Raquel J. Webster
Senior Counsel

March 19, 2014

VIA HAND DELIVERY & ELECTRONIC MAIL

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02889

RE: Docket 4474 - National Grid's Proposed FY 2015 Gas Infrastructure, Safety, and Reliability Plan
Responses to PUC Data Requests – Set 3

Dear Ms. Massaro:

On behalf of National Grid,[1] I have enclosed National Grid's responses to the PUC's third set of data requests in the above-referenced matter.

Thank you for your attention to this transmittal. If you have any questions, please contact me at (781) 907-2121.

Very truly yours,

Raquel J. Webster

Enclosures

cc: Docket 4474 Service List
Steve Scialabba
Leo Wold, Esq.
James Lanni
Don Ledversis

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

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PUC 3-1

Request:

Please provide an inventory of gas mains in densely populated areas in Rhode Island, identifying the geographic area, type of main, the age (0-50 years, 50-75 years, 75 to 100 years and 100+ years) by material type and length.

Response:

National Grid reports "Miles of Main and Number of Services by Decade of Installation" annually, as required in U.S. Department of Transportation Pipeline and Hazardous Material Safety Administration's ("PHMSA"), Annual Report for the Gas Distribution System at Part B, section 4 ("Annual Report"). Please see Attachment PUC 3-1, which is a copy of the Annual Report.

In addition, please see the chart below for the material type and miles of mains by municipality.

PUC 3-1, page 2

Rhode Island Mains by Material in Units of Miles

Town	Bare Steel	Wrapped Steel	Plastic	Cast Iron	Ductile and Other
Barrington	7	16	62	11	1
Bristol	4	12	31	-	-
Burrillville	-	0	3	-	-
Central Falls	4	5	2	20	0
Coventry	1	33	49	-	-
Cranston	25	51	99	121	-
Cumberland	15	46	52	12	1
East Greenwich	2	23	33	-	-
East Providence	14	36	51	73	-
Exeter	0	5	5	-	-
Hopkinton	0	1	1	-	-
Johnston	14	33	39	20	-
Lincoln	4	64	19	17	5
Middletown	2	21	31	8	-
Narragansett	-	24	44	-	-
Newport	5	14	64	18	-
North Kingstown	5	58	82	0	-
North Providence	17	26	25	36	2
North Smithfield	5	9	13	3	0
Pawtucket	20	13	27	139	5
Portsmouth	0	24	26	-	-
Providence	13	48	88	278	0
Scituate	-	0	4	-	-
Seekonk	-	0	-	-	-
Smithfield	4	27	30	5	-
South Kingstown	0	31	33	-	-
Tiverton	3	0	16	-	-
Warren	2	10	17	3	0
Warwick	117	83	167	15	-
West Greenwich	-	2	2	-	-
West Warwick	3	34	30	-	-
Westerly	21	13	53	3	-
Woonsocket	13	22	28	48	1
Grand Total	320	784	1,227	831	16

Prepared by or under the supervision of: Walter F. Fromm

NOTICE: This report is required by 49 CFR Part 191. Failure to report can result in a civil penalty not to exceed 100,000 for each violation for each day that such violation persists except that the maximum civil penalty shall not exceed $1,000,000 as provided in 49 USC 60122.

OMB NO: 2137-0522
EXPIRATION DATE: 01/31/2014

U.S Department of Transportation
Pipeline and Hazardous Materials Safety Administration

Initial Date Submitted:	03/14/2014
Form Type:	INITIAL
Date Submitted:	

ANNUAL REPORT FOR CALENDAR YEAR 2013 GAS DISTRIBUTION SYSTEM

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2137-0522. Public reporting for this collection of information is estimated to be approximately 16 hours per response, including the time for reviewing instructions, gathering the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.

PART A - OPERATOR INFORMATION

(DOT use only) **20142641-21681**

1. Name of Operator	NIAGARA MOHAWK POWER CORP
2. LOCATION OF OFFICE (WHERE ADDITIONAL INFORMATION MAY BE OBTAINED)	
2a. Street Address	175 East Old Country Road
2b. City and County	Hicksville,Nassau
2c. State	NY
2d. Zip Code	11801
3. OPERATOR'S 5 DIGIT IDENTIFICATION NUMBER	13480
4. HEADQUARTERS NAME & ADDRESS	
4a. Street Address	40 SYLVAN RD.
4b. City and County	WALTHAM
4c. State	MA
4d. Zip Code	02451
5. STATE IN WHICH SYSTEM OPERATES	RI

PART B - SYSTEM DESCRIPTION

1.GENERAL

	STEEL									
	UNPROTECTED		CATHODICALLY PROTECTED							
	BARE	**COATED**	**BARE**	**COATED**	**DUCTILE IRON**	**COPPER**	**CAST/ WROUGHT IRON**	**PLASTIC**	**OTHER**	**TOTAL**
MILES OF MAIN	319.844	188.002	0.000	596.248	16.242	0.000	831.070	1227.158	0.007	3178.571
N0. OF SERVICES	41821.000	9566.000	0.000	10150.000	16.000	207.000	185.000	130002.000	984.000	192931.000

2.MILES OF MAINS IN SYSTEM AT END OF YEAR

MATERIAL	UNKNOWN	2' OR LESS	OVER 2' THRU 4'	OVER 4' THRU 8'	OVER 8' THRU 12'	OVER 12'	TOTAL
STEEL	0.002	393.387	239.801	317.869	109.404	43.631	1104.094
DUCTILE IRON	0.000	0.049	6.838	8.586	0.769	0.000	16.242
COPPER	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CAST/WROUGHT IRON	0.000	3.119	341.922	374.630	74.345	37.054	831.070
PLASTIC PVC	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PLASTIC PE	0.000	629.589	250.331	339.029	8.208	0.001	1227.158
PLASTIC ABS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PLASTIC OTHER	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHER	0.006	0.000	0.000	0.001	0.000	0.000	0.007
TOTAL	0.008	1026.144	838.892	1040.115	192.726	80.686	3178.571

3.NUMBER OF SERVICES IN SYSTEM AT END OF YEAR **AVERAGE SERVICE LENGTH: 66.09**

MATERIAL	UNKNOWN	1' OR LESS	OVER 1' THRU 2'	OVER 2' THRU 4'	OVER 4' THRU 8'	OVER 8'	TOTAL
STEEL	570.000	19709.000	39014.000	1853.000	333.000	58.000	61537.000
DUCTILE IRON	0.000	0.000	1.000	4.000	11.000	0.000	16.000
COPPER	1.000	204.000	2.000	0.000	0.000	0.000	207.000
CAST/WROUGHT IRON	0.000	1.000	24.000	90.000	70.000	0.000	185.000
PLASTIC PVC	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PLASTIC PE	620.000	68777.000	56728.000	3234.000	590.000	53.000	130002.000
PLASTIC ABS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PLASTIC OTHER	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHER	805.000	39.000	135.000	5.000	0.000	0.000	984.000
TOTAL	1996.000	88730.000	95904.000	5186.000	1004.000	111.000	192931.000

4.MILES OF MAIN AND NUMBER OF SERVICES BY DECADE OF INSTALLATION

	UNKNOWN	PRE-1940	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019	TOTAL
MILES OF MAIN	392.248	553.501	89.962	193.561	472.886	221.722	366.638	381.932	294.683	211.438	3178.571
NUMBER OF SERVICES	7911.000	16137.000	4985.000	7317.000	15346.000	17609.000	34226.000	39121.000	32397.000	17882.000	192931.000

PART C - TOTAL LEAKS AND HAZARDOUS LEAKS ELIMINATED/REPAIRED DURING THE YEAR

CAUSE OF LEAK	MAINS		SERVICES	
	TOTAL	HAZARDOUS	TOTAL	HAZARDOUS
CORROSION	228	130	360	246
NATURAL FORCES	54	54	5	5
EXCAVATION DAMAGE	35	34	80	80
OTHER OUTSIDE FORCE DAMAGE	1	1	2	2
MATERIAL OR WELDS	3	3	15	12
EQUIPMENT	49	25	79	47
INCORRECT OPERATIONS	0	0	0	0
OTHER	732	297	182	152

NUMBER OF KNOWN SYSTEM LEAKS AT END OF YEAR SCHEDULED FOR REPAIR : **26**

PART D - EXCAVATION DAMAGE

NUMBER OF EXCAVATION DAMAGES: 76

NUMBER OF EXCAVATION TICKETS : 54714

PART E-EXCESS FLOW VALUE(EFV) DATA

NUMBER OF EFV'S INSTALLED THIS CALENDER YEAR ON SINGLE FAMILY RESIDENTIAL SERVICES: 3740

ESTIMATED NUMBER OF EFV'S IN SYSTEM AT THE END OF YEAR: 40796

PART F - LEAKS ON FEDERAL LAND

TOTAL NUMBER OF LEAKS ON FEDERAL LAND REPAIRED OR SCHEDULED TO REPAIR: 0

PART G-PERCENT OF UNACCOUNTED FOR GAS

UNACCOUUNTED FOR GAS AS A PERCENT OF TOTAL INPUT FOR THE 12 MONTHS ENDING JUNE 30 OF THE REPORTING YEAR.

INPUT FOR YEAR ENDING 6/30: 3.4%

PART H - ADDITIONAL INFORMATION

Service leak repairs (Total and Hazardous) include 1 hazardous above ground leak repairs (1 Other Outside Force Damage)

PART I - PREPARER AND AUTHORIZED SIGNATURE

John DiStefano,Principal Engineer
(Preparer's Name and Title)

(516) 545-3376
(Area Code and Telephone Number)

John.Distefano@nationalgrid.com
(Preparer's email address)

(516) 545-6116
(Area Code and Facsimile Number)

PUC 3-2

Request:

Of the areas listed in Data Request 3-1, please indicate which are included in the FY 2015 main replacement program.

Response:

Please see the chart below for the FY 2015 Main Replacement Program miles.

Municipality	**Miles of Planned Replacement in FY 15**
Barrington	2.8
Bristol	1.7
Central Falls	1.1
Cranston	3.8
E. Greenwich	0.2
E. Providence	6.3
Johnston	3.0
Middletown	1.7
Newport	1.2
N. Kingstown	3.1
N. Providence	1.0
Pawtucket	1.9
Providence	10.0
Smithfield	0.2
Warren	0.2
Warwick	10.0
Westerly	3.9
Woonsocket	1.0
Total	53.1

Prepared by or under the supervision of: Walter F. Fromm

PUC 3-3

Request:

Please explain how National Grid prioritizes its main replacement work.

Response:

National Grid identifies, evaluates, and prioritizes gas main segments for replacement in accordance with Company Procedure ENG04030, a copy of which is provided as Attachment PUC 3-3. The Company considers the following factors in prioritizing main replacement work:

1) Requests from the Field Operations personnel working on mains, which are reviewed throughout the year

2) Mains located in Public Improvement Job Areas, which are also reviewed throughout the year coordinated by Field Operations personnel with Public Works Engineers

3) Pipe segment analysis using the National Grid Risk Factor formula. This formula takes into account the following major factors in determining relative risk of each segment:

    - 10-year leak repair history (number of leak repairs)
    - Class of leak repaired
    - Number and type of buildings in area
    - Pipe size and material

4) Lab failure analysis reports provided and reviewed by Gas Distribution Engineering for systemic issues throughout the year

Prepared by or under the supervision of: Walter F. Fromm

Identification, Evaluation and Prioritization of Steel Distribution Main Segments for Replacement ENG04030

1. Purpose

This procedure describes and details the identification, evaluation, and prioritization of distribution main segments for replacement, and prescribes methods to be used for corrective action.

Potential areas of active corrosion are identified using leakage surveys in conjunction with an analysis of the corrosion and leak history records.

2. Responsibilities

Distribution Engineering or designee shall be responsible to:

- Gather and evaluate gas facility and leak data, and determine required calculations.
- Determine qualification and prioritization procedure and remedial action for active corrosion, non-active continuing corrosion, and other systemic integrity issues.

Main and Service Replacement or designee shall be responsible for:

- Identifying main segments for replacement and prioritizing them according to this procedure.

3. Personal & Process Safety

All required PPE shall be worn or utilized in accordance with the current National Grid Safety Policy when performing tasks associated with this document.

4. Operator Qualification Required Tasks [Qualified or Directed & Observed]

None

5. Content

5.1 Identification of Main Segments for Replacement

a. Main segment candidates are identified through four avenues:
   1) Field Requests, which will be reviewed throughout the year.
   2) Mains located in Public Improvement Job Areas, which will also be reviewed throughout the year, as requested by Field Operations and/or Public Works employees.
   3) Annual screenings by Main and Service Engineering, as deemed appropriate. Screenings will vary among the regions, based on the data and tools available for the systems.
   4) Lab failure analysis reports reviewed by Distribution Engineering for systemic issues.

b. All identified main segment candidates shall be evaluated and prioritized by Main and Service Engineering in accordance with the criteria set forth in this procedure. Minimum segment lengths for screening and engineering review will vary among the regions, however, no Engineering review is required for O&M replacements up to 50 feet. Segments identified by Distribution Engineering for systemic integrity issues will be replaced and prioritized as determined appropriate by Distribution Engineering.

5.2 Evaluation/Prioritization of Steel Main Segments for Replacement

a. Data Collection - Minimum Data Required:
   1) All Repaired Corrosion Leaks on Main Segment for the last 10 years (not service leaks)

2) All Open Leaks that are believed to be on the actual Main Segment

b. For all applicable leaks, the following data is required:
   1) Leak Number
   2) Date (date found for open leaks, date repaired for repaired leaks)
   3) Leak Class (original class for open leaks, repaired class for repaired leaks)
   4) For repaired leaks, the following additional data is also required:
      i. Number of Clamps Installed to Repair and specific clamp locations
      ii. Condition of Main When Repaired
      iii. Address Based Leak Location
      iv. Length of segment exhibiting significant leak activity (i.e. from first leak to last leak).
      v. Building Types in Area of Main Segment (None, Single Family Houses, Small Buildings, Public Buildings)

c. Calculate a main deterioration factor ("D") using the formula:

$$D = N \times 500 / L_{(calc)}$$

Where:
$L_{(calc)}$ = Length of Segment exhibiting significant leak activity (i.e. first leak to last leak).

The segment length used in calculations is not necessarily the total length being considered for replacement. "L" should be determined by the evaluating engineer as the length of the segment exhibiting significant leak activity. In no case should the length used for calculations extend beyond the locations of the leaks).

and

N = Repair Factor (within the defined "L_{calc}").

1) If the leak was repaired with 1 clamp, by another method, or is still open, N=1
2) If the leak was repaired with 2-3 clamps, N=2
3) If the leak was repaired with 4-5 clamps, N=3
4) If the leak was repaired with 6-7 clamps, N=4
5) If the leak was repaired with >7 clamps, N=5

THE SUM OF ALL THE "N"s FOR EACH LEAK IS PLUGGED INTO THE FORMULA

This method estimates the deterioration according to the actual number of physical repairs and normalizes it for the length of the segment.

d. Calculate an incident probability factor ("P") using the formula:

$$P = \{[(\#\ Class1\ Leaks/0.5) + (\#\ Class2A\ Leaks/1.5) + (\#\ Class2\ Leaks/2) + (\#\ Class3\ Leaks/3)] \times 500\} / L_{(calc)}$$

This method estimates public safety incident probability by weighting each leak based on how far the gas migrated toward buildings, again normalized according to the segment length. (Note – If leak class is unknown, Class 2A will be assumed).

e. Calculate a risk factor ("R") using the formula:

$$R = P \times C$$

Where:

P = Probability Factor Calculated in previous step.
C = Consequence Factor

1) If there are no buildings in the area, C = 0
2) If there are only single family homes, C = 1
3) If there are small buildings (multi-family, strip mall, etc), C = 1.2
4) If there are public buildings (school, church, hospital, etc) C = 1.5

This is the standard Risk Analysis calculation where Risk is defined as the product of the likelihood of an event and the potential consequence of that event. Consequences increase with building size and number of people affected.

f. Calculate the preliminary prioritization factor ("Pr") using the formula:

$$Pr = D + R$$

Where:

D = Deterioration Factor Calculated in "c".
R = Risk Factor Calculated in "e".

The prioritization calculation takes into account both the deterioration of the main and the risk to public safety.

g. The following adjustments may be needed:

1) Before making a final determination and prioritization of a main segment replacement, the details of the job are reviewed and "engineering judgment" is applied where appropriate. This application may result in the following types of adjustments:
   i. Changing the priority of the job
   ii. Increasing or decreasing the job length/scope
   iii. Breaking the job into smaller segments
   iv. Merging several segments into one job
2) These adjustment may be made based on the following types of information, if available and applicable:
   i. Analysis of the age of the leaks and any increasing frequency of leak occurrences
   ii. Pipe vintage and service insert activity associated with the main
   iii. Service leaks at the main connection due to corrosion
   iv. Adjustments based on very long or very short segments
   v. Observed pipe condition from leak repair data

vi. Observed pipe condition from recent field exposure
vii. Clustering of repairs and/or clamps along the segment
viii. Other replacement jobs in the vicinity
ix. Cathodic protection systems in place
x. Specific locations of intersections, fittings, material transitions, diameter transitions, etc.
xi. Customer complaints, Executive complaints, Regulatory Agency complaints
xii. Corporate good will
xiii. Unusual hazards or exposure in the area
xiv. Proximity to gas regulating equipment
xv. Proximity to transmission main
xvi. Unusual difficulty or expense of repairs
xvii. Main location
xviii. Identification of outdated construction methods or problematic materials or fittings
xix. Depth of cover and soil conditions
xx. High open leak counts
xxi. Water intrusion or other geographic considerations
xxii. Any special or unusual conditions or considerations identified by Field Operations
xxiii. Any other safety, integrity, operational or economic factors that are available and deemed appropriate

Segments that qualify based on their preliminary prioritization calculation may not be disqualified by adjustments.

h. Qualification of job for replacement:

1) Jobs will be approved and prioritized based on the calculated Prioritization Factor “Pr” and applied adjustments. Enough jobs should be approved to accommodate the replacement levels determined by the model(s) in use at the time.

Some jobs will be mandatory to replace.

2) In general, a condition of “Active Corrosion” will be determined when the preliminary Prioritization Factor (“Pr”) calculation exceeds 12.
3) Each region will be further responsible for declaring jobs as “Active Corrosion” by modifying this criterion based on specific regional operating conditions as required, in order to comply with any more stringent definitions provided by the regulators in the State(s) in which the region operates.
4) Any unprotected bare steel main containing “Active Corrosion” must be replaced within two years in NY and three years in MA – unless extenuating circumstances make it unfeasible to do so, in which case, other appropriate mitigative measures are to be taken.
5) Any unprotected coated steel main containing “Active Corrosion” must have cathodic protection engineered and installed within one year or be replaced within two years in NY

and three years in MA - unless extenuating circumstances make it unfeasible to do so, in which case, other appropriate mitigative measures are to be taken.

6) Any cathodically protected main containing "Active Corrosion" must be brought up to acceptable cathodic protection within one year or replaced within two years in NY and three years in MA - unless extenuating circumstances make it unfeasible to do so, in which case, other appropriate mitigative measures are to be taken. (An example of such a circumstance may be when a street is under guarantee or a moratorium from excavation).

7) In NYC and LI, another label is given to each job to provide a macro view as to the type of work to be performed throughout the year.
   i. A "TS 300" label is associated with any job exceeding the preliminary Prioritization Factor ("Pr") calculation of 12, known as "Active Corrosion". This label is also given to both cast iron and plastic jobs, however it is known that main segment is not actively corroding and there is no mandated timetable to replace.
   ii. A TS 900 label is given to any job which has received additional points from Public Works considerations (as described below).
   iii. A TS 800 label is given to the remainder of the jobs in which the preliminary Prioritization Factor ("Pr") calculation does not exceed 12 and will be replaced according to resources and replacement level recommendations.

i. Impact Identification:

1) Every approved job should be processed through the Planning and Corrosion areas of Gas Systems Engineering for:
   i. Sizing (determining the appropriate replacement material and diameter).
   ii. Determining if the replacement will have any impact on existing cathodic protection systems.
   iii. Determining if abandonment is an appropriate option over replacement.
   iv. Determining if a system uprating is an appropriate option as part of the replacement.

5.3 Evaluation/prioritization of cast iron main segments for replacement

a. Cast Iron Main Segments will be evaluated in a similar manner as Steel Main segments, where the Prioritization factor will be the sum of the Deterioration Factor and the Risk factor (Pr = D + R).

b. Candidates are reviewed based primarily on breakage and/or graphitization history; and all segments that contain 2 or more breaks and/or graphitization repairs within 400 ft. must be reviewed.

c. If the candidate segment has had 2 or more breaks and/or graphitization repairs within 400 ft. and the MAOP is greater than six inches of water column – the segment has automatic approval for replacement. The Prioritization score will automatically be set at 12 (TS300)

d. If the candidate segment doesn't have at least 2 breaks and/or graphitization repairs or if the pressure is six inches of water column or less – approval will be based on the Prioritization calculation
   i. If Pr $\geq$ 12, replacement will be required (however, a cast iron segment is not deemed active corrosion)

ii. If Pr < 12, prioritize and replace according to resources and replacement level recommendations

e. The Repair Factor "N" (as defined 5.2 – c for steel evaluation), will be assigned for each leak, as follows:

1) For cast iron – main breaks, graphitization (corrosion of cast iron) and joint leak repairs are examined.

i. If the leak is still open, N = 1

ii. If the leak was repaired only by joint sealing, N = 0.5 (however, in NYC, because a major percentage of joints have previously been sealed, no more than 5 years of joint leak history should be counted)

iii. If the leak was a break or crack, N = 3

iv. If the leak was a the result of graphitization, N = 3

f. Engineering judgment should also be applied to both the prioritization and determination of the segment length to be replaced based on the pressure, diameter, dates of failures, surrounding areas, etc.

5.4 Evaluation/prioritization of plastic main segments for replacement

a. Vintage Plastic Main Segments shall be evaluated by Distribution Engineering based on Lab Failure Analysis Reports that are reviewed for systemic issues.

- When Distribution Engineering determines that a systemic issue exists in a specific main segment due to improper fusion or other construction defects, the entire affected section of main will be qualified as an automatic prioritization calculation of 12 and scheduled for replacement within two/three years (based on region).
- When Distribution Engineering determines that a systemic issue exists in a specific main segment due to slow crack growth resulting from prior squeeze offs, point loading failures, material deterioration, etc.; the entire affected section of main will be qualified as an automatic prioritization calculation of 12 and scheduled for replacement within two/three years (based on region).

b. Other Plastic Main Segments (including non-vintage plastic) will be evaluated in a similar manner as Steel Main segments, where the Prioritization factor will be the sum of the Deterioration Factor and the Risk factor (Pr = D + R).

c. For plastic pipe segments in "b", above, the following criteria shall apply:

1) For plastic – previous squeeze-offs, point loading failures (eg – rock impingement) and material defects (eg – cracking) and construction defect failures (eg – butt fusion joint) are examined.

Where:

N = Repair Factor (within the defined "L")

i. If the leak is still open, N = 1

ii. If the leak was the result of an improper squeeze-off, N = 2 x (the number known squeeze-offs)

iii. If the leak was the result of a point loading failure, N = 2

iv. If the leak was a the result of a construction defect, N = 3

v. If the leak was a the result of a material defect, N = 3

5.5 Reinforcements and Jobs in public improvement areas

a. Additional adjustments may be applied for candidate segments in public works areas or for which reinforcement opportunities have been identified - by the addition of a Public Works (PW) and/or Reinforcement (RI) factor to the Prioritization calculation:

$$Pr = D + R + PW + RI$$

1) For Road Resurfacing, PW = 2.4
2) For Road Reconstruction, PW = 4.2
3) For Size-Pressure Upgrade Reinforcement, RI = 2.5

These factors are applied because of potential cost savings in combining main replacements with other work, as well as anticipated avoidance of performing work on protected streets that were recently improved.

5.6 Distribution Integrity Management Program (DIMP) Prioritization Factors

a. Additional adjustments may be applied for candidate segments which belong to an asset group which has been identified by National Grid's Distribution Integrity Management Program (DIMP) for accelerated attrition by the addition of a DIMP (IM) factor to the Prioritization calculation:

$$Pr = D + R + PW + RI + IM$$

These factors are applied in order to help accelerate the attrition of mains which belong to an asset group which is known to have a higher likelihood of incident or is of a high relative risk.

b. The current IM factors for each applicable Operating Region and Asset Class can be found in Attachment 1, DIMP Factor List 2012. Distribution Engineering may update these factors at any time (without the need to update this procedure) and Main and Service Replacement should utilize the most recent factors.

IMPORTANT: These adjustments (except "IM") are only to be used to qualify a job that previously did not qualify, or to upgrade the priority of a qualified job. As they have no direct connection on the actual performance of the specific pipe segment being evaluated, they may not upgrade a job to active corrosion status (Pr > 12).

6. Knowledge Base & References (Click here)

Knowledge Base		References
1 - Compliance History	5 - Job Aid	1 - Regulatory – Codes
2 - Data Capture	6 - Learning & Development	2 - Technical Documents
3 - Definitions	7 - Standard Drawings	3 - Tools Catalog
4 - Document History	8 - Tools & Equipment	

7. Attachments

Attachment 1: DIMP Factor List 2012

PUC 3-4

Request:

Please provide the frequency of leak detection activities in urban areas.

Response:

Leak detection surveys are conducted by the Company on the following schedule:

- Services are surveyed every three (3) years
- Mains are surveyed every three (3) years

In addition, the Company also conducts the following survey activities:

- Winter Frost Patrol Surveys–Determined by the Construction and Maintenance Manager to survey all cast iron and ductile iron mains.
- Cast Iron Encroachments are surveyed daily until any encroachment has been resolved.
- Blasting Survey Ares are surveyed pre and post blasting.
- Available Opening Survey: Walking survey within the Business District areas. Conducted during the Winter months: Minimum of (1) completed cycle.
- Business District Survey: (Mobile survey of Business District areas) Conducted during Winter months: Minimum of one (1) completed cycle. (initiated by Leak Survey Supervisor).
- Leakage Survey / All pipe: Three year cycle to complete all gas services and main pipeline. (Walking Survey).

The Company monitors the leak detection as follows:

PUC 3-4, page 2

Leak Monitoring Schedule

Rhode Island Gas Operations monitors and addresses all pending leaks as discovered as follows.

- **Type 1**: Type 1 leaks shall be made safe and monitored daily until the necessary actions are taken to eliminate the Type 1 leak.

- **Type 2**: Leaks that are classified as Type 2 shall be monitored within the 60 days for migration areas that are considered paved and 120 days for migration areas that are not considered unpaved.

- **Type 2A**: Leaks that are classified as Type 2A shall be monitored within the 14 days for migration areas that are considered paved and 30 days for migration areas that are not considered unpaved.

- **Type 3**: Leaks that are classified as Type 3 shall be monitored within the month of the one-year anniversary that the leak was discovered.

The Company re-checks leaks repaired as follows:

Re-check Leak Process:

- **Type 1**: Type 1 leaks shall be checked the day after and within 30 days of the repair.

- **Type 2 Leaks with Manhole Readings**: Type 2 Leaks with manhole readings shall be checked within 30 days of the repair.

- **Type 2A**: Type 2A leaks shall be checked within 30 days of the repair.

Data for the surveillance and re-check of leaks is recorded and maintained by the Company. The Company's technicians are required to take appropriate action if the classification of the leak subsequently changes.

PUC 3-5

Request:

Please provide a copy of National Grid's gas emergency response plan for Rhode Island.

Response:

National Grid's current Emergency Response Plan (the "Plan") is being revised and will be available in May. However, if the PUC would like a copy of the current version of the Plan, the Company can produce it.