
HACH
WIMS NATIONAL
USER CONFERENCE

# Leveraging Power BI with WIMS

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AQUATIC INFORMATICS | August 2024

# TODAY'S AGENDA

- What is Power BI
- Power BI Plans
- Connecting WIMS to Power BI
- Optimizing WIMS for better visuals
- Visualized WIMS data

# WHAT IS POWER BI?

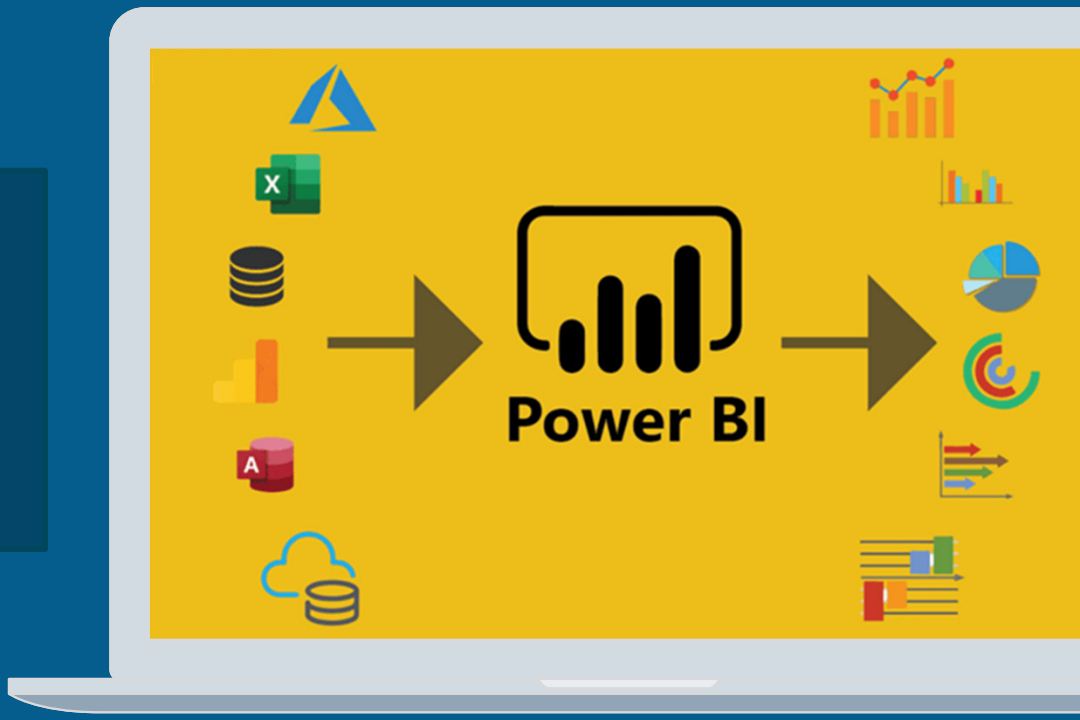

Power BI

**Microsoft Power BI** is an interactive data visualization software product developed by Microsoft with a primary focus on business intelligence

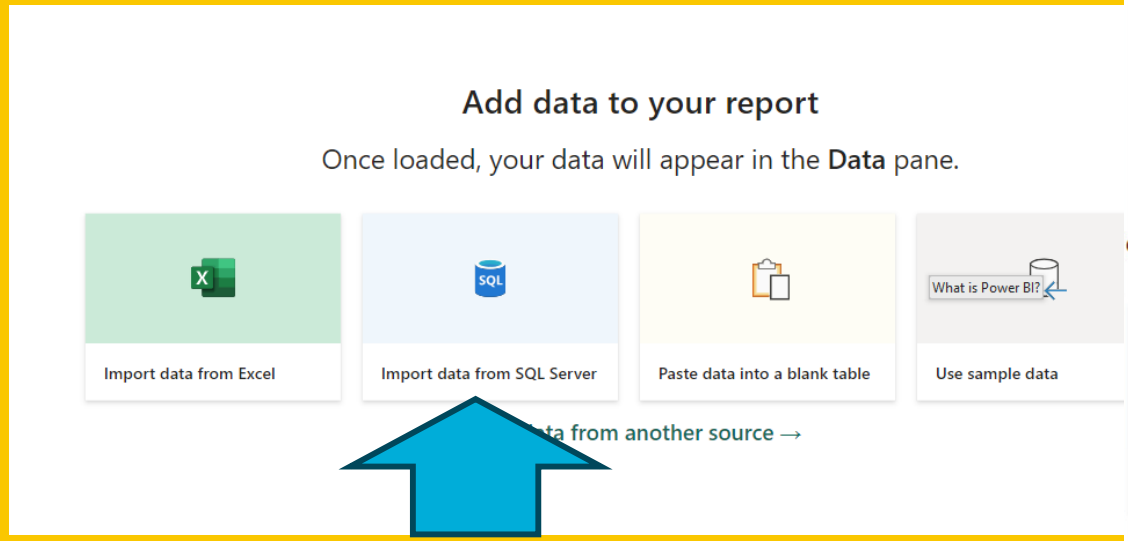
* Images collected from Google

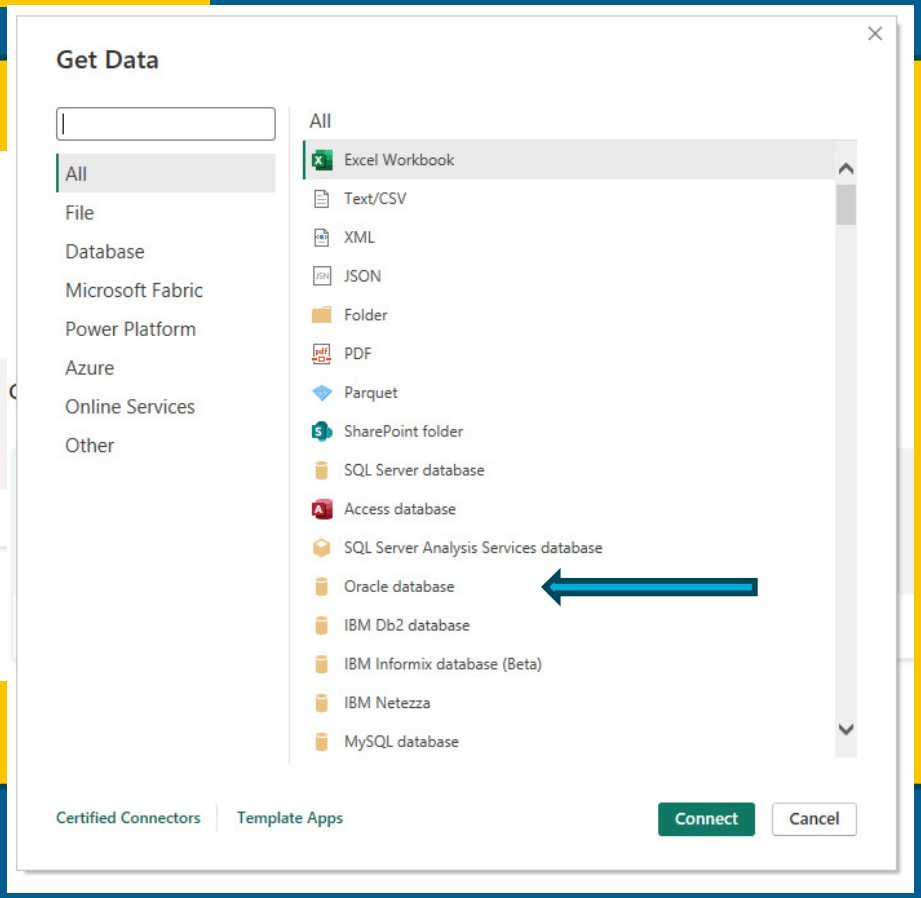
# POWER BI PLANS

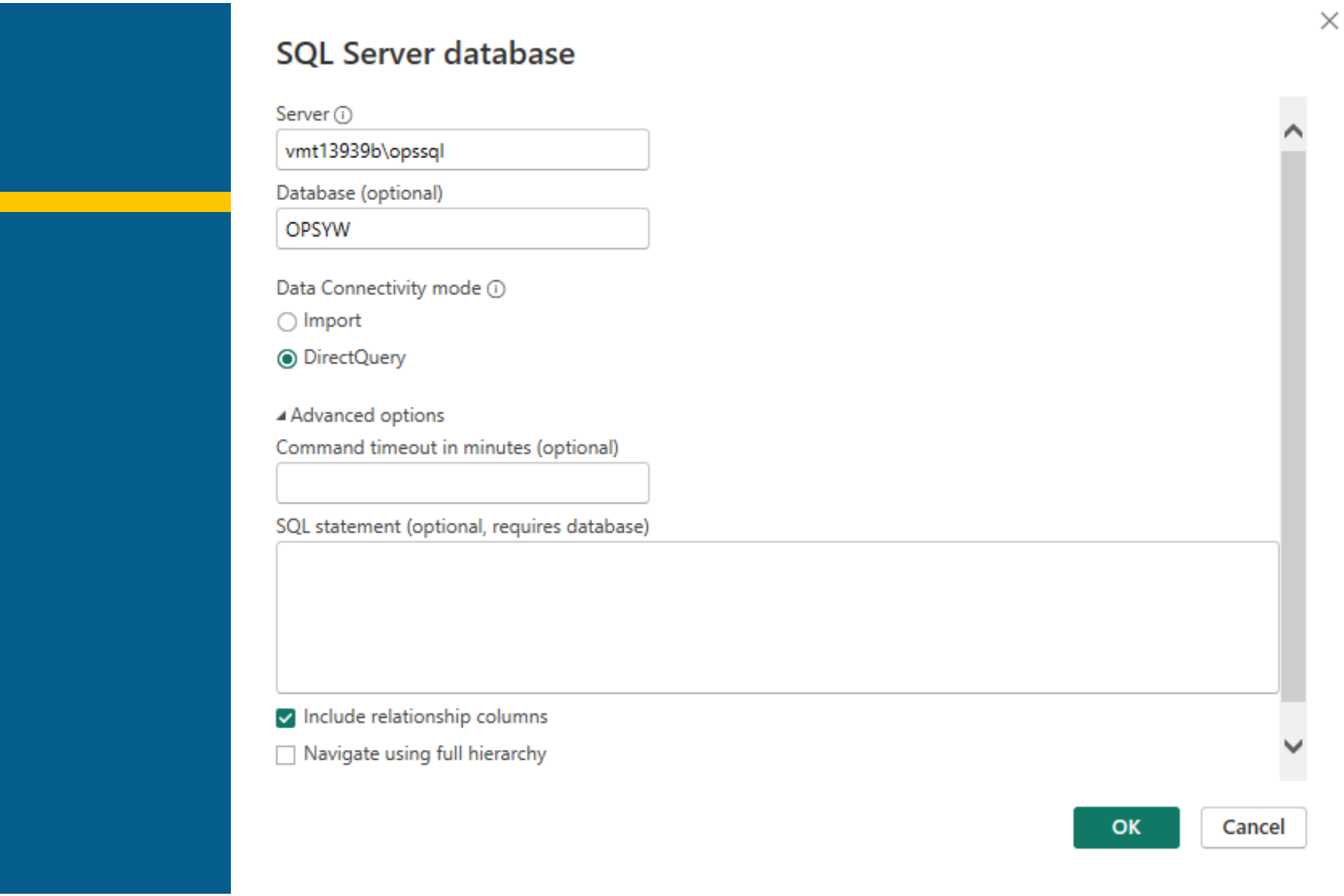
- Free
- Power BI Pro
- Power BI Premium Per User
- Power BI Embedded

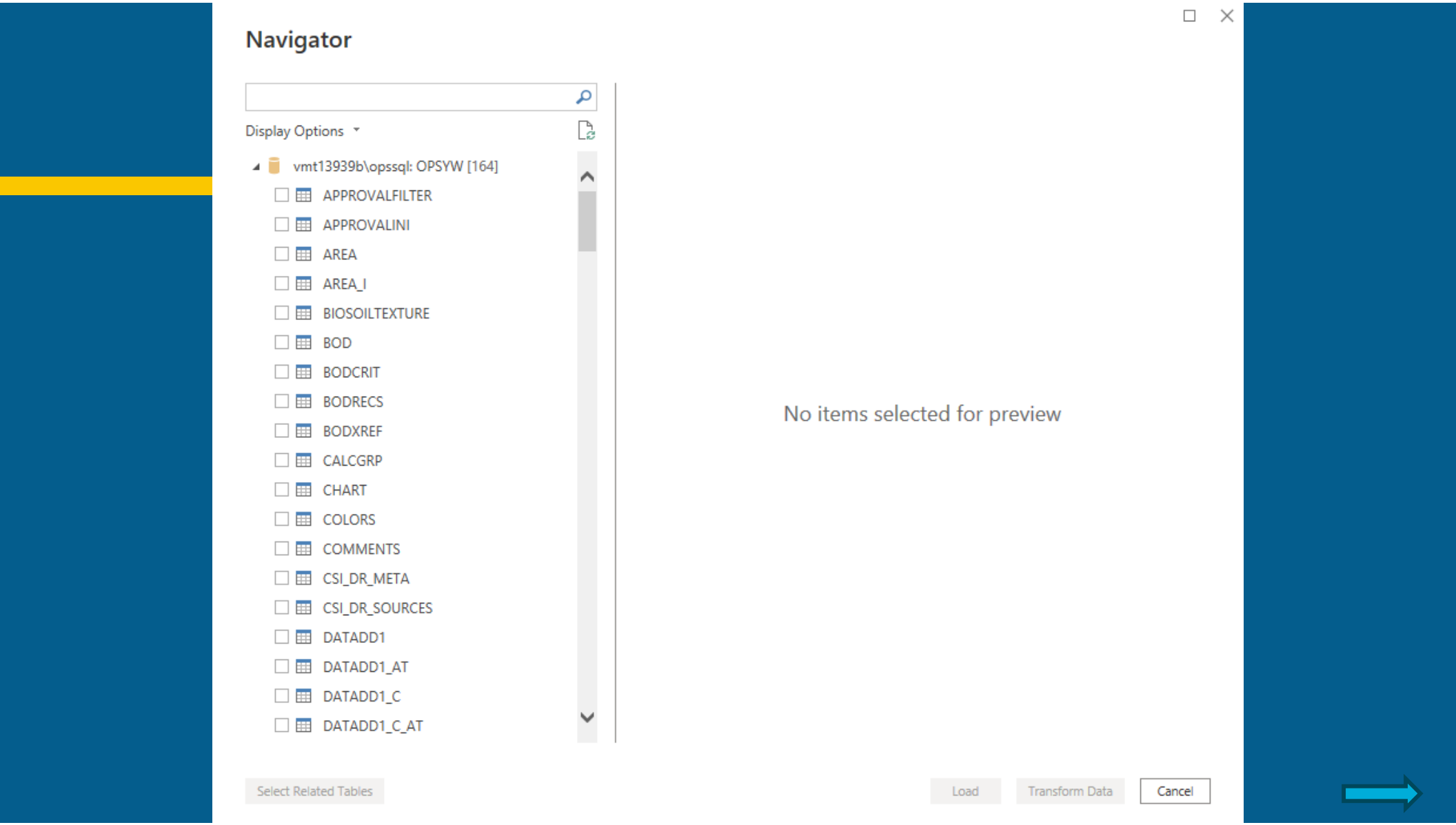


# CONNECTING WITH SOURCES



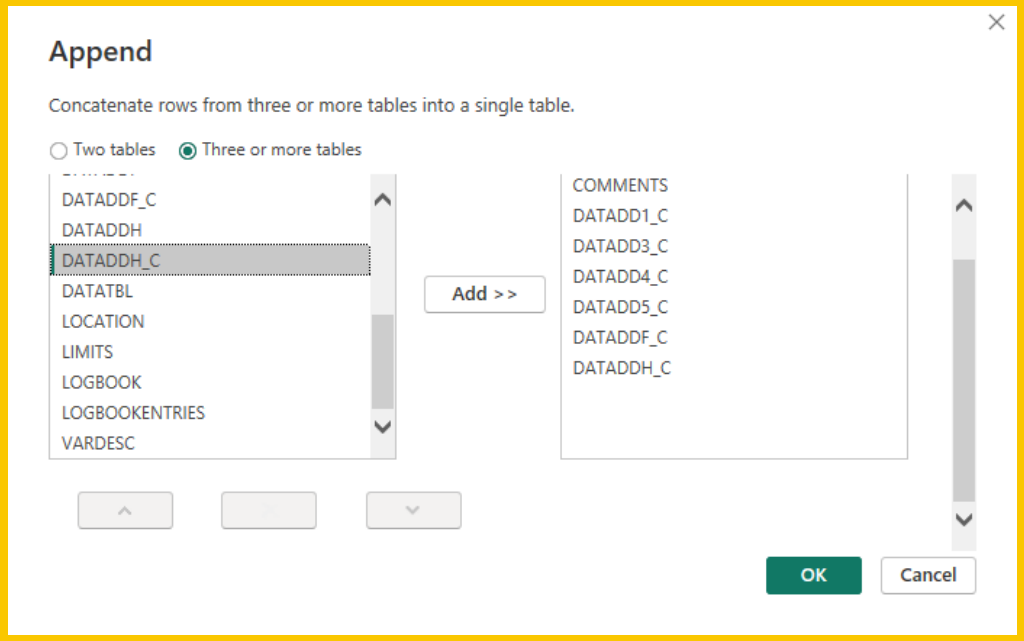

SQL Server database
Server
vmt13939b\opssql
Database (optional)
OPSYW
Data Connectivity mode
Import
DirectQuery
Advanced options
Command timeout in minutes (optional)
SQL statement (optional, requires database)
Include relationship columns
Navigate using full hierarchy
OK
Cancel

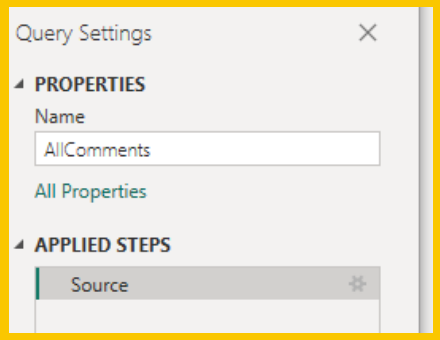

Navigator
Display Options
vmt13939b\opssql: OPSYW [164]
APPROVALFILTER
APPROVALINI
AREA
AREA_I
BIOSOILTEXTURE
BOD
BODCRIT
BODRECS
BODXREF
CALCGRP
CHART
COLORS
COMMENTS
CSI_DR_META
CSI_DR_SOURCES
DATADD1
DATADD1_AT
DATADD1_C
DATADD1_C_AT
No items selected for preview
Select Related Tables
Load
Transform Data
Cancel

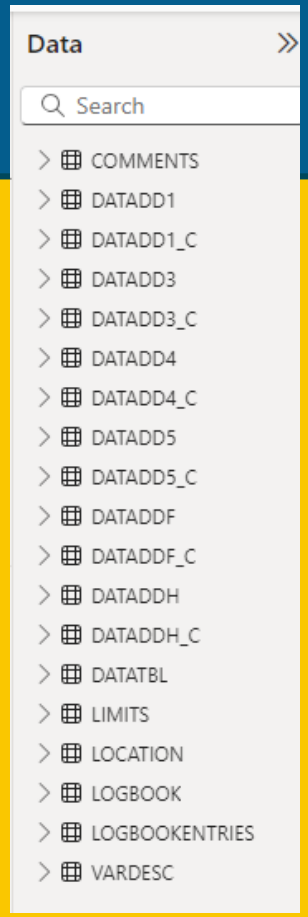
DATATBL - Stores the daily frequency data for variables with a VarType of C, T, P, and Z.
DATADDH - Stores the hourly frequency data for variables with a VarType of H, N, and B.
DATADD4 - Stores the 4 hour frequency data for variables with a VarType of 4,G, and E.
DATADDF - Stores the 15 Minute frequency data for variables with a VarType of F,V, and X.
DATADD3 - Stores the 30 Minute frequency data for variables with a VarType of 3,W, and Q.
DATADD5 - Stores the 5 Minute frequency data for variables with a VarType of 5, Y, and R.
DATADD1 - Stores the 1 Minute frequency data for variables with a VarType of 1, S, and A.

Knowledge Base article on DB structures

# JOINING TABLES



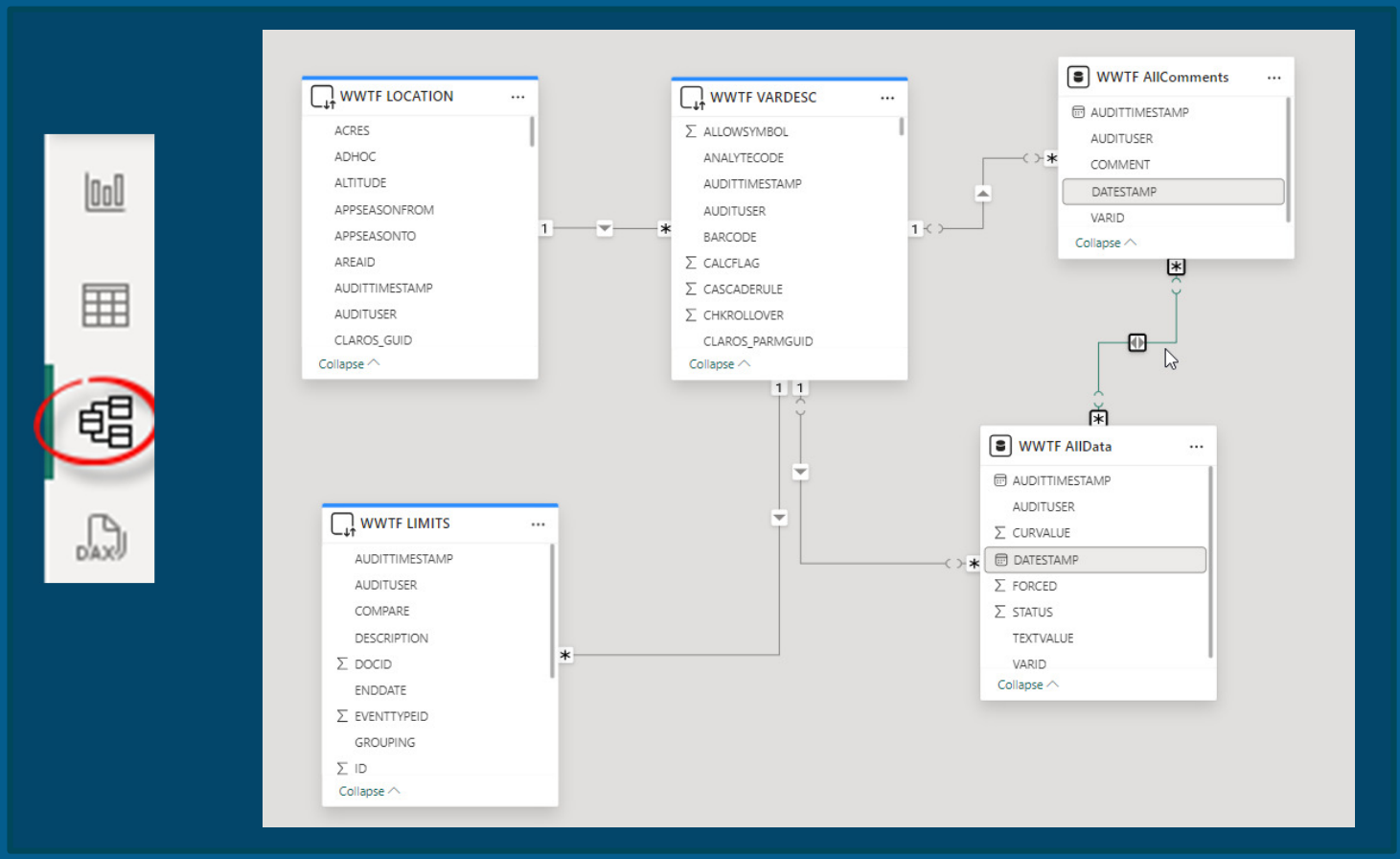



# RELATIONSHIPS

**TIP:**

Be sure to set the correct type of relationship. (1:1, 1:*, *:1, *:*)



# ADD VISUALS TO REPORT

**TIP:**

Optimized vs not optimized

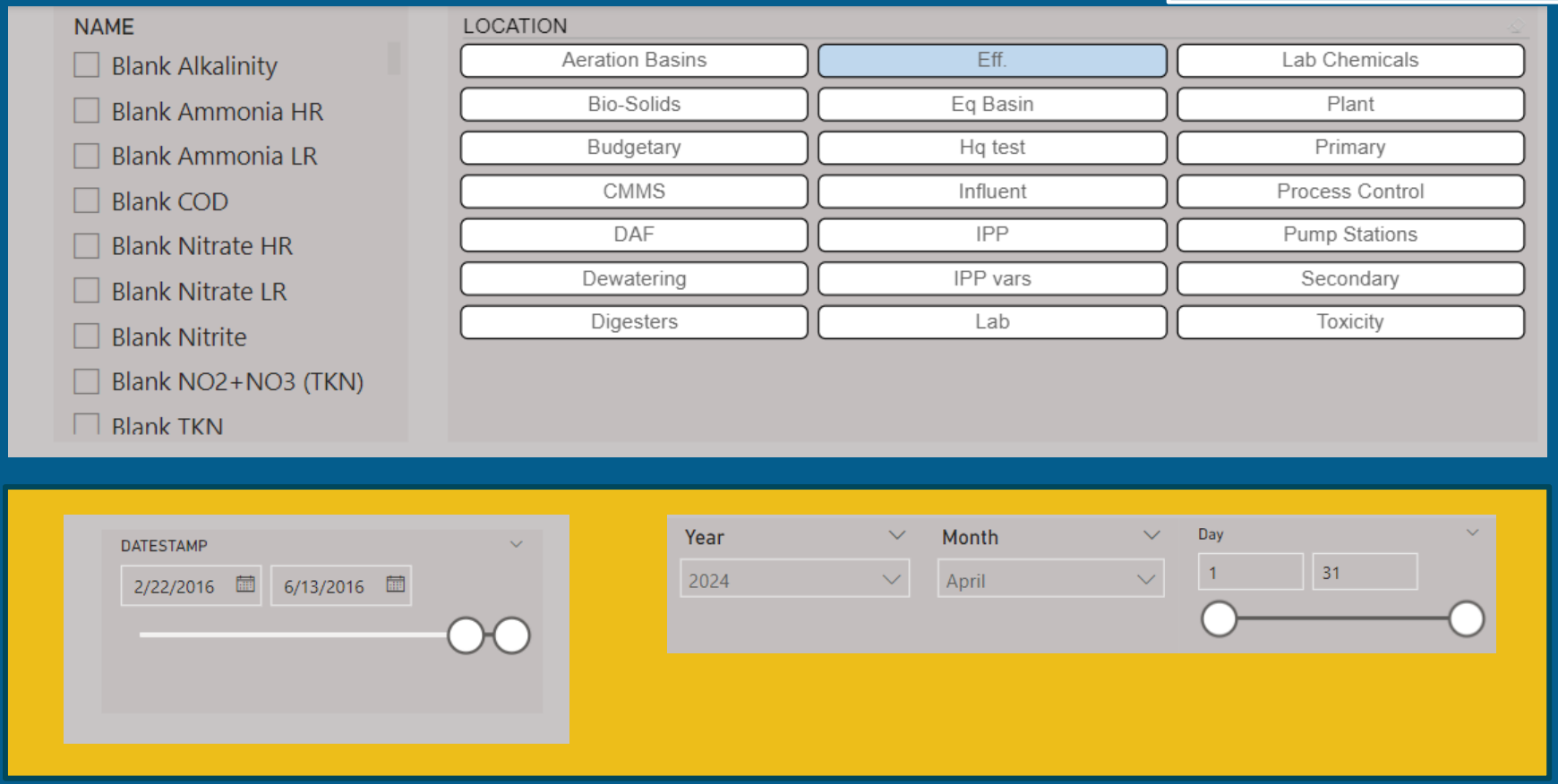
| LOCATION | Online Chlorine Residual | pH | Temperature | Total Daily Flow |
|---|---|---|---|---|
| Airport Rd Booster | 4 | 7.63 | 65 | 0.07 |
| Berlin Rd Booster | 4 | 7.86 | 60.9 | 0.1 |
| Bull Rd Booster | 4 | 6.31 | 44 | 0.08 |
| Florida Ave Booster | 4 | 6.96 | 47.2 | 0.1 |
| Green Valley Booster | 4 | 6.86 | 53.2 | 0.09 |
| Haines Acres Booster | 4 | 7 | 62.5 | 0.06 |
| Hametown Booster | 3.9 | 6.83 | 57.4 | 0.09 |
| Hellam Booster | 3.9 | 7.7 | 62.4 | 0.06 |
| Irishtown Booster | 4 | 6.28 | 47.1 | 0.05 |
| Loganville Booster | 4 | 7.76 | 56.7 | 0.06 |
| Longstown Booster | 3.9 | 6.12 | 56.8 | 0.08 |
| Mt Zion Rd Booster | 4 | 7.03 | 50.1 | 0.06 |
| Norhtwest Booster | 4 | 6.29 | 48.9 | 0.09 |
| North Point Dr Booster | 4 | 7.67 | 53.9 | 0.09 |
| North York Booster | 4 | 6.81 | 59.5 | 0.07 |
| Oak Street Booster | 4 | 6.79 | 61.3 | 0.08 |
| Penn Oaks Booster | 4 | 7.41 | 47.5 | 0.07 |
| Pleasureville Booster | 4 | 6.66 | 56.2 | 0.05 |
| Shunks Hill Booster | 4 | 6.91 | 47 | 0.06 |
| Southern Repump Booster | 4 | 7.52 | 57.6 | 0.1 |
| Spring Grove Booster | 4 | 7.43 | 63.7 | 0.05 |
| Starview Booster | 4 | 6.86 | 60 | 0.08 |
| W Manheim Booster | 3.9 | 6.01 | 44.2 | 0.08 |
| West Manchester Booster | 4 | 7.83 | 58.4 | 0.09 |
| York New Salem Booster | 4 | 7.02 | 58.5 | 0.06 |

| NAME | Eff. | PC Influent | PC Influent Grab |
|---|---|---|---|
| Blank Alkalinity | | -9.9 | |
| Blank Ammonia HR | | 9.59 | |
| Blank Ammonia LR | | 21.500 | |
| Blank COD | | -8 | |
| Blank Nitrate HR | | 9.02 | |
| Blank Nitrate LR | | 7.210 | |
| Blank Nitrite | | 0.312 | |
| Blank NO2+NO3 (TKN) | | 4.050 | |
| Blank TKN | | 0.349 | |
| Blank TKN (TKN) | | 6.720 | |
| Blank Total Nitrogen (TKN) | | 6.950 | |
| Blank TSS | | -6.6 | |
| Blank TSS RL | | 1.0 | |
| Eff BOD (daily Avg) | 92 | | |
| Eff Clarity | Washout | | |
| Eff Fecal Coliform Geo Mean | 999998.999999998 | | |
| Eff Flow Weekly Average | 60.0157142857143 | | |
| Eff Nitrate-Nitrite Loading Wkly Avg (R) | 877.7433 | | |
| Eff Plant Effluent Flow (hourly) | 9.42 | | |

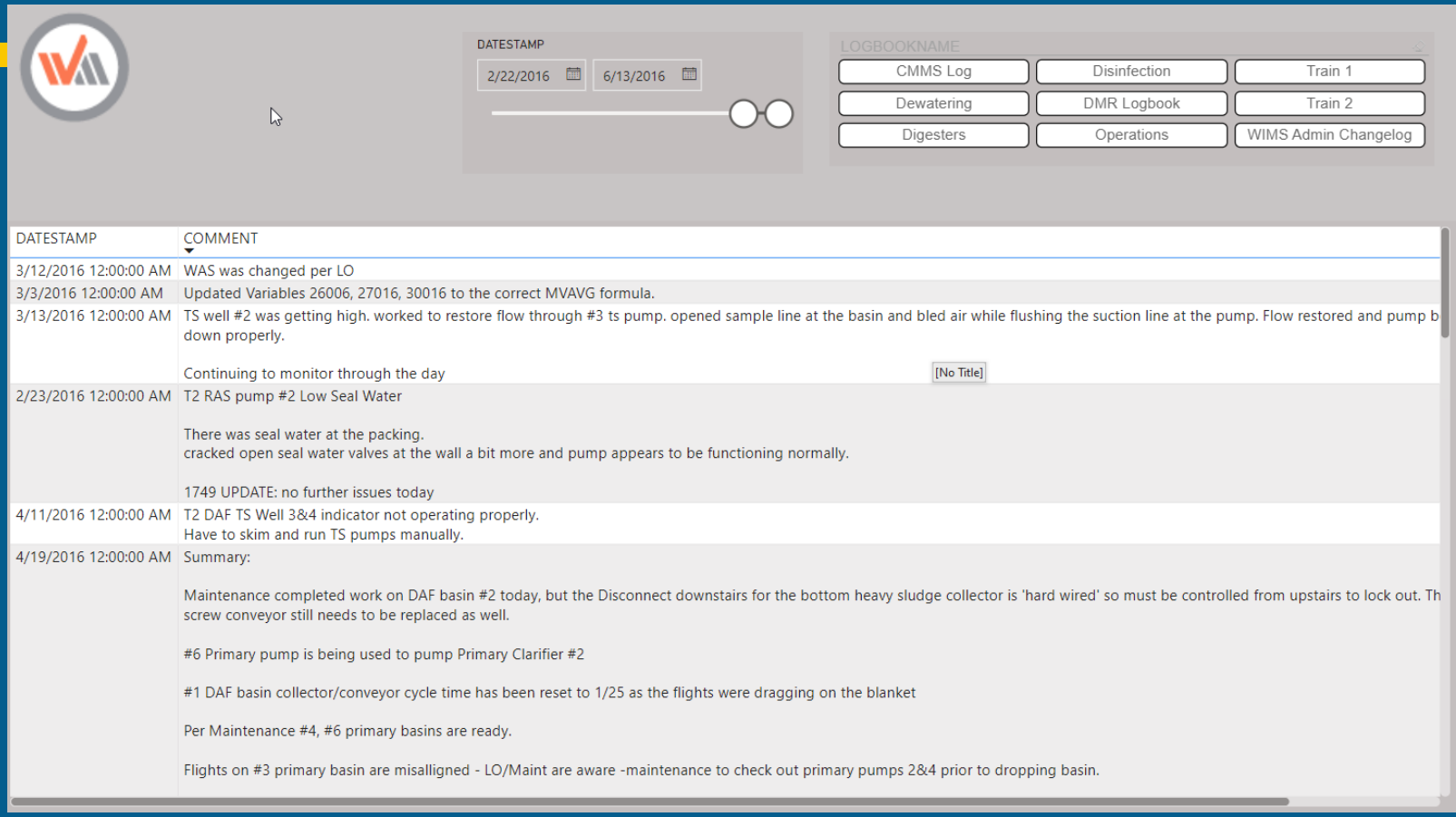
# ADD SLICERS

**TIP:**

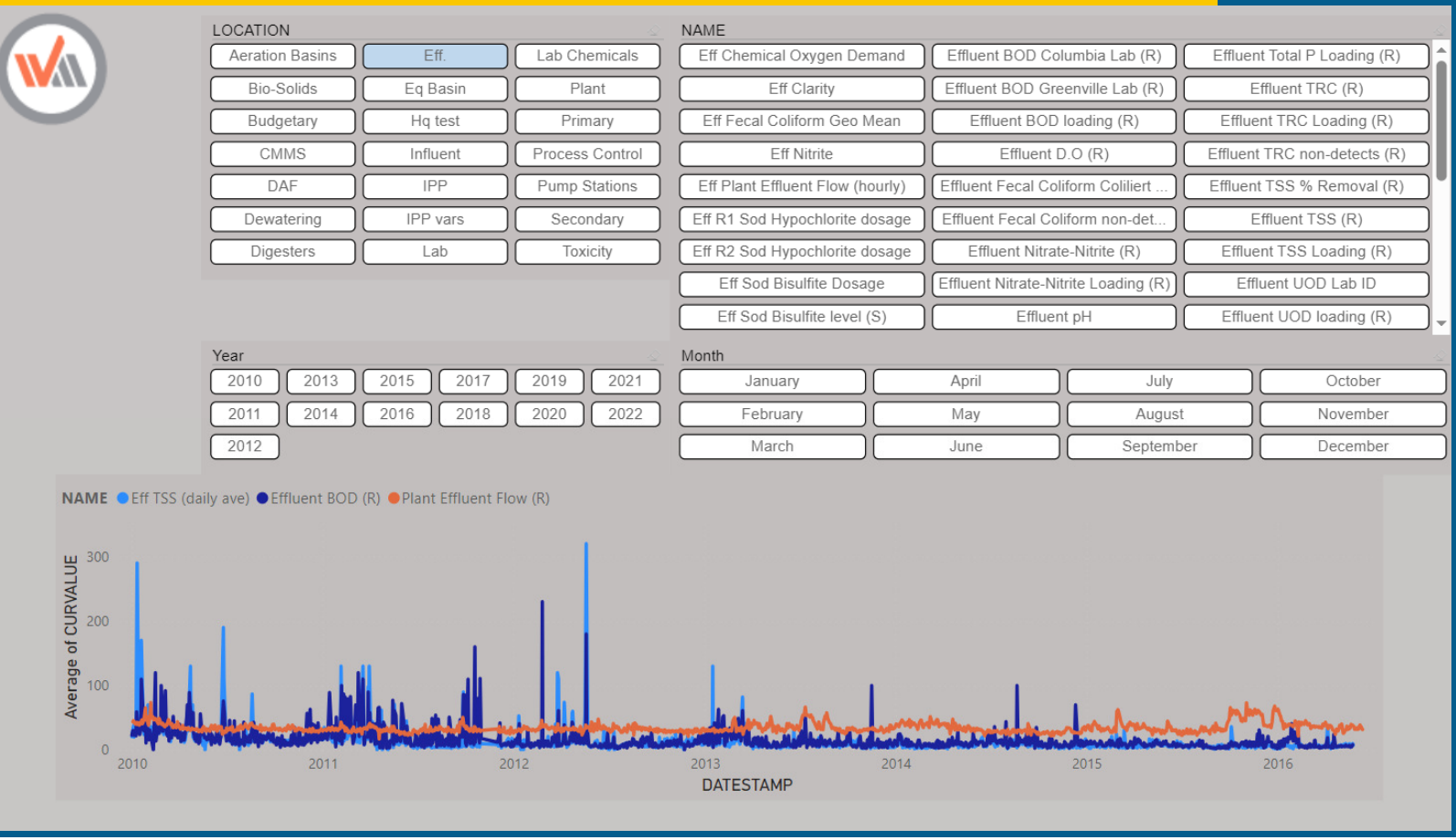
Slicers are dynamic filters for report users to interact with visuals



# LOGBOOK PBI


DATESTAMP
2/22/2016
6/13/2016
LOGBOOKNAME
CMMS Log
Disinfection
Train 1
Dewatering
DMR Logbook
Train 2
Digesters
Operations
WIMS Admin Changelog
DATESTAMP
COMMENT
3/12/2016 12:00:00 AM
WAS was changed per LO
3/3/2016 12:00:00 AM
Updated Variables 26006, 27016, 30016 to the correct MVAVG formula.
3/13/2016 12:00:00 AM
TS well #2 was getting high. worked to restore flow through #3 ts pump. opened sample line at the basin and bled air while flushing the suction line at the pump. Flow restored and pump b
down properly.
Continuing to monitor through the day
[No Title]
2/23/2016 12:00:00 AM
T2 RAS pump #2 Low Seal Water
There was seal water at the packing.
cracked open seal water valves at the wall a bit more and pump appears to be functioning normally.
1749 UPDATE: no further issues today
4/11/2016 12:00:00 AM
T2 DAF TS Well 3&4 indicator not operating properly.
Have to skim and run TS pumps manually.
4/19/2016 12:00:00 AM
Summary:
Maintenance completed work on DAF basin #2 today, but the Disconnect downstairs for the bottom heavy sludge collector is 'hard wired' so must be controlled from upstairs to lock out. Th
screw conveyor still needs to be replaced as well.
#6 Primary pump is being used to pump Primary Clarifier #2
#1 DAF basin collector/conveyor cycle time has been reset to 1/25 as the flights were dragging on the blanket
Per Maintenance #4, #6 primary basins are ready.
Flights on #3 primary basin are misalligned - LO/Maint are aware -maintenance to check out primary pumps 2&4 prior to dropping basin.

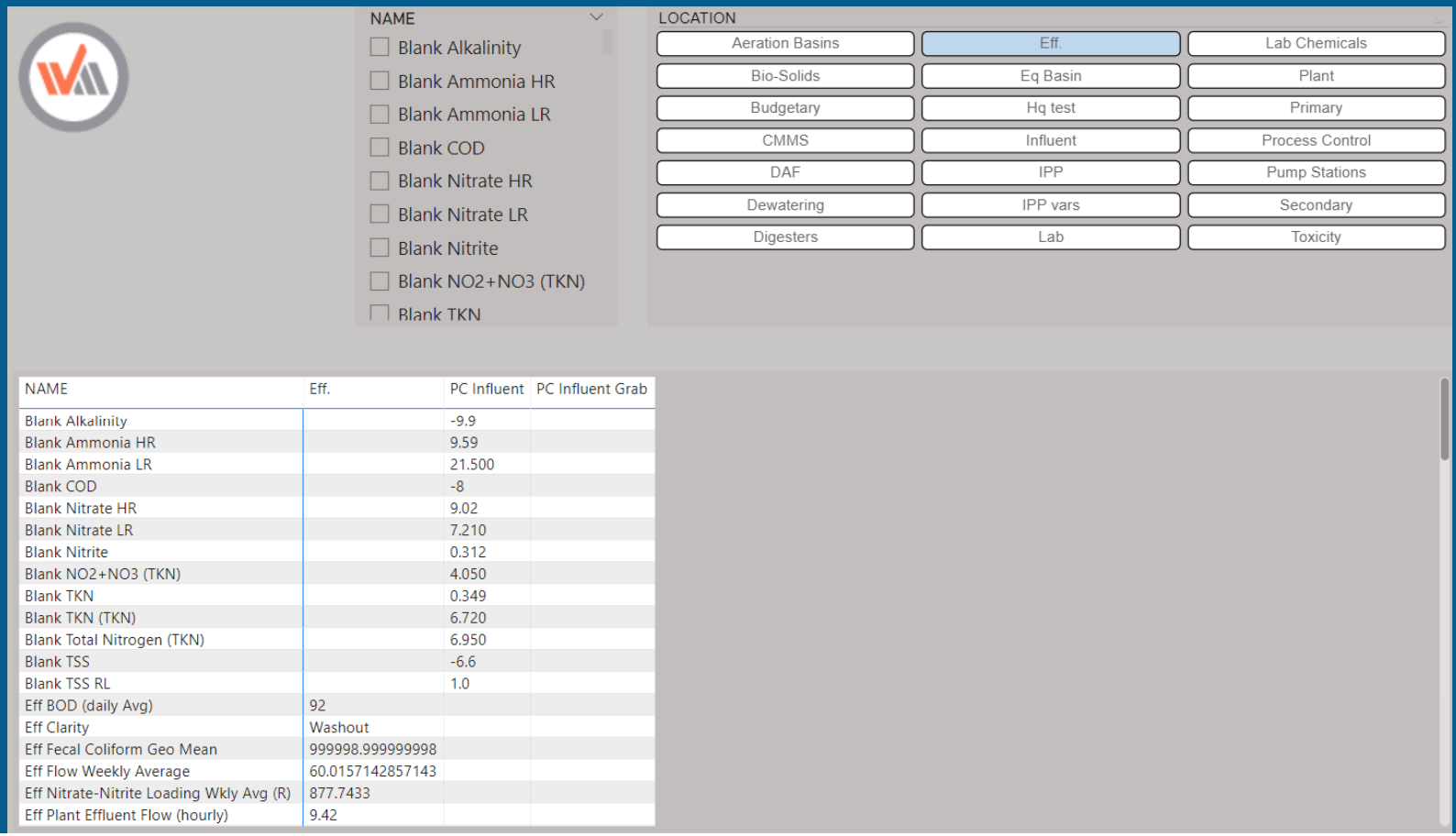
# GRAPHING




**TIP:**

Notice the not optimized variable names.

# WW VALUES

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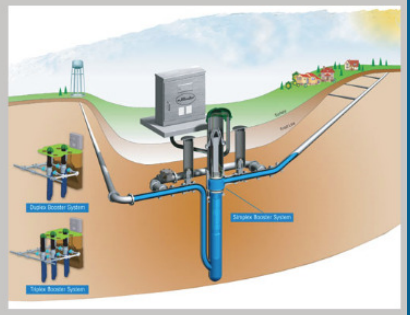
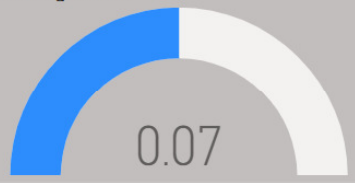
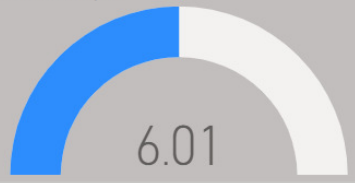


Average Flow

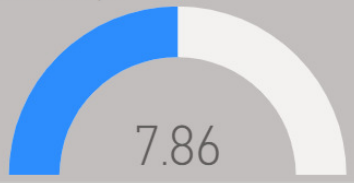



Average Cl2


Minimum pH




Maximum pH




Year

2024

Month

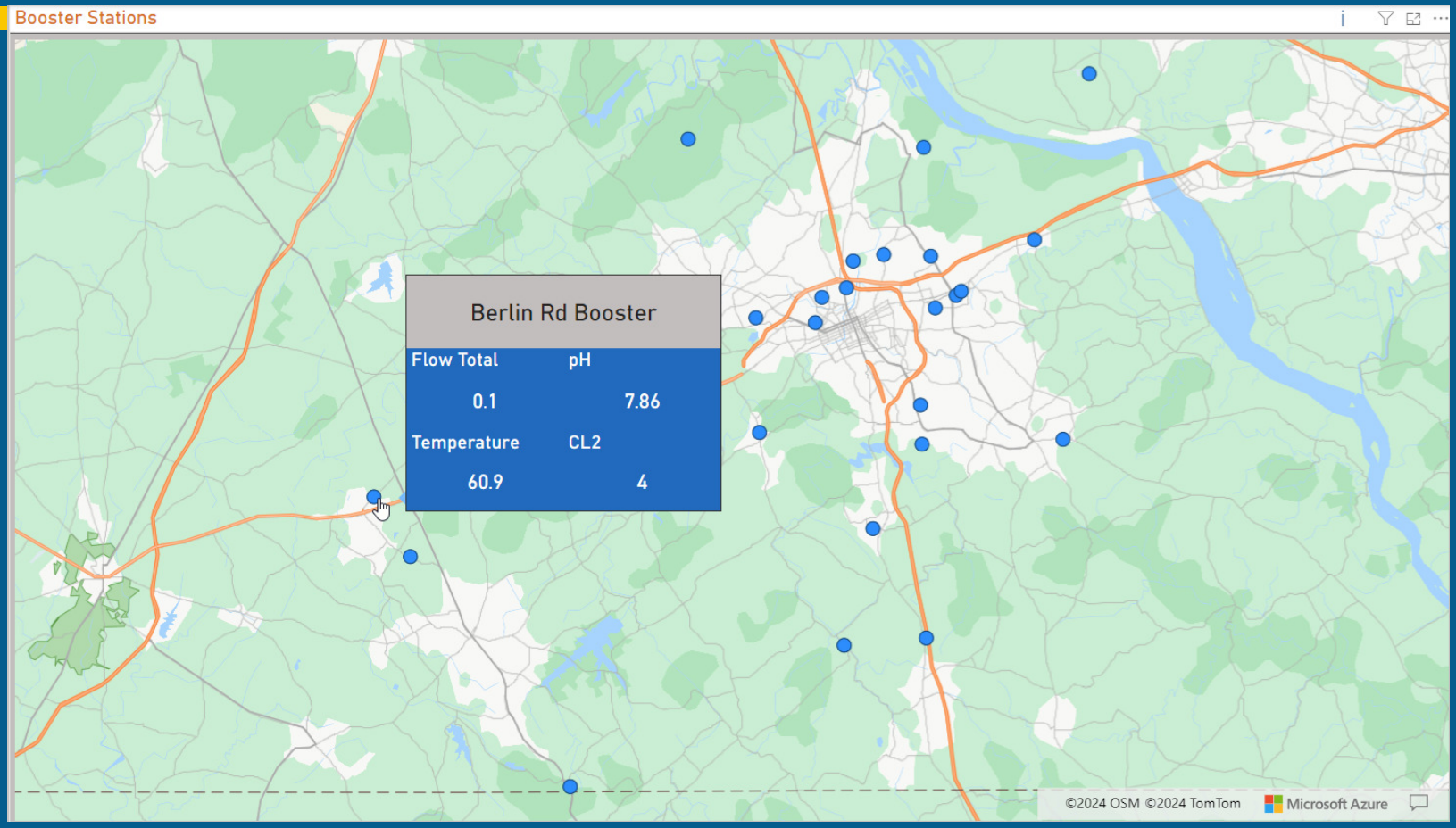
April

Day

1

31

# MAP w/ TOOLTIP POPUP



# TOOLTIP POPUP

Default


**TIP:**

Create custom popup as a report page

Report page

| 701 | |
|---|---|
| Flow Total | pH |
| 0.1 | 7.86 |
| Temperature | CL2 |
| 65 | 4 |

# THANKS!

## ANY QUESTIONS OR COMMENTS?

AQUATIC INFORMATICS
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