

**Norther Utilities, Inc. 2018 Annual Meter Testing Report
(Calendar Year 2017)**

1. Please provide a written narrative summarizing overall meter testing program results with observations related to year over year average cost per meter test variances by class.

Response: The year over year average cost per meter variance by class for years 2015, 2016, and 2017 are illustrated below. The data shows that the average cost per meter test did not vary significantly year-over-year.

Class A – Small Diaphragm 0 – 500 CFH

Test Year	Meter Tests	Total Expense	Cost per Meter
2017	2348	\$ 28,435.84	\$ 12.11
2016	2876	\$ 31,902.37	\$ 11.09
2015	2993	\$ 35,767.69	\$ 11.95
Average	2739	\$ 32,035.30	\$ 11.72

Class B – Large Diaphragm > 500 CFH

Test Year	Meter Tests	Total Expense	Cost per Meter
2017	146	\$ 8,752.44	\$ 59.95
2016	140	\$ 8,118.67	\$ 57.99
2015	158	\$ 9,174.01	\$ 58.06
Average	148	\$ 8,681.71	\$ 58.67

Rotary

Test Year	Meter Tests	Total Expense	Cost per Meter
2017	339	\$ 24,473.67	\$ 72.19
2016	346	\$ 24,350.33	\$ 70.38
2015	299	\$ 21,119.23	\$ 70.63
Average	328	\$ 23,314.41	\$ 71.07

**Norther Utilities, Inc. 2018 Annual Meter Testing Report
(Calendar Year 2017)**

2. Please provide a reconciliation of actual outsourced gas meter testing program costs to identified costs in its third-party vendor's purchase order agreement(s).

Response: Please see Attachment 1 - Gas Testing Invoice Reconciliation 2017.

3. Please provide a cost benefit analysis that compares sufficiently detailed actual costs of outsourcing meter testing for each of Unitil's three gas divisions to updated cost estimates to bring the meter testing and servicing operation in-house.

Response: Please see Attachment 2 Unitil - Gas Testing Facility Cost Analysis 2017.

4. For any group of meters that have been flagged with accuracy rates of 87% or less, please provide an updated status of what steps have been taken by Northern or its meter testing program vendor, to determine the defect responsible.

Response: Annual tests did not flag any groups of meters as having accuracy rates of 87% or less.

5. Please provide a detailed analysis and explanation of what is causing higher occurrence of accuracy issues of rotary meters being used by Northern.

Response: Northern is performing an analysis to determine what is causing the rotary meters to have lower accuracy rates than other classes of meters. The lower results are not specific to a particular size, model, or year of manufacture. Northern has contacted the rotary meter manufacturer to inquire about a cause. The manufacture responded that they are not aware of any issues or defects.

Northern is scheduled to meet with the testing vendor and meter manufacturer subject matter expert in April of 2018 to review testing procedures and observe testing practices.

Northern will provide Staff with a report of findings when analysis is complete.

6. Please provide an explanation of how Unitil Service's other affiliated gas divisions seem to be insulated from accuracy problems for rotary meters.

Response: The other affiliated gas companies are not subject to the same reporting requirement, and do not employ the reporting mechanisms that are used in New Hampshire. Accordingly, this type of data is not readily available, and there has been no determination that the other affiliated gas divisions are insulated from this issue.

7. Please provide when the accuracy of rotary meters first became an issue.

Response: Data indicates that rotary meter test results started to appear lower in 2014 when U&I became the Company's testing vendor.

**Norther Utilities, Inc. 2018 Annual Meter Testing Report
(Calendar Year 2017)**

8. Please describe what steps Northern and its vendor have taken to resolve accuracy problems with rotary meters.

Response: Northern reached out to the manufacturer, Dresser Meter, and U&I to review testing procedures. An on-site meeting is scheduled with Dresser testing engineers and U&I in Pennsylvania in April 2018, to observe testing practice and to ensure that rotary meters are tested according to Dresser manufacturer guidelines.

The Company's metering personnel are also working with Gas Operations to ensure all rotary meters are properly removed from the field without adding debris to the inside of the meter as well as ensuring the proper procedure of removing oil from the rotary meter's index.

U & I UTILITIES & INDUSTRIES, INC. INVOICE

Customer Orders
 1995 Industrial Blvd
 Reynoldsville, PA 15851-0190
 Phone: (814) 653-8269 or 653-8411
 Fax: (814) 653-7306

Please Remit Payment To:
 UTILITIES & INDUSTRIES
 c/o DBI Inc.
 660 Longview Rd, Suite 2
 Fairmount City, PA 16224

Invoice Number: 27580
 Invoice Date: 07/31/17
 Page: 1

Freight is F.O.B. Plant.

All sales are subject to Net 30 Day payment terms.

A service charge of 1.5% per month will be added to any unpaid balance of 30 days or more.

B NORTHERN UTILITIES NH/ME
I 6 LIBERTY LANE WEST
L HAMPTON, NH 03842-1720
L ATTN: ACCOUNTS PAYABLE

S NORTHERN UTILITIES NH
H 325 WEST ROAD
I PORTSMOUTH, NH 03801
P ATTN: STEVEN HAMBLÉN

Sales Ord No: 24913
 Order Date: 07/31/17
 Account Cd: UNITIL PL
 Salesperson: 0

Taxable: N
 Pmt Terms: NET 15
 Shipper No: 0
 Ship Date: 07/31/17

Purchase Order: NNH70752
 Ship Via: UI TRUCK
 FOB: PLANT
 Job Number:

Line	Qty Shipped	Backordered	Part Number/Description	Discount	Price	UM	Extended Price
91			0 CLASS J REP DOM	0.00	\$10.0100	EA	\$910.91
			UNITIL INTEST/CONDEMN DOM				
1			0 CLASS J REP 400	0.00	\$10.0100	EA	\$10.01
			UNITIL INTEST/CONDEMN 400'S				
2			0 CLASS J REP LC	0.00	\$58.6100	EA	\$117.22
			UNITIL INTEST/CON LC 700-1000				
34			0 CLASS J REP ROT	0.00	\$71.2600	EA	\$2,422.84
			UNITIL INTEST/CON ROT 1.5M-7M				
1			0 INTEST DOM	0.00	\$28.5600	EA	\$28.56
			SPECIAL TEST DOMESTIC METER				
2			0 ROTARY INTEST	0.00	\$47.9400	EA	\$95.88
			SPECIAL TEST ROTARY METER				
1			0 REPAIR CLASS A	0.00	\$22.9500	EA	\$22.95
			AMERICAN/ROCKWELL DOM METERS				
61			0 REPAIR CLASS B	0.00	\$35.6000	EA	\$2,171.60
			AMERICAN/ROCKWELL DOM METER				
4			0 REPAIR CLASS C	0.00	\$40.9100	EA	\$163.64
			AMERICAN/ROCKWELL DOM METER				
1			0 EXTRA PARTS DOM	0.00	\$258.2600	EA	\$258.26
			DOMESTIC EXTRTA PARTS				
1			0 REPAIR CLASS A	0.00	\$22.5600	EA	\$22.56
			400 CLASS METERS				
3			0 REPAIR CLASS B	0.00	\$36.5500	EA	\$109.65
			400 CLASS METERS				
3			0 REPAIR CLASS C	0.00	\$42.5000	EA	\$127.50
			400 CLASS METERS				
1			0 EXTRA PARTS DOM	0.00	\$88.6700	EA	\$88.67

U & I UTILITIES & INDUSTRIES, INC. INVOICE

Customer Orders
 1995 Industrial Blvd
 Reynoldsville, PA 15851-0190
 Phone: (814) 653-8269 or 653-8411
 Fax: (814) 653-7306

Please Remit Payment To:
 UTILITIES & INDUSTRIES
 c/o DBI Inc.
 660 Longview Rd, Suite 2
 Fairmount City, PA 16224

Invoice Number: 27580
 Invoice Date: 07/31/17
 Page: 2

Freight is F.O.B. Plant.

All sales are subject to Net 30 Day payment terms.

A service charge of 1.5% per month will be added to any unpaid balance of 30 days or more.

B NORTHERN UTILITIES NH/ME
I 6 LIBERTY LANE WEST
L HAMPTON, NH 03842-1720
L ATTN: ACCOUNTS PAYABLE

S NORTHERN UTILITIES NH
H 325 WEST ROAD
I PORTSMOUTH, NH 03801
P ATTN: STEVEN HAMBLÉN

Sales Ord No: 24913
 Order Date: 07/31/17
 Account Cd: UNITIL PL
 Salesperson: 0

Taxable: N
 Pmt Terms: NET 15
 Shipper No: 0
 Ship Date: 07/31/17

Purchase Order: NNH70752
 Ship Via: UI TRUCK
 FOB: PLANT
 Job Number:

Line	Qty Shipped	Backordered	Part Number/Description	Discount	Price	UM	Extended Price
EXTRA PARTS 400 CLASS METERS							
5			0 CLASS B REPAIR AL800/1000 LC METER	0.00	\$157.3500	EA	\$786.75
1			0 EXTRA PARTS LC LARGE CAPACITY EXTRA PARTS	0.00	\$293.2900	EA	\$293.29
1			0 ROTARY REPAIR B 1.5M ROTARY METER	0.00	\$274.3600	EA	\$274.36
59			0 ROTARY REPAIR B 3M -5M ROTARY METER	0.00	\$274.3600	EA	\$16,187.24
4			0 ROTARY REPAIR B 7M ROTARY METER	0.00	\$243.9200	EA	\$975.68
2			0 ROTARY REPAIR B 11M ROTARY REPAIR	0.00	\$243.9200	EA	\$487.84
1			0 EXTRA PARTS ROT ROTARY METER EXTRA PARTS	0.00	\$1,852.5900	EA	\$1,852.59
76			0 DDM INSTALL BADGES	0.00	\$2.9500	EA	\$224.20
128			0 DDM INSTALL ERTS	0.00	\$5.2000	EA	\$665.60
1			0 DELVCHG-PU UNITIL PICKUP CHARGES	0.00	\$408.6600	EA	\$408.66
1			0 DELVCHG-DEL UNITIL DELIVERY CHARGES	0.00	\$408.6600	EA	\$408.66

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Invoice Number: 27580
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Page: 3

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B NORTHERN UTILITIES NH/ME
I 6 LIBERTY LANE WEST
L HAMPTON, NH 03842-1720
L ATTN: ACCOUNTS PAYABLE

S NORTHERN UTILITIES NH
H 325 WEST ROAD
I PORTSMOUTH, NH 03801
P ATTN: STEVEN HAMBLIN

Sales Ord No: 24913
Order Date: 07/31/17
Account Cd: UNITIL PL
Salesperson: 0

Taxable: N
Pmt Terms: NET 15
Shipper No: 0
Ship Date: 07/31/17

Purchase Order: NNH70752
Ship Via: UI TRUCK
FOB: PLANT
Job Number:

Line	Qty Shipped	Backordered	Part Number/Description	Discount	Price	UM	Extended Price
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Return Policy: 30 days: No
charge for manufacturers
defect, otherwise 30% restock
fee. Special Orders: NO
Returns unless defective.

Subtotal:	\$29,115.12
Freight:	\$0.00
Total:	\$29,115.12

Invoice Reconciliation				
Description of Test/Repair	Size of Meter	Cost per Test	Quantity	Total
Class A Repair	Domestic	\$ 22.95	1	\$ 22.95
Class A Repair	Class 400	\$ 22.56	1	\$ 22.56
Class A Repair	Class 700	\$ 79.91		\$ -
Class A Repair	Class 800/1000	\$ 77.18		\$ -
Class A Repair	Rotary (all sizes)	\$ 73.44		\$ -
Class B Repair	Domestic	\$ 35.60	61	\$ 2,171.60
Class B Repair	Class 400	\$ 36.55	3	\$ 109.65
Class B Repair	Class 700	\$ 158.60		\$ -
Class B Repair	Class 800/1000	\$ 157.35	5	\$ 786.75
Class B Repair	Rotary 1.5M	\$ 274.36	1	\$ 274.36
Class B Repair	Rotary 3M - 5M	\$ 274.36	59	\$ 16,187.24
Class B Repair	Rotary 7M	\$ 243.92	4	\$ 975.68
Class B Repair	Rotary 11M	\$ 243.92	2	\$ 487.84
Class B Repair	Rotary 16M	\$ 274.36		\$ -
Class B Repair	Rotary 23M	\$ 334.52		\$ -
Class C Repair	Domestic	\$ 40.91	4	\$ 163.64
Class C Repair	Class 400	\$ 42.50	3	\$ 127.50
Class C Repair	Class 700	\$ 186.24		\$ -
Class C Repair	Class 800/1000	\$ 193.51		\$ -
Class J Repair - Intest/Condemn	Domestic	\$ 10.01	91	\$ 910.91
Class J Repair - Intest/Condemn	Class 400	\$ 10.01	1	\$ 10.01
Class J Repair - Intest/Condemn	Class 700 - 1000	\$ 58.61	2	\$ 117.22
Class J Repair - Intest/Condemn	Class 1400	\$ 66.29		\$ -
Class J Repair - Intest/Condemn	Class 2300	\$ 71.73		\$ -
Class J Repair - Intest/Condemn	Class 5000	\$ 78.53		\$ -
Class J Repair - Intest/Condemn	Rotary 1.5M - 7M	\$ 71.26	34	\$ 2,422.84
Class J Repair - Intest/Condemn	Rotary 11M	\$ 73.98		\$ -
Class J Repair - Intest/Condemn	Rotary 16M	\$ 76.69		\$ -
Class J Repair - Intest/Condemn	Rotary 23M	\$ 82.14		\$ -
Special Test Domestic Meter		\$ 28.56	1	\$ 28.56
Special Test Large Capacity Meter		\$ 53.72		\$ -
Special Test Rotary Meter		\$ 47.94	2	\$ 95.88
Install New Meter Badges	All Diaphragm Sizes	\$ 2.95	76	\$ 224.20
Install New Badger/Itron Endpoints	All Diaphragm Sizes	\$ 5.20	128	\$ 665.60
New Diaphragm Meter Parts	All Diaphragm Sizes	\$ 640.22	N/A	\$ 640.22
New Rotary Meter Parts	All Rotary Sizes	\$ 1,852.59	N/A	\$ 1,852.59
Special Test Shipping	All		N/A	\$ -
DELVCHG - PU	Total Shipment	\$ 408.66	N/A	\$ 408.66
DELVCHG - DEL	Total Shipment	\$ 408.66	N/A	\$ 408.66
Invoice #	27580		Total	\$ 29,115.12
Invoice Date	7/31/2017			

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Customer Orders
 1995 Industrial Blvd
 Reynoldsville, PA 15851-0190
 Phone: (814) 653-8269 or 653-8411
 Fax: (814) 653-7306

Please Remit Payment To:
 UTILITIES & INDUSTRIES
 c/o DBI Inc.
 660 Longview Rd, Suite 2
 Fairmount City, PA 16224

Invoice Number: 27337
 Invoice Date: 05/23/17
 Page: 1

Freight is F.O.B. Plant.

All sales are subject to Net 30 Day payment terms.

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B NORTHERN UTILITIES NH
 325 WEST ROAD
 PORTSMOUTH, NH 03801
L ATTN: STEVEN HAMBLIN

S NORTHERN UTILITIES NH
 325 WEST ROAD
 PORTSMOUTH, NH 03801
P ATTN: STEVEN HAMBLIN

Sales Ord No: 24616
 Order Date: 04/24/17
 Account Cd: UNITIL PL
 Salesperson: 0

Taxable: N
 Pmt Terms: NET 15
 Shipper No: 0
 Ship Date: 04/25/17

Purchase Order: NNH67085
 Ship Via: UI TRUCK
 FOB: PLANT
 Job Number:

Line	Qty Shipped	Backordered	Part Number/Description	Discount	Price	UM	Extended Price
105			0 CLASS J REP DOM UNITIL INTEST/CONDEMN DOM	0.00	\$10.0100	EA	\$1,051.05
8			0 CLASS J REP 400 UNITIL INTEST/CONDEMN 400'S	0.00	\$10.0100	EA	\$80.08
6			0 CLASS J REP LC UNITIL INTEST/CON LC 700-1000	0.00	\$58.6100	EA	\$351.66
17			0 CLASS J REP ROT UNITIL INTEST/CON ROT 1.5M-7M	0.00	\$71.2600	EA	\$1,211.42
2			0 ROTARY INTEST SPECIAL TEST ROTARY METER	0.00	\$47.9400	EA	\$95.88
11			0 REPAIR CLASS A AMERICAN/ROCKWELL DOM METERS	0.00	\$22.9500	EA	\$252.45
62			0 REPAIR CLASS B AMERICAN/ROCKWELL DOM METER	0.00	\$35.6000	EA	\$2,207.20
4			0 REPAIR CLASS C AMERICAN/ROCKWELL DOM METER	0.00	\$40.9100	EA	\$163.64
1			0 EXTRA PARTS DOM DOMESTIC EXTRTA PARTS	0.00	\$607.1200	EA	\$607.12
2			0 REPAIR CLASS B 400 CLASS METERS	0.00	\$36.5500	EA	\$73.10
1			0 EXTRA PARTS DOM EXTRA PARTS 400 CLASS METERS	0.00	\$12.2900	EA	\$12.29
22			0 CLASS B REPAIR AL800/1000 LC METER	0.00	\$157.3500	EA	\$3,461.70
1			0 EXTRA PARTS LC LARGE CAPACITY EXTRA PARTS	0.00	\$1,730.2300	EA	\$1,730.23

U & I UTILITIES & INDUSTRIES, INC. INVOICE

Customer Orders
 1995 Industrial Blvd
 Reynoldsville, PA 15851-0190
 Phone: (814) 653-8269 or 653-8411
 Fax: (814) 653-7306

Please Remit Payment To:
 UTILITIES & INDUSTRIES
 c/o DBI Inc.
 660 Longview Rd, Suite 2
 Fairmount City, PA 16224

Invoice Number: 27337
 Invoice Date: 05/23/17
 Page: 2

Freight is F.O.B. Plant.

All sales are subject to Net 30 Day payment terms.

A service charge of 1.5% per month will be added to any unpaid balance of 30 days or more.

B NORTHERN UTILITIES NH
 325 WEST ROAD
 PORTSMOUTH, NH 03801
L ATTN: STEVEN HAMBLIN

S NORTHERN UTILITIES NH
 325 WEST ROAD
 PORTSMOUTH, NH 03801
P ATTN: STEVEN HAMBLIN

Sales Ord No: 24616
 Order Date: 04/24/17
 Account Cd: UNITIL PL
 Salesperson: 0

Taxable: N
 Pmt Terms: NET 15
 Shipper No: 0
 Ship Date: 04/25/17

Purchase Order: NNH67085
 Ship Via: UI TRUCK
 FOB: PLANT
 Job Number:

Line	Qty Shipped	Backordered	Part Number/Description	Discount	Price	UM	Extended Price
38			0 ROTARY REPAIR B 3M -5M ROTARY METER	0.00	\$274.3600	EA	\$10,425.68
2			0 ROTARY REPAIR B 7M ROTARY METER	0.00	\$243.9200	EA	\$487.84
1			0 EXTRA PARTS ROT ROTARY METER EXTRA PARTS	0.00	\$465.7200	EA	\$465.72
91			0 DDM INSTALL BADGES	0.00	\$2.9500	EA	\$268.45
138			0 DDM INSTALL ERTS	0.00	\$5.2000	EA	\$717.60
1			0 DELVCHG-PU UNITIL PICKUP CHARGES	0.00	\$408.6600	EA	\$408.66
1			0 DELVCHG-DEL UNITIL DELIVERY CHARGES	0.00	\$408.6600	EA	\$408.66

Return Policy: 30 days: No
 charge for manufacturers
 defect, otherwise 30% restock
 fee. Special Orders: NO
 Returns unless defective.

Subtotal: \$24,480.43
 Freight: \$0.00
 Total: \$24,480.43

Invoice Reconciliation				
Description of Test/Repair	Size of Meter	Cost per Test	Quantity	Total
Class A Repair	Domestic	\$ 22.95	11	\$ 252.45
Class A Repair	Class 400	\$ 22.56		\$ -
Class A Repair	Class 700	\$ 79.91		\$ -
Class A Repair	Class 800/1000	\$ 77.18		\$ -
Class A Repair	Rotary (all sizes)	\$ 73.44		\$ -
Class B Repair	Domestic	\$ 35.60	62	\$ 2,207.20
Class B Repair	Class 400	\$ 36.55	2	\$ 73.10
Class B Repair	Class 700	\$ 158.60		\$ -
Class B Repair	Class 800/1000	\$ 157.35	22	\$ 3,461.70
Class B Repair	Rotary 1.5M	\$ 274.36		\$ -
Class B Repair	Rotary 3M - 5M	\$ 274.36	38	\$ 10,425.68
Class B Repair	Rotary 7M	\$ 243.92	2	\$ 487.84
Class B Repair	Rotary 11M	\$ 243.92		\$ -
Class B Repair	Rotary 16M	\$ 274.36		\$ -
Class B Repair	Rotary 23M	\$ 334.52		\$ -
Class C Repair	Domestic	\$ 40.91	4	\$ 163.64
Class C Repair	Class 400	\$ 42.50		\$ -
Class C Repair	Class 700	\$ 186.24		\$ -
Class C Repair	Class 800/1000	\$ 193.51		\$ -
Class J Repair - Intest/Condemn	Domestic	\$ 10.01	105	\$ 1,051.05
Class J Repair - Intest/Condemn	Class 400	\$ 10.01	8	\$ 80.08
Class J Repair - Intest/Condemn	Class 700 - 1000	\$ 58.61	6	\$ 351.66
Class J Repair - Intest/Condemn	Class 1400	\$ 66.29		\$ -
Class J Repair - Intest/Condemn	Class 2300	\$ 71.73		\$ -
Class J Repair - Intest/Condemn	Class 5000	\$ 78.53		\$ -
Class J Repair - Intest/Condemn	Rotary 1.5M - 7M	\$ 71.26	17	\$ 1,211.42
Class J Repair - Intest/Condemn	Rotary 11M	\$ 73.98		\$ -
Class J Repair - Intest/Condemn	Rotary 16M	\$ 76.69		\$ -
Class J Repair - Intest/Condemn	Rotary 23M	\$ 82.14		\$ -
Special Test Domestic Meter		\$ 28.56		\$ -
Special Test Large Capacity Meter		\$ 53.72		\$ -
Special Test Rotary Meter		\$ 47.94	2	\$ 95.88
Install New Meter Badges	All Diaphragm Sizes	\$ 2.95	91	\$ 268.45
Install New Badger/Itron Endpoints	All Diaphragm Sizes	\$ 5.20	138	\$ 717.60
New Diaphragm Meter Parts	All Diaphragm Sizes	\$ 2,349.64	N/A	\$ 2,349.64
New Rotary Meter Parts	All Rotary Sizes	\$ 465.72	N/A	\$ 465.72
Special Test Shipping	All		N/A	\$ -
DELVCHG - PU	Total Shipment	\$ 408.66	N/A	\$ 408.66
DELVCHG - DEL	Total Shipment	\$ 408.66	N/A	\$ 408.66
Invoice #	27337		Total	\$ 24,480.43
Invoice Date	5/23/2017			

U & I UTILITIES & INDUSTRIES, INC. INVOICE

Customer Orders
 1995 Industrial Blvd
 Reynoldsville, PA 15851-0190
 Phone: (814) 653-8269 or 653-8411
 Fax: (814) 653-7306

Please Remit Payment To:
 UTILITIES & INDUSTRIES
 c/o DBI Inc.
 660 Longview Rd, Suite 2
 Fairmount City, PA 16224

Invoice Number: 27883
 Invoice Date: 10/11/17
 Page: 1

Freight is F.O.B. Plant.

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B NORTHERN UTILITIES NH/ME
I 6 LIBERTY LANE WEST
L HAMPTON, NH 03842-1720
L knowles@unitil.com
 ATTN: STEVEN HAMBLIN

S NORTHERN UTILITIES NH
H 325 WEST ROAD
I PORTSMOUTH, NH 03801
P deschambeault@unitil.com
 ATTN: STEVEN HAMBLIN

Sales Ord No: 25190
 Order Date: 10/10/17
 Account Cd: UNITIL PL
 Salesperson: 0

Taxable: N
 Pmt Terms: NET 15
 Shipper No: 0
 Ship Date: 10/11/17

Purchase Order: NNH70752
 Ship Via: UI TRUCK
 FOB: PLANT
 Job Number:

Line	Qty Shipped	Backordered	Part Number/Description	Discount	Price	UM	Extended Price
74			0 CLASS J REP DOM UNITIL INTEST/CONDEMN DOM	0.00	\$10.0100	EA	\$740.74
2			0 CLASS J REP 400 UNITIL INTEST/CONDEMN 400'S	0.00	\$10.0100	EA	\$20.02
5			0 CLASS J REP LC UNITIL INTEST/CON LC 700-1000	0.00	\$58.6100	EA	\$293.05
15			0 CLASS J REP ROT UNITIL INTEST/CON ROT 1.5M-7M	0.00	\$71.2600	EA	\$1,068.90
1			0 CLASS J REP ROT UNITIL INTEST/CON ROT 16M	0.00	\$76.6900	EA	\$76.69
1			0 INTEST DOM SPECIAL TEST DOMESTIC METER	0.00	\$28.5600	EA	\$28.56
5			0 REPAIR CLASS A AMERICAN/ROCKWELL DOM METERS	0.00	\$22.9500	EA	\$114.75
56			0 REPAIR CLASS B AMERICAN/ROCKWELL DOM METER	0.00	\$35.6000	EA	\$1,993.60
3			0 REPAIR CLASS C AMERICAN/ROCKWELL DOM METER	0.00	\$40.9100	EA	\$122.73
1			0 EXTRA PARTS DOM DOMESTIC EXTRTA PARTS	0.00	\$322.5300	EA	\$322.53
3			0 REPAIR CLASS B 400 CLASS METERS	0.00	\$36.5500	EA	\$109.65
1			0 EXTRA PARTS DOM EXTRA PARTS 400 CLASS METERS	0.00	\$42.1100	EA	\$42.11
3			0 CLASS B REPAIR AL800/1000 LC METER	0.00	\$157.3500	EA	\$472.05

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B NORTHERN UTILITIES NH/ME
I 6 LIBERTY LANE WEST
L HAMPTON, NH 03842-1720
L knowles@unitil.com
ATTN: STEVEN HAMBLÉN

S NORTHERN UTILITIES NH
H 325 WEST ROAD
I PORTSMOUTH, NH 03801
P deschambeault@unitil.com
ATTN: STEVEN HAMBLÉN

Sales Ord No: 25190
Order Date: 10/10/17
Account Cd: UNITIL PL
Salesperson: 0

Taxable: N
Pmt Terms: NET 15
Shipper No: 0
Ship Date: 10/11/17

Purchase Order: NNN70752
Ship Via: UI TRUCK
FOB: PLANT
Job Number:

Line	Qty Shipped	Backordered	Part Number/Description	Discount	Price	UM	Extended Price
1		0	EXTRA PARTS LC LARGE CAPACITY EXTRA PARTS	0.00	\$30.3000	EA	\$30.30
1		0	ROTARY REPAIR B 1.5M ROTARY METER	0.00	\$274.3600	EA	\$274.36
29		0	ROTARY REPAIR B 3M -5M ROTARY METER	0.00	\$274.3600	EA	\$7,956.44
1		0	ROTARY REPAIR B 7M ROTARY METER	0.00	\$243.9200	EA	\$243.92
3		0	ROTARY REPAIR B 11M ROTARY REPAIR	0.00	\$243.9200	EA	\$731.76
1		0	EXTRA PARTS ROT ROTARY METER EXTRA PARTS	0.00	\$208.3600	EA	\$208.36
65		0	DDM INSTALL BADGES	0.00	\$2.9500	EA	\$191.75
95		0	DDM INSTALL ERTS	0.00	\$5.2000	EA	\$494.00
1		0	DELVCHG-PU UNITIL PICKUP CHARGES	0.00	\$402.3300	EA	\$402.33
1		0	DELVCHG-DEL UNITIL DELIVERY CHARGES	0.00	\$402.3300	EA	\$402.33

U & I UTILITIES & INDUSTRIES, INC. INVOICE

Customer Orders
1995 Industrial Blvd
Reynoldsville, PA 15851-0190
Phone: (814) 653-8269 or 653-8411
Fax: (814) 653-7306

Please Remit Payment To:
UTILITIES & INDUSTRIES
c/o DBI Inc.
660 Longview Rd, Suite 2
Fairmount City, PA 16224

Invoice Number: 27883
Invoice Date: 10/11/17
Page: 3

Freight is F.O.B. Plant.

All sales are subject to Net 30 Day payment terms.

A service charge of 1.5% per month will be added to any unpaid balance of 30 days or more.

B NORTHERN UTILITIES NH/ME
I 6 LIBERTY LANE WEST
L HAMPTON, NH 03842-1720
L knowles@unitil.com
L ATTN: STEVEN HAMBLER

S NORTHERN UTILITIES NH
H 325 WEST ROAD
I PORTSMOUTH, NH 03801
P deschambeault@unitil.com
P ATTN: STEVEN HAMBLER

Sales Ord No: 25190
Order Date: 10/10/17
Account Cd: UNITIL PL
Salesperson: 0
Taxable: N
Pmt Terms: NET 15
Shipper No: 0
Ship Date: 10/11/17

Purchase Order: NNH70752
Ship Via: UI TRUCK
FOB: PLANT
Job Number:

Line	Qty Shipped	Backordered	Part Number/Description	Discount	Price	UM	Extended Price
------	-------------	-------------	-------------------------	----------	-------	----	----------------

Return Policy: 30 days: No
charge for manufacturers
defect, otherwise 30% restock
fee. Special Orders: NO
Returns unless defective.

Subtotal:	\$16,340.93
Freight:	\$0.00
Total:	\$16,340.93

Invoice Reconciliation				
Description of Test/Repair	Size of Meter	Cost per Test	Quantity	Total
Class A Repair	Domestic	\$ 22.95	5	\$ 114.75
Class A Repair	Class 400	\$ 22.56		\$ -
Class A Repair	Class 700	\$ 79.91		\$ -
Class A Repair	Class 800/1000	\$ 77.18		\$ -
Class A Repair	Rotary (all sizes)	\$ 73.44		\$ -
Class B Repair	Domestic	\$ 35.60	56	\$ 1,993.60
Class B Repair	Class 400	\$ 36.55	3	\$ 109.65
Class B Repair	Class 700	\$ 158.60		\$ -
Class B Repair	Class 800/1000	\$ 157.35	3	\$ 472.05
Class B Repair	Rotary 1.5M	\$ 274.36	1	\$ 274.36
Class B Repair	Rotary 3M - 5M	\$ 274.36	29	\$ 7,956.44
Class B Repair	Rotary 7M	\$ 243.92	1	\$ 243.92
Class B Repair	Rotary 11M	\$ 243.92	3	\$ 731.76
Class B Repair	Rotary 16M	\$ 274.36		\$ -
Class B Repair	Rotary 23M	\$ 334.52		\$ -
Class C Repair	Domestic	\$ 40.91	3	\$ 122.73
Class C Repair	Class 400	\$ 42.50		\$ -
Class C Repair	Class 700	\$ 186.24		\$ -
Class C Repair	Class 800/1000	\$ 193.51		\$ -
Class J Repair - Intest/Condemn	Domestic	\$ 10.01	74	\$ 740.74
Class J Repair - Intest/Condemn	Class 400	\$ 10.01	2	\$ 20.02
Class J Repair - Intest/Condemn	Class 700 - 1000	\$ 58.61	5	\$ 293.05
Class J Repair - Intest/Condemn	Class 1400	\$ 66.29		\$ -
Class J Repair - Intest/Condemn	Class 2300	\$ 71.73		\$ -
Class J Repair - Intest/Condemn	Class 5000	\$ 78.53		\$ -
Class J Repair - Intest/Condemn	Rotary 1.5M - 7M	\$ 71.26	15	\$ 1,068.90
Class J Repair - Intest/Condemn	Rotary 11M	\$ 73.98		\$ -
Class J Repair - Intest/Condemn	Rotary 16M	\$ 76.69	1	\$ 76.69
Class J Repair - Intest/Condemn	Rotary 23M	\$ 82.14		\$ -
Special Test Domestic Meter		\$ 28.56	1	\$ 28.56
Special Test Large Capacity Meter		\$ 53.72		\$ -
Special Test Rotary Meter		\$ 47.94		\$ -
Install New Meter Badges	All Diaphragm Sizes	\$ 2.95	65	\$ 191.75
Install New Badger/Itron Endpoints	All Diaphragm Sizes	\$ 5.20	95	\$ 494.00
New Diaphragm Meter Parts	All Diaphragm Sizes	\$ 394.94	N/A	\$ 394.94
New Rotary Meter Parts	All Rotary Sizes	\$ 208.36	N/A	\$ 208.36
Special Test Shipping	All		N/A	\$ -
DELVCHG - PU	Total Shipment	\$ 402.33	N/A	\$ 402.33
DELVCHG - DEL	Total Shipment	\$ 402.33	N/A	\$ 402.33
Invoice #	27883		Total	\$ 16,340.93
Invoice Date	10/11/2017			

U & I UTILITIES & INDUSTRIES, INC. INVOICE

Customer Orders
 1995 Industrial Blvd
 Reynoldsville, PA 15851-0190
 Phone: (814) 653-8269 or 653-8411
 Fax: (814) 653-7306

Please Remit Payment To:
 UTILITIES & INDUSTRIES
 c/o DBI Inc.
 660 Longview Rd, Suite 2
 Fairmount City, PA 16224

Invoice Number: 28187
 Invoice Date: 12/13/17
 Page: 1

Freight is F.O.B. Plant.

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B NORTHERN UTILITIES NH/ME
I 6 LIBERTY LANE WEST
L HAMPTON, NH 03842-1720
L knowles@unitil.com
 ATTN: STEVEN HAMBLIN

S NORTHERN UTILITIES NH
H 325 WEST ROAD
I PORTSMOUTH, NH 03801
P deschambeault@unitil.com
 ATTN: STEVEN HAMBLIN

Sales Ord No: 25466
 Order Date: 12/12/17
 Account Cd: UNITIL PL
 Salesperson: 0

Taxable: N
 Pmt Terms: NET 15
 Shipper No: 0
 Ship Date: 12/13/17

Purchase Order: NNH70752
 Ship Via: UI TRUCK
 FOB: PLANT
 Job Number:

Line	Qty Shipped	Backordered	Part Number/Description	Discount	Price	UM	Extended Price
91			0 CLASS J REP DOM UNITIL INTEST/CONDEMN DOM	0.00	\$10.0100	EA	\$910.91
6			0 CLASS J REP 400 UNITIL INTEST/CONDEMN 400'S	0.00	\$10.0100	EA	\$60.06
20			0 CLASS J REP LC UNITIL INTEST/CON LC 700-1000	0.00	\$58.6100	EA	\$1,172.20
16			0 CLASS J REP ROT UNITIL/CON ROT 1.5M-7M	0.00	\$71.2600	EA	\$1,140.16
1			0 CLASS J REP ROT UNITIL INTEST/CON ROT 11M	0.00	\$73.9800	EA	\$73.98
9			0 REPAIR CLASS A AMERICAN/ROCKWELL DOM METERS	0.00	\$22.9500	EA	\$206.55
51			0 REPAIR CLASS B AMERICAN/ROCKWELL DOM METER	0.00	\$35.6000	EA	\$1,815.60
3			0 REPAIR CLASS C AMERICAN/ROCKWELL DOM METER	0.00	\$40.9100	EA	\$122.73
1			0 EXTRA PARTS DOM DOMESTIC EXTRTA PARTS	0.00	\$393.4500	EA	\$393.45
2			0 REPAIR CLASS A 400 CLASS METERS	0.00	\$22.5600	EA	\$45.12
6			0 REPAIR CLASS B 400 CLASS METERS	0.00	\$36.5500	EA	\$219.30
1			0 EXTRA PARTS DOM EXTRA PARTS 400 CLASS METERS	0.00	\$40.4800	EA	\$40.48
3			0 CLASS A REPAIR AL800/1000 LC METER	0.00	\$77.1800	EA	\$231.54
34			0 CLASS B REPAIR	0.00	\$157.3500	EA	\$5,349.90

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Invoice Number: 28187
 Invoice Date: 12/13/17
 Page: 2

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I 6 LIBERTY LANE WEST
L HAMPTON, NH 03842-1720
L knowles@unitil.com
 ATTN: STEVEN HAMBLER

S NORTHERN UTILITIES NH
H 325 WEST ROAD
I PORTSMOUTH, NH 03801
P deschambeault@unitil.com
 ATTN: STEVEN HAMBLER

Sales Ord No: 25466
 Order Date: 12/12/17
 Account Cd: UNITIL PL
 Salesperson: 0

Taxable: N
 Pmt Terms: NET 15
 Shipper No: 0
 Ship Date: 12/13/17

Purchase Order: NNH70752
 Ship Via: UI TRUCK
 FOB: PLANT
 Job Number:

Line	Qty Shipped	Backordered	Part Number/Description	Discount	Price	UM	Extended Price
			AL800/1000 LC METER				
	1	0	EXTRA PARTS LC	0.00	\$3,240.7500	EA	\$3,240.75
			LARGE CAPACITY EXTRA PARTS				
	26	0	ROTARY REPAIR B	0.00	\$274.3600	EA	\$7,133.36
			3M -5M ROTARY METER				
	2	0	ROTARY REPAIR B	0.00	\$243.9200	EA	\$487.84
			11M ROTARY METER				
	1	0	EXTRA PARTS ROT	0.00	\$772.5400	EA	\$772.54
			ROTARY METER EXTRA PARTS				
	95	0	DDM	0.00	\$2.9500	EA	\$280.25
			INSTALL BADGES				
	130	0	DDM	0.00	\$5.2000	EA	\$676.00
			INSTALL ERTS				
	1	0	DELVCHG-PU	0.00	\$404.6700	EA	\$404.67
			UNITIL PICKUP CHARGES				
	1	0	DELVCHG-DEL	0.00	\$404.6700	EA	\$404.67
			UNITIL DELIVERY CHARGES				

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Invoice Number: 28187
Invoice Date: 12/13/17
Page: 3

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H 325 WEST ROAD
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I deschambeault@unitil.com
P ATTN: STEVEN HAMBLIN

Sales Ord No: 25466
Order Date: 12/12/17
Account Cd: UNITIL PL
Salesperson: 0

Taxable: N
Pmt Terms: NET 15
Shipper No: 0
Ship Date: 12/13/17

Purchase Order: NNH70752
Ship Via: UI TRUCK
FOB: PLANT
Job Number:

Line	Qty Shipped	Backordered	Part Number/Description	Discount	Price	UM	Extended Price
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Return Policy: 30 days: No
charge for manufacturers
defect, otherwise 30% restock
fee. Special Orders: NO
Returns unless defective.

Subtotal: \$25,182.06
Freight: \$0.00
Total: \$25,182.06

Invoice Reconciliation				
Description of Test/Repair	Size of Meter	Cost per Test	Quantity	Total
Class A Repair	Domestic	\$ 22.95	9	\$ 206.55
Class A Repair	Class 400	\$ 22.56	2	\$ 45.12
Class A Repair	Class 700	\$ 79.91		\$ -
Class A Repair	Class 800/1000	\$ 77.18	3	\$ 231.54
Class A Repair	Rotary (all sizes)	\$ 73.44		\$ -
Class B Repair	Domestic	\$ 35.60	51	\$ 1,815.60
Class B Repair	Class 400	\$ 36.55	6	\$ 219.30
Class B Repair	Class 700	\$ 158.60		\$ -
Class B Repair	Class 800/1000	\$ 157.35	34	\$ 5,349.90
Class B Repair	Rotary 1.5M	\$ 274.36		\$ -
Class B Repair	Rotary 3M - 5M	\$ 274.36	26	\$ 7,133.36
Class B Repair	Rotary 7M	\$ 243.92		\$ -
Class B Repair	Rotary 11M	\$ 243.92	2	\$ 487.84
Class B Repair	Rotary 16M	\$ 274.36		\$ -
Class B Repair	Rotary 23M	\$ 334.52		\$ -
Class C Repair	Domestic	\$ 40.91	3	\$ 122.73
Class C Repair	Class 400	\$ 42.50		\$ -
Class C Repair	Class 700	\$ 186.24		\$ -
Class C Repair	Class 800/1000	\$ 193.51		\$ -
Class J Repair - Intest/Condemn	Domestic	\$ 10.01	91	\$ 910.91
Class J Repair - Intest/Condemn	Class 400	\$ 10.01	6	\$ 60.06
Class J Repair - Intest/Condemn	Class 700 - 1000	\$ 58.61	20	\$ 1,172.20
Class J Repair - Intest/Condemn	Class 1400	\$ 66.29		\$ -
Class J Repair - Intest/Condemn	Class 2300	\$ 71.73		\$ -
Class J Repair - Intest/Condemn	Class 5000	\$ 78.53		\$ -
Class J Repair - Intest/Condemn	Rotary 1.5M - 7M	\$ 71.26	16	\$ 1,140.16
Class J Repair - Intest/Condemn	Rotary 11M	\$ 73.98	1	\$ 73.98
Class J Repair - Intest/Condemn	Rotary 16M	\$ 76.69		\$ -
Class J Repair - Intest/Condemn	Rotary 23M	\$ 82.14		\$ -
Special Test Domestic Meter		\$ 28.56		\$ -
Special Test Large Capacity Meter		\$ 53.72		\$ -
Special Test Rotary Meter		\$ 47.94		\$ -
Install New Meter Badges	All Diaphragm Sizes	\$ 2.95	95	\$ 280.25
Install New Badger/Itron Endpoints	All Diaphragm Sizes	\$ 5.20	130	\$ 676.00
New Diaphragm Meter Parts	All Diaphragm Sizes	\$ 3,674.68	N/A	\$ 3,674.68
New Rotary Meter Parts	All Rotary Sizes	\$ 772.54	N/A	\$ 772.54
Special Test Shipping	All		N/A	\$ -
DELVCHG - PU	Total Shipment	\$ 404.67	N/A	\$ 404.67
DELVCHG - DEL	Total Shipment	\$ 404.67	N/A	\$ 404.67
Invoice #	28187		Total	\$ 25,182.06
Invoice Date	12/13/2017			

Attachment 2

Gas Meter Testing Facility Cost Analysis 2017

Cost Analysis

The 2017 cost for Northern to outsource the testing of the 1020 meters associated with its NH customers was \$31,850, or an average of \$31.23 per meter.

The total cost for the 2017 testing of 2833 meters associated with Unitil Service's three affiliated gas companies was \$61,662, or an average of \$21.77 per meter.

It is estimated that in order to bring the meter testing and servicing operation in-house, Unitil Service would need to hire two full-time employees at the following annual cost (with benefits):

2 Full Time Employees w/ Benefits	\$176,405
Utility Expenses	\$3,500
Tool Replacements	\$1,000
Total	\$180,905

The estimated annual cost of \$180,905 for two employees, utilities, and tools would result in the cost per meter test for the 2833 meters tested in 2017 to be \$63.85 per meter.

Additional consideration would be required for the start-up costs that would be incurred to enable a meter testing facility are as follows:

	Location
Start-up Costs	Portsmouth
Facility Estimate	\$1,033,779
Equipment Estimate	\$265,391
Total	\$1,299,169

Conclusion

Due to the estimated annual operating costs of \$180,905 exceeding the most recent annual expenditures of \$61,662 paid to vendors for performing testing, it is not economical at this time for Unitil to pursue establishing a gas meter testing facility.