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
W1-11-003112

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 114 - 04 - BAB - 105 (please insert no.)

or Catalogued Well No. _____ (please insert no.)

92 MAY 11 PM 1:38
JUDITH ALLEN, CLERK
BY C. Carlson DEP
FILED

OBJECTOR INFORMATION

Objector's Name:	Magma Copper Company (1267)	ASARCO Incorporated (1263)
Objector's Address:	7400 North Oracle Rd Suite 200 Tucson, Arizona 85704	P.O. Box 8 Hayden, Arizona 85235
Objector's Telephone No.:	(602) 575-5600	(602) 356-7811

* The names, addresses and telephone numbers of Objectors' attorneys are on the back of this form.

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):

Magma Copper Company: 113-08-XXXX-022, et al.
ASARCO Incorporated: 114-01-XXXX-005, et al.

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

NOT APPLICABLE

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

39 - NOT APPLICABLE

STATE OF ARIZONA

COUNTY OF MARICOPA

VERIFICATION (must be completed by objector)

I hereby make this Objection. I certify that, if required, a copy of the forgoing Objection was served upon the following Claimant(s) by mailing true and correct copies thereof on the 11th day of May, 1992, postage prepaid and addressed as follows:

Name and Address: BOSTICK, FLOYD D.
&& FLOSSIE M.
STAR ROUTE BOX 34-A
WINKELMAN, AZ 85929

(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 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.

Jeffrey W. Crockett
Signature of Objector's Representative (Magma)

Signature of Objector's Representative (ASARCO)

SUBSCRIBED AND SWORN to before me this 11th day of May, 1992

Marianne Duncan Shippee

OFFICIAL SEAL
MARIANNE DUNCAN SHIPPEE
Notary Public - State of Arizona
MARICOPA COUNTY
My Comm. Expires July 17, 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**
- ☐ 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 **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)
- ☐ 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):

Category Number: 4, 8 and 11

Magma Copper Company ("Magma") and ASARCO Incorporated ("ASARCO") submit this objection as co-objectors.

Magma and ASARCO object to the inclusion of groundwater in this Adjudication because groundwater is neither appropriable under Arizona law (Uniform Objection Code Nos. 500, 510, 1120 and 1132), nor is it subject to claims based on federal law (Uniform Objection Code Nos. 561, 562, 1120 and 1134). In addition, this objection is intended to preserve these issues until such time as each is resolved by the Arizona Supreme Court. (Uniform Objection Code No. 1130)

While this objection pertains to a specific Watershed File Report ("WFR"), Magma and ASARCO are objecting to each WFR that classifies a well as a "Zone 1 Well" or otherwise employs the "50% - 90 day standard" to create a presumption of a well's diversion of appropriable surface water.

With respect to this particular WFR, Magma and ASARCO presently believe that the subject well(s) is/are taking nonappropriable groundwater not subject to the Gila Adjudication. However, should it be determined that the well(s) is/are taking appropriable surface water, Magma and ASARCO object to such use where such taking is a diversion of surface water without an appropriative right under state law and/or is interfering with the water rights of Magma or ASARCO. (Uniform Objection Code Nos. 600, 610 and 1150)

Magma and ASARCO are also filing this objection to obtain notice and an opportunity to be heard on all issues in the event that claims to the groundwater referenced in claimant's WFR are adjudicated.

Attorneys for Magma:

Robert B. Hoffman (004415)
Carlos D. Ronstadt (006468)
Jeffrey W. Crockett (012672)
SNELL & WILMER
One Arizona Center
Phoenix, Arizona 85004-0001
(602) 382 - 6000

Attorneys for ASARCO:

Burton M. Apker (001258)
Gerrie Apker Kurtz (005637)
APKER, APKER, HAGGARD
& KURTZ, P.C.
2111 E. Highland, Suite 230
P.O. Box 10280
Phoenix, Arizona 85064-0280
(602) 381 - 0085

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: W111003112

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.

FILED
92 MAY 12 AM 10:1
JUDITH ALLEN, CLERK
BY [signature] DEP

This objection is directed to Watershed File Report or Zone 2 Well Report No.	114-04-BAB-105 (please insert no.)	or Catalogued Well No. (please insert no.)

OBJECTOR INFORMATION

Objector's Name:	Co-Objector's Name:	Co-Objector's Name:
United States of America	Gila River Indian Community c/o Cox & Cox	San Carlos Apache Tribe; Tonto Apache Tribe; Yavapai-Apache Indian Community; Camp Verde Reservation c/o Sparks & Siler, P.C.
Objector's Address:	**Co-Objector's Address:**	**Co-Objector's Address:**
601 Pennsylvania Ave. Washington, D.C. 20004	Suite 300 Luhrs Tower Phoenix, AZ 85003	7503 First Street Scottsdale, AZ 85251
Objector's Telephone No.:	**Co-Objector's Telephone No.:**	**Co-Objector's Telephone No.:**
(202) 272-4059 / 272-6978	(602) 254-7207	(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:

114-04-BAB-105
Name: BOSTICK, FLOYD D. & FLOSSIE M.
Address: STAR ROUTE BOX 34-A WINKELMAN AZ 85929

(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.

Signature of Objector or Objector's Representative

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**.

[ ] 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).

[ ] 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 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)

   One or more of the filings or pre-filings as reported in this WFR is missing a point of diversion legal description. (SM 623) (3900109240000)

   One or more of the POU legal descriptions listed in the WFR is too general. (SM 720) (3900109240000)

   Applicable or potentially applicable filings indicate a volume of actual or claimed use less than the volume estimated by ADWR (both maximum observed and regional use for irrigation PWR's). The claimant is not entitled to more than actually used or claimed. (SM 1000)

8. 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)

   One or more of the POU legal descriptions listed in the WFR is too general. (SM 720) (3900109240000)

   Applicable or potentially applicable filings indicate a volume of actual or claimed use less than the volume estimated by ADWR (both maximum observed and regional use for irrigation PWR's). The claimant is not entitled to more than actually used or claimed. (SM 1000)

9. Applicable or potentially applicable filings indicate a volume of actual or claimed use less than the volume estimated by ADWR (both maximum observed and regional use for irrigation PWR's). The claimant is not entitled to more than actually used or claimed. (SM 1000)

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

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

MANDATORY FORM FOR OBJECTIONS TO

No. W111003112

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. 11404BAB 105 (please insert no.) or Catalogued Well No. (please insert no.)

92 MAY 13 AM 10: 11
JUDITH ALLEN, CLERK
BY D. Gallagher DEP
FILED

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: BOSTICK, FLOYD D.

Address: STAR ROUTE BOX 34-A

WINKELMAN AZ 85929

(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 ___ 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).
____	_____
____	_____
____	_____
____	_____
____	_____

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. W1-11-003112

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. 114-04-BAB -105 (please insert no.)

or Catalogued Well No. _____ (please insert no.)

FILED
KURTH ALLEN, CLERK
BY _____ DEP.
92 MAY 14 AM 11:42

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: BOSTICK, FLOYD D.

Address: STAR ROUTE BOX 34-A

WINKELMAN, AZ 85929

(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 Jepperson
Notary Public for the State of Arizona

Residing at Maricopa County

My commission expires _____

OFFICIAL SEAL
LINDA JEPPERSON
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)

[ ] 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 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.

* * * *

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.