IN THE SUPERIOR COURT OF THE STATE OF ARIZONA

IN AND FOR THE COUNTY OF MARICOPA

IN RE THE GENERAL ADJUDICATION OF ALL RIGHTS TO USE WATER IN THE GILA RIVER SYSTEM AND SOURCE	CIVIL NO. W1-11-3318 CASE MANAGEMENT ORDER

CONTESTED CASE NAME: *In re Bowers*

HSR INVOLVED: San Pedro River Watershed Hydrographic Survey Report

DESCRIPTIVE SUMMARY: Designation of case as subject to Track 1 Procedures and directing the Arizona Department of Water Resources to set a meeting with the claimants and objectors.

NUMBER OF PAGES: 17

DATE OF FILING: February 22, 2018

Pursuant to the minute entry dated November 8, 2011, counsel for the Salt River Project Agricultural Improvement and Power District and Salt River Valley Water User's Association (collectively "SRP") took the lead to resolve objections to Watershed File Report 115-04-

ADB-009. According to SRP's report filed December 29, 2017, the objectors did not reach a settlement agreement that would resolve the pending objections.

Based on Watershed File Report 115-04-ADB-009, this contested case involves potential water rights (PWR) for domestic use, including stock watering, and irrigation totaling less than two acres associated with a domestic use. The Watershed File Report lists a Zone 1 Well as the source of the domestic use, which Arizona Department of Water Resources defined as water for inside household needs. *See* San Pedro Hydrographic Report, Volume 1, pp. 541, 563.

Anthon G. Richardson, one of the landowner identified in Watershed File Report 115-04-ADB-009, filed a claim pursuant to the 1974 Water Rights Registration Act Registry No. 36-59979 on February 15, 1978, for 24 acre feet of water annually for irrigation, stock watering and domestic use on SWSW Sec. 34 6S 17E. Mr. Richardson subsequently filed Statement of Claimant 39-4326 based on his earlier filing. Thereafter, Anthon G. Richardson and Barbara Richardson sold the land to Edward C. Bowers and Ruth C. Bowers, as community property with right of survivorship, and assigned Statement of Claimant 39-4326 to the new landowners. On August 6, 2004, Mr. and Mrs. Bowers filed three Statements of Claimant, all of which were numbered as File No. 39-15497. The new Statements of Claimant each listed the 1974 Water Rights Registration Act Registry No. 36-59979 document as the basis of the claim for water for irrigation, stock watering and domestic use on SWSW Sec. 34 6S 17E.

On December 22, 2017, Mr. Russell filed a form of assignment for Statements of Claimant 39-4326 and 39-15497 to which he attached a Warranty Deed filed on December 30, 2015 with the Pinal County Recorder, signed by Edward C. Bowers and Ruth C. Bowers as trustees of the Bowers Living Trust that conveyed land in the SWSW Sec. 34 6S 17E to Russell L. Richardson and Sheila C. Richardson. The notarized form of assignment stated that Edward G. Bowers was deceased. The assignment was not signed by the personal representative of Mr. Bowers' estate or by Mrs. Bowers. Based on this information, Edward Bowers will be removed from the mailing list. Mrs. Bowers will be retained on the mailing list as a claimant

who has not assigned the Statements of Claimant. §4.03, Rules for Proceedings Before the Special Master ("Rules").

The Rules require the Master to assign contested cases to either Track 1 or Track 2. Given the relatively small amount of water involved in this case, this contested case will initially be assigned to Track 1. At any time, any litigant may file a motion requesting that the contested case be transferred to Track 2.

The first step required by Track 1 is a meeting with the Arizona Department of Water Resources (DWR) to clarify the objections and determine whether the objections can be resolved by amendment to the Statements of Claimant, by an agreement between the litigants, or by an amendment of the Watershed File Report. Copies of the objections are attached as Appendix A. The meeting will be attended by the litigants and their attorneys, if any. In this case, the claimants did not file an objection to the Watershed File Report. Pursuant to §8.02[1][a] of the Rules:

> In cases where one or more objectors have filed an objection to the claimant's Watershed File Report, DWR will convene the meeting and will explain the basis of its findings. DWR will thereafter facilitate the discussion between the litigants and inform the litigants that, unless an agreement on the objection is reached, the matter will be heard by the Master.

Accordingly,

IT IS ORDERED that DWR will schedule a meeting with the current landowners, as successors in interest to Mr. and Mrs. Bowers, and the objectors no later than May 4, 2018. At the conclusion of the meeting, DWR shall file a Meeting Report pursuant to §8.02[1][c] of the Rules, which shall include a statement identifying whether the well that is the source of the domestic water use is located within the subflow zone. No discovery deadline or readiness conference shall be set until receipt of the Meeting Report.

SUSAN WARD HARRIS
Special Master

On February 22, 2018, the original of the foregoing was delivered to the Clerk of the Maricopa County Superior Court for filing and distributing a copy to all persons listed on the Court-approved mailing list for this contested case.

Barbara Brown

Barbara Brown

APPENDIX A

IN THE SUPERIOR COURT OF THE STATE OF ARIZONA
IN AND FOR THE COUNTY OF MARICOPA

IN RE THE GENERAL ADJUDICATION OF ALL RIGHTS TO USE WATER IN THE GILA RIVER SYSTEM AND SOURCE

Contested Case File: W111003318

MANDATORY FORM FOR OBJECTIONS TO
The Hydrographic Survey Report for
The San Pedro River Watershed

Please file a separate objection for each Watershed File Report, Zone 2 Well Report or Catalogued Well Report. Objections to information contained in Volume 1 of the HSR can be stated on one objection form. Objections must be written. Use of this form, or a computer facsimile, is required. Objections must be received on or before May 18, 1992. Objections must be filed with the Clerk of the Superior Court in and for Maricopa County, Maricopa County Courthouse Annex, 3345 W. Durango Street, Phoenix, AZ 85009.

This objection is directed to Watershed File Report or Zone 2 Well Report No. 115-04-ADB-009 (please insert no.) or Catalogued Well No. (please insert no.)

OBJECTOR INFORMATION

Objector's Name:
United States of America

Co-Objector's Name:
Gila River Indian Community
c/o Cox & Cox

Co-Objector's Name:
San Carlos Apache Tribe; Tonto Apache Tribe; Yavapai-Apache Indian Community; Camp Verde Reservation
c/o Sparks & Siler, P.C.

Objector's Address:
601 Pennsylvania Ave.
Washington, D.C. 20004

Co-Objector's Address:
Suite 300 Luhrs Tower
Phoenix, AZ 85003

Co-Objector's Address:
7503 First Street
Scottsdale, AZ 85251

Objector's Telephone No.:
(202) 272-4059 / 272-6978

Co-Objector's Telephone No.:
(602) 254-7207

Co-Objector's Telephone No.:
(602) 949-1998

Objector's Watershed File Report or Zone 2 Well Report No. (if the Objector's claimed water rights are within the San Pedro River Watershed):

111-19-009

Or Objector's Catalogued Well Number (if the Objector's claimed water rights appear only in Volume 8 of the HSR):

Or Objector's Statement of Claimant No. (if the Objector's claimed water rights are located outside the San Pedro River Watershed):

39-11-05478	39-05-41142	39-07-12652	39-07-12676	39-05-50058	39-07-12169
39-U8-60083	39-L8-36340	39-L8-37360	39-U8-63614	39-07-12675	39-05-50059

STATE OF ARIZONA

COUNTY OF MARICOPA

I hereby make this Objection. I certify that, if required, a copy of the foregoing Objection was served upon the following Claimant(s) by mailing true and correct copies thereof on the 18th day of May, 1992, postage prepaid and addressed as follows:

115-04-ADB-009
Name: RICHARDSON, ANTHON G. & BARBARA L.
Address: STAR ROUTE BOX 99-A
WINKELMAN AZ 85292

(The above section must be completed if you object to another claimant's Watershed File Report, Zone 2 Well Report, or Catalogued Well Report. It does not need to be completed if you file an objection to your own Watershed File Report, Zone 2 Well Report, Catalogued Well Report, or to information contained in Volume 1 of the Hydrographic Survey Report.)

OFFICIAL SEAL
PAMELA L. SPARKS
Notary Public - State of Arizona
MARICOPA COUNTY
My Comm Expires Aug. 25, 1995

VERIFICATION(must be completed by objector)

I declare under penalty of perjury that I am a claimant in this proceeding or the duly-authorized representative of a claimant; that I have read the contents of this Objection (both sides and any attachments) and know the contents thereof; and that the information contained in the Objection is true based on my own personal knowledge, except those portions of the Objection which are indicated as being known to me on information and belief and, as to those portions, I believe them to be true.

Gary B. Randall
Signature of Objector or Objector's Representative

Alfred L. Cox
Signature of Co-Objector or Co-Objector's Representative

Signature of Co-Objector or Co-Objector's Representative

SUBSCRIBED AND SWORN to before me this 7 day of May, 1992.

Pamela L. Sparks

STATEMENT OF THE OBJECTION

The following are the main categories of the typical Watershed File Report (Zone 2 Well Reports and some Watershed File Reports lack certain categories). Please check the category(ies) to which you object, and state the reason for the objection on the back of this form.

[ ] 1. I object to the description of Land Ownership.

[XX] 2. I object to the description of Applicable Filings and Decrees.

[XX] 3. I object to the description of DWR's Analysis of Filings and Decrees.

[ ] 4. I object to the description of Diversions for the claimed water right(s).

[XX] 5. I object to the description of Uses for the claimed water right(s).

[ ] 6. I object to the description of Reservoirs used for the claimed water right(s).

[ ] 7. I object to the description of Shared Uses & Diversions for the claimed water right(s).

[XX] 8. I object to the PWR (Potential Water Right) Summary of the claimed water right(s).

[XX] 9. I object to the description of Quantities of Use for the claimed water right(s).

[ ] 10. I object to the Explanation provided for the claimed water right(s).

[ ] 11. Other Objections (please state volume, page and line number for each objection).

REASON FOR OBJECTION

The reason for my objection is as follows (please number your objections to correspond to the boxes checked above; please attach supporting information and additional pages as necessary):

2. The claimant and/or ADWR fail(s) to associate this claim with a pre-adjudication water filing as required by Arizona statute. (SM 420) (P01)

The available historical record does not support the priority date listed in the pre-filings. (SM 430) (OT001)

The available historical record does not support the priority date listed in the adjudication filings. (SM 478) (OT001)

Adjudication filings associated with this WFR contain inaccurate or incomplete information. (SM 478)

The use of water listed under this Watershed File Report is challenged because it interferes with downstream federal reserved rights and is contrary to state and federal law. (SM 560)

There is no quantity amount listed for a pre-filing and/or filing under this WFR. (SM 1000) (3600599790000)

3. Adjudication filings associated with this WFR contain inaccurate or incomplete information. (SM 478)

5. There is no documentation supporting the change in source of water for the claim associated with this Watershed File Report. (SM 550)

8. The claimant and/or ADWR fail(s) to associate this claim with a pre-adjudication water filing as required by Arizona statute. (SM 420) (P01)

The use of water listed under this Watershed File Report is challenged because it interferes with downstream federal reserved rights and is contrary to state and federal law. (SM 560)

The legal description for the point of diversion listed by ADWR is not fully supported by the applicable filings listed. (SM 623) (P01)

The legal description for the place of use of a potential water right listed by ADWR is not fully supported by applicable filings. (SM 720) (OT001000)

The available historical record does not support the priority date listed in the ADWR analysis of Apparent First Use Date. (SM 920) (OT001)

The regional volume of use is less than both the claimed and maximum observed volume of use. This indicates that the water is being used inefficiently. The claimant is not entitled to the water that will be wasted. (SM 1000)

9. The regional volume of use is less than both the claimed and maximum observed volume of use. This indicates that the water is being used inefficiently. The claimant is not entitled to the water that will be wasted. (SM 1000)

ADWR uses a methodology that over-estimates crop water requirements. (SM 1020)

IN TH_ SUPERIOR COURT OF THE STATE OF ARIZONA
IN AND FOR THE COUNTY OF MARICOPA

IN RE THE GENERAL ADJUDICATION OF ALL RIGHTS TO USE
WATER IN THE GILA RIVER SYSTEM AND SOURCE

MANDATORY FORM FOR OBJECTIONS TO

No. W111003318

The Hydrographic Survey Report for
The San Pedro River Watershed

Please file a separate objection for each Watershed File Report, Zone 2 Well Report or Catalogued Well Report. Objections to information contained in Volume 1 of the HSR can be stated on one objection form. Objections must be written. Use of this form, or a computer facsimile, is required. Objections must be received on or before May 18, 1992.

This objection is directed to Watershed File Report or Zone 2 Well Report No. 11504ADB 009 (please insert no.) or Catalogued Well No. (please insert no.)

OBJECTOR INFORMATION

Objector's Name:	Gila River Indian Community	San Carlos Apache Tribe; Tonto Apache Tribe; Yavapai-Apache Indian Community, Camp Verde Reservation
	C/O Cox & Cox	C/O Sparks & Siler, P.C.
Objector's Address:	Suite 300 Luhrs Tower, P.O. Box 4245	7503 First Street
	Phoenix, AZ 85030	Scottsdale, AZ 85251
Objector's Telephone:	(602) 254-7207	(602) 949-1988

Objector's Watershed File Report or Zone 2 Well Report No. (if the Objector's claimed water rights are within the San Pedro River Watershed):

____-____-____-____

Or Objector's Catalogued Well Number (if the Objector's claimed water rights appear only in Volume 8 of the HSR):

Or Objector's Statement of Claimant No. (if the Objector's claimed water rights are located outside the San Pedro River Watershed):

39-11-05478	39-05-41142	39-07-12652	39-07-12676	39-05-50058	39-07-12169
39-U8-60083	39-L8-36340	39-L8-37360	39-U8-63614	39-07-12675	39-05-50059

STATE OF ARIZONA

VERIFICATION (must be completed by objector)

COUNTY OF MARICOPA

I hereby make this Objection. I certify that, if required, a copy of the foregoing Objection was served upon the following Claimant(s) by mailing true and correct copies thereof on the 13 day of May, 1992, postage prepaid and addressed as follows:

Name: RICHARDSON, ANTHON G.

Address: 760 W. 6TH DRIVE9-A

MESA AZ 85202

(The above section must be completed if you object to another claimant's Watershed File Report, Zone 2 Well Report, or Catalogued Well Report. It does not need to be completed if you file an objection to your own Watershed File Report, Zone 2 Well Report, Catalogued Well report; or to information contained in Volume 1 of the Hydrographic Survey Report.)

I declare under perjury that I am a claimant in this proceeding or the duly-authorized representative of a claimant; that I have read the contents of this Objection (both sides and any attachments) and know the contents thereof; and that the information contained in the Objection is true based on my own personal knowledge, except those portions of the Objection which are indicated as being known to me on information and belief and, as to those portions, I believe them to be true.

Alfred L. Cox

Signature of Objector or Objector's Representative

SUBSCRIBED AND SWORN to before me this 6 day of May 1992.

James R. Ritterhouse

Notary Public for the State of Arizona

OFFICIAL SEAL
JAMES ROBERT RITTERHOUSE
Notary Public - State of Arizona
MARICOPA COUNTY
My Comm. Expires Jan 5, 1994

Objections must be filed with the Clerk of the Superior Court in and for Maricopa County, Maricopa County Courthouse Annex, 3345 W. Durango Street, Phoenix, AZ 85009, on or before May 18, 1992.

STATEMENT OF THE OBJECTION

The following are the main categories of the typical Watershed File Report (Zone 2 Well Reports and some Watershed File Reports lack certain categories). Please check the category(ies) to which you object, and state the reason for the objection on the back of this form.

- 1. I object to the description of **Land Ownership**

X 2. I object to the description of **Applicable Filings and Decrees**

- 3. I object to the description of **DWR's Analysis of Filings and Decrees**

X 4. I object to the description of **Diversions** for the claimed water right(s)

- 5. I object to the description of **Uses** for the claimed water right(s)

- 6. I object to the description of **Reservoirs** used for the claimed water right(s)

- 7. I object to the description of **Shared Uses & Diversions** for the claimed water right(s)

- 8. I object to the **PWR (Potential Water Right) Summary** of the claimed water right(s)

X 9. I object to the description of **Quantities of Use** for the claimed water right(s)

- 10. I object to the **Explanation** provided for the unclaimed water right(s)

- 11. Other Objections (please state volume, page and line number for each objection)

REASON FOR OBJECTION

The reason for my objection is as follows (please number your objections to correspond to the boxes checked above; please attached supporting information and additional pages as necessary. The following objection(s) are based upon information and belief:

CATEGORY NUMBER	
4	The use of the water claimed depletes water for senior federal and Indian water rights (1150).
2	HSR does not show a well registration filing (420).
9	HSR does not show a claimed water use rate (1000).
2	Claim date from filing(s) and/or pre-filing(s) are inconsistent (478)(430).
2	Quantities from filing(s) and/or pre-filing(s) are inconsistent (478)(430).
____	_____
____	_____
____	_____
____	_____
____	_____

IN THE SUPERIOR COURT OF THE STATE OF ARIZONA
IN AND FOR THE COUNTY OF MARICOPA

IN RE THE GENERAL ADJUDICATION OF ALL RIGHTS TO USE WATER IN THE GILA RIVER SYSTEM AND SOURCE

No. W1,W2,W3 & W4
Contested Case No. W1-11-003318

COPY

MANDATORY FORM FOR OBJECTIONS TO The Hydrographic Survey Report for the San Pedro River Watershed

Please file a separate objection for each Watershed File Report, Zone 2 Well Report or Catalogued Well Report. Objections to information contained in Volume 1 of the HSR can be stated on one objection form. Objections must be written. Use of this form, or a computer facsimile, is required. Objections must be received on or before May 18, 1992.

This objection is directed to Watershed File Report or Zone 2 Well Report No. 115-04-ADB -009 (please insert no.) or Catalogued Well No. _____ (please insert no.)

OBJECTOR INFORMATION

Objector's Name: Salt River Project
Objector's Address: Post Office Box 52025
Phoenix, Arizona 85072-2025
Objector's Telephone No: (602) 236-2210

Objector's Watershed File Report or Zone 2 Well Report No. (If the Objector's claimed water rights are within the San Pedro River Watershed): ___-___-___

Or Objector's Catalogued Well Number (if the Objector's claimed water rights appear only in Volume 8 of the HSR): _____

Or Objector's Statement of Claimant No. (if the Objector's claimed water rights are located outside the San Pedro Watershed):
39-07 01040, 01041, 01206, 01207, 01998
39-05 50053, 50054, 50055
39-L8 35212, 35213

STATE OF Arizona

COUNTY OF Maricopa

VERIFICATION (must be completed by objector)

I hereby make this Objection. I certify that, if required, copy of the foregoing Objection was served upon the following Claimant(s) by mailing true and correct copies thereof on the 14th day of May, 1992, postage prepaid and addressed as follows:

Name: RICHARDSON, ANTHON G.

Address: STAR ROUTE BOX 99-A

WINKELMAN, AZ 85292

(The above section must be completed if you object to another claimant's Watershed File Report, Zone 2 Well Report, or Catalogued Well Report. It does not need to be completed if you file an objection to your own Watershed File Report, Zone 2 Well Report, Catalogued Well Report, or to information contained in Volume 1 of the Hydrographic Survey Report.)

I declare under penalty of perjury that I am a claimant in this proceeding or the duly-authorized representative of a claimant; that I have read the contents of this Objection (both sides and any attachments) and know the contents thereof; and that the information contained in the Objection is true based on by own personal knowledge, except those portions of the Objection which are indicated as being known to me on information and belief and, as to those portions, I believe them to be true.

David C. Roberts
Signature of Objector or Objector's Representative

SUBSCRIBED AND SWORN to before me this 1st day of May, 1992.

Linda Jefferson
Notary Public for the State of Arizona

Residing at Maricopa County

My commission expires _____

OFFICIAL SEAL
LINDA JEFFERSON
Notary Public - State of Arizona
MARICOPA COUNTY
My Comm. Expires March 24, 1995

Objections must be filed with the Clerk of the Superior Court in and for Maricopa County, Maricopa County Courthouse Annex, 3345 W. Durango Street, Phoenix Az 85009, on or before May 18, 1992.

STATEMENT OF THE OBJECTION

The following are the main categories of the typical Watershed File Report (Zone 2 Well Reports and some Watershed File Reports lack certain categories). Please check the category(ies) to which you object, and state the reason for the objection on the back of this form.

[ ] 1. I object to the description of LAND OWNERSHIP

[ ] 2. I object to the description of APPLICABLE FILINGS AND DECREES

[ ] 3. I object to the description of DWR's ANALYSIS OF FILINGS AND DECREES

[ ] 4. I object to the description of the DIVERSIONS for the claimed water right(s)

[ ] 5. I object to the description of the USES for the claimed water right(s)

[ ] 6. I object to the description of RESERVOIRS used for the claimed water right(s)

[ ] 7. I object to the description of SHARED USES & DIVERSIONS for the claimed water right(s)

[X] 8. I object to the PWR (POTENTIAL WATER RIGHT) SUMMARY of the claimed water right(s)

[X] 9. I object to the description of the QUANTITIES OF USE for the claimed water right(s)

[ ] 10. I object to the EXPLANATION provided for the claimed water right(s)

[ ] 11. Other Objections (please state volume number, page number and line number for each objection)

REASON FOR OBJECTION

The reason for my objection is as follows (please number your objections to correspond to the boxes checked above; please attach supporting information and additional pages as necessary):

CATEGORY NUMBER

SEE ATTACHMENT 1

In this attachment the uniform code designated by the Special Master in accordance with Case Management Order No. 1 is shown in parenthesis following each objection statement.

ATTACHMENT 1

WFR CATEGORY 8 - PWR SUMMARY

The Salt River Project objects to the apparent date of first use assigned to this Potential Water Right (PWR). Previous filings, in this case, filings made pursuant to the Water Rights Registration Act (WRRA), are the evidentiary foundation for the priority date associated with a water right. The Watershed File Report fails to set forth sufficient historical evidence to refute the date of priority claimed in the WRRA filing matched to this PWR. In the absence of such evidence, the apparent date of first use for this PWR should be the date claimed in the WRRA filing (0920). This objection applies to: OT001.

* * * *

The Salt River Project objects to the use of "statement of claimant" as the basis for the apparent date of first use assigned to this Potential Water Right (PWR). Mere allegations made in a Statement of Claimant are insufficient to refute the date of priority evidenced by one or more applicable previous filings. The Watershed File Report fails to set forth historical evidence sufficient to refute the priority date evidenced by the previous filings matched to this PWR. In the absence of such evidence, the apparent date of first use assigned to this PWR should be the date evidenced by those filings (0910). This objection applies to: OT001.

WFR CATEGORY 9 - QUANTITIES OF USE

The Salt River Project objects to the quantity of use assigned to this Potential Water Right (PWR). The regional method used by DWR for determining quantity of use for certain agricultural and other irrigation PWRs is inconsistent with the Arizona doctrine of prior appropriation; this method is also technically inaccurate. For an additional discussion of the problems associated with DWR's method of quantification for these types of PWRs, see the Salt River Project's Volume 1 objections to this method, a copy of which is attached to this objection and incorporated herein by reference (1020). This objection applies to: OT001.

* * * *

WFR CATEGORY 9 - QUANTITIES OF USE (continued)

The Salt River Project objects to the failure of DWR to calculate a diversion rate for this Potential Water Right (PWR). All PWRs assigned a point or points of diversion should be assigned a separate diversion rate for each point of diversion. Diversion rates should be calculated at the point of diversion and should include conveyance losses (1010). This objection applies to: OT001.

EXCERPT FROM
SALT RIVER PROJECT OBJECTIONS TO
VOLUME 1 OF THE SAN PEDRO RIVER HSR

REGIONAL IRRIGATION QUANTITY ESTIMATES

(page numbers refer to Volume 1)

INTRODUCTION

The Salt River Project objects to DWR's estimation methods and results for regional irrigation water quantities for the following reasons:

First, in the absence of decreed rights, which must be accepted by the court in the absence of abandonment, Arizona law requires that the extent of an appropriative right be measured according to the quantity of water that the appropriator diverted for beneficial use since the time of the appropriation. A.R.S. § 45-141(B) ("Beneficial use shall be the basis, measure and limit to the use of "water"). The "regional" quantification method employed by DWR does not properly estimate maximum actual historical beneficial use as required by law.

Second, although DWR has developed new terminology in reporting regional water duties, DWR still uses the Arizona Groundwater Code method of "areas of similar farming conditions" (ASFC), now termed "regional farming conditions" (RFC). The RFC method assigns a weighted <u>average</u> consumptive use requirement to the water duty equation based upon the types of crops <u>recently</u> grown by appropriators in a designated area. Historical information or records evincing an individual claimant's actual cropping patterns and the quantities of water actually used to cultivate such crops since the time of appropriation are not considered. In fact, the Court noted that "[average efficient use] is not directly related to what is the property's water right[s] . . . " (Entitlement Order at 6). Under the prior appropriation doctrine, an appropriator who has grown alfalfa on his property historically is entitled to a water duty that will support alfalfa, regardless of the crops that he or his neighbors are currently growing. Under DWR's "averaging" approach, an appropriator in this situation would be assigned an apparent entitlement inadequate to meet crop needs.

Additionally, under the RFC concept, the efficiency of various irrigation methods is averaged among appropriators, thus further exacerbating the inadequate water duty for the appropriator who does not have a system with above-average efficiency.

Third, there are several technical errors in DWR's calculation of crop consumptive use including the use of a five year crop history, adjusted weather data, relative humidity, growing season, effective precipitation, crop coefficients, alfalfa stand establishment, deficit irrigation, and efficiency estimates.

In place of regional water duties, the Salt River Project supports DWR's estimation of water duty using the "maximum potential" method since, in the absence of sufficient historical records, this method properly estimates maximum actual historical beneficial use.

These objections are more fully set forth in the following sections.

Five Year Crop History
pp. 146-151, C-18, C-19, C-68 through C-78

The Salt River Project objects to DWR's use of its five year investigation period for computing acreages irrigated for maximum observed quantification and for computing crop irrigation water requirements for both maximum observed and regional quantifications. Indeed, it appears that DWR has relied heavily on a single year (1990) of crop survey data. The information developed from a single year, or five year period, cannot be used to properly estimate actual historical beneficial use since low consumptive use crops or no crop may be present during the period. Thus, historical cropping practices or completion of a crop rotation are not reflected.

Adjusted Weather Data
pp. C-6 through C-19

The Salt River Project objects to DWR's adjustment of weather station temperatures from recorded values and relative humidities from estimated values. The temperature and relative humidity adjustment procedure is intended for prediction of crop water requirements for large, new irrigation developments where the current observations are from a nearby non-irrigated area. Because of the "clothesline" configuration of San Pedro irrigated areas in relation to the extremely arid surrounding environment, it is extremely doubtful there is any moderating effect due to surrounding irrigated land or to the San Pedro River.

Relative Humidity
pp. C-9, C-17, C-25, C-29, C-34, C-92

The Salt River Project objects to DWR's failure to specify whether it used <u>minimum</u> relative humidity as specified in Food and Agricultural Organization (FAO) Paper 24. Minimum relative humidity is not reported by Sellers and Hill. Furthermore, their 6 p.m. (1800 hours) data must be adjusted downward to reflect lower humidity in mid-afternoon. The proper publication date for <u>Arizona Climate, 1931-1972</u>, by Sellers and Hill, is 1974.

Growing Season
pp. C-20, C-24

The Salt River Project objects to DWR's use of field observations during one or just a few years to estimate the length of growing season for perennial crops. A few field observations of irrigation dates do not define the water use period because water use occurs both before and after irrigation and because growing seasons vary from year to year. Growing seasons can best be determined for perennial crops by a relationship between plant growth and mean temperature or mean date of low temperatures over an extended period of record.

Effective Precipitation
pp. C-38, C-40 through C-49

The Salt River Project objects to DWR's method of estimating non-growing season effective precipitation. The procedure used neglects runoff, uses soil constant values that are highly variable and not well quantified, and is unclear about assumptions of initial soil moisture conditions for each month. Published methods can be used to estimate non-growing season effective precipitation for the winter months, the relevant period for most crops. Furthermore, the Salt River Project objects to DWR's use of a 50 percent probability of precipitation, which results in an inadequate supply in one-half of the years. A 50 percent probability indicates that <u>average</u> effective precipitation is subtracted from crop consumptive use when DWR calculates the irrigation requirement. This means that in years of below-average precipitation, irrigation users would be unable to replace the lack of precipitation with additional irrigation water. The amount of precipitation that is available 80 percent of the time for field crops and 90 percent of the time for orchards and vegetables is appropriate.

Crop Coefficients
p. C-33

The Salt River Project objects to DWR's use of 0.8 as the kc for Winter Pasture. Winter Pasture is a cool-season grass mixture that has a higher crop coefficient than a warm-season grass. SRP also objects to DWR's use of the mean of kc1 and kc3 as a value for kc2, instead of interpolation. Both FAO-24 and University of California Leaflet 21427 specify interpolation.

Alfalfa Stand Establishment
p. C-37

The Salt River Project objects to DWR's failure to include water for alfalfa stand establishment as an "Other Need."

Efficiency Estimates
pp. 138-140, C-51 through C-54

The Salt River Project objects to DWR's omission of the effect of a rotation delivery system on On-Farm Irrigation Efficiency. A rotation delivery system reduces On-Farm Irrigation Efficiency below that which can be achieved if irrigation water is available on demand.

The Salt River Project also objects to DWR's use of average estimated values of irrigation efficiency for regional quantification. The use of average efficiencies understates entitlements for one-half of all irrigated acres on this basis alone.