

Significant Gas Distribution Pipeline Incidents In Massachusetts By Cause - 2008 - 2017

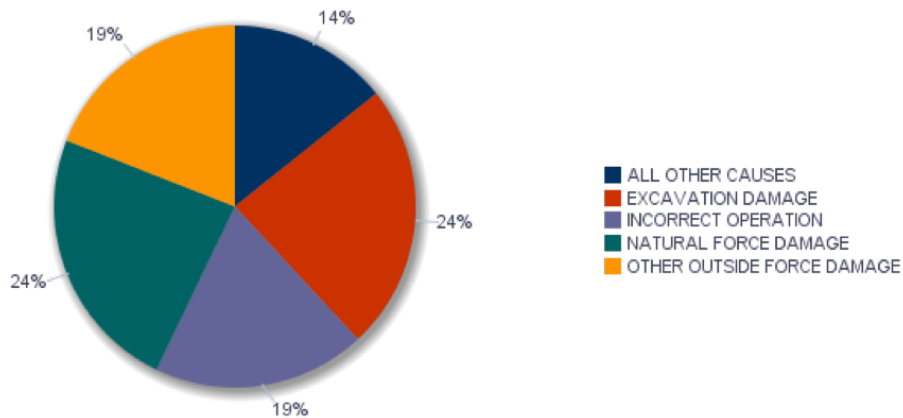
Portal - Data as of 9/13/2018

Data Source: US DOT Pipeline and Hazardous Materials Safety Administration

Reported Cause of Incident	Incident Cause SubType	Number	%	Fatalities	Injuries	Total Cost
ALL OTHER CAUSES	MISCELLANEOUS	3	14.3%	0	0	\$755,649
ALL OTHER CAUSES Total		3	14.3%	0	0	\$755,649
EXCAVATION DAMAGE	THIRD PARTY EXCAVATION DAMAGE	5	23.8%	1	0	\$830,860
EXCAVATION DAMAGE Total		5	23.8%	1	0	\$830,860
INCORRECT OPERATION	DAMAGE BY OPERATOR OR OPERATOR'S CONTRACTOR	1	4.8%	0	17	\$1,310,300
	INCORRECT INSTALLATION	1	4.8%	0	0	\$123,490
	OTHER INCORRECT OPERATION	2	9.5%	0	0	\$609,451
INCORRECT OPERATION Total		4	19.0%	0	17	\$2,043,241
NATURAL FORCE DAMAGE	EARTH MOVEMENT	1	4.8%	0	0	\$632,000
	OTHER NATURAL FORCE DAMAGE	1	4.8%	0	0	\$1,097,565
	TEMPERATURE	3	14.3%	0	2	\$1,079,618
NATURAL FORCE DAMAGE Total		5	23.8%	0	2	\$2,809,183
OTHER OUTSIDE FORCE DAMAGE	INTENTIONAL DAMAGE	1	4.8%	1	0	\$106,436
	OTHER OUTSIDE FORCE DAMAGE	2	9.5%	0	0	\$2,515,980
	VEHICLE NOT ENGAGED IN EXCAVATION	1	4.8%	0	0	\$315,400
OTHER OUTSIDE FORCE DAMAGE Total		4	19.0%	1	0	\$2,937,816
Grand Total		21	100.0%	2	19	\$9,376,749

Significant Incident Cause Breakdown 10 Year Average (2008-2017)

System Type: GAS DISTRIBUTION State: MASSACHUSETTS



Significant Gas Distribution Pipeline Incidents Entire U.S. By Cause - 2008 - 2017

Portal - Data as of 9/13/2018

Data Source: US DOT Pipeline and Hazardous Materials Safety Administration

Reported Cause of Incident	Incident Cause SubType	Number	%	Fatalities	Injuries	Total Cost
ALL OTHER CAUSES	MISCELLANEOUS	39	6.2%	2	27	\$55,693,373
	UNKNOWN	41	6.5%	22	68	\$44,230,658
ALL OTHER CAUSES Total		80	12.6%	24	95	\$99,924,031
CORROSION	EXTERNAL	14	2.2%	1	9	\$2,025,237
	INTERNAL	1	0.2%	0	0	\$790,875
CORROSION Total		15	2.4%	1	9	\$2,816,112
EXCAVATION DAMAGE	OPERATOR/CONTRACTOR EXCAVATION DAMAGE	19	3.0%	1	13	\$3,333,141
	PREVIOUS DAMAGE DUE TO EXCAVATION	6	0.9%	0	5	\$866,904
	THIRD PARTY EXCAVATION DAMAGE	156	24.6%	14	84	\$106,473,134
EXCAVATION DAMAGE Total		181	28.6%	15	102	\$110,673,179
INCORRECT OPERATION	DAMAGE BY OPERATOR OR OPERATOR'S CONTRACTOR	8	1.3%	1	20	\$2,199,433
	INCORRECT EQUIPMENT	1	0.2%	0	1	\$27,400
	INCORRECT INSTALLATION	3	0.5%	0	2	\$204,333
	INCORRECT OPERATION	11	1.7%	1	12	\$1,722,060
	INCORRECT VALVE POSITION	4	0.6%	0	1	\$5,309,901
	OTHER INCORRECT OPERATION	27	4.3%	2	27	\$3,560,748
	PIPELINE/EQUIPMENT OVERPRESSURED	1	0.2%	0	0	\$175,009
INCORRECT OPERATION Total		55	8.7%	4	63	\$13,198,884
MATERIAL/WELD/EQUIP FAILURE	BODY OF PIPE	15	2.4%	1	21	\$3,513,959
	BUTT WELD	3	0.5%	0	2	\$1,136,700
	COMPRESSION FITTING	5	0.8%	0	0	\$1,223,573
	FUSION JOINT	7	1.1%	0	5	\$1,560,424
	JOINT/FITTING/COMPONENT	7	1.1%	0	2	\$1,210,284
	MALFUNCTION OF CONTROL/RELIEF EQUIPMENT	14	2.2%	0	2	\$8,606,990
	MECHANICAL FITTING	7	1.1%	1	6	\$2,067,389
	NON-THREADED CONNECTION FAILURE	4	0.6%	0	1	\$2,027,341
	OTHER EQUIPMENT FAILURE	3	0.5%	0	1	\$709,931
	OTHER PIPE/WELD/JOINT FAILURE	5	0.8%	0	2	\$729,570
	RUPTURED OR LEAKING SEAL/PUMP PACKING	1	0.2%	0	1	\$150,000
	THREADED CONNECTION/COUPLING FAILURE	1	0.2%	0	1	\$360,474
	VALVE	4	0.6%	0	0	\$1,502,974
MATERIAL/WELD/EQUIP FAILURE Total		76	12.0%	2	44	\$24,799,609
NATURAL FORCE DAMAGE	EARTH MOVEMENT	15	2.4%	10	53	\$24,655,828
	HEAVY RAINS/FLOODS	8	1.3%	0	0	\$3,938,023
	HIGH WINDS	2	0.3%	0	0	\$300,385
	LIGHTNING	9	1.4%	0	0	\$2,548,485
	OTHER NATURAL FORCE DAMAGE	9	1.4%	2	6	\$4,320,726
	TEMPERATURE	13	2.1%	6	11	\$5,836,057
NATURAL FORCE DAMAGE Total		56	8.8%	18	70	\$41,599,504

OTHER OUTSIDE FORCE DAMAGE	ELECTRICAL ARCING FROM OTHER EQUIPMENT/FACILITY	13	2.1%	0	11	\$5,894,470
	INTENTIONAL DAMAGE	9	1.4%	1	11	\$1,637,772
	MARITIME EQUIPMENT OR VESSEL ADRIFT	1	0.2%	0	0	\$2,291,000
	OTHER OUTSIDE FORCE DAMAGE	35	5.5%	1	15	\$23,113,711
	PREVIOUS MECHANICAL DAMAGE	3	0.5%	0	0	\$926,692
	VEHICLE NOT ENGAGED IN EXCAVATION	109	17.2%	16	65	\$34,180,422
OTHER OUTSIDE FORCE DAMAGE Total		170	26.9%	18	102	\$68,044,067
Grand Total		633	100.0%	82	485	\$361,055,386

Significant Incident Cause Breakdown 10 Year Average (2008-2017)

System Type: GAS DISTRIBUTION State: All

