



Magellan Midstream Partners

Hazardous Liquid Integrity Verification Workshop

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Agenda



- **Magellan's MOP Verification Program**
- **Integrity Management further validates safe operating pressures**
- **Longhorn Pipeline Project**

MOP Verification



- **Maximum Operating Pressure (MOP) is established in accordance to 49 CFR 195.406.**
 - As-built Pipe Specifications (Supplemented by MTR's)**
 - As-built Component Ratings (Supplemented by MTR's)**
 - Subpart E Pressure Tests**
- **MOP calculations and determination process is thoroughly documented.**
- **MOP's are revalidated at least every five years. Revalidation includes:**
 - Review of Pipe Specification As-builts/MTR's**
 - Review of Component Rating As-builts/MTR's**
 - Review of Subpart E Pressure Test Record documentation**
- **MOP revalidation is supplemented by review of discharge set points, shutdown settings, surge analysis, relief capacities, etc.**



Integrity Management

Integrity Management is the integration of data in the risk analysis process.

Provides supplemental confirmation to the Subpart E Pressure Test

Risk analysis based on physical knowledge of the assets.

Operating History

Inspection History

% SMYS

Surge Analysis

Lowest Predicted Failure Pressure

Integrity Threats

Integrity Testing Results

MOP Verification

Pressure Test Records

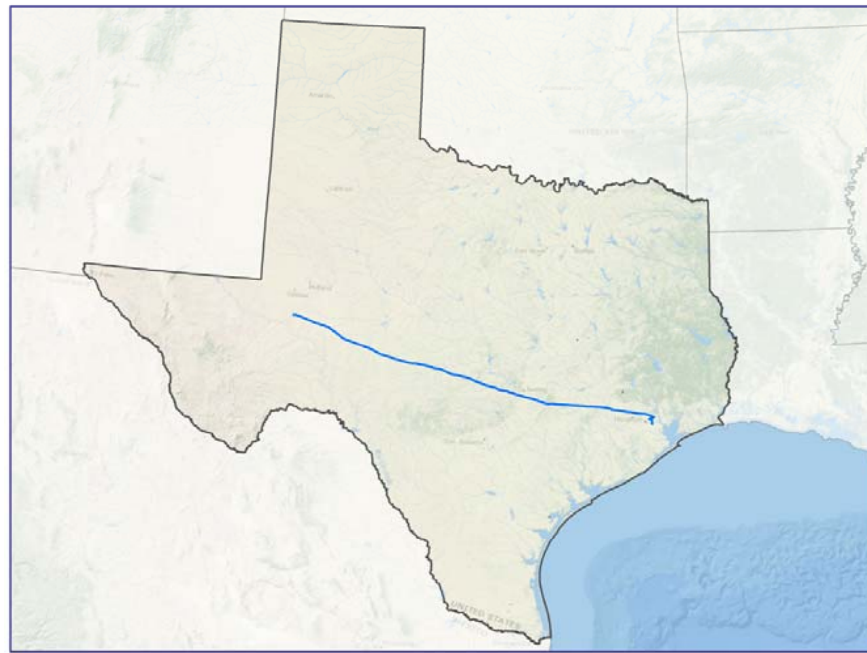
Location & Terrain (HCA's)

Magellan's Integrity Management Program produces the assessment and resulting actions to further validate safe operating pressures.

Longhorn Pipeline Project



- **Magellan Longhorn Pipeline is a 500 mile crude pipeline from Crane, TX to Houston, TX.**
- **Pipeline is a 1950's vintage asset.**
- **Limited availability to Legacy Material Test Reports (MTR's).**
- **Subpart E pressure tested in 1999/2000 at a minimum of 1.25 times MOP for 8 continuous hours.**





Material Documentation



- Longhorn Pipeline project scope required the pipeline to be purged.
- Included in the permit approval were requirements to conduct cutouts for destructive testing in conjunction with non-destructive NDE testing.
- Cutouts for destructive testing were based unique vintages of pipe where MTR's were not available.
- Non-destructive NDE was utilized to further validate the technology for future in-situ examinations.
- Results:
 - In all cases where destructive testing was completed, the pipe samples were validated to meet the minimum specifications documented in the as-built records.
 - The non-destructive NDE compared favorably with the values determined through destructive testing (yield and tensile strength).
 - Magellan has committed to conduct non-destructive NDE on 50% of all ILI based repairs. To date, all findings confirm as-built documentation.

Conclusion



- **Magellan's MOP Verification Program**
 - Valid pressure test at a minimum of 1.25 x MOP
 - Review and document as-built pipe records
 - Research availability of MTR's
 - Utilize pipe cutout opportunities to destructive test pipe samples and further develop statistical sampling dataset for each pipeline.
 - Routinely validate MOP's calculations
- **Magellan's Integrity Management Program further validates safe operating pressures**
- **Longhorn Pipeline**
 - Pressure test validated as-built documentation.
 - Destructive/Non-destructive testing provided further validation of representative samples.