IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW MEXICO

UNITED STATES OF AMERICA,	)	
AND	)	No. 01cv00072-MV-WPL
STATE OF NEW MEXICO ex rel. STATE ENGINEER,	)	ZUNI RIVER BASIN
Plaintiffs,	)	ADJUDICATION
v.	)	
	)	Subfile No. ZRB-2-0038
A & R PRODUCTIONS, et. al.,	)	
Defendants.	)	
	)	

DEFENDANTS' MOTION FOR SUMMARY JUDGMENT

Pursuant to Rule 56 Fed. R. Civ. P., and D.N.M.LR-Civ. 56.1, Defendants *Pro Se*, Craig L. Fredrickson and Regina R. Fredrickson (hereafter the "Defendants") respectfully move this Court for entry of an Order granting summary judgement in their favor. No disputed issue of material fact exists concerning the priority, purpose of use, place of use, period of use and amount associated with the water rights now held by the Defendants, and the Defendants are entitled to judgment as to their interests in water and all water rights associated with their real property as a matter of law.

The paragraphs below constitute Defendants' Memorandum in support of this Motion for Summary Judgment ("Motion") D.N.M.LR-Civ. 56.1(b).

I. Background of the Parties' Dispute

Defendants were made a party to this action as a consequence of their purchase of Section 19, Township 5N, Range 18W N.M.P.M. on February 21, 2006. Defendants' property had been part of a large cattle ranch whose operations included a cow-calf operation on this Section. A portion of this ranch, including all of Defendants' property, lies within the

geographical boundary of the Zuni River Basin ("Basin") in the region of Rincon Hondo Canyon. Starting in the year 2000, and after the beginning of the current drought, that property was sold by the then owners. On February 21, 2006, Defendants filed *Change of Address or Ownership Form, Zuni River Basin Adjudication* with the United States Department of Justice and State of New Mexico, ex rel. State Engineer ("Plaintiffs").

Located on Defendants' property is well 10A-5-W06 which was used until the year 2000 to support cattle operations. The well has since been used for domestic purposes; wildlife watering has been incidental to that use. The rangeland is being rested and rehabilitated from ongoing drought conditions. Defendants intend to reintroduce cattle to the land once the land recovers and water rights are adjudicated.

Pursuant to the *Interim Procedural Order Requiring All Water Rights Claimants to Update Their Water Rights Files with the State Engineer* (Doc. 208), the Plaintiffs, acting through their employees, experts and consultants, performed a Hydrographic Survey of the Basin and examined for evidence of historic, beneficial water use: see *Notice of Filing the Zuni River Basin Hydrographic Survey for SubAreas 9 and 10* ("Hydrographic Survey") (Doc. 393). The Hydrographic Survey included methods, data and assumptions used to estimate water use by livestock for the purpose of preparing settlement offers. Based on the information for the present Defendants' property gathered by the Hydrographic Survey and pursuant to the *Order Granting Joint Motion to Amend Procedural and Scheduling Orders and Establish or Revise Deadlines for Defendants to Return Requests for Consultation and Submit Subfile Answers* (Doc. 837), on October 10, 2006 Plaintiffs served a proposed Consent Order on Defendants. Subsequently, on November 14, 2006, Defendants filed a timely *Subfile Answer* and rejected the proposed Consent Order.

The proposed Consent Order, which had offered 0.336 ac-ft per year ("AFY") for livestock, was rejected on the basis that it did not reflect the correct priority date or purposes of use, and that it grossly underestimated the amount of water diverted from well 10A-5-W06 and applied to beneficial use for livestock. Defendants' *Subfile Answer* included a copy of the declaration of ownership of the well accepted for filing by the State of New Mexico, Office of State Engineer ("OSE") on March 27, 1990 ("Well Declaration"), and a copy of Defendants' domestic use permit for the well approved by the OSE on March 1, 2006; Plaintiffs were previously unaware of the existence of these relevant documents.

On June 2, 2015, Plaintiffs served notice of the scheduling of a final consultation meeting on the subfile and provided Defendants with a revised Consent Order which offered a combined 3.724 AFY for livestock and domestic uses and which reflected the correct priority date for well 10A-5-W06. Contrary to representations made in the referenced notice, the revised Consent Order was never previously offered to the Defendants.

Despite extended consultation, the parties were still unable to reach agreement and *Notice That the Consultation Period Has Ended* was given (December 7, 2015) (Doc. 3152). Defendants prepared and filed a timely *Subfile Answer* (December 21, 2015) (Doc. 3161); the *Subfile Answer* signaled Defendants' willingness to accept 0.7 AFY for the domestic use component of well 10A-5-W06 but rejected the revised offer of 3.024 AFY for the livestock use component on the basis that it still significantly underestimated the amount of water applied to beneficial use for livestock.

The parties submitted a *Joint Status Report and Proposed Discovery Plan* (January 12, 2016) (Doc. 3167-1). Among other matters, the parties stipulated that no dispute exists between them concerning the domestic use component of the water right. Also, as noted therein, the

nature and extent of the total water rights to which Plaintiffs were willing to recognize in settlement included an amount of water of 3.724 AFY for domestic and livestock purposes (January 12, 2016) (Doc. 3167-2). Plaintiffs did not stipulate to any fact associated with a livestock use component and, as such, remaining at issue is each element of a livestock use component: priority, amount, beneficial use, periods of use, and place of use.

The court issued an *Order Setting Discovery Deadlines and Adopting the Joint Status Report* (February 16, 2016) (Doc. 3201). In response to an *Unopposed Motion to Modify Scheduling Order* (June 2, 2016) (Doc. 3279), the court found good cause to modify the schedule (June 2, 2016) (Doc. 3280). The parties have proceeded with discovery in accordance with the schedule. *Defendants' Submittal of Final Expert Witness Report* was made on a timely basis (June 27, 2016) (Doc. 3291).

Defendants' Final Expert Witness Report (Exhibit G to this Motion) sets forth opinions on the livestock use component of the water right from well 10A-5-W06. The evidentiary basis for these opinions is contained within the materials now in the record including depositions, documents, stipulations, admissions, interrogatory answers and other materials.

II. Memorandum of Points and Authorities in Support of Motion for Summary Judgement

Applicable Summary Judgement Standard

Summary judgment is appropriate "if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." Rule 56(a), Fed. R. Civ. P. Whether asserted by plaintiffs or defendants, this standard of review remains the same. As articulated by the Supreme Court:

> a party seeking summary judgment always bears the initial responsibility of informing the district court of the basis for its motion, and identifying those

> portions of the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, which it believes demonstrate the absence of a genuine issue of material fact.

Celotex Corp. v. Catrett, 477 U.S. 317, 323 (1986) (internal quotations of Rule 56 omitted).

A fact is "material" if, under the governing law, it could have an effect on the outcome of the action. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). A dispute over a material fact is "genuine" if a rational jury could find in favor of the nonmoving party on the evidence presented. *Id.* A mere "scintilla" of evidence is insufficient to successfully oppose a motion for summary judgment. *Id.* at 252. Following *Celotex* and *Anderson*, the Tenth Circuit has said that, when reviewing a motion for summary judgment, the district court must "view the evidence and draw any inferences in a light most favorable to the party opposing summary judgment, but that party must identify sufficient evidence which would require submission of the case to a jury." *Thomas v. Wichita Coca-Cola Bottling Co.*, 968 F.2d 1022, 1024 (10th Cir. 1992).

Accordingly, and since the Defendants do not carry the burden of proof at trial, the Defendants carry their summary judgment burden "by either (1) providing affirmative evidence negating an essential element of [Plaintiffs'] claim or (2) showing the Court that [Plaintiffs'] evidence is insufficient to demonstrate an essential element of [Plaintiffs'] claim." *Id.* (citing *Celotex*, 477 U.S. at 331). Absent an actual dispute of material fact, the Defendants are entitled to judgment as a matter of law based on the quantum and quality of evidence in light of the substantive evidentiary standard.

In addition, summary judgement is proper "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Rule 56(c), Fed. R. Civ. P. As articulated by the Supreme Court:

> The plain language of Rule 56(c) mandates the entry of summary judgment, after adequate time for discovery and upon motion, against a party who fails to make a showing sufficient to establish the existence of an element essential to that party's case, and on which that party will bear the burden of proof at trial. In such a situation, there can be "no genuine issue as to any material fact," since a complete failure of proof concerning an essential element of the nonmoving party's case necessarily renders all other facts immaterial. The moving party is "entitled to a judgment as a matter of law" because the nonmoving party has failed to make a sufficient showing on an essential element of its case with respect to which it has the burden of proof.

Celotex Corp. v. Catrett, 477 U.S. 322-323 (1986).

Applicable New Mexico Water Law

"New Mexico state law provides the substantive standards for this adjudication." *Proposed Findings and Recommended Disposition*, No. 01cv00072-MV-WPL, Subfile No. ZRB-2-0014, Doc. 3049 at 4 (citation omitted). The necessary starting point for considering the merits of the Defendants' Motion is to examine the manner in which a water right is established under New Mexico law.

The legal basis for establishing a water right under New Mexico law is well settled: "The unappropriated water . . . is hereby declared to belong to the public." Article XVI § 2, NMSA 1978, § 72-1-2 (1907). In other words, water within New Mexico belongs to the State. *State ex rel. Erickson v. McLean*, 308 P.2d 983, 987 (N.M 1957); *Carangelo v. Albuquerque-Bernalillo County Water Utility*, 320 P.3d 492, 503(N.M. Ct. App. 2013). A water user in New Mexico may secure the right to use water only through beneficial use and, when necessary, the state will administer the water right consistent with the doctrine of prior appropriation. N.M. Const. Article XVI, § 2; NMSA 1978, § 72-1-2. Of central importance, "beneficial use shall be the basis, the measure[,] and the limit of the right to use the water." N.M. Const. Article XVI, § 3. "Put another way, 'the amount of water which has been applied to a beneficial use is … a measure of the quantity of the appropriation.'" *Carangelo*,

320 P.3d at 503 (quoting *Erickson* 308 P.2d at 987). This Court, in this adjudication, has succinctly articulated the controlling principles governing the establishment of a water right:

> New Mexico law is clear on the subject. The constitutional provision and statutes . . . as well as abundant case law, clearly state that beneficial use defines the extent of a water right. This fundamental principle is applicable to all appropriations of public waters. Only by applying water to beneficial use can an appropriator acquire a perfected right to that water.

Memorandum Opinion and Order, No. 01cv00072-BB-ACE, Doc. 733 at 4 (citations and quotation marks omitted).

Under New Mexico law, the OSE is responsible for all reports of hydrographic surveys made of the waters of any stream system, and that they:

> [be] filed in the office of such state engineer, and the originals or certified copies thereof, made by such state engineer, shall be received and considered in evidence in the trial of all causes involving the data shown in such survey, the same as though testified to by the person making the same, *subject to rebuttal*, the same as in ordinary cases.

NMSA 1978, § 72-4-16 (emphasis added). Further, the amount of water, the priority, the purpose, and the periods and place of use, are *each* fundamental elements of a water right under state law that must be proven by a water right claimant, in this case by the Defendants.

> [The] decree shall in every case declare, as to the water right adjudged to each party, *the priority, amount, purpose, periods and place of use*, and as to water used for irrigation, except as otherwise provided in this article, the specific tracts of land to which it shall be appurtenant, together with such other conditions as may be necessary to define the right and its priority.

NMSA 1978, § 72-4-19 (emphasis added).

Underground waters are regulated under the statutes of Chapter 72, Section 12 of New Mexico law. In particular:

> [by] reason of the varying amounts and time such water is used and the relatively small amounts of water consumed in the watering of livestock [and] in household

> or other domestic use, … application for any such use shall be governed by the provisions of Sections 72-12-1.1 through 72-12-1.3 NMSA 1978.

NMSA 1978, § 72-12-1. With respect to declaration of beneficial use, verification and recording:

> Any person, firm or corporation claiming to be the owner of a vested water right from any of the underground sources in this act [72-12-1 through 72-12-10 NMSA 1978] described, by application of waters therefrom to beneficial use, may make and file in the office of the state engineer a declaration in a form to be prescribed by the state engineer *setting forth the beneficial use to which said water has been applied, the date of first application to beneficial use, the continuity thereof, the location of the well and if such water has been used for irrigation purposes, the description of the land upon which such water has been so used and the name of the owner thereof.* Such declaration shall be verified but if the declarant cannot verify the same of his own personal knowledge he may do so on information and belief. Such declarations so filed shall be recorded at length in the office of the state engineer and may also be recorded in the office of the county clerk of the county wherein the well therein described is located. *Such records or copies thereof officially certified shall be prima facie evidence of the truth of their contents.*

NMSA 1978, § 72-12-5 (emphasis added).

The statutes of Chapter 72, Section 12 of New Mexico law are codified at 19.27.1 New Mexico Administrative Code (NMAC). With respect to the application for appropriation of underground water applied to beneficial use:

> [t]he *annual amount of the appropriation* permitted under one application *will be limited to the annual amount that can reasonably be expected to be produced and applied to beneficial use from a single well* constructed at the point, in the manner, and for the purpose set forth in the application.

19.27.1.10 NMAC (emphasis added).

III. Undisputed Issues of Material Fact

The Defendants present the undisputed, material facts of the water right claims associated with their property in the Basin.

Defendants' Assertion of Undisputed Material Facts		
#	**Factual Assertion**	**Basis for Factual Assertion**
1	The domestic use component of the water right for well 10A-5-W06 is as follows: priority – December 31, 1955; amount – 0.7 AFY; historic beneficial use – Domestic purposes; periods of use – January 1 – December 31; and place of use – existing, single family home located near the well.	Stipulation contained within the *Joint Status Report and Proposed Discovery Plan* (January 12, 2016) (Doc. 3167-1).
2	Plaintiffs' livestock use component of the water right offer for well 10A-5-W06: amount – 3.024 AFY, is not based on admissible evidence and has no evidentiary basis.	Exhibit A, Response to RFAs Nos. 11, 14 and 15; Exhibit B, Response to Interrogatories Nos. 3, 4 and 5; Exhibit C, Wilson and Lucero, 1997; Exhibit D, NRCS Range and Pasture Handbook; Exhibit E, Sweeten et al, 1990; Exhibit F, Email re: Zuni Adjudication, ZRB-2-0038 Plaintiffs' Responses to Defendants' Discovery Requests (4/13/16).
3	The livestock use component of the water right for well 10A-5-W06 is: priority – December 31, 1955.	Exhibit G, Expert Witness Report at Section 1.0; Exhibit A, Response to Requests for Admissions (RFAs) at RFA No. 1.
4	The livestock use component of the water right for well 10A-5-W06 is: purpose of use – livestock watering.	Exhibit G, Expert Witness Report at Section 2.0; Exhibit A, Response to RFA No. 2.
5	The livestock use component of the water right for well 10A-5-W06 is: place of use – NE 1/4 of the NE 1/4 of the NW 1/4 of Section 19, Township 5N, Range 18W N.M.P.M.	Exhibit G, Expert Witness Report at Section 3.0; Exhibit A, Response to RFA No. 4.
6	The livestock use component of the water right for well 10A-5-W06 is: period of use – throughout the year (12 months).	Exhibit G, Expert Witness Report at Section 4.0; Exhibit H at 37:5-7 and 37:21-22; Exhibit A, Response to RFA No. 8.
7	The livestock use component of the water right for well 10A-5-W06 is: amount – 3.779 AFY.	Exhibit G, Expert Witness Report at Section 5.0 all inclusive; Exhibit H, Cox Dep. as referenced; Exhibit I, Email re: Zuni Adjudication, ZRB-2-0038 Plaintiffs' Responses to Defendants' First RFA and Third Discovery Request (6/24/16); Exhibit J, NMSU Water Intake Rate of Cow-Calf Pairs; Exhibit K, USDA Water Intake Rates of Cattle.

IV. Argument

1. The Domestic Use Component of the Water Right is Not in Dispute

The parties submitted a *Joint Status Report and Proposed Discovery Plan* (January 12, 2016) (Doc. 3167-1). Among other matters, the parties stipulated that no dispute exists between them concerning the domestic use component of the water right. The Parties stipulated that the domestic use component of the water right from the well is as follows: priority – December 31, 1955; amount – 0.7 AFY; purpose of use – Domestic purposes; period of use – January 1 – December 31; and place of use – existing, single family home located near the well.

2. Plaintiffs' Livestock Use Water Right Offer: Amount – 3.024 AFY, Has No Evidentiary Basis

The nature and extent of the total water rights to which Plaintiffs were willing to recognize in settlement included an amount of water of 3.724 AFY for domestic and livestock purposes (January 12, 2016) (Doc. 3167-2). Since the domestic use component recognized an amount of water of 0.7 AFY and is not in dispute, the livestock use component Plaintiffs were willing to recognize would necessarily be an amount of water corresponding to the remaining difference, i.e. 3.024 AFY. As described below, Plaintiffs have no evidentiary basis for this amount.

The Hydrographic Survey states:

> Carrying capacity is based on the number of "animal units" that can be sustained on an area of land, with one cow or five sheep equivalent to one unit. The land carrying capacity, which is the number of animals that a habitat maintains in a healthy, vigorous condition, was assumed to be 15 animal units per section, or the count provided by the owner, whenever applicable. The 15 animal units per section estimate is based on information from the New Mexico Department of Agriculture. The water consumption of an animal unit is estimated at an average of 10 gallons/day (488 feet^3 per year or 0.0112 acre-feet per year) (Wilson and Lucero, 1997). An efficiency factor of 0.5 was assumed to account for consumptive and other losses.

Consumption Rate of an Animal Unit

Plaintiffs cannot produce admissible evidence to support the statement "[t]he water consumption rate of an animal unit is estimated at an average of 10 gallons/day." As confirmed in response to Requests for Admissions (RFA) No. 11 (Exhibit A), and as produced in response to Interrogatory No. 4 and Request for Production (RFP) Nos. 1 and 2 (Exhibit B), the 10 gallons/day water consumption rate was based upon an OSE technical report entitled "Water Use by Categories in New Mexico Counties and River Basins, and Irrigated Acreage in 1995, Technical Report 49" ("Water Use Report") (Wilson and Lucero, 1997) (Exhibit C at 50). As described therein, the water consumption rate was derived from the water consumption rate of 800-pound beef cattle confined to a feedlot.

The Water Use Report makes no mention of the term "animal unit" nor does it suggest that the water consumption rate of an 800-pound animal confined to a feedlot is the reliable equivalent to the water consumption rate of a 1,000-pound lactating beef cow with calf on rangeland. Cow-calf pairs are the primary livestock consumers of water at Defendants' well 10A-5-W06 (Exhibit G at pages 8-10, Section 2.0 and at pages 40-50, Section 5.5). A cow-calf pair is the National Resource Conservation Service ("NRCS") definition of 1.00 animal units ("AUs") (Exhibit D at 6-8). As such, the Plaintiffs' evidence is insufficient to establish an essential element of their water right settlement offer, i.e. the amount.

The assignment of the water consumption rate of a feedlot animal to a rangeland cow-calf pair was further misapplied when the source of that estimate is considered. The Water Use Report (Exhibit C at 50 and 55) identifies the source document as a 1990 report entitled "Feedyard Energy Guidelines," a Texas A&M University study that was intended to develop guidelines on energy management at cattle feedlots in Texas (Exhibit E at 1). In point of fact, the

water consumption rate reported in this source document (Exhibit E at 63-64), and subsequently used as the beef cattle water consumption rate by Plaintiffs, was derived solely from personal communication, i.e. inadmissible hearsay (Exhibit E at 224); no reference was made therein to any published study or research on the topic of water consumption rates for cattle. The derived water consumption rate was simply used in the source document to estimate the cost of energy [sic] required to pump water in a feedlot. Again, Plaintiffs' evidence is insufficient to establish an essential element of their water right settlement offer, amount.

Stocking Rate per Section

Plaintiffs cannot produce the evidentiary basis for the Hydrographic Survey statement "[t]he 15 animal units per section estimate is based on information from the New Mexico Department of Agriculture." As confirmed in response to Interrogatory No. 3 (Exhibit B) and in response to an email request for the actual source document (Exhibit F at pages 1, 2, 3 and 5 of 6), Plaintiffs could not produce the referenced document from the New Mexico Department of Agriculture. None of the references ultimately attached to the email response contain the 15 AUs per section assumption.

Moreover, Plaintiffs respond to Interrogatory 3 that an AU corresponds to a 1,000-pound beef cow for the purpose of determining forage requirements but, respond to Interrogatory 4 (by virtue of their reference to the Water Use Study) that an AU corresponds to an 800-pound beef cow for the purpose of determining water requirements (Exhibit B). As such, the assumed carrying capacity of the land and the assumed water requirement of the cattle do not apply to the same animal. Again, Plaintiffs' evidence is insufficient to establish an essential element of their water right settlement offer, amount.

Efficiency Factor for Consumptive and Other Losses

Plaintiffs cannot produce the evidentiary basis for the Hydrographic Survey statement "[a]n efficiency factor of 0.5 was assumed to account for consumptive and other losses." As confirmed in response to RFA No. 14 (Exhibit A) and in response to Interrogatory No. 5 (Exhibit B), the 0.5 efficiency factor was "simply selected." Plaintiffs did not produce admissible evidence to support the selected efficiency factor; apparently there is no basis. In fact, and in response to RFA No. 15 (Exhibit A), Plaintiffs denied that their consumptive use factor was a reasonable means of estimating the consumptive and other losses associated with livestock watering. Again, Plaintiffs evidence is insufficient to establish an essential element of their water right settlement offer, amount.

The Hydrographic Survey is Rebutted

The Hydrographic Survey contained three assumptions used by Plaintiffs to estimate the historic beneficial use of water for livestock throughout the Basin: 1) cattle are stocked at a rate of 15 AUs per section; 2) cattle water requirements average 10-gallons per day per AU; and 3) consumptive and other loss factors could be accounted for by applying a 0.5 efficiency factor to the water consumed. Plaintiffs could not produce the evidentiary basis for the first assumption, misapplied the evidentiary reference for the second assumption (which itself was based on inadmissible hearsay), and "simply selected" the third assumption while admitting it was unreasonable.

Engineering consulting firms typically have a required quality peer review process that would be incorporated into the analysis phase of all projects produced by the organization. This in-depth review would assess the assumptions, calculations, extrapolations, alternate

interpretations, methodology, acceptance criteria, design, and conclusions of each project or work product deliverable. For the reasons discussed above and in the absence of a showing otherwise, apparently there was no peer review of the Hydrographic Survey by the Plaintiffs. As such, estimates were made of the beneficial use of water throughout the Basin and proposed Consent Orders were crafted for all Defendants to accept or reject without assurance that the underlying assumptions, data and methods used by the Plaintiffs were reliable or correct.

Plaintiffs note that the Defendants did not accept the proposed Consent Order, and that the assumptions discussed above have no bearing on whether Defendants can establish their water right claim (Exhibit B, Interrogatories Nos. 3 and 5). While these inferences may be true, the above discussion demonstrates to the Court that Plaintiffs' evidence is insufficiently complete and insufficiently satisfactory to prove an essential element of Plaintiffs' claim, specifically the amount of water estimated to have been applied to beneficial use as offered in settlement. Indeed, the lack of evidentiary basis is why the Defendants could not accept either the initial or revised Consent Orders. It is also the reason why the water right adjudged to the Defendants with respect to amount of water applied to beneficial use for livestock watering cannot be based upon Plaintiffs' flawed evidence.

As provided under NMSA 1978, § 72-4-19, the Hydrographic Survey is "subject to rebuttal." By virtue of Plaintiffs' use of unsupported and hearsay evidence in the Hydrographic Survey of the Zuni Basin, the survey itself is rebutted.

3. Defendants' Livestock Use Water Right: Priority – December 31, 1955

Attached hereto and incorporated herein as Exhibit G is a true, correct and complete copy of Defendants' Expert Witness Report. Also attached hereto and incorporated herein as Exhibit H is a true and correct copy of excerpts of the Deposition of Tom W. Cox dated May 18, 2016.

Defendants' *Initial Disclosures* identified Tom W. Cox as an individual that was likely to have discoverable factual information regarding Defendants' water rights. He ranched on Defendants' property and was knowledgeable of the cattle operations conducted thereon during the period approximately 1983 through 2000. The Expert Witness Report contains numerous and specific reference to the testimony of Tom W. Cox. The associated deposition excerpts are marked in Exhibit H for the Court's attention.

Defendants' Expert Witness Report and the Well Declaration attached therein provide evidence that the priority date for the livestock use component of well 10A-5-W06 is December 31, 1955 (Exhibit G at page 8, Section 1.0 and at pages 77-80, Attachment 2). In response to RFA No.1 (Exhibit A), "Plaintiffs admit that to the extent a water right might be recognized by the Court for well 10A-5-W06 based on any evidence presented by Defendants, the priority date should be December 31, 1955 for both livestock and domestic uses."

4. Defendants' Livestock Use Water Right: Purpose of Use – Livestock Watering

Defendants' Expert Witness Report and the Well Declaration attached therein provide evidence that the purpose of use for the livestock use component of well 10A-5-W06 is livestock watering (Exhibit G at pages 8-10, Section 2.0 and at pages 77-80, Attachment 2). In response to RFA No.2 (Exhibit A), "Plaintiffs admit that to the extent a water right might be recognized by the Court for well 10A-5-W06 based on any evidence presented by Defendants, the only two historic beneficial uses of water that might be recognized under New Mexico law to establish a water right are livestock use and domestic use."

5. Defendants' Livestock Use Water Right: Place of Use – NE 1/4 of the NE 1/4 of the NW 1/4 of Section 19, Township 5N, Range 18W N.M.P.M.

Defendants' Expert Witness Report and the Well Declaration attached therein provide evidence that the place of use for the livestock use component of well 10A-5-W06 is the NE 1/4 of the NE 1/4 of the NW 1/4 of Section 19, Township 5N, Range 18W N.M.P.M. (Exhibit G at pages 11-14, Section 3.0 and at pages 77-80, Attachment 2). In response to RFA No.4 (Exhibit A), "Plaintiffs admit the RFA" that "[t]he place of use of well 10A-5-W06 is the NE 1/4 of the NE 1/4 of the NW 1/4 of Section 19, Township 5N, Range 18W N.M.P.M."

6. Defendants' Livestock Use Water Right: Period of Use – Throughout the Year (12 Months)

Defendants' Expert Witness Report (Exhibit G at pages 14-15, Section 4.0) and the Deposition of Tom W. Cox who ranched at the site (Exhibit H at 37:5-7 and 37:21-22) provide evidence that the period of use for the livestock use component of well 10A-5-W06 is throughout the year (12 months). In response to RFA No.8 (Exhibit A), "Plaintiffs admit that to the extent a water right might be recognized by the Court for well 10A-5-W06 based on any evidence presented by Defendants, the period of use for the historic livestock beneficial use should be throughout the year (12 months)."

7. Defendants' Livestock Use Water Right: Amount – 3.779 AFY

Defendants' Expert Witness Report (Exhibit G at pages 15-69, Section 5.0) and the Deposition of Tom W. Cox who ranched at the site provide evidence that the amount of water for the livestock use component of well 10A-5-W06 is 3.779 AFY. This amount was calculated with a reasonable degree of scientific certainty and is based upon a detailed assessment of: 1) the specifications of well 10A-5-W06 and its associated infrastructure; 2) the cow-calf operations conducted in the Rincon Hondo Canyon region (which includes well 10A-5-W06) including the distribution of cattle within the region as a function of time; 3) the specifications of the water

sources available to the herd as a function of location and period of use; 4) the quantity of forage available to cattle watered at well 10A-5-W06; 5) the composition of the herd drinking at well 10A-5-W06 as a function of time and cattle class; 6) the consumptive use of water as a function of class of cattle, animal weight, ambient temperature and feed intake; and 7) the consumptive and other losses of water associated with the watering of cattle at the well 10A-5-W06.

The determination of the amount of water applied to beneficial use for the purpose of livestock watering at well 10A-5-W06 is complicated by the fact that no flow meter or other means of measuring the quantity of water diverted for beneficial use exists at well 10A-5-W06. This is not uncommon for livestock wells that are installed by ranchers in remote locations in the Basin and equipped with windmills. The Well Declaration provides an upper limit amount of 18 gallons per minute (29.048 AFY) based upon the capacity of the well and auxiliary pumping equipment (Exhibit G at pages 77-80, para. 4 and 8). However, the quantity of water appropriated and beneficially used was not calculated in the Well Declaration (Exhibit G at pages 77-80, para. 5). To overcome this absence of perfect knowledge it is feasible to derive the quantity using a combination of documentary evidence, field observation and technical analysis, and based upon published data and established methodology (Exhibit G at page 3).

Well 10A-5-W06 is a 6-inch diameter, 505 foot-deep well equipped with a 14-foot Aermotor windmill. Ancillary equipment includes an auxiliary pump jack, a large storage tank and two main drinkers. Water level in the drinkers is automatically regulated by a float box. Details and specifications of the well and equipment are offered as evidence of its capacity to deliver underground water for beneficial use by livestock (Exhibit G at pages 6-7).

The deposition of Tom W. Cox provides useful details regarding the cow-calf operations conducted in the Rincon Hondo Canyon region of the Cox ranch (Exhibit G at pages 17-18,

Section 5.1). In general terms, the entire herd is composed of up to 200 cows and/or cow-calf pairs and 20 bulls. For the "winter season" the cows and/or cow-calf pairs are divided among three separate and fenced pasture areas; the bulls are divided between two separate and fenced pasture areas. Cattle within each group have access to water from one of three water sources during the winter season; drinkers are fenced such that cattle within separate pasture areas but sharing the same water source cannot comingle.

For the "summer season" all cattle are moved out of winter pasture areas and into a common range. The entire herd is free to roam throughout this common range and have free access to forage and the four water sources within it. Well 10A-5-W06 is at the intersection of the winter and summer range areas and is the only water source utilized in both the winter and summer seasons. As such, there are a total of six water sources utilized in the cow-calf operation over the course of the year. A topographical map depicting the region and location of water sources is provided for orientation purposes (Exhibit G at pages 75-76).

Water sources exploited by the herd are characterized in terms of location, infrastructure, efficacy and period(s) of seasonal use (Exhibit G at pages 18-24, Section 5.2). A comparison of these six water sources in terms of location, infrastructure, and operational characteristics is provided as evidence (Exhibit G at page 18, Table 2).

Two of the six water sources, wells 9C-5-W03 and 9C-5-W04, are utilized by a combined 60% of the herd in the "winter season" (Exhibit H at 36:3-37:24). Per Consent Order, they were assigned a combined water amount of 3.682 AFY for livestock use under subfile ZRB-2-0091 (Doc. 2776). Well 9C-5-W03 was assigned an additional water amount of 0.7 AFY reflecting its dual, domestic purpose (Doc. 2776).

Of the four remaining water sources, natural spring 9C-6-SPR01 (Zuni Spring) would water cattle during the "summer season" (Exhibit H at 37:21-24). However, Zuni Spring is not a strong source and importantly, is unimproved (Exhibit H at 43:5-10). As such, it is not entitled to a water right under New Mexico law (Doc. 3076 at page 22-23) and no water right was assigned under subfile ZRB-2-0091 (Exhibit I at pages 2 and 3 of 5, responses to questions 2 and 4).

Two of the water sources, the High Lonesome Well and the Perry Canyon Well, would also water cattle during the "summer season" but are located outside the Basin adjudication boundary (Exhibit G at pages 75-76 [red line indicating southern-most Basin boundary] and Exhibit I at page 3 of 5, response to question 3). As such, these two water sources were not visited and verified by the Plaintiffs nor included in the Hydrographic Survey. The High Lonesome Well and Perry Canyon Well have no assigned water right under this or any other basin adjudication. The actual location of the Perry Canyon Well is unverified (Exhibit I at page 3 of 5, response to question 5).

The sixth water source available to the herd is well 10A-5-W06. It is located at the intersection of the winter and summer ranges. Forty percent of the cattle herd would water at well 10A-5-W06 during the "winter season" and up to 100% of the herd could water at well 10A-5-W06 during some portion of the "summer season" (Exhibit H at 37:5-24).

It is reasonable to conclude that, starting in July at the beginning of the "summer season," the entire herd would initially water at and feed on forage surrounding well 10A-5-W06; it is the first water source they encounter. Unless the well is insufficient to provide the necessary water or unless the forage within the grazing area serviced by the well is insufficient for the entire summer season, cattle have no incentive to move beyond it and will abuse that grazing area (Exhibit G at pages 22-23). Tom W. Cox testified that the cattle were not moved within the

summer range until they were gathered in the fall (Exhibit H at 42:14-20). The well's infrastructure provides sufficient pumping capacity, water storage and delivery capacity, and drinker access for the entire herd (Exhibit G at pages 23-24).

Available forage proximate to well 10A-5-W06 is used to determine the "initial" cattle carrying capacity of the associated pasture area; the carrying capacity is measured in animal-unit days ("AUDs") of forage (Exhibit G at pages 24-34, Section 5.3). The initial carrying capacity is an upper-limit measure of forage available to cattle without creating a detriment to future forage production. Data collected and published by the United States Department of Agriculture ("USDA") Soil Conservation Service (now the NRCS) is used for this determination. Using established methodology and the appropriate assumptions to represent the forage and terrain surrounding well 10A-5-W06, it is determined that the initial carrying capacity is 51,874 AUDs in years of favorable forage production. This represents an upper limit on the initial carrying capacity of the pasture area; use of a favorable production rate is supported by meteorological data for Fence Lake, NM (Exhibit G at pages 27-28). In any event, and unless cattle are precluded from doing otherwise, cattle will abuse the convenient pasture area proximate to well 10A-5-W06 without regard to this upper limit vis-à-vis future forage production needs.

The size and composition of the entire cow-calf herd is determined from the testimony provided by Tom W. Cox (Exhibit G at pages 34-40, Section 5.4). The herd is initially composed of between 150 and 200 pregnant cows depending on weather and grass; it is assumed that the 200 count represents a year of favorable forage production. Calving occurs during the period March through May and weaning occurs in conjunction with round-up in November. The average calf crop is 90%. Bulls are maintained at a ratio of one to every ten cows. For the

purpose of analysis, cows weigh an average of 1,000 pounds and bulls weigh an average of 1,600 pounds.

The distribution of the herd is a function of the season. For the so-called "winter season," mid-December through June, 40% of the cows and/or cow-calf pairs, and 40% of the bulls, water at well 10A-5-W06. Starting in July and until round-up in mid-November, up to 100% of the entire herd could water at well 10A-5-W06. During the period mid-November through mid-December, 40% of the bulls remain alone and water at the well.

From this descriptive information a time-history of the number of cattle watering at well 10A-5-W06 is developed by cattle class and month assuming that 100% of the herd waters exclusively at this well during the summer season (Exhibit G at page 38, Table 5); this establishes the upper limit annual usage of the well as 49,860 AUDs. The total AUDs are calculated using the NRCS definition of 1.00 AU per cow and/or cow-calf pair. Bulls are represented based upon their animal unit equivalence of 1.423 AU per bull.

The upper limit annual usage of the well (49,860 AUDs) is less than the upper-limit initial carrying capacity of the pasture (51,874 AUDs). As such, and in years of favorable forage production, cattle have no incentive to forage and water anywhere else in the summer season except at well 10A-5-W06. Consistent with 19.27.1.10 NMAC, this establishes the logical basis for calculating the annual amount of water that can reasonably be expected to be produced and applied for the livestock use component of well 10A-5-W06, i.e. the water requirements for 40% of the herd in the winter season and 100% of the herd in the summer season.

The annual amount of water consumed by cattle drinking at well 10A-5-W06 is determined by applying the appropriate water intake rates for cattle to the time-history of the various cattle in the cow-calf herd as derived above (Exhibit G at pages 40-50, Section 5.5).

Water requirements of cattle vary widely depending on many factors including species, breed, size, age, sex, forage quality and quantity, water accessibility, water temperature, rate and composition of gain, reproductive status, lactation, physical activity, supplementation, feed intake, forage dry matter content, and ambient temperature (Exhibit J). The National Research Council (NRC) has published guidance on total daily water intake rates for beef cattle based on cattle class (lactating cow, bull, growing heifers and steers, etc.) and animal weight as a function of ambient temperature.

This NRC guidance is taken from a more comprehensive study of this topic entitled "Water Intake Rates of Cattle" prepared by the USDA (Exhibit K). The water intake rates were derived from the empirical relationship between feed intake and water intake of various-sized cattle as a function of ambient temperature. With one exception, all the data were collected while confining the animals within constant-temperature chambers. The water intake rates of importance to the determination of the amount of water consumed by cattle drinking at well 10A-5-W06 are provided in tabular form (Exhibit G at page 42, Table 7).

The USDA study shows that the rate of water intake remains relatively constant until the ambient temperature reaches about 40°F and then increases at an accelerating rate (Exhibit K at pages 724-725). The USDA study also indicates that cattle tend to do most of their drinking during the daytime and little at night (Exhibit K at page 736). Defendants calculated the ambient daytime temperature for each calendar day based upon Fence Lake, NM meteorological data. The USDA water intake rates for cattle at these ambient daytime temperatures were then used to calculate the amount of water consumed by cattle at well 10A-5-W06 (Exhibit G at pages 42-43).

Defendants provided Plaintiffs with photographic images showing the date, time and measured temperature at which a stray cow drank from well 10A-5-W06; the images were

captured during the period March 25 through May 7, 2014 (Doc. 3299). The data shows that on the average, the actual temperature at which the cow drank was 3.4°F greater than the ambient daytime temperature used in Defendants' analysis for those particular days. Therefore, and since drinking rates increase as temperature increases, Defendants' analysis is shown to slightly underestimate the actual amount of water consumed for this evidentiary data set.

The USDA empirical relationships between feed and water intake do not reflect all factors important to a cow-calf operation conducted on rangeland, some of which cannot be accounted for directly (Exhibit J). In particular these include forage dry matter content and physical activity. Dry matter fed to cattle in the USDA study was about 10% moisture (Exhibit K at page 733) whereas the moisture content of forage on the range will vary over time. However, the average moisture content of the primary grass of the Rincon Hondo Canyon region is only slightly higher than that of the feed in the USDA study, estimated below at 12% using data from the NRCS (Exhibit D at Exhibit 4-2).

The primary cattle forage proximate to well 10A-5-W06 is blue grama grass which possesses primarily culmless vegetative shoots, i.e. it is stemless. As such, it is not elevated to within reach of cattle until it reaches the boot stage of development. Blue grama tends to be most productive following summer rains, starting in July (boot stage at 60% dry matter [DM]). It soon bears two flag-like spikes, reproductive tillers that flower by the end of August (reproductive stage at 80% DM). The seed matures and growth ends at the first killing frost in September (drying out at 90% DM). It cures well and provides forage year round even during dormancy (dormant stage at 95% DM). From this, and on an annual average basis, the time-weighted DM content is 88% and the time-weighted moisture content is 12%.

More significantly, the USDA study was conducted with confined animals for which feed and water were provided. In contrast, cattle on rangeland must roam over terrain and distance to satisfy their feed and water needs. Although not quantified, physical activity is identified as a factor that affects cattle water intake rates and will obviously increase cattle water consumption in comparison to the water requirements of cattle confined to a test chamber. Since this factor is not accounted for in Defendants' analysis, the calculated consumptive use amount is understated. Qualitatively, this provides a margin of error significant enough to overcome the small variability and uncertainty that inevitably exists in the data and assumptions herein.

The annual amount of water that can reasonably be expected to be consumed at well 10A-5-W06 is calculated at 815,802 gallons per year, i.e. 2.504 AFY. These results are graphically represented as: 1) the water intake rate of the herd over the course of a year (Exhibit G at page 47, Figure 15); 2) the water intake rate of a cow-calf pair between birth and weaning (Exhibit G at page 48, Figure 16); and 3) the cumulative intake of the herd as a function of time (Exhibit G at page 49, Figure 17).

The average free water intake for a cow-calf pair during the entire grazing season was calculated to be 19.66 gallons per day. This value is time-weighted and percentage-weighted to correctly reflect the three-month calving period. The calculated rate of 19.66 gallons per day is comparable to, but less than, the 26 gallons per day guidance for cow-calf pairs provided by the New Mexico State University (NMSU), Cooperative Extension Service (Exhibit J).

Finally, the consumptive loss and other losses associated with the water delivery process are quantified based upon site-specific knowledge and cattle management procedures (Exhibit G at pages 50-69, Section 5.6). These included consumptive uncertainty (the difference in total water consumed when calculated using the NMSU guidance), losses associated with water

consumption, infrastructure-related losses, naturally-occurring losses and losses associated with exploitation of the water source by wildlife. The total of these annual losses is 415,522 gallons per year, i.e. 1.275 AFY.

The largest potential contribution to the calculated loss is associated with the use of a cow-calf pair water intake rate based upon the methodology provided by the NMSU Cooperative Extension Service (Exhibit J). This methodology yields an amount of water consumed by the herd that is 202,080 gallons greater than that calculated by the Defendants (Exhibit G at pages 52-54). However, it is not included in Defendants' total of consumptive and other losses; rather it is used to demonstrate the magnitude of conservatism, i.e. margin of error, built into Defendants' analysis.

The largest credited contribution to the calculated loss is associated with leakage through the weep hole in the well drop pipe during pumping; it amounts to a loss of 197,103 gallons per year (Exhibit G at pages 57-59). Weep hole losses are returned to the annular space between the drop pipe and the well casing or borehole. For well 10A-5-W06, the well casing extends approximately 25 feet below the surface until bedrock is encountered (Exhibit G at page 7, Table 1). Thereafter the 505 foot-deep well is uncased and weep hole losses are free to enter the bedrock fractures and unconsolidated strata intercepted by the borehole. As such, some of the total weep hole loss amount could theoretically return to the aquifer and the balance would enter the vadose zone. However, the total weep hole loss amount represents the beneficial use of water for livestock; it is water that is withdrawn from the groundwater source in the course of providing drinking water for cattle. There is no provision in the OSE regulations, codified at 19.27.1 NMAC, for a "return flow credit" for water withdrawn from a groundwater source.

The quantity of water directly consumed by cattle, when added to the losses associated with the delivery of that water, represents the total amount of water beneficially used each year for livestock watering at well 10A-5-W06. From the above, and with a reasonable degree of scientific certainty, the amount of groundwater diverted through well 10A-5-W06 for the beneficial purpose of livestock watering is determined to be 3.779 AFY (Exhibit G at page 69, Section 5.7).

V. Conclusions

Defendants have demonstrated that no disputed issue of material fact exists concerning the priority, purposes of use, place of use, period of use and amount associated with the water rights now held by the Defendants. Defendants have also demonstrated that the Plaintiffs have failed to make a showing sufficient to establish the existence of an element essential to the Plaintiffs' case, and on which Plaintiffs will bear the burden of proof at trial, i.e., the amount of water Defendants are entitled to under New Mexico law.

Defendants are entitled to a water right from well 10A-5-W06 as follows: priority – December 31, 1955; amount – 4.479 AFY; purpose of use – Domestic and livestock purposes; period of use – January 1 – December 31; and place of use – Existing, single family home located near the well and livestock at the well.

Respectfully submitted this 12th day of August, 2016.

Craig Fredrickson /s/ Craig Fredrickson

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on August 12, 2016, I filed the foregoing electronically through the CM/ECF system, which caused the parties or counsel reflected on the Notice of Electronic Filing to be served by electronic means.

Electronically Filed

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