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United States' Amendment on Adjudicated Acreage

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IN THE DISTRICT COURT OF THE
FIFTH JUDICIAL DISTRICT
STATE OF WYOMING

In re: The General Adjudication }
of All Rights to Use Water } Civil No.
In the Big Horn River System } 4993
and All Other Sources, State }
of Wyoming }

United States' Amendment to
its Finding on Adjudicated
Acreage and Responses and
Objections to Wyoming's
Proposed Findings of Fact and
Proposed Conclusions of Law

Box 16
4613

case # 4993

File # 291

4613

IN THE DISTRICT COURT OF THE
FIFTH JUDICIAL DISTRICT
STATE OF WYOMING

IN RE: THE GENERAL ADJUDICATION
OF ALL RIGHTS TO USE WATER
IN THE BIG HORN RIVER SYSTEM
AND ALL OTHER SOURCES, STATE
OF WYOMING

CIVIL NO. 4993

FILED

5/10 1982

Margaret V. Hampton CLERK
DEPUTY

UNITED STATES' AMENDMENT TO ITS FINDING ON ADJUDICATED ACREAGE
AND RESPONSES AND OBJECTIONS TO WYOMING'S PROPOSED
FINDINGS OF FACT AND PROPOSED CONCLUSIONS OF LAW

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INTRODUCTION

The United States in this memorandum amends its proposed finding on adjudicated acreage and gives its response and objections to the State of Wyoming's proposed findings of fact and conclusions of law. The United States has attempted to address the major errors in Wyoming's proposed findings and conclusions, but in view of the unconscionable length of the State's submission, has not responded to every proposed finding or to every point in each proposal. The United States, however, does object to every State proposed finding and conclusions that significantly differs from those submitted by the United States on April 7, 1982.

The proposed findings and conclusions submitted by the private parties (other than the tribes) are addressed by the United States in an independent pleading.

AMENDMENT - ADJUDICATED ACREAGE FINDING

1A. The United States, in reviewing its finding No. 1, found that two separation lines were omitted on pages 2 and 3, thus adding some confusion to the overall total of 17,411 acres of adjudicated trust lands. The lines are contained within United States Exhibit WRIR C-304-ADJ. We have also added the word "Total" where each subcategory breaks. This addition should eliminate any problems in the United States' totals. We apologize for the inconvenience. We have also discovered four permit number transpositions. These are noted in the table below.

ADJUDICATED ACREAGE CLAIM ON TRUST LANDS

Permit Number	Proof Number	Photo Number	Ditch Name	Tract Number	Claimed Trust Acres
6633-9080	18593	13-104	Ray Canal	1-1C	7.9
6633-9080	18424	13-104	Ray Canal	1-2C	10.0
6633-9080	18423	14-67	Ray Canal	1-3C	74.5
6633-9080	18596	14-69	Ray Canal	1-4C	63.4
6633-9080	20248	15-21	Ray Canal	1-5C ₁	141.0
6633-9080	20248	15-21	Ray Canal	1-5C ₂	30.0
6633-9080	18587	15-21	Ray Canal	1-6C	20.0
				TOTAL	346.8
6632	18573	15-23	Coolidge Canal	2-1C	24.0
6632	13587	15-25	Coolidge Canal	2-2C	36.0
6632	18414	15-25	Coolidge Canal	2-3C	59.2
6632	18417	15-25	Coolidge Canal	2-4C	40.0
6632	18572	15-25	Coolidge Canal	2-5C	20.0

AMENDMENT.- ADJUDICATED ACREAGE FINDING (Continued)

Permit Number	Proof Number	Photo Number	Ditch Name	Tract Number	Claimed Trust Acres
6632	18575	15-25	Coolidge Canal	2-6C ₁	40.0
6632	18575	15-25	Coolidge Canal	2-6C ₂	40.0
6632	18576	15-25	Coolidge Canal	2-7C ₁	10.0
6632	18576	15-25	Coolidge Canal	2-7C ₂	40.0
6632	19141	15-25	Coolidge Canal	2-8C	2.0
TOTAL					311.2
6628	18400	10-200	Meadow Creek Bench Canal	5M-1C	40.0
6628	16412	10-200	Meadow Creek Bench Canal	5M-2C	115.0
6628	18399	10-200	Meadow Creek Bench Canal	5M-3C ₁	35.0
6628	18399	10-200	Meadow Creek Bench Canal	5M-3C ₂	10.0
6628	18399	11-170	Meadow Creek Bench Canal	5M-3C ₃	7.0
6628	18913	10-202	Meadow Creek Bench Canal	5M-4C	244.0
TOTAL					451.0
11240	18914	10-202	Willow Creek Bench Canal	5W-1C	6.0
TOTAL					6.0
6626	18546	10-200	Dry Creek Bench Canal	5d-1C	35.0
TOTAL					35.0
6634	18394	20-219	Left Hand Canal	7-1C	20.0
TOTAL					20.0
8482	14936	6-228	Mosle	10-1C	239.33
3110E	14940	6-228	Enl. Mosle	10-2C	9.0

AMENDMENT - ADJUDICATED ACREAGE FINDING (Continued)

Permit Number	Proof Number	Photo Number	Ditch Name	Tract Number	Claimed Trust Acres
12979	14939	6-228	Snow	10-3C	10.0
					TOTAL 258.33
17865	24253	8-185	Phillips	11-1C	17.2
					TOTAL 17.2
6624	19137	8-180	Jackson	14-1C	51.0
6616	18404	10-200	Washakie	14-2C	56.0
6616	18403	10-200	Washakie	14-3C ₁	46.0
6616	18403	10-200	Washakie	14-3C ₂	13.0
17203	19827	10-200	Washakie No. 2	14-4C	25.0
17203	19828	10-200	Washakie No. 2	14-5C ₁	9.0
17203	19828	10-200	Washakie No. 2	14-5C ₂	15.0
					TOTAL 215.0
15697	18541	12-140	Teapot Outlet	15-1C	101.0
15697	18541	13-112	Teapot Outlet	15-2C	555.93
9033	14881	13-112	Hays	15-3C	160.0
8217	16150	11-176	Gunter	15-4C	80.0
7492	11729	11-176	Pratt	15-5C	40.0
7556	13625	11-176	Tenderfoot Girl	15-6C	66.0
9713	11728	11-176	Red	15-7C	94.0
12277	15650	11-176	Blackwell	15-8C	111.0
2493E *	15651	11-176	Enl. Blackwell	15-9C	21.0
12363	16838	11-176	Blackwell No. 2	15-10C	90.0

* Permit Number 2493E should read 2943E.

AMENDMENT - ADJUDICATED ACREAGE FINDING (Continued)

Permit Number	Proof Number	Photo Number	Ditch Name	Tract Number	Claimed Trust Acres
14823	16839	11-178	Signor	15-11C	13.0
9009	11727	11-178	Reo Seco	15-12C	29.0
7955	11726	11-178	Kannah	15-13C	38.0
2381E	13555	11-178	Enl. Kannah	15-14C	77.0
3272E	18911	11-178	Enl. Kannah	15-15C	77.0
17712	20737	11-178	French	15-16C	104.0
8291	13546	12-138	Edgar Beck.	15-17C	160.0
3792E	19450	12-138	Enl. Becks Supply	15-18C	160.0
				TOTAL	1,976.93
11566	14876	9-155	Trosper	16-1C	140.0
8242	16154	9-155	Beeline	16-2C	110.0
4088E	18912	9-155	Enl. Beeline	16-3C	399.0
3703E	20285	9-155	Enl. Beeline	16-4C	105.0
7439	11730	9-155	Knifong No. 1	16-5C	64.0
15660	16840	9-155	Linck	16-6C	81.0
8243	16155	9-155	Stephens	16-7C	21.0
10110	14874	9-157	Brightop	16-8C	53.0
3034E	14875	9-157	Enl. Brightop	16-9C ₁	2.3
3034E	14875	9-157	Enl. Brightop	16-9C ₂	24.0
1629E	14038	9-157	Enl. Mills No. 2	16-10C	22.0
8344	17008	9-157	Sandell	16-11C ₁	16.0
8344	17008	9-157	Sandell	16-11C ₂	29.5
8344	14039	9-157	Sandell	16-12C	24.0

AMENDMENT - ADJUDICATED ACREAGE FINDING (Continued)

Permit Number	Proof Number	Photo Number	Ditch Name	Tract Number	Claimed Trust Acres
2667E	19132	9-157	Enl. Sandell No. 1	16-13C	10.0
7486	11733	9-157	Sandell	16-14C	62.0
1809E	11736	9-157	Enl. Sandell	16-15C	22.0
8065	16152	9-157	Rema	16-16C	21.0
8065	13561	9-157	Rema	16-17C	36.0
7424	13557	9-157	East Burk	16-18C	76.0
8066	16153	9-157	Crow	16-19C	51.0
7423	13556	9-157	West Burk	16-20C	24.0
8866	14873	9-157	Red Top	16-21C	27.0
7857	13559	9-157	Young and Ralston	16-22C ₁	22.0
7857	13559	9-157	Young and Ralston	16-22C ₂	37.0
7857	13560	9-157	Young and Ralston	16-23C	11.0
7857	14870	9-157	Young and Ralston	16-24C	82.0
2886E	14872	9-157	Enl. Young and Ralston	16-25C	31.0
1910E	14871	9-157	Enl. Young and Ralston	16-26C	13.0
12128	20284	9-157	H.P.	16-27C	38.0
7856	13558	9-157	Young	16-28C	48.0
8866	14873	10-198	Red Top	16-29C	81.0
12188	20284	10-198	H.P.	16-30C	45.0
8585	16156	10-198	Blue Grass	16-31C	73.0
11568	22485	10-198	Sandell and Bauman	16-32C ₁	73.2
11568	22485	10-198	Sandell and Bauman	16-32C ₂	48.8
15867	20287	10-198	Andy	16-33C	12.0

AMENDMENT - ADJUDICATED ACREAGE FINDING (Continued)

Permit Number	Proof Number	Photo Number	Ditch Name	Tract Number	Claimed Trust Acres
11375	13566	10-198	Saunders and Miller	16-34C	43.0
11375	13565	10-198	Saunders and Miller	16-35C	63.9
2697E	13568	10-198	Enl. Saunders and Miller	16-36C	9.0
11743	15653	10-198	John Miller	16-37C	27.0
9209	13562	10-198	A.L. Miller	16-38C	34.0
2698E	13569	10-198	Enl. Frank Saunders No. 1	16-39C	31.0
11373	13563	10-198	Frank Saunders No. 1	16-40C	6.4
2699E	13570	10-198	Enl. Frank Saunders No. 2	16-41C	8.3
11374	13564	10-198	Frank Saunders No. 2	16-42C	32.5
2639E	14878	10-200	Wickstrom Ex. of A.L. Miller	16-43C	24.3
2945E	19134	10-200	Enl. Borel No. 1	16-44C	59.0
3758E	15654	10-200	Enl. Borel	16-45C ₁	16.0
3758E	15654	10-200	Enl. Borel	16-45C ₂	26.0
9209	13562	10-200	A. L. Miller	16-46C	15.0
6621	17916	10-200	Rhodes No. 1	16-47C	48.0
6621	20879	10-200	Rhodes No. 1	16-48C	8.0
2681E	17191	10-200	Enl. Rhodes No. 1	16-49C	144.59
7525	17917	10-200	Rhodes No. 2	16-50C	8.0
2896E	14880	10-200	Enl. Borel No. 1	16-51C ₁	50.0
2896E	14880	10-200	Enl. Borel No. 1	15-51C ₂	22.0
2640E	14879	10-200	Enl. Borel No. 1	16-52C	27.2
7533	11735	10-200	Borel No. 1	16-53C	30.0
7534	11734	10-200	Borel No. 2	16-54C	74.0
11617	14877	10-200	Borel No. 3	16-55C ₁	17.0

AMENDMENT - ADJUDICATED ACREAGE FINDING (Continued)

Permit Number	Proof Number	Photo Number	Ditch Name	Tract Number	Claimed Trust Acres
11617	14877	10-200	Borel No. 3	16-55C ₂	15.0
4141E	19135	10-200	Enl. Borel No. 3	16-56C	45.1
4140E	19133	10-200	Enl. A. L. Miller	16-57C	8.2
				TOTAL	2,927.29
11659	14951	11-170	Kirkland	17-1C	11.1
				TOTAL	11.1
7990	11672	18-349	Wittaker	18-1C	39.0
7522	16141	19-242	Gonzales No. 1	18-2C	40.0
7770	11681	19-242	Ingalls	18-3C	20.0
7588	11678	20-235	Two Partners	18-14C	30.0
4414E	19121	20-235	Enl. Two Partners	18-15C	158.0
11744	15115	20-235	Mary	18-16C	30.0
13430	19120	20-235	Stagner	18-17C	17.8
15294	18523	20-235	Bean No. 1	18-18C	28.0
7490	11670	21-180	Deer Trail	18-19C	30.0
4400E	20554	21-180	Enl. Deer Trail	18-20C	27.0
7491	11669	21-180	Bear Paw	18-21C	20.0
7488	11671	21-180	Berch	18-22C	15.0
15540	18526	21-180	Lincoln	18-23C ₁	5.0
15540	18526	21-180	Lincoln	18-23C ₂	15.0
15541	18527	21-180	Lincoln No. 2	18-24C	17.0
7653	11673	22-172	Two Mile Springs	18-25C	13.0
				TOTAL	504.8

AMENDMENT - ADJUDICATED ACREAGE FINDING (Continued)

Permit Number	Proof Number	Photo Number	Ditch Name	Tract Number	Claimed Trust Acres
8539	13547	8-185	Black Rock	19-1C	324.7
8539	13549	8-185	Black Rock	19-2C	42.0
8539	13550	8-185	Black Rock	19-3C	115.0
2168E **	13554	8-185	Enl. Black Rock	19-4C	35.0
16426	20177	10-200	Nowlin	19-5C	28.0
4714E	20539	10-200	Enl. Nowlin	19-6C	71.0
4366E	20178	10-200	Enl. Nowlin	19-7C ₁	8.7
4366E	20178	10-200	Enl. Nowlin	19-7C ₂	23.3
6619	18905	11-170	Boyd	19-8C	127.5
14691	14853	11-170	Hagin	19-9C	85.0
3773E	18908	11-170	Enl. Hagin	19-10C	59.0
2292E	16835	12-140	Enl. Stagner	19-11C	30.0
2292E	13553	12-140	Enl. Stagner	19-12C	70.0
14910	16834	13-112	Brant	19-13C	76.0
13484	20283	13-112	Driscoll	19-14C	156.06
Terr.	11695	15-29	Kinnear	19-15C	79.0
Terr.	11697	16-106	Kinnear	19-16C	8.0
				TOTAL	1,338.26
16580	19437	13-122	French	20-1C	482.4
8215	11682	13-122	Pearl	20-2C	45.0
2139E	18389	13-122	Enl. Pearl	20-3C	127.5
7094 ***	17190	14-49	Wiederien	20-4C	6.0
7094 ***	11683	14-49	Wiederien	20-5C	69.5
Terr.	13595	14-49	Muddy Springs No. 1	20-6C ₁	50.0

** Permit Number 2168E should read 2618E.

*** Permit Number 7094 should read 7904.

AMENDMENT - ADJUDICATED ACREAGE FINDING (Continued)

Permit Number	Proof Number	Photo Number	Ditch Name	Tract Number	Claimed Trust Acres
Terr.	13595	14-49	Muddy Springs No. 1	20-6C2	26.0
Terr.	11688	14-49	Muddy Springs No. 2	20-7C	17.0
7373	11689	14-49	Muddy Springs No. 3	20-8C	7.0
2903E	17186	14-49	Enl. Hoise No. 2	20-9C1	41.0
2903E	17186	14-49	Enl. Hoise No. 2	20-9C2	126.0
15366	17189	14-49	Bargee No. 2	20-10C	7.0
7371	11687	14-49	Holland Creek	20-11C	38.0
7372	11690	14-49	Deep Spring	20-12C	4.0
7905	11684	14-49	Rankin	20-13C	104.0
8139	11685	14-49	George	20-14C	63.0
8610	14933	15-39	Stoffer	20-15C	26.0
12662	18522	15-39	Robert M. Metzler	20-16C1	14.0
12662	18522	15-39	Robert M. Metzler	20-16C2	47.1
16287	18387	15-39	Preston No. 1	20-17C	84.0
16288	19123	15-39	Preston No. 2	20-18C1	9.0
16288	19123	15-39	Preston No. 2	20-18C2	26.0
7449	11674	15-39	Shotgun	20-19C	85.0
10208	21703	15-41	Limfjorden	20-20C	8.0
3251E	16805	15-41	Enl. Limfjorden	20-21C	16.0
13064	16802	15-41	Granger No. 2	20-22C	40.0
18721	22597	16-92	Store Aaen	20-23C	29.6
17239	19981	16-92	Kabbel	20-24C	16.0
5058E	22598	16-92	Enl. Kabbel	20-25C	8.2
6959	13539	16-92	Edno LeClair	20-26C	39.0

AMENDMENT - ADJUDICATED ACREAGE FINDING (Continued)

Permit Number	Proof Number	Photo Number	Ditch Name	Tract Number	Claimed Trust Acres
16665	19434	16-92	Jim No. 1	20-27C	22.0
16666	19565	16-92	Jim No. 2	20-28C	5.5
8914	13542	16-94	Calling	20-29C	76.0
3805E	16803	16-94	Enl. Calling	20-30C	4.0
3806E	16804	16-94	Enl. Calling	20-31C ₁	1.0
3806E	16804	16-94	Enl. Calling	20-31C ₂	1.0
3806E	16804	16-94	Enl. Calling	20-31C ₃	1.0
3806E	16804	16-94	Enl. Calling	20-31C ₄	2.0
12447	18388	16-94	West Fork Sheep Creek No. 2	20-32C	168.0
8540	11679	16-94	Nielson	20-33C	159.0
7675	11675	16-96	J.W.O.	20-34C	164.5
2821E	15379	16-96	Enl. J.W.O.	20-35C	14.0
9722	16147	16-96	R. W. Philburn	20-36C	73.2
9722	16147	17-81	R. W. Philburn	20-37C	85.4
9723	16465	17-81	W. W. Philburn	20-38C	49.3
8062	13537	17-81	Swanson	20-39C	123.0
2311E	14935	17-81	Enl. Swanson	20-40C	29.0
3276E	21701	17-81	Enl. Swanson	20-41C	32.0
4534E	21702	17-81	Enl. Swanson	20-42C	40.0
14149	14934	17-81	Reno	20-43C	14.0
15267	16806	17-81	Carl	20-44C	2.0
7669	13540	17-83	Owens	20-45C	106.0
1984E	19435	17-83	Enl. Owens	20-46C	38.0
16912	19286	17-85	O'Shea	20-47C	30.0
				TOTAL	2,901.2

AMENDMENT - ADJUDICATED ACREAGE FINDING (Continued)

Permit Number	Proof Number	Photo Number	Ditch Name	Tract Number	Claimed Trust Acres
12179	16411	14-53	Muddy Prairie Basin	21-1C	156.16
				TOTAL	156.16
6588	19830	12-148	North Fork No. 1	22-1C	38.5
6588	20736	12-148	North Fork No. 1	22-2C	247.8
6588	21000	12-148	North Fork No. 1	22-3C	125.6
6590	19144	13-106	North Fork No. 3	22-4C	40.9
6591	19145	13-106	North Fork No. 4	22-5C	32.5
				TOTAL	485.3
6583	18583	13-104	South Fork No. 1	23-1C	87.6
6583	18582	13-104	South Fork No. 1	23-2C	19.6
				TOTAL	107.2
13426	18567	12-144	North Fork Sage Creek No. 1	25-1C	102.4
16545	20738	12-146	Church No. 1	25-2C	28.0
16546	20739	12-146	Church No. 2	25-3C	45.0
16547	20740	12-146	Church No. 3	25-4C	31.0
				TOTAL	206.4
8913	14847	22-162	Fuller Brothers	30-1C	100.0
				TOTAL	100.0
16943	19153	15-19	McDowell	31-1C	13.0
7432	10929	16-116	Sioux	31-2C	120.0
3158E	16171	16-116	Enl. Sioux	31-3C	107.0

AMENDMENT - ADJUDICATED ACREAGE FINDING (Continued)

Permit Number	Proof Number	Photo Number	Ditch Name	Tract Number	Claimed Trust Acres
4554E	20049	16-116	Enl. Sioux	31-4C	80.0
				TOTAL	320.0
7528	15767	17-63	O'Neal	32-1C	40.0
				TOTAL	40.0
8721	11407	H5-266	Morrison and McConaughy	33-1C	111.3
8721	12985	H5-266	Morrison and McConaughy	33-2C	168.08
2187E	15388	H5-266	Enl. Morrison & McConaughy	33-3C ₁	318.5
2187E	15388	H5-266	Enl. Morrison & McConaughy	33-3C ₂	18.0
8623	15395	H5-266	Shoop	33-4C ₁	19.0
8623	15395	H5-266	Shoop	33-4C ₂	12.0
8623	15395	H5-266	Shoop	33-4C ₃	7.0
8623	14028	H5-266	Shoop	33-5C ₁	25.0
8623	14028	H5-266	Shoop	33-5C ₂	10.0
8623	14028	H5-266	Shoop	33-5C ₃	10.0
7426	10907	H5-266	Shoop Spring	33-6C	17.0
10126	15394	H5-266	Large	33-7C	267.0
11707	14032	H4-17	Typer No. 4	33-8C	64.0
6621 ****	14024	H4-17	Riggs	33-9C	27.0
9058	10906	H5-270	Typer No. 2	33-10C	32.0
				TOTAL	1,105.88
Terr.	3526	H5-264	Sliney and Mikkelson	34-1C	122.63
Terr.	3526	H6-225	Sliney and Mikkelson	34-2C	32.0

**** Permit Number 6621 should read 6221.

AMENDMENT - ADJUDICATED ACREAGE FINDING (Continued)

Permit Number	Proof Number	Photo Number	Ditch Name	Tract Number	Claimed Trust Acres
Terr.	3527	H5-264	Sliney and Mikkelson	34-3C	222.63
Terr.	3534	H6-225	Padlock	34-4C	224.35
2306	6271	H5-264	DeWitt	34-5C	17.0
4038	8350	H5-264	Sliney No. 1	34-6C	160.0
4038.	8351	H5-264	Sliney No. 1	34-7C	160.0
2125E	15024	H5-264	Rothwell Enlargement of Enl. Sliney No. 1	34-8C ₁	85.0
2125E	15024	H5-264	Rothwell Enlargement of Enl. Sliney No. 1	34-8C ₂	233.0
Terr.	3533	H5-264	Padlock	34-9C	252.0
Terr.	3534	H5-264	Padlock	34-10C	41.0
Terr.	3534	H6-223	Padlock	34-11C	285.44
2187E	11409	H5-264	Enl. Morrison & McConaughy	34-12C	20.43
2187E	15388	H5-264	Enl. Morrison & McConaughy	34-13C	312.28
2187E	15388	H5-266	Enl. Morrison & McConaughy	34-14C	54.7
8721	11407	H5-266	Morrison and McConaughy	34-15C ₁	21.0
8721	11407	H5-266	Morrison and McConaughy	34-15C ₂	21.0
8721	11408	H5-266	Morrison and McConaughy	34-16C	143.03
				TOTAL	2,407.49
10052	15042	H4-284	Bagley	35-1C	61.0
8869	12996	H4-284	McElwee	35-2C	74.0
10019	19118	H4-284	Robinson	35-3C ₁	53.0
10019	19118	H4-284	Robinson	35-3C ₂	12.0
6956	19117	H4-284	Duncans Mud Creek	35-4C	50.0

AMENDMENT. ADJUDICATED ACREAGE FINDING (Continued)

Permit Number	Proof Number	Photo Number	Ditch Name	Tract Number	Claimed Trust Acres
6956	19116	H4-284	Duncans Mud Creek	35-5C ₁	22.0
6956	19116	H4-284	Duncans Mud Creek	35-5C ₂	15.0
8486	18383	H4-284	A. L. Lydick	35-6C	67.0
13121	17398	H4-286	Ford No. 1	35-7C	138.0
3856E	17010	H4-286	Enl. Ford No. 1	35-8C	56.9
13122	17399	H4-286	Ford No. 2	35-9C	2.0
3857E	17011	H4-286	Enl. Ford No. 2	35-10C	7.6
14976	17009	H4-286	Steward	35-11C	10.2
8533	18384	H4-286	Wilson	35-12C	70.0
8063	10911	H4-288	Sherard	35-13C	17.5
7366	15393	H3-338	Foster	35-14C	98.0
				TOTAL	754.2
12877	15755	H4-15	Phlox Mt.	36-1C	70.5
14395	15754	H4-15	Red Creek	36-2C	4.9
9565	13536	H4-15	Rabenstein	36-3C	143.0
8131	11410	H4-15	North Side	36-4C	127.0
1810E	11411	H4-15	Enl. North Side	36-5C	15.0
13431	19564	H4-15	Finley	36-6C	10.9
				TOTAL	371.3
13409	20247	13-102	Driscoll No. 1	37-1C	28.2
13410	20185	13-102	Driscoll No. 2	37-2C	8.8
				TOTAL	37.0

Wyoming's Finding No. 2-1 - Relations with the Indians, p. 22.

The purpose of the Treaty with the Indians, like all treaties with the Indians, was to get them to give up vast areas of land and secure their promise to remain forever on a much smaller tract. In 1863, the United States was not concentrating its energy on promotion of western settlement; the United States was then engaged in a Civil War that threatened its very survival and the peace of the Indians on its flanks had to be secured.

The remainder of the findings in the 2 series deals with the water rights of non-Indians which are not in issue in these proceedings.

Wyoming's Findings Nos. 3-1 through 3-14 - Congressional Intent, pp. 68-184.

This argument is addressed by the United States in its response to the State's proposed conclusions of law. We would note that a treaty, unlike a statute, is an agreement between two parties and its intent is determined by the intent of the parties. The Senate ratifies treaties, but Congress as a body has no function in the treaty making power of the United States since the House of Representatives has no voice.

Wyoming's Findings Nos. 4-1 through 4-12 - Dates and Boundaries,
pp. 185-292.

The United States objects to further submissions by
the State on the issue of dates and boundaries.

MUNICIPAL

Wyoming's Finding No. 12-5 - Differences between positions, p. 536.

The "difficulties" of administering a dual water rights system could be reduced by negotiations possibly to assign the water rights of Indians living in Riverton to the city. Nevertheless, Indians living within the boundaries of the Reservation should not be denied a reserved water right for domestic purposes just because they live in Riverton. See United States' Br. p. 431.

Wyoming's Finding No. 12-6 - Differences between the United States and Wyoming for Fort Washakie, p. 538.

The United States and Wyoming agree on most of the daily per capita water use figures for the Reservation. The only disagreement is over that for Fort Washakie, where the United States' figure was 325 gallons per capita per day, while the Wyoming figure was 220 gallons per capita per day. The United States' figure is based on actual current water use, while the Wyoming figure is based on literature and data from other towns, adjusted for additional commercial development. Tr. 437, 486, 11616-17. Both the United States and Wyoming agree that Fort Washakie is different from other towns and that one would expect a higher water use than elsewhere. Tr. 440, 11617-18. Several possible explanations for the higher per resident water use in Fort Washakie were posed during the testimony: larger parcel size; proliferation of tribal, IHS and BIA facilities supporting employees who commute and who therefore are not included in Fort Washakie's population statistics; more than typical outdoor uses. Tr. 440, 447, 11618. But the fact is that these reasons are all just speculation and the heart of the dispute is that the 325 gallons per capita per day describes Fort Washakie's actual water use and the 220 gallons per capita per day is a normative calculation based on literature and other towns' experience.

Wyoming's Finding No. 12-7 - Court's Conclusions, p. 540.

The United States implicitly admitted nothing by not cross-examining Mr. Fassett. No cross-examination was conducted simply because Mr. Fassett accepted the evidence offered by the United States on almost every point - this is one subject area in the case that finds the United States and Wyoming in remarkably close agreement. Wyoming accepted all of Mr. Merchant's conclusions regarding the existing population, the distribution of the population, the growth rates of the population, municipal water sources, and per capita water use figures for the towns of Ethete, Arapahoe, Riverton, Pavillion, Boulder Flat and for the outlying population on private wells. Mr. Fassett differed from Mr. Merchant on only two points. One, Mr. Fassett felt that Indians in Riverton should not receive a reserved water right. Two, Mr. Fassett believed that the appropriate daily water use rate for Fort Washakie is 220 gallons per capita.

The question of whether Indians living on the Reservation but residing inside the jurisdiction of an incorporated town should receive a reserved water right to which they are otherwise entitled is clearly a legal issue that was not appropriate to debate with an engineer.

Mr. Fassett presented the court with a water use figure that was based on the literature and other towns' experience. This artificially constructed normative figure cannot challenge the validity of Fort Washakie's actual water use experience and the United States saw no reason to cross-examine Mr. Fassett on this point.

Wyoming's Finding No. 12-8 - Court's conclusions, p. 542.

The United States' presents its municipal water conclusion in United States Findings of Fact No. 616, on pp. 198-99. It should be noted that Wyoming's Proposed Findings of Fact No. 12-8, contains arithmetic errors in all three columns.

LIVESTOCK

Wyoming's Finding No. 13-5 - Court's findings, p. 544

Mr. Merchant relied for his estimate of the current numbers of cattle on the Reservation on the same source that is responsible for compiling the data that Dr. Carver relied on. Tr. 101-02. Mr. Harbour's direct testimony should be accorded more weight than any published records that might be misinterpreted. See United States' Proposed Findings of Fact Nos. 474, 475. United States' Br. pp. 415-16.

Wyoming's Finding No. 13-6 - Wildlife consumption, p. 556.

Although Wyoming states that Mr. Merchant did not document his source for the water use requirement of 15 gallons per head per day in fact the Transcript shows documentation on page 271. It should be noted that Dr. Carver's source for his estimate of 12 gallons per head per day speaks of "consumption" and does not account for any waste. Merck Veterinary Manual at 1283. Wyoming's Proposed Findings of Fact Nos. 13-5 and 13-6 state inconsistent findings for the 1980 cattle population on the Reservation: 18,560 (13-5) or 17,800 (13-6). The United States' figure of 25,000 head represents the current average cattle population, not just 1980. See United States' Br. pp. 415-16.

Wyoming misstates Mr. Merchant's source for his figure of 2 acres per stockpond. The source was the BIA Range Operations Officer, not HKM Associates. Tr. 389. The 2 acres per stockpond figure is the average over the year, not just the spring peak size. United States' Proposed Findings of Fact No. 485; United States' Br. pp. 415-20.

Wyoming's Finding No. 13-7 - Expansion of livestock operation,
p. 560.

Mr. Merchant's resume shows previous studies on three other Indian reservations that entailed analysis of the livestock industry. United States' Exhibit WRIR C-30.

Dr. Carver's own depreciation costs for buildings and corrals are only \$967, not a sufficient sum to have affected Mr. Merchant's conclusions as to the economic feasibility of expanding the livestock industry. United States' Exhibit WRIR C-16; Wyoming Exhibit LC-2.

The correct economic cost of grazing land in a livestock analysis is zero because there is no other opportunity for productive activity besides grazing. United States' Proposed Findings of Fact Nos. 478-83; United States' Br. pp. 415-17.

Wyoming's Finding No. 13-8 - Potential livestock operations, p. 563.

Mr. Merchant clearly and repeatedly stated that the summer rangeland could support a 50 percent increase in grazing. There was no confusion or misinterpretation in his testimony. Tr. 377-381; United States' Proposed Findings of Fact No. 477; United States' Br. pp. 415-17.

Wyoming's Finding No. 13-9 - Livestock operations, p. 565.

Mr. Merchant's approach of increasing water requirements in proportion to the increase in cattle number is reasonable and is supported by the fact that Dr. Carver's results indicate that he increases water requirements by 33 percent ($\frac{1000}{750}$) in response to a 25 percent increase in cattle numbers. United States' Proposed Findings of Fact Nos. 485-87; United States' Br. pp. 418-20; Wyoming's Proposed Findings of Fact.No. 13-8.

Wyoming's Finding No. 13-10 - Livestock water requirements, p. 567.

See United States Exhibit WRIR C-17; United States'
Proposed Interlocutory Decree, Article II, Section 2.

Wyoming's Finding No. 15-2 Arability, pp. 573-577.

- (1) Wyoming wrongly and unsupportably states that land is not irrigable if it is not proven to be arable. No case law requires that practicably irrigable acreage be arable under strict Bureau of Reclamation standards. The United States used arability, engineering and economics to firmly and undeniably show that land that had never been irrigated was, in fact, capable of supporting irrigation. For that land there is essentially no other way to establish that the land is irrigable.
- (2) There is a large quantity of privately irrigated land in the area that does not meet the Bureau of Reclamation arability criteria. This was clearly established through cross-examination of Mr. Sommers on the USBR Wind Division Report. United States Exhibit WRIR-CS-100.

Regarding the Popo Agie River Valley:

A land classification was begun as part of these investigations but it became evident, after covering about 70 percent of the area, that most of the irrigated land is of marginal quality and would not meet Bureau of Reclamation arability standards. In view of this condition, the surveys were thereafter limited to identification of irrigated lands and no further consideration was given in the studies.

Tr. 12477.

Regarding the LeClair-Riverton Area:

LeClair-Riverton Area. The LeClair Riverton Irrigation District operates the LeClair Canal, originally constructed by the Indian Service as one of the five units of the Wind River Irrigation Project, and privately constructed extension known as the Riverton Number 2 Canal. The latter roughly parallels Wyoming Number 2 Canal, which is at a lower elevation, and serves the strip of land lying between these two canals. The LeClair-Riverton Number 2 Canal closely follows a series of fans that extend from the broken residual uplands to the upper edges of terraces. Present irrigation totals approximately 11,850 acres, of which 6,830 acres were classified as arable under Bureau standards. Of the remaining irrigated land, 215 acres were designated Class 5D, 2,200 acres Class 4P, and 2,605 acres Class 6W. There is little or no opportunity for development of new land. It is anticipated, however, that the Class 5D land would be drained, as well as about one-third or 2,275 acres of the irrigated land of arable quality, to increase its productivity. (emphasis added.)
Tr. 12477-78.

MR. ECHOHAWK: Your Honor, just so the record is clear, Page 11 of that document, the upper - the first paragraph on that page, defines 4P, 5D, and 6W. It also, so the record is clear, indicates that that land has a vested water right. Tr. 12479.^{1/}

To require that all Indian land meet arability requirements, especially that under current irrigation, is both unfair and unreasonable. If land is irrigated it is irrigable.

- (3) Wyoming's strong reliance on the Bureau of Reclamation is both unreasonable, unwarranted and very telling regarding the expertise of their own experts. In the recent decision of Special Master Tuttle in Arizona v. California, United States Supreme Court, No. 8 Original (hereinafter Special Master Tuttle's Report) on two occasions he specifically stated that the irrigable acreage was not required to meet the Bureau of Reclamation standards. The first instance dealt with the sandy soils claimed by the United States. The State parties in that case contended that the soils must meet the Bureau of Reclamation standards for moisture holding capacity. Judge Tuttle noted that the Bureau standards

^{1/} Mr. Billstein testified that the assessment payments for water delivery had not been missed on these lands. Tr. 1816-17.

were "not an absolute requirement." Special Master Tuttle's Report, p. 128. There, Special Master Tuttle also noted that others have found that the USBR standards are not absolute limits and can be expanded or extended. Id. p. 129. Finally, Special Master Tuttle noted that the final blow was that there was successful agricultural development on land previously classified as non-arable by the State's expert, a former employee of the Bureau of Reclamation. Ibid. p. 130. Judge Tuttle called the USBR standards "unduly restrictive." Ibid. p. 130.

The second area that Special Master Tuttle found that the Bureau of Reclamation standards need not be followed was that of debt service on capital cost. There the Special Master ruled that the lands under consideration did not have to meet federal financing standards. Special Master Tuttle's Report, pp. 165-167.

- (4) Wyoming's reliance on the USBR definitions is very telling. Wyoming's own witnesses obviously did not have the requisite experience to formulate their own standards or definitions. However, if Wyoming is serious about relying on the USBR work, why didn't they call any witnesses from the Bureau? In this instance, the uncalled witness is important.

Wyoming's Finding No. 15-3 - BOR arable land class methodology, etc., pp. 578-594.

- (1) As previously indicated, the Indian irrigable acreage is not bound by Bureau of Reclamation standards. See United States' responses to Wyoming's Finding No. 15-3.
- (2) Wyoming's witnesses, Mr. Sommers and Mr. Fowkes, have no previous USBR experience and thus have no independent knowledge or experience with which to apply or evaluate the USBR information.
- (3) In performing land classification to ultimately determine practicably irrigable acreage, economics are not necessary. See Arizona v. California, Report of Special Master Tuttle, p. 130, note 23. The United States ultimately performed a very detailed economic analysis of the claimed acreage. See United States' Findings Nos. 292-391, pp. 105-135.
- (4) The USBR definition of arable lands is based on the family farm. Wyoming Brief, p. 588; Wyoming Exhibit WRIR-SK-4, section 1.2.1A. The proposed irrigation on the Wind River Reservation was analyzed as large Tribal enterprises (See United States' Finding No. 306, p. 110), and thus have a different economy of scale than an individual family farm. Thus, the USBR definition is irrelevant also.

Wyoming's Finding No. 15-4 - Climate affects arability, pp. 595-596.

- (1) Wyoming's total reliance on USBR, again, indicates that their witnesses lacked any knowledge on the subject.
- (2) The United States' agricultural engineer, Dr. Mesghinna, and economist, Mr. Dornbusch, both considered climate in accounting for water duty, water application, crop yields and crop selection. United States' Findings Nos. 105, 113, 295, 297, 299, pp. 46-51, 106-107.
- (3) Wyoming introduced no affirmative evidence of how climate specifically affected HKM's arability determination.

Wyoming's Finding No. 15-5 Arable land studies are important and must be intensive, pp. 597-605.

(1) Mr. Fowkes' assertion that the Wind River Reservation is geologically complex is not supported. We must remember that although Mr. Fowkes has many years of experience doing soil surveys, he does not have the proper background to relate geology to drainage engineering or the experience that results from deep drilling for drainage layouts that Mr. Toedter does. Mr. Fowkes made only very limited site specific study on the Indian lands in question and thus his assertions are just that -- unsupported assertions.

No State witness testified to nor conducted enough field work to determine whether the reservation was truly "geologically complex." This is the major premise upon which Wyoming builds the remainder of its attack regarding lack of intensity of the HKM study. The Special Master must not be led to believe that a fact exists (geologic complexity) unless that fact has been established. Mere bald assertions are insufficient. Thus, the State's basic premise fails.

Wyoming's reliance on Mr. Layman of the USBR is unper-
suasive. This illustrates that Mr. Fowkes did not have the required experience to make an independent judgment. If Wyoming chooses to rely on the USBR, they should have

called Mr. Layman as a witness. He was certainly available and within the Court's jurisdiction.

- (2) The State of Wyoming never established that the HKM ratio of holes per acre resulted in the land being non-arable. Absent specific showing that the land is non-arable, the State's complaints must be ignored. The question of intensity is also addressed in the United States' Brief in Support, pp. 322-324.
- (3) Before we enter much farther into Wyoming's Findings of Fact regarding Soil arability, we feel it important to examine how Special Master Tuttle handled the question of arability. On page 147-148 of his Report the Judge states:

The nature of this factual inquiry presents some very difficult obstacles to a factfinder. The broad issue is which side's evidence more fairly represents the actual character of these disputed tracts of lands. Any conclusion must rest on the testimony of the competing experts and the record exhibits. But the inquiry is such that precise findings are not possible. No Court can determine exactly the character of each square foot of this land. The acreage involved is considerable and the non-technical evidence presented offers only brief glimpses of the lands. From these bits and pieces I am afforded my only opportunity to test the broader opinions of these soils experts. Special Master Tuttle's Report, No. 8 Original, pp. 147-148.

Wyoming's Finding No. 15-6 Drainage is a regional problem, pp. 606-609.

- (1) The land classification performed by HKM under the direction of Messrs Kersich, Waples and Toedter was of sufficient intensity. Upon completion of the detailed and exhaustive studies performed by Dr. Mesghinna, Mr. Stetson and Mr. Dornbusch, the United States has shown that land to be able to support sustained irrigation at reasonable cost. The State of Wyoming has not even begun to demonstrate how HKM's study or Dr. Mesghinna's and Mr. Stetson's studies do not show the land to be incapable of sustaining irrigation. Absent some proof to the contrary, the Special Master is compelled to find in the United States' favor. (See United States' responses to Wyoming's Finding No. 15-5; Special Master Tuttle's Report, pp. 147-148.)
- (2) Inadequate preconstruction drainage investigation -- See United States' Brief in Support, pp. 304-305. For an average feasibility study, USBR required in 1980 1 to 2 borings or pits 3 meters (10 feet) deep per 250 hectares (640 acres). Wyoming Exhibit WRIR SK-5 and SW-30. HKM's study was at least as intense as these USBR requirements. See Wyoming's Finding No. 15-5.
- (3) The United States is not proposing that the proposed projects be built and then have the drains installed. Dr. Mesghinna clearly designed an abundance of drainage

to be installed at the outset. Dr. Mesghinna also designed a highly efficient closed pipe system to minimize delivery system losses. United States' Findings Nos. 105, 121, pp. 46, 56.

- (4) There can be no doubt that the HKM land classification standards are up-to-date. Mr. Kersich clearly stated that they were based upon the USBR 1977 standards in the area along with judgment and experience that he and those on his staff have derived from working around the country. Tr. 1134, 1442.

Wyoming's Finding No. 15-7 - Engineering, p. 1610.

The United States agrees with this finding if limited to the future projects, and the Type VII and VIII lands. Obviously no engineering analysis has to be done to determine if irrigation facilities can be designed to serve lands where lands are currently irrigated by an existing irrigation system or where lands have state adjudicated rights giving the lands a legally vested right to water.

Wyoming's Finding No. 15-8 - Nature of complete engineering analysis, p. 612.

The United States agrees with this finding if it is limited as set out in our comments on Wyoming's Finding No. 15-7, and further limited so as not to include lands within an existing irrigation project. Within existing irrigation project, the diversion requirement can be determined by analysis of the diversion records of the project.

Wyoming's Finding No. 15-9 - Economics, pp. 614-615.

The United States agrees with this finding if limited to the future projects, and the Type VII and Type VIII lands. Obviously, no engineering or economic analysis has to be done to determine if irrigation facilities can be designed to serve lands where they are currently irrigated by an existing irrigation system or where lands have state adjudicated rights giving the lands a legally vested right to water.

Wyoming's Finding No. 15-10 - Significance and relevancy of economics, pp. 616-619.

It is true that Special Master Tuttle stated on pages 94-96 of his report "that 'practicably irrigable,' as used by the parties and court in the prior proceedings, very nearly means 'economically feasible,'" he clearly did not make explicit proof of economic feasibility an absolute requirement.

(Emphasis added.) The Special Master herein should use sound and reasoned judgment in determining irrigable acreage and use actual irrigation and State water right certificates, as well as overt proof of economic feasibility.

The proof of feasibility as a part of irrigability is established by the showing of actual irrigation and/or the prima facie proof established by the acquisition of a state adjudicated water right certificate.

Wyoming's Finding No. 15-11 - Feasibility established by benefit-cost analysis, pp. 620-622.

The United States agrees that if limited to the future lands, Type VII and Type VIII lands, benefit cost ratios are an appropriate but not the only method of establishing economic feasibility.

Wyoming's Finding No. 15-12 - Contemporary standards used for feasibility determinations, pp. 623-624.

The United States agrees that contemporary standards should be used to evaluate practicably irrigable acreage, and not technology as of the date of reservation creation. We should also emphasize that we are not contending that these projects will ever actually be built or that they should be built. We are merely quantifying the water reserved for present and future uses for the reservation. Arizona v. California, 376 U.S. at 600.

We do not agree that explicit benefit cost analysis are the only way to establish reasonableness of cost. Expert testimony is not required to establish the obvious. Or put another way, you do not need expert testimony to establish that land is practicably irrigable when the land is or has been practicably irrigated.

Wyoming's Finding No. 15-14 - "PIA" - benefits exceed costs,
p. 636-637.

For previously unirrigated lands, proof of their irrigability should be established by showing that benefits received from irrigating the lands would exceed the cost to irrigate. However, for lands that are under current irrigation such explicit proof is unnecessary and can be clearly inferred from the actual irrigation absent proof to the contrary. For lands that have a state adjudicated water right, the fact that they have been irrigated, as certified by the State Board of Control, and that the lands have met the State procedural requirements, strongly implies that the benefits exceed the cost absent proof to the contrary.

Wyoming's Finding No. 15-16 - Discount Rate, pp. 642-645.

Wyoming criticized Mr. Dornbusch for determining and using a discount rate of 4 percent when he had begun his analysis using a rate of 7 1/8 percent, citing Mr. Dornbusch's testimony regarding standard operating procedure when applying the discount rate recommended by the Water Resources Council (WRC). The criticism attempts to use a principle taken out of context. The reason for concern about whether to change the rate used during the course of an analysis in which the WRC rate is applied is that the WRC periodically changes the recommended rate. Since the WRC recommended rate may be changed during an analysis, the WRC simply suggests that the analysis not be revised whenever they suggest a new rate.

The principle would apply only if an analyst intended to accept the WRC rate without question. However, the discount rate recommended by the WRC is an inappropriate rate. Tr. 5083 and United States Exhibit C-275. Mr. Dornbusch stated that at the time he used the 7 1/8 percent in his analysis, he was aware, "it was not the real rate" and "that the real rate was lower." Tr. 6071, lines 18-19.

Simply because Mr. Dornbusch began his analysis using the 7 1/8 percent rate (along with a number of other rates) until he was able to determine the proper rate to apply is not a sensible reason for ultimately using the rate if, as he and Dr. Goldfeld later determined, the proper discount rate is 4 percent or less. United States' Proposed Findings of Fact, Conclusions of Law, pp. 112 and 312 and Brief in Support, pp. 395-402.

Wyoming's Finding No. 15-18 - Real Rate of Return as Discount Rate, pp. 648-649.

Two points are made in this section. First, that the "appropriate discount rate should be based upon the real rate of return to capital in various sectors of the American economy." And second, that not one rate, but a range of rates is appropriate.

Both of these points are adequately addressed in the United States' Proposed Findings of Fact, pp. 112-113, 312-315 and Brief, pp. 395-402.

Wyoming's Finding No. 15-19 - Using a range of discount rates, pp. 650-651.

It is imprudent and unduly restrictive to require that economic feasibility for previously unirrigated lands be proven over a range of discount rates spanning 4 percent to 7 1/8 percent. The Special Master must examine the evidence and decide which single rate is the most correct to use, and then apply that rate. The United States through Dr. Goldfeld and Mr. Dornbusch, with support from Dr. Cummings clearly established that the proper rate to apply is 2 1/2 percent and not over 4 percent. The United States' future projects are feasible at either rate.

Wyoming's Finding Nos. 15-20 - Marginal Cost of Capital, pp. 652-654.

Although Dr. Goldfeld did admit that there is no empirical data which specifies what the precise marginal return to capital is, he clearly stated that the marginal return is less than the average return, "perhaps as much as half or a third of the average return" and that it is the marginal return that is the appropriate rate to use in determining the opportunity costs of capital. Tr. 15505, lines 16-24; p. 15506, lines 1-6. Further discussion on this point can be found in the United States' Br., pp. 395-402.

Wyoming states that Dr. Goldfeld "contradicts the approach taken by the other United States' witness, Mr. Dornbusch, who testified that he used average rates of return to capital in establishing his range of discount rates." (Emphasis added.) The State cites transcript page 5084 as evidence of this assertion. However, Mr. Dornbusch did not use average rates in determining his discount rate, and nowhere on Transcript page 5084 (or anywhere else in his testimony) did Mr. Dornbusch state that he used average rates. In fact, Transcript page 5084 clearly indicates that other eminent economists, along with Dr. Goldfeld, feel that the appropriate discount rate is in the range of 2 to 4 percent. Among those economists is Dale Jorgenson, one of the co-authors of the article which Dr. Brookshire cites as his sole basis for selecting the rates of 4 to 11 percent.

Wyoming's Finding Nos. 15-21 - Selection of a Range of Discount Rates, pp. 655-657.

The State suggests that "it would be unwise of the Court to make" its decision "based upon one arbitrarily selected discount rate." However, the 4 percent discount rate was used only after careful analysis by the United States' economist, Mr. Dornbusch. Furthermore, that rate was substantiated by additional analysis by Dr. Goldfeld. See United States' Proposed Findings of Fact, pp. 112 and 312 and Brief, pp. 395-402. Its selection was hardly arbitrary.

The State suggests that a range of rates ought to be used simply because people disagree over the particular rate that should be used. The United States agrees that credible and valid analyses of the discount rate do indicate that the correct rate falls within a range, but asserts that range is 1 to 4 percent. There is no disagreement over the fact that the lower the rate that is used, the higher would be the benefit-cost ratios for the project studied. Therefore, by using a discount rate of 4 percent, the benefit-cost ratios are lower than they would be if a lower rate were to be used.

Dr. Goldfeld showed why Dr. Brookshire (for the State) estimated an improper range (Tr. 15557), corroborated Mr. Dornbusch's determination of a 2 to 4 percent range (Tr. 5049) by concluding that a more appropriate range is 1 to 4 percent (Tr. 15517-18), and strongly asserted that one rate should be used and in his opinion the best single sensible number would be 2 1/2 percent. Tr. 15518, See United States' Brief in Support pp. 395-402.

Wyoming's Finding Nos. 15-22 - Higher Discount Rates are More Appropriate, pp. 658-660.

The points raised in this section have all but one been addressed in the United States' response to the arguments presented in the State's sections 15-16 through 15-21.

The one point not covered in those sections is raised in the second paragraph of page 658, that "discount rates at the lower end of this range" (that is 4 percent) "are more consistent with the point of view that the average return to capital in our economy has not been high in recent years".

First, the use of a 4 percent discount rate derives from the real marginal rate of return to capital, not the average rate of return to capital - whether the State is referring to the average nominal or average real rate is unclear. Presumably the State is referring to the average real rate since both the State and the United States agree that it is the real rate that is relevant for determining the discount rate here.

Second, as the Fraumeni and Jorgenson article (used exclusively by Dr. Brookshire to estimate the discount rate) states on page 329, "own-rates of return" (that is, real rates of return for the U.S. economy) "for the most recent subperiod, 1973-76, are about average by postwar standards", and that their findings are consistent with those of other relevant studies.

While the State's point is both wrong and not directly relevant to the issue (it was not referenced and presumably not asserted by any of the State's witnesses), it may conjure up a feeling that somehow a 4 percent or lower discount rate just

doesn't fit with prevailing high prime rates of interest. In fact, it does conform with those rates since the 4 percent rate is a real rate, that is, it has expected inflation removed. And all parties agree that it is the real rate and not the nominal rate (with inflation included) that should be applied.

Finally, as we have pointed out previously, the "discount rate" used in Arizona v. California was not a "real" rate. That is, it was not net of inflation. This concept was, however, agreed upon by all economists in this case. See United States' Findings No. 311, pp. 111, 112; United States' Brief in Support, p. 395.

Wyoming's Finding Nos. 15-23 - PIA Requires that Benefits Exceed Costs at Discount Rates Ranging from 4% to 7 1/8%, pp. 661-662.

The argument here requires the Court to accept the validity of using a discount rate greater than 4 percent. This issue has been adequately addressed in the United States' response to State Brief sections 15-16 through 15-22 and the United States' Findings of Fact and Brief, pp. 112, and 395-402.

The State's suggestion that "the Court can easily resolve its dilemma concerning the appropriate discount rate to use" requires the Court to determine that the State's and United States' determinations of a discount rate are equally valid - which the United States asserts is not the case. The United States asserts that the appropriate discount rate is 4 percent or less.

Wyoming's Finding No. 15-24 - Water availability important PIA component, p. 663.

The State of Wyoming did not agree that water availability is an important component in determining practicably irrigable lands. In its yellow pages in support of this finding the State claims that Mr. Christopolous, Mr. Rice and Mr. Fassett presented evidence on behalf of the State which ". . . addressed the availability of water to serve lands claimed to be practicably irrigable." This is not a true statement.

Mr. Fassett's testimony had nothing to do with availability of water to serve lands claimed to be practicable irrigable. Mr. Fassett's testimony dealt with water availability to serve some of the non-Indian claimants who base their claims, not on the ground that their lands are practicably irrigable, but on the ground that they some license by the State of Wyoming to divert water. Mr. Fassett's model did purport to show that there was not enough water to serve the non-Indian claims for rights but it had nothing to do with whether there is sufficient water to serve the practicably irrigable acres on the Reservation.

Wyoming's Finding No. 15-25 - Water short areas, p. 665.

In this proposed finding the State argues that lands in "areas determined to be significantly water short cannot properly be classified as practicably irrigable." Nothing from the record in this case is cited in the yellow pages in support of this proposed finding.

The proposed finding is tommyrot. The lay witnesses at Worland testified that in water short drainages they can operate self sufficient and economical agricultural operations if the priority date of their water right is early enough. In particular the testimony of Carl Duane Rush, Langford Keith and Maurice Allen, which is cited on pages 376-378 of the United States' April 7 submission clearly shows that agriculturists in a water short area do practice sustained irrigation and do make money. They all testified however that if they had no right to take water after mid-July and if that right was further curtailed by 70 percent they could not irrigate economically. It was, of course, Mr. Bishop who proposed such curtailments.

Wyoming's Finding No. 15-26 - Water availability essential to

"PIA," p. 667.

The United States did perform a systems operation study to determine water supply. The yellow sheet that accompanies this proposed finding implies that the State of Wyoming's consultants performed a system operation study to determine water supply for practicably irrigable acres; there was no such study done by the State's consultants. Mr. Fassett's study was to determine whether there was sufficient water supply to serve the non-Indian claims, not the Indian claims, and it therefore had nothing to do with practicably irrigable acres and made no findings regarding the supply of water available to serve the agricultural claims of the United States. The yellow sheet also states that all parties criticized their opponents' analysis. This is not a true statement for Mr. Fassett and the State offered no criticism of the United States systems operation study and, indeed, disclaimed any intent to do so.

Wyoming's Finding No. 15-27 - Criteria to be satisfied for a determination of "PIA," pp. 669-70.

The United States agrees that for the future lands, the Type VII and Type VIII lands, the lands should be, and have been shown to be, arable, engineeringly and economically feasible, with a reasonable water supply.

Wyoming's Finding No. 17-1 - United States' testimony re:
arable future lands, p. 676.

The United States does not feel it is appropriate or professional for the State of Wyoming to reserve the right to submit additional proposed findings, particularly in light of the State's admission that it has intentionally omitted findings from its April 9 submission.

Wyoming's Finding No. 18-1 - United States' testimony re: arable
future lands, p. 677.

No citation to any portion of the record is found in the yellow
sheet to support the second sentence of the proposed finding.

- (1) See United States' Findings Nos. 18 and 32, pp. 22, 27.
- (2) It is interesting to note that Wyoming attempts to mount a vigorous attack on Messrs Kersich and Toedter, both agricultural engineers and the latter a drainage engineer as well. Both gentlemen have a great deal of experience.

Mr. Kersich has worked on Indian reservations throughout the west, and has provided expert witness testimony in the case of Arizona v. California. Mr. Kersich gave testimony during that trial concerning the determination of irrigability. Tr. 1101. Further, Mr. Kersich reviewed soils work performed by another consultant, and helped set up a supplemental soils program to acquire more soils data for agricultural design purposes. Tr. 1111-13. Mr. Kersich is qualified to make arability determinations based on interrelationship between soils parameters and engineering design criteria. Tr. 1115-16.

Mr. Toedter is a very qualified drainage engineer, and the only one to testify in the entire litigation. Mr. Toedter gained experience with USBR presently irrigated and future lands in North Dakota spending a great deal of time in the field. Tr. 3709-10. Mr. Toedter worked in Washington State doing drainage investigations in the field, designing drain layouts, and supervising the

construction of the drains. Tr. 3711-16. Since joining HKM Associates, Mr. Toedter has performed drainage investigations in Montana, Wyoming, North Dakota, and New Mexico. Tr. 3708. The State of Wyoming recognizes that Mr. Toedter is a competent drainage engineer as so stated by Mr. Sommers during his direct testimony. Tr. 10875. The State of Wyoming obviously did not have anyone possessing these qualifications and thus they must object to cover their own shortcomings.

Wyoming's Finding No. 18-3 Deficiencies in analysis by United States' consulting firm, pp. 684-696.

- (1) As we have stated in response to previous findings, there is no absolute requirement that the Bureau of Reclamation standards or definitions be followed. See Arizona v. California, Report of Special Master Tuttle, pp. 128-132. In Arizona v. California, there were no explicit economics considered in the land classification. Report of Special Master Tuttle, p. 130, note 23.
- (2) Wyoming's contention that HKM's depth to barrier standard for the Wind River Reservation was different than what they used on the Crow Reservation in Montana is utterly contemptuous. The Special Master ruled that the State of Wyoming was not entitled to that information and thus their Request for Production was denied on the grounds of relevancy and privilege. For them to assert a fact from material that they were never given access to denies all reason and credibility.
- (3) On page 694 of their brief Wyoming states that Mr. Sommers "prefers" a minimum depth to barrier standard of 7 feet for the Wind River Indian Reservation. The Special Master must recognize that Mr. Sommers is not entitled by educational background or previous work experience to have a "preference." The HKM depth to

barrier' is based upon sound judgment, a detailed analysis and consultation with the Bureau of Reclamation. Tr. 1476-1480.

- (4) On page 693 of Wyoming's brief they state that Jack Christopher from the USBR prefers an 8 foot depth to barrier. This should be contrasted with transcript pages 1476-1480 wherein an HKM telephone memo shows that, in fact, Mr. Christopher stated 6 to 8 feet.
- (5) Wyoming's assertion on page 693 of its brief that Mr. Toedter said that if the drainage cost were considered a project cost rather than an on-farm cost, the land classification would change by one or two classes is simply untrue. Mr. White attempted to get that answer but when he was precluded, he had to make an offer of proof. Tr. 3897-3903 and 3908-3910. The Special Master, of course, cannot consider Mr. White's offer as evidence.
- (6) Nothing in this case, except for lack of experience, precluded Mr. Sommers from formulating and then applying his own land classification standards to the HKM and USBR soil logs and laboratory information. Mr. Sommers' failure to do so precludes the State from effectively challenging the HKM standards and the results obtained from using them. There is nothing in the record to show that the result would have been any different. See United States' responses to Wyoming's Finding No. 15-5(3); Special Master Tuttle's Report, pp. 147-148.

Wyoming's Finding No. 18-4 Insufficient study intensity by United States' consulting firm, p. 697.

- (1) Wyoming can never be satisfied. On page 697 they complain that the HKM study does not meet the USBR "semi-detailed" study requirements. Presumably, the HKM drainage investigation was of sufficient intensity for a "semi-detailed" study but then they assert it was not sufficient to meet a "detailed" examination. This logic and approach adds nothing to the overall evaluation of practicably irrigable acreage. On page 698 of Wyoming's brief they do not take issue with HKM's assertion that they met the USBR semi-detailed requirements.
- (2) There is no absolute requirement of a hole in each parcel. See United States' Brief in Support, pp. 317-322. The HKM classifiers had more than sufficient experience to make a proper classification. See United States' Brief in Support, p. 309.
- (3) Wyoming's contention that the HKM holes must all be 6 feet is ridiculous. Mr. Sommers' allegations that the 6 foot holes were required to give information regarding root zone is not supported by his own testimony. On pages 11102-11103, Mr. Sommers indicated that the root zone was only 4 1/2 feet in depth. The Bureau of Reclamation does not even require land classification holes greater than 5 feet. See United States' Brief in Support, p. 315.

(4) Wyoming's complaint regarding intensity of the United States' land classification study has been discussed herein and is also discussed in the United States' Brief in Support, pp. 314-324. Furthermore Wyoming sometimes misstates the evidence when it appears to suit their end. In several instances Wyoming (Brief p. 708) totally misrepresents the data upon which Mr. Toedter basis his conclusions upon depth to barrier and hydraulic conductivity. An example is in the Riverton East Unit. Wyoming claims that hole 75A is used to make a drainage judgment in Area 3. In fact, there is no hole 75A in the Riverton East Area. Instead, hole 95A provides the proper information for Area 3. United States Exhibit WRIR C-233A. There is an obvious typographical error in United States Exhibit WRIR C-241A.

Another example of misrepresentation of data is found in the Arapahoe Unit. The hole relied upon by Mr. Toedter to formulate his opinion on Area 11 is in the same land form as the arable lands in question. United States Exhibit WRIR C-234 A, when it is compared with United States Exhibit WRIR C-233 A, which is Mr. Toedter's actual work map.

Wyoming's Finding No. 18-5 Drain Spacing, pp. 702-703.

The bottom line of the United States' determination of irrigability is that the land claimed is economically feasible to irrigate. All required irrigation and drainage systems have been designed and the associated costs have been accounted for. United States Exhibits WRIR C-245, WRIR C-277; Wyoming Exhibit HS-12. The land should not be excluded on the basis of implicit economic guidelines contained within the land class standards. Lands were required to meet a 200 foot minimum drain spacing. However, a small number of tracts were determined to have a drain spacing somewhat below 200 feet and were pointed out to the agricultural engineer and economist for their further analysis. United States Exhibit WRIR C-231. These isolated lands were found to be economically feasible to irrigate.

It matters little if a small number of fields require drains spaced closer than the 200 foot minimum, provided there are good engineering reasons to include them, and provided that the overall project can pay the additional costs.

The areas questioned by Wyoming correctly illustrate how the land classifiers note potential drainage problems for further consideration by the engineer and the economists. Tr. 1322, 1469, 1531, 1684. Specific deficiencies were overcome by additional economically feasible drainage.

Wyoming's Finding No. 18-6 Deficiencies in drainage analysis,
pp. 704-715.

- (1) Wyoming's assertion that HKM used different drainage standards on the Crow Reservation is improper. It was never established what standards HKM used there because the Special Master ruled that the material was not relevant or subject to discovery.
- (2) Wyoming does not cite any authority for the assertion that "lands within a given study area should be relatively uniform throughout" or that "lands within a given study area should contain certain similar land forms and soils." Wyoming Brief, page 706.
- (3) Wyoming's brief, page 709, states that North Crowheart area 27 contains holes with depth to barrier ranging from 5 to 32 feet, and weighted hydraulic conductivity ranging from 0.13 to 13.8 inches per hour. (Citing Tr. 3799-3800.) There is no such information on those pages.
- (4) On pages 707-714 of Wyoming's brief they argue that the data does not support Mr. Toedter's conclusions. Wyoming's assertions are obviously based on various manipulations of the data by their unqualified experts and in total disregard for the method employed by Mr. Toedter. Mr. Toedter stated that the HKM data was more reliable overall than USBR and by using that data, the hydraulic conductivities would be lower. Tr. 3846, 3782, 3851-55.

He also considered land forms and soil textures in the area. Tr. 3786. Mr. Toedter did not rely on all of the Bureau of Reclamation data because their conclusions regarding hydraulic conductivity were suspect. Tr. 3852-3853. Mr. Toedter evaluated each hole and associated barrier and hydraulic conductivity on a case-by-case basis. Tr. 3784. He did not totally ignore the holes that had very shallow barriers or low hydraulic conductivities Tr. 3871-3872. One of Mr. Toedter's concerns was whether the holes that he did use were in a representative land form. It must also be noted that there were other holes with greater depths to barrier and hydraulic conductivities that were not used in Mr. Toedter's analysis. Tr. 3886. Mr. Toedter used a conservative approach.

- (5) On page 713 of Wyoming's brief there is a list which purports to show holes that Mr. Toedter did not rely on. There is no indication that these holes are located in a relevant position to the areas under consideration.

Wyoming's Finding No. 18-7 State's Experts, pp. 716-720.

This subject is covered in the United States' Findings of Fact, No. 91-94, p. 43 and Brief in Support, pp. 301-307.

- (1) Although soils scientists are capable of providing information to a drainage engineer, they are not competent to evaluate the data regarding hydraulic conductivity and depth to barrier. Wyoming's Brief, p. 718. The United States' arability determinations involved agricultural engineers, soils scientists, land classifiers and drainage engineers. Mr. Sommers and Mr. Fowkes cannot do what they are not qualified for.

Wyoming's Findings 18-8 Findings by State's experts re: arable lands.

- (1) The State's finding contends that the United States has the burden of proof to show that the lands are arable and that, therefore, Mr. Sommers was entitled to evaluate HKM's arable land base and, depending upon the sufficiency of evidence or lack thereof, to make conclusions regarding arability.
- (2) Mr. Sommers was not entitled to evaluate the HKM work. Wyoming failed in their proof to make a determination of arability independently. Once the United States had proven its case regarding arability, the burden then shifted to the State of Wyoming. See United States' response to Finding No. 15-5(3); Special Master Tuttle's Report, pp. 147-148. It is irrelevant whether Mr. Sommers decided whether the HKM information was totally verifiable or reproduceable in the office. This approach does not take into consideration the independent judgment of the land classifier in the field. Page 725 indicates that land was included or excluded from the arable land base depending upon the sufficiency of the evidence. It is not up to Mr. Sommers to evaluate the sufficiency of the evidence, that is for the Special Master to do. It is incumbent upon the State of Wyoming, once the burden has shifted, to prove that, in fact, the lands claimed to be arable by the United States are non-arable. Absent such proof, the United States' determination is controlling.

- (3) The State notes in its brief, page 722, that Mr. Sommers evaluated soils data of concern to drainage engineering. Mr. Sommers quite clearly stated at trial that he was not a drainage engineer, therefore, Mr. Sommers' evaluation of this data is invalid.
- (4) On page 722 of Wyoming's brief, they also state that the reason Mr. Sommers did not do a different analysis for gravity and sprinkler land is that he felt that those systems were suited for the same lands. This misconception clearly shows Mr. Sommers' lack of understanding and experience with irrigated agriculture and Wyoming's need for the assistance of an agricultural engineer. Mr. Kersich, one of the United States' agricultural engineers, clearly explained that there was a difference in land classification when considering sprinkler or gravity irrigation. Tr. 1316-1317.
- (5) On page 723 of Wyoming's brief, they set forth what they term the State's experts' "preferred" definition of arability. Upon a review of the transcript, the United States finds that this definition does not appear anywhere in the testimony. It is too late for the State to be proposing new definitions.
- (6) Page 724 of Wyoming's brief indicates that Mr. Sommers reviewed published studies and various references of the Bureau of Reclamation for educational purposes. It

must be shown that the majority of Wyoming's findings and brief rely strictly on the U.S. Bureau of Reclamation information. This clearly illustrates that it is not Mr. Sommers' expertise upon which they are relying. If the State of Wyoming feels that the Bureau of Reclamation is the proper way to go, they should have called someone from the Bureau of Reclamation as a witness. They were clearly entitled to do so.

- (7) Page 724 of Wyoming's brief indicates that, although Mr. Sommers considered the HKM standards inappropriate, he implicitly used HKM standards and definitions to evaluate the HKM arable lands. It must be pointed out that Mr. Sommers, at trial, did not state he implicitly used the HKM standards but that he explicitly used them. Tr. 10967.
- (8) Wyoming's statement, on page 724, that there was inadequate information to apply more rigorous standards and definitions is simply untrue. Wyoming had the raw data, the soil logs and laboratory information and if they were able to apply the HKM standards, they could have quite easily applied any other standards. It is ludicrous to contend that by using the HKM standards and definitions the State gave the United States the benefit of the doubt in evaluating arable land determinations. If this were the case, where HKM had made arable determinations, Wyoming would have left those intact unless specifically shown to be non-arable.

- (9) Page 725, Wyoming contends that Bureau of Reclamation arability determinations were more reliable because they had site specific standards. Wyoming totally ignores the fact that HKM developed their standards on a site specific basis also. See United States' Findings Nos. 20 and 22, pp. 23-24.
- (10) Page 725 of Wyoming's brief hints that they were denied a proper opportunity to perform their soil study. The Special Master cleared that point up and Mr. Sommers agreed that the time was sufficient.

THE SPECIAL MASTER: Yeah, yeah. I just don't want to leave the inference that you're making the conclusions you are because you didn't have time to drill more holes or time to do this or that.

THE WITNESS: No, the time in 1981 essentially helped, and I wish we could have dug a few more holes, but that's water under the bridge.
(Tr. 11128)

- (11) Page 727, Wyoming states that they also deleted arable land which they considered to be fee or government land. It was not up to Mr. Sommers to make that determination, his was strictly an arability determination. The data that he relied upon to exclude fee or government land was not the official title documents introduced by the United States. United States Exhibit WRIR C-317.
- (12) Mr. Sommers' allegation that 6 foot holes were required to give information regarding root zone is not supported by his own testimony. On pages 11102-11103, Mr. Sommers

indicated that the root zone was only 4 1/2 feet in depth. He did not evaluate the soil using that proper criteria. Mr. Sommers obviously missed the distinction between land classification holes and drainage holes. See United States' Finding No. 27, p. 25.

- (13) Page 727 of Wyoming's brief clearly illustrates the faults in Mr. Sommers' analysis. Wyoming states that one rationale for excluding land was that there was insufficient information to conclude that they were arable. This totally ignores the land classifier's judgment.
- (14) Page 728 of Wyoming's brief gives totals of acres classified that have no logged holes or no logged holes within the parcels. This is an illogical criteria in that it ignores the fact that it is common practice to classify lands by using holes in the area which may be near the parcel. It further ignores the fact that certain parcels may be delineated on the maps due to topographic reasons which do not require an additional hole. See United States' Brief in Support, pp. 317-322.

- (1) Wyoming's assertion on page 732 of their brief that Mr. Toedter was unable to make conclusions about certain lands that Mr. Kersich testified to is untrue. The record (Tr. 3827-3831) clearly indicates that Mr. Toedter's conclusions were correct and that there was sufficient basis for Mr. Kersich's testimony.

Wyoming's Finding No. 18-10 - Flaws in U.S.'s claims for future arable lands, pp. 735-740.

- (1) On page 738 of their brief, Wyoming indicates that Mr. Kersich agreed that there was fee land contained within certain portions of the area classified. Mr. Kersich did not agree that, in fact, the land was fee, only that the map upon which he was cross-examined indicated that such was the case. Wyoming has made no showing, based upon the official Bureau of Indian Affairs title records, which is United States Exhibit WRIR-C-317, that there is, in fact, fee land included in any of the lands claimed by the United States.
- (2) Wyoming's representation, on page 739 of their brief, that HKM could have only relied upon Bureau of Reclamation arable land investigations for 30,745 acres of which HKM and Reclamation agree is not true. HKM utilized all of the Bureau of Reclamation data. The fact that Reclamation may have indicated certain land was non-arable is of no consequence because HKM evaluated the land for both sprinkler and gravity irrigation, while the Bureau only classified the land for gravity irrigation.
- (3) We must note, in regard to page 739 and 740 of Wyoming's brief, that the only evidence regarding arability of the future projects is that which was introduced by the United States. Wyoming made no conclusive determination of non-arability, therefore, the United States' determination must prevail. See United States' response to Wyoming Finding 15-3(3); Special Master Tuttle's Report, pp. 147-148.

Wyoming's Finding No. 18-11 - Findings re: arable acres within future projects, pp. 741-742.

The Court cannot adopt Wyoming's conclusions in that (1) they are not supported by field work; (2) there was no adequate determination of non-arability to cause the exclusion of the additional acres classified as arable by HKM. See United States' response to Wyoming's Finding No. 15-5(3); Special Master Tuttle's Report, pp. 147-148.

Wyoming's Finding No. 18-12 - United States' engineering expert for proposed irrigation projects, p. 743.

The second sentence of this finding neglects to state that the State of Wyoming had no objection to the credentials of Dr. Mesghinna and did not oppose his testifying as an expert. United States' Finding No. 95, p. 44.

It should also be noted that none of the State's witnesses had ever designed irrigation projects in the State of Wyoming or any place else in the country. No one who testified on behalf of the State had ever determined net irrigation requirements, consumptive use, water duties or diversion requirements in Wyoming or any place else in the world.

Mr. Sostrom testified that Banner Associates is not in the business of designing irrigation systems and would not do so if requested. Tr. 12605-06, 13472.

Wyoming's Finding No. 18-14 - Wyoming's engineering experts, p. 722.

Mr. Sostrom was allowed to testify as an expert only in two areas 1) design and construction of roads through irrigation systems and 2) photographs interpretation. Tr. 12610. Mr. Bishop was admitted as an expert in water resouces engineering although he was unable to define what water resources engineering is. There is no testimony in the record that Mr. Bishop has "an extensive background in determining water requirements for irrigated lands in Wyoming." He certainly does not have such qualifications as a result of his "working experience" since Banner Associates does not design irrigation systems. The post of Wyoming State Engineer does not demand that one determine water requirements since the amount of water a state water right holder can divert is determined by state statute not by the State Engineer. As noted by a comparision between Mr. Christopolous' testimony and that of the witnesses in Worland, a State Engineer has no idea what people actually divert.

Finally, Mr. Bishop did not determine water requirements for one acre of land on the Reservation. All water requirements developed for the State of Wyoming's case were developed by Mr. Sostrom. Wyoming Exhibit HSO-1. Mr. Sostrom has no experience in determining water requirements.

Wyoming's Finding No. 18-15 - United States' conclusions re:
acreage water duties, and costs of proposed projects, p. 749.

The figures set out in these findings are not the figures testified to by Dr. Mesghinna. The yellow sheet states that fields 46 and 49 through 56 in the Riverton East project were excluded by Dr. Mesghinna on cross-examination. They were restored on re-direct examination.

Wyoming's Finding Nos. 18-16 Court reduces acreage within future projects based on Wyoming's arable land base determination, pp. 751-753.

(1) On page 752 of Wyoming's brief they indicate that the arable base used by Dr. Mesghinna was not the same as that testified to by Mr. Kersich. An examination of the aerial photos (United States Exhibits WRIR C-148-17 and 18, for Riverton East and WRIR C-148-30 for Arapahoe Ranch) and of the tabulation sheets (Wyoming Exhibit WRIR-SK-53) clearly shows that the acreage in Riverton East and the Arapahoe Ranch or Owl Creek area are included. The maps for Owl Creek and Riverton East are in accord with Dr. Mesghinna's work. Tr. 5702, 4878. The arable acreage is still there and accounted for in the HKM totals. See United States' Finding of Fact No. 39, pp. 28-29. The aerial photos, which are the actual worksheets prevail. Tr. 5705-08.

(2) Wyoming's assertion that Dr. Mesghinna's fields contain non-arable land in the percentages shown on page 752 of their brief is misleading. Dr. Mesghinna testified that some non-arable inclusion was unavoidable in the squaring-off process. See United States' Brief in Support, p. 338, note 14.

The percentages shown are irrelevant; the real concern should be whether any non-arable land was added to the fields other than to "square-off." The percentages on page 752 are not representative of actual content of Class 6 land.

The four problems noted in the State's yellow pages in support of this finding are not problems at all. The first problem area was taken care of on re-direct examination of Dr. Mesghinna. The second area - inclusion of small pieces of class 6 lands in the on-farm system design was fully explained by Dr. Mesghinna. These are small chunks of land which will receive water as the on-farm system passes over them. They are part of the water requirements of the entire field since farmers do not run out and stick their fingers in sprinklers as they pass over a nit size piece of class 6 land. The third problem, "lands not held in trust for the Tribes" relates to lands which the United States owns in trust for individual Indians. With regard to topographical problems, Mr. Sostrom testified that in the entire future project area, he could find only 16.5 acres that he thought were non-arable.

The first full paragraph on yellow sheet 753 is inaccurate. Sostrom did not testify that FSO 2A through 26 and HSO-3 were maps and tabulations prepared by him that indicated those acres of the United States' five proposed projects which fall within the State's arable land lease. He testified that they were exhibits showing potential problem areas.

On page 13277 of the transcript, Mr. White asked Mr. Sostrom to identify FSO 2A, 2B, 2C, 2D, 2E and 2F. Mr. Sostrom, on page 13728 of the transcript, stated that these were maps showing "potential problems areas." These "potential problem areas" had not been visted by Mr. Sostrom. Tr. 13278. FSO 2C is a map of the proposed Riverton East future project lands. Riverton East was the only area Mr. Sostrom ever visted. Tr. 13284. Only 16.5 acres were stricken from Riverton East. Tr. 13442.

On voir dire of Exhibits FSO-2A, 2B, 2C, 2D, 2E, 2F and 2G, Mr. Sostrom stated.

The map portrays the general areas as described by HKM as a particular class. I am trying to attempt to point out that more information is really needed to be obtained before someone can state this is a designed irrigation sytem which will claim a water right forever and ever. My emphasis, I want to point out, is that this is a feasibility level study, and in this study there are some potential problems that need to be looked at prior to the next level of study. I have pointed out some potential problems here. Tr. 13399.

With regard to these exhibits, in ruling on the objections to their admissions made by the United States, the Master stated that ". . . if I were a judge by profession . . . I would sustain 90 percent of your objection and much of this evidence would not be used." Tr. 13445.

Mr. Sotrom claimed that all he did with respect to the Exhibits FSO-2A-2G series and Exhibit FSO-3, was to transfer information to maps, planimeter and add. With its proposed findings of fact, however, the State has submitted an appendix of errors (Appendix 11). These show that Mr. Sotrom committed planimeter errors, errors in transfers of information from one document to another, and addition errors throughout his testimony both on historic and future lands. The credibility of his exhibits is in doubt in light of the fact that he purports to be an engineer - and we now find he can't add, planimeter, or transfer information from one document to another.

The last paragraph on yellow sheet 753 is wrong - the errors are not clerical, they are engineering errors.

Wyoming's Finding No. 18-18 - Unreliability of the United States'
climate data, p. 756.

This proposed finding was obviously drafted by someone unfamiliar with the entire record, inasmuch as it questions Dr. Mesghinna's climate data and results. It is evident that whoever drafted the proposed finding was not familiar with the testimony of the State's own witness.

Let's look at Mr. Bishop's testimony:

(MR. BISHOP) . . . Dr. Mesghinna cited eleven design factors in his consideration of the various projects, and if I might, I can go through those eleven factors one at a time.

The first one was climate. I have no problem with the way he established seven climate zones and utilized those as a basis for determination of precipitation and consumptive use demands." Tr. 12159.

* * * *

Q. (BY MR. CLEAR) Now you ran through Dr. Mesghinna's eleven-point program, and you said something briefly about each point. You stated you had no problem with his climatic zones, is that correct?

A. That's correct. Tr. 12227.

* * * *

BY MR. CLEAR.

Q. Mr. Bishop, yesterday you stated that for the historic areas, you developed a net irrigation requirement for each of the climate zones; is that correct?

A. Yes, sir.

Q. Are these the same climate zones that Dr. Mesghinna developed?

A. Yes, they are. Tr. 13714-15.

On pages 13719-20, Mr. Bishop again reiterated that he used Dr. Mesghinna's climatic zone in developing his net irrigation requirements for the State's arable land base for the future projects.

In addition to Mr. Bishop, Mr. Stetson relied on Dr. Mesghinna's climate data in determining the net irrigation requirement for the historic lands, and in turn used that to determine that the overall efficiency for the historic lands is 35 percent - a figure with which Mr. Bishop agrees.

The State argues that because of defects in climate data the "engineering and contingency costs" must be increased. This is pure hogwash - no witness for the State testified to this effect. Sostrom gave several conflicting reasons for his high engineering and contingency fees - but not this reason. Indeed when Mr. Sostrom was offered the opportunity to state that his figure for "engineering and contingencies" was so high because further climate determinations had to be made, he disavowed that idea.

Q. (BY MR. CLEAR). With respect to an irrigation project, would the 20 percent fee also include determining the climatic zones of the area or the climatic conditions of the area?

A. I think we should be realistic and include costs committed to date in the percentage. Tr. 13468.

* * * *

There has been a tremendous amount of money spent so far on the determination (of) . . . the climatic zones. Tr. 13469-70.

Thus even Sostrom did not contend that his engineering and contingency fees included costs for additional climate studies.

In its yellow sheets, the State questions the data used by Dr. Mesghinna regarding solar radiation. The State claims that Dr. Mesghinna derived his solar radiation data solely from data gathered at Lander Airport regarding the ratio of actual to possible sunshine. This claim again shows that the author of the proposed finding is unfamiliar with the transcript of these proceedings.

As Dr. Mesghinna testified, solar radiation is a function of extraterrestrial solar radiation, i.e., the amount of radiation hitting the atmosphere. This is merely a function of latitude and time of year. Tr. 4076-77. Data on the ratio of actual to possible sunshine is available from Lander Airport from 1931-1975. In addition, Jensen, of the Jensen-Haise formula developed a method to determine solar radiation.

Dr. Mesghinna used four different methods to determine solar radiation and averaged them out for use in the Jensen-Haise formula. Tr. 9414.

Now, let us look at what the State's witnesses testified re regarding solar radiation. Not one of them criticized Dr. Mesghinna's data, methods, or results.

Not one witness criticized the data used by Dr. Mesghinna. No one said that the data he used was not the data recorded at Lander Airport.

Further, unlike the State's consultant's, Dr. Mesghinna used four different methods to derive solar radiation. The State's witnesses merely used a general atlas or data from a weather station if they could find it. Tr. 9414-15. Mr. Rice did not testify that Fassett, like Dr. Mesghinna, had employed extraterrestrial radiation with the percent of possible sunshine data to derive solar radiation.

The State suggest that Dr. Mesghinna should have used neutron probes and lysimeters to which the accuracy of his evapotranspiration calculations. As Dr. Mesghinna testified, however, use of lysimeters is unnecessary. Tr. 4630. They themselves are not accurate. Tr. 4631. Neither lysimeters or neutron probes are customarily used in research because of the enormous costs in money and time involved. Tr. 4631. In order to use lysimeters the area has to be completely covered by the crop to be grown (Tr. 4632) which is an impossibility for the future projects since their is no irrigation system yet in place to support a crop.

Finally, Dr. Mesghinna challenged the State to verify his results by use of lysimeters or neutron probes. Tr. 4632. No State witness used lysimeters or neutron probes to test Dr. Mesghinna's climate data; they all accepted his climatic data and they all used the same Jensen-Haise formula to determine evapotranspiration.

Dr. Mesghinna did a professional job as was testified to by Mr. Bishop and, through him, by James Cannon of Bookman Edmonston. Mr. Bishop used Dr. Mesghinna's climate data and the Jensen-Haise formula in deriving his water requirement. That is, Mr. Bishop used Dr. Mesghinna's climate data regarding solar radiation.

Mr. Bishop's disagreement with Dr. Mesghinna's crop water requirement is not based on climate. Mr. Bishop determined water requirements on the basis of land types - regardless of the water requirements of the crop as determined by the climate. Finding No. 18-18 is correct that climate data is of the utmost concern - however, Dr. Mesghinna developed the climate data, the State's consultant's used his data, and the State's consultant's did not develop their own data, nor criticize that developed by Dr. Mesghinna.

Wyoming's Finding No. 18-19 - Court cannot accept United States' conclusions, p.759.

This proposed finding is objectionable for several reasons.

1) The arable land base - Mr. Sostrom found only 16.5 acres in all of the future tracts that he felt were non-arable.

2) As Mr. Bishop testified, lined canals would increase the overall efficiency of the future projects to 50 percent - from the approximately 48 percent efficiency that would be achieved by Dr. Mesghinna proposed plans. The cost would be over \$5,000,000 to line one-half of the canals according to Mr. Sostrom and the water savings would be negligible since an increase in canal efficiency would merely cut down on return flows.

3) Dr. Mesghinna was not forced to accept the arable land base developed by HKM - he reviewed each and every soil log developed by HKM and made his own interpretations of them to determine the water holding capacity and the frequency of irrigation for each and every field in the future units.

4) Dr. Mesghinna was not forced to accept a cropping pattern - he was active in developing the cropping patterns utilized for his future projects, studying agricultural reports and climate data.

5) The drainage designed by Dr. Mesghinna was designed to take care of any unforeseen contingencies.

Wyoming's Finding No. 18-20 - Court adopts 50 percent overall efficiency, p. 762.

This finding proposes that the court adopt an overall efficiency of 50 percent for the future projects. It may seem to be a minor point to argue over this since Dr. Mesghinna's overall efficiencies are very close to 50 percent. However, the author of this finding again is unfamiliar with the entire transcript.

In its yellow sheet in support of this finding, the State argues that Mr. Bishop "agrees with all four of these assumptions" - but no assumptions are listed in the finding. The State argues that Mr. Bishop has a great deal of experience in determining water requirements in Wyoming. There is however no testimony in the record to that statement. And, of course, Mr. Sostrom, not Mr. Bishop, determined the crop water requirements and his experience is limited to watering his parents garden when he was a boy.

The State assumes that the overall efficiency for Dr. Mesghinna projects is 35 percent. This is not true - it was Mr. Bishop who felt it was 35 percent because he did not understand what Dr. Mesghinna had done and Bishop therefore erroneously subtracted the 10 percent waste figure from Dr. Mesghinna's overall efficiency - whereas in fact that figure had been included in the overall efficiency. The 10 percent waste figure, as Dr. Mesghinna

testified, is primarily to take care of excess water in the canals resulting from unanticipated rain fall. In time of drought, when there is no rainfall, this 10 percent is not dumped through the wasteways since there is no excess rainfall.

Wyoming's Finding No. 18-21 - Court's findings re water requirement, p. 765.

This proposed finding is based on Mr. Bishop's testimony on the State's arable land base applying Mr. Bishop's "net irrigation requirement."

There is no supporting memorandum for this finding that indicates what methodology Mr. Bishop used to derive his net irrigation requirement. The United States has already covered Mr. Bishop's testimony in its April 7 brief.

We would, however, add these comments:

Mr. Bishop accepting Dr. Mesghinna's climate data; Mr. Bishop had no input into the development of the cropping pattern he used and indeed was confused as to the cropping pattern used by the State's consultants; Mr. Bishop did not study the soils information developed by HKM and did not study Dr. Mesghinna's figures for water holding capacity and irrigation frequency. Mr. Bishop did not develop any such figures himself, and this data is essential in determining net irrigation requirements.

It is obvious that Mr. Bishop chose a 50 percent efficiency because then he merely had to multiply his net irrigation requirement by two to get a diversion requirement. However, the last statement in the yellow sheet disavows Mr. Bishop's testimony and states that in determining water requirements (i.e. diversion requirements) Mr. Bishop made "mathematical errors" - that is

he did not multiply by two correctly. One would expect that an engineer could at least do that much.

Dr. Mesghinna spent many hours in court and out of court explaining to the State's consultants how irrigation systems are designed and how water requirements are determined. Apparently he should have also instructed them in multiplication as well.

Wyoming's Finding No. 18-22 - Court's findings re per acre capital construction costs, p. 767.

The United States objects to this finding for the reasons set out in our brief in support of the United States' proposed findings of fact.

1) There is no basis in the testimony for the State's "arable land base."

2) Mr. Sostrom was not admitted as an expert to testify as to costs of irrigation projects, but only for costs of highway construction.

3) In the one area where Mr. Sostrom has experience, costs of pipe distribution systems, he rejected the costs developed by Banner Associates and used Dr. Mesghinna's costs.

4) Canal lining costs were not ignored by Dr. Mesghinna since he did not line his canal.

5) Mobilization costs were included in the capital cost by Dr. Mesghinna on a unit basis.

6) Dr. Mesghinna works for a firm that designs irrigation projects; Mr. Sostrom does not. Dr. Mesghinna explained thoroughly his reasons for his engineering and contingency fee when he was on the stand as a witness for the United States and as a witness for the State of Wyoming.

7) Mr. Sostrom sometimes said his estimates were based on the ASCE Manual and sometimes said they were not.

8) Bookman-Edmonston, a second consultant employed by the State, told Mr. Bishop that they could construct Dr. Mesghinna's projects for the same costs estimated by Dr. Mesghinna.

9) Finally, on yellow sheet 771, the State itself disavows Mr. Sostrom's costs estimates.

Wyoming's Finding No. 18-25 - Differences in Economic Feasibility Results, pp. 782-785.

The difference in discount rate used by the United States and the State is perhaps the single most important difference in the economic analyses performed and the conclusions derived, as evidenced by those conclusions and United States Exhibit WRIR-C-274.

(Wyoming Subpart 1.) The State asserts that, "the discount rate does not play a major role in the differences since both parties used discount rates of both 4 percent and 7 1/8 percent in their respective analyses." This is not true. The United States used only a 4 percent discount rate. Mr. Dornbusch testified that the applicable rate is between 2 and 4 percent and used a 4 percent rate in deriving his conclusions. United States' Findings of Fact, pp. 112-113; 312; and 316. Dr. Goldfeld corroborated Mr. Dornbusch's conclusions. United States' Proposed Findings of Fact, pp. 112, 312, 313, 314 and United States' Br., pp. 395-402.

(Wyoming Subpart 8.) The United States used an indexing technique which derived "normalized" 1979 prices for both input and output prices. The normalizing technique seeks to avoid using abnormally

high or low prices from a single year and derives a representative price by weighting historic prices -- the most recent years' prices being weighted heaviest. A normalized price is a weighted historic price, not a forecast. And, since prices have been rising with inflation, it is not surprising that the weighted historic price is lower than the more recent (inflated) price. The important principle is that both historic input and historic output prices are weighted by historic prices similarly and they are compared for a common "normalized" year - in this case 1979 normalized prices.

Wyoming Finding 18-26 - Economic Feasibility Results, pp. 786-789.

Wyoming asserts that because Mr. Dornbusch relied upon some of Mr. Agee's work, and therefore implicitly recognizes Mr. Agee as authoritative on those matters, and because Mr. Agee disagreed with some of Mr. Dornbusch's estimates and judgments, that Mr. Dornbusch's work is repudiated.

The specific issues upon which Mr. Agee disagreed with Mr. Dornbusch are noted in Mr. Agee's testimony (Tr. 15313 cited by Wyoming as evidence of Mr. Agee's disagreement with Mr. Dornbusch). The issues include only crop yields, some costs, and elevation for growing crops.

The basis of Mr. Dornbusch's conclusions in those three subject areas are not assumptions, as asserted by Wyoming, but are facts and data obtained from reliable sources. Mr. Dornbusch's sources were more up-to-date and more authoritative than Mr. Agee in the particular subject areas where their information was used.

(1) Crop Yields: Mr. Agee said, "Mr. Dornbusch assumed yields that are just not being reached by the average farmer in the Riverton area." Tr. 15313. But Mr. Dornbusch was interested in the progressive farmers not the average farmer, and Mr. Agee admitted that he had not interviewed any farmers recently or above 5,500 feet elevation. In fact, Mr. Dornbusch used Mr. Agee's yield estimates for all crops with the single exception

of malt barley. (This issue is addressed more completely in United States' Brief, pp. 382-388.)

(2) Costs: Mr. Agee said, "he" (that is, Mr. Dornbusch) "has some cost information in his analysis that is just considerably below what the present-day costs are." Tr. 15313. That is certainly true. Mr. Dornbusch used Mr. Agee's costs directly, then normalized them to 1979 normalized prices to be consistent with all other input and output prices. The resulting prices would naturally be lower than "present-day" (1981 at the time of Mr. Agee's testimony) costs that are higher from inflation. See United States' Brief, pp. 388-394.

(3) Elevation: And the final point of disagreement stated by Mr. Agee was, "there's a situation where he's assuming some crops can be grown like corn for silage, where the elevations and the growing season are just not adequate for producing that type of crop." Tr. 15313. Mr. Dornbusch interviewed numerous farmers above the 5,500 foot elevation (where Mr. Agee admitted he did not) and even above 5,900 feet. Mr. Dornbusch based his conclusions on those interviews and other reliable information. See United States' Br., pp. 382-388.

Wyoming's Finding No. 18-27 - Court accepts Wyoming's findings re cropping patterns, p. 790-792.

The Wyoming proposed finding regarding the cropping pattern ignores the record in this case.

The evidence regarding the State's proposed cropping pattern is ambiguous and confused. Mr. Bishop testified on one day that one cropping pattern was used and on another day that a second cropping pattern was used. Mr. Bishop sometimes stated that the division point between highland and lowland crops was 5900 feet and at other times stated that the split was a 5500 feet. Mr. Fassett testified that the split he used was at 6000 feet. Both Mr. Bishop and Mr. Fassett testified that they were advised to rise 5500, 5900 or 6000 by Mr. Jacobs.

Mr. Dornbusch's cropping pattern was not only based on farmer interviews but also on consultation with Dr. Mesghinna who investigated the climate data to see where there were sufficient temperatures during the growing season to grow corn. Dr. Mesghinna's climate data was accepted by all witnesses who testified in this case.

The argument that the Wyoming witnesses possessed "superior qualifications" is not supported in the State's yellow pages. Mr. Jacobs, not Mr. Agee, apparently picked all of the State's cropping patterns and he advised different State witnesses different things apparently depending on whim or on what he felt would be most advantageous to the State at the time.

Wyoming acknowledges that the cropping patterns proposed by the United States and Wyoming are similar, and that the differences are not significant (presumably with respect to the benefits and costs).

Nevertheless, Wyoming implies that Mr. Dornbusch developed his cropping pattern on the basis of limited information. However, Mr. Dornbusch developed his cropping pattern on the basis of Mr. Agee's study of cropping patterns in the region and interviews with farmers in the "region", not just in the "Riverton area", as asserted by Wyoming. Tr. 5824. Certainly, Wyoming agrees that Mr. Agee is a person to be relied upon for this type of information.

The State also implies that Mr. Dornbusch relied upon only a few farmer interviews, referencing Wyoming's Exhibit ED-16. However, Mr. Dornbusch and his staff interviewed 20-25 farmers. Tr. 5826, line 8. Only portions of his farmer interview notes were entered into the record for reasons of confidentiality. Tr. 5826, lines 11-20; 5830, lines 1-4. Mr. Dornbusch also interviewed other knowledgeable persons concerning cropping patterns. Tr. 5832, lines 5-23.

The crops and percent distribution of the crops selected by Mr. Dornbusch were based upon the information obtained from Mr. Agee, his interviews with farmers and other knowledgeable people and sound economic and agricultural principles. Tr. 4942, lines 8-24; 4943, lines 1-15; 4950, lines 12-24; 4951, lines 1-10; 4996, lines 17-24; 4997; and 4998, lines 1-6.

Wyoming's Finding No. 18-28 - Crop Yields, pp. 793-796.

The question of the proper elevation at which to divide the regions which can and cannot be expected to grow corn and where yields for barley and alfalfa might be expected to be lower is adequately addressed in United States' Brief, pp. 382-388.. See also Tr. 4841-4843.

In the United States' Brief (p. 387), it is demonstrated that one of the publications cited by Mr. Agee (Tr. 15321) actually serves to substantiate the 5,900 foot elevation split determined by Mr. Dornbusch and not the 5,500 foot elevation split adopted by Wyoming. Mr. Agee also cites another publication, "Probabilities of Freeze in Wyoming", Wyoming Exhibit EA-2, supposedly used in selecting the proper elevation split. Tr. 15323. Although Mr. Agee did not specify how he used the data presented in that publication, it is clear that the data serves to substantiate Mr. Dornbusch's determination (5,900 feet) and not Wyoming's (5,500 feet).

Tables 3 and 5 (pp. 5 and 7) of "Probabilities of Freeze in Wyoming" (cited by Mr. Agee) show that the towns between 5,500 and 5,900 feet in elevation, and slightly higher, all have sufficient freeze-free days to grow 80, 90, or even 100 day corn. The following information is extracted directly from the publication Tables 3 and 5:

<u>Town</u>	<u>Elevation</u>	<u>Freeze-Free Days</u>
Archer	6010	119
Green River	6089	107
Lander	5563	125
Pathfinder	5930	125
Diversion Dam	5574	117

Note that Lander and Diversion Dam are near the Wind River project areas.

Unfortunately for the State, Finding No. 18-28 is not supported by the testimony of its own witnesses. Mr. Fassett developed eight-eight cropping patterns - forty four of which were on the reservation. He used in each instance an elevation breakpoint of 6000 feet, a point 100 feet above that used by Dr. Mesghinna in designing his irrigation system and 500 feet above the State's later position of 5500 feet.

The 6000 foot breakpoint used by Mr. Fassett was based entirely upon the advice given to him by Dr. Jacobs, another of the State's witnesses. In view of that Mr. Fassett developed 88 cropping patterns based on a 6000 foot division line and the State's other experts used 5500 feet only once - if at all - the weight of the evidence is that the appropriate elevation line dividing high land and low land crops is 5900 feet or above.

Wyoming's Finding No. 18-29 - Yields for Specific Crops, pp. 797-800.

Wyoming seeks to cast doubt about the substantive nature of the facts and data upon which Mr. Dornbusch relied in formulating his estimate of expected malt barley yields.

Wyoming states (Wyoming Brief, p. 799, point #3) that, "Mr. Dornbusch, however, could not recall how many farmers he interviewed or what the average yields from those interviews were," referring to Transcript pages 5855-5866. Mr. Dornbusch's specific comments on these pages were:

". . . there were quite a number of farmers that were interviewed on crop yields. I can't recall the exact number." Tr. 5855, lines 11-13. That to put the comment in context, it should be noted that Mr.

Dornbusch had just previously stated the number of interviews was between 20 and 25, but he couldn't recall exactly. Tr. 5826.

Furthermore, Mr. Dornbusch indicated how he handled the yield information he obtained from the interviews. "Yes, I made it clear that I wanted to deal with averages, that sometimes there would be situations where they" (the farmers) "would have lots of contributing factors for reducing yields, but they were, as I understood our conversations, giving me what I was asking for, and that was average yields in relatively recent times." Tr. 5858, lines 20-25; 5859, line 1.

Mr. Dornbusch's response to the question, "What average yield did you find for malt barley as a result of your interviews?", was that progressive farmers were getting 100 bushels per acre and more. Some were getting 120 bushels to the acre. Tr. 5862.

Average yields from the interviews is not directly relevant, because the yield obtained by each farmer had to be considered with respect to his irrigation and fertilization practices, soils conditions, etc. Mr. Dornbusch responded to this effect. Tr. 5861, 5863, 5865-5866.

Wyoming states (Wyoming Brief, p. 799, point #4) that, "the only evidence concerning the results of those (Mr. Dornbusch's) interviews is constituted by Wyoming Exhibit WRIR-ED-16, which gives no factual basis for assuming average malt barley yields of 100 bushels per acre." In fact, Mr. Dornbusch's interview notes do show a number of farmers' malt barley yields at 100 bushels per acre and higher. The information is particularly compelling given that many of those farmers' fields are as high as 6,300 feet in elevation, far above the 5,900 foot level where Mr. Dornbusch reduced malt barley yields to 90 bushels per acre.

In addition, Wyoming's experts conducted a number of interviews with farmers who reported malt barley yields of 100 bushels per acre and higher. The names of specific farmers, their yields and Mr. Dornbusch's rationale are noted in United States' Brief, pp. 383-385.

Wyoming claims (Brief, p. 800) that page 5861 of the transcript indicates that Mr. Dornbusch "didn't even know what irrigators in Fremont County are currently getting for average malt barley yields." However, in no way can that conclusion be drawn from the discussion on that page. In fact, Mr. Dornbusch carefully explains why such averages without consideration of fertilization practices, soil conditions, etc., are not, of themselves, important. Tr. 5861-5863.

Wyoming points out (Wyoming Brief, p. 800) that Mr. Agee "notes that Mr. Dornbusch's yields are not being achieved by most farmers in the Riverton area now." However, it was the progressive farmers and not most farmers that interested Mr. Dornbusch. United States' Brief in Support, p. 385; Report of Special Master Tuttle, p. 141. Mr. Agee's response is interesting since he estimated yields for the same region in 1977 that were considerably above the yields being achieved by most farmers in that region. Wyoming Exhibit WRIR-ED-8. And with good reason, especially since farmers are considerably better managers than ranchers and the county averages include ranchers' yields. Tr. 11973-75; 11979-80. Mr. Agee explains on page 3 of his 1977 report (Wyoming Exhibit ED-8):

"It should be emphasized that average yields reported in Table 1 include yields for ranching areas in Fremont County as well as yields for the intensive cropping area in the immediate Riverton area. It is highly probable that average yields from lands in the intensive crop area are somewhat higher than average county yields."

Wyoming refers to Mr. Agee's estimate of barley yields in 1977 as being closer to Dr. Jacobs' estimate, disregarding the fact that (1) yields have steadily risen (Wyoming Exhibit ED-8) and Mr. Agee's estimate was made five years ago, (2) Wyoming's witnesses themselves conducted interviews with farmers who had obtained barley yields at or higher than Mr. Dornbusch's estimates (United States' Brief pp. 383-384), and (3) Mr. Agee himself testified that farmers are currently obtaining malt barley yields of 100 to 115 bushels per acre. Tr. 15413. See United States' Brief, pp. 382-388.

Wyoming's Finding No. 18-30 - Yield Reductions, pp. 801-802.

Wyoming states that Mr. Agee testified that a period of approximately five years would be required to bring the new lands into full production, citing Transcript page 15377. Nowhere on that page does Mr. Agee refer to a development period or a five year requirement. In fact, the page reference should have been 15337 not 15377. Even there, Mr. Agee only says that he used a development period of five years in his Westside Project analysis, but he did not relate the quantity of Westside Project lands to the Wind River Reservation project lands or compare his land preparation costs to those used by Mr. Dornbusch. This issue is addressed in more detail in the United States' Brief, page 388.

Wyoming's Finding No. 18-31 - Crop Prices, pp. 803-805.

The primary crops in both the Wyoming and United States crop mixes are alfalfa and malt barley. Both have such large market areas that the relatively small increase in production represented by the Wind River Reservation projects would have little if any effect on prices. Tr. 5785.

Wyoming's Finding No. 18-32 - Production Costs, pp. 806-814.

Most of the essential components of the United States' and Wyoming's disagreements over production costs are addressed in the United States' Brief, pp. 389-394. However, some of the points that Wyoming raised in its proposed Findings of Fact, attempting to obscure the truth of this highly sensitive issue, deserve attention.

(1) On page 811, Wyoming makes a rather transparent attempt to make it appear as though Dr. Jacobs' farms of 320 acres would achieve "most technical efficiencies". Wyoming cites Exhibit WRIR-EA-8, in which an excerpt from Economics of Size in U.S. Field Crop Farming states that "most technical efficiencies" are achieved on farms with gross incomes from \$41,000 to \$76,000. Since Mr. Agee testified that "a 320 acre farm in the Riverton area would likely gross between \$70,000 and \$90,000, the implication is that the 320 acre farm would achieve most technical efficiencies.

However, the report cited by Wyoming is based upon a compilation of national data samples, not a specific analysis of the particular farm equipment and farm operations for the crops to be grown in the specific region under study. Furthermore, the publication cited by Wyoming itself warns against drawing conclusions about economies of size. On page 31, footnote 13 states:

A critical data element for estimating economies of size is the field capacity of different sizes of implements and tractors. This study used engineering data on field capacity from the FES budget generator. Unfortunately, machine capacity data is one of the weak links in the USDA cost of production estimates. It presents additional difficulties for economies-of-size research because varying cropland acreages and questions about contiguous or distant tracts affect travel time and field capacity. Further research is needed on this topic, both for cost of production and economies-of-size estimates.

Mr. Dornbusch, however, used a study of machine capacity, prepared by the Bureau of Reclamation, which analyzed the specific equipment to be used for farming alfalfa, malt barley, and corn in a similar region near the reservation. Tr. 4980-81. Mr. Dornbusch made specific estimates of time and distances required for moving equipment to and from the fields. And, Mr. Agee agreed that the equipment used in Dr. Jacobs' field operations could be used as much as 5 to 10 times as many hours as the time which Dr. Jacobs used to depreciate the full cost of that equipment. Tr. 15380-85.

Besides, the USDA publication excerpted in Wyoming Exhibit WRIR-EA-8, itself, shows in its Table 6 (page 20) that the most efficient farm size was 1,157 acres for the average of seven

regions studied and 1,476 acres in the Northern Plains - considerably more than the 320 acres used by Dr. Jacobs.

(2) On page 812 of its Brief, Wyoming notes that "Mr. Dornbusch assumed that the management of these irrigation projects would come from the unemployed ranks." It should be noted that only 10 percent of the management in the first year will come from otherwise unemployed Indians, and that a ten-year training program will be used to develop the entire management force. Tr. 4991-4992.

(3) The normalizing technique used by Mr. Dornbusch (cited by Wyoming on page 812) is precisely the technique recommended by the Water Resources Council. The weighting seeks to eliminate unusual single year prices, and the important principle to be applied when using any normalized or indexed prices is the matching of both input and output prices in the same year, which Mr. Dornbusch did. Certainly some prices will change faster than others, and it is precisely for this reason that the weighting and single year comparison is most important.

Actually, the indexing method which Dr. Jacobs used to index all his prices is precisely the same indexing technique which Dr. Carver criticized so strongly when presented with an example. Tr. 12089, lines 14-17, and United States Exhibit WRIR-JJ-5.

(4) Wyoming asserted that Mr. Dornbusch should have retired some of the farm equipment sooner than his depreciation

schedules show. However, even Wyoming's Exhibit EJ-2 showed that Dr. Jacobs thought (if Wyoming's exhibit had included the Pickup Truck) that four pieces of equipment in Dornbusch's analysis should have had even higher useful lives than Mr. Dornbusch estimated. Dr. Jacobs agreed with the useful life for seven pieces and thought the useful life too high for the remaining seven pieces. And, in most cases the differences were of little significance. A more significant issue regarding equipment useful life was the fact that much of Dr. Jacobs' equipment would have to be retired due to obsolescence much earlier than its wear-out life could have supported. Tr. 14881-82.

Wyoming attempts to minimize Dr. Jacobs overestimation of equipment prices by referring to United States Exhibit WRIR-JJ-5, asserting that "some of Dr. Jacobs' prices are higher, some lower and some equal to Mr. Agee's 1977 equipment prices indexed to 1979." In fact, no prices are lower. Most and by far the most expensive equipment prices are higher and are significantly higher. Only the last five pieces show the same price as the indexed Agee price. However, Dr. Jacobs' indexing method is incorrect, as Dr. Carver points out. Tr. 12089. If Mr. Agee's 1977 prices are adjusted to 1979 using the correct indexing methods (recommended by the WRC and shown in the last column of Exhibit JJ-5), Dr. Jacobs' prices would be shown to be high by an even more remarkable margin.

Wyoming's Finding No. 18-33 - Water Delivery System Costs, p. 815.

In the proposed finding, the State of Wyoming abandons Mr. Sostrom's cost analysis of Dr. Mesghinna's proposed future projects.

Wyoming's Finding No. 18-34 - Benefit Cost Analyses, pp. 818-823.

Wyoming admits, or rather boasts, that using their variety of assumptions they calculated 132 benefit cost ratios for the reservation developments of which only one had a value greater than 1.0. That is certainly a remarkable achievement for analyses of agricultural developments on lands of higher overall quality than nearby lands presently being successfully irrigated and raising the same crops analyzed for the reservation. This fact alone must call into question the credibility of the analyses, the methods and judgments the State's experts used in developing their analyses.

As Wyoming points out, its experts conducted their feasibility analyses using both the State's water delivery system costs and those proposed by the United States. Wyoming states that using the United States' water delivery system costs did not significantly change the results of Wyoming's analysis, and the only conclusion possible is that the State's low benefit cost ratios result primarily (perhaps exclusively) from the State's economic analyses. In this, the United States agrees with Wyoming.

The ultimate irony lies in the reasons cited by Wyoming to account for the large differences in the results of the United States' and their own economic analyses.

1. Wyoming points to the United States' method for indexing costs, ignoring the fact that the method is precisely the one recommended by the WRC and uses a similar approach for indexing both inputs and output in the same year. If costs for inputs tend to be reduced by earlier years' lower prices, so do the prices received for outputs. Inputs and outputs are compared in the same year and therefore are both lower by a similar amount of inflation. On the other hand, Dr. Jacobs' indexing method was severely criticized by the State's own cattle expert, Dr. Carver, and tended to boost farm equipment prices way beyond reasonable levels.

2. Wyoming questions the percentages of on-farm and management labor which the United States costs at zero, using the principle of opportunity costs. The State does not question the principle, only the amount. However, the State performed no analysis of the amount of labor which could be feasibly drawn from otherwise unemployed Indians on the reservation. Yet Wyoming criticizes Mr. Dornbusch's estimate which is based on extensive interviews and analysis.

3. The State challenges the equipment lifetimes estimated by Mr. Dornbusch. But, as demonstrated in the United States' response to Wyoming's Proposed Findings of Fact, Section 18-32, some of Mr. Dornbusch's lifetime

estimates are even lower than the State's, some are higher, and some are the same. The differences are small and cannot account for a significant, if any, difference in the estimation of overall costs.

These points are addressed in greater detail in the United States' Proposed Findings of Fact, pp. 105-114, and Brief, pp. 380-403, and the United States' responses to Wyoming's Proposed Findings of Fact, Sections 18-23 through 18-32.

Wyoming's Finding No. 20-2 - Deficiencies in Type VIII lands, p. 863.

The State's witnesses accepted the United States' figure for arable Type VIII lands. Tr. 13424-25.

Wyoming's Finding No. 20-3 Wyoming's Type VIII arable land base is reliable, pp. 865-866.

This is adequately covered in the United States' Brief in Support, pp. 324-326.

Wyoming's Finding No. 20-4 - United States' engineering expert, p.
867.

Dr. Mesghinna was admitted as a expert by this Court and the
State had no objection to his being admitted as an expert.

Wyoming's Finding No. 20-6 - Reduction of arable acres, p. 872.

1) The Type VIII lands and Arapahoe Ranch or Owl Creek Unit do coincide with the arable land base. The testimony cited by the State involved a misinterpretation by Mr. White of the exhibits which was later clarified. Mr. White himself withdrew his objection to the Type VIII lands.

2) The fields do include some class 6 lands as are necessary. Inclusion of the class 6 land is required because the sprinkler cannot be shut off as they pass over the small chunks of class 6 lands so water must be delivered to the field in sufficient quantities to account for this.

3) Allotments are owned by the United States.

4) Mr. Sostrom did not "develop the acres" on FSO-14. He testified that he had accepted Dr. Mesghinna's arable land base.

Wyoming's Finding No. 20-7 - Inaccuracy of climatological data,
p. 874.

Dr. Mesghinna's climate data was accepted by the State's consultants. There was no testimony that engineering and contingency fees had to be increased because of inaccurate climate data. The State in proposed Finding No. 18-33 has eschewed all of Mr. Sostrom's testimony regarding costs.

Wyoming's Finding No. 20-8 - Unreliability of United States'
conclusions, p. 876.

There was no testimony questioning Dr. Mesghinna's
climate data, it was accepted by all of the State's witnesses.

Wyoming's Finding No. 20-9 - Wyoming's experts, p. 878.

Mr. Sostrom was admitted only as an expert in estimating highway construction costs. There is no testimony that Mr. Bishop has extensive background in determining water requirements for agriculture in Wyoming.

Wyoming's Finding No. 20-10 - Court's conclusion re water requirements, p. 881.

The figures set out in the proposed finding do not reflect the testimony of any witness in the case. It is unbelievable that at this late date the State should be submitting new evidence contradicting its engineers and admitting that they cannot do simple arithmetic.

Wyoming's Finding No. 20-11 - Court's conclusions re costs,
p. 882.

According to the yellow sheets that accompany this proposed finding, they are based on Mr. Sostrom's costs, i.e., his engineering and contingency figure. The State hired another firm, Bookman-Edminston, which said it could construct the same projects designed by Dr. Mesghinna for the same costs he estimated.

The reasons given by the State for increasing engineering and contingency costs are not among the reasons given by Mr. Sostrom. Finally, Dr. Mesghinna, when testifying on behalf of the State of Wyoming, pointed out the errors in Mr. Sostrom's calculations.

The bogus engineering and contingency fee thought up by Mr. Sostrom is discussed in the United States' brief. The climate data was accepted by all of the State's witnesses. The United States' arable land base was accepted by Mr. Sostrom. The State's cropping pattern varied from day to day and did not come close to the testimony given at Worland.

Wyoming's Finding No. 20-14 - Court concludes that Type VIII lands are not practicably irrigable, p. 888.

This proposed finding is a summary of the State's proposed findings for its 20 series. The United States has addressed each of the individual proposed findings and adopts those comments herein. Needless to say, the United States disagrees with the proposed finding based on the evidence given at trial.

Wyoming's Finding No. 23-1 - United States' claims, p. 907.

The figures set out in this finding are wrong.

The United States claims a right to divert 47,107 acre feet of water to serve 7,946 acres of arable Type VII trust land.

Wyoming's Finding No. 23-2 United States' Experts Re: Land Classification.

Mr. Waples has considerable experience in land classification of irrigated agriculture and other soil-related projects, and has personally taken part in land classifications totalling approximately 88,000 acres. Mr. Waples has worked on the Wind River Indian Reservation since 1978. He has spent considerable time in the field during every field season since that date and has an excellent knowledge of the land resources of the reservation. United States' Exhibit WRIR-C-157; Tr. 3288-90, 3297-3315. Mr. Waples has performed irrigation land classification in six Western states on many types of lands and soils. Mr. Waples was the only witness at the trial to be qualified as a land classifier as well as a soil scientist.

Wyoming's Finding No. 23-3 Deficiencies of United States' arability studies for Type VII lands.

- (1) Page 912 of Wyoming's brief illustrates their misunderstanding of the HKM approach to the Type VII and VIII land classification program. All Type VIII and those Type VII lands within the historic project boundaries were classified using the HKM project standards. Only those Type VII lands outside of the project boundaries were classified using the HKM non-project standards. The only important distinction is between non-irrigated lands lying within the major historic projects and those idle lands lying outside the major historic projects. United States Exhibit WRIRC-226, pp. 1, 2. Mr. Waples clearly explained the reason for the different standards. Tr. 3336-3338. See United States' Finding No. 81, p. 38; United States' Brief in Support, pp. 308-309. In reality, private water users must take care of their own drainage and will manage their land accordingly. Tr. 3341. There is nothing improper in using different standards to evaluate lands where local conditions dictate. Mr. Waples' testimony clearly states the rationale for the change in standards. Tr. 3338-42. This very issue was before Special Master Tuttle in Arizona v. California.

The discussion relating to "sandy lands" on pages 126-132 of Special Master Tuttle's report is particularly enlightening. There the sandy soil claimed by the United States was non-arable by both the BIA land classification standards and the Bureau of Reclamation standards. Arizona v. California, Special Master Tuttle's Report, pp. 126, 130. However, the United States had discovered that this alleged "non-arable" land was growing crops. Id. p. 130. By using the Soil Conservation Service criteria which clearly indicated that the soil could grow crops, the land was termed arable or irrigable. Ibid. p. 130.

- (2) Mr. Sommers' criticism of the HKM non-project standards is unfounded. It was never established that Mr. Sommers had any experience with irrigation on small isolated farms. Wyoming's example on page 913 of their brief is hearsay in its finest form. The comment is more appropriately termed Mr. Sommers' wishful thinking.

It is Mr. Sommers' opinion that it is improper to exclude the drainage requirement and depth of good free working soil from the non-project standards. Tr. 11138, 11139. On these same pages Mr. Sommers demonstrates his lack of understanding of small farm management practices and of drainage in general. It is clear from Mr. Sommers' testimony that his qualifications for assessing land classification or drainage are minimal at best.

United States' Brief in Support, pp. 306-307; Tr. 10778-90, 10773, 11031, 11032. His opinions regarding these matters should be accorded very little weight. Mr. Sommers' discussion about Mr. Enos having no intention of irrigating a parcel of land because it is "too rocky" (Tr. 11139) provides one more example of Mr. Sommers' lack of experience and faulty analysis. Mr. Waples described lands classified by USBR on the Hart Mountain Project as being Class 6 due to stoniness. Many of these lands are now in production because the operator used his time to pick up the stones rather than expend large amounts of money. Tr. 3634-35. It should be obvious that stoniness is not an absolutely fixed economic parameter for determining arability. Changing economic conditions and the individual operator's ambitions must be factored into the equation.

- (3) Wyoming's complaint on page 914 of their brief that the Type VII land does not comply with the minimum acreage requirement ignores the fact that these are merely add-ons to existing irrigated fields or other parcels of arable land, thereby meeting the minimum acreage requirement. Tracts 1-50X, 2-34X, 2-35X, 3-3X, 7-10X,

7-12X, 16-14X, 15-3X, 15-4X, 18-4X, 35-2X, 35-3X, in every case are adjacent to or are separated from other blocks of trust land only by a farm road or a ditch and can be operated as part of a larger field. Wyoming has blatantly misstated the evidence in every tract. Tr. 3507-10.

Wyoming states that judgment was used for making sodic lands arable even though they do not meet the standards of their present state. This contention misstates the evidence. Each parcel that had a high SAR was carefully evaluated from a soils, chemical and drainage standpoint. Only after all of the data was evaluated was a judgment made. Tr. 3605-3609. Wyoming's attempt to prove non-arability based upon present conditions rather than after equilibrium is reached under irrigation, again, points out the inexperience of Wyoming's experts. Tr. 3602-03, 3653-55, 3619, 10990.

Wyoming's Finding No. 23-4 Eliminating Class 4 lands from Type VII lands, pp. 915-916.

This subject is adequately covered in the United States' Brief in Support, pp. 324-326. We must however, correct one statement made on page 324 of our brief. The 1977 Muddy Ridge standards do not include class 4 lands.

Wyoming's Finding No. 23-5 Drainage Problems, pp. 917-918.

- (1) Wyoming made no showing at trial that all Type VII lands were affected by a high water table. Their assertions on page 918 is nothing more than a general unsupported assertion.
- (2) The drainage problems of the past resulted from poorly managed, undrained, gravity irrigation. The United States has proposed well-managed sprinkler irrigation with drainage designed where needed.
- (3) Mr. Sommers' assertions that the lands are surrounded by other irrigated lands is unsupported. He made it quite clear that he had never visited the areas in question. All Type VII lands meet HKM's drainage standards for hydraulic conductivity and depth to barrier. Tr. 3785. Mr. Stetson added drainage costs where necessary. Tr. 5469. Wyoming did not add any additional drainage costs. See United States' Brief in Support, p. 67. Thus, Wyoming's own engineers do not even agree with Mr. Sommers' assessments.

Wyoming's Finding No. 23-6 Problems with United States' analysis,
pp. 919-922.

Wyoming's brief, at page 920, regarding the number of holes used in the drainage study for the Type VII lands is very misleading. Wyoming tries to state that there are 80,000 acres within the drainage investigation and only 54 holes. It should be that those 54 holes were relied upon for the 7,221 acres classified as arable. Again, it is irrelevant whether there is a hole contained within the individual parcel to determine drainage characteristics because drainage characteristics are concerned with the underlying geology. Tr. 3775.

Wyoming's Finding No. 23-7 - Inadequacies of United States' arability
conclusions, pp. 923-924.

This has been adequately addressed in response to the
preceeding findings.

Wyoming's Finding No. 23-8 State's expert testimony re-evaluation
Type VII lands, pp. 925-926.

See United States' Brief in Support, pp. 324-326.

Wyoming's Finding No. 23-8 State's expert testimony re-evaluation
Type VII lands, pp. 925-926.

See United States' Brief in Support, pp. 324-326.

Wyoming's Finding No. 23-10 - Wyoming's engineering expert,
p. 927.

The qualifications of Banner Associates were discussed
earlier. Banner does not design irrigation systems.

Wyoming's Finding No. 23-11 - United States' conclusion re
Type VII lands, p. 931.

The State has neglected the reduction in acres
of arable Type VII land that occurred in Mr. Dornbusch's testimony.

Wyoming's Finding No. 23-12 - Calculation of water requirement,
p. 933.

The ratio of land types set out in this proposed findings was based on Banner's "tract-by-tract" analysis of "unadjudicated in use lands" about which Mr. Sostrom testified. Mr. Sostrom, with regard to that analysis, said 1) that people who conducted the analysis were unable to "type" lands and 2) that it could not be relied upon in assigning water duties. The results of Banner's tract-by-tract analysis have been changed by the State's lawyers in Appendix 11; however, no change was made in the 64 percent, 22 percent, and 14 percent ratio. The ratio is faulty also because it is not based on all the unadjudicated in use lands currently receiving water but only on those found in the results of the tract-by-tract analysis - which excluded substantial acres that even Mr. Sostrom testified were currently receiving water.

The fallacy of the next three assumptions is pointed out in our April 7, 1982, brief. The net irrigation requirement is dependant on the climate and the cropping pattern. The climate data and the cropping pattern for the historic lands as testified to by Mr. Stetson were fully accepted by Mr. Bishop. The net irrigation requirement has nothing to do with land types.

Mr. Bishop testified that, in his mind, net irrigation requirement equaled the consumptive use of water (or evapotranspiration)

of the crop. Therefore, by assigning a 0 net irrigation requirement for Type V land - and the Type V land he was testifying about is based on Type V land currently supporting crops - Mr. Bishop says that crops growing on Type V land do not consume water. Similarly a 30 percent net irrigation requirement for Type IV and VI land mean that they consume only 30 percent of the water that crops on Type I, II, and III land consume. A cut off of water supply after July 15 means that crops grow without water after July 15.

The reduction from the full water supply to 30 percent, 0 percent, and mid-July was at odds with all the testimony given at the Worland hearings.

In the second paragraph of page 934 of the yellow sheets, the State confuses the testimony of Dr. Mesghinna regarding the future projects efficiency with the efficiency of the historically irrigated lands and, as before, erroneously assumes Dr. Mesghinna's overall efficiency for the future projects was 35 percent. The historic projects have an overall efficiency of 35 percent - a figure with which Mr. Bishop agrees.

Mr. Bishop testified that a 50 percent efficiency for the historic projects could be achieved only if the canals were lined. Mr. Sostrom estimated that the costs of lining the canals

for the future projects would be over \$5,000,000. He did not estimate the costs for the lining the "historic" canals which serve both Indian and non-Indian land but it is clear that the State would assess the entire costs of lining the canals to the Indians. The testimony at Worland indicated that even if the canals were lined Mr. Bishop's diversion requirements are insufficient to meet the on-farm water requirements.

Mr. Bishop testified that his 30 percent of net irrigation requirement and 0 percent of net irrigation requirement was based on the assumption that only 30 percent of Type IV and VI lands and 0 percent of Type V lands are irrigated in any single year. However his "ratios" for the Type VII land is based on Mr. Sostrom's unadjudicated in use total and all of the lands on that total, according to Mr. Sostrom, received water in a particular year.

Wyoming's Finding No. 23-13 - Court's conclusion re acreage and water duties, p. 938.

Even if we accept Mr. Bishop's testimony at face value, the proposed finding is inaccurate. Mr. Bishop did not assign water requirements for Type VII land that gave some lands a full water requirement, some lands 30 percent of a full water requirement, some lands 0 percent of the water requirement, and some lands a July 15 cut-off date. Instead he used a "consolidated crop water demand" that resulted in no Type VII land getting its full net irrigation requirement.

Further, the State seeks now to amend the testimony of Mr. Bishop through Appendix 11, if Mr. Bishop's testimony is so unreliable the State should not even refer to it.

With respect to the four points listed on pages 940-41 of the yellow sheets, the United States offers the following comments:

1) Not only did Mr. Stetson rely on Dr. Mesghinna's climate data, so did Mr. Bishop.

2) Mr. Stetson determined water duties, that is the amount of water the crop requires under the existing climate. Mr. Bishop initially did the same thing but then reduced the water duties so that, as he admitted, no crop on the Type VII land will receive its net irrigation requirement.

3) Waste water is properly included in determining water duties since overall efficiency is the ratio of water diverted to water applied to the crop.

4) Mr. Bishop agreed that the overall efficiency for the historic lands is 35 percent. He used the same climate data and cropping pattern used by Mr. Stetson; since the 35 percent efficiency is based on the historic average diversion requirements for the project land, the cropping pattern and the climate zones, Mr. Bishop therefore agreed with Mr. Stetson's data regarding the diversion requirements for project lands. Mr. Bishop did not criticize the data used by Mr. Stetson and Mr. Bishop did use any records to support his conclusions, because there are no records that support his conclusions. Mr. Fassett, when developing his model to allegedly show adverse effects on non-Indians, used Mr. Stetson diversion requirements for non-Indian project lands, not those used by Bishop, thus confirming the reliability of Mr. Stetson's work and demonstrating anew that the State's theory is that Indians have to be more efficient than non-Indians.

The last paragraph of the yellow sheets, on page 941, argues that Mr. Bishop's 50 percent efficiency is "more in line with the necessity of water conservation." However, nothing in the term "practicably irrigable acres" requires Indians to go to extraordinary expense and to extraordinary means to conserve water when non-Indians, acting with the blessing of the State Engineer, achieve only the efficiencies testified to by Mr. Stetson. The court should recall that Mr. Bishop was once a State Engineer and did nothing to improve the efficiencies of the State's licensees.

Wyoming's Finding No. 23-14 - Court's conclusions re costs,
p. 943.

Mr. Sostrom's costs estimates are unreliable because he has no experience in estimating costs for those portions of an irrigation system other than the pipe distribution system, and with respect to those costs he rejected the costs developed by Banner Associates in favor of the costs developed by Stetson Engineers. Mr. Bishop testified that Banner had used Mr. Stetson's costs "in a large sense."

The Type VIII lands are all within the Wind River Irrigation Project and all have currently working canals and ditches that do not require enlargement. For some Type VII lands, canals and ditches must be repaired and it is proper to assess repair costs against not only the Type VII lands but also the other lands benefited.

The work of Banner Associates has been repudiated by the State through the filing of Appendix 11.

Wyoming's Finding No. 23-16 - Practicably irrigable Type VII lands, p. 947.

This finding is an apparent attempt to summarize the positions of the parties. The position of the United States is overstated -- we do not argue that all Type VII lands are practicable irrigable, only those that can be economically irrigated as demonstrated by the United States' witnesses.

Wyoming's Finding No. 23-17 - Court adopts Wyoming's findings,
pp. 949.

This is a summary of the State's proposed findings
in its 23 series. The United States has commented on each
proposed finding in the series and adopts those remarks herein.

Wyoming's Finding No. 24-2 United States' Claim, pp. 953-955.

Wyoming's concerns are addressed in the United States' Brief in Support, pp. 286-299A. We must, however, further respond by noting that it was not necessary for Messrs Waples, Johnstown or Saunders to testify in addition to Mr. Billstein. They were merely part of the overall team working under Mr. Billstein.

Mr. Billstein was much more involved than Wyoming indicates on page 954 of their brief. See United States Finding No. 2, p. 15. The overall work effort was set-up and participated in fully by Mr. Billstein. Tr. 1897, 1935-39, 2542-44. The HKM workers performing the majority of the field work were personally selected by Mr. Billstein based on their expertise. Tr. 1897, 1910-12, 1931-32, 1935-39, 1988-89. Mr. Billstein analyzed and verified their field work. Tr. 1935-39, 1988-89, 2150-51, 2740-41, 2838, 2842-43, 2962. Mr. Billstein spent considerably more than three days on the study. Tr. 2110, 2150-51, 2838-39, 2907-08. Mr. Billstein conducted interviews with BIA irrigation personnel as well as the ditch riders to insure that the land ultimately claimed was being irrigated. Tr. 1923-38, 1957, 2105-09, 2151, 2740-41, 2838, 2842-43, 2962. The work product was acknowledged by the Court as professional. Tr. 2927.

Wyoming's Finding No. 24-4 Conceptual Deficiencies, pp. 958-959, and
Wyoming's Finding No. 24-5 Failure to Establish Arability, pp. 960-
965.

Wyoming, again, attempts to establish a previously unheard of concrete definition of practicably irrigable acreage. The Special Master should apply sound reasonable judgment and not some artificial steadfast definition. When dealing with currently irrigated acreage, as we are here, it would be silly to apply artificial criteria to land that was under irrigation and find that the land was not irrigable. As we have stated time and time again, the proof is in the pudding -- if the land is irrigated it is irrigable.

The term practicably most certainly means reasonably. We must rely on the common sense practice of those irrigators in the areas. Surely they know when the land is irrigable. Men and women whose livelihood depends upon farming do not waste their time or their money on land that is not reasonable to irrigate. Irrigable land is not found only in the middle of a large Bureau of Reclamation project growing high value cash crops.

The Indians and non-Indians of the Wind River Reservation know what can and cannot be irrigated. Thus, the land that is irrigated is practicably or reasonably irrigable. Only when there is no current irrigation must we proceed on to establish by arability, engineering and economics that the land can be irrigated.

Mr. Billstein felt that the proof that it was reasonable to develop these irrigation systems was the fact that they were irrigated (Tr. 2148-49). In addition, the field work component established the capability of the irrigation systems to deliver water to the use areas (Tr. 2149-50). Although the study was not undertaken to compare lands on a tract-by-tract basis over a long-term period (Tr. 1914-16, 2145), Mr. Billstein concluded, based on his overall investigation, that irrigated land, if anything, slightly increased since 1939 (Tr. 1914-16, 2419). This was based on his review of historic photographs (Tr. 1914-16); his analysis of BIA Assessability Records (Tr. 1936, 2588-89, 2713); and the fact that most of the land irrigated had a permit of record (1905-1915) with the State Engineer's Office (Tr. 2565). Previous testimony relative to such areas as the Federal Irrigation Project, LeClair Irrigation District, etc., established that assessable acreage has changed little since the 1950's. Tr. 1936, 2588-89, 2713. In addition, the application of strict arability criteria to an irrigated land base was felt to be suspect based on previous work performed by USBR in the basin. Tr. 2816-17, 2827-28.

There is a large quantity of privately irrigated land in the area that does not meet the Bureau of Reclamation arability criteria. This was clearly established through cross-examination of Mr. Sommers on the USBR Wind Division Report. United States Exhibit WRIR-CS-100. Regarding the Popo Agie River Valley:

A land classification was begun as part of these investigations but it became evident, after covering about 70 percent of the area, that most of the irrigated land is of marginal quality and would not meet Bureau of Reclamation arability standards. In view of this condition, the surveys were thereafter limited to identification of irrigated lands and no further consideration was given in the studies.

Tr. 12477.

Regarding the LeClair-Riverton Area:

LeClair-Riverton Area. The LeClair Riverton Irrigation District operates the LeClair Canal, originally constructed by the Indian Service as one of the five units of the Wind River Irrigation Project, and privately constructed extension known as the Riverton Number 2 Canal. The latter roughly parallels Wyoming Number 2 Canal, which is at a lower elevation, and serves the strip of land lying between these two canals. The LeClair-Riverton Number 2 Canal closely follows a series of fans that extend from the broken residual up-

lands to the upper edges of terraces.
Present irrigation totals approximately
11,850 acres, of which 6,830 acres were
classified as arable under Bureau stan-
dards. Of the remaining irrigated land,
215 acres were designated Class 5D, 2,200
acres Class 4P, and 2,605 acres Class 6W.
There is little or no opportunity for
development of new land. It is antici-
pated, however, that the Class 5D land
would be drained, as well as about one-
third or 2,275 acres of the irrigated land
of arable quality, to increase its pro-
ductivity. (emphasis added.) Tr. 12477-78.

MR. ECHOHAWK: Your Honor, just so the
record is clear, Page 11 of that document,
the upper - the first paragraph on that page,
defines 4P, 5D, and 6W. It also, so the
record is clear, indicates that that land
has a vested water right. Tr. 12479.

To require that all Indian land meet arability requirements,
especially that under current irrigation, is both unfair and un-
reasonable. If land is irrigated it is irrigable.

Wyoming's Finding No. 24-7 Failure to establish engineering element,
pp. 968-970.

There is no absolute requirement that engineering designs be presented to establish practicably irrigable acreage. The HKM field work on the unadjudicated-in-use lands documented the present capability of the irrigation systems to deliver water to the use areas. Tr. 2149-50. How else does Wyoming suppose that the water got to the land?

Wyoming's Finding No. 24-9 - Wyoming's engineering experts,
p. 973.

The State again misstates the court's ruling on
Mr. Sostrom's expertise and Mr. Bishop's background.

(1) The whole concept of applying a reduced diversion level to Type IV or VI lands is erroneous. Mr. Billstein continuously pointed out that certain physical constraints in evidence at the time of field inspection were correctable and would allow full service irrigation to be undertaken on many of these lands. Tr. 2044, 2337, 2620-2622, 2658-2661. In addition, the procedure of reducing diversion on Type VI land is not logical. A significant amount of the Type VI land is associated with the Bawlin Bull sprinkler project. Tr. 2850-51. Based on the state concept, a decrease in water requirements should be applied to this land base. This is a physical impossibility with the present sprinkler system in place. Mr. Toedter recognized the current level of reduced depletion (Tr. 6938-39) but said nothing about a similar reduction in water requirements. Mr. Billstein noted that through management or physical modifications, that it appears that the deficiency could be corrected. Tr. 2704-05, 2850-52.

Mr. Billstein further explained that management decisions impacted the level of water use. Our job here is to quantify the water right using the full potential of

the lands in question. Assessable acres in the Federal Irrigation Project use water in relationship to their desired farming intensity. Tr. 2621-22. Level of water delivery and usage could be increased by the farmer because his land is assessable and he is entitled to a full delivery of water. Tr. 2622.

- (2) The concept of a cutoff date for water requirements relative to lands in a water short drainage is not logical. Mr. Billstein established the timing and quantity of water flows in the minor tributaries to establish the historic farming practices of the area. United States Finding No. 437, p. 150. Results of this water availability analysis were supplied to other United States' experts for their irrigability studies. United States Finding No. 438, p. 150. Mr. Billstein did not in any way testify that water was not or could not be delivered to lands after mid-July. If this were the case, then all acreage claimed by the United States in the minor tributaries would be Type IV lands. Wyoming Exhibits HB-137-1 through HB-137-34A. The site-specific field studies and subsequent interviews by

HKM representatives confirmed that many lands were receiving full service irrigation in the minor tributaries. United States Finding No. 12, p. 19. Information developed on springs, storage facilities, etc., in the minor tributaries was apparently neglected by the State of Wyoming. This was not the case with the United States. United States Finding 439, p. 150.

(3) The concept of easily achieving 50% efficiency is not properly presented by the State of Wyoming. Mr. Billstein stated that during extreme drought that water users were historically forced to increase their efficiencies or make associated management decisions. This was used to manage water shortages. This was defined as being a hardship on the farmers. United States Findings 422 and 425, p. 146.

(4) The State of Wyoming's recommendation that 0% of net irrigation requirement be applied to Type V lands is in error. Net irrigation requirement is a depletion. Mr. Billstein testified that a beneficial use was taking place on Type V lands. Ranchers were using them for grass and pasture. Essentially, a crop is being grown which has a net irrigation requirement or depletion. This must be recognized. Tr. 2695-97.

As Mr. Bishop testified on cross-examination and as was demonstrated by the testimony at Worland, his water requirements are not sufficient to satisfy the net irrigation requirements of his cropping pattern.

With respect to the last paragraph on yellow sheet 977, the United States has these comments to offer. As both Mr. Billstein and the witnesses at Worland testified, efficiencies are increased in times of drought. However, the testimony was clear that the agricultural activities could not continue if in every year the irrigation system was operated as if in a drought condition. Thus, even under the State's "minimal need" theory there is no evidence in the record to support the proposed finding.

"Practicably irrigable acres" does not require that the Indians go to extreme measures to increase the efficiency of an existing irrigation system. All that is required is that they show that water can be put to beneficial use.

Dr. Mesghinna's design for the future projects achieve an efficiency of close to 50 percent. The State's witnesses criticized these designs as too costly and we must assume that if the existing irrigation systems were rebuilt to achieve a 50 percent efficiency the State would say that these designs would be too expensive.

Finally, all of the lands that are the subject of proposed finding 24-10 are currently receiving water. Under the State's theory they would lose any water right merely because they are receiving water and are not included in Dr. Mesghinna's future design. The effect of this is to penalize them for being under current irrigation.

Wyoming's Finding No. 24-11 - Court's conclusions re acreage and water requirement, p. 981.

The figures set out in this finding are apparently based on Mr. Sostrom's testimony and on HSO-3A, HSO-9, and HFB-5A as modified by whoever wrote the proposed finding and by Appendix 11. As this Court will recall HSO-3A, HSO-9 and HFB-5A are based on HSO-2A which was the result of at least two modifications to HSO-2 -- HSO-2(rev.) and HSO-2(2d rev.). The court at the time these modifications were being made by Mr. Sostrom commented that the constant changes cast serious doubt on the credibility of Mr. Sostrom. These additional changes now being made by someone other than Mr. Sostrom, and not under oath, further erode the testimony of Mr. Sostrom.

The finding itself identifies the sources of water as "Stream No." such and such. There is nothing in the record to indicate what these stream numbers refer to.

In support of its finding, the State, on yellow sheet 981, argue that Mr. Sostrom prepared the tabulation of acres falling within the State's arable land base. The tabulation prepared by Mr. Sostrom, however, was based on a "tract-by-tract" review of aerial photographs. Mr. Merrill stated that the purpose of the analysis was to show the subjectivness of aerial photographs interpretation, not to determine which lands were irrigated in 1980. Mr. Sostrom, of course, did not do the tract-by-tract

analysis - it was done by others who did not testify. Mr. Sostrom himself advised the court that it should not rely on the tract-by-tract analysis in determining water requirements. The fallacy of the tract-by-tract analysis is completely discussed in the United States' April 7, 1982, brief.

The points raised by the State on page 982 of the yellow sheets have been rebutted before but briefly they are:

- 1) The State, including Mr. Bishop, used the same climate data and cropping pattern used by Mr. Stetson.
- 2) Mr. Stetson determined net irrigation requirement based on the climate and the cropping pattern. Mr. Bishop attempted to determine water requirements based on "land types" and on water supply - factors that have nothing to do with water requirements.
- 3) Waste water is included in Mr. Stetson's diversion requirements because it's a legitimate factor in the overall efficiency.
- 4) Mr. Stetson relied on the available historic records to determine the diversion requirement for the project lands; Mr. Fassett used Mr. Stetson's diversion in the Fassett model to determine the diversion requirements for non-Indian land. Mr. Stetson also used these historic records to determine the project efficiencies and the overall efficiency of 35 percent. Mr. Bishop agrees that the overall efficiency of the projects is 35 percent,

thus confirming Mr. Stetson's methodology and results. Mr. Bishop used a 50 percent efficiency despite the fact that he agreed that Mr. Stetson's efficiencies were correct. Mr. Fassett did not use a 50 percent efficiency in determining non-Indian water requirements but used the diversion requirements testified to by Mr. Stetson - again indicating that the State is satisfied with the non-Indian efficiency of 35 percent, has no intention of requiring the non-Indians to conserve water, and seeks to impose the costs of improving the system entirely on the Indians.

Again, there is nothing in the term practicably irrigable acres that requires the use of land canals, sprinkler irrigation, or a buried pipeline for water distribution, particularly where the lands are served by existing irrigation projects having none of those features.

Wyoming's Finding No. 24-12 - Lack of economic analysis, p. 983.

As we stated in regard to the State's Proposed Finding No. 24-4, expert opinion testimony is not essential when the actual practice shows that lands are practicably irrigated.

Wyoming's Finding No. 24-13 - Failure of conceptual approach,
p. 987.

Mr. Billstein testified that there is an adequate
water supply for the unadjudicated in use lands.

Wyoming's Finding No. 24-14 - Facutal deficiencies in United States testimony, p. 989.

The United States disagrees with this proposed finding. See our comments on finding#24-15 through 24-20.

Wyoming's Finding No. 24-15 Deletion of lands outside the reservation,
pp. 991-992.

The lands north of the stipulated boundaries are held in trust by the United States for the benefit of the Indians and are treated and administered as a part of the reservation. See U.S. Statement of Geographic Boundaries filed herein which is also incorporated into the boundary stipulation.

Wyoming Finding 24-16 Obstacles to arability, pp. 993-995.

- (1) Wyoming asserts that the total unadjudicated-in-use acreage must be reduced by 6,549 acres because of trees, brush, haystacks, stockyards, draws, ravines, etc. Wyoming's lack of explicit acreage breakouts and citations to concrete evidence in the record makes it clear that the Special Master has no basis to exclude any acreage for these reasons. Mere bald assertions are not evidence. The use of infra-red photography to expose "high, dry, alkali" lands is similarly flawed.
- (2) The examples documented in the transcript references are for only a few isolated tracts relative to sub-irrigated land or Type IV acreage in water short drainages. Tr. 2208, 2599, 2600, 2609, 2628, 2647. Mr. Billstein demonstrated, in the case of the physical obstacles, that they were insignificant. Tr. 2599, 2600, 2628.
- (3) Mr. Billstein acknowledged utilizing infra-red photography for first impressions for indications of historic irrigation use. United States Finding No. 11, p. 19. He stated that he would never rely on infra-red photographs to make final conclusions on irrigated land. United States Finding No. 12, p. 19; Tr. 2647-48. The United States omitted obstacles that were of significance. United States Finding No. 13, p. 19.

The State of Wyoming's case-in-chief failed to justify excluding lands which appeared light on the infra-red photographs and consistently contradicted this approach by not including acreage that showed dark red in their unadjudicated-in-use totals. Tr. 12997, 13014-15, 13034, 13076. Mr. Sostrom testified that light tone on aerial photographs could still represent current irrigation. Tr. 12973, 13016, 13061, 13085. The State of Wyoming further lost credibility when they went to the field and found water to be applied on lands where the subjective art of pictorial photo-interpretations was inconclusive as to present use and they failed to use this data because it supported the United States' case. Tr. 13001-13009.

Wyoming's Finding No. 24-17 Inaccuracy of Photographs, pp. 996-1000.

Mr. Billstein requested scale-rectified photographs of Horizons, Incorporated. Tr. 1901. This request was received by Mr. Dozzi but he unfortunately didn't honor the request. United States Exhibit WRIR-JD-1; Tr. 11691-11703. HKM established a procedure to monitor the accuracy of the furnished photographs and personally visited Horizons to review the equipment and set-up quality control procedures. Tr. 1901-03. Assuming a rectification process was being carried out by the flight contractor, HKM worked with Horizon's lab personnel to obtain the most accurate product possible. Tr. 1902, 1903. Recognizing that the elevation changes on the reservation would impact scale accuracy in certain cases, HKM performed a scale verification assessment. Tr. 2002-2010, 2025. Based on a random check analysis, it was concluded that the plus and minus differences counter-balanced. Wyoming Exhibit WRIR-HB-1; Tr. 2025-2028. Mr. McRobbie performed only a limited review and his results appeared to counter-balance. Mr. Sostrom agreed time and time again with the United States' acreage statistics. Tr. 12913-12923.

It is incredible that the State would refer to the testimony of Mr. Dozzi.

1) The same aerial photographs used by Mr. Billstein were used by the State in its tract-by-tract analysis upon which all of Mr. Bishop's testimony depends.

2) Mr. Dozzi agreed that the contract with Horizon's called for scale rectified photographs and that Horizon's had been paid for scale rectified photograph. Mr. Dozzi was not the person who was the principal in charge of fulfilling Horizon's obligations under the contract - that was the responsibility of the president of Horizon.

3) Mr. Dozzi said he infrequently visited the laboratory where the photographs were being developed and was unaware of what the technicians were doing.

4) Mr. Dozzi testified that he could not point out any place where the acreage testified to by Mr. Billstein should be reduced.

5) Mr. McRobbie testified that he could make no conclusions regarding the accuracy of Mr. Billstein's testimony.

6) Mr. Dozzi's word, whether in the form of a contractual commitment or under oath in a courtroom, is not reliable.

Wyoming's Finding No. 24-18 Deletions from United States' claims,
pp. 1001-1003.

The United States has adequately shown that irrigable land does not have to be arable land. There is a large amount of currently irrigated acreage in the area that does not meet arability criteria. To say that those lands are non-irrigable would be to deny reality. See United States' Response to Wyoming's Findings 15-2, 24-4, and 24-5. The remaining 934.8 acres deleted by Wyoming Exhibit SS-1001 is purely conjecture on Wyoming's part. Mr. Sommers nor Mr. Sostrom never specifically established how those alleged facts rendered the parcels non-irrigable. See United States' Brief in Support, pp. 291-293.

Wyoming's Finding No. 24-19 - Wyoming's engineering expert, p. 1004.

This finding overstates the areas in which the court permitted Mr. Sostrom to express expert opinions. The statement on page 1005 of the yellow sheets that Mr. Sostrom was "intimately involved in creating irrigated lands" while working for the Highway Department is not true. Mr. Sostrom was intimately involved in putting highways through irrigated lands, thus taking them out of production - at a far greater cost than any of the irrigation projects designed by Stetson or Mesghinna.

Mr. Sostrom's only function with regard to irrigated land was to design a distribution system to replace those interrupted by highway construction. As noted in our April 7, 1982, brief, Mr. Sostrom rejected Banner's costs for a pipeline distribution system and accepted Dr. Mesghinna's.

Mr. Sostrom testified that, at the Highway Department, he did not rely on aerial photographs alone but visited the fields. He did not do so in his work on this case, nor did he use a stereoscope in his interpretation as was customarily done at the highway department.

Mr. Sostrom lives in Laramie, Wyoming not on the reservation. He lived on the reservation while a boy but his contact with Indians was limited to escorting a "Miss Indian American" contestant to a sock-hop. He testified that his only experience regarding irrigation was limited to watering his parents' garden.

- (1) The State of Wyoming has misrepresented all of Mr. Sostrom's study components. The State presented no basis in their brief to substantiate that Mr. Sostrom in any way broke out presently irrigated land from previously irrigated acreage. The State further failed to note that Mr. Sostrom's color infra-red study did not cover parts of the reservation. United States' Brief in Support, p. 290. Further, Mr. Sostrom dismissed the accuracy of the study due to its scale. Tr. 12622. He did not use a stereoscope or perform field verification although he testified that they were essential components of any hydrographic survey. United States' Brief in Support, p. 294; Tr. 12587.
- (2) The black and white analysis was similarly misrepresented by the State of Wyoming. The description of the categories of use are not on Transcript 12624. The State failed to point out that Mr. Sostrom's totals did not include thousands of acres in current use. United States' Brief in Support, p. 291. Furthermore, Mr. Sostrom did not use a stereoscope or perform field verification studies which he asserted were essential. United States' Brief in Support, p. 294; Tr. 12587. The confusion continued in his presentation of results where the statistics did not match the totals of his exhibit. Tr. 12622-24; Wyoming Exhibit WRIR-HSO-H. A review of the pertinent

documents demonstrates that Mr. Sostrom understated his conclusion on presently-in-use. Wyoming Exhibit WRIR-HSO-H.

- (3) The tract-by-tract analysis is totally confusing as to intent and methodology. Mr. Sostrom consistently stated that his purpose was to define whether land was irrigated in 1980. Tr. 12997, 13085, 13090; United States' Brief in Support, p. 298. Transcript 13026 does not indicate the purpose of the study as defined by the State of Wyoming. Basically, the purpose of Mr. Sostrom's study, as defined in the State's brief, conflicts with the testimony. United States' Brief in Support, p. 298.

The description of the analysis is not substantiated on Transcript 12696. The only portion of the analysis described on Transcript 12696 deals with the accuracy of Mr. Sostrom's hand held photographs which "show what they report to show." Unfortunately, Mr. Sostrom chooses not to present his results in a similar manner. United States' Brief in Support, p. 299A. The State compared results with the United States primarily by means of photographic interpretation. Unfortunately, this evidence is discredited by the admission of Mr. Sostrom that photo-interpretation is a "subjective art" and should be field verified. United States' Brief in Support, p. 294, 299.

Mr. Sostrom was in responsible charge of the tract-by-tract analysis. However, unlike Mr. Billstein, he established no verification process (United States Findings Nos. 10, 11, 12, pp. 18-19) and could not respond to questions as to why tracts or portions of tracts were omitted. United States' Brief in Support, pp. 293, 297. The study was not properly supervised, was not carried out in a reasonable length of time, and was not conducted under standard practices. United States' Brief in Support, pp. 293, 294, 295, 297, 298, 299; Tr. 12958.

Wyoming's Finding No. 24-21 Court's conclusions re: acreage and water requirements.

First, we must note that the State's brief, following this finding, is suspect in that there are no citations to the record. Perhaps this is just their wishful thinking.

The United States contends that the proof of irrigability is actual use. United States' Brief in Support, p. 286-87. The use of restrictive arability criteria to categorize suitability for long-term sustained irrigation is a dangerous concept. Tr. 2816-17, 2827-28.

The contention that Mr. Sostrom performed virtually all of the work personally for the tract-by-tract study is incredible. What, in fact, happened was that Mr. Sostrom performed a color infra-red and black and white study plus supervised the development of tract-by-tract data during Mr. Billstein's cross-examination. United States' Brief in Support, p. 290; Tr. 12963. All this knowledge was apparently disregarded when a few weeks before Mr. Sostrom testified a separate assessment was undertaken in September of 1981 by a complete new set of investigators. United States' Brief in Support, pp. 293, 294; Tr. 13016-13034, 13077-79. Mr. Sostrom had a limited role in the study. United States' Brief in Support, pp. 293, 294, 297. He set-up no verification program and could not explain his people's findings. United States' Brief in Support, p. 293; Tr. 13013, 13017, 13033, 13097. He did not require stereoscopic analysis to be undertaken in the study (United

States' Brief in Support, p. 297), plus no field verification work was undertaken by his investigators. Tr. 13066, 13067; United States' Brief in Support, p. 297. Mr. Sostrom undertook only a minor field review effort and chose not to use the information if it supported the findings of the United States. Tr. 13001; United States' Brief in Support, p. 299. There were numerous conflicts between the tract-by-tract analysis and his previous studies which he could not explain. In fact, he changed his conclusions during his testimony. Tr. 13015, 13037, 13087. The whole concept of delineating land based on use in 1980 is irrational based on the available photographs and the study program. Tr. 13055, 13085; United States' Brief in Support, pp. 290-299.

Mr. Billstein personally set-up the Government's historic lands program and analyzed and verified the results of the unadjudicated-in-use study. United States' Brief in Support, pp. 287-289. Unlike Mr. Sostrom, developing and conducting studies to identify current irrigation is a major part of Mr. Billstein's professional work. United States' Brief in Support, p. 287. Mr. Billstein was involved in all components of the study. Tr. 1897, 1935-39, 1988-89. Mr. Billstein personally selected his field personnel and judged them as components. Tr. 1897, 1935-39, 1910-12, 1931-32, 1988-89. He required stereoscopic as well as field verification studies to be undertaken. United States Exhibit WRIR-C-138. His work product was acknowledged by the Court as professional. Tr. 2927.

Wyoming's Finding No. 26-2 - United States Claim, pp. 1039-43

This whole contention of the State of Wyoming that the Amended Motion To Take Judicial Notice, March 16, 1981, should be identical to the United States Exhibit WRIR C-304-ADJ is in error. Counsel for the United States correctly represented that those claims which were part of the Amended Motion were similarly part of Exhibit WRIR C-304-ADJ. Tr. 7204. Format was changed for ease of administration. Tr. 7211. However, during the course of Mr. Billstein's testimony, the United States made corrections to the unadjudicated in-use land base to reflect overlaps of adjudicated lands. United States Exhibit WRIR C-142. This exhibit was introduced on March 19, 1981, which was three days after the Amended Motion To Take Judicial Notice. United States Exhibit WRIR C-142; Wyoming Brief 26-2. This exhibit delineated adjudicated acreage which was mutually exclusive of the Amended Motion To Take Judicial Notice. United States Exhibit WRIR C-142. This acreage total (554.90 acres) had to be added to the overall adjudicated acreage total. United States Exhibit WRIR C-142. This increased the adjudicated land base to 17,112.44 acres. Some of these tracts were presented in State exhibits utilized during Mr. Billstein's cross-examination. Wyoming Exhibit HB-2000. Further bookkeeping was carried out in preparation of Mr. Stetson's testimony where the results of the United States revised studies were reflected in his testimony. Wyoming Exhibit HS-1. United States Exhibit 304-ADJ presents a simplified form of Wyoming Exhibit HS-1 for ease of use by the court.

In summary, it should be no mystery to anyone that United States Exhibit WRIR C-304-ADJ, is the controlling document. The total adjudicated acreage is 17,411.04 rather than the 15,411.04 acres presented by the State of Wyoming.

Wyoming's Finding No. 26-4 - United States' reliance on Wyoming State law, pp. 1044-49.

The Special Master has ruled that State water right certificates are prima facie proof of irrigability. United States Brief in Support, pp. 279-285. See also Memorandum in Support of United States' Amended Motion To Take Judicial Notice and for Order that Adjudicated State Water Rights are Prima Facie Evidence of Irrigability in Determining Reserved Water Rights, filed June 3, 1981.

Wyoming's Finding No. 26-5 - Failure to establish engineering element, pp. 1050-51.

See response to Wyoming Finding No. 26-4.

Wyoming's Finding No. 26-6 - Failure to establish economic feasibility,
pp. 1052-53.

See United States' response to Wyoming Finding No. 26-4.

Wyoming's Finding No. 26-7 - Failure to establish water availability,
pp. 1055-56.

The State of Wyoming entirely overlooks the testimony
of Mr. Billstein that clearly and specifically established water
availability for the United States' claim.

Wyoming's Finding No. 26-9 - Calculation of water requirements,
p. 1060.

We have already commented on this theory propounded
by the State of Wyoming in our objection to Wyoming's proposed
finding in its 24 series.

Wyoming's Finding No. 26-10 - Error in the motion to take judicial notice and United States Exhibit WRIR C-304-ADJ, pp. 1061-67.

Each of the four problem areas in the adjudicated acreage tables raised by the State of Wyoming will be discussed in the following sections. Results will be presented to define errors in the State of Wyoming assessment or offer explanations for the differences. A fifth tabulation will be presented which establishes how the State of Wyoming could have performed a simplistic analysis to confirm the 17,411.04 acre value and avoid any confusion factor. United States Exhibit C-303-ADJ, adds final detail to a very comprehensive presentation of adjudicated lands by the United States.

Table 1 presents an analysis of those permits which were purported to be included in the United States' Amended Motion To Take Judicial Notice, but excluded from United States Exhibit WRIR C-304-ADJ. Fifteen (15) separate permits will be assessed. As seen in Table 1, the majority of permits examined contained no error. The rest were basically comprised on permit number transposition problems. Although an inconvenience, this is hardly a confusion factor. The remaining permits dealt with bookkeeping; this included some small acreage which was found to be in either fee ownership or outside adjudicated boundaries. United States Exhibit WRIR C-303-ADJ.

A similar analysis of permits contained in United States Exhibit C-304-ADJ, but not within the Amended Motion, is presented in Table 2. The results are just as straightforward. In four of the ten cases, the problem was identical to cases in Table 1. This involved a transposition of numbers with easily identifiable ditch names and acreage. No confusion should exist. Reference should be made to United States Exhibit C-303-ADJ. Bookkeeping was associated with the remaining lands. In two cases, adjudicated tracts from State exhibits (HB-2000) were added to the totals. In the remaining acreage, further research established that certain lands were trust lands instead of fee lands. Documentation of location for any cross-checking by the State of Wyoming is presented in WRIR C-303-ADJ.

Table 3 reflects information which, if the State of Wyoming had developed the correct values and then logically and knowledgeably evaluated the results, would have alleviated any confusion over the adjudicated land base. Use of United States Exhibit WRIR C-303-ADJ, accommodates documentation of all adjudicated land tracts. The State of Wyoming made major errors in the calculation of acreage on four tracts. See Table 3. These errors, in and of themselves, would distort any assessment of changes between the two documents. The remaining differences were principally due to acreage added as a result of United States Exhibit WRIR C-142. The remaining bookkeeping is the result of

land status changes or adjustments for either reservation or adjudicated boundary conditions. See United States Exhibit WRIR C-303-ADJ. Results of Table 3 will be utilized in the conceptual assessment presented in Table 5.

The United States is also submitting an amended version of Finding of Fact No. 1, which is also United States Exhibit WRIR C-304-ADJ. Four permit numbers were transposed previously and those corrections are set out in the amended finding. At any rate, United States Exhibit WRIR C-303-ADJ, the maps designating the acreage, are correct and clearly identify the claimed acreage.

Table 4 reflects a bookkeeping analysis utilizing the Amended Motion To Take Judicial Notice as a base and United States Exhibit WRIR C-142, Tables 1-3 as documentation of acreage modifications. Results are compared against the totals in United States Exhibit WRIR C-304-ADJ. This documentation establishes the adjudicated totals to within 43 acres. There are in excess of 30 addition changes. Most are positive additions while others are negative. It is not felt that it is necessary to present these miscellaneous tracts to confirm the final 17,411 acre statistic. This is not felt to be reasonable as Tables 1-5 should satisfy all concerns of the State of Wyoming.

In summary, there should be no confusion in anyone's mind that the 17,411 acre total represents the adjudicated acreage claims of the United States. Stream sources were omitted from United States Exhibit WRIR C-304-ADJ, because permit and associated proof numbers speak for themselves. Water supply is part of the public record associated with adjudicated claims.

Table 1
 REVIEW OF PERMITS PURPORTED TO BE WITHIN THE UNITED STATES
 AMENDED MOTION BUT EXCLUDED FROM WRIR C-304-ADJ

ITEM	PERMIT NUMBER	ACREAGE (ACRES)	DISPOSITION OF RESPECTIVE PERMITS
1.	11659	11.1	Permit No. 11659 is contained on both documents. Wyoming is in error.
2.	17203	49.0	Permit No. 17203 is contained on both documents. Wyoming is in error.
3.	6221	(67.0) ¹	This Permit is contained in both documents. It is the Riggs Ditch. The State of Wyoming should have checked the proof number to confirm this. Further, the State of Wyoming mistakenly listed the acreage as 67 acres. It is 27 acres. Exhibit WRIR C-304-ADJ has an improper Permit Number for Riggs Ditch. It should be 6221 rather than 6621.
4.	7457	2.9	The United States dismissed this claim because the legal description and accompanying map were inconclusive as to whether it was on trust land.
5.	7856	48.0	Permit No. 7856 is contained in both documents. Wyoming is in error.
6.	6634	20.0	Permit No. 6634 is contained in both documents. Wyoming is in error.
7.	12541	(12.0) ¹	Later inspection by United States resulted in this claim being dismissed due to fee ownership. Should be 19 acres (State error).
8.	7599	2.0	Dismissed because it was later found to be outside Reservation Boundary and not on trust land.
9.	17624	3.4	Later inspection by United States resulted in this claim being dismissed due to fee ownership.
10.	20124	1.1	Found to be outside adjudicated land boundary.

Table 1 (Continued)
 REVIEW OF PERMITS PURPORTED TO BE WITHIN THE UNITED STATES
 AMENDED MOTION BUT EXCLUDED FROM WRIR C-304-ADJ

ITEM	PERMIT NUMBER	ACREAGE (ACRES)	DISPOSITION OF RESPECTIVE PERMITS
11.	17865	17.2	Permit 17865 is contained on both documents. Wyoming is in error.
12.	7904	75.5	Wiederien Ditch is contained in both documents. Permit No. 7094 in WRIR C-304-ADJ should read 7904.
13.	2618E	35.0	This Permit is contained in both documents. The ditch name and acreage that appear in each exhibit is the same. Unfortunately, the Permit No. 2618E had a number transposition in WRIR C-304-ADJ. It should be changed from 2168E to 2618E.
14.	8242	(239.33) ¹	Permit No. 8242 for the Beeline Ditch for 100 acres is contained in both documents. The State mistakenly used the acreage for the Mosle Ditch for WRIR C-304-ADJ (239.33 acres). This is Permit No. 8482. The United States recognizes a transposition error for Mosle Ditch on the Amended Motion. Permit 8242 should be 8482.
15.	2943E	21.0	This Permit is contained in both documents. It is the Enlarged Blackwell Ditch and its acreage is 21.0 acres. A number transposition occurred on WRIR C-304-ADJ. Permit No. 2493E should read 2943E.

Note

1. Acreage presented by State of Wyoming is wrong.

Table 2
 REVIEW OF PERMITS PURPORTED TO BE WITHIN THE UNITED STATES
 EXHIBIT WRIR C-304-ADJ BUT EXCLUDED FROM U.S. AMENDED MOTION TO TAKE JUDICIAL NOTICE

ITEM	PERMIT NUMBER	ACREAGE (ACRES)	DISPOSITION OF RESPECTIVE PERMITS
1.	8623	83.0	This acreage was added as a bookkeeping measure based on State Exhibit HB-2000.
2.	6621	27.0	This is the identical issue as Item 3 of Table 1 except that the State of Wyoming has the right acreage. Permit No. 6621 should read 6221.
3.	7426	17.0	Based on State of Wyoming Exhibit HB-2000, this acreage was added to the Government claim.
4.	2493E	21.0	This is the same issue as Item 15 of Table 1. The acreage is carried in both documents. Permit No. 2493E should read 2943E.
5.	8533	70.0	Previous thought to be fee land. See U.S. WRIR C-303-ADJ.
6.	8482	239.33	Part of issue addressed under Item 14 of Table 1. Permit No. 8482 was transposed on the Amended Motion and read 8242. It should be Mosle Ditch Permit No. 8482 for 239.33 acres. Twenty-eight acres of adjudicated land in the Amended Motion were found to be in fee.
7.	13431	10.9	Found to be in trust ownership. See U.S. WRIR C-303-ADJ.
8.	2168E	35.0	This is the identical issue as Item 13 of Table 1. Permit 2168E should be 2618E. Reference should be made to U.S. WRIR C-303-ADJ.
9.	15267	2.0	Found to be trust land. See U.S. WRIR C-303-ADJ.
10.	7094	15.5	Same issue as Item 12 of Table 1. Acreage should be 75.5 acres instead of 15.5 (State error). Covered in both documents.

Table 3
 REVIEW OF DIFFERENT ACREAGE CLAIMS BETWEEN
 AMENDED MOTION AND EXHIBIT C-304-ADJ

ITEM	PERMIT NUMBER	AMENDED MOTION ACREAGE (ACRES)	EXHIBIT C-304-ADJ ACREAGE (ACRES)	DISPOSITION OF DIFFERENCES
1.	6633/ 9080	50.9	346.8	Of the original 50.9 acres, 15.9 were found to be fee land. This left 35 net acreages. To this total is added 132.90 acres, as defined in U.S. WRIR C-142. New previously unaccounted for acres of 178.90 acres is added through Proof Numbers 20248 and 18593. This results in 346.8 acres.
2.	6628	179.0	451.0	Of the 179 acres delineated in the Amended Motion, 6 were defined as fee land. To this total is added 278 acres of adjudicated land as established in U.S. WRIR C-142. This results in 451 acres.
3.	15697	615.3	(555.93) ¹	The acreage in U.S. WRIR C-304-ADJ is 656.93 acres. This is a State of Wyoming error as they left tract 15-1C (WRIR C-303-ADJ) out. The increase in acreage (41.63 acres) is due to the determination that this land was in trust ownership.
4.	7857	122.0	152.0	Increase in acreage due to land status change.
5.	7856	48	(0) ¹	State of Wyoming error. They are 48 acres under Permit No. 7856 in Exhibit WRIR C-304-ADJ.
6.	12128	(38) ¹	83	There are two separate tract numbers which should be combined for total acreage. Remarkably, the other tract is presented under Item 8. State of Wyoming error.
7.	8866	(81) ¹	108	State of Wyoming error. There are 108 acres under Permit No. 8866 in the Amended Motion.

Table 3 (Continued)
 REVIEW OF DIFFERENT ACREAGE CLAIMS BETWEEN
 AMENDED MOTION AND EXHIBIT C-304-ADJ

ITEM	PERMIT NUMBER	AMENDED MOTION ACREAGE (ACRES)	EXHIBIT C-304-ADJ ACREAGE (ACRES)	DISPOSITION OF DIFFERENCES
8.	12128	(45) ¹	83	See Item 6. State of Wyoming error.
9.	6588	372.2	411.9	Change in land status to trust land.
10.	6583	97.3	107.2	New adjudicated tract added.
11.	8913	87	100	Change in land status to trust land.
12.	16943	16.7	13.0	Land lost to fee ownership.
13.	Terr.	376.26	377.26	One acre error in subtraction.
14.	2306	128	17	Most of the Dewitt adjudicated land base was found to be outside the Reservation boundary. See U.S. WRIR C-303-ADJ.
15.	.2125E	331	318	Thirteen acres found to be off-Reservation.
16.	2187E	683	(387.41) ¹	State of Wyoming miscalculated acreage on WRIR C-304-ADJ. It should be 723.91 acres. Increase over Amended Motion acreage is due to land status change of 40.91 acres.
17.	8721	464.41	(185.0) ¹	State of Wyoming error. Acreage on Exhibit C-304-ADJ is in fact 464.41 acres. No change between the two documents.
18.	12877	46	70.5	Acreage increase due to land status change.

Note

1. () Reflects error in total by State of Wyoming.

TABLE 4
CONCEPTUAL DOCUMENTATION OF ADDITIONAL ACREAGE

<u>Item</u>	<u>Description</u>	<u>Acreage Difference</u> <u>(acres)</u>	<u>Total</u> <u>(acres)</u>
1.	Amended Motion	16,557.54	16,557.54
2.	U.S. Exhibit WRIR C-142	+ 554.90	17,112.44
3.	Table 3 - Item 1	+ 163.00	17,275.44
4.	Table 3 - Item 2	- 6.00	17,269.44
5.	Table 3 - Item 3	+ 41.63	17,311.07
6.	Table 3 - Item 4	+ 30.00	17,341.07
7.	Table 3 - Items 5-8	-0-	17,341.07
8.	Table 3 - Item 9	+ 39.70	17,380.77
9.	Table 3 - Item 10	+ 9.90	17,390.67
10.	Table 3 - Item 11	+ 13.00	17,403.67
11.	Table 3 - Item 12	- 3.70	17,399.97
12.	Table 3 - Item 13	+ 1.00	17,400.97
13.	Table 3 - Item 14	- 111.00	17,289.97
14.	Table 3 - Item 15	- 13.00	17,276.97
15.	Table 3 - Item 16	+ 40.91	17,317.88
16.	Table 3 - Item 17	-0-	17,317.88
17.	Table 3 - Item 18	+ 24.50	17,342.38
18.	Net Increase - Table 2	+ 54.9	17,397.28
19.	Net Decrease - Table 1	- 28.40	17,368.88 ¹

NOTE

1. The cumulative total of 17,368.88 acres reflects the major acreage changes documented by the State of Wyoming (Wyoming Brief 26-10) and U.S. Exhibit WRIR C-142. This is less than 43 acres from the total presented on U.S. Exhibit C-304-ADJ. Documentation is presented in U.S. Exhibit C-303-ADJ. It is not felt that documentation of the disposition of the remaining 43 acres is necessary.

As a final bookkeeping measure, Table 5 is presented to document, by tract number (see United States Exhibit WRIR C-304-ADJ), the acreage modifications delineated in Table 4. This enables the court to logically follow the changes introduced from the time of the Amended Motion To Take Judicial Notice to United States Exhibit WRIR C-304-ADJ. These modifications were utilized by Mr. Stetson in Wyoming Exhibit HS-1 and documented in United States Exhibit WRIR C-304-ADJ.

Table 5
DOCUMENTATION OF ACREAGE MODIFICATIONS SINCE
AMENDED MOTION TO TAKE JUDICIAL NOTICE

<u>Identification</u>	<u>Permit Number</u>	<u>Proof Number</u>	<u>Tract Number</u> ¹	<u>Acreage (acres)</u>	<u>Drainage/Project</u>	<u>Description of Modification</u>
1. U.S. EXHIBIT WRIR C-142 ANALYSIS						
1.	6628	18913	5M-4C	+107.0	Dinwoody Bench	Land added to adjudicated base from unadjudicated-in-use analysis
2.	6628	18913	5M-4C	+131.0	Dinwoody Bench	Land added to adjudicated base from unadjudicated-in-use analysis
3.	6628	16412	5M-2C	+ 20.0	Dinwoody Bench	Land added to adjudicated base from unadjudicated-in-use analysis
4.	6628	16412	5M-2C	+ 20.0	Dinwoody Bench	Land added to adjudicated base from unadjudicated-in-use analysis
5.	6632	18572	2-5C	+ 20.0	Coolidge Canal	Land added to adjudicated base from unadjudicated-in-use analysis
6.	6632	18573	2-1C	+ 24.0	Coolidge Canal	Land added to adjudicated base from unadjudicated-in-use analysis
7.	6633/9080	18596	1-4C	+ 63.4	Ray Canal	Land added to adjudicated base from unadjudicated-in-use analysis
8.	6633/9080	18423	1-3C	+ 35.5	Ray Canal	Land added to adjudicated base from unadjudicated-in-use analysis
9.	6633/9080	18423	1-3C	+ 16.0	Ray Canal	Land added to adjudicated base from unadjudicated-in-use analysis

Table 5 (Continued)
DOCUMENTATION OF ACREAGE MODIFICATIONS SINCE
AMENDED MOTION TO TAKE JUDICIAL NOTICE

<u>Identification</u>	<u>Permit Number</u>	<u>Proof Number</u>	<u>Tract Number</u> ¹	<u>Acres (acres)</u>	<u>Drainage/Project</u>		<u>Description of Modification</u>
Table 3-Item 1	6633/9080	20248	1-5C1	141.0	Ray Canal		Added after Amended Motion
Table 3-Item 1	6633/9080	20248	1-5C2	30.0	Ray Canal		Added after Amended Motion
Table 3-Item 1	6633/9080	18593	1-1C	7.9	Ray Canal		Added after Amended Motion
Table 3-Item 1	6633/9080	18423	1-3C	- 15.9	Ray Canal		Deleted for overlap and land status
Table 3-Item 2	6628	16412	5M-2C	- 6.0	Dinwoody Bench		Deleted for overlap and land status
Table 3-Item 3	15627	18541	15-2C	+ 41.63	Dry (Pasup) Creek		Land status change
Table 3-Item 4	7857	14870	16-24C	+ 30.0	Crow Creek		Land status change
Table 3-Item 9	6588	20736	22-2C	+ 39.7	N.F. Little Wind		Land status change
Table 3-Item 10	6583	18582	23-2C	+ 9.9	S.F. Little Wind		New adjudicated tract added
Table 3-Item 11	8913	14847	30-1C	+ 13.0	Bighorn River		Land status change
Table 3-Item 12	16943	19153	31-1C	- 3.7	N.F. Popo Agie		Land status change
Table 3-Item 13	TERR.	3526	34-1C	+ 1.0	M.S. Owl Creek		Correction for addition error
Table 3-Item 14	2306	6271	34-5C	-111.0	M.S. Owl Creek		Correction for Reservation boundary
Table 3-Item 15	2125E	15024	34-8C2	- 13.0	M.S. Owl Creek		Correction for Reservation boundary

2. TABLE 3 ASSESSMENT

Table 5 (Continued)
DOCUMENTATION OF ACREAGE MODIFICATIONS SINCE
AMENDED MOTION TO TAKE JUDICIAL NOTICE

<u>Identification</u>	<u>Permit Number</u>	<u>Proof Number</u>	<u>Tract Number</u> ¹	<u>Acreege (acres)</u>	<u>Drainage/Project</u>	<u>Description of Modification</u>
Table 3-Item 16	2187E	15388	34-13C	+ 40.91	M.S. Owl Creek	Land status change
Table 3-Item 18	12877	15755	36-1C	+ 24.5	Red Creek	Land status change
			TOTAL	+229.94	Acres	

3. TABLE 2 ANALYSIS

Table 2-Item 5	8533	18384	35-12C	+ 70.0	Mud Creek	Land status change
Table 2-Item 6	8482	14936	10-1C	- 28.0	E.F. Wind River	Land status change
Table 2-Item 7	13431	19564	36-6C	+ 10.9	Red Creek	Land status change
Table 2-Item 9	15267	16806	20-44C	+ 2.0	Muddy Creek	Land status change
			TOTAL	+ 54.9	Acres	

4. TABLE 1 ASSESSMENT

Table 1-Item 4	7457	11731	N/C	- 2.9	Crow Creek	United States dismissed claim because of legal description
Table 1-Item 7	12541	22601	N/C	- 19.0	Wind River	Claim dismissed due to fee ownership

Table 5 (Continued)
 DOCUMENTATION OF ACREAGE MODIFICATIONS SINCE
 AMENDED MOTION TO TAKE JUDICIAL NOTICE

<u>Identification</u>	<u>Permit Number</u>	<u>Proof Number</u>	<u>Tract Number</u> ¹	<u>Acreege (acres)</u>	<u>Drainage/Project</u>	<u>Description of Modification</u>
Table 1-Item 8	7599	11903	N/C	- 2.0	Popo Agie River	Dismissed claim - outside of Reservation boundary
Table 1-Item 9	17624	25257	N/C	- 3.4	Dinwoody Creek	United States dismissed claim due to fee ownership
Table 1-Item 10	20124	27746	N/C	- <u>1.1</u>	Dinwoody Creek	United States dismissed claim outside adjudicated land boundary

TOTAL - 28.4 Acres

TOTAL ADDITIONS TABLE 6 811.34 Acres²

Notes

1. Tract numbers delineated in U.S. Exhibit WRIR C-303-ADJ. N/C means no claim number.
2. Acreage additions when added to base acreage of Amended Motion total 17,368.88 acres. Remaining 43 acres are minor changes to a series of miscellaneous tracts. Not necessary to document.

Wyoming's Finding No. 26-11 - State's engineering experts, p. 1068.

We have previously commented on the State's exaggeration of Mr. Sostrom's and Mr. Bishop's backgrounds and expertise.

Wyoming Finding No. 26-12 - State of Wyoming acreage conclusion, pp. 1070-74.

As stated in Wyoming Finding and brief No. 26-12, the United States delineated 7195 acres of the adjudicated land base as currently in-use. The State of Wyoming then makes a presumption that the rest of the lands are retired because they were defined by HKM Associates as Type VII. Wyoming Br. No. 26-12. This shows a misrepresentation of the facts or a gross lack of knowledge. Mr. Billstein notes in his report that there are many reasons why trust lands are idle on the Reservation. United States Exhibit WRIR C-138. He pointed out to the court that, in certain cases, a farmer is willing to irrigate large tracts of land but the Tribes needed to modify their grazing units to accommodate a long term irrigation assignment. (Tr. 7377). This hardly establishes that the Type VII land is permanently retired.

Further, the application of strict arability criteria to an irrigated land base is felt to be suspect based on previous work performed by USBR in the basin. Tr. 2816-17, 2827-28. See also, United States' response to Wyoming's Finding No. 12-2.

Mr. Sostrom's adjudicated lands study suffered from the same deficiencies as his unadjudicated in-use analysis. Refer to United States' response to Wyoming's Finding No. 24-20.

Wyoming's Finding No. 26-13 - Court's acreage and water requirements conclusions, p. 1075.

The tabulation presented by the State in this proposed finding is at odds even with the testimony of Mr. Sostrom and Mr. Bishop - the State again admitting that those two experts made numerous mistakes in their testimony and exhibits. The column entitled "Stream No." in the proposed finding of fact is unintelligible.

In addition, 1) Mr. Bishop relied upon the same climate data and cropping pattern used by Mr. Stetson; 2) Mr. Stetson did not use the assumptions testified to by Mr. Bishop because those assumptions - as we have shown - are inaccurate; 3) waste is part of overall efficiency and Mr. Bishop adopted Mr. Stetson's overall efficiency; 4) the average diversion requirements developed by Mr. Stetson, based on historic records, were used by Mr. Fassett as the basis for the diversion requirement for non-Indian land in the projects.

Wyoming's Finding No. 27-2 - United States experts, p. 1084.

The proposed finding understates both the experience and background of the United States experts and the scope of their work. See United States' Findings Nos. 392-444.

Wyoming's Finding 27-3 - Insufficient water to meet the claims of the United States unless increased operation and irrigation efficiencies take place, pp. 1086-1088.

The State of Wyoming grossly misrepresented the occurrence and severity of water shortages. For the Big Wind River, Little Wind River and Popo Agie/Little Wind River/Bighorn River Study areas, which comprise the vast majority of the claimed acres, there were only a small number of years at a minor number of locations where any shortage was experienced at all. United States Findings Nos. 421, 425, 428, 429, 430, 431, pp. 145-148. In these watersheds, the noted shortages occurred under severe drought conditions and were minor. United States Findings Nos. 421, 425, 428, 429, 430, 431, pp. 145-148. Based on research of how farmers have historically managed their water supplies during drought periods, Mr. Billstein applied similar procedures and alleviated the shortages. United States Findings Nos. 421, 422, 425, 428-431, pp. 145-148. This conclusion should not be surprising to the Court since the United States' claims were considerably less than the current level of irrigation in these study areas. United States Findings Nos. 423, 426, pp. 146-147. Further, the Government has presented claims for future projects based on efficient state-of-the art design (United States Findings Nos. 120-124, pp. 55-58) plus utilized historic diversions relative to the historic land base claims. United States Findings Nos. 138, 158, 160, pp. 65, 69.

With respect to Owl Creek, Mr. Billstein showed there would be no deficiency in water availability during the months

of May, June, July and September relative to the recurrence interval criteria that was utilized for the assessment of this study area. United States' Findings Nos. 420, 433, 434, pp. 145, 149. It was established that irrigators traditionally increase their efficiencies during critical low flow months such as August. United States' Findings No. 435, p. 149. Applying standard increases in efficiencies, the limited shortages in the Owl Creek study area would be alleviated. United States Finding No. 434, p. 149. The conclusions of the United States that the minor number of shortages in evidence for the Owl Creek study unit are reasonable in that the claimed acreage is considerably less than the current actual use in the basin. United States' Findings No. 436, p. 150.

The analysis of the minor tributaries resulted in the conclusion that, typically, the farming operations in the area are built around the early timing of streamflow. United States' Findings No. 437, p. 150. It was concluded that when runoff was occurring in the early irrigation season that water was available for all United States claims. United States' Findings No. 439, p. 151. Basically, Mr. Billstein established that the farmers and ranchers use the water when it's there and that typically May-July is the runoff season. Tr. 7362, 7372-73. Mr. Billstein further established that local influences such as springs, storage, etc. could extend water supply beyond the May-July time period. Tr. 7379, 7372, 7362. This concept is reinforced in that most of the minor tributaries have full service irrigation occurring on certain tracts.

The non-agricultural claim issue is further misstated by the State of Wyoming. Mr. Billstein's opinion regarding the United States' mineral/industrial claims was that there was enough surface water to satisfy these claims and not conflict with the United States' agricultural claims. United States' Findings No. 440, p. 151. He did acknowledge that management was required for the uranium processing plant on Crow Creek. United States' Findings No. 440, p. 151. With respect to municipal claims, water was available to meet these needs as well as the United States Agricultural claims. United States' Findings No. 441, p. 152. For optimum fishery flows, conflicts were identified for only a minor number of reaches. United States' Findings No. 443, p. 152. These conflicts could be handled by decision of the Tribes. United States' Findings No. 444, p. 152.

Wyoming's Finding No. 27-6 - Wyoming's experts, p. 1093.

Neither Mr. Rice, Mr. Christopolous nor Mr. Fassett testified regarding the availability of water to meet the claims of the United States and the tribes. Mr. Fassett testified that there is not enough water to meet non-Indian claims to water. Mr. Rice testified that Mr. Fassett is a nice guy. Mr. Christopolous testified that certain "administrative assumptions" developed by Mr. Fassett were all right if modified. Mr. Fassett had testified that the unmodified administrative assumptions had been developed by Mr. Christopolous. Mr. Christopolous also testified that the non-Indian water rights data used by Mr. Fassett was unreliable.

Neither Mr. Fassett or Mr. Rice had developed and/or utilized a model of the size and complexity as the one used by the State of Wyoming. United States' Findings No. 653, 654, p. 222.

Wyoming's Finding No. 27-7 Insufficient water to satisfy federal and tribal claims, pp. 1095-96.

The Fassett model was not designed to rebut or challenge the conclusions of the United States' experts. United States Brief in Support, p. 413. It did not analyze distinct claims of the United States or the Tribes and did not develop a sensitivity of one claim to another. United States Brief in Support, p. 413, United States' Findings No. 656, p. 223. The State of Wyoming had input errors relative to lands on water rights (United States' Findings Nos. 640, 647, 657, pp. 218, 221), water requirements (United States' Findings Nos. 641, 642, 651, 652, pp. 219, 222), actual administration of the system (United States' Findings Nos. 648-649, p. 221), and operational parameters (United States' Findings Nos. 646, 650, pp. 220-221).

The State of Wyoming further stipulated that at no place in the basin could the "Fassett Model" be verified on a monthly basis. United States Finding No. 644, p. 220. The state model, however, reaches conclusions on water availability on a month-by-month basis. United States' Findings No. 644, p. 220.

The testimony of the United States and Tribal experts cannot be compared with the conclusions of the invalid Fassett model. United States' Brief in Support, p. 413. The actual testimony established that outside of a limited number of reaches where optimum fishery habitat flow requirements could not be met that the claims of the United States could be met. United States' Findings Nos. 421, 425, 428, 429, 430, 431, 434, 436, 439, 440, 441, 442, 443, and 444, pp. 145-152.

1(a) Return Flows Returning Upstream.

The contention that the United States had return flows returning upstream of corresponding diversion points is erroneous. It shows a fundamental lack of local knowledge of the study area. The primary area of contention relates to Control Point No. 29 of the Little Wind River Study Unit. Tr. 7451-7457. This control point is located on the Little Wind River just above its confluence with the Popo Agie River. United States Exhibits WRIR-C-294, WRIR-C-305. It is described in the text and schematic of Exhibit WRIR-C-308. It is a return flow node. United States Exhibit WRIR-C-308. The basic issue is the siting of Control Point No. 29 relative to the area outlined in yellow on Exhibit WRIR-C-294 which contributes return flow to Node 29. The explanation is as follows:

1. The last diversion point for Little Wind River Study Area is CP 27 which is several miles upstream of CP 29. United States Exhibit WRIR-C-294, C-308; Tr. 7452.
2. Control Point 29 is in a position to receive all the return flow from the bottom of Ray and Coolidge Units and most of the return flow from the Subagency Unit. United States Exhibit WRIR C-308.

3. The rest of the return flow from the Subagency Diversion (CP 27), which is minor, returns in nature to the Little Wind River below its confluence with the Popo Agie system. Tr. 7452. However, it was accounted for at CP 29 for convenience for the following reasons:
Tr. 7452-53.

- a. The last diversion for the Subagency Unit is CP 27 which is several miles upstream. Tr. 7452.
- b. There is no re-use of return flow in the Subagency Unit. Tr. 7453.
- c. The water resources of the Popo Agie system, under a 1868 priority, were extensive and the small amount of incremental return flow which would return to the Little Wind River below its confluence with the Popo Agie River is inconsequential to the water supplies in this reach of stream. Tr. 7452-54.
- d. Therefore, the minor amount of return flow which was returning to the river system from the Subagency Unit could be programmed to be accounted for at CP 29 instead of a new point downstream. Tr. 7452-54.

- e. This whole accounting issue had nothing to do with the ability to serve water in the Little Wind Unit. Tr. 7452-54. Further, this return flow component was included in the water availability studies completed for the Popo Agie/ Little Wind/Bighorn River study area. United States Exhibits WRIR-C-311, C-314, C-316; Defendant Hanover Exhibit No. 2.

In summary, the State of Wyoming has completely missed the facts. They suggest Wyoming's Finding No. 27-8 and the brief following that somehow return flows from CP 27 (the diversion) return upstream from the diversion (CP 27). This isn't even what they cross-examined Mr. Billstein about. Tr. 7451-54. Mr. Donnell wanted to know why all the return flow from the diversion (CP 27) was being collected at return flow CP 29 instead of accounting for a small portion to be received into the river system below CP 29. Tr. 7451-54. This was explained in the preceding five points. This is another example of the State of Wyoming's lack of expertise in river basin modeling.

1(b) Simplified Accounting Procedures Utilized.

Mr. Billstein spent considerable effort in evaluating current use and associated operating parameters on the reservation. Tr. 7243-44, 7251-53, 7296, 7407-08. He

then established which future and historic diversions had to be individually analyzed and which claims could be combined for convenience sake. United States Exhibits WRIR-C-307, C-308, C-316; Tr. 7500. The same procedure was undertaken for return flow collection points. Tr. 7407-08; United States Exhibits WRIR-C-307, C-308, C-316. This allowed Mr. Billstein to make the necessary conclusions. United States Finding Nos. 414, 419, pp. 143, 144; Tr. 7456.

1(d) It did not account for future lands return flow -- not realistic.

The State of Wyoming appears confused as to the purpose of the United States' detailed system operation study. It was conducted to determine whether there was a sufficient supply of water available to service all the claims presented by the United States' experts. United States Finding No. 414, p. 143. The availability of water was reinforced when Mr. Billstein testified that return flows from the future projects were not even needed to satisfy the needs of the claims of the United States. Tr. 7526-29.

1(e) Effect of drying up presently irrigated non-Indian land.

Mr. Billstein established that he was only accounting for return flow from lands associated with United States claims. United States Exhibits WRIR C-307, C-308, C-316. He noted that the timing and volume of return flow were established by Mr. Toedter based on historical

studies in the area. Tr. 7538-39. Irrecoverable loss percentages ranged from 5 percent to 15 percent of diversion based on available studies. Tr. 7538. The United States used a conservatively low percentage (20%) in their water availability studies to account for contingencies such as those posed in this question. Tr. 7538-39. The question is highly speculative. Tr. 7532, 7535.

1(f) Arapahoe Ranch lands.

Mr. Billstein's study included only those lands in Owl Creek for which the United States is seeking a priority date of 1868. Lands north of Owl Creek are not included. United States Finding No. 432, p. 148.

1(g) Integrated Analysis.

With respect to the operational analysis of the United States' claims, Mr. Billstein did perform an integrated analysis. Outflows from the Big Wind and Little Wind operation studies were included in the Popo Agie/Little Wind/Bighorn River assessment. United States Exhibit WRIR-C-316. Reference should be made to CP 7 and CP 9 descriptions. United States Exhibit WRIR-C-316. The transcript citations Tr. 7228 and Tr. 7462 do not address the integration issue. Therefore, the whole question is moot. For clarity, Mr. Billstein dismissed the minor tributaries from the Big Wind and Little Wind River studies because the timing and volume of their volume

of their flows had an insignificant impact on the studies. Tr. 7461.

The concept of integrating fishery flows into the study is, again, misrepresented by the State of Wyoming. The comparison of river flows versus recommended fishery requirements is the same as integrating fishery claims into the study. A series of exhibits were developed by the United States to accomplish this purpose. United States Exhibits WRIR-C-313, C-314, C-315. This allowed United States Exhibits WRIR C-309, WRIR C-310, WRIR C-311 to be developed.

1(h) No verification presented of the HEC-3 Model.

The HEC-3 Model is accepted by the profession as an acceptable model upon which to evaluate water availability. United States Finding No. 418, p. 144. The State of Wyoming showed its lack of understanding of the model by not understanding how to check the results. As stated by Mr. Billstein, HEC-3 is a traditional bookkeeping model. Tr. 7436. It monitors inflow and outflow and establishes resultant river flow. United States Finding No. 418, p. 144. The results of each study unit documents the accuracy of the model. United States Exhibits WRIR C-318, C-314, C-316; Defendant Hanover Exhibits 1, 2, 3. By performing a simple inflow/outflow check by month, the State of Wyoming could have convinced themselves that the model was properly operating. United States

Exhibits WRIR C-313, C-314, C-316; Defendant Hanover Exhibits 1, 2, 3. This is a fourth generation model developed by the Corps of Engineers. It is time tested and available to the general public. Tr. 7256.

The State of Wyoming apparently does not understand the purpose of the United States' study. Reference should be made to United States Finding No. 414, 417, 440, 441, 442, pp. 143, 144, 151, 152.

2(a) Run with Bishop information.

Mr. Bishop's water requirements are not considered valid. The purpose of the United States' study is presented in United States Finding No. 414, p. 143.

Using a single return flow pattern is reasonable if based on solid technical studies. Tr. 7504, 7538-39, 7723-7724. The other concept relates to the approach utilized by the State of Wyoming where several different patterns were employed but none of the results could be verified. United States Finding No. 644, p. 220.

2(b) Keene studies.

Mr. Keene neglected all other depletions because they were insignificant. United States Exhibit WRIR C-301, p. 13. If included they would increase rather than decrease natural flow estimates. Therefore, Mr. Keene's flows can hardly be called inflated. United States Exhibit WRIR C-301.

2(c) Return flow distribution

Return flow studies of the area were obtained and researched by Mr. Toedter. Tr. 7538-39. To best represent what was actually occurring in the field, HKM had to adjust the HEC-3 program logic to account for the most accurate representation of return flow by month. Tr. 7437-40. Using a single return flow pattern is reasonable if based on solid technical studies. Tr. 7504, 7538-39, Tr. 7723-7724. The other concept relates to the approach utilized by the State of Wyoming where several different patterns were employed but none of the results could be verified. United States Finding No. 644, p. 152.

2(d) Exclusion of operation of certain major water storage facilities

Mr. Billstein made the point that the operation of these facilities would be changed to reflect service of the United States' claims from direct flow. Tr. 7571-73. Although certain United States' claims could be receiving storage water, it was assumed that all lands in the three system operation study areas would be served from by-passed direct flows. Tr. 7570-73. Evaporation was not considered as the storage facilities could not fill in most times of the year without by-passing 1868 priority direct flow requirements. Tr. 7571-73.

2(e) Photographs

Tr. 7500 has nothing to do with aerial photographs.
There is no connection shown.

3(a) Return flow was only required for the system operation studies. United States' Findings No. 417, p. 144.

Different study techniques which are reasonable and acceptable were utilized for the Owl Creek and minor tributary assessments. United States Findings Nos. 420, 433, 434, 436, 437, 439, pp. 145, 149, 150-151.

3(b) Special exhibits were developed to integrate the system operation studies with the fishery analysis. United States Exhibit WRIR C-313, WRIR C-314, WRIR C-315.

3(c) Mr. Billstein relied upon the non-agricultural experts of the United States who established diversions as well as return flows based on the proposed use. United States' Findings No. 415, p. 143, Tr. 7598.

4 Issue of water shortage

The transcript citations of the State of Wyoming refer only to the single purpose agricultural claim studies. State of Wyoming's Brief 27-8(4). The five water availability studies established that water was available to furnish the agricultural claims of the United States. See Response to Wyoming's Finding No. 27-3.

Wyoming's Finding No. 27-10 - Bleisner Study, p. 1112.

Mr. Billstein stated that there were several different solutions to the water availability issue. There are many ways that he could operate the system and arrive at the same conclusion. Tr. 7268. Mr. Billstein described the scenario used by the Tribes' experts and said he could have used it. Tr. 7268. However, for simplicity he chose to operate it another way. Tr. 7268.

Wyoming's Finding No. 27-11 - State's Model, p. 1116.

- (1) The State model was developed for this litigation and has so many parameters that it cannot be verified. United States Finding No. 644, p. 220.
- (2) Not all the state's water rights are included. United States Finding No. 640, p. 218. Therefore, how can it cover the whole basin?
- (3) How can it represent current and then proposed conditions if it contains only a portion of the information. United States Finding No. 640, p. 218.
- (4) The State of Wyoming, at present, does not operate under the strict administrative assumptions used in the model. United States Finding No. 648, p. 221.
- (5) No reference to studies verifying these patterns.
- (6) This can also be achieved by the HEC-3 model. United States Finding No. 418, p. 144.
- (7) The Dry Year Statistic is invalid in the state model. United States Finding No. 645, p. 220. The 1970-79 period was judged by another state expert as being representative of long term conditions. United States Finding No. 639, p. 218.

- (8) The diversion schedules are not representative of real-world conditions. United States Findings Nos. 641, 642, 647, 651, 652, pp. 619, 221, 222.
- (9) Monthly flows vary more than that by location. United States Exhibit WRIR C-301.
- (10) Problem is in verifying assumptions (United States Finding No. 644, p. 220) and developing accurate values for actual use (United States Findings Nos. 641, 642, 647, 651, 652, pp. 219, 221-222) and operation (United States Findings Nos. 647, 650, 655, pp. 221-22).
- (11) This level of administration is not, in fact, being carried out in the basin. United States Findings Nos. 648, 649, p. 221.
- (12) The resultant flows at the verification station were compared on an annual basis. Tr. 9568-9569, Tr. 9442-9443, Tr. 9619-9621. The only meaningful basis, however, is monthly flows as this is the

basis for the establishment of conflicts. United States Finding No. 644, p. 220. Even the yearly totals are highly suspect due to errors in natural flows, diversion, documentation of existing use, operational criteria, and administrative assumptions. United States Findings Nos. 640-657, pp. 218-223.

Wyoming's Finding No. 27-12 - Water short lands, p. 1125.

Detailed responses to this allegation are found in the United States' responses to other proposed findings in the 27 series.

Wyoming's Finding No. 27-14 - Sufficient Water available,
p. 1129.

Mr. Fassett's testimony on his final appearance on the stand was based solely on the data supplied to him by Mr. Voeller, who subsequently testified. After the close of trial, Mr. Voeller, by affidavit, repudiated his testimony.

Wyoming's Findings Nos. 28-1 through 28-4 - Land Status and
Priority Dates, pp. 1131-1186.

The United States objects to the submission of any additional findings on dates and boundaries. See also the United States comments regarding the State's proposed conclusions of law regarding "moccasin rights."

Wyoming's Findings Nos. 30-1 through 30-2 - Non-Indian ownership
of reserved rights, p. 1392.

This proposed finding is irrelevant to these proceedings.

Wyoming's Findings Nos. 31-1 through 35-1 - Transferability,
pp. 1396-98.

The United States objects these proposed findings
as being outside the scope of these proceedings. See paragraph
6A of the Pre-Trial Order.

Wyoming's Findings Nos. 37-1 through 39-1 - Election of Remedies,
pp. 1408-1418.

The United States has addressed the State's theory
of election of remedies in the portion of this submission
dealing with the conclusions of law.

These findings, however, are irrelevant.

Wyoming's Findings Nos. 42-1 through 42-8 - Conflicting legislative intent, pp. 1421-1459.

The United States has addressed these arguments in its response to the State's proposed conclusions of law with the same topic heading. We do, however, offer the following comments on the State's proposals.

1. The Fassett model has been discredited;
2. The United States gave more encouragement to the Indians to settle on the Wind River Indian Reservation than it gave to the non-Indians. The Indians gave up a vast area of land in return for continued guaranteed homeland. The non-Indians were offered free land anywhere in the west - they were not induced to go to Wyoming and the reservation more than any other settler was induced to go to any other portion of the west. The United States guaranteed to the Indians that the land reserved for them was sufficient to allow them to live their forever as a community. No none Indian settler under any public land law was ever guaranteed that land he settled upon would be suitable for agriculture or allow him to prosper.

3. If water is necessary for successful settlement by non-Indians, it is necessary for successful settlement by Indians. The Indians, unlike the non-Indians, were confined to an area with the promise that the land could be successfully settled by them. The non-Indians were free to stay away from Wyoming, come to Wyoming, and leave Wyoming. The United States gave no non-Indian any assurance that land be settled on could be successfully farmed or irrigated.

4. Proposed Findings Nos. 42-6 and 42-7 are based on Mr. Voeller's testimony which was based on Mr. Fassett's computer print outs. On re-direct examination, Mr. Fassett testified that between the time of cross-examination and re-direct examination, he had re-run the entire program and come to different results. This second computer run was not used by Mr. Voeller. In Finding No. 42-7, the State speaks of the statistically dry year; Mr. Fassett admitted that his statistically dry year is drier than any year of record.

5. The argument in 42-8 is specious. The legal underpinning is a theory that Indians have no water rights that are not subject to divestiture by subsequent action by the State of Wyoming. This violates the Wyoming Enabling Act and the Wyoming Constitution and is premised on the idea that he who sits at the table first is served last.

Wyoming's Finding No. 43-1 - Claims for non-primary purposes,
p. 1459.

See United States' April 7 submission concerning
the purposes for which the reservation was established, pp.
252-265.

Wyoming's Finding Nos. 44-1 through 44-7 - Aesthetics and Wildlife,
p. 1460.

The United States' claim is presented in the United States' April 7 Brief at pages 153, 417 and 13 of the Proposed Decree.

While Mr. Harbour for the United States testified principally as to the aesthetic values of the United States' claim, he also testified to the presence of big horn sheep, deer and elk in the claimed area. United States' Proposed Findings of Fact No. 452. Wyoming's witness, Mr. Martin, elaborated in some detail on the area subject to the wildlife portion of the United States' claim. Therefore, contrary to what is suggested by Wyoming in Finding No. 44-3, substantial evidence is in the record regarding wildlife.

Wyoming's allegations of arbitrariness in the preparation of the aesthetics claim must fall in the face of the testimony of the State's aesthetics witness, Mr. Keith. By employing the systematic methods of the Bureau of Land Management, Mr. Keith was able to confirm in a matter of weeks impressions on the aesthetic values of the Wind River Reservation that Mr. Harbour had formed during his seven year tenure as BIA Land Operations Officer for the Reservation. See United States' Findings of Fact No. 458.

While Wyoming disputes the quantity of water that should be reserved for maintenance of aesthetic and wildlife values, it acknowledges through testimony of its own witnesses that a minimum of 60 percent of the average stream flow is necessary for aesthetics. Subsumed in that 60 percent flow is the 30 percent flow required for wildlife according to Wyoming's witness, Mr. Martin. Wyoming's Proposed Findings Nos. 44-6, 44-7, United States' Proposed Findings of Fact Nos. 465, 468, 469. The difference between Wyoming's 60 percent and the United States' 100 percent flows is not significant when it is understood that the claim is non-consumptive and has not been shown to interfere with any existing private water use. United States' Proposed Findings of Fact Nos. 464, 470, April 7 Brief at p. 415. Therefore, the United States' claim to 100 percent flows for maintenance of aesthetic and wildlife values should be confirmed.

Wyoming's Finding No. 45-2 - Evidence in support of United States'
claim, p. 1480.

While Mr. Vogel's work in this case was the first in which he had used the IFG incremental methodology, he prepared for it by taking the formal training in the methodology offered by the Instream Flow Group. In addition he conducted extensive field and office study in preparing his testimony. United States Exhibit WRIR C-280, p. 9, United States Br. p. 201. Tr. 6323-24, 6332, 6341-42.

Wyoming's Finding No. 45-3 - Wyoming's expert, p. 1482.

Wyoming asserts that Mr. Sinning has substantial background with the incremental methodology. However, there is no evidence in the record of Mr. Sinning having received any formal training in the methodology such as was reserved by Mr. Vogel. Moreover, Mr. Sinning testified that he never used the IFG 4 component of the IFG incremental methodology in any of his work in determining instream flows. Tr. 15284. IFG 4 is a major component of the methodology and was used by Mr. Vogel in a number of reaches. United States Exhibit WRIR C-281, p. 10. Mr. Sinning's lack of experience with IFG 4 belies the credibility of his testimony.

Wyoming's Finding No. 45-4 - Conflict between amounts, p. 1484.

Wyoming alleges conflicts between instream flow claims and the evidence presented to support the claims. The proper basis for comparison is not the United States' statement of claims, it is the claim presented in Mr. Vogel's testimony and report, United States Exhibit WRIR C-280. Tr. 6607-08. Mr. Vogel made clear that at no time are his flow recommendations higher than naturally occurring streamflows. Tr. 6503-06, 6518, 6579, 6586-87, 6604, 6811. All streamflow data relied on by Mr. Vogel was prepared by the United States' expert Michael Keene. Tr. 6478, 6499; United States Exhibit WRIR C-280, p. 20.

Wyoming's Finding No. 45-5 - Deficiencies and errors, p. 1486.

(1) Contrary to Wyoming's contention, in applying the incremental methodology, an investigation as to the importance of the four factors (watershed equilibrium, water quality, channel structure, and food availability) is only necessary if the researcher believes they may be limiting in the particular stream reach. Contrary to what is implied by Wyoming, Mr. Vogel considered all of these factors and made the judgment that they were not limiting in his study. Tr. 6719-20, 6741-42, 6722-24, 6725. His judgment was based on extensive ground visits to the study sites. Mr. Sinning, however, based his judgment on only a cursory and principally aerial field examination.

(2) Contrary to what is stated by Wyoming, Mr. Vogel did verify computer predictions by calibrating computer output to what he actually measured in the field. Tr. 6404, 6665.

(3) It was not necessary for Mr. Vogel to conduct field investigations of the species preference curves. He judged that for the most part they were satisfactory in his study. Tr. 6746-48. Mr. Vogel constructed fish species preference curves applicable to the Wind River to reflect more accurately a localized condition. Tr. 6746.

(4) As long as the researcher believes that temperature is not limiting, temperature preference curves are not a necessary component of the incremental methodology. Mr. Vogel stated that he judged temperature generally not to be limiting in the stream reaches under study. Tr. 6725, 6749-50. As to Reach 16, Crow Creek, Mr. Vogel did conclude that temperature was a factor and adjusted his recommendations accordingly. United States Exhibit WRIR C-280, p. 84. Therefore, he did not ignore temperature as claimed by Wyoming.

(5) Mr. Sinning has never used IFG-4, which is a major component of the incremental method, and encompasses most of the material on which he criticized Mr. Vogel's work. Tr. 15284. Furthermore, no evidence was presented by Wyoming stating that Mr. Sinning had received any formal training in the use of the incremental methodology as Mr. Vogel had received.

(6) Wyoming incorrectly states that Mr. Vogel's recommended flows to maximize fish habitat are not minimum flows. United States claims minimum flows to maximize fish habitat in this litigation. Mr. Vogel's recommended flows would never be greater than what may occur naturally. Tr. 6503-06, 6518, 6579, 6586-87, 6606 (Vogel). Wyoming incorrectly implied that Vogel's fish curves show habitat greater than could have possibly existed historically. These curves only show what fish habitat could be available if the water is in the stream. Mr. Vogel then applied them to the natural water supply.

(7) Mr. Vogel used information provided by Mr. Keene. Tr. 6478, 6499; United States Exhibit WRIR C-280.

(8) Mr. Vogel relied on the field work of fisheries workers as well as his own personal knowledge in determining the presence of fish species, a practice which is customary in his profession. Tr. 6638-6653.

(9) Mr. Vogel stated that a determination of present or past fish populations is not necessary in application of the incremental method. Tr. 6633-34. He stated that if optimum fish habitat were provided, it would be favorable for the fish population. Tr. 6562-63.

(10) Of the 16 stream reaches for which instream flows for fisheries are claimed, conflicts with other claims on behalf of the Tribes occur only on six reaches (Reaches 2, 10, 11, 12, 13, 15). In five of those reaches, conflicts occur only in two out of twelve months. In the remaining reach (Reach 11) there are conflicts in seven months, but none of those seven months occurs in the irrigation season. Thus conflicts between the United States' fishery claims and other claims occur in only 9 percent of the mean monthly flow recommendations.

Wyoming's Finding No. 45-6 - No need to decree rights, p. 1491.

Mr. Sinning's conclusion can not be considered credible.

He visited on the ground only 3 of the 16 reaches recommended by Mr. Vogel, although he purported to make general conclusions on flow recommendations for all 16 reaches. Mr. Sinning viewed the remaining reaches from the air by helicopter. Tr. 15279-80.

Having not visited the reaches, it doubtful whether he could make recommendations on instream flows. Furthermore, he did no field collection of data. Tr. 15280. Nor did he determine what the flows were for those three reaches he did visit. Thus, Mr. Sinning has little basis to make a judgment on what flows he thinks are appropriate. Tr. 15281.

Wyoming's Finding No. 46-2 - Witnesses Before the Court, p. 1495.

The witness for the United States, James P. Merchant, holds a degree in economics with honors and with highest distinction, as well as a graduate degree in business administration, two degrees in fields directly related to the inquiry at hand: whether the mineral resources on the Wind River Reservation are suitable prospects for development. Mr. Merchant was also awarded a Phi Beta Kappa for his economics record and since completing his education has ten years professional experience in the field of consulting economics including numerous studies of natural resource economics. United States Exhibit WRIR C-30.

Mr. Watts, witness for Wyoming, holds no degree in economics or any other subject directly related to the inquiry at hand. Wyoming Exhibit GW-1. Notwithstanding Mr. Watts' definition, Webster's New Collegiate Dictionary (1979) defines Mr. Watts' field of "Statistics," as: "a branch of mathematics dealing with the collection, analysis, interpretation, and presentation of masses of numerical data." Tr. 11544. Mr. Watts' resume shows no evidence of awards for either academic or professional accomplishments. Wyoming Exhibit GW-1.

Mr. Merchant studied the available information concerning mineral resources on the Reservation, investigated the characteristics of mining and processing industries associated with minerals, and

and identified and evaluated trends in mining and processing industries. See United States' Proposed Findings of Fact No. 527 and United States Br. p. 421. In contrast, Mr. Watts conducted no independent feasibility study regarding mineral development on the Reservation but instead simply sought to reduce the claim offered by the United States. See United States' Proposed Findings of Fact No. 529 and United States' Br. pp. 422-23.

The United States' economist established the existence and extent of mineral deposits on the Reservation by reference to competent studies, including United States Geological Survey Administrative Report BIA-8, "Status of Mineral Resources on the Wind River Indian Reservation," and United States Bureau of Mines Report, "Mineral Resources of the Wind River Indian Reservation." Tr. 498, 524, 552, 577, 585-6. The identification of reservation mineral deposits as located on trust lands is shown by comparing Tribes' Exhibit No. M-1 with United States' Exhibit WRIR C-22-28 and reference to United States' Exhibit WRIR C-29. Even Mr. Watts admitted the presence of these minerals on the Reservation. Tr. 11555-56.

The water requirements presented by the United States are the normal annual water use by the mineral industries during the period they are producing. The water requirements are "peak" only in the sense that the water use will be zero both before and after the mineral exploitation and processing end. During the operating life of these mineral activities the "peak" water use represents the normal annual water use. Tr. 598, 607-08; United States' Findings of Fact Nos. 531, 540, 542, 551, 552, 559, 604, 609; United States' Br. p. 430.

Wyoming's Finding No. 46-3 - Secondary Recovery, p. 1498.

Wyoming misstates the total amount of water used for secondary oil recovery. It is 6580 acre-feet per year, not 6500 acre-feet per year. Tr. 513-14.

It would be inappropriate to limit the water reserved for secondary oil recovery to 20 years. Secondary oil recovery is a continuing exploitation of oil reserves that has no specific duration. As the price of oil increases it becomes feasible to continue secondary recovery for a longer period than would have been possible with a lower oil price. Higher oil prices should also lead to more exploration for oil on the Reservation, and any new discoveries could require water for secondary recovery as well. See United States' Proposed Findings of Fact No. 534.

Wyoming s Finding No. 46-4 - Sulfuric Acid Plant, p. 1501.

The six acre-feet per year requirement is for an existing natural gas sweetening and dehydrating plant, not for the sulfuric acid plant. See United States' Proposed Findings of Fact Nos. 539-40, and United States' Br. pp. 424-25.

Wyoming's Finding No. 46-5 - Future Mineral Development, p. 1503.

Despite Wyoming's contention, Exhibit WRIR C-29 does in fact depict annual water use requirement for existing and proposed mineral industries. Apparently Wyoming would like to have pinpointed the start-up and closing dates of each mineral industry so they could know the precise period over which each water requirement would hold. This information is impossible to provide with certainty because both the start-up dates and duration of the proposed mineral activities are indefinite. Even the existing mineral industries (sulfuric acid plant, oil and gas extraction, natural gas sweetening and dehydrating) have indefinite durations. For the proposed mineral developments distinct trends in demand for products and the quality of the ore grade found commercially feasible indicate that mining the Reservation's deposits will become feasible within the next forty years, but it is impossible to predict exactly when a certain grade will become commercially feasible to exploit. Therefore, the United States has provided annual water use requirements for each mineral industry, which apply for the duration of that activity on the Reservation. Tr. 515, 531, 578, 559, 590, 607-08; United States' Br. p. 430; see also United States' Reply to Wyoming's Proposed Findings of Fact No. 46-2.

Wyoming's Finding No. 46-6(1) - No Basis for Reserved Right for Future Mineral Development, p. 1505.

The United States agrees that minerals are depletable or non-renewable resources. That fact, however, does not call for the award of a reserved water right limited to a specific period. Perhaps the appropriate means of limiting the reserved water right applying to mineral development would be on an "as-needed" basis, so that as long as the tribes needed certain water to develop their mineral resources they would have a reserved right to it; whenever that water was no longer needed for minerals the right would lapse. It is impractical to tie the water right for mineral development to a specific, predefined period and it is certainly inappropriate to ask that the tribes reduce their level of agricultural development to develop their minerals for a "temporary" period that may last hundreds of years. See United States' Proposed Findings of Fact Nos. 534, 544, 554, 601.

Wyoming's Finding No. 46-6(2) - No basis for reserved right,
p. 1505.

Wyoming's characterization of Tr. 717 misrepresents the record. Beginning on page 712, line 7 of the Transcript the discussion between Messrs. Merrill and Merchant centered on uranium. The topic was still uranium when Mr. Merchant explained the personal knowledge and experience basis for his opinion that in the future it will be feasible to mine a lower grade of uranium. Tr. 717. See also United States' Proposed Findings of Fact No. 527, and United States' Br. p. 421.

Wyoming's Finding No. 46-6(3) - No basis for reserved right, p. 1505.

See United States' Proposed Findings of Fact No. 529,
and United States' Br. pp. 422-23.

Wyoming's Finding No. 46-6(4) - No basis for reserved right, p. 1506.

The United States has clearly stated the annual water requirements for developing mineral resources. See United States Exhibit WRIR C-29; United States' Proposed Findings of Fact Nos. 531, 535, 536, 540, 542, 545, 546, 551, 552, 555, 556, 559, 601, 604, 606, 609, 610; United States' Br. p. 430; United States' Responses to Wyoming's Proposed Findings of Fact No. 46-5.

Wyoming's Finding No. 46-6(5) - No basis for reserved right, p. 1506.

However properly the word "temporary" is used to describe mineral resources, the complete development of some reservation mineral deposits could take hundreds of years. Requiring the tribes to divert agricultural water for the needs of the mineral industry would clearly require them to choose between developing minerals or irrigated agriculture. There is no justification for the court arbitrarily to preclude the simultaneous development of both minerals and irrigation on the Reservation. See also United States' Reply to Wyoming's Proposed Findings of Fact No. 46-6(1).

Wyoming's Conclusion No. 1-1 - Subject matter jurisdiction, p. 1511.

Wyoming relies on Jicarilla Apache Tribe v. United States, 601 F.2d 1116 (10th Cir. cert. den., 444 U.S. 995 (1979)), as authority supporting jurisdiction in Wyoming courts to adjudicate the reserved water rights of the Shoshone and Arapahoe Tribes. Decisions in three recent cases by the Ninth Circuit Court of Appeals reject the rationale of Jicarilla and conclude that a disclaimer clause in the constitutions of Montana and Arizona, which is identical to a disclaimer in Article XXI, Section 26 of the Wyoming Constitution, bars state courts from adjudicating Indian reserved water rights. Northern Cheyenne Tribe v. Adsit, 668 F.2d 1080 (9th Cir. 1982); San Carlos Apache Tribe v. Arizona, 668 F.2d 1093 (9th Cir. 1982); Navajo Nation v. United States, 668 F.2d 1100 (9th Cir. 1982).

The United States early in this case argued that the disclaimer in Wyoming's Constitution barred this Court from adjudicating the Tribes' reserved water rights. Although the United States' motion to dismiss this case on that ground was denied on December 19, 1977, Wyoming moved this Court on April 13, 1982, to vacate the order denying the motion to dismiss and moved that the disclaimer issue be certified to the Wyoming Supreme Court. Wyoming's April 13 motion belies the conclusive reliance that it proposes the Master place on Jicarilla.

Only the United States Supreme Court can definitively resolve the conflict between the Ninth and Tenth Circuit Courts. It is the United States' view that this issue of jurisdiction is not a proper one for the Master to determine.

Wyoming's Conclusion Nos. 3-1 through 3-12 - Congressional intent
pp. 1514-1557.

Wyoming denies that in creating the Wind River Indian Reservation, Congress intended to reserve water to carry out the Reservation's purposes. Finding no express reservation of water in the 1868 Treaty, Wyoming purports to analyze the Reservation's legislative history in order to determine whether any implied reservation of water can be found. The essential record in analyzing congressional intent in this case of course is the history of the 1868 Treaty that created the Reservation. Wyoming completely ignores that history and instead turns to later legislation affecting the Reservation [Lander Cession, 18 Stat. 291 (1874); Thermopolis Cession, 30 Stat. 93 (1897); Opening Act, 33 Stat. 1016 (1905)]. Since a reserved water right vests at the time a reservation is established (Arizona v. California, 373 U.S. 546, 600 (1963)), Wyoming's failure to consider the history of the act creating the Reservation vitiates its argument and misleads the court. While the scope and applicability of the reserved right to other than Indian reservations may be subject to further definition, there is no question that the

very idea of confining Indians on smaller reservations necessarily implied that they would have the means to fulfill the federal government's purpose of transforming them from hunters and gatherers to a pastoral people. F. Cohen, Handbook of Federal Indian Law (1982 ed.), p. 579.

The fact of an implied reservation of water is distinct from the measurement of the right. Wyoming denies the premise of a reserved right for the Wind River Reservation in the face of uniform precedent that the reserved rights "doctrine applies to Indian reservations . . . encompassing water rights in navigable and nonnavigable streams." Cappaert v. United States, 426 U.S. 128, 138. The doctrine applies to "Indian reservations whether created by treaty, agreement, executive order, congressional act or secretarial order." F. Cohen, supra at 585. Regarding the specific application of the reserved rights doctrine to the Wind River Reservation, the United States District Court for the District of Wyoming stated in United States v. Parkins that:

It must be assumed, however, in the absence of any specific grant that the government has reserved whatever rights may be necessary for the beneficial use of the government in carrying out its previous treaty rights; those rights having become fixed and established before the act of admission which made Wyoming a sovereign state. The treaty in this case, like all other treaties with the Indians creating reservations, contemplates the use and benefit of the lands within the reservation to its wards, the Indians, which likewise includes the irrigation of those lands, they being arid in character.
United States v. Parkins, 18 F.2d 642, 643 (D. Wyo. (1926)).

The Wyoming Supreme Court carefully avoided concluding about reserved rights for the Wind River Reservation in Merrill v. Bishop, 287 P.2d 620, 625 (1955). The Merrill court was

unwilling to accept the authority of Parkins on the subject because Parkins did not discuss the Wyoming Statehood Act. The Merrill decision can only be considered disingenuous in light of the precedent of Winters v. United States, 207 U.S. 564 which held that an act of statehood subsequent to a treaty creating an Indian reservation did not revoke reserved water rights. And since Merrill was decided, Arizona v. California, supra, and Cappaert v. United States, supra, have confirmed that reserved rights are unaffected by acts of admission and can be created before or after statehood.

Wyoming cites a number of statutes which it contends expressly reserved water for Indians. Those statutes are offered as support for the argument that no water was intended to be reserved for the Wind River Reservation by the Treaty of 1868. In no case, however, did the legislation cited by Wyoming serve as the basis for judicial confirmation that a reserved water right was established for each of the reservations. Indeed the courts have uniformly ruled that the act of creating the reservation, not subsequent legislation, established the reserved right. In fact the cases cited by Wyoming all conclude that reserved rights were created by implication at the creation of the reservation at issue. None of the cases relies on the subsequent legislation cited by Wyoming as authority for the reserved right. United States

v. Hibner, 27 F.2d 909 (D. Idaho 1928); Anderson v. Spear-Morgan Livestock Co., 79 P.2d 667 (Sup. Ct. Mont. 1938).

Wyoming raises again the arguments surrounding what it calls the water proviso in Article III of the 1905 opening act. We refer the Master to the United States' "Proposed Findings of Fact, Conclusions of Law and Brief Concerning the Boundaries of the Wind River Reservation and the Priority of Water Rights for Lands Within the Reservation" filed August 29, 1980. There we analyze the history of the 1905 Act and its implementation. That review establishes that the 1905 Act neither abrogated, nor was intended to abrogate the preexisting reserved water rights of the Wind River Reservation established by the 1868 Treaty of Fort Bridger. To the extent that any ambiguity exists about whether the Reservation enjoys a reserved right, well-established canons of construction require that the ambiguity be resolved in favor of the existence of a reserved right. This precept is integral to the Winters doctrine.

By a rule of interpretation of agreements and treaties with the Indians, ambiguities occurring will be resolved from the standpoint of the Indians. And this rule should certainly be applied to determine between two inferences, one of which would support the purpose of the agreement and the other impair or defeat it. Winters v. United States, 207 U.S. at 576-77.

Courts consistently have reaffirmed the rule. F. Cohen, Handbook of Federal Indian Law (1982 ed.), pp. 221-25.

Wyoming's Conclusion Nos. 4-1 through 4-4 - Priority date principles, pp. 1559-1564.

Wyoming argues that the north half of the Wind River Reservation was disestablished by the 1905 Act and that no reserved water rights attach to any of the lands opened by the 1905 Act. The United States disagrees that the reservation ever was disestablished and has set out its reasons therefore in the Dates and Boundaries Brief (supra). Even if the Reservation had been disestablished, Wyoming, the Tribes, and the United States all have stipulated that the Reservation's boundaries include the lands opened pursuant to the 1905 Act. Stipulation Concerning the Boundaries of the Wind River Indian Reservation, filed April 1980.

Wyoming reproduces legal descriptions from a number of restoration orders affecting Reservation lands opened under the 1905 Act. The documents of restoration however speak for themselves.

Wyoming's reliance on Cragin v. Powell, 128 U.S. 691 (1888), is misplaced. Wyoming argues that United States' maps depicting a diminished reservation are unassailable authority that the Reservation was disestablished to the extent of lands affected by the 1905 Opening Act. Cragin concerns survey errors and their effect on land titles. The issue in this case however is not a survey error. There is no question that the maps introduced by Wyoming show a reservation boundary line along the southern and southwestern boundaries of the lands opened for

settlement by the 1905 Act. But neither the General Land Office nor Cragin is authority on the ultimate legal question raised by the 1905 Act - what effect did the 1905 Act have on the Reservation's water rights? The answer to that question lies in the 1905 Act, its legislative history and administration, and relevant judicial precedent. The question has nothing to do with the correctness of a survey and its potential effect on land titles. Whether or not the reservation lands were disestablished has no effect on land titles that were patented to non-Indian settlers. Wyoming's allegation that private rights were established in reliance on the maps it introduced is unsupported by any evidence of injury and in fact is unsupportable.

Since Wyoming has stipulated to the existence of the Wind River Reservation and its exterior boundaries, there remains only to be determined the scope of reserved rights that attach to the Reservation. Even if the 1905 Act disestablished part of the Reservation, a proposition with which we disagree, Wyoming agrees (Findings of Fact, p. 392) with the United States (Dates and Boundaries Br. p. 16) that the question of disestablishment is irrelevant to the retention of beneficial interest in a reserved right for those lands.

Wyoming's Conclusion Nos. 5-1 through 5-7 - Primary purposes, pp. 1565-1582.

Wyoming's analysis in support of its "primary purposes" argument is based on a selective reading of the Reservation's history, misstates some of what it has selected to support its case, and consistently ignores well-established elements of the Winters doctrine.

Wyoming makes voluminous reference to evidence in support of its conclusion that there was but a single purpose, agriculture, to the creation of the Wind River Reservation. All of Wyoming's references exclusively concern irrigation development. Certainly development of water for irrigation occupied the government and the Indians; the capital costs of irrigation were high and the development was labor intensive. Thus, it is not surprising that a good portion of the legislative and historical record of the Reservation was reviewed in the testimony of Dr. Peter Iverson and discussed in the United States' Brief on the dates and boundaries portion of the trial.

Wyoming ignores the plain language of the 1868 Treaty which provided that the Wind River Reservation

shall be and the same is set apart for the absolute and undisturbed use and occupation of the Shoshone Indians . . . , and the United States now solemnly agrees that no persons . . . shall ever be permitted to pass over, settle upon, or reside in . . . [that territory]. 15 Stat. 673, 674.

The meaning of the Indians' "undisturbed use and occupancy" was reviewed by the Supreme Court in the context of the natural resources the Indians were intended to enjoy as a result of the 1868 Treaty. In determining that the rights of the Indians included timber and mineral resources within the Reservation, the Supreme Court ruled that:

The principal purpose of the treaty was that the Shoshones should have, and permanently dwell in, the defined district of country. To that end the United States granted and assured to the tribe peaceable and unqualified possession of the land in perpetuity. Minerals and standing timber are constituent elements of the land itself. For all practical purposes, the tribe owned the land. Grants of land subject to the Indian title by the United States, which had only the valued fee, would transfer no beneficial interest. The right of perpetual and exclusive occupancy of the land is not less valuable than the full title in fee . . . As transactions between a guardian and his wards are to be construed favorably to the latter, doubts, if there were any, as to ownership of lands, minerals or timber would be resolved in favor of the tribe. The cession in 1904 by the tribe to the United States in trust reflects a construction by the parties that supports the tribe's claim, for if it did not own, creation of a trust to sell or lease for its benefit would have been unnecessary and inconsistent with the rights of the parties. (Citations omitted.) United States v. Shoshone Tribe, 304 U.S. 111, 116-17 (1938).

To the extent that water is needed to make any of the Reservation's natural resources valuable, the Indians are entitled to a reserved water right. In Winters v. United States, supra, the

Supreme Court held that the Indians could not be found to have given up water needed to make their reservations "valuable or adequate." 207 U.S. 564, 576. Thus the

relevant inquiry in ascertaining Indian reserved rights is not whether a particular use is primary or secondary but whether it is completely outside the scope of a reservation's purposes. F. Cohen, supra at 584.

To the extent that water is required to make beneficial use of the Reservation's natural resources, the Indians are entitled to a reserved water right. The "permanent home" language of the 1868 Treaty does not simply connote, as Wyoming argues, only limitation and confinement. Wyoming is less than candid when it cites Colville Confederated Tribes v. Walton, 647 F.2d 42 (9th Cir. 1982), and other cases as having held that the reserved right extends only to agriculture and fishing. The courts in those cases made no ruling on issues other than those presented. In none of the cases was anything involved but a claim to water or fishing or irrigation. In none of the cases cited by Wyoming did the courts interpret the reserved rights doctrine in the restricted manner suggested by Wyoming.

Wyoming's Conclusion Nos. 7-1 through 7-4 - Minimum needs,
p. 1583-88.

The premise of the United States' claim on behalf of the Wind River Indians in this case is that at the time the Reservation was established, water for appurtenant sources was reserved to meet the Indians' present and future needs. Winters v. United States, supra at 576; Arizona v. California, supra at 660. The minimal needs of the Reservation include water for present and future uses. The claims of the United States on behalf of the Wind River Reservation are intended to fulfill both the present and future needs of the Indians.

Wyoming's Conclusion No. 8-1 - Sensitivity, p. 1589.

Wyoming presents only conclusions of law under what it calls "sensitivity." This notion, largely a confection of attorneys for Wyoming, appears to be based on language in United States v. New Mexico, 438 U.S. 696 (1978). This case is discussed the United States' April 7 Brief at pp. 237-39. To the extent there is any substantive sensitivity test to be derived from New Mexico, that test is not relevant to this case. Uniform precedent from Winters through Arizona v. California to Cappaert holds that sensitivity or impact analyses cannot be used to vitiate reserved water rights. The court in New Mexico reached its decision with sensitivity because as discussed in the United States' April 7 Brief, the water supplies intended to be reserved for the national forests were also intended to benefit private appropriators in the lower reaches of the watersheds involved. Obviously the reserved right in that case had to be interpreted with that understanding. Just as obviously, the reserved right for the Indian reservation is intended not to be shared with, but is to be protected from encroachment by private appropriators.

Finally, Special Master Tuttle touched on this point and clearly indicated that Indian reserved rights are not affected by subsequent water rights. On page 64 of his report he stated:

In Winters v. United States, 207 U.S. 564 (1908), the Court established that the United States, when it creates an Indian reservation, impliedly reserves water for needs of the reservation, and that water rights established subsequent to those of the reservation give way to those of the reservation as its needs expand. Special Master Tuttle's Report, p. 64. (Emphasis added.)

Wyoming's Conclusion No. 9-2 - Order of referral to Special Master, pp. 1592-93.

On page 1593, Wyoming contends that the Order of referral to the Special Master "requires" the Special Master to decree and tabulate the water rights of the United States and the Tribes by "priority date, quantity, stream, ditch, point of diversions and type of beneficial use." (Emphasis added.) Nothing in the Order of referral deals with specificity of ditches, points of diversion or type of beneficial use. Only a determination of "relative priorities" is specifically mandated. The State of Wyoming is again attempting to put an unnecessary burden and restriction on the rights of the United States and the Tribes.

Wyoming's Conclusion No. 9-3 - Recognition of necessity of specificity decreed water right, p. 1594.

a. Precedent generally recognizes need for specificity of decree.

Nothing in the articles cited by the State addresses or requires a decree by specific ditch, point of diversion or type of beneficial use. The cited passage deals with the avoidance of open-ended decrees. The United States and Tribes in this case have proposed a decree that sets forth the water rights by specific quantity and water source. This is sufficient to put other water users on notice of the Indians' rights. The matter of administration is clearly addressed in the Pre-Trial Order. Paragraph 6A of that Order states in part:

. . . The question of who shall administer the water rights goes beyond the references made by the court to the Master and will not be determined by the Master. Thus, evidence or arguments relevant only to the question of administration of the water rights will be excluded at trial.

b. Recognition of need to quantify in Arizona v. California.

Here, Wyoming cites a portion of the decision, 373 U.S. 546 at 601, for the proposition that reserved rights can't be left unquantified after an adjudication. It is clear from a reading of the paragraph cited that

the court was dealing with the method of quantification only, that being practicably irrigable acreage. The United States is not proposing that the water right be measured by the number of Indians living on the reservation.

c. Specificity entered by the McCarran Amendment.

Wyoming obviously overlooks the Supreme Court cases on the subject of applicability of state law. The court in Cappaert v. United States, 426 U.S. 128 at 145-46 (1975) stated:

Federal water rights are not dependent upon state law or state procedures and they need not be adjudicated only in state courts; federal courts have jurisdiction under 28 U.S.C. § 1345 to adjudicate the water rights claims of the United States. Colorado River Water Cons. Dist. v. United States, 424 U.S. at 807-809. The McCarran Amendment, 66 Stat. 560, 43 U.S.C. § 666, did not repeal § 1345 jurisdiction as applied to water rights. 424 U.S. at 808-809. Nor, as Nevada suggests, is the McCarran Amendment a substantive statute, requiring the United States to 'perfect its water rights in the state forum like all other land owners.' Brief for Nevada 37. The McCarran Amendment waives United States sovereign immunity should the United States be joined as a party in a state-court general water rights' adjudication, Colorado River Water Cons. Dist. v. United States, supra, at 808, and the policy evinced by the Amendment may, in the appropriate case, require the United States to adjudicate its water rights in state forums. Id. at 817-820.

d. Supreme Court recognition of intent of the McCarran Amendment.

The United States' proposed decree does spell out the extent by quantity and water source of the water rights for the Indians. Nothing in the proposed decree prevents the appropriation system from functioning. Nothing in the language from the Akin case cited on page 1597 of Wyoming's conclusions of law, requires that exact ditches be specified.

e. Precedent cited in the McCarran Hearings.

Nothing in the language from the hearings on the McCarran Amendment, cited on page 1598 of Wyoming's conclusions of law, requires that the Indian water rights be specified in any greater detail than is contained in the United States' proposed decree.

f. Decrees in other major cases not appropriate in this case.

The same general format of a decree, as used in Arizona v. California, which sets forth the tribal water rights by acreage quantity, water duties, total yearly diversion, and water source is sufficient. It would be a needless and unduly

restrictive exercise to tie the Indian water rights to specific ditches etc. Once again, we must remind the court that we are merely quantifying the reserved right and practicably irrigable acreage is the measuring stick, not an absolute limitation on the use. Arizona v. California, Per Curiam and Supplemental Decree, 439 U.S. 419 at 422 (1979); Spécial Master Tuttle's Report, pp. 64-5.

- g. Nothing on pages 1604-05 indicates that the United States intended to become fully subject to state law. The testimony cited is from an obviously biased state lawyer who wanted the United States to become fully subject to State law. It is obvious that Mr. Saunders did not understand the full extent of the federal water rights when he stated that the United States must come on a stream like any other appropriator and develop its water rights with due diligence or be barred by laches if it does not proceed with due diligence to perfect its water rights. Wyoming has admitted in its conclusions of law that the United States' federal reserved water rights are not subject to abandonment.
- h. No comment.

i. Senate report emphasizing existing uncertainty.

Page 1608 of Wyoming's conclusions states that unless the United States specifies its water rights, chaotic condition will persist. The United States has, in fact, specified its quantity, diversion requirements, total diversion and water source by drainage area. That should be enough specificity to prevent the chaotic conditions from persisting.

j. Necessity of joinder of all parties to achieve certainty.

There is still some question as to whether all parties have received adequate notice. The United States has presented its objections accordingly. We must further emphasize that the conduct of the parties in this case has shown that it is not a general adjudication. The vast majority of water users in this case have never taken part. It has essentially been a lawsuit by the State against the tribes and the United States.

k. Summary of the McCarran Amendment legislative history.

Paragraph 6A of the Pretrial Order is quite clear regarding state administrators:

. . . The question of who shall administer the water rights given beyond the reference made by the court to the Master and will not be determined by the Master. Thus, evidence or arguments relevant only to the question of administration of the water rights will be excluded at trial.

At page 1612, Wyoming cites Special Master Tuttle's report in Arizona v. California, for the proposition that water rights must be decreed to specific lands. This is not true, only total acreage quantity is given in that case. The water rights are not tied to specific tract or diversion point.

Wyoming's Conclusion No. 9-6 - Conclusion, pp. 1613.

The United States' proposed decree states with specificity, the total annual diversion requirements, the water duty per acre, the acreage quantity per drainage, and the water supply sources. This is more than sufficient to put private individual on notice of the quantity of the Indian reserved water rights.

Wyoming's Conclusion Nos. 10-1 through 10-4 - Standard of proof, pp. 1614-17.

In these proposed conclusions, the State argues that claimants of a reserved right are subject to a higher standard of proof than claimants of a state awarded right. The argument presented by the State on behalf of this theory is that the higher burden of proof is warranted because the reserved right has an earlier priority date than the alleged state rights, that the reserved right is based on implied intent rather than on appropriation of water, and because a state awarded right is always subject to challenge by the holders of other state rights.

The State does not cite any legal authority for its proposition. It apparently is a boiler plate argument made by all states that initiate water rights litigation, and both Arizona and California took the same position and were rejected in Special Master Tuttle's, February 22, 1982 Report wherein he said:

The United States and the five tribes have sought to prove that certain lands are practicably irrigable. They bear the burden of persuasion. The State Parties have noted that the claimants must establish their asserted points by a preponderance of the evidence. This is the standard of proof which I believe to be clearly appropriate and which I shall use to judge all claims. I must necessarily reject the State Parties' accompanying suggestions that the seriousness of this litigation and uncertain nature of the subject matter somehow transforms the burden of persuasion into a greater standard variously phrased by them as 'reasonable certainty,' 'high standard of proof,' 'very high standard,' and 'clear and convincing evidence.'

In fact, the State Parties ultimately argue that the Tribes must 'resolve all doubts in their favor or see their claims rejected.' These standards are clearly inappropriate. All litigation constitutes serious business and any departure from the use of the civil case standard of preponderance of the evidence would inject unnecessary confusion into an already complicated case. The proof which I shall accept for my findings will be the more convincing evidence on any given element, including such elements as may be difficult to prove. Arizona v. California, No. 8 Original, Supreme Court of the United States, Report of Elbert P. Tuttle, Special Master, February 22, 1982, p. 88. (Footnotes omitted.)

Wyoming's Conclusion No. 10-A-2 - Irrigability as main criterion of validity of reserved right, p. 1619.

"Practicably irrigable acreage" was recognized by the Supreme Court as a "favorable and fair" measure to quantify Indian reserved water rights. 373 U.S. at 601. However, the Court did not necessarily adopt this standard as the universal measure of Indian reserved water rights. Special Master Tuttle's Report, p. 90. We urge the Special Master in this case to use the practicably irrigable acreage tract as one measure to quantify the Indian reserved water rights in this case. This standard should be applied fairly, reasonably and equitably.

In view of the fact that there are many currently irrigated lands in and around the Wind River Indian Reservation that do not meet the stringent criteria for arability that has been applied to lands not under irrigation, the United States urges the Special Master herein to not become "locked in" to a rigid formula for practicably irrigable acreage. We instead urge the Special Master to apply sound and reasonable judgment to the various methods of proof of irrigable acreage presented in this case.

The United States has sought to establish the "irrigability" of previously unirrigated idle lands by proof of soil arability, engineering feasibility and associated costs, and that those lands that can be served by sound engineering are

economically feasible to irrigate. We have also shown a sufficient water supply in all but severe drought years. The United States has also quite reasonably, asserted the irrigability of other previously or currently farmed land by showing that it is either currently being irrigated or that it had been subjected to the examination and procedures of the State Engineers and awarded a State adjudicated water right certificate. In both instances, the proof of irrigating is "in the pudding." The lands are farmable and irrigable.

Wyoming's Conclusion 10A-3 - Adjudicated State right not evidence of irrigability, p. 1620.

The Special Master has already ruled that a State adjudicated water right certificate is prima facie proof of irrigability. United States Brief in Support, pp. 279-282. The State of Wyoming has failed to rebut the prima facie case. Id. pp. 282-86.

Wyoming's Conclusion No. 10A-4 - Proof of irrigability not required to obtain state water permit, p. 1621.

The United States has already briefed the issue and the Special Master has ruled on the subject. See United States' Brief in Support, pp. 279-86.

Wyoming's Conclusion No. 10A-5 - Proof of irrigability required for reserved right, pp. 1622.

There is no case law that supports Wyoming's proposition that the United States is held to a higher standard of proof than private appropriators. See Special Master Tuttle's Report, p. 88. Wyoming's position is to the contrary in Wyoming's Conclusions Nos. 9-1 through 9-6, wherein they argue that the United States must be treated like all other state appropriators.

Wyoming's Conclusion No. 27-1 - Elements of proof required to sustain conclusion of practicable irrigability, pp. 1624-25.

Herein, Wyoming contends that practicably irrigable acreage can only be proven by establishing arability, engineering feasibility, economic feasibility, water supply, continual trust ownership and that there be no other factor that precludes the granting of a water right. We must again point out that there is no case law that establishes the above concrete criteria. We urge the Special Master to apply sound and reasonable judgment and not foolish consistency when determining practicably irrigable acreage. The Supreme Court could not have envisioned currently irrigated land as not being "practicably irrigable."

Wyoming's Finding No. 30-1 - Non-Indian Ownership of Reserved Rights (Described by Wyoming as "Moccasin Rights"), p. 1653.

The United States and the Tribes have moved to strike as scandalous and racist the appellation "Moccasin Rights." Motions dated April 14, 1982, and April 20, 1982.

Non-Indian water rights are not before the court at this stage of the proceedings. The testimony alluded to by Wyoming at pp. 1394-95, and heard over the objection of the United States was permitted only to give private water users an opportunity to testify to the alleged adverse impacts that recognition of reserved water rights would have on the non-Indian community. The United States contends that such impact evidence has conclusively been determined to be irrelevant to quantification of Indian reserved water rights. Winters v. United States, supra; Arizona v. California, supra; Cappaert v. United States, supra.

Moreover, Wyoming has steadfastly maintained throughout this case that it does not represent individual private water rights. It is surprising to the United States and we would imagine most upsetting to private water users for the State to be urging at this time a decision on the merits of private water use claims based on succession to formerly allotted Indian lands on the Wind River Reservation without the formal taking of evidence.

In this context, the Master should refer to a letter from Sky D. Phifer, Esq., to the Special Master, April 15, 1982, which requests an opportunity for a hearing and presentation of evidence on the nature and extent of the water right, if any, enjoyed by non-Indian successors in interest to former allotments. The letter clearly indicates that the non-Indians believe they have the right to a hearing on the question of their claim as successors in interest.

Since neither the United States nor the private parties have had an opportunity to be heard and present evidence, this issue should be deferred until trial of the non-Indian claims to water. In the event the court intends to proceed to rule on this issue at this time, the United States cannot agree to Wyoming's analysis to the extent that it affects the priority date for reserved water rights on reacquired lands.

Wyoming's Conclusion No. 30-2 - An Indian does not acquire a reserved water right for lands obtained from a non-Indian, 1663.

Wyoming asserts on page 1663 that when an allotment passes out of Indian ownership the reserved water right is terminated and therefore cannot be transferred and later be reacquired in trust for the Indians. At the outset it should be made clear that Wyoming's premise is wrong. The continued existence of the reserved right does not depend on its having followed the chain of title to the land by which the water right is measured. The reserved water right of the Wind River Reservation vested no later than July 3, 1868, when the reservation was created by the Treaty of Fort Bridger. Arizona v. California, 373 U.S. at 600. The reserved right is measured by a number of criteria but to the extent water is quantified in terms of irrigable acreage, we must not lose sight of the fact that "practicably irrigable acreage" is merely a measuring stick by which to quantify the amount of water that was reserved "for present and future uses" at the time the reservation was created. Ibid, see also Special Master Tuttle's Report, pp. 64-5. The fact that reservation lands pass into fee status does not diminish the reserved right because the reserved right persists so long as the reservation exists. Wyoming confuses the Indians' proprietary interest in reservation land with their governmental interest in that same land (See United States Brief in Support, p. 277). Fee land within the boundaries of the reservation is a

part of the reservation over which which the Tribes exercise governmental control. United States v. Mazurie, 419 U.S. 544, 556-58 (1975); Knight v. Shoshone and Arapahoe Tribes, 670 F.2d 900 (10th Cir. 1982); Confederated Colville Tribes v. Walton, 647 F.2d 42, 52 (9th Cir. 1981); See also, United States Brief in Support pp. 274-275. When land is in fee status the portion of the reserved right that would be measured in terms of those lands is not subject to the proprietary enjoyment of the Indians. United States Brief in Support, p. 276.

While the lands are out of trust status in non-Indian ownership the level of Indian development on the reservation trust lands is necessarily lower. But the status of land titles on Indian reservations is dynamic; shifting congressional policies for example have made varying portions of Indian reservations available to non-Indians. Today the policy of the United States is to consolidate reservation land in trust for the benefit of Indians. F. Cohen, Handbook of Federal Indian Law (1982 ed.), pp. 612-15. The accident of time in which a stream adjudication occurs should not cause the court to overlook the fact that the reservation's title status is continuously evolving. Thus, the wisest position for the court to adopt regarding reserved rights is that so long as there is a reservation, there are reserved rights with a priority date as of the creation of the reservation. United States Brief in Support, p. 277. As the United States requested in its April 7 Brief, the decree in this case can be modified if necessary to accomodate, at a later date, the reserved rights associated with fee lands as they are reacquired in trust for the Tribes. See, United States Brief in Support, p. 278, and Proposed Interlocutory Decree, Article VIII.

The history of the litigation in Arizona v. California, supra, perfectly illustrates this analysis. The Fort Mojave Indian Reservation was one of five reservations whose water rights are being adjudicated in that case. Following the original trial, Special Master Rifkind recommended that a reserved right be adjudicated to the Fort Mojave Reservation, but qualified his recommendation by finding that reservation lands that had been patented in fee to the Southern Pacific Railroad pursuant to act of Congress were not entitled to reserved water rights. Report of Special Master Rifkind, p. 283. The Supreme Court adopted Special Master Rifkind's recommendations in this regard.

Subsequent to the Supreme Court's decision in 1963, the Fort Mojave Tribe purchased a portion of the patented lands from an assignee of the Railroad. ("The LaFollette Tract," Special Master Tuttle's Report, p. 59.) A dispute over the Tribe's title arose which was eventually settled by a stipulation and decree quieting title in the Tribe. Fort Mojave Tribe v. LaFollette, No. Civ. 69-324 (D. Ariz. Feb. 7, 1977). Supplemental proceedings in Arizona v. California ensued in which the United States on behalf of the Fort Mojave Tribe claimed a reserved water right for those lands (Unit FM-10, Arizona Boundary Lands, p. 192 of Special Master Tuttle's Report). In determining whether the land

was entitled to a reserved right, Special Master Tuttle first resolved in favor of the Tribe the issue whether the land was within the Fort Mojave Reservation. Report of Special Master Tuttle, pp. 59, 76. Next he found that the lands were practicably irrigable. Report of Special Master Tuttle, pp. 192-93. Finally, he concluded that those lands were entitled to a reserved right with a priority date of the creation of the Fort Mojave Indian Reservation. Report of Special Master Tuttle, pp. 104, 116.

Thus, Wyoming is mistaken when it relies on Special Master Tuttle's Report for the proposition that no reserved right attaches to reservation lands that have been reacquired in trust from non-Indian patentees. Special Master Tuttle's Recommended Decree at page 282, merely illustrates that while the lands are out of trust the Indians cannot exercise proprietary control over those water rights. Judge Tuttle's granting of a reserved right with a priority date as of the creation of the reservation for the reacquired previously patented land clearly answers the remainder of Wyoming's contention. We note in this context that no claim was made in Arizona v. California by any non-Indian to a reserved water right by virtue of having purchased reservation lands.

In contrast to the foregoing analysis is United States v. Anderson, No. 3643 (E.D. Wash. July 23, 1979), which holds that:

The date of the original creation of the reservation is not the priority date because the original purposes of the reservation, and therefore the implied reserved water rights for those purposes ceased to exist when the land passed out of Indian ownership . . . The court finds that the priority date for reserved water for irrigation . . . (of reacquired lands is) . . . the date of reacquisition . . . Memorandum Opinion pp. 7-8.

This reasoning is fatally flawed because it assumes that a hiatus in the proprietary enjoyment by the Indians of their reserved water right effects a termination of the reserved right. We also note that Anderson is based on the district court's ruling in Colville Confederated Tribes v. Walton, 460 F.Supp. 1320. But that decision was reversed by the court of appeals. Colville Confederated Tribes v. Walton, 647 F.2d 42 (9th Cir. 1981). Finally, we think that the authority of Arizona v. California, and the reasoning presented herein are more persuasive on the issue.

Wyoming's Conclusion No. 31-1 - Uses limited to original primary purposes of reservation and original appurtenant lands, p. 1667.

The Wind River Indian Reservation was established to provide for a permanent home for the Indians. We are presently determining the quantity of water that was set aside for the Indians' present and future needs. "Practicably irrigable acreage" is merely one measuring tool to determine that quantity of water. It was not the intent of Congress to tie the reserved water right to particular parcels of land. To do so would unduly limit the Indian use and enjoyment of the water on their permanent homeland.

It is not for the Special Master to impose limitations on use or transfeasibility of the Indians water right. These limitations or restrictions are clearly not within the Order of referral from Judge Joffe.

Wyoming's Conclusion No. 31-2 - Reserved rights are granted with specificity, p. 1668.

The question of who is to administer the Indian water rights is not an issue in this litigation. See Pretrial Order paragraph 6A. The Indian water rights cannot be restricted to specific tracts. This is not in keeping with the congressional intent to preserve a permanent homeland and meet the Indians present and future needs.

Wyoming's Conclusion No. 31-3 - Change Proceedings, pp. 1669-77.

Principles regarding changes in use go to the very heart of the question of administration of water rights. This is clearly beyond the scope of the Order of referral and specifically precluded by paragraph 6A of the Pretrial Order that states:

. . . The question of who shall administer the water rights goes beyond the reference made by the court to the Master and will not be determined by the Master. Thus, evidence or arguments relevant only to the questions of administration of the water rights will be excluded at trial.

Wyoming's Conclusion No. 31-4 - Exchanges must be related to lands and purposes related to original reservation, p. 1678.

Water "exchanges" also go to the heart of the administrations question and paragraph 6A of the Pretrial Order specifically precludes evidence or arguments regarding administrations. Wyoming has again ignored the Pretrial Order.

Wyoming's Conclusion No. 31-5 - Limits on contractual rights to use of water, p. 1679.

Any limitations imposed upon the Indian water rights, such as proposed by Wyoming, is outside the Order of referral and thus not properly within the powers of the Special Master. If the Special Master were to impose contractual limitations upon the Indians, we feel he would be committing grave error.

Wyoming's Conclusion No. 36-1 through 36-4 - Groundwater,
pp. 1682-88.

Wyoming argues that "the Supreme Court has expressly refused to extend the reserved right doctrine to include groundwater." Wyoming's Conclusions of Law No. 36-1, p. 1682. In doing so, Wyoming misstates the ruling in Cappaert v. United States, 426 U.S. 128 (1976). Nothing in Cappaert expresses such a refusal. Instead the Court found that the groundwater at issue supplied both Cappaert's irrigation pumps and the subterranean pool reserved as part of Devil's Hole National Monument. Because of the physical interrelationship of the water supplies involved, the Court held that the "United States can protect its water from subsequent diversion, whether the diversion is of surface or groundwater." 426 U.S. at 143. The Court effectively ruled that there is "no logical distinction between surface and groundwaters to the extent that either is needed to satisfy the purposes of the reservation." F. Cohen, Handbook of Federal Indian Law (1982 ed.), p. 586.

Wyoming's own brief points out the cases from lower federal courts which have concluded that the reserved rights doctrine extends to groundwater. Tweedy v. Texas Company, 285 F.Supp. 383 (D. Mont. 1968), was decided eight years before Cappaert. Since Cappaert, United States v. Anderson, No. 3643 (E.D. Wash. July 23, 1979), and Colville Confederated Tribes v. Walton, 647 F.2d 42 (9th Cir. 1981), have adjudicated Indian reserved rights to both surface and groundwater.

Although Congress rarely does so, it recently considered the scope of Indian reserved water rights in the Ak-Chin Water Rights Settlement Act of 1978, 92 Stat. 409. There Congress enacted a \$43 million settlement to develop and deliver an irrigation water supply to the Ak-Chin Reservation where groundwater supplies were being depleted by adjacent non-Indian development. Congress specifically found that at the creation of the Ak-Chin Reservation, the United States had the obligation and intention to provide water to the reservation and that the United States likely would be liable for allowing depletion of reservation groundwater supplies unless other water was delivered to the Indians. See also F. Cohen, supra at pp. 585-86.

Wyoming's Conclusion of Law No. 36-1b regarding Wyoming groundwater law is irrelevant since determination of reserved water rights is not governed by state law but derives from the federal purpose of the reservation. . . . Federal water rights are not dependent upon state law or state procedures. . . ." Cappaert v. United States, 426 U.S. at 145.

Wyoming relying on the testimony of the United States' witness Oliver Page, identifies the well yields being produced at different sites on the Reservation. 36-2. That those actual yields are lower than those predicted as potential by Mr. Page is due to the fact that the yields reflect the current but relatively low level demands on the aquifers involved, not the physical capacity of the aquifers.

The hydrologic relationship between surface and groundwater varies with the geology of the aquifers involved. Wyoming's simplistic conclusion that it is impossible to maintain groundwater levels if ground or surface water is developed (Wyoming's Proposed Finding No. 36-4) overlooks the complex hydrologic relationships involved. Wyoming's conclusion for that proposition is not based on Mr. Page's analysis. Instead, it is based only on the testimony of Robert Brogden, Wyoming's witness, who did not review Mr. Page's work and was responsible only for acquiring a general understanding of groundwater resources on the Wind River Reservation. Tr. 11839-57.

Wyoming's Proposed Finding No. 36-4, makes no mention of the timing and pattern of groundwater withdrawals that permit productive and conjunctive use of surface and groundwater.

Wyoming's Conclusion Nos. 37-1 through 37-5 - Election of substantive rights, pp. 1689-92.

In proposed conclusions of law nos. 37-1 through 37-5, the State of Wyoming maintains that the United States is prevented from asserting reserved water rights by the doctrine of election of remedies. The State's argument apparently is that the United States by filing for state water rights for certain parcels and by reacquiring trust lands having state water rights thereby lost any opportunity to assert reserved water rights for the reservation.

The State misunderstands the doctrine of election of inconsistent remedies. As stated by Professor Moore:

The election rule is that by asserting a choice of inconsistent claims for relief in a judicial proceeding, a litigant is precluded, in subsequent litigation from advancing inconsistent claims.

1B Moore's Fed. Practice, 0.405[7].

Thus in order for the doctrine to come into play, the person asserting the doctrine (i.e. the State of Wyoming) must show that the United States asserted 1) an inconsistent claim for relief and 2) that such assertion was made in a prior judicial proceeding. No such showing has been made, or even alleged, by the State.

The doctrine does not apply when a party has two coexisting remedies with a right to choose either mode of redress. Jesse v. Bichell, 257 P.2d 255 (Ore., 1953). There is no inconsistency

between an assertion of a reserved water right and a State water right for the same parcel of land. As the State itself has consistently argued, the two are neither similar nor exclusive. They are two distinct rights and the United States can possess and assert both.

Secondly, the doctrine of election of remedies applies only to remedies sought in prior judicial proceedings. It is therefore not called into play by the mere fact that the United States acquired property rights pursuant to state law in addition to the rights reserved under federal law.

Wyoming's Conclusion No. 39-1 - McCarran Amendment intent:
finality, p. 1693.

Nothing in the McCarran Amendment requires that the decree in this Case be "final and binding as to the entire world and all future claims be forever barred." The McCarran Amendment is merely a waiver of sovereign immunity to allow for the adjudication of the United States' water rights.

Wyoming's Conclusion No. 39-2 - McCarran Amendment intent recognized in Akin, p. 1694.

The United States has participated in this water adjudication and has faithfully proven its claims to water for the Wind River Indian Reservation. If this is truly a general adjudication, there will be no piecemeal litigation as envisioned by the Akin court. There will however, always be additional water related litigation, even once the parties water rights are determined.

Wyoming's Conclusion No. 39-3 - Arizona v. California, Master required finality, p. 1695-96.

The United States is not advocating an open-ended decree. We must however point out that the need sometimes arises for adjustments to any decree and thus we have proposed virtually identical language as is contained in Article IX of the Original decree in Arizona v. California, 376 U.S. 340 at 353 (1964). That provision allowed the recent consideration of "omitted lands" tried before Special Master Tuttle. Special Master Tuttle's Report, pp. 29-55. A prudently considered decree must always allow for consideration of possible adjustments.

Such is the case with the decree in Arizona v. California, Article IX of that decree proceeds as follows:

IX. Any of the parties may apply at the foot of this decree for its amendment or for further relief. The Court retains jurisdiction of this suit for the purpose of any order, direction, or modification of the decree, or any supplementary decree, that may at any time be deemed proper in relation to the subject matter in controversy. 377 U.S. at 353.

Colville Confederated Tribes v. Walton, supra, is not to the contrary. An issue in that case was whether a reserved right should be quantified for a fishery where fingerling trout were supplied by a hatchery and thereby made water supplies for

spawning water unnecessary. The Ninth Circuit Court of Appeals ruled that the fishery issue was ripe for adjudication notwithstanding the availability of hatchery fish. In that case the Indians were entitled to immediate proprietary enjoyment of the fishery resource. Because the right could be quantified at that time even though the need for the water was not immediate, the court preferred to avoid an open ended decree in favor of the present opportunity to quantify. Where lands are not in trust status and their reacquisition cannot be predicted it is preferable to await their reacquisition before adjudicating the water rights associated with them.

Wyoming also cites Special Master Tuttle's Report at pp. 282-83, for the proposition that currently held trust lands, previously held in fee, are not entitled to a reserved right. Special Master Tuttle specifically held that land previously patented under the Railroad Acts and subsequently reacquired by the Ft. Mojave Indian Tribe was entitled to a reserved water right with a priority date as of the creation of the reservation. See United States Response to Wyoming's Conclusion No. 30-2.

Wyoming's Conclusion No. 39-4 - Other judicial recognition of need for final decree, p. 1697.

The United States is not advocating an "open-ended" decree. The United States' proposed decree sets out the Indians water rights claims and also allows for equitable adjustments.

Wyoming's Conclusion No. 39-5 - New Mexico affirmation of finality requirement, p. 1698.

The New Mexico language cited by Wyoming merely requires the United States to file a statement of claims, as we did herein. Nothing in New Mexico precludes a modifiable decree.

Wyoming's Conclusion Nos. 41-1 through 41-9 - Estoppel,
pp. 1700-26.

In Proposed Conclusions of Law Nos. 41-1 through 41-9, the State of Wyoming argues that principles of equitable estoppel should be applied against the United States to prevent it from asserting reserved rights on behalf of the Shoshone.

In Finding No. 41-2, the State acknowledges the general rule that estoppel does not run against the United States, citing United States v. California, 332 U.S. 19 (1946). This general rule has been so often repeated and reiterated as to need little discussion.

We concur with the position that acts taken by government officials pursuant to authorization by Congress are binding on the United States. We do not believe, however, that this principle, involves equitable estoppel - a doctrine that prevents someone from asserting the truth. Rather, it is simply a matter of an agent of the United States acting within his statutory authorization and thereby binding his principal, the United States.

It is fundamental that only Congress can provide for the disposition of federal property. U.S. Const. art. IV, § 3. The authority of federal agents to dispose of federal property is limited, therefore, to the authority vested in them pursuant to statute. Actions taken by them outside the scope of their authority, or jurisdiction, or in reliance upon a fraud committed against the government do not bind the United States.

In this action, the United States has not challenged the validity of any of the land patents or land grants issued by the officers of the United States, acting under color of the public land laws, to any of the private parties asserting water rights. See also United States' response to Wyoming's conclusion 4, supra. While it may be that there are some isolated instances in Wyoming where patents were unlawfully issued and thus subject to cancellation in an appropriate lawsuit, this lawsuit does not seek to cancel patents.

It must be emphasized that in this lawsuit and in the proceedings that have thus far occurred, the federal government has not challenged the validity of any patents or deeds issued in favor of the State of Wyoming or the non-Indian co-defendants. Nor, indeed, has the federal government challenged the validity of any right to water the non-Indians assert under color of State law; in fact, by stipulation the United States has foresworn the right to challenge the assertion of non-Indian water rights with a priority date later than that which will be established for the federal government's rights in these proceedings.

In Proposed Conclusions No. 41-4, the State argues that the United States, by acquiring state permits for water for some reservation land, represented that water rights for the reservation were to be acquired under Wyoming law and that the United States would not assert any additional water rights.

It is clear that agents of the United States did acquire water rights under Wyoming law for the Indian reservation; however, there is no evidence that these agents or any other agents made representations to the State of Wyoming or to other parties in this lawsuit that the United States would never assert any other water right or that any authority had been given by Congress to the Interior Department to surrender the property right of the United States inherent in the Treaty of 1868.

The issue is not whether the federal agents who applied for state water rights were authorized by Congress to acquire additional property for the United States but whether they were authorized to dispose of property, i.e., were they given the statutory authority to divest the United States of the water rights reserved by the Treaty of 1868. The State points to no statute given the Interior Department such authority.

The State next argues that the water users in Wyoming did not know the facts and did not have the means of discovering them. In our view, however, the correct issue is whether the State of Wyoming - the party asserting estoppel - had reason to know of the reserved water rights of the Wind River Reservation. The answer to this is that the State clearly had reason to believe that tribes had reserved water rights and that the State's knowledge is reflected in its organic laws.

The territory of Wyoming was established by the Act of July 25, 1868, 15 Stat. 178. The territory was thus established immediately after the United States by its treaty with the Shoshone had extinguished the Indian title to lands outside the reservation, thus permitting those lands to become part of the public domain and available for entry and settlement under the public land laws. Section one of the Organic Act specifically provided ". . . that nothing in this act shall be construed to impair the rights of person or property now pertaining to the Indians in said territory, so long as such rights shall remain unextinguished by treaty between the United States and such Indians. . . ." This provision in the Organic Act is paralleled in R.S. 1839, now 48 U.S.C. 1451, which provided:

Nothing in this chapter shall be construed to impair the rights of person or property pertaining to the Indians in any territory, so long as such rights remain unextinguished by treaty between the United States and such Indians, or to include any territory which, by treaty with any Indian tribe, is not, without the consent of such tribe, embraced with the territorial limits of any State or territory; but all such territory shall be excepted from the boundaries, and constitute no part of any territory now or hereafter organized until such tribe signifies its assent to the President to be embraced within a particular territory.

Thus it is clear that while Wyoming was in territorial status, its authority did not run to the Wind River Indian Reservation and it has no ability to regulate the use of water

by Indians on the reservation. Whatever settlement by non-Indians occurred after the organization of the territory was subject to the Organic Act and the territory when it granted non-Indians rights to divert water was obviously aware that its grants or licenses could not impair the property rights or personal rights of the Indians to the waters originating in, flowing through, or bordering on the reservation.

In the legislation providing for the admission of Wyoming into the union as a state, the Act of July 10, 1890, 26 Stat: 222, the United States granted to the State of Wyoming vast tracts of federally owned land - however land reserved by the United States by the 1868 Treaty was not granted to the new State, thereby indicating that Congress did not intend to convey, nor authorize the officials of the Interior to convey, federal property rights returned within the boundaries of the reservation.

The people of Wyoming recognized that they had no authority on the Wind River Reservation. They, thus, in their constitution disclaimed forever ". . . all right and title . . . to all lands . . . owned or held by any Indian or Indian tribe" and provided that the Indian lands ". . . shall be and remain subject to the disposition of the United States and that said Indian lands shall remain under the absolute jurisdiction and control of the Congress of the United States." Clearly this

reflects the understanding of the citizens of Wyoming that they had no authority over the lands of the Indians. The term land, of course, is universally held to water and the right to use water appertenant to the land. See Amador County v. State Board of Equalization, 49 Cal. Rept. 448 (1966); Conant v. Deep Creek & Curlew Valley Irrigation Co., 66 Pac. 188 (Utah, 1901); City and County of San Francisco v. Alameda County, 54 P.2d 462 (Cal., 1936); Hamor v. Bar Harbor Water Co., 3A. 40 (Me. 1896); North Side Canal Co. v. Twin Falls Canal Co., 12 F.2d 311 (D.C. Idaho, 1926); North Kern Water Storage Dist. v. Kern County, 3 Cal. Rept. 636 (1960); McGee Irrigation Ditch Co. v. Hudson, 22 S.W. 967 (Tex., 1893).

It is thus clear that when the territory of Wyoming was established Congress withheld from the territory the power to regulate or interfere with the Indian use of water on the lands reserved for them by the Treaty of 1868. The people of the State, by their constitution, also disclaimed any authority over Indian water use by disclaiming any regulatory or proprietary interest in the Indian land. The people of the new state also provided in their constitution "That no inconvenience may arise from a change of the territorial government to a permanent state government, it is declared that all writs, actions, prosecutions, claims, liabilities and obligations against the territory of Wyoming,

of whatever nature, and rights of individuals, and of bodies corporate shall continue as if no change had taken place in this government." This is a clear disavowal by the people of the new state of any intent to deprive the Indians of any rights they had when Wyoming was a territory - and, while Wyoming had no authority to regulate Indian property.

Although Article 8, section 1 of the Wyoming Constitution declares that "The water of all natural streams, springs, lakes or other collections of still water, within the boundaries of the State, are . . . the property of the State," it is obvious that said declaration is not worded in a manner to effectuate a taking of property rights that existed when Wyoming was in territorial status. As we have seen the constitution specifically disclaims any attempt to interfere with or regulate use of Indian property. The Indian water right is further protected by the provisions of the State constitution prohibiting the State from depriving any person of his property without due process of law (Article 1, section 5), requiring just compensation for the taking of private property for public or private use (Article 1, section 33) and prohibiting the taking of property for private use (Article 1, sec. 33).

Those persons who became residents of the State after adoption of its constitution and acquired water rights as licensees of the State must be presumed to have knowledge of the laws respecting

the powers of, and the limitations of, the State government as expressed in the United States Constitution and the 1868 Treaty, as the supreme law of the land, and the Constitution of the State of Wyoming.

The reserved water right doctrine is not something that sprung suddenly and unexpectedly on the world in the 1908 Supreme Court decision in Winters v. United States.

As early at least as 1899, the Supreme Court said:

Although this power of changing the common law rule as to streams within its dominion undoubtedly belongs to each State, yet two limitations must be recognized: First, that in the absence of specific authority from Congress a State cannot destroy the right of the United States, as the owner of land bordering on a stream, to the continued flow of its waters; so far at least as may be necessary for the beneficial uses of the governmental property. United States v. Rio Grande Irrigation Co., 174 U.S. 690, 703 (1899).

The Montana Supreme Court recognized this rule in Story v. Woolverton, 78 Pac. 589 (Mont., 1904) when it stated:

When the government established the (military) reservation, it owned both the land included therein, and all the water running in the various near by streams to which it had not yielded title. It was therefore unnecessary for the government to 'appropriate' the water. It owned it already. All it had to do was take it and use it. Id. at 590.

In the Winters litigation, the first decision of the Court of Appeals was in 1906. Winters v. United States, 143 Fed. 740 (9th Cir. 1906). A second decision was rendered by the Court

of Appeals in that same year. Winters v. United States, 148 Fed. 684 (9th Cir. 1906). In both these decisions the Court of Appeals upheld the injunction earlier granted to the United States by the district court on the basis of the reserved water rights of the Indians - the position later affirmed by the Supreme Court's 1908 position.

Thus, the State is incorrect when it asserts, on page 1710, that the 1908 Winters decision broke new ground. As we have shown the courts even prior to Winters recognized the reserved rights doctrine.

The parameters of the Winters doctrine have been, as the State maintains, modified since 1908. However, those modifications have been to the disadvantage of the Indians if to anyone. As noted the law in effect when Wyoming was being settled was that the United States was entitled to all waters flowing through or near to land that it had reserved. It is only recently that courts have used the standard of "practicably irrigable acres" as the test by which the Indian reserved right for agricultural purposes is limited.

On pages 1711 and 1713 of its Conclusion the State suggests that it is the size of the claim made by the United States, rather than the legal theory espoused, that calls into play the doctrine of estoppel. The State says that "without a

recognizable threat of harm, the people of Wyoming could not have known of the sizeable reserved right asserted here" (p. 1713). This position in reality seeks to impose a new limitation on reserved water rights and to give them a new definition: "water sufficient in quantity to fulfill the purposes of the reservation but no more than is agreeable to the parties adverse to the United States." We suggest that this new restriction on the reserved water has no judicial recognition. Nor do we believe it proper for the party that initiated the suit to seek to limit on the claims of the United States on the grounds that the plaintiff got more than it bargained for.

We disagree that there has been any showing that the non-Indians relied upon representations made by the United States to their detriment. The United States promised to provide settlers with specified acreage of public domain land if certain conditions, imposed on the settlers by statute, were fulfilled. When the conditions were fulfilled and the purchase price paid, the United States conveyed the land as promised and did not challenge the titles.

The State does not argue that the United States ever promised to provide water to the non-Indian settlers. Indeed the State's consistent position in this suit is that non-Indians can obtain water only from the State, which asserts, in its constitution

ownership of all non-reserved water. No matter how little or how much water is in a stream, a non-Indian settler had to go to the State to obtain a license to divert water. It is upon the representations of the State of Wyoming not those of the United States that the people who have spent vast sums constructing irrigation works have relied.

As the State points out on pages 1719 and 1720 of its brief, non-Indians obtained title to lands under the Homestead Act for \$1.25 an acre and under the Desert Land Act for .25 cents an acre. Testimony at Worland indicates that land without a water right is assessed, for tax purposes at about 1/8 the assessment of irrigated land. The average value of irrigated land is \$800 an acre, and the average value of non-irrigated land is therefore about \$100 an acre - a 4000 percent increase in value over the .25 cents an acre paid for it under the Desert Land Act.

Wyoming's Finding No. 42-1 - Conflicting Intent and Conflicting Congressional Enactments, p. 1727.

This portion of Wyoming's argument is that the quantity of reserved water to which the Wind River Reservation is entitled is limited by alleged conflicts with state awarded water rights. Confirmation of reserved rights, says Wyoming, will defeat the Congressional intent inherent in land disposal legislation enacted in the 19th and 20th centuries. Wyoming's Proposed Finding No. 42-7.

Wyoming's argument has been squarely addressed and thoroughly rejected by the Supreme Court in Winters v. United States, supra, Arizona v. California, supra, and Cappaert v. United States, supra. Those cases are discussed at pages 233-39 of the United States' April 7 Brief.

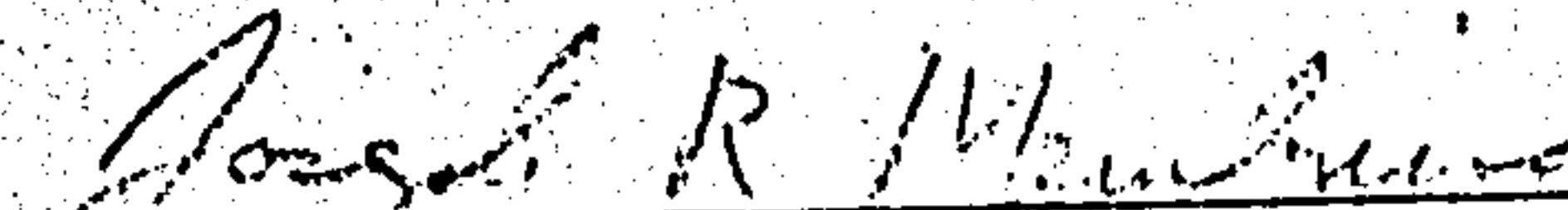
The rule governing Wyoming's argument may be summarized as follows:

In determining water rights for Indian reservations, courts are not to engage in balancing the competing interests of Indian and non-Indian users. Fulfilling the purposes of the reservation may result in economic hardship or may even leave non-Indian interests without a water supply at all. Those problems must be addressed by Congress subject to constitutional limitations; they cannot justify an 'equitable apportionment' or reduction of Indian water rights by the judiciary. (Citations omitted and emphasis added.) F. Cohen, Handbook of Federal Indian Law (1982 ed.), p. 587.

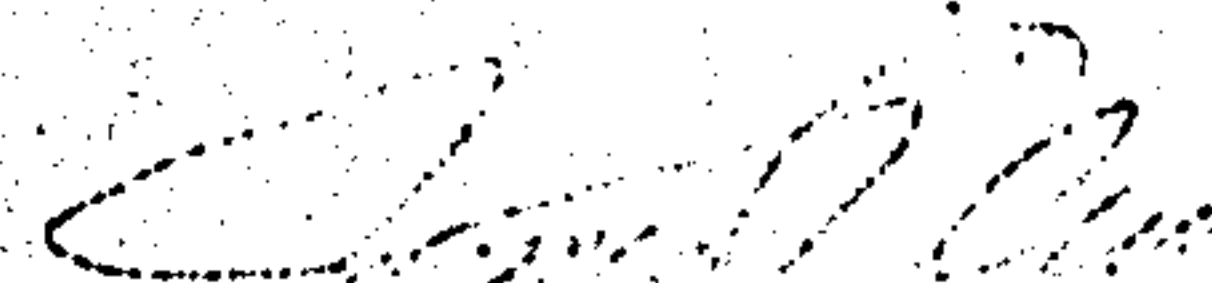
The numerous federal statutes regarding land disposition cited by Wyoming (Wyoming's Proposed Finding No. 42-7, pp. 1454-55); apply to all the western states including Wyoming. Having been admitted to the Union on an equal footing with the other states, including states in which reserved rights were created before and after statehood, Wyoming hardly can be heard to argue that those statutes restrict the reserved rights doctrine in this case.

Respectfully submitted this 5th day of May, 1982.


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