



# Evolved Perspective of Composite Wrap Repairs

CRUG 2014 Quarterly Meeting

# Evolved Perspective of Composite Wrap Repairs



**Angie D. Gobert**  
**CRUG 2014 Quarterly Meeting**  
**Houston, TX**  
**May 15, 2014**

# Overview



- **BSEE and its Mission**
- **Pipeline Section Staffing**
- **GOM Pipeline Infrastructure**
- **Pipeline Application/Plan Statistics**
- **Pipeline Repair Regulations & Statistics**
- **Composite Repair Policy Evolution**
- **Path Forward**



# **BSEE and its Mission**

**Reducing Risk Offshore**

# Department of the Interior's Offshore Regulatory Structure

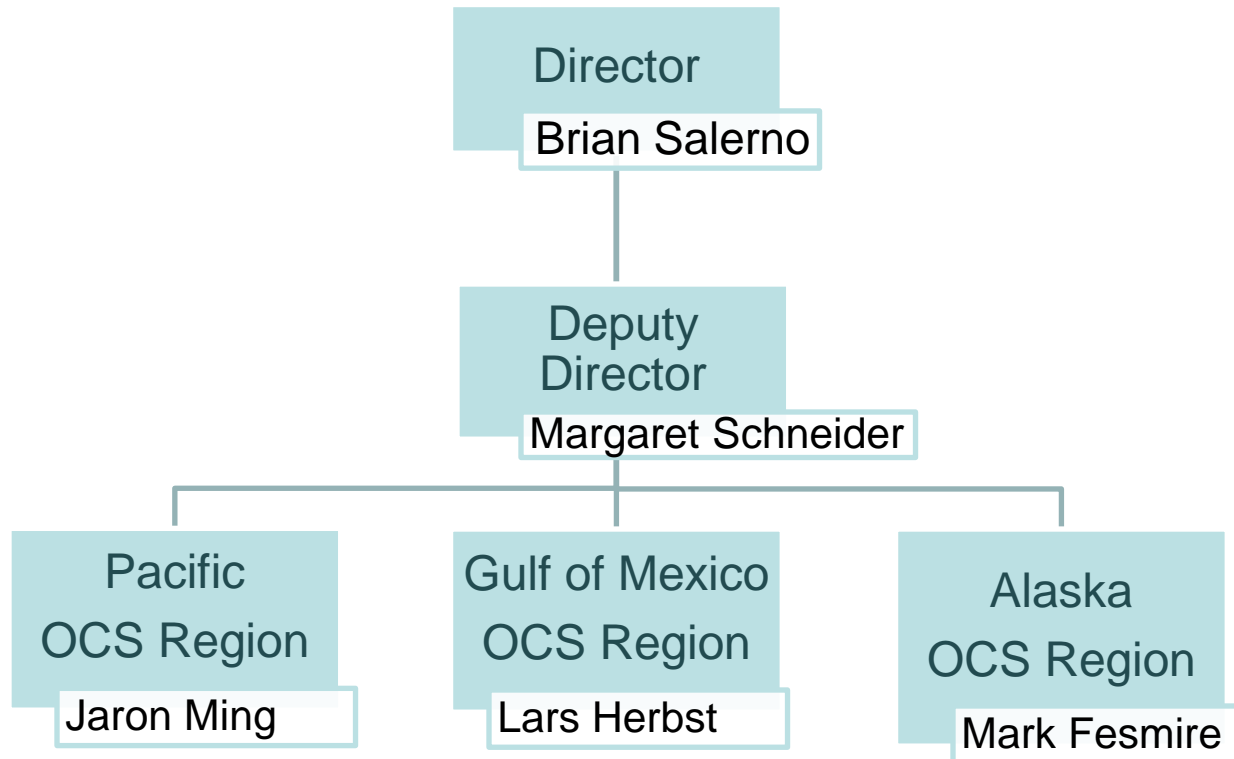


Bureau of Safety  
and  
Environmental  
Enforcement  
(Brian Salerno)

Bureau of  
Ocean  
Energy  
Management  
(Vacant)

Office of  
Natural  
Resources  
Revenue  
(Greg Gould)

# Bureau of Safety and Environmental Enforcement



# BSEE Gulf of Mexico OCS Region



Regional  
Director

Lars Herbst

Senior Advisor

Kevin Karl

Deputy  
Regional  
Director

Michael Prendergast

Technical  
Advisor

Cathy Moser

# Headquarters' Offices GoM OCS Region Based





# Gulf of Mexico OCS Region Regional Director Lars Herbst



Deputy Regional  
Director

Michael Prendergast

Production and  
Development  
Regional Supervisor

Richie Baud

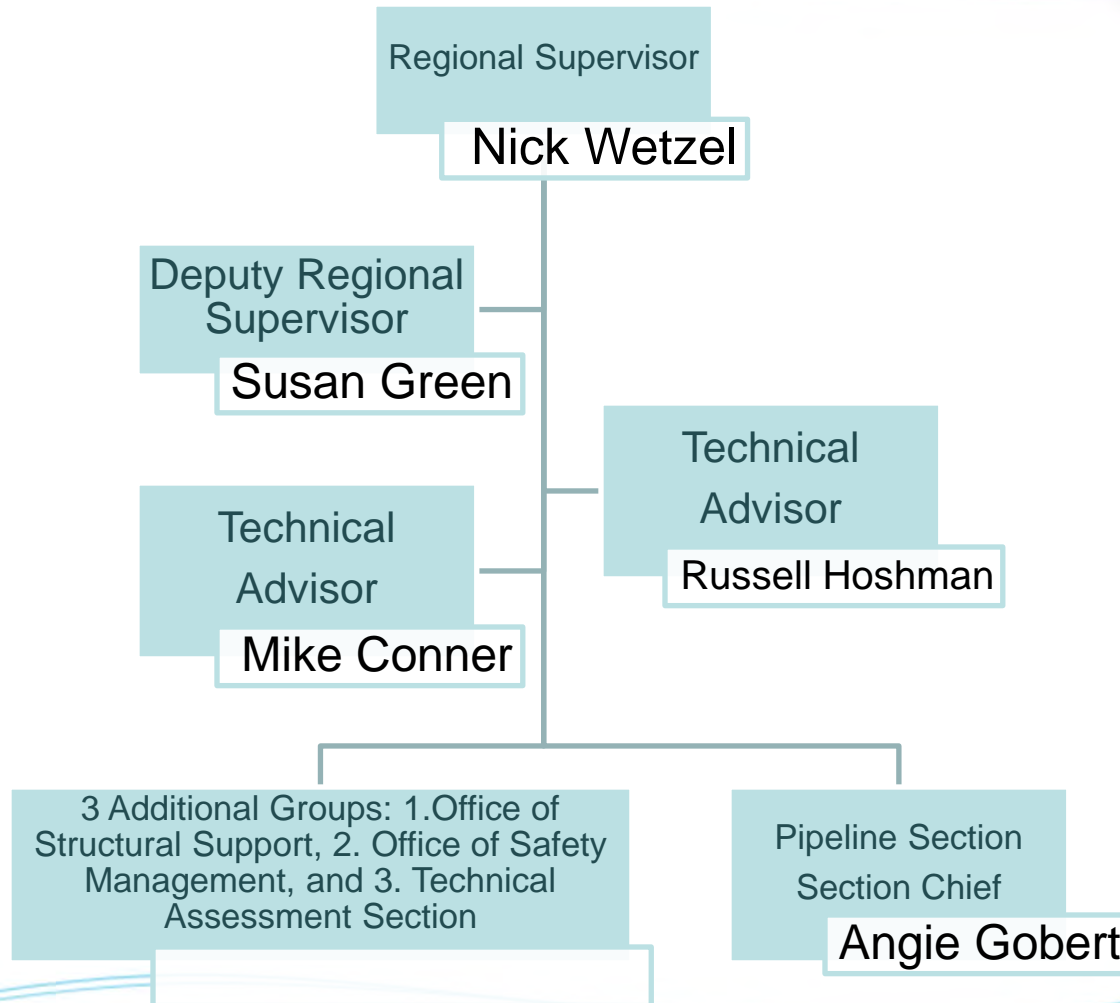
Regional Field  
Operations  
Regional Supervisor

Nick Wetzel

District Field  
Operations  
Regional Supervisor

Mike Saucier

# Gulf of Mexico OCS Region Regional Field Operations





# Pipeline Section Staffing

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**Regional Field Operations**  
**Regional Supervisor Nick Wetzel**  
**Pipeline Section, Chief Angie D. Gobert**



**Secretary**

**Program Specialist**

**Cartographer**

**Junior  
Staff Engineers  
(2)**

**Senior  
Staff Engineers  
(4)**

**Staff Engineers  
(2)**

**Petroleum  
Engineering  
Technicians  
(2)**

**Summer Interns  
(Possibility of 2)**



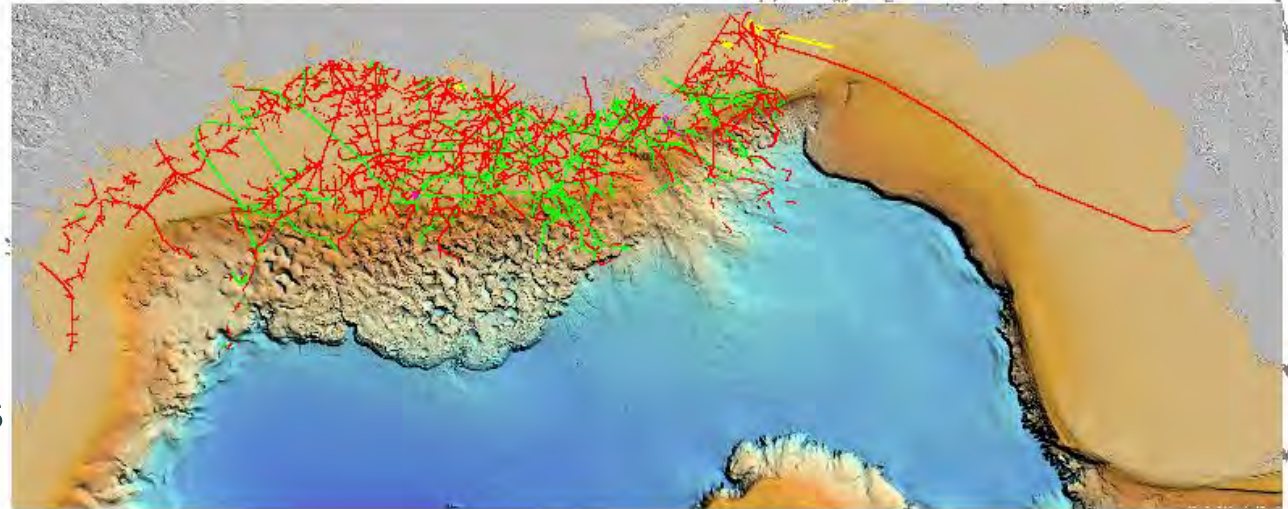
# GOM Pipeline Infrastructure

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# GOM Pipeline Infrastructure



- 22,687 Miles of active P/Ls
- 5,245 Active P/L Segments
- 2,597 Active Platforms
- 926 Proposed Decommissionings
- 1,554 OOS P/Ls



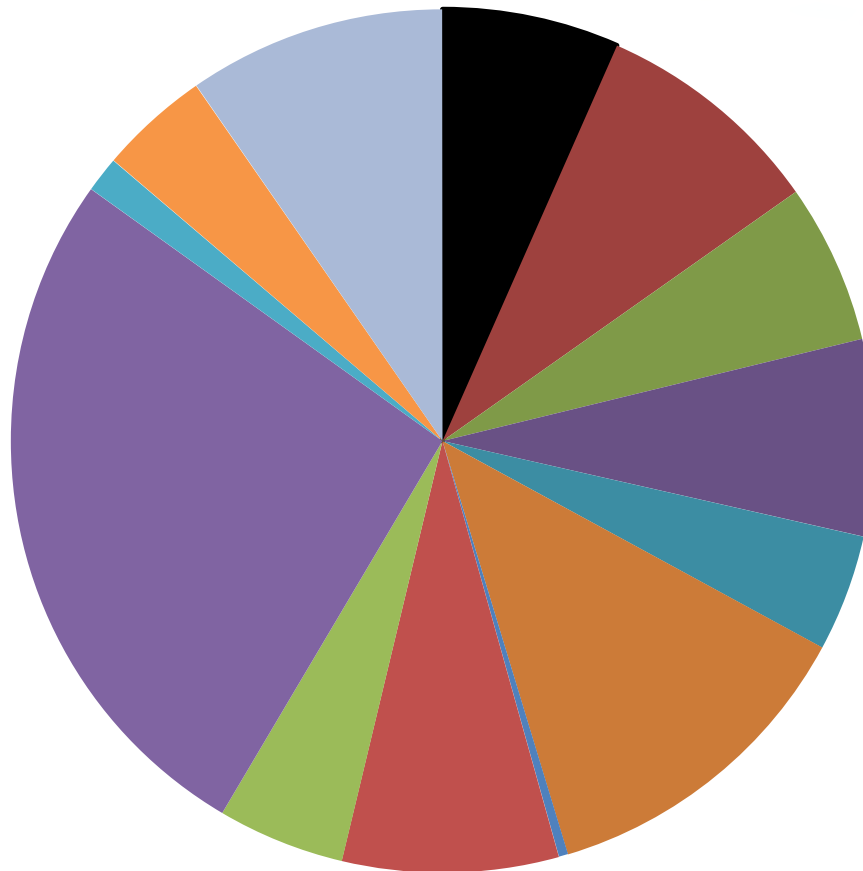


# Pipeline Application/Plan Statistics

Updated 5/2014

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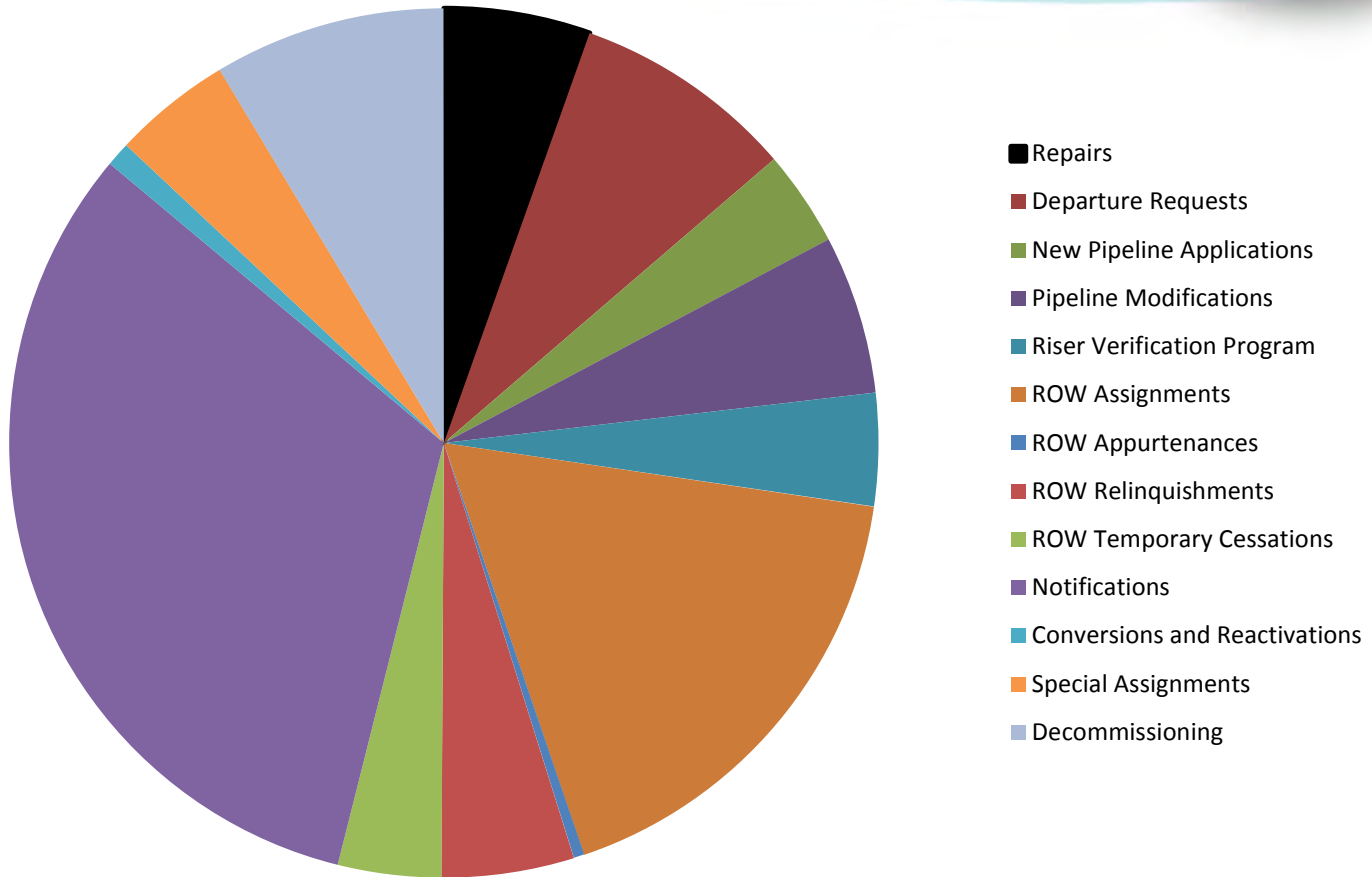
# Applications/Plans Received FY 2013



- Repairs
- Departure Requests
- New Pipeline Applications
- Pipeline Modifications
- Riser Verification Program
- ROW Assignments
- ROW Appurtenances
- ROW Relinquishments
- ROW Temporary Cessations
- Notifications
- Conversions and Reactivations
- Special Assignments
- Decommissioning



# Applications/Plans Received FY 2014





# Pipeline Repair Regulations & Repair Statistics

Updated 5/2014

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# Repair Regulations



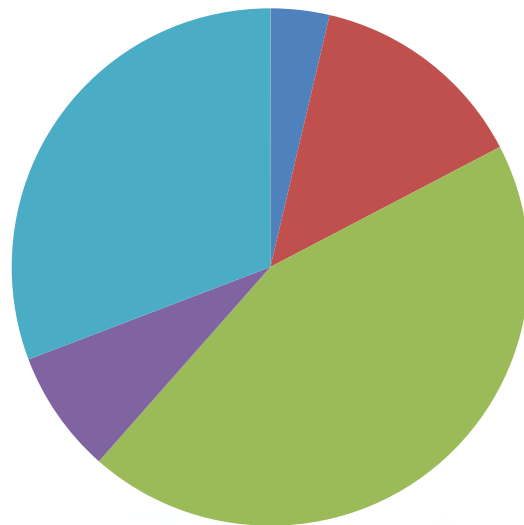
- Repair Plan Requirements – 30 CFR 250.1008 (e)
  - Submitted prior to repair operations
  - Service fee
  - Description of repair process
  - Reporting requirements
- Testing Requirements – 30 CFR 250.1003 (b) and (c)
  - Pressure tested to 1.25 x MAOP for 2 hours
  - Water or processed gas
  - BSEE may require additional testing to verify integrity

# Repair Plan Statistics Overview



- 2,994 Repair Plans have been received and approved since June 10, 2002

| Composite Wrap | Clamp | Replace Damaged Pipe | Replace Entire Riser | Other/Unknown |
|----------------|-------|----------------------|----------------------|---------------|
| 110            | 409   | 1324                 | 230                  | 923           |

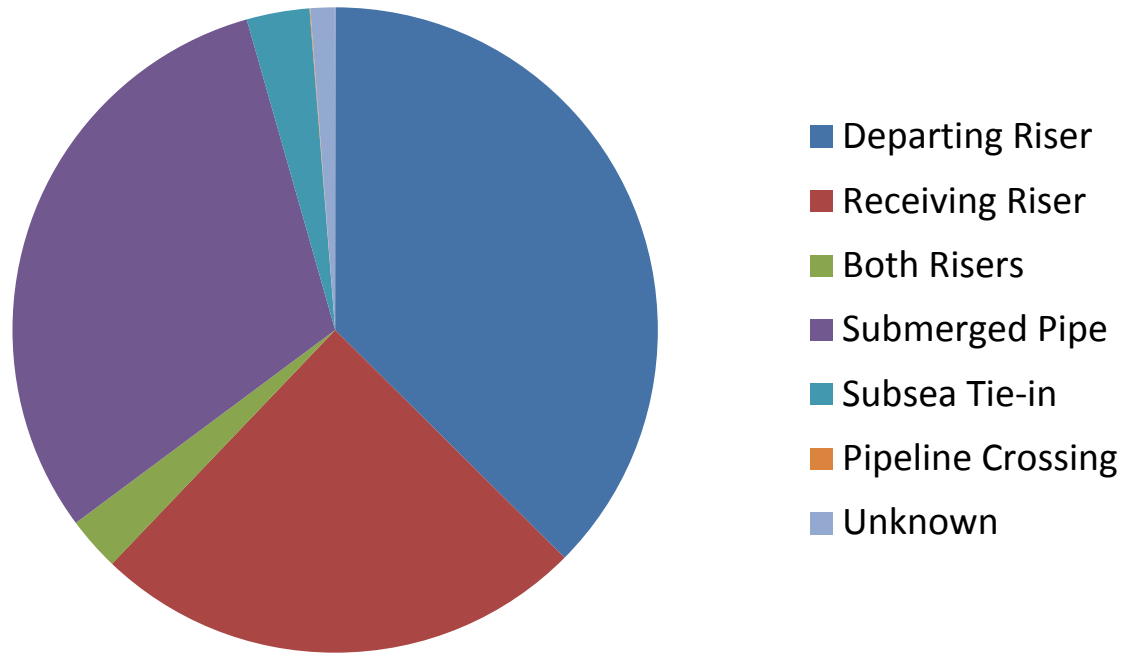


- Composite Wrap
- Clamp
- Replace Damaged Pipe
- Replace Entire Riser
- Other/  
Unknown

# Repair Locations



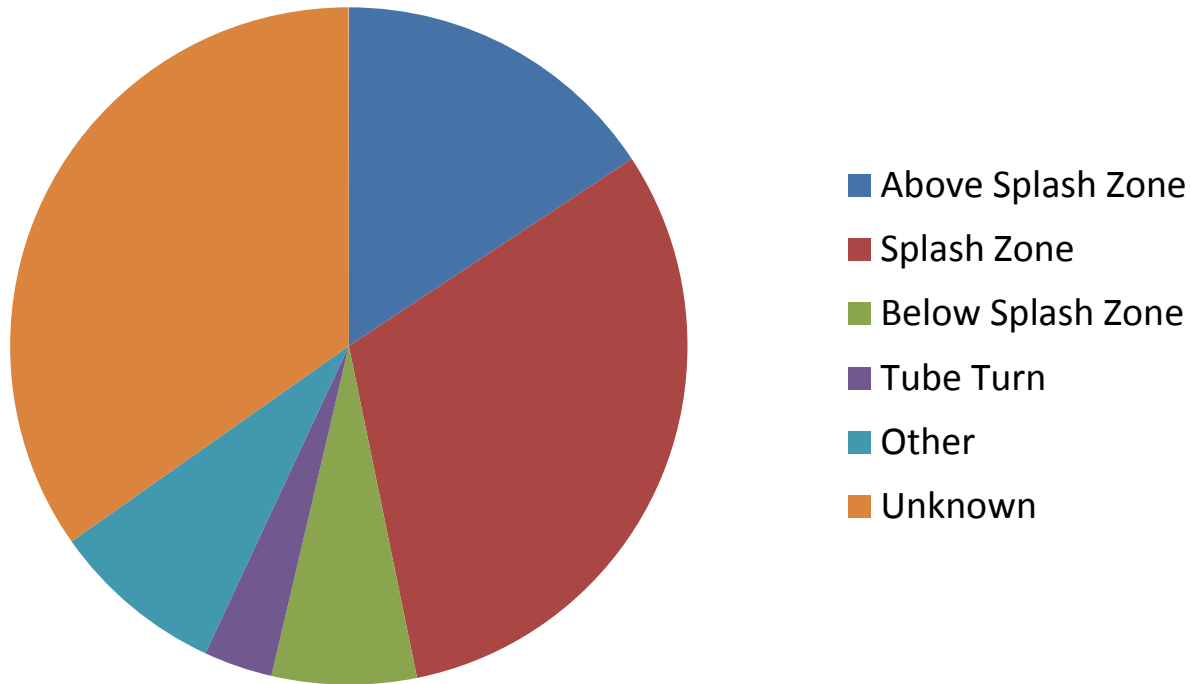
| Departing Riser | Receiving Riser | Both Risers | Submerged Pipe | Subsea Tie-in | Pipeline Crossing | Unknown |
|-----------------|-----------------|-------------|----------------|---------------|-------------------|---------|
| 1121            | 739             | 81          | 921            | 94            | 1                 | 37      |



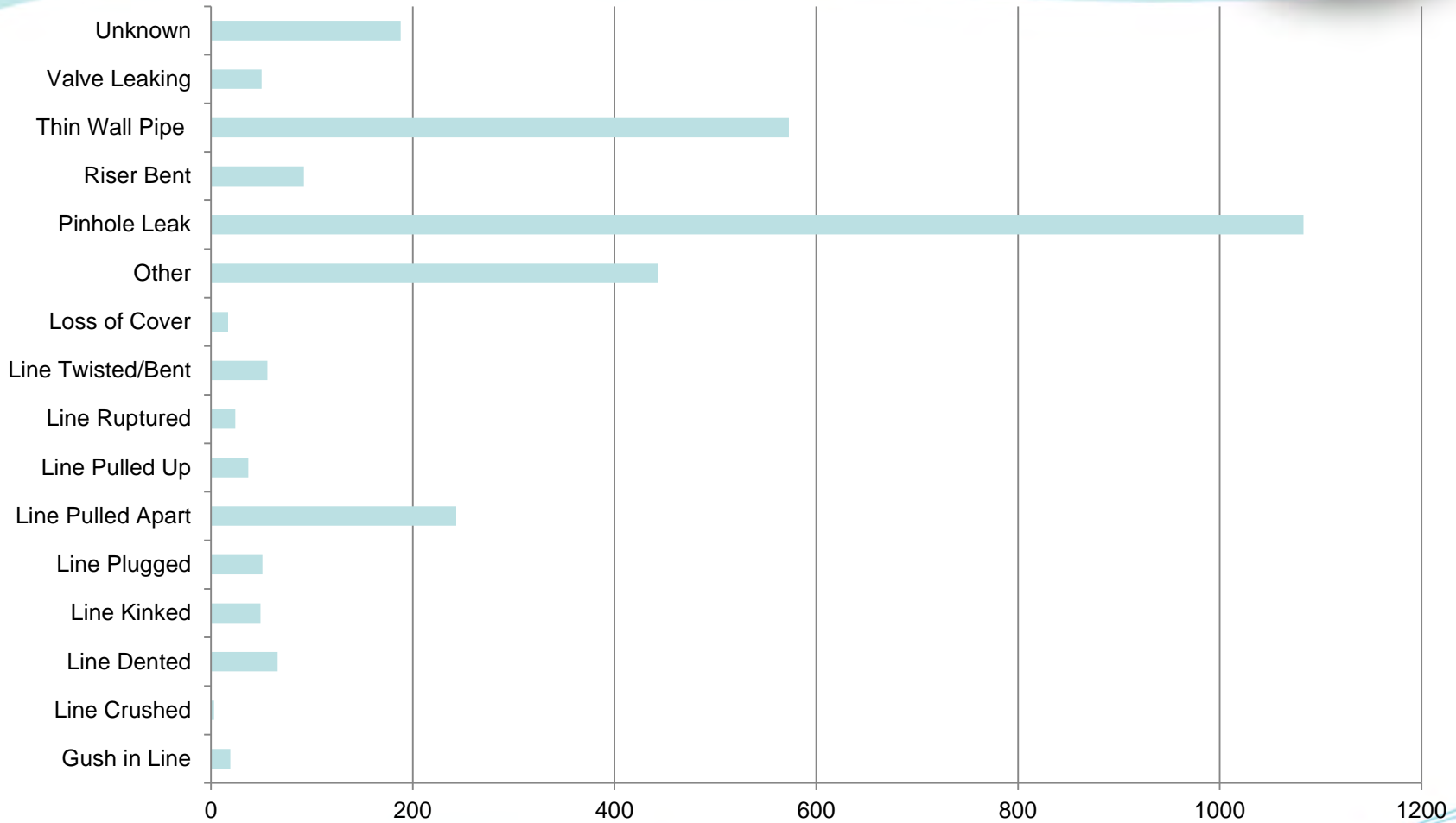
# Riser Repair Locations



| Above Splash Zone | Splash Zone | Below Splash Zone | Tube Turn | Other | Unknown |
|-------------------|-------------|-------------------|-----------|-------|---------|
| 470               | 930         | 207               | 98        | 248   | 1041    |



# Damage Types

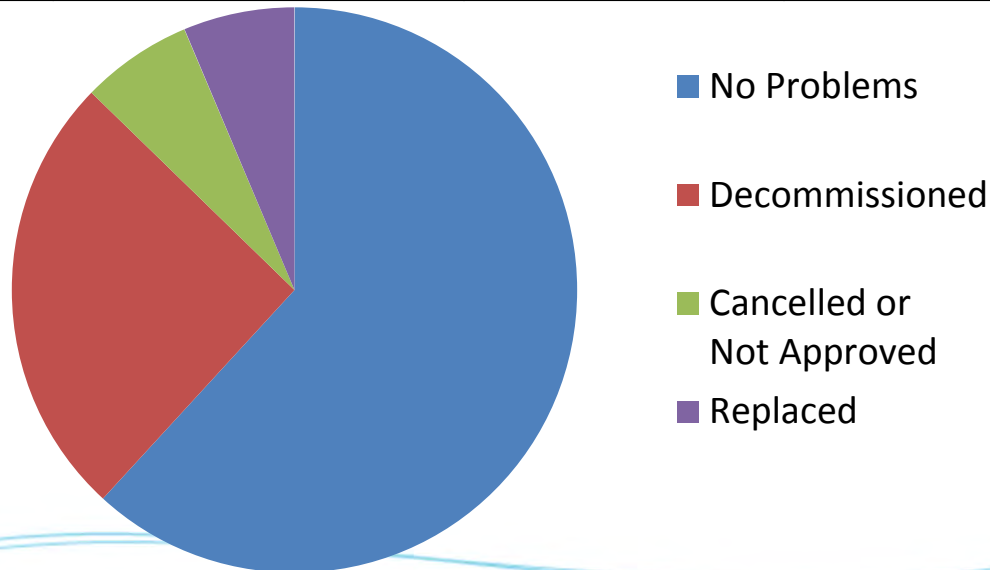


# Composite Repair Plan Statistics



- 110 Composite Wrap Repair Plans have been received and 5 were cancelled since June 10, 2002

| No Problems | Decommissioned | Cancelled or Not Approved | Replaced |
|-------------|----------------|---------------------------|----------|
| 68          | 28             | 5/2                       | 7        |
| ~61%        | ~25%           | ~6%                       | ~6%      |







# Composite Repair Policy Evolution

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# Composite Repair Policy Evolution



- Final Project Report, June, 2007 entitled, “Composite Repair Methods for Steel Pipes” prepared for DOI MMS
- Task Order 39300, MMS Project Number 558
- Authored by: Dr. Ozden O. Ochoa, Texas A&M University  
Chris Alexander, Stress Engineering Services
- Highlighted Report Findings:
  - Concerns about strength of repaired areas
  - Gaps in knowledge about longevity of repairs

# Composite Repair Policy Evolution



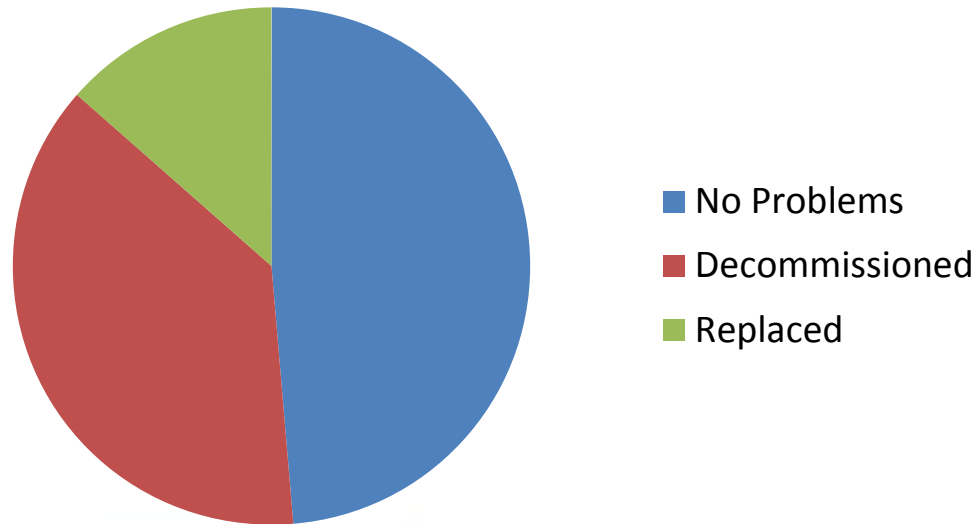
- December, 2012: Change in Chief of the Pipeline Section.
- Review of the Task Order 39300, MMS Project Number 558 conducted by the Senior Staff Pipeline Engineers resulted in the following:
  - Concern for:
    - the strength of the pipeline
    - the longevity of the repair [a noted consensus among the Staff Engineers and noted in the report]
  - Limited history of composite wrap repairs on the OCS
  - Guidelines unclear
- August, 2013: Change in composite wrap repair policy

# Composite Repair Plans 10 Years or Older



- 37 Composite Wrap Repair Plans were approved between June 2002 and December 2004

| No Problems | Decommissioned | Replaced |
|-------------|----------------|----------|
| 18          | 14             | 5        |
| 49%         | 38%            | 13%      |



# Composite Repairs 10 Years or Older



- 18 of the pipelines repaired using composite wrap between June 10, 2002 and May 26, 2004 are still in use
- Composite wraps were used only to repair areas of corrosion
- Wall thickness was reduced by 20-80%
- Reduced wall thickness remained adequate for MAOP

# Composite Wrap Repair Plans

## Current BSEE Policy



- Composite wraps are only being approved for the purpose of inhibiting corrosion
- Leaks may not be repaired with composite wraps
- Approval of composite wraps for the purpose of adding material strength has been suspended
- Maximum Allowable Operating Pressure (MAOP) must be calculated using the reduced wall thickness
- Corrosion resulting in half-body (50%) loss or more and less than 0.01-inches of wall thickness will need the section of pipe replaced



# Path Forward

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# Composite Repair Plans Path Forward



- Initiate a proposal to study the long-term reliability of offshore composite repairs
- Develop new guidelines based on results



Questions?



THANK YOU!

&

Remember our Mission  
**Reducing Risk Offshore**

**Angie.Gobert@BSEE.gov**