

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5**

**IN THE MATTER OF:**

**Salem Water Treatment Plant  
Salem, Illinois**

Proceedings Pursuant to  
the Clean Air Act,  
42 U.S.C. §§ 7401 *et seq.*

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**FINDING OF VIOLATION**

**EPA-5-22-IL-03**

**FINDING OF VIOLATION**

The U.S. Environmental Protection Agency finds that the Salem Water Treatment Plant (Salem WTP), is violating Section 112(r)(7)(E) of the Clean Air Act (CAA), 42 U.S.C. § 7412(r)(7)(E), and certain regulatory provisions set forth at 40 C.F.R. Part 68, 40 C.F.R. § 68.1 *et seq.* (Chemical Accident Prevention Provisions). The statutory and regulatory authority, as well as a description of the specific violations, are set forth below:

**I. Statutory and Regulatory Authority**

**A. Clean Air Act, Subsection 112(r)**

1. Section 112(r)(1) of the CAA, 42 U.S.C. § 7412(r)(1), provides that it shall be the objective of the regulations and programs authorized under Section 112(r) of the CAA to prevent the accidental release and to minimize the consequences of any such release of any substance listed pursuant to Section 112(r)(3), or any other extremely hazardous substance.
2. Section 112(r)(2)(C) of the CAA, 42 U.S.C. § 7412(r)(2)(C), defines the term "stationary source" to mean any buildings, structures, equipment, installations or substance emitting stationary activities (i) which belong to the same industrial group, (ii) which are located on one or more contiguous properties, (iii) which are under the control of the same person (or persons under common control), and (iv) from which an accidental release may occur.
3. Section 112(r)(3) of the CAA, 42 U.S.C. § 7412(r)(3), required EPA to promulgate, not later than 24 months after November 15, 1990, an initial list of 100 substances which, in the case of an accidental release, were known to cause or may reasonably be anticipated to cause death, injury, or serious adverse effects to human health or the environment.
4. Section 112(r)(7)(A) of the CAA, 42 U.S.C. § 7412(r)(7)(A), provides that in order to prevent accidental releases of regulated substances, the Administrator is authorized to promulgate release prevention, detection, and correction requirements which may include monitoring, record-keeping, reporting, training, vapor recovery, secondary containment, and other design, equipment, work practice, and operational requirements.

5. Section 112(r)(7)(B)(i) of the CAA, 42 U.S.C. § 7412(r)(7)(B)(i), provides that within 3 years after November 15, 1990, the Administrator shall promulgate reasonable regulations and appropriate guidance to provide, to the greatest extent practicable, for the prevention and detection of accidental releases of regulated substances and for response to such releases by the owners or operators of the sources of such releases.
6. Section 112(r)(7)(B)(ii) of the CAA, 42 U.S.C. § 7412(r)(7)(B)(ii), provides that the regulations under this subparagraph shall require the owner or operator of stationary sources at which a regulated substance is present in more than a threshold quantity to prepare and implement a Risk Management Plan (RMP) to detect and prevent or minimize accidental releases of such substances from the stationary source, and to provide a prompt emergency response to any such releases in order to protect human health and the environment.
7. Pursuant to Section 112(r) of the CAA, 42 U.S.C. § 7412(r), the Administrator initially promulgated a list of regulated substances, with threshold quantities for applicability, at 59 Fed. Reg. 4478 (January 31, 1994), which is codified, as amended, at 40 C.F.R. § 68.130.
8. Pursuant to Section 112(r) of the CAA, 42 U.S.C. § 7412(r), the Administrator promulgated the Risk Management Program Regulations Under Clean Air Act Section 112(r)(7), *see* 61 Fed. Reg. 31,668 (June 20, 1996), which are codified, as amended, at 40 C.F.R. Part 68: Chemical Accident Prevention Provisions. *See* 84 Fed. Reg. 69,834 (Dec. 19, 2019).
9. The Chemical Accident Prevention Provisions seek to prevent accidental releases of regulated substances and minimize the consequences of those releases that do occur, by requiring owners and operators of certain stationary sources to, among other things: (1) develop and implement a management system to oversee the implementation of the risk management program elements; (2) develop and implement a risk management program that includes, but is not limited to, a hazard assessment, a prevention program, and an emergency response program; and (3) submit to EPA a RMP describing the risk management program for the source. *See* 40 C.F.R. Part 68, Subparts A-G, 40 C.F.R. §§ 68.1-68.195.
10. Section 112(r)(7)(E) of the CAA, 42 U.S.C. § 7412(r)(7)(E), provides that after the effective date of any regulation or requirement promulgated pursuant to Section 112(r) of the CAA, it shall be unlawful for any person to operate any stationary source in violation of such regulation or requirement.

**B. Risk Management Program Provisions**

11. 40 C.F.R. § 68.10(a) requires, in part, that the owner or operator of a “stationary source” that has more than a “threshold quantity” of a “regulated substance” in a “process,” as determined under 40 C.F.R. § 68.115, shall comply with the requirements of the

Chemical Accident Prevention Provisions no later than the date on which a regulated substance is first present above a threshold quantity in a process.

12. A “regulated substance” means any substance listed at 40 C.F.R. § 68.130, pursuant to Section 112(r)(3) of the CAA as amended, 42 U.S.C. § 7412(r)(3). *See* 40 C.F.R. § 68.3.
13. A “threshold quantity” is the quantity specified for regulated substances pursuant to Section 112(r)(5) of the CAA as amended, 42 U.S.C. § 7412(r)(5), listed in 40 C.F.R. § 68.130, and determined to be present at the stationary source as specified in 40 C.F.R. § 68.115. *See* 40 C.F.R. § 68.3.
14. Chlorine is a “regulated substance” under the Risk Management Program regulations and as defined in 40 C.F.R. § 68.3.
15. The “threshold quantity” for Chlorine is 2,500 pounds. *See* 40 C.F.R. § 68.130, Table 1.
16. A “process” means “any activity involving a regulated substance including any use, storage, manufacturing, handling, or on-site movement of such substances, or combination of these activities.” For purposes of this definition, a single process includes “any group of vessels that are interconnected, or separate vessels that are located such that a regulated substance could be involved in a potential release.” *See* 40 C.F.R. § 68.3.
17. A “covered process” is a process that has a regulated substance present in more than a threshold quantity as determined under 40 C.F.R. § 68.115. *See* 40 C.F.R. § 68.3.
18. 40 C.F.R. § 68.10(a) sets forth:
  - (a) Except as provided in paragraphs (b) through (f) of this section, an owner or operator of a stationary source that has more than a threshold quantity of a regulated substance in a process, as determined under § 68.115, shall comply with the requirements of this part no later than the latest of the following dates:
    - (1) June 21, 1999;
    - (2) Three years after the date on which a regulated substance is first listed under § 68.130;
    - (3) The date on which a regulated substance is first present above a threshold quantity in a process; or
    - (4) For any revisions to this part, the effective date of the final rule that revises this part.
19. 40 C.F.R. § 68.10(i) sets forth:

(i) Program 3 eligibility requirements. A covered process is subject to Program 3 if the process does not meet the requirements of paragraph (g) of this section, and if either of the following conditions is met:

(1) The process is in NAICS code 32211, 32411, 32511, 325181, 325188, 325192, 325199, 325211, 325311, or 32532; or

(2) The process is subject to the OSHA process safety management standard, 29 CFR 1910.119.

20. 40 C.F.R. § 68.12(a) requires the owner or operator of a stationary source subject to this part shall submit a single RMP, as provided in §§ 68.150 to 68.185. The RMP shall include a registration that reflects all covered processes.
21. 40 C.F.R. § 68.22(a)(1) requires the owner or operator of a process that uses a regulated toxic substance to use the endpoints provided in 40 C.F.R. Part 68, Appendix A.
22. For worst-case release analysis of a regulated toxic substance, 40 C.F.R. § 68.22(c) requires the owner or operator of a process to use the highest daily maximum temperature in the previous three years and average humidity for the site, based on temperature/humidity data gathered at the stationary source or at a local meteorological station; an owner or operator using the RMP Offsite Consequence Analysis Guidance may use 25°C and 50 percent humidity as values for these variables.
23. 40 C.F.R. § 68.22(d) requires the owner or operator of a process that uses a regulated toxic substance to analyze the worst-case release of a regulated toxic substance with a ground level (0 feet) release. For an alternative scenario analysis of a regulated toxic substance, release height may be determined by the release scenario.
24. 40 C.F.R. § 68.25(a)(2) sets forth:
  - (a) The owner or operator shall analyze and report in the RMP:
  - (2) For Program 2 and 3 processes:
    - (i) One worst-case release scenario that is estimated to create the greatest distance in any direction to an endpoint provided in appendix A of this part resulting from an accidental release of regulated toxic substances from covered processes under worst-case conditions defined in 40 C.F.R. § 68.22;
    - (ii) One worst-case release scenario that is estimated to create the greatest distance in any direction to an endpoint defined in 40 C.F.R. § 68.22(a) resulting from an accidental release of regulated flammable substances from covered processes under worst-case conditions defined in 40 C.F.R. § 68.22[.]

25. 40 C.F.R. § 68.28(a) requires the owner or operator to identify and analyze at least one alternative release scenario for each regulated toxic substance held in a covered process and at least one alternative release scenario to represent all flammable substances held in covered processes.
26. 40 C.F.R. § 68.28(b)(1) sets forth:
  - (b) Scenarios to consider.
    - (1) For each scenario required under paragraph (a) of this section, the owner or operator shall select a scenario:
      - (i) That is more likely to occur than the worst-case release scenario under 40 C.F.R. § 68.25; and
      - (ii) That will reach an endpoint offsite, unless no such scenario exists.
27. 40 C.F.R. § 68.36(a) requires the owner or operator to review and update the offsite consequence analyses at least once every 5 years.
28. 40 C.F.R. § 68.39(a) requires the owner or operator to maintain, for worst-case scenarios, a description of the vessel or pipeline and substance selected as worst case, assumptions and parameters used, and the rationale for selection; assumptions shall include use of any administrative controls and any passive mitigation that were assumed to limit the quantity that could be released on the offsite consequence analyses. Documentation shall include the anticipated effect of the controls and mitigation on the release quantity and rate.
29. 40 C.F.R. § 68.39(b) requires the owner or operator to maintain, for alternative release scenarios, a description of the scenarios identified, assumptions and parameters used, and the rationale for the selection of specific scenarios; assumptions shall include use of any administrative controls and any mitigation that were assumed to limit the quantity that could be released. Documentation shall include the effect of the controls and mitigation on the release quantity and rate.
30. 40 C.F.R. § 68.39(c) requires the owner or operator to maintain documentation of estimated quantity released, release rate, and duration of release.
31. 40 C.F.R. § 68.39(d) requires the owner or operator to maintain documentation of the methodology used to determine distance to endpoints.
32. 40 C.F.R. § 68.39(e) requires the owner or operator to maintain data used to estimate population and environmental receptors potentially affected.
33. 40 C.F.R. § 68.65(c)(1) requires information concerning the technology of the process to include at least the following: (i) A block flow diagram or simplified process flow diagram; (ii) Process chemistry; (iii) Maximum intended inventory; (iv) Safe upper and

lower limits for such items as temperatures, pressures, flows or compositions; and, (v) An evaluation of the consequences of deviations.

34. 40 C.F.R. § 68.65(d)(1) requires information pertaining to the equipment in the process to include: (i) Materials of construction; (ii) Piping and instrument diagrams (P&ID's); (iii) Electrical classification; (iv) Relief system design and design basis; (v) Ventilation system design; (vi) Design codes and standards employed; (vii) Material and energy balances for processes built after June 21, 1999; and (viii) Safety systems (e.g., interlocks, detection or suppression systems).
35. 40 C.F.R. § 68.65(d)(2) requires the owner or operator to document that equipment complies with recognized and generally accepted good engineering practices.
36. 40 C.F.R. § 68.67(a) requires the owner or operator to perform an initial process hazard analysis (hazard evaluation) on processes covered by this part. The process hazard analysis shall be appropriate to the complexity of the process and shall identify, evaluate, and control the hazards involved in the process. The owner or operator shall determine and document the priority order for conducting process hazard analyses based on a rationale which includes such considerations as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process. The process hazard analysis shall be conducted as soon as possible, but not later than June 21, 1999. Process hazards analyses completed to comply with 29 C.F.R. § 1910.119(e) are acceptable as initial process hazards analyses. These process hazard analyses shall be updated and revalidated, based on their completion date.
37. 40 C.F.R. § 68.67(b) requires the owner or operator to use one or more of the following methodologies that are appropriate to determine and evaluate the hazards of the process being analyzed:
  - (1) What-If;
  - (2) Checklist;
  - (3) What-If/Checklist;
  - (4) Hazard and Operability Study (HAZOP);
  - (5) Failure Mode and Effects Analysis (FMEA);
  - (6) Fault Tree Analysis; or
  - (7) An appropriate equivalent methodology.
38. 40 C.F.R. § 68.67(c) requires the process hazard analysis to address:
  - (1) The hazards of the process;

(2) The identification of any previous incident which had a likely potential for catastrophic consequences;

(3) Engineering and administrative controls applicable to the hazards and their interrelationships such as appropriate application of detection methodologies to provide early warning of releases. (Acceptable detection methods might include process monitoring and control instrumentation with alarms, and detection hardware such as hydrocarbon sensors.);

(4) Consequences of failure of engineering and administrative controls;

(5) Stationary source siting;

(6) Human factors; and

(7) A qualitative evaluation of a range of the possible safety and health effects of failure of controls.

39. 40 C.F.R. § 68.67(d) requires the process hazard analysis to be performed by a team with expertise in engineering and process operations, and the team shall include at least one employee who has experience and knowledge specific to the process being evaluated. Also, one member of the team must be knowledgeable in the specific process hazard analysis methodology being used.
40. 40 C.F.R. § 68.67(e) requires the owner or operator to establish a system to promptly address the team's findings and recommendations; assure that the recommendations are resolved in a timely manner and that the resolution is documented; document what actions are to be taken; complete actions as soon as possible; develop a written schedule of when these actions are to be completed; communicate the actions to operating, maintenance and other employees whose work assignments are in the process and who may be affected by the recommendations or actions.
41. 40 C.F.R. § 68.67(f) requires a team meeting the requirements in 40 C.F.R. § 68.67(d) to update and revalidate the process hazard analysis at least every 5 years after the completion of the initial process hazard analysis, to assure that the process hazard analysis is consistent with the current process. Updated and revalidated process hazard analyses completed to comply with 29 C.F.R. § 1910.119(e) are acceptable to meet the requirements of this paragraph.
42. 40 C.F.R. § 68.67(g) requires the owner or operator to retain process hazards analyses and updates or revalidations for each process covered by 40 C.F.R. § 68.67, as well as the documented resolution of recommendations described in 40 C.F.R. § 68.67(e) for the life of the process.

43. 40 C.F.R. § 68.69(a) requires the owner or operator to develop and implement written operating procedures that provide clear instructions for safely conducting activities involved in each covered process consistent with the process safety information and shall address at least the following elements: (1) Steps for each operating phase; (2) Operating limits; (3) Safety and health considerations; and (4) Safety systems and their functions.
44. 40 C.F.R. § 68.69(b) requires the operating procedures to be readily accessible to employees who work in or maintain a process.
45. 40 C.F.R. § 68.69(c) requires the operating procedures to be reviewed as often as necessary to assure that they reflect current operating practice, including changes that result from changes in process chemicals, technology, and equipment, and changes to stationary sources. The owner or operator shall certify annually that these operating procedures are current and accurate.
46. 40 C.F.R. § 68.71(b) requires refresher training to be provided at least every 3 years, and more often if necessary, to each employee involved in operating a process to assure that the employee understands and adheres to the current operating procedures of the process. The owner or operator, in consultation with the employees involved in operating the process, shall determine the appropriate frequency of refresher training.
47. 40 C.F.R. § 68.71(c) requires the owner or operator to ascertain that each employee involved in operating a process has received and understood the training required by this paragraph. The owner or operator shall prepare a record which contains the identity of the employee, the date of training, and the means used to verify that the employee understood the training.
48. 40 C.F.R. § 68.73(b) requires the owner or operator to establish and implement written procedures to maintain the on-going integrity of process equipment.
49. 40 C.F.R. § 68.73(d)(4) requires the owner or operator to document each inspection and test that has been performed on process equipment. The documentation shall identify the date of the inspection or test, the name of the person who performed the inspection or test, the serial number or other identifier of the equipment on which the inspection or test was performed, a description of the inspection or test performed, and the results of the inspection or test.
50. 40 C.F.R. § 68.75(a) requires the owner or operator to establish and implement written procedures to manage changes (except for “replacements in kind”) to process chemicals, technology, equipment, and procedures; and changes to stationary sources that affect a covered process.
51. 40 C.F.R. § 68.75(b) requires the management of change procedures to assure that the following considerations are addressed prior to any change: (1) The technical basis for the proposed change; (2) Impact of change on safety and health; (3) Modifications to

operating procedures; (4) Necessary time period for the change; and (5) Authorization requirements for the proposed change.

- 52. 40 C.F.R. § 68.79(a) requires the owner or operator to certify that they have evaluated compliance with the provisions of this subpart at least every three years to verify that procedures and practices developed under this subpart are adequate and are being followed.
- 53. 40 C.F.R. § 68.79(b) requires the compliance audit to be conducted by at least one person knowledgeable in the process.
- 54. 40 C.F.R. § 68.79(c) requires a report of the findings of the audit to be developed.
- 55. 40 C.F.R. § 68.79(d) requires the owner or operator to promptly determine and document an appropriate response to each of the findings of the compliance audit, and document that deficiencies have been corrected.
- 56. 40 C.F.R. § 68.79(e) requires the owner or operator to retain the two (2) most recent compliance audit reports.
- 57. 40 C.F.R. § 68.83(a) requires the owner or operator to develop a written plan of action regarding the implementation of the employee participation required by this section.
- 58. 40 C.F.R. § 68.93(c) requires the owner or operator shall document coordination with local authorities, including: The names of individuals involved and their contact information (phone number, email address, and organizational affiliations); dates of coordination activities; and nature of coordination activities.

## **II. Statement of Facts**

### **A. Applicability and Facility Information**

- 59. Salem WTP owns and operates a chlorination process at its water treatment plant on Spillway Road, Salem, Illinois (Facility).
- 60. The Facility was built before June 21, 1999.
- 61. Salem WTP's current RMP for the Facility states that the chlorination process contains a maximum of 8,000 pounds of chlorine.
- 62. The chlorination process at the Facility contains greater than the threshold quantity of 2,500 pounds of chlorine, listed in Table 1 at 40 C.F.R. § 68.130(b).
- 63. The chlorination process at the Facility is subject to the U.S. Occupational Safety and Health Administration (OSHA) process safety management standard, 29 C.F.R.

§ 1910.119, because it contains greater than the threshold quantity of 1,500 pounds of chlorine listed at 29 C.F.R. § 1910.119, Appendix A.

64. Pursuant to 40 C.F.R. § 68.10(a), the Facility is subject to requirements the Risk Management Program Regulations, 40 C.F.R. § 68.1 *et seq.*
65. Salem WTP's chlorination process at the Facility is a "process," as that term is defined at 40 C.F.R. § 68.3.
66. Salem WTP's chlorination process at the Facility is a "covered process," as that term is defined at 40 C.F.R. § 68.3.
67. Salem WTP's chlorination process at the Facility did not meet the Program 1 requirements of 40 C.F.R. § 68.10(g).
68. Pursuant to 40 C.F.R. § 68.10(i), the chlorination process at the Facility is subject to Program 3 requirements because it is subject to the OSHA process safety management standard, 29 CFR 1910.119.

## **B. Inspection**

69. On August 12, 2021, EPA notified Salem WTP of the Agency's intent to conduct an inspection of the Facility and requested documents pertaining to the following subjects: management system, offsite consequence analysis; process safety information; process hazard analysis; operating procedures; training; mechanical integrity; management of change; compliance audits; incident investigations; hot work; contractors; and emergency response.
70. On August 20, 2021, Salem WTP provided six documents: The City of Salem Emergency Response Plan; the October 30, 2019, Risk Management Plan (2019 RMP; Water Plant – Registration.pdf); a second document titled the City of Salem Emergency Response Plan; an August 7, 2019, receipt from Sidener Environmental Services, St. Louis, Missouri; the City of Salem Risk and Resilience Assessment; and three pages pertaining to the chlorine cylinder hoist.
71. On August 24, 2021, EPA conducted an inspection of the Facility.

## **C. Hazard Assessment**

72. During the August 24, 2021, inspection, the Salem WTP representatives stated that the Salem WTP had not made a worst-case scenario analysis.
73. Consequently, the Salem WTP did not use in a worst-case scenario analysis the toxic endpoint for chlorine in 40 C.F.R. Part 68, Appendix A, i.e., 0.0087 milligrams per liter, as required by 40 C.F.R. § 68.22(a).

74. Consequently, the Salem WTP did not use in a worst-case scenario analysis either: 1) the highest daily maximum temperature in the previous three years and average humidity for the site, based on temperature/humidity data gathered at the stationary source or at a local meteorological station; or 2) 25°C and 50 percent humidity as values for these variables as required by 40 C.F.R. § 68.22(c).
75. Consequently, the Salem WTP did not use in a worst-case scenario analysis a height of release of ground level (0 feet) release as required by 40 C.F.R. § 68.22(d).
76. Consequently, the Salem WTP did not analyze and report in the RMP one worst-case release scenario that is estimated to create the greatest distance in any direction to an endpoint provided in appendix A of Part 68 resulting from an accidental release of regulated toxic substances from covered processes under worst-case conditions defined in 40 C.F.R. § 68.22 as required by 40 C.F.R. § 68.25(a)(2)(i).
77. Consequently, the Salem WTP did not analyze and report in the RMP one worst-case release scenario that is estimated to create the greatest distance in any direction to an endpoint defined in 40 C.F.R. § 68.22(a) resulting from an accidental release of regulated flammable substances from covered processes under worst-case conditions defined in 40 C.F.R. § 68.22 as required by 40 C.F.R. § 68.25(a)(2)(ii).
78. During the August 24, 2021, inspection, the Salem WTP representatives stated that the Salem WTP had not made an alternative release scenario analysis as required by 40 C.F.R. § 68.28(a).
79. Consequently, the Salem WTP did not select either a scenario that is more likely to occur than the worst-case release scenario under 40 C.F.R. § 68.25 or that will reach an endpoint offsite, unless no such scenario exists, as required by 40 C.F.R. § 68.28(b)(1).
80. Consequently, the Salem WTP did not review and update the offsite consequence analyses at least once every five years as required by 40 C.F.R. § 68.36(a).
81. Consequently, the Salem WTP has not maintained, for the worst-case scenario, a description of the vessel or pipeline and substance selected as worst case, assumptions and parameters used, and the rationale for selection as required by 40 C.F.R. § 68.39(a).
82. Consequently, the Salem WTP has not maintained, for the alternative release scenarios, a description of the scenarios identified, assumptions and parameters used, and the rationale for the selection of specific scenarios as required by 40 C.F.R. § 68.39(b).
83. Consequently, the Salem WTP has not maintained documentation of estimated quantity released, release rate, and duration of release as required by 40 C.F.R. § 68.39(c).
84. Consequently, the Salem WTP has not maintained documentation on the methodology used to determine distance to endpoints as required by 40 C.F.R. § 68.39(d).

85. Consequently, the Salem WTP has not maintained the data used to estimate population and environmental receptors potentially affected as required by 40 C.F.R. § 68.39(e).

**D. Process Safety Information**

86. During the August 24, 2021, inspection, the Salem WTP representatives acknowledged that the Salem WTP had not compiled the following information pertaining to the technology of the chlorination process, as required by 40 C.F.R. § 68.65(c)(1): a block flow diagram or simplified process flow diagram; process chemistry; maximum intended inventory; safe upper and lower limits for such items as temperatures, pressures, flows or compositions; and an evaluation of the consequences of deviations.
87. During the August 24, 2021, inspection, the Salem WTP representatives reported that the Salem WTP had not compiled the following information pertaining to the equipment in the process, as required by 40 C.F.R. § 68.65(d)(1): materials of construction; piping and instrument diagrams; electrical classification; relief system design and design basis; ventilation system design; design codes and standards employed; material and energy balances for processes built after June 21, 1999; and safety systems (e.g., interlocks, detection or suppression systems).
88. During the August 24, 2021, inspection, the Salem WTP representatives acknowledged that the Salem WTP had not documented that equipment complies with recognized and generally accepted good engineering practices, as required by 40 C.F.R. § 68.65(d)(2).

**E. Process Hazard Analysis**

89. During the August 24, 2021, inspection, the Salem WTP representatives acknowledged that the Salem WTP had not performed an initial process hazard analysis (PHA) on its chlorination process, as required by 40 C.F.R. § 68.67(a).
90. Because the Salem WTP did not perform a PHA on its chlorination process, the Salem WTP did not use one or more of the methodologies that are appropriate to determine and evaluate the hazards of the process being analyzed, as required by 40 C.F.R. § 68.67(b).
91. Because the Salem WTP did not perform a PHA on its chlorination process, the Salem WTP did not address in a PHA any of the items required by 40 C.F.R. § 68.67(c).
92. Because the Salem WTP did not perform a PHA on its chlorination process, the Salem WTP did not utilize the team as required by 40 C.F.R. § 68.67(d).
93. Because the Salem WTP did not perform a PHA on its chlorination process, the Salem WTP did not establish a system as required by 40 C.F.R. § 68.67(e).
94. Because the Salem WTP did not perform a PHA on its chlorination process, the Salem WTP did not update and revalidate by a team as required by 40 C.F.R. § 68.67(f).

95. Because the Salem WTP did not perform a PHA on its chlorination process or employ a team to update and revalidate the PHA, the Salem WTP did not retain the PHA, its updates or revalidations, and the documented resolution of recommendations described in 40 C.F.R. § 68.67(e) for the chlorination process, as required by 40 C.F.R. § 68.67(g).

**F. Operating Procedures**

96. During the August 24, 2021, inspection, the Salem WTP representatives acknowledged that the Salem WTP does not have written operating procedures for the chlorination process.
97. Because the operating procedures are not written, the written procedures do not address the items as required by 40 C.F.R. § 68.69(a).
98. Because the operating procedures are not written, the written procedures are not readily accessible to employees who work in or maintain a process, as required by 40 C.F.R. § 68.69(b).
99. During the August 24, 2021, inspection, the Salem WTP representatives acknowledged that the Salem WTP has not certified annually that the written operating procedures are current and accurate, as required by 40 C.F.R. § 68.69(c).

**G. Training**

100. During the August 24, 2021, inspection, the Salem WTP representatives reported that the Salem WTP conducts initial and refresher training of its employees, but none of the training is specific to the Risk Management Program.
101. The Salem WTP did not provide documentation that refresher training has been provided at least every 3 years, or more often if necessary, to each employee involved in operating a process to assure that the employee understands and adheres to the current operating procedures of the process as required by 40 C.F.R. § 68.71(b).
102. The Salem WTP did not provide documentation that each employee involved in operating a process has received and understood the training as required by 40 C.F.R. § 68.71(c).
103. The Salem WTP did not provide documentation of the identity of each employee, the date of the training, and the means used to verify that the employee understood the training as required by 40 C.F.R. § 68.71(c).

**H. Mechanical Integrity**

104. During the August 24, 2021, inspection, the Salem WTP representatives acknowledged that the Salem WTP had not established and implemented written procedures to maintain the on-going integrity of the piping systems (including piping components such as valves), relief and vent systems and devices, emergency shutdown systems, and controls

(including monitoring devices and sensors, alarms, and interlocks) as required by 40 C.F.R. § 68.73(b).

105. During the August 24, 2021, inspection, the Salem WTP representatives acknowledged that the Salem WTP had not documented each inspection and test that had been performed on process equipment, and identified the date of the inspection or test, name of the person who performed the inspection or test, the serial number or other identifier of the equipment on which the inspection or test was performed, a description of the inspection or test performed, and the results of the inspection or test as required by 40 C.F.R. § 68.73(d)(4).

#### **I. Management of Change**

106. The Salem WTP did not provide documentation of its management of change procedures.
107. During the August 24, 2021, inspection, the Salem WTP representatives acknowledged that the Salem WTP has not established and implemented written procedures to manage changes to process chemicals, technology, equipment, and procedures, and changes to stationary sources that affect a covered process as required by 40 C.F.R. § 68.75(a).
108. Because the Salem WTP has not established and implemented written management of change procedures, the procedures do not assure that the following considerations the technical basis for the proposed change, the impact of change on safety and health, modifications to operating procedures, the necessary time period for the change, and the authorization requirements for the proposed change are addressed prior to any change as required by 40 C.F.R. § 68.75(b).

#### **J. Compliance Audit**

109. The Salem WTP did not provide documentation of its compliance audits.
110. During the August 24, 2021, inspection, the Salem WTP representatives acknowledged that the Salem WTP has not certified that it has evaluated compliance with the provisions of the prevention program at least every 3 years to verify that the developed procedures and practices are adequate and being followed as required by 40 C.F.R. § 68.79(a).
111. Because the Salem WTP has not conducted a compliance audit, the Salem WTP has not documented the audit findings in a report as required by 40 C.F.R. § 68.79(c).
112. Because the Salem WTP has not conducted a compliance audit, the Salem WTP has not promptly determined and documented an appropriate response to each of the findings of the audit and documented that deficiencies had been corrected as required by 40 C.F.R. § 68.79(d).
113. Because the Salem WTP has not conducted a compliance audit, the Salem WTP has not retained the two most recent compliance reports as required by 40 C.F.R. § 68.79(e).

**K. Employee participation**

- 114. The Salem WTP did not provide a copy of its written plan of action regarding the implementation of the employee participation.
- 115. During the August 24, 2021, inspection, the Salem WTP representatives acknowledged that the Salem WTP has not developed a written plan of action regarding the implementation of the employee participation as required by 40 C.F.R. § 68.83(a).

**L. Emergency Response**

- 116. During the August 24, 2021, inspection, the Salem WTP representatives acknowledged that the Salem WTP has not documented coordination with local authorities, including the names of individuals involved and their contact information (phone number, email address, and organizational affiliations); dates of coordination activities; nature of coordination activities as required by 40 C.F.R. § 68.93(c).

**III. Clean Air Act Violations**

EPA finds that the following violations of the Chemical Accident Prevention Provisions by Salem WTP are violations of Section 112(r)(7)(E) of the CAA, 42 U.S.C. § 7412(r)(7)(E):

**A. Hazard Assessment Violations**

- 117. Salem WTP violated 40 C.F.R. § 68.22(a) by failing to use in a worst-case scenario analysis the toxic endpoint for chlorine in 40 C.F.R. Part 68, Appendix A, i.e., 0.0087 milligrams per liter.
- 118. Salem WTP violated 40 C.F.R. § 68.22(c) by failing to use in a worst-case scenario analysis either: 1) the highest daily maximum temperature in the previous three years and average humidity for the site, based on temperature/humidity data gathered at the stationary source or at a local meteorological station; or 2) 25°C and 50 percent humidity as values for these variables.
- 119. Salem WTP violated 40 C.F.R. § 68.22(d) by failing to use in a worst-case scenario analysis a height of release of ground level (0 feet) release.
- 120. Salem WTP violated 40 C.F.R. § 68.25(a)(2)(i) by failing to analyze and report in the RMP one worst-case release scenario that is estimated to create the greatest distance in any direction to an endpoint provided in appendix A of this part resulting from an accidental release of regulated toxic substances from covered processes under worst-case conditions defined in 40 C.F.R. § 68.22.
- 121. Salem WTP violated 40 C.F.R. § 68.25(a)(2)(ii) by failing to analyze and report in the RMP one worst-case release scenario that is estimated to create the greatest distance in

any direction to an endpoint defined in §68.22(a) resulting from an accidental release of regulated flammable substances from covered processes under worst-case conditions defined in 40 C.F.R. § 68.22.

122. Salem WTP violated 40 C.F.R. § 68.28(a) by failing to make an alternative release scenario analysis.
123. Salem WTP violated 40 C.F.R. § 68.28(b)(1) by failing to select either a scenario that is more likely to occur than the worst-case release scenario under 40 C.F.R. § 68.25 or that will reach an endpoint offsite, unless no such scenario exists.
124. Salem WTP violated 40 C.F.R. § 68.36(a) by failing to review and update the offsite consequence analyses at least once every five years.
125. Salem WTP violated 40 C.F.R. § 68.39(a) by failing to maintain, for the worst-case scenario, a description of the vessel or pipeline and substance selected as worst case, assumptions and parameters used, and the rationale for selection.
126. Salem WTP violated 40 C.F.R. § 68.39(b) by failing to maintain, for the alternative release scenarios, a description of the scenarios identified, assumptions and parameters used, and the rationale for the selection of specific scenarios.
127. Salem WTP violated 40 C.F.R. § 68.39(c) by failing to maintain documentation of estimated quantity released, release rate, and duration of release.
128. Salem WTP violated 40 C.F.R. § 68.39(d) by failing to maintain documentation of the methodology used to determine distance to endpoints.
129. Salem WTP violated 40 C.F.R. § 68.39(e) by failing to maintain the data used to estimate population and environmental receptors potentially affected.

**B. Process Safety Information Violations**

130. Salem WTP violated 40 C.F.R. § 68.65(c)(1) by failing to compile the following information pertaining to the technology of the chlorination process: a block flow diagram or simplified process flow diagram; process chemistry; maximum intended inventory; safe upper and lower limits for such items as temperatures, pressures, flows or compositions; and an evaluation of the consequences of deviations.
131. Salem WTP violated 40 C.F.R. § 68.65(d)(1) by failing to compile the following information pertaining to the equipment in the process: materials of construction; piping and instrument diagrams; electrical classification; relief system design and design basis; ventilation system design; design codes and standards employed; material and energy balances for processes built after June 21, 1999; and safety systems (e.g., interlocks, detection or suppression systems).

132. Salem WTP violated 40 C.F.R. § 68.65(d)(2) by failing to document that equipment complies with recognized and generally accepted good engineering practices.

**C. Process Hazard Analysis Violations**

133. Salem WTP violated 40 C.F.R. § 68.67(a) by failing to perform an initial PHA on its chlorination process.
134. Salem WTP violated 40 C.F.R. § 68.67(b) by failing to use one or more of the methodologies listed therein.
135. Salem WTP violated 40 C.F.R. § 68.67(c) by failing to address the items listed therein in its PHA.
136. Salem WTP violated 40 C.F.R. § 68.67(d) by failing to employ a team with expertise in engineering and process operations; did not include at least one employee who has experience and knowledge specific to the process being evaluated; and did not include one member of the team knowledgeable in the specific process hazard analysis methodology being used.
137. Salem WTP violated 40 C.F.R. § 68.67(e) by failing to establish a system to promptly address the team's findings and recommendations; assure that the recommendations are resolved in a timely manner and that the resolution is documented; document what actions are to be taken; complete actions as soon as possible; develop a written schedule of when these actions are to be completed; and communicate the actions to operating, maintenance and other employees whose work assignments are in the process and who may be affected by the recommendations or actions.
138. Salem WTP violated 40 C.F.R. § 68.67(f) by failing to employ a team meeting the requirements in 40 C.F.R. § 68.67(d) to update and revalidate the PHA to assure that the process hazard analysis is consistent with the current process.
139. Salem WTP violated 40 C.F.R. § 68.67(g) by failing to perform a PHA on its chlorination process or employ a team to update and revalidate the PHA, the Salem WTP did not retain the PHA, its updates or revalidations, and the documented resolution of recommendations described in 40 C.F.R. § 68.67(e) for the chlorination process.

**D. Operating Procedures Violations**

140. Salem WTP violated 40 C.F.R. § 68.69(a) by failing to address the items listed therein.
141. Salem WTP violated 40 C.F.R. § 68.69(b) by failing to make the written procedures readily accessible to employees who work in or maintain a process.
142. Salem WTP violated 40 C.F.R. § 68.69(c) by failing to certify annually that the written operating procedures are current and accurate.

**E. Training Violations**

- 143. Salem WTP violated 40 C.F.R. § 68.71(b) by failing to maintain documentation that refresher training has been provided at least every 3 years, or more often if necessary, to each employee involved in operating a process to assure that the employee understands and adheres to the current operating procedures of the process.
- 144. Salem WTP violated 40 C.F.R. § 68.71(c) by failing to maintain documentation that each employee involved in operating a process has received and understood the training and by failing to maintain documentation of the identity of each employee, the date of the training, and the means used to verify that the employee understood the training.

**F. Mechanical Integrity Violations**

- 145. Salem WTP violated 40 C.F.R. § 68.73(b) by failing to establish and implement written procedures to maintain the on-going integrity of the piping systems (including piping components such as valves), relief and vent systems and devices, emergency shutdown systems, and controls (including monitoring devices and sensors, alarms, and interlocks).
- 146. Salem WTP violated 40 C.F.R. § 68.73(d)(4) by failing to document each inspection and test that had been performed on process equipment, and identified the date of the inspection or test, name of the person who performed the inspection or test, the serial number or other identifier of the equipment on which the inspection or test was performed, a description of the inspection or test performed, and the results of the inspection or test.

**G. Management of Change Violations**

- 147. Salem WTP violated 40 C.F.R. § 68.75(a) by failing to establish and implement written procedures to manage changes to process chemicals, technology, equipment, and procedures, and changes to stationary sources that affect the chlorination process.
- 148. Salem WTP violated 40 C.F.R. § 68.75(b) by failing to establish and implement written management of change procedures, the procedures do not assure that the following considerations the technical basis for the proposed change, the impact of change on safety and health, modifications to operating procedures, the necessary time period for the change, and the authorization requirements for the proposed change are addressed prior to any change.

**H. Compliance Audits Violation**

- 149. Salem WTP violated 40 C.F.R. § 68.79(a) by failing to certify that the Salem WTP has evaluated compliance with the provisions of the prevention program at least every 3 years to verify that the developed procedures and practices are adequate and being followed.

- 150. Salem WTP violated 40 C.F.R. § 68.79(c) by failing to document the audit findings in a report.
- 151. Salem WTP violated 40 C.F.R. § 68.79(d) by failing to promptly determine and document an appropriate response to each of the findings of the audit and document that deficiencies had been corrected.
- 152. Salem WTP violated 40 C.F.R. § 68.79(e) by failing to retain the two most recent compliance reports.

**I. Employee Participation Violation**

- 153. Salem WTP violated 40 C.F.R. § 68.83(a) by failing to develop a written plan of action regarding the implementation of the employee participation.

**J. Emergency Response Violation**

- 154. Salem WTP violated 40 C.F.R. § 68.93(c) by failing to document coordination with local authorities, including the names of individuals involved and their contact information (phone number, email address, and organizational affiliations); dates of coordination activities; nature of coordination activities.

**MICHAEL  
HARRIS**

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Michael D. Harris  
Director  
Enforcement and Compliance Assurance Division