



Carol Scanlon
Manager, Rates

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September 29, 2023

Via Electronic Filing

Ms. Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
2nd Floor, Room N201
400 North Street
Harrisburg, Pennsylvania 17120

**Re: Peoples Natural Gas Company LLC 2023 Unaccounted for Gas (UFG) Filing
at Docket No. M-2023-3037447**

Dear Secretary Chiavetta:

Enclosed for filing with the Pennsylvania Public Utility Commission ("Commission") is Peoples Natural Gas Company LLC ("Peoples Natural") 2023 Unaccounted for Gas form for the twelve-month period ending August 31, 2023.

Peoples Natural and Peoples Gas Company LLC ("Peoples Gas") are filing a combined UFG report for the twelve-month period ending August 31, 2023, in accordance with the Commission orders entered August 25, 2022 in Docket Nos. R-2022-3030661, et al. (Peoples Natural 1307(f) proceeding) and Docket Nos. R-2022-3030664, et al. (Peoples Gas 1307(f) proceeding).

At this time Peoples Natural Gas does not have separate measurement to quantify the volumes received and delivered on the transmission systems. Once segmentation data is available separate transmission system UFG results may be presented. At this time the transmission system UFG volumes are reported in the distribution system UFG report. The Company reserves the right to make a transmission adjustment in the future once a complete study is performed that quantifies the volumes associated with the adjustment associated with segmentation of the transmission system.

If you have any questions or concerns regarding this matter, please do not hesitate to contact me.

Sincerely,

Carol Scanlon

Encl.
CC: Matt Stewart

Distribution System

Specify units for quantity of gas: MCF

A. Gas Received

From Production Facilities	23909917
From Transmission Facilities	0
From Storage Facilities	1497678
From Interstate Pipelines directly into the Distribution System	104939692
From Other Sources (i.e. Propane injections, etc)	4798594

Total Gas Received by the Distribution System	135145881
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B. Gas Delivered

To Customers (i.e., Transportation, Residential, Commercial, Industrial, etc.)	126547322
To Storage	1445136
To Transmission System	1076088
Other	351979

Total Gas Delivered by the Distribution System	129420525
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C. Adjustment Example

Pressure/Temperature Adjustments	563416
Located & Repaired Breaks in Mains & Services	19028
Company use	78132
Purging/Other Construction Activities	0
Heat Content	0
Meter Read Cycle Adjustments	0
Other	1435040

Total Adjustments	2095616
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D. Distribution UFG

Total	3629740
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E. Percent UFG

Percentage	2.69%
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Production/Gathering System Losses

Specify units for quantity of gas: MCF

A. Gas Received

From Production Wells	33114847
From other Gathering Systems	0
Other	
Total Gas Received by the Production/Gathering System	33114847

B. Gas Delivered

To Distribution System	21966711
To Customers/Sold	0
To Transmission System	7164021
Other	
Total Gas Delivered by the Production/Gathering System	29130732

C. Adjustment Example

Pressure/Temperature Adjustments	0
Located & Repaired Breaks in Mains and Services	0
Company Use	739737
Purging/Other Construction Activities	0
Heat Content	0
Meter Read Cycle Adjustments	
Other	817440
Total Adjustments	1557177

D. Production/Gathering Facility UFG

Total	2426938
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E. Percent UFG

Percentage	7.33%
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Storage System Losses

Specify units for quantity of gas: MCF

A. Gas Received

From Production Facilities	1445136
From Transmission Facilities	0
From Distribution Facilities	0
From Interstate Pipelines directly into the Distribution System	0
Other	0

Total Gas Received by the Storage System 1445136

B. Gas Delivered

To Transmission System	0
To Distribution System	1497678
To other facilities	0
Other	0

Total Gas Delivered by the Storage System 1497678

C. Adjustment Example

Company Use	18509
Storage Migration (+/-)	134810
Heat Content	0
Located & Repaired Breaks	0
Other	-205861

Total Adjustments -52542

D. Storage System UFG

Total 0

E. Percent UFG

Percentage 0.00%

Transmission System Losses

Specify units for quantity of gas:

A. Gas Received	
From Interstate Pipelines	
From Storage Facilities	
From Distribution System	
From Production/Gathering System	
From Other	
Total Gas Received by the Transmission System 0	
B. Gas Delivered	
To Distribution System	
To Customers/sold	
To Interstate Pipeline	
To Storage	
Other	
Total Gas Delivered by the Transmission System 0	
C. Adjustment Example	
Pressure/Temperature Adjustments	
Located & Repaired Breaks in Mains & Services	
Company use	
Purging/Other Construction Activities	
Heat Content	
Meter Read Cycle Adjustments	
Other	
Total Adjustments 0	
D. Transmission System UFG	
Total	0
E. Percent UFG	
Percentage	#DIV/0!

Peoples Natural Gas Company (3 Divisions)
2023 UFG Explanation of Adjustments and Miscellaneous Notes

1. Distribution System, Section A, Other Sources consist of:

4,143,405 Mcf from Direct Feed Local Gas
655,189 Mcf from other Utilities

2. Distribution System, Section B; Other source represent Exchanges delivered to other utilities.

3. Distribution System; Section C: Pressure /Temperature Adjustments

People's temperature adjustment is based on a system-wide temperature adjustment factor derived from an annual study as detailed below. The result is included in Distribution System, Section C, Pressure /Temperature Adjustments.

2023 Temperature Study for Non-Temperature Compensated Meters

Month	Non TC Meters [MCF]	Gas Temp [F]	T. Factor [%]	Total Corrected [MCF]
22-Sep	423,465	68.75	0.9835	-6,987
22-Oct	924,690	58.61	1.0027	2,497
22-Nov	1,853,598	52.65	1.0143	26,506
22-Dec	3,788,693	44.63	1.0304	115,176
23-Jan	4,314,132	43.02	1.0338	145,818
23-Feb	4,405,257	42.55	1.0347	152,862
23-Mar	3,458,767	44.04	1.0316	109,297
23-Apr	2,593,054	52.04	1.0155	40,192
23-May	1,480,258	58.35	1.0032	4,737
23-Jun	634,365	66.22	0.9882	-7,486
23-Jul	471,405	71.91	0.9776	-10,559
23-Aug	407,416	71.24	0.9788	-8,637
2023	TOTAL	AVERAGE	AVERAGE	TOTAL
12 Mo.	24,755,100	56.17	1.0079	563,416

4. Distribution System, Section C; Located and Repaired Breaks in Mains and Services

- a. There are two formulas utilized to calculate an adjustment. Each line break has its own calculation.

Below Line Pressure of 13.5 PSIG

The formula is:

$$Q=Ct(P)$$

Where:

Q = Calculated gas loss in cubic feet per hour

C= Orifice Constant from Table under tab “Orifice Chart”

T = Time in Hours

P = Actual line pressure in PSIG (pounds per square inch gauge)

Line Pressure of 13.5 PSIG and Above

The formula is:

$$Q=1196.2APt$$

Where:

Q = Calculated gas loss in cubic feet per hour

A = Area of hole or cross section area of pipe, which is smaller (in square inch)

T = Time in Hours

P = Absolute upstream pressure, taken as close as possible to the hole

t = Time in hours

The key assumptions related to this calculation are:

- a. When orifice diameter is calculated for pressure < 13.5 psig and falls in between two values on the orifice chart, the program defaults to the lower value on the chart.
- b. If a nominal pipe size is inputted between the sizes as used in the Orifice Chart, the program defaults to the lower of the two values.
- c. If line pressure is not taken within a few feet from the leak, 5 PSI per mile is subtracted from the line pressure. This is the case only when pressure >= 13.5 PSIG.
- d. If the line is covered with direct, 3 PSI is subtracted from the line pressure. This is the case only when pressure >=13.5 PSIG. When pressure < 13.5 PSI, the unobstructed percentage figure is applied to the hole diameter when obtaining the orifice constant.
- e. If both Diameter of hole and area of hole are inputted in the program which defaults to the area of hole value for calculations.
- f. If the area of the hole exceeds the area of the cross section of pipe the cross section is used to calculate gas loss. This cross section is calculated from the value inputted in the field Diameter of pipe traditionally used for this value. However, the actual pipe I.D. may be used if known.

The orifice constant mentioned above is obtained from the table below:

Pipe Sizes—Nominal and Published Inside Diameters, in									
Orifice Diameter (in)	2			3			4		
	1.689	1.939	2.067	2.300	2.626	2.900	3.068	3.152	3.438
0.250	12.695	12.707	12.711	12.714	12.712	12.708	12.705	12.703	12.697
0.375	28.474	28.439	28.428	28.411	28.393	28.382	28.376	28.373	28.364
0.500	50.777	50.587	50.521	50.435	50.356	50.313	50.292	50.284	50.258
0.625	80.090	79.509	79.311	79.052	78.818	78.686	78.625	78.598	78.523
0.750	117.09	115.62	115.14	114.52	113.99	113.70	113.56	113.50	113.33
0.875	162.95	159.56	158.47	157.12	156.00	155.41	155.14	155.03	154.71
1.000	219.77	212.47	210.22	207.44	205.18	204.04	203.54	203.33	202.75
1.125	290.99	276.20	271.70	266.35	262.06	259.95	259.04	258.65	257.63
1.250	385.78	353.58	345.13	335.12	327.39	323.63	322.03	321.37	319.61
1.375		448.57	433.50	415.75	402.18	395.80	393.09	391.97	389.03
1.500			542.26	510.86	487.98	477.36	472.96	471.14	466.39
1.625				623.91	586.82	569.65	562.58	559.72	552.31
1.750					701.27	674.44	663.42	658.96	647.54
1.875					834.88	793.88	777.18	770.44	753.17
2.000						930.65	906.01	896.06	870.59
2.125						1,091.2	1,052.5	1,038.1	1,001.4
2.250							1,223.2	1,199.9	1,147.7
2.375									1,311.7
2.500									1,498.4

Orifice Diameter (in)	4		6			8			
	3.826	4.026	4.897	5.182	5.761	6.065	7.625	7.981	8.071
0.250	12.687	12.683							
0.375	28.353	28.348							
0.500	50.234	50.224	50.197	50.191	50.182	50.178			
0.625	78.450	78.421	78.338	78.321	78.296	78.287			
0.750	113.15	113.08	112.87	112.82	112.75	112.72			
0.875	154.40	154.27	153.88	153.78	153.63	153.56	153.34	153.31	153.31
1.000	202.20	201.99	201.34	201.19	200.96	200.85	200.46	200.39	200.38
1.125	256.69	256.33	255.31	255.08	254.72	254.56	253.99	253.69	253.87
1.250	318.03	317.45	315.83	315.48	314.95	314.72	313.91	313.78	313.74
1.375	386.45	385.51	382.99	382.47	381.70	381.37	380.25	380.06	380.02
1.500	462.27	460.79	456.93	456.16	455.03	454.57	453.02	452.78	452.72
1.625	545.89	543.61	537.77	536.64	535.03	534.38	532.27	531.95	531.87
1.750	637.84	634.39	625.73	624.09	621.79	620.88	618.02	617.60	617.50
1.875	738.75	733.68	721.03	718.69	715.44	714.19	710.32	709.77	709.64
2.000	849.41	842.12	823.99	820.68	816.13	814.41	809.22	808.50	808.34
2.125	970.95	960.48	934.97	930.35	924.07	921.71	914.79	913.86	913.64
2.250	1,104.7	1,089.9	1,054.4	1,048.1	1,039.5	1,036.3	1,027.1	1,025.9	1,025.6
2.375	1,252.1	1,231.7	1,182.9	1,174.2	1,162.6	1,158.3	1,146.2	1,144.7	1,144.3
2.500	1,415.0	1,387.2	1,320.9	1,309.3	1,293.8	1,288.2	1,272.3	1,270.3	1,269.8
2.625	1,595.6	1,558.2	1,469.2	1,453.9	1,433.5	1,426.0	1,405.4	1,402.9	1,402.3
2.750	1,797.1	1,746.7	1,628.9	1,608.7	1,582.1	1,572.3	1,545.7	1,542.5	1,541.8
2.875		1,955.5	1,801.0	1,774.5	1,740.0	1,727.5	1,693.4	1,689.3	1,688.4
3.000		2,194.9	1,986.6	1,952.4	1,907.8	1,891.9	1,848.6	1,843.5	1,842.3
3.125			2,187.2	2,143.4	2,086.4	2,066.1	2,011.6	2,005.2	2,003.8
3.250			2,404.2	2,348.8	2,276.5	2,250.8	2,182.6	2,174.6	2,172.9

5. Distribution System, Section C; Company Use

- a. This adjustment reflects actual metered volumes for industry standard Company-use items such as natural gas used for Company buildings, Company vehicles, on-system natural gas

compressors, boilers and dehydration equipment. There are no calculations or subjectivity related to this adjustment

6. Distribution System, Section C; Purging/Other Construction Activities

- a. The calculation used to estimate this adjustment is as follows:

$$(P) L ((\pi)(D/4)/144))/14.73$$

Where:

P = Line pressure [PSIA]
L = Distance between valves [feet]
D = Internal Diameter of Pipe [in]

A separate calculation is completed for each instance of purging or line construction

7. Distribution System, Section C; Other is comprised of Isolated Non-utility losses and Storage Migration and Moisture Content Adjustments

- a. Isolated Non-utility losses – 1,252,575 Mcf of which 63,417 MCF is recovered with retainage. These losses are isolated to non-utility pipelines in PA Gathering Company LLC (Goodwin/Tombaugh) that serve utility customers. Removing these volumes reveals the true distribution losses comparable to the PUC distribution metric and other distribution entities
- b. Please refer to the Storage Section for an explanation of the Storage Migration
- c. Moisture Content:
- 2023 – Moisture Content = -39,280 MCF
- i. Other loss (moisture content) = Gas received from production facilities * 0.0035
- ii. The equation used is:

$$W = V_p/P$$

Where:

W = Mole Fraction of Water Vapor in a gaseous mixture
V_p = Vapor Pressure of Water at a given temperature [psia]
P = Total Pressure of the volume [psia]

$$W = 0.2563 / (58.5 \text{ psig} + 14.73) \text{ psia} = 0.35\%$$

This calculated percentage is then applied to the local production tied to the Company's system.

The large increase of production gas into the distribution system directly impacts the lost and accounted for gas totals. The adjustment is based on measuring fully saturated gas at

production points, dehydrating the gas at Company compression stations and selling dry gas to People's customers. American Gas Association (AGA) 3 – Orifice Meters and American Gas Association fully saturated gas being measured at production purchase points at 60°F and 58.5 psig (System Average). Natural gas is fully saturated when its flowing gas temperature is equal to its dew point. Saturation levels are directly proportional to the pressure and temperature of the gas volume.

Non-Billable Customer Use: 8,376 MCF

8. Storage System, Section C; Company Use

- a. This adjustment reflects actual metered volumes for industry standard Company-use items such as natural gas used for Company buildings, Company vehicles, on-system natural gas compressors, boilers and dehydration equipment. There are no calculations or subjectivity related to this adjustment.

9. Storage System, Section C: Storage Migration

- a. An engineering analysis is performed for each storage field in order to estimate the ongoing volumes of gas that are lost through migration out of the underground storage formations. These shut-in tests measure the pressure-volume relationships for each pool.

10. Storage System , Section C; Net Inventory Change represents an adjustment due to an inventory and the net inventory adjustment based on the same engineering shut-in test as described in Section 4.

Net Inventory Change = - (Total Gas Received – Total Gas Delivered + Storage Migration + Company Use)

PNG/PTWP 2023 – Net Inventory Change = 205,861 Mcf

11. Production Gathering System, Section C; Company Use

- a. This adjustment reflects actual metered volumes for industry standard Company-use items such as natural gas used for Company buildings, Company vehicles, on-system natural gas compressors, boilers and dehydration equipment. There are no calculations or subjectivity related to this adjustment.

12. Production Gathering System, Section C; Other

- a. This adjustment reflects the volume of gas received from producers as retainage.

13. Transmission System

- a. At this time the Company does not have separate measurement to quantify the volumes received and delivered on the transmission system. Once segmentation data is available separate transmission system UFG results will be presented. At this time, transmission system UFG volumes are reported in the Distribution system UFG report.

VERIFICATION

I, Paul Becker, hereby state that I am Vice President Construction and Engineering, of PNG Companies LLC; hereby state that the facts above set forth are true and correct to the best of my knowledge, information and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date 9/29/2023



(Signature)