

Pittsburg Tank & Tower Maintenance Co., Inc.®

PAINT•REPAIR•DISMANTLE•INSPECT

TANKS RAISED, LOWERED AND MOVED • NEW AND PREOWNED TANKS

P.O. Box 1849 • Henderson, KY 42419-0913 • TEL (270) 826-9000 • FAX (270) 827-4417

<http://www.watertank.com>

E-mail: sales@watertank.com



**Veterans Administration
2121 N. Avenue
Grand Junction, CO 81501
RE: Boiler House
100,000 Gallon E.W.T.
May 17, 2013
Doyle Payne,
Assistant Chief Engineering Service
(970) 242-0731 ext. 2099
Job No. 313195**

If you would like to speak with Patrick Heltsley concerning this report, call (270) 826-9000, Ext. 253.
For additional copies of this report call (270) 826-9000 Ext. 253.



Veterans Administration
RE: Boiler House
100,000 Gallon E.W.T.

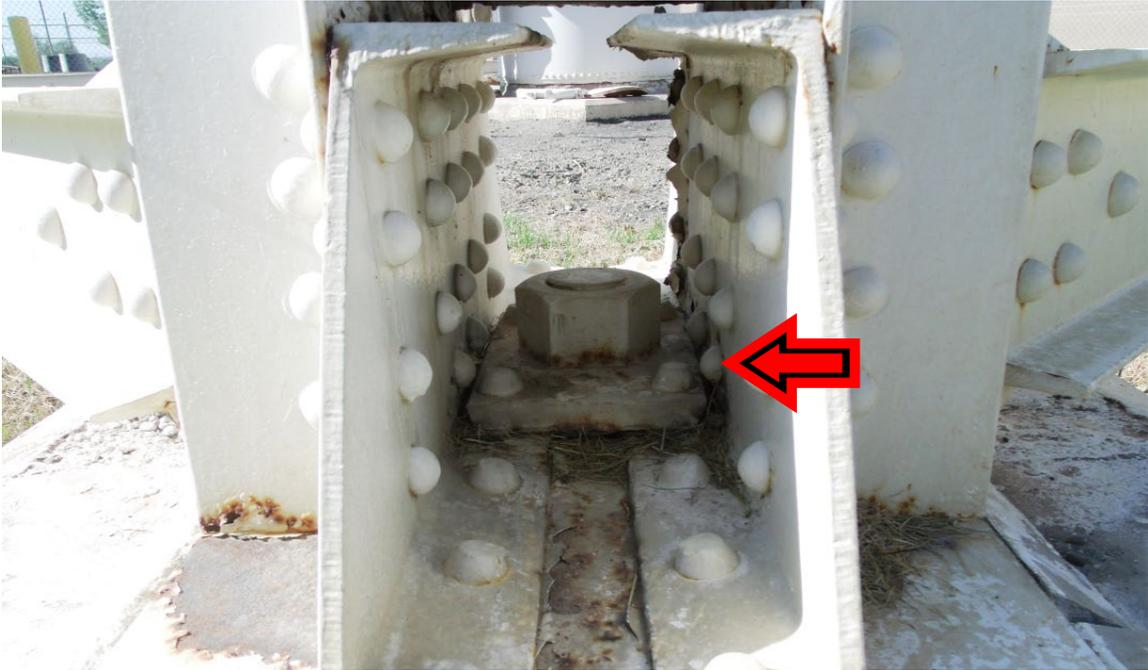


Photo shows the condition of the foundations. We recommend removing all dirt, debris and loose gravel from the foundation, repairing any cracks and spalling in the concrete with a commercial non-shrinking grout and sealing the foundation with a sealant.

We also recommend the tank be electrically grounded for lightning protection as required by [OSH Act 29 CFR 1926, Subpart K](#).



Veterans Administration RE: Boiler House 100,000 Gallon E.W.T.



Photos show the condition of the anchor bolts. The structural integrity of the anchor bolts should be maintained to withstand 100 m.p.h. winds blowing from any direction as required by [AWWA D100-11; 3.8: Foundation bolts](#). We recommend cleaning the area around the anchor bolts, then welding around the circumference of the bolt-to-nut and nut-to-base plate connections to reinforce.



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Photo shows the base of the riser pipe. Currently there is no riser drain valve. A drain valve performs two functions it allows the tank to be drained and it is used as a blowout to remove silt and scale from the lower portion of the tank. We recommend installing a frost proof drain valve, complete with locking device to prevent unauthorized draining of the tank and a splash pad to direct water away from the foundation.



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Photo shows the tank name plate. We recommend removing the name plate, cleaning the face of the plate, cleaning and repainting the area behind the plate, and remounting it.



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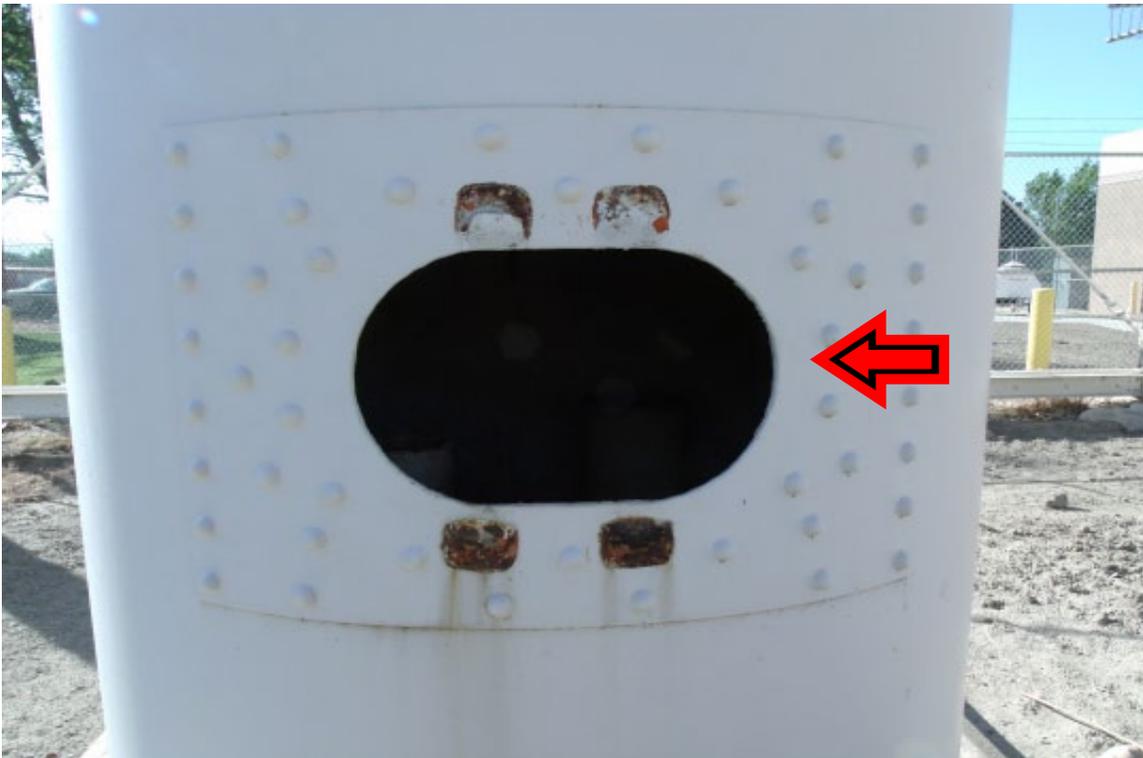


Photo shows the condition of the riser manway. This manway would restrict entry in an emergency. We recommend replacing the existing riser manway with an **AWWA D100-11: 5.4.4** approved 24" manway, complete with a davit arm, a **Confined Space Entry** sign and maintenance free galvanized steel bolts.



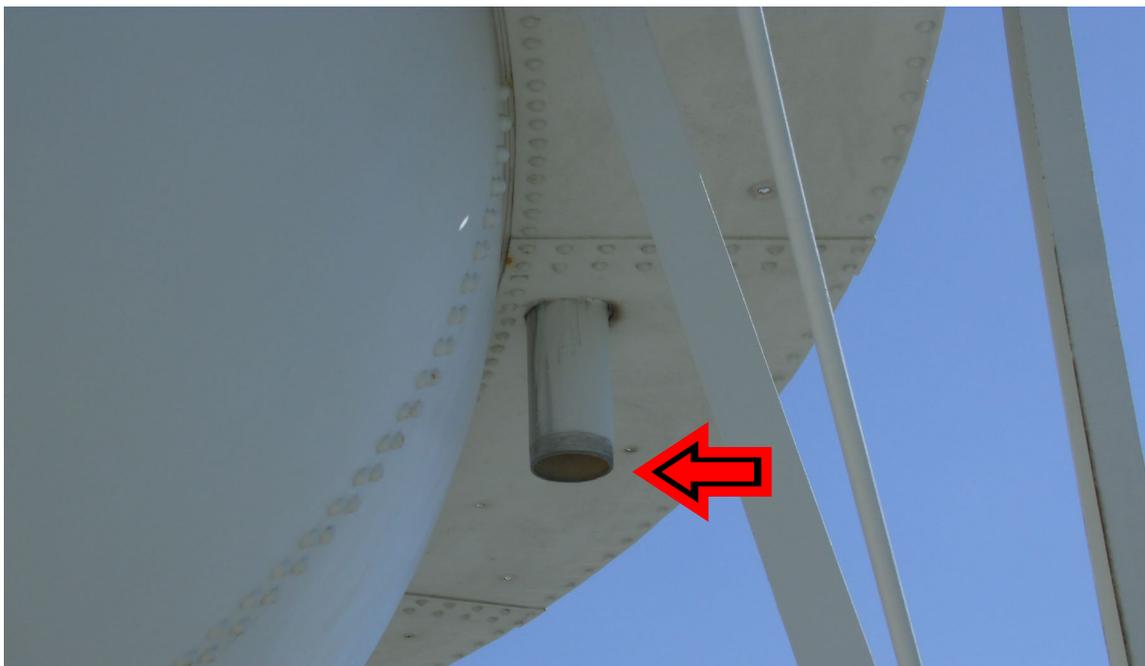
**Veterans Administration
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Photo shows the inlet and outlet pipes in the base of the riser pipe. We recommend installing a protective plate over the outlet pipe, supported over the pipe by three 1/2" x 1" standoffs 12" long. This will prevent silt from falling into the pipe from the tank bowl.



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Photos show the condition of the stub overflow pipe which exits beneath the catwalk. The overflow pipe is not equipped with a flapper valve and screen. We recommend extending the overflow down the exterior to grade with 6" pipe, complete with standoffs every 12' on center, installing an elbow at the base fitted with a flapper valve and screen to prevent the ingress of contaminants into the water supply and a splash pad to direct water away from the foundations.



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Photos show the tower access ladder is equipped with anti-skid rungs but is 13" wide. **OSHA 19.27 Ladders** states; "Minimum clear distance between the sides of individual rung/step ladders and between the side rails of other fixed ladders must be 16 inches (41 cm)." We recommend installing an approved tower access ladder complete with standoffs every 12' on center, a cable type ladder safety device, a new lockable ladder guard to prevent unauthorized access and posting a **Fall Protection Required** sign.



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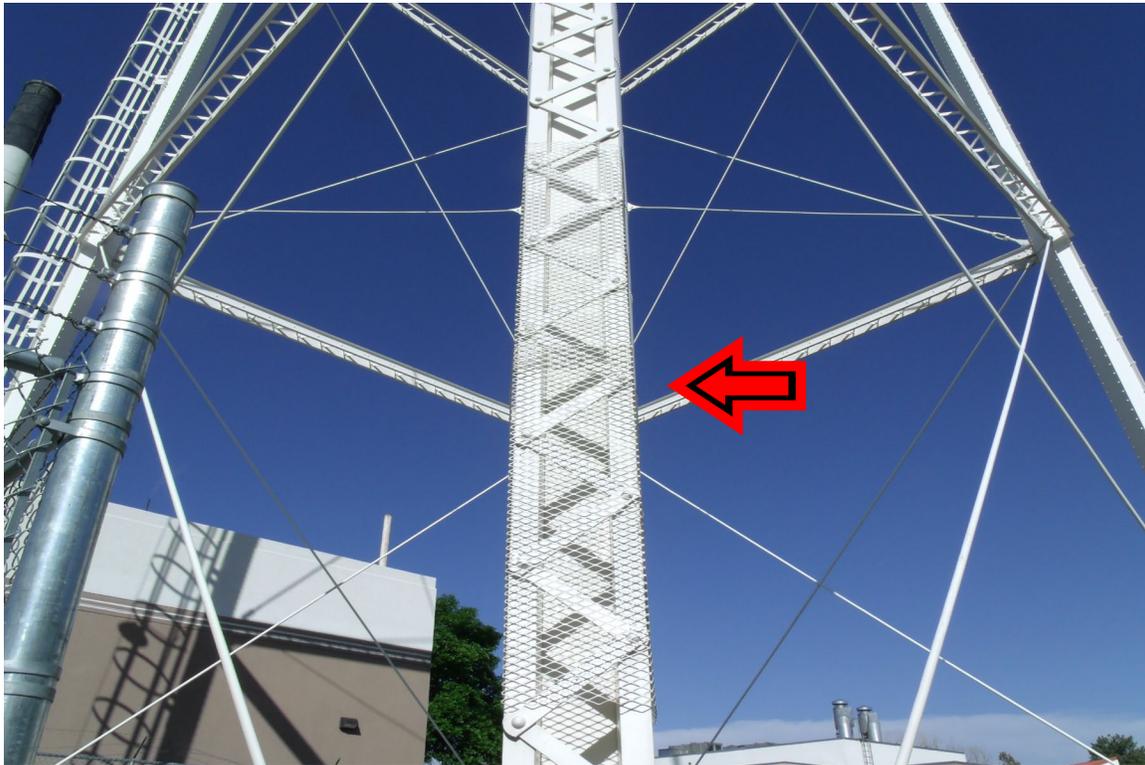
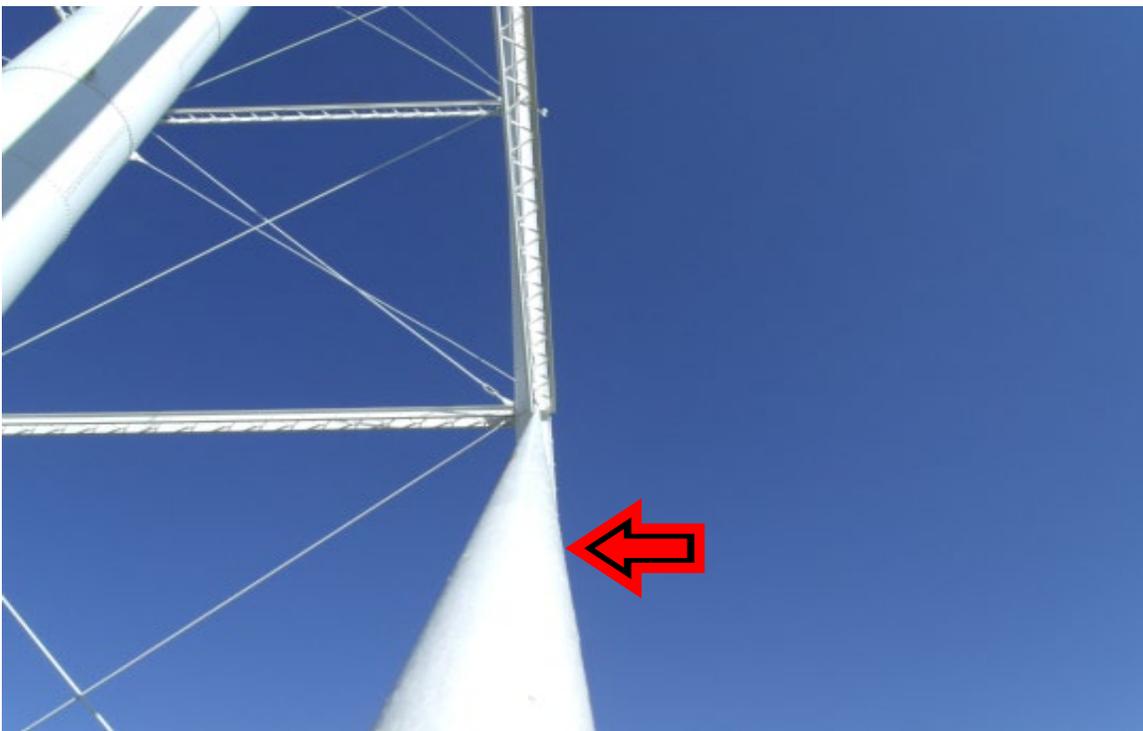
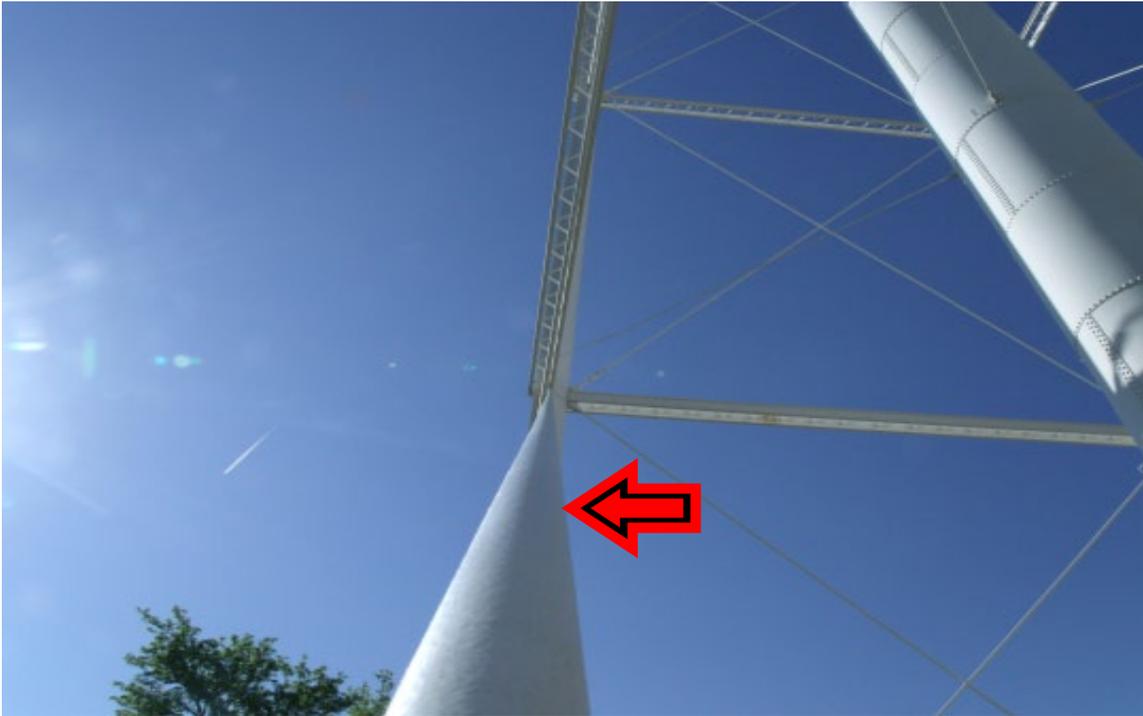


Photo shows the lattice leg climbing guards which appear to be in good condition.



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Photos show the condition of the windage rods. The windage rods are in tune and appear to be properly adjusted.



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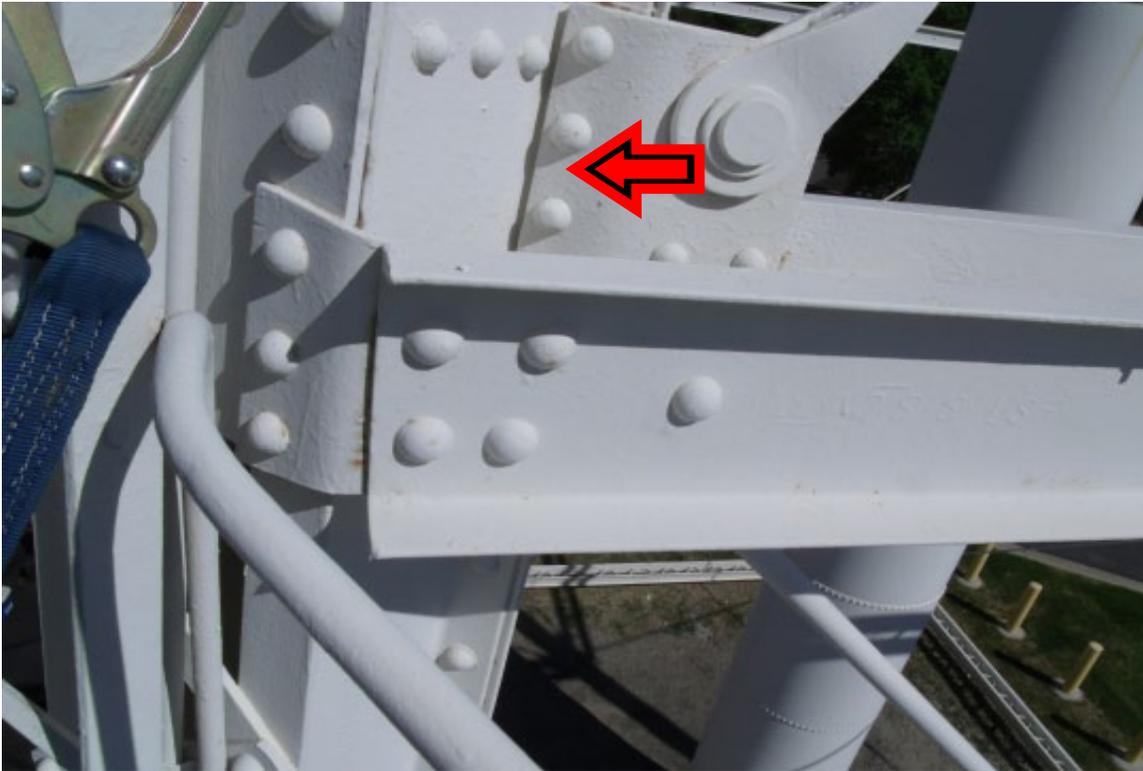


Photo shows the strut end connections, which appear to be in good condition.



**Veterans Administration
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Photo shows the riser pipe and bowl connection which appears to be in good condition.



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Photos show the condition of the existing handrail system. The handrail is only 36" high, not equipped with an intermediate rail and not in compliance with **OSHA 29 CFR 1910.23(e)(1)**. We recommend raising the existing handrail system to the required 42", installing an intermediate rail, cutting out a section of the handrail at the junction of the tower access ladder and structural girder, the width of the tower access ladder + 4" on each side and installing the necessary bracing to keep railing at design strength, complete with a stainless steel chain gate at the opening in the handrail at the junction of the tower access ladder and structural girder.



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Photos show the condition of the balcony floor. The arrows are pointing to show where water is ponding, causing deterioration of the paint and steel. We recommend drilling additional weep holes in the balcony floor to prevent ponding of water.



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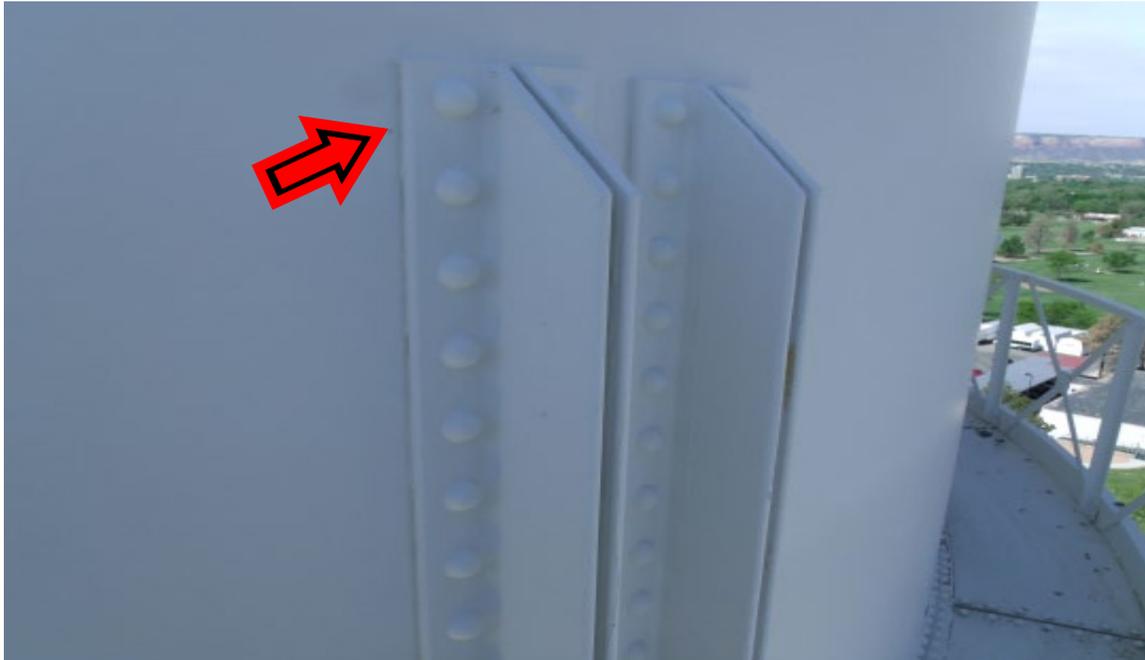
Photo shows the condition of the tank shell. Shell manways installed on this tank will be in compliance with **AWWA D100-11; 7.4.4** and **OSHA 1910.36**; General requirements.

We recommend :

- Install a 30" shell manway
- Install a 30" second shell manway 180° from primary shell manway
- Post **Confined Space Entry** signs at shell manways
- Install interior bowl ladders at shell manways
- Install cable type ladder safety devices on interior bowl ladders



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Photos show the condition of the posthead connections. The postheads secure the column legs to the tank shell and support the tank's live and dead load. We recommend welding the circumference of the posthead-to-shell connection for reinforcement.



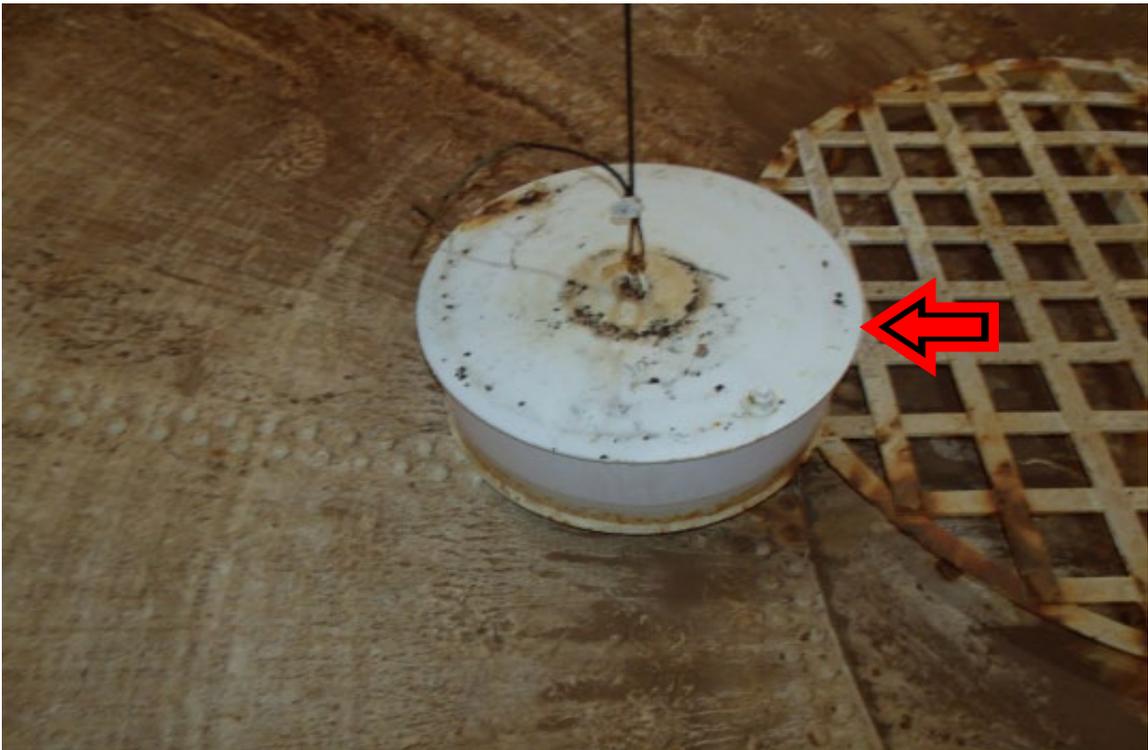
**Veterans Administration
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Photos show bird feathers on the tank catwalk. We recommend applying a commercial bird repellent on the tank to discourage birds from roosting in the treated area.



**Veterans Administration
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Photos show the condition of the liquid level indicator. We recommend cleaning and lubricating all moving parts on the liquid level indicator for preventative maintenance then adjust and calibrate the unit.



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The photos show the shell/roof access ladder is equipped with anti-skid rungs but is only 13" wide, and is a roll-a-round type. **OSHA 19.27 Ladders** states; "Minimum clear distance between the sides of individual rung/step ladders and between the side rails of other fixed ladders must be 16 inches (41 cm)." We recommend installing an approved shell/roof ladder complete with standoffs every 12' on center and a cable type ladder safety device.



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Photo shows the condition of the 27" x 19" roof manway. Roof openings on this tank require the following to be in compliance with [OSHA 29 CFR 1910.23\(a\)\(1\)](#) and [AWWA D100-11; 5.4.3.1 roof openings](#).

We recommend:

- Replace existing roof manway with a 30" manway with a 4" curb and a 2" overlap cover
- Post a **Confined Space Entry** sign on roof manway
- Install handrails around all roof openings

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Photos show the condition of the existing roof vent. The vent is of an inadequate size and not compliant with [AWWA D-100; 5.5 vent](#). **An improperly vented tank may cause external pressure to act on the tank which can cause buckling even at low pressure differential.** We recommend replacing the existing roof vent with a vacuum/pressure, frost proof vent and screen.

We recommend repairing or removing the obstruction light system.



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Photos show the tank exterior coating system which appears to be in good condition.



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Photos show the interior access ladder is equipped with anti-skid rungs but is only 13" wide. (Also notice the bent rungs) [OSHA 19.27 Ladders](#) states; "Minimum clear distance between the sides of individual rung/step ladders and between the side rails of other fixed ladders must be 16 inches (41 cm)." We recommend installing an approved interior access ladder complete with standoffs every 12' on center and a cable type ladder safety device.



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Photos show the tank interior after the clean out procedure.

We recommend installing a passive cathodic protection system on the interior of the tank.



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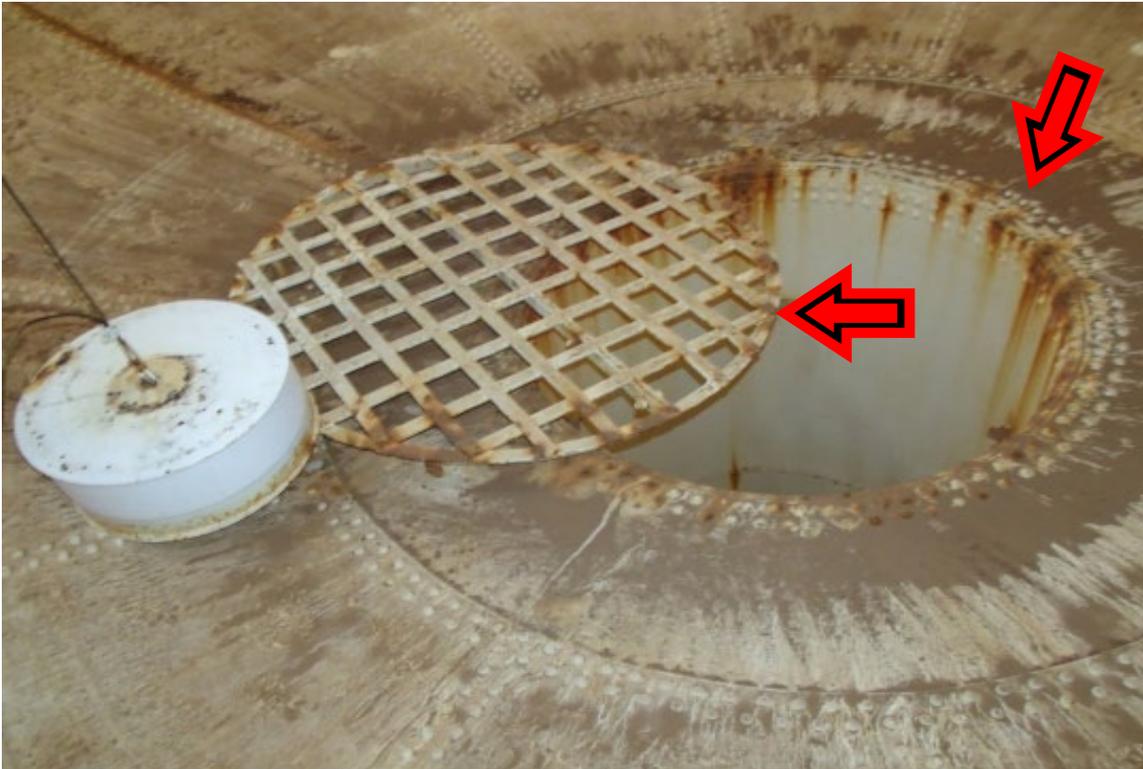


Photo shows the condition of the riser pipe opening. The riser opening is equipped with a safety grating in accordance with [AWWA D100-11;.5.1.1 Safety grill](#) and [OSHA 29 CFR 1910.23\(a\)\(1\)](#), which appears to be in good condition.



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Photos show the condition of the interior liner. We recommend sandblasting the tank interior to an SSPC #10 (near white blast) condition, stripe coating all seams and welds, then applying an epoxy liner to achieve 8-10 mils of dry film thickness.

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ELEVATED TANK INSPECTION REPORT

JOB NO: 313195 INSPECTOR: David Gross (JF)

TANK OWNER: Veterans Administration

OWNER'S REPRESENTATIVE: Doyle Payne TITLE: Asst. Chief Engineering Service

E-MAIL ADDRESS: wesley.payne@va.gov

MAILING ADDRESS: 2121 N. Avenue

PHYSICAL ADDRESS: 2121 N. Avenue

CITY/STATE: Grand Junction, CO ZIP: 81501

COUNTY TANK IS LOCATED IN: Mesa CELL: (970) 260-5362

TELEPHONE: (970) 242-0731 ext. 2099 FAX: (970) 256-8917

LOCATION OF TANK: Boiler House

**Veterans Administration
2121 N. Avenue
Grand Junction, CO 81501
May 17, 2013
Doyle Payne,
Assistant Chief Engineering Service
(970) 242-0731 ext. 2099**

ORIGINAL CONTRACT NO: 48940 YEAR BUILT: 1948

ORIGINAL MANUFACTURER: CBI CAPACITY: 100,000 Gallon

DATE OF LAST INSPECTION: unknown TYPE: Potable

DIAMETER: 28'-6" HIGH WATER LEVEL: 153'-0"

LOW WATER LVL: 125'-0" HEAD RANGE: 25'-0"

TYPE CONSTRUCTION: WELDED: RIVETED: X BOLTED:

ACCOUNT EXECUTIVE: Patrick Heltsley, M. Hoffman



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ELEVATED WATER STORAGE TANK CODE UPDATES

Item Deficiency Not-Applicable Codes as Applicable

Lightning Protection	X		NFPA 780-2011 OSHA Act 29 CFR 1926, Subpart K
Riser Manway	X		AWWA D100-11; 5.4.4
Manway Davit(s)		X	AWWA D100-11; 5.4.4
Confined Space Entry Signs	X		TSS Sec. 7 7.0.12 Safety OSHA 1910. Confined spaces
Tower Access Ladder	X		AWWA D100-11; 5.4.2.4 OSHA 1926.1053(a)
Safety Climb Devices	X		AWWA D100-11; 5.4.1 OSHA 29.CFR 1926.502
Standoffs on 12' Centers	X		AWWA D100-11; 5.4.1 OSHA 29.CFR
Structural Girder Handrails	X		AWWA D100-11; 5.4.2.5 OSHA 29 CFR 1910.23(a)(1)
Safety Chain in Handrail Opening		X	AWWA D100-11; 5.4.4.2.5 OSHA 29.CFR 1910.23(a)(1)
Screen on Overflow	X		AWWA D100-11; 5.3
Vent	X		AWWA D100-11; 5.5
Roof Manway	X		AWWA D100-11; 5.4.3
Interior Shell Ladders	X		AWWA D100-11; 5.4.2.6 OSHA 1926.1053(a)
Handrails Around Roof Openings	X		AWWA D100-11; 5.4.1 OSHA 29.CFR 1910.23(a)(1)
Safety Grating Over Riser		X	AWWA D100-11; 5.1.1 OSHA 29.CFR 1910.146, 1910.23(a)(1)



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RECOMMENDATIONS

NUMBERS REFER TO PAGE NUMBERS

2. Repair any cracks and spalling in the concrete with a commercial non-shrinking grout and seal the foundations with a sealant

Electrically ground the tank for lightning protection
3. Clean the area around the anchor bolts, then weld around the circumference of the bolt-to-nut and nut-to-base plate connections to reinforce
4. Install a frost proof drain valve, complete with a locking device and a splash pad
5. Remove the name plate, clean the face of the plate, clean and repaint the area behind the plate, and remount it
6. Replace the existing riser manway with an, approved 24" manway, complete with a davit arm, a **Confined Space Entry** sign and maintenance free galvanized steel bolts
7. Install a protective plate over the outlet pipe located in the riser
8. Extend the overflow down the exterior to grade, complete with stand-offs every 12' on center, install an elbow, a flapper valve with a screen and a splash pad
9. Install an approved, anti-skid rung equipped, tower access ladder complete with stand-offs every 12' on center
Install a cable type ladder safety climb device
Install an aluminum lockable ladder guard to prevent unauthorized access
Post a **Fall Protection Required** sign
14. Raise the existing handrail system to the required 42", install an intermediate rail, cut out a section of the handrail at the junction of the tower access ladder and catwalk, the width of the tower access ladder + 4" on each side, and install the necessary bracing to keep railing at design strength, complete with a stainless steel chain gate



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RECOMMENDATIONS

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15. Drill additional weep holes in balcony floor
16. Install a 30" shell manway
Install a 30" second shell manway 180° from primary shell manway
Post **Confined Space Entry** signs at shell manways
Install interior bowl ladders at shell manways
Install cable type ladder safety devices on interior bowl ladders
17. Weld the circumference of the posthead-to-shell connections
18. Apply a commercial bird repellent on the tank to discourage birds from roosting in the treated area
19. Clean and lubricate all moving parts on the liquid level indicator then adjust and calibrate the unit
20. Install an approved, anti-skid rung equipped, shell/roof access ladder complete with standoffs every 12' on center
Install a cable type ladder safety climb device
21. Replace existing roof manway with a 30" manway with a 4" curb and a 2" overlap cover
Post a **Confined Space Entry** sign on roof manway
Install handrails around all roof openings
22. Replace the existing roof vent with a vacuum/pressure vent and screen
Repair or remove the obstruction light system
24. Install an approved, anti-skid rung equipped, interior access ladder complete with standoffs every 12' on center
Install a cable type ladder safety climb device
25. Install a passive cathodic protection system on the interior of the tank



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RECOMMENDATIONS

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27. INTERIOR COATING SYSTEM: Sandblast all rusted and abraded areas of the tank interior to SSPC #10 (near white blast) condition, brushblast all remaining areas, stripe coat all seams and welds, then apply an epoxy liner to achieve 8-10 mils dry film thickness

Pittsburg Tank & Tower can perform all work recommended in this report.

BASED ON THE NUMBER OF ITEMS ACCEPTED, PRICES MAY VARY.

All prices are in USD

If union labor or prevailing wage is required please advise

For additional copies of this inspection report call (270) 826-9000, Ext. 253.

The inspection report and comments reflect the general condition of the tank. However, we can not guarantee that additional deficiencies may not become apparent during the cleaning, repair or paint process of the tank.

This tank may not be consistent with seismic zone requirements for this type of structure in this zone. Consideration should be given to performing a structural analysis to determine if any changes are needed to meet design requirements.

The handling, removal and/or disposal of hazardous or contaminated materials such as asbestos, lead, chemical or any like substance that requires special handling is not included in the price submitted for work herein. Paint prices do not include logo, lead abatement or containment.



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Lead Test	Interior	Exterior
	Negative	Negative
Adhesion Test		
Exterior	A5 @ 5.1 mils	
Interior	A4 @ 6.3 mils	

Mil-T Paint Thickness Test

Roof	12.3	5.8	4.7	10.5		Bowl	13.2	14.0	10.9	14.7	
	4.5	3.9	4.4	6.1			6.3	14.9	12.9	15.5	
	3.7	4.7	3.7	3.7			14.6	9.8	12.3	14.8	
Course											
Shell 2	12.9	6.3	10.4	8.3	4.5	7.6	7.4	5.1			
Shell 1	9.0	7.0	12.4	4.8	14.9	5.2	10.9	4.9			
Columns	1			2			3			4	
	11.3			7.5			12.5			3.5	
	7.4	9.8		4.7	6.8		3.3	9.0		5.3	5.3
Riser	3.1										
	5.1	3.9	4.2								

Ultrasonic Metal Thickness Test

Roof	0.271	0.269	0.275	0.297	Bowl	0.320	0.316	0.313	0.332	Riser	0.250		
	0.270	0.266	0.267	0.259		0.323	0.312	0.301	0.326		0.249	0.254	0.252
	0.260	0.259	0.272	0.274		0.319	0.324	0.308	0.330				
Course													
Shell 2	0.240	0.246	0.244	0.238	0.256	0.242	0.251	.21\45					
Shell 1	0.314	0.307	0.310	0.319	0.313	0.316	0.305	0.307					
Columns	1			2			3			4			
	0.404			0.441			0.398			0.406			
	0.369	0.401		0.369	0.404		0.328	0.406		0.373	0.406		