

2020 Fatal Comparison Chart (based on preliminary report data, fatal alerts, & final reports) Updated: 9/2/2020

MMM Total	14	Fatal Date	Coal Total	1	Fatal Date	Total
Underground (UG)	1	Jul24	Underground (UG)	0		1
Surface & Sur of UG	13	Jan8, Jan23, Feb27m, Feb29, May2, Jun1, Jun13, Jun19, Jul9, Jul29, Aug18, Aug26, Sep1	Surface & Sur of UG	1	Feb27c	11
Found Non-Chargeable			Found Non-Chargeable	1	Feb10	
Contractor	2	Jan23, Jun13	Contractor	1	Feb27c	3
Powered Haulage	1	Jul29	Powered Haulage	1	Feb27c	2
Machinery	3	Feb29, Jun13, Aug26	Machinery	0		3
Roof, Rib, Highwall Fall			Roof, Rib, Highwall Fall			0
Electrical	1	Jul9	Electrical	0		1
Slip & Fall of Persons	3	Jan8, Jan23, Jun1	Slip & Fall of Person	0		3
Fall & Sliding Materials	2	Jun19, Aug18	Fall & Sliding Materials	0		2
Handling Materials	2	Feb27m, May2	Handling Materials	0		2
Age 0-19			Age 0-19			
Age 20-29	5	Feb27m, Feb29, Jun13, Jul24, Aug18	Age 20-29			5
Age 30-39	1	Jan8	Age 30-39			1
Age 40-49			Age 40-49			0
Age 50-59	1	May2	Age 50-59	1	Feb27c	2
Age 60+	4	Jan23, Jun1, Jun19, Jul9	Age 60+			4
Experience			Experience			
Less than 1 year	3	Jan8, Jun1, Jul24	Less than 1 year			3
1-9 years	5	Feb27m, Feb29, May2, Jun13, Aug18	1-9 years	0		5
10-19 years			10-19			0
20+	3	Jan23, Jun19, Jul9	20+	1	Feb27c	4
Mine Site Experience			Mine Site Experience			
Less than 1 year	4	Jan8, Jan23, Jun1, Jul24	Less than 1 year	1	Feb27c	5
1-9 years	6	Feb27m, Feb29, May2, Jun13, Jun19, Aug18	1-9 years	0		6
10-19			10-19			0
20+	1	Jul9	20+	0		1
Job/Task Experience			Job/Task Experience			
0-7 days	1	Jul24	0-7 days			1
Less than 1 year	2	Jan8, Jun1	Less than 1 year			2
1-9 years	7	Feb27m, Feb29, May2, Jun13, Jun19, Jul9, Aug18	1-9 years	1	Feb27c	8
10-19			10-19			0
20+	1	Jan23	20+			1
Shift Time (occurred)			Shift Time			
1 st Shift (7am-3pm)	10	Jan8, Jan23, Feb27m, Feb29, May2, Jun1, Jun13, Jun19, Jul9, Jul24	1 st Shift (7am-3pm)	1	Feb27c	11
2 nd Shift (3pm-11pm)			2 nd Shift (3pm-11pm)			0
3 rd Shift (11pm-7am)	1	Aug18	3 rd Shift (11pm-7am)			1
Day of the Week:			Day of the Week:			
Sunday			Sunday			0
Monday	1	Jun1	Monday			1
Tuesday	1	Aug18	Tuesday			1
Wednesday	3	Jan8, Jul29, Aug26	Wednesday	0		3
Thursday	3	Jan23, Feb27m, Jul9	Thursday	1	Feb27c	4
Friday	2	Jun19, Jul24	Friday			2
Saturday	3	Feb29, May2, Jun13	Saturday	0		3

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2020 - Month	MNM	Coal	Totals	Difference	Totals	2019 - Month	MNM	Coal
January	2	0	2	0	2	January	0	2
February	2	1	3	+3	0	February	0	0
March	0	0	0	-3	3	March	2	1
April	0	0	0	0	0	April	0	0
May	1	0	1	-2	3	May	2	1
June	3	0	3	+1	2	June	2	0
July	3	0	3	0	3	July	2	1
August	2	0	2	-3	5	August	2	3
September	1	0	1	-1	2	September	0	2
October					0	October	0	0
November					2	November	2	0
December					2	December	1	1
2020 Total:	14	1	15	-4	24	2019 Total:	13	11

Product	Fatals For 2020	2020 Total product	2019 Total product
Alumina			
Cement	Jan23	1	1
Clay			1
Coal	Feb27c	1	11
Copper			1
Diatomaceous Earth			
Dimension Stone			
Gold Ore			
Granite			1
Gypsum			
Iron Ore			1
Kaolin			
Lead Ore			
Lime			
Limestone	Jan8, Jun19, Jul24	3	2
Magnesite			
Phosphate			
Potash			
Sand/Sand & Gravel	Feb27m, Feb29, May2, Jun1, Jun13, Jul9, Jul29, Aug18, Aug26, Sep1	10	2
Sandstone			2
Shale			
Silver Ore			
Stone			1
Titanium			1
Traprock			

State (2020)	Total	MNM	Coal	Fatal Date
Arizona	2	2	0	Jun1, Jun13
California	2	2	0	Jan23, Aug18
Georgia	2	2	0	Jul9, Jul24
Iowa	1	1	0	Jan8
Kansas	1	1	0	Jun19
Louisiana	1	1	0	Feb29
Michigan	1	1	0	Feb27m
Missouri	1	1	0	Jul29
Ohio	1	1	0	May2
Texas	1	1	0	Sep1
Washington	1	1	0	Aug26
West Virginia	1	0	1	Feb27c

Part 48 = 1	Part 46 = 14
All Coal = 1	Non Metal SUR = 14
Metal: UG = 0	
Metal: SUR = 0	

Month	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	TOTAL	AVG
January	2	2	1	2	3	5	1	3	2	1	4	26	2.36
February	3	0	2	3	1	1	5	5	3	3	0	26	2.36
March	0	3	3	3	3	5	2	3	5	2	1	30	2.73
April	0	0	1	0	2	0	6	3	2	2	33	49	4.45
May	1	3	1	2	2	4	6	1	5	1	6	32	2.91
June	3	2	3	3	4	3	6	3	2	4	6	39	3.55
July	3	3	1	4	2	2	2	4	4	2	3	30	2.73
August	2	5	2	2	1	4	3	3	2	3	4	31	2.82
September	1	2	1	3	3	2	3	3	5	4	1	27	2.7
October		0	6	4	1	0	3	5	1	6	6	32	3.2
November		2	2	0	0	0	6	5	4	4	3	26	2.6
December		2	4	2	3	3	3	4	1	4	5	31	3.1
Total:	15	24	27	28	25	29	46	42	36	36	72	380	2.96/mo

Average over past 10 years (2010-2019) = 37 per year

Average over past 5 years (2015-2019) = 27 per year

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2020 – Combined Coal and MNM Fatal

Jan 8

Slip/Fall of Person

Iowa

On Wednesday, January 8, 2020, at a surface limestone mine a 30-year-old truck driver/quality control person with a year and half experience died when he fell into a lime surge hopper and became engulfed by the material.

Cited Regulations: 56.16002(b), 56.18002(a), 46.7

Root Cause:

- The mine operator did not provide a suitable walkway at the rim of the lime surge hopper.
- The mine operator did not ensure that a competent person conducted workplace exams in all places prior to miners beginning work.
- The mine operator did not provide task training on safety hazards encountered when walking and working on walkways around the lime surge hopper.

Best Practices:

- Provide a suitable walkways and ensure that the walkway is examined by a competent person for conditions that may adversely affect safety before work was performed from the walkway.
- Task train employees on safety hazards encountered when walking and working on walkways around hoppers. Task train competent persons who conduct workplace exams in all working places.
- Check handrails and gates. Ensure handrails and gates are substantially constructed, properly secured, and free of defects.
- Install mechanical flow-enhancing devices so workers do not have to enter a bin to start or maintain material flow.
- Don't stand on material stored in bins. Material stored in a bin can bridge over the hopper outlet, creating a hidden void below the material surface.
- Lock-out, tag-out. Do not enter a bin until the supply and discharge equipment is locked out.
- Wear a safety belt or harness secured with a lanyard to an adequate anchor point before entering a bin. Station a second person near the anchor point to make sure there's no slack in the fall protection system.
- Train all miners to recognize fall hazards and properly use fall protection.
- Provide safe access to all work places, and discuss and establish safe work procedures.

Use the following links to view additional information:

[Preliminary Report](#)

[Fatal Alert](#)

[Final Report](#)

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2020 – Combined Coal and MNM Fatal

Jan 23

Slip/Fall of Person

California

On Thursday, January 23, 2020, a 71-year-old Contract Truck Driver with over 48 years of total mining experience fell through a gap from the top of his bulk trailer while opening the bulk trailer lids. The gap was the result of the tractor-trailer not being correctly aligned with the center of the truck racks. He died on January 26, 2020, due to head trauma he received from the fall.

Cited Regulation: 56.11001

Root Cause:

Management did not provide adequate policies, procedures, or equipment to assure proper alignment of the bulk trailers in relation to the truck racks such that the gangway ramp with Safe-T Cage would properly protect miners while they opened the bulk trailer lids.

Best Practices:

- Provide a means to align bulk trailers under truck racks to assure the ramp is aligned correctly with the trailer's lids so that miners have safe access. Alignment methods can include painted lines, concrete barriers, cameras and monitors, or sensors to indicate proper positioning.
- Wear proper footwear that is clean and in good condition.
- Examine work areas and routinely monitor work habits to ensure that workers follow safe work procedures.
- Identify and control all hazards associated with the work to be performed.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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Feb 10

Not Chargeable

Kentucky

MSHA's Chargeability Review Committee reviewed the death certificate, autopsy report, medical information, and MSHA's accident investigation findings and determined that the miner died from natural causes. The fatality is not chargeable to the mine operator.

Cited Regulation: Fatal Report not available.

2020 – Combined Coal and MNM Fatals

February 27m

Handling Material

Michigan

On Thursday, On February 27, 2020, at a surface sand and gravel mine a 29-year-old equipment operator with almost 2 years experience died while attempting to secure a steel plate (20'x8'x1") at the feed hopper. The victim had positioned himself between the steel plate and a front-end loader that was holding the steel plate in the vertical position before the feed ramp was constructed. While removing a rigging chain from the steel plate, the steel plate fell over and pinned the victim between the steel plate and the forks of the front-end loader.

Cited Regulation: 56.9201

Root Cause:

The mine operator's feed ramp construction procedure did not explicitly require that the steel plate be securely fastened to the frame of the feed hopper prior to persons removing rigging, or prevent miners from working near an unsecured load.

Best Practices:

- Ensure that the steel plate is fastened to the frame of the feed hopper before unhooking the rigging from the loader and steel plate.
- Establish and discuss safe work procedures before beginning work.
- Identify and control all hazards.
- Task train everyone on safe job procedures and to stay clear of suspended loads.
- Require all workers to stay out of the fall path of heavy objects/materials that have the potential of becoming off-balance while in a raised position.
- Monitor routinely to confirm safe work procedures are followed.
- Be aware of your environment. Factors such as wind, snow, and icy surfaces can affect the stability of an object.
- When securing an object, identify the location of its center of gravity.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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2020 – Combined Coal and MNM Fatals

February 27c

Powered Haulage

West Virginia

On Thursday, February 27, 2020, at a surface of an underground coal mine a 50-year-old a contract mechanic of a trucking company employee died while helping to position a low-boy trailer. The victim was standing in front of the trailer wheels to assist the driver. The truck driver moved the truck forward causing the wheels of the trailer to strike the victim. The victim died later that day from these injuries.

Cited Regulation: 77.1607(g).

Root Cause:

- An effective policy or procedure was not in place to ensure safe work practices and communications with all persons while working around mobile equipment.

Best Practices:

- Develop a written procedure to address safe work practices and communications when persons are working around mobile equipment. This procedure would include information about job-specific work plans, communication plans, and general safety measures including keeping clear of mobile equipment when the equipment is engaged.
- Communicate your planned movements with the equipment operator before approaching mobile equipment and verify the information was received and understood.
- Verify miners are clear before driving mobile equipment. Communicate your planned movements with miners and verify the information was received and understood.
- Sound your horn to warn miners that you are about to move and wait to give them time to get to a safe location.
- Establish policies and procedures for miners to stand in safe locations when directing mobile equipment.
- Inspect backup alarms and collision warning/avoidance systems on mobile equipment to ensure they are maintained and operational.

Use CTRL and click to follow links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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2020 – Combined Coal and MNM Fatals

February 29

Machinery

Louisiana

On Saturday, February 29, 2020, a 28-year-old plant foreman with 4 years experience was closing a water valve used to prime the main suction line with the jet pump when a two-inch cam lock fitting (fitting) failed, causing pressurized water to strike him. The pressurized water knocked him into the operator's compartment and then swept him into the dredge pond where he drowned.

Cited Regulation: 56.15020, 56.14205

Root Cause:

- The mine operator redesigned the water system beyond the manufacturer's design capacity without the required evaluations to ensure the modified system was safe to use. Mine management did not evaluate the capacity of the new parts used in light of the stresses to which the parts would be subjected.
- Mine management did not ensure that the victim wore a life jacket or belt while working on the dredge.

Best Practices:

- Wear a life preserver where there is a risk of falling into the water.
- Ensure that any proposed dredge design changes to be designed by a qualified engineer and in accordance with the manufacturer's design capacity.
- Identify all possible hazards and ensure appropriate controls are in place to protect miners before beginning work.
- Provide swimming training for everyone that works around water.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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2020 – Combined Coal and MNM Fatals

May 2

Handling Material

Ohio

On Saturday, May 2, 2020, a 56-year-old front-end loader with 8 years of experience died when he was engulfed by material inside the hopper. The victim entered the hopper to clear a blockage caused by material in the hopper. Once he was inside, a large amount of material dislodged and engulfed him.

Cited Regulation: 46.7 and 56.16002

Root Cause:

- Management did not have safe procedures to clear blockages in the hopper.
- Mine management did not task train any of their miners on how to safely clear blockages in the hopper. The miner entered the bottom of the hopper when loose unconsolidated material, which ultimately engulfed him, was present inside the hopper.

Best Practices:

- Develop and implement written procedures for safe entry, operation, and maintenance of hoppers in accordance with 30 CFR § 56.16002.
- Lock-out, tag-out. Never enter a bin until the supply and discharge equipment is locked out.
- Task train miners to recognize and safely remove all potential hazards before beginning work and when clearing blocked hoppers.
- Equip bins with mechanical devices such as vibrating shakers or air cannons to loosen blockages, or provide other effective means of handling material so miners are not exposed to entrapment hazards by falling or sliding material.
- Follow manufacturer recommendations for clearing out blockages.
- Establish and discuss policies and procedures for safely clearing bins.
- Install a heavy screen (grizzly) to control the size of the material and prevent clogging.

Use the following links to view additional information:

<u>Preliminary Report</u>	<u>Fatal Alert</u>	<u>Final Report</u>
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2020 – Combined Coal and MNM Fatal

June 1

Slip/Fall of Person

Arizona

On June 1, 2020, a 61-year-old contract truck driver with over 13 years experience driving tractor-trailers, but only 4 weeks of mine experience, fell from the top of his end-dump trailer while attempting to deploy the tarp. Moreno died later that day at a local hospital.

Cited Regulation: 56.1000, 46.11, 56.15005

Root Cause:

- Customer over-the-road truck drivers were not provided with Site-Specific Hazard Awareness training that met the requirements of 30 CFR Part 46.11.

Best Practices:

- Discuss work procedures; identify all potential hazards to do the job safely.
- Train everyone to recognize fall hazards and ensure that safe work procedures are discussed and established.
- Include safe truck tarping requirements in site-specific hazard training.
- Provide truck tarping safe access facilities where needed.
- Provide an effective fall arrest secure anchorage system. Ensure that people wear and attach fall protection connecting devices where there is a danger of falling.
- Use automatic tarp deploying systems to prevent people from working from heights.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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2020 – Combined Coal and MNM Fatal

June 13

Machinery

Arizona

On Saturday, June 13, 2020, a 25-year-old dragline operator with nearly three years of mining experience died while operating a dragline. The dragline was found in about 25 feet of water, and the victim was found inside the dragline after it was removed from the water.

Cited Regulation: 56.9101

Root Cause:

The accident occurred because the equipment operator didn't maintain control of equipment while extracting material.

Best Practices:

- Maintain control of operating mobile equipment.
- Keep all exits clear in cabs, including alternate and emergency exits, and make sure the doors open freely before beginning work.
- Retrofit older models of equipment with current automatic braking systems.
- Ensure all controls and brakes are set to the appropriate position for the task.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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2020 – Combined Coal and MNM Fatal

June 19

Fall of Material

Kansas

On Friday, June 19, 2020, a 68-year-old miner with 49 years of experience died while inspecting a stockpile for oversized material. As the victim walked along the toe of the stockpile, a portion of the stockpile collapsed, covering him with approximately four feet of material.

Cited Regulation:

Root Cause:

Best Practices:

- Establish and discuss safe work procedures before beginning work. Identify and control all hazards associated with the work to be performed and the methods to properly protect persons.
- Task train everyone to recognize potential hazardous conditions that can decrease bank or slope stability and ensure they understand safe job procedures for eliminating hazards.
- Stay clear of potentially unstable areas. Barricade the toe area to prevent access where hazards have not been corrected.
- Oversteepened slopes may be flattened from the top of the stockpile by using a bulldozer to gradually cut down the slope.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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2020 – Combined Coal and MNM Fatal

July 9

Electrical

Georgia

On Thursday, July 9, 2020, a 60-year-old mine superintendent with 36 years experience was electrocuted while attempting to reverse the polarity of a 4,160 VAC circuit by switching the leads inside an energized 4,160 VAC enclosure that contained a vacuum circuit breaker and disconnect.

Cited Regulation:

Root Cause:

Best Practices:

- Follow these steps before performing electrical work inside a high voltage enclosure:
 - Locate the high voltage visual disconnect away from the enclosure that supplies incoming electrical power to the enclosure.
 - Open the visual disconnect to provide visual evidence that the incoming power cable(s) or conductors have been de-energized.
 - Lock-out and tag-out the visual disconnect yourself. Never rely on others to do this for you.
 - Ground the de-energized conductors.
- Verify circuits are de-energized using properly rated electrical meters and non-contact voltage testers.
- Ensure properly qualified miners perform all work on high voltage equipment.
- Wear properly rated and well maintained personal protective equipment, including arc flash protection such as a hood, gloves, shirt and pants.
- Train miners on safe work practices for high voltage electrical equipment and circuits.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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2020 – Combined Coal and MNM Fatal

July 24

Machinery

Georgia

On Friday, July 24, 2020, two miners were loading explosives from inside an aerial lift's basket when the basket jolted upward into the mine roof, causing the death of one of the miners.

Cited Regulation:

Root Cause:

Best Practices:

- Check all equipment before using it. Report all defects affecting safety to a responsible person for correction.
- Service and maintain hydraulic systems according to the manufacturer's specifications and schedules. Excessive pressure in a hydraulic circuit can drastically alter the control of booms, etc., creating serious hazards.
- Instruct aerial lift users on hazard recognition and safe job procedures to avoid unsafe conditions.
- Train lift operators in safe operating procedures listed in the operator's manual.
- Report equipment malfunctions and remove the equipment from service until repaired.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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2020 – Combined Coal and MNM Fatal

July 29

Powered Haulage

Missouri

On Wednesday, July 29, 2020, a miner was injured when his arm became entangled in a stacker conveyor belt. The victim was airlifted to a trauma center where he passed away a week later.

Cited Regulation:

Root Cause:

Best Practices:

- Turn off, lock out power sources and block against motion before removing or bypassing a guard or other safety device to clean, repair, perform maintenance or clear a blockage on a belt conveyor.
- Never clean pulleys or idlers manually while belt conveyors are operating.
- Avoid wearing loose-fitting clothing and keep tools, body parts and long hair away from moving belt conveyor components.
- Train all personnel in safe work procedures.
- Properly guard moving machine parts to protect persons from contact that could cause injury.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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2020 – Combined Coal and MNM Fatal

August 18

Falling/Sliding Material

Washington

On Tuesday, August 18, 2020, a 21-year-old miner with 1 year experience entered the cone crusher to remove a blockage of material in the chute. While he was inside the cone crusher, material flowed from the chute engulfing his legs and lower torso. He was extricated by the fire department and flown to the hospital where he died the next day.

Cited Regulation:

Root Cause:

Best Practices:

<i>Use the following links to view additional information:</i>		
Preliminary Report	Fatal Alert	Final Report

August 26

Machinery

Washington

On Wednesday, August 26, 2020, a fatal accident occurred at a surface sand and gravel mine.

Cited Regulation:

Root Cause:

Best Practices:

<i>Use the following links to view additional information:</i>		
Preliminary Report	Fatal Alert	Final Report

September 1

Slip/Fall of Person

Texas

On Tuesday, September 1, 2020, a fatal accident occurred at a surface facility.

Cited Regulation:

Root Cause:

Best Practices:

<i>Use the following links to view additional information:</i>		
Preliminary Report	Fatal Alert	Final Report

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2020 – Combined Coal and MNM Fatals

MSHA investigates all deaths on mine property; however, some deaths are unrelated to mining activity and are not counted in the statistics MSHA uses to assess the safety performance of the mining industry. These deaths are termed "non-chargeable" and include homicides, suicides, deaths due to natural causes, and deaths involving trespassers.

MSHA uses a formal Fatality Review Committee to determine whether a questionable death is chargeable. There are two (2) *2020 combined (Coal and MNM) mining accidents that are pending chargeability determination.*