Training Module

Storage

This module provides information regarding a wide range of storage services that are available on Transco’s system.
# Table of Contents

**Important Information – Please Read** .......................................................... 4  
**Introduction** ............................................................................................... 5  
**Definitions** ............................................................................................... 5  
*Physical Storage* ......................................................................................... 5  
*Base Gas vs. Top Gas* .................................................................................. 5  
*On System vs. Off System* .......................................................................... 5  
*Bundled vs. Unbundled* .............................................................................. 5  
*Injections vs. Withdrawals* ....................................................................... 6  
**Nominating Storage** ................................................................................ 6  
**Storage Services** ...................................................................................... 6  
*Storage Service Summary* .......................................................................... 6  
*GSS – General Storage Service* .................................................................. 8  
*LSS – Leidy Storage Service* ....................................................................... 9  
*S2 – Storage Service* .................................................................................. 9  
*SS-2 Storage Service* .................................................................................. 10  
*LNG (Liquefied Natural Gas Storage Service)* ......................................... 10  
*LGA (Liquefied Natural Gas Storage Service)* .......................................... 10  
*WSS/WSS-OA (Washington Storage Service)* ......................................... 11  
*ESS - Eminence Storage Service* ................................................................. 12  
**Excess Storage Availability** .................................................................... 12  
**Storage Pages – Navigation, Description and View** .............................. 12  
*View Storage Balance* ............................................................................. 13  
**Storage Transfer Summary** .................................................................... 14  
*Create Storage Transfer* .......................................................................... 16  
*Create Storage Transfer - Prearranged* .................................................... 16  
*Create Self Storage Transfer* ..................................................................... 16  
*Create Storage Transfer – Non Prearranged* ........................................... 17  
**View/Confirm Existing Transfers** ............................................................... 17
**Important Information – Please Read**

The information provided herein is for informational purposes only and does not modify any provision in Transco’s FERC Gas Tariff. If a conflict exists between this information and Transco’s FERC Gas Tariff, the provisions in Transco’s FERC Gas Tariff apply. Transco makes no representation or warranty as to the completeness or accuracy of this information. Transco shall not be liable for any informational errors, incompleteness or delays, or for any actions taken in reliance on this information.

To review the tariff language specific to any topic, go to Transco’s Informational Postings page, and select Tariff from the left hand navigation menu.
**Introduction**

Storage services allow customers to purchase gas in non-peak periods (usually in the summer), store it, and then utilize the gas by withdrawing it from the storage facilities and having it delivered to the delivery location during the peak period (usually in the winter).

**Definitions**

**Physical Storage**

**Storage Fields** – Gas is stored in underground caverns which are depleted production reservoirs or salt dome caverns. There are also above-ground tanks used for storing gas in a liquid form (liquefied natural gas or LNG).

**Base Gas vs. Top Gas**

**Base gas** (cushion gas) – volume of gas intended as permanent inventory in a storage reservoir to maintain adequate pressure and deliverability rates.

**Top gas** (working gas) – volume of gas in the reservoir above the level of base gas.

**On System vs. Off System**

**On-system** – Storage facilities directly connected to Transco’s pipeline. Examples are Washington field in Louisiana; Eminence field in Mississippi; and the LNG storage facility in Carlstadt, New Jersey.

**Off-system** – Storage facilities not directly connected to Transco’s system. There are agreements with the interconnecting pipelines to transport storage gas between an interconnect with Transco and the storage facility and with the storage operators. Transco tracks and passes through to its customers the charges of off-system providers of transportation and storage services.

**Bundled vs. Unbundled**

**Bundled Storage** – storage that includes transportation service and fees to and from the delivery location; no separate transportation contract is required (GSS, LSS, S-2, SS-2, LGA and LNG).

**Unbundled Storage** – storage service that does not include transportation service to and from the delivery location; gas must be nominated to and from the storage location on a separate transportation agreement (ESS-OA, and WSS-OA).
Injections vs. Withdrawals

**Injections**: If the field is empty there is less pressure resistance and, therefore, you can inject more. As the field fills up, there is a higher pressure within the field, so less gas can be physically injected.

**Withdrawals**: If the field is full, there is more pressure, so you can withdraw more gas. As the field empties, there is less pressure and less gas can be physically withdrawn.

Nominating Storage

If nominating a bundled storage service, one storage nomination (transaction type 6 or 7) is required.

If nominating an unbundled storage service, one transportation nomination (transaction type 1) is required, assuming the transporter is the same company as the storage contract holder. However, if the transporter and storage contract holder are not the same company, a separate storage nomination (transaction type 6 or 7) is required. The upstream/downstream contract field should reference the storage owner’s contract.

Storage Services

The following are examples of some of the storage services available. Additional information on these services can be found in the Rate Schedules section of Transco’s FERC Gas Tariff.

- GSS
- LSS
- S-2
- SS-2
- LNG
- LG-A
- WSS
- ESS
# Storage Service Summary

<table>
<thead>
<tr>
<th>Rate Schedule</th>
<th>GSS</th>
<th>LSS</th>
<th>ESS</th>
<th>WSS</th>
<th>S-2</th>
<th>SS-2</th>
<th>LNG</th>
<th>LG-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Service</td>
<td>Bundled</td>
<td>Bundled</td>
<td>Unbundled</td>
<td>Unbundled</td>
<td>Bundled</td>
<td>Bundled</td>
<td>Bundled</td>
<td>Bundled</td>
</tr>
<tr>
<td>Physical Location</td>
<td>Leidy Project</td>
<td>Leidy</td>
<td>Wharton</td>
<td>Mississippi</td>
<td>Louisiana</td>
<td>Oakford</td>
<td>Penn York</td>
<td>Carlstadt, NJ</td>
</tr>
<tr>
<td></td>
<td>Dominion</td>
<td>Penn York</td>
<td>Wharton National Fuel</td>
<td>Eminence</td>
<td>TGPL Sta. 54</td>
<td>TETCO @ Linden &amp; Shippack</td>
<td>Leidy-National Fuel</td>
<td>Carlstadt, NJ</td>
</tr>
<tr>
<td>TGPL point of receipt/delivery to upstream pipeline</td>
<td>Leidy-Dominion</td>
<td>Leidy-Dominion</td>
<td>Wharton</td>
<td>Eminence</td>
<td>TGPL Sta. 54</td>
<td>TETCO @ Linden &amp; Shippack</td>
<td>Leidy-National Fuel</td>
<td>LNG Plant</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wharton National Fuel</td>
<td></td>
<td></td>
<td></td>
<td>LNG Plant</td>
<td></td>
</tr>
<tr>
<td>Injection Season</td>
<td>All Year</td>
<td>Apr. 1 - Oct. 31</td>
<td>All Year</td>
<td>All Year</td>
<td>Apr. 16 - Nov. 15</td>
<td>Apr. 1 - Oct. 31</td>
<td>Apr. 1 - Oct. 31</td>
<td>Apr. 1 - Oct. 31 Firm Nov. 1 - Mar. 31 Best Efforts</td>
</tr>
<tr>
<td>Withdrawal Season</td>
<td>All Year</td>
<td>Nov. 1 - Mar. 31</td>
<td>All Year</td>
<td>All Year</td>
<td>Nov. 16 - Apr. 15</td>
<td>Nov. 1 - Mar. 31</td>
<td>Nov. 1 - Mar. 31</td>
<td>Nov. 1 - Mar. 31</td>
</tr>
<tr>
<td>Excess Injection</td>
<td>With Approval</td>
<td>With Approval</td>
<td>With Approval</td>
<td>With Approval</td>
<td>None</td>
<td>None</td>
<td>With Approval</td>
<td>With Approval</td>
</tr>
<tr>
<td>Excess Withdrawal</td>
<td>With Approval</td>
<td>With Approval</td>
<td>With Approval</td>
<td>With Approval</td>
<td>None</td>
<td>None</td>
<td>With Approval</td>
<td>With Approval</td>
</tr>
</tbody>
</table>
**GSS – General Storage Service**

- Year-round service
- Service provided to Transco by Dominion
- Leidy storage partnership with Dominion and Spectra
- Injection is nominated with fuel
- Withdrawal is nominated net
- Max Delivery Obligation – Transco not obligated to deliver if withdrawal reduces balance below set levels:
  - 11/1 – 2/14 Bal is < 20% Capacity
  - 2/15 – 3/1 Bal is < 7% Capacity
- Minimum inventory balance requirements – customer’s balance per day should not be less than minimum:
  - December > 35% Capacity
  - January > 35% Capacity
  - February > 15% Capacity
- If the balance is less than the minimum, only a percentage of demand will be allowed (95%)
- Minimum Turnover Requirements during the winter period
  - Must withdraw a quantity equal to or greater than the difference of the beginning balance 11/1 and 35% capacity
  - Penalty on amount not withdrawn

**Example of Injection (TT 6)**

<table>
<thead>
<tr>
<th>Error</th>
<th>Non-Status</th>
<th>Retire Status</th>
<th>Std Req K</th>
<th>Std Req Name</th>
<th>Std End Date</th>
<th>Cycle</th>
<th>Route</th>
<th>Std Loc Name</th>
<th>Std Qty</th>
<th>Fud N</th>
<th>Up K</th>
<th>Up ID Prop Name</th>
<th>Del Rank</th>
<th>Del Loc Name</th>
<th>Del Qty</th>
<th>Del ID Prop Name</th>
<th>Dh K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submit</td>
<td>300001B</td>
<td>XYZ LOC</td>
<td>60/3199</td>
<td>GSS Injection</td>
<td>9000001</td>
<td>10000</td>
<td>2.73</td>
<td>XYZ LOC</td>
<td>9000001</td>
<td>5000</td>
<td>1000</td>
<td>10000</td>
<td>10000</td>
<td>10000</td>
<td>10000</td>
<td>10000</td>
<td>1000</td>
</tr>
</tbody>
</table>

**Example of Withdrawal (TT 7)**

<table>
<thead>
<tr>
<th>Error</th>
<th>Non-Status</th>
<th>Retire Status</th>
<th>Std Req K</th>
<th>Std Req Name</th>
<th>Std End Date</th>
<th>Cycle</th>
<th>Route</th>
<th>Std Loc Name</th>
<th>Std Qty</th>
<th>Fud N</th>
<th>Up K</th>
<th>Up ID Prop Name</th>
<th>Del Rank</th>
<th>Del Loc Name</th>
<th>Del Qty</th>
<th>Del ID Prop Name</th>
<th>Dh K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submit</td>
<td>300001B</td>
<td>XYZ LOC</td>
<td>90/3199</td>
<td>GSS WD</td>
<td>9000001</td>
<td>10000</td>
<td>0</td>
<td>GSS Leidy</td>
<td>9000001</td>
<td>0</td>
<td>0</td>
<td>9000001</td>
<td>9000001</td>
<td>9000001</td>
<td>900001</td>
<td>900001</td>
<td>90001</td>
</tr>
</tbody>
</table>
LSS – Leidy Storage Service

- Seasonal service
- Service provided to Transco by Dominion and National Fuel.
- Injection is nominated with fuel
- Withdrawal is nominated net
- Minimum Inventory Balance Requirements
  - For December and January no less than 35% capacity
  - For February no less than 15%
- If the balance on any given day is less than the minimum required on that day, the customer will be allowed a percentage (93.33%) of its adjusted demand.
- Minimum turnover requirements: November 1 – March 31
- Quantity withdrawn must be equal to or greater than 35% of its capacity
- Penalty on amount not withdrawn

Example of Withdrawal (TT 7)

S2 – Storage Service

- Seasonal service
- Service provided to Transco by Spectra
- Gas is received at Linden (Oakford Storage) and delivered at Skippack
- Injection is nominated with fuel
- Withdrawal is nominated net
- Time-based ratchet on the withdrawal service
- Injections and withdrawals are not allowed on same day
- Customers are billed demand charges one month in advance

Example of Withdrawal (TT 7)
**SS-2 Storage Service**

- Seasonal service
- Service provided to Transco by National Fuel
- Injections and withdrawals are nominated with fuel
- Injections and withdrawals are not allowed on the same day

**Example of Withdrawal (TT 7)**

**LNG (Liquefied Natural Gas Storage Service)**

- TGPL can store up to 2 BCF of liquefied natural gas (LNG) at the Carlstadt, New Jersey facility.
- At the LNG plant, Transco provides:
  - Vaporization/gasification only – referred to as LNG Truck sales under Rate Schedule LG-S
  - Vaporization/gasification and storage of the vapor – referred to as Rate Schedule LG-A
- Unlike other storage services, customer allocations are based on the amount already liquefied or gasified based on an hourly rate
- LNG Truck sales (LGS) are scheduled by Gas Control

**LGA (Liquefied Natural Gas Storage Service)**

- Seasonal service
- Transco operated service at Station 240
- Injections from: April 1 – October 31
  - Best Efforts: November 1 - March 31
- All customers have to be at 100% at the end of the season
- Withdraw from: November 1 – March 31
  - Best Efforts: April 1 – April 30
  - None: May 1 – September 30
  - Best Efforts: October 1 – October 31
- Excess injections and withdrawals with approval
• Injection is nominated with fuel
• Withdrawal is nominated net
• Delivery/Withdrawal is done on an hourly basis and must be approved by Gas Control. Customer can cancel request but cannot cancel gas already used.

LGS
• Truck sales to the city gate (Buyer’s LNG facility)
• Available mainly in the summer months, but year round availability with approval from Gas Control.
• Deliveries – scheduled by Gas Control
• Returns (payback for gas delivered) – scheduled by customer
• Predetermined amount for returns are verified by Gas Control
• Deliveries and returns are allowed on same day
• Coordinated through Customer Services

Example of Injection (TT 6)

<p>| | | | | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>New Status</td>
<td>Status</td>
<td>Sec Req ID</td>
<td>Sec Req Name</td>
<td>End Date</td>
<td>Cycle</td>
<td>Route</td>
<td>Rec Loc</td>
<td>Rec Qty</td>
<td>Fuel %</td>
<td>Up K</td>
<td>Rec Rank</td>
</tr>
<tr>
<td>---</td>
<td>-------------</td>
<td>--------</td>
<td>------------</td>
<td>-------------</td>
<td>----------</td>
<td>-------</td>
<td>-------</td>
<td>---------</td>
<td>---------</td>
<td>--------</td>
<td>------</td>
<td>-----------</td>
</tr>
<tr>
<td>N</td>
<td>Submittal</td>
<td></td>
<td></td>
<td>2000021</td>
<td>04/02/15</td>
<td>XYZ</td>
<td>LGS Injection</td>
<td>9000001</td>
<td>1009</td>
<td>32.16</td>
<td>XYZ</td>
<td></td>
</tr>
</tbody>
</table>

WSS/WSS-OA (Washington Storage Service)

• Year-round service
• Operated by Transco
• Can have same day injections and withdrawals
• Injections and withdrawals can be made by shippers other than the owner of the WSS point
• Injections are considered a Zone 3 Delivery and are nominated with fuel
• Withdrawals are considered a Zone 4 Receipt and there is no fuel
• Rate schedule WSS-OA (open access WSS) also from this facility. This storage service is releasable.
ESS - Eminence Storage Service

- Year-round service
- Operated by Transco
- Releasable service
- Can have same day injections and withdrawals
- No fuel on injection or withdrawal
- Injections and withdrawals can be made by shippers other than owner of Eminence Storage
- The following services offered at this facility (Eminence Storage) require a separate contract:
  - Rate schedule EESWS (Emergency Eminence Storage Withdrawal Service)
  - Rate schedule EESS (Enhanced Eminence Storage Withdrawal Service)

Excess Storage Availability

1. Check the Transco Info Postings page under **Pipeline Conditions** for excess storage availability.
2. Submit nomination by selecting **Navigation > Nominations > Nomination > Retrieve Nomination**.
   - GSS injections are nominated using Transaction Type 12 for injections and Transaction Type 13 for withdrawals
3. Results may be viewed from the scheduling pages by selecting **Navigation > Nominations > Scheduling > Review/Select Scheduling Runs**.
4. Results may be also viewed after each cycle on the Scheduled Quantity report (SQR).

Example of GSS Excess Withdrawal (TT 13)

Storage Pages – Navigation, Description and View

1. Select **Navigation > Flowing Gas > Storage**
View Storage Balance

1. Select **Navigation > Flowing Gas > Storage > Inventory Balance**
2. Select **flow date** (default is current date), and any other **desired filters**, then **Retrieve**.

- Also, from this page, you can submit a **Storage Adjustment Detail Report**. This report shows details of any PPAs displayed in the **Net PPA** column.
3. Select PPA line on the page and choose **Actions > Submit Stg Adj Detail Rpt**.
Storage Transfer Summary

The Storage Transfer Summary page is designed to provide the ability to create transfers between parties within the 1Line system. Storage quantities are now transferred the day prior to the transfer effective date to ensure balances are available for nominating for the 1st of the following month. It is important to confirm these storage transfers in order for them to be active.

- **Flow date** - current or future day but not more than 15 days into the future
- **Prearranged transfer** - the initiating party must know the confirming party’s contract number. Confirming party’s contract does not have to be posted.
- **Non-prearranged transfer** - the initiating party can choose from a list of storage balances available for transfer, provided that the posted balance is greater than or equal to the amount being transferred.
- **100% option** for transferring the balance can only be applied if the initiating party’s direction is W/D (From)

Select **Navigation > Flowing Gas > Storage > Transfer Summary**

1. Transfer Summary page defaults empty.
2. Click **Retrieve**.

3. Data table will populate with Data
Create Storage Transfer

Create Storage Transfer - Prearranged

1. Select Navigation > Flowing Gas > Storage > Transfer Summary
2. Select Retrieve.
3. Select data row (of balance to create a transfer to or from) and it will turn yellow.
4. Select Action Request Transfer.
   • Page is displayed in split screen format.
5. Under Transfer Detail in the Initiating Party section, enter Flow Date, Direction W/D (From) Inj (To) and Quantity (or check 100% option).
6. Check the Pre-arranged Transfer box.
7. Under Confirming Party section, type in appropriate Service Req K, then click on Get Confirm Party Info link to populate the Confirming Party Name/Id.
8. The Contact Name will default to the first name in list, but you can change to anyone in the drop down.
9. Make sure row is selected and under Bottom Actions, select Submit.
10. If you are the Confirming Party, select Actions Menu> Confirm.

Create Self Storage Transfer

1. Select Navigation > Flowing Gas > Storage > Transfer Summary
2. Select Retrieve.
3. Select data row (of balance to create a transfer to or from) and it will turn yellow.
4. Select Actions> Request Transfer.
   • Page is displayed in split screen format.
5. Under **Transfer Detail in the Initiating Party section**, enter **Flow Date, Direction W/D (From) Inj (To)** and **Quantity** (or check 100% option).

6. Check the **Pre-arranged Transfer** box.

7. Under Confirming Party section, type in your Service Req K, then click on **Get Confirm Party Info** link to populate the Confirming Party Name/Id.

8. The **Contact Name** will default to the first name in list, but you can change to anyone in the drop down.

9. Make sure row is selected and under **Bottom Actions**, select **Self Transfer Submit/Confirm**.

### Create Storage Transfer – Non Prearranged

1. Select **Navigation > Flowing Gas > Storage > Transfer Summary**

2. Select data row (of balance to create a transfer to or from) and it will turn yellow.

3. Select Action **Request Transfer**.
   - Page displayed with initiating balance in a split screen format.

4. Under **Initiating Actions**, enter **Flow Date, Direction** (W/D (From) or Inj (To)), **Quantity** and **Prearranged Transfer** indicator not checked (Prearranged default = checked (yes)).

5. Select the **Get Confirm Party Info** box to populate the Confirming Party contact information.
   - The Posted Storage Balance page is displayed.

6. Select the **Confirming Party** and appropriate contract.

7. Select **OK**.

8. Select the row then under **Initiating Actions**, select **Save, Submit, add comments, etc.**

### View/Confirm Existing Transfers
1. Select **Navigation > Flowing Gas > Storage > Transfer Summary**

2. Select **View Transfers**.

   - Page is displayed with transfer activity listed in a split screen format.

3. From bottom screen, select **Confirm** or **Reject**.
Posting Storage Balances:

Select Navigation > Flowing Gas > Storage > Transfer Summary

1. Select Navigation > Flowing Gas > Storage > Transfer Summary
2. Select row and it will turn yellow.
3. Update the Effective Date and the Storage Withdrawal or Injection to be posted.
4. Make sure row is selected and select Actions> Post/Unpost Balance.
5. You can post or un-post Storage activity from this action.

Viewing Posted Storage Balances:

Select Navigation > Flowing Gas > Storage > Posted Storage Balances

1. Select Retrieve to view Posted Storage Balances

Available Storage Reports

Detail Inventory Balance (E2402) - provides a detail view of the storage location balance by contract.

Excess Storage Report (E2422) - also available in data file.

Inventory – Month to Date (E2407) - provides a quick look at activity for all storage contracts including the ending balance.

Storage Adjustment Details (E2417) - displays source of adjustments including linked transactions.
Storage Training Module

**Storage Contract Limits** (E2410) - displays storage contracts that have ratchets; includes ratchet levels and quantities.

**Storage Statement** (E1905) - also available as a data file.

**Storage Transfer** (E2406) - provides a list of storage transfers by BA for a day or range of days where the BA is either the initiating or confirming party on the transfer(s).

**Unbundled Storage Activity Report** (E2405) - summary and detailed view of storage activity at unbundled storage locations by BA/Contract. Also available as a data file.

### Storage Glossary

**SIM**: Storage Inventory Management

**MDIQ**: Maximum Daily Injection Quantity

**MDWQ**: Maximum Daily Withdrawal Quantity

**MSQ**: Maximum Storage Quantity

**Adjusted MDIQ**: MDIQ adjusted for capacity release quantities.

**Adjusted MDWQ**: MDWQ adjusted for capacity release quantities.

**Adjusted MSQ**: MSQ adjusted for capacity release quantities.

**Net Activity**: Net injections minus gross withdrawals.

**Net Trade**: In-field transfer activity.

**Net Adj (Adjustment)**: Current month and prior month adjustments.

**Adjustment Quantity**: The quantity applied to adjust the storage inventory at a storage location.

**Deliverability**: The amount of gas that can be delivered (withdrawn) from a storage facility on a daily basis.

**Injection Capacity (or Rate)**: The amount of gas that can be injected into storage facility on a daily basis.

**Ratchets**: Reduced levels of allowed injections or withdrawals which correspond to the physical capabilities. Ratchets are applied at a customer level based on the time of the year as well as the individual customer storage balance for a particular service. Each storage service has its own set of ratchets.
Storage Map
Monthly Verification of Storage Balances

Once storage balances are final for a month, 1Line will generate and send an e-mail confirmation to customers with storage contracts. E-mail content will include the storage rate schedule, contract, the beginning and ending balances for the flow month, and a designated response date. E-mail notifications will be sent to customer representatives assigned the Storage View role.

Storage customers will be asked to reply back to christine.cromer@williams.com and copy their assigned Transportation Service Representative.

Noted differences on the Storage Balances Confirmation will need to be retroactively resolved with your assigned Transportation Services Representative.