

PROGRAM-RELATED FATALITIES

MICHIGAN 2017



Management Information Systems Section
Technical Services Division
Michigan Department of Licensing & Regulatory Affairs
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INTRODUCTION

In 2017, Michigan reported 39 Program-Related fatalities. Program-Related fatalities in Michigan are recorded and tabulated by the Management Information Systems Section (MISS), Michigan Occupational Safety and Health Administration (MIOSHA), Michigan Department of Licensing and Regulatory Affairs (LARA). This information was compiled from investigation data entered in the Occupational Safety and Health Administration's Information System (OIS). The conditions necessary for a fatal case to be Program-Related are defined in the NOTE ON PROGRAM-RELATED CASES (see Page 5).

The intention of this report is to promote an understanding of what constitutes a Program-Related fatality and to assist in the continued effort of preventing and reducing fatal cases. Information presented in this report may be of special interest to employers, employees, safety professionals and consultants. Any inquiries regarding this report may be addressed to:

**Management Information Systems Section
Technical Services Division
Michigan Occupational Safety and Health Administration (MIOSHA)
Michigan Department of Licensing & Regulatory Affairs
530 W. Allegan Street, P. O. Box 30643
Lansing, Michigan 48909-8143
Telephone (517) 284-7790**

HIGHLIGHTS OF PROGRAM-RELATED FATALITIES, MICHIGAN 2017

This Program-Related fatality information for Michigan was compiled from investigation data entered in the Occupational Safety and Health Administration's Information System (OIS). Only fatal cases that are Program-Related, as defined by MIOSHA, are compiled. Therefore, the data does not include fatalities resulting from heart attacks, homicides, suicides, personal motor vehicle accidents, and aircraft accidents. The figures are shown in **Tables 1 through 7**.

PROGRAM-RELATED FATALITY TRENDS

A definition of Program-Related cases can be found on Page 5 of this report. Program-Related fatality trends for 1987 through 2017 are shown in **Table 1**, as well as data from 1987 through 2017 in **Chart 1**.

This report is an overview of how the fatalities were distributed across industry groups and occupations. Frequencies of fatalities by age group, gender, month of occurrence, and counties of occurrence are also provided.

PROGRAM-RELATED FATALITIES BY INDUSTRY

Table 2 shows the distribution of Program-Related fatalities by industry groups in 2017. This was determined by the job being performed by the employee at the time of the accident. Beginning in 2003, the industry group category is based on the Northern American Industry Classification System (NAICS), which groups establishments into industries based on the activities in which they are primarily engaged. Prior to 2003, the industry group category was based on the Standard Industrial Classification (SIC) of the employer. Due to the substantial differences between the current and previous classification systems, the results by industry in 2003 and thereafter constitute a break in series and users are advised against making comparisons between the 2003 industry categories and the results for previous years.

During 2017, the largest number of Program-Related fatalities were reported in the Construction industry (NAICS 23) with 16 fatalities. This was followed by Agriculture, Forestry, Fishing and Hunting (NAICS 11) and Manufacturing (NAICS 31-33) with 6 fatalities each.

PROGRAM-RELATED FATALITIES BY AGE AND GENDER

The distribution of Program-Related fatalities by age and gender are shown in **Tables 3 and 4**. The age group of 61 and over reported 10 fatalities, the age group of 56-60 reported six fatalities, the age group of 41-45 reported five fatalities, and the age group of 51-55 reported four fatalities. All 39 of the 2017 fatalities were male employees.

PROGRAM-RELATED FATALITIES BY MONTH OF OCCURRENCE

Fatality data categorized by the month of occurrence is shown in **Table 5**. The months of October and July recorded the highest number of program-related fatalities with six each, followed by August with five, April and December with four each, then by September and November with three each.

PROGRAM-RELATED FATALITIES BY INDUSTRY GROUPS AND DAYS OF THE WEEK

Program-Related fatalities by industry groups and days of the week are shown in **Table 6**. The highest number of fatalities by day of the week was Friday and Wednesday with nine, followed by Tuesday and Saturday with seven.

PROGRAM-RELATED FATALITIES BY COUNTY OF OCCURRENCE

The distribution of fatality cases by counties shows that Program-Related fatalities were reported as occurring in 20 counties during 2017. Eight fatalities were reported in Wayne County, six in Genesee County, three in Ottawa County, and two each in Berrien, Kalamazoo, Kent, Mason, and Oakland Counties. Sixty-three counties had no program-related fatalities. A complete distribution of fatality cases by county of occurrence is shown in **Table 7**.

Even though Michigan's 2017 total Program-Related fatality cases are far less than the thousands of cases reported nationwide, the consequences of these on-the-job deaths in terms of human suffering, lost workdays, decreased production, and increased compensation rates are too significant to be overlooked.

In order for Michigan to reduce the number of on-the-job fatality cases, it requires a conscious effort on the part of employers to recognize and comply with MIOSHA standards, develop and implement safe working procedures, and assure that employees observe and practice these procedures. The MIOSHA program offers onsite consultation, education, and training (CET) opportunities to employers and employees alike to help them achieve this goal.

Those Michigan employers, who would like to request education and training services, as well as onsite consultation programs, may contact:

**Consultation Education and Training (CET) Division
Michigan Occupational Safety and Health Administration (MIOSHA)
Michigan Department of Licensing & Regulatory Affairs
530 W. Allegan Street, P. O. Box 30643, Lansing, Michigan 48909
Telephone (517) 284-7790**

The Program-Related fatality data for Michigan are presented in the following series of **Tables 1 through 7**. A brief description of how the Program-Related fatalities occurred is also provided following the series of tables. The descriptions are listed by industry groups based on the North American Industry Classification System (NAICS), which is based on the activity in which the establishment is primarily engaged. Safety professionals may find this information useful for accident prevention.

NOTE ON PROGRAM-RELATED CASES

A fatality is recorded as “Program-Related” if the deceased party was employed in an occupation included in MIOSHA jurisdiction as defined in Public Act 154 of 1974, as amended, and the fatality appears to be related to one or more of the following conditions:

1. The incident was found to have resulted from violations of MIOSHA safety and health standards or the “general duty” clause.
2. The incident was considered to be the result of a failure to follow a good safety and health practice that would be the subject of a safety and health recommendation.
3. The information describing the incident is insufficient to make a clear distinction between a "Program-Related" and a "non-Program-Related" incident, but the type and nature of the injury indicates that there is a high probability that the injury was the result of a failure to adhere to one or more MIOSHA standards, the “general duty” clause, or good safety and health practice.

Any inquiries may be addressed to:

**Management Information Systems Section
Technical Services Division
Michigan Occupational Safety and Health Administration (MIOSHA)
Michigan Department of Licensing & Regulatory Affairs
530 W. Allegan Street, P. O. Box 30643
Lansing, Michigan 48909-8143
(517) 284-7790**

CHART 1 PROGRAM-RELATED FATALITY TRENDS

CHART 1
PROGRAM-RELATED FATALITY TRENDS
MICHIGAN 1987 - 2017

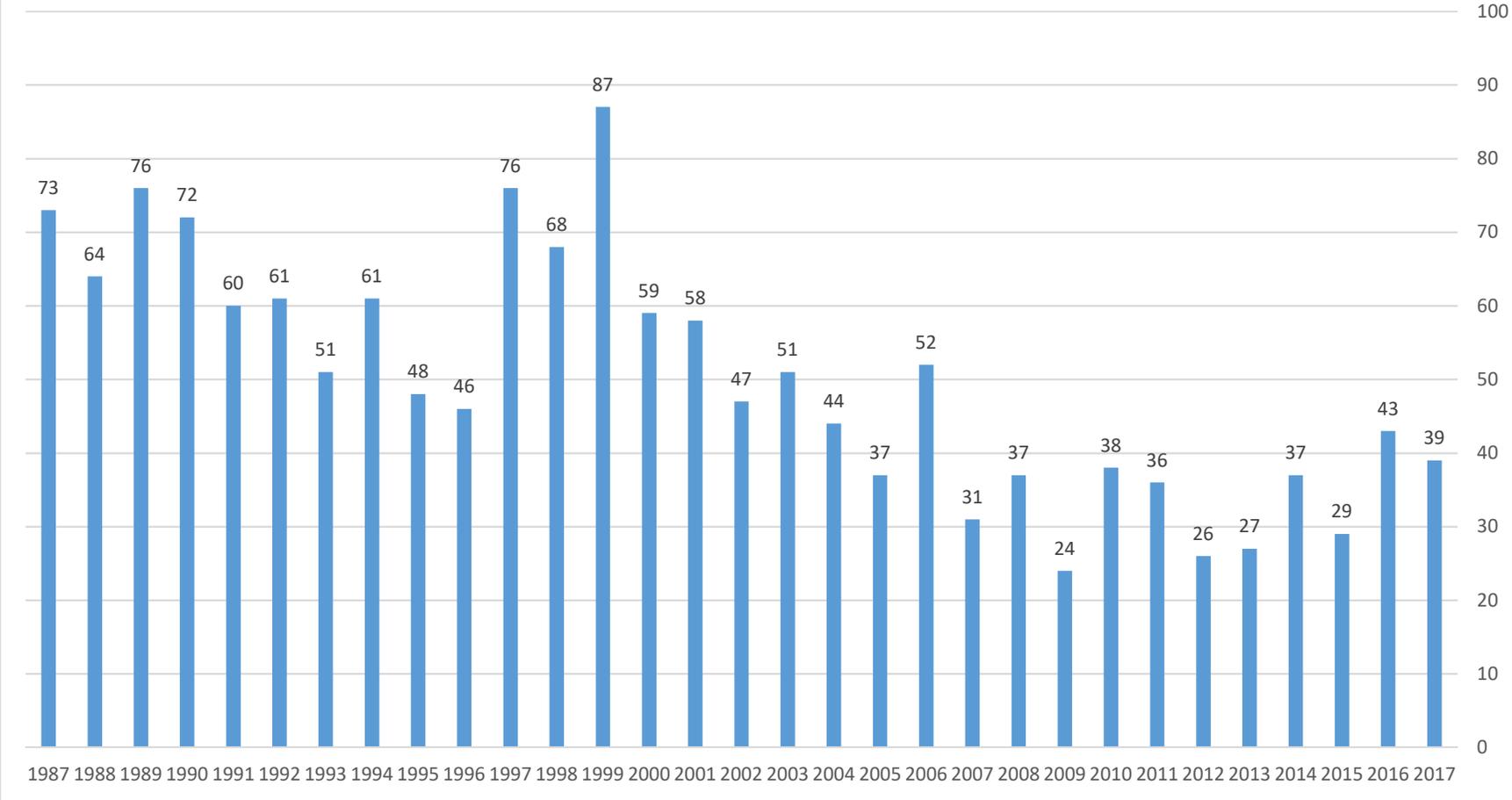


TABLE 1 PROGRAM-RELATED FATALITY TRENDS, MICHIGAN 1987 – 2017

| YEAR | NUMBER | PERCENT CHANGE FROM PREVIOUS YEAR | PERCENT CHANGE FROM 1987 |
|-------------|---------------|--|-------------------------------------|
| 1987 | 73 | -- | -- |
| 1988 | 64 | -12.3 | -12.3 |
| 1989 | 76 | 18.8 | 4.1 |
| 1990 | 72 | -5.3 | -1.4 |
| 1991 | 60 | -16.7 | -17.8 |
| 1992 | 61 | 1.7 | -16.4 |
| 1993 | 51 | -16.4 | -30.1 |
| 1994 | 61 | 19.6 | -16.4 |
| 1995 | 48 | -21.3 | -34.2 |
| 1996 | 46 | -4.2 | -37.0 |
| 1997 | 76 | 65.2 | 4.1 |
| 1998 | 68 | -10.5 | -6.8 |
| 1999 | 87 | 27.9 | 19.2 |
| 2000 | 59 | -32.2 | -19.2 |
| 2001 | 58 | -1.7 | -20.5 |
| 2002 | 47 | -19.0 | -35.6 |
| 2003 | 51 | 8.5 | -30.1 |
| 2004 | 44 | -13.7 | -39.7 |
| 2005 | 37* | -15.9 | -49.3 |
| 2006 | 52 | 40.5 | -28.8 |
| 2007 | 31 | -40.4 | -57.5 |
| 2008 | 37 | 19.4 | -49.3 |
| 2009 | 24 | -35.1 | -67.1 |
| 2010 | 38* | 58.3 | -47.9 |
| 2011 | 36 | -5.3 | -50.7 |
| 2012 | 26 | -27.8 | -64.4 |
| 2013 | 27 | 3.8 | -63.0 |
| 2014 | 37 | 37.0 | -49.3 |
| 2015 | 29 | -21.6 | -60.3 |
| 2016 | 43 | 48.3 | -41.1 |
| 2017 | 39 | -9.3 | -46.5 |

Source: MISS/TSD/ MIOSHA/Michigan Department of Licensing & Regulatory Affairs

*Note: An amendment has been made to both the 2005 and 2010 fatality counts. They were previously reported as 36 and 37 total fatalities respectively.

**TABLE 2 PROGRAM-RELATED FATALITIES BY INDUSTRY GROUPS,
MICHIGAN 2017**

| NAICS MAJOR SECTOR | INDUSTRY GROUP | TOTAL |
|---------------------------|--|--------------|
| 11 | AGRICULTURE, FORESTRY, FISHING AND HUNTING | 6 |
| 21 | MINING | 0 |
| 22 | UTILITIES | 0 |
| 23 | CONSTRUCTION | 16 |
| 31-33 | MANUFACTURING | 6 |
| 42 | WHOLESALE TRADE | 0 |
| 44-45 | RETAIL TRADE | 0 |
| 48-49 | TRANSPORTATION AND WAREHOUSING | 3 |
| 51 | INFORMATION | 0 |
| 52 | FINANCE AND INSURANCE | 0 |
| 53 | REAL ESTATE AND RENTAL AND LEASING | 0 |
| 54 | PROFESSIONAL, SCIENTIFIC AND TECHNICAL SERVICES | 0 |
| 55 | MANAGEMENT OF COMPANIES AND ENTERPRISES | 0 |
| 56 | ADMINISTRATIVE AND SUPPORT AND WASTE MANAGEMENT AND REMEDIATION SERVICES | 3 |
| 61 | EDUCATIONAL SERVICES | 1 |
| 62 | HEALTH CARE AND SOCIAL ASSISTANCE | 0 |
| 71 | ARTS, ENTERTAINMENT AND RECREATION | 1 |
| 72 | ACCOMMODATION AND FOOD SERVICES | 1 |
| 81 | OTHER SERVICES (EXCEPT PUBLIC ADMINISTRATION) | 1 |
| 92 | PUBLIC ADMINISTRATION | 1 |
| TOTAL | | 39 |

Note: The industry group categories are based on the Northern American Industrial Classification System (NAICS), which is based on the activities in which the establishments are primarily engaged.

Source: MISS/TSD/ MIOSHA/Michigan Department of Licensing & Regulatory Affairs

**TABLE 3 PROGRAM-RELATED FATALITIES BY AGE,
MICHIGAN 2017**

| AGE | NUMBER OF CASES | PERCENT OF CASES |
|--------------|------------------------|-------------------------|
| 20 and Under | 2 | 5 |
| 21 - 25 | 2 | 5 |
| 26 - 30 | 2 | 5 |
| 31 - 35 | 2 | 5 |
| 36 - 40 | 3 | 8 |
| 41 - 45 | 5 | 13 |
| 46 - 50 | 3 | 8 |
| 51 - 55 | 4 | 10 |
| 56 - 60 | 6 | 15 |
| 61 and Over | 10 | 26 |
| TOTAL | 39 | 100 |

Source: MISS/TSD/MIOSHA/Michigan Department of Licensing & Regulatory Affairs

**TABLE 4 PROGRAM-RELATED FATALITIES BY GENDER,
MICHIGAN 2017**

| GENDER | NUMBER OF CASES | PERCENT OF CASES |
|---------------|------------------------|-------------------------|
| MALE | 39 | 100 |
| FEMALE | 0 | 0 |
| TOTAL | 39 | 100 |

Source: MISS/TSD/MIOSHA/Michigan Department of Licensing & Regulatory Affairs

**TABLE 5 PROGRAM-RELATED FATALITIES BY MONTH OF OCCURRENCE,
MICHIGAN 2017**

| MONTH OF OCCURANCE | NUMBER OF CASES |
|---------------------------|------------------------|
| JANUARY | 1 |
| FEBRUARY | 1 |
| MARCH | 2 |
| APRIL | 4 |
| MAY | 2 |
| JUNE | 2 |
| JULY | 6 |
| AUGUST | 5 |
| SEPTEMBER | 3 |
| OCTOBER | 6 |
| NOVEMBER | 3 |
| DECEMBER | 4 |
| TOTAL | 39 |

Source: MISS/TSD/MIOSHA/Michigan Department of Licensing & Regulatory Affairs

**TABLE 6 PROGRAM-RELATED FATALITIES BY INDUSTRY GROUPS AND DAY
OF THE WEEK,
MICHIGAN 2017**

| INDUSTRY GROUP | DAY OF THE WEEK | | | | | | | TOTAL |
|--|------------------------|------------|------------|------------|-------------|------------|------------|--------------|
| | SUN | MON | TUE | WED | THUR | FRI | SAT | |
| AGRICULTURE, FORESTRY, FISHING & HUNTING | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 6 |
| CONSTRUCTION | 1 | 2 | 3 | 4 | 0 | 3 | 3 | 16 |
| MANUFACTURING | 0 | 0 | 3 | 0 | 0 | 2 | 1 | 6 |
| TRANSPORTATION & WAREHOUSING | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 3 |
| ADMINISTRATIVE AND SUPPORT AND WASTE MANAGEMENT AND REMEDATION SERVICES | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 |
| EDUCATIONAL SERVICES | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| ARTS, ENTERTAINMENT, & RECREATION | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| ACCOMMODATIONS AND FOOD SERVICES | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| OTHER SERVICES (EXCEPT PUBLIC ADMINISTRATION) | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| PUBLIC ADMINISTRATION | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| TOTAL | 1 | 3 | 7 | 9 | 3 | 9 | 7 | 39 |

Source: MISS/TSD/MIOSHA/Michigan Department of Licensing & Regulatory Affairs

**TABLE 7 PROGRAM-RELATED FATALITIES BY COUNTY OF OCCURRENCE,
MICHIGAN 2017**

| COUNTY | NUMBER OF CASES |
|----------------|-----------------|
| BERRIEN | 2 |
| CALHOUN | 1 |
| CASS | 1 |
| CLARE | 1 |
| GENESEE | 6 |
| GRAND TRAVERSE | 1 |
| KALAMAZOO | 2 |
| KENT | 2 |
| LAPEER | 1 |
| LIVINGSTON | 1 |
| MACOMB | 1 |
| MASON | 2 |
| MONROE | 1 |
| OAKLAND | 2 |
| OTTAWA | 3 |
| SAGINAW | 1 |
| SAINT JOSEPH | 1 |
| VAN BUREN | 1 |
| WASHTENAW | 1 |
| WAYNE | 8 |
| TOTALS | 39 |

Source: MISS/TSD/MIOSHA/Michigan Department of Licensing & Regulatory Affairs

PROGRAM-RELATED FATALITY INCIDENTS BRIEF DESCRIPTIONS OF CASES BY INDUSTRY GROUPS

The following descriptions are captured from the OSHA Information System (OIS) as prepared by Federal OSHA staff.

AGRICULTURE, FORESTRY, FISHING & HUNTING

1. At 1:45 p.m. on June 8, 2017, an employee was using a tractor to push a tree over. The tree fell on the tractor, and the employee was killed.
2. At 5:00 p.m. on July 20, 2017, an employee and his supervisor were operating a Boston Whaler boat in Lake Michigan. The supervisor fell overboard, which the employee dove in to rescue him. While the supervisor was rescued, the employee ended up drowning.
3. At 9:30 a.m. on August 5, 2017, an employee was operating a Dutz 3006 low profile orchard tractor pulling a single axle trailer of fruit lugs and ladders to the orchard. The employee was run over by tractor and sustained blunt injury to the chest resulting in fatal traumatic asphyxia.
4. At 3:45 p.m. on August 5, 2017, an employee was knocking grain from the interior walls of the grain bin with a metal pole. After the task was completed, the employee climbed to the top of the bin and pulled the 21' metal pole out of the bin. He contacted the 4800v power line approximately 14' above his head with the pole and was electrocuted.
5. At 5:30 p.m. on October 21, 2017, an employee was backing a walk-behind Friday Cherry shaker harvester into a pole barn. The employee backed the harvester into the wall of the pole barn. The constant pressure lever was caught on the employee and was not able to release it and disengage the harvester. The employee's chest was pinned and crushed by the harvester and was killed.
6. At 4:30 p.m. on November 29, 2017, Employee #1 was bush hogging a harvested corn field. Due to circumstances not given, the employee became entangled on a secondary drive shaft and was killed.

CONSTRUCTION

7. At approximately 8:45 a.m. on April 8, 2017, an employee was tearing boards off the walls of the garage with a hammer. The roof of the garage fell onto the employee and struck his head. The employee was killed.
8. At 3:45 p.m. on April 11, 2017, an employee was taking measurements for a trim board of the dormer on the 12 by 12 pitch roof. The employee fell 26 feet to the ground before continuing the fall another 10 feet to the bottom of a basement window egress pit. The employee was killed.
9. At 9:45 a.m. on April 23, 2017, an employee fell off a 3/12 pitch roof onto concrete slab below. The employee fell approximately 12'4" to concrete below. He sustained severe head trauma and was killed.

10. At 8:00 a.m. on May 22, 2017, an employee was performing scheduled maintenance of welding shims on the Pecor rail system of a Basic Oxygen Process at a Steel Mill. The employee was using fall protection and went past a guard rail to access the area in which he needed to work. When the employee went into the area, he stepped onto a ledge that was filled with debris. The employee slipped and fell off the ledge. The employee's fall protection did not stop the employee's fall. He fell sixteen feet striking a vertical scaffolding post before stopping on top of the scaffolding deck. The employee's chest hit the vertical scaffolding post, and he was killed.
11. At 5:15 p.m. on May 31, 2017, an employee was applying adhesive to insulated foam board for wall siding operation. The employee tripped over a 24 inch by 48 inch skylight that was covered with original manufactured plastic bubble cover and fell through it. The employee fell approximately 30 feet before striking the concrete floor. The employee sustained blunt force trauma to the head and body and was killed.
12. At 11:15 a.m. on July 5, 2017, an employee was working as part of a 6 person crew, performing a transformer upgrade from 4,800 Kv to 13,200 Kv. As the employee was assisting in putting lugs on wires for connection to the new transformer, when he dropped a large crescent wrench into a bus duct. The employee reached with his left hand to retrieve the wrench, contacting energized parts, and was electrocuted.
13. At 11:15 a.m. on July 19, 2017, an employee was working from the basket of a bucket truck to upgrade a conductor and pole. The truck was located near a 7.6kv single phase primary leg line of a 13,200 volt system. As the employee was holding a ground wire with his bare hand, his right shoulder touched the live power line and he was electrocuted.
14. At 11:15 a.m. on July 26, 2017, an employee was installing shingles. The employee fell from the roof, but was able to get up and go home. He and another worker stopped at a gas station where the man fell from the truck and struck his head, resulting in death.
15. At 4:45 p.m. on July 28, 2017, an employee was positioning roofing material on the high roof at a roof drain between the mechanical screening and the east side. The building had 4 roofs. Two roofs were to the north approximately 26 feet high. One roof was to the west approximately 18 feet 4 inches high. One low roof to the south was approximately 13 feet 8 inches high. Workers accessed the roof with a ladder to the low roof and another portable from the low roof to the high roof. The West roof was used to drop debris into a dumpster. The person in charge was positioning roofing material on the high roof at a roof drain between the mechanical screening and the east side. Employee #1 was moving backwards towards the east edge and fell over the approximately 12 inch high parapet to the ground approximately 26 feet below. The employee sustained fatal injuries, including bleeding underneath the front of the skull.
16. At 3:30 p.m. on August 1, 2017, an employee was removing concrete on the second floor using a jackhammer. The floor caved in and the employee fell approximately 15

feet to the floor below. The employee died from crushing injuries and a severe laceration to inner right thigh.

17. Employee #1 was installing metal trim along a rake edge of a steep pitched roof. Three coworkers were on the opposite side of the roof that had a lower pitch, also installing metal trim. Employee #1 fell approximately 15 feet from the unguarded steep pitched roof to the lower deck area, striking vertical wood framing members that were placed on 16 inch centers. Employee #1 was taken to a nearby hospital, where he later died from his injuries.
18. At 8:00 a.m. on October 7, 2017, an employee was purging multiple air filled natural gas lines with natural gas. During the purging, operation from a source valve through the isolation valve and out each pipe union located just prior to dehumidification valve train. There was accumulation of natural gas with an unknown ignition source creating an explosion. The employee sustained burns to his back and arm areas and was killed.
19. At 1:45 p.m. on October 9, 2017, two employees were working in a 70 foot long excavation to locate a broken or clogged sewer line at a residential property. As Employee #1 was in an excavation using a shovel to locate the sewer line, Employee # 2 was using an excavator. While in the excavation that was approximately 5 feet wide by 8 feet deep, 40 feet of the 70 feet long excavation caved in and trapped Employees #1 and #2. Employee #1 was killed and Employee #2 was recovered and hospitalized.
20. At 11:45 a.m. on October 13, 2017, an employee was carrying sheeting to a location on a roof. The employee slipped on the metal roofing, which was wet, and fell between 11 and 13 feet. The employee was hospitalized for his injuries, and later died as a result of his injuries.
21. At 9:20 a.m. on October 28, 2017, an employee installing sheathing on a single-story garage roof with a steep pitch. The employee was installing roof sheathing without fall protection and fell. The employee struck his head on ground and was transported to hospital. He later died.
22. At 10:45 a.m. on November 21, 2017, an employee was hand digging in an excavation. A valve on a 12 inch water main separated from the pipe resulting in the excavation rapidly filling with water. The employee drowned.

MANUFACTURING

23. At 3:00 p.m. on July 29, 2017, an employee was cleaning a corn dust bin. The employee was engulfed by corn dust and was killed from asphyxiation.
24. At 5:00 a.m. on June 27, 2017, Employee #1, employed by a glass fabricator, was moving shipping trailers from one docking bay to another. He was struck and run over by the tractor and trailer. Employee #1, who sustained crushing injuries to his head, neck, and chest, was killed.
25. At 2:30 p.m. on August 1, 2017, an employee was repairing a leaking front left tire on a front end loader with two co-workers. A bottle of Green Slime tire leak sealant was

injected into the tire and an ether-based starting fluid was sprayed into the tire. The starting fluid was lit with a propane torch, causing the tire to seat against the wheel bead. At this point, the employee took an air hose and inflated the tire while holding the air chuck on the tire valve and standing in front of the wheel. The outer portion of the multi-piece rim blew off and lacerated the employee's neck, killing him.

26. At 1:00 p.m. on March 7, 2017, an employee was searching for an air leak in the furnace door. The door became over pressurized and the end cap ruptured striking the employee. The employee was killed by blunt force trauma to head and chest.
27. At approximately 10:00 a.m. on April 7, 2017, an employee was using an impact wrench just before the accident. Employee was under the part affixed to the fixture when two welded studs holding it to the support arms broke. The 3,000 pound part fell atop the employee working beneath it. At the time of the accident, the positioner arms were inverted so that the part was upside down, and was supported solely by the two butt welded bolts. The employee was crushed and killed.
28. At 6:30 p.m. on December 22, 2017, an employee was cutting the banding off a vertical standing steel coil that weighed approximately 5,000 lbs before loading it into a press machine. The employee was struck by the steel coil when it fell over. The employee was hospitalized with fractured legs, fractured left tibia, and dislocated left knee cap. The employee later died from complications.

TRANSPORTATION & WAREHOUSING

29. At approximately 7:00 p.m. on February 1, 2017, an employee was assisting truck mechanics in the repair of a tire which was leaking air. The employee was standing in front of the leaking tire after having noticed a piece of metal that had punctured the tire and was waiting with a mechanic while a second mechanic retrieved a tire repair kit. Prior to identifying the tire puncture, numerous attempts were made to add air to the tire. The employee was standing approximately 3-feet directly in front of a tire mounted on a semi-truck that was in the process of being repaired when the side wall of the tire ruptured exploding compressed air outwards towards the employee. The employee was blown off his feet and thrown approximately 6-feet backwards consequently striking his head on the floor. The employee's head struck the floor resulting in a concussion and closed head injury. The employee was killed.
30. At 2:00 p.m. on August 9, 2017, a heavy duty semi-tractor mechanic was retrieving an electronic relay from a wrecked semi-tractor to test. The damaged semi-tractor was on a low-boy trailer in the company's northwest corner of yard awaiting disposition and/or scrapping. The mechanic climbed up onto the approximate 20-inch low-boy trailer and was removing the relay from damaged truck, when he fell backwards, striking his head on the concrete below. The employee sustained a traumatic brain injury, subdural

hematoma. The employee never regained consciousness and passed away 10 days later on August 19, 2017 at approximately 4:15 p.m. at the hospital.

31. At 9:00 a.m. on October 23, 2017, an employee was working underneath a disabled full-size bus where the front tires were supported by wooden blocks. The employee was partially under the raised front end when it rolled off of the supports and struck him, crushing his head.

ADMINISTRATIVE & SUPPORT & WASTE MANAGEMENT & REMEDIATION SERVICES

32. At 7:15 a.m. on September 22, 2017, Employee #1 was placing sections of cardboard between different materials in the back of an open top semi-trailer. The employee stepped onto the multi-shell grab attached to the material handler to descend to the ground from the back of the semi-trailer. The multi-shell grab was holding a 4,500 pound steel packer, which the employee was standing on during transport. The packer shifted in the multi-shell grab and the employee fell approximately eight feet to the ground. The packer dislodged from the multi-shell grab, and fell onto the employee, killing him.
33. At 7:15 a.m. on September 29, 2017, Employee #1 was standing at the controls of a rear load mobile refuse packer on the street side, during a routine trash pick-up stop. A motor vehicle attempted to pass the refuse truck and struck the employee. The employee sustained fractured bilateral femurs of both legs, fractured left ribs (#5-8), multiple abrasions and lacerations to both legs, and fractured vertebrae (L2-L5). Surgery was performed later that same evening, but Employee #1 died the next morning from complications.
34. At 9:15 a.m. on November 17, 2017, an employee was performing tree trimming from an articulating arm aerial lift bucket. While attempting to free the bucket from a branch on the tree, the bucket rapidly descended then moved forward and upward ejecting the employee from a height of approximately 15 to 20 feet above grade. The employee impacted head first onto a sidewalk and was killed.

EDUCATIONAL SERVICES

35. At 2:30 p.m. on December 15, 2017, an employee was walking on the sidewalk after exiting from inside the school. The employee slipped and fell, and fractured his right hip. The employee was taken to the hospital and received medical attention related to the injury. The employee later died due to complications from pre-existing heart disease. The employee slipped and fell due to icy/snowy/slushy conditions on the walking surface causing a fracture to his right hip.

ARTS, ENTERTAINMENT & RECREATION

36. At 6:00 p.m. on December 26, 2017, an employee was removing a tree limb approximately 17 feet above the ground with a gas powered chainsaw while on a

ladder. The employee fell from the ladder and struck his head on the ground, killing him.

ACCOMMODATION AND FOOD SERVICES

37. At 8:00 a.m. on December 20, 2017, an employee was on a step ladder replacing fluorescent lights. The employee had wire cutters, wire strippers, and a nut runner. The employee fell off approximately 5 foot off the step ladder. When the employee fell off the ladder they sustained a head injury and was hospitalized. The employee died later from the injury.

OTHER SERVICES (EXCEPT PUBLIC ADMINISTRATION)

38. At approximately 9:00 a.m. on January 11, 2017, an employee climbed out of an aerial lift onto a crane catwalk to access the crows nest to check the collector's shoe during an inspection. The employee stood on a wooden platform made of 0.625 inch plywood. The plywood cracked and broke in the center and the employee fell 27 feet to the ground landing on his head. The employee had trauma to head and upper extremities and was killed.

PUBLIC ADMINISTRATION

39. At approximately 11:00 a.m. on March 23, 2017, Employee #1 was applying cold patch material to a road surface when he was struck by a vehicle backing up. Employee #1 was killed.