**ATMOSPHERIC (GRAVITY) STORAGE TANK CHECKLIST**

12VAC5-590-1080 and 1081

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| Project Name: |  |  |  |
| PE name |  | Date: |  |

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| **General Information** | |
| Description of tank:  Design, construction, and materials specified in accordance with applicable AWWA standards?1 | Yes  No |
| Tank Dimensions: |  |
| Nominal volume | gallons |
| Effective volume (see Permit Manual section 9.9.3) | gallons |
| Tank Elevations:  overflow elevation  effective storage elevation  normal high level  minimum operating level  tank bottom elevation | ft ASL        ft ASL        ft ASL        ft ASL        ft ASL |
| **Location (12VAC5-590-1080 C)** |  |
| Bottom above finished grade?  If "no", is the tank bottom above the groundwater table?  If "no", are sewers, drains, standing water, and similar sources of contamination kept at least 50 feet from storage facility?  If “no”, pipe conforming to water distribution pipe standards of 12 VAC 5-590-1110 pressure tested in place without leakage, used for gravity sewers less than 50 feet? | Yes  No  Yes  No  N/A  Yes  No  N/A  Yes  No  N/A |
| Area surrounding a ground level structure is graded to prevent surface water from standing within 50 feet of the structure? | Yes  No  N/A |
| Top of tank not less than two feet above normal ground surface? | Yes  No |
| Top of tank above the 100 year flood level? | Yes  No |
| Recommended: All weather access road provided to the tank site | Yes  No |
| **Water Level and Controls (12VAC5-590-1080 D and E)** |  |
| The maximum variation between normal operational high and low water levels in finished water storage structures which float on a distribution system does not exceed 30 feet? | Yes  No |
| Adequate controls provided to enable sufficient tank turnover, water quality maintenance, avoidance of overflows and efficient operations? | Yes  No |
| A telemetry system with recording capability has been considered? 4 | Yes  No |
| Altitude valves or equivalent controls provided? | Yes  No |
| For tanks with a monitoring system, overflow, low level, and pump malfunction warnings or alarms provided? | Yes  No  N/A |
| Project reviewed for compliance with 12VAC5-590-725 Automated monitoring and control systems and/or compatibility with existing system? | Yes  No  N/A |
| Describe controls and telemetry: |  |
| **Protection (12VAC5-590-1081 A)** |  |
| Suitable watertight roofs or covers that exclude birds, animals and insects? (24 mesh screens on vents and overflows) | Yes  No |
| Designed to prevent vandalism and entrance by animals or unauthorized persons? | Yes  No  N/A |

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| **Designed to facilitate turnover of water? (12VAC5-590-1081 B)** | Yes  No |
| Consideration given to locating inlet and outlet pipes at different elevations and locations, tank mixers, and other acceptable means to avoid stagnation? | Yes  No |
| Excessive storage avoided 3 | Yes  No |
| Is tank mixing/aeration system provided? If yes, complete separate review sheet. | Yes  No |
| **Drain - Provided? (12VAC5-590-1081 C)** | Yes  No |
| Separate drain which discharges to atmosphere and does not cause a cross connection? | Yes  No |
| Drainage of storage structure in NOT through inlet or outlet piping to the distribution system? | Yes  No |
| Recommended: Screened or capped at outlet3? | Yes  No |
| Recommended: Erosion protection at point of discharge? Diverted away from tank? | Yes  No |
| **Overflow - Provided? (12VAC5-590-1081 D)** | Yes  No |
| Downward discharging near the ground? | Yes  No |
| Outlet high enough above ground surface to prevent entrance of surface water? | Yes  No |
| Not connected directly to sewer or storm drain? | Yes  No |
| Erosion protection at point of discharge? Diverted away from tank? | Yes  No |
| Properly designed flapper valve, rubber flex-type valve or screen? | Yes  No  N/A |
| **Inlet and Discharge Pipes – Provided? (12VAC5-590-1081 E)** | Yes  No |
| Elevated tanks with riser pipes over eight inches in diameter have protective bars over the riser opening inside the tank? | Yes  No  N/A |
| Inlet and outlet pipes are located in a manner that will prevent the flow of sediment into the distribution system | Yes  No |
| **Access Manhole(s) to Interior - Provided? (12VAC5-590-1081 F)** | Yes  No |
| Convenient access to interior for cleaning and maintenance? | Yes  No |
| Ladders, ladder guards, balcony railings, and safely located entrance hatches provided? | Yes  No  N/A |
| Every catwalk over finished water has a solid floor with raised edges so designed that shoe scrapings and dirt will not fall into the water? | Yes  No  N/A |
| Manholes or scuttles above the waterline:  Framed at least 4 inches above surface of the roof, preferably 6 inches?  For ground level structures, manholes are elevated 24-36 inches above the top or finished grade?  Watertight cover overlaps framed opening and extends vertically down around the frame at least two inches (shoe-box type)?  Hinged at one side?  Locking device is provided? | Yes  No  N/A  Yes  No  N/A  Yes  No  N/A  Yes  No  N/A  Yes  No  N/A |
| **Vent - Provided? (12VAC5-590-1081 G)** | Yes  No |
| Not open construction between the side wall and roof (prohibited) | Yes  No |
| Separate from overflow and other connections? | Yes  No |
| Designed to prevent the entrance of surface water? | Yes  No |
| Designed and screened to prevent the entrance of animals, birds, and insects? (24 mesh screen) | Yes  No |
| Screens are:  Constructed of non-corrodible material?  Frost-free or capable of relieving pressure or vacuum in the event of frosting or clogging? | Yes  No  Yes  No |
| On a ground level structure:  Vent terminates in an inverted U construction?  The opening is 24 – 36 inches above the roof or finished grade? | Yes  No  N/A  Yes  No  N/A |

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| **Penetrations through roof and sidewall (12VAC5-590-1081 H)** |  |
| Pipes running through roof or sidewall:  In metal tanks - welded, properly gasketed?  In concrete tanks: connected to standard wall castings that were placed during the forming of a concrete structure; with flanges imbedded in the concrete? | Yes  No  N/A  Yes  No  N/A |
| Valves and controls located outside the storage structure so that valve stems and similar projections will not pass through the roof or top of the structure? | Yes  No |
| Downspout pipes for roof drainage do not enter or pass through the structure? | Yes  No |
| **Paints, Coatings and Cathodic Protection (12VAC5-590-1081 L)** |  |
| Metal surfaces are protected by paints, coatings or cathodic protection or both?  Interior paints/coatings specified (describe):  Do interior paints/coatings meet NSF/ANSI/Can Standard 61-2020, AWWA Standards D102-17, D104-17 and D106-20, or an approved equivalent, where applicable? | Yes  No  Yes  No  Yes  No |
| Cathodic protection provided?  If yes, describe. | Yes  No |
| **Cleaning and disinfection (12VAC5-590-1081 M and N)** | |
| Cleaning required prior to disinfection? | Yes  No |
| Only potable water used for cleaning and rinsing? | Yes  No |
| All equipment including brooms, brushes, spray equipment, and worker’s boots disinfected before they are used to clean the storage facility? | Yes  No |
| Finished water storage facility disinfection to be completed in accordance with AWWA C652-19? | Yes  No |
| Disinfection is to be repeated until it is determined, by bacteriological testing, that the water is free of coliform bacteria? | Yes  No |
| **Freeze Protection** |  |
| All finished water storage structures and their appurtenances, especially the riser pipes, overflows, and vents are designed to prevent freezing? | Yes  No |

1. See AWWA Standards: D100-11 Welded Carbon Steel Tanks, D103-19 Bolted Carbon Steel Tanks, D107-16 Composite Elevated Tanks, D-108-19 Aluminum Dome Roofs for Water Storage Facilities, D110-13 Circular Prestressed Concrete Water Tanks, D-115-20 Tendon Prestressed Concrete Tanks, D-120-19 Thermosetting Fiberglass-Reinforced Plastic Tanks, D121-12 Bolted Fiberglass-Reinforced Plastic Panel-Type Tanks. Specifications are to reference either AWWA Standard or manufacturer’s installation procedures.
2. Recommended or “should”.
3. Typically, a goal of complete water turnover in 3 to 5 days is recommended, but this must be determined on a case-by-case basis.
4. If telemetry provided, also recommend mechanical level indicators (pressure gauge or float level indicator).