Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 55313b Utility: New Port Richey WTP Tank: Elevated Date: 4/23/2021

Inspector: T. Miller Dive Controller: J. Lombardi Capacity: 500kg Dimentions: 140' H

SSPC Rating

Grade	Description - Good Condition
10	No Rusting, or <0.01% of surface is rusted
9	Minor rusting, or <0.03% of surface is
8	rusted Isolated rust, <.1% of surface is rusted

SSPC Rating

Grade	Description - Fair Condition
7	Isolated rust, <.3% of surface is rusted
6	Extensive rusting, <1% of surface is rusted
5	Approximately 3% of the surface is rusted

SSPC Rating

Grade	Description - Poor Condition
4	Approximately 10% of the surface is rusted
3	Approximately 17% of the surface is rusted
2	Approximately 33% of the surface is rusted
1	Approximately 50% of the surface is rusted
0	Approximately 100% of the surface is rusted

INTERIOR RESERVOIR ROOF

	QUADRANT 1		QUADRANT 2		QUADRANT 3		QUADRANT 4	
	SSPC Rating	Corrosion	SSPC Rating	Corrosion	SSPC Rating	Corrosion	SSPC Rating	Corrosion
Vents	N/A	------	3	Significant	N/A	------	N/A	------
Roof Panels	5	Significant	5	Significant	5	Significant	5	Significant
Roof Support	5	Significant	5	Significant	5	Significant	5	Significant

Coating Deficiencies: ☐ Blistering ☑ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Cratering ☐ Pinholes ☑ Staining ☑ Sags/Runs

Over All Coating Condition Fair Average Blister Size N/A (See diagram for locations)

Over All Structural Condition Good Current Weld Condition Good Average Pit Depth N/A (See diagram for locations)

INTERIOR RESERVOIR WALLS

	SSPC Rating	Corrosion	SSPC Rating	Corrosion	SSPC Rating	Corrosion	SSPC Rating	Corrosion
Wall to Roof Weld	7	Significant	7	Significant	7	Significant	7	Significant
Lower Ring Panels	6	Significant	6	Significant	6	Significant	6	Significant
Middle Ring Panels	6	Significant	6	Significant	6	Significant	6	Significant
Upper Ring Panels	6	Significant	6	Significant	6	Significant	6	Significant
Internal Ladder	7	Significant	N/A	------	N/A	------	N/A	------

Coating Deficiencies: ☑ Blistering ☑ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Cratering ☑ Pinholes ☑ Staining ☑ Sags/Runs

Over All Coating Condition Fair Average Blister Size 1/2" (See diagram for locations)

Over All Structural Condition Good Current Weld Condition Good Average Pit Depth N/A (See diagram for locations)

INTERIOR RESERVOIR FLOOR

	SSPC Rating	Corrosion	SSPC Rating	Corrosion	SSPC Rating	Corrosion	SSPC Rating	Corrosion
Floor / wall seam	6	Significant	6	Significant	6	Significant	6	Significant
Floor Panels	6	Significant	6	Significant	6	Significant	6	Significant

Coating Deficiencies: ☐ Blistering ☑ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Cratering ☐ Pinholes ☑ Staining ☑ Sags/Runs

Over All Coating Condition Fair Average Blister Size N/A (See diagram for locations)

Over All Structural Condition Good Current Weld Condition Good Average Pit Depth N/A (See diagram for locations)

~~INTERIOR RESERVOIR SUPPORT COLUMNS~~

	SSPC Rating	Corrosion	SSPC Rating	Corrosion	SSPC Rating	Corrosion	SSPC Rating	Corrosion
~~Column Structures~~	N/A	------	N/A	------	N/A	------	N/A	------
~~Column Bases~~	N/A	------	N/A	------	N/A	------	N/A	------
~~Column Capitals~~	N/A	------	N/A	------	N/A	------	N/A	------

Coating Deficiencies: ☐ Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Cratering ☐ Pinholes ☐ Staining ☐ Sags/Runs

Over All Coating Condition ---- Average Blister Size N/A (See diagram for locations)

Over All Structural Condition ---- Current Weld Condition ---- Average Pit Depth N/A (See diagram for locations)

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Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 55313b | Utility: New Port Richey WTP | Tank: Elevated

Inspector: T. Miller | Dive Controller: J. Lombardi | Date: 4/23/2021

INTERIOR RESERVOIR PLUMBING COMPONENTS

	QUADRANT 1		QUADRANT 2		QUADRANT 3		QUADRANT 4	
	SSPC Rating	Corrosion	SSPC Rating	Corrosion	SSPC Rating	Corrosion	SSPC Rating	Corrosion
Inlet Plumbing	7	Significant	N/A	------	N/A	------	N/A	------
Outlet Plumbing	7	Significant	N/A	------	N/A	------	N/A	------
Manways	N/A	------	N/A	------	8	Minor	N/A	------
~~Floor Drains~~	N/A	------	N/A	------	N/A	------	N/A	------
Interior Overflow	N/A	------	N/A	------	5	Significant	N/A	------
~~Other Plumbing~~	N/A	------	N/A	------	N/A	------	N/A	------

Coating Deficiencies: ☐ Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Cratering ☐ Pinholes ☑ Staining ☑ Sags/Runs

Over All Coating Condition Fair | Average Blister Size N/A | (See diagram for locations)

Over All Structural Condition Good | Current Weld Condition Good | Average Pit Depth N/A | (See diagram for locations)

EXTERIOR RESERVOIR ROOF

	SSPC Rating	Corrosion	SSPC Rating	Corrosion	SSPC Rating	Corrosion	SSPC Rating	Corrosion
Vents	N/A	------	5	Significant	N/A	------	N/A	------
Roof Panels	6	Significant	6	Significant	6	Significant	6	Significant
Access Hatches	7	Significant	N/A	------	N/A	------	N/A	------

Coating Deficiencies: ☐ Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Cratering ☐ Pinholes ☑ Staining ☐ Sags/Runs

Over All Coating Condition Fair | Average Blister Size N/A | (See diagram for locations)

Over All Structural Condition Good | Current Weld Condition Good | Average Pit Depth N/A | (See diagram for locations)

EXTERIOR RESERVOIR WALLS

	SSPC Rating	Corrosion	SSPC Rating	Corrosion	SSPC Rating	Corrosion	SSPC Rating	Corrosion
Wall to Roof Weld	6	Significant	6	Significant	6	Significant	6	Significant
Lower Ring Panels	6	Significant	6	Significant	6	Significant	6	Significant
Mid Ring Panels	6	Significant	6	Significant	6	Significant	6	Significant
Upper Ring Panels	6	Significant	6	Significant	6	Significant	6	Significant
Exterior Overflow	N/A	------	N/A	------	N/A	------	N/A	------

Coating Deficiencies: ☐ Blistering ☑ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Cratering ☐ Pinholes ☑ Staining ☐ Sags/Runs

Over All Coating Condition Fair | Average Blister Size N/A | (See diagram for locations)

Over All Structural Condition Fair | Current Weld Condition Good | Average Pit Depth N/A | (See diagram for locations)

FOOTINGS / FOUNDATION

Foundation Type: ☑ Concrete Pad ☐ Concrete Pier ☐ Concrete Cradle

Foundation Condition: Good ☐ Cracking ☐ Spalling ☐ Exposed Rebar Other

Anchor Bolts: #: 30 ☐ Chairs ☑ Jam Nuts ☐ Welded Other

Anchor Bolt Condition: Fair ☐ Loose ☐ Deformity ☑ Corrosion Other

TOWER SUPPORT STRUCTURES

Riser Pipe: Circumference: 15' 10" ☐ Misaligned ☐ Leaking ☐ Corrosion Other

Tower Legs / Columns: #: 6 ☐ Misaligned ☐ Settling ☐ Corrosion Other

~~Leg Shoes / Brackets:~~ ☐ Loose ☐ Deformity ☐ Corrosion Other

Rods & Turnbuckles: 36 ☐ Loose ☐ Deformity ☐ Corrosion Other

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Potable Water Reservoir Contamination, Health and Safety Report (Primary)

Job Number: 55313b | Utility: New Port Richey WTP | Tank: Elevated

Inspector: T. Miller | Dive Controller: J. Lombardi | Date: 4/23/2021

FACILITY SAFETY & HEALTH

Primary Air Vent	Type: Mushroom	Screen : Good	Pressure Vacuum / Frost Proof: No		
~~**Exterior Overflow**~~	Flapper: ----	Screen: ----	Gasket: ----	Condition: ----	
Cathodic Protection	System Installed: Yes	**Cathodic Access Covers**	#: 13	Properly Sealed: Yes	
Water Level Indicatior	Type: Electronic	Condition: Good	**Pennetration Points**	Properly Sealed: Yes	
Heater System	Installed: No	Type: ------			
1st Access Hatch	Type: Square	Size: 31"xs31"	in. (24" - 24" x 15" min)	Properly Sealed: Yes	
Hatch Height: 8"	in. (min 4")	Lid Height: 2"	in (min 2")	Properly Secured: Yes	
~~**2nd Access Hatch**~~	Type: ------	Size: N/A	in. (24" - 24" x 15" min)	Properly Sealed: ----	
Hatch Height: N/A	in. (min 4")	Lid Height: N/A	in (min 2")	Properly Secured: ----	

Primary Manway						
Locations	Wall:	Leg:	Roof:	Riser Pipe: Q3	Other:	
Type and Size	Type: Oval	Size: 20"x26"	in (24" - 18"x22")			
Support Structure	Type: Dogged	Condition: Good				
WT Integrity	Leaks: No	Condition: Good				
Primary Exterior Ladder						
Location	Wall:	Leg:	Roof:	Riser Pipe: Q4	Other:	
Overall Ladder	Condition: Good	Height: 140'	Offset Landing: Yes			
Vandal Guard	Present: Yes	Locked: Yes				
Ladder Rails & Rungs	Condition: Fair	Anti-Skid Rungs: No	Missing/Damaged Rungs: No			
Rung Spacing & Depth	Spacing: 12"	in. (max 12")	Toe Depth: 8"	in. (min 7")		
Rail Spacing & Size	Width: 2"	in. (min 2")	Thickness: 1/4"	in. (min 1/4")	Rail to Rail: 16"	in. (min 16")
Safety Climb System	Type: Rail	Condition: Good				
Primary Balcony & Railing						
Location	On Roof: Q1-Q4	Around Bowl:	At Interior Landing:	Other:		
Deck / Walkways	Condition: Good	Width: 220"	in. (min 24")			
Top Rails	Condition: Good	Height: 40"	in. (min 42" +/- 3")	Swing Gate Present: No		
Mid Rails	Condition: Good	Height: 20"	in. (half the distance between top rail and floor)			
Toe Boards	Condition: ----	Height: N/A	in. (min 4")			

Roof Integrity:	Holes: No	Cracking: No	Standing Water: No	Other:		
Wall Integrity:	Holes: No	Cracking: No	Leaks: No	Other:		
Safety Tie-Off Points	Type: Structural		#: 10	Condition: Good		
Antennas	Type: Transmitting / Receiving		#: 5	Location(s): Roof: x	Bowl:	Leg: Other:
Water Clarity	General Appearance: Fair		Odor: None	Surface Debris: None		
~~**Hypalon Floating Cover**~~	Condition: ----		Holes: ----	Tears: ----		
Grounding System	Present: No					

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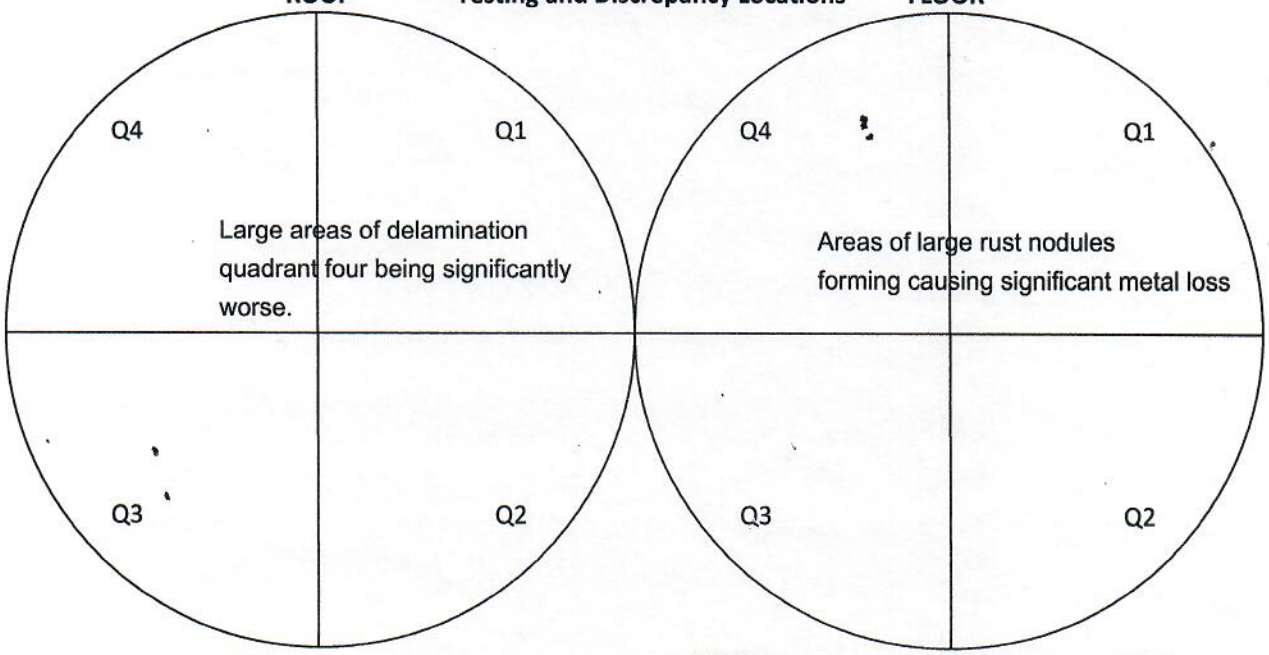
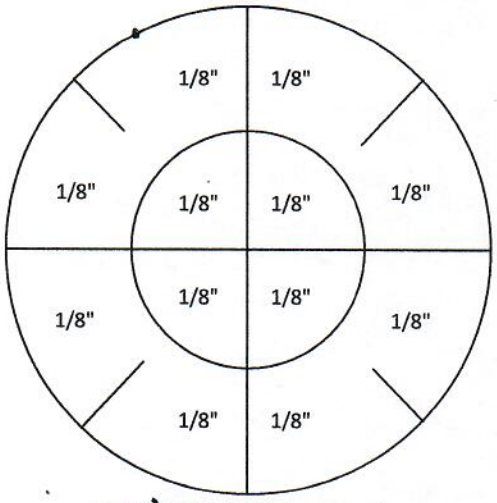
Circular Tank Diagram / Information Worksheet

Job Number 55313b Utility Name New Port Richey WTP Tank Name Elevated

Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
Areas of sags and runs along with rust nodules forming below the water level.			

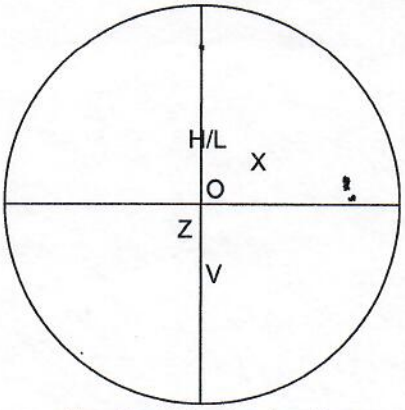
ROOF **Testing and Discrepancy Locations** **FLOOR**





Sediment Depth Measurements

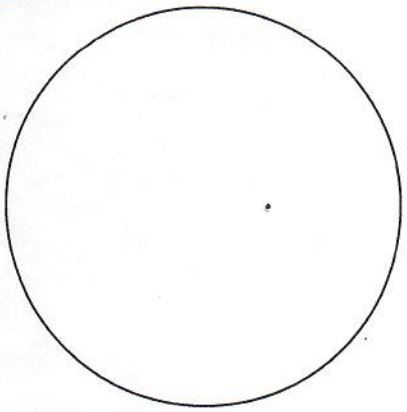
Average Sediment Depth = The sum of all measurements taken, divided by the number of measurements taken



Plumbing & Structure location

Plumbing and structure codes

O=Outlet X=Inlet Z=Manway
V=Vent D=Drain S=Sump
L=Ladder H=Hatch P=Overflow
F=Float Level Indicator
T=Telemetry



Column Placement

Type of Column

Base Structure

Top Structure

Column Construction ------

Avg. Depth 1/8" **Cubic Yardage** N/A **Sediment Type** Iron manganese

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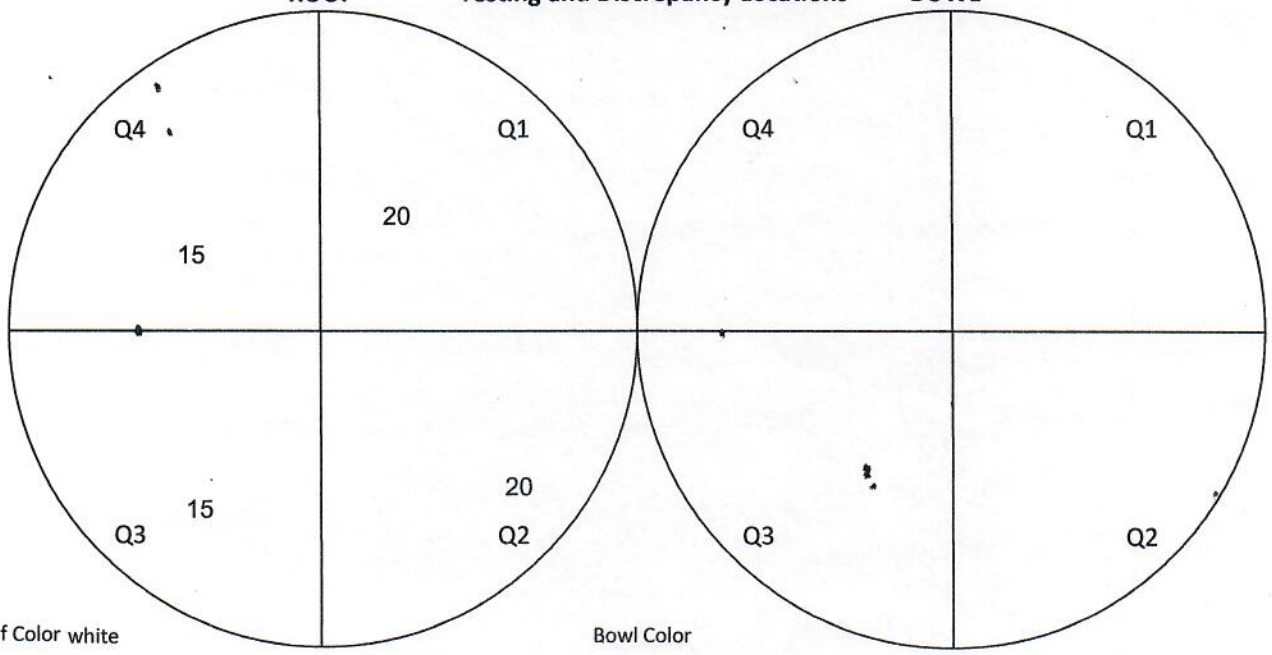
Circular Tank Diagram / NDT ☑ DFT ☑ Coating Adhesion ☐ Presence of lead ☐

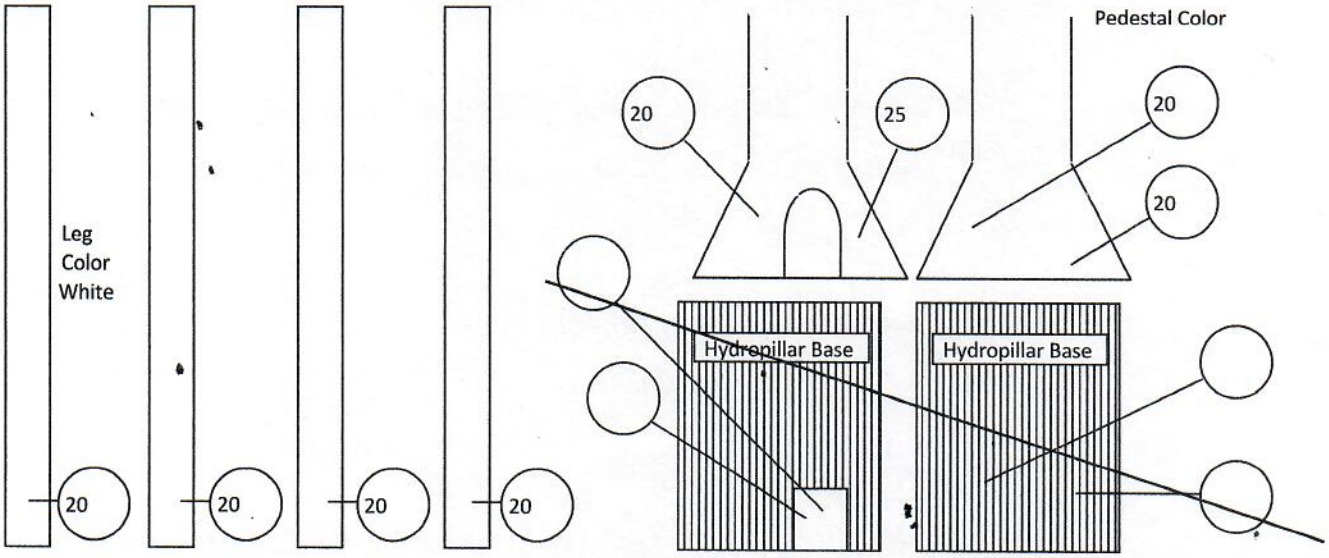
Job Number 55313b Utility Name New Port Richey WTP Tank Name Elevated

Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
	Coating Color white		

ROOF **Testing and Discrepancy Locations** **BOWL**



Roof Color white Bowl Color



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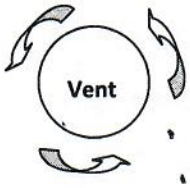
Potable Water Reservoir Security / Measurement Worksheet

Job Number 55313b Utility Name New Port Richey WTP Tank Name Elevated

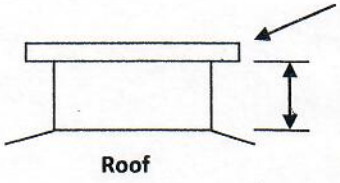
Security

Is the area surrounding the tank well lit?	No
Is the tank surrounded by a Security Fence?	Yes
Are the access gates locked?	Yes
Is the tank equipped with a Vandal Guard on the primary access ladder?	Yes
If so, is the Vandal Guard locked?	Yes
Are the access roads in good repair?	Yes
Are all of the hatches equipped with electronic monitoring devices?	No
Are the external plumbing components housed in a secure vault or out-building?	Yes
Does the surrounding geography of the tank obscure it from public view?	No
Does the exterior of the tank show signs of trespass?	N/A

Measurements

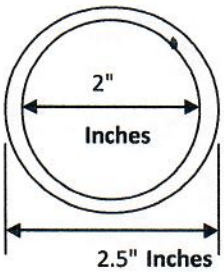


Outside Circumference
52" Inches

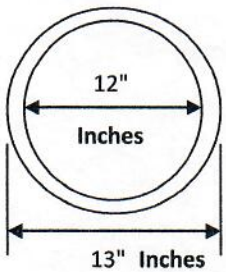


Flange Metal Thickness	N/A	**Inches**
Roof to Screen or Flange	8.5	**Inches**
Flange	No	
Number of Bolt Holes	N/A	
Size of Bolts	N/A	**Inches**

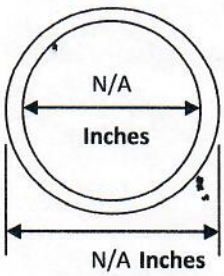
Inlet



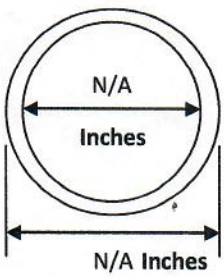
Outlet



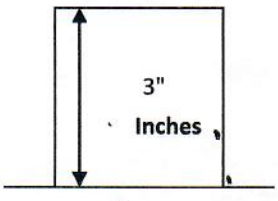
Drain



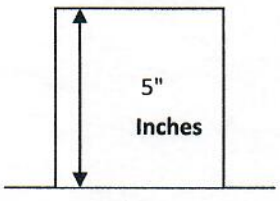
Overflow

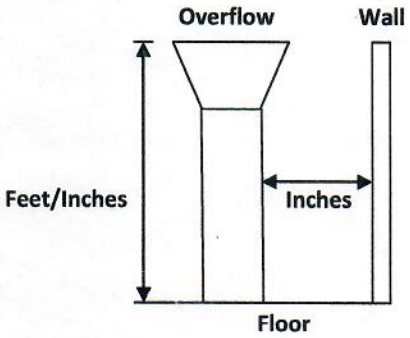


Inlet Riser



Outlet Riser





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Potable Water Reservoir Immediate Needs Assessment

Job Number: 55313b | Utility: New Port Richey WTP | Tank: Elevated

Inspector: T. Miller | Dive Controller: J. Lombardi | Date: 4/23/2021

1. Health and Safety Items

- ☐ Safety Climb System Installation: No action needed
- ☐ Vent Screen Repairs: No action needed

2. Testing Items

- ☐ Dye Testing for Leak Evaluation: No action needed

3. Repair Items

- ☐ Epoxy Coating Repairs: No action needed
- ☐ Temporary Leak Repairs: No action needed
- ☐ Float Operated Level Indicator Repairs / Maintenance: No action needed
- ☐ Hypalon Repairs: No action needed

4. Security Related Items *(Critical security upgrade information is immediately available)*

- ☐ Tank vents are not equipped with a security vent shroud: No action needed
- ☐ Tank hatches are not equipped with a security hatch locking device: No action needed
- ☐ Tank perimeter not adequately secured: No action needed

The above mentioned additional work is considered immediately necessary and is recommended to be completed. Some items may be completed in conjunction with work currently being performed while the crew is on site.

Reservoir Inspection Condition Supplemental

Below are the notable discrepancies for the: "Elevated" Reservoir.

The reservoir was in overall good condition we removed an estimated (1/8") of sediment.
Hatch- Has delamination on the inside surface, but is able to be locked properly from the outside of the reservoir,
Vent- Is in working order however there is delamination on the inside surface.
Floor- Consisted of areas of rust nodules that have caused significant metal loss.
Walls- Have heavy staining along with rust nodules forming in all four quadrants.
Roof - The roof has areas of delamination along with uniform surface corrosion both inside and outside
Overflow-Has delamination on both the top and bottom edges.
Manway- The gasket material appeared intact and no leaking was observed from the outside of the reservoir.
Inlet- Is free from obstruction with the weld seams intact however it has rust nodules and sags and runs in the coating.
Outlet- Consisted of heavy staining along with rust nodule formations beginning to form.
Tower legs- Have substantial amounts of intergranular corrosion on the anchor bolts. Causing large amounts of metal loss.

Liquid Engineering Corporation highly recommends a blast and re coat. Then repairing the corroded anchor bolts. Thank you for your business.