MDG 40 – Failure to Isolate Energy Fatal Incidents

Incident Information	Agent of Fatality	Events	Recommendations
Chemical Isolation			
2/01/2007 **United States** **Non-Coal** **Open-Cut**	Uncontrolled release of energy	Electrician opened a valve in a piping system of a vacuum monitoring line when a burst of hydrogen fluoride discharged into his face.	Review of all work procedures related to chemical products, initiate standard work procedures for cleaning vacuum monitoring lines.
19/07/2005 **Australia** **South Australia** **Non-Coal** **Underground**	Explosives	Underground explosives ignited prematurely.	
31/05/2004 **United States** **Non-Coal** **Open-Cut**	Pressure Vessel Explosion	Truck driver was sprayed by diesel when a hose disconnected from a quick connect fitting.	Ensure safe procedures for off loading of fuel to the tanker truck, PPE for fuel loaders, install safety shut-off valves and implement standard inspections.
5/09/2003 **United States** **Coal** **Open-Cut**	Pressure Vessel Explosion	Man was using acetylene torch on anti-freeze drum when it exploded due to static electricity from the torch tip.	There must be procedures in place to deal with misconduct, which should then be strictly enforced.
8/04/1999 **United States** **Non-Coal** **Open-Cut**	Uncontrolled Release of Energy	A maintenance supervisor was fatally injured repairing a defective charging valve on rear suspension cylinder on a haul truck. After failing to remove valve, he applied penetrating oil and heat from a torch to loosen valve and cylinder rod blew out.	Maintenance not to be performed until equipment components are blocked against motion. Procedures established by manufacturer to be followed when performing maintenance or repair. Heat or open flame not to be used where there is a fire or explosion hazard.
8/05/1996 **United States** **Non-Coal** **Open-Cut**	Explosives	A truck driver was killed at a crushed stone quarry. The employee was in the process of preparing two primers by inserting non-electric caps into each of the one-pound primers. One of the primers detonated killing the victim instantly.	
27/04/1993 **Australia** **New South Wales** **Coal** **Open-Cut**	Other Explosion	A Fitter received fatal injuries when the Quell fire suppression canister he was recharging exploded.	
21/06/1987 **Australia** **Western Australia** **Non-Coal** **Open-Cut**	Explosives	Was caught in the detonation of an unknown quantity of explosives while working in a trench caused by an old stope breaking through to the surface.	
14/08/1981 **Australia** **New South Wales** **Coal** **Underground**	Explosives	Died of injuries received from the detonation of 3 electric detonators in close proximity to chest.	

1980 **United Kingdom** **Coal** **Underground**	Explosives	A magazine attendant was killed when disposing by burning some 30kg of P4/P5 type permitted explosives which had been recovered from a misfire. A worker using a propane burning equipment 4m away, who had been asked by the attendant to ignite the heap of explosives with his torch escaped with only minor injuries.	
1980 **United Kingdom** **Coal** **Underground**	Explosives	At an explosives reserve station, 200kg of ANFO explosive detonated	
1968 **New Zealand** **Non-Coal** **Open-Cut**	Explosives	Was killed when an unsuspected misfire was drilled into the face	
Electrical Isolation			
5/11/2006 **United States** **Coal** **Open-Cut**	Electrocution	Electrician touched a 23kV circuit on a dragline. He was not qualified to perform this work.	Removal of the auxiliary power system, qualified electricians to use only, list o electric equipment to be examined on dragline and strengthened lock out, tag out, ground procedures.
12/10/2006 **United States** **Non-Coal** **Open-Cut**	Electrocution	Maintenance coordinator fatally injured when an electric short occurred in a ball mill starter circuit. Current circuit protection failed.	Protect all circuits with over current protective devices and ensure their maintenance.
21/06/2006 **United States** **Non-Coal** **Open-Cut**	Electrocution	Contract electrician suffered electrocution causing fatality due to failing to check the electric circuit was de-energised and leaning on the circuit while installing new equipment.	Management should perform a risk assessment with each contractor before any work is started. Isolation of electrical circuits.
19/05/2006 **United States** **Non-Coal** **Open-Cut**	Electrocution	Contract electrician suffered electrocution causing fatality due to failing to check the electric circuit was de-energised on a new motor being tested.	Management should perform a risk assessment with each contractor before any work is started. Isolation of electrical circuits.
15/11/2005 **Australia** **Western Australia** **Non-Coal** **Underground**	Electrocution	Electrician was working to restore a pump to working order and was found in the room by himself electrocuted.	
4/11/2005 **United States** **Coal** **Underground**	Electrocution	Electrician was demonstrating the use of high potential cable tester when he received fatal shock.	High voltage safety gloves are to be use and electricians all received training about this.
23/05/2005 **United States** **Non-Coal** **Underground**	Electrocution	Victim was electrocuted while checking an excess dust build-up inside a transformer on stress cones of primary side of transformer.	Establish procedures for electrical circuits to be locked and tagged out when maintenance is being performed.

28/03/2005 **United States** **Non-Coal** **Open-Cut**	Electrocution	Electrician was fatally injured when he contacted an energized electrical circuit.	Procedures put in place for lock out, tag out system when performing maintenance, in depth training of plants electrical configuration for electricians.
23/10/2004 **United States** **Coal** **Underground**	Electrocution	While installing a new transformer, victim put grounding clamps on an energized circuit and was electrocuted.	Develop procedure checklists and isolate, tag, lock electric circuits before commencing maintenance.
24/09/2004 **United States** **Coal** **Underground**	Electrocution	Electrician was maintaining electrical goods when a mine operator came into contact with exposed energized goods and was electrocuted.	Covering of exposed and energized wires, safety retraining of electricians, isolate, lock and tag circuits before maintenance and fix short circuited safety cables.
29/08/2004 **United States** **Coal** **Open-Cut**	Electrocution	While working near 12kV circuit on power pole, electrician was electrocuted as the circuit was still energized.	Tag and lock out power prior to commencing maintenance, provide sufficient training, make contact with mine operators before commencing maintenance and improve communication issues.
5/02/2004 **United States** **Coal** **Underground**	Electrocution	While performing maintenance during a power outage, the electricity was restored and victim was electrocuted.	Management to monitor the condition of trailing cables, retrain foremen about dangers of cable damage, retrain staff about disconnect, tag and lock out power cables when in maintenance.
19/07/2003 **United States** **Coal** **Underground**	Electrocution	An exposed trailing cable on one of the five shuttle cars caused water in the area to become energized and when they came into contact with victim he was electrocuted.	All of the cables in immediate area should have been de-energized and locked/tagged out, cables should be better protected from wear and not lying in any water.
13/06/2003 **United States** **Coal** **Underground**	Electrocution	While resolving mine power problem, victim came into contact with 12kV circuit.	Gang operated air brake disconnect was not isolated and tagged out, capacitor bank should be guarded against contact.
21/05/2003 **United States** **Non-Coal** **Open-Cut**	Electrocution	A foreman was fatally injured at a surface sand and gravel operation. Victim was in process of making a splice in a 480V power cable that energized a water pump. When he removed insulation he contacted a live conductor, resulting in an electrical shock.	Buried power conductors and cables to be enclosed in conduit. Isolate circuits and equipment according to industry standards prior to commencing work. Discuss work procedures and identify hazards associated with work.
21/01/2003 **United States** **Coal** **Underground**	Electrocution	He touched an energized steel trailer with beams on it. The trailing cable of a roof bolting machine was running through the area.	Additional training provided for all workers and pre-work analysis of an area to be performed for any risks to be eliminated.

17/08/2002 **United States** **Non-Coal** **Underground**	Electrocution	A miner was fatally injured while moving a rail car mounted transformer switch as construction advanced. Victim was electrocuted when he contacted a 480V cable and a junction box to move them from rubbing rail car.	Protect circuits against excessive overloads by fuses or breakers current with standards. Ensure all metal enclosing electrical circuits is grounded. Provide equipment grounding conductors with sufficiently low impedance to limit voltage to ground.
23/05/2002 **United States** **Coal** **Underground**	Electrocution	While trying to remove a short circuit from trailing cable of a shuttle car, there was an explosion which severely burned the victim.	Never short circuit a trailing cable to remove a grounded phase.
21/05/2002 **United States** **Coal** **Underground**	Electrocution	While troubleshooting a distribution box, an electrician was electrocuted at battery charging station.	The wearing of protective gloves when dealing with electrical goods is required.
24/01/2002 **United States** **Coal** **Underground**	Electrocution	A labourer was fatally injured performing electrical work on a 12470V underground power centre. Problems were experienced re-energizing system after replacing a high voltage cable. Victim was inside power centre when system was eventually re-energized.	Always lock and tag out before doing electrical work. Electrical work to be performed by a qualified electrician. High voltage circuits to be grounded at all times while work is being performed.
2/10/2001 **United States** **Non-Coal** **Open-Cut**	Electrocution	A contract electrician was fatally injured installing power lines to an elevated electrical box mounted on the side of a building. As he swung the manlift he was working from away from building he contacted high voltage power lines.	Equipment should not be operated near energized power lines.
20/07/2001 **United States** **Coal** **Underground**	Electrocution	An electrician was fatally injured while preparing to move an electrical starter box, which provided power to a belt conveyor head drive. Victim came in contact with energized electrical circuit providing power to starter box.	Become familiar with electrical circuits prior to performing any electrical work. Always make sure all electrical circuits are isolated before performing any electrical work. Always follow proper lockout and tag-out procedures.
26/03/2001 **Australia** **Western Australia** **Non-Coal** **Open-Cut**	Electrocution	The deceased was engaged to undertake some upgrading work to the switchboard. Found laying on the ground near the switchboard with his head between two phase conductors it is believed that he may have contacted the conductors.	
13/03/2001 **United States** **Coal** **Underground**	Electrocution	An electrician was fatally injured while installing pole mounted capacitors. Victim and co-workers had installed capacitors and a twisted pair wire from substation. Plug for twisted wire began to smoke, victim pulled plug and received an electric shock.	Qualified persons should perform work on electric distribution circuits and equipment. Capacitors to be installed according to manufacturers' specifications. Capacitor frames be effectively grounded. Control power source be located at capacitor installation.

30/04/2000 **United States** **Coal** **Underground**	Electrocution	An underground electrician was fatally injured when he contacted a high voltage circuit on a power distribution centre. Victim was replacing circuit breakers and opened lid of 7200V incoming power as visibility was limited to view knife blade disconnect.	Care should be taken to ensure all circuits are de-energized before any work is started. De-energization devices should never be defeated and should always be maintained in operable condition. Proper lockout and tag procedures to be followed at all times.
18/02/2000 **United States** **Coal** **Underground**	Electrocution	An electrician was killed when he contacted a phase of a 7200V conductor in a high voltage substation. Victim entered substation in preparation to move a defective transformer. Victim was on top of de-energized transformer when he contacted conductor.	All circuits should be de-energized before work is started. Only qualified persons should perform work on electric distribution circuits and equipment. A suitable hard hat should be worn where overhead hazards exist.
20/10/1999 **United States** **Non-Coal** **Open-Cut**	Electrocution	An electrician was fatally injured connecting phase conductors in an electrical distribution panel when a co-worker engaged the disconnect switch for the circuit resulting in a fatal electrical shock. The circuit wasn't isolated prior to work commencing.	Power switches be locked out and signed warning notices should be posted at the switch by the individuals performing work prior to work commencing. Areas containing electrical installations should be entered only by authorized persons.
29/09/1999 **United States** **Non-Coal** **Open-Cut**	Electrocution	A 44-year-old Dredge Operator was fatally injured while attempting to move a blown discharge hose with a chain clamp. He was electrocuted when the clamp contacted a 440-volt power conductor.	Electrical circuits must be de-energized before mechanical work is conducted within close proximity of the energized circuit. Ground fault protection should be provided on floating dredges to protect persons.
7/09/1999 **United States** **Non-Coal** **Open-Cut**	Electrocution	A electrician was electrocuted while installing a new power line beside energized high voltage power lines. Lines were separated by about 5ft, however new line became energized through incidental contact or arcing, shocking victim with an about 40000V.	Persons should carefully plan safe work practices prior to performing tasks. Inactive power lines, tools and equipment must be kept a safe distance away from active power lines. Extreme caution to be exercised when working around high voltage power lines.
5/07/1999 **United States** **Coal** **Open-Cut**	Electrocution	A preparation plant electrician was checking a Limit Switch to determine why the heavy media vessel motor had stopped. Victim was attempting to remove/repair limit switch, which was located on vessel refuse chute when he received a fatal electrical shock.	All circuits should be de-energized before work is started. A proper means of frame grounding should be utilized at all locations where a hazard exists. Proper lockout and tag procedures should be followed at all times.

1/07/1999 **United States** **Non-Coal** **Open-Cut**	Electrocution	An electrician was fatally electrocuted when he inadvertently came in contact with a 4160-volt transformer he was in the process of replacing. Three primary connector leads supplying energy to the transformer were disconnected and still energized.	De-energize the incoming feeder circuit prior to working on any transformers. Work areas should be examined for hazardous conditions prior to starting task.
1/07/1999 **Australia** **South Australia** **Non-Coal** **Unknown**	Electrocution	A male opal miner died while using a steel file to clean an electrical cable socket.	
28/08/1998 **United States** **Non-Coal** **Underground**	Electrocution	A cable for a shuttle car was on the mine floor in water, which caused a circuit breaker to trip. After resetting breaker and hanging cable on rib a superintendent was electrocuted as he came in contact with damaged spot on checking the energized cable.	Ground faults should be repaired prior to energizing equipment or wiring. Cable damage should be corrected immediately. Insulated gloves should be used when handling energized cables. Power cables should be protected from damage.
23/07/1998 **United States** **Coal** **Underground**	Electrocution	A crew were dismantling a collector belt. Electrical circuit was energized from surface and contained a fault which energized tailpiece of collector belt. Foreman went to ring surface to isolate power when he was electrocuted by contacting a metal frame.	Electric power circuits be isolated prior to performing maintenance or repair work. Frames of electrical equipment, including switches, to be properly grounded. All electric circuits, including control circuits, to include overcurrent and overload protection
7/06/1997 **United States** **Non-Coal** **Open-Cut**	Electrocution	An electrical supervisor received severe burn injuries at a copper operation. A 480 volt circuit breaker had tripped and when the victim put his test leads across the terminals of the breaker, it exploded. He died the next day from his injuries.	All electrical equipment should be installed by qualified technicians. All equipment should be isolated and locked out according to isolation procedures. All electrical equipment should have visible warning signs informing employees of hazards.
16/05/1997 **United States** **Non-Coal** **Open-Cut**	Electrocution	A supervisor was fatally injured checking why a water pump at crusher house was not running. Two extension cords were used to supply power to pump. Polarity had been reversed on one cord allowing housing of pump motor to be energized.	
10/04/1997 **United States** **Non-Coal** **Underground**	Electrocution	An electrical supervisor was fatally injured while working on an energized 300 kva, 4,160/480 volt pad-mounted electrical transformer. It appeared he was dusting off the inside of the cabinet when he contacted the energized components.	All equipment should be correctly isolated and locked out according to isolation procedures prior to commencing work.

21/07/1996 **United States** **Non-Coal** **Open-Cut**	Electrocution	A 15-year old boy was killed while fishing in a river on mine property with several friends. Water became energized due to a short in wiring connected to a water pump on shore. A wire cable led from pump to water. Victim died from electrocution.	
26/04/1996 **United States** **Non-Coal** **Open-Cut**	Electrocution	A plant operator with 5 years of mining experience was killed at a crushed stone quarry. Employee came in contact with a metal building which had become energized by a 480 volt power cable coming from the plant generator. He died from electrocution.	
7/04/1996 **United States** **Coal** **Underground**	Electrocution	In attempt to close a 7200VAC oil circuit breaker that was tripping a superintendent received serious burns. Circuit breaker was in a substation which provided underground power. A final attempt to close circuit resulted in an explosion. Victim later died.	
31/10/1995 **United States** **Non-Coal** **Open-Cut**	Electrocution	An electrician was assessing a problem at an electric substation and had racked-out the switching mechanism. There was a load explosion and the victim was on fire. Victim got up and ran outside where he was taken down to ground and flames were extinguished	All energy sources should be eliminated and isolated before work is commenced on equipment
20/10/1995 **United States** **Coal** **Underground**	Electrocution	A chief electrician was electrocuted while performing work on an energized 12,470 volt junction box at an underground coal mine. The mine was in non-producing status at the time of the accident.	Before working on any equipment be sure to isolate and lock out as per isolation procedures. Develop and implement hazard risk management and work safe practices and procedures to ensure the safety of all personnel.
23/09/1995 **United States** **Non-Coal** **Underground**	Fire	An electrician suffered fatal flash burns while testing electrical bus bars to a motor control centre. While preparing to obtain correct rotation on motors, the tool he was using made contact between phase and enclosure of the energized motor control centre.	Before work is to commence on all electrical equipment it is necessary to isolate and lock out all energy sources. All energy sources should be marked for isolation points and specifications.
12/09/1995 **United States** **Non-Coal** **Open-Cut**	Electrocution	A 1st class lineman was fatally injured during the process of connecting the power cable from the slurry pump to the power source when he came in contact with the power source. He died from electrocution.	Work places and equipment to be worked on should be isolated as per procedures so as to ensure safety of workers. Suitable platforms and access to work places should be used.

6/08/1995 **United States** **Coal** **Underground**	Electrocution	A maintenance foreman was fatally injured whilst carrying out maintenance on a welding machine at longwall. A miner in headgate was welding and complained of a loss of power. The foreman removed panel and contacted energized terminals with out isolating.	All equipment should be isolated as per lock out procedures prior to any work being carried out. Safe work procedures should be developed and then utilised.
26/07/1995 **United States** **Coal** **Open-Cut**	Electrocution	An electrician was electrocuted while working with a colleague to install a high voltage power cable as part of work to rehabilitate mine. After the two men separated, one went to transformer and contacted an energized circuit.	
10/04/1995 **United States** **Non-Coal** **Open-Cut**	Electrocution	A mine foreman was fatally injured in the process of positioning a boom crane to lift crusher parts when the boom came in contact with an overhead 13200v powerline. Victim was standing on ground holding the cable sling and was electrocuted.	Care should be taken when working around powerlines.
2/04/1994 **Australia** **Tasmania** **Non-Coal** **Open-Cut**	Electrocution	Electrocuted while repairing cells in the cell room.	
1/07/1993 **Australia** **Tasmania** **Unknown** **Open-Cut**	Electrocution	A contract carpenter was electrocuted when his body inadvertently bridged from an electrolytic cell to earth in the electrolytic cell room of a refinery.	
24/03/1991 **Australia** **Western Australia** **Non-Coal** **Open-Cut**	Electrocution	Was digging a hole to repair a leaking water pipe when the crow bar he was using penetrated live electrical cables.	
25/02/1988 **Australia** **Western Australia** **Non-Coal** **Open-Cut**	Electrocution	Was electrocuted when he came into contact with a vehicle which was live. He was attempting to assist a fellow employee who was in contact with the vehicle.	
21/09/1984 **New Zealand** **Unknown** **Unknown**	Electrocution	Died of Electrocution	
23/08/1982 **Australia** **New South Wales** **Coal** **Open-Cut**	Electrocution	Employee came into contact with 11kV while climbing a power pole while working on transformers in the yard.	
2/11/1981 **Australia** **Western Australia** **Non-Coal** **Underground**	Electrocution	Using a jackhammer in a cable duct in a switchroom, a miner penetrated a 3.3kV cable and was killed.	

11/04/1981 **Australia** **Western Australia** **Non-Coal** **Open-Cut**	Electrocution	Came into contact with a set of live 3.3kV fuses in a contactor module	
3/12/1980 **Australia** **Western Australia** **Non-Coal** **Underground**	Electrocution	Was tightening a bolt through a terminal in an electric switch box. A live wire was trapped by the bolt and the terminal became live, electrocuting him.	
30/09/1980 **Australia** **Queensland** **Coal** **Underground**	Electrocution	Fatally injured (electrocution) whilst he was engaged in welding in the coal preparation plant, repairing a screen deck in a confined space.	
24/08/1980 **Australia** **Queensland** **Coal** **Underground**	Electrocution	Fatally injured when he received an electric shock from an item of electrical equipment in the workshop.	
1980 **United Kingdom** **Coal** **Underground**	Electrocution	Received a fatal electric shock while attempting to test the interior of an underground 3.3kV circuit breaker. He intended to check the insulated resistance of the internal parts connected to the incoming side of the circuit breaker. He then inadvertently turned the isolator off and was electrocuted.	
24/07/1979 **Australia** **New South Wales** **Coal** **Underground**	Gas Ignition Explosion	Mixture of air and methane had built up and was ignited by a flame travelling in bye the flame line from auxiliary fan site. Electrician doing maintenance on fan caused the spark.	Change ventilation plan and don't perform maintenance while mine is operational.
14/03/1979 **Australia** **New South Wales** **Non-Coal** **Open-Cut**	Electrocution	Electrocuted while standing on a screen support which had become alive when launder cut a welding lead.	
1/02/1979 **Australia** **New South Wales** **Non-Coal** **Open-Cut**	Electrocution	Electrocuted while pulling extension cables apart and came into contact with live wires.	
1977 **Australia** **New South Wales** **Coal** **Open-Cut**	Electrocution	Surface Electrical accident	
1977 **Australia** **New South Wales** **Coal** **Underground**	Electrocution	Attempted to adjust energized 11kV circuit breaker	
1977 **Australia** **New South Wales** **Coal** **Underground**	Electrocution	Touched the live end of an 11kV cable which had not been properly isolated	

21/06/1976 **Australia** **Queensland** **Non-Coal** **Open-Cut**	Electrocution	Electrocuted while preparing a power cleaner ready to pressure clean working area.	
1976 **United Kingdom** **Coal** **Underground**	Electrocution	Trying to trace a fault in a high voltage contact starter failed to switch off at its integral isolator before opening the hinged door on the contact chamber and received a fatal shock when he touched 3.3kV fuses. The isolator feature was inoperative due to design weakness and inadequate maintenance.	
26/02/1975 **New Zealand** **Non-Coal** **Open-Cut**	Electrocution	Experienced electrician received fatal shock when working on the connecting box supplying gantry crane.	
1975 **Australia** **New South Wales** **Coal** **Open-Cut**	Electrocution	Was electrocuted while working on an electrical load centre without isolating. He touched the live terminals.	
27/03/1974 **Australia** **Queensland** **Coal** **Open-Cut**	Electrocution	Fatally injured (electrocution) when the jib strut of a crane came into contact with the conductors of an 11kV power transmission line.	
23/02/1973 **Australia** **Queensland** **Coal** **Underground**	Electrocution	Fatally injured (electrocution) when the fingers of his left hand came into contact with the live terminals of an isolating switch.	
29/12/1971 **Australia** **Queensland** **Non-Coal** **Open-Cut**	Electrocution	Electrocuted while working at rear of a 415 volt switchboard on a dredge.	
22/04/1971 **New Zealand** **Non-Coal** **Open-Cut**	Electrocution	While trying to gain access to a transformer on a power pole using too short of a ladder to pull the fuses and was electrocuted	
1970 **Australia** **New South Wales** **Coal** **Open-Cut**	Electrocution	Came into contact with live distribution busbars on a surface, 12 yard, electric shovel	
1969 **Australia** **New South Wales** **Coal** **Underground**	Electrocution	Electrocuted while removing a 415V DC distribution cable from a gate-end box. As the deceased pulled the plug a pin came away and the deceased grasped the pin. The victim had isolated, but the re-energized the circuit in the tea room himself.	
8/09/1966 **Australia** **New South Wales** **Coal** **Underground**	Electrocution	Found dead near the cable entry gland of a loading machine, when the chisel edge of some multigrips had penetrated a power core cable.	

1966 **Australia** **New South Wales** **Non-Coal** **Underground**	Electrocution	Was electrocuted when a mobile crane whose lead was steadying came into contact with overhead electric cables.	
1965 **Australia** **New South Wales** **Coal** **Open-Cut**	Electrocution	Electrocuted when he came into contact with 415V terminals. Was replacing thermal overload switches and didn't isolate the area.	
1964 **Australia** **New South Wales** **Coal** **Open-Cut**	Electrocution	Was found slumped in position alongside the open door of a switch cubicle in a surface sub-station. He had burns on his hands and had somehow come into contact with live switchgear within cubicle.	
1964 **Australia** **New South Wales** **Coal** **Underground**	Electrocution	In connecting 220/415V transformer in parallel with another transformer, assumed the power was off and connected the pins into a live transformer and was electrocuted.	
4/09/1963 **Australia** **Queensland** **Coal** **Underground**	Electrocution	Fatally injured when he was electrocuted whilst using a power boring machine.	
1963 **Australia** **New South Wales** **Non-Coal** **Open-Cut**	Electrocution	Electrocuted when a pump they were carrying became electrified when it touched a loose lead from a live electric conductor	
1962 **Australia** **Queensland** **Coal** **Open-Cut**	Electrocution	Fatally injured when he was electrocuted whilst working on the installation of a transformer station at the washing plant.	
1962 **Australia** **New South Wales** **Non-Coal** **Open-Cut**	Electrocution	Electrocuted when he was raising mast on seismic drill and it came into contact with high voltage wires	
1962 **Australia** **New South Wales** **Coal** **Underground**	Electrocution	Battery type shuttle car was being driven outby from underground charging station when the car struck and damaged a 415V cable and the driver was electrocuted.	
1955 **Australia** **New South Wales** **Coal** **Underground**	Electrocution	Miner accidentally cut 415V cable, while trying to fire a shot with a non-isolated area, he accidentally used the cable to provide himself leverage to climb on power box and energized the circuit	
1955 **Australia** **New South Wales** **Coal** **Underground**	Electrocution	Two 415V cables into pump were malfunctioning and caused the pump housing to by energized, which killed miner when he touched the pump.	

8/02/1939 **Australia** **Queensland** **Coal** **Underground**	Electrocution	Fatally injured when he came into contact with an electric current when switching off the current at the gate end box.	
Gravity Isolation			
5/04/2007 **United States** **Non-Coal** **Open-Cut**	Other	While replacing tyres on a wheel loader the two supporting hydraulic jacks failed and he was crushed under the loader.	Ensure there are safe policies for repairing equipment and do not perform until the hazardous motion is blocked.
2/02/2007 **United States** **Non-Coal** **Open-Cut**	Other	Fatally injured when the left axle of a haul truck he was repairing fell on him. The truck was not blocked against motion and was left also on a slight grade to roll backwards.	
21/09/2006 **United States** **Non-Coal** **Open-Cut**	Other	Was pinned under a boom extension and clamshell bucket extension. He was cutting steel bracing plates free and when the final one came free the boom fell on him.	
12/06/2006 **United States** **Non-Coal** **Open-Cut**	Other	Operator was fatally injured while trying to repair a hydraulic line on a front end loader without any training or chocks to keep the boom up. It fell and crushed him against the frame.	Risk assessment for safe maintenance practices and following correct operating procedures. Also receive training to perform maintenance.
5/01/2006 **United States** **Non-Coal** **Open-Cut**	Other	A mechanic suffered fatal injuries when a front end loader which was not jacked up securely, rolled and fell on the mechanic, pinning him and causing blunt force trauma.	Follow correct procedures to block front end loader and Look and analyse hazardous tasks
15/07/2005 **Australia** **Victoria** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Fatally injured when the fixed jaw liner of a primary crusher fell on him. He was in the crusher trying to leverage a jammed fixed jaw liner while applying hydraulic pressure at the same time. The liner was not supported and dropped off the mounts fatally injuring the maintenance contractor.	
1/06/2005 **United States** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Victim was pulled into the pick breaker sustaining injuries which resulted in his death.	Workforce retrained in removing power and blocking movement before undertaking repairs on feeder.
28/04/2005 **United States** **Non-Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Victim was crushed between a set of ventilation air lock doors as they closed. He was working on their control switches.	Lock out and tag out electrical equipment while preforming maintenance. Conduct risk assessment and block motion.
21/04/2005 **United States** **Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Technician was standing in articulating section of front end loader repairing it with engine on, when it articulated and crushed him.	New written procedures to be adhered to when entering the articulating area of a loader.
5/12/2004 **United States** **Non-Coal** **Open-Cut**	Other	While changing bolts on the bucket of a loading shovel, the weld on a blocker failed and the bucket crushed them.	Perform risk assessments prior to any maintenance and implement procedures for blockage of motion.

16/09/2004 **United States** **Non-Coal** **Open-Cut**	Other	Victim fatally injured when going under a forklift to change a starter motor when the machine fell on him.	Implement risk assessment and hazard identification training; follow manufacturers' guidelines for performing maintenance tasks.
24/07/2004 **United States** **Non-Coal** **Open-Cut**	Other	The lift assembly of the loader the victim was operating pinned him against the cab of the machine while lifting bucket to replace fallen pin.	Train operators in equipment repair procedures, train operators to follow operator manual procedures.
1/06/2004 **United States** **Non-Coal** **Open-Cut**	Drowning	Dragline operator didn't lock the crawler track before he started digging and the dragline rolled into 20 foot deep pit.	Have procedures so that all users are adequately trained in equipment use, and implement them in training programs.
23/06/2003 **United States** **Coal** **Open-Cut**	Other	Mechanic was operating on excavator when loader moved and he was crushed between loader holding it steady and excavator.	All raised equipment to be blocked against motion and train staff in blocking procedures.
16/04/2003 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	An oiler was fatally injured attempting to free a hang up when he apparently contacted the moving crusher components causing multiple fractures to his leg. The victim was hospitalized and died on April 20, 2003.	Conduct risk assessments to identify hazards and process involved in protecting personnel. Isolate equipment according to standards prior to commencing work. Ensure the proper equipment is provided and personnel are trained in safe work procedures.
29/03/2003 **United States** **Non-Coal** **Open-Cut**	Uncontrolled Release of Energy	A supervisor was fatally injured assisting with preparing a jaw crusher to remove a shim plate. He was positioned on conveyor underneath crusher while two co-workers removed nuts holding clamp bolts. When nuts were removed, the block fell and struck him.	Conduct risk assessments to identify hazards prior to work commencing. Develop safe work procedures that require personnel to be safe from hazards. Train personnel in safe work procedures. Isolate equipment and components prior to work commencing.
28/12/2002 **United States** **Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Victim was pinned between inside wall of truck bed and basket of hydraulic excavator while welding a steel plate into truck.	Increased safety and task training for staff present in the mine.
21/12/2002 **United States** **Non-Coal** **Open-Cut**	Asphyxiation	A 23 year-old utility person with 5 years mining experience was fatally injured at a surface cement operation. The victim was fatally injured when he climbed into a silo to unplug a blockage and was engulfed by material.	A safety harness and lifeline should be used when entering silos, hoppers or surge piles. Safe access be provided and maintained to all working places. Silos should be equipped with mechanical devices to handle material.
23/09/2002 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A plant operator was fatally injured as he was removing fines from around a tail pulley and became caught between belt and pulley. Pulley was covered in spillage and as he removed it the conveyor belt moved backward and caught the victim's arm.	Manufacturer's recommendations to be followed and miners to be trained in tasks prior to work commencing. Risk assessment to be carried out prior to work. Ensure proper tools are provided and used to complete tasks. Isolate equipment prior to work commencing.

10/07/2002 **United States** **Coal** **Open-Cut**	Other	Driver was attempting to free a locked axle, and while using a pry-bar to free this, the truck moved, crushing him.	Block motion to equipment before performing maintenance on it, initiate procedures for truck maintenance and give training on hazard recognition.
20/06/2002 **United States** **Coal** **Underground**	Asphyxiation	Utility man was lubricating bearings when bunker cars moved as victim placed himself in a pinch point, crushing him.	Do not perform maintenance without motion blockage and train staff in hazard identification.
30/03/2002 **United States** **Non-Coal** **Open-Cut**	Other	A process operator was helping clear a blockage inside a cement clinker drag conveyor located in a tunnel. An access door for enclosed conveyor was opened and hot clinker spilled into water generating a steam outburst that burned victim who later died.	A protocol that addresses potential hazards to be developed prior to beginning major tasks. Special protective clothing and equipment be provided and worn to protect persons from environmental hazards. Water not to be permitted near hot materials.
28/01/2002 **United States** **Coal** **Underground**	Pressure Vessel Explosion	A fine coal operator was fatally injured when a pump exploded due to steam build up within pump. Almost all liquids were drained from tank causing fines to solidify, preventing flow through pump. Pump, a pressure vessel, exploded and cover struck victim.	Provide pump housing with thermal sensing device that will de-energize circuit. Provide pump with remotely located controls. Never de-energize an overheated pump from close proximity. Install devices to prohibit back-flow of water into overheated pumps.
27/07/2001 **United States** **Coal** **Underground**	Unintended Operation of Equipment	A truck driver received severe injuries while conducting maintenance on his truck. He had put a metal stand under tray and then raised body in order to lift truck off ground. While under truck it rolled backwards pinning victim who later died from injuries.	Turn engine off, place transmission in gear, set park brake and always make sure equipment is securely blocked against motion, before performing repair or maintenance work. Don't depend on hydraulic systems to hold mobile equipment stationary.
5/05/2001 **United States** **Non-Coal** **Open-Cut**	Unintended Operation of Equipment	A mechanic was fatally injured performing maintenance on a front wheel of a loader. He was moving hydraulics to access wheel by extending boom to full. He then disconnected the hydraulic line allowing boom to fall and pin him against ground.	Maintenance should not be performed unless the power is off and the machinery components are blocked against motion. Manufacturers' service guidelines should be consulted and followed.
27/12/2000 **United States** **Coal** **Open-Cut**	Uncontrolled Release of Energy	A preparation-plant foreman was fatally injured attempting to free ice from a pipe line. After cutting pipe and calling operator to start pumps to flush system, ice again fouled. Attempting to break ice, pipe exploded and either ice or pipe struck victim.	Secure from movement the pressure side of pipes and hoses being flushed or cleared. Open ends of pipes to be positioned so that material being flushed won't be obstructed. All persons should move a safe distance from pipes being flushed.

19/12/2000 **United States** **Coal** **Open-Cut**	Other	A truck driver was fatally injured preparing to dump his load along side another truck in process of dumping a load. Coal in other truck was frozen and wouldn't discharge when bed was raised. As trailer reached maximum height it fell crushing cab of truck.	Trucks dumping side by side should stay a distance of at least the height of trailer apart. Trucks dumping side by side to be positioned so that drivers can see each other. If possible, agents to be used to keep materials from freezing in bed of haul truck.
20/05/2000 **United States** **Non-Coal** **Open-Cut**	Drowning	A 48-year-old dredge operator with 2 years mining experience drowned at a sand and gravel operation. The victim was in a work boat attempting to dislodge a rock from the cutter head when he fell into the water. He was not wearing a life jacket.	Life jackets should be worn where there is a danger from falling into water.
15/03/2000 **Australia** **Queensland** **Coal** **Open-Cut**	Uncontrolled Release of Energy	Fatally injured by truck tray body that was being repaired. The tray fell on him whilst he was attempting to insert a pin into the under side of the tray to attach a support structure required to for movement of the tray whilst detached from the truck.	
21/07/1999 **United States** **Non-Coal** **Underground**	Unintended Operation of Equipment	A mechanic was fatally injured at a gold mine. He was in the process of making repairs on a front-end loader when the bucket fell, pinning him between the buckets lift arm and the loader frame. The bucket was not blocked.	Maintenance should not be performed on equipment unless components are blocked and secured against hazardous motion.
7/07/1999 **United States** **Non-Coal** **Open-Cut**	Uncontrolled Release of Energy	A contract employee was fatally injured working inside engine compartment of a loader. He removed a safety latch and mechanism that facilitated raising and lowering the hood. Victim fell against one of tether straps holding hood up, pullng it down on him.	All work areas should be cleared of trip and fall hazards prior to the commencement of work in the area. Maintenance should not be performed on equipment unless components are blocked and secured against hazardous motion.
1/02/1999 **United States** **Non-Coal** **Open-Cut**	Other	A maintenance worker was fatally injured dismantling a section of crane boom preparatory to adding a section. Boom was lowered without being secured or supported to remove section. He had removed 2 of 4 pins when boom collapsed, crushing him.	Maintenance not to be performed unless components are blocked against movement. Manufacturer's guidelines for adding boom sections should be consulted and followed. Mine operators should plan all tasks to eliminate exposure to possible hazards.
21/08/1998 **United States** **Non-Coal** **Open-Cut**	Asphyxiation	A labourer was inside a rail hopper car using a shovel to dislodge material when he fell from the rope ladder he had been working from and became engulfed in material. Victim was wearing a safety belt and lifeline but line was too long to afford protection	Lifelines to be of appropriate length to provide protection and be tended by a colleague in dangerous areas so line is taught. Where clogging may occur mechanical devices to be fitted to bins and hoppers to avoid the possibility of becoming engulfed in material.

1/08/1998 **United States** **Non-Coal** **Open-Cut**	Uncontrolled Release of Energy	A mechanic was fatally injured performing maintenance on the hydraulic system of a front-end loader when a sudden release of hydraulic pressure caused the bucket support arm to fall, pinning him against the loader frame.	Maintenance should not be performed unless the power is off and machinery components are blocked against hazardous motion.
29/01/1998 **United States** **Non-Coal** **Open-Cut**	Uncontrolled Release of Energy	A labourer was using a hammer to dislodge a rock in a crusher standing on a ladder when hammer was ejected by moving crusher jaw. Handle struck victim in head and he fell approximately 12ft to ground. He received severe head injuries and died 8 days later.	Equipment to be isolated before performing maintenance. Workers should wear safety belts and lines when a fall hazard exists. Safe access to working areas to be provided. Tool repairs or modifications to be in accordance with the manufacturers' recommendations.
24/07/1997 **United States** **Non-Coal** **Open-Cut**	Uncontrolled Release of Energy	A mechanic was fatally injured while assisting 2 other mechanics to replace brake shoes on a rail road engine. The engine had been hoisted by a crane and blocked with 4x4 inch wooden blocks. The engine rocked and fell off the block, landing on the mechanic.	
20/06/1997 **United States** **Non-Coal** **Open-Cut**	Uncontrolled Release of Energy	A loader operator was fatally injured carrying out maintenance on a loader. A fender on the loader was raised to remove and install a wheel with a boom truck. Operator was attempting to align wheel, the support gave way allowing fender to strike operator.	All hand held equipment should be maintained tested and inspected regularly in accordance with manufacturers' specifications. When working in hazardous work places PPE should always be worn, i.e. Hard Hat.
13/06/1997 **United States** **Coal** **Underground**	Unintended Operation of Equipment	A mechanic was repairing a lift jack of a bucket on a loader. A steel beam was placed to support one of bucket arms. While mechanic was working on lift jack, beam split allowing bucket to fall. Mechanic attempted to escape when he was hit by bucket.	
21/04/1997 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A contractor was fatally injured repairing a loader bucket. He was working off a step ladder placed between the loader bucket and the loader frame. He apparently disconnected the hydraulic controls which allowed the pivot arm to fall and strike him.	
6/02/1997 **United States** **Coal** **Open-Cut**	Other	A truck driver and crane operator were dismantling a boom of a crane in preparation to move to workshop. Boom was lowered onto a block and truck driver began removing bolts. After removing second, boom separated and fell, fatally injuring truck driver.	

17/12/1996 **Australia** **New South Wales** **Unknown** **Open-Cut**	Uncontrolled Release of Energy	A maintenance assistant received fatal injuries while undertaking repair and water testing of an oxygen lance. A non-standard leak test was attempted without allowing for air release and a coupling came off under pressure and struck him.	
9/03/1996 **United States** **Non-Coal** **Underground**	Other	A contractor core driller died from injuries he sustained in an accident while trying to free drill rods that were stuck in the hole they were drilling. A 24-inch pipe wrench they were using to free drill rods slipped and struck victim in head and arm.	Only suitable equipment should be used when working on machinery.
19/01/1996 **United States** **Coal** **Underground**	Uncontrolled Release of Energy	While repairing a universal drive shaft assembly for gathering arms on a continuous miner a foreman was crushed when ripper head fell on him. Prior to work, miner was set on blocks, however during repair blocks failed and ripper head fell on victim.	Isolate equipment in accordance with industry standards prior to commencing work.
23/12/1995 **United States** **Coal** **Underground**	Unintended Operation of Equipment	A continuous miner operator was attempting to tighten a hydraulic fitting on a boom elevator jack. The miner was under the elevated boom when the boom fell, resulting in fatal crushing injuries. The boom had not been blocked against motion.	Before maintenance is carried out on continuous miner be sure to correctly isolate and block machine up to eliminate the possibility of accident. Regular maintenance and inspections should be carried out on equipment prior to and during its working life.
21/08/1995 **United States** **Non-Coal** **Underground**	Uncontrolled Release of Energy	A miner was fatally injured when he and a colleague were trying to free a hang-up in a chute. After several blasts and banging the gate were unsuccessful, they walked towards the chute when the hang-up fell, engulfing one of the miners.	Structural equipment including chutes should be designed to stand working condition loads.
22/05/1995 **United States** **Non-Coal** **Open-Cut**	Unintended Operation of Equipment	While in process of repairing exhaust of a service truck, a mechanic was fatally injured. Truck was sitting on level grade in first gear and wheels not blocked. Starter was shorted by a heat shroud and started engine and truck ran over employee.	Prior to work commencing on machinery and equipment, isolation procedures should be carried out. Additional chocking/blocking may be necessary to restrict movement of equipment.

19/12/1991 **Australia** **Queensland** **Coal** **Open-Cut**	Uncontrolled Release of Energy	He was trying to clear a blockage in the ROM 1 using a high pressure water hose on top of the ROM whilst another entered the chute to remove pieces of coal and rock by hand. It appears the deceased arranged for water to be applied to the hopper bin via the spray bars on the water truck in lieu of the water truck fire hose. He then proceeded down the stairs to the top of the apron feeder cover. A short time later there was an outrush of coal and water. It was realised that the deceased had disappeared from the apron feeder. After a search his body was recovered from the conveyor.	
19/12/1990 **Australia** **Queensland** **Coal** **Open-Cut**	Uncontrolled Release of Energy	Fatally injured when attempting to clear a ROM feeder using water, when the coal fluidised, burying the victim.	
11/06/1986 **Australia** **Western Australia** **Non-Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Was assisting with the unloading of a 60 tonne dump truck from a float. The truck fell off the jacks and his head was caught between the front tyre and a block of wood.	
1985 **United Kingdom** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Was crushed and killed when he entered the space between the hopper section and the rear end of the body. The hydraulic system failed and allowed the raised hopper to fall without warning	
1/06/1981 **Australia** **Western Australia** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Was run over by a tractor he was servicing as he was checking the gearbox, he knocked it into gear and the wheel ran over him.	
12/06/1980 **New Zealand** **Non-Coal** **Open-Cut**	Asphyxiation	Killed when he fell into an impactor at the crushing plant when trying to free a blockage while unit was in motion	
1978 **United Kingdom** **Non-Coal** **Open-Cut**	Other	A mobile crane jib section fell onto a man during dismantling	
1977 **United Kingdom** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Was changing picks and was killed when the haulage chain broke and the shearer moved unexpectedly	
1976 **United Kingdom** **Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Was killed while carrying out repairs on a cutter loader when a timber prop used to support the boom fell out and he was crushed when the boom collapsed.	
1976 **United Kingdom** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Died from crush injuries when he inadvertently operated the tipping lever mechanism while refitting the clutch housing of a vehicle	

1976 **United Kingdom** **Non-Coal** **Open-Cut**	Other	Was dismantling the jib of a large capacity crane when he was crushed when the jib collapsed because the securing pins were knocked out	
1976 **United Kingdom** **Non-Coal** **Open-Cut**	Other	Assisting in the removal of an engine weighing 4.5 tonne from a dumptruck when he crawled underneath to uncouple the steering hoses while the engine was suspended. When the hoses released, the engine swung and struck his head.	
1961 **New Zealand** **Unknown** **Unknown**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Was hit in the chest by the bucket of a mechanical shovel while assisting repairs	
11/03/1958 **New Zealand** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Was killed when the loaded tray of the truck fell on him while he appears to have been examining the hoist which had broke.	
1955 **Australia** **New South Wales** **Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	In removal of drum assembly from mechanical shovel, drum moved, drawing operators leg into sprocket and chain assembly	
1955 **Australia** **New South Wales** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Repairs were being effected on the hydraulic system of a mobile loader when the deceased was crushed between the body and boom of the loader	
Hydraulic Isolation			
26/07/2006 **Australia** **New South Wales** **Coal** **Underground**	Uncontrolled Release of Energy	While collecting samples from a pump station, he received a hydraulic fluid injection at 305 bar, striking him in the face.	Ensure training provided to contractors, identify non-conformances of work tasks, remove and reduce risk of hydraulic fluid injection.
Mechanical Isolation			
4/12/2007 **United States** **Coal** **Underground**	Fall from Heights	Fell 39 feet from an elevated conveyor belt roller. It carried the miner 49 feet before he was thrown after it started up during maintenance.	De-energize and lock out/isolate all mechanical equipment before commencing maintenance. Before starting up equipment check that it is all clear and no one is on it-one is one it.
12/11/2007 **United States** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Accident occurred in the belt entry when a feeder breaker was being positioned over the belt tailpiece while the Conveyor was running. The tailpiece broke free and struck the victim free.	Release belt tensioner to lower tension on belt, isolate, lock out and tag when performing maintenance on conveyors.
5/11/2007 **United States** **Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Operator was attaching cable to dragline so it could be moved when the dragline rotated and struck him.	Make sure operators are clear before moving machine, maintain proper communication and signal when you are getting onto or off dragline.

24/10/2007 **United States** **Non-Coal** **Open-Cut**	Other	Assistant Superintendent was struck in the head with a steel bar while trying to free a wedged piece of steel from a crusher.	
4/08/2007 **United States** **Coal** **Underground**	Uncontrolled release of energy	While installing a new torque shaft, it became stuck and the motor was run momentarily which caused the shaft to strike the foreman in the face.	Lock and tag equipment prior to maintenance, maintain safe distance from moving parts and follow manufacturers manual.
13/07/2007 **New Zealand** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Crushed by Conveyor hopper while carrying out maintenance	
4/10/2006 **United States** **Non-Coal** **Open-Cut**	Other	A dragline operator was fatally injured when the operators' cab of a dragline he and two other miners were removing fell and pinned him. It was being removed for maintenance.	Risk assessment to identify possible hazards, especially when undertaking maintenance.
21/04/2006 **United States** **Coal** **Underground**	Unintended Operation of Equipment	Electrician was checking hydraulic pressure on tram while outside operator compartment and the tram was caused to move, trapping him against a belt Conveyor.	Development and implementation of a maintenance plan hen operating on equipment.
11/04/2006 **United States** **Non-Coal** **Open-Cut**	Other	Production worker was killed when a skid steer loader backed over him. He was tightening field fence wire with pliers securing stone to a pallet.	Place pallets away from roadside for miners to work on them. Risk assessment conduction before hazardous tasks.
24/08/2004 **United States** **Non-Coal** **Underground**	Unintended Operation of Equipment	Miner backed loader under chute and went out to operate controls when his loader rolled and pinned him against the wall.	Train employees in equipment safe operating procedures, check equipment for faults regularly and train workers in parking procedures.
1/05/2004 **Australia** **Western Australia** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Fitter died after being struck in the head by a splitter gate in a transfer chute in a processing facility.	Bleed air pressure from the system before attempting to clear a chute blockage.
24/03/2004 **United States** **Non-Coal** **Open-Cut**	Asphyxiation	Clothing became entangled in rotating drill steel, victim tried to manually thread the drill steel onto a rotating collar and striker bar with the drill mast in the vertical drill position.	Manufacturers' warnings should be followed during drill operation, suitable clothing should also be work when operating equipment.
23/11/2003 **United States** **Non-Coal** **Open-Cut**	Uncontrolled Release of Energy	A company vice president was fatally injured at a crushed stone operation. The victim was using a steel bar to dislodge a blockage in an impact crusher. The bar contacted a moving crusher component causing it to be propelled and strike the victim's neck.	Isolate equipment before performing work. Identify possible hazards associated with work to be performed along with methods to properly protect persons. Discuss work procedures before beginning work. Use proper tools and equipment for the job.

14/06/2003 **United States** **Non-Coal** **Open-Cut**	Uncontrolled Release of Energy	A repair crew foreman was fatally injured at a sand and gravel operation. The victim was positioning a wedge bar to secure the upper liner plate in a stationary jaw crusher. Apparently the liner shifted and fell, striking the victim.	Conduct risk assessments identifying hazards and personnel safety. Ensure components and equipment are blocked against hazardous movement. All personnel to be positioned safely at all times. PPE to worn at all times and employees trained.
21/12/2002 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A loader operator was fatally injured in the process of draining the water from the log washer at the end of the shift. Victim climbed inside machine to remove debris and was crushed by the paddles when a third employee inadvertently started machine.	Equipment should be isolated prior to work commencing. Warning devices should be fitted to equipment to inform of starting and moving operations. Companies should develop and implement procedures that address possible hazards for maintenance tasks.
13/12/2002 **United States** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Victim contacted fast feed drill boom lever causing the drill to rise rapidly and trapping him between the drill and the canopy roof.	
12/06/2002 **United States** **Non-Coal** **Open-Cut**	Uncontrolled Release of Energy	A maintenance worker was fatally injured at an alumina operation. The victim was drilling out scale that had accumulated inside heater tank pipes. The drill motor, detached from the gear box, fell from the drill mast and struck the victim.	Establish procedures stipulating regular checks and maintenance of equipment. Ensure checks are conducted, defects fixed prior to operation. Ensure component fasteners meet standards. Provide extra security for constant vibration components.
26/04/2002 **United States** **Coal** **Open-Cut**	Unintended Operation of Equipment	A mechanic/welder was fatally injured fuelling a bulldozer in pit of a surface coal mine. While fuelling bulldozer, victim's service truck began to roll away. Victim ran after truck and jumped on, however slipped off and was run over.	Don’t leave mobile equipment unattended unless brakes are set. When mobile equipment is left unattended turn wheels into bank or block them. Emphasize proper methods of blocking wheels in task training. Perform tasks such as refuelling on level ground.
2/04/2002 **New Zealand** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Victim was changing drilling rods on a drilling rig when his clothing became entangled in the revolving rods. Died at the scene from injuries received.	
13/02/2002 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A carpenter was fatally injured building a new processing plant. Victim was secured by a safety belt and line taking measurements on outside edge of structure. An elevator was moved and caught the victim between the conveyance and the structural steel.	Hazardous work places should be sign posted and contain warnings. Prior to commencing work all equipment must be isolated. Warnings should be sounded prior to machine operation. Risk assessments should be completed for all tasks.

17/12/2001 **United States** **Non-Coal** **Open-Cut**	Unintended Operation of Equipment	A maintenance mechanic was fatally injured at a surface crushed stone operation. After parking a service truck, the victim walked between the truck and a generator trailer. The truck rolled forward and pinned the victim against the trailer.	Mobile equipment should not be left unattended unless the controls are placed in the park position and the brake is set. When parked on a grade, the wheels of mobile equipment should be either chocked or turned into a bank.
27/08/2001 **Australia** **Western Australia** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A supervisor noticed that manufactured blocks were deformed an opened a locked gate to investigate. In trying to rectify the problem he became caught in the internal mechanism and was found some time later partially in the unit.	
7/08/2001 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A utility man was fatally injured when he was pinned between a rail car and tractor coupling. After noticing a coupling had disengaged, the victim directed the driver back and attempted to reconnect when the rail cars rolled, pinning him.	Rail cars to be isolated prior to persons travelling or working in hazardous area. Couplings used to attach mobile equipment to rail cars to be provided with controls that open and close coupling without exposure to injury.
4/06/2001 **United States** **Non-Coal** **Underground**	Unintended Operation of Equipment	A miner first class, was fatally injured at an underground platinum mine. The victim had parked his load-haul-dump tractor (LHD) and was loading steel into the bucket by hand when the LHD drifted forward and struck him.	Mobile equipment should not be left unattended unless the controls are in the park position and the parking brake is set. When mobile equipment is parked, the bucket or blade should be lowered to the ground.
12/04/2001 **United States** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A continuous miner operator was crushed between tail boom of miner and rib. Victim had trammed machine to intersection to pull up slack cable. Another miner being trammed into intersection hit ripper head of other miner. Boom swung crushing operator.	Personnel to remain a safe distance from any pinch point areas of continuous miners. Personnel should verify their proposed route of travel is clear when tramming continuous miners. Adequate task training be performed to assure safe operation of equipment
25/04/2000 **United States** **Non-Coal** **Open-Cut**	Unintended Operation of Equipment	A plant supervisor was fatally injured attempting to source an oil leak on a loader. On closing engine cover, operator returned to cab. Without informing operator, victim obtained a torch and crawled under loader. Loader was moved running over victim.	When working near large equipment, persons should make eye contact and communicate their intentions directly to the equipment operator. Wheels should be chocked before persons position themselves underneath mobile equipment.
12/04/2000 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A labourer was fatally injured making adjustments to a new conveyor installation. When aligning the extended grease lines for the bend pulley from inside conveyor frame he became caught in a pinch point when conveyor was started without his knowledge.	Maintenance not to be performed unless equipment is isolated. Visible or audible warnings to be provided before conveyor start-up. Mine operators should take measures to assure all personnel are trained in safe work procedures.

10/04/2000 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A 40-year-old driller (contractor employee) with 20 years mining experience was fatally injured at a surface gold mine. The victim was adding a drill rod to the drill head when his coat became entangled in the rotating steel.	Rotation to be stopped when manually changing drill rods. Drills to be fitted with automated systems for changing rods, or two persons to be present when rods are changed manually. Loose fitting clothing not to be worn when working around drilling machinery.
21/01/2000 **United States** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A continuous miner operator was fatally injured when he came in contact with the ripper head of machine. Victim had apparently positioned himself in front of miner to conduct maintenance. The remote control was in operators' possession.	All power circuits and electrical equipment be de-energized before any work is done on equipment. All areas where persons are required to work or travel to be eliminated of hazards. Employees to be positioned safely before energizing equipment.
9/12/1999 **United States** **Coal** **Underground**	Uncontrolled Release of Energy	A work crew were preparing a mobile crane for transport when a member of team was fatally injured. A member of team had removed pins from a counterweight prior to securing with wire rope. The weight pivoted, crushing another member against crane.	Workers shall stay clear of hoisted loads and avoid pinch points when working on or near moving equipment or machinery. Workers should follow safe work procedures consistent with the design of the equipment when working on or near such equipment.
29/09/1999 **United States** **Non-Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A labourer was fatally injured when he was operating a rubber-tired loader/forklift unit and lost control wedging unit against rib. When he attempted to exit the machine he accidentally lowered the boom pinning himself between boom and frame of machine.	Persons should enter and exit equipment through designated areas. Equipment operators must maintain control of their equipment. Guarding panels be installed to prevent persons from exiting where moving components present a hazard.
23/08/1999 **Australia** **New South Wales** **Coal** **Underground**	Unintended Operation of Equipment	A mechanical tradesman was fatally injured whilst carrying out maintenance tasks to a roof bolting rig attached to a continuous miner. As a result of accidental operation he suffered crush injuries from being caught between rig and superstructure of miner.	Isolation procedures should be reviewed. Managers should address hazard recognition and control skills training.
26/07/1999 **United States** **Coal** **Open-Cut**	Uncontrolled Release of Energy	A mechanic was fatally injured working in a manlift basket under a dragline. Dragline boom was lowered and mast supported with I-beam. While attaching strand lines to mast, support structure shifted. Structure hit man basket fatally injuring mechanic.	Both the top and bottom of temporary supporting structures be secured to prevent accidental movement. A thorough examination of support structures be conducted prior to and periodically during any work being done on or around suspended equipment.
29/05/1999 **United States** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Foreman received injuries when his clothes became entangled in drill steel. He died in hospital following surgery complications.	Ensure you take care around rotating steels when wearing gloves which may become tangled.

3/02/1999 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A shipping operator was fatally injured attempting to remove material from main discharge chute of a conveyor. A mechanical sampler arm that cycled automatically every 5min hadn't been isolated. Sampler arm cycled, he was crushed against the chute wall.	Maintenance not to be performed unless equipment is isolated. Safe access be provided and maintained to all working places. Mine operators should plan all tasks to eliminate exposure to potential hazards.
13/01/1999 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A truck driver was fatally injured when he was crushed by the bottom-dump doors while cleaning out the trailers. A pneumatic valve controlling doors was defective allowing air pressure to randomly activate valve.	Defects on mobile equipment to be corrected prior to equipment being used. Maintenance not to be performed unless machinery components are blocked against movement. Mine operators should take measures to assure that contractors follow safe work practices.
15/08/1998 **United States** **Non-Coal** **Open-Cut**	Unintended Operation of Equipment	A security guard was fatally injured at an open pit mine. The victim had gotten out of his truck, leaving the automatic transmission in reverse gear and the engine running. When he went behind the truck, it began to roll back, running him over.	Before exiting a vehicle, make certain the gear selector is in "Park". Always set the parking brake before leaving the vehicle. If the vehicle is parked on a grade, the wheels should be chocked or turned into a bank to prevent the vehicle from moving.
22/06/1998 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A plant superintendent was fatally injured after he started the pony engine on a bulldozer to start the main engine. He was kneeling on the tracks as he engaged clutch and as engine started, dozer moved in reverse, pulling him between track and framework.	Park brake to be set on unattended equipment. Operators should always verify position of operating controls before starting equipment. Mine operators should retrofit neutral start switches interlocked with pony motor ignition system on older equipment.
4/05/1998 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A mechanic was fatally injured at a stone quarry. The victim was performing repairs under a rail car when a remotely controlled locomotive impacted the car. The victim was run over when he attempted to crawl out from under the car.	Derailing devices be installed between workers on rail cars and moving equipment. A warning to be sounded prior to moving trains. Remote controlled locomotives only to be used when operator can maintain visual contact with locomotive and all cars.
30/04/1998 **United States** **Non-Coal** **Open-Cut**	Uncontrolled Release of Energy	A crusher operator was killed at a stone quarry. Whilst standing at opening of crusher trying to break rocks the victim either dropped the hammer or the handle broke causing hammer head to be ejected from the crusher and strike him in the face.	Maintenance of machinery should be performed only after the power is off and the machinery is blocked against movement. Personnel should be trained in safe work procedures.

20/10/1997 **United States** **Non-Coal** **Open-Cut**	Unintended Operation of Equipment	A leadman was fatally injured cleaning the weigh scale in front of a 125T locomotive and ten cars that were not isolated from movement. When four cars were attached to the rear of the parked train, it moved forward and the engine ran over him.	Before commencing work on equipment or near equipment, the equipment must be appropriately isolated, chocked and or locked out in accordance with isolation procedures.
4/08/1997 **Australia** **New South Wales** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	The victim was found lying over the head drum of a stationary Conveyor belt with his right arm being pulled down between the head drum and the frame supporting the Conveyor and under the axle of the head drum.	
19/07/1997 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A loader operator was fatally injured operating a small loader to clean up around plant. He leaned out of cab to fasten a latch that had come loose, he inadvertently pushed pedal which operates lift boom. Victim was pinned between lift boom and cab.	Equipment should be regularly maintained and inspected in accordance with the manufacturers' specification to ensure safety and fit for purpose. A work needed to be done on equipment should be completed as soon as possible.
23/04/1997 **United States** **Coal** **Underground**	Unintended Operation of Equipment	An electrician was fatally injured repairing water sprays on a section belt feeder. Prior to accident, power cable was severed. Victim was inside feeder fixing water sprays when it unexpectedly started and was pulled into a pick breaker.	All Equipment is to be isolated adequately prior to commencing work.
7/02/1997 **United States** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A longwall system operator was fatally injured transporting a ram jack on conveyors. Jack was thought to be jammed in crusher and operator attempted to rectify. He stood on conveyor when it started unexpectedly, he was dragged through crusher.	Before attempting maintenance or work on equipment make sure to isolate it according to industry standards and safe work procedures.
14/01/1997 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A crusher helper was killed at a gold pit when he was caught in the tail pulley of the crusher belt. The guard had been removed, and it appears that the employee was attempting to remove frozen material from the moving belt.	Prior to engaging in work or opening guards on equipment, make sure that the equipment is suitably isolated and locked out according to isolation procedures.
8/01/1997 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A mechanic with approximately 3 years of mining experience was killed at a sand and gravel operation. While performing mechanical repairs on a wash plant blade mill, the mill became energized pulling the victim into it.	Before commencing work on equipment, equipment should be isolated and locked out according to the like procedures. Equipment is to be installed to industry standards and inspected regularly to ensure safety and fit for purpose.

18/12/1996 **United States** **Coal** **Open-Cut**	Uncontrolled Release of Energy	A contract employee was dismantling a coal hauler when he was seriously injured as a bearing fell on his leg. Using a cutting torch, victim removed a bearing from trailer axle. The 10ft long bearing fell, striking the victim. He later died in hospital.	Support or restrict movement of components or equipment that could move in a hazardous way when worked on or near.
1/11/1996 **United States** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A continuous miner operator was fatally injured as he was run over by a shuttle car during a fall of roof. When mining a new pillar block a fall occurred and all workers in area ran outby. Victim was last and when shuttle car was trammed out he was run over.	
24/10/1996 **United States** **Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A plant foreman was fatally injured when he became entangled in a conveyor drive unit after it unexpectedly started. Victim and co-workers were fixing a broken drive chain. An inadequate isolation system was used. Victim was standing on belt.	All equipment should be adequately isolated according to industry standards and work procedures prior to work commencing.
8/07/1996 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A mechanic was performing maintenance on a haul truck when he was fatally injured. He finished replacing the injectors and was positioned on the front access ladder adjusting the engine when the truck lunged forward crushing him against the workshop door.	Regular routine maintenance and inspections should be carried out on all equipment in accordance with manufacturers' specifications to ensure safety and fit for purpose. When performing maintenance on machinery that is running, isolate and chock machine.
16/05/1996 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A loader operator was killed whilst trying to clear on engulfed tail pulley. When a foreman went to start conveyor, the operator attempted to clear more material. Conveyor started, and employee was dragged into head pulley where there was an 8" gap.	Prior to work commencing on equipment, the equipment should be suitably isolated and locked out according to management procedures.
1/03/1996 **United States** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A roof bolting machine operator was assisting with repairs to a conveyor belt that had broken during shift. While attempting to apply tension to belt by pushing on belt with his hands a miner was pulled into power rollers and received fatal injuries.	
14/02/1996 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A mechanic preparing to repair a hydraulic hose on a drill when he fatally injured as drill ran over him. Drill operator was tramming drill backwards to an area where hose could be repaired. Drill operator turned drill and saw mechanic under drill.	Mobile Equipment should posses reversing alarms.

8/02/1996 **United States** **Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	While conducting maintenance on a surface coal augering machine a miner was fatally injured. Victim was standing on discharge chain conveyor when engine was started. Chain conveyor hadn't been disengaged and victim was pulled into throat of conveyor.	Isolate equipment in accordance with industry standards prior to commencing work.
14/12/1995 **United States** **Non-Coal** **Open-Cut**	Unintended Operation of Equipment	A dozer operator was fatally injured at a limestone quarry. It is believed that the employee bumped a lever on the dozer as he was exiting the cab which put the dozer in motion. The dozer ran over the victim and continued over the bench.	
11/12/1995 **United States** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	A dredge operator was fatally injured when he was crushed by the bed of a truck. The victim had raised and blocked the bed to remove driveline, but then removed blocks when finished. Bed was moving slowly and victim attempted to tie up driveline.	
21/09/1995 **United States** **Non-Coal** **Open-Cut**	Fall From Heights	A front-end loader operator was fatally injured when he was cleaning out a scrubber. Another worker was using a hammer 20ft above the victim. Sledge hammer slipped out of worker's hand and hit victim on head causing him to fall 14 feet to the ground.	Safety lines and belts should be worn when working in elevated work places
28/04/1995 **Australia** **Western Australia** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Whilst lubricating a gravity take-up mechanism the victim was caught by his arm and drawn into device. Apparently he was able to pull emergency stop lanyard, stopping conveyor. Found by a workmate in a conscious state, he died on way to District Hospital.	
10/03/1995 **United States** **Non-Coal** **Open-Cut**	Unintended Operation of Equipment	While operating a wood chipping machine, clearing a new construction site a contractor was fatally injured. The victim was attempting to clean out the feed chute and operator's cab when yoke assembly for feed roller rotated down pinning victim.	Adequate isolation of equipment and energy must be completed prior to work on equipment. Regular maintenance and pre-shift inspections should be carried out to rectify any problems and make equipment safe for operation.

29/03/1993 **Australia** **New South Wales** **Non-Coal** **Underground**	Fall from Heights	A tradesman replacing worn liner plates in an ore discharge station fell to his death into the shaft when the door accidentally opened. The tradesman was working off a ladder supported against the door of the flask, when a fellow tradesman accidentally knocked the control handle which opens the door, whilst answering the telephone on the landing above. The air supply to the control handle was not isolated.	
22/11/1992 **Australia** **Western Australia** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Whilst working on brakes of a service truck a fitter at an open cut/underground nickel operation was fatally injured when the truck lurched forward running over him when a peer started the engine while truck was supported by a jack under front of truck	Site inductions are important for new employees. Safety equipment and awareness around operating equipment is essential.
23/07/1992 **Australia** **Western Australia** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	The deceased, a contract fitter at an open cut gold mine, was servicing the air conditioning on a haul truck. The driver thought the job had been completed and drove off. The deceased was run over by the truck.	
18/10/1985 **Australia** **Western Australia** **Unknown** **Unknown**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Was crushed between a tray top vehicle and a rail re-sleeping machine when the vehicle was started in gear and moved forward.	
1985 **United Kingdom** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Was killed while cleaning the conveyor. He had reached into a small 78mm gap left to clean the machine by a guard, when the machine started and he was found with his arm wrapped in the tail pulley.	
1985 **United Kingdom** **Non-Coal** **Open-Cut**	Other	Jump leads were being used by a truck driver to start a loader, when the operator left the vehicle while in reverse gear. When the engine started, due to a faulty interlock switch, it moved in reverse and killed a miner.	
1982 **United Kingdom** **Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Timber had been laid across the top of the armoured chain Conveyor to limit the load and when coal became stuck an operator would prod it out with a steel bar. The operator however overbalanced and was carried beneath the coal heap.	
1982 **United Kingdom** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Sustained fatal head injuries when struck by a hydraulically powered ring beam erector.	

1982 **United Kingdom** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Attempting to clear stone from the delivery hopper of his machine while the cutting head was in motion. He came into contact with these and was dragged into the machine.	
1982 **United Kingdom** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Crushed against a drive roller of a gearhead which he was cleaning when the slack belt slipped through a set of belt clamps and tightened the roller.	
1982 **United Kingdom** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Failure to isolate a stationary Conveyor while removing debris started up. He was found with his arm trapped in a nip point.	
1981 **New Zealand** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Fatally injured when falling into an impactor at the crushing plant while trying to free a blockage while the unit was in motion	
1981 **United Kingdom** **Coal** **Underground**	Other	While attempting to advance the stationary armoured face Conveyor, on which he was kneeling, by reaching through a 350mm gap between the top of the chainless haulage spill plate unit and the underside of the powered support beam. When the ram operated it crushed him against the powered support beam.	
18/09/1980 **Australia** **New South Wales** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Struck by bent drill, which when rotating in chuck, bent further and struck him.	
10/12/1979 **Australia** **New South Wales** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	While replacing a worn belt Conveyor with the conveyor still operating, the workman received serious crush injuries.	
1979 **United Kingdom** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Was killed by the revolving picks of a shearing drum, the power being turned on by an electrician unaware of the fitter's presence.	
1979 **United Kingdom** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	During maintenance work, a shearer was violently propelled forward by the rotating action of the drum on packing material used to support it. He had applied the power and assumed it not to be in gear.	
1979 **United Kingdom** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	During manual rotation of the drum of a shearer a miner was drawn under the drum and killed when the shearer operator accidentally applied power to the machine, which was not out of gear.	

1978 **United Kingdom** **Non-Coal** **Open-Cut**	Other	Was having trouble starting his machine, so he had another miner come and start the motor while he made some engine adjustments at the rear of the machine. The gear lever was in reverse, and when the engine started he was crushed against the adjacent excavator.	
1977 **United Kingdom** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Found on top of a Conveyor adjacent to a large diverting roller to which his grease gun was attached. He had entered the area without locking out Conveyors and isolating them.	
1977 **United Kingdom** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Killed by the rotating drum of a shearer, which had been started at his request and the gear lever had been left in gear.	
1977 **United Kingdom** **Coal** **Underground**	Fall from Heights	As he was leaving the cage, it suddenly ascended and he fell to his death. The winder operator had selected automatic wind and that combined with the selection of the destination first resulted in an unexpected cage movement.	The use of manual immobilization switches on each of the levels where the cage will stop
1977 **United Kingdom** **Coal** **Underground**	Fall of Roof/Sides/Highwall	He was manipulating a bar over the lowered canopy of a powered support when another workman prematurely reset the canopy of the roof.	
1975 **Australia** **New South Wales** **Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Tried to free a blocked chute and plant was not stopped before freeing blockage from chain conveyor. He fell in, was buried and suffocated in bins.	
12/10/1972 **New Zealand** **Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Belt Conveyor on which he was standing started; he was performing repairs to the motor of the drive head when he was caught in the steel framework.	
1972 **Australia** **New South Wales** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Found wedged between a tension roller and loop take-up carriage of a main trunk Conveyor. He was attempting to clean material from the rollers with the belt in motion when he was caught.	
15/07/1971 **New Zealand** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Crushed between screens and the side walls when the screens the deceased was welding started to move due to activation from another panel	
1971 **Australia** **New South Wales** **Coal** **Underground**	Other	Struck on the chest by a continuous miner cable which apparently whiplashed as he was about to handle it.	

1967 **Australia** **New South Wales** **Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Found dead between a return idler roller and the return belt on a Conveyor at the mine surface. He was trying to clear some coal from the idler and was dragged into the belt.	
1967 **Australia** **New South Wales** **Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Trapped between the tail and pulley of the return belt of a duff Conveyor belt. He was attempting to clear material when he became stuck.	
1967 **Australia** **New South Wales** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Overbalanced and fell between the frame and revolving driving sheave-flywheel of a jaw crushed which he was adjusting while in motion.	
12/04/1966 **Australia** **New South Wales** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Shaft sinker up-ended his drilling machine and drill steel to clean a choked drill. The air was left on and the revolving steel drill became entangled in his clothes, which choked him.	
24/08/1965 **Australia** **Queensland** **Coal** **Underground**	Uncontrolled Release of Energy	Fatally injured when he was crushed by a 70 lb rope roller which had become detached in the main haulage way.	
5/07/1965 **Australia** **Queensland** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Caught while applying belt dressing to a moving conveyor belt.	
1964 **Australia** **New South Wales** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Mill he was working in accidentally started and caused him to be crushed.	
1961 **Australia** **New South Wales** **Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Surface Conveyor belt was started while he was attempting to clear blockage between belt and return roller, when he was caught between.	
1961 **New Zealand** **Unknown** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Was killed instantly by being crushed against the revolving Kelly by the breakout line when a fresh length was to be added to the drill string.	
20/05/1959 **Australia** **Queensland** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Fatally injured when he entered a grinding pan to lubricate its rollers and the pan was set in motion by the belt drive moving from the loose to the fixed pulley.	
4/02/1959 **Australia** **New South Wales** **Non-Coal** **Open-Cut**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Killed when he fell into moving machinery whilst he was carrying out lubrication operations	

19/04/1932 **Australia** **Queensland** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Fatally injured from compound fractures of the pelvis and femur and a rupture of the bladder when attempting to couple a loaded truck. While moving, the trucks fouled and he was jammed between the buffer of a moving truck and woodwork of a standing truck.	
28/09/1927 **Australia** **Queensland** **Coal** **Underground**	Contact with Moving or Rotating Plant (Guarding/Access to Danger Zone)	Fatally injured due to internal injuries whilst adjusting a stop block and he was knocked down in front of a full set of wagons and dragged several yards.	
Pneumatic Isolation			
1/02/2006 **United States** **Coal** **Open-Cut**	Gas Ignition Explosion	Operator was developing a drill bench when the dozer ruptured a 16inch low pressure, high volume line, igniting immediately.	Control plan established when working with active gas lines in the area, hazard recognition training for all staff.
11/02/2003 **United States** **Non-Coal** **Open-Cut**	Other	A press operator was fatally injured performing cleanup inside a reaction tank when a steam injection line activated, engulfing him in high-pressure steam. The electronic control hadn't been locked out, nor had the valve for steam been closed and locked.	Establish safe work procedures. Review tasks for hazards that may be created as a result of major changes. Train employees in safe job procedures. Provide proper equipment, identify hazards, and wear PPE. Isolate equipment prior to work.
15/02/1999 **United States** **Non-Coal** **Underground**	Uncontrolled Release of Energy	A miner was fatally injured installing a coupling on a high pressure flexible metal air line. After installing the coupling, they noticed it was misaligned and loosened the coupling to straighten it when it came apart, allowing the hose to violently whip.	Maintenance or repair not to be performed on air powered equipment until the system is relieved of pressure. Safety chains or other devices to be installed at all high pressure air hose line connections where a connection failure would create a hazard.
1981 **United Kingdom** **Coal** **Underground**	Pressure Vessel Explosion	Stood on the receiving section of a trunk Conveyor and dismantled a joint on a 152mm diameter compressed air range which they had failed to isolate and de-pressurise. As the joint violently parted, the workman was struck and fell to the floor.	
Radiant Isolation			
15/02/2000 **Australia** **New South Wales** **Non-Coal** **Open-Cut**	Pressure Vessel Explosion	An employee received fatal burns while repairing a leak in a steel fuel tank for a grader. The victim was using oxy acetylene equipment when the tank exploded engulfing him in burning diesel fuel. The tank had been filled and pressurised to find leak.	

10/04/1996 **United States** **Non-Coal** **Open-Cut**	Gas Ignition Explosion	A crusher operator was welding on a diesel fuel tank which contained approximately 200 gallons of fuel. The tank exploded and inflicted 2nd and 3rd degree burns to 87 percent of the victim's body. The employee later died from his injuries.	Fire suppression systems should be kept on hand whilst welding and cutting processes are being completed.
19/09/1990 **Australia** **Queensland** **Coal** **Open-Cut**	Gas Ignition Explosion	Fatally injured after receiving serious burns as the result of a gas explosion from a build-up of LPG in the revolving frame of a dragline during gouging and welding operation.	
1966 **Australia** **New South Wales** **Coal** **Open-Cut**	Gas Ignition Explosion	Following shaft sinking, ventilation equipment had been withdrawn from the shaft and this caused a build-up in gassy conditions. While cutting a bolt from the top of the shaft, the gas ignited and caused one man to be thrown clear and sustain fatal injuries	
3/12/1963 **Australia** **New South Wales** **Coal** **Open-Cut**	Fire	Front end loader was being used to hold in position an iron plate to be welded to the chute of a surface loading ramp, when welding caused a fire under the loader. As he tried to move the loader he became trapped between the loader arms and the fuel tank.	
Thermal Isolation			
2/01/2006 **United States** **Coal** **Underground**	Asphyxiation	Explosion occurred when lightning as ignition source transferred onto discarded pump cable igniting methane which had built up in a confined area. This destroyed seals to other areas of mine and 12 miners died of CO poisoning due to this.	Seals installed to prevent explosion propagating to the other side, atmosphere in sealed areas monitored to ensure no penetration, insulated cables and conductors removed to prevent ignition points.
16/09/1996 **United States** **Non-Coal** **Open-Cut**	Fall From Heights	A plumber and greaser were fatally injured when 900 deg. materials escaped a kiln. Victims were fixing an air leak and had removed a door to replace seal when a blockage broke loose. One victim was burnt and later died and other was knocked 25ft to ground.	Safety equipment and harness should be worn when working in elevated work places.
1986 **Australia** **New South Wales** **Coal** **Open-Cut**	Other Explosion	Electrician received fatal burns when the oil tank of an oil circuit breaker exploded into flames.	