

STATE OF NEW MEXICO  
COUNTY OF SAN JUAN  
ELEVENTH JUDICIAL DISTRICT COURT

DISTRICT COURT  
SAN JUAN COUNTY NM  
*AB* FILED  
2013 SEP -6 AM 10:37

STATE OF NEW MEXICO, *ex rel.*  
THE STATE ENGINEER,

Plaintiff,

**AB-07-1**

Claims of Navajo Nation

vs.

No. CV 75-184

Honorable James J. Wechsler  
Presiding Judge

THE UNITED STATES OF AMERICA, *et al.*,

Defendants.

DESCRIPTIVE SUMMARY: The August 16 opinion overlooks the 2000 and 2010 census data in the record which shows that the Navajo population on the Reservation is shrinking, not growing. Gretchen Greene excluded the 2010 census data from her projections of future Navajo population, even though the 2010 census data was available to her before she filed her report on April 15, 2013.

NUMBER OF PAGES: 5 +9 pages of exhibits

DATE OF FILING: September 5, 2013

**MOTION FOR CORRECTION OF FACTUAL RECORD AND  
AUGUST 16 OPINION CONCERNING NAVAJO POPULATION**

Starting on page 34, the court's August 16 opinion excludes the affidavit of Jim Rogers and the exhibit showing Navajo population attached to the Community Ditch Motion for Partial Summary Judgment Concerning Minimum Needs (#2). Mr. Rogers testified that the population on the Navajo reservation is shrinking rather than growing, contrary to the opinions expressed by Gretchen Greene. His affidavit includes his personal observations of the current population, based on his first-hand experience on the Navajo reservation. His testimony is also based on data from the 2010 census, which was attached in support of the motion, unlike the opinions offered by Gretchen Greene. For some

*JL*

unexplained reason, Gretchen Greene excluded the 2010 census data from her population projections.

The court refused to consider this information at all. According to the opinion, the population data does not compare “populations from different years.” And “Mr. Rogers opinion that the Navajo population is falling is unsupported by any facts that would explain his opinion.”

This is incorrect. The court has overlooked the census data which appears at several places in the record. Mr. Rogers testimony simply confirms what the census figures also show: the reservation population decreased from 2000 to 2010.

The court has overlooked the following facts shown in the record in this case:

1. **The most recent census data from the US and the NN shows that the overall American Indian population on the Navajo Reservation is declining.** According to the actual census counts in 2000 and 2010, the American Indian population on the Navajo Reservation declined from 175,232 in 2000 to 169,321 in 2010. “American Indian Resident Population by Chapter Over Four Decades,” Exhibit POP-03 attached to Certificate of Service of Information Concerning 2010 Census, filed by the Navajo Nation on Nov. 29, 2012. This is a decrease in population of 5,911 during the decade, or 3.37%. Exhibits POP-01, -03, and -04 were provided on August 17, 2012 in Responses of the Navajo Nation to Joint Discovery Concerning Navajo Population and show that the American Indian population is declining within New Mexico and within the San Juan Basin. Copies of these previously filed exhibits are attached hereto for the convenience of the court. Exhibits A, B, C.

2. **In her April 2013 affidavit about Navajo population, Gretchen Greene did not use the 2010 census data at all.** Her projections used the 2000 census as the baseline for projecting future population in the year 2110, more than a century. Gretchen Greene excluded all 2010 census data from her affidavit, which was executed under oath on April 11, 2013 and filed on April 15, 2013. Gretchen Greene Affidavit, Attachment D to Attachments to Joint Memorandum of the Navajo Nation and the United States in Support of the Settlement Motion. The 2010 census data was available well before she filed her affidavit. In paragraphs 3 through 9, she explains the base data she used for current and future Navajo population. For the convenience of the court, those excerpts are attached as Exhibit D filed herewith.

3. **Gretchen Greene did not explain why she excluded the 2010 census data from her affidavit and projections on the Navajo population. The 2010 census data was available well before she filed her affidavit.**

4. There is no valid reason for Gretchen Greene to exclude the 2010 census data from her calculations and her opinion testimony projecting Navajo population growth from 2000 to 2110.

5. The 2010 census data provides another ten years of actual data. The 2010 census data shortens the forecast period from 110 to 100 years. The 2010 census data improves the accuracy of any population forecast.

6. **No witness testified or opined that it is sound science to project future population growth without using the most recent available census data.**

These settling party exhibits demonstrate that the Navajo population on the reservation within New Mexico is also shrinking, in line with the population trend on the

reservation as a whole. On the attachments, the Navajo chapters wholly within New Mexico have been marked with "NM." The Navajo chapters which lie partly within other states are marked with an "S" for "split." This information comes from POP-1.

**The shrinking population data comes from the United States Census Bureau, not Jim Rogers. This census data is admissible against the settling parties under Rule 11-801(D) because it is "an opposing party's statement. Since this census data comes from the settling parties themselves, it does not depend on the expertise or credibility of Jim Rogers.** His own observations, which are admissible under Rules 11-701 and -702, simply provide additional evidence and corroboration for the population shrinkage shown by the settling parties' own numbers.

On page 36, the opinion holds that the population figures are irrelevant because they relate only to the DCMI claim. This is factually and legally incorrect, especially since the court has adopted an amorphous "homeland" theory, contrary to controlling precedents and vigorous objections by all of the defendants. Under the erroneous "homeland" theory adopted by the court, current and future population is a central question. Population affects not only the DCMI claim, but the overall claim. **The amount of water needed for a "homeland" for 40,000 Navajos is rather different than the amount needed for 200,000 tribal members.**

What is the relevant area for population? [Gretchen Greene does not explain whether she includes areas outside the reservation proper.]

Accordingly, the record shows that there are disputed questions of fact concerning the Navajo population, such as:

*What is the current Navajo population living on the reservation in New Mexico?*

*Is the population growing or shrinking?*

*What will the population be in 2110? More than 200,000? Less than 42,000? Somewhere in between?*

Respectfully submitted,

VICTOR R. MARSHALL & ASSOCIATES, P.C.

By /s/ Victor R. Marshall

Victor R. Marshall

Attorneys for San Juan Agricultural Water Users  
Association; Hammond Conservancy District;  
Bloomfield Irrigation District; various ditches; and  
various members thereof.

12509 Oakland NE

Albuquerque, NM 87122

505-332-9400 / 505-332-3793 FAX

#### CERTIFICATE OF SERVICE

I hereby certify that on September 5, 2013, a true and correct copy of the foregoing was served on the parties and claimants by attaching a copy of said document to an email sent to the following list server: [wrvajointerse@nmcourts.gov](mailto:wrvajointerse@nmcourts.gov) and to the filing list referred to in the Notice of Amended Service List filed February 25, 2013.

/s/ Victor R. Marshall

Victor R. Marshall, Esq.

STATE/Chapter	Total	Total Pop		Pop one race:		Pop Two Races		Pop Three Races		All Combinations	
		One Race	Indian	Non-Indian	Indian(+)	Non-Indian(+)	Indian(+)	Non-Indian(+)	Indian	Non-Indian	
ARIZONA											
Beclabito (part)	0	0	0	0	0	0	0	0	0	0	0
Bird Springs	795	787	781	6	8	0	0	0	789	6	6
Black Mesa	428	425	421	4	3	0	0	0	424	4	4
Bodaway	1,704	1,686	1,679	7	17	0	0	0	1,697	7	7
Camaron	1,122	1,091	1,055	36	30	1	0	0	1,085	37	37
Chilchihabeto	1,165	1,160	1,154	6	5	0	0	0	1,159	6	6
Chirle	8,005	7,891	7,555	336	94	16	3	1	7,652	353	353
Coalmine Mesa	691	684	678	6	4	2	1	0	683	8	8
Coppermine	590	580	573	7	10	0	0	0	583	7	7
Cornfields	911	902	895	7	6	3	0	0	901	10	10
Cove	430	428	424	4	2	0	0	0	426	4	4
Crystal (part)	64	64	64	0	0	0	0	0	64	0	0
Dennehotso	1,395	1,382	1,368	14	13	0	0	0	1,381	14	14
Dilcon	2,110	2,096	2,084	12	14	0	0	0	2,098	12	12
Forest Lake	471	470	470	0	1	0	0	0	471	0	0
Fort Defiance (part)	4,676	4,560	4,233	327	109	6	1	0	4,343	333	333
Ganado	2,504	2,467	2,344	123	33	3	1	0	2,378	126	126
Greasewood	1,320	1,285	1,269	16	33	0	2	0	1,304	16	16
Hard Rock	1,161	1,145	1,136	9	13	2	1	0	1,150	11	11
Houck	1,436	1,401	1,372	29	35	0	0	0	1,407	29	29
Indian Wells	989	968	952	16	19	1	1	0	972	17	17
Inscription House (part)	1,252	1,233	1,196	37	19	0	0	0	1,215	37	37
Jeddito	1,180	1,156	1,110	46	24	0	0	0	1,134	46	46
Kaibeto	1,963	1,945	1,937	8	18	0	0	0	1,955	8	8
Kayenta	6,211	6,070	5,781	289	126	15	0	0	5,907	304	304
Kirilichnee	1,610	1,563	1,548	15	41	3	3	0	1,592	18	18
Klagnetoh	909	893	885	8	15	0	1	0	901	8	8
LeChee	1,660	1,618	1,607	11	37	2	3	0	1,647	13	13
Leupp	1,611	1,576	1,558	18	30	4	1	0	1,589	22	22
Low Mountain	754	744	728	16	10	0	0	0	738	16	16
Lukachukai	2,154	2,133	2,125	8	21	0	0	0	2,146	8	8
Lupton	902	876	853	23	25	0	1	0	879	23	23
Many Farms	2,738	2,704	2,615	89	30	2	2	0	2,647	91	91
Mexican Water (part)	390	382	379	3	7	1	0	0	386	4	4



Nahatadzili	1,731	1,715	1,642	73	15	1	0	0	0	1,657	74
Navajo Mountain (part)	121	120	119	1	1	0	0	0	0	120	1
Nazlini	1,260	1,235	1,228	7	24	1	0	0	0	1,252	8
Oak Springs	533	525	522	3	8	0	0	0	0	530	3
Ojato (part)	530	520	514	6	8	2	0	0	0	522	8
Piñon	2,751	2,725	2,588	137	23	3	0	0	0	2,611	140
Red Lake (part)	172	172	169	3	0	0	0	0	0	169	3
Red Mesa (part)	26	25	24	1	1	0	0	0	0	25	1
Red Valley (part)	837	828	822	6	9	0	0	0	0	831	6
Rock Point	1,273	1,266	1,253	13	7	0	0	0	0	1,260	13
Rough Rock	947	940	926	14	7	0	0	0	0	933	14
Round Rock	1,566	1,546	1,536	10	20	0	0	0	0	1,556	10
St. Michaels (part)	5,579	5,460	5,216	244	110	6	3	0	0	5,329	250
San Juan Southern Paiute :	15	15	15	0	0	0	0	0	0	15	0
Sanostee (part)	23	23	23	0	0	0	0	0	0	23	0
Sawmill	1,054	1,044	1,038	6	10	0	0	0	0	1,048	6
Shonto	2,124	2,090	2,035	55	33	1	0	0	0	2,068	56
Steamboat	1,226	1,202	1,197	5	24	0	0	0	0	1,221	5
Sweetwater	1,535	1,520	1,434	86	15	0	0	0	0	1,449	86
Tachee	1,178	1,171	1,169	2	6	0	1	0	0	1,176	2
Teec Nos Pos (part)	1,073	1,057	1,047	10	16	0	0	0	0	1,063	10
Teesto	930	914	894	20	16	0	0	0	0	910	20
Tolani Lake	647	645	639	6	2	0	0	0	0	641	6
Tonalea	2,595	2,559	2,534	25	36	0	0	0	0	2,570	25
Tsalle-Wheatfields (part)	2,250	2,214	2,160	54	32	4	0	0	0	2,192	58
Tselani	1,425	1,406	1,399	7	18	0	1	0	0	1,418	7
Tuba City	9,265	9,101	8,582	519	143	16	5	0	0	8,730	535
Whippoorwill	1,489	1,482	1,480	2	7	0	0	0	0	1,487	2
White Cone	1,284	1,261	1,248	13	23	0	0	0	0	1,271	13
Wide Ruins	1,095	1,091	1,067	24	4	0	0	0	0	1,071	24
<b>NEW MEXICO</b>				0	0	0	0	0	0	0	0
Alamo	2,006	1,980	1,932	48	20	6	0	0	0	1,952	54
Baca	789	783	765	18	6	0	0	0	0	771	18
Becenti	403	399	399	0	4	0	0	0	0	403	0
Beclabito (part)	749	744	735	9	5	0	0	0	0	740	9
Bread Springs	908	904	898	6	4	0	0	0	0	902	6
Burnham	280	280	279	1	0	0	0	0	0	279	1

Cañoncito	1,591	1,573	1,549	24	14	2	0	2	1,563	28
Casamero Lake	518	514	495	19	4	0	0	0	499	19
Chi Chil Tah	1,443	1,437	1,416	21	5	1	0	0	1,421	22
Church Rock	2,868	2,854	2,835	19	13	1	0	0	2,848	20
Counselor	870	856	853	3	14	0	0	0	867	3
Coyote Canyon	685	683	678	5	2	0	0	0	680	5
Crowpoint	2,729	2,694	2,545	149	34	1	0	0	2,579	150
Crystal (part)	606	600	585	15	6	0	0	0	591	15
Fort De fiance (part)	1,180	1,144	1,127	17	33	0	0	0	1,163	17
Fruitland	2,751	2,677	2,641	36	68	0	0	0	2,715	36
Gadi'ahi	550	540	535	5	9	1	0	0	544	6
Hogback	1,215	1,202	1,193	9	13	0	0	0	1,206	9
Huertano	2,633	2,586	2,561	25	45	0	0	0	2,608	25
Iyanbito	890	881	878	3	9	0	0	0	887	3
Lake Valley	306	305	301	4	0	0	1	0	302	4
Littlewater	427	427	426	1	0	0	0	0	426	1
Manuelito	264	264	250	14	0	0	0	0	250	14
Mariano Lake	823	822	813	9	1	0	0	0	814	9
Mexican Springs	1,418	1,387	1,376	11	31	0	0	0	1,407	11
Nagezi	1,095	1,084	1,076	8	11	0	0	0	1,087	8
Nahodishgish	408	405	399	6	2	0	1	0	402	6
Naschitti	1,500	1,473	1,462	11	27	0	0	0	1,489	11
Nenahnezad/San Juan	1,792	1,757	1,724	33	33	2	0	0	1,757	35
Newcomb	629	624	582	42	5	0	0	0	587	42
Ojo Encino	688	667	644	23	21	0	0	0	665	23
Pinedale	1,109	1,087	1,083	4	22	0	0	0	1,105	4
Pueblo Pintado	419	414	401	13	5	0	0	0	406	13
Ramah	1,400	1,381	1,327	54	19	0	0	0	1,346	54
Red Lake (part)	1,856	1,831	1,782	49	25	0	0	0	1,807	49
Red Rock	1,866	1,838	1,800	38	23	4	1	0	1,824	42
Red Valley (part)	580	576	575	1	4	0	0	0	579	1
Rock Springs	1,086	1,070	1,065	5	16	0	0	0	1,081	5
St. Michaels (part)	64	61	61	0	3	0	0	0	64	0
Sanostee (part)	1,772	1,763	1,750	13	8	1	0	0	1,758	14
Sheep Springs	801	786	779	7	15	0	0	0	794	7
Shiprock	9,126	8,949	8,776	173	168	6	3	0	8,947	179
Smith Lake	951	945	939	6	6	0	0	0	945	6



Standing Rock	641	630	616	14	11	0	0	627	14
Teec Nos Pos (part)	75	73	71	2	2	0	0	73	2
Thoreau	1,433	1,393	1,308	85	39	0	0	1,347	86
Tohatchi	1,450	1,437	1,345	92	12	1	0	1,367	93
Torreon	1,612	1,597	1,563	34	15	0	0	1,578	34
Tsalle-Wheatfields (part)	0	0	0	0	0	0	0	0	0
Tsayatoh	658	638	635	3	16	0	0	655	3
Twin Lakes	2,212	2,192	2,187	5	20	0	0	2,207	5
Two Grey Hills	1,157	1,136	1,121	15	20	0	0	1,142	15
White Horse Lake	406	403	402	1	3	0	0	405	1
White Rock	76	76	76	0	0	0	0	76	0
UTAH									
Aneth	1,989	1,971	1,918	53	17	1	0	1,935	54
Dennehoiso (part)	67	67	66	1	0	0	0	66	1
Inscription House (part)	0	0	0	0	0	0	0	0	0
Mexican Water (part)	543	534	531	3	9	0	0	540	3
Navajo Mountain (part)	421	408	403	5	13	0	0	416	5
Ojato (part)	1,684	1,648	1,606	42	36	0	0	1,642	42
Red Mesa (part)	1,196	1,186	1,169	17	7	0	0	1,176	20
San Juan Southern Paiute I	15	15	15	0	0	0	0	15	0
Teec Nos Pos (part)	153	153	153	0	0	0	0	153	0
	173,667	171,041	166,824	4,217	2,443	54	3	169,321	4,346
	2,626				2,569	57		173,667	

Notes:

POP-03

**AMERICAN INDIAN RESIDENT POPULATION BY CHAPTER**  
OVER FOUR DECADES

				1980	1990	2000	2010					1980	1990	2000	2010			
DS	AG	CHAPTER		Census	Census	Census	Census	DS	AG	CHAPTER		Census	Census	Census	Census			
1	1	WN	Copper Mine	684	423	658	583	59	14	FD	Coyote Canyon	835	1,226	941	680			
2			Kaibeto	952	1,529	1,957	1,955	60			Mexican Springs	942	710	1,312	1,407			
3			LeChee	1,060	1,561	1,877	1,647	61			Naschitti	1,323	1,533	1,680	1,489			
4			Tonalea	1,548	2,073	2,515	2,570	62			Tohatchi	1,572	1,460	1,988	1,357			
5	2	WN	Inscription House	895	1,010	1,169	1,215	63			Twin Lakes	1,692	1,952	2,240	2,207			
6			Navajo Mountain	554	587	636	566	64	15	EN	Lake Valley	301	398	439	302			
7			Shonto	1,881	2,330	2,377	2,068	65			Nahodishgish	272	313	404	402			
8	3	WN	Bodaway/Gap	1,238	1,649	1,803	1,697	66			Standing Rock	504	243	678	627			
9			Cameron	901	1,011	1,197	1,085	67	16	EN	Baca	1,452	666	879	771			
10			Coalmine Canyon	852	388	365	683	68			Bread Springs	1,005	1,147	990	902			
11			Tuba City	5,416	7,305	8,192	8,730	69			Casamero Lake	407	555	547	499			
12	4	CL	Black Mesa	352	455	396	424	70			Chichittah	1,371	1,442	1,667	1,421			
13			Forest Lake	414	444	570	471	71			Church Rock	1,633	1,684	2,737	2,848			
14			Hard Rock	1,220	1,263	1,229	1,150	72			Iyanbito	852	969	1,029	887			
15			Pinon	1,852	2,050	2,943	2,611	73			Manuelito	394	623	350	250			
16			Tachee/Blue Gap	1,022	1,058	1,428	1,176	74			Mariano Lake	718	720	865	814			
17			Whippoorwill Sprg	659	859	1,454	1,487	75			Pinedale	931	608	1,110	1,105			
18	5	WN	Birdspring	718	640	823	789	76			Red Rock	1,573	1,022	1,974	1,824			
19			Leupp	1,298	1,503	1,584	1,589	77			Rock Springs	1,416	1,295	986	1,081			
20			Tolani Lake	739	672	752	641	78			Smith Lake	579	504	1,044	945			
21	7	FD	Dilkon	1,344	1,744	2,164	2,098	79			Thoreau	1,341	1,336	1,363	1,347			
22			Indian Wells	965	1,171	958	972	80			Tsayatoh	1,172	1,288	731	655			
23			Jeddito	980	1,051	1,266	1,134	81	17	FD	Cornfields	645	547	825	901			
24			Low Mountain	910	664	911	738	82			Ganado	1,934	2,472	2,789	2,378			
25			Teestoh	1,004	1,041	925	910	83			Greasewood Sprgs	1,154	1,166	1,391	1,304			
26			White Cone	913	866	1,364	1,271	84			Kinlichee	966	1,305	1,382	1,592			
27	8	WN	Chilichinbeto	1,028	1,177	1,310	1,159	85			Klagetoh	844	760	1,023	901			
28			Dennehotso	1,600	1,548	1,611	1,447	86			Steamboat	1,399	1,458	1,642	1,221			
29			Kayenta	3,999	4,902	5,928	5,907	87			Wide Ruins	1,248	1,299	1,201	1,071			
30			Ojlato	1,651	1,913	2,221	2,164	88	18	FD	Crystal	475	725	767	655			
31	9	SR	Mexican Water	635	541	808	926	89			Fort Defiance	4,656	5,881	5,501	5,506			
32			Red Mesa	857	1,174	1,128	1,201	90			Houck	1,068	1,322	1,485	1,407			
33			Rock Point	920	1,184	1,350	1,260	91			Lupton	740	857	948	879			
34			Sweetwater	1,332	1,172	1,340	1,449	92			Nahata Dził	N/A*	442	1,407	1,657			
35			Teec Nos Pos	1,250	1,171	1,302	1,289	93			Oak/Pine Springs	352	441	607	530			
36	10	CL	Chinle	4,893	7,000	8,294	7,652	94			Red Lake	2,315	2,203	2,344	1,976			
37			Many Farms	2,048	2,133	2,620	2,647	95			Saint Michaels	3,814	5,255	5,867	5,393			
38			Nazlini	825	1,070	1,139	1,252	96			Sawmill	727	850	886	1,048			
39			Rough Rock	778	1,009	901	933	97	19	EN	Counselor	582	1,211	999	867			
40			Tselani/Cottonwd	1,084	1,422	1,342	1,418	98			Huerfano	1,511	2,250	2,313	2,608			
41	11	CL	Lukachukai	1,580	2,055	1,982	2,146	99			Nageezi	933	974	986	1,087			
42			Round Rock	655	774	1,287	1,556	100			Ojo Encino	148	577	699	665			
43			Whitlds/Tsaile/Blk Rk	1,212	1,391	1,983	2,192	101	20	EN	Becenti	246	193	498	403			
44	12	SR	Aneth	1,641	1,949	2,236	1,935	102			Crownpoint	1,295	2,468	2,642	2,579			
45			Beclabito	484	385	522	740	103			Littlewater	582	636	567	426			
46			Cove	397	442	499	426	104			Pueblo Pintado	580	447	436	406			
47			Gadilahi	754	493	439	544	105			Torreon/Star Lake	1,157	1,326	1,777	1,578			
48			Hogback	1,488	735	1,377	1,206	106			White Horse Lake	429	603	542	405			
49			Newcomb	601	613	705	587	107			White Rock	172	200	60	76			
50			Red Valley	1,063	968	1,227	1,410	108	21	EN	Tohajilee	969	1,181	1,614	1,563			
51			Sanostee	1,943	2,070	1,900	1,781	109	22	EN	Alamo	1,062	1,228	1,987	1,952			
52			Sheep Springs	596	658	810	794	110	23	EN	Ramah	1,163	1,114	1,598	1,346			
53			Shiprock	6,103	7,850	8,904	8,947	Column Sub-Total/							55,451	63,085	72,737	68,200
54			Toadlena/2 Grey Hills	977	831	1,052	1,142								American Indian Total			
55	13	SR	Burnham	325	245	240	279	Non-American Indian Total										
56			Nenahnezad	1,426	1,244	1,116	1,757								TOTAL			
57			San Juan	556	536	563	**	SOURCES: 1980 & 90 Censuses; Extracted by DCD;										
58			Upper Fruitland	1,529	2,268	2,846	2,715								NOTES: *Nahata Dził Chapter was established on April 04, 1991. 2000 & 2010 Do not include non-trust land counting in EN ** Chapter has no defined boundary; count part of Nenahnezad			
Column Subtotal				78,601	88,270	102,495	101,121											

S  
NM  
S  
NM

N

S

"S" means split between states



# NAVAJO NATION AMERICAN INDIAN AND NON-INDIAN POPULATION BY CHAPTER

SUB-TOTALS BY AGENCY; CENSUS 2010

AG	Chapter	Total	AIAN	Non-AIAN
WN	Inscription House	1,252	1,215	37
WN	Bird Springs	795	789	6
WN	Bodaway	1,704	1,697	7
WN	Cameron	1,122	1,085	37
WN	Chilchinbeto	1,165	1,159	6
WN	Coalmine Canyon	691	683	8
WN	Coppermine	590	583	7
WN	Dennehotso	1,462	1,447	15
WN	Kaibeto	1,963	1,955	8
WN	Kayenta	6,211	5,907	304
WN	Lechee	1,660	1,647	13
WN	Leupp	1,611	1,589	22
WN	Navajo Mountain	542	536	6
WN	Oljato	2,214	2,164	50
WN	San Juan Paiute*	30	30	0
WN	Shonto	2,124	2,068	56
WN	Tolani Lake	647	641	6
WN	Tonalea	2,595	2,570	25
WN	Tuba City	9,265	8,730	535
Sub-Total:		37,643	36,495	1,148

CL	Black Mesa	428	424	4
CL	Chinle	8,005	7,652	353
CL	Forest Lake	471	471	0
CL	Hard Rock	1,161	1,150	11
CL	Lukachukai	2,154	2,146	8
CL	Many Farms	2,738	2,647	91
CL	Nazlini	1,260	1,252	8
CL	Pinon	2,751	2,611	140
CL	Rough Rock	947	933	14
CL	Round Rock	1,566	1,556	10
CL	Tachee-Blue Gap	1,178	1,176	2
CL	Tsaile-Wheatfields	2,250	2,192	58
CL	Tselani	1,425	1,418	7
CL	Whippoorwill	1,489	1,487	2
Sub-Total:		27,823	27,115	708

SR	Rock Point	1,273	1,260	13
SR	Aneth	1,989	1,935	54
SR	Beclabito	749	740	9
SR	Burnham	280	279	1
SR	Cove	430	426	4
SR	Fruitland, Upper	2,751	2,715	36
SR	Gadiiahi	550	544	6
SR	Hogback	1,215	1,206	9
SR	Mexican Water	933	926	7
SR	Nenahnezad	1,792	1,757	35
SR	Newcomb	629	587	42
SR	Red Mesa	1,222	1,201	21
SR	Red Valley	1,417	1,410	7
SR	San Juan	**	**	**
SR	Sanostee	1,795	1,781	14
SR	Sheep Springs	801	794	7
SR	Shiprock	9,126	8,947	179
SR	Sweetwater	1,535	1,449	86
SR	Teec Nos Pos	1,301	1,289	12
SR	Two Grey Hills	1,157	1,142	15
Sub-Total:		30,945	30,388	557

NAVAJO NATION

TOTAL:	173,667	169,321	4,346
--------	---------	---------	-------

\*Not a chapter; Counted under Nav Mtn Chap prior

\*\* No defined boundaries; Part of Nenahnezad

AG	Chapter	Total	AIAN	Non-AIAN
FD	Cornfields	911	901	10
FD	Coyote Canyon	685	680	5
FD	Crystal	670	655	15
FD	Dilcon	2,110	2,098	12
FD	Fort Defiance	5,856	5,506	350
FD	Ganado	2,504	2,378	126
FD	Greasewood Springs	1,320	1,304	16
FD	Houck	1,436	1,407	29
FD	Indian Wells	989	972	17
FD	Jeddito	1,180	1,134	46
FD	Kinlichee	1,610	1,592	18
FD	Klagetoh	909	901	8
FD	Lupton	902	879	23
FD	Mexican Springs	1,418	1,407	11
FD	Nahatadziil	1,731	1,657	74
FD	Naschitti	1,500	1,489	11
FD	Oak Springs	533	530	3
FD	Red Lake	2,028	1,976	52
FD	Sawmill	1,054	1,048	6
FD	St. Michaels	5,643	5,393	250
FD	Steamboat	1,226	1,221	5
FD	Teesto	930	910	20
FD	Tohatchi	1,450	1,357	93
FD	Twin Lakes	2,212	2,207	5
FD	White Cone	1,284	1,271	13
FD	Wide Ruins	1,095	1,071	24
FD	Low Mountain	754	738	16
Sub-Total:		43,940	42,682	1,258

EN	Alamo	2,006	1,952	54
EN	Baca	789	771	18
EN	Becenti	403	403	0
EN	Bread Springs	908	902	6
EN	Canoncito	1,591	1,563	28
EN	Casamero Lake	518	499	19
EN	Chichiltah	1,443	1,421	22
EN	Church Rock	2,868	2,848	20
EN	Counselor	870	867	3
EN	Crownpoint	2,729	2,579	150
EN	Huerfano	2,633	2,608	25
EN	Iyanbito	890	887	3
EN	Lake Valley	306	302	4
EN	Littlewater	427	426	1
EN	Manuelito	264	250	14
EN	Mariano Lake	823	814	9
EN	Nageezi	1,095	1,087	8
EN	Nahodishgish	408	402	6
EN	Ojo Encino	688	665	23
EN	Pinedale	1,109	1,105	4
EN	Pueblo Pintado	419	406	13
EN	Ramah	1,400	1,346	54
EN	Red Rock	1,866	1,824	42
EN	Rock Springs	1,086	1,081	5
EN	Smith Lake	951	945	6
EN	Standing Rock	641	627	14
EN	Thoreau	1,433	1,347	86
EN	Torreón	1,612	1,578	34
EN	Tsayatoh	658	655	3
EN	White Horse Lake	406	405	1
EN	White Rock	76	76	0
Sub-Total:		33,316	32,641	675

Source: Census 2010; Extracted and formatted by LSR Innovations; June 2012



Perce Reservation in Idaho and others. I served as an expert in evaluating the domestic, commercial, municipal, and industrial water needs of the Lummi Nation on the Lummi Indian Reservation and was deposed during the litigation process. In addition, I have completed population forecasts for other entities such as the Bureau of Reclamation for the purpose of developing sufficient water supplies.

2. I am a member of the American Environmental and Resource Economists, and the Population Association of America.

3. In association with this case, I was asked by the United States to evaluate and provide a related opinion associated with the following subjects:

- the current population on lands held in trust on behalf of the Navajo Nation in the San Juan River Basin of New Mexico (SJRB);
- the anticipated future population on lands held in trust on behalf of the Navajo Nation in the SJRB; and
- the anticipated per capita water demand of persons residing on lands held in trust on behalf of the Navajo Nation in the SJRB.

4. The following paragraphs broadly describe my analyses and conclusions. Further, the detail for my analysis and conclusions is captured in my work as presented in the U.S. Hydrographic Survey (Appendix C – concerning the present Navajo Population in the SJRB) (December 2010), the U.S. Statement of Claims (Appendix BB - concerning the future Navajo Population in the SJRB) (December 2010); and the U.S. Technical Reports (Exhibit B - *Future Navajo Nation Population and Domestic, Commercial, Municipal and Light Industrial Water Use in the San Juan River Basin*) (January 2011).



5. I used a two-step approach to developing the future domestic, commercial, municipal, and industrial (DCMI) water needs of the Navajo Nation on trust land within the SJRB. The first step was to develop a population projection for the region based on the current and historic Navajo Nation population and other demographic research. The second step was to develop per capita water use coefficients for the region by reviewing water use in nearby areas.
6. The recent population within the basin was developed using available data from the U.S. Census Bureau for both 1990 and 2000 with a focus on the American Indian and Alaska Native (AIAN) populations. These data were used in conjunction with geospatial data to evaluate the intersection between SJRB boundaries, Navajo chapters and those lands held in trust for the Navajo Nation. Using this approach, the 2000 Navajo population for the study area was estimated to have been 39,761. Using the same approach, 965 non-Indians were also estimated to have lived in the study area. Summing 39,761 and 965 produced a baseline population estimate of 40,745 for the year 2000.
7. Starting with the estimated basin population for the study area as a baseline, I used the cohort component method of population projection to estimate the future population in the study area. Given appropriate data, the cohort component method is the only approach that allows a researcher to address the specific components of change – fertility, mortality, and net migration – within the modeling approach. The approach breaks a population into age and sex cohorts (usually in 5-year increments) and simulates the aging of the population by applying fertility, mortality, and net migration rates to a baseline population to project the future population. Fertility rates were developed using data from the Arizona Department of Health Services titled, *Resident Births by Mother's*

*Age Group, Race/Ethnicity and County of Residence, Arizona* from 2000 and 2005.

Mortality rates were developed from the U.S. Department of Health and Human Services, Indian Health Services, from the document, *Trends in Indian Health 1998-1999*, and from data from the National Center for Health Statistics. Net migration was estimated based on a review of the forces that influence migration, and on an analysis of the net migration that occurred for the larger Navajo Reservation population between 1990 and 2000.

8. The results of the population projection suggested that the population of the study area would grow from 40,745 in 2000 to 202,293 in 2110. This represents a reasonable average annual growth rate of 1.3 percent.
9. A stable population, or a population with no growth rate, is anticipated for the study area population within a decade or two after the year 2110. The population projection results indicate the total stable population for Navajo Indians in the study area will be 202,970. Total stable population for the study area is 203,935 (including all people in the study area).
10. The second step in estimating future water need is the development of water use coefficients. Water use data is gathered regularly by the U.S. Geological Survey (USGS) with separate categories for domestic use, agricultural, thermoelectric, and industrial uses. Use is also divided by source, separating fresh and saline sources, and public and private sources.
11. I evaluated water use data for the state of New Mexico and for the counties surrounding the San Juan River Basin. The water use coefficient used for the study area estimate was very close to the average value for all public supplies, which was 158.7 gallons per capita