North Trinity Bay

Well Plugging, Pipeline Abandonment & Structure Removal Project

TXGLO

RAILROAD COMMISSION OF TEXAS

Contractors:

Laredo Construction

Crescent Energy Services

Agenda

- Introductions
- North Trinity Bay Project Background
- Phase 1 and 2 Results
  - Overview
  - Challenges
  - Lessons Learned
- Questions

Introduction – Railroad Commission of Texas

Cody Heath

- RRC State Managed Plugging Coordinator for District 3 (Houston) since 2023.
- B.S. in Environmental Management – UHCL
- 20 years DSM/Fluids Technician with SM Energy, SLB, and Various Consulting.
- Drilling & Exploration, Fluids Management, and P&A operations on land and in marine environments.
- Texas, Louisiana, Pennsylvania, West Virginia. State Coast and Bay Waters.

Introduction – Texas General Land Office

Ryan Lytle

- Abandoned/Derelict Vessel and Structure Operations Coordinator since 2024.
- B.S. in Park Management & Conservation, Natural Resources & Environmental Sciences – Kansas State
- 8 years experience in oil spill prevention and response, vessel removal operations, well plugging projects

Introduction – Texas General Land Office

Brent Koza

- State Scientific Support Coordinator- TGLO Oil Spill Division
- 20+ years of experience in coastal oil spill preparedness and response.
- He has filled numerous positions in planning, operations, and incident command in large-scale oil spill and hurricane response efforts.
- Former South Texas Coastal Zone Regional Director for the TGLO Biologist for the National Marine Fisheries Service, the U.S. Geological Survey, The Nature Conservancy, Texas A&M University, and the Center for Coastal Studies.
- Master of Science Degree from Texas A&M University - Corpus Christi in 2006.

Project Background – First Steps

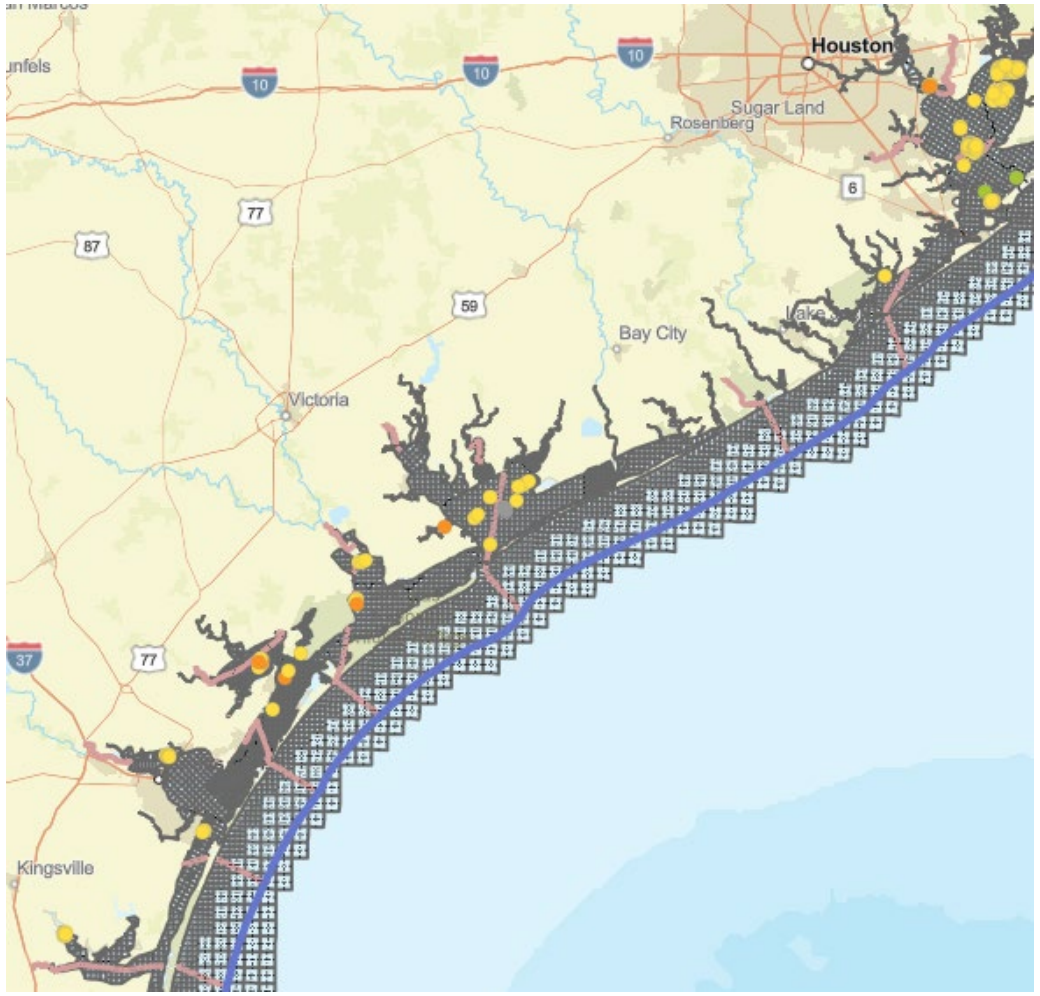
The RRC is the state's lead agency regulating oil and gas wells and has statutory authority to plug orphan wells; the GLO is the state's lead agency for oil spill response in Texas coastal waters.

- In late 2022, the General Land Office (GLO) and the Texas Railroad Commission (RRC) began discussions to initiate a well plugging partnership targeting Texas coastal area orphan wells.
- The two agencies worked together to identify 186 orphan wells in Texas bays and estuaries.
- The GLO Oil Spill division facilitated development of an ArcGIS Field Map application
- Using the map application, GLO and RRC staff conducted an on-site survey of each well
- GLO staff analyzed field data collected on the wells for environmental sensitivity, spill history, distance to nearest shoreline and shoreline type
- GLO staff also developed a plugging score system to prioritize wells for plugging
- The study results were provided to the RRC well plugging team
- Of the original 186 wells, 47 wells were recommended for plugging

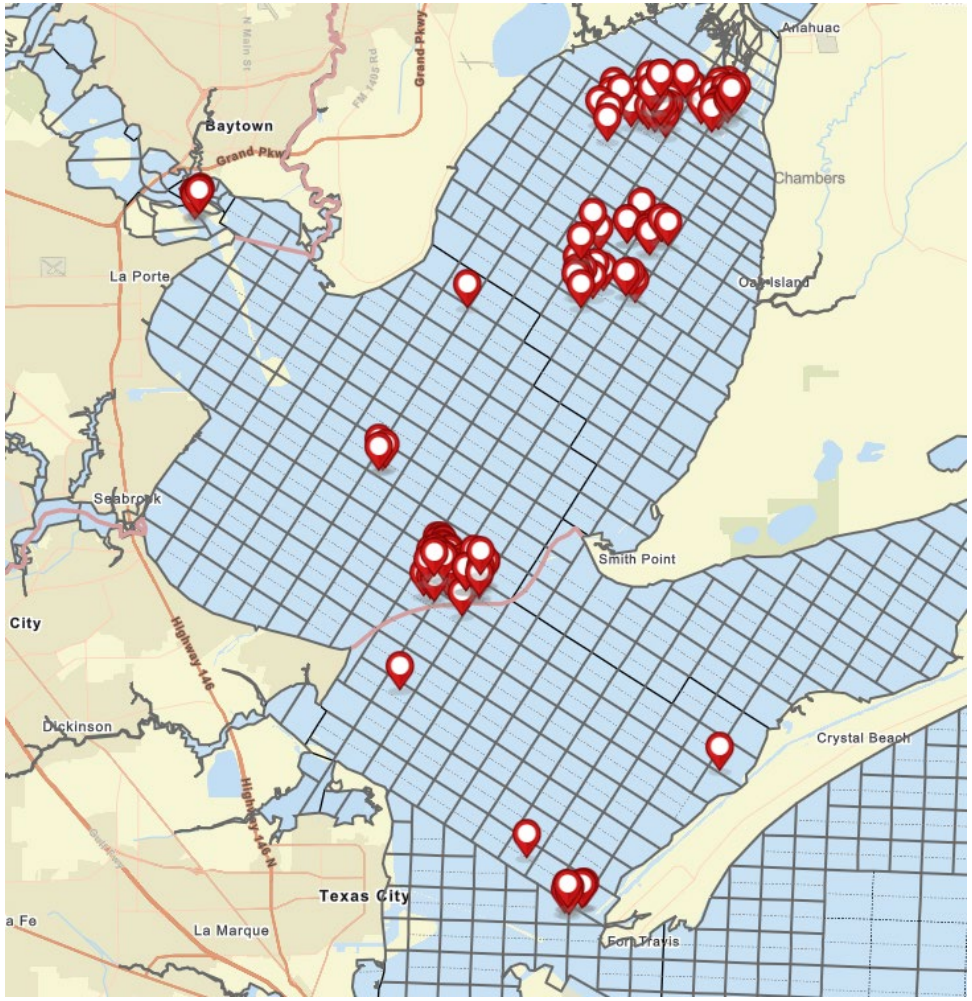
Next Steps

- The GLO and RRRC entered a Memorandum of Understanding targeted for plugging 47 orphan wells in North Trinity Bay, Chambers County
- In Fall of 2023, the GLO allocated $10 million to the RRC for the plugging of orphan oil and gas wells located on Permanent School Fund (PSF) lands.
- Contractor(s) mobilized and began work November, 2024
- By end of April, as funding was ending, the agencies discussed another round of GLO funding to extend the project
- In Spring, 2025, as initial funding was ending, the MOU was amended to add another $8 million dollars from the GLO to continue the project and avoid demobilization costs
- Phase Two kicked off

Orphan Wells in Texas Bays



186 orphan wells in
Texas bays



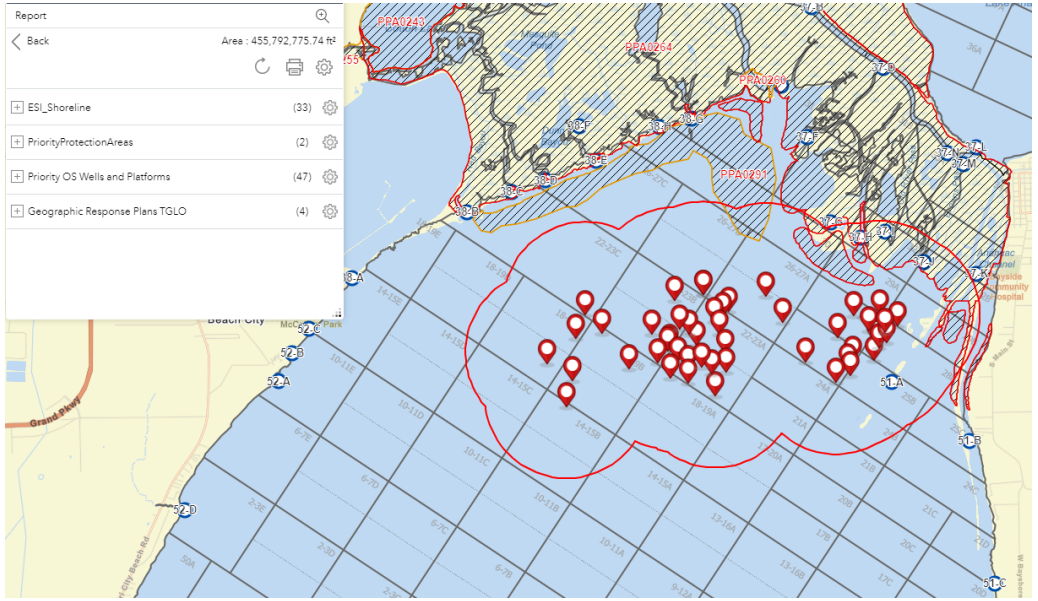
139 in the Galveston
Bay area

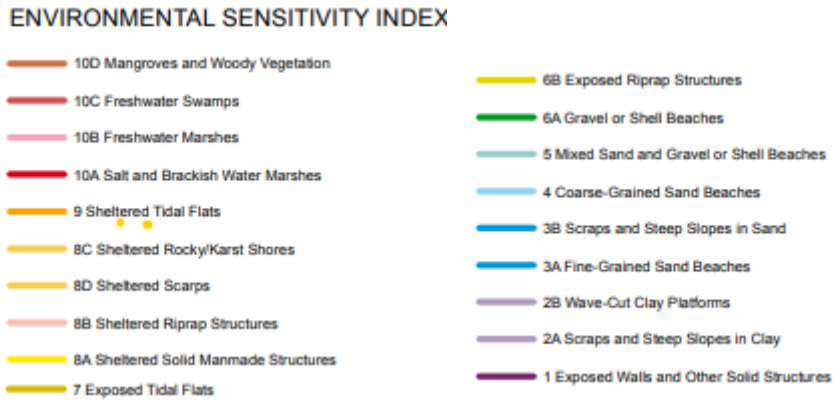
ArcGIS Application fields: Well and Platforms

- Operator Name (fillable, autopopulate)
- API Number (fillable, autopopulate)
- Lease Name (fillable, autopopulate)
- Lease Number (fillable, autopopulate)
- Well Number (fillable, autopopulate)
- Field Name (fillable, autopopulate)
- Lat/long (fillable, autopopulate)
- Structure Type
  - Platform
  - Well
- Fluid Type
  - Oil
  - Gas
- Safety Lighting
  - Yes
  - No
- Horns Operational
  - Yes
  - No
- Storage Present
  - Yes (comment field)
  - No
- Waterbody (dropdown to make it a searchable field)
- Water Depth
  - Fillable field
- Wellhead Condition
  - Good – Fresh paint, bolts with no corrosion, no excessive visible rust or corrosion, etc.
  - Fair – Paint worn or chipped, some visible rust or corrosion but no disintegration of bolts, no visible holes in flowlines, etc.
  - Poor – Significant rust and corrosion. Bolts have disintegrated into piles of rust flakes. Visible holes and corrosion in flowlines.
- Signs present and legible?
  - Yes (include photo if possible)
  - No
- Flowline connected?
  - Yes
  - No
- Actively producing (audible production? Cold/icing flowline downstream from wing valve choke? Does flow meter indicate production, etc.)?
  - No
  - Unknown
- Well Leaking (Select all that apply)?
  - Gas
  - Oil
  - Water
  - Open to atmosphere but not presently leaking
  - Indications of past leaks (staining, etc.)
  - No
- Have there been known spills from well/facility?
  - Spill Number(s) *fillable field*
  - No
- GLO regulated facility?
  - Facility Number
  - No
- Is it Accessible?
  - Yes
  - Unsafe
- Orphan well with delinquent inactive operator?
  - Yes
  - No
  - Unknown
- Environmentally sensitive or high human use area?
  - Wildlife Refuge nearby
  - Priority Protection Areas nearby
  - High human use area nearby (public beach, water intakes, historical sites, etc.)
  - Other (fillable field)
  - No
- Is it on State-Owned Submerged Land?
  - Yes
  - No
- Overall Priority Recommendation
  - (Leaking, indications of past leakage, open to atmosphere, previous spills, well type, sensitivity of location, wellhead condition,)
- Comments
  - Fillable field

Prioritization of Orphan Wells in Texas Bays for Plugging Efforts

- Field data collected by Response Officers were analyzed to examine spill history, well condition, and to quantify environmental sensitivity of the wells (proximity to sensitive habitat and to ESI shoreline types).
- ESI: standardized shoreline types ranked to show sensitivity to oil, natural persistence to oil, and the expected ease of cleanup after an oil spill.
- A comprehensive report to provide a clearer picture of the issues with orphan wells in coastal waters was compiled.





Orphan Well Risk Assessment

Plugging Priority Scoring (higher scores represent a higher priority for plugging/ removal efforts)

A total of sixteen (16) priority points are available. Scoring is as follows:

5 total points available for environmental sensitivity

- 3 points assigned when the well is within one mile of a Priority Protection Area
- 2 additional points assigned when the well is within ¼ mile of a Priority Protection Area

5 total points available for spill history

- 3 points assigned when known spill(s) of any amount have occurred from the well field
- 2 additional points assigned when spill(s) from the well field have exceeded one gallon

3 points assigned for poor well condition

3 total points available for proximity to nearest shoreline

- 2 points assigned when well is located within one mile of the nearest shoreline
- 1 additional point assigned when well is located within ¼ mile of the nearest shoreline

Definitions:

Priority Protection Area: High priority, environmentally sensitive habitat or area of significance as determined and defined by consensus amongst academia, environmental advocacy groups, and state, federal, and local experts.

Poor Well Condition: Wellhead with significant rust and corrosion. Bolts have disintegrated into piles of rust flakes. Visible holes and corrosion in flowlines observed.

Rules:

1. All oil wells were prioritized over gas wells.

2. When scores were equal, the following tie breakers were used in the following order:

    1. The nearest shoreline is a National Wildlife Refuge, Coastal Preserve, or State Park

    2. The well is located inside of a defined Priority Protection Area

3. If plugging priority scores of wells were equal after the aforementioned rules were applied, the wells were assigned the same final rank and economies of scale and other operational considerations should be applied to prioritizing plugging efforts.

Trinity Bay

Geographic Response Plans

- Strategic 1st responder priorities produced in 204 format
- Provide relevant information on the resource needing protection along with other valuable info such as closest boat ramps, contact numbers, photos, etc.

1. Incident Name	2. Operational Period (Date/Time)	Assignment List ICS 204-OS
3. Branch	4. Division/Group	

5. Operations Personnel
Operations Section Chief
Branch Director
Division/Group Supervisor

6. Resources Assigned This Period — "X" Indicates 204a attachment with special instructions

Resource Identifier	Leader	Contact Info #	# of Persons	Reporting Info/Notes/Remarks

7. Assignments

SAFETY NOTE Extremely shallow water with submerged trees and pilings throughout. Use caution.

8. Site Number:	9. Quad Name:	10. NOAA Chart Number:	11. GLO Atlas Page:	12. County
37-J	Anahuac	11326	37	Chambers

13. Site Information 1N
Multiple un-named channels throughout marsh in Northeast corner of Trinity Bay

14. Latitude: 29.757631

15. Longitude: 94.705965

16. Closest Boat Ramp	17. Distance From Ramp	18. Boat Type
Fort anahauc park	< 1 mile	Airboat

19. Directions From Local Sector
East on I-10 from Houston to HWY 61. Exit right on Hwy 563 to Anahuac. In Anahuac travel south on Hwy

20. Closest Airport
Chambers County Airport (TOO)

21. Closest Heliport
Chambers County Airport , 29-46-12N 094-39-49W

22. Trustee/Contact Numbers
USCG: (281) 464-4800 RRC: (713) 869-5001
USCG Duty: (800) 424-4800 TPWD: (512) 389-4848
TGLO: (800) 832-8224 NRDA: (512) 463 -9309
TCEQ: (713) 767-3563 USFWS: (281) 286-8282

23. Resources at Risk
Atlas Priority: High
Environmental: High
Economic: low

24. Width of Inlet in ft: Varies
25. Water depth in ft: <1'
26. Current: Medium
27. No. of Personnel: Greater than 6

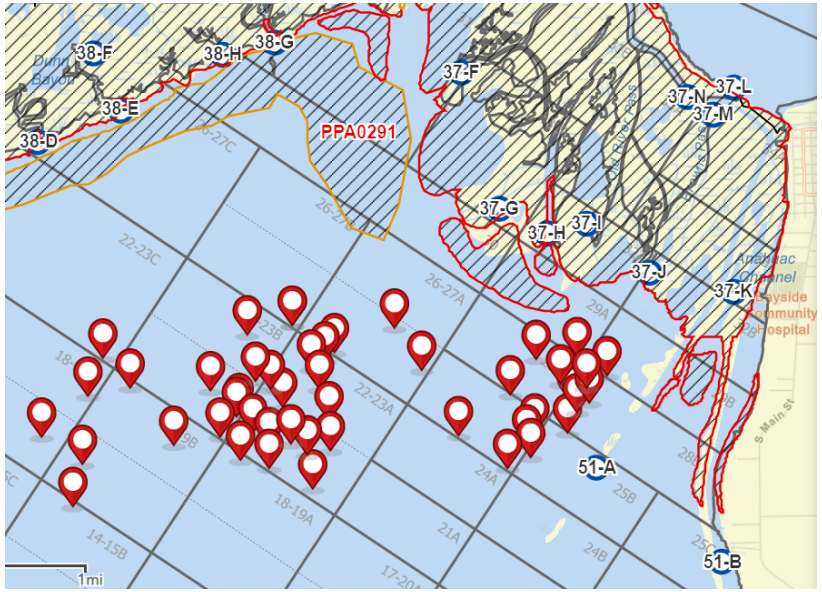
25. Booming Strategy Recommendation
Boom to prevent oil from entering channels and spreading throughout marsh

Aerial Photo

On Site Photo

29. Prepared By:	30. Reviewed by (PSC)	31. Reviewed by (OSC):
Assignment List	ICS 204 OS (Geographic Response Plan)	Updated Date:

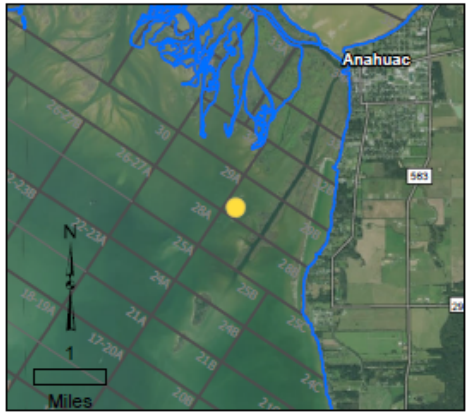
"Response strategies may need to be modified to account for changes due to seasonality, weather conditions, spill characteristics, tides and any other considerations."



Trinity Bay Well Reports

API Number: 07102586 GLO Facility Number: 20689
Operator: GALVESTON BAY OPERATING CO LLC
(29.74764 , -94.70877)
Waterbody: Trinity Bay
Well #: 22

Final Rank
3



State-Owned Submerged Land?
Yes

Past Known Spills?
Yes, > one gallon

Env. Sensitive or High Use Area?
Yes
Comments
Fishing
F Lease

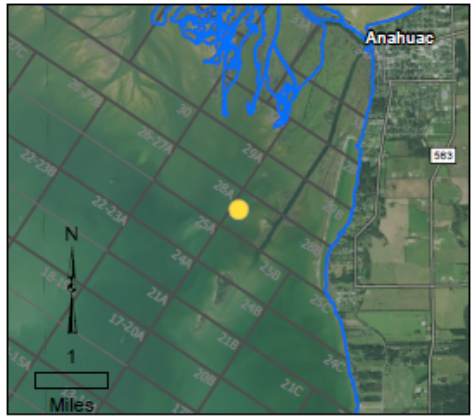
Removal Priority Score: 14 points

Wellhead Condition
Poor - Fully warn paint, significant rust or corrosion
Comments
oil well

Additional Comments:
Very shallow, at Trinity River delta. 85,000 ft of marsh within one mile, PPA 0264. 3200 ft of marsh within 1/4 mile.

API Number: 07131699 GLO Facility Number: 20689
Operator: GALVESTON BAY OPERATING CO LLC
(29.74381 , -94.7127)
Waterbody: Trinity Bay
Well #: 123

Final Rank
3



State-Owned Submerged Land?
Yes

Past Known Spills?
Yes > one gallon

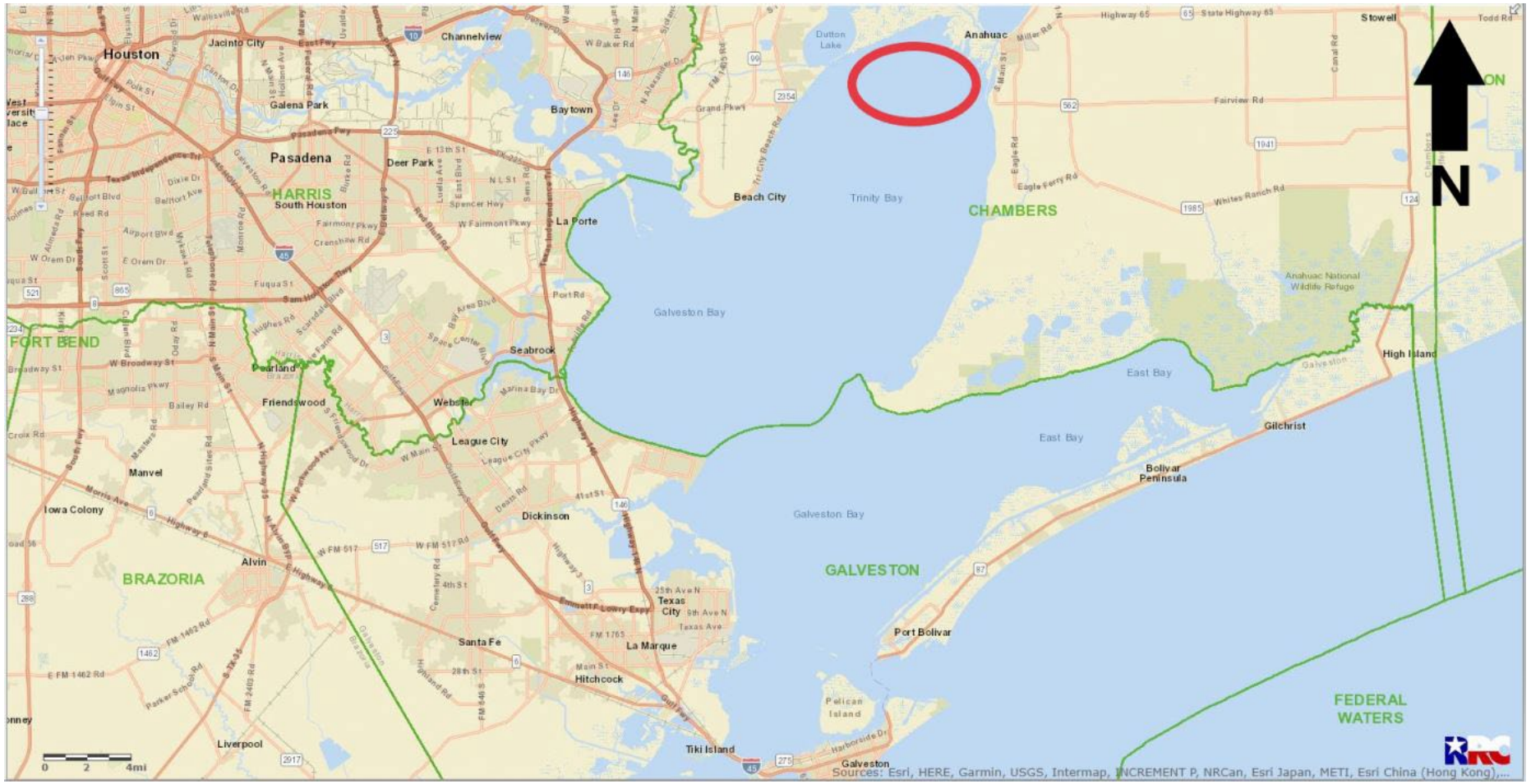
Env. Sensitive or High Use Area?
Yes
Comments
Fishing
F Lease

Removal Priority
Score: 14 points

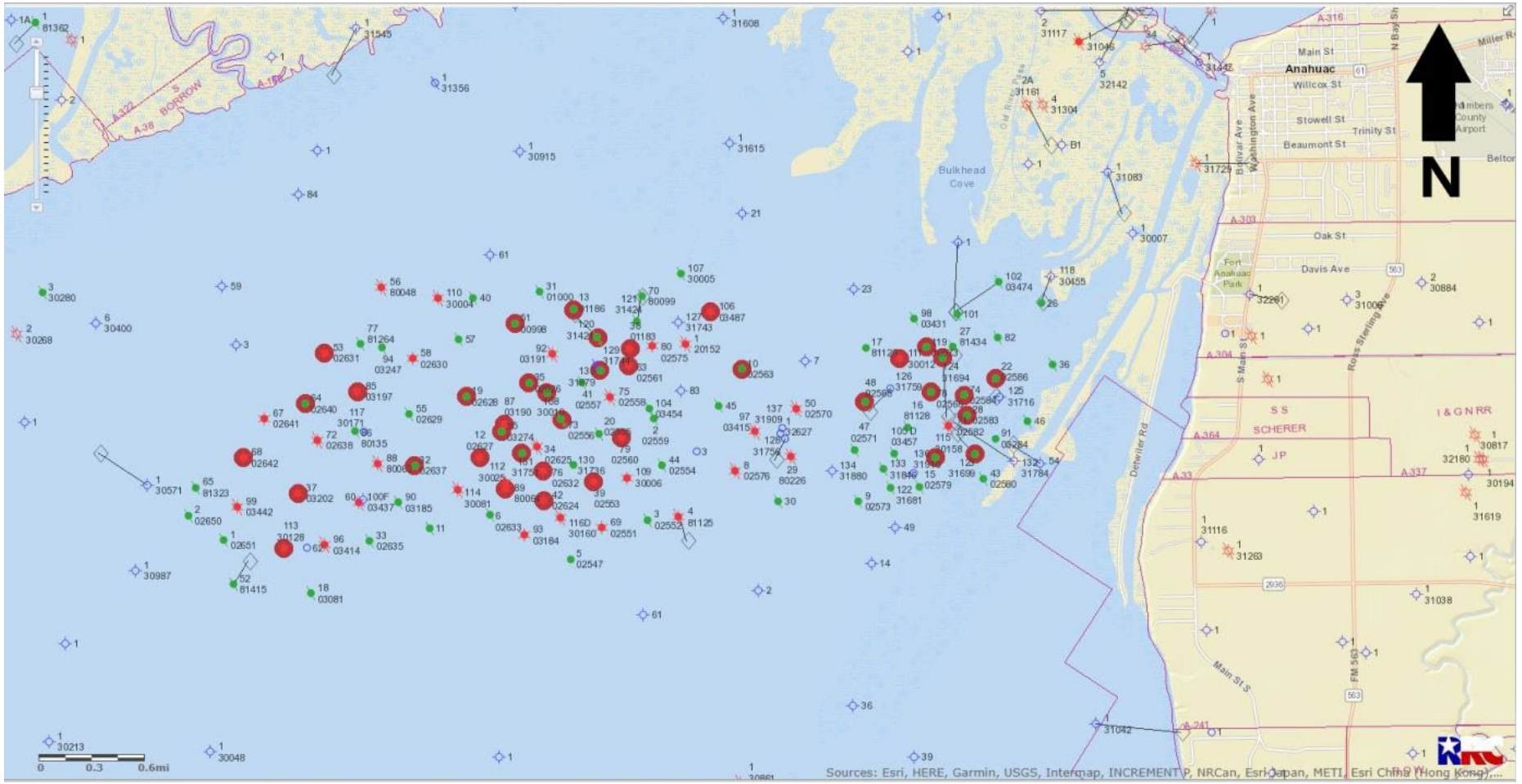
Wellhead Condition
Poor - Fully warn paint, significant rust or corrosion
Comments
oil well

Additional Comments:
Within one mile of 42,000 ft of marsh shoreline and PPA 0291. Trinity River Delta.

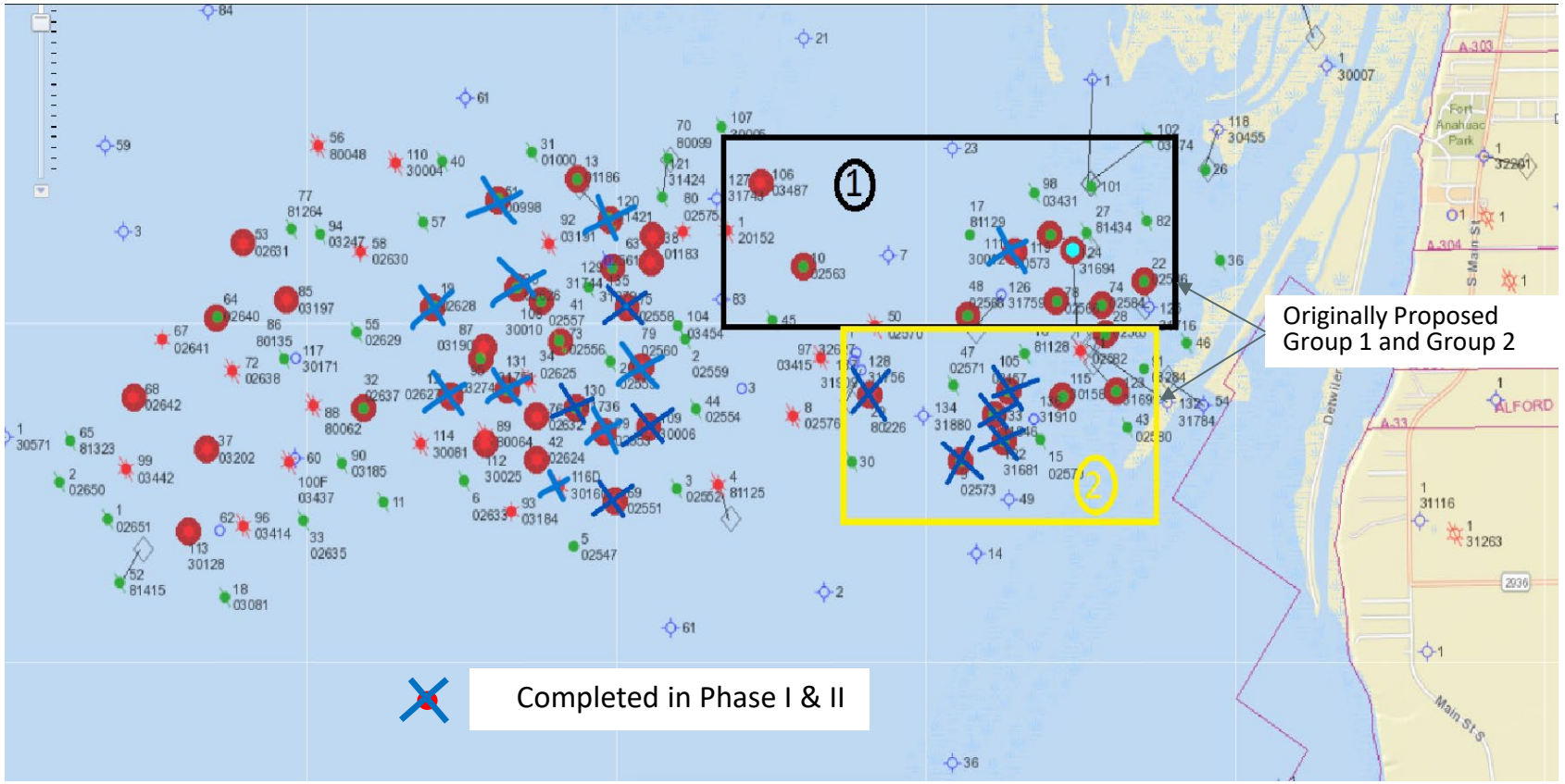
Area of Operations: North Trinity Bay (Chambers County)



Area of Operations: North Trinity Bay (Chambers County)

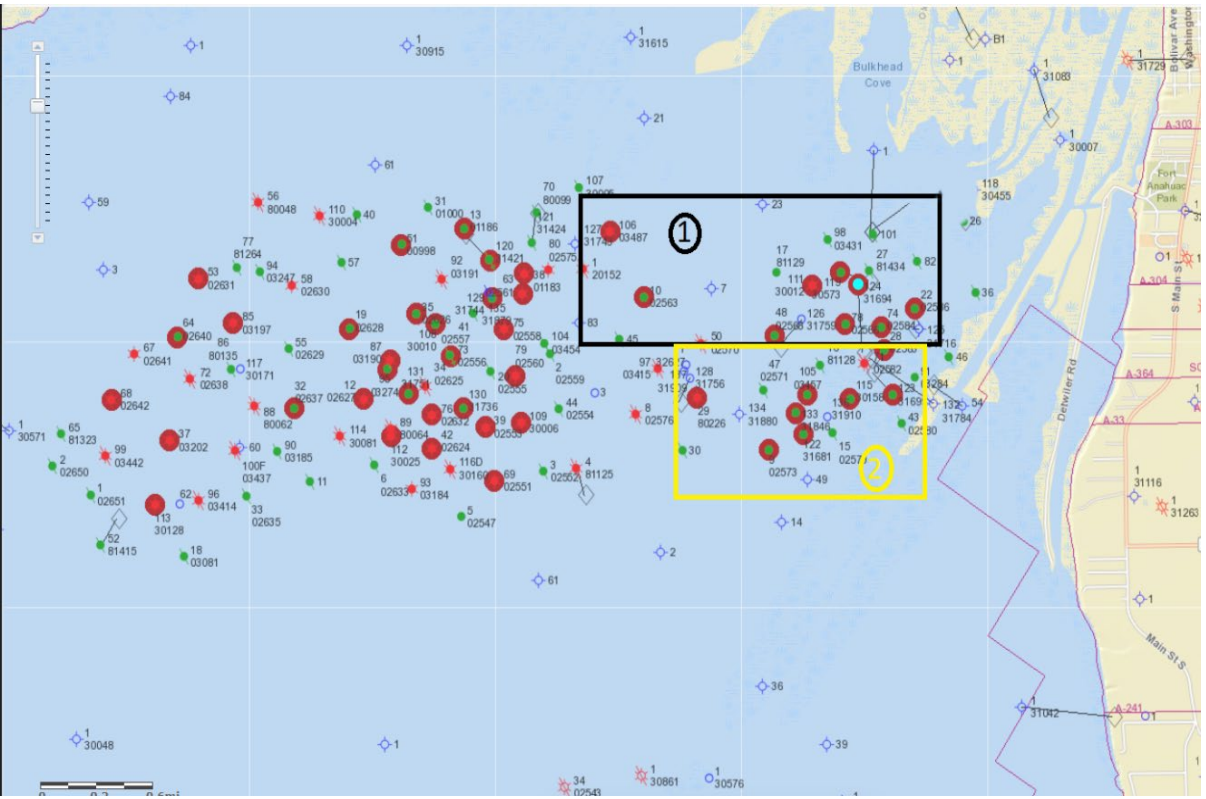


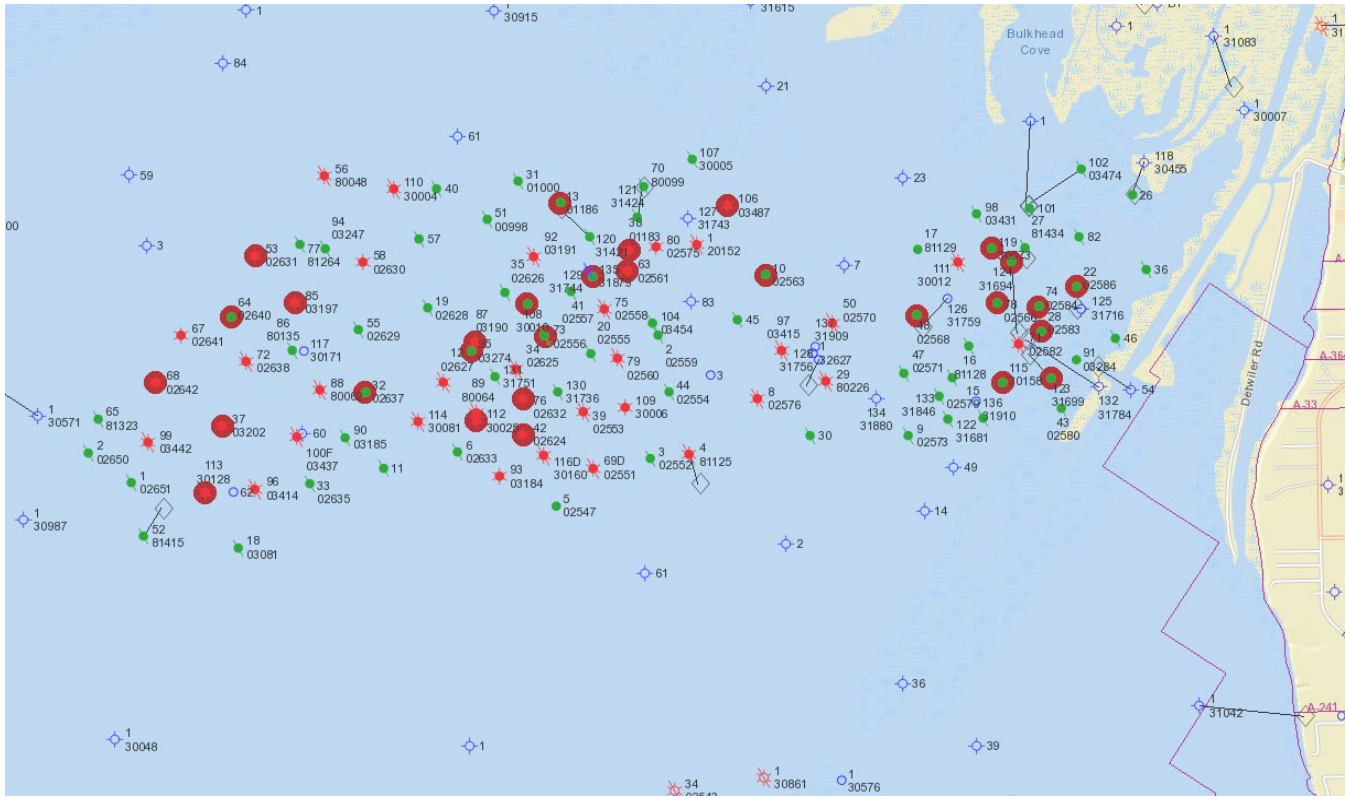
Phase 1 and 2 - Completion



	No.	Well
Phase I	1	9
	2	29
	3	75F
	4	105D
	5	109H
	6	122
	7	133
	8	130
	9	69F
Phase II	1	39
	2	79F
	3	131
	4	120
	5	12
	6	19
	7	51
	8	35
	9	116
	10	112F
	11	111D*
	12	119
	13	38

North Trinity Bay (Chambers County) – Significant orphaned wells reduction



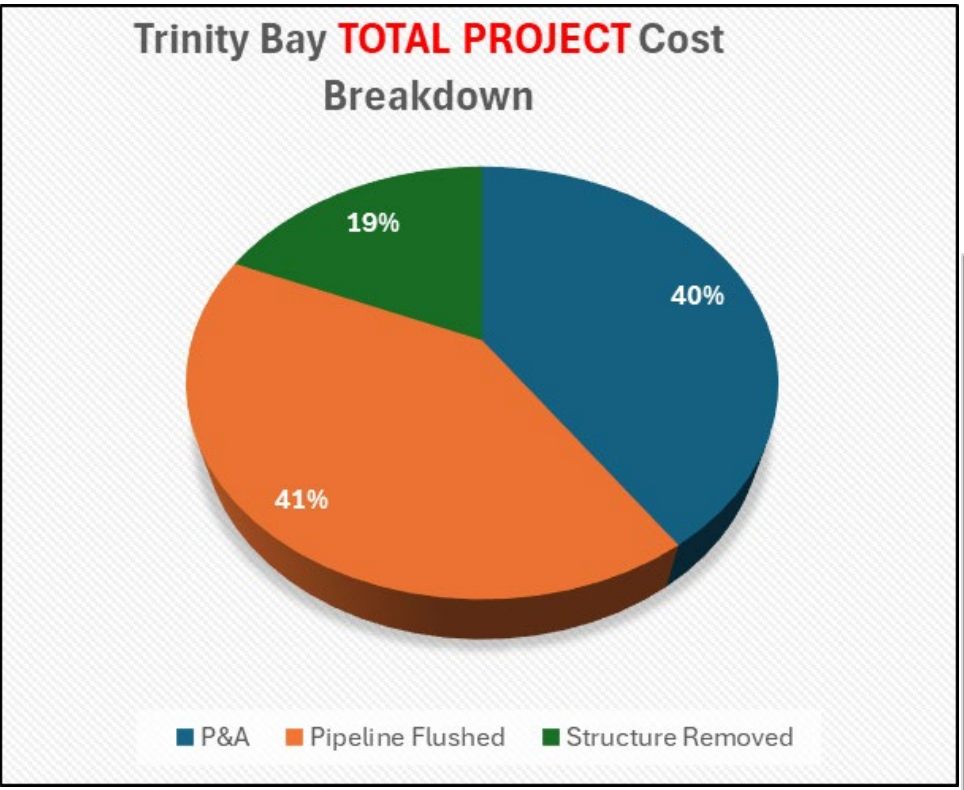


ORIGINAL

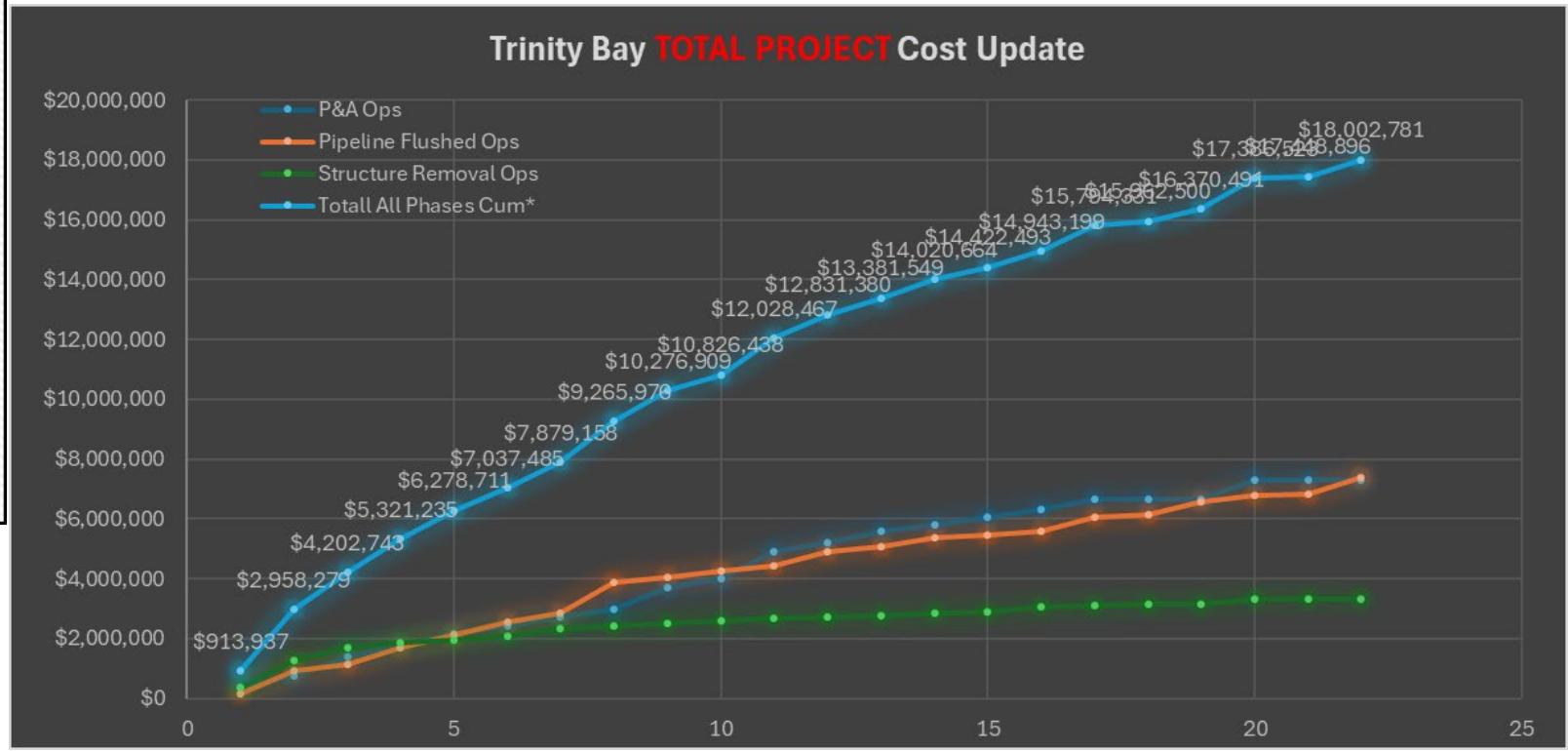
CURRENT

Orphaned wells (29 wells remaining)

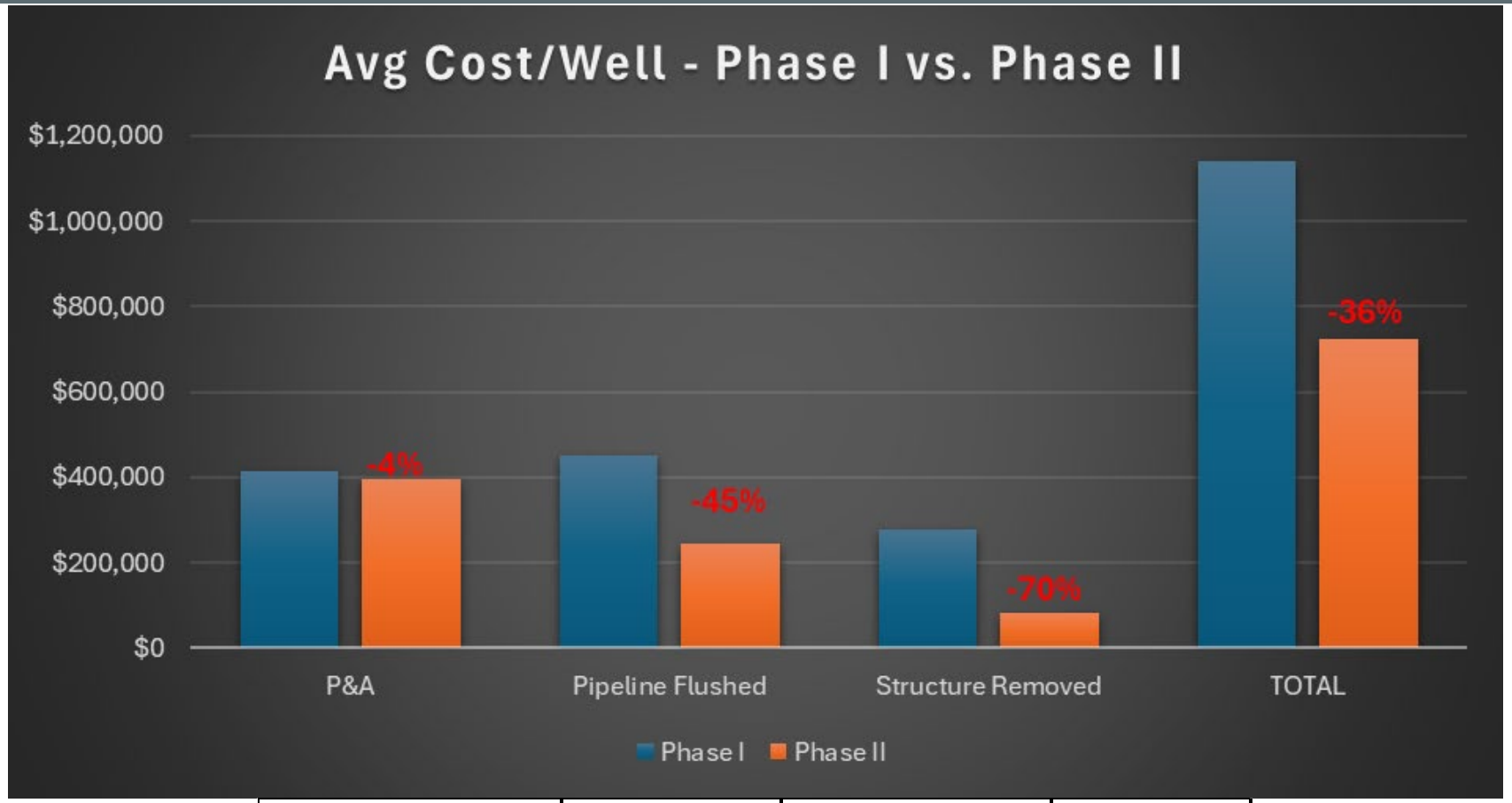
Phase I and II – Completion



Project SUMMARY	TOTAL Spent	Avg Cost/well
P&A	$7,278,530	$403,954
Pipeline Flushed	$7,392,708	$338,822
Structure Removed	$3,331,543	$175,344



Phase I vs. II – Progress Improvements



Compared $/well	Phase I	Phase II	%+/-
P&A	$412,444	$395,463	-4%
Pipeline Flushed	$451,772	$246,409	-45%
Structure Removed	$277,662	$83,259	-70%
TOTAL	$1,141,879	$725,131	-36%

North Trinity Bay Status

Summary		Pipeline Abandonment				Wellbore Plugging			Conductor Removal			Structure Removal			
Well No.	Completion Status	Status	PL Qty.	Start	Completed	Status	Start	Completed	Status	Start	Completed	Status	Wood Pile Qty.	Start	Completed
Phase 1															
75F (T)	100%	Complete	7	1/28/2025	2/8/2025	Complete	11/18/2024	12/2/2024	Complete	12/20/2024	12/20/2024	Complete	0	2/6/2025	2/8/2025
29 (S)	100%	Complete	4	11/21/2024	2/1/2025	Complete	12/2/2024	12/19/2024	Complete	12/20/2024	12/20/2024	Complete	0	2/16/2025	2/27/2025
133 (S)	100%	Complete	4	12/1/2024	12/7/2024	Complete	12/10/2024	12/16/2024	Complete	12/17/2024	12/17/2024	Complete	0	2/11/2025	2/15/2025
105 (D)	100%	Complete	3	12/7/2024	12/18/2024	Complete	1/3/2025	1/13/2025	Complete	1/14/2025	1/14/2025	Complete	12	3/22/2025	3/28/2025
9 (S)	100%	Complete	2	12/18/2024	12/20/2024	Complete	12/21/2024	1/2/2025	Complete	1/3/2025	1/3/2025	Complete	11	3/15/2025	3/30/2025
122 (S)	100%	Complete	4	12/20/2024	12/30/2024	Complete	1/26/2025	2/3/2025	Complete	2/4/2025	2/4/2025	Complete	6	3/28/2025	3/29/2025
109 (T)	100%	Complete	4	12/30/2024	1/9/2025	Complete	1/15/2025	1/25/2025	Complete	1/25/2025	1/26/2025	Complete	0	2/9/2025	2/10/2025
130 (S)	100%	Complete	6	1/9/2025	1/27/2025	Complete	2/5/2025	2/16/2025	Complete	2/16/2025	2/16/2025	Complete	0	3/13/2025	3/14/2025
69 (D)	100%	Complete	2	3/5/2025	3/8/2025	Complete	2/5/2025	3/1/2025	Complete	3/1/2025	3/2/2025	Complete	0	3/6/2025	3/11/2025
Phase 2															
39 (S)	100%	Complete	2	3/7/2025	3/28/2025	Complete	3/10/2025	3/20/2025	Complete	3/20/2025	4/10/2025	Complete	0	4/15/2025	4/16/2025
79 (T)	100%	Complete	2	3/10/2025	3/12/2025	Complete	3/15/2025	4/19/2025	Complete	4/19/2025	4/19/2025	Complete	0	4/22/2025	4/24/2025
131 (S)	100%	Complete	3	3/30/2025	4/10/2025	Complete	3/19/2025	4/15/2025	Complete	4/15/2025	4/15/2025	Complete	0	4/16/2025	4/16/2025
120 (S)	100%	Complete	3	4/10/2025	4/13/2025	Complete	4/20/2025	4/30/2025	Complete	4/30/2025	4/30/2025	Complete	0	5/8/2025	5/8/2025
51 (S)	100%	Complete	2	4/24/2025	4/26/2025	Complete	5/1/2025	5/11/2025	Complete	5/11/2025	5/11/2025	Complete	0	5/17/2025	5/18/2025
116 (PW)	100%	Complete	4	5/20/2025	5/23/2025	Complete	N/A	N/A	Complete	5/1/2025	5/3/2025	Complete	0	5/21/2025	5/22/2025
19 (S)	100%	Complete	2	4/27/2025	4/28/2025	Complete	5/15/2025	5/24/2025	Complete	5/24/2025	5/24/2025	Complete	0	5/27/2025	5/29/2025
35 (S)	100%	Complete	3	4/29/2025	5/8/2025	Complete	5/6/2025	5/23/2025	Complete	5/24/2025	5/24/2025	Complete	0	5/27/2025	5/27/2025
12 (S)	100%	Complete	2	4/17/2025	5/23/2025	Complete	5/24/2025	6/1/2025	Complete	6/1/2025	6/1/2025	Complete	0	6/1/2025	6/2/2025
111F (D)	100%	Complete	3	5/23/2025	5/25/2025	Complete	6/1/2025	6/13/2025	Complete	6/13/2025	6/13/2025	Complete	15	5/25/2025	6/15/2025
112F (T)	35%	Complete	4	5/9/2025	5/17/2025	Not Started			Not Started			Not Started	0		
119 (S)	35%	Complete	2	6/3/2025	6/3/2025	Not Started			Not Started			Not Started	0		
UOB 38-63	0%	Complete	0	N/A	N/A	Complete	N/A	N/A	Complete	N/A	N/A	In Progress	21	6/4/2025	

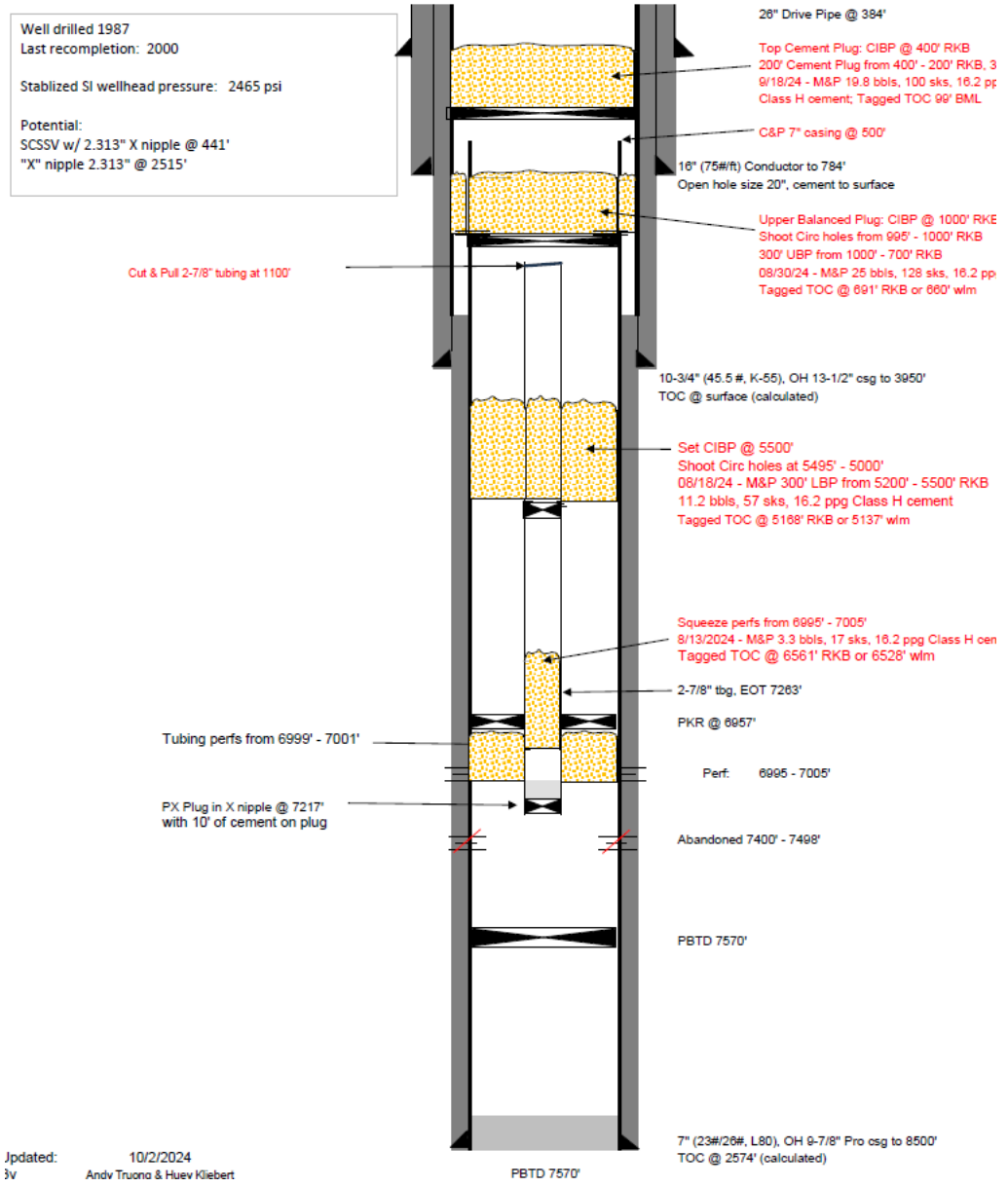
- 22 Pipelines Removed
- 20 Wells Plugged with Conductors Removed
- 21 Wood Piles Removed
- 1 Uncontrolled Release Secured in Fishers Reef Field

North Trinity Bay – Incident Free Operations (IFO)

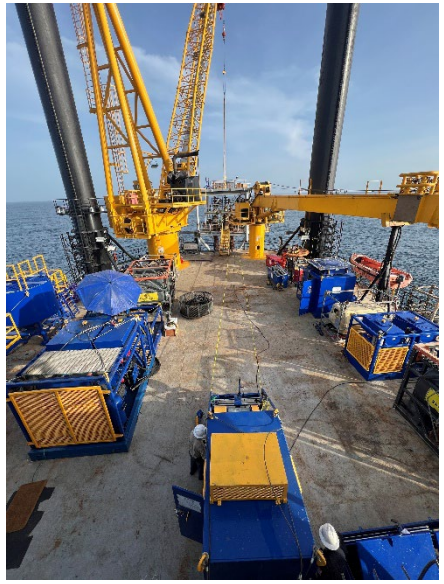
	MANHOURS	INCIDENTS
Laredo Construction	52,207	0
Crescent Energy Services	33,226	0
Total	**85,443**	**0**

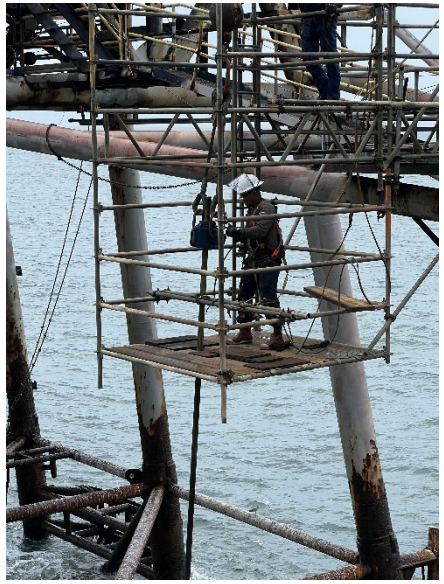
What is Rigless Plug & Abandonment?

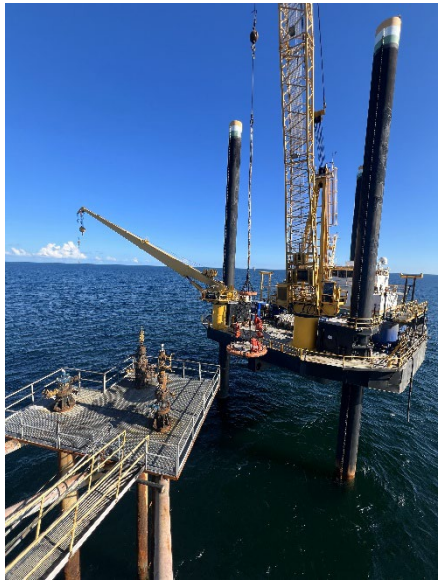
- Method to permanently decommission oil & gas wells without the use of a conventional rig
- Utilizes Electric Wireline for mechanical barrier placement, perforations, and tubing cuts
- Utilizes the production tubing for cement barrier placement
  - Workstring utilized for surface plug(s)
- A safer, more efficient method over conventional P&A with a rig in certain environments (such as offshore & inland waters)

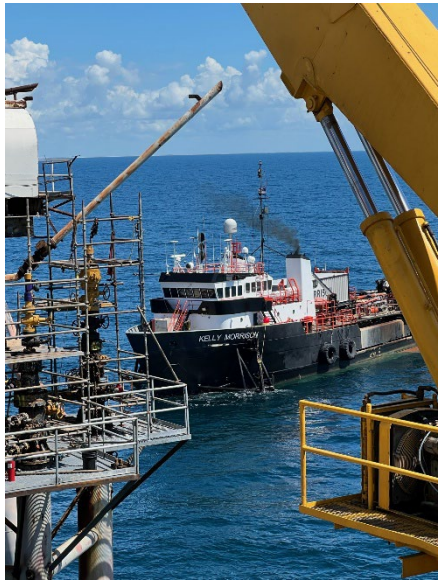


Offshore Well Plugging Operations





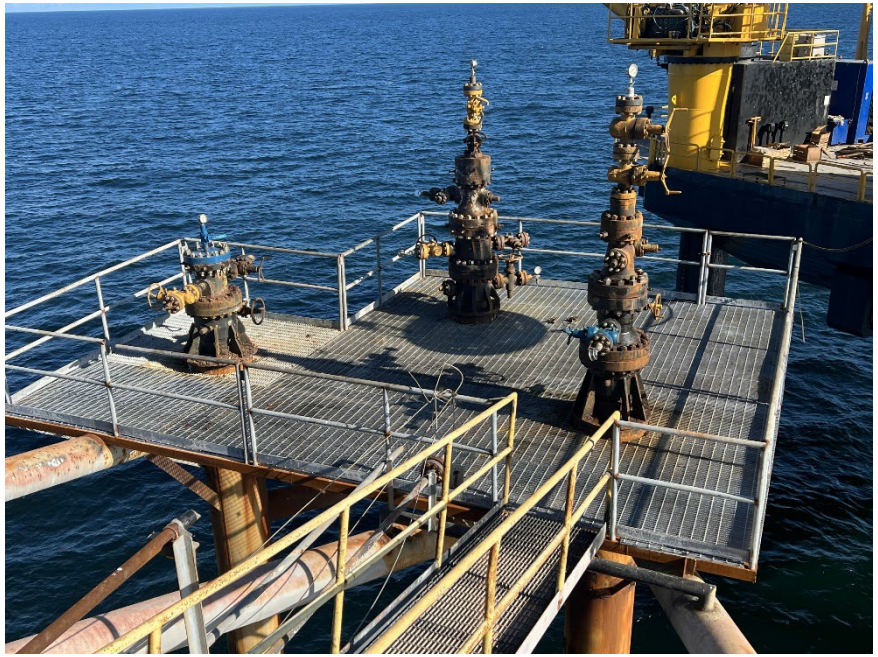




- Work performed from Liftboat, Platform, or OSV
- Crew Vessel or OSV Support
- Rigless P&A Spread
  - Cement Pump
  - Cement Blender
  - Mud Tank w/ Gas Buster
  - Double Drum Wireline Unit
  - Toolboxes
  - Other Ancillary Equipment

Matagorda Island Blk 487 – Previous Projects

- Uncontrolled Release Secured
- 8 Wells Plugged
- 1 Downer Well During Hurricane Beryl
- Work Deck rebuilt around Wells

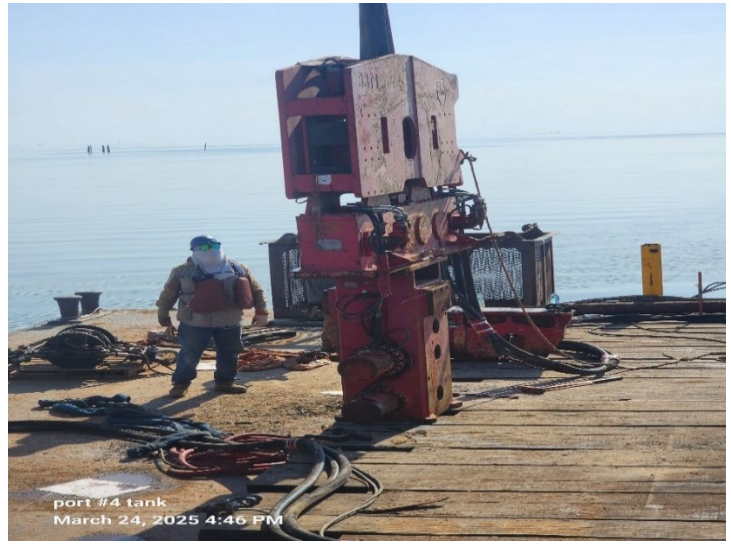


Offshore Marine Assets – Structure Removal Operations

Jacket & Pile Removals

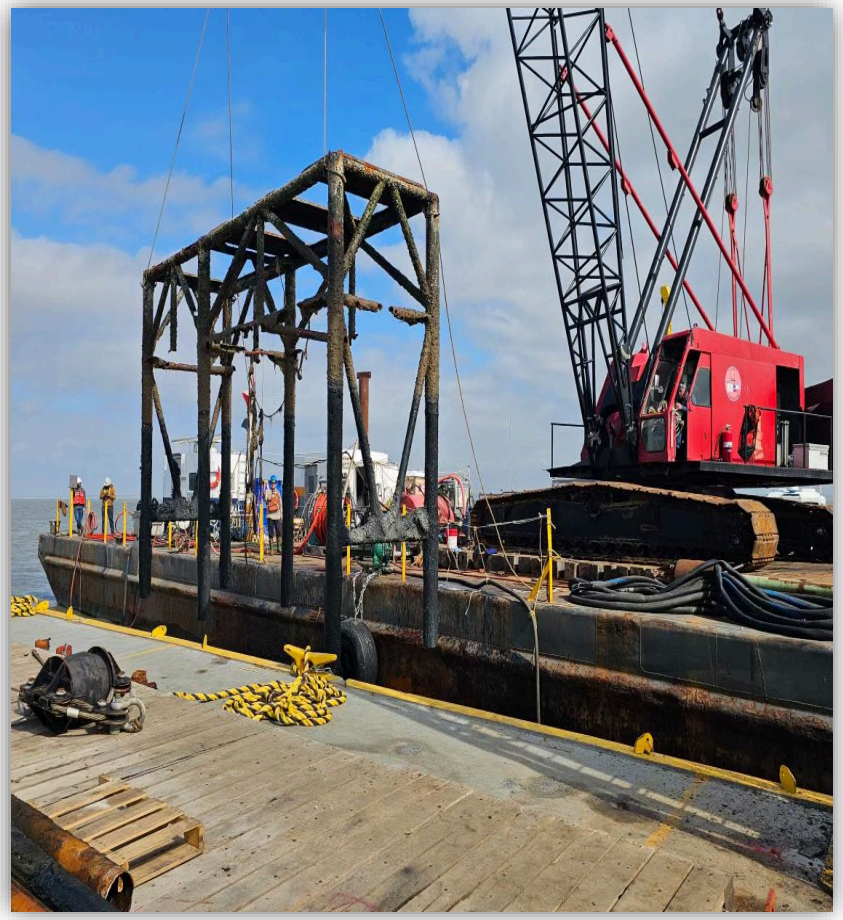
Large Deck Removals

Inland Marine Assets – Structure Removal Operations



Inland Marine Assets – Structure & Pipeline Removal Operations

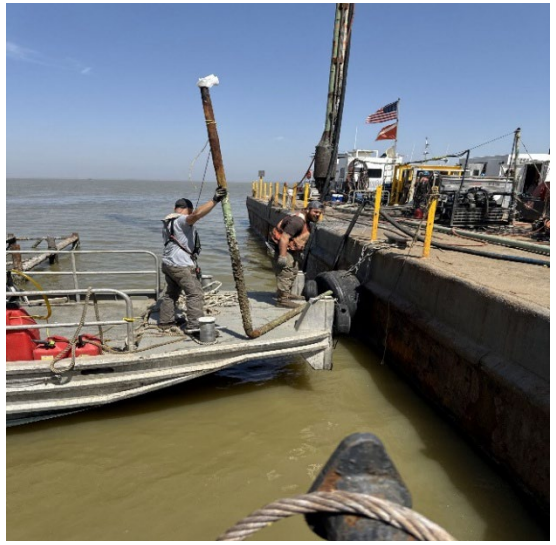
Steel Caissons



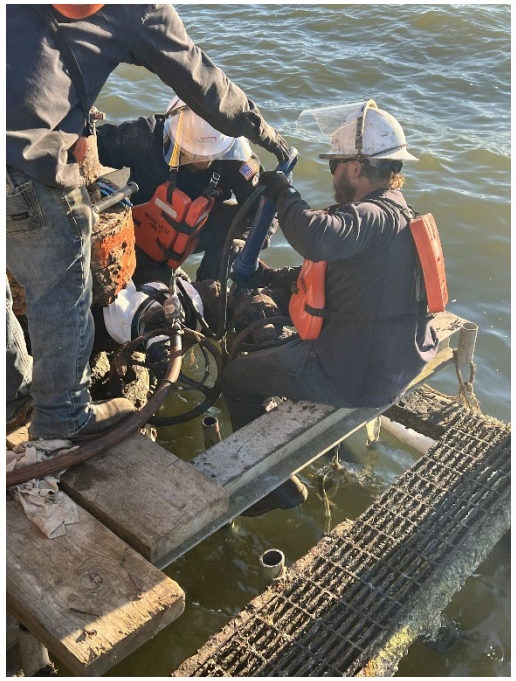
Steel Well Protectors & Piles

Concrete Barges

Inland Marine Assets – Pipeline Abandonment Operations

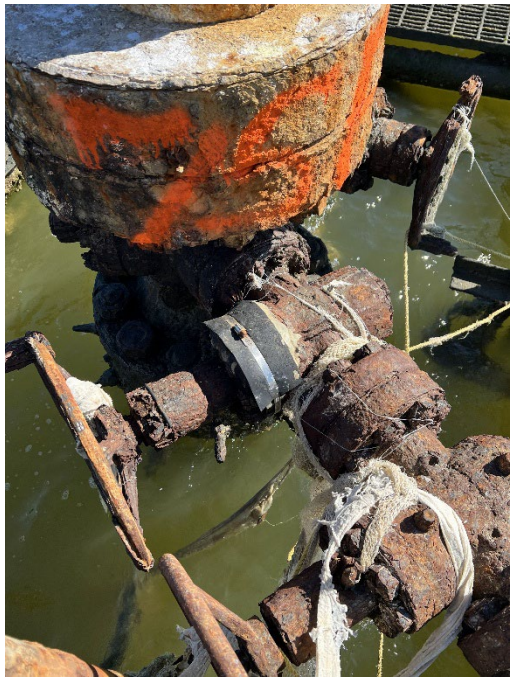


North Trinity Bay – Challenges



Heavy Corrosion

VR Plug in Flange



Casing Flange Patch

Heavy Corrosion

North Trinity Bay– Challenges

Formation
Fluid/Mud/Sand

Parted Tubing

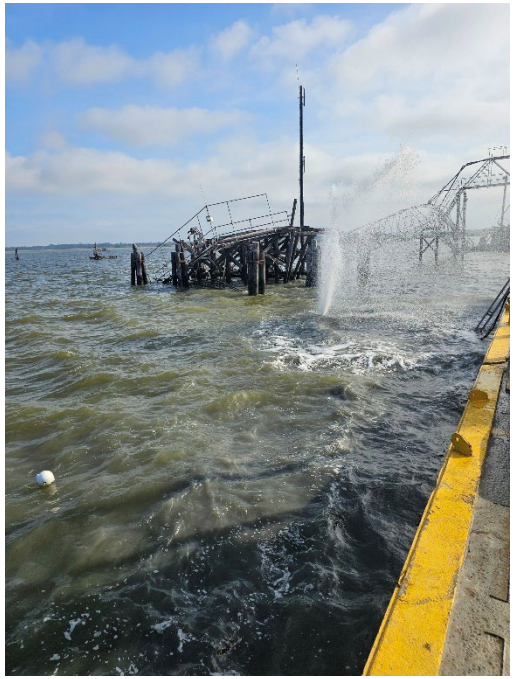
Obsolete Wellhead Design
(limited replacement options if non-functional)

Internal Scale Buildup

North Trinity Bay– Challenges

Leaking Drive Pipe

Broken Flow Lines



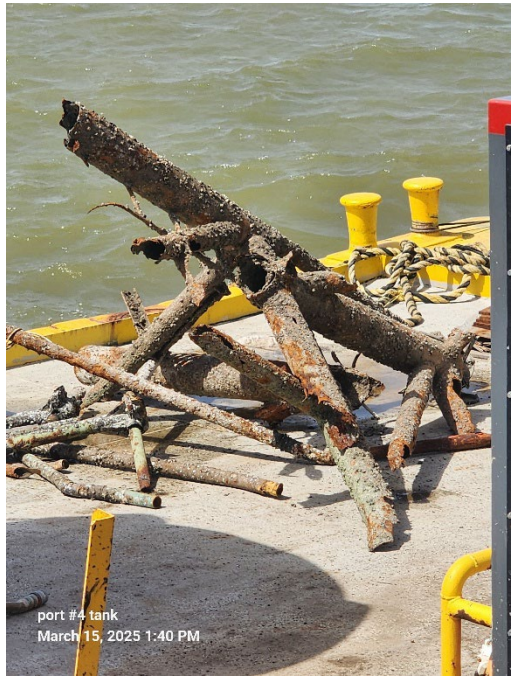
Broken Flow Line Recovery

Cutting Piles w/ Divers

North Trinity Bay – Challenges

Degraded Platform Structures

Degraded Platform Structures



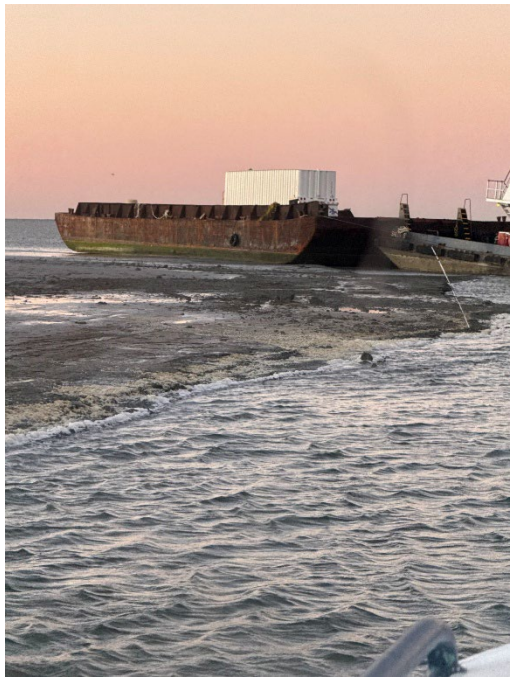
Crumbling Platform Structures

Debris Removal from Bay Bottom

North Trinity Bay– Challenges

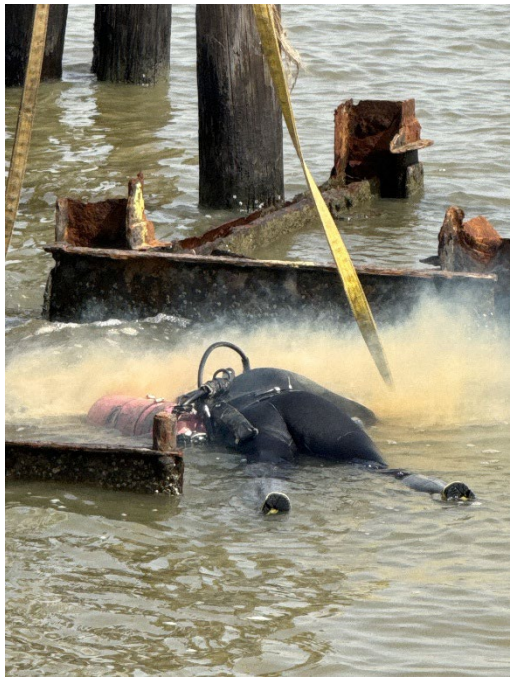
Dense Fog

Winter Weather

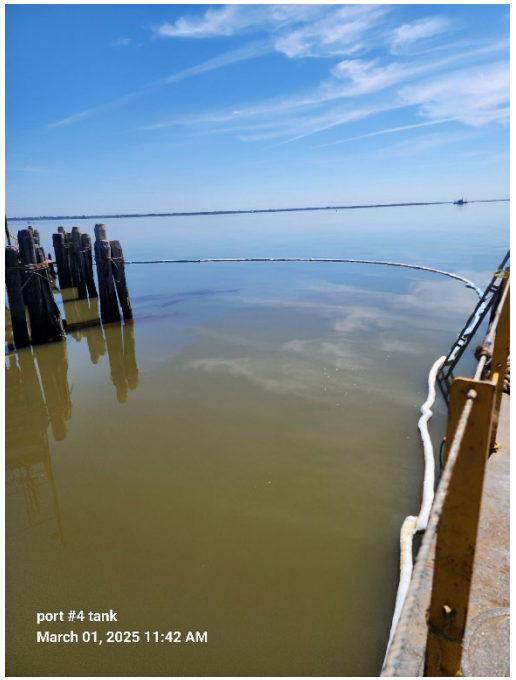


Severe Tide Swings

Shallow Water



North Trinity Bay – Challenges

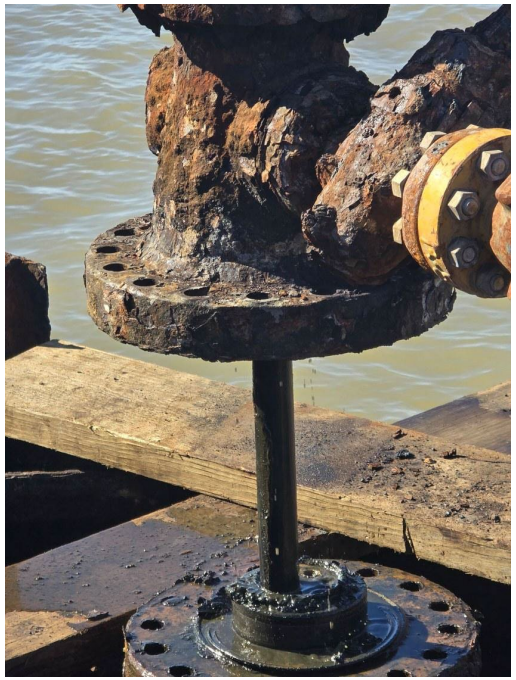


Evidence of Hydrocarbons

Unknown Flow Lines

Flushing Flow Lines

North Trinity Bay– Challenges



Tbg Hanger not Releasing

Casing Flange Underwater

Leaking Packer Pulled

Cutting Dual Tbg Hanger

North Trinity Bay– Lessons Learned

- Seasonal weather, water depth, and tide schedule should be considered when choosing which wells/pipelines/structures to work on at a given time.
- Dredged channel from Shoreline Marine shore base in Anahuac, TX to Trinity Bay is shallow, narrow and not directly adjacent to the markers, causing difficulty with crew vessel and barge movements.
- Well records are scarce and not always accurate.
- Structures and wells have subsided over time, causing additional corrosion, degradation, and casing valve access issues.
  - Many structures must have topsides removed prior to P&A activities and fall apart when trying to pull.

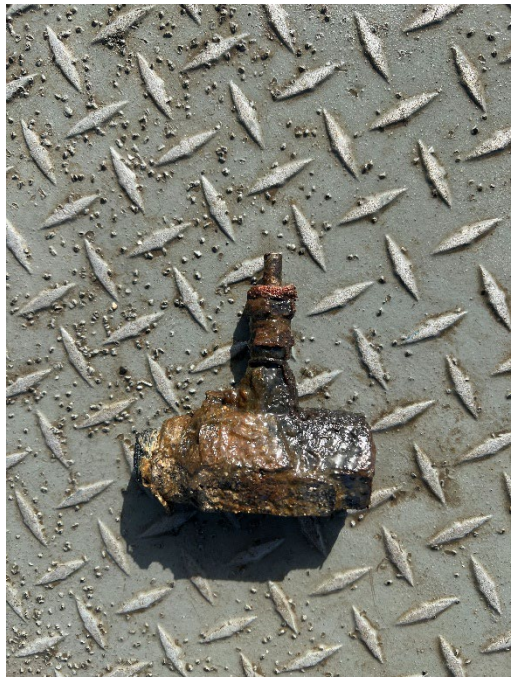
North Trinity Bay– Lessons Learned

- Many wells have reservoir pressure shown at surface and do not have safety valves or plugs.
- Many piles require diver excavation to appropriate cut depth.
  - Steel cribbing piles are driven as much as 75’ into mud.
  - Wood piles are driven up to 45’ into mud.
- Pipelines are corroded and exposed to environment.
- Many wells, pipelines, tube turns, and structures lack identification markings/signage.
  - Well records, coordinates, field orientation should be utilized to identify targets

North Trinity Bay – Objectives

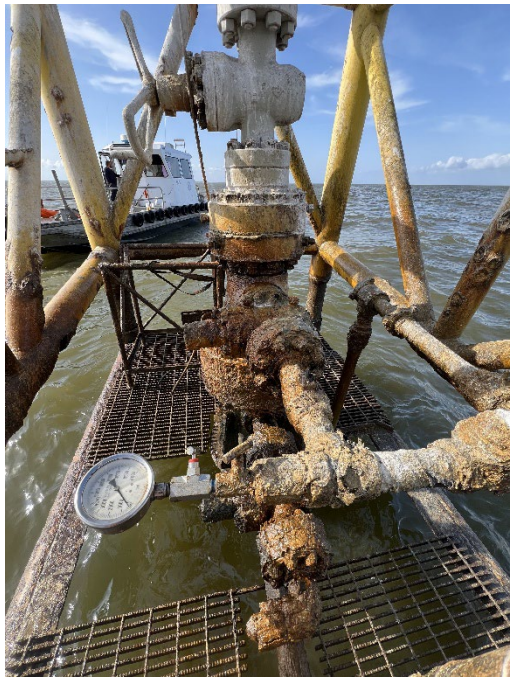
- Complete as many wells, pipelines and structures as possible with available funding
- Continue to identify high risk wells for plugging operations
- Move operations to the Eastern portion of Trinity Bay where the higher prioritized wells are located
  - Low water and Northern fronts (cold fronts) during the Winter made access difficult to impossible
- Optimize operations by batch working wells, pipelines, and structures
- P&A operations are expected to halt Mid-May to allow the removal of pipelines and well structures associated with the plugged wells with the remaining funds.

Fishers Reef Leaking Well



Corroded Needle Valve

Needle Valve & New Gauge Installed



>1,000 psig still on the well

North Trinity Bay Phase 2 – Lessons Learned Impacts

- Moving to center of Trinity Bay allows for less tidal impact on work scope
- Wells and cribbing are sinking, wellhead, casing valves, and flow lines are harder to get to
- Flushing flow lines has exposed that most are rotting in the mud
- Weather will be heating up, so we anticipate more leaks in the bay
- Spring is here, so boating activity will pick up and exposure increases
- Fly overs by Coast Guard and others often reveal the leaking wells and flow lines
- Platforms are in horrible shape, can’t be safely boarded, and have unknown tankage
- Hurricane season is approaching and risk of storm damage increases
- There is no maintenance, and the corrosion risk increases every day
- Many of the well cribbings, wells, and flow lines are barely visible at normal tides, the risk to marine traffic hitting an obstruction is high

Closing

Questions

oilspills@glo.Texas.gov **cody.heath @rrc.Texas.gov**