Thomas R. Teehan
Senior Counsel

February 11, 2011

VIA HAND DELIVERY & ELECTRONIC MAIL

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

RE: Docket 4219 - Gas Infrastructure, Safety, and Reliability Plan FY 2012

Dear Ms. Massaro:

On behalf of both National Grid[1] and the Division, I have enclosed ten (10) copies of responses to three sets of data requests from the Division of Public Utilities and Carriers ("Division") that the Company made during the period that the Division reviewed and reached an agreement on the Company's proposed plan. The Company and the Division are providing this material as additional background and explanation relative to the plan that has been submitted to the Commission.

Thank you for your attention to this transmittal. If you have any questions, please feel free to contact me at (401) 784-7667.

Very truly yours,

Thomas R. Teehan

Enclosure

cc: Docket 4219 Service List
Steve Scialabba
Leo Wold, Esq.

[1] The Narragansett Electric Company d/b/a National Grid ("National Grid" or the "Company").

NGrid Responses
Gas ISR - DPUC Set 1

National Grid's Proposed FY 2012

Gas

Draft Infrastructure, Safety, and Reliability Plan

National Grid Responses
to
Division's First Set of Data Requests

Issued by the Division on
September 1, 2010

Division 1-1

Request:

Referring to Section 3, Attachment 1, please reconcile the plant additions on Line 2 to the Capital Forecast in Section 2.

Response:

	($000)
Total Capital Forecast per Section 2, Attachment 2, Page 1 of 1	$60,545
Less:	
Growth per Section 2, Attachment 2, Page 1 of 1	(7,129)
Cost of Removal – Refer to Division Data Request 1-4	(5,755)
	$47,661

Prepared by or under the supervision of: William R. Richer

Division 1-2

Request:

Referring to Section 3, Attachment 1, please provide workpapers supporting the Depreciation Expense on Line 9.

Response:

	($000)
Depreciation Expense as Approved per Docket No.3943	$20,070
General Plant Depreciation Expense as Approved per Docket No. 3943 (950)	
19,120	
2009 CXT Depreciation Expense per Docket No.4077	(676)
$18,444	

The amount of depreciation expense included in Section 3 on Attachment 1, Page 1, Line 9 is the allowance for depreciation expense approved in Docket No. 3943 of $20,069,816 less the amount included in this allowance associated with general plant, which is not part of the Company's proposed ISR Plan. The Company is providing a calculation of the rate year depreciation expense associated with general plant in Attachment DIV 1-2 to this response, as shown in Line 19. The result is $20,069,816 less $950,109, or $19,119,707.
In addition, the Company deducted the 2009 CXT depreciation expense per Docket No. 4077 of $676,165. Please see Company's response to Division 1-3. The result is $19,119,707 less $676,165, or $18,443,542.

Prepared by or under the supervision of William R. Richer

The Narragansett Electric d/b/a National Grid
Draft Gas Infrastructure, Safety and Reliability Plan (ISR Plan)
Calculation of Depreciation Expense

Line No.	Description	Reference	
		Docket No. 3943 Original Volume 1 of 5	
1	Total Utlity Plant as of 9/30/08	NG-MDL-1 Page 21, Line 27	572,450,679
2		Docket No. 3943 Original Volume 1 of 5	
3	Depreciable Utility Plant as of 9/30/09	NG-MDL-1 Page 21, Line 37	616,196,768
4		Docket No. 3943 Original Volume 1 of 5	
5	Average Depreciable Plant for Rate Year Ended 9/30/09	NG-MDL-1 Page 21, Line 39	594,323,722
6			
7	Composite Book Rate %		3.3769%
8		Docket No. 3943 Original Volume 1 of 5	
9	Depreciation Expense	NG-MDL-1 Page 21, Line 44	$ 20,069,718
10			
11	General Plant as of 9/30/08		33,471,496
12			
13	Depreciable General Plant as of 9/30/09		22,799,310
14			
15	Average Depreciable General Plant for Rate Year Ended 9/30/09		28,135,403
16		Docket No. 3943 Original Volume 1 of 5	
17	Composite Book Rate %	NG-MDL-1 Page 21, Line 41	3.3769%
18			
19	Depreciation Expense		$ 950,104

Line Notes:

5 (Line 1 + Line 3)/2
9 Line 5 x Line 7
15 (Line 11 + Line 13)/2
19 Line 15 x Line 17

National Grid - RI Gas
Reconciliation of Capital Spending
Calculation of Appropriate Adjustment
For the Period Ended September 30, 2009

Line No.			5 Quarter Average
1	Deferred Tax Calculation:		
2	Actual Average Gross Plant in Service		569,764,089
3	Forecasted Average Gross Plant in Service		589,768,959
4	Decremental Amount		$ (20,004,870)
5			
6	Composite Book Depreciation Rate		3.38%
7			
8	Book Depreciation		(676,165)
9			
10			
11	Rate Base Calculation		
12	Actual Average Balance of Net Plant		$305,033,837
13	Forecasted Average Balance of Net Plant		314,249,372
14			$ (9,215,535)
15			
16	Revenue Requirement Calculation:		
17	Rate Base for the 12 months ending 9/30/09		(9,215,535)
18	Pre-Tax ROR		11.41%
19	Return and Taxes		(1,051,493)
20	Book Depreciation		(676,165)
21	Property Taxes	3.10%	(285,682)
22	Annual Revenue Requirement		$ (2,013,339)
23			
24			

Line No.	Imputed Capital Structure:	Ratio	Rate	Weighted Rate	Taxes	Pre-tax Return
27	Long Term Debt	40.63%	7.99%	3.25%		3.25%
28	Short Term Debt	11.66%	3.91%	0.45%		0.45%
29	Common Equity	47.71%	10.50%	5.01%	2.70%	7.71%
30		100.00%		8.71%	2.70%	11.41%

Line Notes:

2 See Attachment NG-WRR-3, Page 2 Column (a) Line 1
3 Docket No.3943 Attachment NG-MDL-1, Page 24 Line 1
4 Line 2 - Line 3
6 Docket No.3943 Attachment NG-MDL-1, Page 21 Line 41
8 Line 4 x Line 6
12 See Attachment NG-WRR-3, Page 2 Column (a) Line 6
13 Docket No.3943 Attachment NG-MDL-1, Page 24 Line 6
14 Line 12 - Line 13
17 From Line 14
18 From Line 30 pre-tax WACC
19 From Line 17 x Line 18
20 From Line 8
21 Line 14 x Prior Fiscal Year ratio of municipal tax expense to average net plant in service
22 Line 19 + Line 20 + Line 21

Division 1-3

Request:

Referring to Section 3, Attachment 1, please explain why the depreciation expense on the 2009 CXT is excluded from the depreciation expense on Line 9.

Response:

In Docket No. 3943, the Commission approved a level of depreciation expense based on a forecasted five quarter average net plant in service for the period ended September 30, 2009. In that proceeding, the Commission also approved a Capital Expenditures Tracker ("CXT") mechanism for refunding or collecting from customers the revenue requirement impact associated with variations in capital spending. The Company filed the CXT as part of its 2009 DAC filing in Docket No. 4077. The filing reflected an ongoing credit to customers equal to the revenue requirement of ($2,013,339) because the actual five quarter average net plant in service was lower than the forecasted amount in Docket No. 3943. This revenue requirement included the pre-tax return, municipal taxes and the depreciation expense on the difference between the Company's actual and forecasted average net plant in service as described above.

The depreciation expense reflected in the illustrative calculation in Section 3, Attachment 1 on Line 9 reflects total depreciation expense as approved in Docket No. 3943, less the depreciation expense associated with general plant since general plant is being excluded from the Gas ISR Plan, and less the depreciation expense component of the 2009 CXT from Docket No. 4077. The depreciation component of the 2009 CXT totaled $676,175 as shown in the response to DIV 1-2. The reason that this amount is being excluded from the depreciation expense in the Gas ISR Plan is because the ongoing credit that is being provided to customers each year on the amount of forecasted plant in service that was "under spent" in the period ended September 30, 2009 is offsetting the amount of depreciation expense that is being recovered annually in base rates associated with the under spent amount. The CXT depreciation expense amount must be deducted from the level of depreciation expense approved in Docket No. 3943 to reflect the net amount of depreciation expense that the Company is recovering from customers each year.

Prepared by or under the supervision of William R. Richer

Division 1-4

Request:

Referring to Section 3, Attachment 1, please provide workpapers supporting the Cost of Removal on Line 13.

Response:

See Attachment DIV 1-4 which provides the calculation of the Cost of Removal.

Prepared by or under the supervision of: William R. Richer

Rhode Island Capital Investment Plan

Category	FY12
Base Growth	
Install Main	$ 2,873,572
Install Services	$ 3,769,600
Base Growth - Customer Contributions	($2,356,953)
Base Growth - Install Meter / Regulator	$ 187,300
Base Growth - Marketing & Sales	
Base Growth - Sales Fullfillment	$ 698,647
Base Growth -Meter Purchase/Operations	$ 479,488
Base Growth-Fitting	$ 1,287,445
Gas System Reinforcement	
Reinforcement	
Base	$ 10,000
Incremental	$ 90,000
In year reinforcement	$ 90,000
Subtotal	**$ 7,129,099**
City State Construction - Non-reimbursable	$ 1,750,000
City State Construction - Reimbursable	$ 1,250,000
City State Construction - Reimbursements	($1,250,000)
Incremental	
Integrity	
Corrosion	
Base	$ 254,984
Incremental	$ 200,000
Main Replacements - Proactive Programs	
Leak Prone Pipe (50 miles)	
Base	$ 19,900,000
Shift from Services	$ 3,000,000
Incremental	$ 2,850,000
Main Replacements - Reactive Programs	
Maintenance	$ 1,000,000
Service Replacements - Proactive Programs	
BS HP Leak-prone Services	
Base	$ 6,906,250
Shift from Services	$ (3,000,000)
Incremental	
Service Replacements - Reactive Programs	
Leaks	$ 6,098,675
Non-Leaks - other	$ 268,703
Meter Changes	
Purchase Meters (Replacements)	$ 2,365,825
Subtotal	**$ 41,594,437**
Gas System Reliability	
Gas Control	$ 127,500
Heater Program	
Base	$ -
Incremental	$200,000
I&R - Reactive Program	
Base	$ 1,116,900
Incremental	
LNG	$ 1,355,000
Pressure Regulating facilities - Proactive	
Base	$ 510,000
Incremental	$ 3,500,000
SCADA	$ -
Valve installation/replacement	
Base	$ 509,968
Incremental	
Gas Planning	
Base	$ 285,000
Incremental	$ 1,000,000
Water intrusion	
Base	$ -
Incremental	$ 800,000
Instrumentation and Regulation	
System Automation	
Base	$ 204,000
Incremental	$ 1,215,000
Control Line Integrity Program	
Base	$ -
Incremental	$ 300,000
CNG	$ 408,000
Special Projects	
Cumberland GIS Vectorization	$ -
Subtotal	**$ 11,531,368**
Purchase Misc Capital Equipment & tools	$ 290,000
Subtotal	**$ 290,000**
Total Capital	**$ 60,544,903**

Rhode Island Cost of Removal

Category	FY12
Base Growth	
Install Main	
Install Services	
Base Growth - Customer Contributions	
Base Growth - Install Meter / Regulator	
Base Growth - Marketing & Sales	
Base Growth - Sales Fullfillment	
Base Growth -Meter Purchase/Operations	
Base Growth-Fitting	
Gas System Reinforcement	
Reinforcement	
Base	
Incremental	
In year reinforcement	
Subtotal	**$ -**
City State Construction - Non-reimbursable	$ 122,500
City State Construction - Reimbursable	$ 75,000
City State Construction - Reimbursements	
Incremental	
Integrity	
Corrosion	
Base	
Incremental	
Main Replacements - Proactive Programs	
Leak Prone Pipe (50 miles)	
Base	$ 1,990,000
Shift from Services	$ 300,000
Incremental	$ 85,500
Main Replacements - Reactive Programs	
Maintenance	$ 100,000
Service Replacements - Proactive Programs	
BS HP Leak-prone Services	
Base	$ 2,071,875
Shift from Services	$ (900,000)
Incremental	$ -
Service Replacements - Reactive Programs	
Leaks	$ 1,829,603
Non-Leaks - other	$ 80,611
Meter Changes	
Purchase Meters (Replacements)	
Subtotal	**$ 5,755,088**
Gas System Reliability	
Gas Control	
Heater Program	
Base	
Incremental	
I&R - Reactive Program	
Base	
Incremental	
LNG	
Pressure Regulating facilities - Proactive	
Base	
Incremental	
SCADA	
Valve installation/replacement	
Base	
Incremental	
Gas Planning	
Base	$ -
Incremental	$ -
Water intrusion	
Base	
Incremental	
Instrumentation and Regulation	
System Automation	
Base	
Incremental	
Control Line Integrity Program	
Base	
Incremental	
CNG	
Special Projects	
Cumberland GIS Vectorization	
Subtotal	**$ -**
Purchase Misc Capital Equipment & tools	
Subtotal	**$ -**
Total Retirements	**$ 5,755,088**

Division 1-5

Request:

Referring to Section 3, Attachment 1, please provide workpapers supporting the Annual Tax Depreciation on Line 23.

Response:

Please see Attachment DIV 1-5 for the calculation supporting the Annual Tax Depreciation included in Section 3 on Attachment 1, Page 1, Line 23. The amount of annual tax depreciation can be found on line 13.

Prepared by or under the supervision of William R. Richer

The Narragansett Electric d/b/a National Grid
Draft Gas Infrastructure, Safety and Reliability Plan (ISR Plan)
Calculation of Tax Depreciation

Line No.	Description	Reference	Fiscal Year 2012 (a)	Fiscal Year 2013 (a)	
1	Plant Additions	Section 3, Attachment 1, Page 1, Line 2	$47,660,716	$0	
2	Cost of Removal	Section 3, Attachment 1, Page 2, Line 13	$5,755,088	$0	
3					
4	20 YR MACRS Tax Depreciation Rates	Section 3, Attachment 1, Page 2, Line 20	3.75%	7.22%	
5	Capital Repairs Deduction	Section 3, Attachment 1, Page 2, Line 21	40.00%	40.00%	
6					
7	Calculation of Tax Depreciation:				
8					
9	Tax Depreciation Associated with Repairs	(Line 1 x Line 5)	$ 19,064,286	$ -	1\
10	Tax Depreciation Associated with All Other Plant Additions	(Line 1 - (Line 1 * Line 5) * Line 4	1,072,366	2,064,376	2\
11	Tax Depreciation Associated with Cost of Removal	(Line 2)	5,755,088	-	1\
12					
13	Total Tax Depreciation	Section 5, Attachment 1, Page 2, Line 21	$ 25,891,741	$ 2,064,376	

1\ Currently deductible for tax purposes
2\ Deductible according to MACRS rates

Division 1-6

Request:

Referring to Section 3, Attachment 1, please provide workpapers supporting the Book Depreciation on Line 26.

Response:

Please see Attachment DIV 1-6 for the calculation supporting the Annual Book Depreciation included in Section 3 on Attachment 1, Page 2, Line 26. The amount of annual book depreciation can be found on line 13.

Prepared by or under the supervision of William R. Richer

The Narragansett Electric d/b/a National Grid
Draft Gas Infrastructure, Safety and Reliability Plan (ISR Plan)
Calculation of Book Depreciation

Line No.	Description	Reference	Fiscal Year 2012 (a)	Fiscal Year 2013 (a)
1	Plant Additions	Section 3, Attachment 1, Page 2, Line 2	$47,660,716	$0
2	Retirements	Section 3, Attachment 1, Page 2, Line 3	$3,074,116	$0
3	Net Depreciable Additions	Section 3, Attachment 1, Page 2, Line 4	$44,586,600	$0
4	Cumulative Net Depreciable Additions	Section 3, Attachment 1, Page 2, Line 5	$44,586,600	$44,586,600
5				
6	Composite Book Depreciation Rate	Section 3, Attachment 1, Page 2, Line 19	3.38%	3.38%
7				
8	Calculation of Book Depreciation:			
9				
10	Book Depreciation Year One	(Line 3 * Line 6) * 50%	$753,514	
11	Book Depreciation Year Two	(Prior Year Line 4 * Line 6) + (Current Year Line 3 * Line 6) * 50%		$1,507,027
12				
13	Total Tax Depreciation	Section 3, Attachment 1, Page 2, Line 26	$753,514	$1,507,027

Division 1-7

Request:

Referring to Section 3, Attachment 1, please provide documentation for the amounts in Footnote 4.

Response:

Please see Attachment DIV 1-7 for the calculation supporting the amounts in Footnote 4 in Section 3 on Attachment 1.

Prepared by or under the supervision of William R. Richer

The Narragansett Electric d/b/a National Grid
Draft Gas Infrastructure, Safety and Reliability Plan (ISR Plan)
Calculation of Property Tax Rate
Calendar Year 2009

Line No.	Description		
1	Plant in Service	$	613,087,054
2			
3	Less: Intangible Plant		28,679,000
4			
5	Accumulated Provision for Depreciation & Amortization		277,866,091
6			
7	Net Plant In Service	$	306,541,963
8			
9	Rate Year Property Tax Expense	$	9,413,974
10			
11	Property Tax Rate		3.07%

Line Notes:

1 FERC Form 1 page 201 Line 8 - FERC Account 101010 per internal Company financials
3 FERC Plant Account 302 and 303 per internal Company financials
5 FERC Form 1 page 201 Line 22 - FERC Form 1 page 201 line 21
7 Line 1 - Line 3 - Line 5
9 FERC Account 408140 Municipal Property Tax per internal Company financials
11 Line 9 / Line 7

NGrid Responses
Gas ISR - DPUC Set 2

National Grid's Proposed FY 2012

Gas

Draft Infrastructure, Safety, and Reliability Plan

National Grid Responses
to
Division's Second Set of Data Requests

Issued by the Division on
September 13, 2010

Division 2-1

Request:

National Grid is required to submit data to the Federal DOT regarding the number of outstanding system leaks at the end of the year. Please provide the annual ranking of each state for the number of outstanding leaks for the fourteen (14) Eastern Regional states in the past five years?

Response:

Please refer to the Attachment DIV 2-1 for a summary of the outstanding system leaks at the end of the year for each the fourteen (14) Eastern Regional states in the past five years.

Prepared by or under the supervision of: Susan Fleck

Note:
STOP = *State in which system operates.*
KNLK = *Number of Known System Leaks at End of Year Scheduled for Repair*

YEAR	STOP	KNLK
2009	TOTAL ME outstanding leaks	0
2009	TOTAL VT outstanding leaks	0
2009	TOTAL NH outstanding leaks	1
2009	TOTAL DE outstanding leaks	40
2009	TOTAL RI outstanding leaks	77
2009	TOTAL CT outstanding leaks	259
2009	TOTAL DC outstanding leaks	462
2009	TOTAL MA outstanding leaks	512
2009	TOTAL NY outstanding leaks	666
2009	TOTAL WV outstanding leaks	1544
2009	TOTAL MD outstanding leaks	1573
2009	TOTAL VA outstanding leaks	1723
2009	TOTAL NJ outstanding leaks	6210
2009	TOTAL PA outstanding leaks	6357

YEAR	STOP	KNLK
2008	TOTAL ME outstanding leaks	0
2008	TOTAL NH outstanding leaks	0
2008	TOTAL VT outstanding leaks	0
2008	TOTAL DE outstanding leaks	47
2008	TOTAL RI outstanding leaks	264
2008	TOTAL CT outstanding leaks	277
2008	TOTAL DC outstanding leaks	278
2008	TOTAL MA outstanding leaks	585
2008	TOTAL NY outstanding leaks	661
2008	TOTAL MD outstanding leaks	1005
2008	TOTAL WV outstanding leaks	2470
2008	TOTAL VA outstanding leaks	2526
2008	TOTAL NJ outstanding leaks	5916
2008	TOTAL PA outstanding leaks	6883

YEAR	STOP	KNLK
2007	TOTAL ME outstanding leaks	0
2007	TOTAL VT outstanding leaks	0
2007	TOTAL NH outstanding leaks	1
2007	TOTAL DE outstanding leaks	46
2007	TOTAL DC outstanding leaks	296
2007	TOTAL CT outstanding leaks	415
2007	TOTAL NY outstanding leaks	740
2007	TOTAL RI outstanding leaks	787
2007	TOTAL MA outstanding leaks	1168
2007	TOTAL MD outstanding leaks	2160
2007	TOTAL WV outstanding leaks	2240
2007	TOTAL VA outstanding leaks	3446
2007	TOTAL NJ outstanding leaks	6224
2007	TOTAL PA outstanding leaks	7555

YEAR	STOP	KNLK
2006	TOTAL NH outstanding leaks	0
2006	TOTAL VT outstanding leaks	0
2006	TOTAL ME outstanding leaks	2
2006	TOTAL DE outstanding leaks	16
2006	TOTAL DC outstanding leaks	355
2006	TOTAL CT outstanding leaks	544
2006	TOTAL NY outstanding leaks	947
2006	TOTAL RI outstanding leaks	1076
2006	TOTAL MD outstanding leaks	1180
2006	TOTAL MA outstanding leaks	1643
2006	TOTAL WV outstanding leaks	2205
2006	TOTAL VA outstanding leaks	2798
2006	TOTAL NJ outstanding leaks	4137
2006	TOTAL PA outstanding leaks	5837

YEAR	STOP	KNLK
2005	TOTAL ME outstanding leaks	0
2005	TOTAL VT outstanding leaks	0
2005	TOTAL NH outstanding leaks	1
2005	TOTAL DE outstanding leaks	30
2005	TOTAL DC outstanding leaks	210
2005	TOTAL RI outstanding leaks	829
2005	TOTAL NY outstanding leaks	864
2005	TOTAL CT outstanding leaks	968
2005	TOTAL MD outstanding leaks	1259
2005	TOTAL MA outstanding leaks	1773
2005	TOTAL WV outstanding leaks	2190
2005	TOTAL VA outstanding leaks	2392
2005	TOTAL NJ outstanding leaks	5797
2005	TOTAL PA outstanding leaks	6213

Division 2-2

Request:

In Section 2, Attachment 2 (page 1 of 1) shows multiple categories of projected capital investments for the upcoming FY periods of FY11 – FY16 in the Gas ISR Plan. Please provide the same categories of historical investments for the previous five (5) periods (FY06 - FY10).

Response:

The table below provides the same categories of historical investments for the previous three (3) periods (FY08 - FY10) as Section 2, Attachment 2.

	Historical Capital Investment ($000)			
Total Plan	**FY08**	**FY09**	**FY10**	**Total**
Growth (Including Reinforcement)	$10,580	$9,781	$8,634	$28,994
Main Replacement Program	$9,735	$8,276	$18,634	$36,645
Service Replacements		$315	$3,427	$3,742
Total	$9,735	$8,591	$22,061	$40,386
Public Works	-$842	$1,216	$1,000	$1,374
Reactive Main Replacement	n/a	n/a	n/a	n/a
Mandated Programs	$4,833	$10,073	$16,663	$31,569
Reliability	$2,998	$5,562	$5,589	$14,148
Total	$27,304	$35,222	$53,947	$116,473

* FY06 & 07 data is not available.
* National Grid did not begin to track Service Replacement program until FY09.
* The credit in FY08 public works is due to reimbursement of projects being greater than the spend for the year in which the reimbursement was received, the reimbursements are likely from prior year projects.
* Reactive Main Replacement was not tracked separately in the past.

Prepared by or under the supervision of: Susan Fleck

Division 2-3

Request:

In regards Section 2, Attachment 2 (page 1 of 1) the "investment in growth (including reinforcement)" category, please provide the specific expenditures that total to the approximate FY 11 and FY12 seven million dollar amounts and the specifics of the forecasted job locations, including but not limited to the miles of extended main, number of services and location of the projects.

Response:

The table below provides the projected specific expenditures that total to the approximate FY 11 and FY12 seven million dollar amounts including the miles of extended main and number of services. These amounts are based on historical experience and projections based on consumer demand forecasts for gas service, rather than actual known growth work. Thus, location information is not available.

	FY11		**FY12**	
Category	**Unit [Feet, or Service]**	**Dollar**	**Unit [Feet or Service]**	**Dollar**
Base Growth				
Install Main	50,414	$2,873,572	50,414	$2,873,572
Install Services	892	$3,769,600	892	$3,769,600
Base Growth - Customer Contributions		($2,356,953)		($2,356,953)
Base Growth - Install Meter / Regulator		$187,300		$187,300
Base Growth - Marketing & Sales				
Base Growth - Sales Fulfillment		$698,647		$698,647
Base Growth -Meter Purchase/Operations		$479,488		$479,488
Base Growth-Fitting		$1,287,445		$1,287,445
Gas System Reinforcement				
Reinforcement		$80,000		$100,000
In year reinforcement		$90,000		$90,000
Subtotal		**$7,109,099**		**$ 7,129,099**

Prepared by or under the supervision of: Susan Fleck

Division 2-4

Request:

a.) One aspect of the so-called mandated programs is "meter replacements". Please provide the specifics associated with the projected meter replacements (i.e. purpose of replacement and number of replacements) for the upcoming fiscal periods (FY12-FY13)? What has been the last five (5) fiscal periods' capital investment in meter replacements and the number of replacements? If this "meter replacements program" is the same as the meter replacement program agreed to in the Company's Service Quality Plan, Docket 3476, how can the Company include these expenses in the ISR program when the there is no relevance to safety and reliability?

b.) Another aspect of the referenced mandated programs is the "cast iron encapsulation of approximately 1,800 leaking cast iron bell joints." This program, like meter replacement, has been in existence for many years. That being the case, why is it now included as part of the ISR program for reimbursement? Isn't the effect of that one where the customer would be compensating the Company again for investment (to have cast iron bell joints sealed) for the same work effort already included in the Company's base rates?

Response:

a.) Meter replacements are projected to be in the range of 22,000 for FY 2012, the single biggest driver being the remediation meter program. Of the projected 22,000 replacements, not all of them require a new meter to be installed. Some are reconditioned, tested, and placed back in service. The capital requirements are budgeted for the procurement of the new meters to replace those that can no longer be placed back in service. The two Tables shown below detail actual and projected capital spending in this category and actual and projected meters replaced and condemned.

Actual and Projected Capital Spending (*)					
	FY08	**FY09**	**FY10**	**FY 11**	**FY 12**
Growth	$3,187,837	$2,789,036	$595,628	$479,488	$479,488
Mandated			$1,930,773	$2,319,436	$2,365,825
Total	$3,187,837	$2,789,036	$2,526,401	$2,798,924	$2,845,313

(*) Please note that Growth and Mandated Categories were not tracked separately until FY2010. In prior years, all purchases were recorded in the Growth category.

Division 2-4 (cont.)

Actual and Projected Meter Changes and Condemnations					
	2007	**2008**	**2009**	**2010**	**2011**
Meter Changes	**19,901**	**26,259**	**24,714**	**22,359**	**22,800**
Meters Condemnations	**3,139**	**6,101**	**4,656**	**4,409**	**n/a**

*Note: Not all changes require a newly purchased meter to be installed. Capital requirements change with condemnation rate.

In Section 3, Attachment 1 of the ISR filing, the Company deducts the amount of depreciation expense approved in the rate case from the proposed ISR spending. The revenue requirement is calculated using that net amount. The depreciation expense excludes depreciation on general plant, because general plant is not part of the ISR. The Company also excluded the depreciation component of the revenue requirement on the "under spend" associated with the ARP that existed for the period ended September 30, 2009. The Company is passing back the revenue requirement on the under spend each year until the next base rate case filing.

This new capital tracker is a total capital spend tracker, exclusive of general plant additions as discussed above. Basing the revenue requirement on the net amount (i.e. total capital spending less depreciation expense in base rates) assures that there is no double counting of depreciation expense or of any of the other components of the revenue requirement (i.e. return on investment, income taxes and property taxes). None of the operating expense associated with the meter change program is included in the ISR.

In addition, the Company considers the capital expense associated with the Division required meter change program to be appropriate for inclusion in the ISR since it contributes to the safe and reliable operation of gas meters.

b.) Please see the response to part a) above.

Prepared by or under the supervision of: Amy Smith

Division 2-5

Request:

(a) How many miles of unprotected steel pipe currently exist in the Rhode Island system? Per the Company's latest filing with the Federal Government form F7100.1-1 on March 15th, 2010 the Company reported approximately 673 miles.

(b) How many miles of steel pipe are cathodically protected and non-protected? Of the 673 miles referenced above there are 423 miles of bare unprotected steel and 251 miles of coated steel that is unprotected. There are also 551 miles of protected coated steel main. There are zero miles of cathodically protected bare steel.

(c) How many miles of steel main have been cathodically protected in the past five (5) fiscal periods?

Response:

a) With rounding to the nearest whole number, the Company had approximately 674 miles of unprotected steel mains. Please refer to Attachment DIV 2-5 which is the 2009 DOT Distribution Report for the exact quantities.

b) With rounding to the nearest whole numbers, the company had approximately 423 miles of bare unprotected steel mains, 251 miles of unprotected coated steel mains, 551 miles of coated protected steel mains and 0 miles of coated unprotected steel mains. Please refer to Attachment DIV 2-5.

c) Cathodic protection was added to approximately 3.14 miles of unprotected steel in 2009. Zero (0) additional miles of unprotected steel were protected from 2005 to 2008.

Prepared by or under the supervision of: Susan Fleck

Division 2-6

Request:

Why is the steel non-cathodically protected gas piping (scheduled to be protected) included in Mandatory Programs when the Federal DOT does not mandate such protection?

Response:

The addition of cathodic protection to pre-DOT pipe is not Federal or State Mandated. However, as the Company noted in Section 2 of its ISR Plan, this type of work includes the type of infrastructure safety and reliability work currently contained in the Accelerated Replacement Plan ("ARP") to address the replacement of leak-prone gas main and at-risk services. Therefore, because this work relates directly to safety and reliability, the Company places this work in a mandated category for budgeting purposes and once the work is approved, it is treated as mandated work.

Prepared by or under the supervision of: Susan Fleck

Division 2-7

Request:

The Mandated Programs fall into three (3) categories – cathodic protection, meter replacement, and capital leak repairs. Please provide the capital dollars that will be attributed to each category in each of the five FY planning periods beginning with FY12?

Response:

The table below shows the capital dollars included in the cathodic protection, meter replacement, and capital leak repairs categories in each of the five FY planning periods beginning with FY12.

	Capital Forecast (000)				
	FY12	**FY13**	**FY14**	**FY15**	**FY16**
Cathodic Protection	$ 455	$ 459	$ 465	$ 470	$ 470
Capital Leak Repairs	$ 6,367	$ 6,495	$ 6,625	$ 6,757	$ 6,757
Meter Replacement	$ 2,366	$ 2,413	$ 2,461	$ 2,511	$ 2,511
Mandated Programs Total	**$ 9,188**	**$ 9,367**	**$ 9,551**	**$ 9,738**	**$ 9,738**

Prepared by or under the supervision of: Susan Fleck

Division 2-8

Request:

How many miles of leak prone main have been replaced in the past five (5) FY years from FY07-FY11 and at what annualized investment?

Response:

Fiscal Year	Miles	Annual Investment ($000)
FY07	10	$4,752
FY08	15	$9,735
FY09	13	$8,276
FY10	31	$18,634
Projected FY11	40	$22,900

Prepared by or under the supervision of: Susan Fleck

Division 2-9

Request:

In regards to the forecasted reliability spending, please respond to the following questions.

(a) There are six (6) sub-categories of reliability investments for FY11 and FY12. Please provide us with the annualized investment allocation for each sub-category for the two fiscal periods individually (FY11 and FY12).

(b) How many pressure regulator stations have "full system telemetry and control capability" and where are they located?

(c) National Grid proposes to implement a system automation and control program to 20% (41 of 205) of its pressure regulating facilities. National Grid has identified 36 regulator stations that will receive control and monitoring equipment in FY12. Please identify the facilities that will be retrofitted, their location, the priority of implementation, and its FY implementation?

(d) National Grid has identified four (4) water intrusion projects for FY12. What are the individual investments in each project? Are they any water intrusion projects in FY11?

(e) How old are the boil-off compressors at the Exeter facility?

Response:

(a) The table below provides the annualized investment allocation for six (6) sub-categories of reliability investments for the two fiscal periods (FY11 and FY12).

	System Reliability ($000)	
Category	**FY11**	**FY12**
System Automation and Control	$ 325	$ 1,546
System Pressure Regulating Facilities (Heaters & Control Line Integrity)	$ 500	$ 4,510
System Reliability Enhancement	$ 4,230	$ 3,100
Water Intrusion	$ -	$ 800
LNG Facilities	$ 786	$ 1,355
Primary Valve Installation and/or Replacement	$ 493	$ 510
Reliability Total	**$ 6,334**	**$ 11,821**

(b) Please see Attachment DIV 2-9 which lists the location of all stations with full telemetry and control. National Grid operates a total of 205 regulator stations in Rhode Island of

Division 2-9 (cont.)

which only 38 have full system telemetry and control.

(c) Please see Attachment DIV 2-9. Regulator stations were prioritized for automation based on their size, whether they are single feed stations supplying isolated areas, and whether there was a need for additional telemetry in that specific area of the system and how remote the location was from operating yards. Please see Attachment DIV 2-9 which lists the 36 facilities that are planned to be retrofitted in fiscal year 2011/12, their location and priority of implementation. Currently 38 of the 205 stations (18.5%) have full telemetry and control. The additional 36 stations to be done in fiscal year 2010/11 will bring the total number of stations with full telemetry and control to 74 (36% of existing stations). Additional stations will be planned for retrofitting in subsequent fiscal years.

(d) The Proposed FY12 Water Intrusion Projects are:

1. Canal Street, Westerly - $40,000
   Scope: Transfer existing Low Pressure services (10 customers) to adjacent 99psig main and abandon 700ft of Low Pressure, Cast Iron main Leak Prone Main
2. Linden Street, Westerly - $76,680
   Scope: Replace existing 3inch Low Pressure, Bare Steel Leak Prone Main with new 4inch Plastic main and extend main to connect to existing 4inch Plastic 60psig main. Total pipe footage approx. 710ft. (8 customers)
3. Lewis Lane/Pauline Street & Niles Street - $162,648
   Scope: Replace 1350ft of existing 3inch & 4inch Low Pressure Bare Steel Leak Prone Main with new 4inch Plastic main. In addition, uprate a short segment of existing plastic main and connect to existing 21psig system on High Street. (15 customers)
4. Arcadia Avenue/Eldorado Street/Park View Blvd/Minola Street/Fairlawn Street/Piedmont Street/LaGrange Street/Lakeside Avenue, Cranston - $549,612
   Scope: Replace 2140ft of existing 6inch Low Pressure, Cast Iron Leak Prone Main with new 6inch Plastic main. (86 customers)

Division 2-9 (cont.)

The Water Intrusion Projects identified above in RI are with Engineering for design and permitting considerations. As additional projects are identified, they will be put forth for investment consideration.

(e) The Exeter LNG boil-off compressors were installed in 1972, when the plant was originally constructed.

Prepared by or under the supervision of: Susan Fleck

PRIORITY	LOCATION	CITY / TOWN
13	County @ Old County	Barrington
14	Gibson Rd	Bristol
36	High St SO	Central Falls
31	1584 Plainfield	Cranston
32	New Depot and Cranston	Cranston
33	Park @ Station Street	Cranston
34	Zinnia Dr	Cranston
12	Frenchtown RD	East Greenwich
24	Division St	East Greenwich
25	Bently St	East Providence
26	Bullocks Point	East Providence
27	Roger Williams and Whitaker	East Providence
28	Waterman Ave and Pawtucket	East Providence
29	Scenery Lane	Johnston
11	Boulevard Ave	Lincoln
9	Quinn Ln	Lincoln
15	Old Mill Lane	Middletown
16	Walcott @ St. Georges	Middletown
17	Bliss RD @ Broadway	Newport
18	Third St @ Admiral Kalbfus	Newport
19	W. Main & Dudley Ave	Newport
20	Wellington @ Thames	Newport
21	Long Lane	No Kingstown
22	Stony Lane and RT 2	No Kingstown
23	Saint Paul St.	North Smithfield
6	Tidewater Cty Reg	Pawtuckett
7	Tidewater A-Run	Pawtuckett
8	Tidewater B-Run	Pawtuckett
30	Pettis and N.Main	Providence
5	East Ave @ Wells St.	Westerly
4	Beach St	Westerly
3	Ward Ave	Westerly
1	Westerly GS to White Rock	Westerly
2	Perkins Ave	Westerly
35	Bourdon Boulevard	Woonsockett
10	Newland Ave	Woonsockett

Town	Location
BARRINGTON	Barrington GS 25 PSIG System
BARRINGTON	Barrington Transfer Outlet Pressure
CRANSTON	D St @ Atwood Ave
CRANSTON	Weld Street
CUMBERLAND	Diamond Hill GS
CUMBERLAND	Scott Rd. GS
CUMBERLAND	Mendon Rd. (Inprogress)
EAST PROVIDENCE	Dey Street GS
EAST PROVIDENCE	Wampanoag Trail 5#
EAST PROVIDENCE	Wampanoag Trail 99#
NEWPORT	Boulevard St @ Miantonomi
NEWPORT	New Bayfront @ Thames
PAWTUCKET	Sanford St
PAWTUCKET	Tidewater Station
PORTSMOUTH	Portsmouth GS
PROVIDENCE	Admiral @ Charles
PROVIDENCE	Corina @ Glasgow
PROVIDENCE	Broad & Early
PROVIDENCE	Virginia & Chapman
PROVIDENCE	Allens Ave (Control 17)
PROVIDENCE	Rosebank St
PROVIDENCE	Plant 19 Holder
PROVIDENCE	Providence Plant Intermediate Outlet Pressure
PROVIDENCE	Providence Plant 18" Line
PROVIDENCE	Providence Plant Dey St Outlet Pressure
PROVIDENCE	Providence GS
PROVIDENCE	Allens Ave 18"line to 19 Fill line
PROVIDENCE	Dey St to 19 Fill Reg Pressure Cntrl
PROVIDENCE	City Pressure Reg Pressure Cntrl
PROVIDENCE	Huntington @ Westminster
PROVIDENCE	Niantic @ Pawnee (Inprogress)
SMITHFIELD	Smithfield GS 100 PSIG System
SMITHFIELD	Smithfield GS 35 PSIG System
SOUTH KINGSTOWN	Kingstown @ Ministrial (Inprogress)
WARWICK	Warwick @ West Shore Dr. (InProgress)
WEST WARWICK	Cowesset Rd
WESTERLY	Canal St (Duke)
WESTERLY	Canal St (Yankee)

NGrid Responses
Gas ISR - DPUC Set 3

National Grid's Proposed FY 2012

Gas

Draft Infrastructure, Safety, and Reliability Plan

National Grid Responses
to
Division's Third Set of Data Requests

Issued by the Division on
October 13, 2010

Division 3-1

Request:

Please provide the total number of low pressure services National Grid plan to replace. How many years will it take to replace them?

Response:

National Grid has approximately 62,000 unprotected steel services in Rhode Island of which 15,000 are high pressure services and 47,000 are low pressure services. In addition to the service replacements associated with the main replacement program, the Company plans to replace approximately 2,000 to 3,000 additional services each year using a risk-based prioritization approach (i.e. addressing high-pressure services with inside regulators first, low-pressure services with inside meters second , and high-pressure services with outside regulators third) By replacing services along with main replacement projects and replacing an additional 2,000 to 3,000 services under a risk-based prioritization approach annually, National Grid will replace all unprotected steel services in Rhode Island within 15 years.

Prepared by or under the supervision of: Susan Fleck

Division 3-2

Request:

Is the RI DOT project referenced on p.18 of the Company's filing (2.25 miles of 8" associated with downtown development project) reimbursable? If not, why?

Response:

The Public Works category consists of capital spending associated with gas infrastructure projects resulting from conflicts and encroachments arising out of third-party construction. This category of work is primarily driven by City and State construction projects. Select projects under this category of work are reimbursable based on existing agreements with various agencies. The identified funding in the ISR plan consists of capital spend *net* of reimbursements.

The project referenced on page 18 has been highlighted as a potential reimbursable RIDOT project. This project involves the demolition of the old I-195 highway, creation of new streets, extension of existing streets, and creation of new parcels of land for future commercial development. Generally, work associated with federally funded RIDOT projects, such as this one, is reimbursable when the State orders the utility to move its facilities. In this situation, however, RIDOT is not requiring that existing facilities be moved. Rather, RIDOT is asking National Grid to install new gas pipeline facilities in order to avoid excavating to install gas lines in the new roads shortly after they are built. National Grid will request reimbursement from RIDOT for this work and will proceed if a reimbursement agreement is approved.

Prepared by or under the supervision of: Susan Fleck

Division 3-3

Request:

Please explain why the compressor at the Exeter LNG plant is scheduled for replacement.

Response:

The Exeter LNG plant boil-off compressors are 38 years old and are part of the original equipment for the plant. Because of the compressor's age, replacement parts necessary to maintain continuous compressor operation for the existing units have become difficult to obtain. Hence, National Grid believes that replacement is a more prudent proactive approach to maintaining plant reliability and safety.

Prepared by or under the supervision of: Susan Fleck

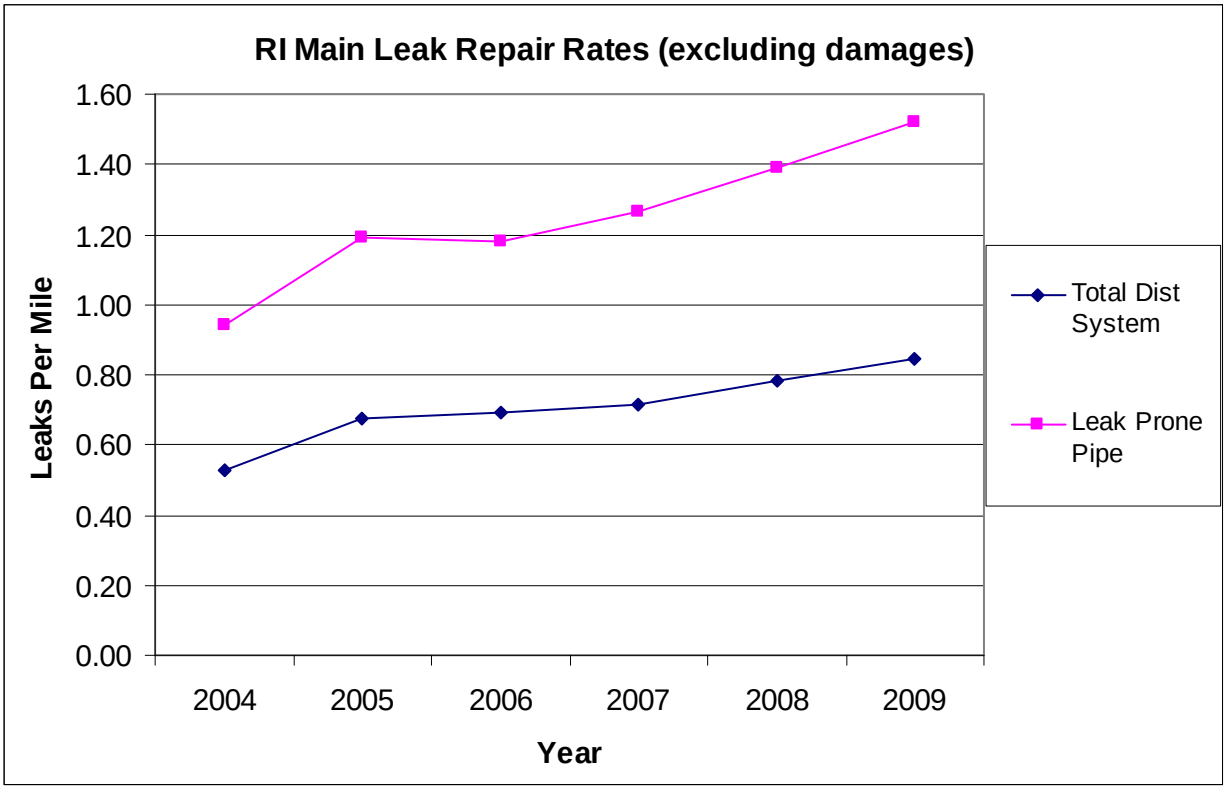
Division 3-4

Request:

Please provide a comparison of the leak rates for National Grid's RI gas system with the leak rates of other gas systems in the Northeast. Please provide any other relevant data or metrics that support the Company's main-replacement program.

Response:

As demonstrated in the chart below, leak repairs in RI have steadily increased over the last several years. National Grid anticipates this upward trend will continue for 2010 and for future years without the level of leak-prone pipe replacement proposed.



In recent years, the natural gas industry has taken significant steps to institute a range of pipeline infrastructure replacement programs in the interest of improving safety and service reliability. On a national basis, the U.S. Department of Transportation ("USDOT") recently

Division 3-4 (cont.)

promulgated a new rule entitled "Pipeline Safety: Integrity Management Programs for Gas Distribution Pipelines" ("DIMP"). 49 CFR Part 192. From an overall perspective, the rule specifies implementation of an organized approach to managing risks on gas distribution systems and is designed to result in a repeatable, justifiable, and uniform approach to system knowledge, threat determination, risk ranking, mitigation, regulatory compliance and reporting. The rule requires plan development and implementation by August 2, 2011

In keeping with the industry focus on the increasing age of leak-prone gas distribution infrastructure and the need to protect the public safety, the Company's analysis has identified the following key points:

- Pipeline corrosion experts such as Peabody have documented the exponential growth of gas leaks due to corrosion on bare steel as a function of time. This exponential growth rate begins after the first leak in a main segment occurs. A gas system with non-cathodically protected (unprotected) bare steel mains may be exposed to an acceleration of leakage incidents as its higher-risk pipes age.
- As of May 2010, 1,447 gas distribution operating companies submitted their 2008 reports to the USDOT, of which 132 companies had 10 miles or more of unprotected bare steel remaining in their distribution systems. National Grid-RI reported 423 miles of unprotected bare steel mains, which ranked it 28th highest out of the 132 companies and 2nd highest among regional companies.
- In 2009, the number of miles of unprotected bare and unprotected coated steel main[1] on the National Grid-RI system represented 21.5% of its total inventory of mains. National Grid-RI repaired or eliminated 843 corrosion leaks on mains in 2008. National Grid-RI estimates that approximately 90% of the corrosion leaks on mains were on bare steel. Bare steel is known in the gas industry as a higher risk piping material with regard to corrosion leakage over time, as evidenced by the fact that USDOT no longer allows it for new installations. In addition it is often difficult to cost-effectively cathodically protect such mains.

Normalizing USDOT annual leak data in order to compare National Grid-RI's leak rates on mains to other regional gas distribution companies indicates that in 2008 the Company's leak rates on mains were higher than regional companies under each of the three methods used to calculate leak rates on mains. On the table below, the three leak-rate methods are used to compare the Company and regional companies. Additionally, the table provides a cast-iron leak rate. Since the cast iron leak rate utilizes internal Company and

[1] Both unprotected bare and unprotected coated steel pipe, along with cast, wrought and ductile iron that were remaining in service on gas distribution systems are known to be leak prone piping materials.

Division 3-4 (cont.)

similar data is not available for regional companies, the table does not include a comparison with other regional companies based on a cast-iron leak rate calculation.

Leaks per mile	National Grid-RI	Regional Co's
Aggregate leak rate on all mains	0.78	0.40
Leak prone mains	1.45	1.04
Unprotected steel mains	1.27	1.02
Cast iron mains	1.62	NA

- Based on 2008 USDOT data, the corrosion leak rate on mains, (the number of gas leaks due to corrosion repaired or eliminated on mains per mile of unprotected bare and unprotected coated steel mains) for National Grid-RI was 1.27. This was higher than the weighted average rate of 0.77 for national companies and 1.02 for regional companies (not including National Grid-RI). In 2009, National Grid-RI's corrosion rate improved to 1.14.
- For the period 2004 through 2008, National Grid-RI replaced its unprotected bare-steel main at an average rate of 8.1 miles per year or 1.9 percent per year. At this rate, National Grid-RI would replace the remaining inventory of unprotected bare-steel main in 54 years. In 2009, National Grid-RI replaced 14 miles of unprotected bare-steel main which equates to a rate of 3.1 percent per year. At this rate, it would take 31 years to replace its remaining unprotected bare steel.

  For FY2010, the initial program included 35 miles of leak prone pipe replacement (28 miles of unprotected steel and 7 miles of cast iron and associated service replacements). This equates to a replacement rate of approximately 2.2% of the company's leak-prone pipe. If the Company continues to replace these mains at this rate it would take over 45 years to replace its inventory of leak-prone pipe (1,577 miles).

  National Grid-RI has recently increased the annual amount of leak-prone pipe it replaces to 40 miles and plans to increase this replacement rate to between 45-50 miles annually based on performance, public works activity and other contributing factors. Since the mains in the worst condition are prioritized and replaced earlier in the program, during that period the level of corrosion leaks on steel mains would be expected to over time drop.

  In 2009, National Grid reported having 885 miles of cast iron mains remaining in service. Cast iron mains on the National Grid-RI system experience a significant number of main breaks each year. From 2004 through 2009, there were 485 breaks or, on average, 81 cast iron main breaks per year. National Grid has observed a correlation between the numbers

Division 3-4 (cont.)

of breaks each year and the severity of the winter season (as in the number of heating degree days), with the more severe winter weather during 2009 contributing to a higher

numbers of breaks for that year. National Grid-RI has also observed that cast iron mains eight inches and smaller in diameter experience a significantly greater number of breaks per mile than mains greater than eight inches in diameter. Furthermore, cast iron mains of four inches in diameter and smaller experience an even higher rate of breaks per mile. In 2009, 770 miles (87%) of National Grid-RI cast iron mains were eight inches in diameter or smaller and 388 miles (43%) were four inches in diameter or smaller.

In 2008, National Grid-RI's inventory of cast iron mains ranked 8th highest among national companies with 10 miles or more of unprotected bare steel mains and 2nd highest among regional companies.

- The National Grid-RI replacement rate for cast iron mains from 1999 through 2008 averaged 0.9% per year. In 2009, the rate was 1.2%, with all replaced mains being eight inches or smaller in diameter. At this rate, it would take approximately 80 years to replace the Company's remaining cast iron mains. Beginning in 2004, regional companies have replaced on average a greater percentage of cast iron mains than National Grid-RI and in 2008, the average replacement rate of cast iron for regional companies was 1.5%.
- Normalizing USDOT annual leak data in order to compare National Grid-RI's leak rates on services to other regional gas distribution companies indicates that in 2008, the Company's leak rates on services were lower than regional companies under each of the three methods used to calculate leak rates on services. For the leak-prone piping material leak rate calculation for gas services, the Company included the service material category of "Other" because it is our belief that the 1,470 services in the "Other" category are likely made of unprotected steel or wrought iron. The resulting values are illustrated in the following table:

Leaks per 1,000 Services	National Grid-RI	Regional Co's
Aggregate leak rate on all services	3.24	4.88
Leak prone services	8.19	12.58
Unprotected steel services	6.60	10.06

- In 2009, National Grid-RI reported having 62,462 unprotected bare and coated steel services active on its distribution system. In addition, National Grid-RI has 168 cast iron services remaining in service. Collectively, these leak-prone service materials represent approximately 33% of the inventory of distribution services on the National Grid-RI system.

Division 3-4 (cont.)

For the period 2000 through 2008, National Grid-RI generally experienced a lower corrosion leak rate on services than regional companies. In 2008, National Grid-RI experienced a corrosion leak rate equal to 6.6 gas leaks (repaired or eliminated) per 1,000 unprotected bare and unprotected coated steel services. This leak rate is lower than the 11.5 weighted average leak rate for national companies (not including National Grid-RI) and lower than the 10.0 weighted average leak rate for regional companies (not including National Grid-RI). In 2009, the Company's RI corrosion leak rate on services rose to 8.8. The increased leak rate in 2009, is likely due to the extra efforts by the Company to reduce its year-end backlog of leaks awaiting repair.

- National Grid-RI has significantly reduced its year-end backlog of leaks requiring repair from a high of 1,312 in 2004 to 77 in 2009. Although National Grid-RI has a large amount of unprotected steel mains and services remaining on the system, as well as a large amount of cast iron mains, it has taken efforts to meaningfully reduce its leak backlog to 77 leaks in 2009.

Prepared by or under the supervision of: Susan Fleck

Division 3-5

Request:

Please provide the time period necessary to replace the inventory of leak prone pipe.

Response:

National Grid has 885 miles of cast iron mains (770 miles of which is 8 inch or less) and 674 miles of unprotected steel mains. Based on replacing 40 miles in FY2011, 45 miles in FY2012, and 50 miles per year thereafter, the inventory of leak-prone pipe would be eliminated by 2042.

Prepared by or under the supervision of: Susan Fleck

Division 3-6

Request:

Please provide any studies, work papers or analysis that supports the effectiveness of installing cathodic protection on pre-DOT pipe.

Response:

National Grid has developed a strategy for effectively adding cathodic protection to pre-DOT Pipe to extend its useful life. That strategy is described below:

There are federal and state corrosion control requirements that are mandated for buried steel facilities. These requirements are applicable to all buried steel facilities installed before and after 1971. Corrosion management of pipe that was installed prior to 1971 is commonly referred to as "pre-DOT pipe," and protection of this population of pipe is completed only after comprehensive evaluation.

Below is a list of primary considerations used to evaluate the installation of cathodic protection on pre-DOT pipe, and to determine candidates for cathodic protection.

- Service life of unprotected steel is generally considered to be around sixty years. Protected steel is expected to provide at least 135 years of service or more (different soil environments and coating types affect the actual service life). Cathodic protection of pre-DOT pipe has historically focused on protecting the maximum length of pipe at the lowest cost regardless of vintage (lowest $/mile unit cost).

- Coatings are the first line of defense for mitigating corrosion. Factory installed coating systems have varied significantly through the years (e.g. asphalt, coal tar, X-tru, scotchkote, Pritec, and fusion bond epoxy). Modern coatings are much more effective at preventing corrosion than the coating systems that were used in the past

- Soil types affect corrosion rate and vary from very aggressive (salt water) to mild (sand), and have a direct relationship to cathodic-protection current-demand.

- It is more difficult to install cathodic protection in urban environments than in rural environments. Increased segment isolation requirements, interference effects, and restoration costs are the primary challenges in an urban environment.

The Company's work plan involves the cathodic protection of effectively coated steel distribution main, installed prior to 1971. This work typically requires electrical pipe segment

Division 3-6 (cont.)

isolation, installation of anodes and rectifiers, pipe coating repair, and installation of test stations.

It should be noted that not all targeted pre-DOT pipe can be cost-effectively cathodically protected. Actual pipe coating integrity and soil conditions will determine the degree of work required to cathodically protect pipe in the ground. Due to the associated variables, the Company has approximately 200 miles of the 251 miles of coated and unprotected steel which can potentially be cathodically protected. Pipe that requires excessive CP current and pipe segment isolation to meet established protection criteria will be dropped from the program (very high CP current demand leads to premature pipe coating failure and stray interference currents which can cause problems with neighboring buried facilities). Pipe that is dropped from the program will be considered effectively "bare," and will be considered for replacement.

Prepared by or under the supervision of: Susan Fleck