GATHERING, TRANSPORTATION AND STORAGE

Gathering and Processing Issues

The Company acquires a substantial portion of the supplies that its customers utilize each year pursuant to the Wexpro Agreements. In many situations, gathering and/or processing services are required for these supplies before they can enter the interstate pipeline system to travel to Questar Gas' city gates. Therefore, Questar Gas has several gathering and processing agreements.

The majority of the cost-of-service production is gathered under the System-Wide Gathering Agreement (SWGA), between Questar Gas and QEPM Gathering I, LLC (QEPM). Effective August 13, 2013, QEP Field Services (QEPFS) assigned its rights and obligations under the SWGA to QEPM. On December 2, 2014, Tesoro Logistics LP (Tesoro) purchased the midstream (gathering and processing) business of QEP Resources including QEPFS and QEPM.[75]

During the fall of 2010, Questar Gas requested an audit of the calculation of the gathering rates and charges under the SWGA. Based on the information provided by QEPFS, Questar Gas disputed the rates and charges. On May 1, 2012, Questar Gas filed a lawsuit against QEPFS. The lawsuit was based on a dispute regarding interpretation of the rates and charges under the SWGA. QEPFS filed an answer and counter claim alleging that Questar Gas had breached the SWGA by not allowing QEPFS to gather and process gas from certain wells in two fields located in the state of Wyoming. Questar Gas paid monthly invoices based on Questar Gas' calculation of gathering costs under the SWGA subject to adjustment pending the final outcome of the litigation.

On March 22, 2016, the parties entered into a confidential settlement agreement which resolved all claims in the lawsuit. As part of the confidential settlement, certain gathering agreements were amended, effective January 1, 2016, to clarify the determination by Tesoro of the cost-of-service gathering rates charged under the agreement.

Questar Gas includes cost data for the gathering and processing functions each year in the SENDOUT modeling process. Questar Gas used the new settlement rates from the amended SWGA in this year's modeling process.

The SENDOUT model uses a logical gas supply network to define the relationships between modeling variables. Exhibit 7.1 illustrates those logical relationships for the gathering, processing and transportation functions as utilized by the model.

Transportation and Storage Contracts

[75] "Tesoro Logistics LP Completes the Acquisition of QEP Field Services, Creating Full-Service Logistics Business," Tesoro Logistics News Release, Tesoro Logistics Investor Relations, December 2, 2014.

Questar Gas holds firm transportation contracts on Questar Pipeline, Kern River, CIG and Northwest Pipeline. The Company also has storage contracts with Questar Pipeline. Questar Gas continues to review capacity requirements to determine the amount of transportation and storage required. As part of this planning process, Questar Gas is currently evaluating its existing contracts with Questar Pipeline, Kern River, and Northwest Pipeline that have term expirations within the next five years. Questar Gas will continue to look for ways to optimize its use of these contracts.

As customer demand continues to grow, the Company will also review options to expand station capacity, as described in the DNG Action Plan, and firm transportation capacity to ensure reliable deliverability of gas supplies to the system. In order to provide reliable supply, the Company plans to utilize firm transportation capacity to transport gas from liquid upstream supply points to the Questar Gas City Gates. Questar Gas will continue to implement the long-term strategy to transport at least 80-85% of its peak-day supplies to the Questar Gas system using firm upstream capacity.

All options will be evaluated based on criteria to provide safe, reliable and cost-effective service to customers. Contracting decisions will be based on current and forecasted needs as well as current and projected availability and cost. The Company may also consider the addition of facilities and contracts for redundancy purposes.

New Transportation Contracts

Questar Gas entered into two new transportation contracts in 2015; one with CIG and one with Kern River.

In the past, Questar Gas has served the town of Wamsutter, WY with interruptible capacity from CIG because historically, firm capacity was not available. Recently, some firm capacity on CIG became available and on September 24, 2015 Questar Gas entered into a firm transportation service agreement (Contract #211257) with CIG. The new agreement allows Questar Gas to transport up to 400 Dth/D under CIG's TF-1 rate schedule to serve Wamsutter. The contract runs from November 1, 2015 through October 31, 2025 at the CIG maximum rate.

In January 2016, Kern River held an open season for 27,625 Dth/D of capacity from Opal and Painter in Wyoming to points in California. Questar Gas was the winning bidder for this capacity. As a result, on February 19, 2016 Questar Gas entered into a firm transportation service agreement (Contract #1534) with Kern River for the transportation of 27,625 Dth/D under Kern River's KRF-1 rate schedule. The agreement is effective from October 1, 2016 through March 31, 2017 at a negotiated rate. This contract is not segmentable. Questar Gas plans to utilize the transportation under this contract to provide additional firm capacity to serve the Wasatch Front during the coming heating season.

Five-Year Contract Evaluation Process

Questar Gas continues to evaluate contracts on a 5-year planning basis. Questar Gas has a contract with Northwest Pipeline for 4,311 Dth/D of transportation capacity that currently has a term expiration of April 30, 2022. This contract has a unilateral cancelation under which the Company can terminate the agreement by providing 5 years advanced notice. Northwest Pipeline cannot terminate the contract. The Company uses this contract to serve the towns of Moab, Monticello and Dutch John. This contract is segmented in order to provide additional capacity to serve these towns. The capacity is released to two contracts which both expire on April 30, 2017. The earliest the Company can extend these segmented contracts is March 31, 2017. The Company is planning to extend these released contracts at that point as the capacity will be available on a first-come basis.

Questar Gas has two Clay Basin firm storage contracts with Questar Pipeline for 3,727,500 Dth each and one for 5,964,000 Dth. They have term expirations of April 30, 2017, March 31, 2020 and April 30, 2019, respectively. Questar Gas utilizes these contracts almost every day. The Company is evaluating the contract that expires on April 30, 2017 and plans to act on the results of the evaluation during the 2016-2017 IRP year.

Questar Gas also has three contracts with Questar Pipeline for a total of 184,625 Dth/d of peak-shaving storage in three gas-storage aquifers: Leroy, Coalville and Chalk Creek (Aquifers). The contracts all have term expirations of August 31, 2018. The Company has evaluated alternatives for these contracts. The results reinforced the fact that the existing peak-shaving storage at the Aquifers is the best option going forward.

Questar Gas also has two transportation contracts with Questar Pipeline for 798,902 Dth/D (Contract #241) and 12,000/87,000 Dth/D (Contract #2945 – volume changes seasonally) that have term expirations of June 30, 2017 and March 31, 2018, respectively. The Company is reviewing the existing receipt points on Contract #241. Contract #241 currently provides access to receipt points that accommodate cost-of-service gas, storage facilities and other liquid supply points. Recently, supply availability has been limited at some of the receipt points on Contract #241. These concerns will be addressed prior to a renewal of Contract #241.

Based on the current strategy for firm capacity and the benefits provided by this contract, Questar Gas will negotiate additional permanent amendments to receipt and delivery points as part of renewing Contract #241 during the 2016-2017 IRP year. The Company will also begin to evaluate Contract #2945.

Questar Gas also has two transportation contracts with Kern River Gas Transmission for 53,000 Dth/D (Contract #1715) and 1,885 Dth/D. These contracts have term expirations of April 30, 2018 and October 31, 2020 respectively. Contract #1715 will be eligible for Kern River's Period Two rate schedule upon expiration of the original term. In order to receive the Period Two rates[76] the contract must be extended for either 10 or 15 years. Questar Gas plans to evaluate and give notice to renew this contract during the 2016-2017 IRP year.

[76] Kern River's Period Two rates extend from the expiration of its firm shippers' initial contracts to the end of Kern River's depreciable life during which Kern River recovers the 30% equity-financed portion of its rate base (the 70% debt-financed portion is recovered by Period One rates).

Questar Gas will continue to use the Foothill gate station to serve Rock Springs, WY from CIG for the 2016-2017 IRP year. Now that capacity is available on CIG, the Company will review potential alternatives to serve this station using firm transportation capacity rather than purchases at the City Gate.

System Coordination

Following a large scale electric power outage in the southwestern United States in February 2011, the FERC and industry groups began closely looking at ways to better coordinate the resources of natural gas power generation facilities and the interstate FERC-regulated pipelines that deliver gas to those power plants.[77] The FERC issued an order on March 20, 2014 to commence a rulemaking on the Coordination of the Scheduling Processes of Interstate Natural Gas Pipelines and Public Utilities (NOPR). FERC proposed changes to: (1) the natural gas operating day (Gas Day); and (2) the natural gas intra-day scheduling practices. FERC gave natural gas and electric industries until September 24, 2014 to reach a consensus through the NAESB. FERC requested comments by November 28, 2014.[78] After many meetings, NAESB filed comments with FERC setting forth the group's consensus regarding the intra-day scheduling practices. NAESB also reported that the parties could not reach consensus regarding the start time of the Gas Day. AGA, the Natural Gas Council and many other parties also filed comments.

On April 16, 2015 FERC issued Order No. 809, which changed the nationwide Timely Nomination Cycle deadline for scheduling natural gas transportation from 11:30 a.m. Central Clock Time (CCT) to 1:00 p.m. CCT, revised the intraday-nomination timeline to include an additional intraday scheduling opportunity during the Gas Day, adopted revisions to provide contracting flexibility to firm natural gas transportation customers through the use of multi-party transportation contracts but did not change the start time of the Gas Day. FERC required interstate natural gas pipelines to comply with the new business practice standards beginning on April 1, 2016. The new Gas Day timeline is shown in Exhibit 7.1. The North American Energy Standards Board (NAESB) continues to review issues regarding gas electric harmonization and plans to file a report with FERC by October 17, 2016.

The American Gas Association has taken an active role on behalf of local distribution companies in FERC rulemaking dockets as a part of a larger effort to improve reliability nationwide.[79] Meanwhile, to further reliability in the industry, FERC has approved rate schedules that allow interstate natural gas pipeline companies the ability to offer enhanced services, such as peaking services or hourly firm transportation, to provide shippers the ability to contract for services over an hourly or peak period during the day as opposed to standard firm services which contract per day and not per hour.

On December 17, 2015 Questar Gas provided an update to the Commission on the impact of hourly demand on its system. As gas-electric harmonization develops and

[77] See http://www.ferc.gov/industries/electric/indus-act/electric-coord.asp
[78] http://www.ferc.gov/media/news-releases/2014/2014-1/03-20-14-M-1.asp#.U5YnJ03jhaQ
[79] Comments of the American Gas Association, FERC Docket No. RM14-2-000 (Nov. 28, 2014).

enhanced services become more widely available, Questar Gas will continue to closely follow industry developments and analyze whether its reliability would be improved through an enhanced hourly or peaking service.

No-Notice Transportation (NNT) Service

Questar Pipeline provides NNT service pursuant to its FERC Gas Tariff and the NNT Service Agreement, as amended, between Questar Pipeline and Questar Gas. Questar Pipeline's NNT Service is offered as an enhanced service to supplement its firm transportation service. NNT service utilizes the contracted reserved daily capacity (RDC) of the underlying firm transportation service (T-1) and offers additional flexibility in intraday variation of the supply and demand of that transportation. Specifically, NNT service allows Questar Gas' level of supply to adjust in real time to accommodate the increases or decreases in demand throughout the Gas Day.

Under the NNT rate schedule, Questar Gas may nominate transportation capacity the day before the gas flows to reserve sufficient capacity and provide adequate variable sources of supply to match any change in demand. NNT adjustments for increased demand through the Gas Day, which do not cause flow to exceed the associated T-1 RDC are considered firm; however, NNT adjustments which cause the flow to exceed the T-1 RDC on an hourly basis are subject to pipeline operational capacity availability. While no-notice service is "firm," it is limited by two factors: actual physical constraints on the pipeline and contractual constraints.

Questar Gas relies on the use of NNT service on a daily basis for delivery in response to non-forecasted demand swings, with adjusted Gas Day nominations resulting on 344 days during the 2015-2016 IRP. Different drivers affect the need for the NNT service between the summer and winter seasons. In winter, NNT allows Questar Gas to adjust to cold weather-driven demand changes, while in summer, NNT service provides Questar Gas the flexibility to adjust to demand changes based on changes in customer usage.

Questar Gas used NNT service 237 days during the IRP year to reduce nominations to the city gate by reducing withdrawals or increasing injection into storage. Questar Gas used NNT 107 days to provide for additional storage withdrawal or reduce injections. The maximum daily use of NNT to reduce supply to the city gate for the heating season was 180,402 Dth with an average daily supply reduction to the city gate of 31,499 Dth. The maximum daily supply increase to the city gate for the heating season was 203,542 Dth with an average daily increase to the city gate of 13,001 Dth. The NNT usage for the 2015-2016 IRP year is shown in Figure 7.1 below.

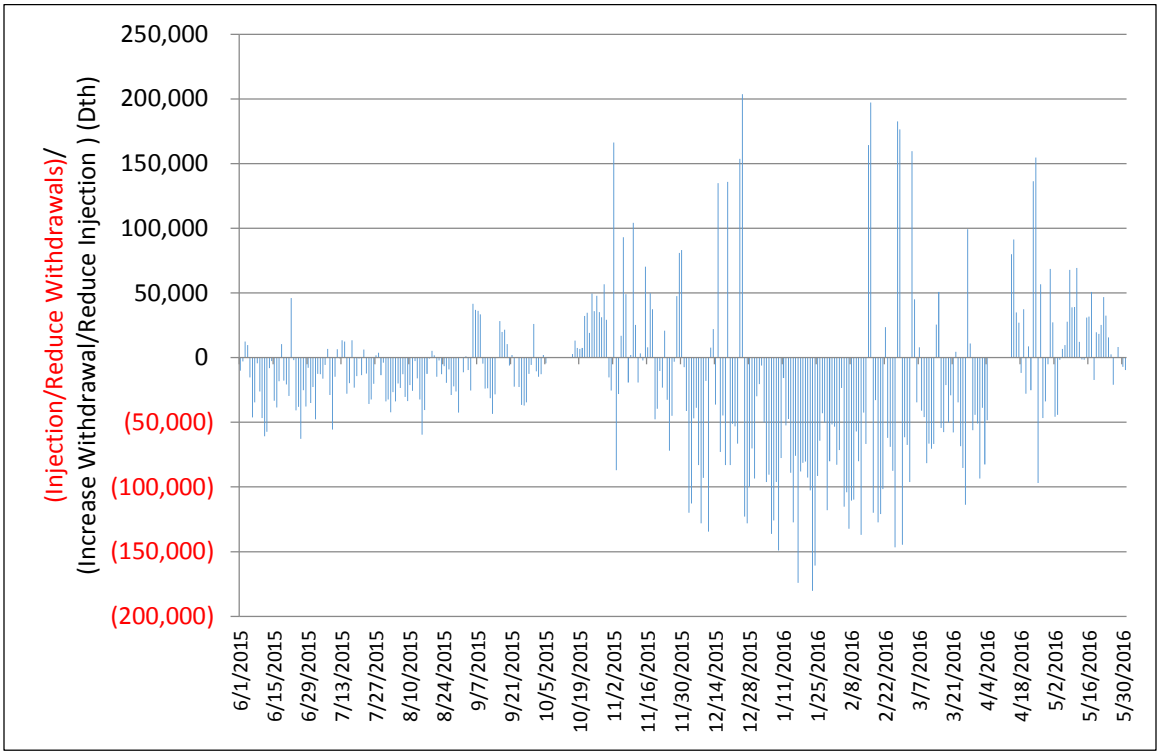

Figure 7.1: NNT Usage – 2015-2016 IRP Year

Meeting Hourly Demand Swings

With increasing sales customer base and the associated demand growth, Questar Gas has begun to see actual hourly demand on high-load days that exceed the physical limits to the hourly deliveries Questar Pipeline can make to the City Gates. This instantaneous flow rate is only experienced for a few hours in the morning. It is important to note that currently capacity is sold on a daily basis.

As part of NNT service, Questar Pipeline's tariff allows delivery of volumes that exceed Questar Gas' RDC for short periods of time as long as those deliveries do not impair Questar Pipeline's ability to provide service under any other rate schedule. Questar Gas and Questar Pipeline regularly model their systems to quantify this ability to deliver gas at rates that exceed Questar Gas' RDC to ensure that the systems can meet peak-flow requirements. This analysis is part of the JOA process described in the "System Capabilities and Constraints" section of this report.

Recent improvements in this process have identified concerns associated with the growth of peak-hour demands and the system's ability to meet these demands. Questar Gas is working with gas suppliers and transporters to identify prudent short-term and long-term solutions to meet this growing demand.

In addition to the services currently available to Questar Gas, such as intra-day nomination changes and storage services, the Company is considering the following solutions (separately or in combination): 1) upstream hourly services that can be offered to provide supply to match the demand swings, 2) demand response programs, 3) contracting

for additional firm upstream transportation capacity, 4) purchasing excess supply to meet peak demand, 5) facility improvements and 6) the building of a liquefied natural gas (LNG) facility to use for hourly peaking supply. On February 26, 2016 Questar Gas sent out two separate requests for proposals (RFP). The first RFP sought proposals for services to meet the demand swings utilizing upstream pipelines. The second RFP sought proposals for engineering services to begin the design analysis work for an on-system LNG facility.

Questar Gas has determined services will be required for the 2016-2017 heating season in order to meet peak-hour demand. Questar Gas plans to move forward with at least one of these options for the 2016-2017 heating season:

1) Peak-Hour Services

Questar Gas received three responses to the RFP for upstream hourly services to meet the hourly demand swings. Two of these proposals provide options that could help meet the hourly-peak demand in the 2016-2017 heating season. The Company, in anticipation of augmenting services to ensure the system is capable of meeting peak-hourly demand, is currently reviewing these proposals.

2) Demand Response

Questar Gas is contacting large industrial customers in order to determine interest in participating in demand response programs that could provide additional supply to the Questar Gas system during hours of peak demand. These programs could include agreements for the customer to curtail usage and provide the gas supply to Questar Gas. This would be intended for firm customers and only useful if the large industrial customer has a scheduled nomination in place for the day the service is required by the Company. Assurances such as penalties for non-compliance or automated shut-off valves may also be required.

3) Additional Firm Upstream Transportation Capacity

Questar Gas is analyzing the impact of acquiring additional firm upstream capacity in order to meet the peak hour demands. This capacity could provide reliable access to additional supplies on a peak day.

4) Purchasing Excess Supply

Questar Gas is analyzing the availability and impact of buying supply in excess of the total supply needed to meet peak-day requirements. This supply could be used to meet the peak-hour demands in the morning and moved to storage during intraday cycles. This would likely result in injections into storage when normally there would be withdrawals to meet peak-day requirements.

5) Facility Improvements

In order to facilitate the nomination of excess supplies to the City Gates, Questar Gas may be required to construct or upgrade gate stations and/or distribution pipelines. These facility improvements could take more than a year to complete.

6) LNG Peak-Shaving Facility

Questar Gas previously completed an evaluation of the viability of an LNG peak-shaving facility as an alternative to the existing peak-shaving storage currently provided by the Aquifers. As part of the evaluation, Questar Gas conducted research regarding LNG peak-shaving facilities. Questar Gas also contracted with a consultant, CH-IV International, to perform a conceptual cost study of an on-system facility.

The study revealed a number of operational advantages of owning and operating an on-system storage facility. These operational advantages could be used as a long-term solution to the hourly demand swing issues.

An on-system storage facility operated by Questar Gas would not be subject to nomination and scheduling requirements of the upstream pipelines. The Company could withdraw supply from the facility during hours of peak demand as required. This would result in reduced hourly demand swings on the upstream pipelines. Other advantages would include supply redundancy and baseload demand on the system in the summer.

Initial analysis has indicated that sizing for a facility for this purpose may be similar to the facility considered in the conceptual cost study. The Company has received a number of proposals that are being evaluated and the Company plans to proceed with initial engineering work during the 2016-2017 IRP year.

Gas Quality/Interchangeability

Almost all of the gas delivered to the Questar Gas system comes from interstate pipelines (Questar Pipeline, Kern River, CIG and Northwest Pipeline). Each of these interstate pipelines manages gas quality to limits defined in its tariff. These limits have been effective in equitably meeting the delivery needs of shippers and downstream customers.

The most prevalent measure of fuel gas interchangeability in the U.S. is the Wobbe Index.[80] Natural gas appliances are rated to operate safely and efficiently within a specific Wobbe Index range. Questar Gas used a consulting firm to establish the Wobbe operating ranges for its service areas. For example, Exhibit 7.2 shows the upper and lower Wobbe operating limits for the Utah Wasatch Front (North) region for various levels of heating value and specific gravity. Questar Pipeline updated this exhibit this year to show the daily averages for 2015 of various sources of natural gas on Questar Pipeline's system flowing

[80] The Wobbe Index number consists of the higher heating value of a fuel gas divided by the square root of the specific gravity (relative to air) of the fuel gas. Fuel gases with the same index number generate the same heat output over time from a burner given constant pressure and orifice size.

to customers in this region. This IRP contains charts for other Utah regions (Exhibit 7.3 and Exhibit 7.4). Exhibit 7.5 and Exhibit 7.6 show the same information for the Wyoming eastern and western regions. Should Wobbe values become a concern in the future at any point delivering gas to Questar Gas, there are a number of tools that the Company can use to manage gas interchangeability including injecting inert gases (or air) in the gas stream, injecting propane and blending supplies from various sources.

There is some concern relating to gas quality conditions in the town of Altamont, Utah. The tap feeding Altamont is located less than 50 ft away from the outlet of a large gas processing plant. This plant feeds into Questar Pipeline and that gas flows directly into Questar Gas' station serving the town of Altamont. When the processing plant is operating correctly the gas is interchangeable. However, when there is an upset, there is a possibility that the Wobbe number could rise above the upper limit of 1425. To date, the average daily gas quality remains below the defined upper limit. Nevertheless, Questar Gas is currently evaluating options to ensure that Altamont receives interchangeable gas, even during events or disruptions at the processing plant. The Company is currently considering two options: (1) running a pipeline from a different source to Altamont or (2) installing a small gas processing skid located at the tap feeding the town of Altamont.

It is difficult to predict the interchangeability of future gas streams. The Company may need to arrange for additional processing or blending in the event it is required to ensure that the gas received from the transmission systems of any of its upstream pipelines are compatible with the needs of Questar Gas' customers. Questar Gas will evaluate this on an ongoing basis as it bears the burden of processing pipeline-quality gas to meet its specific requirements.

Questar Gas has been contacted by parties with gas supplies, such as biomethane producers, interested in delivering gas directly into the Questar Gas system. Questar Gas is currently collaborating with interested parties and plans to submit a tariff that will contain gas-quality standards to ensure that the gas stream is interchangeable and safe for its customers.

Storage Issues

Questar Gas holds firm contracts for storage services at four underground gas storage fields to respond to seasonal winter and peak demands. The fields are the Leroy, Coalville and Chalk Creek Aquifers and the Clay Basin reservoir.

Questar Pipeline owns the Aquifer storage facilities and they are utilized primarily for short-term peaking. Questar Gas fully subscribes to the Aquifer facilities. Questar Gas reviewed these storage resources as part of its five-year planning process.

Questar Pipeline also owns Clay Basin, a depleted dry gas reservoir, and its shippers utilize the facility for both baseload and peaking purposes. Questar Gas' contracted inventory for its storage facilities is outlined in the following table:

Table 7.1

Facility	Maximum Inventory (MDth)
Clay Basin	13,419
Leroy	886
Coalville	720
Chalk Creek	321

Clay Basin Storage

The Clay Basin storage facility is located in the northeast corner of Utah, roughly 50 miles from Rock Springs, Wyoming. The Clay Basin field has two producing sandstone formations, the Frontier and the Dakota. The Frontier formation is still producing natural gas today and the Dakota formation is used for storing gas. The Dakota formation was largely depleted by 1976 when construction of the storage facilities began. Today, the Clay Basin reservoir has the largest capacity of any underground storage facility in the Rocky Mountain Region.

Questar Gas receives storage service at Clay Basin under rate schedule FSS. Billing under rate schedule FSS consists of two monthly reservation charges and separate per unit usage fees for injection and withdrawal. The first reservation charge is based on each shipper's minimum required deliverability (MRD) as stated in each shipper's storage service agreement. The second monthly reservation fee is an inventory capacity charge based on each shipper's annual working gas quantity.

The tariff provisions governing Clay Basin assure that customers will receive at least their MRD. To the extent that shippers have inventory in excess of their MRD, additional deliverability is available for allocation according to predetermined formulas. Questar Gas exceeds its contract MRD regularly throughout the heating season, but only assumes its MRD will be available during a peak day.

During the 2015-2016 heating season Questar Gas utilized the Clay Basin storage facility to provide more than 11.5 MMDth of supply to meet customer demand. This included 58 days with withdrawals that exceeded 100 MDth and 21 days with withdrawals that exceeded 150 Mdth. Clay Basin also provided operational flexibility by providing 16 days of injection during the heating season.

Leroy and Coalville Storage

Since 2000, the operation of the Leroy and Coalville storage facilities have been modified to provide more flexibility and enhance storage efficiency. Following the end of the withdrawal season, the inventories in these facilities have maintained a working gas inventory of approximately 30–50% of maximum capacity through the summer months. Previous practice was to completely deplete the facilities each year at the end of the withdrawal season. The advantages of this revised mode of operation are as follows:

- Wells in the Leroy and Coalville facilities are not "watered out" at the end of the withdrawal cycle, which improves well efficiency when storage injections are initiated in the fall.
- Injection compression fuel gas requirements are reduced (only 50-70% of the working capacity needs to be injected in the fall to fill the reservoir).
- A shorter, more predictable, and easily managed withdrawal/depletion schedule occurs at the end of the heating season.
- A shorter injection season for reservoir refill is required in the fall.
- With the Leroy and Coalville inventories at 50%, the flexibility exists to inject significant volumes due to gas displacing water in the reservoir.

In general, current operating practices at both the Leroy and Coalville facilities are as follows:

- Injections into the reservoirs commence in August or September from an initial inventory of approximately 45-55% of maximum working inventory. Injections continue until an inventory of approximately 75% of maximum is reached by early October. Injections follow a specific schedule determined by well and reservoir characteristics which minimizes the potential for "fingering" (gas being trapped behind water in the aquifer and resulting in gas loss).
- In early October, scheduled injections are halted to facilitate Questar Pipeline's testing conducted at the Clay Basin storage facility. The testing requires two days of injection at a controlled rate followed by a 7-day no flow period for pressure stabilization. Depending upon system demand and the gas supply situation during the no flow period, the 75% inventory at Leroy and Coalville affords the flexibility to either inject or withdraw to help meet system balancing requirements.
- Following the Clay Basin test, controlled injections again commence in Coalville and Leroy and they typically reach maximum inventory by early November.
- The Company utilizes both Coalville and Leroy to meet peak-load requirements through the heating season, to manage the morning and evening load swings and to offset the cost of purchased gas during a high-pricing event. During periods of lower winter demand, the Company refills the reservoirs to maximum inventory when possible.
- During March, when the need for peaking withdrawals has passed, the Company partially draws down the reservoirs to inventories of approximately 50% in preparation for Clay Basin testing (conducted during April). The April Clay Basin test consists of a few days of a withdrawal period followed by 2 days of controlled withdrawal. Following the withdrawal period, Questar Pipeline shuts Clay Basin in for pressure stabilization. Maintaining Coalville and Leroy at the indicated inventory range during this period provides the flexibility to either inject or withdraw based upon system balancing needs.
- At the end of the spring Clay Basin test, the Company draws Leroy and Coalville down to inventory levels of approximately 45–55% and then

maintains both at that level until refill commences in the fall. Periodically, Questar Gas will completely draw down one aquifer when necessary to conduct an inventory volume verification analysis.

Chalk Creek Storage

Chalk Creek is utilized differently than the Leroy and Coalville facilities. This facility has more restrictive injection requirements but still provides high deliverability. Due to the nature of the Chalk Creek storage formation and in order to minimize losses, Questar Pipeline does not currently practice partial inventory maintenance during the summer. Operation at Chalk Creek is as follows:

- Injections commence in early November following a controlled injection profile.
- By mid-December, the reservoir reaches maximum inventory.
- In early March, gas in the reservoir is withdrawn in a controlled manner and it remains empty until refill injections commence in the fall.

2015-2016 Aquifer Usage

Due to warm temperatures, the Company mainly used the Aquifers to provide supply during a period of cold temperatures in November and again during a high-sendout period at the end of December 2015. In order to continue to provide operational flexibility during the Clay Basin testing period in April 2016, the Company withdrew inventory from the Aquifers in March. The Company reduced the inventory in the Aquifers in order to provide injection capabilities in the event of continued warm weather during the Clay Basin test in April.

The Company was able to utilize the Aquifers for both injection and withdrawal during this time period as shown in Figure 7.2 below. This flexibility is critical to operations when Clay Basin is not available.

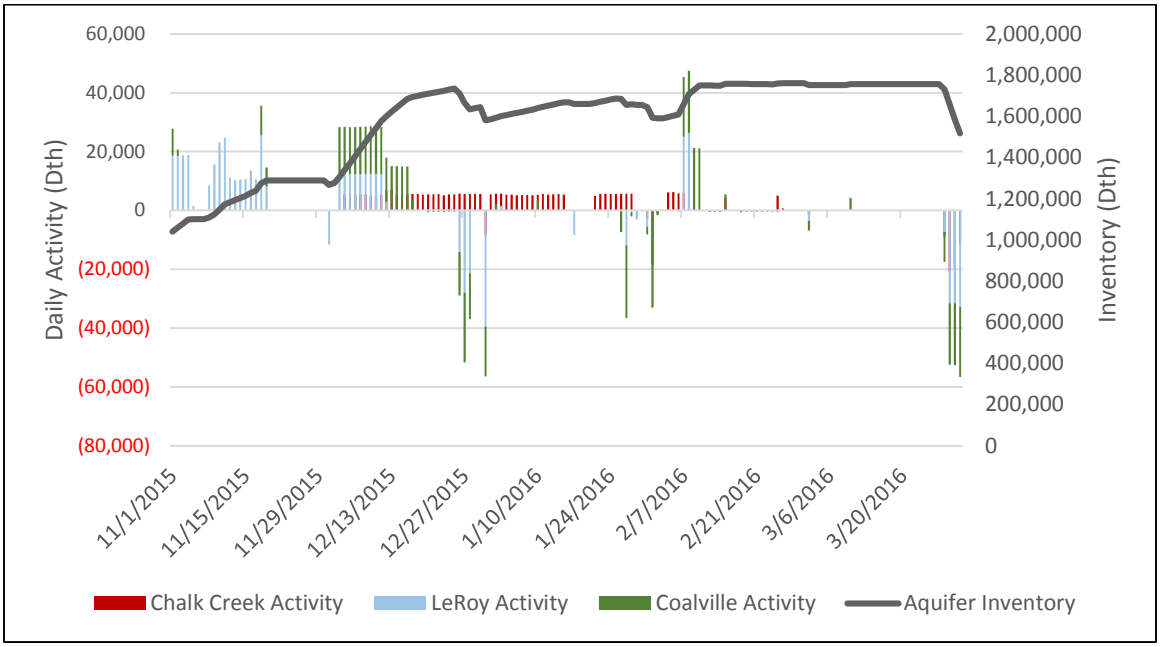

Figure 7.2 –Aquifer Usage 2015-2016 Heating Season (Oct 2015 through April 2016)

Ryckman Creek Gas Storage

The Ryckman Creek storage project involves the utilization of a partially depleted oil and gas field located approximately 25 miles southwest of the Opal Hub in southwestern Wyoming (see Exhibit 7.7).[81] The facility interconnects with Kern River, Questar Pipeline, Northwest Pipeline, Overthrust Pipeline and the Ruby Pipeline. Effective April 18, 2011, Questar Gas entered into a Firm Gas Storage Service Precedent Agreement with Ryckman for 2.5 MMDth of storage capacity.

Initially, gas withdrawn from the Ryckman Creek facility did not meet the gas quality standards of any of the interconnecting pipelines. In order to resolve this issue, Ryckman Creek installed a nitrogen rejection unit (NRU) at its facility. However, before it was fully operational, there was a fire at the NRU. On April 22, 2013, Ryckman posted a critical notice effective April 20, 2013, indicating it had shut down the storage facility due to the fire and invoking the force majeure provision set forth in Section 6.19 of the Ryckman Tariff. Ryckman Creek suspended all services. Ryckman Creek subsequently reinstated storage services without a resolution of the gas quality issue. Subsequently, Ryckman discovered significant structural defects to the facility requiring redesign and reconstruction of the facility.

Despite assurances to the contrary, Ryckman has not yet demonstrated an ability to withdraw gas from its facility at Questar Pipeline's pipeline-quality requirements. On January 25, 2016, Questar Gas sent Ryckman Creek a letter informing Ryckman Creek of Questar Gas' intent to terminate its Precedent Agreement. On February 2, 2016, Ryckman Creek filed for Chapter 11 bankruptcy before the United States Bankruptcy Court for the

[81] Ryckman Creek Resources, LLC, FERC Gas Tariff, Original Volume No. 1, Section 3, System Map, Version 1.0.0.

District of Delaware. The bankruptcy filing stayed all actions against Ryckman Creek and effectively stayed Questar Gas' ability to terminate the Precedent Agreement. Questar Gas has filed a Notice of Claim with the bankruptcy court and is further addressing the contractual issues there. To Questar Gas' knowledge, Ryckman Creek is still unable to withdraw gas from its storage facility that will meet Questar Pipeline's gas quality specifications. Questar Gas will update the Commission on this matter as information becomes available.

Storage Modeling in SENDOUT

The Company models the costs, contractual terms and operating parameters for each of its contracts with storage facilities in SENDOUT. The Company also needs a forecast of the storage inventory available at the beginning of the first gas-supply year for each storage facility for the SENDOUT modeling process. When Questar Gas modeled storage and inventory, it expected that the inventory at Clay Basin on June 1, 2016 would be approximately 1.5 Bcf.

Other Issues

Transportation Customer Imbalances

In 2014, Questar Gas completed an evaluation of the Transportation Customers' continued use of the Company's NNT, transportation and storage services to manage their supply throughout the day. As a result of the evaluation, the Company considered a variety of options to eliminate the inter-class subsidy. On December 18, 2014, Questar Gas filed Docket No. 14-057-31, seeking to include a Transportation Imbalance Charge as a supplier non-gas (SNG) charge in the FT-1, TS, and MT rates. The methodology used to determine this charge was based on a historical analysis of the needs of Transportation Customers.

On November 9, 2015, the Utah Commission approved a charge that would be assessed to customers for their use of NNT and storage services when their daily imbalances exceed 5% of their daily nomination. Historically, sales customers have paid for all of these upstream services. This charge was intended to reimburse sales customers for upstream services paid for by sales customers but used by transportation customers. On February 1, 2016 the Company began assessing this charge to all transportation customers. The revenue collected from these transportation customers will be credited to the 191 account in each pass-through filing.

On May 2, 2016, the Company filed an Application with the Utah Commission seeking to update and adjust the Transportation Imbalance Charge (Docket No. 16-057-06). The Company noted that the updated calculation evidences that the charge is functioning as intended. The objectives of the charge were to (1) charge transportation customers for the SNG services they use, and (2) to improve the accuracy of the transportation customer nomination practices. The charge results in these customers paying for the services they use. Additionally, since the implementation of the charge, customers are utilizing the services less, resulting in the charge decreasing. The Daily Transportation Imbalance Charge has clearly provided an economic incentive for

customers to improve their daily nominations and, as a result, the customers are using the services less. For more detailed information related to the calculation of the updated charge, see the Application in Docket No. 16-057-06.