



Taking a Tank Offline? No Sweat!

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Question?

Who took a tank
offline and returned
it to service?



Overview

1. Tank Tales
2. Step-By-Step
 - Draining
 - Offline
 - Filling
3. Lessons Learned



Tank Tales



1.5 MG and 3.0 MG Reservoirs





0.5 MG Clearwell at Plant



INTEGRITY
Aquatics
310-218-2518
WWW.INTEGRITYAQUATICS.COM



PORTABLE H₂O PRESSURE

H₂O PRESSURE

DRINKING WATER
573 764 5255



300,000 Gal. (50,000 Gal. Needed)



2.0 MG in Middle of Town

Tank Study







LANSDALE
LIFE IN MOTION



**Caveat for Buried Tanks
In the event of rain...**





WERNER





Step-By-Step

1.5 MG Standpipe

- Two Cell Carriers
- Lead Paint on Exterior
- Tight Site
- Steep Driveway
- **Inadequate System Storage**



Temporary Storage

- Nearby Tank in Pressure Zone – only 200,000 gallons
- Booster Pump Station – needed upgrades
- Additional 90,000 gallons of storage needed
 - 7 hydropneumatics tanks at 3 sites

Temporary Storage

- DEP Permitting
 - For Tank Rehab AND
 - For Temporary System
- Location of Temporary Storage
- Site Preparation and Security



Temporary Storage

- Who's Responsible?
- Who Pays For It?
- Set-up of System
- Will it work?
- Incremental Testing Without Temp. Storage
 - Operate pumps in VFD/pressure mode
 - Valve off tank and run 9 am to 3 pm
 - Valve off tank and run overnight

Draining Tank what about...

- Can tank be isolated from the distribution system?
- Can the tank be drained?
- How much silt and sediment in the bottom?
- Where is water going to go?
- If draining into stormwater or out of system, must dechlorinate water first.



January						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

February						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

March						
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12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

April						
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30						

May						
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21	22	23	24	25	26	27
28	29	30	31			

June						
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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

July						
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9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

August						
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	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

September						
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					1	2
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10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

October						
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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

November						
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5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

December						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
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17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						













DYN
SANGASTINC



Return to Service short version

1. PA DEP Permits

- Notify DEP, review what they expect
- \$50 and Certificate of Construction
- Test Results – VOCs and BacT
- They may require on-site inspection

2. Procedure

- Final cure, rub test inside
- Painter rinses tank and disinfects
 - AWWA C652, 3 methods
- Painter seals up tank, new nuts/bolts/gasket
- Owner fills tank

3. Testing

- Who does it, where are samples taken





Return to Service tips

- Don't need to dump water after chlorination and filling.
- After disinfection, may be many days or weeks out from return to service.

Water Tanks lessons learned

- Test System Prior to Draining
- Perform Dry Tank Inspection
 - Cleanout Tank
 - Check Valve Operation
 - Check System Pressures
- What Time of Year is Ideal?
- When is System Usage Down?
- Typically Don't Paint Nov. – Mar.



Water Tanks lessons learned

- Need PA DEP permit
- If you need additional storage...
 - Temporary storage is costly
 - Cold weather provisions
 - Security
 - **Ideally responsibility of the Contractor**



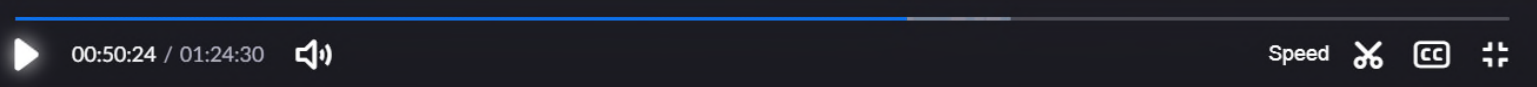
Water Tanks lessons learned

- Consider alternate operations
 - Variable Frequency Drives
 - Pressure Relief Valves on Fire Hydrants
- Consider interconnect with neighboring system
- Consider a new tank





Non-Fullscreen



Roundtable Series



Go to YouTube - search for Entech Engineering



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