

## GATHERING, TRANSPORTATION AND STORAGE

### Gathering and Processing Issues

A substantial portion of the supplies utilized by Questar Gas' customers each year is received pursuant to the Wexpro Agreement, as discussed in the previous section, "Cost-of-Service Gas." In many situations, gathering and/or processing services are required for these supplies to enter into the interstate pipeline system where they can be delivered to Questar Gas' city gates. Questar Gas is party to a number of gathering and processing agreements which facilitate these services. Many of these agreements have contractual escalation clauses requiring routine annual adjustments to gathering and processing rates which take place periodically throughout the year.

The majority of supplies received pursuant to the Wexpro agreement are gathered under the System-Wide Gathering Agreement (SWGA) between Questar Gas and QEP Field Services (QEPFS). QEPFS was formerly Questar Gas Management Company, an affiliate of Questar Gas. Effective June 30, 2010, Questar Corporation spun off QEP Resources. QEPFS is currently a subsidiary of QEP Resources and is no longer affiliated with Questar Gas.

The SWGA, effective September 1, 1993, incorporates a cost-of-service methodology to determine the reservation and usage rates for gathering services. Each year, new rates are calculated based on the previous calendar year costs-of-service allocable to Questar Gas and the previous calendar year gas throughput. Costs are allocated based on throughput during the five winter heating season months of November through March. New rates are effective each year from September 1 through August 31. As specified in the agreement, sixty percent of the annual cost of service is allocated to the reservation charge and forty percent is allocated to the usage charge.

During the fall of 2010, Questar Gas requested an audit of the calculation of the gathering rates and charges. 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. Questar Gas continues to dispute the monthly invoices, but makes payment based upon its own calculation of gathering costs under the SWGA. These payments are subject to adjustment pending the outcome of the litigation. In addition, Questar Gas continues to evaluate contracts between the parties. In recent months, the discovery process has been taking place and the Court has not yet set a trial date.

The Commission ordered the Company to provide a quarterly update of the proceedings associated with the SWGA.<sup>47</sup> The Company has done so in its quarterly variance reports. On March 13, 2013, at a Utah IRP technical conference, the Company presented another update of the SWGA lawsuit. Questar Gas will continue to provide

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<sup>47</sup> In the Matter of Questar Gas Company's Integrated Resource Plan (IRP) for Plan Year: June 1, 2012 to May 31, 2013, Report and Order, Docket No. 12-057-07, Issued: August 6, 2012, Page 8.

regular updates and when final results of proceedings are available, they will be provided to regulatory agencies.

Questar Gas includes cost data for the gathering and processing functions each year in the SENDOUT modeling process. Questar Gas used an estimate of what it believes should be charged under the SWGA in this year's modeling process. The modeling may be revised when the SWGA gathering dispute is resolved.

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 Issues**

Questar Gas holds firm transportation contracts on Questar Pipeline, KRGT and Northwest Pipeline. Questar Gas continues to review capacity requirements to determine the amount of transportation required. As part of the five-year planning process, Questar Gas will evaluate its existing contracts including the Contract No. 241 with Questar Pipeline, Contract No. 1715 with KRGT, and Contract Nos. 139525, 139527, and 139528 with Williams Northwest Pipeline.

#### *Contract No. 2945*

Questar Gas has contracts for transportation capacity on multiple pipelines. One of these contracts, Contract No. 2945 with Questar Pipeline, was set to expire on October 5, 2013. The term of this contract was for 52,000 Dth/day for 10 years. The analysis of the options associated with this potential term expiration included options from KRGT, Ruby Pipeline, and Questar Pipeline.

The analysis of these options focused on meeting specific requirements. The requirements for this capacity were to provide access to cost-efficient supply points, to provide pressure support to Questar Gas' system and, preferably, to provide seasonal capacity to the Wasatch Front. Questar Gas also considered the unique benefits each option provided.

Questar Gas reviewed the proposals and determined that the Questar Pipeline proposal was the most cost-effective proposal. Questar Pipeline presented a proposal for extending the existing Contract No. 2945 contract with seasonal capacity which includes a pressure guarantee at Hyrum station. In order to maximize the additional benefits of extending the contract, Questar Gas submitted this proposal, with amendments to the existing Contract No. 241 to Questar Pipeline as part of an open season request for 40,000 Dth/day of capacity through the Simon compressor. The amendments provided better access to desirable supply points such as Granger and Shute Creek and also provide the additional benefits of providing for capacity on Overthrust Pipeline that can be used for injections into Ryckman Creek storage in the summer months. Questar Pipeline accepted the proposal as part of its open season. Contract No. 2945 was extended beginning 11/1/2012 through 3/31/2018.

### *Kern River Gas Transmission Rate Case Update*

Questar Gas is a relatively small Shipper on KRG T's system holding 50,000 Dth per day of seasonal capacity and 3,000 Dth per day of year-round capacity made available from KRG T's 2003 Expansion Project. Questar Gas also holds 1,885 Dth per day of year-round ten-year capacity from KRG T's 2010 Expansion Project. By FERC order, the rates paid for the 2010 Expansion Project are the maximum recourse rates for the 2003 Expansion Project.

KRG T filed its Section 4 rate case with the FERC on April 30, 2004. In its 2012 IRP, the Company provided a more detailed summary of the KRG T rate case that has been ongoing for the better part of a decade.<sup>48</sup> By way of an update and in response to FERC's Order 486-E, Questar Gas sought clarification of the conditions of eligibility filed by KRG T for Period Two rates. KRG T agreed with and FERC acknowledged Questar Gas' contention that Questar Gas was eligible for Period Two rates with regard to Contract No. 1715.

In the event that Questar Gas continues to need its Contract No. 1715 capacity when its Period One expires in 2018, eligibility for the much lower Period Two rates could potentially save Questar Gas' customers many millions of dollars.

On March 4, 2013, KRG T filed a petition with the United States Court of Appeals for the District of Columbia Circuit to review FERC Opinions Nos. 486, 486-A, 486-C, 486-D, 486-E, 486-F, and *Order Granting Motion for Clarification* (Docket Nos. RP04-274-000, RP10-1406-000, and RP11-1499-000). On March 21, 2013, Questar Gas filed a motion in that proceeding for leave to intervene as did a number of other KRG T shippers. Questar Gas continues its active involvement in the Kern River rate case and awaits a decision by the D.C. Circuit on KRG T's petition.

### *Questar Pipeline Gas Quality*

On January 4, 2012, Questar Pipeline filed an abbreviated application, under Section 7(c) of the Natural Gas Act, with the Federal Energy Regulatory Commission (FERC) seeking authority to modify existing facilities and construct new facilities on its southern transmission system.<sup>49</sup> This project was designed to provide Uinta Basin oil producers transmission access to the Chipeta Plant where associated natural gas, rich in liquids, could be processed by utilizing Questar Pipeline's Jurisdictional Lateral (JL) 46, JL 47, and a portion of Main Line (ML) 40.

On July 19, 2012, the FERC issued a certificate of public convenience and necessity to Questar Pipeline authorizing the Uinta Basin Liquids Project.<sup>50</sup> Construction

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<sup>48</sup> See the Gathering, Transportation and Storage section of the Questar Gas Company Integrated Resource Plan, For Plan Year: June 1, 2012 to May 31, 2013, Submitted: June 8, 2012, pages 7-7 to 7-10.

<sup>49</sup> Federal Energy Regulatory Commission, "Abbreviated Application of Questar Pipeline Company To Construct and Modify Pipeline Facilities," Docket No. CP12-40-000, January 4, 2012.

<sup>50</sup> Federal Energy Regulatory Commission, "Order Issuing Certificate," Questar Pipeline Company, Docket No. CP12-40-000, July 19, 2012.

commenced on August 13, 2012 and was completed on February 6, 2013. The Uinta Basin Liquids Project commenced service on February 7, 2013.<sup>51</sup>

As part of the certificate order issued by the FERC, Questar Pipeline was required to file its modified cricondenthem-hydrocarbon-dew-point<sup>52</sup> (CHDP) zone map. On December 17, 2012, the FERC, by letter order, accepted Questar Pipeline's updated CHDP Zone Map.<sup>53</sup> Questar Pipeline's filing did not modify natural gas quality specifications in Questar Pipeline's Tariff, but it did change the CHDP zone map by subdividing the previous Zone 8 into two zones. The facilities used to transport liquids-rich natural gas to the Chipeta Plant are in a new Zone 11 designated as a wet zone (35 degree Fahrenheit CHDP limit) with liquids handling facilities.

Questar Gas does not have any cost-of-service supplies in the new Zone 11, but benefits by its purchases of processed gas from the Chipeta Plant on ML 104. The modified CHDP map with the new Zone 11 is shown in Exhibit 7.2.

Questar Pipeline's implementation of its CHDP provisions has worked well in recent years, as no major gas quality problems have occurred.<sup>54</sup> By utilizing these provisions, Questar Pipeline has been effective in equitably meeting the delivery needs of its Shippers.

The most prevalent measure of fuel gas interchangeability in the U.S. is the Wobbe Index.<sup>55</sup> 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 7.3 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 2012 of various sources of natural gas on Questar Pipeline's system flowing to customers in this region. Charts for other Utah regions are also included this year (see Exhibit 7.4 and Exhibit 7.5). Exhibit 7.6 and Exhibit 7.7 show the same information for the Wyoming eastern and western regions. Although the data for 2012 is similar to that for 2011 for both Utah and Wyoming, these Wobbe values have generally been trending downward in recent years. The construction of natural-gas-liquids processing plants near natural gas fields flowing supplies into the interstate pipelines within the area has contributed to that decline. Should this become a concern in the future on any of the pipelines delivering gas to Questar Gas, there are a number of

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<sup>51</sup> Federal Energy Regulatory Commission, "Notice of Completion of Construction and Commencement of Service," Questar Pipeline Company, Docket No. CP12-40-000, February 7, 2013.

<sup>52</sup> The cricondenthem hydrocarbon dew point is the maximum temperature at which hydrocarbon components in the gas stream start to condense.

<sup>53</sup> Questar Pipeline Company, Docket No. RP13-336-000, Correspondence from Nils Nichols, Director Division of Pipeline Regulation, Office of Energy Market Regulation, Federal Energy Regulatory Commission, to L. Bradley Burton, General Manager Federal Regulatory Affairs and FERC Compliance Officer, Questar Pipeline Company, Reference: Update the Cricondenthem Hydrocarbon Dew Point Map, December 17, 2012.

<sup>54</sup> Questar Pipeline Company, Docket No. RP07-457-000, FERC Gas Tariff Filing, May 18, 2007.

<sup>55</sup> 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.

tools that can be used to manage gas interchangeability including injecting inert gases (or air) in the gas stream, injecting propane, and blending supplies from various sources. Though there are limits as to how much blending can take place on Questar Pipeline's system, it is a reticulated system, characterized by a diversity of receipt and delivery points and a number of looped-line segments, which Questar Pipeline is able to utilize to optimize its deliveries for its Shippers.

It is difficult to predict the interchangeability of future gas streams received by Questar Gas. 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 either Questar Pipeline or KRG T 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.

#### *No Notice Transportation Service*

On April 8, 1992, the FERC issued Order 636 which required interstate pipeline companies to unbundle their sales and transportation services ensuring that all natural gas suppliers could receive the same quality of transportation services. "No-notice transportation service" was among those services which the FERC required interstate pipeline companies to provide on an unbundled basis. FERC explained the requirement to provide this service in Order 636 as follows:

As discussed above, the Commission is adding Section 284.8 (a)(4) to its regulations to require pipelines to provide a "no-notice" firm transportation service if they are providing a "no-notice" bundled, city-gate, firm sales service on the effective date of this rule. The Commission expects the pipelines and all interested participants to craft in the restructuring proceedings the operating conditions needed to ensure that the pipelines can provide a "no-notice" transportation service pursuant to which firm shippers can receive delivery of gas on demand up to their firm entitlements on a daily basis without incurring daily balancing and scheduling penalties. This "no-notice" service will enable pipeline customers to continue to receive unnominated volumes to meet unexpected requirements caused, for example, by unexpected changes in temperature. Thus, pipeline customers will be able to receive varying volumes of gas to meet their fluctuating needs during a twenty-four hour period. So, for example, constant rate of flow requirements would not apply to prohibit delivery on demand throughout the day up to a customer's daily firm entitlement under this service.<sup>56</sup>

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<sup>56</sup> FERC Order No.636, Final Rule, Docket Nos. RM91-11-000 and RM87-34-065, pages 88-89.

In FERC Order No. 636-A, issued August 3, 1992, the FERC shed additional light on its previous order by providing:

The Commission clarifies that former bundled sales customers are entitled to receive the same quality and quantity of transportation service they were previously receiving as part of their sales service before unbundling.<sup>57</sup>

Questar Gas was entitled to the provision of no-notice transportation (NNT) service from Questar Pipeline because it had been receiving “no-notice’ bundled, city-gate, firm sales service” from Questar Pipeline previous to Order 636. In its Order 636 restructuring application, Questar Pipeline filed a NNT service rate schedule. In order to receive the same “quality and quantity of transportation service” needed previously, Questar Gas subscribed to this NNT service offered by Questar Pipeline. And, it was primarily the rationale given by the FERC which necessitated the receipt of this service by Questar Gas . . . “unexpected changes in temperature.”

NNT service provides flexibility that allows Questar Gas to receive volumes of gas to meet demand caused, for example, by unexpected changes in temperatures.<sup>58</sup> Temperatures within Questar Gas’ service area can be among the coldest in the nation. Temperature swings along the Wasatch Front can be large, sudden and difficult to predict. The daily and even hourly gas demand resulting from changes in temperatures can be substantial. NNT service provides Questar Gas the ability to provide service within this ever-changing environment. NNT service allows Questar Gas to reserve transportation and storage capacity on Questar Pipeline during the regular nomination cycles the day prior to actual gas flow. Questar Gas uses its NNT quantity to facilitate withdrawals and/or injections of gas utilizing Questar Gas’ capacity in Clay Basin and the aquifers in order to meet Questar Gas customers’ actual changing load without incurring overrun penalties and imbalances (see subsequent “Storage Issues” section).

With its NNT service, as long as Questar Gas makes the gas supplies available on demand, Questar Gas can make deliveries that exceed nominations in order to meet its actual demand requirements, and to avoid the nomination restrictions that would otherwise limit Questar Gas’ ability to match its nominations to its needs. NNT service also allows Questar Gas to take less gas than it nominates, if circumstances warrant, without incurring penalties or imbalances. NNT service does not give Questar Gas the right to exceed its daily contract capacity and the daily swings must be within the NNT quantity contracted for by Questar Gas.

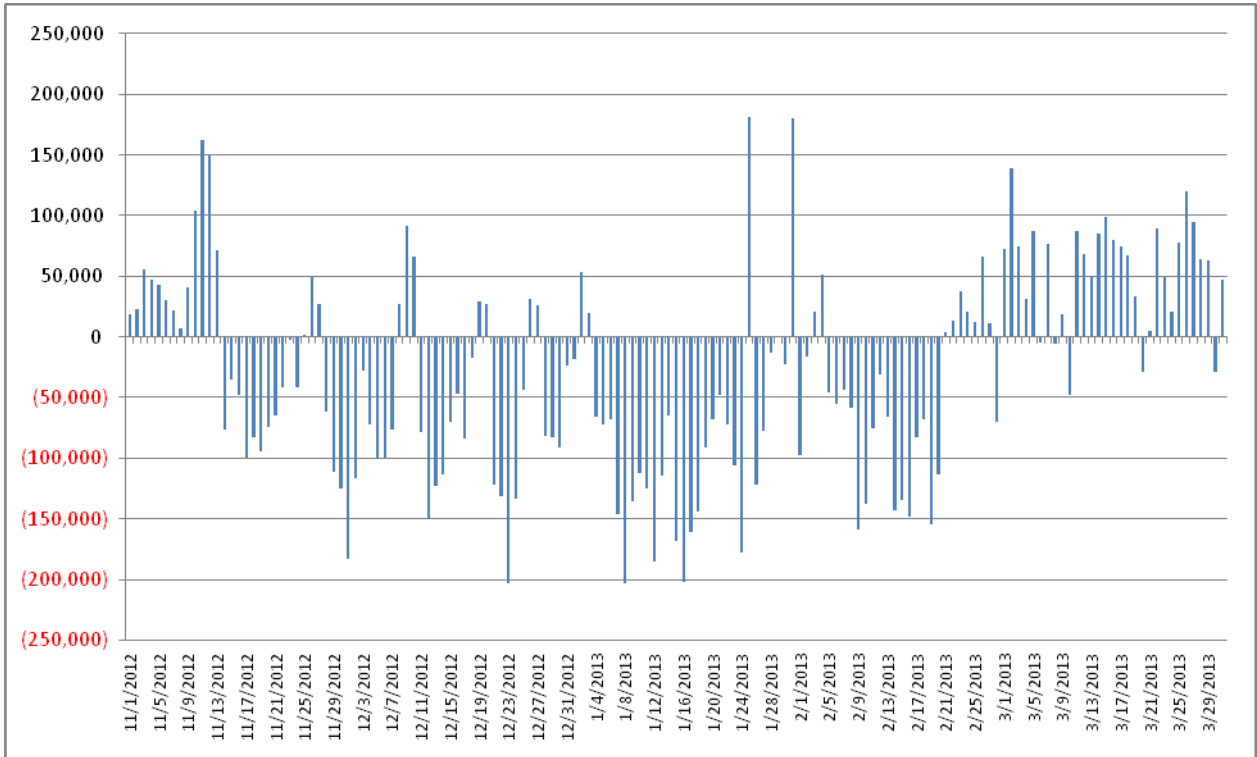
Questar Gas utilized its NNT every day throughout the 2012/2013 heating season. Questar Gas used NNT service 86 days during the heating season to provide reduce nominations by reducing withdrawals or injecting into storage. Questar Gas used NNT

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<sup>57</sup> FERC Order No. 636-A, Order Denying Rehearing in Part, Granting Rehearing in Part, and Clarifying Order No. 636, Docket Nos. RM91-11-002 and RM87-34-068, page 141.

<sup>58</sup> For a more detailed discussion of the need for NNT service, see Questar Gas Company Integrated Resource Plan for Plan Year: May 1, 2008 to April 30, 2009, submitted May 1, 2008, pages 7-2 to 7-4 and Exhibits 7.2, 7.3 and 7.4.

the remaining 65 days to provide for additional storage withdrawal. The maximum daily storage withdrawal reduction for the heating season was 203,542 Dth with an average daily withdrawal reduction of 89,014 Dth. The maximum daily storage withdrawal increase for the heating season was 181,602 Dth with an average daily increase of 51,155 Dth. The NNT usage for the heating season is shown in Figure 1 below.



**Figure 7.1: No Notice Transportation Usage – 2012/2013 Heating Season**

## 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 Leroy, Coalville, Chalk Creek and Clay Basin.

Leroy, Coalville, and Chalk Creek are aquifer storage facilities owned by Questar Pipeline that are utilized primarily for short term peaking. Questar Gas fully subscribes the aquifer facilities. Questar Gas will be reviewing these contracts as part of the five-year planning process.

Clay Basin is a depleted dry gas reservoir used for both seasonal base load and peaking purposes. Clay Basin, also owned by Questar Pipeline, is utilized by both Questar Gas and other storage customers. Questar Gas' inventory for its storage facilities are outlined in the following table:

**Table 7.1**

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

The storage facilities of Leroy, Coalville, Chalk Creek, and Clay Basin are used as primary sources in conjunction with Questar Gas' NNT service. The ability to reserve capacity and change nominations to match changing demands aids Questar Gas in meeting its daily load profile.

*Leroy and Coalville Storage*

Since the year 2000, the operation of the Leroy and Coalville storage facilities has been modified from procedures followed historically 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 aquifer storage 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 results at the end of the heating season.
- A shorter injection season for reservoir refill is required in the fall.
- With the aquifer 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 early September from an initial inventory of approximately 30-50% 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 gas loss).
- In early October, scheduled aquifer injections are halted to balance gas supplies with Questar Pipeline’s testing program conducted at the Clay



Basin storage facility. The testing requires one day 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 meet system balancing requirements.

- Following the Clay Basin test, controlled injections again commence in Coalville and Leroy with maximum inventory being reached by early November for the heating season.
- Both Coalville and Leroy are utilized to meet peak load requirements through the heating season as well as manage the morning and evening load swings on high demand days. During periods of lower winter demand, the reservoirs are refilled to maximum inventory when possible.
- During March, when the need for peaking withdrawals has passed, the reservoirs are partially drawn down (for use) to inventories ranging from 50–75% in preparation for Clay Basin testing conducted during April. The April Clay Basin test consists of a one week withdrawal period followed by 2 days of controlled withdrawal. Following the withdrawal period, Clay Basin is shut in for 14 days 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, Leroy and Coalville are then drawn down to inventory levels of approximately 30–50% and then maintained at that level until refill commences in the fall. Periodically, Questar Pipeline will completely draw down one aquifer when necessary to conduct an inventory volume verification analysis. During the summer of 2012, the Coalville aquifer was drawn down completely. Questar Pipeline reported that the inventory verification process went well for Coalville.

#### *Chalk Creek Storage*

Due to the nature of the Chalk Creek storage formation and in order to minimize losses, Questar Pipeline does not practice cycling and partial inventory maintenance during the summer. Operation at Chalk Creek is as follows:

- Injections from zero working gas inventory commence in early November following a controlled well and injection profile.
- Maximum inventory is reached by mid-December.
- From December through early March, Chalk Creek is typically held in reserve unless very high demand periods are experienced.
- In early March, the reservoir is blown down in a controlled manner to zero working gas inventory and is then shut in until refill injections commence in the fall.

Questar Pipeline places emphasis upon following these operating procedures in order to minimize gas losses and to ensure efficient storage facility operation.

### *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 shippers minimum required deliverability (MRD) as stated in each shipper's storage service agreement. 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 that necessary for their last day of withdrawals, additional deliverability is available for allocation according to predetermined formulas. The second monthly reservation fee is an inventory capacity charge based on each shipper's annual working gas quantity.

On October 4, 2011, Questar Pipeline held a non-binding open season to determine interest in an additional 8 Bcf of firm storage capacity at Clay Basin. A unique feature of the firm capacity in this non-binding open season was that it did not guarantee an MRD, making less valuable than existing firm capacity. The open season continued until October 31, 2011. Questar Gas participated in this non-binding open season and performed some modeling analysis on this potential new capacity. The response to this non-binding open season suggested positive market support. Questar Gas will continue to monitor the situation.

### *Clay Basin Contract No. 997*

Questar Gas's firm storage Contract No. 997 with Questar Pipeline had a term expiration of April 30, 2013. This is one of three Clay Basin firm storage contracts between Questar Gas and Questar Pipeline. The terms of this contract are for 3,727,500 Dth for 20 years, beginning 9/13/1993 and ending 4/30/2013. This section will examine the storage options that Questar Gas reviewed as part of the analysis of the potential term expiration of the Contract No. 997 with Questar Pipeline.

As part of the analysis associated with the expiration of Contract No.997, Questar Gas evaluated multiple alternatives. Questar Gas considered the options of renewing the existing Contract No. 997, reducing the total storage volume held by Questar Gas, or replacing the contract with a new contract with Ryckman Creek Gas Storage Project (Ryckman or Ryckman Creek) through their open season. Questar Gas reviewed each of these options in detail and evaluated each to identify the best available alternative.

Questar Gas provided a response to the Ryckman open season to closely match the costs and capacity of Clay Basin Contract No. 997. However, the price submitted to Ryckman Creek was not sufficient to have the bid accepted. This put Questar Gas lower on the priority list for negotiations for capacity.

Questar Gas analyzed the different options including a direct analysis of carrying costs, a full 31-yr cost analysis using the SENDOUT model, and a review of all other potential issues, concerns, or advantages of the available options. The review of 5-year shut-in costs and the SENDOUT analysis both showed cost savings associated with re-contracting for storage capacity rather than reducing the overall storage capacity. Based on the cost savings for carrying costs, the savings projected by the SENDOUT model and the results of the additional considerations, the contract capacity associated with Contract No. 997 was extended.

The new terms of the agreements match the previous terms and the term was extended through 3/31/2020. Questar Gas chose this date for term expiration based on maximizing the cost savings associated with the contract. The maximum cost savings were actually realized in January 2020, however, ending the contract in January would not allow for the storage to be fully emptied in the event of a warmer winter in 2020.

#### *Clay Basin Gas Quality*

During 2007, when Questar Pipeline was resolving CHDP issues on its transmission system, it also remedied CHDP issues at its Clay Basin storage facility. On August 23, 2007, Questar Pipeline filed revisions to its tariff with the FERC. Questar Pipeline also filed the “Stipulation and Agreement” negotiated with all of the Clay Basin storage customers. The filing included the “Joint Petition of Questar Pipeline and Firm Customers for Approval of Stipulation and Agreement and Request for Expeditious Action.”<sup>59</sup> The FERC accepted the revised tariff sheets on November 7, 2007, to be effective on January 1, 2008, and also approved the Stipulation and Petition.<sup>60</sup> As a result of these FERC actions, Questar Pipeline refunctionalized the Kastler Processing Plant as a Clay Basin storage asset (it was previously a transmission asset) and installed additional processing facilities, thus ensuring a total delivery capability of 320,000 Dth per day to either Northwest Pipeline or Questar Pipeline. Questar Pipeline completed this project in December of 2008 at a cost of approximately \$12 million. Questar Pipeline credits revenues received from the sale of natural gas liquids each year to the cost-of-service conditioning- storage gas. Questar Pipeline returns any revenue above the cost-of-service to Clay Basin shippers. If revenue from liquids does not cover the cost of service, Clay Basin shippers pay an increased in-kind fuel reimbursement to make up the difference. On April 18, 2013, Questar Pipeline indicated that for the May 2012 through April 2013 time period, it expected that the liquids revenues would fall short of the costs of service. Any such shortfall would have the effect of increasing, during July of 2013, the in-kind

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<sup>59</sup> Questar Pipeline Company, Docket No. RP07-606-000, FERC Gas Tariff Filing, August 22, 2007; and Questar Pipeline Company, Docket No. RP07-606-001, Amended FERC Gas Tariff Filing, August 30, 2007.

<sup>60</sup> Federal Energy Regulatory Commission, Questar Pipeline Company, Docket Nos. RP07-606-000 and RP07-606-001, Letter Order Accepting Tariff Sheets dated November 7, 2007, “Reference: Stipulation, Petition, and Revised Tariff Sheets.”

Fuel Reimbursement required of Questar Gas and all other Clay Basin Shippers under Questar Pipeline's tariff. Preliminarily, it is expected that the dollar impact on Questar Gas will be roughly \$150,000. The refunctionalization of the Kastler Plant and the installation of new processing facilities have effectively resolved the liquids issues at Clay Basin.

### *Ryckman Creek Gas Storage*

Ryckman Creek was discussed at length in the Company's 2012-2013 IRP. 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 7.8). Working gas capacity for the first phase of the project was designed to be 18 Bcf. Initial injection rates are expected to be approximately 210 MMcfd and withdrawal rates are expected to be approximately 210 MMcfd. It is expected that the working gas inventory will be able to be cycled from one to three times per year. Ryckman purchased the existing Canyon Creek Compression facilities which have been incorporated into the project. The facility interconnects with KRGT, Questar Pipeline, Northwest Pipeline, Overthrust Pipeline and the Ruby Pipeline.

Ryckman held a non-binding open season from October 6, 2010 to November 1, 2010. Though Questar Gas was not invited to bid for capacity in the open season, the Company subsequently contacted Ryckman and engaged in discussions. Effective April 18, 2011, Questar Gas entered into a Firm Gas Storage Service Precedent Agreement with Ryckman for 2,500 MDth of storage capacity. On April 22, 2011, the staff of the FERC issued an environmental assessment of the Ryckman project. And, on July 28, 2011, the FERC issued a certificate of public convenience and necessity to construct and operate the proposed facilities.<sup>61</sup> With the approval of its gas tariff by the FERC, Ryckman filed notice of commencement of service for certain project facilities on August 21, 2012.<sup>62</sup> On this date, Ryckman began receiving injection nominations.

During the Fall of 2012, Ryckman conducted a non-binding open season for up to 8 Bcf of firm, high-deliverability, multi-cycle working gas storage capacity beginning April 1, 2013. The open season ran from October 3, 2012 to November 2, 2012. Ryckman reported that responses totaling 3.5 times the capacity offered were received.<sup>63</sup> Questar Gas responded to this Open Season and Ryckman did not accept Questar Gas' proposal. Questar Gas and Ryckman continue to discuss storage options.

Ryckman filed its *Final Request for In-Service Authorization* on February 21, 2013, seeking approval to place the last remaining project facilities in service on or

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<sup>61</sup> Federal Energy Regulatory Commission, Ryckman Creek Resources, LLC, CP11-24 and CP08-433, "Order Issuing Certificate and Approving Abandonment," July 28, 2011.

<sup>62</sup> Correspondence from Thomas E. Knight, Attorney for Ryckman Creek Resources, LLC, to Kimberly D. Bose, Secretary Federal Energy Regulatory Commission, Subject: Notification of Commencement of Service," Docket No. CP11-24-000, dated August 21, 2012.

<sup>63</sup> "Ryckman Creek's Opal hub gas storage open season oversubscribed," Oil and Gas Journal, Houston, [www.ogj.com/articles/2012/11/ryckman-creeks-opal-hub-gas-storage-open-season-oversubscribed.html](http://www.ogj.com/articles/2012/11/ryckman-creeks-opal-hub-gas-storage-open-season-oversubscribed.html), November 16, 2012

before February 27, 2012.<sup>64</sup> The FERC approved this request on February 26, 2013, subject to compliance with all remaining terms and conditions of the July 28, 2011 order.<sup>65</sup>

Ryckman has been unable to withdraw gas that meets the gas quality standards of all of the interconnecting pipelines. In order to resolve this issue, Ryckman installed a nitrogen rejection unit (NRU). 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, 5:38 PM, indicating that the storage facility had been shut down due to the fire and that force majeure had been invoked as per Section 6.19 of the Ryckman Tariff. All services were suspended. Though services have since been reinstated, the gas quality issue has not yet been resolved and the current status of the NRU is in unknown. In April 2013, Ryckman indicated that the storage facility may be fully functional as early as April of 2014. Questar Gas will not consider signing a firm storage agreement until the facility is fully functional and able to withdraw gas that meets the gas quality standards of the interconnecting pipelines. Questar Gas has made no injections into its 2,500 MDth of capacity under its Firm Gas Storage Service Precedent Agreement and has made no associated demand charge payments.

#### *Ryckman Creek Park-and-Loan*

In October of 2012, Questar Gas entered into a park-and-loan agreement with Ryckman Creek. The purpose of the contract was to provide greater injection capability during the October Clay Basin Test. Warm weather was predicted which resulted in injection requirements above the injection capabilities of the aquifers. It was determined that a park-and-loan contract with Ryckman Creek was the most cost effective alternative. The terms of the agreement allowed for the storage of 138,000 Dth. The injection period was 10/5/2012 through 10/18/2012 and the withdrawal period was originally 4/1/2013 through 4/30/2013. The contract allowed for injection rates up to 23,000 Dth/day and withdrawal rates up to 4,600 Dth/day. Questar Gas has injected 138,000 Dth under the agreement. However, due to the issues at the storage facility, Questar Gas cannot withdraw those volumes. Questar Gas is working with Ryckman to extend the term of that agreement.

#### *Magnum Gas Storage*

The Magnum Gas Storage Project (Magnum) consists of the construction and operation of a high deliverability, multi-cycle salt cavern storage facility, and a connecting header pipeline. The proposed caverns, with a working gas capacity of some 42 Bcf, have a planned location approximately one mile north of the town of Delta, Utah. Magnum anticipates that the project will be capable of injecting up to 0.3 Bcf per day and withdrawing up to 0.5 Bcf per day with an inventory cycling capability of from nine to

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<sup>64</sup> Correspondence from Thomas E. Knight, Attorney for Ryckman Creek Resources, LLC, to Kimberly D. Bose, Secretary Federal Energy Regulatory Commission, Subject: Final Request for In-Service Authorization,” Docket No. CP11-24-000, dated February 21, 2013.

<sup>65</sup> Correspondence from Lauren H. O'Donnell, Director Division of Gas – Environment and Engineering, to Thomas E. Knight, Attorney for Ryckman Creek Resources, LLC, Re: Authorization to Commence Partial Service, dated February 26, 2013.

twelve times each year. The storage facility has been designed to interconnect with the interstate transmission systems of KRGT and Questar Pipeline near the town of Goshen, Utah.

During March of 2012, Magnum notified the FERC that it was adding facilities to its project to facilitate the storage of natural gas liquids (NGLs) such as butane and propane.<sup>66</sup> During June of 2012, Magnum requested an extension of its Construction Permit to begin the solution mining of the gas storage caverns from Utah State officials due to unforeseen changes in the natural gas markets.<sup>67</sup> In a status report filed with the FERC on July 23, 2012, Magnum indicated that solution mining of the first NGL cavern would begin in late August 2013. Expectations are that solution mining of the first natural gas cavern will start in March of 2014. Construction of the natural gas pipeline and associated compression facilities will not take place until 2015.<sup>68</sup> For more information on the Magnum Gas Storage Project (including maps) and the involvement of Questar Gas, see Questar Gas' Integrated Resource Plan for plan year June 1, 2012 to May 31, 2013, Gathering, Transportation and Storage Section.

#### *Storage Modeling in SENDOUT*

The costs, contractual terms and operating parameters for each of the four storage facilities subscribed to by Questar Gas are modeled in SENDOUT. A forecast of the storage inventory available at the beginning of the first gas-supply year is also needed 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, 2013 would be approximately 0.75 Bcf.

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<sup>66</sup> Correspondence from Tiffany A. James, Vice President, Project Development and Governmental Affairs, Magnum Gas Storage, LLC to the Honorable Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, RE: Notification of the Addition of State Jurisdictional Facilities within the Magnum Gas Storage Project Boundary, dated March 16, 2012.

<sup>67</sup> Correspondence from Walter L. Baker, P.E., Director of the Department of Environmental Quality, State of Utah, to Tiffany A James, Vice President of Magnum Gas Storage, Subject: Extension of Construction Permit, Magnum Gas Storage, LLC Evaporation Ponds, dated August 7, 2012.

<sup>68</sup> Magnum Gas Storage, LLC, Docket No. CP10-22-000, Magnum Gas Storage Project, Bi-Weekly Report No. 16, Reporting Period – July 3, to July 16, 2012, dated July 23, 2012.