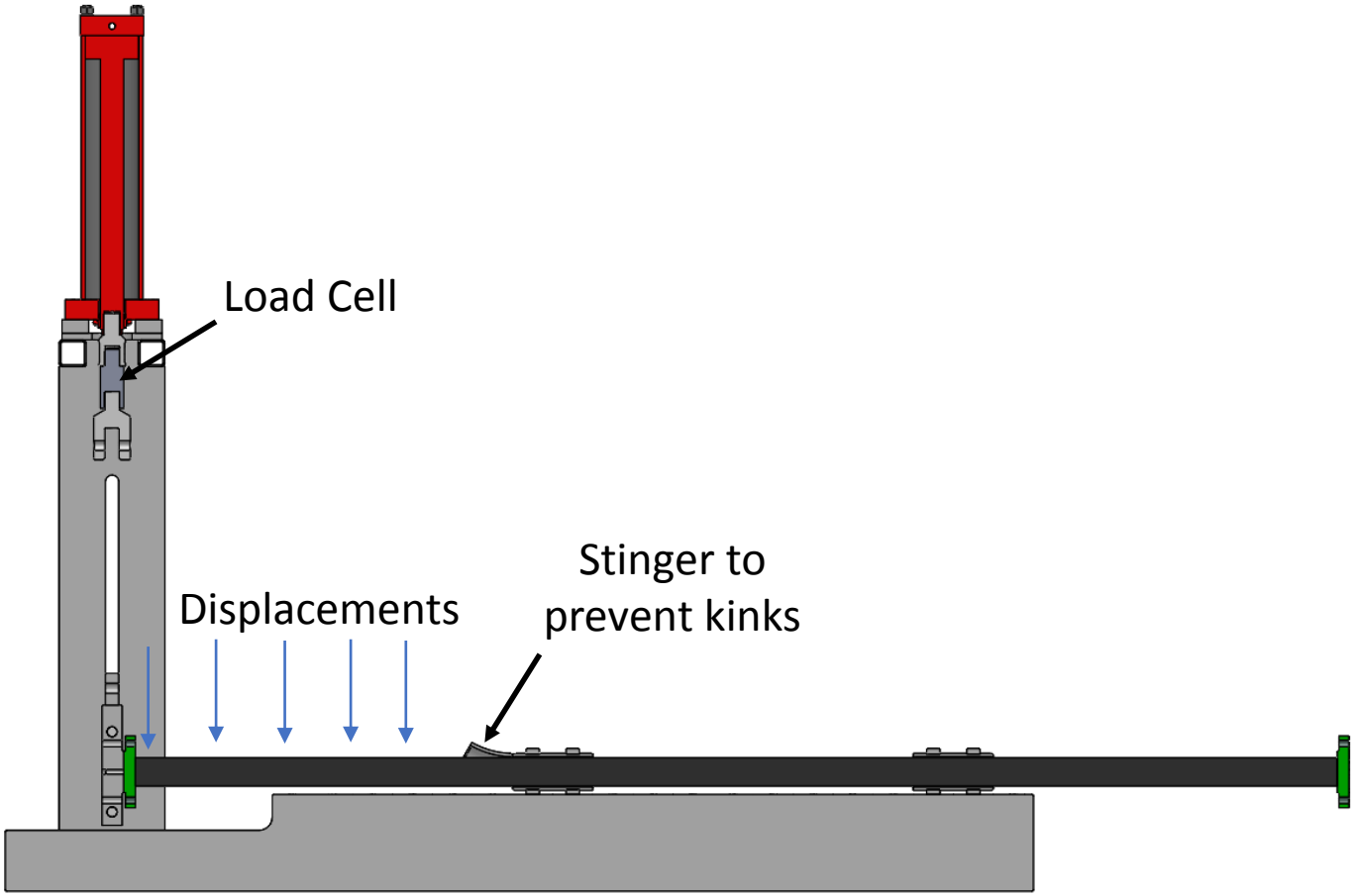


CLASPS Test Fixture (2/3)

In this test setup, δ and L can be varied. Targeting for a length "L" between 3 to 5 feet



CLASPS Test Fixture (3/3)



Project Schedule

Phases of Work	Schedule
Contracts and Confirm Participation	January – February 2019
Project Kickoff for JIP Participants	April 2019
Complete Contracts	September 2019
Sample Delivery	November 2019
Test Configuration 1	December 2019 – January 2020
Test Configuration 2	January 2020 – May 2020
Data Analysis and Reporting	(late) May 2020
Final Results – Meeting in Houston	June 2020

Short Break

(11:00 – 11:30 AM)

Lunch Break

(11:30 AM – 12:00 PM)