

2020 Fatal Comparison Chart (based on preliminary report data, fatal alerts, & final reports) Updated: 1/11/2021

MNM Total	24	Fatal Date	Coal Total	5	Fatal Date	Total
Underground (UG)	4	May21, Jul24, Dec14a, Dec14b	Underground (UG)	3	Oct13, Oct27, Nov23c	7
Surface & Sur of UG	20	Jan8, Jan23, Feb27m, Feb29, May2, Jun1, Jun13, Jun19, Jul9, Jul29, Aug18, Aug21, Aug26, Sep1, Sep16, Oct14, Oct19, Nov8, Nov23m, Dec15	Surface & Sur of UG	2	Feb27c, Oct9,	22
Found Non-Chargeable	0		Found Non-Chargeable	1	Feb10	1
Contractor	3	Jan23, Jun13, Dec15	Contractor	2	Feb27c, Oct9	5
Powered Haulage	3	Jul29, Sep16, Oct14	Powered Haulage	3	Feb27c, Oct13, Nov23c	6
Machinery	8	Feb29, Jun13, Jul24, Aug21, Aug26, Oct19, Nov8, Dec15	Machinery	1	Oct9	9
Roof, Rib, Highwall Fall	2	Dec14a, Dec14b	Roof, Rib, Highwall Fall	1	Oct27	3
Electrical	2	Jul9, Nov23m	Electrical	0		2
Slip & Fall of Persons	4	Jan8, Jan23, Jun1, Sep1	Slip & Fall of Person	0		4
Fall & Sliding Materials	2	Jun19, Aug18	Fall & Sliding Materials	0		2
Handling Materials	2	Feb27m, May2	Handling Materials	0		2
Hand Tools	1	May21				1
Age			Age			
Age 0-19			Age 0-19			0
Age 20-29	6	Feb27m, Feb29, Jun13, Jul24, Aug18, Dec14a	Age 20-29	1	Nov23c	7
Age 30-39	2	Jan8, Nov23m	Age 30-39	1	Oct27	3
Age 40-49	2	Sep16, Dec14b	Age 40-49	1	Oct9	3
Age 50-59	6	May2, Aug26, Sep1, Oct19, Nov8, Dec15	Age 50-59	2	Feb27c, Oct13	8
Age 60+	8	Jan23, May21, Jun1, Jun19, Jul9, Jul29, Aug21, Oct14	Age 60+	0		8
Experience			Experience			
Less than 1 year	6	Jan8, Jun1, Jul24, Oct19, Dec14a, Dec14b	Less than 1 year	0		6
1-9 years	8	Feb27m, Feb29, May2, Jun13, Jul29, Aug18, Sep1, Nov23m	1-9 years	3	Oct9, Oct27, Nov23c	11
10-19 years	2	Aug21, Oct14	10-19	0		2
20+	8	Jan23, May21, Jun19, Jul9, Aug26, Sep16, Nov8, Dec15	20+	2	Feb27c, Oct13	10
Mine Site Experience		Aug21, Dec15 – not reported	Mine Site Experience			
Less than 1 year	7	Jan8, Jan23, Jun1, Jul24, Aug26, Oct19, Dec14a	Less than 1 year	3	Feb27c, Oct9, Nov23	10
1-9 years	10	Feb27m, Feb29, May2, Jun13, Jun19, Jul29, Aug18, Sep1, Sep16, Nov23m	1-9 years	2	Oct13, Oct27	12
10-19	2	May21, Oct14	10-19	0		2
20+	2	Jul9, Nov8	20+	0		2
Job/Task Experience		Dec14 – not reported	Job/Task Experience		Nov23 not reported	
0-7 days	1	Jul24	0-7 days			1
Less than 1 year	4	Jan8, Jun1, Aug26, Oct19	Less than 1 year			4
1-9 years	13	Feb27m, Feb29, May2, May21, Jun13, Jun19, Jul9, Jul29, Aug18, Sep1, Sep16, Oct14, Nov23m	1-9 years	4	Feb27c, Oct9, Oct13, Oct27	17
10-19	2	Aug21, Nov8	10-19			2
20+	1	Jan23, Dec15	20+			1
Day of the Week:			Day of the Week:			
Sunday	1	Nov8	Sunday			1
Monday	5	Jun1, Oct19, Nov23m, Dec14a, Dec14b	Monday	1	Nov23	6
Tuesday	3	Aug18, Sep1, Dec15	Tuesday	2	Oct13, Oct27	5
Wednesday	5	Jan8, Jul29, Aug26, Sep16, Oct14	Wednesday	0		5
Thursday	4	Jan23, Feb27m, May21, Jul9	Thursday	1	Feb27c	5
Friday	3	Jun19, Jul24, Aug21	Friday	1	Oct9	4
Saturday	3	Feb29, May2, Jun13	Saturday	0		3

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2020 Fatal Comparison Chart (based on preliminary report data, fatal alerts, & final reports) Updated: 1/11/2021

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	2	0	2	(-1)	3	May	2	1
June	3	0	3	+1	2	June	2	0
July	3	0	3	(-1)	4	July	3	1
August	3	0	3	(-3)	6	August	3	3
September	2	0	2	0	2	September	0	2
October	2	3	5	+4	1	October	0	1
November	2	1	3	+1	2	November	2	0
December	3	0	3	+1	2	December	1	1
2020 Total:	24	6	29	+2	27	2019 Total:	15	12

Product	2020 Fatal Dates	2020 Total	2019 Total	State (2020)	Total	MNM	Coal	Fatal Date
Alumina				Arizona	2	2	0	Jun1, Jun13
Barium	Nov23m	1	0	California	2	2	0	Jan23, Aug18
Cement	Jan23	1	1	Colorado	1	1	0	Oct19
Clay			1	Georgia	2	2	0	Jul9, Jul24
Coal	Feb27c, Oct9, Oct13, Oct27, Nov23	5	11	Iowa	2	2	0	Jan8, Aug21
Copper			1	Kansas	1	1	0	Jun19
Diatomaceous Earth				Kentucky	3	1	2	Oct9, Oct13, Dec15
Gold Ore	Nov8	1		Illinois	1	1	0	May21
Granite	Oct14	1	1	Louisiana	3	3	0	Feb29, Dec14a, Dec14b
Gypsum				Michigan	1	1	0	Feb27m
Iron Ore			1	Missouri	1	1	0	Jul29
Kaolin				Nevada	1	1	0	Nov8
Lead Ore				New Jersey	1	1	0	Sep16
Lime				Ohio	1	1	0	May2
Limestone	Jan8, May21, Jun19, Jul24, Aug21	5	2	Pennsylvania	1	0	1	Oct27
Magnesite				South Carolina	1	1	0	Oct14
Phosphate				Texas	2	2	0	Sep1, Nov23m
Potash				Washington	1	1	0	Aug26
Sand/ Sand & Gravel	Feb27m, Feb29, Jun1, Jun13, Jul9, Jul29, Aug18, Aug26, Sep1, Sep16	10	2	West Virginia	2	0	2	Feb27c, Nov23c
Sandstone	Oct19, Dec15	2	2	Totals:	29	24	5	
Shale				Part 48 = 11				Part 46 = 18
Silver Ore				All Coal = 5				Non Metal SUR = 18
Stone	May2,	1	1	MNM: UG = 4				
Titanium			1	Metal: SUR = 2				
Traprock								

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	2	3	1	2	2	4	6	1	5	1	6	33	3
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	3	5	2	2	1	4	3	3	2	3	4	31	2.82
September	2	2	1	3	3	2	3	3	5	4	1	29	2.64
October	5	0	6	4	1	0	3	5	1	6	6	37	3.36
November	3	2	2	0	0	0	6	5	4	4	3	29	2.64
December	3	2	4	2	3	3	3	4	1	4	5	34	3.09
Total:	29	24	27	28	25	29	46	42	36	36	72	394	2.98/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 less than a year experience died when he fell into a lime surge hopper and became engulfed by the material. A gate in the handrail of elevated walkway of the lime surge hopper was left open, and the miner fell through the opening into the hopper resulting in the death of the miner.

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

Root Cause:

- A suitable walkway at the rim of the lime surge hopper was not provided.
- Required workplace exams in all places prior to miners beginning work was not conducted.
- Task training on safety hazards encountered when walking and working on walkways around the lime surge hopper was not provided.

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.
- Do not 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:

The trailer and the platform was not properly aligned causing the gap in which he fell through.

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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2020 – Combined Coal and MNM Fatal

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:

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2020 – Combined Coal and MNM Fatal

February 27c

Powered Haulage

West Virginia

On Thursday, February 27, 2020, at a surface of an underground coal mine a 50-year-old contract mechanic with 20 years mining experience died while helping the truck driver to position a trailer. The victim was standing in front of the trailer wheels. 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:

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

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.
- A life jacket or belt was not worn by the victim 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:

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2020 – Combined Coal and MNM Fatal

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:

- Safe procedures to clear blockages in the hopper were not established.
- 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:

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2020 – Combined Coal and MNM Fatal

May 21

Hand Tools

Illinois

On Thursday, May 21, 2020, a 60-year-old plant mechanic with 27 years mining experience was fatally struck in the head at an underground limestone mine. Two miners were working to remove an electric motor. They attached a 3/4 ton come-along to an overhead steel pipe. A chain hoist was attached to the lifting eye of the motor to pull it. As the two miners were moving it off of the base, the steel pipe slid and fell forward striking the victim in the head and back. The victim was driven to the hospital and was released on May 21; however, he returned to the hospital on May 23 where he passed away.

Cited Regulation: 48.7(c) and 57.14105,

Root Cause:

- The mine operator did not ensure that repairs were performed after the equipment was blocked against hazardous motion. The mine operator also did not provide appropriate equipment or establish safe procedures for the task of moving heavy components on the platform.
- The mine operator did not adequately task train miners in safe work procedures for the task.

Best Practices:

- Ensure load anchor locations are stable, substantial and adequate to support the load.
- Establish and discuss safe work procedures before beginning work and ensure those procedures are followed.
- Identify and control all hazards associated with the work to be performed and the methods to properly protect persons.
- Follow the manufacturer's recommended safe work procedures for the maintenance task.
- Examine work areas for hazards that may be created as a result of the work being performed.
- Position yourself in areas where you will not be exposed to hazards resulting from a sudden release of energy. Be aware of your location in relation to machine parts that can move.

Use the following links to view additional information:

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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. He 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 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:

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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 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:

- Failure to 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:

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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 about 50 years mining experience died while inspecting a stockpile for oversized material. As the victim paused and knelt down during his inspection, the stockpile collapsed and covered him with approximately four feet of material.

The stockpile regularly had been falling to the angle of repose as the two front-end loaders removed material from the face. On the day of the accident, the face did not fall to the angle of repose and miners did not trim the face to prevent a hazard to persons.

Cited Regulation: 56.9314, 56.18002(a)(1)

Root Cause:

- The stockpile was not constructed/maintained in a manner that would prevent dangerous ground conditions as they removed material. This compromised its stability.

Best Practices:

- Construct and maintain stockpiles in a manner to eliminate vertical heights that require undercutting, which can cause a sudden rush of material into areas where foot traffic or mobile equipment are present.
- Barricade areas identified as hazardous to prevent entry until corrective measures are taken. Remove all personnel exposed to the hazard until all unsafe conditions are fixed (from a safe location (if possible)).
- Provide specific training on examinations and emphasize aspects of stockpile safety including hazard recognition and safe work practices around stockpiles to all employees.
- Train supervisors and examiners on promptly notifying miners in any affected areas of any conditions that may adversely affect safety or health. Train everyone to recognize potential hazardous conditions that can decrease bank or slope stability and ensure they understand safe job procedures for eliminating hazards.
- 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.
- Over-steepened slopes may be flattened from the top of the stockpile by using a bulldozer to gradually cut down the slope.

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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 when he came in contact with energized high-voltage components while attempting to reverse the polarity of a 4,160 VAC circuit. He was switching the leads inside an energized 4,160 VAC enclosure that contained a vacuum circuit breaker and disconnect.

Cited Regulations: 46.7, 56.12017, 56.12039, 56.18002

Root Cause:

- Management did not have policies and procedures to examine, de-energize, lock out, tag, and test high-voltage power sources before work was performed on high voltage circuits.
- Management did not have policies and procedures that required high voltage work to only be performed by miners trained to work on high-voltage electric equipment and circuits.

Best Practices:

- De-energize, lock out, tag out, and test high voltage power sources before work is performed on high voltage circuits.
- Ensure only properly trained and qualified miners perform work on high voltage equipment.
- Establish policies and procedures to examine high voltage equipment prior to work being performed on those circuits.
- Follow these steps before performing electrical work inside a high voltage enclosure:
 - Locate the high voltage visual disconnect 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.
 - Verify circuits are de-energized using properly rated electrical meters and non-contact voltage testers.
 - Lock-out and tag-out the visual disconnect yourself. Never rely on others to do this for you.
 - Wear properly rated and well maintained personal protective equipment, including arc flash protection such as a hood, gloves, shirt and pants.
 - Ground the de-energized conductors.

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2020 – Combined Coal and MNM Fatal

July 24

Machinery

Georgia

On Friday, July 24, 2020, a 24-year-old underground miner with about 3 days of mining experience was pinned to the roof and face of the while performing work from a personnel basket. 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: 48.5, 48.7, 57.14100(c), 57.14100(a)

Root Cause:

- Lack of adequate maintenance and/or the equipment not being removed from service after the miners reported hydraulic system defects related to involuntary movement of the crane boom and personnel basket.
- Equipment examination that ensures all safety devices were functioning as designed was not properly conducted.
- Employees were not task trained on the modifications to the personnel basket valve bank.
- New Miner training was not provided prior to being assigned work duties. An untrained miner is a hazard to himself/herself and others.

Best Practices:

- Repair or remove from service all equipment found during work place examinations that are reported to have defects or hazards that could affect the safety or health of miners.
- 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 equipment operators on hazard recognition, safe job procedures, and how to avoid unsafe conditions or positions. Train miners on the safe operating procedures listed in the operator's manual.
- Train employees on how to conduct work place examinations and equipment pre-shift examinations.

Use the following links to view additional information:

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Focus on your safety goal with purpose!

2020 – Combined Coal and MNM Fatal

July 29

Powered Haulage

Missouri

On Wednesday, July 29, 2020, a 63-year-old equipment operator with 8 years mining experience became entangled in a moving conveyor belt. He died of his injuries a week later on August 5, 2020.

Cited Regulation: 46.5(a), 56.14112(b), 56.18002(a), 56.1000

Root Cause:

- Guards were not in place at all times when the plant was operating. Work on belt conveyors while in motion was allowed.
- Buildup of material was not removed from the sand conveyor.
- Working place examinations were not conducted. There were no records of examinations for any period of time found on mine property.
- Training plan was not in place and new miner training was not provided to the victim when he began working at the mine.

Best Practices:

- Provide adequate training.
- Perform and Record Working place examinations.
- 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.

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2020 – Combined Coal and MNM Fatal

August 18

Machinery

California

On Tuesday, August 18, 2020, a 21-year-old equipment operator with 1 year experience entered the crusher to remove a blockage of material in the chute. While he was inside the 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: 46.7, 56.16002(c), 56.18002(a)

Root Cause:

- Miners lacked training in health and safety aspects of assigned tasks.
- Adequate controls were not in place to prevent or safely access/remove material blockages in the hopper system.
- Work place examinations prior to any work commencing were not conducted and recorded.

Best Practices:

- Properly design chutes and crushers to prevent blockages. Install a heavy screen (grizzly) to control the size of material and prevent clogging.
- Equip chutes 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.
- Establish and discuss policies and procedures for safely clearing crushers.
- Train miners to recognize and safely remove all potential hazards before beginning work and when clearing blocked crushers.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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Focus on your safety goal with purpose!

2020 – Combined Coal and MNM Fatal

August 21

Machinery

Iowa

On Friday, August 21, 2020, a 69-year-old customer truck driver with 8 years of over the road driving experience died due to head injuries he received while deploying the tarp system on his fifth-wheel side-dump trailer. After activating the automatic tarp deployment system, the victim was walking beside the trailer when the tarp system drive chain came off the sprockets. This caused the tarp roll tube to deploy uncontrolled and strike him in the head.

Cited Regulation: None

Root Cause:

- Hard hat not worn while walking or working alongside the trailer during the tarp system extend/retract cycle.

Best Practices:

- Always wear PPE.
- Install constant pressure electrical switches to deploy or retract automatic trailer tarps.
- Inspect and maintain tarping systems routinely to ensure they are functioning properly.
- Install signs warning of the hazard of standing near trailers while automatic tarps are deployed/retracted.
- Train miners on proper tarping techniques and the hazards associated with the work being performed.

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 26

Machinery

Washington

On Wednesday, August 26, 2020, a 52-year-old crusher foreman with 23 years mining experience (including 4 weeks experience with contracting company) was preparing the jaw crusher for transport by removing both wedges that held the right side hopper extension in a raised position. The victim was removing wedges that secured the right hopper extension. When the wedge was removed the extension fell, the victim was crushed by the right side hopper extension of the jaw crusher.

Cited Regulation: 46.6(a), 56.14211(b), 56.18002(a)

Root Cause:

- Training not provided to the victim when he began working at the mine.
- Workplace examination not conducted before work began.
- Raised components of equipment were not blocked or otherwise secured to prevent accidental lowering.

Best Practices:

- Develop and use training plan to provide training on the safe operation of jaw crushers (using manual) and how to block/secure equipment to prevent accidental lowering of components.
- Perform and record the workplace examinations and maintain the records.
- Block equipment against hazardous motion before dismantling equipment.
- Follow manufacturers' recommendations when dismantling equipment.
- Conduct adequate workplace examinations and correct any defects affecting safety before dismantling equipment.
- Establish and discuss safe work procedures before beginning work.
- Stay clear of suspended loads and raised equipment.
- Position yourself in a safe location and away from potential "red-zone" areas.
- Use ladders or other means of safe access to perform maintenance.
- Train miners to recognize potential hazardous conditions and understand safe job procedures.

Use the following links to view additional information:

<u>Preliminary Report</u>	<u>Fatal Alert</u>	<u>Final Report</u>
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Focus on your safety goal with purpose!

2020 – Combined Coal and MNM Fatal

September 1

Slip/Fall of Person

Texas

On Tuesday, September 1, 2020, a 54-year-old plant helper with 2 years mining experience fell while climbing from the top of a dry bulk trailer to a load-out platform. He was attempting to close a hatch on the top of a bulk material trailer. The miner was wearing a fall protection harness, but his lanyard was not attached to a secure anchorage.

Cited Regulation: 56.11001, 56.18002, 56.15005

Root Cause:

- Examination of working places was not conducted and not recorded.
- Miners were not withdrawn from the area after being notified that a condition existed that could present an imminent danger to miners.
- Safe access not provided/maintained from the load-out platform.
- Procedures were not in place to ensure fall protection was being properly used.

Best Practices:

- Conduct workplace exams; correct all hazards found that could affect the safety of workers.
- Use fall protection properly where fall hazards exist.
- Provide and ensure the use of an effective fall arrest and secure anchorage system.
- Provide safe access to all work areas and ensure truck and trailer access and work platforms are properly designed, maintained, and used.
- Encourage the use of automated hatches on tanks and trailers.
- Refresh miner training on safe work procedures after returning from periods of shutdown, and routinely monitor work habits.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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Focus on your safety goal with purpose!

2020 – Combined Coal and MNM Fatal

September 16

Powered Haulage

New Jersey

On Wednesday, September 16, 2020, a fatal accident occurred at a surface sand and gravel mine. A 47-year-old customer truck driver with 20 years mining experience was run over by his dump truck while he was underneath the truck attempting to adjust the brakes. At the time of the accident, the parking brake was not set and the transmission was in drive with the engine running.

Cited Regulation: Final Report is not available yet.

Root Cause: Final Report is not available yet.

Best Practices:

- Before exiting, place the transmission in park, set the parking brake, turn off the engine and activate the hazard warning lights.
- Block equipment against motion and place high visibility cones or other flagging or signage to caution oncoming traffic before working on equipment.
- Maintain equipment braking systems and repair and adjustment as necessary.
- Conduct pre-operational examinations using qualified personnel to identify and repair defects that may affect the safe operation of equipment before it is placed into service.
- Train miners on site-specific hazards.

Use the following links to view additional information:

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

October 9

Machinery

Kentucky

On Friday, October 9, 2020, a 48-year-old hydro-seeding contractor with 8 years experience at operating a hydroseeder. The victim was preparing to hydro-seed. He changed the nozzle on a hydro-seeder and then accidentally engaged the hydro-seeder's clutch while the nozzle was pointing towards him. The material being forced through the nozzle struck him. This caused him to fall backwards striking his neck on the hydro-seeder handrail.

Cited Regulation: 77.404(b)

Root Cause:

- Repairs or maintenance involving changing the discharge nozzle on the discharge boom assembly while the engine was running.
- The owner did not ensure that machinery and equipment was operated only by persons trained in the use of and authorized to operate such machinery or equipment. *(No Part 48 training recorded).*

Best Practices:

- De-energize equipment while changing accessories until the equipment is ready to use and the operator is properly positioned.
- Position yourself to avoid hazards resulting from a sudden release of energy.
- Identify and apply methods to protect personnel from hazards associated with the work being performed. This includes all applicable personal protective equipment for identified hazards.
- Establish and discuss safe work procedures before beginning work and ensure those procedures are followed.

Use the following links to view additional information:

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

October 13

Powered Haulage

Kentucky

On Tuesday, October 13, 2020, a 58-year-old shuttle car operator with 30 years mining experience died from his injuries after being struck by a battery-powered scoop. The victim had parked his shuttle car in an intersection when a scoop went through a curtain in an adjacent crosscut and struck the victim exiting his shuttle car.

Cited Regulation: Final Report is not available yet.

Root Cause: Final Report is not available yet.

Best Practices:

- Install and maintain proximity detection systems on mobile section equipment.
- Use transparent curtains for ventilation controls on working sections.
- Communicate your presence and intended movements. Wait until miners acknowledge your message before moving your equipment.
- STOP and SOUND an audible warning device before tramming equipment through ventilation curtains.
- Avoid areas where equipment operators cannot readily see you.
- Wear personal strobe light devices to increase visibility.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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Focus on your safety goal with purpose!

2020 – Combined Coal and MNM Fatal

October 14

Powered Haulage

South Carolina

On October 14, 2020, a 61-year-old lead person with 17 years mining experience was driving a company owned pickup truck and was exiting the 330 bench road when he was run over by a Caterpillar 777G haul truck which was entering the 330 bench road. Neither announced himself as entering or exiting the bench road. Established policies, procedures, and controls governing traffic were not being followed.

Cited Regulation: 56.9100(a)

Root Cause:

- The accident occurred because mine management did not ensure its established policies, controls, and procedures governing traffic control were followed.

Best Practices:

- Install and maintain collision avoidance/warning systems.
- Equip smaller vehicles with strobe lights and flags positioned high enough to be seen from the cabs of haulage trucks in all lighting conditions.
- Establish and follow communication protocols that require verbal verification for all mobile equipment operators.
- Design haul roads to minimize congested areas and maximize visibility.
- Do not drive smaller vehicles in a large truck's potential path.
- Train miners on mobile traffic patterns and policies. Do not rely on training or other administrative controls alone to prevent powered haulage or other accidents.

Use the following links to view additional information:

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

October 19

Machinery

Colorado

On Monday, October 19, 2020, a 58-year-old plant operator with 8 weeks experience was standing on the cross beam of a grizzly hopper screen when he was crushed between the screening plant and the excavator bucket.

Cited Regulation: Final Report is not available yet.

Root Cause: Final Report is not available yet.

Best Practices:

- Never swing buckets over work areas or operator's compartments.
- Maintain communication between equipment operators and miners on the ground.
- Maintain control of equipment while it is in operation.
- Train miners to safely perform their tasks.

Use the following links to view additional information:

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

October 27

Fall of Roof

Pennsylvania

On Tuesday, October 27, 2020 a 37-year-old miner with about 2 years mining experience was digging a hole to install a wooden post for roof control when a section of the roof fell on him.

Cited Regulation: 75.202(a)

Root Cause:

- The mine operator did not adequately support or otherwise control the mine roof.

Best Practices:

- Thoroughly examine the roof, face, and ribs where people will be working and traveling, including sound and vibration testing where applicable.
- Scale loose roof and ribs from a safe location. Prevent access to hazardous areas until appropriate corrective measures can be taken.
- Set temporary support before installing permanent support.
- Be alert for changing conditions and report abnormal roof or rib conditions to mine management and other miners.
- Know and follow the approved roof control plan and provide additional support when cracks or other abnormalities are detected. Remember, the approved roof control plan contains minimum requirements.
- Propose revisions to the roof control plan to provide measures to control roof hazards.

Use the following links to view additional information:

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

November 8

Machinery

Nevada

On Sunday, November 8, 2020, a 58-year-old bulldozer operator with 41 years mining experience died. The bulldozer was being used to push blasted rock from a bench down to a front-end loader. As the bulldozer backed up, it traveled over the edge of the highwall. The bulldozer rolled about 308 feet downhill and came to rest on its left side.

Cited Regulation: Final Report is not yet available.

Root Cause: Final Report is not yet available.

Best Practices:

- Install and maintain lights to illuminate working places during the night and early morning hours.
- Install berms, signs, or devices to identify the edge of working benches and to allow equipment operators to maintain control of equipment.
- Train equipment operators to identify dangerous conditions and to keep the dozer blade between the operator and the edge when near drop-offs.
- Develop and enforce policies requiring safety belts when operating machinery.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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Focus on your safety goal with purpose!

2020 – Combined Coal and MNM Fatal

November 23c

Powered Haulage

West Virginia

Preliminary Report: On Monday, November 23, 2020, a 20-year-old equipment operator with a year of experience was killed when the battery-powered scoop he was operating ran over a section of pipe in the roadway. The four-inch plastic pipe entered the operator's compartment and struck him.

Cited Regulation: Final Report is not yet available.

Root Cause: Final Report is not yet available.

Best Practices:

- Conduct thorough examinations of roadways and remove material that could pose a hazard to equipment operators, passengers, or other miners.
- Keep roadways free of excessive water, mud, and other conditions that reduce an equipment operator's ability to control mobile equipment.
- Secure loads on haulage vehicles to prevent them from falling off into roadways.
- Install substantial guarding to prevent material from entering the operator compartment.
- Establish safe operating procedures for mobile equipment and a maintenance schedule for roadways.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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Focus on your safety goal with purpose!

2020 – Combined Coal and MNM Fatal

November 23m

Electrical

Texas

Preliminary Report: On Monday, November 23, 2020, a 39-year-old mechanic with 1 year of experience was electrocuted while troubleshooting a disconnect box for classifier drive motor. The victim had the electrical disconnect box open and the main power supply was not de-energized.

Cited Regulation: Final Report is not yet available.

Root Cause: Final Report is not yet available.

Best Practices:

- Ensure electrical circuit components are properly designed and installed by qualified electrical personnel.
- Ensure electrical troubleshooting and work are performed by people with proper electrical qualifications. Positively identify the circuit on which work will be conducted.
- Before performing electrical work, locate the visual disconnect away from an enclosure and open it, lock it, and tag it, to ensure all electrical components in the enclosure are de-energized. Verify by testing for voltage using properly rated test 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 electrical equipment and circuits.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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December 14 (2 victims)

Fall of Roof

Louisiana

On Monday, December 14, 2020, two miners died at an underground salt mine. They were drilling in H-14 when the roof fall occurred in the intersection of H-13 and room H-14.

Cited Regulation: Final Report is not yet available.

Root Cause: Final Report is not yet available.

Best Practices: Fatal Alert is not yet available.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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Focus on your safety goal with purpose!

2020 – Combined Coal and MNM Fatal

December 15

Machinery

Kentucky

On Tuesday, December 15, 2020, a miner died at a surface sandstone mine while attempting to change the right rear tire of a CAT 992D.

Cited Regulation: Final Report is not yet available.

Root Cause: Final Report is not yet available.

Best Practices: Fatal Alert is not yet available.

Use the following links to view additional information:

Preliminary Report	Fatal Alert	Final Report
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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 no ***2020 combined (Coal and MNM) mining accidents that are pending chargeability determination.***

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