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OSHA Process Safety Management Enforcement

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Office of Chemical Process Safety and Enforcement Initiatives

Occupational Safety and Health Administration

National Emphasis Program

OSHA revised the PSM-Covered Chemical Plant National Emphasis Program in January 2017

Enforcement under the revised program began in earnest in October 2017 (beginning of FY18)

This presentation covers federal enforcement January 2017 to January 2020

Overall Performance

- 559 inspections
- 34 percent in compliance
- 8 percent no inspection
- 50 percent programmed
- 761 PSM violations
 - 73.3 percent serious, willful, or repeat

Overall PSM Violations – All Industries

Standard	Total Violations	Serious Violations
1910.0119(j) - MI	235	188
1910.0119(d) - PSI	214	145
1910.0119(f) - OP	167	126
1910.0119(e) - PHA	131	105
1910.0119(h) - Contractors	52	34
1910.0119(l) - MOC	49	35
1910.0119(o) - Audit	40	30
1910.0119(n) - ER	32	26
1910.0119(g) - Training	30	20
1910.0119(c) – EE Participation	13	11
1910.0119(m) - II	13	9
1910.0119(i) - PSSR	12	10

PSM Sub-Elements – All Industries

Standard	Total Violations	Serious Violations
1910.119(j)(2) – MI Procedures	83	65
1910.119(d)(3)(i)(B) – P&IDs	78	55
1910.119(d)(3)(i)(D) – Relief Systems	45	21
1910.119(j)(4)(i) – I&T performance	43	37
1910.119(j)(5) – Correct deficiencies	35	31
1910.119(l)(1) – MOC program	33	25
1910.0119(n) - ER	32	26
1910.0119(e)(1) – PHA conduct	30	22
1910.119(f)(1) – Develop OPs	30	24
1910.119(j)(4)(ii) – I&T RAGAGEP	26	19
1910.119(f)(3) – Review OPs	25	12
1910.119(d) – PSI general	24	19
1910.0119(e)(3)(v) – Facility siting	23	19
1910.119(j)(4)(iii) – I&T frequency	20	15
1910.119(o)(1) – Conduct audit	20	13
1910.119(f)(4) – Safe work practice	19	15

Anhydrous Ammonia Industry

311340	Nonchocolate Confectionery Manufacturing
311351	Chocolate and Confectionery Manufacturing from Cacao Beans
311411	Frozen Fruit, Juice, and Vegetable Manufacturing
311412	Frozen Specialty Food Manufacturing
311511	Fluid Milk Manufacturing
311513	Cheese Manufacturing
311520	Ice Cream and Frozen Dessert Manufacturing
311611	Animal (except Poultry) Slaughtering
311612	Meat Processed from Carcasses
311615	Poultry Processing
311812	Commercial Bakeries
311813	Frozen Cakes, Pies, and Other Pastries Manufacturing
312111	Soft Drink Manufacturing
312113	Ice Manufacturing
493120	Refrigerated Warehousing and Storage

Anhydrous Ammonia Industry - Overall

- 84 CHEM NEP inspections
- 466 total violations
 - 334 Serious
 - 124 Other-than-serious
 - 4 Repeat
 - 4 Willful
- Top Standards Cited
 - 1910.119 287
 - 1910.134 27
 - 1910.120 25
 - 1910.28 19
 - 1910.147 16
 - 1910.37 9
 - 1910.151 8
 - 1910.1200 7
 - 1910.212 7

Anhydrous Ammonia Industry – PSM Elements

Standard	Total Violations	Serious Violations
1910.119(j)	87	65
1910.119(d)	83	54
1910.119(f)	38	28
1910.119(e)	18	13
1910.119(n)	13	10
1910.119(o)	13	10
1910.119(h)	10	3
1910.119(l)	9	3
1910.119(g)	6	1
1910.119(m)	5	4
1910.119(i)	3	2
1910.119(c)	2	2

Anhydrous Ammonia Industry – PSM Subelements

Standard	Total Violations	Serious Violations
1910.119(d)(3)(ii) – PSI RAGAGEP	48	31
1910.119(j)(2) – Establish MI Procedures	30	23
1910.119(j)(5) – Correct Deficiencies	18	14
1910.119(d)(3)(i)(B) – P&IDs	16	9
1910.119(n) - ER	13	10
1910.119(j)(4)(iii) – I&T frequency	12	7
1910.119(f)(3) – Review OPs	11	5
1910.119(j)(4)(i) – I&T performance	11	10
1910.119(f)(1) – Establish OPs	8	5
1910.119(d)(3)(i)(D) – Relief systems	7	6
1910.119(j)(4)(ii) – I&T RAGAGEP	7	4

1910.119(d)(3)(ii) - RAGAGEP

- ASHRAE-15 (1994) Section 8.13.2 and IIAR-2 (2008) Section 13.1.10.1. Machinery rooms were not equipped with self-closing and tight-fitting doors.
- Detection system did not activate an alarm to automatically operate mechanical ventilation system in accordance with IIAR 2 (2014) Sections 6.13 and 6.14.
- Eyewash/safety shower in the engine room did not meet employer's chosen RAGAGEP such as IIAR 2 (2014) Section 6.7.1
- The mechanical ventilation system was not designed to run continuously, and failure of the mechanical ventilation system did not activate an alarm as required by IIAR 2 (2010) Section 6.8 and ASHRAE 15 (1994) Section 8.13.2. In addition, since the mechanical ventilation system did not meet the RAGAGEP, the machinery room also did not meet the electrical hazardous classification location requirements in IIAR 2 (2014) Section 6.8.

1910.119(d)(3)(i)(B) – P&IDs

- Employers were cited for having inaccurate P&IDs including failure to include pressure relief valves, valves, instrumentation (pressure/temperature).
- Employers were also cited for not labeling piping on P&IDs.
- Examples include:
 - Relief valves and detail configurations of the high stage compressors were missing, detailed configurations of the evaporative condenser, ammonia vent-lines or stacks for the high stage compressors were also missing.
- During walkaround of ammonia refrigeration facilities, CHSOs observed various ammonia refrigeration equipment and valves that were mislabeled.

1910.119(j)(2) – MI Procedures

- Failed to establish and implement written procedures for inspecting and testing the following process equipment:
 - level control for pressure vessels
 - low and high pressure safety cutouts on compressors
 - insulated and uninsulated piping and vessels
 - engine room emergency ventilation
 - compressor oil and vibration analysis in accordance with mechanical integrity schedule

1910.119(j)(5) – Equipment Deficiencies

- Evaporator was not removed from service or provided with interim protective measures until the unit could be replaced when it was found with extreme corrosion on equipment mounts.
- Ammonia detector and alarm system in the engine room was not functional when ammonia sensors did not detect and alert personnel of potential ammonia release.
- Hose was used beyond use by date.
- Piping insulation was found damaged and was not repaired to prevent water intrusion and caused corrosion on the internal piping in accordance with applicable RAGAGEP such as IIAR Bulletin 110 (2002).
- Pressure relief system for high stage compressor exceeded the maximum allowable backpressure as required in ASHRAE 15-2013. Excess back pressure can cause the entire pressure relief system not to function properly, as designed, resulting in a fire and/or explosion.

1910.119(n) – Emergency Planning

- All citations associated with element n address two items:
 - The failure of the employer to establish an emergency plan
 - The failure of the emergency plan to direct the handling of small releases

OSHA PSM Team

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- Mike Marshall – Senior Safety Engineer
- Liliana Silvera – Safety Engineer
- Jonathan Russell – Safety Engineer

- Contact us with any questions (Lowell has the Bat Phone)



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