ERDC
Engineer Research and Development Center

Lock Operations Management Application (LOMA)

AISAP and LOMA workshop

Brian Tetreault, ERDC-CHL

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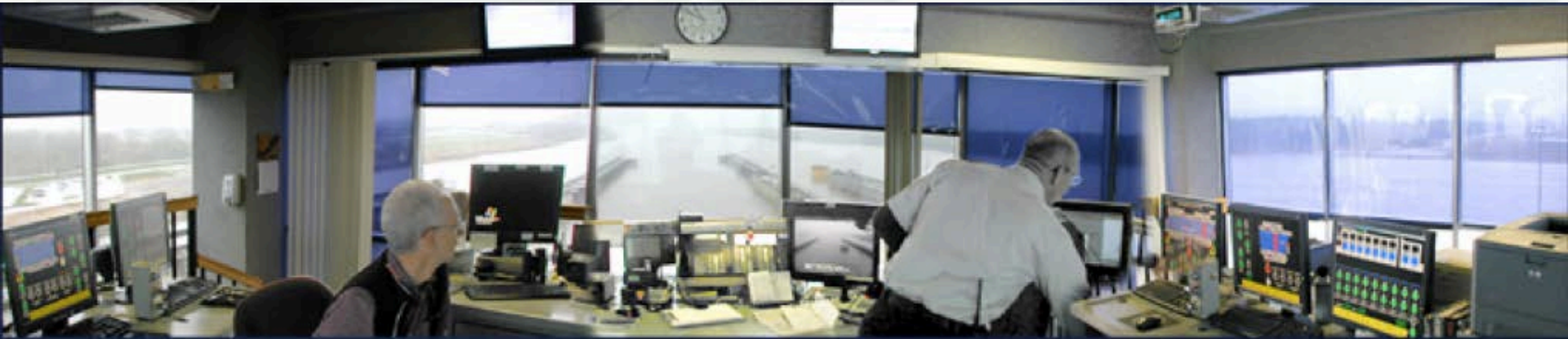
US Army Corps of Engineers

Lock Operations Management Application (LOMA)

- Purpose:
  - Provide end users information needed for decision support
- Goals:
  - Increase lock operator situational awareness
  - Provide vessel operators better information
  - Provide better information to Corps management
  - Exchange information with external users
- The Automatic Identification System (AIS) is the central LOMA technology



LOMA AIS equipment deployment

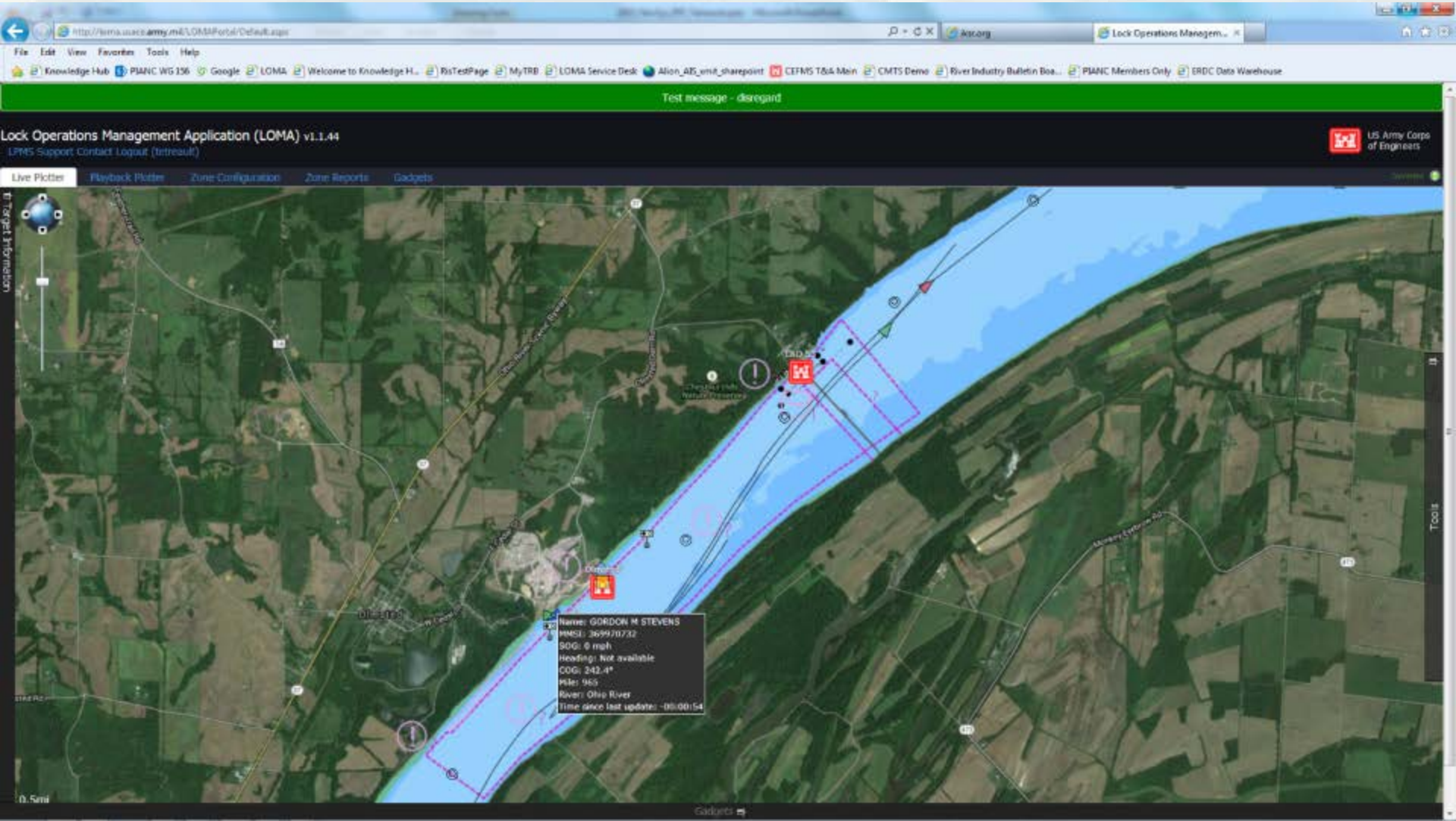
- 135+ locations
- 9 Vessels
- AIS AtoN transceivers
- Interoperability with USCG

LOMA 2nd generation field equipment

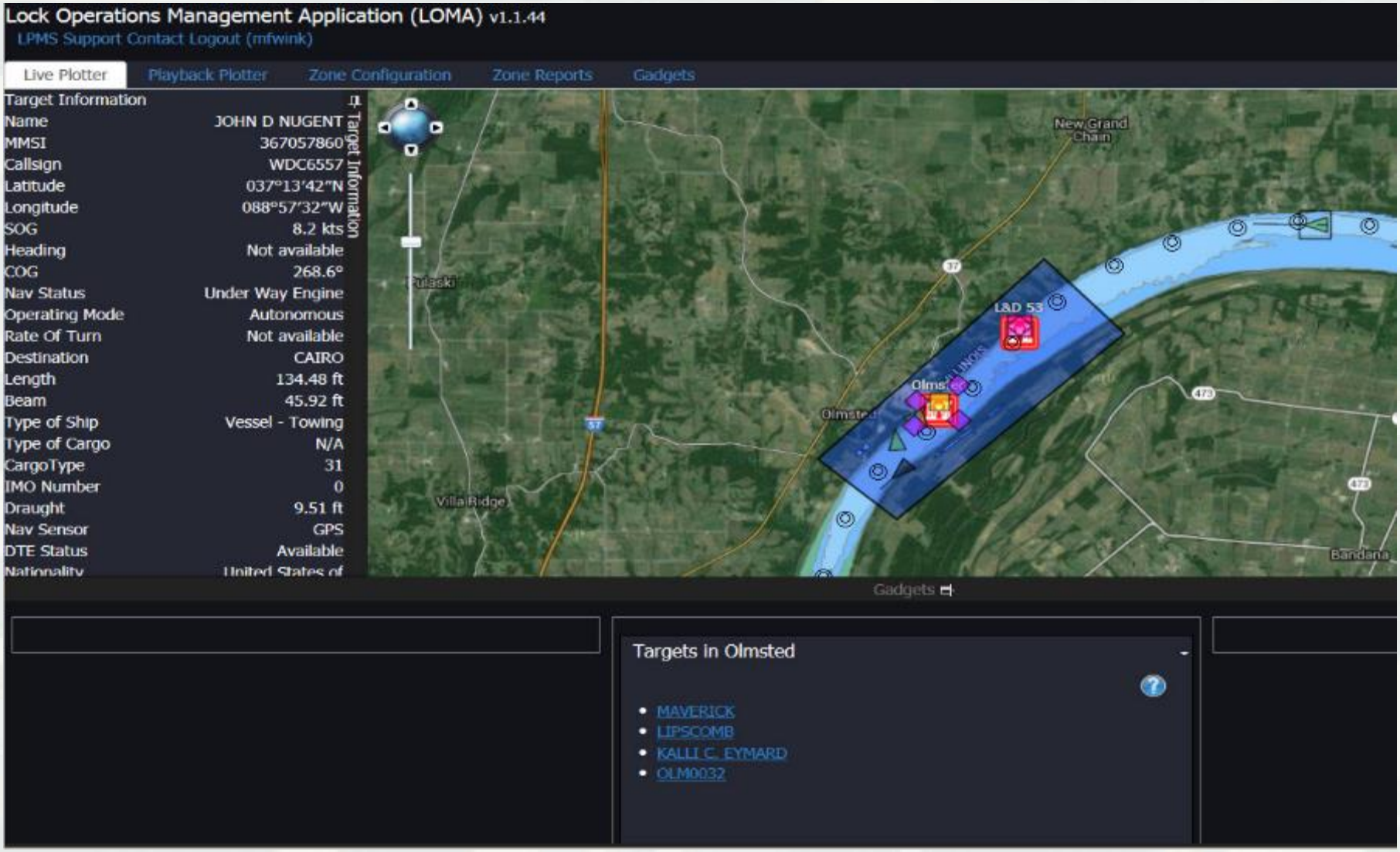
- Updated site controller
  - Allows running applications at the transceiver
  - Store-and-forward data
  - Potential local user interface
- Cell Modem capability
  - For non-lock locations
- Deployment:
  - ~65 locations in FY18
  - Continuing in FY19

LOMA Capabilities

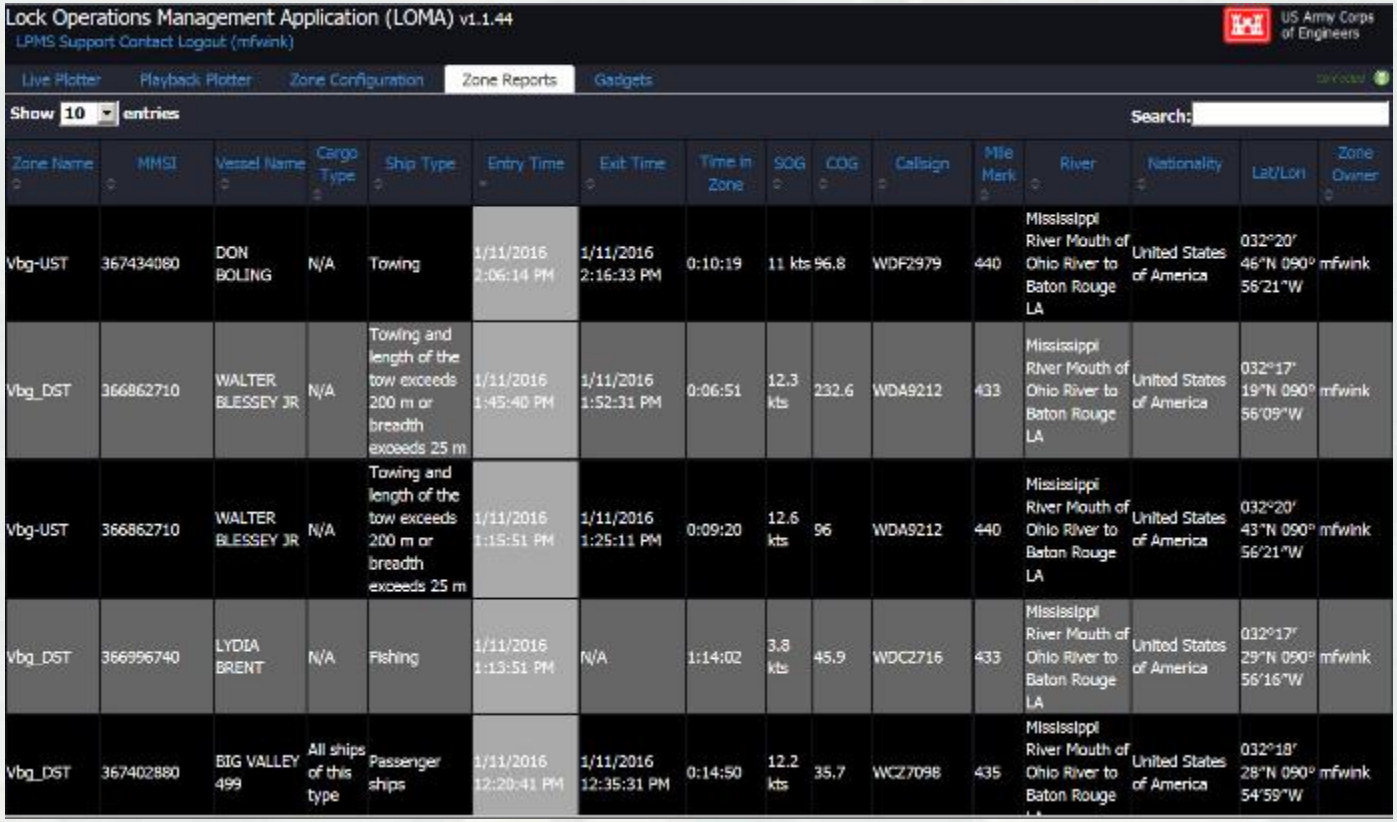
- Lock operator situational display
- AIS vessel information
- Zone Management
- Playback capability



LOMA - Zones


Lock Operations Management Application (LOMA) v1.1.44
LPMS Support Contact Logout (mfwink)
Live Plotter
Playback Plotter
Zone Configuration
Zone Reports
Gadgets
Target Information
Name JOHN D NUGENT
MMSI 367057860
Callsign WDC6557
Latitude 037°13'42"N
Longitude 088°57'32"W
SOG 8.2 kts
Heading Not available
COG 268.6°
Nav Status Under Way Engine
Operating Mode Autonomous
Rate Of Turn Not available
Destination CAIRO
Length 134.48 ft
Beam 45.92 ft
Type of Ship Vessel - Towing
Type of Cargo N/A
CargoType 31
IMO Number 0
Draught 9.51 ft
Nav Sensor GPS
DTE Status Available
Nationality United States of
Pulaski
Villa Ridge
New Grand Chain
L&D 53
Olmsted
Bandana
Gadgets
Targets in Olmsted
MAVERICK
LIPSCOMB
KALLI C. EYMARD
OLM0032

Zone Report



Lock Operations Management Application (LOMA) v1.1.44

LPMS Support Contact Logout (mfwink)

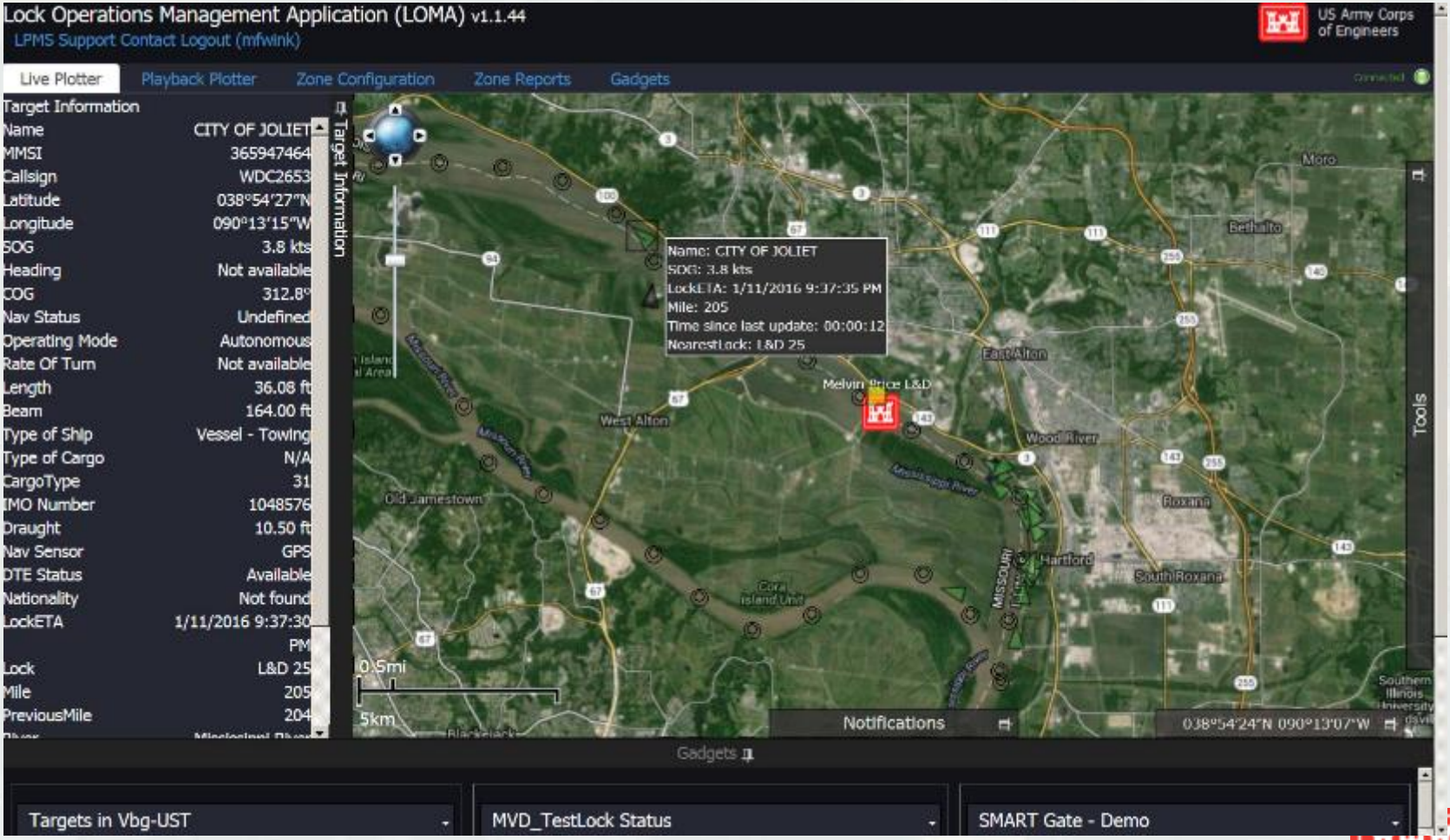
US Army Corps of Engineers

Live Plotter | Playback Plotter | Zone Configuration | Zone Reports | Gadgets

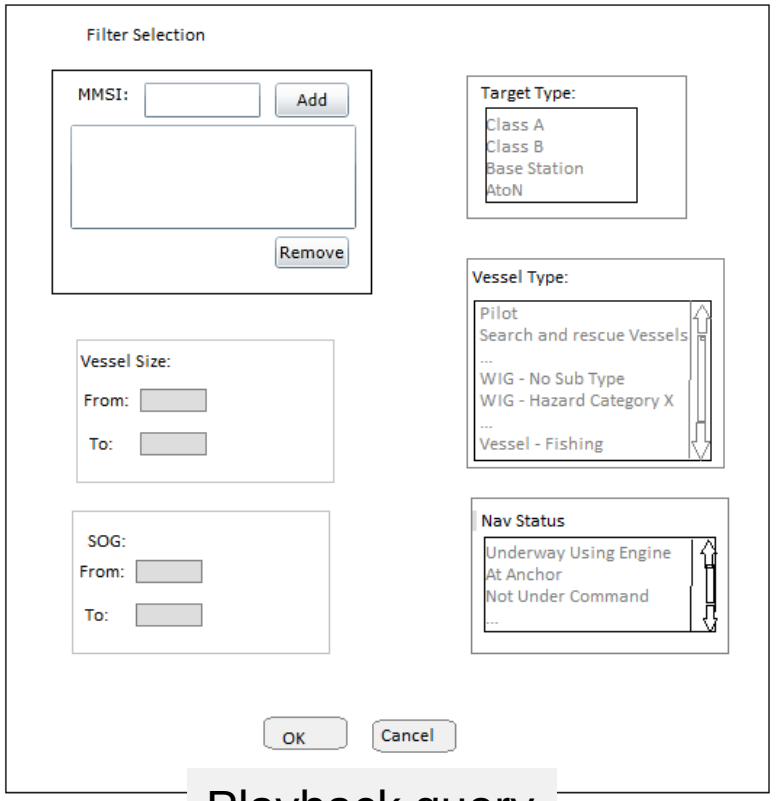
Show 10 entries Search:

Zone Name	MMSI	Vessel Name	Cargo Type	Ship Type	Entry Time	Exit Time	Time in Zone	SOG	COG	Callsign	Mile Mark	River	Nationality	Lat/Lon	Zone Owner
Vbg-UST	367434080	DON BOLING	N/A	Towing	1/11/2016 2:06:14 PM	1/11/2016 2:16:33 PM	0:10:19	11 kts	96.8	WDF2979	440	Mississippi River Mouth of Ohio River to Baton Rouge LA	United States of America	032°20' 46"N 090° 56'21"W	mfwink
Vbg_DST	366862710	WALTER BLESSEY JR	N/A	Towing and length of the tow exceeds 200 m or breadth exceeds 25 m	1/11/2016 1:45:40 PM	1/11/2016 1:52:31 PM	0:06:51	12.3 kts	232.6	WDA9212	433	Mississippi River Mouth of Ohio River to Baton Rouge LA	United States of America	032°17' 19"N 090° 56'09"W	mfwink
Vbg-UST	366862710	WALTER BLESSEY JR	N/A	Towing and length of the tow exceeds 200 m or breadth exceeds 25 m	1/11/2016 1:15:51 PM	1/11/2016 1:25:11 PM	0:09:20	12.6 kts	96	WDA9212	440	Mississippi River Mouth of Ohio River to Baton Rouge LA	United States of America	032°20' 43"N 090° 56'21"W	mfwink
Vbg_DST	366956740	LYDIA BRENT	N/A	Fishing	1/11/2016 1:13:51 PM	N/A	1:14:02	3.8 kts	45.9	WDC2716	433	Mississippi River Mouth of Ohio River to Baton Rouge LA	United States of America	032°17' 29"N 090° 56'16"W	mfwink
Vbg_DST	367402880	BIG VALLEY 499	All ships of this type	Passenger ships	1/11/2016 12:20:41 PM	1/11/2016 12:35:31 PM	0:14:50	12.2 kts	35.7	WCZ7098	435	Mississippi River Mouth of Ohio River to Baton Rouge	United States of America	032°18' 28"N 090° 54'59"W	mfwink

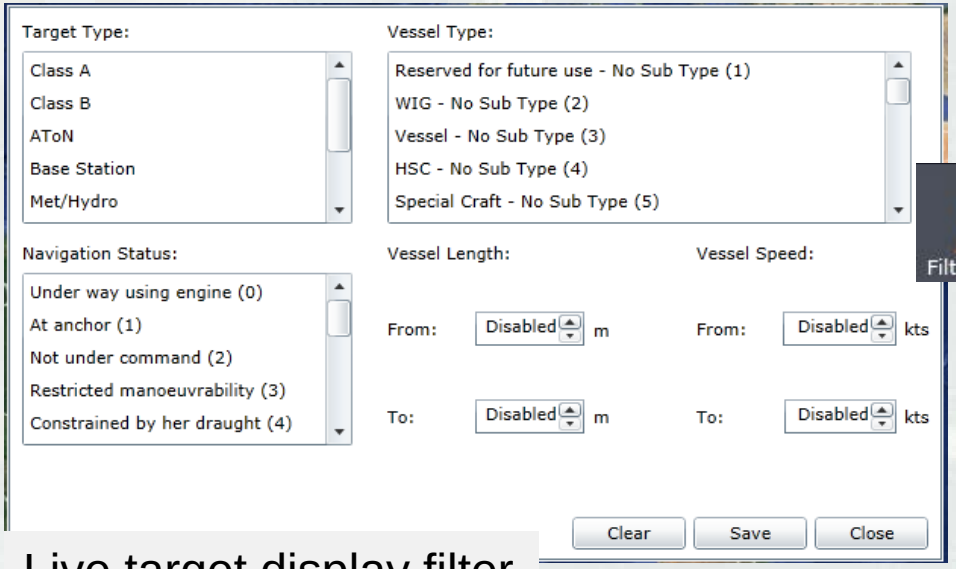
Lock ETA


Lock Operations Management Application (LOMA) v1.1.44
LPMS Support Contact Logout (mfwink)
US Army Corps of Engineers
Live Plotter
Playback Plotter
Zone Configuration
Zone Reports
Gadgets
Target Information
Name CITY OF JOLIET
MMSI 365947464
Callsign WDC2653
Latitude 038°54'27"N
Longitude 090°13'15"W
SOG 3.8 kts
Heading Not available
COG 312.8°
Nav Status Undefined
Operating Mode Autonomous
Rate Of Turn Not available
Length 36.08 ft
Beam 164.00 ft
Type of Ship Vessel - Towing
Type of Cargo N/A
CargoType 31
IMO Number 1048576
Draught 10.50 ft
Nav Sensor GPS
DTE Status Available
Nationality Not found
LockETA 1/11/2016 9:37:30 PM
Lock L&D 25
Mile 205
PreviousMile 204
Name: CITY OF JOLIET
SOG: 3.8 kts
LockETA: 1/11/2016 9:37:35 PM
Mile: 205
Time since last update: 00:00:12
NearestLock: L&D 25
Melvin Price L&D
West Alton
East Alton
Wood River
Roxana
South Roxana
Hartford
Old Jamestown
Moro
Bethalto
Tools
0.5mi
5km
Notifications
038°54'24"N 090°13'07"W
Gadgets
Targets in Vbg-UST
MVD_TestLock Status
SMART Gate - Demo

Additional LOMA capabilities

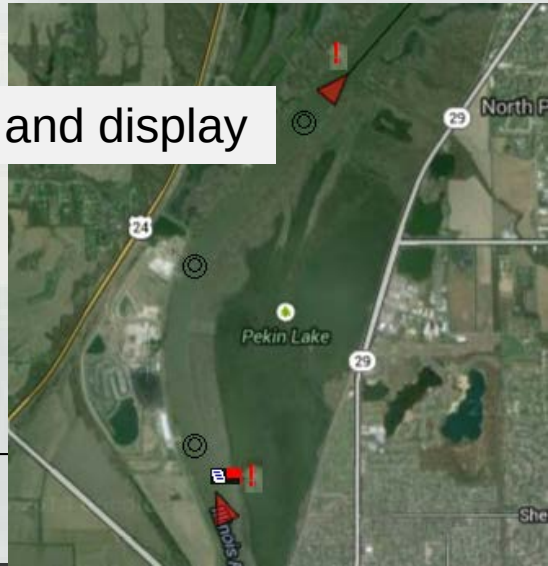


Playback query

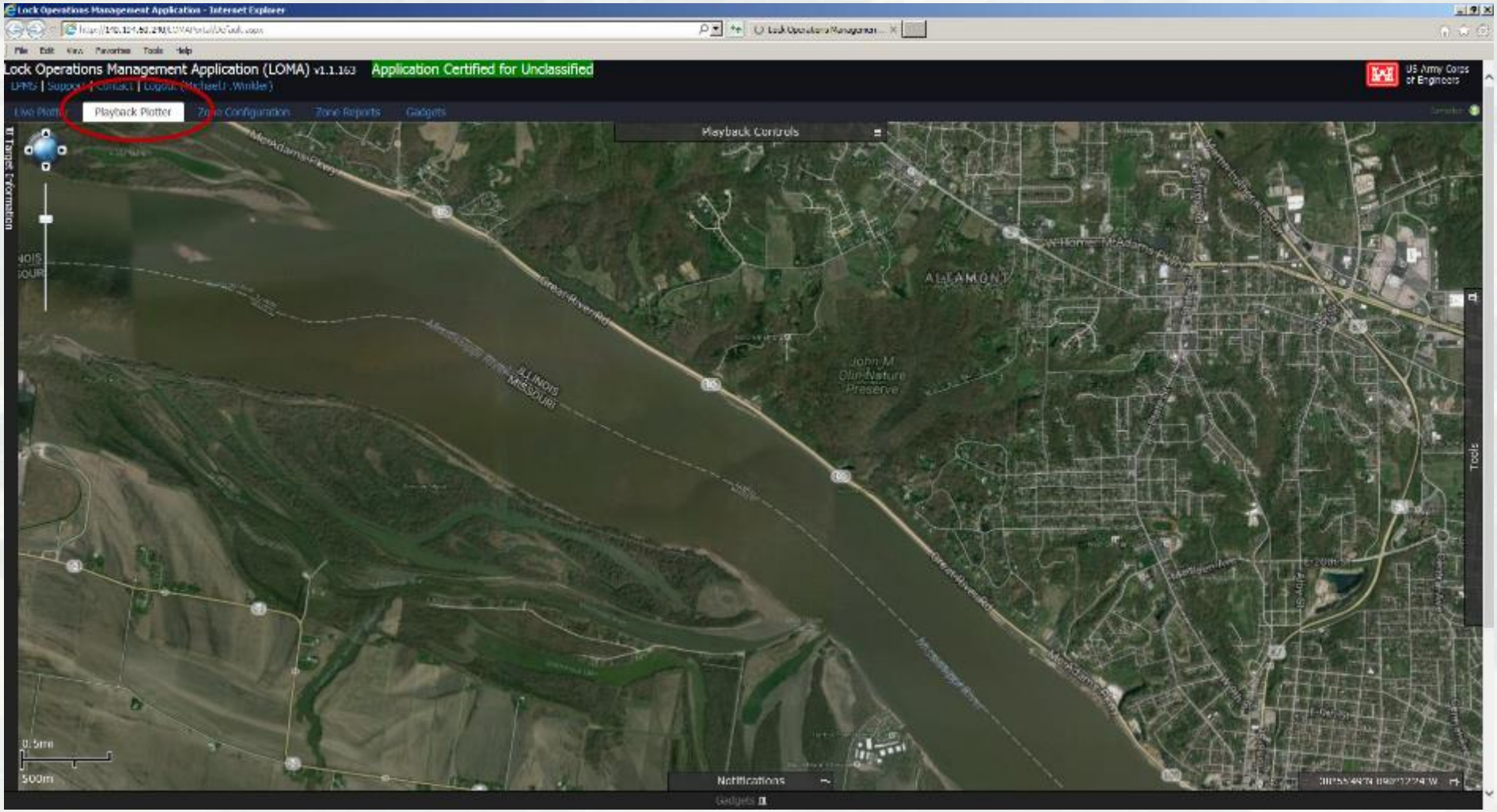


Live target display filter

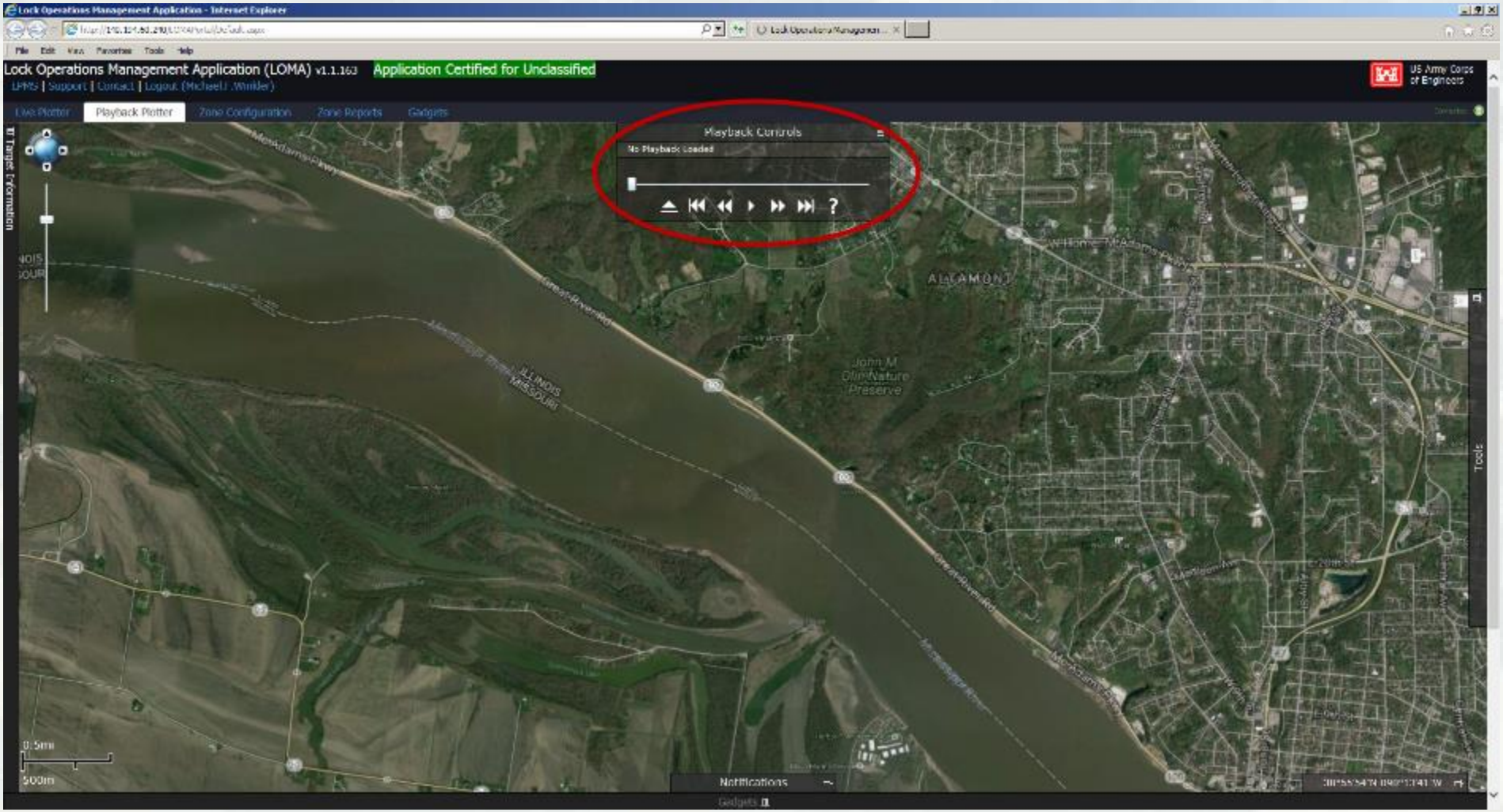
Vessels of interest selection and display



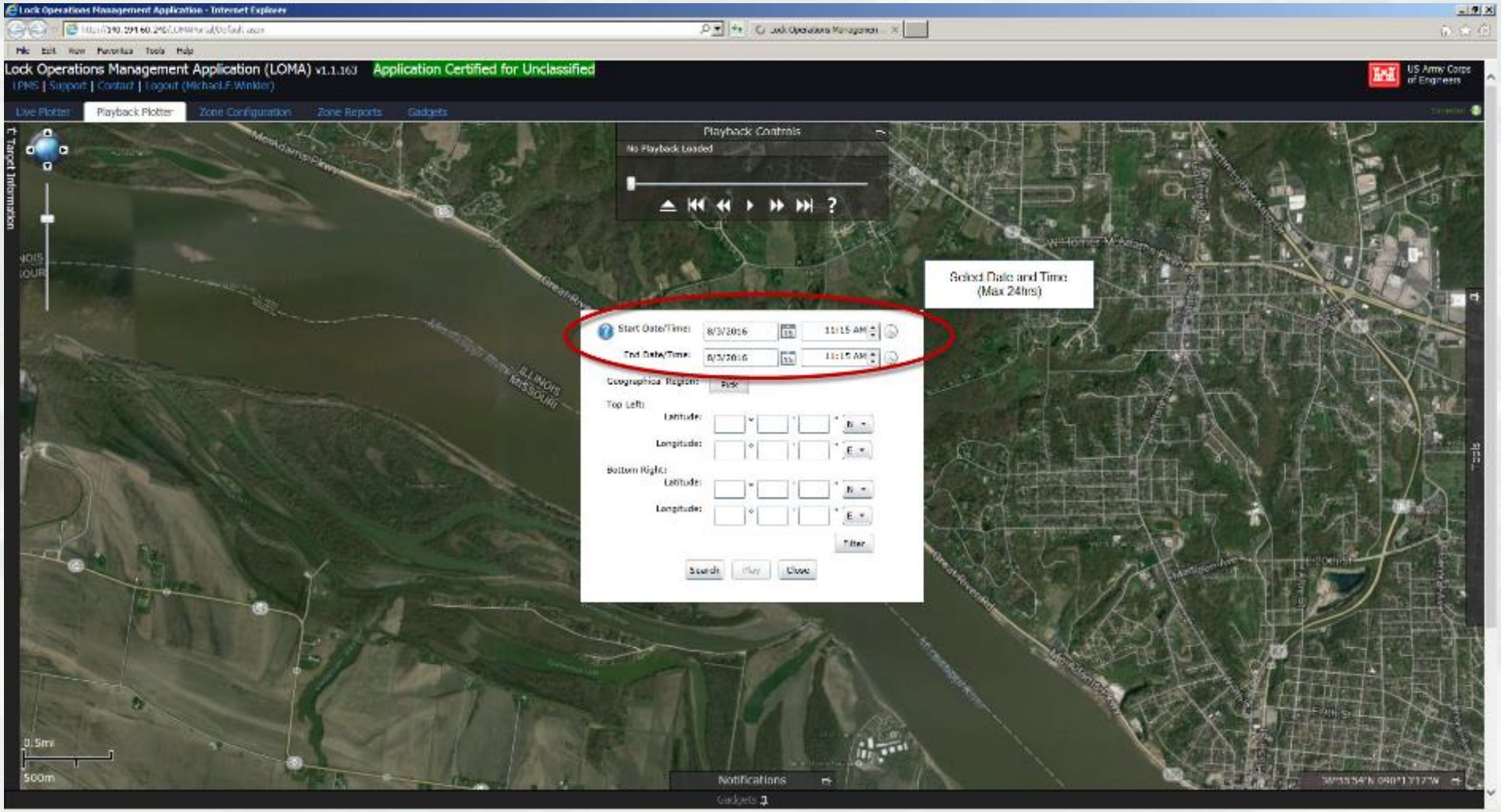
LOMA Playback Plotter



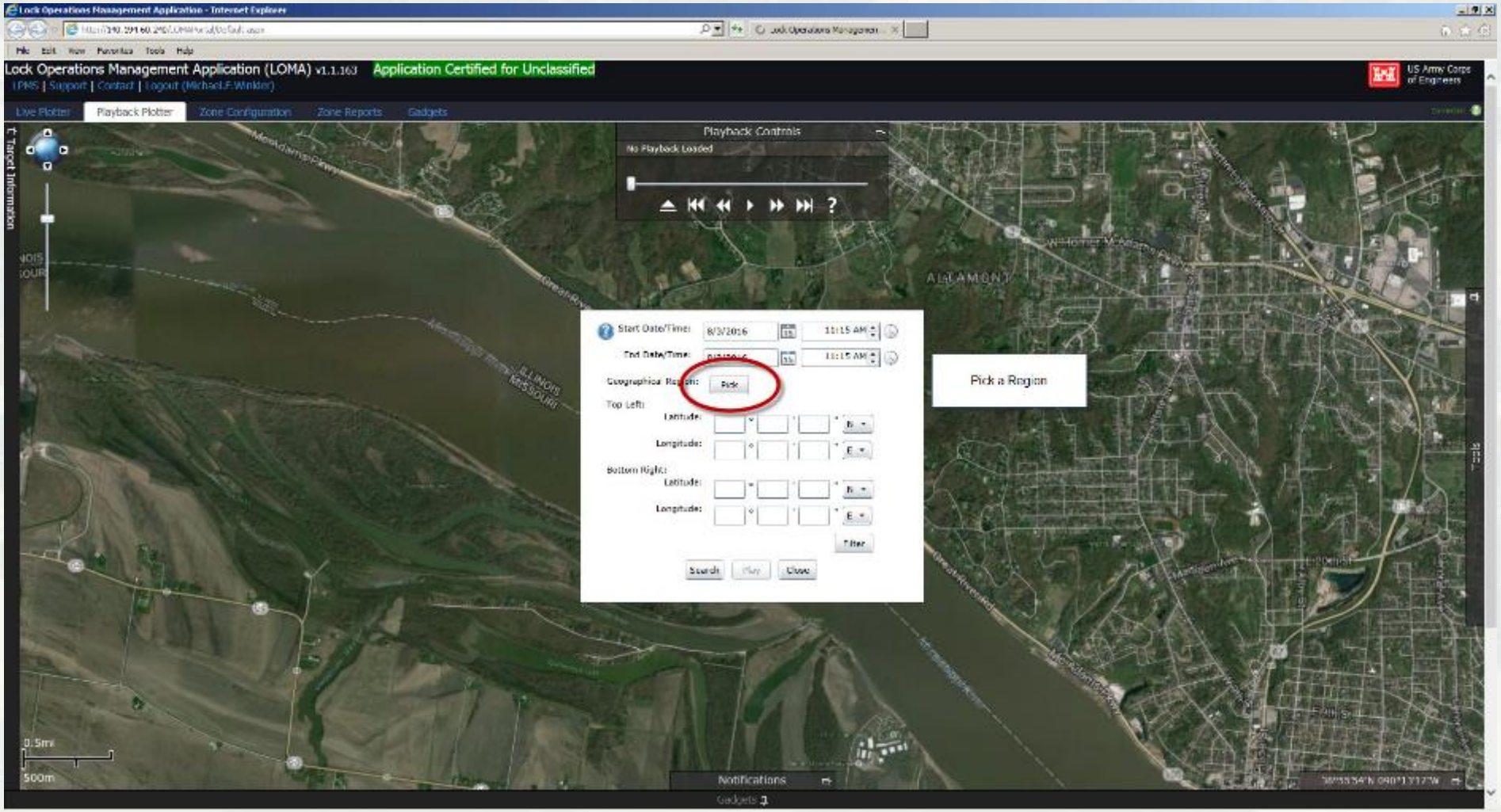
LOMA Playback Controls



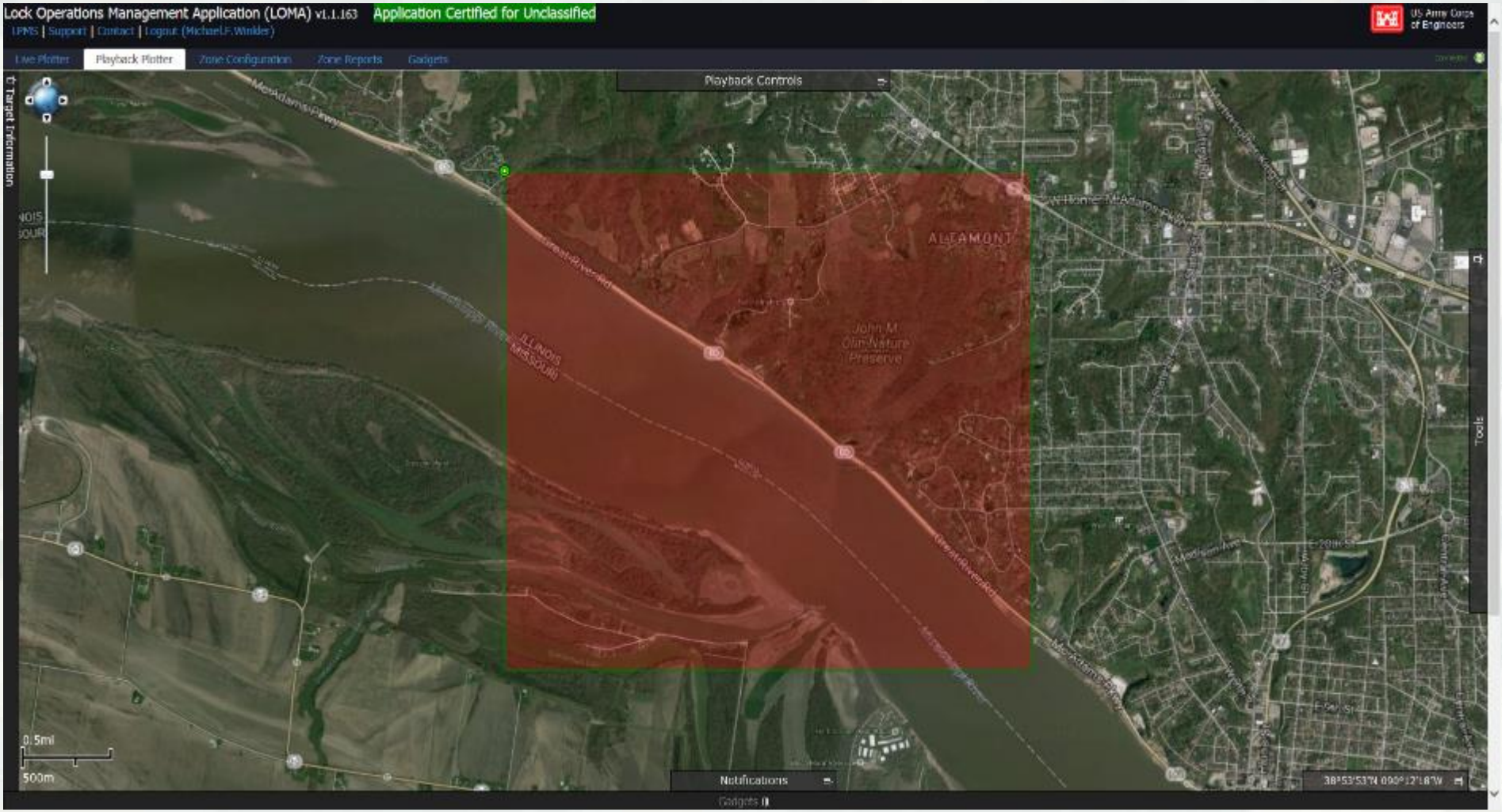
LOMA Playback Query



LOMA Playback Query



LOMA Playback Query



Grounding – Upper Mississippi River

Accident - Lock 18

LOMA4 software update

- HTML5 transition – Silverlight no longer supported
  - User interface improvements
  - External data integration – user selected weather, water levels, etc.
- Database modifications – improve performance
- User enhancements
  - Performance and reliability improvement - input from IMTS Working Group
- Looking for additional input on user enhancements

Potential LOMA User enhancements

- Incorporate AIS transmit functions
  - e.g., Safety zone, aids to navigation
- Enhanced vessel information
  - Identification of dangerous cargo vessels
  - Tow configuration
- “LOMA Lite” for low-bandwidth sites
- App for phone and tablet
- Local user interface
- LPMS interoperability
- Others…

For more information

Brian Tetreault

brian.j.tetreault@usace.army.mil

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