

The Peoples Gas Light and Coke Company
Gas Stored Underground - Gas Utilities

For the Portion of the Facility Owned, Contracted, Leased, etc., during the test year.

Line No.	Location and Operator of Storage Facility (A)	Maximum Daily Deliverability on a Typical Peak Day (B)	Expected Daily Delivery On Peak Day (C)	Type of Transportation Used (D)
1 2 3	The Peoples Gas Light and Coke Company: Manlove Field Champaign County, Fisher III	Manlove Field's maximum daily withdrawal quantity is based on reservoir testing and periodic deliverability testing.	See response to c-1	Company's Transmission System
4 5 6 7 8	DSS NGPL	Per NGPL tariff Sheet No. 149. November 1 through February 15, the Shipper's Withdrawal Quantity is 100% of its Maximum Daily Quantity. Also per NGPL tariff Sheet No. 150, a Shipper's firm right to withdraw gas under delivered firm storage service over any consecutive fifteen (15) day period may not exceed that Shipper's average WQ over that period multiplied by ten (10).	See response to c-1	Firm Transportation Embedded in Service/Rate
9 10 11	NSS NGPL	Per NGPL tariff Sheet. No. 171. A Shipper's Withdrawal Quantity will equal one hundred percent of its Maximum Daily Quantity when its inventory level in its storage account exceeds fifty percent (50%) of its maximum storage value.	See response to c-1	Additional Firm Transportation is Purchased
12 13 14	FSS ANR	Per ANR tariff Sheet No. 88. A Shipper's maximum withdrawal quantity will equal the Maximum Daily Withdrawal Quantity when the Working Storage Gas is greater than 20% of the Maximum Storage Quantity.	See response to c-1	Additional Firm Transportation is Purchased
15	c-4. The Peoples Gas Light and Coke Company accounts for its storage inventory levels with one central pool for all storage facilities.			

c) (1) The replenishment rates are not expected to change for different levels of inventory.

c) (2) The basis for the replenishment rate is the design criteria for the LNG facility as specified in our operating manuals for the facility. See pages 2 – 5.

Derivation of the Replenishment Rate of LNG Expressed in Gallons per Hour:

Data:

From the LNG Plant Operating Procedures:

Section 2.1.1: Liquefaction design rate is 437.5 MSCF/Hr.

Section 2.1.2: Capacity of one LNG pump is 438 gallons/minute
Capacity of one LNG pump is 2,083 MSCF/Hr

Calculations:

First, derive a conversion factor for gallons of LNG/MSCF, using the pump data from Section 2.1.2:

$$(438 \text{ Gal/Min} \times 60 \text{ Min/Hr}) / 2,083 \text{ MSCF/Hr} = 12.62 \text{ Gal/MSCF}$$

Second, apply this conversion factor to the liquefaction design rate from Section 2.1.1:

$$12.62 \text{ Gal/MSCF} \times 437.5 \text{ MSCF/Hr} = 5,521 \text{ Gal/Hr} = \sim \underline{\underline{5,520 \text{ Gal/Hr}}}$$

**THE PEOPLES GAS LIGHT & COKE COMPANY
MAHOMET LNG PLANT**

OPERATING PROCEDURES

2.0 PLANT PERFORMANCE AND DESCRIPTION

2.1 PERFORMANCE

This section describes design performance parameters for systems and equipment associated with the liquefaction, vaporization and standby modes of operation. See appendix A for additional temperatures, pressures and flow rates that indicate actual normal operation.

2.1.1 LIQUEFACTION DESIGN

	Inlet Feedstream	Regen Gas Out	Outlet Tailgas	LNG In Tank
Flow, MSCFH	3970.8	625.0	3533.3	437.5
Flow, MMSCFD	95.3	15.0	84.8	10.5
Press, PSIG	610-700	150	147	0.5
Temp, °F	60	100/600	114	-257
Mol Wt, lbs/mol	17.0	17.1	17.2	16.8

Composition, Mol%:

	Inlet Feedstream	Regen Gas Out	Outlet Tailgas	LNG In Tank
Methane	95.0	94.8	94.9	95.5
Ethane	2.9	2.3	2.9	3.7
Propane	0.4	0.3	0.4	0.5
Butane +	0.3	0.1	0.3	0.2
Nitrogen	0.4	0.5	0.4	0.1
Carbon Dioxide	1.0	2.0	1.17	-

2.1.2 SENDOUT DESIGN

	Vaporization Minimum (1 pump)	Vaporization Maximum (6 pumps)	Standby Boiloff
→ Flow, MSCFH	2083 ←	12,500	52.5
Flow, MMSCFD	50	300	1.26
→ Flow, GPM	438 ←	2628	
Press., PSIG	870	870	850
Temp, F	60	60	60
Mol Wt, lbs/mol	16.8	16.8	16.2

Fresh Composition, Mol%:

Methane	95.5	95.5	98.5
Ethane	3.7	3.7	
Propane	0.5	0.5	
Butane +	0.2	0.2	
Nitrogen	0.1	0.1	1.5
Carbon Dioxide	0	0	

2.2 PROCESS AND EQUIPMENT DESCRIPTIONS

A. GENERAL

This modified turnkey facility was designed to liquefy natural gas during low demand periods, store the LNG and vaporize it at the required delivery rate to meet the peak demands. The facility generates 100% of its own electrical needs and includes a fire protection system.