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# Shallow Water Pipeline Removal Process

## Bay Marchand Gulf of Mexico

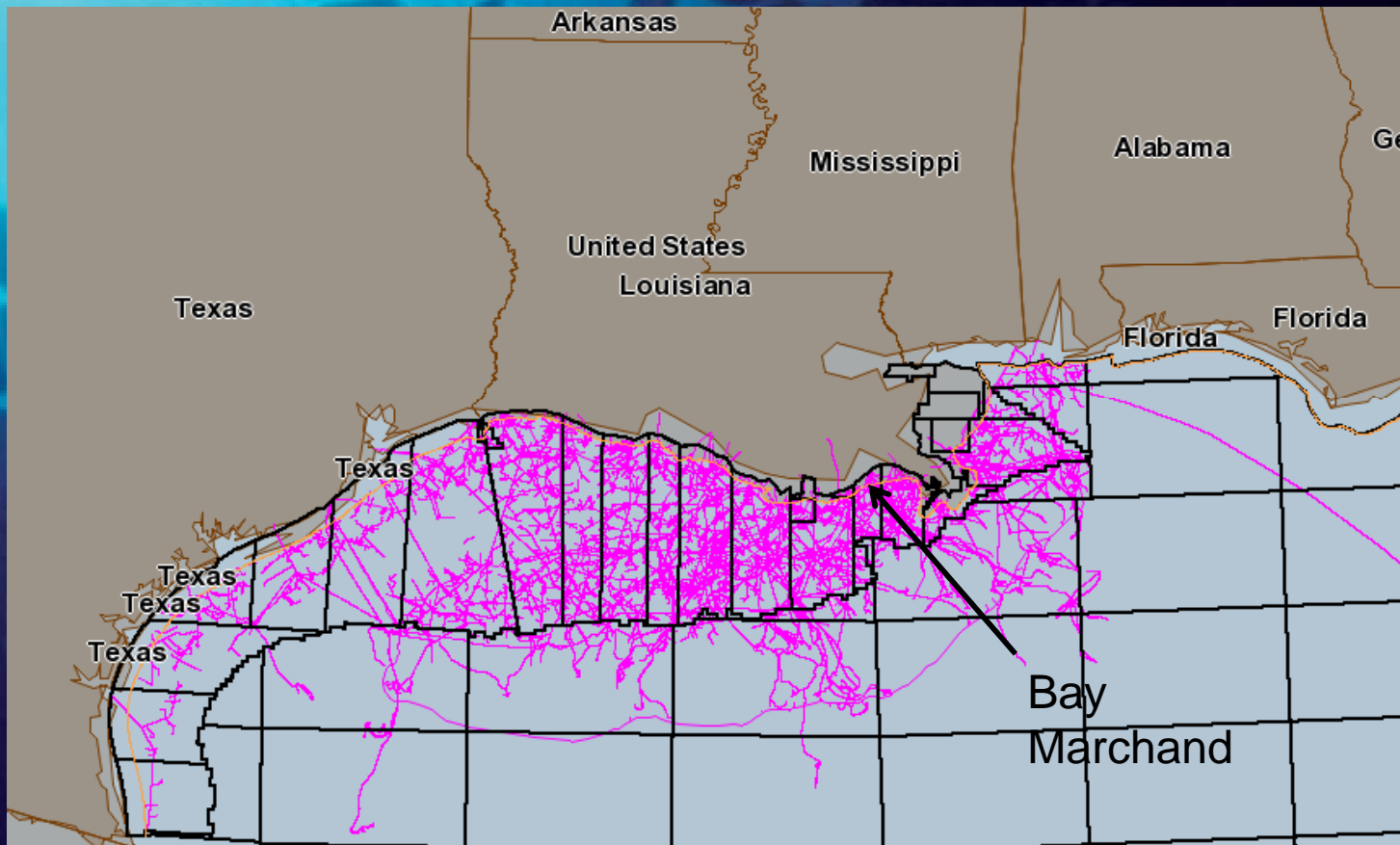
Prepared by: Ted Roche

Date: 9/20/2010

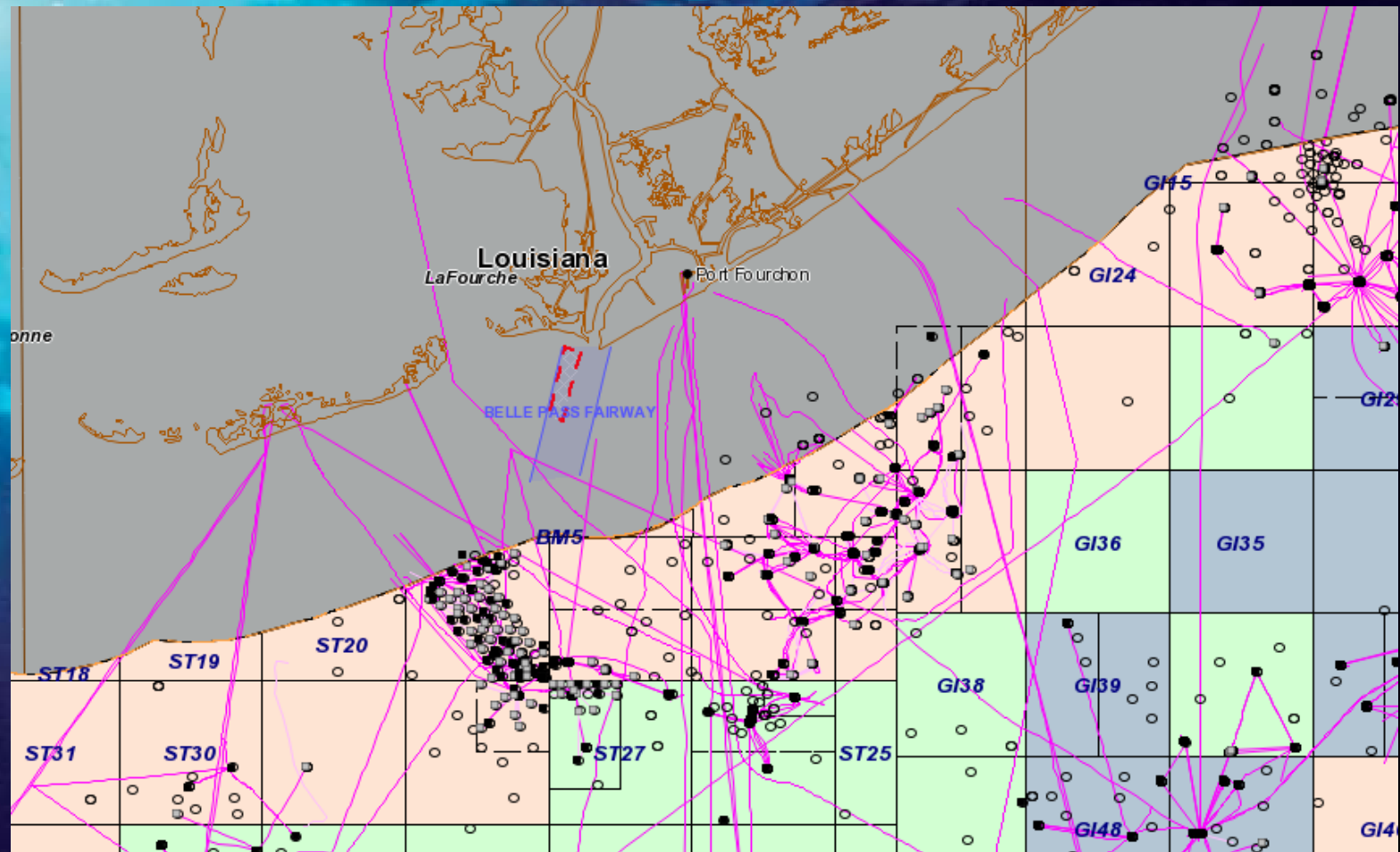


# Diver Emergency Drill

# Gulf of Mexico Pipeline System (Federal Waters)



# Bay Marchand Field



# Pipeline Removal Phases

Pipeline Abandonment Plan &  
Permitting

Diver Hands on survey

Pipe Prep

Pipe Pulling







# Diver Hands On Survey

Date

GIL 3 PowerPoint Template





# “Diver Live Boating” & “Hands On Surveys”



Date

GIL 3 PowerPoint Template



# Track Link Sending Unit Attached to Diver Emergency Bail Out Bottle



Date

10



# Track Link Receiving Unit



Date

11

# Diver Entering Water With Down Line



Date

GIL 3 PowerPoint Template





# Diver recovery on Starboard Mid-Ship



Date

13

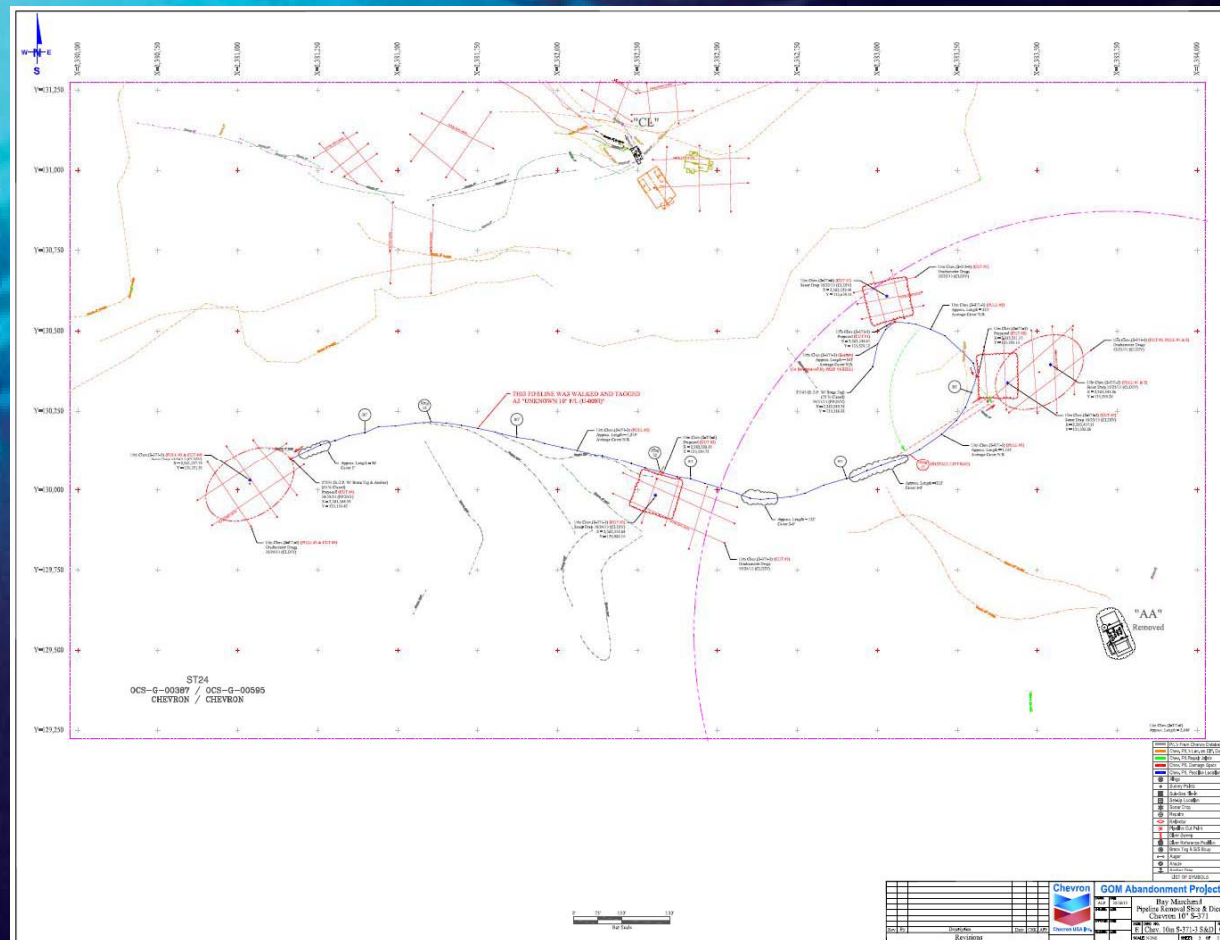
# Preparing Pipeline Sections For Removal Slice & Dice™

Date

GIL 3 PowerPoint Template



“Slice & Dice Plan” W/ SJA established  
for Seg 371 - 3





# Lift Boats Preparing P/L Sections For Flushing and Removal



Date

10

# Pipeline cutting under containment dome



Date



# Sealed pipelines hot tapped for entry



Date

# Pipeline Cut with Guillotine Saw



# Plumbers Plug W/Wing Nut



Date



# Pneumatic Plug W/Plug Dog (PPWPD)



# Modified New Pipe Plug along side T-grip with Plug dog



Date



# Pipe Caps used to hold nut type plugs in place



Date

23

# Riser Removal



Date

24



Sharp bends are cut out of pipe  
section ends



Date

25

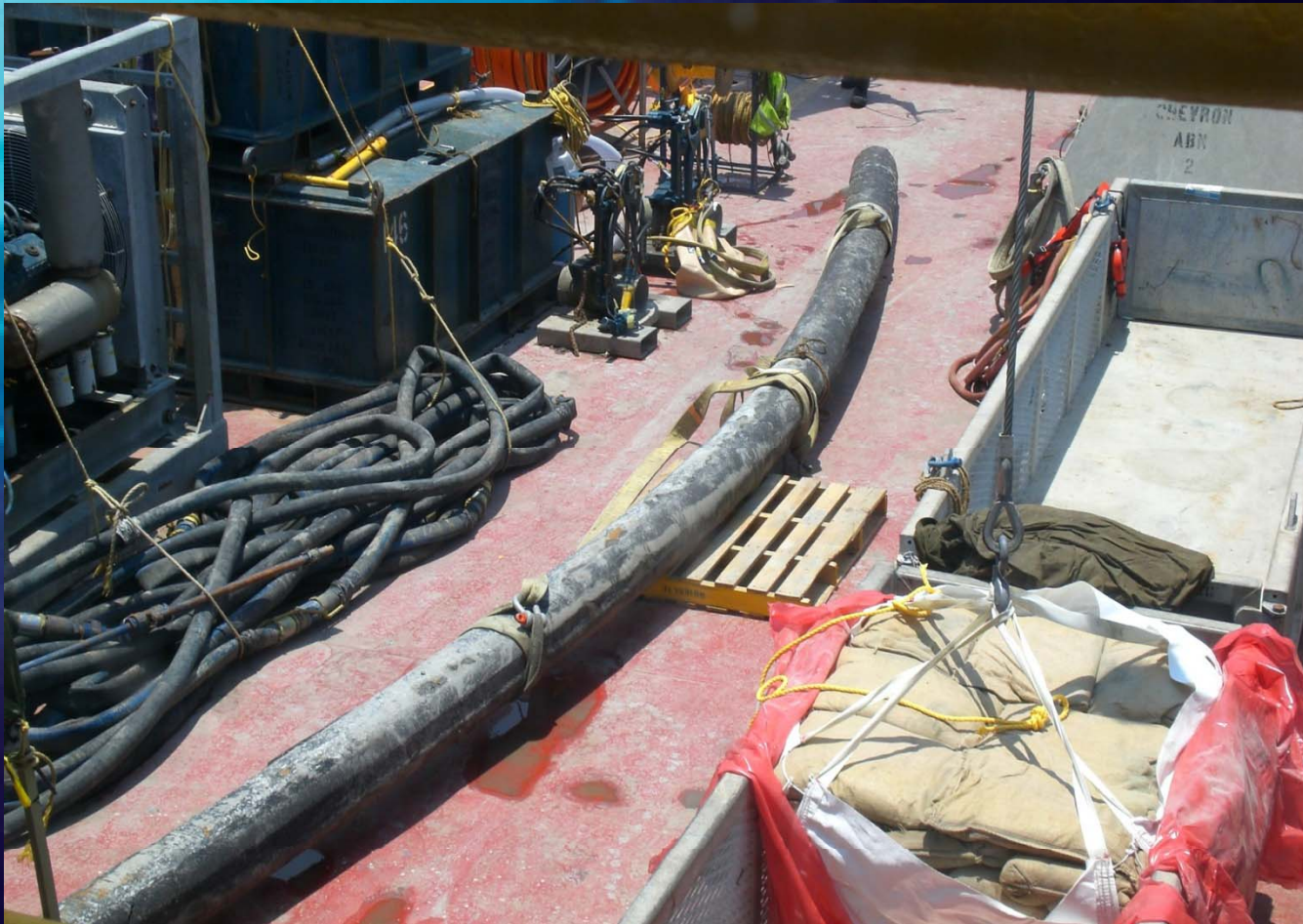
Valves etc. on pipeline pick up  
ends are permissible



Date

26

# Short spans of pipe sections recovered by Slice & Dice Prep Vessel



Date

27

# PIPELINE REMOVAL PROCESS

Date

GIL 3 PowerPoint Template





# Pulling Vessel: L/B Eagle



Date

29



# Pac-Man II Pipe Recovery & Containment Unit Bow to Stern View



Date

30

# 40,000# Pulling Winch



Date



# Portable Hydraulic System Station



Date

32

# "Pac Man II" Overhead View Stern to Bow



Date

33



# Bow End Adjustable Hydraulic Stinger



Date

34

# Safety Slips Rigged for Diver Installation



Date



# “Slammer Clamp” Rigged for Diver



Date



# Diver Being Briefed and Dressed for Pipe Recovery



Date

57

# Diver Lowered to Seabed From Stage



Date

38



# Attaching Crane Line To Pipe End and Safety Slips With Winch to Pipe End



Date

39

# Diver Up and Standing Clear to Assist



Date

40



# Pipe End Lifted to Surface



Date

# Pipe End Being Drug Into Stinger



Date



# Pipe End Pulled Over Trough



Date

43

# Pipe Dogged Down Pull Tension Relaxed



Date

44



# “Frog Cutter” Being Attached For Pipe Severing



Date

45

# Making Cut With “Frog Cutter” Trough Catching Fluid



Date

46



# Pipe Cut and Released From “Frog Cutter”



Date



# 100% Norm Survey Performed



Date



# 30' Pipe Joint Being Loaded Into “Bundle Rack”



Date

49

# Adjusting Severed Pipe Joint Into Bundle Rack



Date



# Coupons From Frog Cut and Coatings Captured in Trough



Date

51



# All Captured Pipeline Fluids Are Transported to Shore for Disposal



Date

52

Recovered solids are transported  
to shore for disposal in 15 bbl  
cutting boxes



Date

53



Pull rigging and cable being attached  
for next pull



Date

54



tension applied to pipe to confirm  
connection Chain is certified  
tested Spectrum 10



Date

55

# Dogging connection is released for pull



Date

56



# Pipe Pull Sequence Video





# Pipe Bundle being transferred from “Bundling Rack” to “Ready Rack Bundle”



Date

58

58

# Full "Ready Rack" 44,000# of pipe



Date

59

Site



# Bundles being loaded to supply boat



Date



# Cargo vessel arriving at the Transfer Dock In Leeville, La



Date

61

GIL 3 River Point

  
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# Spread Production Rates

- Mid-June to mid-October- removed approximately 95,000' of pipe
- Pipe size range included 3", 4", 6" 8", 10", 16"
- 24 hour average 8" -1000'-1200' recovered
- 24 hour average 4" -2500' recovered

# Summary

- Cost effective approach for shallow water pipeline removal
- Tools and methodology are adaptable to other locations and water depths
- Detailed procedures and operational discipline are keys to Incident-free operations



Questions?





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