

**CLEAN AIR ACT (CAA) § 112(r)(7)
&
EMERGENCY PLANNING, COMMUNITY RIGHT-TO-KNOW ACT
(EPCRA) § 312
INSPECTION REPORT**

Whitlock Water Treatment Plant

Facility Name and Address: Whitlock Water Treatment Plant 1920 West 11th Street Pueblo, Colorado 81003 Contact/Telephone: (719) 584-0277 Mailing Address: 319 W. Fourth St. Pueblo, Colorado 81003	Date of Inspection: 6/21/2023 RMP EPA ID #: 1000 0007 5651 • Program Level: 2 • Covered Substances: ○ Chlorine ○ Anhydrous Ammonia TRIFID #: NA NAICS: 22131 # Employees at this location: 39
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INTRODUCTION

This report presents the observations of the CAA section 112(r)(7) and EPCRA section 312 inspection conducted by EPA Region 8. The purpose of this inspection was to determine compliance with the Risk Management Plan (RMP) requirements of CAA section 112(r)(7) and the Tier II reporting requirements of EPCRA section 312.

Whitlock Water Treatment Plant (WWTP) uses, handles, and/or stores more than a threshold quantity of both Chlorine and Anhydrous Ammonia. Chlorine and Anhydrous Ammonia are regulated, as specified at 40 C.F.R. §§ 68.115 and 68.130.

CAA 112(r)(7) Program Elements Reviewed:

1. Applicability [68.10]
2. OCA/ACS [68.20 – 68.42]
3. Process Safety information [68.48]
4. Hazard Review [68.50]
5. Operating procedures [68.52]
6. Training [68.54]
7. Maintenance [68.56]
8. Compliance audits [68.58]
9. Incident investigation [68.60]
10. Emergency Response [68.90 – 68.96]
11. Risk Management Plan [68.150 – 68.195]

Nature of Business:

WWTP uses both chlorine and anhydrous ammonia to disinfect water for the city of Pueblo, Colorado.

OBSERVATIONS

CAA § 112(r)(7) (RMP):

1. Requirement found at Safety Information [40 CFR 68.48(a)(4)]: The Safety information shall contain equipment specifications.

- *Equipment specifications were not available for WWTP's six ammonia pressure vessels*
- *ASME U-1 forms, or U-1A forms, are generally used to document equipment specifications for pressure vessels*
- *However, neither U-1 forms, nor U-1A forms, were available*
- *WWTP should obtain the U1 forms, U-1A forms, or similar Manufacturer Data Reports. The following sources might be able to provide the forms/reports:*
 - *The installing contractor(s)*
 - *The manufacturer(s)*
 - *The Jurisdiction or Building Department*
 - *The engineering firm that designed WWTP's ammonia system*
 - *WWTP's insurance carrier*
 - *The National Board of Boiler and Pressure Vessel Inspectors*
 - *Previous owners of WWTP, if applicable.*

2. Requirement found at Safety Information [40 CFR 68.48(a)(5)]: The Safety Information shall contain codes and standards used to design, build, and operate the process.

- *WWTP's list of codes-and-standards-employed does not include:*
 - *ASME Boiler and Pressure Vessel Code*
- *WWTP should become familiar with this code, and then add it to their list of codes-and-standards-used.*

3. Requirement found at Safety Information [40 CFR 68.48(b)]: The owner or operator shall document that the process is designed in compliance with recognized and generally accepted good engineering practices (RAGAGEP).

- *WWTP has not adequately documented that the design of their six ammonia pressure vessels complies with RAGAGEP*
- *ASME U-1 forms, or U-1A forms, are generally used to document that pressure-vessel design complies with RAGAGEP*
- *ASME forms such as U1, U-1A, etc. are also required by the ASME Boiler and Pressure Vessel Code*

- However, neither U-1 forms, nor U-1A forms, were available
- WWTP should obtain the U1 forms, U-1A forms, or similar Manufacturer Data Reports. The following sources might be able to provide the forms/reports:
 - The installing contractor(s)
 - The manufacturer(s)
 - The Jurisdiction or Building Department
 - The engineering firm that designed WWTP's ammonia system
 - WWTP's insurance carrier
 - The National Board of Boiler and Pressure Vessel Inspectors
 - Previous owners of WWTP, if applicable.

4. Requirement found at Safety Information [40 CFR 68.48(b)]: The owner or operator shall document that the process is designed in compliance with recognized and generally accepted good engineering practices (RAGAGEP).

- Raw water at WWTP is first treated with chlorine. Then, the chlorine-treated water is secondarily treated with ammonia. The secondary treatment occurs in one of WWTP's 2 ammonia treatment trains.
- Treatment Train A (TTA) was built in the 1990's. Treatment Train B (TTB) was built in 2002. Both trains are located within buildings.
- There are 4 ammonia pressure vessels in TTA, and 2 ammonia pressure vessels in TTB.
- The pressure relief valves (PRV's) in the TTA building terminate within the building, although a portion of the building's walls contain heavy-gauge steel screens. These screens were designed to help dissipate any ammonia that might be released into the building. Unlike the PRV's in the TTA building, the PRV's in the TTB building terminate above the roof of the building
- When asked what codes and standards WWTP uses to design, build, and operate their ammonia processes, an employee answered that CGA G-2.1 and K61.1 were used
- However, these codes disallow the termination of ammonia PRV's within a building
- Sections 5.8.3 and 6.3.1 of CGA G-2.1-2014, Requirements for the Storage and Handling of Anhydrous Ammonia and Sections 5.8.3 and 6.3.1.2 of ANSI K61.1-1999, American National Standard Safety Standard for the Storage and Handling of Anhydrous Ammonia disallow such terminations
- Section 1006.6 of the International Mechanical Code - 2021 (IMC-2021) also disallows such terminations
- The City of Pueblo has adopted the 2021 IMC without changes
- With the above facts in mind, the EPA recommends that WWTP reconfigure the PRV terminations in the TTA building so that they terminate above the roof of the building.

5. Requirement found at Safety Information [40 CFR 68.48(b)]: The owner or operator shall document that the process is designed in compliance with recognized and generally accepted good engineering practices (RAGAGEP).

- Raw water at WWTP is first treated with chlorine. Then, the chlorine-treated water is secondarily treated with ammonia. The secondary treatment occurs in one of WWTP's 2

ammonia treatment trains.

- *Treatment Train A (TTA) was built in the 1990's. Treatment Train B (TTB) was built in 2002. Both trains are located within buildings.*
- *There are 4 ammonia pressure vessels in TTA, and 2 ammonia pressure vessels in TTB*
- *The TTA building does not contain emergency eyewash and shower equipment. However, the TTB building does.*
- *Although there is emergency eyewash and shower equipment outside of the TTA building, this equipment does not comply with ANSI Z358.1*
- *ANSI Z358.1 is a recognized and generally accepted good engineering practice*
- *Section 4.5.2 of ANSI Z358.1 specifies that emergency showers shall be "in accessible locations that require no more than 10 seconds to reach. The emergency shower shall be located on the same level as the hazard and the path of travel shall be free of obstructions that may inhibit its immediate use. (See Appendix B5)"*
- *Appendix B5 of ANSI Z358.1 specifies that "Emergency eyewash and shower equipment should be available for immediate use, but in no instance should it take an individual longer than 10 seconds to reach the nearest facility. There are several factors that might influence the location of emergency facilities. It is recognized that the average person covers a distance of approximately 55 ft. (16.8 m) in 10 seconds when walking at a normal pace. The physical and emotional state of a potential victim (visually impaired, with some level of discomfort/pain, and possibly in a state of panic) should be considered along with the likelihood of personnel in the immediate area to assist . . . A door is considered to be an obstruction. Where the hazard is not corrosive, one intervening door can be present so long as it opens in the same direction of travel as the person attempting to reach the emergency eyewash and shower equipment and the door is equipped with a closing mechanism that cannot be locked to impede access to the equipment."*

Note: Anhydrous ammonia is corrosive.

- *The EPA therefore recommends that WWTP install emergency eyewash and shower equipment, "within the work area" of the TTA building, in accordance with the recommendations of ANSI Z358.1*
- *The EPA also recommends that WWTP consult an appropriate professional re. locating the emergency eyewash and shower equipment.*

6. Requirement found at Maintenance [40 CFR 68.56(d)]: The owner or operator shall perform or cause to be performed inspections and tests on process equipment that follow recognized and generally accepted good engineering practices (RAGAGEP).

- *WWTP has never arranged for internal inspections to be conducted on their six ammonia pressure vessels*
- *However, internal inspections are required by the API 510, Pressure Vessel Inspection Code*
- *Section 3.3.3, entitled "Equipment Inspections", of a WWTP document, states that the pressure vessels "must have structural integrity tests performed on them every ten years in accordance with API 510 Pressure Vessel Inspection Code and API-572 Inspection Practices for Pressurized Vessels."*

Note: The WWTP document is entitled, "Pueblo Water, 2020 Compliance Year (2022 Updates)".

- According to Section 6.5.1.1 of API 510, internal inspections shall be conducted every 10 years, or less, depending upon the age and condition of the pressure vessel(s)
- According to the same section, it is the responsibility of the inspector or engineer to establish the interval between internal inspections. The section also specifies that the interval shall comply with the owner/user's Quality Assurance program.
- Because WWTP's ammonia pressure vessels do not contain manway hatches (although they do contain nozzles of various diameters), internal inspections may not be possible
- If this is the case, then Section 6.5.2, entitled "On-stream Inspection in Lieu of Internal Inspections", may apply
- According to Section 6.5.2, an on-stream inspection may be substituted for the internal inspection if entering the pressure vessel is not physically possible, and if the inspector authorizes the substituted inspection
- At any rate, WWTP should be conducting pressure-vessel inspections per API 510. These inspections might be internal or on-stream, depending upon the accessibility of the vessel's interior, and upon the inspector's recommendations.
- WWTP should consult with an authorized inspector to determine how to comply with API 510 and then act accordingly. The inspections should also be completed at the intervals specified by the inspector.

7. **Requirement found at Incident Investigation [40 CFR 68.60(d)(2)]:** A report shall be prepared at the conclusion of every Incident Investigation and shall include the date that the investigation began.
- *WWTP's Incident Investigation reports do not include the date that the investigations began.*

CAA § 112(r)(1) (General Duty Clause):

1. **EPA's General Duty Clause (GDC) requires that a facility minimize "the consequences of accidental releases that do occur".**

(Please refer to the EPA publication, *The General Duty Clause*, at <https://www.epa.gov/sites/default/files/2013-10/documents/gdc-fact.pdf>)

- *Raw water at WWTP is first treated with chlorine. Then, the chlorine-treated water is secondarily treated with ammonia. The secondary treatment occurs in one of WWTP's 2 ammonia treatment trains.*
- *Treatment Train A (TTA) was built in the 1990's. Treatment Train B (TTB) was built in 2002. Both trains are located within buildings.*
- *There are 4 ammonia pressure vessels in TTA, and 2 ammonia pressure vessels in TTB*
- *The TTA building contains no ammonia detectors. However, the TTB building contains at least one ammonia detector.*
- *Ammonia detectors in the TTA building would reduce/minimize "the consequences of accidental [ammonia] releases that do occur."*
- *Therefore, the EPA recommends that WWTP install ammonia detectors in the TTA building.*

ITEMS OF NOTE

1. Many sections of WWTP's ammonia piping and chlorine piping are not labeled.

The EPA recommends that WWTP label the ammonia piping and chlorine piping per *ANSI/ASME A13.1*, or a similar standard.

2. Many valves within WWTP's ammonia system and chlorine system are not identified/labeled/tagged.

In addition, ammonia valves and chlorine valves are not identified/labeled on WWTP's Piping and Instrumentation Diagrams (PID's).

The EPA recommends that WWTP identify/label/tag the actual, physical valves.

The EPA also recommends that WWTP identify/label the valves on the PID's.

EPCRA § 312:

1. WWTP only lists anhydrous ammonia and chlorine on their Tier II's.

However, WWTP does not list other onsite chemicals that are considered "hazardous" by the OSHA 1910.1200 standard.

The following "hazardous" chemicals are stored/used onsite in reportable quantities:

- Liquid alum-aluminum sulfate
- High performance carbon
- Potassium permanganate
- Cationic polymer
- Fluorosilicic acid.

WWTP may also store/use other "hazardous" chemicals onsite, which aren't listed above. WWTP should ensure that these chemicals are reported on future Tier II's if the chemicals are stored/used above the threshold quantity.

WWTP should also revise, and re-submit, their most current Tier II to the State Emergency Response Commission (SERC), Local Emergency Planning Committee (LEPC), and local fire department. The revised Tier II should show the chemicals listed above, and any other reportable chemicals that WWTP may have overlooked.

INSPECTION REPORT REVIEW RECORD		
		<i>Date:</i>
<i>Author:</i>	<i>Toxics and Pesticides Enforcement Section Inspector</i>	<i>8/12/2023</i>
<i>Final Reviewer:</i>	<i>Section Supervisor</i>	<i>8/18/2023</i>