



CAMO and Port Fourchon Launch AIS Vessel Safety Initiative



Coastal and Marine Operators Members



CAMO Pipeline Safety Industry Initiative

- Purpose - To explore and address issues and challenges, in preventing spills, releases and damage to coastal and marine infrastructure, which negatively impacts the environment and safety.
- Action - Design and Support “Drivers” that will enhance the protection of oil and gas pipeline infrastructure through industry, government and agency collaboration, while demonstrating continuous improvement.
- Goals – Implement effective solutions and objectives that sustain and enhance industry asset integrity, environmental protection, industry perception, and our right to operate.
- CAMO - formed in 2009 with about 20 pipeline companies participating, we have at one general membership meeting a year



Both Marine and On Land

Unknown and 3rd party damage (including Vessel Interactions) is one source of our industries' largest spills.



Excavator Operators VS Marine Vessel Operators

Are infrastructure safety, security and damage prevention equally understood with stakeholders in lakes, bays, rivers and other marine areas as they are on land?



Coastal and Marine Third Party

Damage Incident DATA

The data below was compiled from PHMSA, Minerals Management Service, United States Coast Guard and the National Transportation Safety Board.

Description	Reported Impact (1987-2015)
Pipeline Strikes	137
Fatalities	25
Injuries	17
Property Damage and Lost Product	\$120,500,000
Product Released to the Environment	100,000 bbls



Subsea Infrastructure Protection

- Interactions between vessels, anchors and pipelines from 1987 to 2015 resulted in the following: **137 pipeline strikes, 25 fatalities, and 17 injuries, 100,000 barrels** of released product and over **\$120,500,000 in property damage.**
- **Each day** approximately **400 large supply vessels** traverse the Port Fourchon waterways and **1.15 million barrels of crude oil** are transported via pipelines through the port.
- In **2009** in Bayou Lafourche, a **16” Natural Gas Pipeline was struck**, waterway was **closed for over 6 hours** and the cost of pipeline repairs and gas loss **exceeded \$800,000**



Coastal and Marine Third Party

Damage Incident Examples

- Terrebonne Bay, May 1997, 5000 bbls. crude oil released, cause Spud Barge
- Catfish Lake, Sept 2001, Boat Prop from eroded area new path
- Little Lake, Vessel Damage – Tug boat finding channel
- Bayou Perot, Jan 2007, 10,000 bbls barge hit largest spill in US
- Poseidon Pipeline, over 3000 bbls crude oil, anchor drag
- Safety - West Cote Blanche Bay Oct 2006 kills six, spud barge
- 2010 - Morgan City Area Dredge Gas PL Hit and Delta Release Spud Barge Hit crude line



Wheel Washing - Vessel Damage to a 16" Natural Gas Pipeline



Worker safety and releases in marine environments can be very serious

Spills in Coastal/ Marine Environments can average over \$10,000 a bbl. just to clean up



Louisiana Law States

ANY Movement or removal of earth either on land or submerged must have a *One Call Notification*.



Recommendation: Any force contacting the water bottom creating 150 lbs of force or more, should require a one call notification.

News Article

Barge Pipeline Strike Causes Massive Fireball in Louisiana Bayou March 2013

“A pipeline south of New Orleans erupted in a massive fireball after being struck by a tug and barge.

The U.S. Coast Guard said that it is responding after crews received a report that the tug pushing a 154-foot oil barge hit the pipeline near 30 miles south of New Orleans.

One fatality occurred from this incident....”



USCG Reports 4 – Incidents in March 2013 involving vessels and oil/gas or pipeline infrastructure



So what's at Stake?

- Industry Perception – we have too many spills or releases
- Industry Image? - Doesn't demonstrate continuous improvement
- State and National economy and energy security
- Worker Safety, preserve our license to operate
- Your legal liability both Personally and Corporately
- Reasons to support CAMO initiatives
 - Environmental Responsibility
 - Reduce both Oil and Gas releases
 - Reduce asset downtime which protects State/ Fed. revenue
 - Public safety
 - Sustain effective operations



SOME Preventive Measures

- Call 811 or Gulfsafe or contact the pipeline company before you contact the water bottom
- Make a Voyage Plan that includes pipeline locations
- Check and update your maps, look for markers
- When in question – Shutdown and call USCG/ State Police/ or 811
- One Solution is innovative use of the AIS system ... (vessel Auto. ID System) to prevent incidents with an invisible asset fence



WHY?



- We all need to collaborate
- Help protect the safety of employees, community and the environment.
- Enhance security of assets
- Protect the US oil and gas supplies

Contact Information

Follow us on



www.camogroup.org



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Automatic Identification System (AIS) Safety Message Transmission

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Director of Operations

Oceaneering Global Data Solutions



What is....

Automatic Identification System (AIS)

- Collision avoidance between vessels
- Signal transmitted via VHF with range of 20 to 40 miles
- **Title 33, Code of Federal Regulations**
164.01 Applicability & § 164.46 - vessels of **65 feet or more** in length, other than passenger and fishing vessels, **Towing** vessels of **26 feet or more** in length and **more than 600 horsepower**, **Passenger vessels, of 150 gross tonnage or more, more than 150 passengers-for-hire, Tankers**, regardless of tonnage

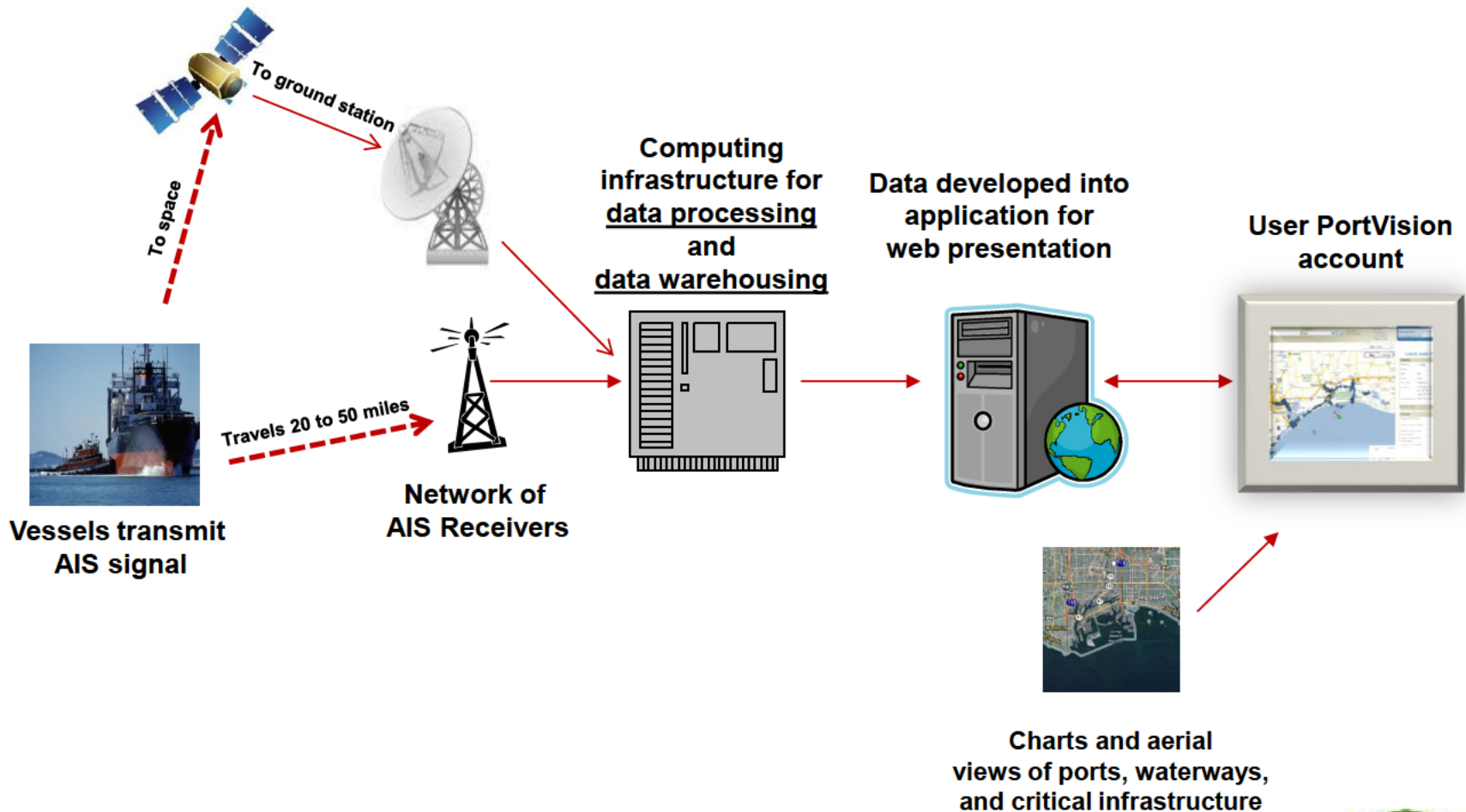


AIS Data is Captured & Processed

- **Global network** of AIS receivers to capture signals
- Patented Geo-fencing to **log and alert** as vessels
 - arrive –depart –pass points of interest.
- **Historical AIS data** captured for playback and analytical reporting up to twice a minute
 - 15 billion records dating back 5+ years
 - 50 million new location reports every day



Communication Pipeline



AIS Data Utilization

- Automated documentation of factual vessel position data
- Optimize terminal and waterway utilization
- Traffic pattern studies
- Competitive analysis of fleets, terminals, assets
- Enforcement of Federal, State, Local, and company stated policies
- Emergency response: Situational reporting, logistical coordination, safety of responders



PortVision – Protecting Subsea Assets

Leveraging Automatic Identification (AIS) transmissions from vessels we are able to:

- **Real-time visibility of vessel traffic** over or near your pipeline corridor.
- **Alert on vessel threats**, via e-mail and/or text, of vessels operating over submerged cables in a threatening manner.
- **Historical playback of vessel traffic** for post incident investigations to determine cause factors and identify responsible parties that may have been previously unidentifiable.
- **Analytical tools** to target funding towards infrastructure protection and remediation efforts based on documented vessel activities.



Pipeline Monitoring Zones

portvision

Search: Search Here | Region: Jacksonville, Florida

My Alerts | My Vessels | My Terminal/POI Lists | Reports and Analytics | Dashboard | Preferences | Welcome | User Guide

Current User: [CPL Control Center \(jordan@camo.com\)](#) | home region: Houston, Texas

Full Screen | Map Legend | Show Waterway Alerts | Filters | Weather | Map | Satellite | Chart

MR ROW

Details

Type:	Passenger
Call Sign:	WDF8500
IMO#:	8967539
Flag:	United States
Last Report:	13 seconds ago
	2014-04-04 14:54 CDT
Heading:	307.6 deg
Speed:	14.5 knots
Location:	2.74 miles N of Platform 01
	16-M
	Lat: 29.22, Lng: -89.88
Data source:	AIS

[Details](#) | [AIS](#) | [USCG](#) | [QES](#)

Events

Departed Gulf Platform	2014-04-04
WD-31E	14:45 CDT
Arrived Gulf Platform	2014-04-04
WD-31E	13:15 CDT
Passed Berataria Pass	2014-04-04
Buoy 9, 10	12:01 CDT
Passed Berataria Pass	2014-04-03
Buoy 9, 10	06:16 CDT
Passed Gulf Platform	2014-04-03
WD-31E	03:38 CDT
Passed Berataria Pass	2014-04-03
Buoy 9, 10	01:02 CDT

[View More](#)

Actions

- [View Details](#)
- [Create Alert](#)
- [Show Vessel Track](#)
- [Start Distance Calculator](#)
- [Add to My Vessels](#)
- [Follow Vessel](#)

Google | 29.210912, -89.744560 | Map data ©2014 Google | 10 km | Terms of Use | Report a map error



Pipeline Near-Miss Case Study

- Pipeline operator **received an alert** regarding a vessel over a pipeline segment that looked suspicious.
- Field **inspector sent to investigate** and **confirmed vessel was stopped** in pipeline corridor.
- Inspector **notified Field Supervisor and Control Center.**
- Field inspector **contacted vessel owner**, provided vessel captains phone number.
- Captain was asked for an **ALL STOP** until further notice to do his proximity to pipeline.
- **Confirmed vessel was grounded**, notifications were made to all pipeline stakeholders.
- Vessel **held fast to high tide**, so not to be a threat to the pipeline.



Vessel Track Over Pipeline

The screenshot displays the 'portvision' web application interface. At the top left, there is a search bar with the text 'Search Here' and a dropdown menu for 'Region' set to 'ALL'. Below the search bar, it says 'Enter vessel, Call Sign, IMO number, Terminal, or PID'. To the right of the search bar, there are links for 'My Alerts', 'My Vessels', and 'My Terminal/PID Lists'. Further right, there are links for 'Reports and Analysis', 'Dashboard', 'Performance', and 'Welcome / User Guide'. On the far right, the 'Current User' section shows 'User: [redacted]', 'CPL Control Center: [redacted]', and 'Home Region: Port of Venice, Louisiana'.

The main area is a map titled 'Playback' showing a vessel track over a pipeline. The map includes a compass, a zoom slider, and a 'Google' logo. The vessel track is shown as a series of red and black icons along a light green pipeline. The map coordinates are '29.406428, -93.517353' and the date is '2014-06-17 19:18 CDT'. At the bottom left, there is an 'Advance' button and a '1/1 (1/1/2015)' indicator. At the bottom right, there are navigation arrows and the date '2014-06-17 19:18 CDT'.

On the right side, there is a details panel for the vessel 'MISS CHRISTY'. The 'Details' section includes the following information:

- Type: Vessel
- Call Sign: WDC0371
- IMO: 514037000
- Flag: United States
- Last Report: 159 days 18 hours ago
- Last Report Time: 2014-05-17 19:17:40 CDT
- Heading: Unknown
- Speed: 0 knots
- Location: Lat 29.40, Lng -93.51
- IMO | USCG | OIR

The 'Actions' section includes the following options:

- View Position History
- View Event History
- Hide Vessel Track
- Start Distance Calculator

The 'Events' section includes the following information:

- Departed St. ShrevePSA: 2014-05-17 04:00 CDT
- Arrived St. ShrevePSA: 2014-05-18 11:26 CDT
- Departed Port: Port of Venice, Louisiana: 2014-05-18 10:58 CDT
- Passed Sacate Cutlets: 2014-05-18 10:44 CDT
- Passed Upper Venice: 2014-05-18 10:29 CDT
- Arrived St. ShrevePSA: 2014-05-18 10:29 CDT
- Departed USCG Station: 2014-05-18 10:01 CDT
- Mooring, Venice, LA - 0085: 10:01 CDT



Case Study: MIDNIGHT STAR Vessel Track Over Pipeline

The screenshot displays the portvision web application interface. At the top left, the 'portvision' logo is visible. Below it, there is a search bar with the text 'SEARCH HERE' and a dropdown menu for 'Region' set to 'Jacksonville, Florida'. To the right of the search bar, there are links for 'My Alerts', 'My Fleet', and 'My Terminal/POI Lists'. Further right, there are links for 'Reports and Analytics', 'Dashboard', 'Preferences', and 'Welcome | User Guide'. On the far right, the 'Current User' section shows 'portvision' and 'home region: Galveston, Texas'.

The main area is a map titled 'Playback' showing a vessel track over a pipeline. The map includes a compass, zoom controls, and a 'Map | Satellite | Chart' selector. The vessel track is shown as a series of red triangles connected by a line, indicating the vessel's path. The pipeline is shown as a dashed red line. The map also displays depth contours and a 'Google' logo in the bottom left corner. The coordinates '29 16 07, 90 22 26 4' are shown at the bottom of the map. A scale bar for '50 m' and a 'Terms of Use' link are also present.

At the bottom of the map, there are playback controls: 'Advance 1 minute(s)', a play button, and a stop button. The date and time '2009-10-16 07:30 CDT' are displayed at the bottom right of the map area. A 'View Debug' link is located at the bottom left of the map area.

On the right side of the map, there is a details panel for the vessel 'MIDNIGHT STAR'. The panel has a 'Details' tab and contains the following information:

MIDNIGHT STAR	
Type:	Other
Call Sign:	YDXX9
IMO:	7396636
Flag:	Vanuatu
Last Report:	1,631 days 8 hours ago 2009-10-16 07:29:23 CDT
Heading:	4 deg
Speed:	0 knots
Location:	Lat: 29.16, Lng: -90.23
AIS USCG OSR	
Actions	
View Position History	
View Event History	
Hide Vessel Track	
Start Distance Calculator	
Events	
No Events	



CAMO Pipeline AIS Broadcast Project

AIS Notification System for pipelines in the Port Fourchon Region

- Each vessel passing through the two pipeline corridors below, will be monitored to alert if their activities threaten the submerged pipelines

Location of pipeline monitoring/alerting zones:

- Bayou LaFourche North, Southeast of Halvoline Canal - Centered on the point Lat. 29.157558 Long. -90.230906 (Pipeline Corridor 2 Bayou LaFourche North)
- Bayou LaFourche South, vicinity of SW corner of Port Fourchon - Centered on the point Lat. 29.11072, Long. -90.208890 (Pipeline Corridor 1 SouthWest Channel)
- Vessels will receive an AIS safety message: "PIPELINE BELOW", if stopped inside one of one the above two monitored zones. The message automatically will be generated and broadcast specifically addressed to their vessel alerting them.
- Pipeline Operators will also receive an alert with position and identity of vessels inside the charted pipeline corridors

Goals: Improve safety of mariners, protect environment, keep waterways open and traffic moving

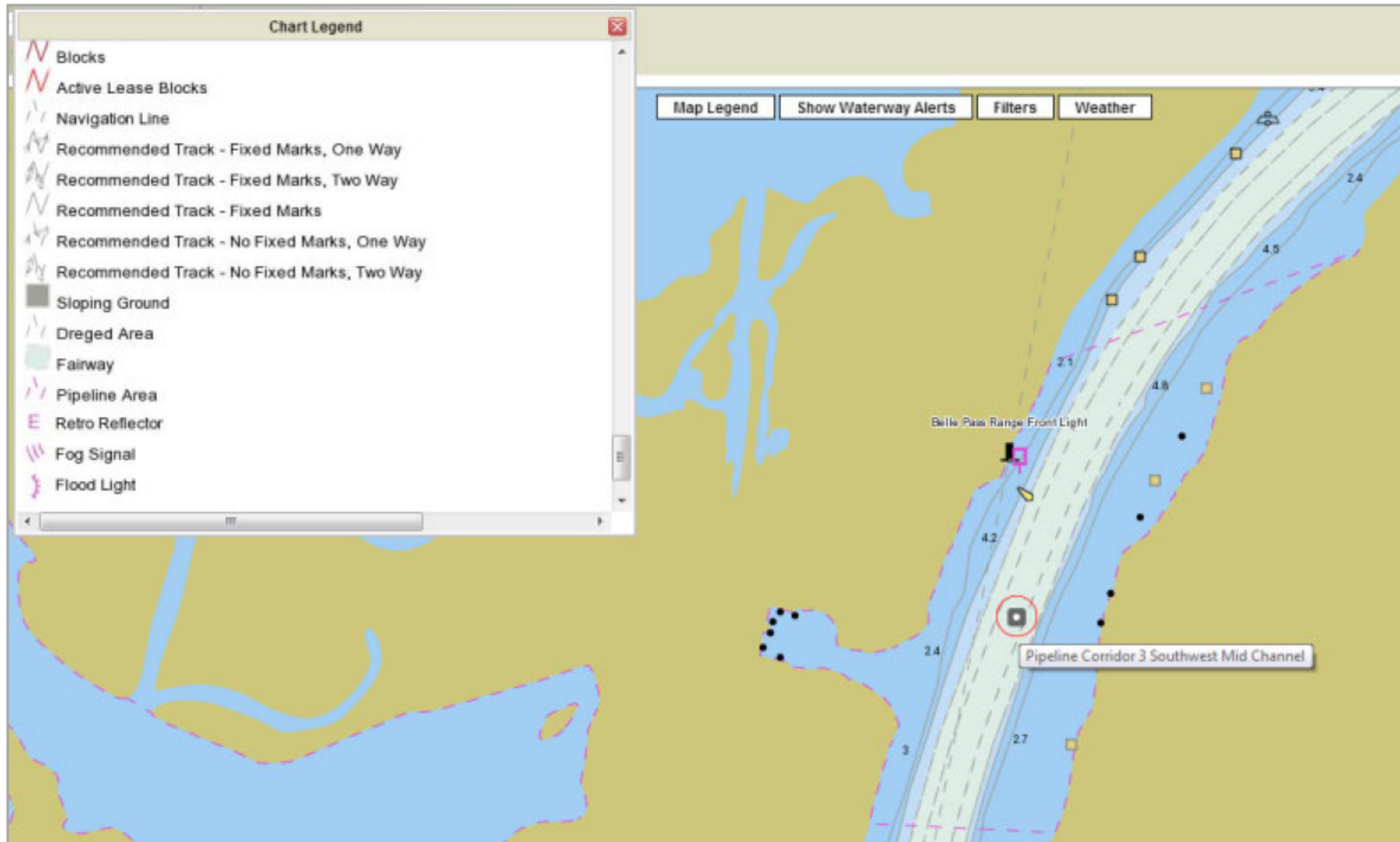


Partners and Participants

- CAMO
- Port Fourchon
- PortVision as service of Oceaneering
- Oil and Gas operators
- Vessel operators
- USCG (support)
- FCC (licensing)



Pipeline Corridor - NOAA Chart



Monitoring Two Pipeline Corridors

portvision

Search: Search Here | Region: ALL

My Alerts, My Fleets, My Terminal/POI Lists | Reports and Analytics, Dashboard, Preferences, Welcome | User Guide

Current User: my account | logout
 portvision home region: Port of New Orleans, Louisiana

Map Legend, Show Waterway Alerts, Filters, Weather, Ocean Intervention Zone, Map, Satellite, Chart

Pipeline Corridor 1 SW Channel

Details

Type: CAMO Alert Location
 Contact: None
 Phone: None
 Email: None
 # of Vessels: 0
 Notes: None
 View: Vessel Details

Events

Departure: STONE EXPLORER	2015-08-06 12:30 CDT
Arrival: STONE EXPLORER	2015-08-06 12:29 CDT
Departure: LOUIE EYMARD	2015-07-25 18:22 CDT
Arrival: LOUIE EYMARD	2015-07-25 18:16 CDT
Departure: C-LEGACY	2015-07-08 17:37 CDT
Arrival: C-LEGACY	2015-07-08 17:29 CDT

View More

Actions

- View Details
- Create Alert
- Add Observation
- Start Distance Calculator
- Terminal/POI Lists

Google | 29 110476, -90.208569 | 100 m | Terms of Use



Monitoring Two Pipeline Corridors

portvision

Search: Search Here | Region: ALL

My Alerts, My Alerts, My Terminal/POI Lists

Reports and Analytics, Dashboard, Preferences, Welcome | User Guide

Current User: portvision, home region: Port of New Orleans, Louisiana

Map Legend, Show Waterway Alerts, Filters, Weather, Map, Satellite, Chart

Full Screen

Pipeline Corridor 2 Bayou LaFourche North

ROBERT ADAMS, SUPERIOR SE DOVE

29.157596, -90.230284

200m

Google

Terms of Use

Pipeline Corridor 2 Bayou LaFourche North

Details

Type: CAMO Alert Location

Contact: None

Phone: None

Email: None

of Vessels: 0

Note: None

View: Vessel Details

Events

Departure: CHRIS D	2015-06-05 03:14 CDT
Arrival: CHRIS D	2015-06-04 23:41 CDT
Departure: ROMAN ELIE	2015-06-04 16:33 CDT
Arrival: ROMAN ELIE	2015-06-04 03:26 CDT
Departure: MISS ANGLE	2015-07-31 21:14 CDT
Arrival: MISS ANGLE	2015-07-31 21:03 CDT

View More

Actions

- View Details
- Create Alert
- Add Observation
- Start Distance Calculator
- Terminal/POI Lists



USCG & FCC Project Approval



U.S. Coast Guard

Aid to Navigation Approval Issued: 2013-11-07



Federal Communications Commission

Experimental Radio Station Construction Permit & License
Approval Issued: 2014-09-23



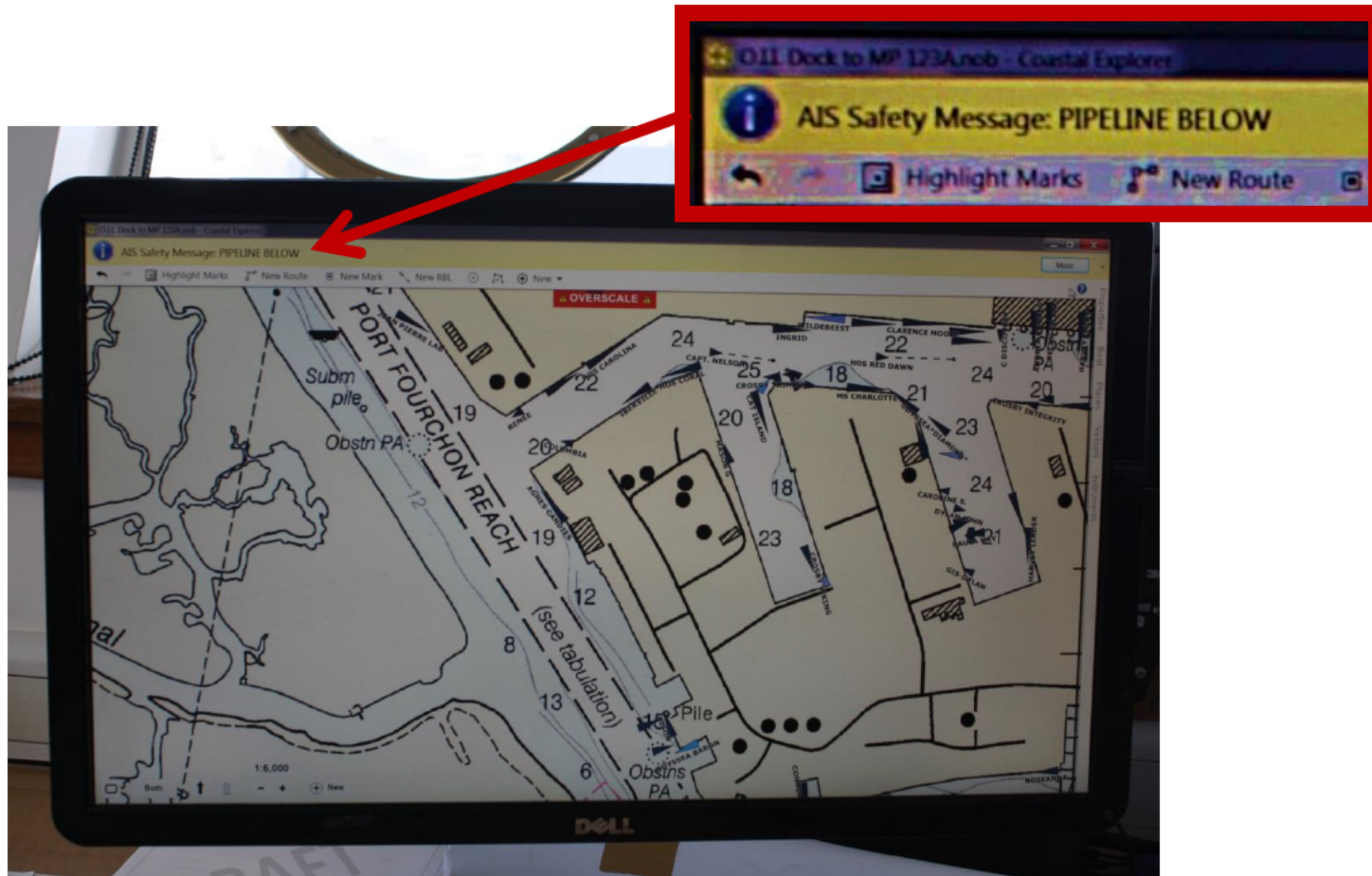
AIS Safety Message-Wheelhouse Alert



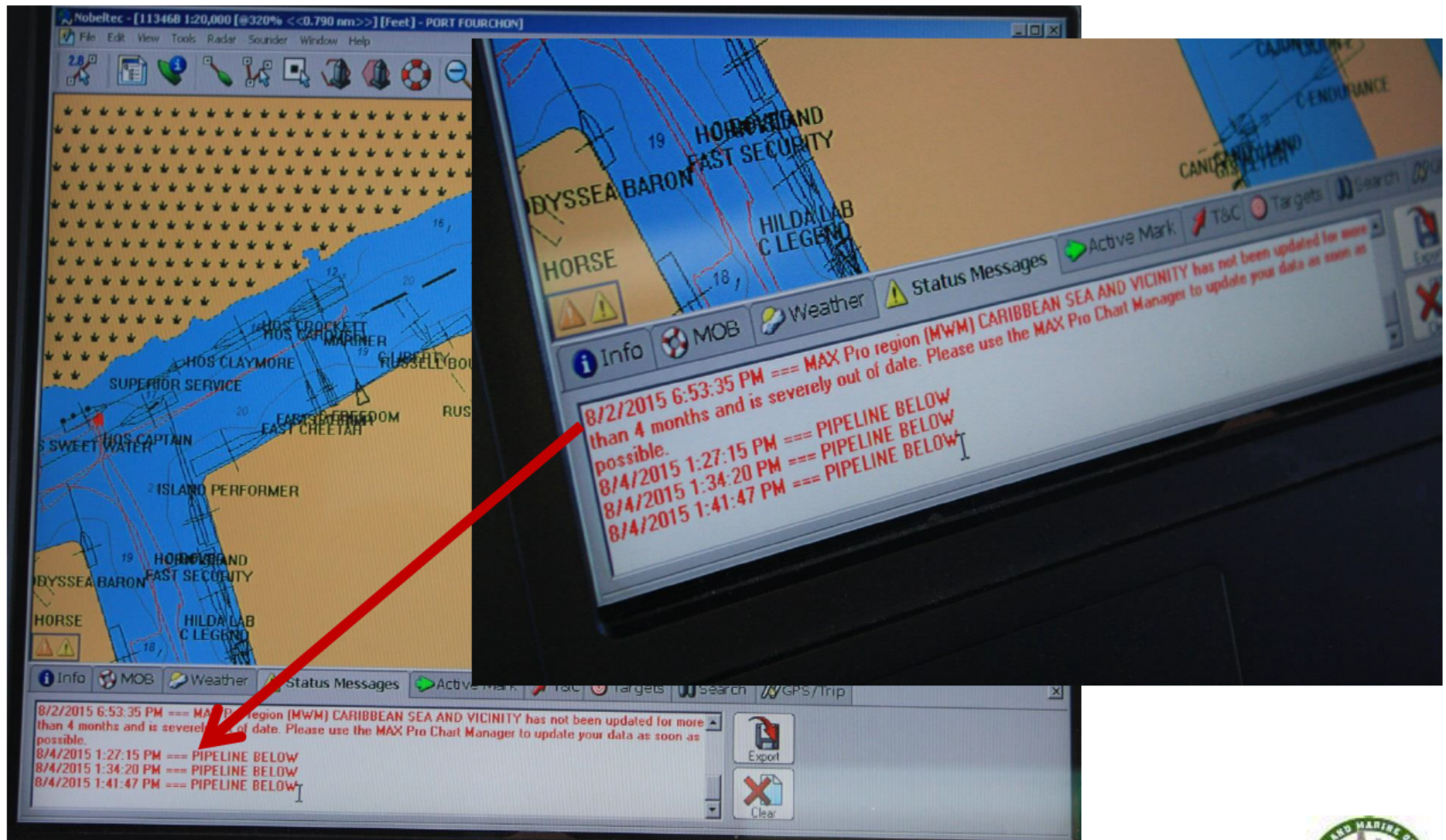
AIS Safety Message-Wheelhouse Alert



Rose Point Chart Message Display



Nobeltech Chart Message Display



Contact Information



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