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Level up from Binders

Affordable & Accessible Asset & Maintenance Management for Rural

Audi Findley & Chris Sosnowski

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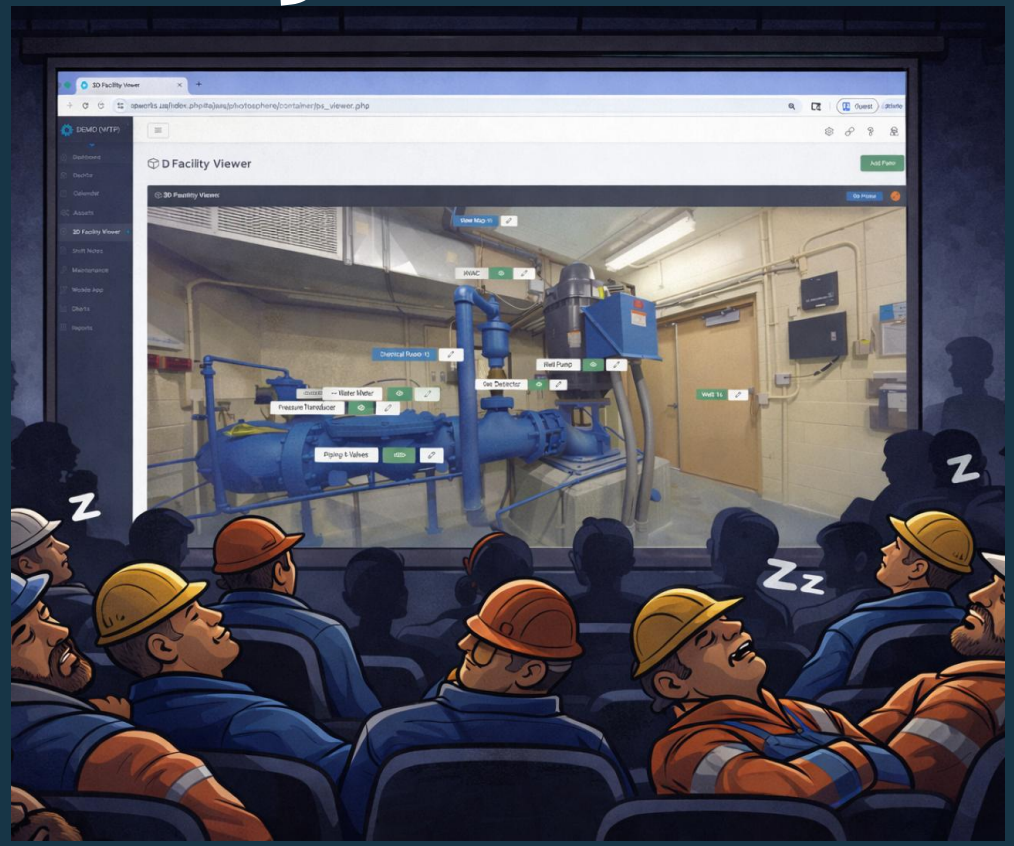
Agenda – Asset Management

- About Audi
- Why y'all should care
- Why Existing Asset Management Solutions can make us mad
- Leveled Up Asset Management
  - Good Questions to Ask a Provider
  - Good Questions to Ask Yourself
  - Have or Start an Asset Register
- Questions

Why should we care or listen today?



Why asset management and maintenance management is a doable and worthy goal for rural water in 2026

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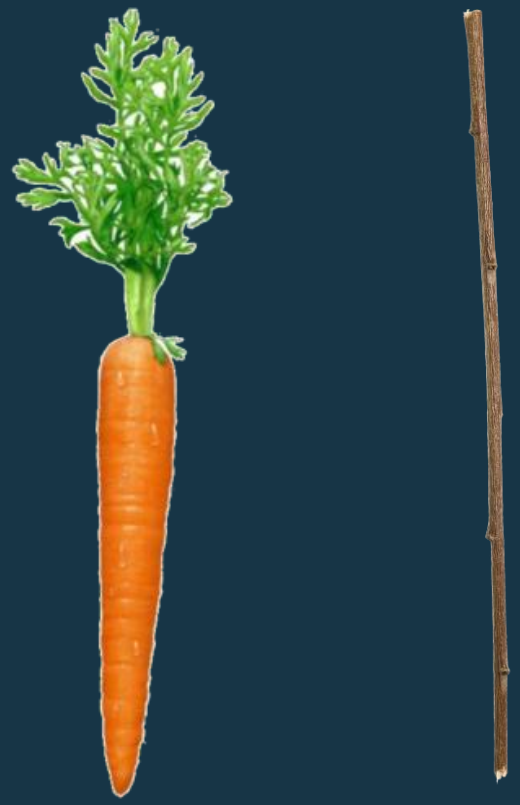
Reasons to Pay Attention today

1. We need the CEUs ☺
2. Your community can qualify for more grants and loans
3. Millions might be walking out the door when you retire…not ideal
4. Software solutions aren’t as painful or expensive as they used to be
5. Asset Stewardship is the right thing to do



Why Existing Tech Solutions make us mad

Asset management used to be a big huge project that costed too much, had terrible support, and was rarely practical.

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Why Bad Asset Software Makes us Mad

- Too many features
- Not built for water/wastewater
- Terrible or absent support
- Too expensive
- Overly complicated
- Not enough help getting started

Why Asset Consultants Make us Mad

- Pushing the “latest” hype
- Charging too much
- Pushing partners that make them money
- Not teaching us how to DIY
- Taking too long

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Why *We Ourselves* can Block Progress

- That's the way we've always done it
- Wait until *after* I retire
- The City "won't let me"
- Budget constraints
- "I'm just not a tech person"
- What are some others?

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Steps you can take

One step at a time – towards improved “binder-free” stewardship

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Questions to Ask Yourself

- Do I DIY or Hire Out…or a mix?
- Where do I find all this info?
- How do I get started?
- How much time should I dedicate?
- How do I let my city/customer know the value this will create?
- What's Next

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Questions to ask Software Vendors

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- What % of your customers are rural? How many rural customers do you have in [My State]?
- Tell me about how support works? Say I call you…
- How is your software licensed?
- How is your data backed up and what happens if I need you to restore something for me? (MTTR)
- Where is the data stored and how is it secured?
- Can you show me examples of how your software reduces risk, saves money, or helps me retire sooner? ;-)

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Starting an Asset Register (list)

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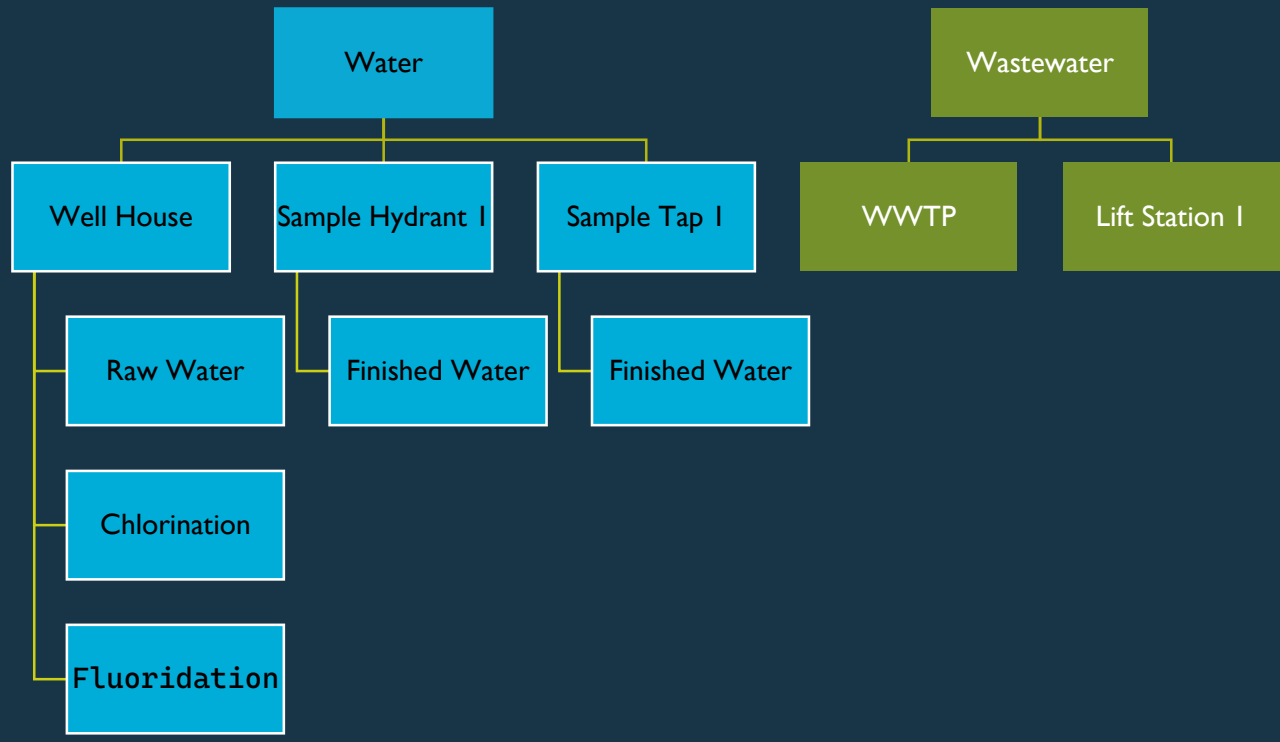
1. List your Sites in Excel/Google Sheets
2. List the Processes in the Sites
3. List the Equipment (Assets) in each Process



- Start with >$10,000 Assets
- Lower it to $5,000
- Lower it to $500
- Feeling confident, lower

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List your Sites

Name	Address	Type	Lat	Long
Well House	123 Main St.	Well	42.2323	-88.2684
Public Works	456 Somewhere Ave	General	42.2453	-88.4332
Sample Hydrant 1	555 Smith St.	Sample Site	42.7235	-88.2344
Sample Tap 1	777 Sampler St.	Sample Site	42.3456	-88.1344
Sample Tap 2	888 UCMR Ave	Sample Site	42.1234	-88.1124
WWTP	#2 Poop Way	Wastewater Treatment	41.3498	-88.0234

List Processes by Site – Samples

Site	Process Name
Well 1	Raw Pumping
Well 1	Chlorination
Well 1	Fluoridation
Sample Hydrant 1	Distribution Sampling
Sample Tap 1	Distribution Sampling
Sample Tap 2	Distribution Sampling

Site	Process Name
WWTP	Screening & Grit
WWTP	Primary Clarification
WWTP	Aeration Tanks
WWTP	Secondary Clarification
WWTP	Return Activated Sludge
WWTP	Waste Activated Sludge
WWTP	Belt Filter Press
WWTP	UV Disinfection

Then…List Assets by Process – Samples

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Process	Asset Name	Mfr	Model	S/N	HP	Date Installed	Expected Life (yrs)
Raw Pumping	Submersible Well Pump	Pearl		8PWS400G		4/1/2003	30
Raw Pumping	Motor	GE	34B		20	6/3/1998	40
Raw Pumping	Raw Meter	Badger	M2000	2348591		7/29/2022	25
Chlorination	Hypo Tank	Snyder Industries	5700100N	3495		4/2/1999	50
Chlorination	Hypo Peristaltic Pump	LMI	KML	TB-5498S-4	<1	5/9/22	20
Chlorination	Tank Level Sensor	Vega	VEGAPULS11	54987352		11/30/2007	25

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What about Maintenance?

Waterly Assets Demo

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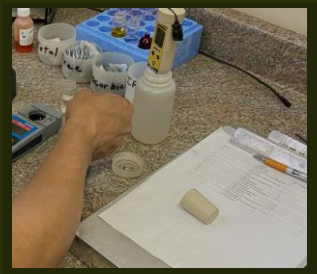
What is Waterly?

WE TAKE THIS

Paper Data Capture

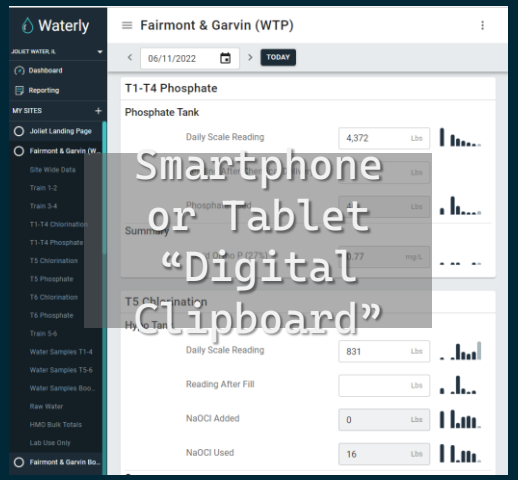
Binder-based Asset Management

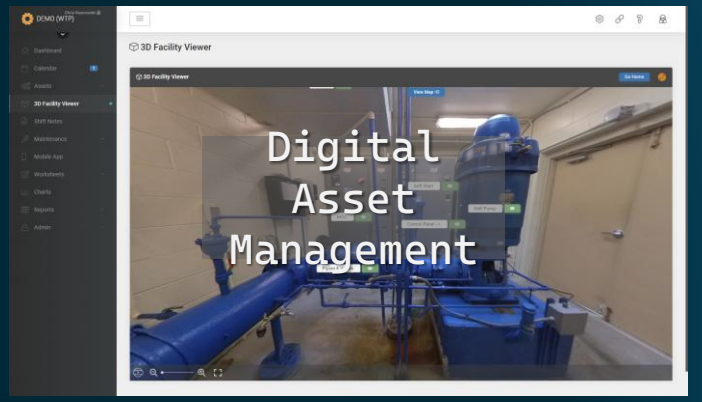
Paper Bench Sheets

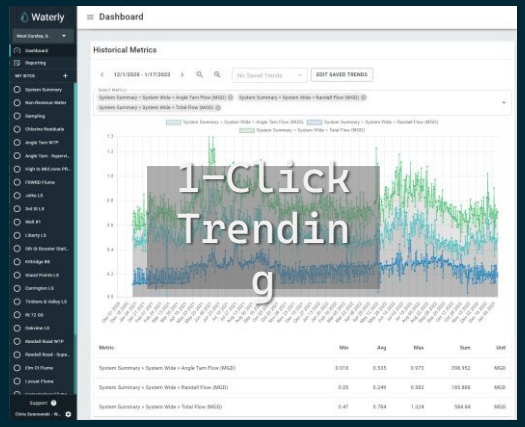


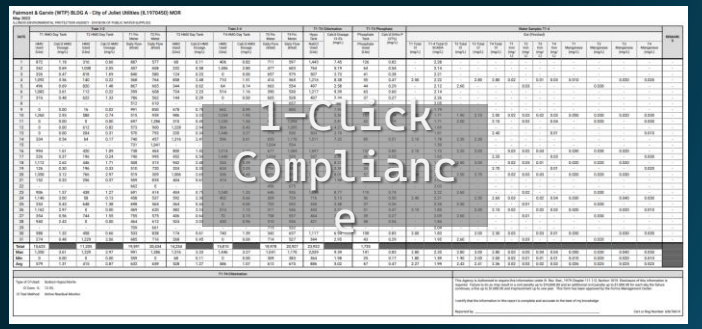
Spreadsheet Compliance Reporting

AND GET YOU TO SIMPLE & DIGITAL









Who is Waterly and why should I teach on tech & AI?

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Waterly Rounds

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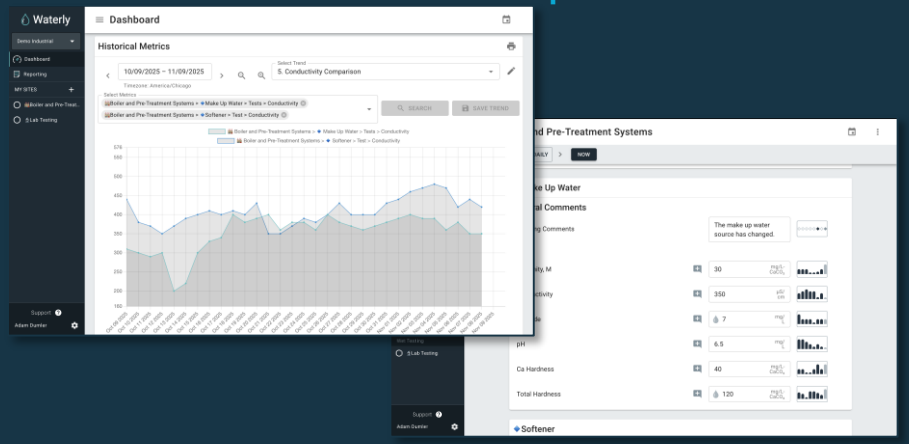
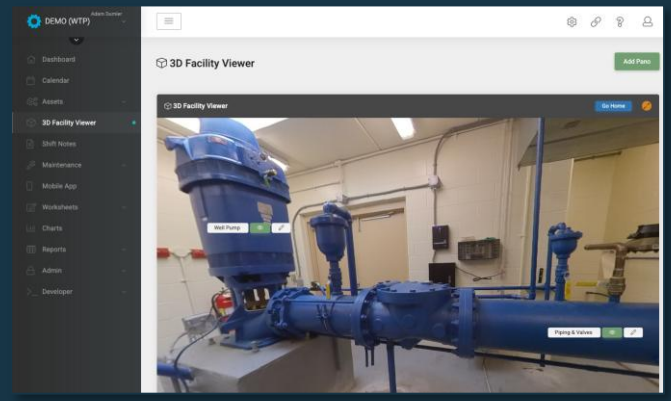


Waterly Assets

Level Up From Binders



Analytics

Adding Purpose to Data

Thank you

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Questions or Discussion?

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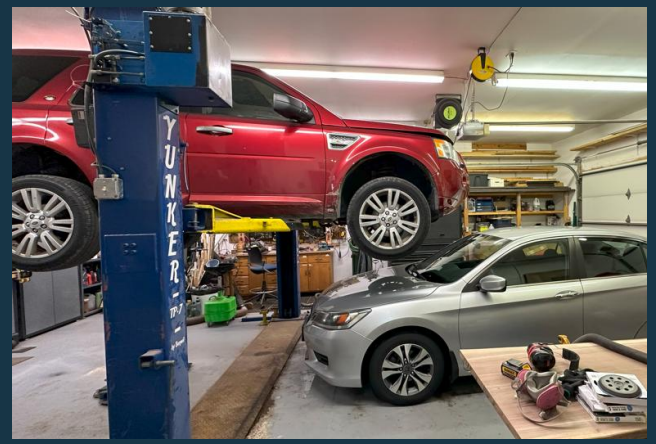

Chris's Background

- 25 Years in technology, SCADA, and Cyber Consulting & Integration
- Authored / Co-Authored over 50+ government technology roadmaps for >5 million people
- Volunteer educator for W/WW for 20+ years.
- Gear Head / Water & IT Nerd
- Waterly is my "heart project" to serve water.

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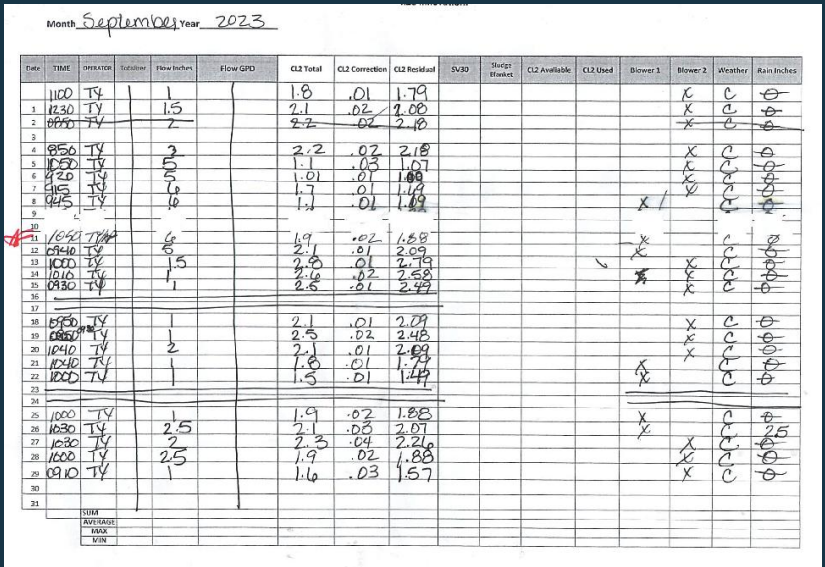
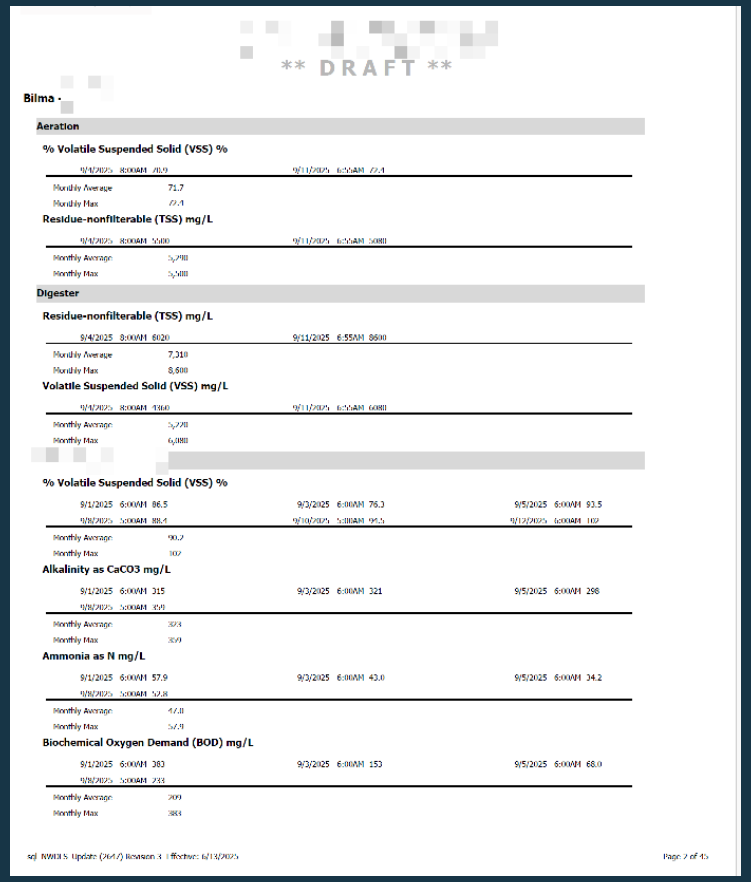
Building a Smart Operational Data Alignment Strategy

What is ODA?



Month September Year 2023

Date	TIME	OPERATOR	Totalizer	Flow Inches	Flow GPD	CL2 Total	CL2 Correction	CL2 Residual	SV30	Sludge Blanket	CL2 Available	CL2 Used	Blower 1	Blower 2	Weather	Rain Inches
	1100	TY		1		1.8	.01	1.79						X	C	0
1	1230	TY		1.5		2.1	.02	2.08						X	C	0
2	0850	TY		2		2.2	.02	2.18						X	C	0
3																
4	850	TY		3		2.2	.02	2.18						X	C	0
5	1050	TY		5		1.1	.03	1.07						X	C	0
6	930	TY		5		1.01	.01	1.00						X	C	0
7	915	TY		6		1.7	.01	1.69						X	C	0
8	945	TY		6		1.1	.01	1.09					X		C	0
9																
10																
11	1050	TY		6		1.9	.02	1.88					X		C	0
12	0940	TY		6		2.1	.01	2.09					X		C	0
13	1000	TY		1.5		2.8	.01	2.79						X	C	0
14	1010	TY		1		2.6	.02	2.58						X	C	0
15	0930	TY		1		2.5	.01	2.49						X	C	0
16																
17																
18	0950	TY		1		2.1	.01	2.09						X	C	0
19	0850	TY		1		2.5	.02	2.48						X	C	0
20	1040	TY		2		2.1	.01	2.09						X	C	0
21	1040	TY				1.8	.01	1.79					X		C	0
22	1000	TY		1		1.5	.01	1.49					X		C	0
23																
24																
25	1000	TY		1		1.9	.02	1.88					X		C	0
26	1030	TY		2.5		2.1	.03	2.07					X		C	.25
27	1030	TY		2		2.3	.04	2.26						X	C	0
28	1000	TY		2.5		1.9	.02	1.88						X	C	0
29	0910	TY		1		1.6	.03	1.57						X	C	0
30																
31																
		SUM														
		AVERAGE														
		MAX														
		MIN														



** DRAFT **

Bilma -

Aeration

% Volatile Suspended Solid (VSS) %

9/4/2025 8:00AM 70.9		9/11/2025 6:55AM 72.4	
Monthly Average	71.7		
Monthly Max	72.4		

Residue-nonfilterable (TSS) mg/L

9/4/2025 8:00AM 5000		9/11/2025 6:55AM 5080	
Monthly Average	5,700		
Monthly Max	5,900		

Digester

Residue-nonfilterable (TSS) mg/L

9/4/2025 8:00AM 6020		9/11/2025 6:55AM 8690	
Monthly Average	7,310		
Monthly Max	8,600		

Volatile Suspended Solid (VSS) mg/L

9/4/2025 8:00AM 4300		9/11/2025 6:55AM 6080	
Monthly Average	5,270		
Monthly Max	6,080		

% Volatile Suspended Solid (VSS) %

9/1/2025 6:00AM 86.5		9/3/2025 6:00AM 76.3	9/5/2025 6:00AM 83.5
9/8/2025 5:00AM 88.4		9/10/2025 5:30AM 95.5	9/12/2025 6:00AM 102
Monthly Average	90.2		
Monthly Max	102		

Alkalinity as CaCO3 mg/L

9/1/2025 6:00AM 315		9/3/2025 6:00AM 321	9/5/2025 6:00AM 298
9/8/2025 5:00AM 400			
Monthly Average	323		
Monthly Max	350		

Ammonia as N mg/L

9/1/2025 6:00AM 57.9		9/3/2025 6:00AM 43.0	9/5/2025 6:00AM 34.2
9/8/2025 5:00AM 52.8			
Monthly Average	47.8		
Monthly Max	57.9		

Biochemical Oxygen Demand (BOD) mg/L

9/1/2025 6:00AM 383		9/3/2025 6:00AM 153	9/5/2025 6:00AM 68.0
9/8/2025 5:00AM 233			
Monthly Average	209		
Monthly Max	383		

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Benefits of a Smart ODA Strategy

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- Financial – the lowest total cost of ownership over the lifetime of an asset. Justifies proper rates easier.
- Water Quality – Less risk of violation. Safer water.
- Quality of Life – Less worry about what happens if something not normal happens
- Employee Retention & Training – Leave a legacy for people that have to learn your job.

- Top Potential for ODA & AI in Water
- Leak Detection / Non-revenue water
- Aeration (DO Control) Process Optimization
- Surface Water Treatment Optimization
- Predictive Maintenance
- GenAI for Design & Construction

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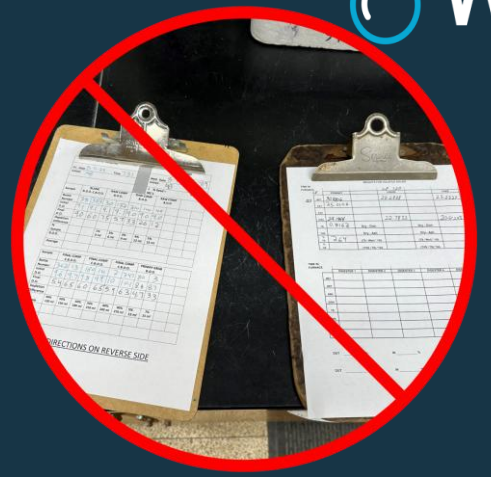
A Smart ODA Strategy

- Does not
  - Allow *native* paper deliverables in projects
  - Store paper with data on it that is not in a structured database
  - Specify PDFs as electronic deliverables
  - Generate data where spreadsheets are an output
  - Consider “export as a CSV” a strategy to connect data



A Smart ODA Strategy DOES:

- Align SCADA, Observations (Rounds), Lab, and IoT
- Ask new questions and write down the answers: who is responsible for data decisions in our utility/system? Clue, it's not IT.
- Start with a hierarchical asset-based data model of all water data
- Define Data Governance Rules: what data is authoritative?
- Learn how regulatory data aggregations are defined
- Require "native format" electronic data delivery
- Ask and learn how APIs work
- Require suppliers to provide data dictionaries of all data supplied
- Ensure all data sources utilize NTP time-synced data
- Call "Daily" things that happen in a day (midnight-11:59:59 local time)