-DWB Northern Natural Gas Company v. L.D. Drilling, Inc. et al Doc. 420

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF KANSAS

NORTHERN NATURAL GAS COMPANY, Plaintiff, v. L.D. DRILLING, INC., VAL ENERGY, INC., NASH OIL & GAS, INC., et al., Defendants.	)	No. 08-1405-WEB-DWB (Consolidated with No. 08-1400).

Memorandum and Order

This matter is before the court on Northern's Motion for Preliminary Injunction (Doc. 341), which seeks an order prohibiting the defendants from operating their gas wells in "the Expansion Area"[1] pending a ruling on the merits of the complaint. The request for injunction is based on a claim that the continued operation of the defendants' wells constitutes a nuisance that unreasonably interferes with Northern's gas storage facility. The court heard evidence and arguments on October 6-7, 2010, and the parties simultaneously filed proposed findings of fact and conclusions of law on November 1, 2010. For the reasons stated herein, the motion for preliminary injunction will be granted, subject to certain conditions.

Although the case involves a number of difficult issues, two points became clear at the

[1] The Expansion Area is a 12,320 acre area to the north of Northern's Cunningham Storage Field. *See* Hrg. Tr. Vol. I, Cook Exh. 1. On June 2, 2010, the Federal Energy Regulatory Commission (FERC) found it was in the public interest to include the Expansion Area in the storage field because of migration of storage gas into that area. FERC thus granted Northern a Certificate of Public Convenience and Necessity allowing Northern to seek condemnation of the Expansion Area. *See Northern Natural Gas Company*, CP09-465-000, 131 FERC ¶ 61,209 A description of the expansion area is found at Cook Exh. 10, p. 27.

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injunction hearing. First, Northern presented strong evidence that the defendants' wells are in fact producing storage gas that has migrated out of the Cunningham Storage Field. Defendants more or less deny that allegation, although one of their own experts confirmed that storage gas is likely migrating to the expansion area, and after two years of litigation the defendants have cited no substantial evidence to the contrary. L.D. Davis (owner of L.D. Drilling) and his consulting geologist Kim Shoemaker, as well as Nash Oil & Gas owner Jerry Nash, all testified they do not believe they are producing storage gas. But those denials do not appear to be based on an objective consideration of all the evidence. Their skepticism is due in part to the significant distance from their wells to the (previous) border of the storage field. But Northern has produced gas composition analysis, seismic data, and historical pressure and production data, all of which tend to show that the defendants' production consists mainly of storage gas. FERC previously considered much of the same evidence and concluded that storage gas was in fact migrating to the Expansion Area and was being produced by the defendants' wells. Defendants' disbelief may also spring in part from indignation at being accused of conspiring to draw gas out of the storage field, or at being blamed by Northern for a situation that was apparently caused in part by Northern's own erroneous assessment that an underground fault in the storage field would contain the injected storage gas. Be that as it may, if blame is set aside and one looks only at the evidence, it is hard to escape a conclusion that the defendants' wells in the Expansion Area are producing or have produced storage gas.

The second point now clear is that the landscape has been altered significantly by Northern's filing of a condemnation action. Northern seeks in that action to condemn the property rights necessary to allow it to include the Expansion Area in the Cunningham Storage

Field. Like the differences in pressure causing gas to migrate to the expansion area, the arguments in this case are moving inexorably toward the condemnation case, where the ultimate issue is how much Northern will have to pay to acquire the defendants' property rights. Counsel for all of the parties have invoked the condemnation to some degree in this case, and the pendency of that action is a fact the court cannot ignore in assessing the request for an injunction. I. ***Facts***.

A. ***Background***.

Natural gas in the Viola formation of the Cunningham Field was discovered in 1932, and primary production began in 1934. Over the next several decades, about 79 billion cubic feet of natural gas was produced from the Viola formation. By 1974, primary depletion had reduced the Cunningham Field reservoir pressure down to 76 psi (absolute) from an original reservoir pressure of 1695 psi. The field was depleted by gas production prior to 1977. Hrg. Tr. Vol. I, Cook Ex. 10 (2010 Certificate, ¶ 30).

Northern is a natural gas company engaged in the interstate transportation of natural gas within the meaning of the Natural Gas Act (NGA), 15 U.S.C. § 717f(a). As such, it is subject to the jurisdiction of FERC, which is charged with implementation of the NGA. The purpose of the NGA is to protect the interests of the public by fostering an adequate supply of natural gas at reasonable rates. Underground storage facilities are a necessary and integral part of the interstate system of transporting gas from an area of production to an area of consumption. *See Schneidewind v. ANR Pipeline Co.*, 485 U.S. 293, 295 (1988).

If FERC finds the construction or extension of an interstate gas transportation facility is in the public interest, it may grant a natural gas company a Certificate of Public Convenience

and Necessity. Such a certificate grants the holder the right to use eminent domain to acquire the property rights necessary to construct or extend the facility, if the holder cannot obtain the rights through negotiation. 15 U.S.C. § 717f. Like federal law, Kansas law recognizes that the underground storage of natural gas promotes the public interest by building reserves for orderly withdrawal in periods of peak demand. K.S.A. § 55-1202.

In 1977 and 1978, Northern obtained certificates from the Kansas Corporation Commission and from FERC to develop and operate the Cunningham Storage Field in Pratt and Kingman Counties, Kansas. *See Northern Natural Gas Company*, 77 FERC ¶ 61,069, at 61,297 (1996). The storage field initially included the Viola formation under about 23,000 acres of property.

When the Cunningham Field was first certified, it was believed that two underground faults, including one running toward the northeast side of the field, would contain and trap the injected gas, making the Viola an isolated reservoir within the field. Northern began injecting storage gas into the field by 1979. A "fill-up" period of several years followed in which Northern continued to inject storage gas, thereby re-pressuring the field. Northern's evidence, including hysteresis curves showing the relationship between gas inventory and storage field pressure, shows that beginning in 1985 and continuing for about the next ten years or so, the storage field was essentially stable, with no evident migration of storage gas.

In 2002, Northern filed suit against the Trans Pacific Oil Corporation, claiming the latter was producing storage gas from two wells just outside the northern boundary of the Cunningham

Storage Field.[2] In 2004, Northern sued Nash Oil & Gas, Inc., claiming Nash wells located about four miles north of the field were producing storage gas.[3] A jury in the *Trans Pacific* case found Northern had not shown that storage gas migrated to the two Trans Pac wells after July 1, 1993, the effective date of K.S.A. § 55-1210. In March 2007, Northern's claims against Nash in the 2004 case were dismissed on summary judgment. Both of these judgments were affirmed on appeal to the Tenth Circuit.

In September 2005, FERC granted a request by Northern to install withdrawal and observation wells near the northern boundary of the storage field after finding that Northern had shown storage gas was migrating from the field. In March 2007, Northern filed an application with FERC to expand the Field's northern buffer zone by 4,800 acres. Northern argued that recent studies and data showed that the northern fault had never been sealing and that large volumes of storage gas were migrating to the north. In October 2008, FERC found Northern had shown that storage gas had migrated at least into the southern portion of that proposed extension area, but its evidence was lacking as to the remainder of the area. FERC thus authorized Northern to extend the certificated boundaries only by 1,760 acres.

Northern filed the instant lawsuits at the end of 2008, claiming the defendants' wells have been producing and are producing Northern storage gas, and that they are creating "pressure sinks" that cause storage gas to migrate to their wells and which interfere with Northern's storage operations. The complaint asserts claims for title, declaratory and injunctive

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[2] *Northern Natural Gas Co. v. Trans Pacific Oil Corp.*, No. 02-1418-JTM (U.S. Dist. Ct., D. Kan.).

[3] *Northern Natural Gas Co. v. Nash Oil & Gas, Inc.*, No. 04-1295-JTM (U.S. Dist. Ct., D. Kan.).

relief, conversion, unjust enrichment, nuisance, and civil conspiracy. (Doc. 1). *See also* First Amended/Supplemental Complaint. (Doc. 168). Defendants deny each of these claims and assert a series of counterclaims, including unjust enrichment and trespass.

On December 14, 2009, the court heard a motion for preliminary injunction in which Northern sought to require Nash Oil & Gas to pay into court the sale proceeds from four Nash wells. Northern presented gas composition, seismic, and engineering evidence tending to show that the four Nash wells were producing migrated storage gas. The court denied the requested injunction, however, because the purchaser of the gas had suspended any payments to Nash pending a resolution of the dispute.

Also in December 2009, Northern filed suit in the District Court of Pratt County, Kansas, against ONEOK Field Services Co., LLC., and other gas purchasers. The suit claimed that the purchasers' conduct amounted to conversion because the gas from defendants' wells was Northern storage gas. The gas purchasers in turn brought claims against Nash, Val and L.D. Drilling. On April 15, 2010, Pratt County District Judge Robert J. Schmisseur granted summary judgment to Nash and L.D., finding that even if gas from defendants' wells was migrated storage gas, the governing statute (K.S.A. § 55-1210) only protected Northern's title as far as the boundary of the "adjoining property" – construed to mean a 1-mile section adjoining a section containing the storage field – so that once storage gas migrated beyond that point it was no longer the injector's property and was subject to the rule of capture. Accordingly, the judge ruled there could be no conversion with respect to defendants' production because he found the defendants' wells were beyond the 1-mile section adjoining the storage field.

Meanwhile, Northern had filed an application with FERC to expand the Cunningham

Storage Field by 14,240 acres, including an area containing the subject wells. The defendant operators intervened and objected. Northern submitted evidence to FERC of the alleged migration of storage gas and the effect of the defendants' production on the storage field. On June 2, 2010, FERC issued a Certificate of Public Convenience and Necessity authorizing Northern to expand the Cunningham Storage Field by 12,320 acres, consisting of what is referred to here as the Expansion Area.[4] FERC found Northern had shown that there is a two-mile wide primary gas migration pathway from the storage field into the expansion area. In support of its determination, FERC made the following findings, among others:

> (1) storage gas migrates from the storage reservoir through a non-sealing fault in a northerly direction in the Viola formation through much of the proposed buffer zone expansion; (2) the Viola formation is continuous and likely extends beyond the proposed expanded buffer zone; (3) there are no geologic features (i.e., faults pinchouts, unconformities, etc.) that would prevent gas from migrating through and beyond the expanded buffer zone; (4) geochemical analysis of gas from wells in the central portion of the expanded buffer zone within the primary gas migration pathway contain chemical concentrations consistent with that of storage gas; (5) a mix of storage gas and native gas exists in wells located in the north central portion of the expanded buffer zone, with higher concentrations of native gas in the most northerly located wells; and (6) native gas and other hydrocarbon resources are present in or near structural highs in varying or indeterminable concentrations within the currently certificated boundary, within the proposed expanded buffer zone, and outside of these two areas.

See Cook Exh. 10 at Pp. 10-11. The Operating Defendants did not appeal FERC's order, and that order is now final.

In the FERC proceeding, Northern submitted evidence that an aquifer had originally served as a hydrostatic seal for the Cunningham reservoir rather than the underground fault that

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[4] FERC refused to certify an additional 1,920 acres (the "section 28 area") for inclusion in the storage field, finding that Northern had not shown the presence of storage gas in that area. The "section 28 area" includes the following: Pratt County, T26S, R11W: SE 1/4 section 20; [S] ½ section 21; section 28; E ½ section 29; NE 1/4 section 32; N ½ section 33. *Northern Natural Gas Company*, 131 FERC ¶ 61,209(2010). *See* Cook Exh. 10 (*FERC* Order of 6/2/2010).

was thought to be the containment mechanism. According to Northern's evidence, during primary production of the field the aquifer acted as a limited water drive, pushing native gas out of pore spaces and allowing water to move in, with a corresponding reduction in pressure of the aquifer north of the fault. Later, during the Cunningham storage field "fill up" period, storage gas injected by Northern was pushed past the northern fault and into the aquifer, thereby increasing pressure in the aquifer north of the field. The field stabilized in 1985 and remained stable for about ten years thereafter. Around 1994, hysteresis curves began to indicate gas loss from the Cunningham reservoir, which Northern argued to FERC was caused by third-party production from Nash and others that began about that time. Even though such production was located several miles north of the storage field, Northern asserted that the production of increasing volumes of gas and water by third-party producers north of the fault was creating pressure sinks that caused increased gas migration from the storage field. Northern presented evidence that about 13 Bcf of storage gas has since migrated from the field.

Some objectors in the FERC proceeding argued the storage field should be abandoned because the lack of migration barriers in the expansion area made the field unsuitable for storage. Northern, on the other hand, sought FERC approval of a four-step management plan under which Northern would: (1) shut in all third-party production north of the northern fault; (2) monitor pressures to see if they return to pre-1995 levels; (3) implement a water injection program if pressures do not return to pre-migration levels; and (4) have the option of bringing shut-in wells into production or installing offset wells to counter any third-party production adjacent to the expansion area. With respect to the first step, Northern asserted that "[s]topping the production of such enormous volumes of gas and water by the third-party wells will eliminate the large

pressure sinks they have created, put an end to storage gas production by third parties, and thereby allow the storage field to stabilize and operate as it has in the past prior to the drilling of the third–party wells." FERC agreed "that this component of the management plan could be effective as a first step in resolving the gas migration issue at the Cunningham field," and that the second and third steps could also help stabilize the field. But FERC found Step 4 was inadequate, saying Northern should come up with "a more robust, aggressive, and proactive plan" to go into effect within six months, to effectively slow and reverse the flow of gas out of the field. On July 23, 2010, Northern filed its modified Storage Gas Containment Plan.

After Northern obtained the FERC Certificate, it filed a motion in Pratt County District Court asking Judge Schmisseur to alter or amend his summary judgment ruling. Judge Schmisseur limited his ruling to gas produced prior to June 2, 2010, the date of the FERC Certificate, but otherwise declined to alter the ruling.[5] The judge certified his ruling for immediate appeal, and that matter is now before the Kansas Supreme Court.

Meanwhile, on July 16, 2010, Northern filed a Complaint for Condemnation in this court. *See Northern Natural Gas Co. v. Tract No. 1062710, et al.,* No. 10-1232-WEB (U.S. Dist. Ct., D. Kan.). In the condemnation action, Northern seeks to condemn property rights and interests under the power of eminent domain granted by the NGA, and to determine just compensation to the respective owners and parties in interest pursuant to the NGA and the 2010 FERC Certificate. The interests sought to be taken include the right to enjoin, shut-in and prevent production of natural gas from the Viola and Simpson formation. The property rights and

[5] Judge Schmisseur also ordered the gas purchasers to hold in suspense any gas proceeds relating to the subject wells pending further court order.

interests Northern seeks to acquire are located exclusively within the Authorized Expansion Area. Northern will have to pay just compensation to the owners in order to acquire the property interests described in the condemnation complaint and/or which are taken as a result of Northern's condemnation proceeding.

Northern's current motion seeks to enjoin further production from the following wells, which are located exclusively within the Authorized Expansion Area:

	WELL NAME	WELL LOCATION	OPERATOR
1	Branscom 1	T26S R10W, Sec. 30, SW SW, 660' FSL, 560' FWL	Val Energy, Inc.
2	Brown 'A' 1	T26S R11W, Sec. 35, C NE, 1320' FNL, 1320' FEL	L.D. Drilling, Inc.
3	CRC 1	T27S R11W, Sec. 1, NW NW, 660' FNL, 660' FWL	Nash Oil & Gas, Inc.
4	CRC 2	T27S R11W, Sec. 1, C NE NW, 660' FNL, 1980' FWL	Nash Oil & Gas, Inc.
5	Geesling 1	T26S R11W, Sec. 26, C NE, 1395' FNL, 1320' FEL	L.D. Drilling, Inc.
6	Holland 1-26	T26S R11W, Sec. 26, C SW SW, 660' FSL, 4620' FEL	Nash Oil & Gas, Inc.
7	Holland 2-26	T26S R11W, Sec. 26, SE SW, 660' FSL, 3300' FEL	Nash Oil & Gas, Inc.
8	J.C. 1	T26S R11W, Sec. 27, NW NE SE, 2310' FSL, 840' FEL	Nash Oil & Gas, Inc.
9	~~Kerschen Trust 'V' 1-31~~[6]	~~T26S R10W, Sec. 31, SE NW NW NE, 350' FNL, 2290' FEL~~	~~Val Energy, Inc.~~
10	Martin 1	T26S R11W, Sec. 36, C NW, 1320' FNL, 1320' FWL	L.D. Drilling, Inc.
11	Mcguire 1-31	T26S R10W, Sec. 31, NW NW, 755' FNL, 532 FWL	Val Energy, Inc.
12	Meireis 1-23	T26S R11W, Sec. 23, NE SW SE SE, 515' FSL, 860' FEL	L.D. Drilling, Inc.

[6] Although this well was listed in Northern's motion, testimony at the hearing established that the Kerschen Trust well is completed in the Mississippi formation rather than the Viola. Accordingly, the court understands that it is not included in Northern's injunction request.

	WELL NAME	WELL LOCATION	OPERATOR
13	Mezger 1	T26S R11W, Sec. 26, C NW SE, 1980' FSL, 1980' FEL	L.D. Drilling, Inc.
14	Mezger 2	T26S R11W, Sec. 26, C SE SE, 660' FSL, 660' FEL	L.D. Drilling, Inc.
15	Milton 1	T26S R11W, Sec. 25, C SE SW, 660' FSL, 1980' FWL	L.D. Drilling, Inc.
16	Moore 1-27	T26S R11W, Sec. 27, SE NE NE, 1100' FNL, 330' FEL	L.D. Drilling, Inc.
17	Riffey 'V' 1-25	T26S R11W, Sec. 25, SW SE, 350' FSL, 2290' FEL	Val Energy, Inc.
18	Staab 1	T26S R11W, Sec. 35, E2 SE, 1370' FSL, 660' FEL	Nash Oil & Gas, Inc.
19	Stanton L. Brown 1	T26S R11W, Sec. 35, NE NW NW, 330' FNL, 990' FWL	L.D. Drilling, Inc.
20	Stanton 1	T26S R11W, Sec. 25, C NW SW, 1980' FSL, 660' FWL	L.D. Drilling, Inc.
21	Trinkle 1	T26S R11W, Sec. 36, S2 S2 N2 SW, 1520' FSL, 1320' FWL	Nash Oil & Gas, Inc.
22	Young 1	T26S R11W, Sec. 26, E2 SE SW NW, 2310' FNL, 1220' FWL	L.D. Drilling, Inc.
23	Young 1-26	T26S R11W, Sec. 26, SE NW SW, 1650' FSL, 4290' FEL	L.D. Drilling, Inc.
24	Zink 1	T26S R11W, Sec. 25, C NW, 1320' FNL, 1320' FWL	L.D. Drilling, Inc.
25	Zink A	T26S R11W, Sec. 25, S2 NW NE, 990' FNL, 1980' FEL	L.D. Drilling, Inc.
26	Zink 'B' 1	T26S R11W, Sec. 24, E2 E2 SW SW, 660' FSL, 1050' FWL	L.D. Drilling, Inc.

Northern's motion seeks to enjoin "the continued interference by the Defendants, through operation of such wells, from interfering with Northern's use and enjoyment of the Cunningham Storage Field; and enjoin Defendants from otherwise interfering with Northern's right and ability to protect the integrity of the Cunningham Storage Field." Doc. 341 at 1. The motion alleges that without the injunction, Northern will be irreparably harmed in its ability to meet FERC's deadlines and to restore the containment mechanisms and stability of the Cunningham Storage Field." *Id*. at 4.

Defendant L. D. Drilling represented to the Court at the October 6-7 hearing that it was continuing to operate approximately 20 wells within the Authorized Expansion Area. Hrg. Tr. Vol. I, 7:6-24. As to Defendants Nash and Val Energy, the Court was informed that due to economic circumstances (i.e. the suspension of payments by gas purchasers), these defendants had temporarily shut in each of their wells in the Authorized Expansion Area. Hrg. Tr. Vol. I, 8:6-24.

B. *Summary of Evidence & Findings*.

At the preliminary injunction hearing, Northern presented testimony from geologist Thomas W. Cook. Cook has extensive experience in evaluating gas storage fields and has worked on a number of migration issues. His review of the geology and history of the Cunningham Storage Field resulted in the following opinions, among others. He said when the field was certified by FERC in 1978, the up-thrown portion of the storage field was bounded on three sides by what were believed to be sealing faults. As for the expansion area to the north, he said that between 1947 and 1978, before storage field operations began, every single well drilled in the expansion area was a dry hole, meaning it was not supportive of gas production. Cook believes that before 1978 the expansion area was "nothing but a low pressure aquifer or reservoir full of saltwater...." In 1954, he said, the Martin 1 well was drilled in Section 36 (several miles north of the underground fault) and penetrated the entire Viola formation, but no hydrocarbons were reported and it was plugged as a dry hole. But the Trinkle #1 and Brown A-1, two wells that were drilled about a quarter mile on either side of the Martin 1 in 2006 and 2007, have produced about 650 Mcf and 900 Mcf of gas respectively. Another Martin well has recently been drilled less than a quarter mile from the old Martin well, as a direct offset to it, and has

produced over 750 Mcf of gas. In Cook's opinion, this indicates the area is now saturated with storage gas from the Cunningham Storage Field.

Cook put together a cross-section of well logs (Cook Exh. 3) and a seismic cross-section (Cook Exh. 4), as well as a contour map (Cook Exh. 9), all of which he said showed the Viola formation was continuous throughout the expansion area and there were no barriers or obstacles that would inhibit the flow of gas. Cook also said data and samples showed that the upper three to four feet of the Viola was highly fractured and permeable throughout the field and expansion area, allowing for the rapid movement of gas. The defendants' wells in the expansion area are producing from this top portion of the Viola.

According to Cook, a two-mile section of the fault on the north side of field was non-sealing (Cook Exh. 5), and the original sealing mechanism of the field was the aquifer to the north, just beyond the fault, in addition to the structure of the formation, which drops down on the north side of the fault and then gradually rises to the north.

Cook provided a summary of wells drilled in and around the expansion area. As of 1985, there were three gas wells in the area and 14 dry holes (Cook Exh. 11). In his opinion, the gas from these producing wells came from the storage field as a result of it being re-pressurized between 1978 to 1984. From 1986 to 2002, no wells were drilled. In 2003-2004, 5 gas wells were drilled and one dry hole. These wells were drilled "up-dip" of the formation (i.e. shallower) to the north of the three producing wells, which Cook said would be expected in gas exploration, since gas would be expected to move to and accumulate toward the top of the feature. In 2005, three more gas wells were drilled and one dry hole, with all three wells being drilled up-dip farther to the north. (Cook Exh. 11). In 2006, six new gas wells were drilled,

with three of the wells being drilled to the south going downstructure, which Cook said would not be expected in a gas reservoir. Two more wells were drilled in 2007, along with two dry holes. Both of the gas wells were drilled downstructure closer to the Cunningham Storage Field. In 2008 to 2009, eight new gas wells were drilled, all of them downstructure. Cook said this started off like a normal reservoir field development, but "in 2006 it became obvious when you started drilling down-dip, that something's amiss." In Cook's opinion, a reasonable operator should have begun to suspect in 2006 that these wells were interfering with the storage field, and after the June 2, 2010 FERC order "there's no question that they would have know that there's storage gas" being produced. Cook noted that the Cunningham Storage Field is a large facility, being in the top 25 of over 380 storage fields completed in the United States, and in his opinion the defendant's wells in the expansion area need to be shut-in as soon as possible to restore the containment of the storage field.

Northern also presented the testimony of Dr. Paul Boehm, who holds a Ph.D. in chemical oceanography and who specializes in chemical "fingerprinting." Boehm testified in a previous hearing that four Nash wells tested in the expansion area were producing 100% storage gas. For the instant hearing, Boehm similarly examined samples and records from wells in and around the expansion area to identify the source of gas, whether native, storage, or a combination of both. As noted in a previous order, Dr. Boehm said three particular components serve to distinguish native from storage gas in this area – (1) the percentage of methane[7], with storage gas having a much higher methane composition; (2) the percentage of helium, with storage gas having a much

[7] Alternatively, Dr. Boehm sometimes used the C1/C2 ratio, or the amount of methane compared to other hydrocarbon gases.

lower composition of helium than native gas in this area (high helium content being a "natural tracer" for native gas in this area, according to Boehm); and (3) the percentage of the stable isotope of ethane.[8]

Dr. Boehm first examined the chemical signature of native gas. According to him, the data on native gas in the "area of interest" (Boehm Ex. 3) showed a methane percentage ranging from 47 to 73, a helium content consistently around 1% (sometimes slightly higher or lower), and a stable isotope value consistently of minus 36. (Boehm Exhs. 4 & 5). Storage gas, by contrast, had methane percentages in the high 80's and low 90's, helium content generally of .1 percent or less (about ten times less than typical native gas), and isotopic composition generally of minus 33 or 34. (Boehm Exhs. 6 & 7). Dr. Boehm's findings are illustrated graphically in Boehm Exhs. 8-21. Exhibit 8 shows the ranges of methane and helium in storage gas versus native gas, with dotted lines representing 99-percent confidence levels that gas falling within the identified range constitutes either storage or native gas. Boehm testified that the large amount of data and the diagnostic components present allowed him to differentiate native Viola gas and Northern storage gas with a high degree of scientific reliability.

Boehm said data from the wells in Sections 1, 35 and 36 of the expansion area[9] (just to the north of the prior storage boundary) showed that "all of the gas in those wells is storage gas, clearly storage gas." *(See* Boehm Exhs. 11 & 12.) His analysis concluded that in Section 25,

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[8] According to Boehm, carbon exists in different forms, including carbon-12 with four protons and four neutrons, and a small amount of carbon with an extra neutron, called carbon-13. He said the ratio of these two to each other serves as a diagnostic for the organic material from which it came, in this instance the natural gas.

[9] The CRC-1, CRC-2, Trinkle1, Staab 1, Brown 1A, and Martin 1.

farther north, the composition of gas produced by wells in the expansion area[10] is primarily storage gas, with the percentage of storage gas increasing over time. Boehm Exhs. 12, 13 & 14. His analysis concluded that the gas from wells in Section 26 and 27 indicated storage gas, again with the percentage increasing over time.[11] Boehm Exhs. 16 & 17. The composition in the wells in Sections 23 and 24 in the expansion area indicate either storage gas or a mix of storage and native gases.[12] Boehm Exh. 20 & 21.[13]

As FERC noted in its June 2, 2010 Order, native gas is present in varying concentrations in the storage field and the expansion area, as well as to the west of the field.

Northern also presented the testimony of Randal M. Brush, P.E., a consulting petroleum engineer who evaluates reservoir performance as affected by injection or production of oil, gas or water. He has worked on this project for Northern since 2006. Brush studied extensive records to evaluate the performance of the Cunningham field. He said the original pressure of the field as measured in 1932 was 1695 psig. Brush said that prior to any production, there was a water contact at 2,510 feet subsea level, just north of the northern fault, and below that was an aquifer in contact with the reservoir up through the extension area, with the pressure in the

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[10] The Zink 1, Stanton 1, Milton 1, Riffey V1, and Zink 1A.

[11] The Geesling 1, Mezger 1, Mezger 2, Young 1-26, Holland 1-26, Vernon 1, Moore, and Young 1.

[12] The Meireis, Schwertfeger, and Zink1B.

[13] In its June 2, 2010 Order, FERC adopted Northern's "mixing curve" analysis under which Northern estimated the percentage of storage gas in production from certain expansion area wells containing both storage and native gas. Northern determined that the Young 1-26, Holland 1-26, and Vernon-1 wells contained over 85 % storage gas; the Mezger-1, Geesling-1, and Riffey VI-25 contained over 87% storage gas; and the Young-1, Zink-1, Zink-A, and Zink-B contained over 65% storage gas.

aquifer in equilibrium with the contact. At that time, the native gas in the Cunningham field was maintained by the aforementioned water contact. He said the deepest depth of the Viola formation just north of the water contact was 2,560 feet subsea, meaning there was only a 50 foot column of water isolating the storage field area from the aquifer. He said this would have provided less than 25 pounds per square inch resistance to the movement of gas. Brush Exh. 2.

Brush said that during initial production from the Cunningham field from 1934 to 1978, the pressure in the field decreased from 1695 psi to less than 100 psi. In response, water from the aquifer moved across the non-sealing fault, depleting the pressure in the surrounding aquifer to the north. Brush said pressure data from wells in the expansion area before storage operations began shows reduced pressures in the aquifer to the 500-650 psi range. Brush Exh. 3A. These reduced pressures, he said, showed this was a "limited aquifer" that was unable to rapidly recharge with new water to maintain its original pressure. According to Brush, there were a large number of Viola wells drilled in and around the expansion area prior to 1979 that either had no tests or no productive gas tests, indicating the area was not productive of gas. Brush Exh. 4.

During the "fill-up" period, from 1979 to 1984, Northern injected gas into the storage field, thereby increasing the pressure in the field. Brush said this caused some of the water that had moved into the field to move back across the fault and into the aquifer, along with "a small volume" of storage gas. By 1985, he said, the movement of fluids into the expansion area had restabilized that area to nearly the average pressure of the Cunningham Storage Field, about 1160 psi. *See* Brush Exh. 5A. Brush said that by his calculation, about 1 to 2 Bcf of gas

migrated out of the Cunningham Storage Field to the expansion area during this fill-up period.[14] The gas stopped migrating, he said, when there was no longer a pressure differential between the storage field and the expansion area. The two areas remained in equilibrium for about the next ten years, he said, until development of the expansion area by third-party operators "destroyed the containment of storage gas ... by producing large volumes of aquifer water and storage gas...." This created "a large pressure sink," he said, which caused storage gas to migrate from the Cunningham Storage Field to the expansion area. He pointed out that the average pressure in the Cunningham Storage Field was 1160 psi, while production in the expansion area has reduced pressures there to between 560 and 718 psi, a difference of 500 psi or more.

Brush said he considered the pumping units being used by the defendants to be unusually large, as in his experience gas wells typically have no pumping units or only small units to pump off a few barrels of liquid a day. By contrast, many of defendants' wells are pumping over 200 barrels of water per day (Brush Exh. 19), which Brush said are "extraordinarily high production rates for a gas-producing well in a normal native gas accumulation," particularly since there is no evidence that any pumping units were used to produce the 79 Bcf of native gas from the adjacent Cunningham field. In Brush's opinion, an operator producing such large volumes of water in proximity to a gas storage field should expect that the production is going to influence storage gas to move toward those wells.

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[14] Brush sought to explain a statement by FERC that 17 to 18 Bcf of storage gas had migrated during the initial fill-up period. He said that figure referred to the amount of gas it took to bring the entire field (i.e. the certified storage area and the expansion area) to a stable operating condition, not to the amount of gas that migrated specifically to the expansion area. He said the great majority of this 17 to 18 Bcf was required to reestablish the gas-containing volume within the Cunningham Storage Field proper. The court concludes that Brush's explanation is both plausible and credible.

Brush charted the defendants' production from the expansion area beginning in 1995, showing production went from about 10 million cubic feet per month to almost 300 million cubic feet per month by January 2010. Brush Exh. 20. Brush said the defendants' production has destroyed the containment of storage gas in the Cunningham field, and if production is not abated it will prevent containment from being reestablished. Brush also made a series of charts illustrating a gas inventory analysis, which he said showed that about 13 Bcf of gas has migrated from the storage field since stabilization was lost in 1995. Brush Exh. 22. According to his analysis, when the defendants' production from the expansion area is taken into account, the "shape, timing, and volume of the cumulative production from those third-party operators matches almost perfectly the migration that's been experienced by the Cunningham field," and that "once you account for both water and gas produced by the third-party operators, you account completely for the migration that's been seen in the Cunningham." *See* Brush Exh. 23 & 24. Brush denied any suggestion that the Cunningham Storage Field had been over-pressured, saying there is no evidence of that, and noting that during the first three years of migration the operating pressures in the field were slightly less than they had been during the stable period. His opinion is that the migration of storage gas and the destruction of containment of the storage field was the result of third-party production.

With respect to recent third-party production, Brush noted that the number of wells had not quite doubled from 2006 to 2010, yet production in that period nearly tripled, which he said was evidence that the ability to pull storage gas to the extension area is becoming better and better, and this is "what I would expect to see when producing wells are communicating directly with an unlimited source of gas in the storage field." Brush Exh. 26. Additionally, he said there

was a relationship between reservoir pressure in the Cunningham field and subsequent production in the extension area, with peaks in storage field pressure followed by peaks in production, with the delay between the two diminishing as the migration pathway becomes wider and more saturated. Brush said lowering the pressure in the Cunningham Storage Field would not solve the problem, as shown by significant third-party production even at periods of low storage field pressure. Brush Exh. 29. He said average production on a per well basis in the expansion area was not experiencing a yearly decline, as would be expected, but was increasing, which is indicative of wells producing gas from a storage field "through an ever-expanding conduit." Brush says the wells are in direct pressure communication with the Cunningham storage field. His opinion is that the expansion area wells have produced billions of cubic feet of storage gas since 1995, that the wells interfere with the ability to provide containment and have destroyed the ability to maintain the integrity of the storage field, and that the wells should be shut-in to halt interference with the storage field.

The defendants pointed out that according to Northern's own theory – which differs from theories Northern has advanced in previous litigation – a portion of the storage gas migration to the expansion area was caused by Northern itself as it repressurized the field before 1985, unaware that a large section of the fault in the storage field was non-sealing. As a result, the buffer zone for the storage field was actually located outside of the storage field boundaries, in an area where Northern had no storage rights. Moreover, Northern had an injection well that it eventually concluded was located outside the boundary of the storage field, and also had a horizontal well that may have gone beyond the boundary and injected gas outside the field before it was shut in.

Jerry Nash, owner of Nash Oil & Gas, testified he first bought wells in the expansion area in late 1994 or early 1995, after seeing a "scout card" showing good volumes of gas on drill-stem tests. Nash now owns and operates nine wells in the area, although the wells have been shut-in since July 2010 because payments from the gas purchasers were put in suspense, making continued operation of the wells uneconomical. Nash "totally disagree[s]" with assertions that he is using over-sized pumps, saying he has been involved with wells all over the United States that produce substantially more water. He said the pumping units on the Nash wells were no different than any other pumping units in south-central Kansas. When asked whether his wells would be producing storage gas if they were producing today, Mr. Nash answered, "I don't believe that, no, sir." According to Mr. Nash, the defendants' cumulative production from all of the wells in question has been about 9 Bcf of gas.

Nash Oil presented the testimony of petroleum engineer John Paul Dick, who has extensive experience as a reservoir engineer. Dick testified that – assuming storage gas has migrated from the storage field to the expansion area – it was likely caused by an over-pressuring of the Cunningham Storage Field during fill-up. He said the Cunningham was an "underpressured reservoir" in which exceeding the original pressure would breach the reservoir's seal, and that Northern did just that. He said records showed an original pressure of 1350 in the reservoir – which was possibly a surface pressure – meaning a bottom hole pressure could have been around 1550 psi. He conceded, however, that other wells records from the 1930's showed pressures of 1475, and that if these were surface pressures the original reservoir field pressure could have been around 1650 to 1695 psi.

Dick said the volume of water removed by third-party operators in the expansion area has not caused a breach, given the thickness of the water-bearing formation. He also noted there are wide swings in pressure in the storage field, the result of which would be that fluids (including gas) would move in and out of the field with changes in pressure. Dick believes the underground fault was originally sealing but was breached by Northern's use of excessive pressures. He conceded he was not familiar with and did not know the basis of the information relied upon by FERC in making findings to the contrary. Dick did not agree that the defendants have produced "large quantities" of water, saying he had clients who produced far more, but admitted he did not know if the water was being produced only from the 4-foot top portion of the Viola or from the whole formation. Dick said he did not have enough information to state whether there was a correlation between the pressures in the Cunningham Storage Field and the defendants' production, but conceded that "[b]ased on the evidence, I would think that there was storage gas being produced [from the wells in the expansion area,]" and that they will continue to produce storage gas if they continue to produce. Dick also said he could not opine on the significance of the hysteresis curve allegedly showing a stable ten-year period, because "I don't know what was included or how it was constructed," although he conceded it "looked flat for the ten-year period" and he did not dispute that operations were stable for that period with no migration of storage gas.

L.D. Davis, the owner of L.D. Drilling, testified at the hearing. He said the production from the L.D. wells in the expansion area has been contracted to Lumen since 2008. Def. Exh. 13. Davis switched over to Lumen at that time because Lumen constructed a new pipeline that operated at much lower pressure, allowing Davis to produce and sell substantially more gas.

L.D. Drilling and Lumen were aware of Northern's allegations of storage gas production when they entered the contract. The contract contains a "facilities agreement" provision stating that for a five-year period, if L.D. Drilling fails to deliver gas for any reason related to any Northern action, L.D. Drilling will pay to Lumen the "Facilities Amount," which is the difference $1.8 million and credits based on the amount of gas produced by L.D. If production were halted now, defendant says the provision would require L.D. Drilling to pay Lumen just over one million dollars ($1,080,000). In September 2009, as a result of the Northern dispute, Lumen ceased making payments to L.D. Drilling and began holding payments in suspense. As of August 2010, Lumen was holding over $ 4.5 million in suspense. Some of that money relates to production from the "section 28 wells" on which Northern no longer makes any claim.

Davis operates 21 wells north of the Cunningham Storage Field. Each well cost about $425,000 to drill and complete. Davis denied any intent to interfere with the Northern storage field, and said he does not believe he is producing storage gas. When Davis was asked whether – assuming the wells are pulling gas out of the storage field – the operators should continue doing so, he said "no," although he does not believe that is occurring because "[i]t's too far away." Davis only recently had gas samples from the wells tested to compare them to storage gas, and as of the hearing date he had not checked on the results. Davis said he recognized when he signed the contract with Lumen that there was some risk the wells could be shut in.

Kim Shoemaker is a consulting geologist whose primary client is L.D. Davis. Shoemaker owns an interest in the subject L.D. Drilling wells and is a named defendant in this action. When L.D. first considered drilling in the expansion area, Shoemaker was not concerned about the Northern storage field because it was five miles away and was 200 feet structurally

higher. Shoemaker said he became interested in the area after seeing drill stem test results on prior wells that showed the presence of gas, including a 1955 test that recovered over 1 million cubic feet of gas. He pointed out that previous wells may have been considered uneconomical at the time based on the lack of a nearby pipeline and/or the low price of natural gas. Shoemaker denied that the defendant entered any sort of conspiracy to draw storage gas out of the field by producing large amounts of water, saying the pumping units on the L.D. wells were average sized and the water production on the wells has been "subnormal." He said the defendants had taken steps to discourage rather than encourage water production. Shoemaker agreed that Dr. Boehm had shown native gas samples with lower methane content than storage gas, but said he would like to have seen a larger sample than what Boehm considered. Shoemaker also described as "inconclusive" the seismic data produced by Northern and said he does "not feel like seismic is one hundred percent accurate." Shoemaker said he does not believe the L.D. wells are producing storage gas.

Finally, L.D. Drilling presented testimony by James Remsberg, an experienced petroleum engineer who specializes in appraising oil and gas properties. Although Mr. Remsberg was asked his opinion about various aspects of the Cunningham reservoir, it appears that his primary assignment was to determine a valuation for the L.D. wells, not to undertake a study and render opinions about the mechanics of the reservoir or the causes and extent of storage gas migration. *See e.g.,* Tr. Hrg. Vol. II at p. 135. While Mr. Remsberg examined certain production and pressure records as part of his study, no showing has been made that he undertook a comprehensive review of the mechanics of the reservoir. He conceded that he had just heard about the June 2, 2010 FERC order and had not been asked to review it for the hearing.

Significantly, he apparently did not investigate or determine whether the wells in the Cunningham field had in fact watered out at the end of primary depletion, a factor that might undermine his expressed opinion that the expansion area was not connected to the Cunningham field during initial production. Tr. Hrg. Vol. II at Pp. 153-156. Remsberg did point out certain data that could be inconsistent with Northern's theory, such as the fact that recorded shut-in pressures for wells in the Expansion Area showed a gradual decrease over time from 2003-2009, which he said would be expected from an isolated gas accumulation rather than one being replenished with storage gas.

As for Mr. Remsberg's valuations, he determined the value of the L.D. Drilling wells by examining their production histories and extrapolating future production. For purposes of his study, Mr. Remsberg was asked to determine the value of the working interests and royalty interests regardless of ownership of the gas. In other words, he assumed the working and royalty interest owners held title to all of the gas produced from the L.D. wells and that they have the right to continue producing from the expansion area. His opinion of value is contained in Def. Exh. 15. Remsberg said the value of the working interests in the L.D. wells would be a little over $6.6 million if the value were discounted at a 15% rate, which he said was common to determine present value of working interests for proven producing wells such as this. He said the value of the royalty interests (including some overriding royalties) would be $1,775,000 at the normal 10% discount rate applicable to royalty interests. Remsberg said general rules-of-thumb applicable to cash flow valuation – where such interests are sometimes valued at 36 to 48 months of cash flow – show that the above values are reasonable.

Northern contends the defendants are precluded as a matter of law from contradicting any of the findings made by FERC in its June 2, 2010 Order. While "one might expect" that FERC's findings in a regulatory proceeding would be binding under the doctrine of issue preclusion, "the question turns out to be complicated: even where the parties are the same, issue preclusion based on an administrative determination is sometimes allowed and sometimes not, depending on the nature of the proceeding, the nature of the issue, the procedural rights afforded, and other considerations." *Town of Norwood, Mass. v. New England Power Co.*, 202 F.3d 408 (1st Cir. 2000) (*citing Restatement (Second), Judgments* § 83 (1982)). While the court has no doubt that the exclusive appellate jurisdiction applicable to FERC orders precludes the defendants from in any way challenging the legality of the June 2 Certificate issued by FERC, the significant differences between the FERC proceeding and this action necessarily limit the effects, if any, of collateral estoppel. The purpose of the FERC proceeding was to determine whether it is in the public interest to include the Expansion Area in the storage field, an issue not essentially judicial in character. The regulatory proceeding was only tangentially related to the claims for damages that are the focus of the instant action. There are also extensive differences between the procedures followed in the two actions – for example, Northern has not shown that the defendants had any right of compulsory process to obtain evidence or a right to cross-examination of witnesses in the FERC proceeding. The defendants also face substantially different incentives in the two proceedings, since they were guaranteed to receive "just compensation" even if their property was included within the FERC certification, while the instant action involves extensive claims and counterclaims for damages.

II. *Preliminary Injunction Standards*.

When seeking a preliminary injunction, the moving party must demonstrate: (1) a likelihood of success on the merits; (2) a likelihood that the movant will suffer irreparable harm in the absence of preliminary relief; (3) that the balance of equities tips in the movant's favor; and (4) that the injunction is in the public interest. *Little v. Jones*, 607 F.3d 1245, 1251 (10th Cir. 2010) [citations omitted]. In addition, the movant must establish "a relationship between the injury claimed in the party's motion and the conduct asserted in the complaint." *Id*. (*citing Devose v. Herrington*, 42 F.3d 470, 471 (8th Cir.1994)). A mandatory preliminary injunction – i.e., one that requires the nonmoving party to take affirmative action – is an extraordinary remedy and is generally disfavored. *Little*, 607 F.3d at 1251 (*citing Att'y Gen. of Okla. v. Tyson Foods, Inc*., 565 F.3d 769, 776 (10th Cir. 2009)). Before a court may grant such relief, the movant must "make a heightened showing of the [ ] four factors." *Id*. *See also O Centro Espirita Beneficiente Uniao Do Vegetal v. Ashcroft*, 389 F.3d 973, 976 (10th Cir. 2004) (*en banc).*

The requested injunction in this case would alter the status quo and would require the defendants to take affirmative action to cease production and shut in their wells. As such, it qualifies as a disfavored mandatory injunction.

III. *Discussion*.

A. Likelihood of Success on the Merits. Northern claims the defendants' operation of their wells in the expansion area constitutes a nuisance because it interferes with Northern's use and enjoyment of the Cunningham Storage Field. Under Kansas law, "'A nuisance is an annoyance, and any use of property by one which gives offense to or endangers the life or health, violates the laws of decency, unreasonably pollutes the air with foul, noxious odors or smoke, or

obstructs the reasonable and comfortable use and enjoyment of the property of another may be said to be a nuisance." *Smith v. Kansas Gas Service Co.*, 285 Kan. 33, 169 P.3d 1052 (2007). In the absence of an actual trespass, the interference with the use of the land must be substantial in order to constitute nuisance. *See Williams v. Amoco Production Co.*, 241 Kan. 102, 734 P.2d 1113, 1124 (1987). Moreover, the interference must be of such a nature, duration or amount as to constitute an unreasonable interference with the use and enjoyment of land. *Id*. at 1125.

The evidence presented clearly establishes that continued production from the defendants' wells in the expansion area will substantially interfere with Northern's use and enjoyment of the Cunningham Storage Field. There is strong and clear evidence that storage gas from the previously-certified areas of the field (i.e. from the pre-2010 borders) is migrating out to the expansion area and has been doing so for some time, with wells even in the northern portion of the expansion area producing primarily storage gas, even though some of those wells are more than 6 miles from the underground fault. The defendants' production of substantial amounts of storage gas and water will likely continue to draw storage gas beyond the underground fault and out of the storage field as long as such production continues, threatening the continued viability of the storage facility.

The gravity of the harm from the continued operation of defendants' wells in the expansion area weighs in favor of a finding of nuisance. Federal and state law recognize the importance of underground gas storage facilities and the public interests they further. The continued operation of these wells will prevent containment of a large and important storage field from being reestablished. Moreover, continued production will likely cause increased

migration to occur, according to the evidence, as the migration pathway grows larger and becomes more saturated.

The evidence presented at the hearing shows that the Cunningham Storage Field and the Expansion Area are likely in communication with one another, and that migration of storage gas results from a pressure differential between the storage field and the expansion area that came about as a result of defendants' production of gas and water beginning in the mid 1990's. This is the most reasonable interpretation of the evidence, including evidence showing a substantial increase in pressure in Expansion Area or nearby wells after 1979, and evidence of an extended period of storage field stability that ended about the same time production by one or more defendants commenced in the Expansion Area. There is also some evidence that the defendants' wells are not experiencing a normal decline in production as would be expected from production of native gas. The defendants' production creates "pressure sinks" that draw gas to the wells. As defendants note, oil and gas production almost by definition involves a lowering of pressure to draw in hydrocarbons from the surrounding area, and the mere fact that a differential exists is not proof of unreasonable interference. The defendants have a right to produce native gas from the Expansion Area. There is a conflict in the evidence as to whether the pumps being used by the defendants and the amount of water being produced are unusually large, and whether the defendants should have known that their production would draw in gas from the storage field. Some of the pumps used by the defendants appear to be of significant size, *see* Brush Exhs. 10, 13, although the evidence fails to show clearly that the use of such pumps was unprecedented for this area. Similarly, there was some evidence that production of over 200 barrels of water for gas wells was high, but the evidence failed to show clearly that it was so unusual as to show an

intent to affect the storage field. At the same time, the defendants have failed to address Northern's evidence that drilling numerous productive wells "down dip" of the formation should have suggested a possible connection to the storage field. The evidence also indicates what might be described as a lack of curiosity by the defendants as to whether or not they were producing storage gas. At any rate, what cannot be disputed is that after the June 2, 2010 FERC order – which the defendants chose not to appeal – the defendants were clearly on notice that their wells were producing primarily if not entirely storage gas, and that their production of significant amounts of water was likely influencing the migration of storage gas from the Cunningham field. Whatever the defendants' intentions up to the point of the FERC order, their continued production thereafter with knowledge that they were causing storage gas to migrate can now be viewed as an intentional and substantial interference with Northern's use of the Cunningham Storage Field. *Cf. St. David's Episcopal Church v. Westboro Baptist Church, Inc.* , 22 Kan.App.2d 537, 921 P.2d 821, 828 (1996) ("Occasionally, the defendant may act from a malicious desire to so harm for its own sake; but more often the situation involving a private nuisance is one where the invasion is intentional merely in the sense that the defendant has ... continued the condition causing the interference with full knowledge that the harm to the plaintiff's interests are occurring or are substantially certain to follow.").

The utility of the defendants' conduct is relevant to the nuisance claim. *See Restatement (Second) of Torts*, § 826 ("An intentional invasion of another's interest in the use and enjoyment of land is unreasonable if ... the gravity of harm outweighs the utility of the actor's conduct...."). The defendants have a right to produce natural gas to which they or their lessors hold title in the expansion area. Moreover, Northern's erroneous assessment of the underground fault appears to

have contributed at least in part to the situation it now claims to be a nuisance, and Northern could also bear potential liability for what amounts to an unauthorized use of the Viola formation in the expansion area. But several factors unique to this case nevertheless support Northern's claim that the defendants' production currently constitutes an unreasonable interference. First, Northern has obtained a certificate from FERC to include the expansion area in the Cunningham Storage Field. Whatever the parties' rights may be as to storage gas that migrated before July 1, 1993[15], or with respect to storage gas that migrated after 1993 but before the FERC certificate, Kansas law appears clear that the certificate means Northern retains title at least to any storage gas that has migrated or will migrate to the Expansion Area from June 2, 2010 and thereafter. *See Union Gas System, Inc. v. Carnahan*, 245 Kan. 80, 774 P.2d 962 (1989) ("As soon as Union's storage gas operation became authorized and its gas identifiable, the gas was no longer *ferae naturae* and subject to the rule of capture. The title to Union's gas remained in Union."). Persons other than the injector have no right "to produce, take, reduce to possession, either by means of the law of capture or otherwise, waste, or otherwise interfere with or exercise any control over such gas." K.S.A. § 55-1210(b). In these circumstances, even though the defendants have received a permit from the Kansas Corporation Commission to operate their wells, Kansas law does not grant the defendants an unfettered right to continue producing storage gas. Second, there is strong evidence that all of the wells at issue would, if allowed to continue operating during this litigation, produce primarily storage gas. According to Northern's expert, the production from numerous wells consists entirely of storage gas while several others

[15] *See Northern Nat. Gas Co. v. Martin, Pringle, Oliver, Wallace & Bauer*, 289 Kan. 777, 217 P.3d 966 (2009) (landowner possessed right, title and interest to storage gas which had migrated prior to July 1, 1993).

contain more than 85% storage gas. Four wells in the northernmost portion of the expansion area contain about 65% storage gas – meaning up to 35% of that production may be native gas – but there is also evidence that the percentage of storage gas in those wells is increasing over time. Defendants have cited no gas composition evidence to contradict Dr. Boehm's opinions. Third, the defendants' property rights are now the subject of a condemnation action, and, notwithstanding pending challenges to Northern's authority to condemn, it is likely that the rights will be acquired by Northern sometime in the future. Of course, Northern will have to pay just compensation to acquire the rights – which include all interests relating to natural gas in the Viola and Simpson formations, including royalty interests, overriding royalty interests, working interests, and "any and all rights of any type or nature incident or appurtenant thereto."[16] *See Northern Natural Gas Co. v. Tract No. 2062710* (D.Kan., Case No. 10-1232) (Complaint, Doc. 1, ¶ 36). The court recognizes that Northern has not yet paid for any such rights, and the defendants thus retain the right to produce native gas unless and until Northern pays compensation pursuant to a lawful condemnation. But at the same time, the defendants do not

[16] Northern has made a point of saying it does not seek in the condemnation to acquire the defendants' wellbores or any of the other well equipment within the Authorized Expansion Area. Doc. 407 at 13. Regardless of whether Northern intends to acquire such property, if the condemnation effectively results in a taking of the defendants' property or if the defendants suffer residual damage from the taking, then Northern will be required to pay just compensation for any property so taken, whether pursuant to Northern's condemnation claim or pursuant to a claim of inverse condemnation by the defendants. *Cf. Yagel v. Kansas Gas & Elec. Co.*, 131 Kan. 267, 291 P. 768 (1930) (damages to the residue of land not taken are available in condemnation). *Cf. American Energy Corp. v. Rockies Exp. Pipeline LLC*, --- F.3d ----, 2010 WL 3766651 (6th Cir. 2010) (landowner in an eminent domain can recover for any injury to the remaining lands resulting from construction of the proposed improvement, measured by the difference in the residue's fair market value before and after the taking, and considering every element that can fairly enter into the question of value).

possess a right to produce storage gas to which Northern retains title, nor do they have a right to unreasonably interfere with a certified storage field. *See* K.S.A. § 55-1210.

The Restatement of Torts has the following comment on the "unreasonableness" requirement of a nuisance:

> The unreasonableness of an intentional invasion is determined from an objective point of view. The question is not whether the plaintiff or the defendant would regard the invasion as unreasonable, but whether reasonable persons generally, looking at the whole situation impartially and objectively, would consider it unreasonable. Consideration must be given not only to the interests of the person harmed but also for the interests of the actor and to the interests of the community as a whole. Determining unreasonableness is essentially a weighing process, involving a comparative evaluation of conflicting interests in various situations according to objective legal standards.

Restatement (Second) of Torts, § 826, comment. c.

The right of condemnation granted natural gas companies under federal or state law is the primary means of resolving claims of interference with a gas storage facility. Northern has ostensibly been granted that authority and is seeking to condemn the property involved in the defendants' production. There will inevitably be a delay before any condemnation can be completed, however, and in the meantime the defendants' continued production – the vast majority of which appears to constitute storage gas – would work a substantial and unreasonable interference with the existing storage field. Mr. Davis himself candidly admitted that he did not think a reasonable operator should be drawing gas out of a storage field and producing it. Under the unique circumstances of the case, the defendants' claim of a right to continue producing native gas does not justify the substantial interference such production would cause with Northern's right to the use and enjoyment of the storage field while the merits of the nuisance

claim – or alternatively the merits of the condemnation complaint – are decided. The court concludes that Northern has satisfied the requirement of showing a likelihood of success on the merits.

B. Likelihood that the movant will suffer irreparable harm in the absence of preliminary relief. The evidence shows that continued production by the defendants will work substantial and irreparable harm upon Northern's ability to maintain the integrity of the storage field, as confirmed by FERC's assessment of the migration problem. There is no evidence that any remedy short of halting production would be effective at stopping the ongoing migration. Northern has no adequate remedy at law for the interference caused by defendants' production, because monetary damages would not serve to restore the viability of the storage field. Northern has shown it will likely suffer irreparable harm in the absence of the requested injunctive relief.

C. The balance of equities. In addition to the foregoing findings, the court notes that any harm to the defendants from an injunction should be lessened by the remedy available in the condemnation action. In the condemnation, Northern will have to compensate the defendants for the taking of any of defendants' property, including any taking of the right to produce native gas or any other gas to which the defendants or their lessors hold title. In this limited sense, the status quo would actually be maintained by an injunction, because it may help to reduce current migration and "freeze" the parties' respective rights to the gas currently found in the Expansion Area. Additionally, should it subsequently be determined that defendants' production has been wrongfully enjoined, the defendants may have a right to obtain damages.

D. Whether the injunction is in the public interest. That an injunction would be in the public interest is shown in part by the FERC ruling. FERC found it would be in the public

interest to include the Expansion Area in the certified storage field. It also found, consistent with the evidence presented here, that a necessary first step for re-establishing containment of the storage field is to shut down third-party production that is causing storage gas to migrate. Although a preliminary injunction would temporarily interfere with valuable property rights of the defendants, the evidence suggests the defendants' current production constitutes an unreasonable interference with neighboring property and, at any rate, the defendants are likely to receive full compensation for their property interests in the condemnation proceeding. The public interest in maintaining the integrity of gas storage fields, thereby ensuring adequate supplies of natural gas for use in peak periods of demand, would be furthered by an injunction allowing Northern to restore containment of the Cunningham Storage Field. Under these circumstances, an injunction halting the defendants' production pending a determination on the merits of the complaint is in the public interest.

The defendants have raised a number of points in opposition to the injunction, but the court finds them unpersuasive, despite the extraordinary nature of the relief requested. Nash Oil and Val Energy, for example, argue the defendants' production has not been shown to be the cause of any storage gas migration. While there is some inherent uncertainty when it comes to underground gas migration – as FERC noted – the substantial weight of the evidence here shows a picture of two areas in communication with other, with a likely cause-and-effect relationship between the defendants' production and the migration of storage gas. Such an issue cannot be proved with certainty, but plaintiff has met its burden of proof insofar as the request for preliminary injunction is concerned. Nash also argues Northern has failed to show it has title to any storage gas in the Expansion Area. As the court noted above, however, Northern's title

under Kansas law is clear at least as to storage gas that has migrated or will migrate after the issuance of the FERC certificate. Moreover, it is the current interference with Northern's storage field, not Northern's title to previously migrated gas, that is the basis of the request for injunctive relief. Nash also contends an injunction is unwarranted because the Nash and Val wells are currently shut in, but without an injunction the defendants would be free to resume drilling operations at any time.

L.D. Drilling says that if its wells are shut in, it will have to pay a $1 million assessment pursuant to its contract with Lumen, and also that shutting in the wells may ruin them, which would deprive L.D. of property or diminish the value of its property. L.D. also points out that the Natural Gas Act contains no "quick take" provision authorizing a natural gas company to take possession of property at the outset of a condemnation proceeding. It contends that an injunction in this action would essentially award their property to Northern without payment of just compensation, in violation of their constitutional rights. L.D. further argues the motion for injunction should be pursued, if at all, in the condemnation proceeding, where it says Northern would be required to pay up front for the value of any property taken.

As defendants point out, the authority for a preliminary injunction of this type is well established in condemnation actions under the Natural Gas Act. Notwithstanding the absence of a "quick-take" provision under the Act, courts have granted immediate possession of property where the circumstances warrant, with possession usually being conditioned upon the condemnor depositing the estimated value of the property up front. *See e.g., East Tennessee Natural Gas Co. v. Sage*, 361 F.3d 808 (4th Cir. 2004). The rationale is that a condemnor whose

authority to condemn has been confirmed[17] has an equitable interest in the property that a court of equity may protect and enforce. *Id*. at 828.

Northern's current motion for preliminary injunction does not seek immediate possession of the wells or property; it seeks an order prohibiting the defendants from continuing their production during this litigation. Based on the evidence that the current production constitutes an unreasonable interference with the storage field, the court concludes that preliminary injunctive relief is appropriate. The court notes the evidence that L.D. Drilling undertook its contract with Lumen fully aware that Northern might be successful in getting the wells shut in, and that it might incur a large assessment as a result. The court concludes that Northern should not be required to pay this assessment up front to obtain preliminary injunctive relief. But, should it later be determined that the injunction improperly denied the defendants a right to do what they had a legal right to do, the defendants could then seek to obtain damages for being wrongfully enjoined. See e.g., ***Blumenthal v. Merrill Lynch, Pierce, Fenner & Smith, Inc***., 910 F.2d 1049, 1054 (2d Cir. 1990) (a party is wrongfully enjoined "if it is ultimately found that the enjoined party had at all times the right to do the enjoined act").

E. Security. Rule 65(c) provides in part that the court may issue a preliminary injunction "only if the movant gives security in an amount that the court considers proper to pay the costs and damages sustained by any party found to have been wrongfully enjoined or restrained." After reviewing the evidence, the court concludes that Northern should be required to post a bond in the amount of $2 million as security against costs and damages of the defendants for any

[17] In the condemnation action, Northern has filed a motion to confirm its condemnation authority. Several defendants in that action have opposed the motion. The court has reviewed the briefs on that issue and anticipates ruling on them in the near future.

wrongful restraint. The court has considered all of the evidence in determining this amount, including the evidence showing that a high percentage of the defendants' current or recent production consists of storage gas. Additionally, the defendants will likely have a remedy in the condemnation for any taking by Northern of gas that the defendants had a right to produce or for the taking of other property. Finally, the court will require Northern to post an additional sum to cover the cost of pulling the tubing, rods and other equipment from the wells in order to minimize any damage to the wells from corrosion, as noted below.

F. Form of Injunction. The unusual nature of the injunction requires that two issues be taken into account.

First, the parties agree that if the wells are shut in, it would be beneficial to pull the tubing, rods and other equipment from the wells in order to salvage it, and to treat the wells to prevent corrosion. Because this involves technical issues within the expertise of the parties, the court will direct the parties to confer upon a procedure for accomplishing this. If they agree, they shall submit an appropriate order to the court. If they are unable to agree, each party may submit its own proposed order for accomplishing the shut in and removal of equipment. Any such plan shall be submitted by January 10, 2010, with copies to all parties. The court will direct Northern to pay the reasonable costs of such salvage and treatment, not to exceed $2,500 per well, unless a greater sum is agreed to by the parties or approved by the court.

Second, the defendants say shutting in the wells and removing the equipment will prevent any further testing, and that such testing could be material to issues in the condemnation action. In order to preserve an opportunity to obtain relevant evidence in the condemnation, the court will stay the effect of this injunction for a period of 60 days – until February 21, 2011 – to allow

the parties in the condemnation (or in this action) to conduct any relevant well tests. The court will issue a notice in the condemnation action concerning the limited opportunity to conduct well tests. Any disputes relating to access, testing or disclosure of results shall be made by motion and referred to Magistrate Judge Bostwick for determination.

Finally, it is apparent that the condemnation action and the present case involve common questions of fact. Pursuant to Fed.R.Civ.P. 42(a), the court determines that the condemnation (No. 10-1232) and this action (Nos. 08-1405 & 08-1400) should be consolidated for purposes of discovery only, to reduce unnecessary cost and duplication of effort.

IV. Conclusion.

Northern Natural Gas Company's Motion for Preliminary Injunction (Doc. 341) is GRANTED subject to the conditions set forth herein. It is ordered that by February 21, 2011, defendants L.D. Drilling, Inc., Val Energy, Inc., and Nash Oil & Gas, Inc., shall cease and refrain from further production of natural gas from the following wells in the Viola and/or Simpson formations of the Expansion Area certified by FERC in its June 2, 2010 Order: (Well Name; Well Location; Well Operator)

1. Branscom 1 - T26S R10W, Sec. 30, SW SW, 660' FSL, 560' FWL; Val Energy, Inc.
2. Brown 'A' 1 - T26S R11W, Sec. 35, C NE, 1320' FNL, 1320' FEL; L.D. Drilling, Inc.
3. CRC 1 - T27S R11W, Sec. 1, NW NW, 660' FNL, 660' FWL; Nash Oil & Gas, Inc.
4. CRC 2 - T27S R11W, Sec. 1, C NE NW, 660' FNL, 1980' FWL; Nash Oil & Gas, Inc.
5. Geesling 1 - T26S R11W, Sec. 26, C NE, 1395' FNL, 1320' FEL; L.D. Drilling, Inc.
6. Holland 1-26- T26S R11W, Sec. 26, C SW SW, 660' FSL, 4620' FEL; Nash Oil & Gas, Inc.
7. Holland 2-26- T26S R11W, Sec. 26, SE SW, 660' FSL, 3300' FEL; Nash Oil & Gas, Inc.
8. J.C. 1 - T26S R11W, Sec. 27, NW NE SE, 2310' FSL, 840' FEL; Nash Oil & Gas, Inc.
9. Martin 1 - T26S R11W, Sec. 36, C NW, 1320' FNL, 1320' FWL; L.D. Drilling, Inc.
10. Mcguire 1-31- T26S R10W, Sec. 31, NW NW, 755' FNL, 532 FWL; Val Energy, Inc.
11. Meireis 1-23 - T26S R11W, Sec. 23, NE SW SE SE, 515' FSL, 860' FEL; L.D. Drilling, Inc.

12. Mezger 1 - T26S R11W, Sec. 26, C NW SE, 1980' FSL, 1980' FEL; L.D. Drilling, Inc.
13. Mezger 2 - T26S R11W, Sec. 26, C SE SE, 660' FSL, 660' FEL; L.D. Drilling, Inc.
14. Milton 1 - T26S R11W, Sec. 25, C SE SW, 660' FSL, 1980' FWL; L.D. Drilling, Inc.
15. Moore 1-27 - T26S R11W, Sec. 27, SE NE NE, 1100' FNL, 330' FEL; L.D. Drilling, Inc.
16. Riffey 'V' 1-25- T26S R11W, Sec. 25, SW SE, 350' FSL, 2290' FEL; Val Energy, Inc.
17. Staab 1 - T26S R11W, Sec. 35, E2 SE, 1370' FSL, 660' FEL; Nash Oil & Gas, Inc.
18. Stanton L. Brown 1-T26S R11W, Sec. 35, NE NW NW, 330' FNL, 990' FWL;L.D. Drilling, Inc.
19. Stanton 1 - T26S R11W, Sec. 25, C NW SW, 1980' FSL, 660' FWL; L.D. Drilling, Inc.
20. Trinkle 1 - T26S R11W, Sec. 36, S2 S2 N2 SW, 1520' FSL, 1320' FWL; Nash Oil & Gas, Inc.
21. Young 1 - T26S R11W, Sec. 26, E2 SE SW NW, 2310' FNL, 1220' FWL; L.D. Drilling, Inc.
22. Young 1-26 - T26S R11W, Sec. 26, SE NW SW, 1650' FSL, 4290' FEL; L.D. Drilling, Inc.
23. Zink 1 - T26S R11W, Sec. 25, C NW, 1320' FNL, 1320' FWL; L.D. Drilling, Inc.
24. Zink A - T26S R11W, Sec. 25, S2 NW NE, 990' FNL, 1980' FEL; L.D. Drilling, Inc.
25. Zink 'B' 1 - T26S R11W, Sec. 24, E2 E2 SW SW, 660' FSL, 1050' FWL; L.D. Drilling, Inc.

Northern shall pay the reasonable costs of preventive work and treatment associated with the shutting in of these wells, not to exceed $2,500 per well, unless a greater sum is agreed to by the parties or approved by the court.

Pursuant to Fed.R.Civ.P. 65(c), Northern shall post a bond in the amount of $2 million as security for any costs or damages incurred by the defendant operators should it be determined that they have been wrongfully restrained.

IT IS SO ORDERED this 21st Day of December, 2010, at Wichita, Ks.

s/Wesley E. Brown
Wesley E. Brown
U.S. Senior District Judge