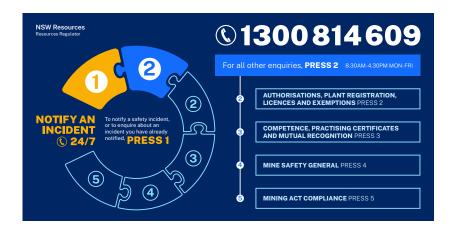
Fires on mobile plant

2024-25

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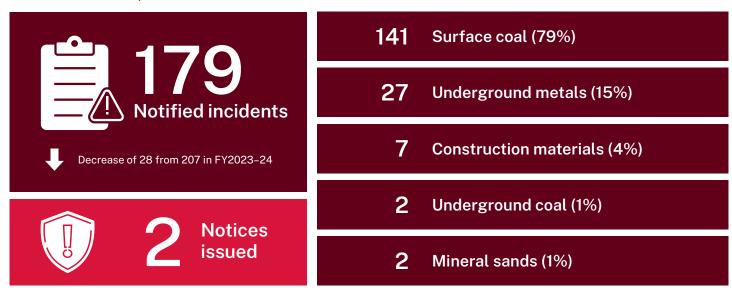
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Overview

In FY 2024-25, there were:



Incident notifications classified by principal hazard or control plan

Fire or explosion

165

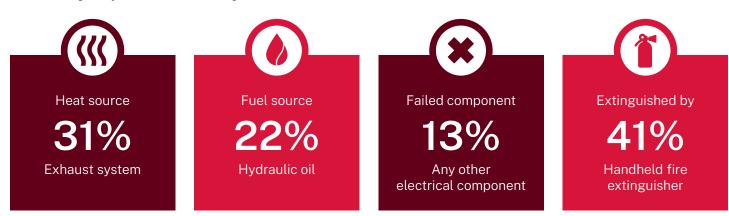
Electrical engineering control plan

12

Mechanical engineering control plan

2

Ancillary reports summary



Executive summary

This report has been prepared by the NSW Resources Regulator for the NSW mining industry, original equipment manufacturers and suppliers. It contains annual data of notified incidents involving fires on mobile plant (FOMP) for the period 1 July 2024 to 30 June 2025.

The <u>Regulator's position</u> is that all fires on mobile plant are avoidable and preventable and we have adopted a zero-tolerance approach where mine operators have not taken appropriate steps to manage this risk.

Fires on mobile plant are inherently dangerous. They affect the safety of workers and have potentially catastrophic consequences. Despite a focus on the issues in recent years, the number of incidents remains high. The Regulator is committed to working with industry to ensure health and safety obligations are being met to reduce the number of fires on mobile plant and to prevent potentially catastrophic events.

Since 2018, the Regulator has published reports on fire on mobile plant incidents (quarterly until FY 2022 and then annually). Information on mobile plant fires will continue to be provided at industry engagement forums such as scheduled quarterly engineers and managers forums, plus published in the weekly incident summary.

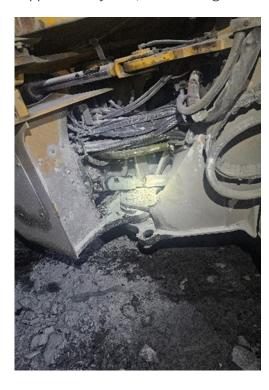
Annual data for 1 July 2024 to 30 June 2025 identified the following:

- There was a 14% decrease in notified fire on mobile plant incidents compared to the previous year. The number of FOMP incidents notified (179) was the lowest recorded over the last 5 years.
- Notified fire on mobile plant incidents occurring at surface coal mines account for 79% of all FOMPs in FY 2025, mirroring the percentage in the previous year. FOMPs occurring underground in underground metals mines continue to be the second most common, accounting for 15% of all incidents.
- Notices issued in response to a FOMP incident decreased from 7 in FY 2024 to 2 in FY 2025. These comprised one WHSA s191 improvement notice and one s195 prohibition notice.
- The most common combination of heat and fuel source in notified FOMP incidents in FY 2025 was electrical fault/ electrical insulation materials, accounting for 20 of the 179 incidents (11%).
- In FY 2025, the most common method of extinguisher and fire protection system was a hand-held fire extinguisher using engineered foam, which was used 26 times (15%).

Significant incidents

September 2024 - IncNot0047703

An integrated tool carrier (IT) was working in a decline when the operator smelt smoke. They checked the IT, but thought it was steam. Another worker noticed the fire in the IT and alerted the operator, who then activated the fire suppression system, which extinguished the fire. All workers were evacuated to refuge chambers.



Picture 1. Fire damage on integrated tool carrier

January 2025 - IncNot0048320

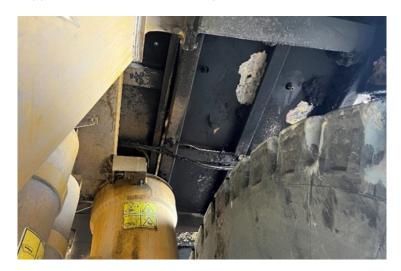
A fire occurred at the rear of a load haul dump (LHD) while operating underground. The operator noticed the fire and activated the fire suppression system. He exited the machine and used a hand-held extinguisher to extinguish the fire. Smoke dissipated to return air with no impact elsewhere underground, and no withdrawal or refuge. A hose at the back of the LHD near the radiator cooling fan had burst and sprayed fluid onto hot machine parts.



Picture 2. Hose failure aftermath

January 2025 - IncNot0048434

While driving up a ramp in an open cut pit, a truck operator noticed a failed turbo and reported it on the maintenance channel. As the truck ascended, flames erupted from the right-hand side, prompting the operator to call an emergency. Dispatch activated a site-wide emergency response. The operator stopped, exited the truck via the stairway, but went back to retrieve his hard hat and exited the burning truck again. The operator did not shut down the truck, and fire suppression was not triggered. Engine oil from the failed turbo ignited on the exhaust, spreading to the right-hand fender's sound suppression material. A mining supervisor activated the emergency stop and fire suppression from the front bumper. A water cart attended the scene and extinguished the fire.



Picture 3. Fire damage to sound suppression material

February 2025 - IncNot0048480

A fire occurred on an underground haul truck as it was being refuelled. The breather hose had come off during the operation of the truck, however this was not identified mid-shift during refuelling. The missing breather hose resulted in atomised diesel spilling and interacting with the immediate environment or hot surface.



Picture 4. Location of missing pipe on haul truck

February 2025 - IncNot0048582

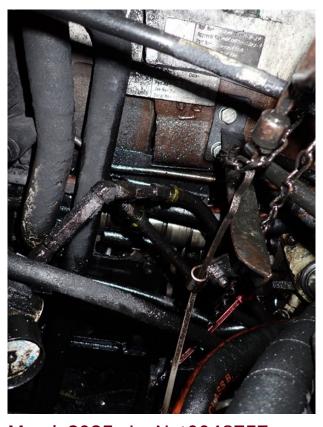
An explosives truck carrying about 900 kilograms of emulsion developed a fire in the transmission area. The truck was tramming up a decline when the operator noticed smoke and heat and initiated the fire suppression.

Recommendations to industry: Mine operators should ensure stringent monitoring and quality control of maintenance and repair activities.

Refer to: MDG15 Guideline for mobile and transportable plant for use at mines (other than underground coal mines)
AS 5062 Fire protection for mobile and transportable equipment provides further guidance for mines.

March 2025 - IncNot0048672

A load haul dump machine (LHD), fitted with an explosion-protected diesel engine, was picked up from pit bottom in an underground coal mine. After driving a short distance, the LHD operator heard a ticking noise from the diesel engine. The operator stopped and returned towards pit bottom for maintenance to check the machine. After driving 3-4 pillars, the operator heard a loud bang and the LHD stopped. The top end of the explosion-protected diesel engine systems (ExDES) had catastrophically failed with a hole blown in the side of the diesel engine and internal engine components being exposed to the mine atmosphere. The machine was quarantined with a root cause investigation being conducted by the mine and the original equipment manufacturer. The lifecycle age of the diesel engine has not been established.



Picture 5. Charring on failed engine

March 2025 - IncNot0048757

An electrical fire occurred in an operator's cabin of a loader. The operator reported seeing flames within the cabin and he extinguished the fire with fire extinguishers. The fire brigade arrived at the incident scene and called an ambulance to check on the operator. He was taken to hospital suffering from smoke inhalation.

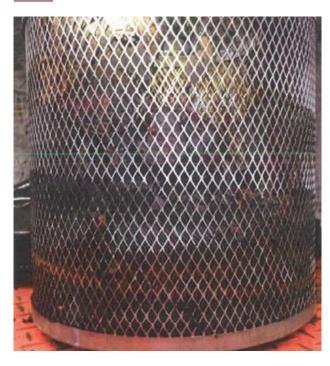


Picture 6. Damaged cabin showing extinguisher residue

April 2025 - IncNot0048986

A load haul dump machine (LHD) was involved in an incident which resulted in smoke and embers being emitted from the particulate filter canister from the explosion protected diesel engine system. The LHD failed to shut down on high exhaust temperature.

Recommendations to industry: Mine operators need to ensure that explosion protected diesel engine systems are compliant with their registration design. Particulate filters should be compliant with the temperature performance requirements for the registered filter design. Refer to <u>AS 3584.2:2021 'Diesel engine systems for underground coal mines'</u> for further information.

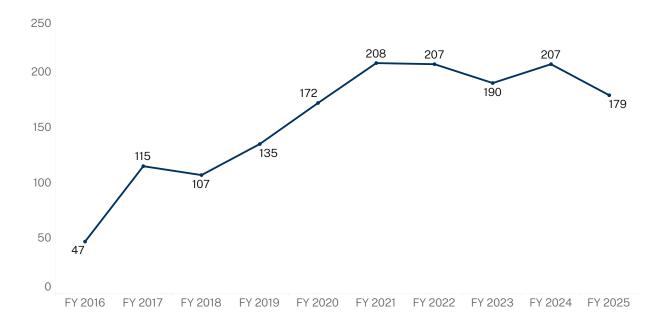


Picture 7. Burnt exhaust filter

Notified incidents

Notified incidents between FY 2016 and FY 2025

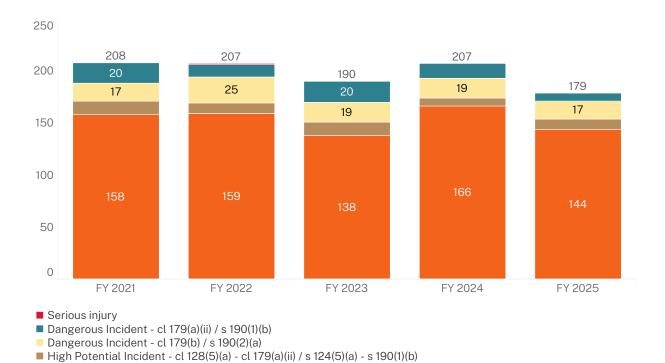
Figure 1. Notified incidents from FY 2016 to FY 2025



Notified incidents by legislative requirement to report

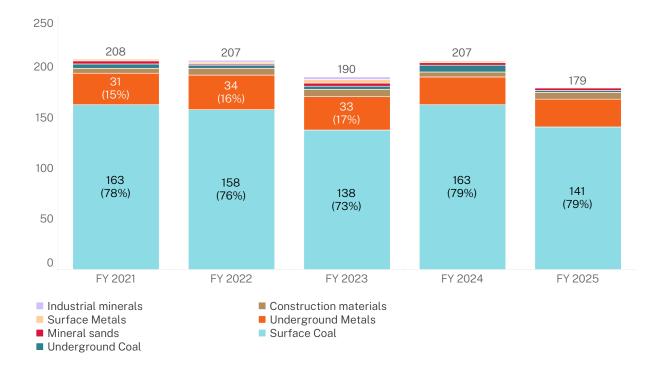
Figure 2. Notified incidents by legislative requirement to report from FY 2021 to FY 2025

■ High Potential Incident - cl 128(5)(t) / s 124(5)(u)



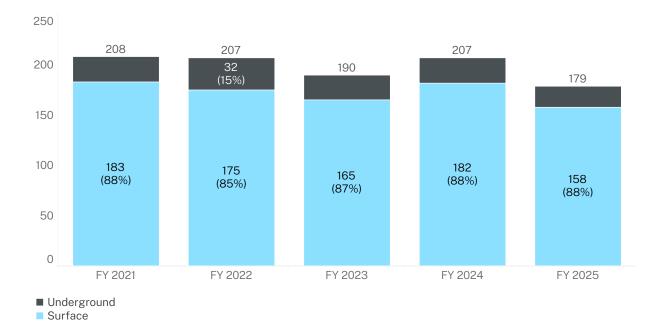
Notified incidents by mine and operation type

Figure 3. Notified incidents by mine type and operation type from FY 2021 to FY 2025



Notified incidents by incident location

Figure 4. Notified incidents by primary location of incident from FY 2021 to FY 2025



Notified incidents by mine type, operation type and incident location

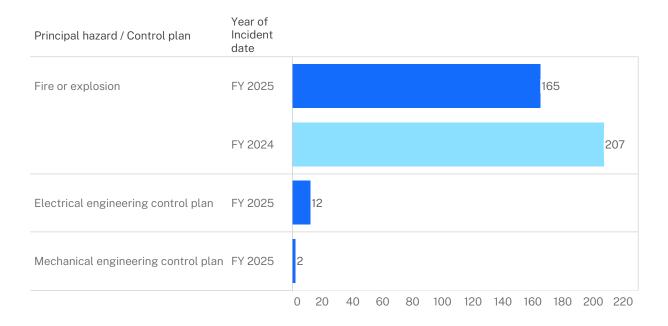
Table 1. Notified incidents by mine type, operation type and primary location of incident from FY 2021 to FY 2025

Mine type / Operation type / Primary location of incident	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Grand total
Surface coal	163	158	138	163	141	763
Underground metals - Underground location	24	30	24	21	20	119
Underground metals - Surface location	7	4	9	6	7	33
Construction materials	5	7	7	5	7	31
Mineral sands	3	1	3	2	2	11
Surface metals	2	2	4	2	0	10
Underground coal - Surface location	3	1	2	3	1	10
Underground coal - Underground location	1	2	1	4	1	9
Industrial minerals	0	2	2	1	0	5
Grand total	208	207	190	207	179	991

Notified incidents classified by principal hazard or control plan

Hazard management bowties are a widely used risk management tool that incorporate critical controls relating to material unwanted events (MUEs) for principal hazards and control plans. The Regulator uses the bowtie framework when proactively assessing how mine sites manage their principal hazards and control plans. The bowtie framework was introduced in October 2019, revised in July 2024, and has also been used to classify notified incidents. Classifications highlight increased areas of risk for principal hazards and control plans.

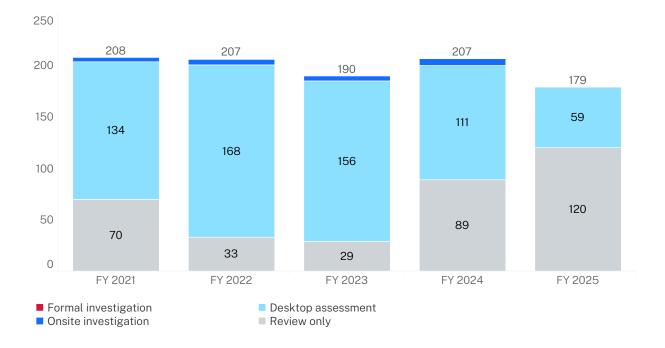
Figure 5. Notified incidents classified by principal hazard or control plan-FY 2024 and FY 2025



Our response to notified incidents involving FOMP

The Regulator holds the position that all fires that occur on mobile plant are preventable (see <u>position paper</u>). Each incident reported is assessed and outcomes reviewed. This process involves an inspector attending the mine (onsite investigation) or reviewing investigation findings and actions (desktop assessment).

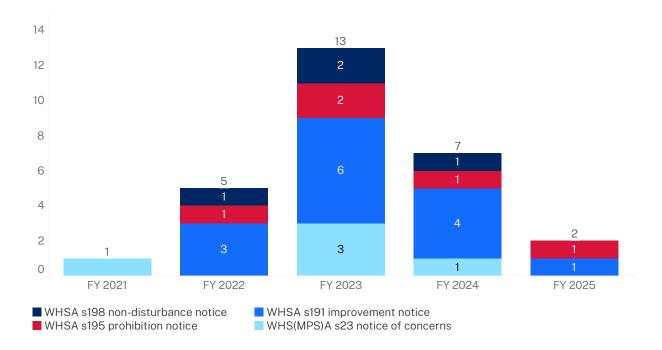
Figure 6. Notified incidents by response level from FY 2021 to FY 2025



Notices issued in relation to fire on mobile plant incidents

As part of the Regulator's position paper on preventing fires on mobile plant-where a mine operator has not taken appropriate steps to manage the risk of fires on mobile plant, escalated enforcement action will be taken.

Figure 7. Notices issued in relation to fire on mobile plant incidents from FY 2021 to FY 2025



Fires on mobile plant ancillary reports

When an incident involving fires on mobile plant is notified to the Regulator, additional information must be submitted in an ancillary report via the Regulator Portal no later than 30 days after the incident was required to be notified.

Ancillary reports - heat sources and fuel sources

Figure 8. Ancillary reports – heat sources and fuel sources – FY 2025

Heat sources	Hydraulic oil	Engine oil	Electrical insulation materials	Diesel	Gear oil	Other	Grease	Coolant	Plastic	Fuel sources Rags, cartons or other debris	Hydrocarbon contaminated exhaust system lagging	Sound suppression or insulation material	Rubber	Hydrocarbon contaminated sound suppression or insulation	Not classified	Coal dust	Exhaust system lagging	Gases	Grand Total
Exhaust system		10			1			2	1	2	4	4	1	1		1			55
Turbo	8			4				3						1			1		34
Electrical fault	2		20	1	1	2			4	1									31
Engine	6	1	1	3				1		1								1	14
Bearing failure	1		1		6	1	4												13
Electrical component	1		5			4	1		1										12
Friction	4				2	1	2						1						10
Other					2	2	1			1									6
Battery		1	1																2
Not classified															1				1
Chemical reaction / Pyrolysis													1						1
Grand Total	39	29	28	19	12	10	8	6	6	5	4	4	3	2	1	1	1	1	179

Incidents

Table 2. Ancillary reports – top 10 heat source and fuel source combinations from FY 2021 to FY 2025

Heat source and fuel source	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Grand total
Exhaust system + Hydraulic oil	20	26	32	19	17	114
Turbo + Engine oil	30	21	18	17	17	103
Electrical component + Electrical insulation materials	24	21	18	9	5	77
Turbo + Hydraulic oil	16	18	9	16	8	67
Exhaust system + Engine oil	15	16	11	12	10	64
Exhaust system + Diesel	9	11	14	10	11	55
Electrical fault + Electrical insulation materials	0	0	6	16	20	42
Exhaust system + Other	8	16	5	4	0	33
Electrical component + Other	5	5	6	6	4	26
Engine + Hydraulic oil	6	5	2	4	6	23

Ancillary reports – extinguished by and fire protection system

Figure 9. Ancillary reports - extinguished by and fire protection system – FY 2025

				Fire protec	tion system			
Extinguished by	Engineered - Foam	Pre-engineered - Foam water spray	Pre-engineered - Dual agent	Pre-engineered - Powder	No permanent fire suppression system installed	Engineered - Water mist	Not classified	Grand Total
Hand-held fire extinguisher	26	9	15	8	13	3		74
Fire protection system (manually deployed)	12	6	5	6				29
Combination fire protection system and hand-held fire extinguisher	12	9	2	4				27
Water tanker	3	1	4	3	1			12
Fire protection system (automatically deployed)	4	4		2		1		11
Self-extinguished	4	1	2	1	2			10
Combination fire protection system and water-tanker		1		3				4
Other			2	1	1			4
Fire hose / hydrant	1		1		1			3
Miscellaneous water hose	1		1					2
Not classified							1	1
Burnt out		1						1
Smothered		1						1
Grand Total	63	33	32	28	18	4	1	179



Table 3. Ancillary reports – extinguished by from FY 2021 to FY 2025

Extinguished by	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Grand total
Hand-held fire extinguisher	83	84	85	77	74	403
Fire protection system (manually deployed)	55	56	43	38	29	221
Self-extinguished	19	19	21	15	10	84
Fire protection system (automatically deployed)	19	26	11	10	11	77
Water tanker	13	16	13	22	12	76
Combination fire protection system and hand-held fire extinguisher	1		9	17	27	54
Other	14	4	3	4	4	29
Combination fire protection system and water-tanker			3	7	4	14
Burnt out				8	1	9
N/A	3	2				5
Fire hose / hydrant				1	3	4
Miscellaneous water hose			1	1	2	4
Not classified	1			1	1	3
Fire truck				3		3
Smothered			1	1	1	3
Emergency Services				2		2
Grand Total	208	207	190	207	179	991

Ancillary reports — failed component

Figure 10. Ancillary reports - failed component - FY 2025

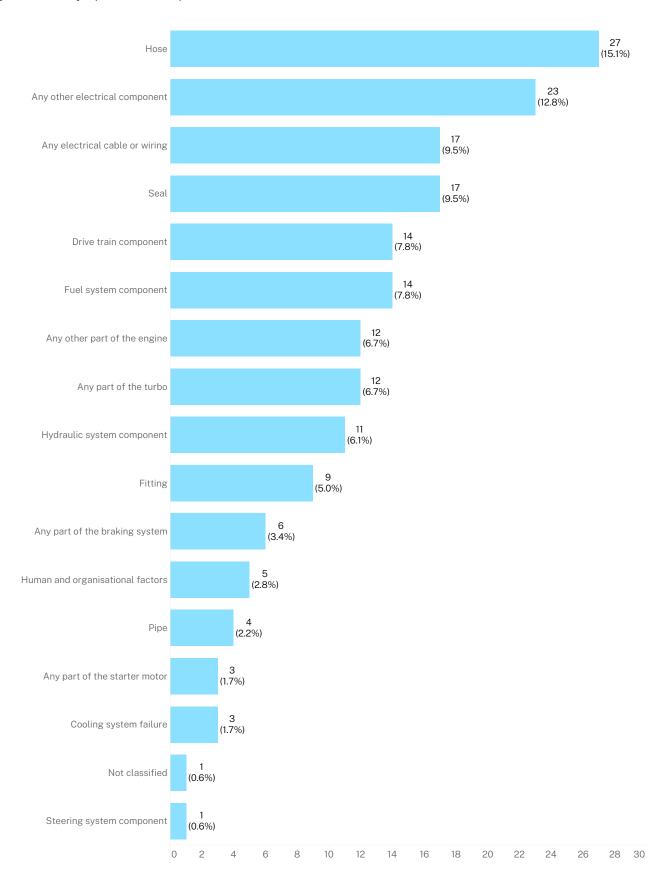


Table 4. Ancillary reports – failed component from FY 2021 to FY 2025

Failed component	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Grand total
Hose	45	49	35	25	27	181
Any electrical cable or wiring	26	23	21	14	17	101
Any other part of the engine	20	19	21	27	12	99
Any part of the turbo	27	23	16	18	12	96
Any other electrical component	10	9	15	30	23	87
Seal	14	15	14	14	17	74
Drive train component	12	11	9	15	14	61
Fitting	11	16	6	9	9	51
Fuel system component	6	5	10	10	14	45
Any part of the braking system	8	7	7	11	6	39
Pipe	8	7	7	5	4	31
Human and organisational factors	6	3	6	9	5	29
Hydraulic system component	2		5	11	11	29
N/A	3	8	11			22
Any part of the starter motor	5	5	4	2	3	19
Cooling system failure	3	5	2	4	3	17
Any part of the air conditioning system	1	2		1		4
Not classified	1			1	1	3
Steering system component			1	1	1	3
Grand Total	208	207	190	207	179	991

Ancillary reports - failed component and cause of component failure

Categories may be recorded as 'Other' for several reasons including human error, unknown or uncategorised component failure.

Figure 11. Ancillary reports - failed component and cause of component failure – FY 2025

								Caus	se of component fa	ilure							
Failed component	Other	Wear and tear	Fatigue	Physical damage	Failure of electrical component	Poorly manufactured and assembled component	Loose fitting	Frictional heating	Human and organisational factors	Thermal degradation	Incorrect component fitted	N/A	Corrosion	Over torqued fitting or fastener(s)	Null	Poor lubrication	Grand Total
Hose	3						1			2	2	1					27
Any other electrical component	1	1	1	1	10	3	2		1	1			1	1			23
Any electrical cable or wiring	1	1	1	4	3	1	1	1	2				2				17
Seal	2	4		1		4	2	3			1						17
Drive train component	3	2	1	2				5								1	14
Fuel system component			4			1	1				1						14
Any other part of the engine	3	1	2			2	1			2		1					12
Any part of the turbo	3	5	1			3											12
Hydraulic system component	1	3	1	2		2	2										11
Fitting			2	2			1		1		1			2			9
Any part of the braking system	2	3	1														6
Human and organisational factors									2			3					5
Pipe			2		1				1								4
Any part of the starter motor	1				1					1							3
Cooling system failure	2									1							3
Not classified															1		1
Steering system component					1												1
Grand Total	29	26	22	18	16	16	11	9	7	7	5	5	3	3	1	1	179

Incidents

Table 5. Ancillary reports – top 10 failed component and cause of component failure combinations from FY 2021 to FY 2025

Failed component and cause of component failure	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Grand total
Hose + Wear and tear	18	13	13	11	6	61
Any other part of the engine + Other	10	8	6	10	3	37
Hose + Physical damage	9	10	4	5	6	34
Any other electrical component + Failure of electrical component			4	17	10	31
Hose + Fatigue	7	6	11	1	6	31
Any part of the turbo + Fatigue	12	9	4	3	1	29
Any part of the turbo + Other	8	6	7	2	3	26
Hose + Other	5	13	3	1	3	25
Any electrical cable or wiring + Other	10	8	3	1	1	23
Any other electrical component + Other	10	4	3	2	1	20

Incident details

The information in the table provides a summary of the fire on mobile plant incidents in FY 2025 by mine type and operation type.

Table 6. Fires on mobile plant incidents reported in FY 2025

Equipment type	Equipment model	Failed component	Heat source	Fuel source	Extinguished by
Coal / open cut					
Dozer	854K	Any other part of the engine	Exhaust system	Engine oil	Fire protection system (automatically deployed)
	D10T	Hose	Exhaust system	Hydraulic oil	Fire protection system (manually deployed)
			Engine	Hydraulic oil	Combination fire protection system and hand-held fire extinguisher
		Hydraulic system component	Exhaust system	Hydrocarbon contaminated sound suppression or insulation material	Combination fire protection system and hand-held fire extinguisher
		Seal	Exhaust system	Engine oil	Fire protection system (manually deployed)
			Turbo	Engine oil	Hand-held fire extinguisher
	D10T (RJG)	Pipe	Turbo	Hydraulic oil	Fire protection system (manually deployed)
	D10T2	Fitting	Exhaust system	Hydrocarbon contaminated exhaust system lagging	Hand-held fire extinguisher
	D10T-2	Seal	Exhaust system	Hydraulic oil	Combination fire protection system and hand-held fire extinguisher
	D11	Drive train component	Bearing failure	Gear oil	Hand-held fire extinguisher
			Friction	Gear oil	Hand-held fire extinguisher
					Water tanker

Equipment type	Equipment model	Failed component	Heat source	Fuel source	Extinguished by
				Hydraulic oil	Hand-held fire extinguisher
			Other	Gear oil	Hand-held fire extinguisher
		Seal	Bearing failure	Gear oil	Hand-held fire extinguisher
					Other
				Other	Hand-held fire extinguisher
	D11T	Any electrical cable or wiring	Engine	Hydraulic oil	Water tanker
		Drive train component	Other	Other	Hand-held fire extinguisher
		Fitting	Turbo	Hydraulic oil	Hand-held fire extinguisher
			Engine	Hydraulic oil	Combination fire protection system and hand-held fire extinguisher
					Hand-held fire extinguisher
		Fuel system component	Exhaust system	Diesel	Combination fire protection system and hand-held fire extinguisher
		Hose	Exhaust system	Hydraulic oil	Hand-held fire extinguisher
			Engine	Hydraulic oil	Hand-held fire extinguisher
		Seal	Bearing failure	Gear oil	Hand-held fire extinguisher
	WD900	Any part of the starter motor	Electrical fault	Electrical insulation materials	Hand-held fire extinguisher
Drill rig and/or bolter	Cat MD6250	Fuel system component	Exhaust system	Diesel	Combination fire protection system and hand-held fire extinguisher
	D40K	Fitting	Exhaust system	Hydraulic oil	Combination fire protection system and hand-held fire extinguisher
	D45KS	Fuel system component	Exhaust system	Diesel	Smothered
	D75AU	Drive train component	Friction	Hydraulic oil	Fire protection system (manually deployed)

Equipment type	Equipment model	Failed component	Heat source	Fuel source	Extinguished by
	MD6200	Seal	Turbo	Hydraulic oil	Hand-held fire extinguisher
	MD6250	Fuel system component	Exhaust system	Diesel	Fire protection system (automatically deployed)
		Hose	Exhaust system	Hydraulic oil	Hand-held fire extinguisher
			Turbo	Diesel	Fire protection system (automatically deployed)
		Seal	Friction	Other	Hand-held fire extinguisher
	MD6290	Hose	Exhaust system	Hydraulic oil	Fire protection system (automatically deployed)
		Hydraulic system component	Turbo	Hydraulic oil	Combination fire protection system and water-tanker
	MD6420	Seal	Turbo	Hydraulic oil	Hand-held fire extinguisher
	Reedrill SKF	Fitting	Exhaust system	Engine oil	Fire protection system (manually deployed)
	Reedrill SKF-50	Any other electrical component	Electrical fault	Electrical insulation materials	Combination fire protection system and hand-held fire extinguisher
	SK50I	Fuel system component	Engine	Diesel	Combination fire protection system and hand-held fire extinguisher
	SKS-W	Hose	Exhaust system	Hydraulic oil	Fire protection system (automatically deployed)
Dump truck or haul truck	740B	Human and organisational factors	Exhaust system	Rags, cartons or other debris	Hand-held fire extinguisher
	789C	Any electrical cable or wiring	Electrical fault	Electrical insulation materials	Combination fire protection system and hand-held fire extinguisher
		Any part of the turbo	Exhaust system	Engine oil	Water tanker

Equipment type	Equipment model	Failed component	Heat source	Fuel source	Extinguished by
		Cooling system failure	Exhaust system	Coolant	Fire protection system (manually deployed)
	789DXQ	Any other part of the engine	Exhaust system	Sound suppression or insulation material	Combination fire protection system and hand-held fire extinguisher
	793C XQ	Any part of the turbo	Turbo	Engine oil	Combination fire protection system and water-tanker
	793D	Any other electrical component	Electrical fault	Electrical insulation materials	Hand-held fire extinguisher
		Any other part of the engine	Exhaust system	Sound suppression or insulation material	Water tanker
		Any part of the turbo	Turbo	Engine oil	Fire protection system (manually deployed)
	793F	Any other part of the engine	Exhaust system	Coolant	Hand-held fire extinguisher
				Engine oil	Combination fire protection system and hand-held fire extinguisher
		Drive train component	Bearing failure	Hydraulic oil	Fire protection system (automatically deployed)
	793FXQ	Any part of the starter motor	Electrical component	Grease	Hand-held fire extinguisher
	794	Any other part of the engine	Turbo	Exhaust system lagging	Miscellaneous water hose
	795F	Drive train component	Friction	Rubber	Water tanker
	797F	Drive train component	Chemical reaction / Pyrolysis	Rubber	Water tanker
	830E	Any other electrical component	Electrical component	Other	Water tanker
		Any other part of the engine	Exhaust system	Rags, cartons or other debris	Hand-held fire extinguisher
	830E AC	Any other electrical component	Electrical fault	Electrical insulation materials	Water tanker
	830E-1	Pipe	Exhaust system	Sound suppression or insulation material	Fire protection system (manually deployed)
	830E-AC	Any other electrical component	Electrical component	Other	Water tanker

Equipment type	Equipment model	Failed component	Heat source	Fuel source	Extinguished by
	930E	Any other electrical component	Electrical fault	Electrical insulation materials	Hand-held fire extinguisher
			Electrical component	Other	Water tanker
	930E-3	Any other part of the engine	Exhaust system	Sound suppression or insulation material	Fire protection system (automatically deployed)
	930E-4	Any other electrical component	Electrical fault	Electrical insulation materials	Self-extinguished
		Cooling system failure	Turbo	Coolant	Fire protection system (automatically deployed)
	930E-5	Seal	Turbo	Engine oil	Hand-held fire extinguisher
	EH5000	Any part of the turbo	Turbo	Engine oil	Fire protection system (manually deployed)
		Fuel system component	Exhaust system	Diesel	Combination fire protection system and hand-held fire extinguisher
	EH5000-AC3	Hose	Other	Gear oil	Other
		Seal	Turbo	Engine oil	Fire protection system (manually deployed)
	EH5000AC-3	Any other part of the engine	Exhaust system	Engine oil	Fire protection system (manually deployed)
		Any part of the turbo	Turbo	Engine oil	Fire protection system (manually deployed)
					Self-extinguished
	Komatsu 830e-1 AC	Any other electrical component	Electrical component	Electrical insulation materials	Water tanker
	T282C	Any electrical cable or wiring	Electrical fault	Rags, cartons or other debris	Self-extinguished
Excavator or Shovel	996	Any other part of the engine	Bearing failure	Grease	Hand-held fire extinguisher
		Pipe	Turbo	Hydraulic oil	Combination fire protection system and hand-held fire extinguisher
	5600-6	Any other electrical component	Electrical fault	Electrical insulation materials	Self-extinguished

Equipment type	Equipment model	Failed component	Heat source	Fuel source	Extinguished by
	6040	Hose	Exhaust system	Rubber	Hand-held fire extinguisher
		Hydraulic system component	Exhaust system	Hydraulic oil	Fire protection system (manually deployed)
	6090	Any electrical cable or wiring	Electrical fault	Other	Combination fire protection system and hand-held fire extinguisher
		Fitting	Turbo	Engine oil	Hand-held fire extinguisher
		Hose	Exhaust system	Engine oil	Fire protection system (manually deployed)
		Hydraulic system component	Exhaust system	Hydraulic oil	Hand-held fire extinguisher
	9800	Hose	Engine	Coolant	Hand-held fire extinguisher
	EC300DL	Pipe	Exhaust system	Engine oil	Water tanker
	EX3600	Any part of the turbo	Turbo	Engine oil	Hand-held fire extinguisher
	EX3600-6	Hose	Turbo	Coolant	Hand-held fire extinguisher
	PC300LC-8	Any part of the turbo	Turbo	Engine oil	Combination fire protection system and hand-held fire extinguisher
	PC300LC-8MO	Any other electrical component	Bearing failure	Electrical insulation materials	Hand-held fire extinguisher
	R996B	Any part of the turbo	Exhaust system	Engine oil	Hand-held fire extinguisher
	R9400	Any other electrical component	Electrical fault	Electrical insulation materials	Fire protection system (manually deployed)
		Fitting	Exhaust system	Hydraulic oil	Hand-held fire extinguisher
	R9800	Seal	Exhaust system	Engine oil	Hand-held fire extinguisher
Forklift or Telehandler	LT80-TM35W	Hose	Turbo	Engine oil	Hand-held fire extinguisher
		Human and organisational factors	Turbo	Engine oil	Self-extinguished

Equipment type	Equipment model	Failed component	Heat source	Fuel source	Extinguished by
Grader	18	Fuel system component	Turbo	Diesel	Fire protection system (automatically deployed)
	18M	Any other electrical component	Electrical fault	Electrical insulation materials	Hand-held fire extinguisher
	24H	Hose	Electrical component	Hydraulic oil	Self-extinguished
	24M	Cooling system failure	Turbo	Coolant	Burnt out
		Fuel system component	Electrical fault	Diesel	Fire protection system (automatically deployed)
		Seal	Turbo	Diesel	Hand-held fire extinguisher
Heavy/special purpose vehicle	150 tonne minesite trailer	Any part of the braking system	Bearing failure	Grease	Self-extinguished
(eg crane)	160T 4 x 8 Low loader trailer	Drive train component	Friction	Grease	Hand-held fire extinguisher
	160T drake transported trailer	Any part of the braking system	Friction	Grease	Hand-held fire extinguisher
	637K	Any other part of the engine	Battery	Engine oil	Combination fire protection system and hand-held fire extinguisher
	3900	Any part of the braking system	Other	Other	Other
	FMX13 CTX	Any electrical cable or wiring	Electrical fault	Hydraulic oil	Other
	Hilux	Any other electrical component	Electrical fault	Electrical insulation materials	Fire hose / hydrant
					Hand-held fire extinguisher
		Seal	Bearing failure	Grease	Hand-held fire extinguisher
	Land Cruiser	Any electrical cable or wiring	Electrical fault	Electrical insulation materials	Hand-held fire extinguisher
		Any other electrical component	Electrical fault	Electrical insulation materials	Hand-held fire extinguisher
	Toyota Land Cruiser- VDJ 79R Dual Cab	- Drive train component	Bearing failure	Grease	Hand-held fire extinguisher
	Unknown	Any other electrical component	Battery	Electrical insulation materials	Hand-held fire extinguisher

Equipment type	Equipment model	Failed component	Heat source	Fuel source	Extinguished by
Loader	992G	Fuel system component	Exhaust system	Diesel	Fire protection system (automatically deployed)
	994H	Any part of the braking system	Other	Grease	Hand-held fire extinguisher
	L1850	Fuel system component	Exhaust system	Diesel	Combination fire protection system and hand-held fire extinguisher
		Hose	Turbo	Engine oil	Hand-held fire extinguisher
Service truck / Lube truck	773E	Fuel system component	Exhaust system	Diesel	Hand-held fire extinguisher
	773F	Hose	Turbo	Diesel	Fire hose / hydrant
	775F	Hydraulic system component	Turbo	Hydraulic oil	Fire protection system (manually deployed)
	775G	Fuel system component	Turbo	Hydrocarbon contaminated sound suppression or insulation material	Combination fire protection system and hand-held fire extinguisher
		Hose	Exhaust system	Hydraulic oil	Fire protection system (manually deployed)
	775G / Gecko 42000L	Hose	Exhaust system	Diesel	Combination fire protection system and hand-held fire extinguisher
Water truck	777	Hose	Exhaust system	Hydrocarbon contaminated exhaust system lagging	Combination fire protection system and hand-held fire extinguisher
	777F	Fuel system component	Exhaust system	Diesel	Fire protection system (manually deployed)
		Hose	Exhaust system	Hydraulic oil	Combination fire protection system and water-tanker
					Fire protection system (manually deployed)
	777G	Fitting	Turbo	Engine oil	Fire protection system (manually deployed)

Equipment type	Equipment model	Failed component	Heat source	Fuel source	Extinguished by
	785-5	Any electrical cable or wiring	Electrical component	Electrical insulation materials	Combination fire protection system and hand-held fire extinguisher
	789D	Hose	Exhaust system	Hydraulic oil	Fire protection system (manually deployed)
	CAT 777F Watercart	Any part of the braking system	Turbo	Hydraulic oil	Combination fire protection system and water-tanker
	FVZ 240-300 Auto	Any other electrical component	Electrical fault	Electrical insulation materials	Hand-held fire extinguisher
Underground Coal –	Surface Location				
Dozer	DIIT	Human and organisational factors	Exhaust system	Coal dust	Fire protection system (manually deployed)
Underground Coal –	Underground Location				
Loader	Titan	Any other part of the engine	Engine	Gases	Self-extinguished
Underground Metals	S-Surface Location				
Dozer	D10T	Hose	Engine	Diesel	Combination fire protection system and hand-held fire extinguisher
Dump truck or haul truck	740B	Human and organisational factors	Engine	Rags, cartons or other debris	Hand-held fire extinguisher
Excavator or shovel	ZX890	Any part of the turbo	Turbo	Engine oil	Fire protection system (manually deployed)
Heavy/special purpose vehicle	Landcruiser	Any electrical cable or wiring	Electrical fault	Plastic	Hand-held fire extinguisher
(eg crane)	Landcruiser ABLE	Any electrical cable or wiring	Electrical component	Electrical insulation materials	Hand-held fire extinguisher
Loader	930K	Any part of the starter motor	Electrical fault	Electrical insulation materials	Hand-held fire extinguisher
	988H	Hydraulic system component	Engine	Hydraulic oil	Combination fire protection system and hand-held fire extinguisher

Equipment type	Equipment model	Failed component	Heat source	Fuel source	Extinguished by
Underground meta	ls – Underground location	on			
Agitator	UTIMEC LF600	Any part of the braking system	Electrical fault	Other	Hand-held fire extinguisher
Drill rig and/or bolter	DD422i	Any electrical cable or wiring	Electrical fault	Plastic	Self-extinguished
	DDS421-C	Any electrical cable or wiring	Electrical component	Plastic	Hand-held fire extinguisher
Dump truck or haul truck	663	Human and organisational factors	Exhaust system	Hydrocarbon contaminated exhaust system lagging	Hand-held fire extinguisher
	MT6020	Hose	Engine	Diesel	Self-extinguished
	TH663	Any electrical cable or wiring	Electrical fault	Plastic	Hand-held fire extinguisher
	TH663i	Drive train component	Bearing failure	Gear oil	Fire protection system (manually deployed)
		Hydraulic system component	Exhaust system	Gear oil	Hand-held fire extinguisher
				Hydrocarbon contaminated exhaust system lagging	Hand-held fire extinguisher
Forklift or telehandler	L120F	Any part of the turbo	Turbo	Engine oil	Hand-held fire extinguisher
Heavy/special		Not classified	Not classified	Not classified	Not classified
purpose vehicle (eg crane)	1629 (2014) – Atego Carrier	Hydraulic system component	Exhaust system	Hydraulic oil	Fire protection system (manually deployed)
	L120F	Any other electrical component	Electrical fault	Electrical insulation materials	Combination fire protection system and hand-held fire extinguisher
		Hose	Friction	Hydraulic oil	Hand-held fire extinguisher
	Landcruiser	Any electrical cable or wiring	Electrical component	Other	Hand-held fire extinguisher
	Landcruiser VDJ79	Any other electrical component	Engine	Electrical insulation materials	Hand-held fire extinguisher
	Maxijet MX3	Hose	Exhaust system	Hydraulic oil	Hand-held fire extinguisher

Equipment type	Equipment model	Failed component	Heat source	Fuel source	Extinguished by
	MC605D	Any part of the turbo	Exhaust system	Plastic	Fire protection system (manually deployed)
Loader	R2900G	Any electrical cable or wiring	Electrical fault	Gear oil	Combination fire protection system and hand-held fire extinguisher
		Fuel system component	Exhaust system	Diesel	Hand-held fire extinguisher
Mineral sands					
Dozer	D9T	Seal	Other	Rags, cartons or other debris	Fire protection system (manually deployed)
Heavy/special purpose vehicle (eg crane)	A60H Articulated truck	Hydraulic system component	Exhaust system	Hydraulic oil	Fire protection system (manually deployed)
Construction mate	rials				
Drill rig and/or bolter	HCR1500ED11	Hydraulic system component	Friction	Hydraulic oil	Fire protection system (manually deployed)
Dump truck or haul truck	773E	Any other electrical component	Electrical component	Electrical insulation materials	Hand-held fire extinguisher
Loader	980H	Any electrical cable or wiring	Electrical fault	Hydraulic oil	Combination fire protection system and hand-held fire extinguisher
Mobile crusher / mobile screen	980M	Any electrical cable or wiring	Electrical fault	Plastic	Hand-held fire extinguisher
	QI440	Drive train component	Engine	Engine oil	Hand-held fire extinguisher
Water truck	773D	Any electrical cable or wiring	Electrical fault	Electrical insulation materials	Miscellaneous water hose
	HD605	Steering system component	Electrical component	Electrical insulation materials	Fire hose / hydrant

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