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

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

W1-11- 2697

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 the File Report or Zone 2 Well R	Watershed eport No. 113 . 12 . CAA (please insert no.)	or Catalogued Well No.
Or Objector's Catalogued We	113 . 12	Hope I. Jones O, Tucson, AZ 85712 O's claimed water rights are within the San Pedro River Watershed): CAA 001 ts appear only in Volume 8 of the HSR):
STATE OF ARIZONA	39	hts are located outside the San Pedro River Watershed):
COUNTY OF Pima	VERIFICATIO	N (must be completed by objector)
mailing true and correct copie 199 12. Name: William		I declare under penalty of perjury that I am a claimant in this proceeding or the duty- 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.
Address: 1661 N. Tucson,		Signature of Objector or Objector's Representative
(The above section mus claimant's Watershed File Well Report. It does not objection to your own W Catalogued Well Report: the Hydrographic Survey Robert J. St. Jones, Edwards	t be completed if you object to another e Report, Zone 2 Well Report, or Catalogued in need to be completed if you file an /atershed File Report, Zone 2 Well Report, or to information contained in Volume 1 of / Report.) Clair, Esq. Kofron & Egbert, P.C. dway, Suite 1600	SUBSCRIBED AND SWORN to before me this 140 day of 199 2. Sally Of Chadwick Notary Public for the State of Ar. 2000 Residing at Tucsor My commission expires 2.15-9.3

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.

4

13713

STATEMENT OF THE OBJECTION

The following the are 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 Quantitles 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) (See attached Report)

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

CATEGORY NUMBER

6,8,10,

This Watershed File Report contains many claims most of which relate to each other, but which also conflict apparently because of the different persons who have filed claims on behalf of the estate through the years. Also, on-site inspection revealed the existence of historical uses different from and, in some instances, in addition to those reported in this WFR and on the Region 12-CAA map. In order to present a comprehensive picture of the uses, locations and history of this property, attached are the objector's comments and objections, a map showing the ranch property and water uses, an opinion prepared by Groundwater Resources Consultants, Inc. which includes objections to the brightlines as described by DWR, a description of the atypical geologic conditions of the river at the ranch property and a discussion showing that there is no net negative impact on the surface flow of the river resulting from C-Spear irrigation. The WFR fails to show that the actual historical diversion to which the irrigating wells relate began about 1879 when the Soza family first put this acreage into irrigation, and has continued uninterrupted to the present time. Finally, pursuant to amended Rule 6.08, Rules for Proceedings Before the Special Master, the objector preserves its objections relating to issues 2 through 6 currently on interlocutory appeal to the Arizona Supreme Court.

mb:50-034-001/fm.1

HISTORY, USES & DIVERSIONS OF THE C-SPEAR RANCH IRRIGATED ACREAGE

Watershed File 113-12-CAA-001

Watershed File Report 113-12-CAA-001 concerns the C-Spear Ranch's irrigated acreage of the C-Spear Ranch located along the east bank of the San Pedro River in §§29 and 32, T12S, R19E, GSRBM in Cochise County, Arizona (Region 12 CAA). The irrigated acreage and points of diversion serving this property lie within the "brightlines" as defined in the HSR.

In order to assist with the investigation of this Watershed File Report, the objector retained the services of Groundwater Resources Consultants, Inc. to review the HSR, perform on-site inspections of the C-Spear Ranch property and do such other research as they deemed necessary to report on the actual conditions existing on the ranch property. Their report is included in this objection. Briefly, it includes the objections relating to the "brightlines," a description of the atypical geologic condition of the river at the ranch and an analysis which shows that the ranch irrigation has no net negative effect on the river because of "riparian salvage."

From 1879 to pre-World War II, irrigation and stockwatering were supplied by diversion to what is now the North and part of the South Pasture (75 acres, more of less) see claims 36-12037, 33-12062 & 36-12041. From time to time additional irrigated acres were added for pasture - riparian salvage - and the total ranch irrigated acreage is now approximately 110 acres more or less. A map of the water survey performed for the state water commissioner in 1921 shows virtually the same acreage in irrigation then as now. (Copy attached.)

" " " PA 4 " X . 4

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There were two diversion ditches which served the ranch: (i) a 12' ditch originating in §4, T12S, R19E, GSRBM which diverted water into irrigated fields in the SW 1/4 of §29 and in the SE 1/4, the NE 1/4 and the NW 1/4 of §32, T12S, R19E, GSRBM; and (ii) a smaller ditch equipped with a centrifugal pump (as identified on the attached map) located in §32, T12S, R19E, GSRBM, which irrigated the same area. The locations of these ditches were changed as the riverbed changed. Several small hand dug wells (no longer in use, but possibly capable of returning to use) supplied domestic and stockwatering uses. (See attached map.)

The ranch has filed claims for an amount of water necessary to irrigate its pasture and farm acreage (as reported in this WFR). It also has a certificated water right (33-12062). The acreage was first put into irrigation in 1879 as described in a deed given by Placido Soza to Antonio Soza in August 1885 (abstract attached). The Sozas were still irrigating the same acreage in 1921 when the state water commission survey and map were prepared. Thus, as related to these uses, virtually nothing has changed since the latter part of the 19th Century except the replacement of the diversion ditches with modern pump driven wells and the addition of some irrigated acres.

By the 1940's diversion ditches were phased out and a series of wells were installed. The current wells in use for irrigation and which relate back to the historical diversion are W1 & W4. Wells W2, W3, the centrifugal pump & W7 also relate to the historical diversion and were installed for the purpose of replacing the ditches. All of the wells and the pumps are represented by either pre-adjudication or adjudication filings.

..

The Region 12-CAA map should be changed to coincide with the attached map exhibit. Well 6 (W6) should be deleted. What was formerly Well 6 (W6) is in fact a diversion ditch equipped with a pipeline and centrifugal pump. Well 7 (W7) should be added. It was drilled subsequent to Well 3 (W3) and is still in existence though not in use. It apparently relates to claim 39-620. Well 8 (W8) should be added in the SE SE SW §29, T12S, R19E or the NE NE NW of §32, T12S, R19E. It served the old ranch headquarters which have now been moved and which are currently served by Well 5 (W5). It apparently relates to claim 39-622. Also attached is a table relating the various claims to the wells, uses and points of diversion.

50-034-003/7.1

POINTS OF DIVERSION FOR C-SPEAR RANCH, WFR 113-12-CAA-001

Period of Use	1981 - present	1930's - 1980	1956 - 1957
Area Served	South Pasture	South Pasture	South Pasture
Registration or Claim No.	33-12062 36-12037 36-12041 36-12045 39-625 39-627 39-630 39-14021 55-87190	33-12062 36-12037 36-12041 36-12045 39-621 39-14021 55-613610	33-12062 36-12037 36-12041 36-12045 39-621 39-627 39-630 39-14021 55-613609
Location	NE, NW, SE 32, 12, 19 (Note location correction)	SE, NW, SE 32, 12, 19	NE, NW, SE 32, 12, 19
Name	Well 1 (W1)	Sanded Well (W2)	Dry Well (W3)

POINTS OF DIVERSION FOR C-SPEAR RANCH, WFR 113-12-CAA-001

Period of Use	1940 - Present	water 1982 - Present ocktank on ascabel d by W5,	Before 1930	1957 - ?	kwater 1879 - ?
Area Served	North Pasture	Domestic & Stockwater There is also a Stocktank on the east side of Cascabel Road that is served by W5, see claim #39-14016.	North & South Pasture	South Pasture	Domestic and Stockwater
Registration or Claim No.	33-12062 36-12037 36-12041 36-12045 39-14022 55-805947L	39-14016 55-613619	33-12062 36-12041 39-617 55-613620	33-12062 36-12041 39-620	36-12036
Location	SE, NE, NW 32, 12, 19	SW, SW, SE 29, 12, 19	NW, NW, SE 32, 12, 19 (Note location correction)	SE, SE, SE 32, 12, 19	SE, SE, SW 29, 12, 19
Name	Well 4 (W4)	Well 5 (W5)	Centrifugal pump (formerly W6)	Well 7 (W7)	Well 8 (W8)

CONSULTING HYDROGEOLOGISTS • ENVIRONMENTAL SPECIALISTS

1735 EAST FORT LOWELL ROAD, SUITE 4 TUCSON, ARIZONA 85719 PHONE (602) 326-1898

May 7, 1992

CHUCK M. DICKENS, P.G. DAVID B. HAWKINS, P.G. SHELDON D. CLARK KURT J. BLUST, P.G. DINAH H. JASENSKY

Mr. R.J. St. Clair, Esq. Jones, Edwards, Smith & Kofron, P.C. 5151 E. Broadway Boulevard, Suite 1600 Tucson, Arizona 85711

RE: Transmittal of Comments on San Pedro Hydrographic Survey Report

Dear Mr. St. Clair:

Please find enclosed two (2) copies of our Comments on "Hydrographic Survey Report for the San Pedro River Watershed" for inclusion in your response to the court in charge of adjudication.

If you have any questions please contact our office.

Respectfully submitted,

GROUNDWATER RESOURCES CONSULTANTS, INC.

David B. Hawkins

Principal Hydrogeologist

Daid BALLEINS

DBH: krb

TUCSON, ARIZONA

COMMENTS ON "HYDROGRAPHIC SURVEY REPORT

FOR THE

SAN PEDRO RIVER WATERSHED"

May 7, 1992 90420M-02

CONSULTING HYDROGEOLOGISTS • ENVIRONMENTAL SPECIALISTS

1735 EAST FORT LOWELL ROAD, SUITE 4 TUCSON, ARIZONA 85719 PHONE (602) 326-1898

CHUCK M. DICKENS, P.G. DAVID B. HAWKINS, P.G. SHELDON D. CLARK KURT J. BLUST, P.G. DINAH H. JASENSKY

COMMENTS ON "HYDROGRAPHIC SURVEY REPORT FOR THE SAN PEDRO RIVER WATERSHED"



May 7, 1992 90420M-02

COMMENTS ON "HYDROGRAPHIC SURVEY REPORT

FOR THE

SAN PEDRO RIVER WATERSHED"

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COMMENTS ON "HYDROGRAPHIC SURVEY REPORT FOR THE

SAN PEDRO RIVER WATERSHED"

INTRODUCTION

Our review of the "Hydrographic Survey Report for the San Pedro River Watershed" (HSR) has determined that comments would be appropriate with reference to hydrologic conditions at the C-Spear Ranch. The areas of comment are specific to the discussion of groundwater appropriations within the reporting area designated as "Zone 1". Our comments are made regarding the following three areas:

- Source of hydrogeologic parameters for calculation of the "Brightline" which has been chosen to delineate the limits of "Zone 1";
- 2. Hydrogeologic conditions in the immediate vicinity of the C-Spear Ranch; and,
- 3. "Riparian salvage" due to current irrigation practices at the C-Spear Ranch.

SOURCE OF HYDROGEOLOGIC PARAMETERS

According to the HSR, wells between the "brightline" and the San Pedro River Channel are said to be withdrawing water which would be classified as "appropriable subflow." Wells withdrawing appropriable subflow are classified as "Zone 1" wells.

The distance between the river and the "brightline" has been calculated using a formula which requires the hydrogeologic parameters, transmissivity (T) and specific yield (S). DWR estimated average T and S values for the "floodplain aquifer" for fifty separate areas along the stream course. The sources of these estimates were listed as: 1) actual aquifer tests, 2) USGS Open File Report 82-752, 3) DWR's Driller's Log Program, and 4) water well completion reports. These sources are listed in order of decreasing reliability (HSR, p. 230).

Although estimates of average T and S for the fifty areas are critical for determination of the location of the brightline, the HSR does not list the individual sources of data for the estimation of these parameters. It would be appropriate for DWR to list the specific source for estimates of T and S for each of the fifty areas; for example, "24-hour aquifer test at well A" or "Driller's Log for well B." Without these specific data, it is difficult to comment on "brightline" calculations for specific areas.

The C-Spear irrigated acreage is located in T. 12 S., R. 19 E. The aquifer parameters used in the brightline calculation for this area are

based on an average of values from other areas. These values may or many not be relevant to the aquifer conditions actually present at the C-Spear.

The DWR assumed that the "a" distance would be measured from the "principal channel boundaries" rather than from the actual location of surface water in the stream. This approach is overly conservative because, except during rare high flow events, the stream occupies only a small portion of the space within the "principal channel boundaries." In some cases, the distance from the principal channel boundary to the "brightline" would be less than the distance from the stream to the principal channel boundary. The width of the "principal channel" would vary from place to place depending on such factors as historic flow events, sediment load during high flow events, stream gradient, resistance of channel deposits to erosion, etc. None of these factors would be closely related to calculation of "appropriable subflow." It would be more reasonable to measure the "a" distance from the location of the perennial stream course or from the stream course occupied during most periods of flow.

HYDROGEOLOGIC CONDITIONS AT C-SPEAR RANCH

The hydrogeologic conditions along the San Pedro River within the property owned or leased by the C-Spear Ranch appears to be unique within the study area. This situation is recognized to some degree by the HSR (see Fig. 2-3 and discussion pp. 77 - 79).

The C-Spear Ranch holdings along the stream course are found in T. 12 S., R. 19 E., Sect. 19, 20, 29, 30, and 32, and T. 13 S., R. 19 E., Sect. 4 and 5. The C-Spear Ranch currently has two active irrigation wells in T. 12 S., R. 19 E., Sect. 32 and one active domestic/stock watering well in T. 12 S., R. 19 E., Sect. 29. In this reach, the stream is underlain by consolidated to semi-consolidated sedimentary rocks rather than the floodplain alluvium (see attached photographs). As noted in the HSR (p. 78):

The consolidated to semi-consolidated sedimentary rocks consist mainly of gravelly sandstone and conglomerate with some mudstone, siltstone and other Tertiary age deposits. This unit is exposed in the hills southwest of Mammoth and south of Redington and on the northern slopes of the Huachuca Mountains. This unit is generally low in permeability and porosity. However, where it is saturated, it may yield small to moderate amounts of water to wells; and where it is weakly cemented, the sandstone and conglomerate may yield several hundred gallons per minute of water (Roeske and Werrell, 1973).

The presence of this low permeability sedimentary unit has a significant effect on streamflow at the C-Spear Ranch. As noted in the HSR (p. 78):

Most of the San Pedro River within the Redington subwatershed is intermittent. South of Redington, groundwater is forced to the surface by hardrock resulting in a four mile stretch of perennial stream.

The stream reach within the C-Spear holdings appears to be underlain at shallow depth by low permeability "hardrock" and it appears that the stream reach has been perennial during recent history. An interview with Mr. Ramon Gamez who has lived on or near the ranch since he was born in 1906, indicates that the stream has flowed at the surface during that entire period. This time interval has included some periods of significant drought, as well as groundwater development.

The hardrock unit which immediately underlies the river in the C-Spear reach has been called the Soza Canyon Facies (Tssz) of the San Manuel Formation (Dickinson, 1987). It has been brought to the surface by the Soza Ranch Fault which appears to lie just east of the river within the C-Spear Ranch Stream reach. The Soza Ranch Fault is downthrown to the east and trends northwest-southeast, roughly paralleling the river. The Soza Canyon Facies outcrops in the streambed as far south as the northeast corner of T. 13 S., R. 19 E., Sect. 5 and was reportedly encountered at a depth of approximately 30 feet during drilling in T. 12 S., R. 19 E., Sect. 32, SE 1/4, SE 1/4. The Soza Ranch Fault may actually be a zone of related faults producing a series of upthrown and downthrown fault blocks.

There are outcrops at several locations on the C-Spear Ranch between the San Pedro River and the Cascabel Road on the east. These "hardrock" outcrops on the east side of the San Pedro River have <u>not</u> been noted on the maps showing outcrops in the HSR.

Although the exact configuration of the Soza Ranch Fault(s) has not been defined, the following conclusions may be drawn:

- 1. The San Pedro River in the C-Spear Ranch holdings is perennial primarily because it is underlain at relatively shallow depth by a low permeability sedimentary unit.
- 2. This stream reach is atypical and does not conform to the typical conception of the vertical geologic relationships generally found

along the San Pedro River. The perennial streamcourse appears to be underlain at very shallow depth by "hardrock" rather than floodplain alluvium.

3. The interaction of groundwater in the alluvium to the east of the river and the surface water in the river "perched" on the hardrock is more complex than shallow interactions elsewhere and the calculations for the location of the "brightline" would not be applicable at this location.

RIPARIAN SALVAGE AT THE C-SPEAR RANCH

The natural riparian vegetation in the uncultivated portion of the floodplain at the C-Spear Ranch and elsewhere along the San Pedro River affects the amount of water available for streamflow, as noted in the HSR. There are approximately 115 acres currently under cultivation in the floodplain at the C-Spear Ranch. A field inspection of the site confirmed that all of the acreage currently under cultivation at the C-Spear Ranch would probably be occupied by dense natural riparian vegetation if the acreage were in a natural state rather than under cultivation (see photographs). The area under cultivation is being used for pasture and is irrigated by wells constructed in the floodplain.

As noted in the HSR (p.185 - 186):

Much of the irrigated agriculture in the San Pedro River watershed is in areas cleared of original phreatophyte growth. Typically, these cultural uses require less water than dense

stands of phreatophytes and may result in a savings to surface water system.

The Net Irrigation Requirement (NIR) for pasture being cultivated in the Redington Subwatershed was estimated to be approximately 2.67 acre ft./acre (HSR, Table C-4). The consumptive use for natural riparian vegetation in the Redington Subwatershed is given as (HSR, Table B-6):

Consumptive Use for Riparian Vegetation Classes (in acre ft. per acre)

Cottonwood/ Sycamore	Tamarisk/ Mesquite	Dense Mesquite	Med. Dense Mesquite	Willow	Cienega/ Dense grass
4.58	4.74	2.89	2.01	em em em	3.54

The predicted proportion of natural riparian displacement in the Redington Subwatershed due to clearing for cultivation based on acreage from Table D-2, (HSR) would be:

Predicted Proportion of Cleared Acreage

Cottonwood/ Sycamore	Tamarisk/ Mesquite	Dense Mesquite	Med. Dense Mesquite	Willow	Cienega/ Dense grass
0.091	0.057	0.716	0.006	0.0	0.130

Using these proportions developed for cleared acreage in the Redington Subwatershed and the estimates for phreatophytic consumptive use given above, the average consumptive use for phreatophytes which would naturally have occurred on acreage cleared for cultivation in the Redington Subwatershed would be approximately 3.23 feet. These average values for crop consumptive use and phreatophyte consumptive use would appear to be

representative of the situation at the C-Spear irrigated acreage. Because all of the irrigated acreage at the C-Spear Ranch displaces phreatophytic growth, there is no net subflow or streamflow depletion resulting from irrigation from C-Spear wells relative to the consumptive use by the displaced riparian vegetation.

As noted in the HSR (p.178):

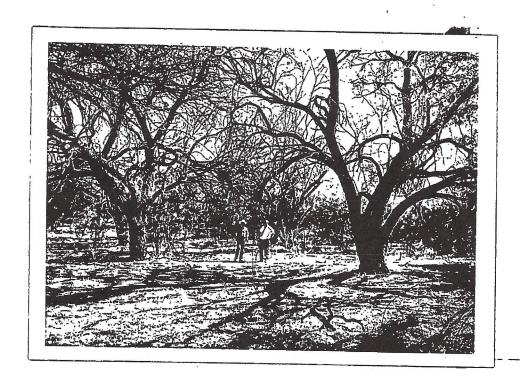
Many streams in Arizona have shifted from perennial to intermittent or ephemeral since groundwater development began. This indicates that pumpage has altered the aquifer-stream relationship.

This shift has not occurred at the C-Spear Ranch because of the unusual hydrogeologic conditions outlined above and, as a result of C-Spear riparian salvage, there appears to be no net stream/subflow depletion occurring in this reach.

REFERENCE CITED

Dickinson, W.R., 1987, "General Geologic Map of Catalina Core Complex and San Pedro Trough," Arizona Bureau of Geology and Mineral Technology Miscellaneous Map Series 87-a.

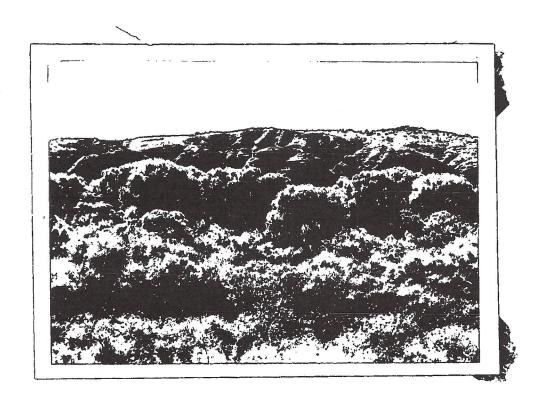
PHOTOGRAPHS



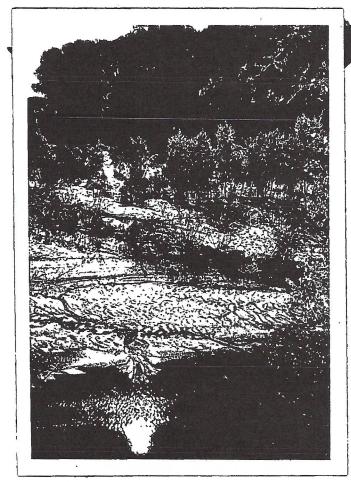
Riparian mesquite bosque along floodplain on C-Spear Ranch, T.12S, R.19E, $SE\frac{1}{4}$, $SE\frac{1$



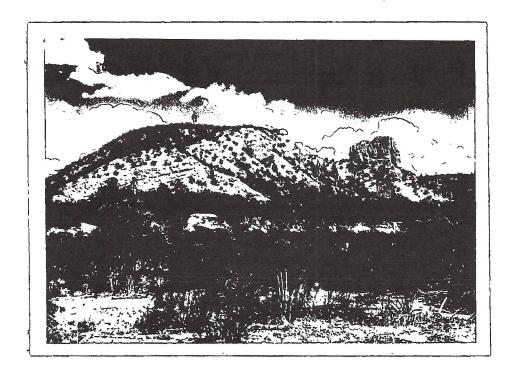
Dense mequite growth to right, irrigated C-Spear pasture to left, illustrating riparian salvage, October 1990, T.12S, R.19E, SE $\frac{1}{4}$, NE $\frac{1}{4}$, Sect. 32.



Along western boundary of C-Spear, looking west across river, T.12S, R.19E, NE $\frac{1}{4}$, NE $\frac{1}{4}$, Sect. 30; Background is cliff-forming Tssz; Foreground is dense riparian vegetation including cottonwood, willow, and mesquite.



Perrenial streamflow at C-Spear Ranch in T.125S, R.19E, Sect. 32, NW½, SW½, Sect. 32 looking SSW, showing floodplain with riparian vegetation.



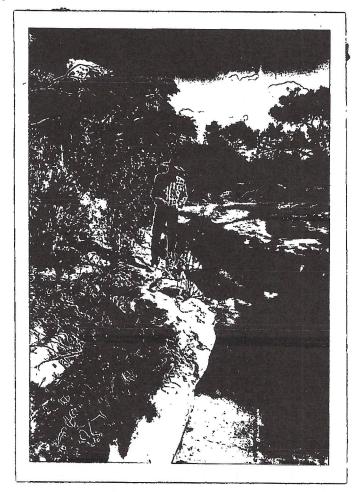
Exposure of Tssz on east side of river, T.12S, R.19E, NE $\frac{1}{4}$, NE $\frac{1}{4}$, Sect. 19 looking north; Soza Ranch Fault lies to the east of the cliff-like exposure on the horizon



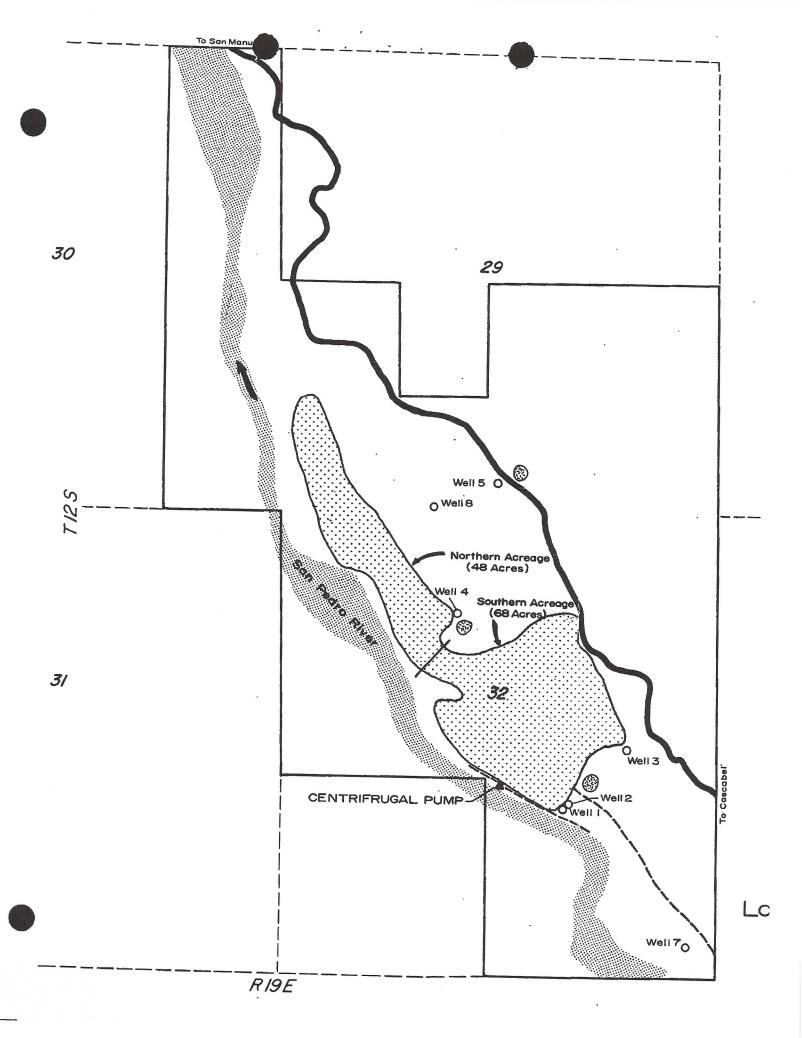
Exposure of Tssz underlying river, T.12S, R.19E, SW $\frac{1}{4}$, NE $\frac{1}{4}$, Sect. 19, looking NNW.



Exposure of Soza Canyon Facies of San Manuel Formation (Tssz) along River in T.12S, R.19E, NE $\frac{1}{4}$, NW $\frac{1}{4}$, Sect. 19, north of C-Spear property, looking North.



Exposure of indurated Tssz directly underlying river in T.13S, R.19E, NE½, NE½, NE½, Sect. 5, at southern end of C-Spear property; River is perennial from this point north for approximately 3.25 miles with Tssz probably near the surface.



EXPLANATION

Well 5 0 WELL LOCATION



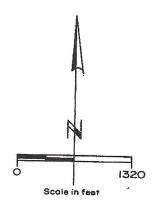
IRRIGATED ACREAGE



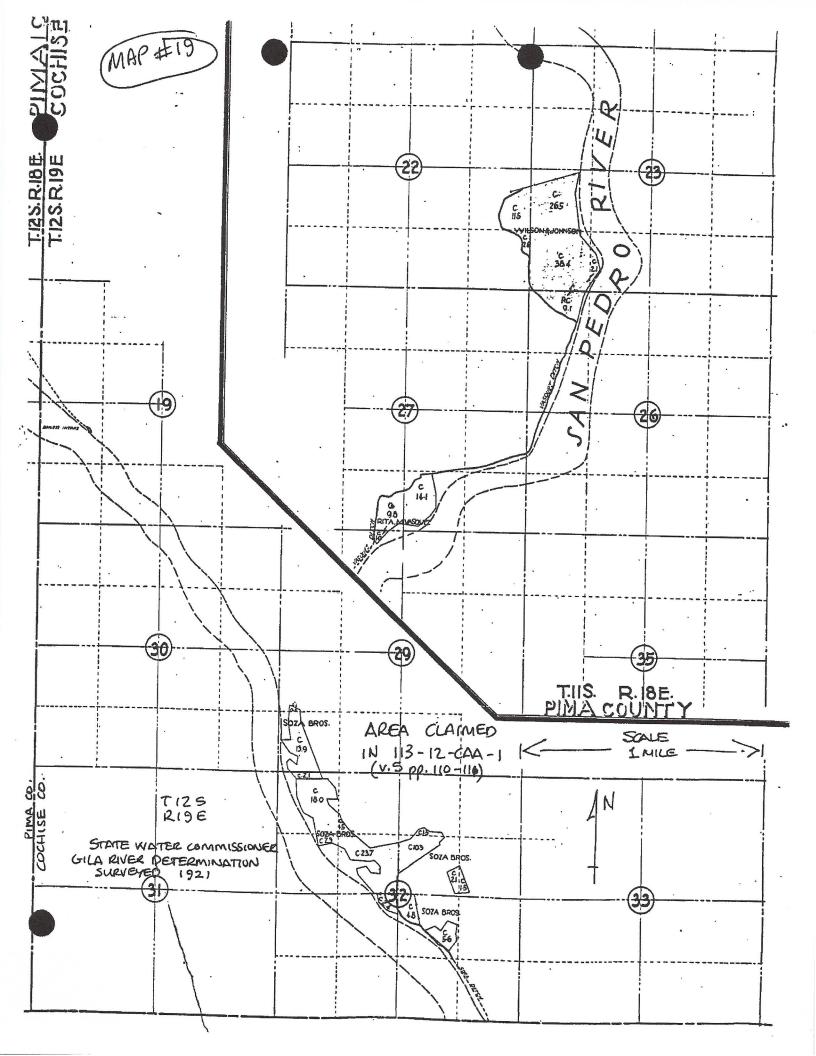
STOCK POND OR TANK

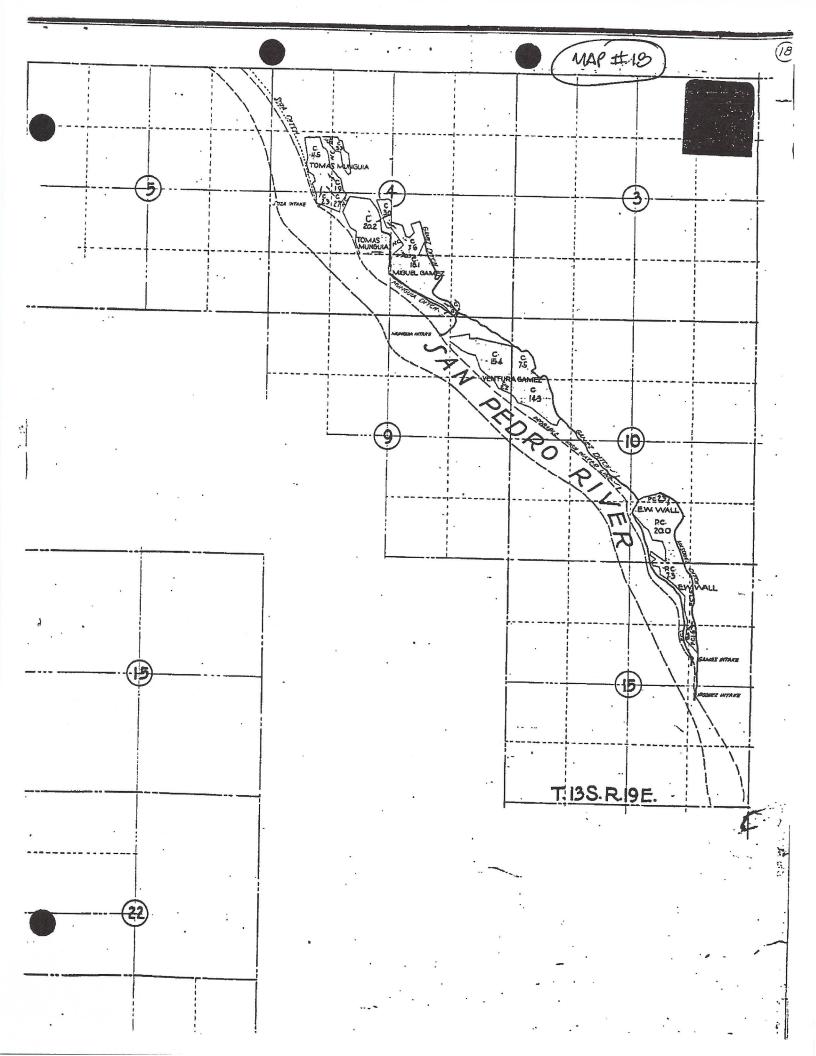


APPROXIMATE LOCATION OF FORMER DIVERSION CHANNEL



ation of Irrigated Acreage and Wells C-SPEAR RANCH





PLACIDO SOZA

QUIT CLAIM DEED

TO

Dated August 13, 1885

Recorded Sept. 2, 1885

Book 8 Deeds of R.E. Page 124

Consideration: \$1343.00

ANTONIO SOZA.

DESCRIPTION

All that certain lot, piece or parcel of land situated in the said County of Cochise, Territory of Arizona, and bounded and particularly described as follows, to-wit:

The East one half of the North East east one half and the East one half of the South East one half of Section thirty (30) Township twelve (12) South, Range nineteen (19) East Gila and Salt River Base and moridian, and also the water ditch or acequia leading thereto and the dam in the said San Pedro river at the head of said ditch or acequia and the water right or rights pertaining thereto, said water right or rights having been first_located and used in the month of April A.D. (1879, and continuously from that date until the present time.

Signed: Placido Soza.

WITHESS: Chas. C. Conrad.

Acknowledged, August 13, 1885, by Placido Soza, before J. H. Tracy, a Notary Public in and for the County of Cochise, Territory of Arizona. (Notorial Scal)

Com. Expires: "_____