

## **Exhibit B**

# **Declaration of Scott Turnbull**

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

UNITED STATES OF AMERICA and	)	
STATE OF NEW MEXICO ex rel. STATE	)	
ENGINEER,	)	
	)	
Plaintiffs,	)	
	)	
and	)	No. 01-cv-0072-MV/WPL
	)	
ZUNI INDIAN TRIBE, NAVAJO NATION,	)	ZUNI RIVER BASIN
	)	ADJUDICATION
Plaintiffs in Intervention,	)	
	)	
v.	)	Subfile No. ZRB-4-0169
	)	
A & R PRODUCTIONS, et al.,	)	
	)	
Defendants.	)	
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**DECLARATION OF SCOTT TURNBULL**

1. My name is Scott Turnbull. I am an Associate Engineer with Natural Resources Consulting Engineers, Inc. ("NRCE") in Fort Collins, Colorado. I have a Bachelors of Science degree in Civil Engineering from Colorado State University and am a Professional Engineer licensed in the State of Colorado. Since January of 2008, I have conducted technical analysis on behalf of the United States concerning matters associated with the hydrographic survey of the Zuni River Basin and the Zuni River Basin Adjudication.
2. As an employee of NRCE, the engineering consulting firm contracted by the United States to perform the hydrographic survey of the Zuni River Basin, I

perform field visits to document and verify water features within and throughout the Basin to support any technical analysis associated with the Zuni River Basin Adjudication. I also compute water quantities associated with these features based upon available information and by applying accepted engineering methodology.

3. I have reviewed all the material available concerning Henry Ray Grizzle and Rebecca Grizzle, Subfile ZRB-4-0169 (“Defendants”). The real property associated with this subfile is located in the SESE quarter-quarter of Section 29, Township 12 North, Range 18 West, New Mexico Principal Meridian (see Attachment A – Hydrographic Survey Map for Subfile ZRB-4-0169). The material in my review included notes, photographs, and geospatial data collected by NRCE engineers during visits to the Defendants’ property, as well as the Defendants’ *Subfile Answer*, filed March 18, 2008 (“2008 Answer”), their *Amendment to Subfile Answer*, filed September 16, 2011 (“2011 Amendment”), and the *Response to Plaintiffs’ First Joint Discovery Requests* dated June 7, 2016 (“Discovery Response”). In each of these documents, the Defendants make claims to their historic water use associated with a single well on the property.
4. The well is identified by NRCE hydrographic survey ID number 2A-1-W035 (Office of the State Engineer file number G1538) as shown on the Hydrographic Survey Map for Subfile ZRB-4-0169. The Plaintiffs’ Consent Order for this subfile offered a water right of 2.424 acre-feet per annum (“AFY”) for well 2A-

1-W035 associated with historic use and a priority date of December 31, 1950, based on the drilling date stated in the New Mexico Office of the State Engineer's ("NMOSE") Point of Diversion Summary for well G1538. In their 2008 Answer and Discovery Response, the Defendants disagreed with the offered right, asserting instead a right of up to 3.0 AFY for historic use. The Defendants have expressed no disagreement with the offered priority date.

#### **HISTORICAL WATER USE CLAIMED BY DEFENDANTS**

5. In their 2008 Answer and Discovery Response, Defendants included a tabulation of the daily and annual historic water use associated with their property. Table 1 lists the quantities Defendants claim. Although the sum of the water uses presented by the Defendants is slightly less than 3.0 AFY, it is apparent from the 2008 Answer that the Defendants claim that the historical water use associated with well 2A-1-W035 is 3.0 AFY (see 2008 Answer: "Our historical use as set forth below is three acre feet.").

**Table 1 - Water Use for well 2A-1-W035 asserted by Defendants**

Use	Daily Gallons	Annual Gallons	Acre-feet Per Annum
Household	90	32,850	0.101
Livestock	105	38,325	0.118
Garden	1896.45	692,204	2.124
Horses	300	109,500	0.336
Environment	283	103,295	0.317
Totals	2674.45	976,174	2.996

6. Based upon my review of all the available material associated with Subfile

ZRB-4-0169, I conclude, as explained in greater detail below, that the water quantities the Defendants claim do not appear to be based upon any actual measurements or estimates of historical beneficial use. Rather, the claimed quantities appear to have been selected so that the sum of the individual uses totals 3.0 AFY and therefore matches the right Defendants claim.

### HOUSEHOLD WATER USE

7. The Defendants claim a household water use of 90 gallons per day or 0.101 AFY (see Table 1). The 2008 Answer provides no basis or justification for this amount. In their Discovery Response, the Defendants provided a supporting document which states that the average person uses 101.5 gallons per day. Based upon my research, the document provided appears to be prepared by the City of Philadelphia and is available on the city's website at: [http://www.phila.gov/water/educationoutreach/Documents/Homewateruse\\_IG5.pdf](http://www.phila.gov/water/educationoutreach/Documents/Homewateruse_IG5.pdf). Defendants' claim for household use of 90 gallons per day is consistent with the reference material indicating a household use rate of 101.5 gallons per capita per day ("gpcd") on which they appear to rely. Typical self-supplied domestic water use in New Mexico ranges from 70 to 100 gpcd.<sup>1</sup> It should be pointed out, however, that the daily use values are reported on a per capita basis and should be multiplied by the number of using persons to determine total

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<sup>1</sup> Longworth, J. W., Valdez, J. M., Magnuson, M. L., and Richard, K., *New Mexico Water Use by Categories 2010*. New Mexico Office of the State Engineer Technical Report 54 (2013).

8. Based on the available evidence contained in the Defendants' 2008 Answer and Discovery Response, and assuming that both Mr. and Mrs. Grizzle occupy the residence, the Defendants' total household use at 90 gpcd is 180 gallons per day or 0.202 AFY.

#### **STOCK WATER USE**

9. The Defendants claim a livestock water use of 105 gallons per day, or 0.118 AFY, and a water use for horses of 300 gallons per day, or 0.336 AFY (see Table 1). The Defendants list "livestock" and "horses" as two separate items whereas NRCE has treated all domesticated animals in the Zuni River Basin collectively as "livestock". Thus, the total livestock component claimed by the Defendants is 405 gallons per day or 0.454 AFY.
10. Several animal counts were provided by the Defendants in their Discovery Response in support of the livestock component of their water right claim. According to the Defendants' Discovery Response to Interrogatory No. 4, it appears that the maximum number of animals the Defendants have watered at any one time during the period of their ownership of the property, 1989-2016, is 20 sheep and goats for 12 months, 6 cattle for 6 months, and 6 horses for 12 months. Also as part of their Discovery Response, the Defendants provided supporting material from the Ontario Ministry of Agriculture, Food and Rural Affairs, which lists typical water use rates for various farm animals. This document is available online at:

<http://www.omafra.gov.on.ca/english/engineer/facts/07-023.htm>. The NMOSE

prepares similar technical reports listing water use rates for various types of livestock animals in New Mexico.

11. Applying the Defendants' animal counts and the NMOSE water use rates, which are more reflective of conditions in the Zuni River Basin than the Canadian use rates, I compute the Defendants' livestock use to be 0.170 AFY. I then apply the 50% efficiency factor used in the hydrographic survey in the Zuni River Basin to account for any losses associated with delivering drinking water to livestock and, as shown in Table 2, I calculate the Defendants' total livestock use to be 0.341 AFY. This use is equivalent to 304 gallons per day, quite a bit less than the 405 gallons per day (105 gallons for livestock plus 300 gallons for horses) claimed by the Defendants as shown in Table 1 above.

**Table 2 - Livestock Use for well 2A-1-W035 asserted by Defendants**

Animal	Head	Months	Water Use (gpcd) <sup>1</sup>	Annual Gallons	Acre-feet Per Annum
Non-Dairy Cattle	6	6	10	10,950	0.034
Horses	6	12	13	28,470	0.087
Sheep	20	12	2.2	16,060	0.049
Totals	32			55,480	0.170
Diversion Requirement @ 50% efficiency				110,960	0.341

<sup>1</sup>New Mexico Water Use by Categories 2010. New Mexico Office of the State Engineer Technical Report 54.

#### GARDEN IRRIGATION USE

12. The Defendants claim a garden use of 1896.45 gallons per day or 2.124 AFY (see Table 1). In their 2008 Answer, the Defendants provided photographs

indicating the presence at one time of gardens, corn fields, and fruit trees on their property. Aside from the aforementioned photographs, the Defendants have not provided any information regarding their irrigation practices or any other basis for the annual water use of 2.124 AFY they claim for garden use.

13. Although it can be agreed, based on the photographs provided, that some amount of garden irrigation may have taken place from well 2A-1-W035, the Defendants have not provided any measurements, records, or specific information detailing this use. A review of aerial imagery of the Defendants' property shows that they have apparently fenced-off, or partially fenced-off, an area adjacent to their residence and well 2A-1-W035, which is indicative of a lawn or garden area (see Attachment B – U.S. Department of Agriculture Farm Service Agency (USDA FSA), National Agriculture Imagery Program (NAIP), 1 meter (resolution), May 20, 2014). This area appears to correspond to what is seen in the photographs provided by the Defendants, as the stone walls and fencing are visible in both the Defendants' photographs and the aerial imagery. This area measures about half an acre in size and includes several trees.
14. In this case, without further evidence of use, the Plaintiffs therefore have been willing to recognize up to 0.5 acres of garden on the Defendants' property. An irrigation duty of 3 acre-feet per acre has usually been applied to estimate garden use in the Zuni River Basin. This duty accounts for both a typical irrigation requirement and an estimated application efficiency. Based on Defendants' photographs and my review of the aerial imagery, and applying the

aforementioned irrigation duty, I compute Defendants' total water use for garden irrigation associated with well 2A-1-W035 to be 1.5 AFY.

#### **ENVIRONMENTAL USE**

15. The Defendants claim an "environmental" water use of 238 gallons per day or 0.317 AFY (see Table 1). In the 2008 Answer, the Defendants state that environmental uses include "fire protection, wildlife and disease control." Regarding "fire prevention" or "fire protection," the Defendants state in their Discovery Response to Interrogatories No. 2 and No. 6 that water is available from either "three external faucets" or "five exterior faucets." However, the Defendants go on to say in the Discovery Response to Interrogatory No. 6 that water "has only been used once for this purpose" for a fire that "was small and quickly contained." Regarding wildlife use, the Defendants state that "birds, deer and squirrels are frequently observed drinking from our stock tanks" and they go on to state that "[n]o records are kept on this activity but it is a daily occurrence." The Defendants do not describe any uses associated with "disease control."
16. The Defendants have not provided any measurements, records, or calculations demonstrating that they have historically used 0.317 AFY from well 2A-1-W035 for the "environmental" purposes they describe in the 2008 Answer and Discovery Response. NRCE does not have any additional information regarding such uses. While water appears to be available for fire protection, it has only

been put to such use once, according to the Defendants, in an unknown amount. Furthermore, estimated environmental losses, such as evaporation and wildlife consumption, for example, are included in the hydrographic survey as a component of the livestock water use calculation.<sup>2</sup> Accordingly, I conclude that the evidence provided by the Defendants does not support their claimed environmental uses of water from well 2A-1-W035.

17. In sum, after reviewing all of the available material concerning Subfile ZRB-4-0169, I conclude that the Defendants are entitled to a water right for well 2A-1-W035 in the amount of 2.043 AFY (household—0.202 AFY; stock—0.341 AFY; garden—1.50; and environmental—0 AFY) based on the evidence of historic beneficial use.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct. Executed on this 15th day of August, 2016.



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<sup>2</sup> The *Hydrographic Survey Report for Subareas 1, 2 and 3 Excluding Ramah* prepared by NRCE in 2006 assumed a 0.5 (50%) efficiency factor to account for consumptive and other losses. This same efficiency factor is applied to estimate the Defendants' total livestock water use. See ¶11 and Table 2.



Attachment A – Hydrographic Survey Map for Subfile ZRB-4-0169



**Attachment B** – U.S. Department of Agriculture Farm Service Agency (USDA FSA), National Agriculture Imagery Program (NAIP), 1 meter (resolution), May 20, 2014