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July 10, 2005

BY OVERNIGHT DELIVERY AND E-FILE

Mary L. Cottrell, Secretary
Department of Telecommunications and Energy
One South Station
Boston, MA 02110

Re: Bay State Gas Company, D.T.E. 05-27

Dear Ms. Cottrell:

Enclosed for filing, on behalf of Bay State Gas Company ("Bay State"), please find Bay State's responses to the following Record Requests:

From the Department:

RR-DTE-14 RR-DTE-15 RR-DTE-16

Please do not hesitate to telephone me with any questions whatsoever.

Very truly yours,

Patricia M. French

cc: Per Ground Rules Memorandum issued June 13, 2005:

Paul E. Osborne, Assistant Director – Rates and Rev. Requirements Div. (1 copy)
A. John Sullivan, Rates and Rev. Requirements Div. (4 copies)
Andreas Thanos, Assistant Director, Gas Division (1 copy)
Alexander Cochis, Assistant Attorney General (4 copies)
Service List (1 electronic copy)

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO
RECORD REQUESTS FROM THE D.T.E.
D.T.E. 05-27

Date: July 9, 2005

Responsible: Danny G. Cote, General Manager

RR-DTE-14: Regarding the DOT leak reports, indicate the independent variables and the dependent variables. Also, describe the variables used and provide a summary of the output for the regression analysis for LAW, BRO and SPR.

Response: The dependent variable is leak per mile, and the independent variable is time. The analysis was a single point regression of leaks per mile over time. A summary of the output of the second-order polynomial time series regression analysis is provided in Attachment RR-DTE-16.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO
RECORD REQUESTS FROM THE D.T.E.
D.T.E. 05-27

Date: July 9, 2005

Responsible: Danny G. Cote, General Manager

RR-DTE-15: RJ Rudden must have provided a regression analysis for the first two models, please provide the results to the Department.

Response:

1. **Linear time series**

Brockton

Leaks/mile = 0.0761x + 0.0374
$R^2 = 0.897$

Lawrence

Leaks/mile = 0.0565x - 0.0593
$R^2 = 0.7282$

Springfield

Leaks/mile = 0.0161x + 0.1174
$R^2 = 0.4903$

1. **Exponential time-series**

Brockton

Leaks/mile = $0.2159e^{0.1119x}$
$R^2 = 0.8867$

Lawrence

Leaks/mile = $0.0987e^{0.1315x}$
$R^2 = 0.6726$

Springfield

Leaks/mile = $0.1474e^{0.0542x}$
$R^2 = 0.4822$

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RECORD REQUESTS FROM THE D.T.E.
D.T.E. 05-27

Date: July 9, 2005

Responsible: Danny G. Cote, General Manager

RR-DTE-16: Provide the regression report that estimates projected leaks 30 years of status quo. Provide a similar chart using model 1 and 2 as listed on page 14 of Attachment 2-16(b).

Response: See Attachment RR-DTE-16 for the 30-year projection of leaks for model 1, 2 and 3.

Brockton

Current Replacement Rate

Year	Miles	Poly Leaks	Linear Leaks	Exponential Leaks
2005	382.2	654.2	625.1	865.2
2006	374.4	676.3	640.8	947.8
2007	366.6	697.5	655.4	1,038.0
2008	358.8	717.8	668.7	1,136.2
2009	351.0	737.1	680.9	1,243.1
2010	343.2	755.5	691.9	1,359.4
2011	335.4	772.7	701.7	1,485.8
2012	327.6	788.9	710.3	1,623.0
2013	319.8	804.0	717.7	1,772.0
2014	312.0	817.9	724.0	1,933.5
2015	304.2	830.7	729.0	2,108.3
2016	296.4	842.2	732.9	2,297.5
2017	288.6	852.4	735.6	2,501.9
2018	280.8	861.4	737.0	2,722.5
2019	273.0	869.0	737.3	2,960.3
2020	265.2	875.2	736.5	3,216.2
2021	257.4	880.0	734.4	3,491.2
2022	249.6	883.4	731.1	3,786.2
2023	241.8	885.3	726.7	4,102.2
2024	234.0	885.6	721.0	4,439.9
2025	226.2	884.4	714.2	4,800.0
2026	218.4	881.5	706.2	5,183.3
2027	210.6	877.1	697.0	5,589.9
2028	202.8	870.9	686.6	6,020.2
2029	195.0	863.1	675.1	6,474.1
2030	187.2	853.5	662.3	6,951.0
2031	179.4	842.1	648.4	7,450.1
2032	171.6	828.9	633.2	7,969.9
2033	163.8	813.8	616.9	8,508.4
2034	156.0	796.8	599.4	9,062.6

Lawrence

Current Replacement Rate

Year	Miles	Poly Leaks	Linear Leaks	Exponential Leaks
2005	73.5	114.0	91.6	114.8
2006	72.0	123.4	93.8	128.3
2007	70.5	132.9	95.8	143.2
2008	69.0	142.6	97.7	159.9
2009	67.5	152.3	99.3	178.4
2010	66.0	162.1	100.9	198.9
2011	64.5	171.9	102.2	221.7
2012	63.0	181.6	103.4	247.0
2013	61.5	191.2	104.4	275.0
2014	60.0	200.7	105.3	306.0
2015	58.5	210.1	105.9	340.3
2016	57.0	219.2	106.4	378.2
2017	55.5	228.1	106.8	420.0
2018	54.0	236.6	106.9	466.1
2019	52.5	244.9	106.9	516.8
2020	51.0	252.8	106.8	572.6
2021	49.5	260.2	106.4	633.8
2022	48.0	267.2	105.9	701.0
2023	46.5	273.7	105.2	774.5
2024	45.0	279.6	104.4	854.9
2025	43.5	285.0	103.3	942.6
2026	42.0	289.7	102.2	1,037.9
2027	40.5	293.8	100.8	1,141.5
2028	39.0	297.1	99.3	1,253.7
2029	37.5	299.7	97.6	1,374.9
2030	36.0	301.5	95.7	1,505.5
2031	34.5	302.5	93.7	1,645.5
2032	33.0	302.6	91.5	1,795.1
2033	31.5	301.8	89.1	1,954.4
2034	30.0	300.0	86.5	2,122.9

Springfield

Current Replacement Rate

Year	Miles	Poly Leaks	Linear Leaks	Exponential Leaks
2005	147.0	81.2	67.0	67.6
2006	144.0	85.7	67.9	69.9
2007	141.0	90.3	68.8	72.3
2008	138.0	95.0	69.5	74.7
2009	135.0	99.7	70.2	77.1
2010	132.0	104.5	70.8	79.6
2011	129.0	109.2	71.2	82.2
2012	126.0	113.9	71.6	84.7
2013	123.0	118.5	71.9	87.3
2014	120.0	123.1	72.0	89.9
2015	117.0	127.6	72.1	92.6
2016	114.0	131.9	72.1	95.2
2017	111.0	136.2	72.0	97.9
2018	108.0	140.2	71.8	100.5
2019	105.0	144.1	71.5	103.2
2020	102.0	147.8	71.1	105.8
2021	99.0	151.3	70.6	108.4
2022	96.0	154.5	70.0	111.0
2023	93.0	157.5	69.3	113.5
2024	90.0	160.2	68.5	116.0
2025	87.0	162.5	67.6	118.3
2026	84.0	164.6	66.7	120.6
2027	81.0	166.3	65.6	122.8
2028	78.0	167.6	64.4	124.8
2029	75.0	168.5	63.1	126.7
2030	72.0	169.0	61.8	128.4
2031	69.0	169.1	60.3	129.9
2032	66.0	168.7	58.8	131.2
2033	63.0	167.8	57.1	132.2
2034	60.0	166.4	55.3	132.9