WATER QUALITY
The Digital Revolution
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) \times e^{(-k(reaction rate) \times time)}

OR

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

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TPCW