NEW INNOVATION FOR THE INFRASTRUCTURE INDUSTRY by



Revelation Technology: Pipeline Mapping System



SouthEast Chapter THSOA

May 15, 2025

Who We Are





Co-Founder/CEO

- BS Petroleum Engineering
- Texas A&M University
- 27+ Years Petroleum Engineering
- 15+ Years Engineering Executive
- Multiple Patents & Publications



- BS Aerospace Engineering
- University of Texas at Arlington
- 28+ Years Engineering Innovation
- 18+ Years Engineering Executive
- Multiple Patents & Publications



Chief Data Scientist

- MS Analytics
- Georgia Tech
- 15+ Years Analytical Innovation
- Biotech, Healthcare, Engineering
- Adjunct Instructor in Analytics & Econometrics

Buried and Unknown Pipelines



Challenges with Pipeline Construction and Maintenance

- Preventing Pipeline Strikes
- Preventing Loss of Life
- Preventing Environmental Exposure due to Loss of Containment
- Minimizing Potential Survey Labor Injuries
- Minimizing Operational Downtime

Challenges' MAJOR Questions

- 1) Do buried marine pipelines move?
- 2) Can one tool or technology accurately locate X-Y, & Z (elevation)?
- 3) Can you effectively identify and map unknown, unregulated pipeline hazards?







Solution

- SonDance's Revelation 3-D Mapping Technology
 - Addresses the five challenges
 - And answers those three major questions
- 1) Pipelines <u>do</u> move in aquatic environments.
- 2) One innovation can map a pipeline's X-Y-Z location.
- 3) And this tool <u>can</u> map the <u>unknown</u> pipelines over a large area.

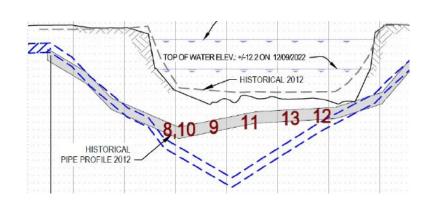


Current Surveying Technologies

- Yield X-Y "hot spots" requiring further investigation
- Require known onshore locations
- Post-processing by Geophysics PhD typically taking longer than one week
- Reduce confidence levels with deeper depths-of-cover and slope limitations
- How much does it cost to mechanically probe a pipeline?

Revelation Technology

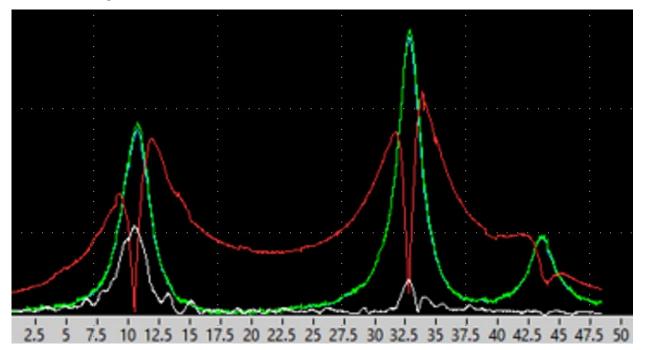
- Generates X-Y-Z (latitude, longitude, elevation)
- Regardless of sediment cover, high confidence with Z- elevation
 - Up to 40' from surface with accuracy +/- 2"
 - Up to 50' from surface with accuracy +/- 6"
- Maps unknown and known pipelines
- No false positives
- Maps conductive pipelines only
- Saves time and time equals \$\$\$





Impact in Post-Processing

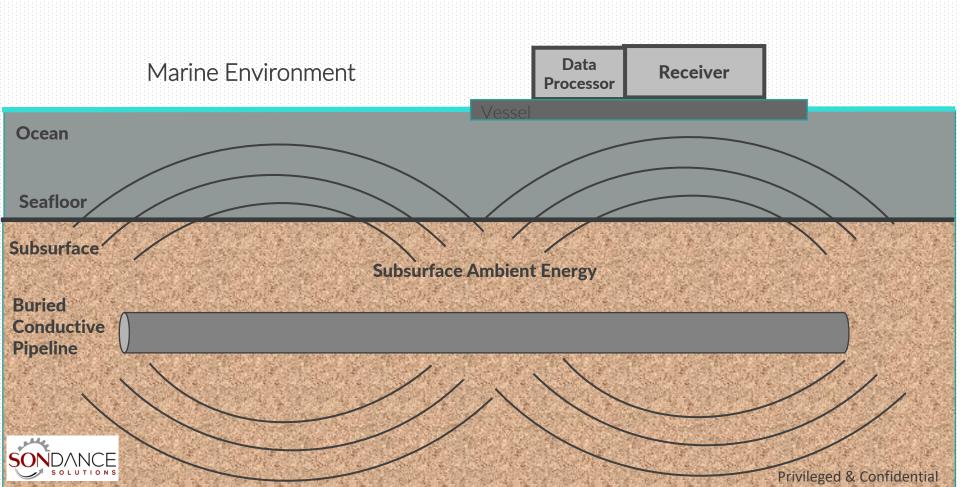
- Saves time and \$\$\$
 - Turnaround time: Typical deliverables in 7-days
 - One-Day on-site and provided dredger results in 3 days
 - No PhD required



Guess on this screenshot where are the real-time Pipeline Crossings?

Revelation Technology

Revelation measures, locates, and maps the electromagnetic differences of the ambient energy in the earth's subsurface with man-made <u>conductive</u> <u>cylindrical-shaped</u> anomalies, i.e. pipelines, conduits, etc.



Case Study #1



ISSUE

A large Dredging contractor operating heavily in the Gulf approached SonDance Solutions to learn about the Revelation technology and to verify the location of 2 pipelines in the dredge-path. One pipeline had a 1986 As-Built depth of +/- 90'. Second pipeline had 4-year-old lowconfidence magnetometer data. Dredger wanted confirmation of the deeper pipeline clearance and the shallower pipeline strike.

Solution: SonDance's Patent-Pending Revelation Technology

- High confidence Pipeline 1 and Pipeline 2 elevations determined
- Unknown Pipeline 3 hazard detected in dredge's path to SouthEast
- Dredger was prepared for striking Pipeline 2 and Unknown Pipeline 3

Details:

- Pipeline 1 confirmed elevation of 90' (40' below cover) = no strike
- Verified dredger was going to strike Pipeline 2 (abandoned 10" line)
 - More accurate by 20' in X-Y compared with magnetometer data
 - More accurate by 3' 6' in Z (elevation) compared with magnetometer data

Impact

In any instance where the subsurface depth of a buried pipeline is a concern, implementing this Revelation technology is an industry game-changer. In a real-world application where Revelation is utilized on the front-end of any marine construction project together, we can:

- Make our Industry a safer place
- Reduces costs and reduces downtime
- Maximizes profitability

Case Study 1 - Revelation Mapping Paths





Case Study 2 - Pics





Case Study #2



<u>ISSUE</u>

An Oil & Gas Major wanted to prove the Revelation technology in an emergency situation where a pipeline crossing a river needed to be mapped accurately for quick, safe removal. 2012 pipeline profile data conflicted with 2022 data. 2024 diver induction data yielded lowconfidence of the pipeline's X-Y-7 in the river. Unsatisfied with results, the major utilized an expensive smart PIG while requesting SonDance to map the pipeline in the river.

Solution: SonDance's Patent-Pending Revelation Technology

- High confidence pipeline elevations determined in the river
- Revelation's X-Y-Z results agreed with PIG's In-Line-Inspection data
- Project Manager used Revelation and PIG results for pipeline removal
 - Project Manager saved \$thousands on additional time, barges, divers

Details:

• Pipeline actually moved 3' – 6' due to exposure on east bank

Impact

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Case Study 2 - Revelation Mapping Paths





Case Study 2 - Revelation Results



Deliverables

- Output is simple CSV file of each Survey Runs' Pipeline Crossings:
 - Latitude/Longitude/Orthometric Elevation in feet referenced to Mean Sea Level
 - Distance of Pipeline from Revelation's Sensors
 - Orthometric Elevation of Pipeline in feet referenced to Mean Sea Level

	Job Run	<u>Pipeline</u>	River Surface Pipeline Crossings		Sensors-to-Pipeline	Pipeline
<u>Customer</u>			<u>Latitude</u> <u>Longitud</u>	de <u>Surface Elevation</u> Mean Sea Level (ft)	<u>Distance</u> (ft)	<u>Elevation</u> Mean Sea Level (ft)
					· · · · · · · · · · · · · · · · · · ·	
W	8	В	30.3491236 -93.7597	214 12.12	19.52	-7.4
W	9	В	30.34909393 -93.75964	486 12.12	15.03	-2.91
w	10	В	30.3491095 -93.7596	934 12.12	20.52	-8.4
w	11	В	30.34900875 -93.7594	973 12.12	16.85	-4.73
W	12	В	30.34888183 -93.7593	036 12.12	15.61	-3.49
W	13	В	30.34892828 -93.7593	865 12.12	17.56	-5.44
	w	W 9 W 10 W 11	W 9 B W 10 B W 11 B	Customer Job Run Pipeline Latitude Longitus W 8 B 30.3491236 -93.75972 W 9 B 30.34909393 -93.75962 W 10 B 30.3491095 -93.75962 W 11 B 30.34900875 -93.75942 W 12 B 30.34888183 -93.75932	Customer Job Run Pipeline Latitude Longitude Surface Elevation Mean Sea Level (ft) W 8 B 30.3491236 -93.7597214 12.12 W 9 B 30.34909393 -93.7596486 12.12 W 10 B 30.3491095 -93.7596934 12.12 W 11 B 30.34900875 -93.7594973 12.12 W 12 B 30.34888183 -93.7593036 12.12	Customer Job Run Pipeline Latitude Longitude Surface Elevation Mean Sea Level (ft) Distance (ft) W 8 B 30.3491236 -93.7597214 12.12 19.52 W 9 B 30.34909393 -93.7596486 12.12 15.03 W 10 B 30.3491095 -93.7596934 12.12 20.52 W 11 B 30.34900875 -93.7594973 12.12 16.85 W 12 B 30.34888183 -93.7593036 12.12 15.61

Survey Co. gave Waterline Surface Elevation = 12.12' MSL

Case Study 3 – Pics





Privileged & Confidential

Case Study #3



<u>ISSUE</u>

A respected, reputable marine survey company wanted to prove the Revelation technology in an area that had probed pipeline locations and surveyed information for data comparison and evaluation.. Three pipelines and a utility electric line were in the area of interest, which was in the dredge path of an ongoing project.

Solution: SonDance's Patent-Pending Revelation Technology

- High confidence pipeline elevations determined in the bayou
- Revelation's X-Y-Z results agreed with profiles and probed stations
- Mapped two (2) pipelines and a utility line

Details:

- Confirmed Utility line was rebored 42' to the north of original position
- Confirmed removal of 3rd pipeline to south, Bayou Hunting Club pipeline

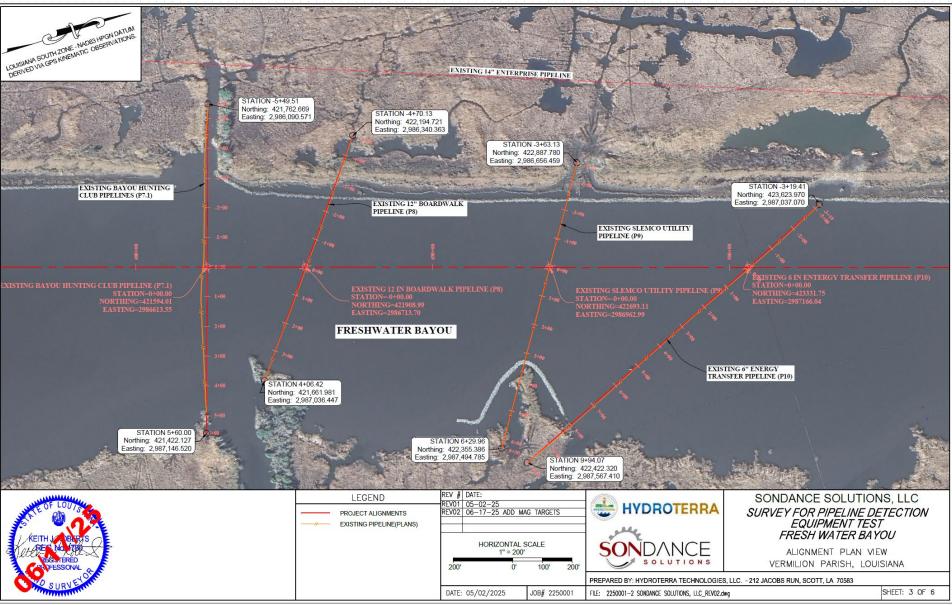
Impact

In any instance where the subsurface depth of a buried pipeline is a concern, implementing this Revelation technology is an industry game-changer. In a real-world application where Revelation is utilized on the front-end of any marine construction project together, we can:

- Make our Industry a safer place
- Reduces costs and reduces downtime
- Maximizes profitability

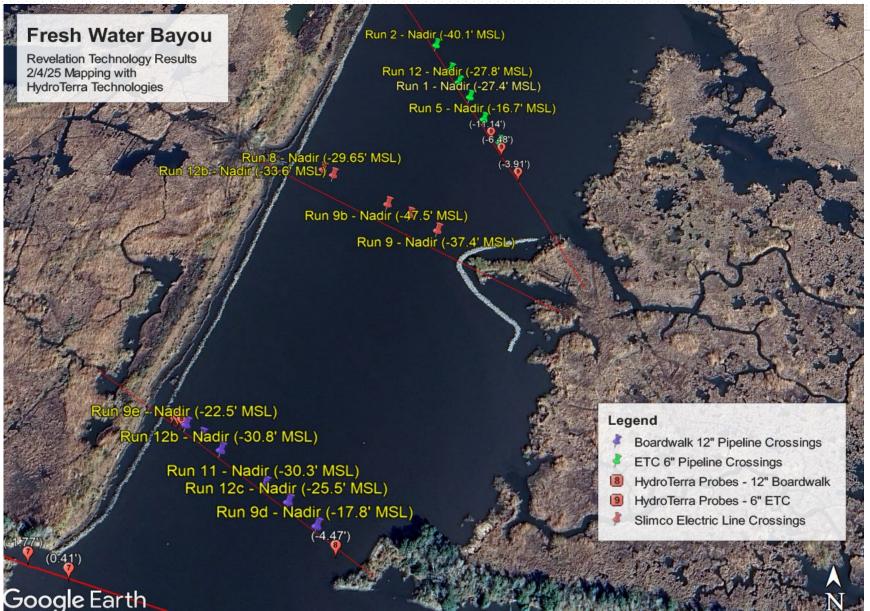
Case Study 3 - Fresh Water Bayou





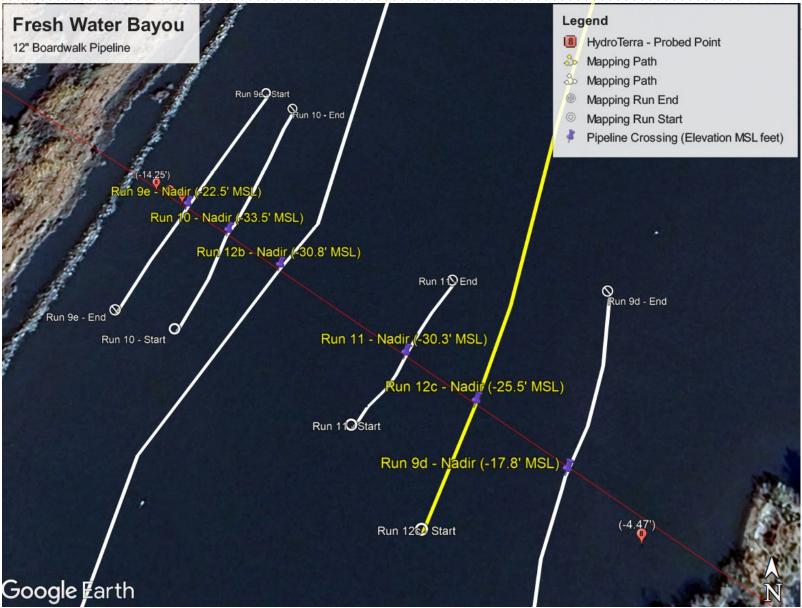
Case Study 3 - Revelation Mapping Paths





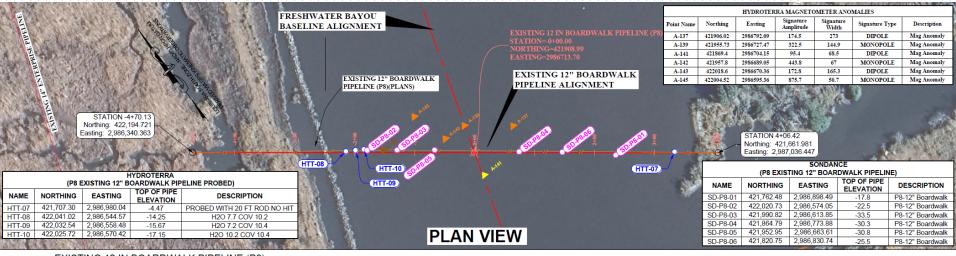
Case Study 3 – 12" Boardwalk Pipeline

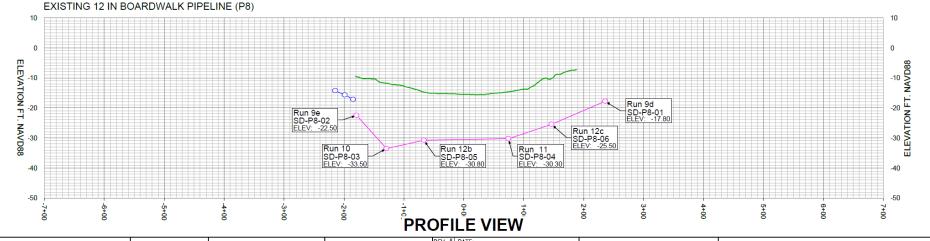


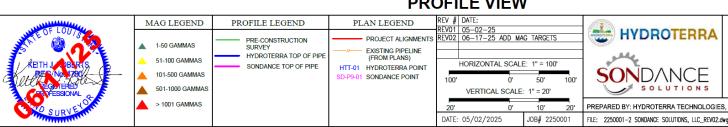


Case Study 3 - 12" Boardwalk Pipeline









SONDANCE SOLUTIONS, LLC SURVEY FOR PIPELINE DETECTION EQUIPMENT TEST FRESH WATER BAYOU

PLAN-PROFILE VIEW
VERMILION PARISH, LOUISIANA

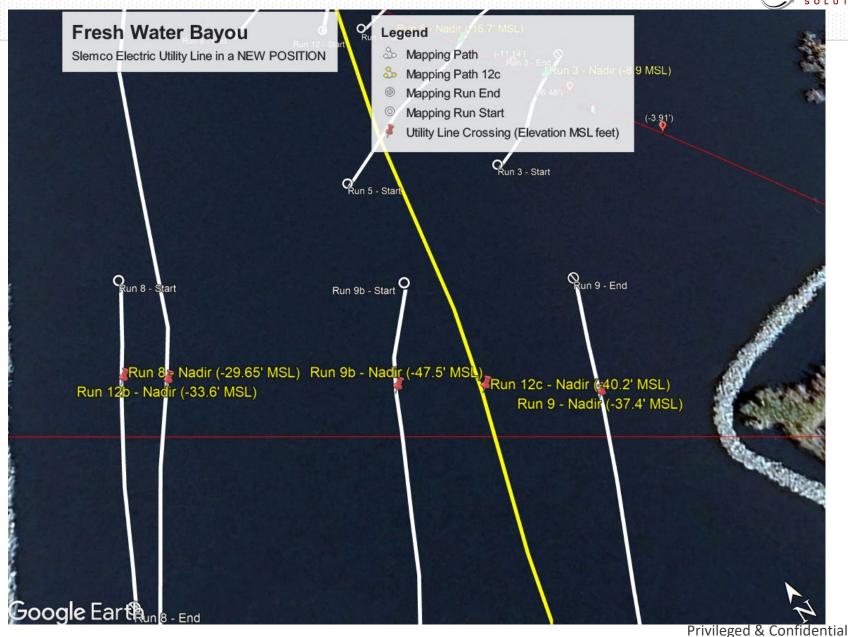
SHEET: 4 OF 6

ARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 212 JACOBS RUN, SCOTT, LA 70583

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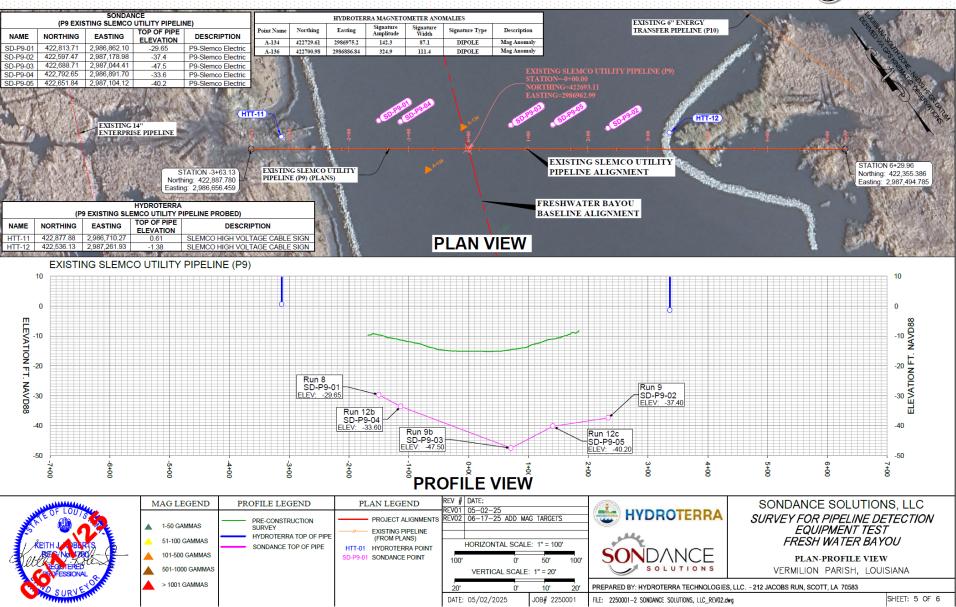
Case Study 3 - Slemco Utility Line





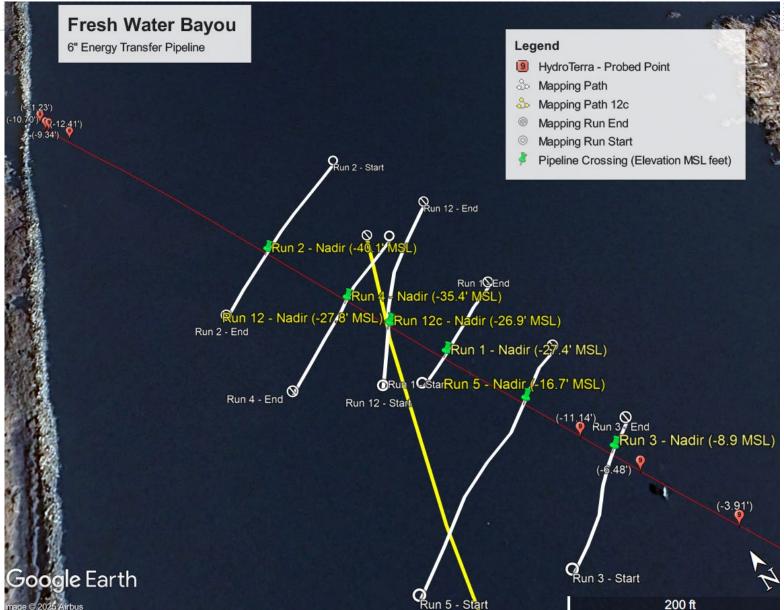
Case Study 3 - Slemco Utility Line





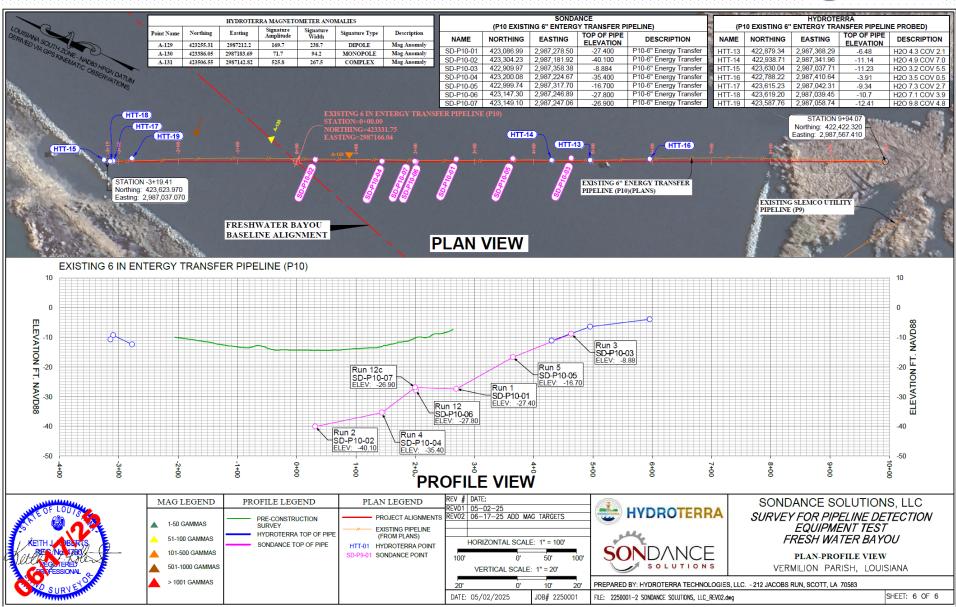
Case Study 3 – 6" Energy Transfer Pipeline





Case Study 3 - 6" Energy Transfer Pipeline





Why use this technology with Horizontal Directional Drilling?

- Maps UNKNOWN and known pipelines
- Pipelines move in water environments and move onshore in catastrophic events
- Deeper cover accuracy than mechanical probes and current technologies

If you don't understand the effects on the bottom-line economics,

ask your Project Managers:

- ✓ Avoid costly pipeline strikes
- ✓ Avoid loss of life
- ✓ Saves Time covering large areas
- ✓ Onshore & Offshore deployable
- √ Validate "As-Built" documents
- √ 7-Day post-processing results for typical jobs





Transitioning from R&D phase to Commercialization

- ✓ Currently deployed by towables
 - ✓ Inland waters, ports, bays, rivers via dinghy
 - ✓ Land via sled
- ✓ In-the works for current customers
 - ✓ Aerial drones
 - ✓ Deepwater towfish
 - ✓ Submersibles

Seeking Strategic Partners

- √ To license technology
- ✓ Deploy as a service



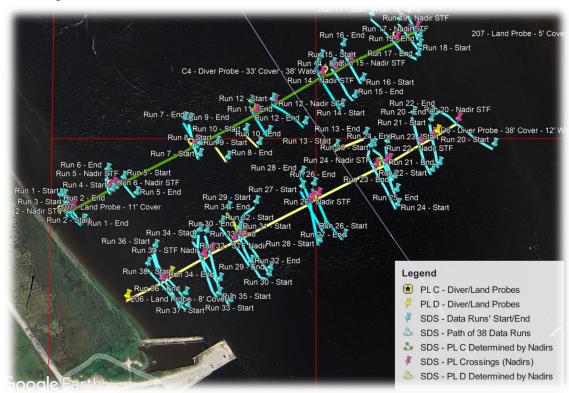




3-D Subsurface Mapping of Buried Pipelines Jeff@sondancesolutions.com

Questions.....

- ✓ Patent-pending technology
- ✓ SDS' Non-Disclosure Agreement (NDA)
 - ✓ Required for more details on customer results
 - ✓ Required for more details of innovation





3-D Subsurface Mapping of Buried Pipelines Jeff@sondancesolutions.com

Questions and Answers



