Addressing Legal, Regulatory, and Risk-Allocation Challenges for Water Reuse in Hydraulic Fracturing

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Abstract Oil and gas producers have been reusing the water co-produced with oil and gas in their subsequent operations for years. Now they are also implementing produced water sharing arrangements among producers in nearby areas allowing them to share water resources. These arrangements maximize water usage and minimize waste, but the specific details of these arrangements must be well-defined and expressly stated to ensure compliance with applicable laws. Once the producers have addressed the legal challenges associated with the implementation of the sharing arrangement, they may use the basic framework to incorporate other unconventional water sources into the producer's operations.

Keywords hydraulic fracturing, legal and regulatory, produced water, water sources

Introduction

With water becoming an increasingly precious resource, particularly here in the arid Rocky Mountain West, produced water in oil and gas operations is transitioning from a nuisance to a valuable resource. As demand for water increases for hydraulic fracturing operations while available supplies decrease due to drought conditions and other demands for water, oil and gas producers are paying greater attention to their own water use throughout their operations. As a result, the reuse of water co-produced with oil and gas in a producer's subsequent operations has emerged as a best practice in the industry. In addition, flowback water obtained from the return of fluids following hydraulic fracturing stimulation is also commonly recycled and reused in subsequent stimulations. Unfortunately, recycling and reuse of a producer's own water is not always feasible if timing it not right or the producers well locations are not nearby. Consequently, oil and gas developers have started identifying potential new and unconventional water sources for use in their operations including, for example, produced water sharing arrangements.

Two producers in Colorado have created and received regulatory approval on, a unique produced water sharing arrangement ("Sharing Arrangement") where they have agreed to transfer volumes of produced as well as flowback water (collectively "Production Water") to one another, on an as needed as requested basis, based on availability and proximity of the Production Water to the individual producer's needs. The Sharing Arrangement has a number of potential significant benefits including, for example, minimizing truck traffic, shorter haul distances for transport, fewer fresh water withdrawals, and less reliance on injection wells for ultimate disposal. While the possibility of exchanging Production Water between the producers allows for more efficient use of the water resource because the producers have more water potentially available to them in an area, the actual implementation of the Sharing Arrangement brought significant legal, regulatory, and risk-allocation challenges.

The producers addressed these challenges by entering into a legally binding, comprehensive Produced Water Transfer Agreement ("Transfer Agreement" or "Agreement") articulating the terms of the Sharing Arrangement prior to transferring any water. By entering into this Transfer Agreement and making a basic framework of the Agreement available to

the public (via submittal to the applicable regulatory agency), the producers proactively addressed the potential problems and provided assurances to the applicable regulatory bodies that they will implement the Sharing Arrangement reasonably and responsibly.

Produced Water Transfer Agreement:
The Transfer Agreement is the contract between the parties, which documents and controls the Sharing Arrangement addressing the associated operational and legal concerns. This includes, for example, defining the allowed origin(s) of the water, required minimum water quality, and maximum transferrable quantities. In addition, it articulates the purposes behind the parties entering into the Agreement in support of the public initiatives and regulatory agencies' targets related to conservation of resources and waste minimization. The Agreement also establishes the procedures the producers will follow to initiate and effectuate transfers of Production Water.

In addition to the technical and operational requirements, the Transfer Agreement also addresses the regulatory agencies' concerns, ensures compliance with applicable laws and regulations, and allocates liabilities and obligations between responsible parties. Because the production, use, and consumption of water are highly regulated activities and of substantial public concern, it is very important that the Transfer Agreement addresses compliance with applicable laws and regulations in significant detail, and clearly designates which party is responsible in the event of a problem.

Finally, the Agreement includes a Record of Transfer document, as an exhibit to the Agreement, which serves as the template for record keeping under the Agreement as required by the agencies having jurisdiction over the transfers. A number of the key terms and provision of the Transfer Agreement are discussed in more detail below to better demonstrate how the specific operational challenges and legal requirements were addressed within the document.

Key Provisions of the Transfer Agreement:
Water Type/Source Identifying the original source and confirming the producer's right to use and consume the Production Water within the Transfer Agreement is vital to the success of the Sharing Arrangement. A producer's right to use, consume, and transfer water produced in its operations varies from state to state, and may even differ in different areas of the same state (See generally Thorne 2013). Therefore, the specific rights of each producer in the Sharing Arrangement, as well as the acceptable origin(s) of the water being transferred pursuant to the applicable state law, are specifically described within the Transfer Agreement.

As an example of the level of specificity that may be required to ensure compliance with state water law, consider the following. In Colorado, where the Sharing Arrangement is taking place, only nontributary water may be produced from oil and gas operations without a permit from the Colorado State Engineer (Colo. Rev. Stat. § 37-90-137(7) (2012)). As a result, in order to facilitate oil and gas development and minimize the administrative burdens on the Colorado State Engineer's Office, the Office designated areas of the state where the produced water is known to be nontributary thereby eliminating the need for a permit in these designated areas (Produced Nontributary Groundwater Rules 2 C.C.R. 402–17 (2010)). Because the Sharing Arrangement is within a nontributary designated area, the Transfer Agreement includes a provision stating that only nontributary water may be transferred as part of the Sharing Arrangement as neither producer has a permit for the production of tributary groundwater. In addition to the legal distinctions between tributary and nontributary groundwater, a Colorado Court has also distinguished water produced from coalbed methane wells from other oil and gas wells (Vance v. Wolfe, 205 P.3d 1165 (Colo. 2009)). Therefore, in order to ensure the parties are in compliance with Colorado water law, the Transfer Agreement also states that only water produced from

noncoalbed methane wells can be transferred as a part of the Sharing Arrangement.

Below is a sample provision, similar to that which is included in the Transfer Agreement, identifying what type of water can be produced (nontributary and noncoalbed methane), and the noting each party's obligation to adhere to the specific water laws and regulations (note that the representations and warranties included in this provision are also discussed in more detail below):

> "***Usage*** *The Transferor warrants and represents that it has the right to use and consume all of the water to be delivered to the Transferee and that such water will come from non-coalbed methane wells determined to be nontributary in accordance with applicable laws and regulations. In addition, the Transferor warrants and represents that it has complied with all permitting and other legal requirements concerning its water, including but not limited to any requirements from the Colorado State Engineer's office.*

Water Quality Establishing the minimum water quality required for the Production Water to be transferrable is key not only to ensure adherence to applicable laws and regulations, but is also vital to ensure the beneficial purpose of the Sharing Arrangement is realized. Because water quality in produced water sources can vary dramatically among producing formations and or locations within the same basin, and because the quality of the water used in fracture stimulation may affect the other chemicals used, it is important that the quality of the Production Water is characterized and documented prior to its transfer. Importantly, the detailed description of the water quality must occur for each specific transfer. Therefore, the Transfer Agreement establishes a basic minimum water quality threshold for all Production Water transferred under the Agreement, and further accommodates for the exchange of additional information for each specific water transfer. The Transfer Agreement requires a minimum threshold quality of "a quality that can be reused for fracture stimulation," and obligates each producer to execute a Record of Transfer (as discussed in more detail below), to be completed for each individual transfer, detailing the specific quality of the actual Production Water being transferred.

Furthermore, the Water Quality provision in the Transfer Agreement also provides for instances where the transferring party may be required to treat the Production Water prior to the transfer. If the producer has Production Water available to be transferred, but it is not of a quality that can be reused for fracture stimulation, that producer is required to perform basic treatment the Production Water (*i.e.* adding bactericide and separating out solids) prior to the transfer under the terms of this Transfer Agreement. Note that while the producer may be required to perform basic treatment on its Production Water prior to transfer, it is not required to perform treatment beyond what is commercially reasonable.

Water Quantity In addition to the specific water quality, the Record of Transfer will also note the amount of Production Water being transferred. However, while the producers must record the actual amount of Production Water transferred on an individual Record of Transfer, a provision of the Transfer Agreement must also clarify when and if either producer has an obligation to transfer Production Water to the other producer. Based on the agreement between the parties of this specific Sharing Arrangement, any transfer made under the terms of the Transfer Agreement are to occur solely on an as needed as requested basis; provided however each producer has an obligation to use commercially reasonable efforts to provide the Production Water requested. Furthermore, neither party has the obligation to equalize or balance the number of transfers or amount of Production Water transferred between the producers. Therefore, the Water Quantity provision in the Transfer

Agreement formalizes the cooperative nature of the Agreement without creating binding transfer obligations, and further clarifies that the intent of the Sharing Arrangement is to provide a mechanism for water reuse between producers when the logistical considerations warrant without imposing difficult and costly obligations.

Compensation; Costs and Expenses As with most commercial arrangements, allocating the costs and expenses associated with the Sharing Arrangement are confidential business decisions that the parties negotiated based on the specific economics of their operations in a geographic area. Therefore, the actual fees assessed under the Sharing Arrangement remain confidential between the parties. However, it is important for purposes of this paper to note that any similar agreement should identify the costs and expenses associated with the transfer of water and should allocate these costs and expenses between the parties within the terms of the controlling agreement. For example, the Transfer Agreement determines which party (either the transferring or receiving party) is responsible for the out-of-pocket expenses associated with the transfer of Production Water (*e.g.* transportation costs, water quality testing). It also notes that the expenses associated with the transfer of the Production Water may be, at least partially, off-set by the expense the producer would have to pay to transport and dispose of the Production Water if the Production Water was not transferred to the other producer.

In addition to the actual costs and expenses incurred, the Transfer Agreement acknowledges the nonmonetary benefits of reusing the Production Water for an additional beneficial use rather than discarding it as waste. These nonmonetary benefits are become increasingly important as the value of conservation and reuse of resources continues to be acknowledged, and in some cases even required, by the regulatory agencies having jurisdiction.

Risk Allocation within the Transfer Agreement:

Some of the most important provisions of the Transfer Agreement deal with the assessment and allocation of risks between the parties. Due to the intricacies of the laws and regulations controlling oil and gas development and water resources, it is extremely important to clearly outline each party's duties and obligations, as well as identify which party is responsible at each stage of the transferring process in the event a problem arises. The Transfer Agreement addresses the allocation of risks through various contract clauses including Custody Transfer, Representations and Warranties, and Compliance with Laws.

Custody Transfer The physical and legal point or points at which the Production Water transfers from one producer to another have significant implications as to each party's liabilities and ongoing obligations. It is extremely important that a specific legal point of transfer is clearly identified, and the transition of obligations and responsibilities as between the parties are expressly described within the Agreement both pre and post transfer. In the Transfer Agreement, the parties agreed they would record the specific point of transfer on the Record of Transfer, but the point of transfer was generally understood to be the exact physical point when custody and control of the Production Water was transferred to the receiving party or its designee as well as the legal point of custody transfer. The Transfer Agreement then goes on to state that the party having legal custody and control of the Production Water shall be the party with primary responsibility for any spills or releases of the water, including notifications and clean-up, if and as applicable. Because the liabilities between the parties are different before and after the transfer takes place, the legal point of transfer must be a clearly identifiable point in time in order to determine which party is the responsible party in the event of a problem.

Representations and Warranties Representations and warranties within contracts are

statements that the representing party is confirming as true and accurate, and therefore, the other party may rely on the representation. For that reason, the representations and warranties made in the Transfer Agreement (as is the case in most agreements) are limited to only those representations and warranties that are essential for the parties to enter into the agreement. For example, the parties represented and warranted in the Transfer Agreement that the transferring party has the rights necessary to use and consume any water being transferred under the Agreement (see the sample Usage provision provided above). Because a party can only transfer rights it possesses, it is imperative that each party warrants its rights to use and consume the water prior to transferring to the other party. Including this warranty in the Agreement allows each party to use the Production Water transferred without independent verification of the transferring party's rights to the Production Water. Without this warranty the parties may find the administrative burdens associated with verifying the other party's right to use the water outweigh the benefits received by sharing Production Water between the parties.

Compliance with Laws Finally, the last allocation of risk clause addressed in this paper is the parties' commitment to comply with all applicable laws and regulations of governmental entities having jurisdiction over the Production Water or the transportation process. This includes compliance with all laws and regulations related to the entire life cycle of the Production Water including the proper disposal of the Production Water at the end of its useful life. Upon accepting a transfer of Production Water the receiving party is committing to the eventual proper disposal. By each producer affirmatively agreeing to comply with the applicable laws, it establishes that each producer will conduct its operations in a responsible and legal manner, and therefore each party may be held individually accountable in the event of noncompliance. Furthermore, the Transfer Agreement provides the mechanism with which each producer may require actions in the event of noncompliance on the part of the other party.

In addition to a statement regarding the compliance with all laws and regulations, the Transfer Agreement also includes a provision stating that each party will comply with the policies of the other party pertaining to the point of transfer and the transfer process. This provision again ensures that the producers will perform their obligations under the agreement safely and responsibly, and further supports the cooperation envisioned by the Sharing Arrangement.

Record of Transfer

As briefly discussed above, the Record of Transfer is a document that the producers execute for each transfer occurring as a part of the Sharing Arrangement. The execution of the Record of Transfer incorporates the terms and conditions of the entire Transfer Agreement and creates one complete and binding agreement between the parties. It serves essentially as a bill of lading for each transfer of Production Water, and provides the producers the opportunity to exchange a detailed account of the specific Production Water involved in the transfer. Each Record of Transfer will document, at a minimum, the following:

1. the transferring party and the receiving party;
2. the amount of Production Water requested;
3. the amount of Production Water actually transferred;
4. the specific water quality of the Production Water transferred including where the water originated (*i.e.* the specific well where the water was produced);
5. the specific point of transfer with as much specificity as possible under the circumstances;
6. the proposed date for the transfer and the actual date of the transfer;
7. how delivery will be accomplished (*i.e.*

truck or pipeline); and

8. any special instructions for the specific transfer.

Each producer is required to keep a copy of every Record of Transfer to satisfy its individual record-keeping and reporting requirements. It is extremely important that the producers exchange accurate in-depth information on the Record of Transfer, as this information may need to be reported to regulatory agencies having jurisdiction. In the case of this Sharing Arrangement, each producer has the obligation to provide an annual report summarizing the transfers made under the Agreement to the Colorado Oil and Gas Conservation Commission. It is important to note that the reporting requirements for a similar arrangement may differ based on the specific transfers taking place and the applicable rules and regulations of the governing agencies.

Conclusion:

The major terms of the Transfer Agreement discussed above, although not an exhaustive list of the terms of the Agreement, indicate the significant complexities the parties had to negotiate and address in order to share produced water resources between their respective operations. By entering into the comprehensive Transfer Agreement to describe and control the terms of the Sharing Arrangement, the two producers were able to resolve the legal and operational challenges and allow for the transfer of Production Water in compliance with the numerous applicable laws and regulations. Outlining the requirements and procedures for the transfer, identifying and addressing the potential pitfalls, and allocating the liabilities and obligations between the parties in a legally binding agreement is crucial to ensure the ongoing success of the Sharing Arrangement. Before even a single transfer could take place, each producer had to clearly understand its role in the Sharing Arrangement and agree to adhere to the terms of the Transfer Agreement. Once these terms were understood and accepted, the parties could confidently transfer water to advance the economic and timing efficiencies of their operations, while minimizing waste and maximizing the utilization of the valuable water resource.

The basic concepts underlying the Sharing Arrangement can be replicated across the nation among producers developing oil and gas resources in the same region by applying similar practical solutions. However, in addition to produced water, the major terms and conditions included in the Agreement can be modified to apply to any number of unconventional water sources, including for example, acid mine drainage. The Transfer Agreement provides an example on how parties can address the legal and operational challenges and allocate liabilities and obligations among responsible parties which may be replicated in any type of water sharing arrangement. In addition, it provides the basic framework for how to integrate new water sources into oil and gas operations practically and efficiently.

As fresh water resources continue to dwindle while demands for water in industrial processes grow, the ability to incorporate new and unconventional water resources into operations will be essential for the continued advancement of these industries. With the significant technical advances in water treatment, in addition to the increasing costs to obtain fresh water, water resources previously determined to be unusable may now be economically treated and reused, but the parties involved must know and understand the risks and benefits of such use.

References

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