

# Haulage Fatalities at Surface Mines, 1999 - 2003



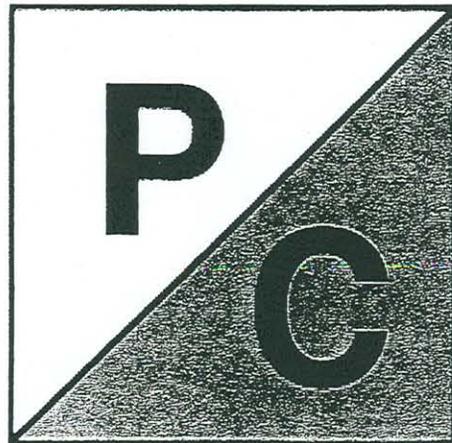
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HAULAGE FATALITIES AT SURFACE MINES  
1999-2003<sup>1</sup>

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This report combines data on fatal injuries resulting from surface mining haulage accidents for the period 1999-2003, and is one in a continuing series of Program Circulars published by the Office of Injury and Employment Information as an aid to management, inspectors, miners and other interested parties.

Eleven tables were compiled from data contained in the final inspection investigation reports for fatalities occurring at coal and metal/nonmetal mines during 1999-2003. The fatalities were analyzed and the details summarized in this report.

During 1999-2003, 371 fatalities occurred in the mining industry; of these, 240 (64.7 percent) occurred on the surface. Surface haulage accidents accounted for 24.5 percent of the total fatalities and 37.9 percent of the surface fatalities reported for the industry during this time period. Coal surface haulage fatalities accounted for more than a third (36.1 percent) of all surface coal fatalities; limestone and sand and gravel accounted for one fourth (25.0 percent) of all surface metal/nonmetal fatalities. Almost two-thirds (60.4 percent) of the victims were 41 plus years old. Haulage trucks were involved in 36.3 percent of the accidents. The primary types of accidents were (18 fatalities) rolled or drove off bench, road or highwall; (19 fatalities) were struck or run over by a machine. The primary cause of the accidents was failure to maintain machinery in safe working order.

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<sup>1</sup> 2003 is preliminary

TABLE 1. - Haulage fatalities, by type of machinery at surface metal/nonmetal and coal mines, 1999-2003<sup>1</sup>

Type of Machinery	1999		2000		2001		2002		2003		Total	Percent
	Coal	M/N M	Coal	M/N M	Coal	M/N M	Coal	M/N M	Coal	M/N M		
Haulage truck	2	6	4	4	2	2	4	4	4	1	33	36.3
Front-end loader	-	4	1	3	-	-	-	7	-	1	16	17.6
Water truck/ pickup/utility truck (not haulage truck) Highway truck/van	2	2	-	1	1	3	1	-	3	2	15	16.5
Conveyor belt	-	3	-	3	-	5	-	3	-	-	14	15.4
Forklift	-	1	2	1	-	1	-	-	-	2	7	7.7
Locomotive/man cars	-	-	-	1	-	1	-	1	-	-	3	3.3
Tractor/scrapper	-	1	-	2	-	-	-	-	-	-	3	3.3
<b>Total</b>	<b>4</b>	<b>17</b>	<b>7</b>	<b>15</b>	<b>3</b>	<b>12</b>	<b>5</b>	<b>15</b>	<b>7</b>	<b>6</b>	<b>91</b>	<b>100.0</b>

Percentages shown in this and subsequent tables may not add to 100 percent in order to maintain consistency with equivalent numbers in other tables.

<sup>1</sup> Preliminary

TABLE 2. - Haulage fatalities, by work location at surface metal/nonmetal and coal mines, 1999-2003<sup>1</sup>

Work Location	1999	2000	2001	2002	2003	Total	Percent
Quarry/Open pit	13	7	9	7	5	41	45.1
Haulage road/roadway /ramp	5	4	3	7	6	25	27.5
Mill/preparation plant	2	6	1	4	-	13	14.3
Surface at underground	1	-	1	2	-	4	4.4
Dredge	-	-	-	-	1	1	1.1
Shops and yards	-	4	1	-	1	6	6.6
Railroad crossing	-	1	-	-	-	1	1.1
Total	21	22	15	20	13	91	100.0

<sup>1</sup> 2003 Preliminary

TABLE 3. - Haulage fatalities, by victim's occupation  
at surface metal/nonmetal and coal mines, 1999-2003<sup>1</sup>

Victim's occupation	1999		2000		2001		2002		2003		Total	Percent
	Coal	M/NM	Coal	M/NM	Coal	M/NM	Coal	M/NM	Coal	M/NM		
Truck driver	3	6	1	5	2	2	2	4	4	2	31	34.1
Loader/ laborer/oiler/utility person	-	2	-	2	-	4	-	3	1	3	15	16.5
Mechanic/ repairman/ Electrician/ welder	1	4	1	1	-	4	3	1	-	-	15	16.5
Owner/ supervisor/ foreman	-	2	2	3	1	-	-	2	-	-	10	11.0
Mill operator/ plant operator/conveyor operator	-	1	1	1	-	-	-	3	-	-	6	6.6
Front-end loader operator	-	1	-	1	-	1	-	1	-	-	4	4.4
Dozer operator	-	-	1	1	-	-	-	-	1	-	3	3.3
Scraper operator Tractor	-	1	-	1	-	-	-	-	-	-	2	2.2
Engineer/rail worker	-	-	-	-	-	-	-	1	-	-	1	1.1
Weigh master	-	-	-	-	-	-	-	-	-	1	1	1.1
Not elsewhere classified	-	-	1	-	-	1	-	-	1	-	3	3.3
<b>Total</b>	<b>4</b>	<b>17</b>	<b>7</b>	<b>15</b>	<b>3</b>	<b>12</b>	<b>5</b>	<b>15</b>	<b>7</b>	<b>6</b>	<b>91</b>	<b>100.0</b>

<sup>1</sup> 2003 preliminary

TABLE 4. – Haulage fatalities, by work activity at time of accident  
at surface metal/nonmetal and coal mines, 1999-2003<sup>1</sup>

Work activity at time of the accident	1999	2000	2001	2002	2003	Total	Percent
Operate truck	9	7	4	5	6	31	34.1
Maintenance/repair/inspecting	4	3	6	3	1	17	18.7
Operate front-end loader	1	1	1	3	-	6	6.6
Standing/walking/running	1	3	1	5	1	11	12.1
Load/unload/cleanup material by hand	1	1	1	2	-	5	5.5
Operate tractor/scrapper/dozer	1	-	-	-	-	1	1.1
Spotting/dropping/switching/couple/uncouple rail cars	-	-	1	-	-	1	1.1
Construction	-	2	-	-	-	2	2.2
Load/unload/move machinery	1	-	1	-	-	2	2.2
Operate forklift	1	2	-	-	2	5	5.5
Riding in equipment/not operator	-	-	-	1	1	2	2.2
Operate plant/conveyor belt	2	2	-	1	-	5	5.5
Operate van/automobile	-	-	-	-	1	1	1.1
Not elsewhere classified	-	1	-	-	1	2	2.2
<b>Total</b>	<b>21</b>	<b>22</b>	<b>15</b>	<b>20</b>	<b>13</b>	<b>91</b>	<b>100.0</b>

<sup>1</sup> 2003 preliminary

**TABLE 5. - Haulage fatalities, by primary cause of the accident  
at surface metal/nonmetal and coal mines, 1999-2003<sup>1</sup>**

Primary cause of the accident	1999		2000		2001		2002		2003		Total	Percent
	Coal	M/N M										
Failure to keep machine under control	-	-	-	1	-	-	-	-	1	-	2	2.2
Failure to maintain machinery in safe working order	2	3	1	3	1	3	1	5	2	1	22	24.2
Failure to follow rules, instructions, heed warnings, or to take precautions	-	1	1	1	-	-	-	1	-	-	4	4.4
Inadequate, or lack of, berms	-	1	1	-	-	-	1	1	1	-	5	5.5
Failure to make sure area is clear of persons before moving machinery or supplies and/or to provide a warning signal	-	2	-	2	-	-	-	2	2	2	10	11.0
Failure to lock out or de-energize machinery	-	-	-	2	-	3	-	-	-	-	5	5.5
Failure to block machinery	-	3	-	1	1	2	1	2	-	1	11	12.1
Lack of safety training in operating or working around machinery or mine hazards	1	-	1	-	-	-	-	1	-	-	3	3.3
Failure to insure safe work procedures when performing repair or maintenance work on machinery	-	-	-	1	-	1	-	-	-	-	2	2.2
Failure to wear seat/safety belts or no belts provided	-	-	1	1	-	-	-	-	-	-	2	2.2
Failure to engage and/or turn wheels into bank when parking on a grade; or to set brakes	-	1	-	-	1	2	1	-	-	-	5	5.5
Failure to guard moving conveyor belt	-	3	-	1	-	-	-	1	-	-	5	5.5
Failure to properly secure load	-	-	-	1	-	-	-	-	-	-	1	1.1
Failure to establish or enforce traffic rules and a safe traffic pattern or sufficient illumination	-	-	2	1	-	-	-	-	-	-	4	4.4
Failure to construct roadway and dumping facilities to support loads & accommodate equipment	-	1	-	-	-	-	-	1	-	-	2	2.2
Collapse of spoil embankment	1	-	-	-	-	-	-	-	-	-	1	1.1
Failure to provide suitable rigging and to properly attach it to equipment being hoisted	-	-	-	-	-	1	-	-	-	-	1	1.1
Failure to use only tested & approved mechanisms for pulling or towing	-	-	-	-	-	-	-	-	1	-	1	1.1
Failure to use mining methods to maintain a stable slope in places where persons worked or traveled	-	-	-	-	-	-	-	-	-	1	1	1.1

<sup>1</sup> 2003 preliminary

**TABLE 5. - Haulage fatalities, by primary cause of the accident at surface metal/nonmetal and coal mines, 1999-2003 – continued:**

Primary cause of the accident	1999		2000		2001		2002		2003		Total	Percent
	Coal	M/N M	Coal	M/N M								
Failure to implement procedures that ensure persons with medical impairment are required to obtain a medical evaluation before they are allowed to operate equipment	-	-	-	-	-	-	-	-	-	1	1	1.1
Not elsewhere classified	-	2	-	-	-	-	-	1	-	-	3	3.3
<b>Total</b>	<b>4</b>	<b>17</b>	<b>7</b>	<b>15</b>	<b>3</b>	<b>12</b>	<b>5</b>	<b>15</b>	<b>7</b>	<b>6</b>	<b>91</b>	<b>100.0</b>

TABLE 6. - Haulage fatalities, by type of accident at surface metal/nonmetal and coal mines, 1999-2003<sup>1</sup>

Type of accident	1999		2000		2001		2002		2003		Total	Percent
	Coal	M/N M	Coal	M/N M	Coal	M/N M	Coal	M/N M	Coal	M/N M		
Rolled or drove off bench, road, or highwall <sup>2/</sup>	2	4	-	3	-	1	3	2	2	1	18	19.8
Struck or run over by machine	-	3	2	5	1	-	1	4	1	2	19	20.9
Thrown, fell, or jumped from machine <sup>2/</sup>	2	1	2	-	1	2	1	3	2	-	14	15.4
Crushed by machine	-	-	1	-	-	-	-	-	-	-	1	1.1
Collision between two moving machines	-	1	-	1	-	-	-	-	-	1	3	3.3
Pulled into or became entangled in a moving conveyor belt	-	2	-	2	-	3	-	2	-	-	9	9.9
Struck by falling/sliding /projectile object/material	-	2	1	-	-	2	-	-	1	-	6	6.6
Caught between a moving machine and a stationary object/machine or part of machine	-	-	-	2	-	2	-	1	-	-	5	5.5
Crushed by falling/sliding machine or part of a machine	-	2	1	2	1	2	-	2	1	1	12	13.2
Caught between doors of a bottom dump trailer	-	1	-	-	-	-	-	-	-	-	1	1.1
Not elsewhere classified	-	1	-	-	-	-	-	1	-	1	3	3.3
<b>Total</b>	<b>4</b>	<b>17</b>	<b>7</b>	<b>15</b>	<b>3</b>	<b>12</b>	<b>5</b>	<b>15</b>	<b>7</b>	<b>6</b>	<b>91</b>	<b>100.0</b>

<sup>1</sup> 2003 preliminary

<sup>2</sup> Beginning in 1999 – see Table 6A.

**TABLE 6A. Haulage fatalities by grade of travelway at surface metal, nonmetal, and coal mines 1999-2003 <sup>3/</sup>**

Grade	1999		2000		2001		2002		2003		Total	Percent
	Coal	M/NM	Coal	M/NM	Coal	M/NM	Coal	M/NM	Coal	M/NM		
2%	-	-	-	-	1	-	1	-	-	-	2	2.2
3%	-	-	1	-	-	-	-	-	-	-	1	1.1
6%	-	1	-	-	-	-	-	-	-	-	1	1.1
8%	1	-	-	-	-	1	1	-	1	1	5	5.5
9%	-	-	-	-	1	-	-	-	-	-	1	1.1
10%	-	1	-	1	-	1	1	1	-	-	5	5.5
11%	-	-	-	1	-	1	-	-	1	-	3	3.3
12%	-	-	-	-	1	1	-	1	-	-	3	3.3
14%	1	-	-	1	-	-	-	-	-	-	2	2.2
15%	-	-	-	-	-	-	-	-	1	-	1	1.1
16%	-	1	-	-	-	-	-	1	-	-	2	2.2
17%	1	1	-	1	-	-	-	-	-	-	3	3.3
24%	-	-	-	-	-	-	1	-	-	-	1	1.1
1/ Not reported	1	1	1	-	-	-	-	1	1	-	5	5.5
2/Not applicable	-	12	5	11	-	8	1	11	3	5	56	61.5
<b>Total</b>	<b>4</b>	<b>17</b>	<b>7</b>	<b>15</b>	<b>3</b>	<b>12</b>	<b>5</b>	<b>15</b>	<b>7</b>	<b>6</b>	<b>91</b>	<b>100.0</b>

<sup>1/</sup> Was not reported but could have been a factor.

<sup>2/</sup> The accident was not related to grade of travelway.

<sup>3/</sup> 2003 is preliminary.

TABLE 7. - Haulage fatalities, by victim's total mining experience at surface metal/nonmetal and coal mines, 1999-2003<sup>1</sup>

Victim's total mining experience	1999	2000	2001	2002	2003	Total	Percent
0 - 1 year	7	11	6	7	4	35	38.5
2 - 5 years	3	3	3	2	2	13	14.3
6 - 10 years	3	2	-	-	2	7	7.7
11 - 15 years	1	-	1	1	3	6	6.6
16 - 20 years	2	2	2	2	1	9	9.9
21 - 25 years	2	1	-	3	-	6	6.6
26 - 30 years	2	-	2	3	-	7	7.7
31 years and over	1	3	1	-	1	6	6.6
Unknown (not reported)	-	-	-	2	-	2	2.2
<b>TOTAL</b>	<b>21</b>	<b>22</b>	<b>15</b>	<b>20</b>	<b>13</b>	<b>91</b>	<b>100.0</b>

<sup>1</sup> 2003 is preliminary

TABLE 8. - Haulage fatalities, by victim's job experience  
at surface metal/nonmetal and coal mines, 1999-2003<sup>1</sup>

Victim's job experience	1999	2000	2001	2002	2003	Total	Percent
0 - 1 year	8	7	7	7	5	34	37.4
2 - 5 years	3	5	2	4	2	16	17.6
6 - 10 years	1	3	2	1	2	9	9.9
11 - 15 years	3	1	1	1	1	7	7.7
16 - 20 years	1	-	2	2	-	5	5.5
21 - 25 years	1	2	-	2	1	6	6.6
26 - 30 years	2	2	1	2	-	7	7.7
31 years and over	2	2	-	-	-	4	4.4
Unknown (not reported)	-	-	-	1	2	3	3.3
<b>TOTAL</b>	<b>21</b>	<b>22</b>	<b>15</b>	<b>20</b>	<b>13</b>	<b>91</b>	<b>100.0</b>

<sup>1</sup> 2003 is preliminary

TABLE 9. - Haulage fatalities, by victim's experience at this mine (company)  
at surface metal/nonmetal and coal mines, 1999-2003<sup>1</sup>

Victim's experience at this mine (company)	1999	2000	2001	2002	2003	Total	Percent
0 - 1 year	12	11	9	8	7	47	51.6
2 - 5 years	3	3	2	6	4	18	19.8
6 - 10 years	2	5	-	-	-	7	7.7
11 - 15 years	-	1	-	1	2	4	4.4
16 - 20 years	-	-	2	2	-	4	4.4
21 - 25 years	2	1	-	-	-	3	3.3
26 - 30 years	1	-	2	2	-	5	5.5
31 years and over	1	1	-	-	-	2	2.2
Unknown (not reported)	-	-	-	1	-	1	1.1
<b>Total</b>	<b>21</b>	<b>22</b>	<b>15</b>	<b>20</b>	<b>13</b>	<b>91</b>	<b>100.0</b>

<sup>1</sup> 2003 is preliminary

TABLE 10. - Haulage fatalities, by age of victim at surface metal/nonmetal and coal mines, 1999-2003<sup>1</sup>

Age of victim	1999	2000	2001	2002	2003	Total	Percent
18 - 21	1	1	1	2	2	7	7.7
22 - 25	2	1	1	1	1	6	6.6
26 - 30	1	3	-	-	-	4	4.4
31 - 35	1	-	1	2	1	5	5.5
36 - 40	4	2	4	-	4	14	15.4
41 - 45	1	7	1	3	-	12	13.2
46 - 50	4	2	1	4	2	13	14.3
51 - 55	-	2	2	3	1	8	8.8
56 - 60	5	4	3	1	2	15	16.5
61 - 65	2	-	1	3	-	6	6.6
66 and over	-	-	-	1	-	1	1.1
<b>Total</b>	<b>21</b>	<b>22</b>	<b>15</b>	<b>20</b>	<b>13</b>	<b>91</b>	<b>100.0</b>

<sup>1</sup> 2003 is preliminary

**TABLE 11. - Haulage fatalities, by commodity at surface metal/nonmetal and coal mines, 1999-2003<sup>1</sup>**

Commodity	1999	2000	2001	2002	2003	Total	1999-2003 <sup>2</sup> Total Surface Fatalities	Percent That Were Haulage
Alumina	-	-	-	-	-	-	2	-
Cement	-	-	-	1	-	1	14	7.1
Clay	-	-	-	-	-	-	2	-
Coal, anthracite	-	-	-	-	-	-	1	-
Coal, bituminous	4	7	3	5	7	26	71	36.6
Copper	1	-	1	1	-	3	3	100.0
Gemstones (NEC)	-	-	-	-	-	-	1	-
Gold/Silver	1	-	1	-	-	2	5	40.0
Granite	1	1	1	-	-	3	5	60.0
Gypsum	-	-	-	-	-	-	2	-
Iron	1	-	-	-	-	1	2	50.0
Lead/Zinc	-	-	-	-	-	-	1	-
Lime	-	1	-	-	-	1	2	50.0
Limestone	3	5	2	5	1	16	41	39.0
Nonmetal (not elsewhere classified)	-	1	-	-	-	1	4	25.0
Phosphate	-	-	-	-	-	-	2	-
Potash	-	-	-	1	-	1	1	100.0
Sand and gravel	7	5	6	5	3	26	58	44.8
Sandstone	-	-	-	-	-	-	2	-
Stone (NEC)	1	2	1	1	2	7	16	43.8
Titanium	-	-	-	-	-	-	1	-
Traprock	1	-	-	-	-	1	2	50.0
Trona	-	-	-	1	-	1	1	100.0
Uranium	1	-	-	-	-	1	1	100.0
TOTAL	21	22	15	20	13	91	240	37.9

<sup>1</sup> 2003 is preliminary

<sup>2</sup> Haulage and non-haulage.