WATER QUALITY

The Digital Revolution

TPCW


Arkansas
Texas
Mississippi
Gulf of Mexico
LOUISIANA
CASS
MARION
HARRISON
PANOLA
DE SOTO
SHELBY
SABINE
VERNON
TYLER
JASPER
NEWTON
HARDIN
ORANGE
JEFFERSON
CAMERON
CALCASIEU
BEAUREGARD
ALLEN
EVANGELINE
JEFF DAVIS
ACADIA
VERMILION
IBERIA
ST MARY
ST MARTIN
SAINT LANDRY
W BATON ROUGE
EAST BATON ROUGE
IBERVILLE
ASCENSION
LIVINGSTON
TANGIPAHOA
WASHINGTON
SAINT TAMMANY
HANCOCK
PEARL RIVER
TERREBONNE
LAFOURCHE
PLAQUEMINES
ST BERNARD
JEFFERSON
ORLEANS
ST CHARLES
JOHN THE BAPTIST
ASSUMPTION
WILKINSON
AMITE
PIKE
FRANKLIN
ADAMS
JEFFERSON
CLAIBORNE
MADISON
WARREN
WINN
GRANT
LA SALLE
CATAHOULA
CONCORDIA
NATCHITOCHES
SABINE
SAN AUGUSTINE
ANGELINA
RAPIDES
AVOYELLES
POINTE COUPEE
WEST FELICIANA
EAST FELICIANA
ST HELENA
WASHINGTON
MARION
LAMAR
RED RIVER
BIENVILLE
JACKSON
LINCOLN
OUACHITA
CALDWELL
FRANKLIN
RICHLAND
TENSAS
MOREHOUSE
UNION
ASHLEY
CHICOT
WEBSTER
CLAIBORNE
WEST CARROLL
EAST CARROLL
SHARKEY
WASHINGTON
COLUMBIA
LAFAYETTE
MILLER
CADDO
BOSSIER
USK
NACOGDOCHES

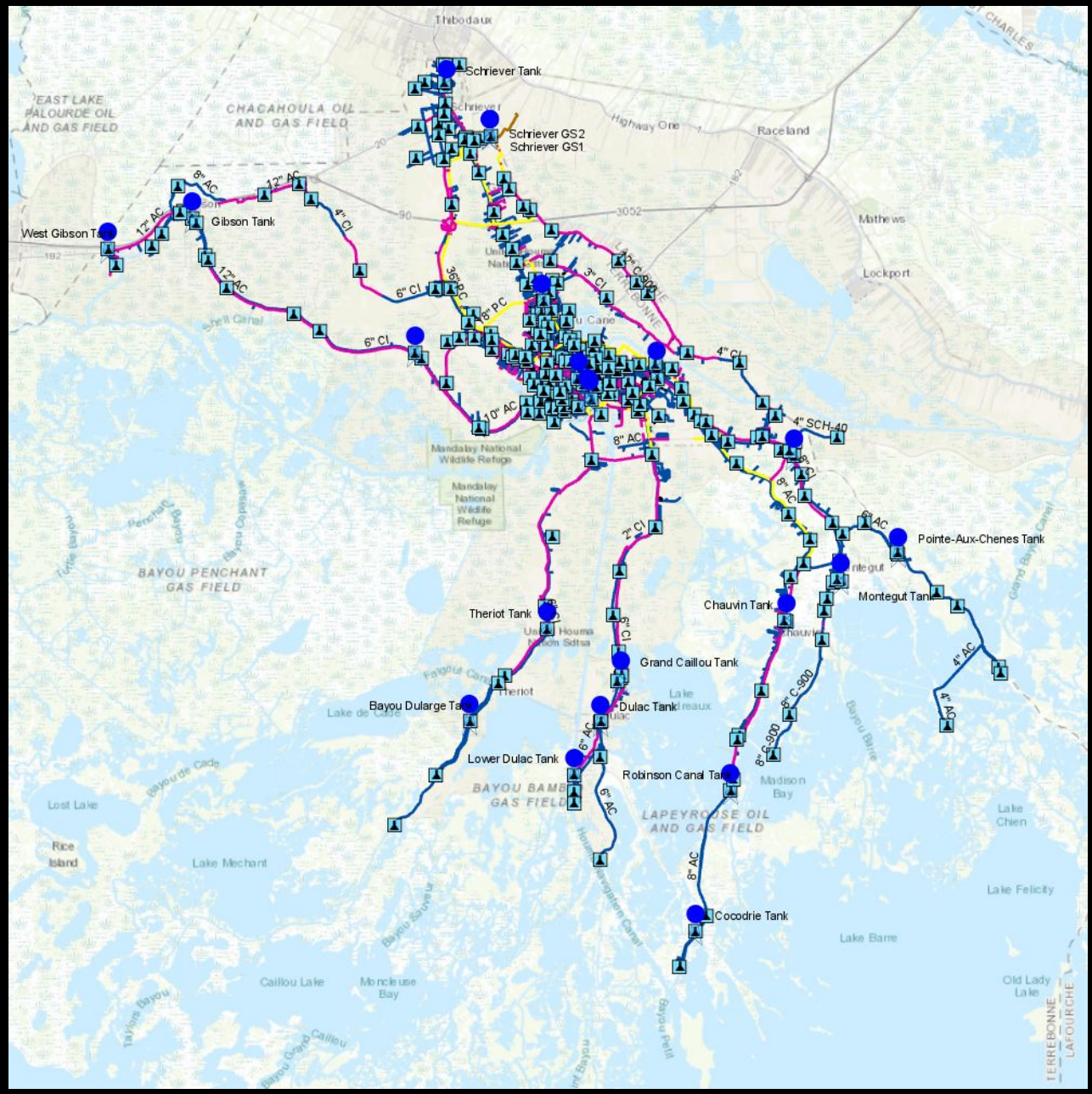
SEE WHAT OTHERS CAN'T.

- HAND DRAWN PAPER MAPS
- DETAIL SHEETS WITH MEASUREMENTS
- RADIO
- PAY PHONE

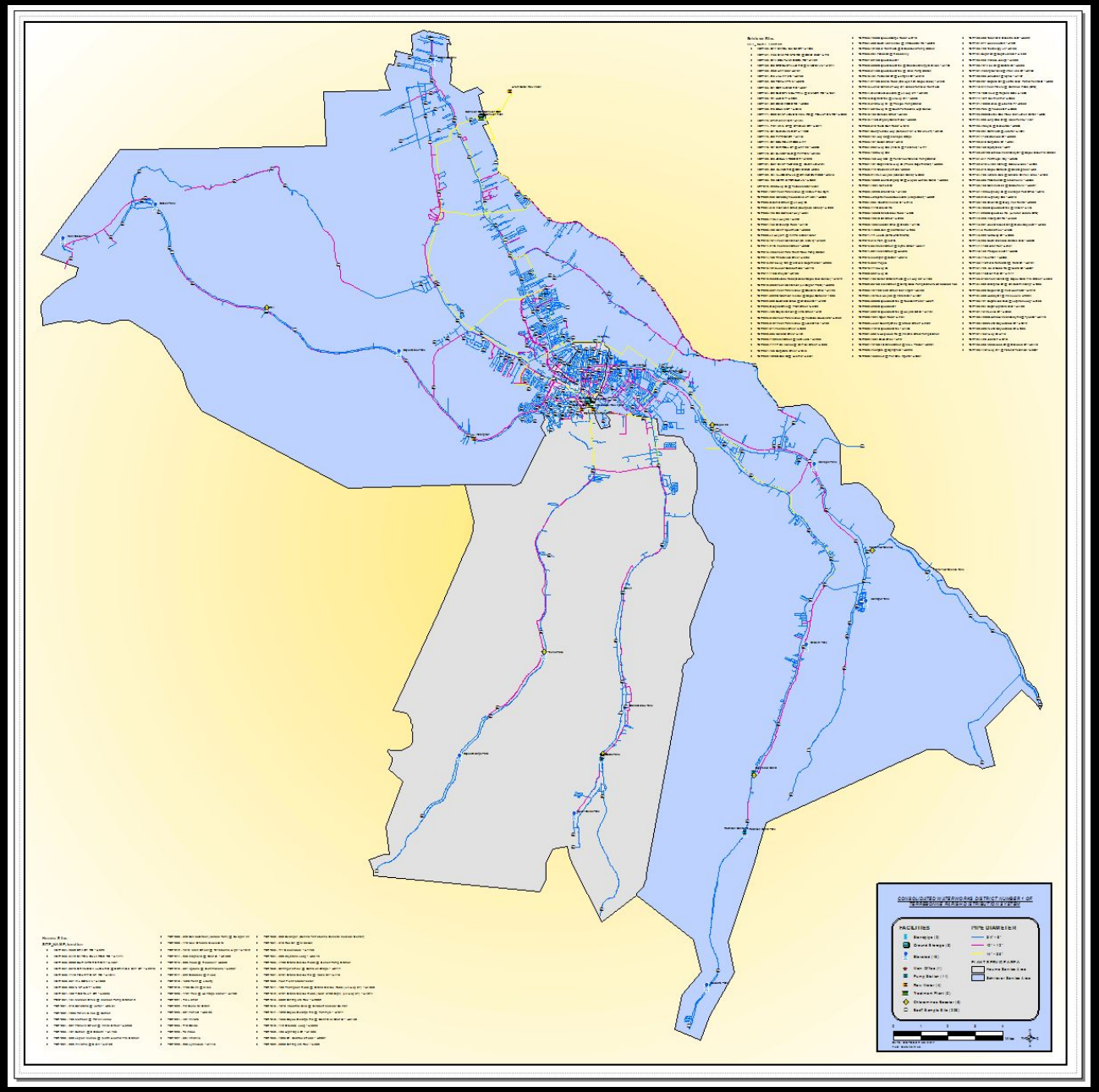
- STORAGE WAS MEASURED IN CUBIC FEET

BUSINESS AT THE SPEED OF PAPER WAS NO LONGER ACCEPTIBLE

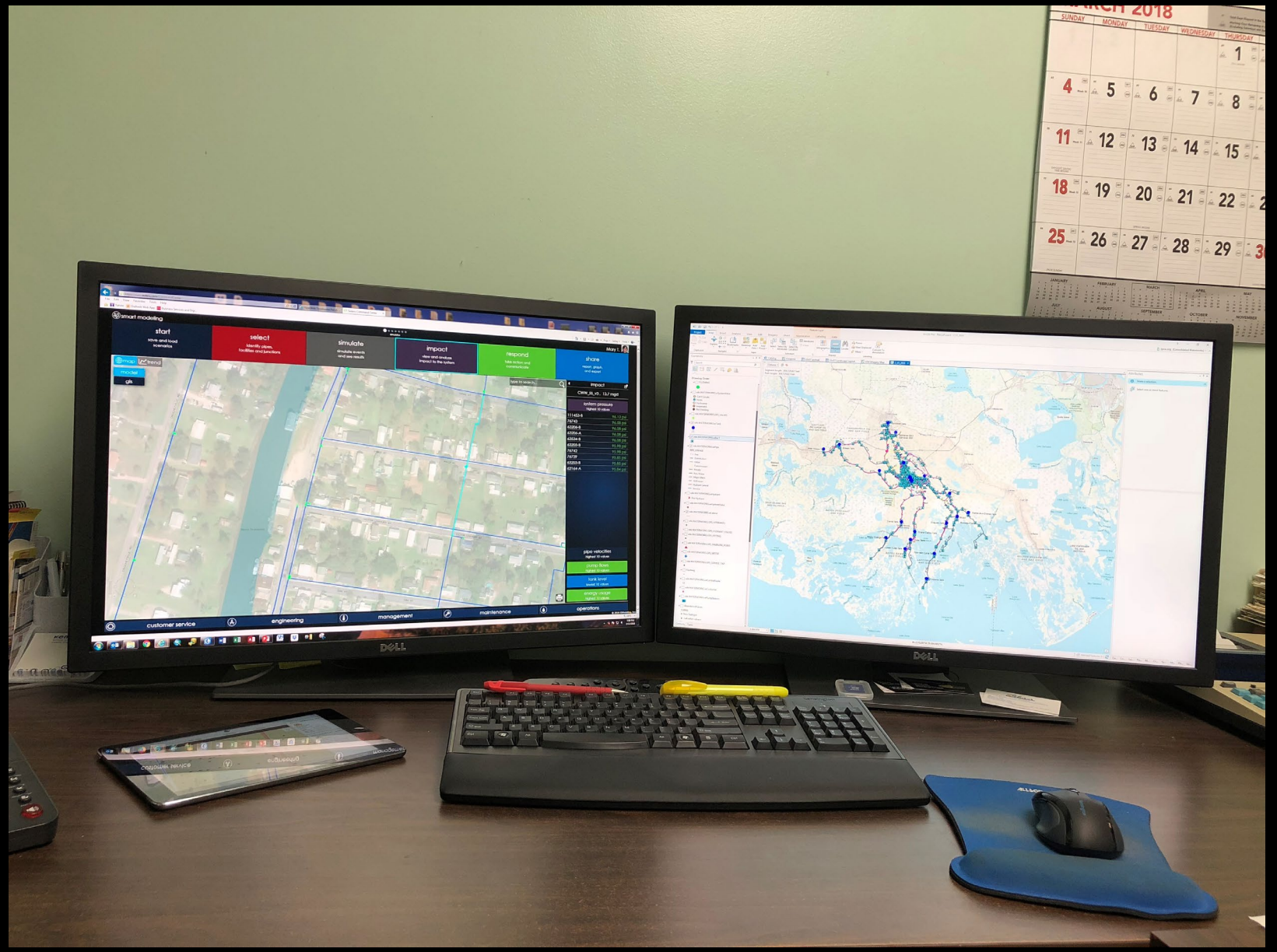
- GIS CENTRIC
- TERREBONNE PARISH
- WATER DISTRIBUTION SYSTEM



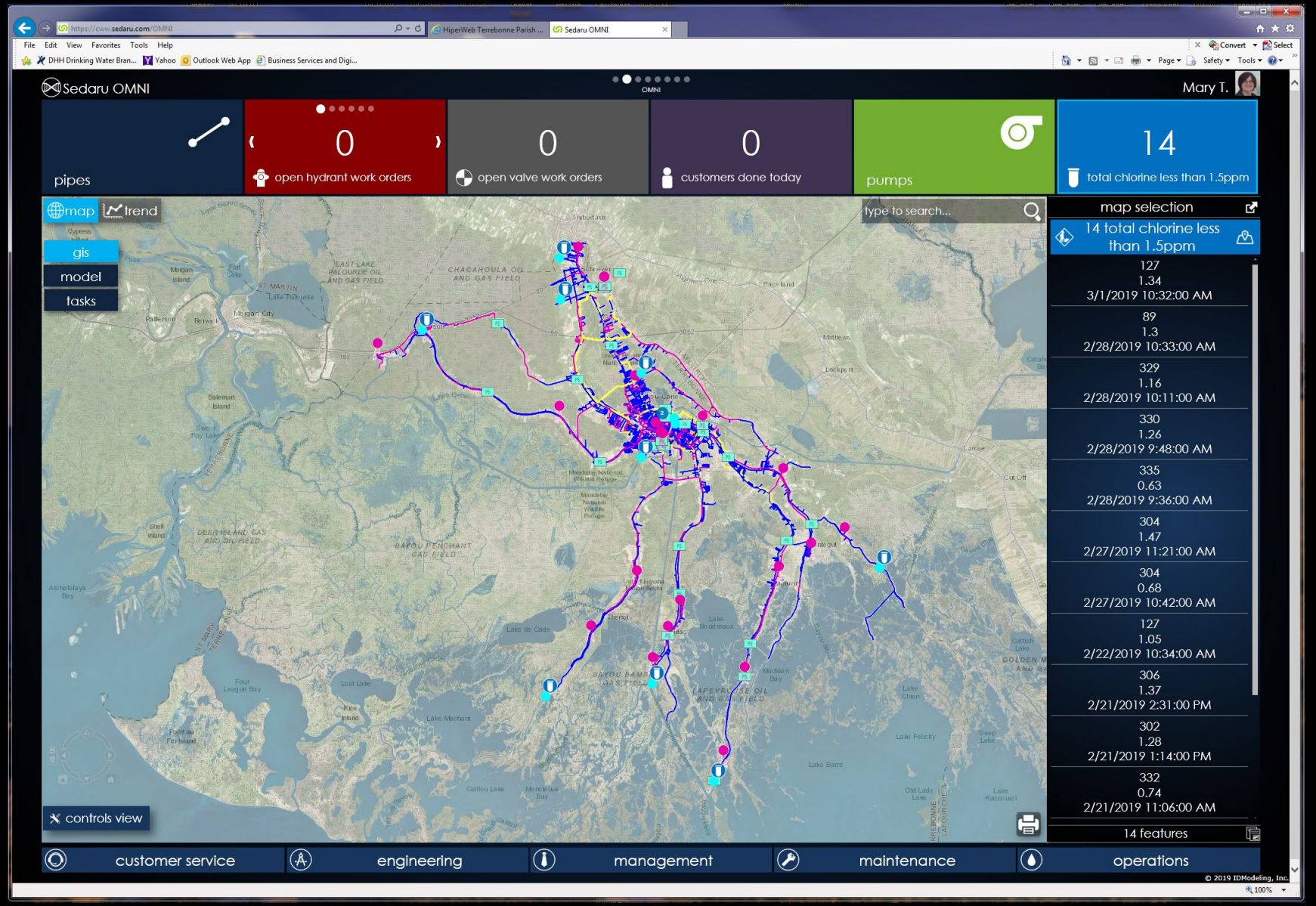
- 254 GRAB SAMPLES MONTHLY
- 194 SCHRIEVER SYSTEM
- 63 HOUMA SYSTEM



- LEVERAGING GIS
- SEDARU

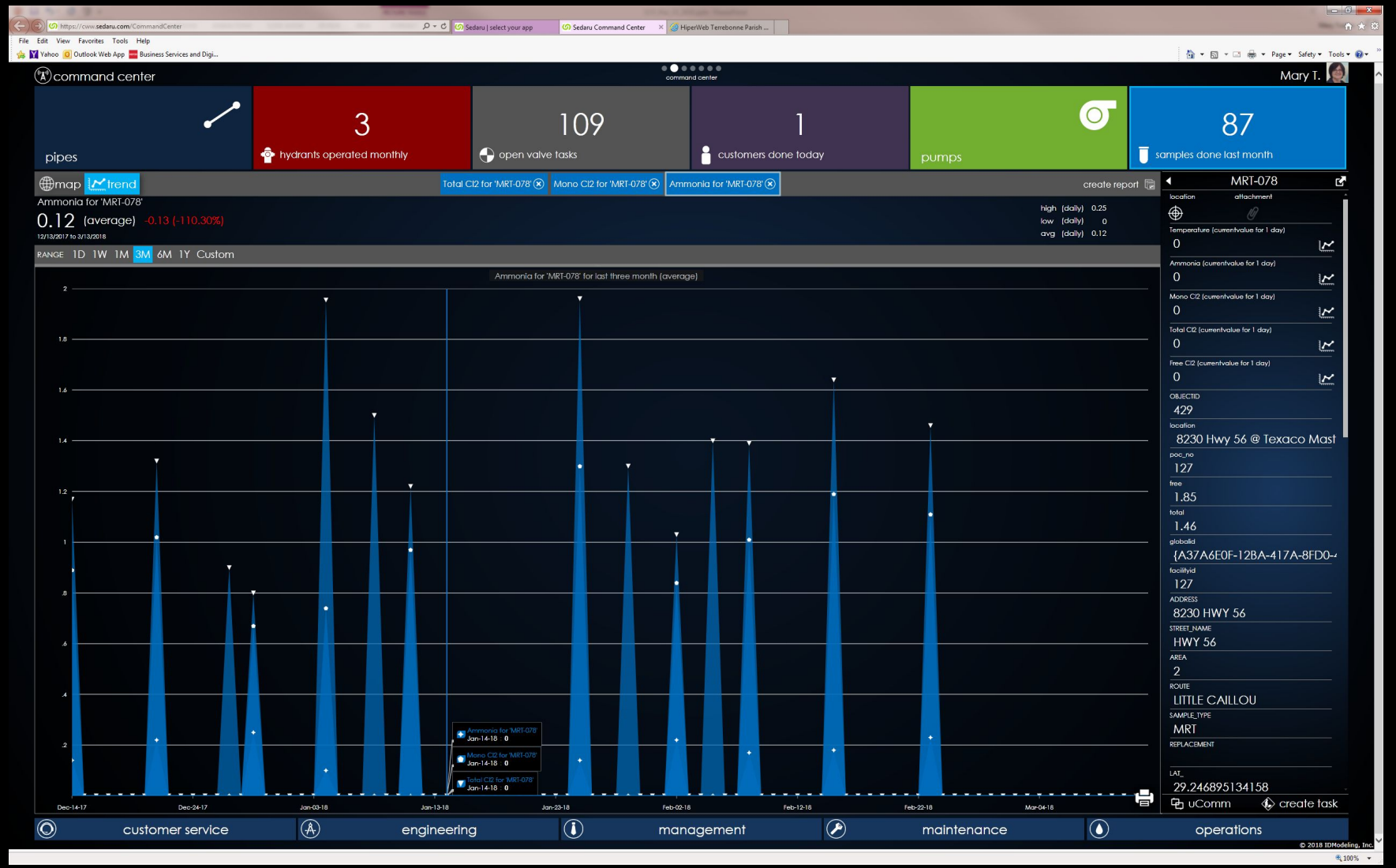


- ACTION TRIGGERS
- CL2 RESIDUAL LESS THAN 1.5

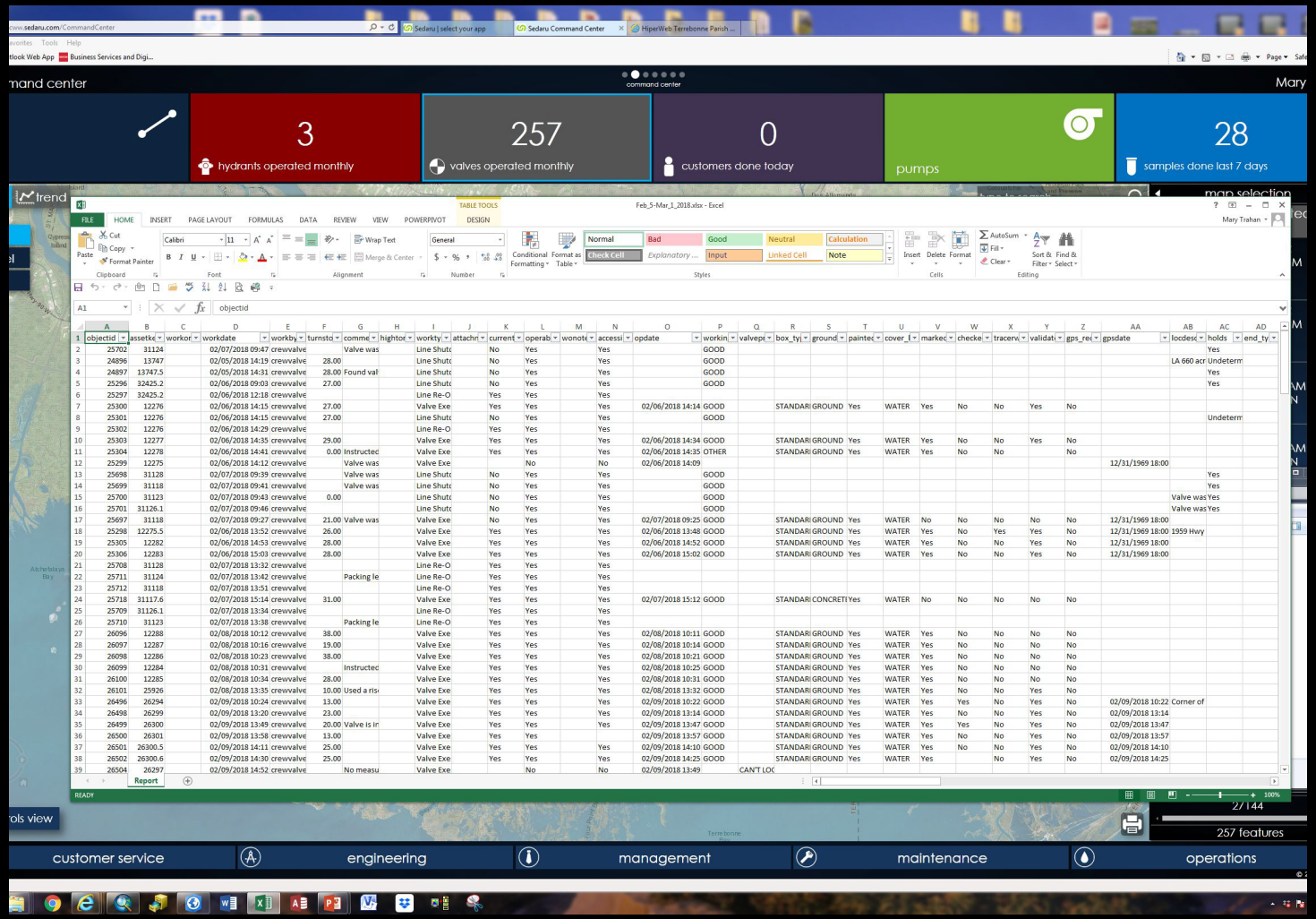


- 3 MONTH TREND

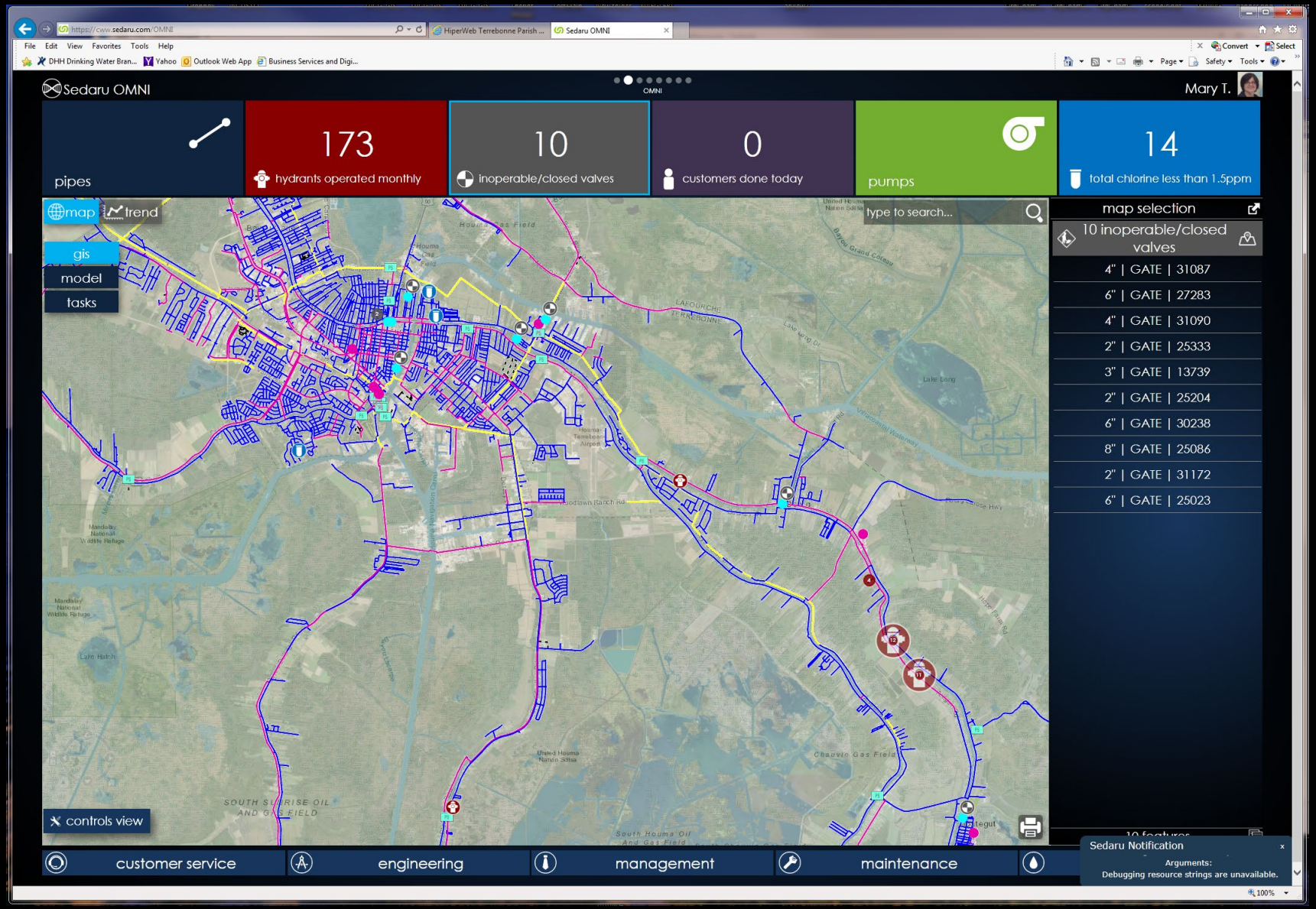
- TOTAL CL2
- MONO CL2
- FREE NH3



- DATA INTEROPERABILITY
- EXPORT TO EXCEL



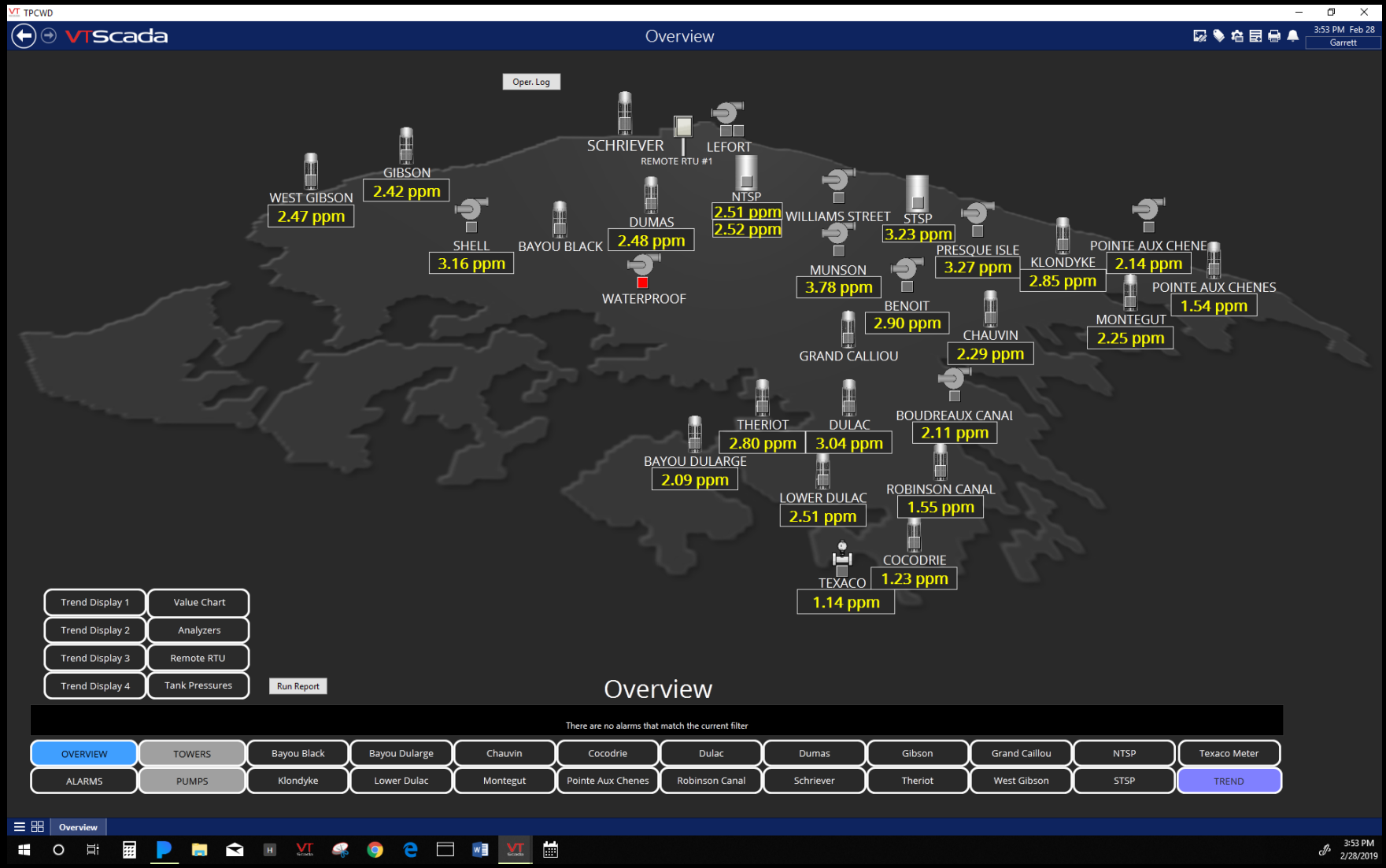
- INOPERABLE VALVES IN THE CLOSED POSITION
- CAUSE DEAD ENDS



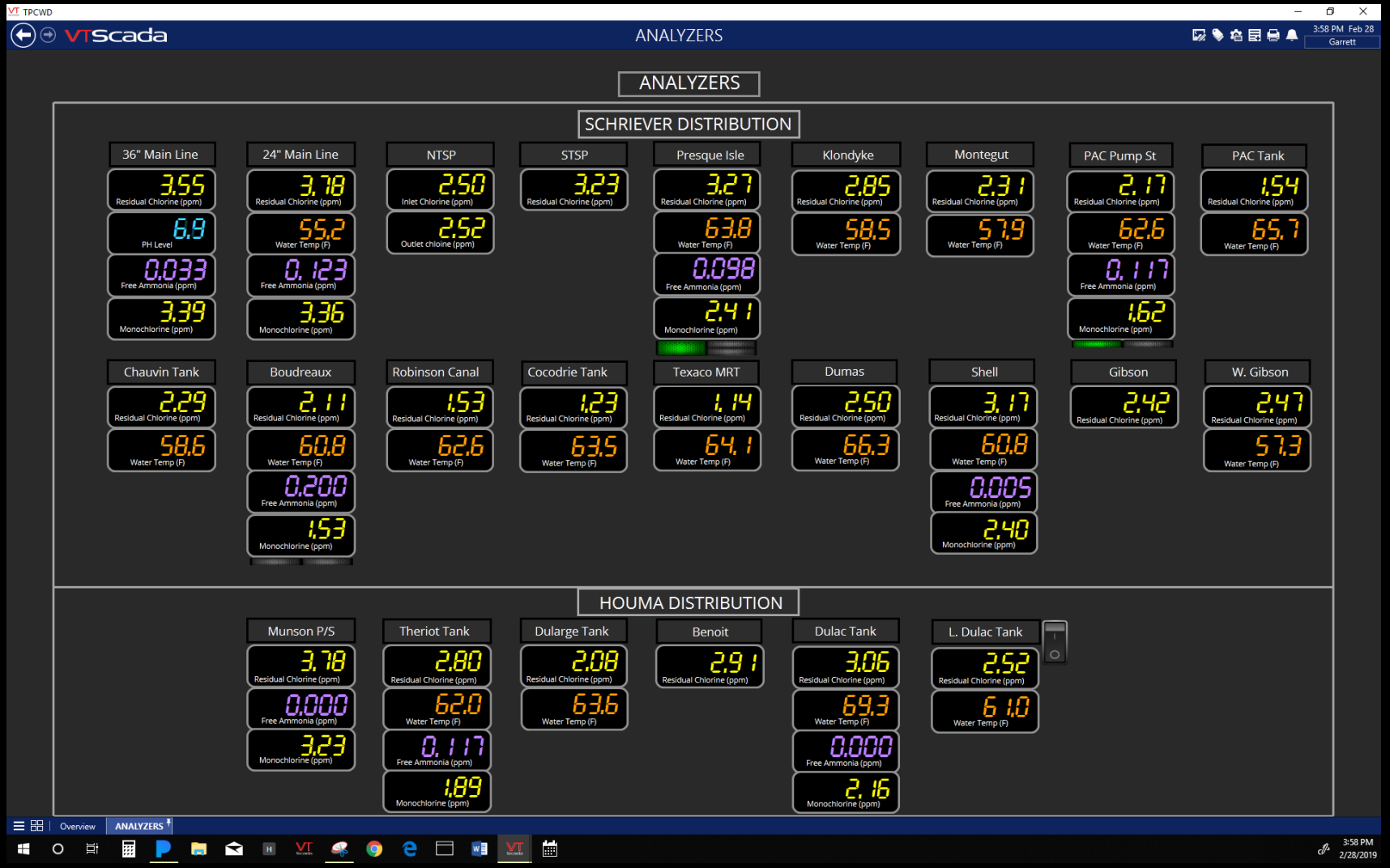
WATER AGE

- LENGTH OF TIME WATER REMAINS IN THE SYSTEM
- AFFECTS WATER QUALITY

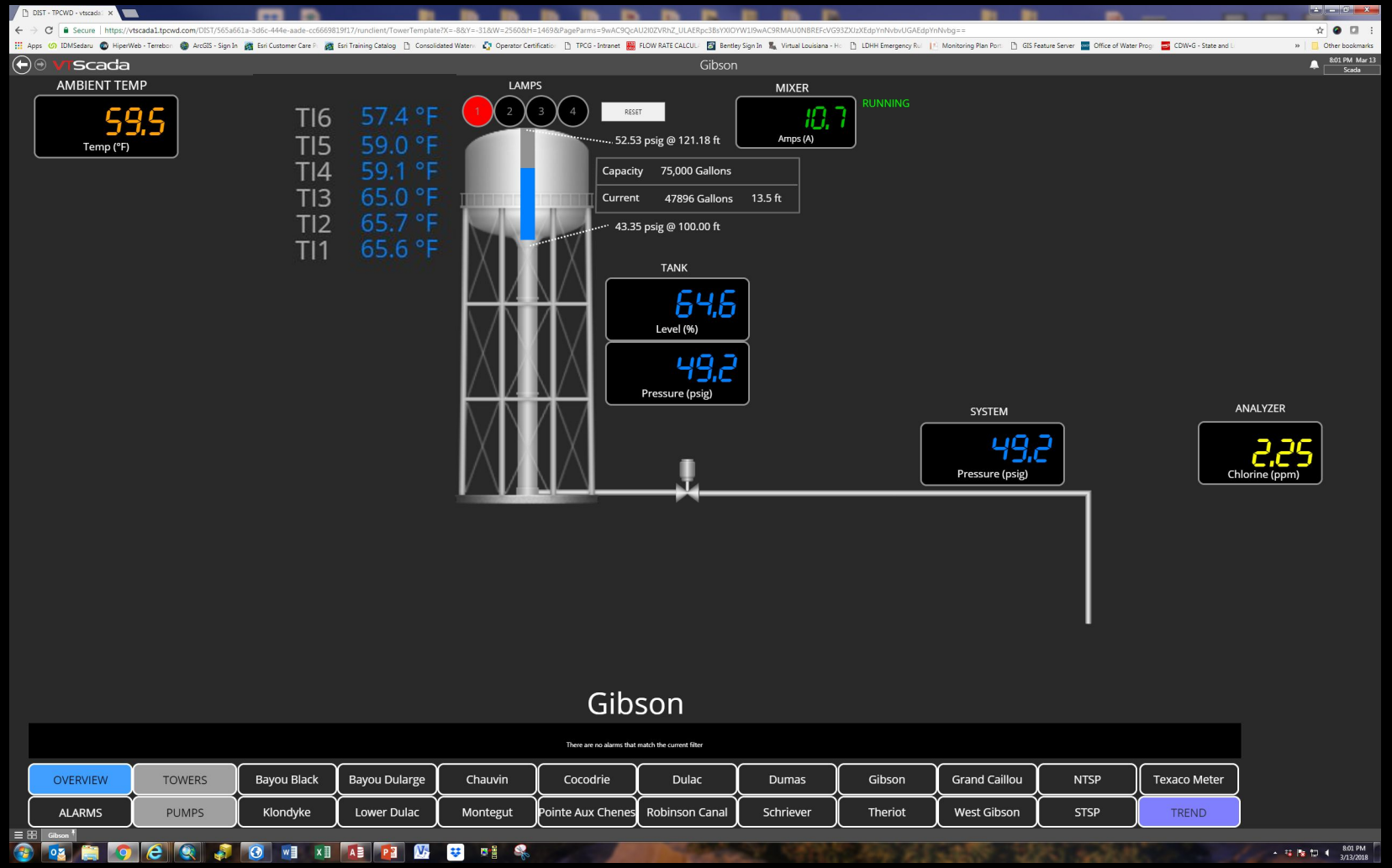
- REAL TIME RESIDUAL MONITORING
- CONTROL OF PUMPS, TANKS & FLUSHING



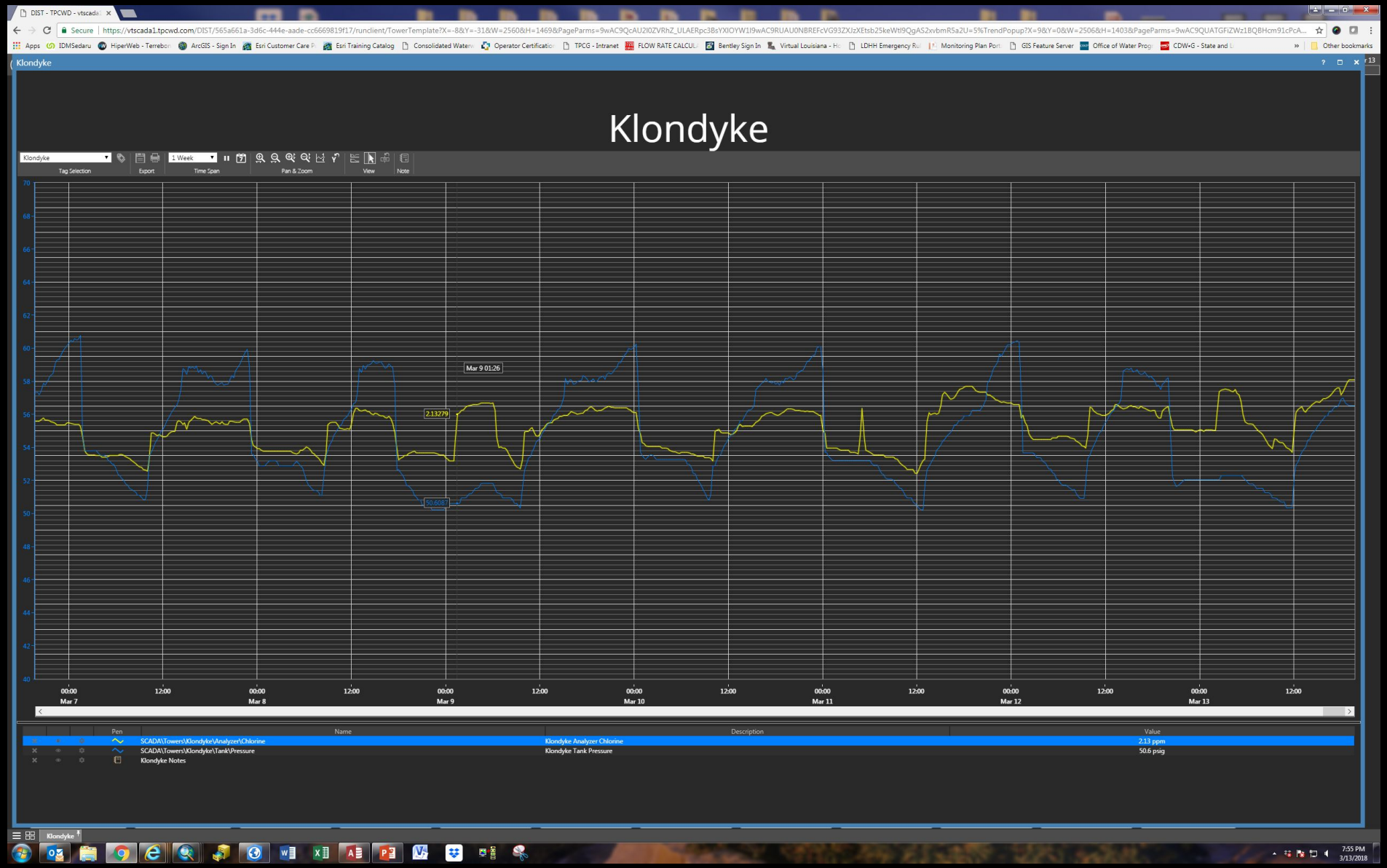
- AT A GLANCE ANALYZER SNAPSHOT



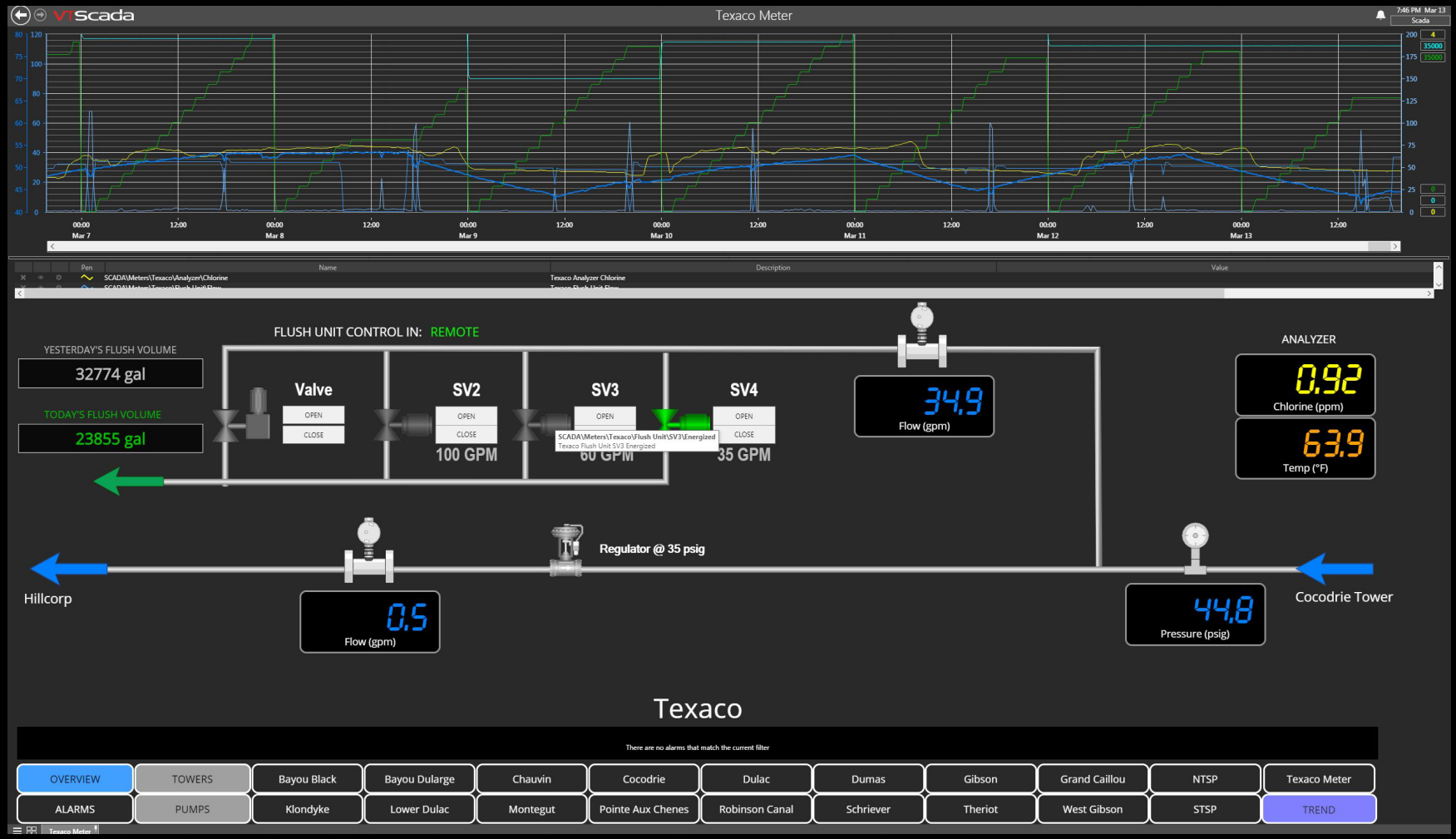
- TEMPERATURE
- STRATIFICATION



- BLUE – TANK CYCLING
- YELLOW - RESIDUAL



- RESIDUAL .92
- FLUSHING 34.9 GPM

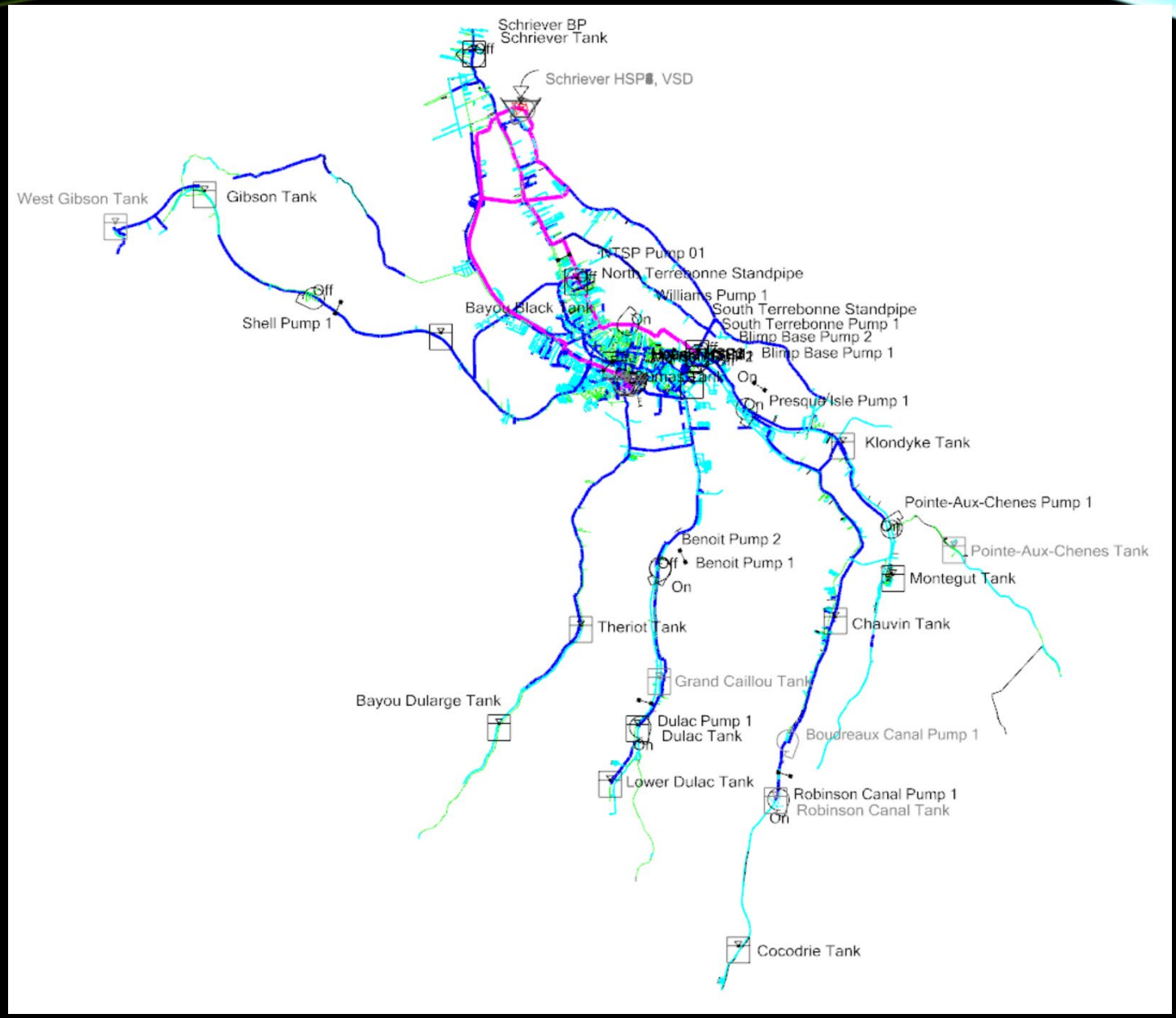


HYDRAULIC MODELING INTEGRATION WITH SEDARU

QUICK & EASY FIRE FLOW ANALYSIS

WATER GEMS & HYDRAULIC MODELING

PRESSURE ZONES



WATER AGE MODELING

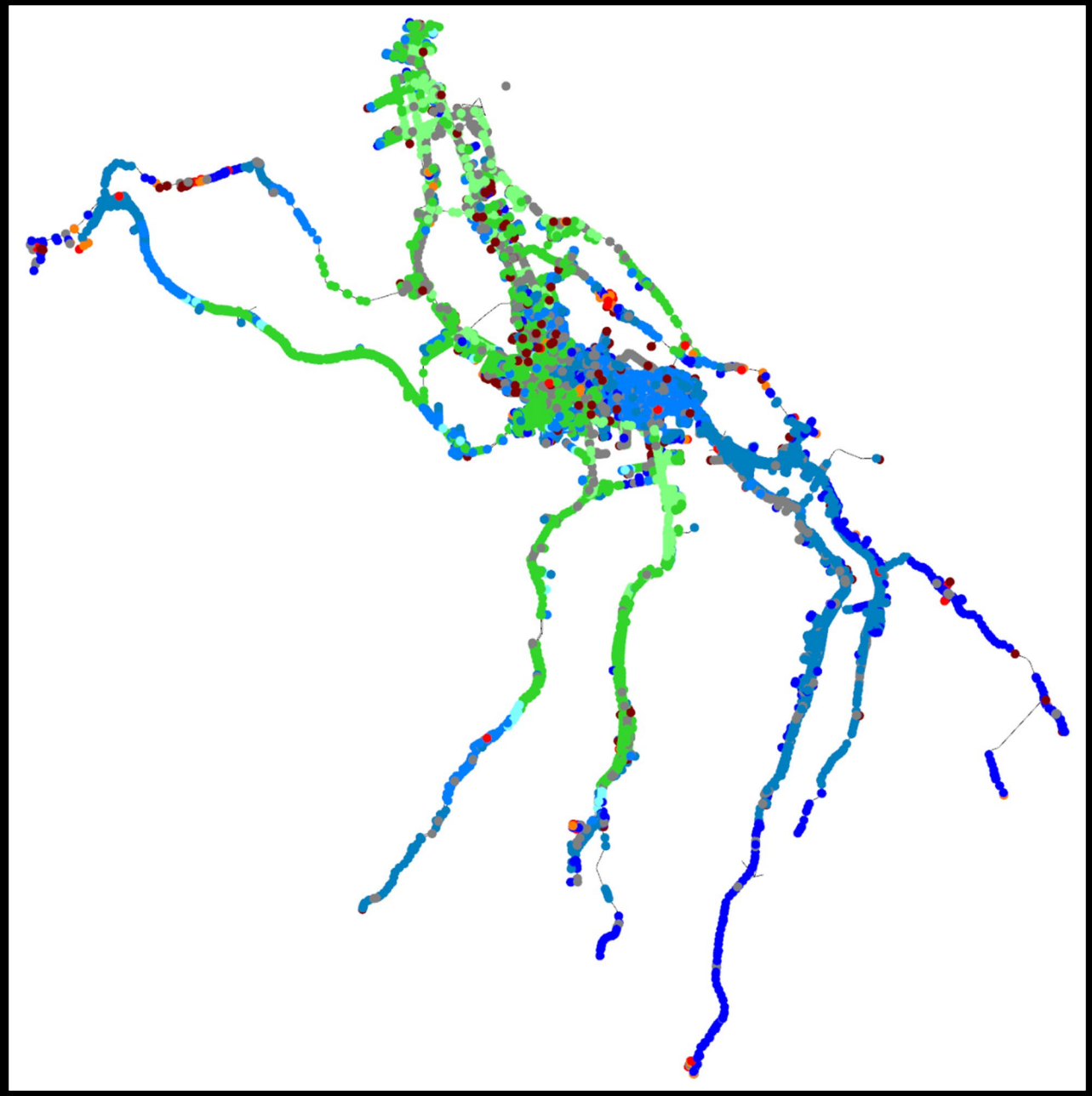
1 – 2 DAYS

3 – 5 DAYS

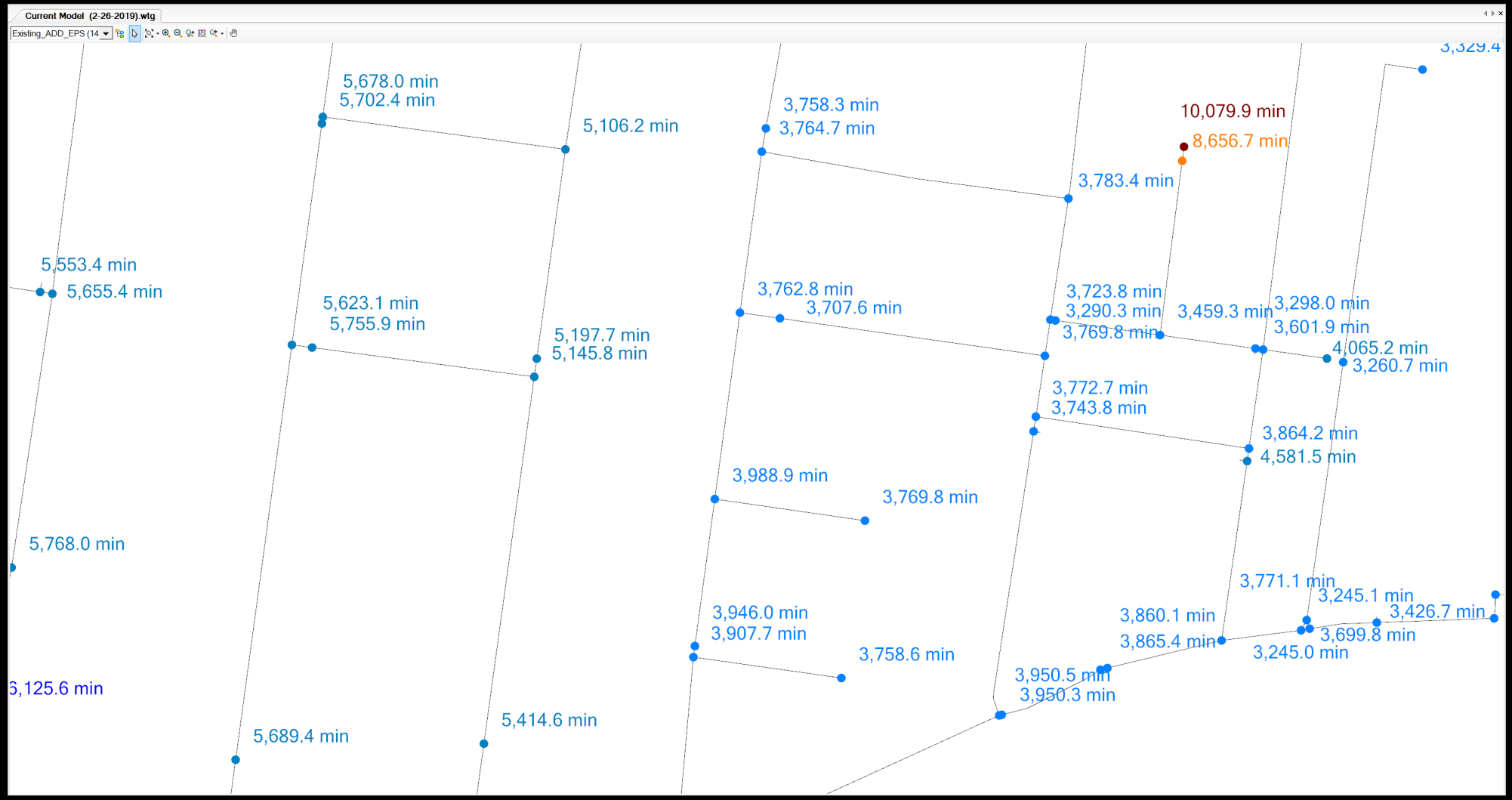
6 – 8 DAYS

9 – 10 DAYS

OLDER THAN 10 DAYS



WATER AGE IN MINUTES



DEAD ENDS

LITERAL OR HYDRAULIC

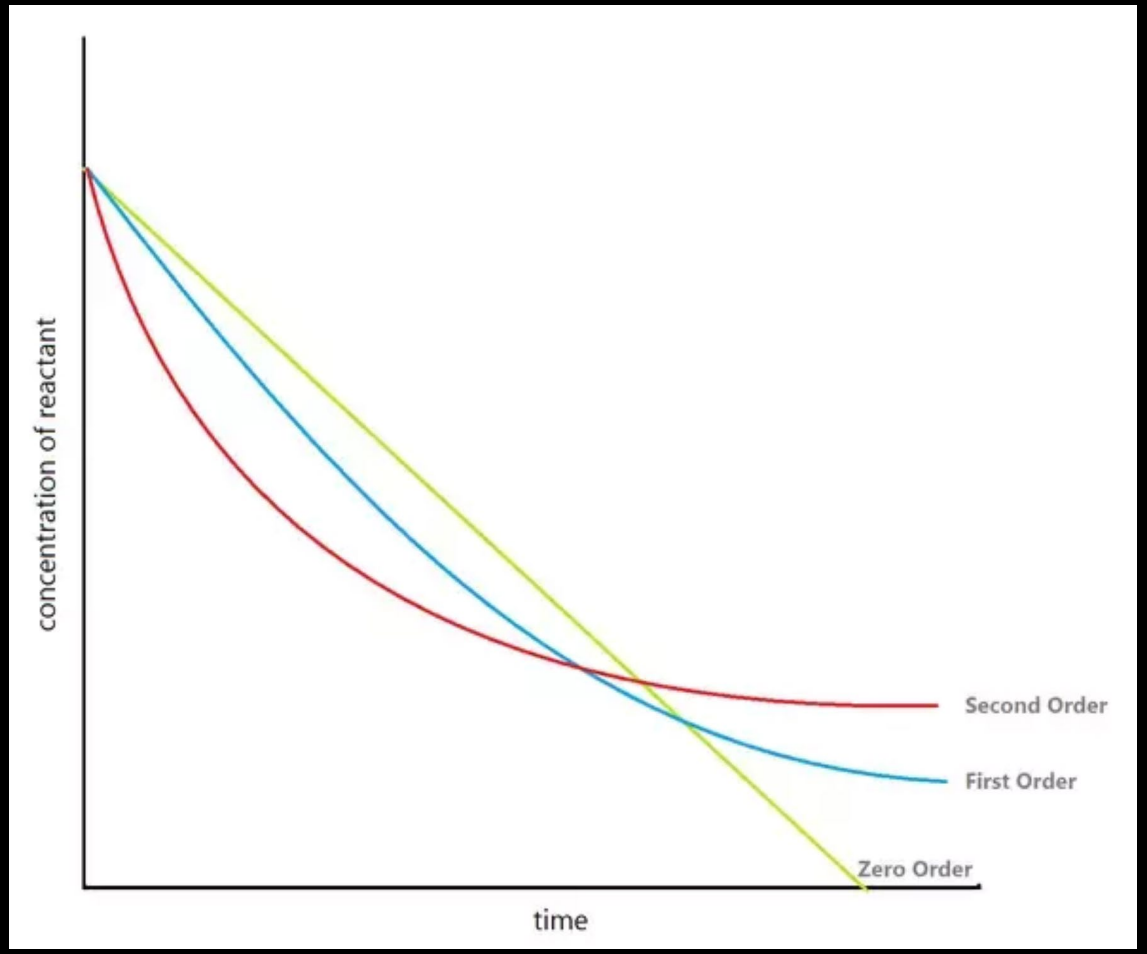
CHLORINE CONCENTRATION MODELING

1st Order Chemical degradation

Concentration(*Final*)=Concentration(*Initial*)*e^(-k(*reaction rate*)*time)

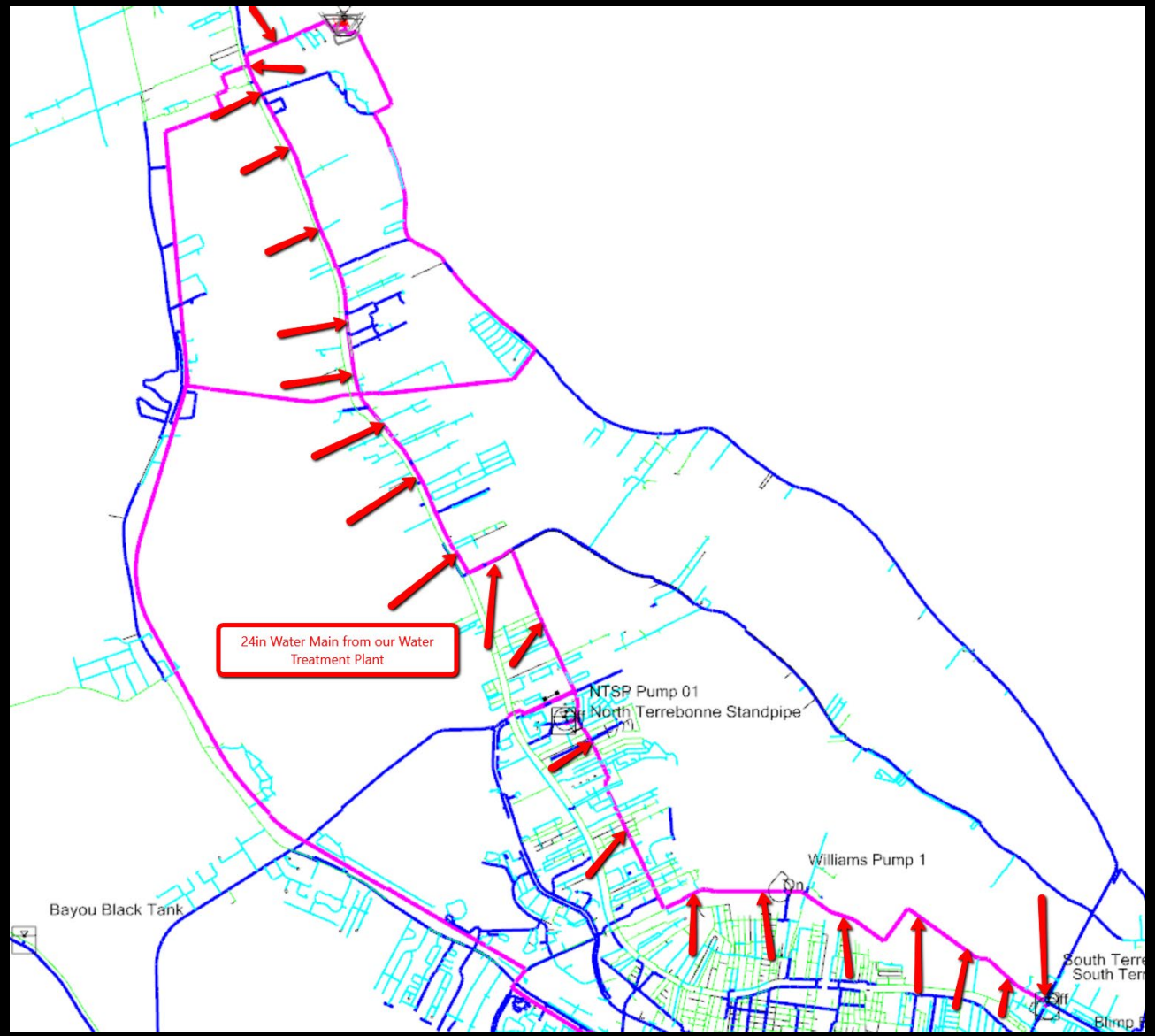
OR

$$C_f = C_i \times e^{-(k \times t)}$$

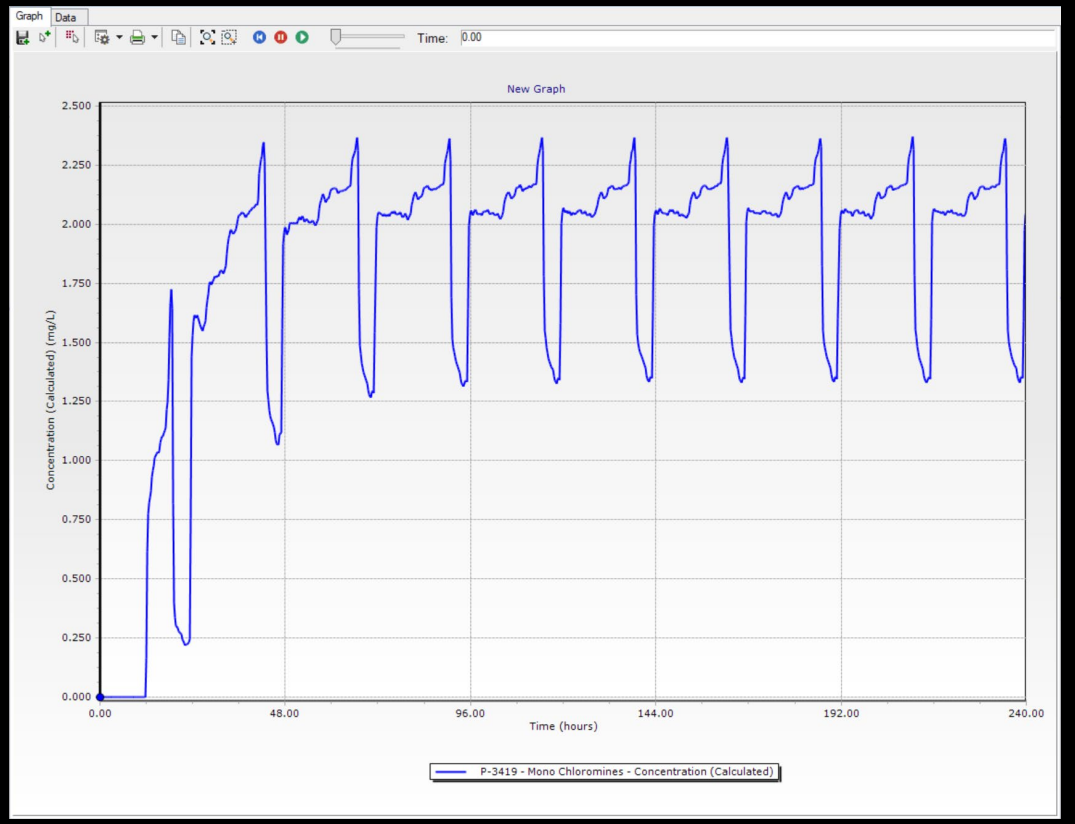


CHLORINE CONCENTRATION MODELING

Goal was to find an average reaction rate (k)



CHLORINE CONCENTRATION MODELING



MOVING FORWARD

BUILDING A DASHBOARD TO CONNECT GIS, WATER MODEL, SCADA AND ENGINEERING SOFTWARE

QUESTIONS

? ? ?