From:	Tanya Ferreira
To:	Sharon Scantlebury
Cc:	Lee Storey; Sara Ransom
Subject:	San Simon
Date:	Friday, July 17, 2015 1:01:49 PM
Attachments:	Position Statement.pdf Exhibits 1-5.pdf

Sharon,

Attached please find an Opposition to Petition on behalf of Samara Farming Enterprises, Inc., Silverado Farms, LLC and John and Kimberly Klump.

Do not hesitate to contact our office with any questions.

TANYA M. FERREIRA
LEGAL ASSISTANT
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ARIZONA DEPARTMENT OF WATER RESOURCES

BEFORE THE DIRECTOR

In the Matter of the Petition to Designate the San Simon Valley Sub-basin as an Irrigation Non Expansion Area	Motion to Dismiss or, in the alternative, Opposition to Petition

Non-Petitioners Samara Farming Enterprises, Inc. ("Samara Farms"), Silverado Farms, LLC ("Silverado"), and John and Kimberly Klump (the "Klumps" and collectively with Samara Farms and Silverado, the "Samara Non-Petitioners") by and through their undersigned counsel, hereby submit their Motion to Dismiss or, in the alternative, Opposition ("Opposition") to the February 6, 2015 Petition to establish an Irrigation Non Expansion Area in the San Simon Valley Sub-basin and the supplements to the Petition submitted from March 6-9, 2015 (collectively, the "Petition"). The Samara Non-Petitioners are landowners and irrigation users of groundwater[1] within the San Simon Valley Sub-basin.

I. BACKGROUND

On February 6, 2015, a group of entities and individuals submitted a Petition to the Arizona Department of Water Resources ("ADWR") requesting that the Director designate the San Simon Valley sub-basin, located in Cochise County, Arizona, as a non-irrigation expansion area ("INA"). Generally, and subject to certain exceptions, the effect of an INA designation would be to prevent landowners in the sub-basin from initiating new agricultural or other commercial endeavors involving "irrigation."[2]

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[1] Samara Farms and Silverado own the following parcels within the San Simon Valley Sub-basin: 302-44-015-6, 302-44-016-9, 302-44-017-2, and 302-44-033-8. Counsel is in the process of securing the parcel numbers of the properties owned by the Klumps and will provide those to ADWR at a later date. During the five years preceding ADWR's March 18, 2015 moratorium on new irrigation development, the Samara Non-Petitioners each applied water to two or more acres for the purpose of growing plants for human or livestock consumption, and are thus irrigation users of groundwater within the meaning of A.R.S. § 45-402(23)(a).

[2] "Irrigate" is defined by A.R.S. § 45-402(18).

The Petition asserts that it is being submitted by "not less than one-fourth of the irrigation users of groundwater within the San Simon Valley sub-basin." Petition at p. 1. On March 6 and March 9, 2015, Petitioners submitted supplemental documentation identifying additional alleged "irrigation users of groundwater" in support of the Petition. ADWR "evaluated the [Petition] and determined that the petition is signed by at least one-fourth of the irrigation users of groundwater within the groundwater sub-basin." *See* ADWR Website at http://www.azwater.gov/azdwr/SanSimonValley.htm (last accessed June 10, 2015). ADWR's determination that the Petition was brought by at least one fourth of irrigation users of groundwater within the San Simon Valley sub-basin appears to have occurred on or about March 18, 2015.

ADWR's website identifies 16 entities and individuals as Petitioners who qualify as irrigation users of groundwater. *See* ADWR's Analysis of the Validity of the Petition: http://www.azwater.gov/azdwr/PublicInformationOfficer/PetitionAnalysisSanSimon.htm (last accessed July 16, 2015). As of July 16, 2015, ADWR identifies 52 non-petitioner irrigation users of groundwater on its website. Rather than contacting landowners within the San Simon Valley sub-basin or requiring the Petitioners to first prove at a hearing that they in fact represent 25% of the irrigation landowners, ADWR relied principally upon internet searches, google earth and satellite data to confirm irrigation use of land. *See id*. ("In order to determine the total number of irrigation users of groundwater in the San Simon Valley Sub-basin, the Department utilized United States Geological Survey (USGS) Landsat satellite imagery, Cochise County Assessor information (both ownership data and parcel boundaries), Arizona State Land Department agricultural lease information available on-line, imagery available on Google Earth™, and internet searches.").

On March 18, 2015, having determined that Petitioners allegedly satisfied the "one fourth" irrigation users standards, ADWR issued a moratorium on irrigation of new lands within the San Simon Valley Sub-basin. Per its website, ADWR explained the temporary prohibition on irrigation as meaning that "[p]ursuant to A.R.S. § 45-434, effective March 18, 2015, only those lands irrigated in the five years preceding that date may be

irrigated." *See* http://www.azwater.gov/azdwr/SanSimonValley.htm (last accessed July 9, 2015). That temporary moratorium continues to this day.

ADWR proceeded with a public hearing to collect evidence in support of or in opposition to the Petition on May 16, 2015. During the May 16 public hearing, members of the public notified ADWR that land values and sales in the San Simon Valley are jeopardized as a result of the moratorium on new irrigation uses. May Trans. at pp. 62-63, 107-08. Real estate professionals additionally presented evidence of declines in land values that would result from institution of an INA in the San Simon Valley sub-basin. *Id*. In addition to the evidence of threats to property values, during the May 16, 2015 hearing, the following evidence was presented in opposition to the Petition:

- Hydrological data demonstrating negligible drawdown and thousands of years of water supply at current groundwater withdrawal rates within the San Simon Valley sub-basin;
- Testimony that citizens of the San Simon Valley sub-basin were not having to deepen wells or abandon wells as dry;
- Testimony that the decrease in agricultural development in the area beginning in the early 1980s was not due to water shortages, but was instead due to a decline in federal farming subsidies;
- Documentation reflecting that at least one of the Petitioners was representing to potential investors that they "have the water," thus indicating to investors that there are adequate water supplies in the San Simon Valley sub-basin to support its long-term farming operations;
- That the San Simon Valley sub-basin water conditions differ significantly from other areas in the state of Arizona where an INA has been established;
- Testimony that recent media attention regarding water shortage issues focused upon the Willcox area, which is hydrologically and geologically distinct from the San Simon Valley sub-basin.

See generally, May Trans. at pp. 30-34, 38-46, 55, 64, 71-72, and 76-79.

Presenters additionally noted that many of the Petitioners are entities that are ultimately controlled by just a few large farming interests—Farmers Investment Company ("FICO") or A&P Ranch. *See, e.g.,* May Trans. at pp. 38-46. A member of the public also stated on the record during the hearing that representatives of the Petitioners approached him to solicit support for the INA not out of a concern for preserving water, but in an effort to prevent additional competition from other farming interests that may move into the area. *See* May Trans. at p. 47. Remarkably, Petitioners—who spoke through three representatives during the May 16 hearing—did not dispute that two entities apparently masterminded this Petition for the purpose of preventing competition from other farming interests. *See* May 16 Trans. at pp. 97-98 & 100-03.

Testimony during the May 16, 2015 public hearing indicates that certain irrigation users of groundwater who were not identified on ADWR's website as Petitioners or Non-Petitioners may need to be included as Non-Petitioners for the purposes of assessing the validity of the Petition. For example, Mrs. Huffaker, a farmer, testified that she and her husband have installed 3,000 feet of irrigation pipelines underground and that they cover their crops, hence their irrigation would not necessarily be captured by google earth or satellite imagery. *See* May 16, 2015 Hearing Transcript ("May Trans.") at pp. 114-16 (testimony of Mrs. and Mr. Huffaker), available online at http://www.azwater.gov/azdwr/documents/051615ADWR.pdf (last accessed July 16, 2015). The Huffaker family is not identified on ADWR's website as a "non-petitioner." Other non-petitioners, including the Samara Non-Petitioners, also are not identified on the ADWR website. Indeed, the Klumps were specifically mentioned by ADWR in an e-mail as potential irrigation users of groundwater, but were—for reasons unknown—ultimately not included within ADWR's list of irrigation users of groundwater within the San Simon Valley sub-basin. *See* April 24, 2015 ADWR e-mail (identifying John and Kimberly Klump as potential irrigation users of groundwater), attached hereto as **Exhibit 1**.

Since the May 16, 2015 hearing, the Samara Non-Petitioners have located several additional landowners within the San Simon Valley sub-basin who have applied water to two or more acres of land to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock, or poultry in the five years preceding ADWR's acceptance of the Petition. Those additional irrigation users of groundwater have submitted declarations attesting to their status as non-petitioner irrigation users of groundwater. Those declarations, which include those of the Samara Non-Petitioners, are attached collectively hereto as **Exhibit 2**.

Based upon ADWR's own recent analysis of the sub-basin, evidence presented at the May 16 hearing, the exhibits attached hereto, and the notable absence of any evidence submitted by the Petitioners themselves, the Petition must fail. It must fail primarily because it was not brought by the appropriate number of landowners, so ADWR has no jurisdiction to consider the Petition, and should not have issued the moratorium in the first place. Regardless, the Petition fails on its merits because current withdrawal rates do not present any threat to a reasonably adequate or safe supply of water for irrigation uses in the San Simon Valley sub-basin.

II. POSITION STATEMENT

A. The Petition Should Be Dismissed For Failure To Satisfy The "One-Fourth of Irrigation Users Of Groundwater" Pre-requisite.

A petition requesting that the Director designate a non-irrigation expansion district may be filed by: "Not less than twenty-five irrigation users of groundwater, or one-fourth of the irrigation users of groundwater within the boundaries of the groundwater basin or sub-basin specified in the petition." A.R.S. § 45-433(A)(1).[3] ADWR

[3] Alternatively, a petition may be brought by at least "[t]en per cent of the registered voters residing within the boundaries of the groundwater basin or sub-basin specified in the petition as of the most recent report compiled by the county recorder in compliance with section 16-168, subsection G." A.R.S. § 45-433(A)(2). As it does not appear that the petitioners in this matter are relying upon this section, it is not evaluated by this Opposition.

determined that there were a total of 16 Petitioners, so they do not satisfy the "twenty-five irrigation users of groundwater" requirement. Thus, in order to maintain the Petition, the Petitioners must represent at least "one-fourth of the irrigation users of groundwater" within the San Simon Valley sub-basin. As further detailed herein, Petitioners do not satisfy this condition precedent to maintaining the Petition. ADWR should therefore dismiss the Petition and immediately dissolve the moratorium.

Arizona statutes define "irrigate" or "irrigation use" as:

> 18. "Irrigate" means to apply water to two or more acres of land to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry, as such terms are defined in section 3-1201.
>
> 23. "Irrigation use" means:
> (a) With respect to areas outside an active management area and with respect to an active management area other than the Santa Cruz active management area, the use of groundwater on two or more acres of land to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry, as such terms are defined in section 3-1201.

A.R.S. § 45-402(18), (23)(a).

Arizona Revised Statute 3-1201 defines "livestock" and "range livestock" as follows:

> 5. "Livestock" means cattle, equine, sheep, goats and swine, except feral pigs.
>
> 9. "Range livestock" means livestock customarily permitted to roam upon the ranges of the state, whether public domain or in private control, and not in the immediate actual possession or control of the owner although occasionally placed in enclosures for temporary purposes.

A.R.S. § 3-1201(5), (9).

The methodology employed by ADWR to identify irrigation users of groundwater resulted in oversights and failed to account for all irrigation users of groundwater within the San Simon Valley sub-basin. For example, ADWR admittedly was unable to confirm

irrigation uses of some parcels due to poor satellite imagery resolution. *See* April 24, 2015 ADWR e-mail (acknowledging difficulties in discerning whether certain parcels had been irrigated due to resolution issues), Exhibit 1. Moreover, the Samara Non-Petitioners are not identified on ADWR's website although all three fall within the statutory criteria of irrigation users of groundwater. Collectively attached as Exhibit 2 are Declarations from the Samara Non-Petitioners and several additional landowners establishing their status as irrigation users of groundwater. Additionally, as noted in the Background Section above, small farmers like that Huffakers are not within the non-petitioner irrigation users of groundwater identified on ADWR's website despite that their testimony at the May 16 hearing indicates that they qualify as irrigation users of groundwater.

ADWR should not have assumed the burden to prove the validity of the Petition for the Petitioners, nor should non-petitioners such as the Samara Non-Petitioners have to incur the expense to prove the *in*validity of the Petition. Instead, the Petitioners should have had to demonstrate that they satisfied the statutory pre-requisites necessary for ADWR to evaluate the Petition and institute a moratorium. This is consistent with past practice under substantially similar circumstances, as there has been at least one prior citizen petition requiring "one-fourth" of groundwater users' participation before a regulatory agency must act. Specifically, in 1977, landowners of the Harquahala Valley sub-basin petitioned ADWR's predecessor, the State Lands Department, requesting designation of the sub-basin as a critical groundwater area. Similar to the current INA statute, a "critical groundwater area" required institution of a temporary prohibition on certain groundwater uses while the petition was under consideration. Rather than forcing State Lands to conduct its own internal investigation as to whether the "one fourths" requirement had been met, the petitioners were required to establish that they had, in fact, satisfied the "one fourths" users of groundwater standard before any moratorium issued. *See* June 3, 1977 Order of Notice for Hearing to Determine Sufficiency of Petition, attached hereto as **Exhibit 3**. This procedure should have been followed in this case, as it

appropriately places the burden on the Petitioners to establish jurisdiction before the State takes such a drastic measure as prohibiting its citizenry from developing private lands.

Unfortunately, ADWR did not follow the practices of its predecessor, and instead took it upon itself to verify whether the Petitioners had met their burden of satisfying the one-fourths irrigation users of groundwater standard. As noted above, ADWR's methodology did not account for all irrigation users of groundwater. In fact, the Declarations attached to this Opposition provide evidence of at least 15 irrigation users of groundwater that ADWR failed to account for in its analysis. The Declarations attached to this Opposition do not include the Huffakers who presented testimony at the May 16 hearing establishing that they are irrigation users of groundwater, bringing the total number of omitted irrigation users to *at least* 16. When added to the non-petitioners already identified on ADWR's website, there are a total of 69 "irrigation users of groundwater" within the San Simon Valley sub-basin, 16 of which are the Petitioners. The Petitioners thus represent only 23% of irrigation users of groundwater within the San Simon Valley sub-basin.

Since A.R.S. § 45-433(A)(1) requires "[n]ot less than twenty-five irrigation users of groundwater, or one-fourth of the irrigation users of groundwater within the boundaries of the groundwater basin or sub-basin identified in the petition," Petitioners have not satisfied this condition precedent to maintaining the Petition. As a result, ADWR's jurisdiction to consider the Petition in the first instance has not been established. In fact, it has been rebutted. Because Petitioners do not constitute "one-fourth of the irrigation users of groundwater" within the San Simon Valley sub-basin, ADWR should immediately dismiss the Petition and lift the moratorium.

B. The Petition Fails On Its Merits Because There Is A Reasonably Safe Supply Of Groundwater At Current Rates Of Withdrawal.

As detailed above, the Petition should not be considered at all because the Petitioners do not satisfy the statutory mandate that such Petition be supported by at least "one-fourth irrigation users of groundwater" within the San Simon Valley sub-basin. Even on the merits, however, the Petition must fail because the evidence establishes that,

at current withdrawal rates, there is a reasonably safe supply of groundwater for irrigation purposes. The Petition must therefore be denied.

Pursuant to A.R.S. § 45-432, the Director of the ADWR "may designate an area which is not included within an active management area as a subsequent irrigation non-expansion area if the director determines that **both** of the following apply:

1. There is insufficient groundwater to provide a reasonably safe supply for irrigation of the cultivated lands in the area at the current rates of withdrawal.

2. The establishment of an active management area pursuant to section 45-412 is not necessary."

A.R.S. § 45-432 (emphasis supplied).

There are no grounds for establishing an active management area,[4] so this Petition hinges on whether or not the San Simon Valley sub-basin contains sufficient "groundwater to provide a reasonably safe supply for irrigation of cultivated lands in the area at current rates of withdrawal." A.R.S. § 45-432(1). As established in more detail in the hydrological report prepared by Haley & Aldrich ("Report"), attached hereto as **Exhibit 4**, the San Simon Valley sub-basin is not experiencing any water shortage at current withdrawal rates. At current rates of withdrawal—which have been relatively steady over the past 25 years, and in fact decreased in 2014—there are literally thousands of years of water available to support irrigation. *See* Report at p. 6, Exhibit 4; *see also* Mason Bolitho Presentation during May 16, 2015 public hearing at p. 2, available online at http://www.azwater.gov/azdwr/documents/MasonBolitho-GroundwaterAssessment.pdf. Given the hydrological data and abundant groundwater supply, it is not surprising that other historical indicators of water shortage issues, such as an increase in well

[4] Evidence of land fissuring or subsidence or impacts upon water quality must be shown to establish an AMA. *See* A.R.S. § 45-412. No evidence of these issues were presented by ADWR or the public during the May 16 hearing.

deepenings[5] and reports of dry wells,[6] *are not present* in the San Simon Valley sub-basin. Report at p. 6, Exhibit 4; *see also* May Trans. at pp. 76-79.

In addition to the information presented in the Report, the data in ADWR's own analysis support and largely correlate to the conclusions detailed with the Report. *See* ADWR San Simon Valley Sub-Basin Groundwater Model, available online at http://www.azwater.gov/azdwr/documents/SSI_model_memo_6_17_final.pdf. And although ADWR's own model and data supports denial of the Petition, the Samara Non-Petitioners note that ADWR's discretionary use of a 100 year supply projection in its modeling data analysis is not consistent with Arizona's statutes governing agricultural uses. The projected 100-year supply convention applies when determining an assured water supply for residential subdivision developments—not agricultural uses. A.R.S. § 45-576.07. The Samara Non-Petitioners thus respectfully disagree and object to ADWR's presumption that a 100-year model projection at current withdrawal rates is an appropriate measure of reasonably safe supplies. Nevertheless, ADWR's model projects, even over 100-years, supports denial of the Petition.

If history is any guide, then a review of the circumstances attendant to creation of previous INAs in Arizona additionally support rejection of the Petition. Establishment of the Douglas, Joseph City and Harquahala INAs were all predicated upon years and years of well-established technical data and rapid groundwater declines. No such issues exist in the San Simon Valley. *See* Report at pp. 6-7, Exhibit 4.[7]

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[5] Although Mr. Dick Walden of FICO asserted at the hearing that FICO has had to deepen wells, Samara Non-Petitioners have not located any well deepening applications submitted by any of the Petitioners, including FICO. *Compare* May 16 Trans. at p. 98 *with* Report at pp. 7-9, Exhibit 4.

[6] Recent media reports of dry wells relate to the Willcox area, which is hydrologically distinct from the San Simon Valley sub-basin.

[7] These stark differences between existing INAs and the proposed San Simon Valley sub-basin INA and the data revealing that there is no dramatic groundwater decline emphasize that ADWR should have required Petitioners to bear the burden of demonstrating that they represent 25% of irrigation users of groundwater.

Petitioners are correct that the past few years have seen an increase in irrigated lands in the San Simon Valley sub-basin. Petitioners ignore the fact that, despite the increase in irrigated lands, there has actually been a *decrease* in groundwater withdrawals over the past year. As noted during the May 16 hearing, efficient farming and irrigation practices likely account for the decrease in withdrawals despite the increase in irrigated acres, and further undercut Petitioners' dire predictions of an onslaught of irresponsible farmers from California. May Trans. at pp. 54-55, 61.

The Petitioner's dire predictions of excessive imminent and future uses by California farmers do not, and cannot, support the Petition. The statute requires ADWR to confine its analysis and evaluation to "current rates of withdrawal." In determining whether to establish an INA in the Harquahala Valley sub-basin in the early 1980s, ADWR interpreted the "current rates of withdrawal" phrase narrowly, noting that "the Director is by law required to consider only current rates of groundwater withdrawal and replenishment" in determining whether to establish an INA. *See* June 28, 1982 Findings and Order, In re the Proposed Designation of a Subsequent Irrigation Non-Expansion Area: Harquahala Basin-Maricopa and Yuma Counties at p. 2, attached hereto as **Exhibit 5**. Thus, in evaluating the hydrological data, ADWR must limit its analysis to current usage, and cannot, as a matter of law, indulge the Petitioner's speculative assertions that San Simon Valley will be inundated with outside interests pumping untold amounts of water. The data and the plain terms of ADWR's statutory mandate dictate the result—denial of the Petition.

C. Establishing An INA Under These Conditions Would Set A Dangerous Precedent.

As noted above, the Petition should be dismissed on because the Petition does not satisfy statutory conditions precedent to its consideration. Even on its merits, the evidence dictates rejection of the Petition. Public policy considerations further support denial of this Petition.

The fact that Petitioners have been absolved of all responsibility of proving both the validity of their Petition and any evidence to support it is troubling. The State of

Arizona and opponents should not shoulder the immense costs of proving a negative. If Petitioners truly believe there is a water shortage issue, they should have proof of it, and present it with their Petition. May Trans at pp. 109-11.

Further, and as was repeatedly noted during the May 16 hearing, the INA statute was intended to protect areas that are facing legitimate and rapid water declines. It was not meant to be used as a tool to monopolize water rights by corporate interests who are, coincidentally, telling their investors that they "have the water." *See* Sy Ray Presentation at p. 11 provided to ADWR at May 16, 2015 hearing, available online at http://www.azwater.gov/azdwr/documents/SyRay.pdf. If Petitioners are rewarded, not only would it be devastating to land values and economic interests in the San Simon Valley, areas throughout Arizona will be threatened with these contrived schemes whereby large landholders can split their lands into new entities to meet the "one- fourth" requirement, impose significant costs on the State of Arizona to prove their case for them, destroy land values of the hard-working citizens of the area (who are, through their tax dollars, ironically forced to foot the bill for the Petitioner's case), and restrain trade by limiting uses of the land in a particular region. Public policy considerations also support rejection of the Petition.

Finally, ADWR's moratorium, which is still in effect, is needlessly exposing the state to significant liability. Placing a moratorium in the San Simon Valley and prohibiting new lands from being brought into production has caused economic harm to many landowners. As noted during the May 16, 2015 hearing, the moratorium—which was entered during a time when many farms are planting and irrigating new plants—has caused economic harm to landowners who might have otherwise capitalized on the irrigation season. Moreover, if the moratorium becomes permanent, it will cause significant economic harm to landowners in the San Simon Valley Sub-basin and may be a taking of private property rights. Certainly also the Petitioners, who were, or reasonably should have been, aware of the economic and business harms that would be suffered by their potential competitors in the event a moratorium was issued, may be subject to damages caused by their baseless filing.

III. CONCLUSION

The Petition is invalid, as it is not supported by one-fourth of the irrigation users of groundwater within the San Simon Valley sub-basin. The Petition should be immediately dismissed and the moratorium lifted.

In any event, there is absolutely no evidence that there are any threats to a reasonably safe supply of water for irrigation uses at current rates of withdrawal. That is because such evidence does not exist—the hydrological data demonstrates that the San Simon Valley sub-basin has thousands of years of water supplies at current withdrawal rates. Numerous public policy considerations further dictate denial of this corporate effort to monopolize and limit competition in the local agricultural industry by prohibiting future uses of irrigation water rights.

There is a time and a place for water management measures. This is not that time or that place. The Petition to designate the San Simon Valley sub-basin as an INA should be denied.

DATED this 17th day of July, 2015.

THE STOREY LAWYERS PLC
/s/ *Lee A. Storey*
Lee A. Storey
Sara V. Ransom, Of Counsel
6515 N. 12th Street, Suite C
Phoenix, AZ 85014
Attorneys for Samara Farming Enterprises, Inc., Silverado Farms, LLC, Kimberly Klump and John Klump

CERTIFICATE OF SERVICE

I certify that on this 17th day of July, 2015, the original and one copy of this document was e-mailed and sent via U.S. Mail to:

Arizona Department of Water Resources
Attention: Sharon Scantlebury, Docket Supervisor
3550 North Central Avenue
Phoenix, Arizona 85012
sscantlebury@azwater.gov

/s/ *Tanya M. Ferreira*

EXHIBIT 1

Jennifer Heim

From: Daniel Fielder
Sent: Friday, April 24, 2015 9:44 AM
To: Jeff Trembly
Subject: comparing parcels with USGS land survey...

Hi Jeff,

I went and looked at the USGS Land Survey layer and found a couple more parcels that MAY be irrigated. The table below shows all of the additional irrigators that were found after the first list was published. It shows Parcel Number (APN), Owner, and then a 0, 1, or 2.

0 = Parcels that were identified before today (4/24/2015) (n=2)
1 = Parcels that were identified today and are already on the Irrigators List (n=7)
2 = Parcels that were identified today and are NOT on the current Irrigators List (n=10)

0	30304025	KHAN FESTUS J	0
1	30318002	CORDOVA ACRES PROPERTY LLC	2
2	30244020B	PISTA LAND COMPANY LLC	0
3	30231003	HNDEZ FARM LLC	2
4	30231005	HNDEZ FARM LLC	2
5	30104051	BLM	2
6	30104027	ALLRED CALVIN & SUSAN	2
7	30218014	A&P RANCH	1
8	30218015	A&P RANCH	1
9	30226001	KISER JEAN	2
10	30204004	SOUTHERN PACIFIC TRANSPORTATION CO	2
11	30251002B	KLUMP JOHN L & KIMBERLY B	2
12	30203002B	PISTACHIO PASS IRRIGATION DIST	2
13	30415010A	ARIZONA NUT COMPANY LLC	2
14	30415010B	A&P RANCH	1
15	30404036	H&R FARMS LLC	1
16	30404037A	A&P RANCH	1
17	30404037B	A&P RANCH	1
18	30404037C	A&P RANCH	1

I am not saying these parcels are being irrigated, it is very difficult to tell with this imagery. I tried looking at it both in true color and in false color. I will need your help in making the decision of whether or not they are irrigated. These are all parcels we have looked at before but did not see any visible indication of vegetation.

I will keep ArcMap up on my screen. Please come over at your convenience and we can go through them again together.

Thanks,

Daniel Fielder
Water Resource Specialist
Arizona Department of Water Resources
AMA Planning & Data Management

(602) 771-4584

EXHIBIT 2

Declaration of Irrigation User of Groundwater

I, SILVERADO FARMS LLC, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner ✓.

I am an authorized representative of a landowner or an entity landowner ____.

The entity landowner or landowner that I represent is: SILVERADO FARMS LLC

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed [signature] Date: 6/16/2015

Declaration of Irrigation User of Groundwater

I, SAMARA FARMING ENTERPRISES INC, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner ____.

I am an authorized representative of a landowner or an entity landowner X.

The entity landowner or landowner that I represent is: SAMARA FARMING ENTERPRISES INC

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed _____ Date: 6/16/2015

Declaration of Irrigation User of Groundwater

I, Marvin and Judy Barnes Irrevocable Trust, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner yes

I am an authorized representative of a landowner or an entity landowner ____.

The entity landowner or landowner that I represent is: Marvin and Judy Barnes Irrevocable Trust

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed: Judy Barnes Date: 6-16-2015

Declaration of Irrigation User of Groundwater

I, Dennis N Kracke, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner ____.

I am an authorized representative of a landowner or an entity landowner ____.

The entity landowner or landowner that I represent is: Dennis N Kracke

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed Dennis N Kracke Date: June 16, 2015

Declaration of Irrigation User of Groundwater

I, Daniel K Barnes, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner DB.

I am an authorized representative of a landowner or an entity landowner ____.

The entity landowner or landowner that I represent is: Daniel K Barnes

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed Daniel K Barnes Date: 6-16-2015

Declaration of Irrigation User of Groundwater

I, Matt Klump, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner X.

I am an authorized representative of a landowner or an entity landowner ____.

The entity landowner or landowner that I represent is: Klump Ranches LLC.

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed _____ Date: 5/15/15

Declaration of Irrigation User of Groundwater

I, Morin Ranch LLC, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner X.

I am an authorized representative of a landowner or an entity landowner X.

The entity landowner or landowner that I represent is: Howard Morin Morin Ranch LLC

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed Howard Morin Date: 6-12-15

Declaration of Irrigation User of Groundwater

I, Howard Morris, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner yes

I am an authorized representative of a landowner or an entity landowner ____.

The entity landowner or landowner that I represent is: Howard Morris

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed Howard Morris Date: 6-12-15

Declaration of Irrigation User of Groundwater

I, Barbara & Miles Killian, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner X.

I am an authorized representative of a landowner or an entity landowner ____.

The entity landowner or landowner that I represent is: Barbara & Miles Killian

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed [signature] Date: 6-10-15

Declaration of Irrigation User of Groundwater

I, Barbara Killian, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner X

I am an authorized representative of a landowner or an entity landowner ____.

The entity landowner or landowner that I represent is: The Killian Living Trust

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed Barbara Killian Date: 6-10-15

Declaration of Irrigation User of Groundwater

I, John L. Klump, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner yes

I am an authorized representative of a landowner or an entity landowner ____.

The entity landowner or landowner that I represent is: Myself

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed John L Klump Date: 6-12-15

Declaration of Irrigation User of Groundwater

I, Wallace Klump, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner ____.

I am an authorized representative of a landowner or an entity landowner X.

The entity landowner or landowner that I represent is: Matt Klump

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed Wallace Klump Date: 7/12/15

Declaration of Irrigation User of Groundwater

I, Robert S Zwickey 1010 West Oneil Road San Simon Ariz, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner ✓.

I am an authorized representative of a landowner or an entity landowner X.

The entity landowner or landowner that I represent is: Myself

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed Robert S. Zwickey Date: 7-10-15

Declaration of Irrigation User of Groundwater

I, William Cloudt, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner ✓.

I am an authorized representative of a landowner or an entity landowner ____.

The entity landowner or landowner that I represent is: William Cloudt Cloudt Partnership

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed William Cloudt Date: July 15 - 2015

Declaration of Irrigation User of Groundwater

I, Monica C Bedogain, am an owner and/or authorized representative of the landowner identified below. Based upon my personal experiences and observations, I am aware that the landowner uses groundwater on two or more acres to produce plants or parts of plants for sale or human consumption, or for use as feed for livestock, range livestock or poultry. I have reviewed the map of the proposed San Simon Valley Sub-basin irrigation non-expansion area ("INA") and confirmed that the land that is the subject of this Declaration is located within the San Simon Valley Sub-basin at issue. Although use of groundwater detailed above has occurred during the five years preceding March 2015, I was not a signatory on the petition for the Initiation of Procedures to Designate an INA for the San Simon Valley Sub-basin, nor am I identified on ADWR's website as a "non-petitioner" irrigation user of groundwater.

I am the landowner X.

I am an authorized representative of a landowner or an entity landowner ____.

The entity landowner or landowner that I represent is: Monica C Bedogain

I declare under penalty of perjury that the foregoing is true and correct to the very best of my knowledge.

Signed Monica C Bedogain Date: 7-16-15

EXHIBIT 3

STATE LAND DEPARTMENT OF THE STATE OF ARIZONA

BEFORE THE STATE LAND COMMISSIONER

IN THE MATTER OF THE PROPOSED DESIGNATION OF THE HARQUAHALA VALLEY AREA AS A CRITICAL GROUNDWATER AREA Partially located in Maricopa-Yuma Counties, Arizona, and more particularly located within the exterior area boundaries as described in Exhibit "A", a map attached hereto and incorporated by reference as though fully set out verbatim, herein.	ORDER OF NOTICE FOR HEARING TO DETERMINE SUFFICIENCY OF PETITION

Pursuant to a petition filed by twenty-five (25) or more persons, alleging they constitute more than one-fourth of the users of groundwater within the exterior boundaries of land as set forth in Exhibit "A", attached hereto, and by reference made a part hereof; said petitioners do hereby petition the Arizona State Land Department to conduct a hearing, pursuant to A.R.S. 45-301, subparagraph 16, 45-308, 45-309 and 45-310; the State Land Department having reviewed and considered the same, finds reason for issuing the following Order:

IT IS HEREBY ORDERED, that a public hearing is to be held on Monday, the 20th day of June, 1977 at 10:00 o'clock a.m., in the forenoon, at the Lions Club located on West Van Buren Street, Harquahala Valley, Arizona, as more clearly depicted upon the map marked Exhibit "A" and attached hereto, to SHOW CAUSE, IF ANY THEY HAVE, that they are in fact users of groundwater as more particularly defined in A.R.S. Sections 45-301, subparagraph 16 thereof; and further that they meet the requirement of Sections 45-308, 45-309 and 45-310, Arizona Revised Statutes.

GIVEN under my hand and Official Seal of the State Land Department this 3rd day of June, 1977.

STATE LAND DEPARTMENT

A. L. Bettwy

ANDREW L. BETTWY
STATE LAND COMMISSIONER

STATE
LAND
DEPARTMENT
SEAL

MAILING LIST FOR ORDER OF NOTICE FOR HEARING TO DETERMINE SUFFICIENCY OF PETITION - Mailed the 3rd day of June, 1977.

	CERTIFIED MAIL #
James H. Green, Jr. Attorney at Law 32 Luhrs Arcade 11 West Jefferson St. Phoenix, AZ 85003	570545
Al Ramsey HiWay Electric Co. P. O. Box A Litchfield Park, AZ 85340	570546
Mr. James Roberts 2602 Cannon Dr. Phoenix, AZ 85028	570547
Mr. Jerry Johnson P. O. Box 144 Litchfield Park, AZ 85324	570548
Mr. Robert F. Mackey 3434 N. 28th Ave. Phoenix, AZ 85017	570549
Mr. Ronald Cameron Star Route Box 381 Buckeye, AZ 85326	570621
Ms. Elsie M. Porterfield, per Rep. Estate of Ethel Haustgen Star Route Box 413 Buckeye, AZ 85326	570622
Mr. Clyde Trampp Star Route Box 433-K Buckeye, AZ 85326	570623
Mr. Stephen Pavich Rt. 2, Box 291 Delano, CA 93215	570624
Mr. D. C. Bennett Star Route 2, Box 352 Buckeye, AZ 85326	570625
Mr. Jerry Melton Star Route 2, Box 423 Buckeye, AZ 85326	570626
Mr. Gilbert S. Turner Rt. 2, Box 314 Buckeye, AZ 85326	570627
Mr. John Shother Star Route Box 411 Buckeye, AZ 85326	570628
Mr. Franklin W. Rogers Star Route Box 436 Buckeye, AZ 85326	570629
Mr. William T. Gladden Rt. 2, Box 945 Buckeye, AZ 85326	570630
Mr. David L. Gladden Rt. 2, Buckeye, AZ 85326	570631

EXHIBIT 4

Haley & Aldrich, Inc.
400 E. Van Buren St.
Suite 545
Phoenix, AZ 85004
602.760.2450

REGISTERED GEOLOGIST
CERTIFICATE NO.
47684
MASON R.
BOLITHO
Date Signed 7/17/15
ARIZONA, U.S.A.
Expires 03/31/2017

TECHNICAL MEMORANDUM

17 July 2015
File No. 42141

TO: Lee Storey, The Storey Lawyers PLC

FROM: Mason Bolitho, R.G., Senior Technical Specialist
Mark Nicholls, R.G., Senior Hydrogeologist

SUBJECT: Analysis of Groundwater Conditions, San Simon Valley Sub-basin, Cochise County, Arizona

Introduction

The Arizona Department of Water Resources (ADWR) was established to secure long-term, dependable water supplies for Arizona communities and is tasked with administering and enforcing the Arizona groundwater code and laws related to surface water rights. The groundwater management act (Groundwater Code) of 1980 provided several mechanisms for ADWR to use to control overdraft, allocate limited groundwater resources, and augment groundwater supplies. To control impacts arising from overdraft in specific agricultural areas, the Code explicitly established two Irrigation Non-expansion Areas (INAs), Douglas and Joseph City, in agricultural areas where substantial overdraft over sustained periods had been observed. The Code also established a process by which a new INA may be designated if irrigation water supplies dwindled to the point that they put future irrigation of cultivated lands at risk. Following implementation of the Code, one additional INA (Harquahala) was established in 1981 by ADWR's initiative under the Groundwater Code, again after substantial overdraft over sustained periods had been observed. No new INAs have been designated since 1981.

On 6 February 2015, a petition to establish a new INA in the San Simon sub-basin was filed with ADWR by representatives of a few large farming entities operating in the area. No supporting documentation or hydrologic analyses were provided with the petition to support the assertion that irrigation water supplies are at risk. To date, and despite completion of a public hearing, petitioners still have yet to come forward with any evidence to support the establishment of an INA. Haley & Aldrich, Inc. (Haley & Aldrich) has evaluated publicly available hydrologic data produced by ADWR, the Arizona Geological Survey (AGS), and the United States Geological Survey (USGS) to generate an opinion on the merits of this petition and to prepare this report.

Description of the San Simon Valley Sub-Basin

The San Simon Valley sub-basin is located in southeastern Arizona and adjoins the border with New Mexico (Figure 1). The sub-basin is part of the larger Safford Groundwater Basin, which also includes the Gila Valley sub-basin and the San Carlos Valley sub-basin. The San Simon Valley sub-basin occupies

approximately 1,701 square miles of the larger 4,747 square-mile Safford Basin. The sub-basin is bounded by the Dos Cabezas Mountains on the southeast, the Chiricahua Mountains on the south and southeast, the Pinaleño Mountains on the west, and the Gila Valley sub-basin on the north. The sub-basin is a broad southeast-northwest trending valley which is bisected by the intermittent San Simon River, which flows northwesterly toward the Gila River. The small towns of Bowie and San Simon are the only appreciable development in the San Simon Valley sub-basin.

Aquifers in the San Simon Valley sub-basin are typical of those found in basins throughout southeastern Arizona. Wells in the valley produce groundwater from recent stream alluvium and basin fill deposits derived from surrounding mountains. Aquifers have been designated as the Upper Aquifer and Lower Aquifer (Corkhill, 2012). Most groundwater for agricultural use is produced from the Lower Aquifer. Well yields in the San Simon and Bowie agricultural areas are generally excellent, typically more than 1,000 gallons per minute (gpm) with some exceptional wells yielding over 2,000 gpm.

In the San Simon Valley sub-basin, depth to bedrock varies from 6,400 to 8,000 feet in the agricultural area near San Simon (AGS, 2007). These estimates are derived from geophysical data including gravity measurements. While little is known regarding groundwater below 1,200 feet in depth, groundwater at greater depths represents a potential source of water for future uses, and further indicates that sufficient groundwater remains in storage within the sub-basin to support irrigation at current rates far into the future.

Statutory Criteria for Establishing a New Irrigation Non-Expansion Area

Pursuant to the provisions of Arizona Revised Statutes (A.R.S.) § 45-432(1), the ADWR director may designate a subsequent INA if "there is insufficient groundwater to provide a reasonably safe supply for irrigation of the cultivated lands in the area at the current rates of withdrawal" and in accordance with A.R.S. § 45-432(2), establishment of an Active Management Area (AMA) is not necessary. The intent of the formation of an INA is to preserve limited groundwater supplies for continuation of agricultural irrigation. If sufficient groundwater exists to provide a reasonably safe water supply for irrigation at current rates of groundwater withdrawals, no INA is warranted.

The methods and criteria for assessing groundwater overdraft in agricultural areas are not defined in A.R.S. § 45-432. Consequently, assessment of potential impacts is generally limited to the evaluation of historical and recent groundwater conditions in comparison to established INAs to characterize the magnitude of potential overdraft impacts that would warrant formation of an INA.

Historical and Current Agricultural Acreage

Groundwater development in the San Simon Valley sub-basin began around 1910, when exploratory drilling led to groundwater development for agriculture in the area (Corkhill, 2012). Irrigated agriculture was established shortly thereafter using wells as sources of water. Total irrigated acreage in 1915 was approximately 1,500 acres. Some of these farms were abandoned after World War I (Schwennesen, 1917).

The total agricultural acreage currently under irrigation is much smaller than in the past (Figure 2). While no ADWR estimates of total cropped acreage in the San Simon area are available before 1965, it appears that significant agricultural irrigation was present in 1965, when approximately 34,500 acres were under cultivation (Corkhill, 2012). Based upon groundwater withdrawals, the maximum agricultural acreage in the San Simon area occurred in the 1970s, when groundwater withdrawals averaged about 116,100 acre-feet per year (acre-feet/year), or about 40 percent higher than pumpage in the 1960s. By extrapolation, this indicates that an estimated 39,000 acres were under cultivation in the 1970s (Corkhill, 2012).

After the 1970s, irrigated acres in the San Simon area declined to an estimated 18,000 acres in 1989, and rose slightly to 20,400 acres in 2014 (ADWR, 2015b). However, the total irrigated acreage is currently about 50 percent of the total acreage in the 1970s (Figure 3). The trend of total irrigated acreage in production has generally been one of steady decline for approximately 40 years, until a slight increase in recent years.

Historical and Current Agricultural Groundwater Demand

Groundwater demand in the San Simon Valley sub-basin is almost entirely agricultural (ADWR, 2010). Domestic and municipal water uses are the only non-agricultural water uses occurring within the San Simon Valley sub-basin. The combined population of the communities of Bowie and San Simon is approximately 614 people, according to the 2010 census. Domestic and municipal water uses within the San Simon sub-basin are estimated to be less than one percent of the irrigation water use and do not constitute a significant contribution to demand in the sub-basin. Table 1 indicates historical annual groundwater withdrawals within the San Simon Valley sub-basin.

Table 1: Historical Annual Groundwater Withdrawals
San Simon Valley Sub-Basin

Time Period or Year	Average Annual Withdrawals (acre-feet)
1915-1919	7,600
1920-1929	4,600
1930-1939	3,200
1940-1949	4,700
1950-1959	31,200
1960-1969	70,700
1970-1979	116,100
1980-1989	65,450
1990	47,000
1991	46,000
1992	41,500
1993	47,500

Table 1: Historical Annual Groundwater Withdrawals
San Simon Valley Sub-Basin

Time Period or Year	Average Annual Withdrawals (acre-feet)
1994	48,000
1995	46,000
1996	46,500
1997	47,500
1998	47,500
1999	49,000
2000	51,000
2001	48,500
2002	46,000
2003	50,500
2004	47,500
2005	48,500
2006	50,000
2007	51,000
2008	49,000
2009	46,000
2010	49,500
2011	50,000*
2012	49,000*
2013	50,000*

NOTES:
**Estimated from ADWR graph, 2015b*
Sources: Corkhill, 2012 and ADWR, 2015b

After peaking at approximately 116,100 acre-feet/year in the 1970s, agricultural groundwater withdrawals began a long decline before stabilizing around 1990. Between 1990 and 2013, groundwater withdrawals were very consistent, fluctuating in a narrow range between 41,500 acre-feet/year and 51,000 acre-feet/year. Review of ADWR records indicates that groundwater withdrawal trends have remained effectively constant for approximately 24 years, with no clear trends of increasing or decreasing groundwater withdrawals. Based on interviews with local residents and testimony presented during the 16 May 2015 public hearing, the decline of agriculture and groundwater withdrawals in the San Simon sub-basin after the 1970s was the result of declining commodity prices and the cessation of federal subsidies for certain crops formerly grown in the area.

Natural and Incidental Recharge

ADWR estimates that 105,000 acre-feet of water are naturally recharged to groundwater each year within the entire Safford Basin. This amount of recharge is derived from mountain-front recharge due to precipitation and river channel recharge in the Gila and San Simon river valleys. The ADWR estimate of recharge based on acreage in the San Simon Valley sub-basin is approximately 37,000 acre-feet annually. This recharge figure includes incidental recharge that occurs as a result of agricultural irrigation return flow.

Recharge in the San Simon Valley sub-basin occurs due to runoff at mountain fronts and within ephemeral and intermittent streams, which include the San Simon River. The USGS has maintained several stream gages along the San Simon River including one gage at San Simon (ADWR, 2010). Mean annual flow at this gage during the 13 years of record was 3,943 acre-feet. Another gage at Bowie recorded a mean annual flow of 9,214 acre-feet during 3 years of record. A third gage near Solomon indicated a mean annual flow of 8,411 acre-feet during 46 years of record ending in 1982 (ADWR, 2010). It thus appears that significant natural recharge commonly occurs within the channel of the San Simon River. No stream gages on the San Simon River are currently maintained by the USGS.

Groundwater Level Trends

ADWR has evaluated groundwater level changes in the San Simon Valley sub-basin from the period spanning from 1987 to 2007 (Corkhill, 2012). Wells within the agricultural areas of the sub-basin (Bowie and San Simon) exhibited average water level declines during the 20-year period of approximately 16 feet, which is less than 1 foot per year. Some wells in the Bowie and San Simon areas exhibited larger and smaller water level declines, while some wells near the Bowie and San Simon agricultural areas exhibited water level rises during the same period. Water levels may reflect the effects of nearby pumping wells or other conditions existing at the time the measurements were taken.

Localized groundwater level declines are common in areas of withdrawals for agricultural, municipal, or industrial use. These pumping centers often exhibit localized groundwater cones of depression that extend some distance from the pumping well, even in basins and sub-basins that are in or near safe-yield. The pumpage in the San Simon Valley sub-basin is localized and significant groundwater level declines are likewise confined to two small areas near San Simon and Bowie.

Many lower aquifer hydrographs for the San Simon and Bowie areas exhibit distinctive patterns. Groundwater levels declined steeply in the 1960s and 1970s, but leveled off after the mid-1980s as groundwater withdrawals for agriculture were sharply reduced from almost 140,000 acre-feet/year to approximately 50,000 acre-feet/year. Preliminary ADWR analyses (ADWR, 2015a) indicate that average water level declines in the San Simon sub-basin are approximately 1.2 feet/year for the past 48.9 years. Although water level declines were noted in the 1960s and 1970s during the period of highest historical groundwater withdrawals, even during this time historically high groundwater withdrawals, there is absolutely no evidence that water level declines would have warranted the establishment of an INA. Most water levels in recent years have gradually leveled off, with average annual water level declines of only 1.2 feet in the San Simon Valley sub-basin (ADWR, 2015b).

Groundwater in Storage and Overdraft

According to the USGS (Freethey and Anderson, 1986), approximately 25,000,000 acre-feet of groundwater existed in storage to a depth of 1,200 feet in the San Simon Valley sub-basin before groundwater development began. This figure does not include groundwater in storage below 1,200 feet, which is available for use. ADWR estimates that approximately 66,000,000 acre-feet of groundwater are currently in storage within the entire Safford Groundwater Basin (ADWR, 2010), of which the San Simon Valley sub-basin is a part. Because of the relatively low historical and current groundwater use rates (currently about 50,000 acre-feet/year), and significant natural and incidental recharge, the amount of groundwater in storage may at present be only slightly less than during predevelopment times.

Specifically, with about 25,000,000 acre-feet of groundwater in storage to 1,200 feet, an assumed annual groundwater demand of 50,000 acre-feet, and an estimated annual natural and incidental recharge of 37,000 acre-feet, an estimated annual overdraft of groundwater in the San Simon Valley sub-basin is only about 41,000 acre-feet, or about 0.16 percent of groundwater in storage to 1,200 feet depth. Again, this figure does not include groundwater present below a depth of 1,200 feet.

Comparison with Current INAs

The Douglas Basin and Joseph City areas were designated as “critical groundwater basins” as a result of sharply declining groundwater levels and the resultant impact to the irrigation water supply. These two areas had comparatively large acreages of irrigated agriculture and little or no access to renewable irrigation water supplies. The two areas were established as the initial Douglas INA and Joseph City INA in the 1980 Groundwater Code, being effectively grandfathered into the new statutes. Unlike the San Simon Valley sub-basin, these two initial INAs exhibited the effects of dramatic, long-term groundwater overdraft and had been identified as critical groundwater basins for decades. Long before the Groundwater Code became law, data collected within these basins established that the areas suffered unsustainable groundwater overdraft which threatened agricultural users.

Likewise, groundwater was significantly overdrafted in the Harquahala Basin during the late 1970s, with over 100,000 acre-feet withdrawn annually, primarily for agricultural irrigation. In addition, natural recharge was very low in the Harquahala Basin (about 1,000 acre-feet/year) and no significant surface water resources were available before 1986 (ADWR, 2010). Groundwater withdrawals for agriculture in the Harquahala Basin peaked at 117,000 acre-feet/year during the 1971-1975 period, fell to only 6,000 acre-feet/year during the 1986-1990 period, and rose again to about 36,500 acre-feet/year during the 2001-2005 period. ADWR hydrographs (ADWR, 2010) from the Harquahala INA indicate rapid water level declines of 10 to 15 feet per year in some agricultural areas of the INA between 1975 and the early to mid-1980s.

The Harquahala INA was created in 1981 by ADWR’s initiative as provided in the Groundwater Code. In comparison to the San Simon Valley sub-basin, the Harquahala Valley has approximately half of the groundwater in storage, similar groundwater withdrawal rates, and effectively negligible amounts of recharge resulting in groundwater level decline at rates much greater than those observed in the San Simon Valley sub-basin. The conditions in the San Simon Valley sub-basin differ markedly from conditions exhibited in Arizona’s three existing INAs.

Deepening of Wells

If groundwater levels were falling at a rapid rate, to the extent that agricultural water supplies were at risk, one would expect to see significant impacts similar to those noted in other basins where water levels have been observed to decline rapidly. Based on observations made in other Arizona groundwater basins, the effects of rapidly falling groundwater levels include more power (electrical or diesel) required to lift groundwater from the falling water table to ground surface, and wells must be abandoned or deepened due to falling water levels. For example, in the Pinal AMA numerous wells have been deepened or replaced since the 1970s in response to falling groundwater levels. The same pattern has occurred in other groundwater basins that are in significant overdraft throughout Arizona. If groundwater levels were falling at a rapid and unmanageable rate, widespread deepening and replacement of wells would be reflected in the ADWR records for the San Simon Valley sub-basin. Haley & Aldrich has reviewed the available ADWR records and found no evident trend of well deepening, abandonment, or replacement in the San Simon Valley sub-basin.

Wells designated as deepened in the San Simon, Olga, and Bowie areas were identified on the basis of Notices of Intent (NOI) to Drill forms submitted to ADWR since 1980. Any wells deepened before 1980 would generally not be identified as such in ADWR's imaged records database. Any wells deepened since 1980 would require the submittal of an NOI and would require the issuance of a drill card by ADWR.

For this report, deepened wells do not include those in which pumps were lowered for any reason. This is because lowering of pumps does not require an NOI or drill card, so generally no indication of lowering pumps is in the ADWR well files. Pumps may be lowered for water level reasons but they may also be lowered for several other reasons that include biofouling of screens and perforations, water quality reasons, or for reasons of pump efficiency. Although at least one of the petitioners has stated that they have had to lower pumps, there is no evidence to indicate that this was done because of declining water levels. In fact available water level data collected by ADWR indicates that an average water level decline rate of 1.2 feet exists in the San Simon Valley sub-basin, which does not support the conclusion that pumps must be lowered due to falling water levels. Rather pumps may have been lowered due to deteriorating well efficiency, or well drawdown interference from other nearby wells.

ADWR well records for the following townships were reviewed.

- 12S-28E, Bowie area;
- 13S-28E, Bowie area;
- 13S-29E, Bowie/Olga area;
- 13S-30E, San Simon area;
- 13S-31E, San Simon area;
- 14S-31E, San Simon area;
- 14S-32E, San Simon area; and
- 15S-31E, San Simon area.

These townships comprise the main agricultural areas in the San Simon Valley sub-basin and contain the vast majority of the sub-basin's agricultural wells.

Table 2 indicates wells for which NOIs to deepen were present in the ADWR imaged records and well completion reports indicate that the wells were physically deepened. A very limited number of wells do not have imaged records, but this number was not considered significant.

Table 2. Wells Listed as Deepened in the ADWR Imaged Records
Bowie, Olga, and San Simon Areas, Arizona

Township	Area	Well Records	Deepened Wells	Deepened Well Information			
				Location	Original Depth (feet)	Registry Number	Year
12S – 28 E	Bowie	99	2	D(12-28)34bbc	700	55-625841	2005
				D(12-28)35cbc	160	55-506688	1992
13S – 28E	Bowie	145	1*	D(13-28)35bac	440	55-532025	1991
13S – 29E	Bowie/Olga	136	1	D(13-29)19bad	125	55-513814	1987
13S – 30 E	San Simon	105	0	–		–	–
13S – 31 E	San Simon	150	0	–		–	–
14S – 31E	San Simon	217	2	D(14-31)23abc	70	55-622151	1988
				D(14-31)25dcd	550	55-807392	1996
14S – 32E	San Simon	36	0	–		–	–
15S – 31E	San Simon	22	1	D(15-31)11dcd	546	55-605286	2007
All		**910**	**7**				

**Two NOIs to deepen were filed for wells 55-220221 and 55-621018. Those wells were never deepened.*

Of the 910 records reviewed, nine included NOIs to deepen and seven wells were physically deepened. Two of the nine well records cited had NOIs to deepen but the wells were never deepened. This indicates that less than one percent of all wells in the agricultural townships of the Bowie-Olga-San Simon area of the San Simon Valley sub-basin were deepened between 1987 and 2007. If rapidly falling water levels were causing wells to become inefficient or go dry, ADWR records would most certainly indicate that a much higher number of wells were physically deepened. Further, only two wells were deepened after 2000, and none past 2007, which indicates that current conditions are not forcing well owners to deepen their wells in order to keep up with rapidly falling water levels. These data are consistent with testimony given during the 16 May 2015 public hearing, wherein citizens and a local well driller testified that they have not needed to deepen their wells.

2015 ADWR Model

The results of the 2015 ADWR groundwater flow model of the San Simon Valley sub-basin (ADWR Hydrology Division, 2015c) suggest an annual change in storage of -41,323 acre-feet for the model period of 2016-2115[1]. This is negligible when compared to the approximately 25,000,000 acre-feet in storage above 1,200 feet bgs in the sub-basin, and amounts to approximately 0.16 percent of groundwater overdraft every year. Underflow to the north toward the Gila River Valley sub-basin is estimated to be 30,389 acre-feet annually. The ADWR models show that this amount of flow to an adjoining sub-basin has little or no connection to current and projected annual withdrawals, but rather causes overdraft to appear much larger than can be attributed to agricultural pumpage. The technical memorandum describing the model provides limited information regarding the method used to establish the large underflow estimate, including 1986 estimates from the USGS (Freethey and Anderson, 1986) and additional flow thought to be originating as mountain front recharge to the northwest and northeast. Nevertheless, assuming that the published underflow values are correct, it is expedient to use these values in support of the ADWR groundwater model given the time required to collect the more precise data required to refine the estimates.

Water levels projected in 2115 after 100 additional years of pumpage indicate mean depths to groundwater to be 388 feet bgs in the Bowie area and 316 feet bgs in the San Simon area. These projected depths are not unusual for groundwater basins in Arizona and by themselves will certainly not result in agricultural water shortages. History has indicated that the primary factor that influences agriculture in the San Simon Valley sub-basin is not depth to groundwater, but rather the prices paid for agricultural commodities and farm subsidies. Records show that irrigated agriculture has been practiced in the sub-basin for 100 years, and no significant problems with groundwater supplies or deepening of wells have been encountered.

Because groundwater in storage above 1,200 feet is estimated by the USGS and ADWR to be approximately 25,000,000 acre-feet, and groundwater overdraft after 100 years is projected to be 4,129,000 acre-feet, only 16 percent of groundwater above 1,200 feet bgs would be over-drafted under the ADWR model scenario. These estimates do not consider groundwater that is below 1,200 feet bgs as a potential resource, and since depth to bedrock in the sub-basin ranges up to 8,000 feet, considerable groundwater is likely available for use below 1,200 feet and would not be needed for hundreds of years according to the model.

The ADWR model confirms this report's assessment of groundwater in the San Simon Valley sub-basin. The sub-basin has substantial groundwater supplies available, agricultural pumping has been sustainable for 100 years, and will continue to be sustainable for at least one hundred years. Further, at current

[1] The overdraft, underflow, pumpage, and other data are estimates based upon hydrologic data which are not provided or fully cited. In particular, the underflow to the Gila Valley sub-basin is primarily dependent on a 1986 USGS paper for which data sources are not cited. Pumpage may be based upon cropped acreage estimates and type of crop. In order to fully characterize these data, additional work would be required to create an appropriate estimate of underflow. This additional work should include, but not be limited to, aquifer testing, additional water level measurements, installation of monitor wells, lithologic and geophysical logging, and other work.

withdrawal rates, water levels will not fall to critical levels in the next 100 years; water level declines will be manageable for agricultural purposes. The ADWR model does not indicate that insufficient groundwater exists to provide a reasonably safe supply for irrigation, which is the statutory criterion that must be evident in order to establish a new INA.

Conclusions and Recommendations

The ADWR Director must consider numerous factors when reviewing a petition to form a new INA. These factors include groundwater demand, historical trends, and recent hydrologic data. The Director must evaluate these factors against the reliability of the irrigation water supply for continued future irrigation at existing rates of groundwater withdrawal. A summary of the principal hydrologic and water use factors as they pertain to the San Simon Valley sub-basin are described below.

- According to the USGS (Freethey and Anderson, 1986), there are approximately 25,000,000 acre-feet of groundwater in storage to 1,200 feet bgs in the San Simon Valley sub-basin.
- Agricultural groundwater demand averaged about 116,000 acre-feet/year during the 1970s, but current groundwater demand for agriculture is approximately 43 percent of the historical high demand observed in the 1970s.
- Agricultural demand for groundwater has been relatively constant in the San Simon Valley sub-basin since 1990, fluctuating between 41,500 acre-feet/year and 51,000 acre-feet/year (Corkhill, 2012).
- There have been no significant and recent increases in agricultural groundwater demand in the San Simon Valley sub-basin (Corkhill, 2012).
- Irrigated agricultural acreage in the Bowie-San Simon area was approximately 34,500 acres in 1965, and has fallen to about 20,400 acres at present (Corkhill, 2012; ADWR, 2015b).
- Groundwater overdraft is estimated by ADWR to be only about 41,323 acre-feet/year, based on available ADWR and USGS data. This amount of overdraft constitutes approximately 0.16 percent of storage on an annual basis. At current rates of withdrawal, groundwater in storage in the sub-basin above 1,200 feet bgs would last hundreds years before depletion.
- A review of 910 ADWR well records for eight townships in the San Simon, Bowie, and Olga agricultural areas indicates that only seven wells have been deepened since 1987; none have been deepened since 2007. Depth to bedrock in the San Simon Valley sub-basin is estimated to range up to 8,000 feet, indicating that significant groundwater resources are potentially available below 1,200 feet depth.
- The Joseph City and Douglas INAs were designated as critical groundwater areas based upon established and sustained overdraft conditions, and were subsequently designated INAs in the 1980 Groundwater Management Act. The San Simon Valley sub-basin does not have years of significant evidence of severe overdraft like that present in the Douglas and Joseph City areas before protections were implemented.

- The Harquahala INA was established in 1981 by petition. The Harquahala INA contains a much smaller volume of groundwater in storage than the San Simon Valley sub-basin (13,000,000 acre-feet vs. 25,000,000 acre-feet), experiences much lower natural recharge, and experienced higher volumes of groundwater withdrawals in the 1970s prior to INA designation and the availability of CAP water in the mid-1980s. These conditions contributed to a much greater rate of groundwater decline than what is currently being observed in the San Simon Valley sub-basin.
- Groundwater level declines have been noted in the San Simon Valley sub-basin. According to ADWR (Corkhill, 2012), groundwater level declines averaged 16 feet between 1987 and 2007, an average of less than 1 foot per year. The same ADWR report also noted that some groundwater levels in the area have risen. Recent and preliminary data (ADWR Hydrology Division, 2015c) indicate average annual water level decline rates of 1.2 feet between 1940/1950 to 2015.
- The 2015 ADWR model (ADWR Hydrology Division, 2015c) projects manageable rates of groundwater level declines by 2115 at current rates of withdrawal. According to the model, only 0.16 percent of groundwater in storage will be overdrafted annually. Even after 100 years of additional pumpage, 84 percent of the groundwater resource above 1,200 feet bgs will remain available for use.
- The 2015 ADWR estimates significant underflow from the San Simon Valley sub-basin to the Gila Valley sub-basin of approximately 30,389 acre-feet per year. Limited information regarding this underflow volume is provided, other than ADWR relied on Freethey and Anderson (1986) and estimated an additional 13,000 acre-feet of underflow per year from mountain front areas "to the northwest (Mt. Graham) and northeast". Because this large estimated underflow volume theoretically moves significant groundwater out of the sub-basin, additional information regarding this underflow estimate is necessary to property evaluate the ADWR model.
- By law, the ADWR Director cannot establish an INA that is smaller in area than a sub-basin within a statutory groundwater basin. Groundwater level declines in the San Simon Valley sub-basin are confined to small areas near Bowie and San Simon, while the remainder of the sub-basin is substantially unaffected by agricultural withdrawals. For this reason, the designation of the entire San Simon Valley sub-basin as an INA is not justifiable.

Based on an evaluation of the available hydrologic data and well records, the rate of groundwater level decline in the San Simon Valley sub-basin does not rise to the level of severity defined in Arizona state statute that would warrant the establishment of a new INA. No critical overdraft of groundwater has been demonstrated, and no systematic significant operational impacts such as well deepening have been noted to occur in response to less than significant falling groundwater levels. Groundwater withdrawals and the amount of irrigated agricultural acreage are currently both much lower than historical levels observed in the 1970s. Consequently, the San Simon Valley sub-basin does not meet the statutory criteria for establishment of a new INA, which requires that "there is insufficient groundwater to provide a reasonably safe supply for irrigation of the cultivated lands in the area at the current rates of withdrawal." (A.R.S. §45-432). The San Simon Valley sub-basin contains an estimated 25,000,000 acre-feet of groundwater above 1,200 feet bgs (Freethey and Anderson, 1986), and groundwater levels are falling at an average rate of approximately 1.2 feet per year (ADWR Hydrology Division, 2015c). The publicly available data from both the ADWR and USGS, and ADWR's 2015 groundwater flow model, do not indicate the need for a new INA and the establishment of an INA in the San Simon Valley sub-basin at this time would be inconsistent with state law.

References

1. Arizona Department of Water Resources (ADWR), 2010. *Arizona Water Atlas.*

2. ADWR Hydrology Division, 2015a. *Compilation of Cropped Acreage Estimates for Cochise County (1965-1990), Source: Arizona Ag Statistics Reports and Cropped Acreage (1991-2013) and Water Use Data, the Willcox and Douglas Basins and the San Simon Valley Sub-basin, Source: USGS Water Use Reports.*

3. ADWR Hydrology Division, 2015b. *Summary of AG Water Use and Acreage in Willcox, Douglas, and San Simon Areas and ADWR Water Level Sweep of the Willcox Basin 2014/15.*

4. ADWR Hydrology Division, 2015c. *Technical Memorandum. Groundwater Flow Model of the San Simon Valley Sub-basin.*

5. ADWR, 2015a. *Hydrology and Water Use Data of the San Simon Valley Sub-basin.* Presented by Frank Corkhill, Chief Hydrologist. May 16, 2015, Bowie High School.

6. ADWR, 2015b. *Groundwater Site Inventory.*

7. Arizona Geological Survey, 2007. *Estimated Depth to Bedrock in Arizona. Arizona Geological Survey Digital Geologic Map Series, DGM-52 2007, Version 1.0.*

8. Corkhill, Frank, 2012. *Evaluation of Available Scientific Data Related to the Possible Delineation of a Bowie Sub-Basin of the Safford Groundwater Basin. ADWR Open-File Report 12.* December.

9. Freethey, Jeffrey and T.W. Anderson, 1986. *Predevelopment hydrologic conditions in the alluvial basins of Arizona and adjacent parts of California and New Mexico.* USGS Hydrologic Atlas 664.

10. Schwennesen, A.T., and R.H. Forbes, 1917. *Ground Water in San Simon Valley, Arizona and New Mexico. Water Supply Paper 425-A. United States Geological Survey Water Supply Paper, Numbered Series.*

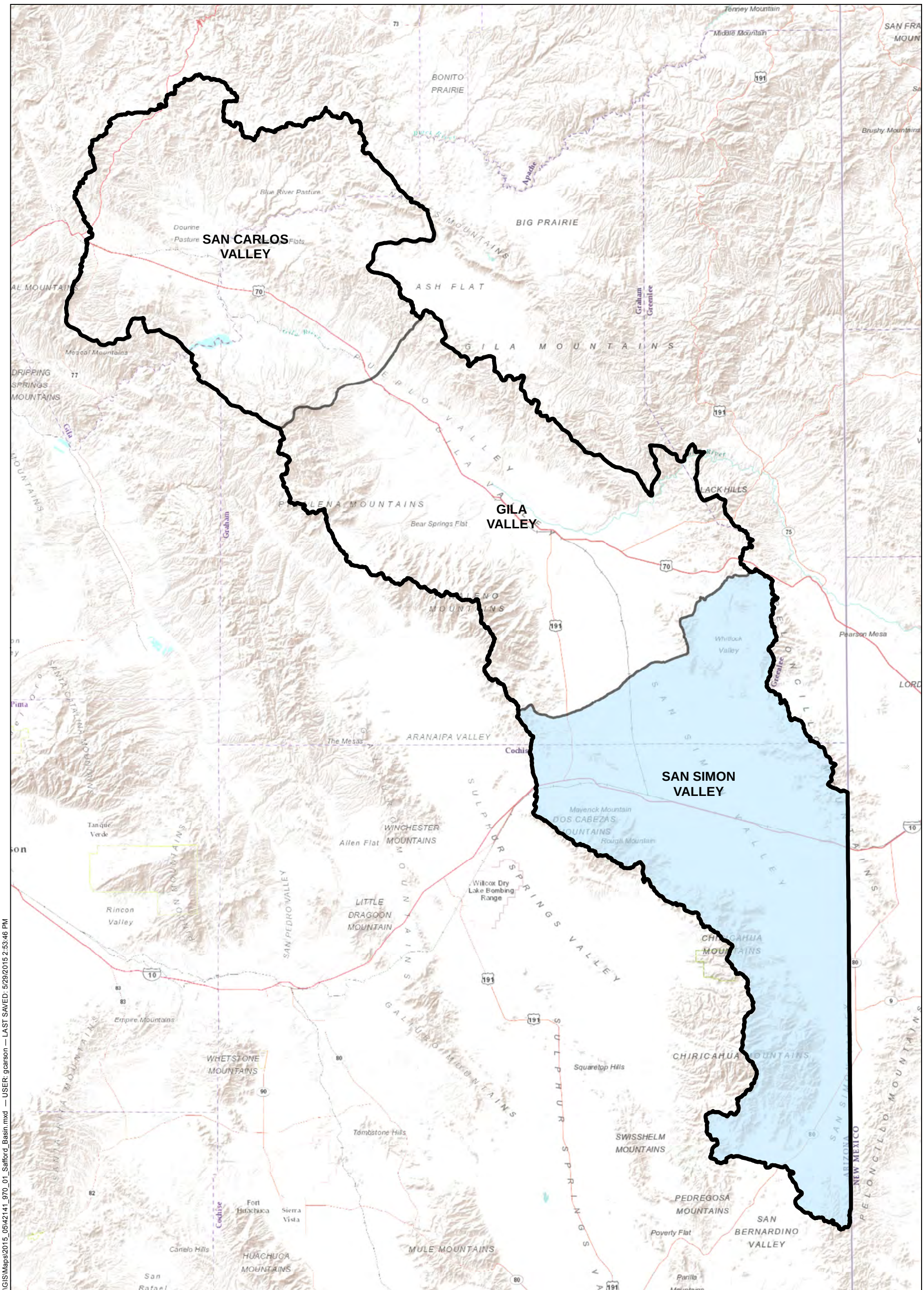
Enclosures:

Figure 1: Analysis of Groundwater Conditions, San Simon Valley Sub-Basin, Cochise County Arizona

Figure 2: Analysis of Groundwater Conditions, San Simon Valley Sub-Basin, Cochise County Arizona, 2015 Irrigated Land

Figure 3: Analysis of Groundwater Conditions, San Simon Valley Sub-Basin, Cochise County Arizona, NDVI Based Vegetation Change 1975 - 2010

FIGURES



LEGEND

- SAFFORD BASIN BOUNDARY
- SAN SIMON VALLEY SUBBASIN
- GILA VALLEY, SAN CARLOS VALLEY SUBBASIN

NOTES

1. ALL LOCATIONS ARE APPROXIMATE

N

0 62,000 124,000
SCALE IN FEET

HALEY ALDRICH

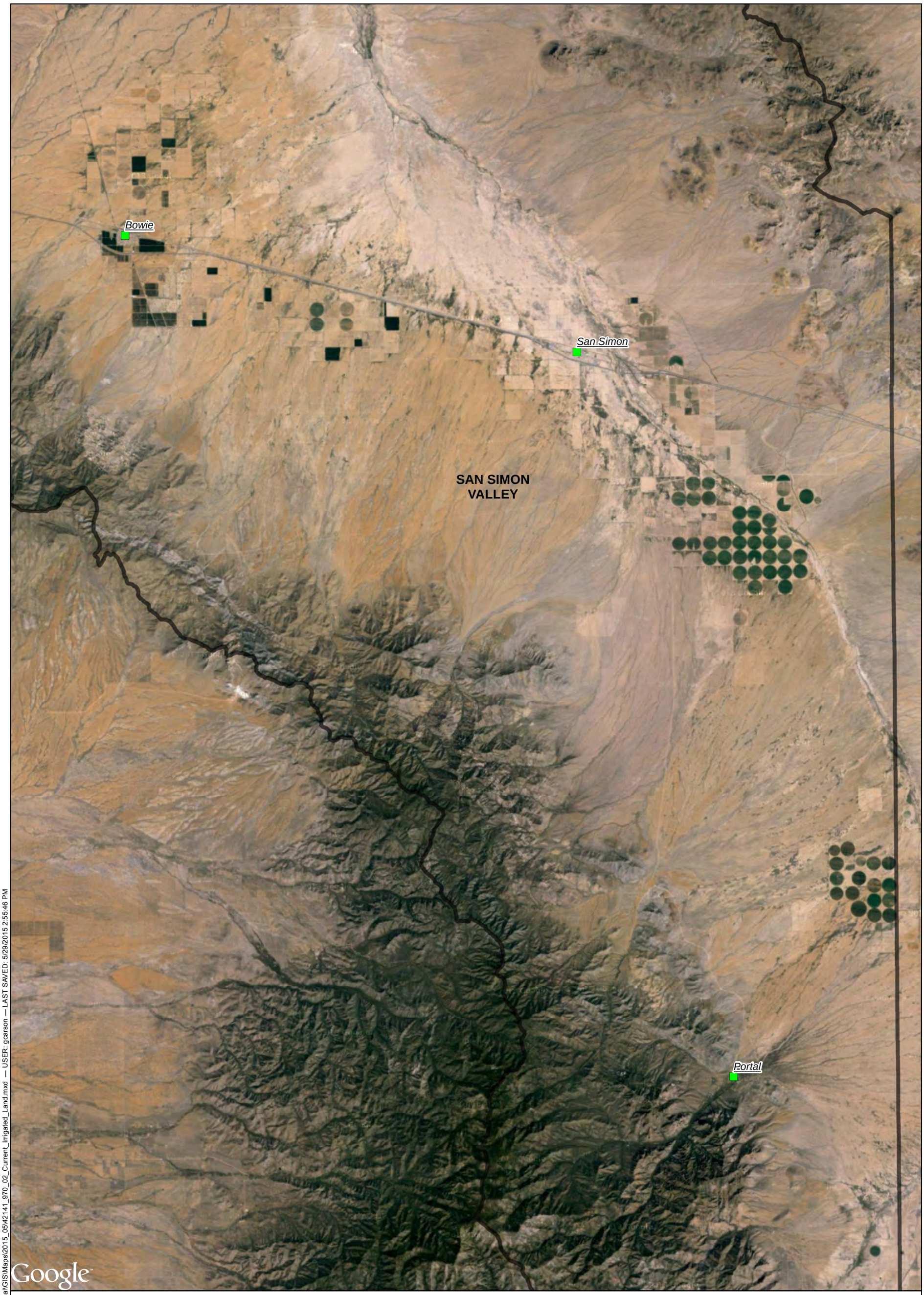
COCHISE COUNTY, ARIZONA

ANALYSIS OF GROUNDWATER CONDITIONS, SAN SIMON VALLEY SUB-BASIN, COCHISE COUNTY ARIZONA

MAY 2015

FIGURE 1

GIS FILE PATH: G:\Projects\42141_SanSimon_INA_Analysis\Global\GIS\Maps\2015_05\42141_970_01_Safford_Basin.mxd — USER: gcarson — LAST SAVED: 5/29/2015 2:53:46 PM



LEGEND

SAN SIMON VALLEY SUBBASIN

CITIES/TOWNS

NOTES

1. ALL LOCATIONS ARE APPROXIMATE

N

0 16,000 32,000

SCALE IN FEET

HALEY ALDRICH

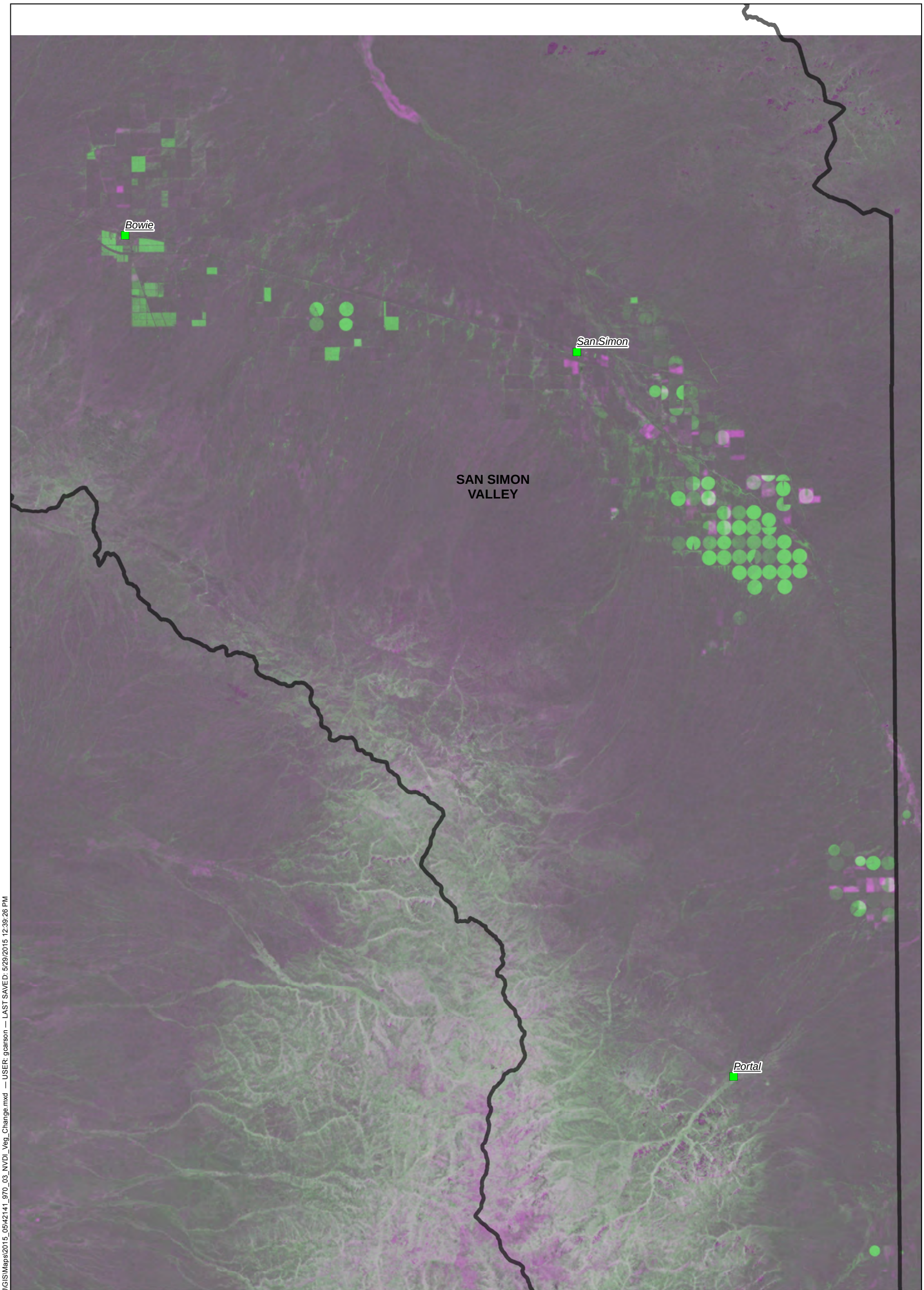
COCHISE COUNTY, ARIZONA

ANALYSIS OF GROUNDWATER CONDITIONS,
SAN SIMON VALLEY SUB-BASIN,
COCHISE COUNTY ARIZONA
2015 IRRIGATED LAND

MAY 2015

FIGURE 2

GIS FILE PATH: G:\Projects\42141_SanSimon_INA_Analysis\Global\GIS\Maps\2015_05\42141_970_02_Current_Irrigated_Land.mxd — USER: gcarson — LAST SAVED: 5/29/2015 2:55:46 PM



LEGEND

- SAN SIMON VALLEY SUBBASIN
- CITIES/TOWNS
- VEGETATION DECREASE 1975 - 2010
- VEGETATION INCREASE 1975 - 2010

NOTES

1. ALL LOCATIONS ARE APPROXIMATE
2. NORMALIZED DIFFERENCE VEGETATION INDEX (NDVI): THIS LANDSAT IMAGE SERVICE HIGHLIGHTS VEGETATION CHANGES FROM 1975 TO 2010 USING CHANGE DETECTION IN THE NEAR-INFRARED BANDWIDTH.

N

0 3 6
Miles

HALEY ALDRICH

COCHISE COUNTY, ARIZONA

ANALYSIS OF GROUNDWATER CONDITIONS,
SAN SIMON VALLEY SUB-BASIN,
COCHISE COUNTY ARIZONA
NDVI BASED VEGETATION CHANGE 1975 - 2010

MAY 2015

FIGURE 3

GIS FILE PATH: G:\Projects\42141_SanSimon_INA_Analysis\Global\GIS\Maps\2015_05\42141_970_03_NVDI_Veg_Change.mxd — USER: gcarson — LAST SAVED: 5/29/2015 12:39:26 PM

EXHIBIT 5

ARIZONA DEPARTMENT OF WATER RESOURCES

BEFORE THE DIRECTOR

IN RE THE PROPOSED DESIGNATION OF A SUBSEQUENT IRRIGATION NON-EXPANSION AREA: HARQUAHALA BASIN — MARICOPA AND YUMA COUNTIES	)	FINDINGS AND ORDER

Pursuant to the Directive of WESLEY E. STEINER, Director of the Department of Water Resources, issued on December 23, 1980 and first noticed on January 6, 1981, public hearings were held on February 18, 1981 and May 25, 1982, at Harquahala Valley, Arizona, in accordance with the requirements of Title 45, Chapter 2, Article 3, Arizona Revised Statutes. The hearing on February 18, 1981, was recessed to allow time for studies to be made of the distribution system for Central Arizona Project water, because some of the landowners within the Harquahala Irrigation District wanted to have such data available before the Department reached its final decision. Subsequently, it became apparent that the Legislature might consider amendments concerning irrigation non-expansion areas. The Legislature did so and in late April, 1982, passed those amendments which the Governor then signed into law. Consequently, at the May 25, 1982, hearing, many of the previous concerns about the establishment of an irrigation non-expansion area which had been expressed at the February 18, 1981 hearing and in correspondence submitted to the Department following that hearing were not reiterated.

At the February 18, 1981 hearing, there were seventy-eight people in attendance, none of whom supported the establish-

ment of the proposed irrigation non-expansion area. At the May 25, 1982 hearing, there were forty-five people in attendance, sixteen of whom gave testimony. Of those testifying at the second hearing, three supported the designation of the proposed irrigation non-expansion area, five opposed such designation, and the remaining eight merely asked questions to clarify their understanding of the restrictions which would be imposed if the designation was made. Most importantly, the only factual data offered by those who opposed the designation of the irrigation non-expansion area related to the location of its northwestern boundary and whether it would be more appropriate to divide the Basin into at least two sub-basins.

During the course of the February 18, 1981 hearing, the Department's expert witness presented factual data on the groundwater levels and rates of withdrawal as well as the number of irrigated acres in the proposed irrigation non-expansion area for the years 1950 through 1979. At the May 25, 1982, hearing the groundwater levels and rates of withdrawal were updated to include the years 1980 and 1981.

In determining whether to designate the Harquahala Basin as an irrigation non-expansion area, the Director is by law required to consider only <u>current</u> rates of groundwater withdrawal and replenishment. Consequently, the <u>future</u> effects of the availability of Central Arizona Project water are ancillary to the required findings. After reviewing the testimony and evidence submitted at the hearings, the Director of the Arizona Department of Water Resources makes the following findings as

required by A.R.S. § 45-436:

FINDINGS

1. The proposed irrigation non-expansion area encompasses the entire Harquahala Groundwater Basin. The surface area of the proposed irrigation non-expansion area is drained by Centennial Wash, which enters in the northwest portion of the Basin through and Harrisburg Valley "Narrows" and flows approximately 42 miles to the southeast of said "Narrows" through a similar constriction at Mullens Cut.

2. Surface water flows in the proposed irrigation non-expansion area occur rarely and only after heavy rains in washes and arroyos. The only dependable source of water in the Basin is its groundwater reservoir which is principally used for agriculture.

3. The main groundwater-bearing unit in the Harquahala Basin is the alluvium which consists of various deposits of clay, silt, sand and gravel. These deposits have a thickness of less than 300 feet near the mountains bordering the Basin to more than 2,000 feet in its central portion. South of Baseline Road, the alluvium is mainly sand and gravel whereas north of Baseline Road the coarse deposits are overlain by fine-grained beds consisting principally of clay. The thickness of the fine-grained beds increases in the northwest portion of the Basin and has a depth of more than 1,000 feet in the western part of Township 2 North, Range 9 West.

4. The fine-grained beds which overlay the permeable beds

of sand and gravel yield only small amounts of water to irrigation wells. A clay bed partially extending across the width of the southern part of the Harquahala Basin retards groundwater flow from the northwest sections of the Basin to the southeast. This clay bed is located principally to the north of Baseline Road and underlies a major portion of the Basin's irrigated acres. Water level contours near the Eagletail Mountains on the southwest edge of this clay deposit indicate a significant southeasterly groundwater flow.

5. In the early 1950's, prior to significant groundwater development in the Harquahala Basin, the slope of the groundwater surface was from northwest to southeast at a low gradient and groundwater discharged from the Basin at Mullens Cut. The depth to water ranged from 17 feet at the southeastern outlet near Mullens Cut to more than 240 feet along the mountain fronts bounding the Basin.

6. In 1980 the depths to water from the land surface ranged from 146 feet in the extreme southeast portion of the Basin near Mullens Cut to 651 feet at a location just south of Baseline Road in the area of Township 1 South, Range 9 West.

7. In 1953 approximately 20,000 acre-feet of groundwater was pumped in the Harquahala Basin. In the years 1962 through 1965 groundwater pumpage in the Harquahala Basin reached 200,000 acre-feet per year. Total groundwater pumpage in the basin dropped briefly to 87,000 acre-feet in 1979, but had increased to approximately 125,000 acre-feet in 1981.

8. In those years when groundwater pumpage attained a

level of about 200,000 acre-feet per year, the decline in the groundwater levels was about 20 feet per year in the southeastern portion of the Harquahala Basin. Following a reduction in the irrigated acreage and a corresponding reduction in groundwater pumpage, the decline in groundwater levels averaged 6 to 10 feet per year. Some wells in the southeastern portion of the Basin have shown yearly declines averaging in excess of 12 feet since the mid-1960's.

9. In the southeastern portion of the Basin, groundwater contour levels evidence the development of a large cone of depression in which the groundwater levels have declined by 100 to 300 feet since the 1950's. A second cone of depression has formed in the west-central part of the Basin where groundwater levels have declined 40 to 50 feet and a third cone of depression has begun forming just below the Harrisburg Narrows area where groundwater levels are approximately 50 feet below what they were in the early 1950's. At the present time little if any groundwater moves out of the Harquahala Basin at Mullens Cut.

10. Recharge to the groundwater reservoir from precipitation or runoff in the Basin is extremely small. A comparison of the yearly recharge and groundwater pumpage clearly evidences the fact that a severe overdraft of the groundwater basin continues to exist at the current rates of withdrawal.

11. The establishment of an active management area is not necessary because: (a) there is no present indication that land subsidence or fissuring is endangering property or the potential groundwater storage capacity of the Basin; (b) although the

groundwater in the Basin does not meet public health standards for human consumption due to the presence of high levels of dissolved fluorides, the use of groundwater does not presently indicate any actual or threatened water quality degradation; and (c) the fact that the groundwater in the Basin is used primarily for agricultural purposes does not require the use of active management area practices to preserve the existing supply of groundwater for future needs.

12. The steep declines in groundwater contour levels, the small annual groundwater recharge available in the Basin, the extensive irrigated acreage, and the corresponding groundwater pumpage demonstrate that there is insufficient groundwater to provide a reasonably safe supply for irrigation of the cultivated lands in the Harquahala Basin at the current rates of withdrawal.

13. Insufficient information presently exists to include the Tiger Wash Basin located in the northeast corner of the proposed irrigation non-expansion area within the boundaries of an irrigation non-expansion area.

ORDER

In consideration of the Findings herein set forth, IT IS HEREBY ORDERED:

1. The Harquahala Basin is designated a subsequent irrigation non-expansion area to be known as the Harquahala Irrigation Non-Expansion Area which may generally be described as follows:

> The Harquahala Basin is defined by the watershed of Centennial Wash from the narrows between the Harquahala and Little Harquahala Mountains downstream to

> the Phoenix Active Management Area boundary, and is generally bounded on the north by the Harquahala Mountains, on the south by the Gila Bend Mountains, on the west by the Eagletail Mountains, and on the east by the Phoenix Active Management Area boundary. In addition, the basin also includes the Hubbard Plain which borders the Harquahala Plains area west of Lone Mountain between the Little Harquahala Mountains and the Eagletail Mountains.

The boundaries of the Harquahala Irrigation Non-Expansion Area are shown on the map attached hereto as Exhibit "A" which is incorporated in and made a part of this Order.

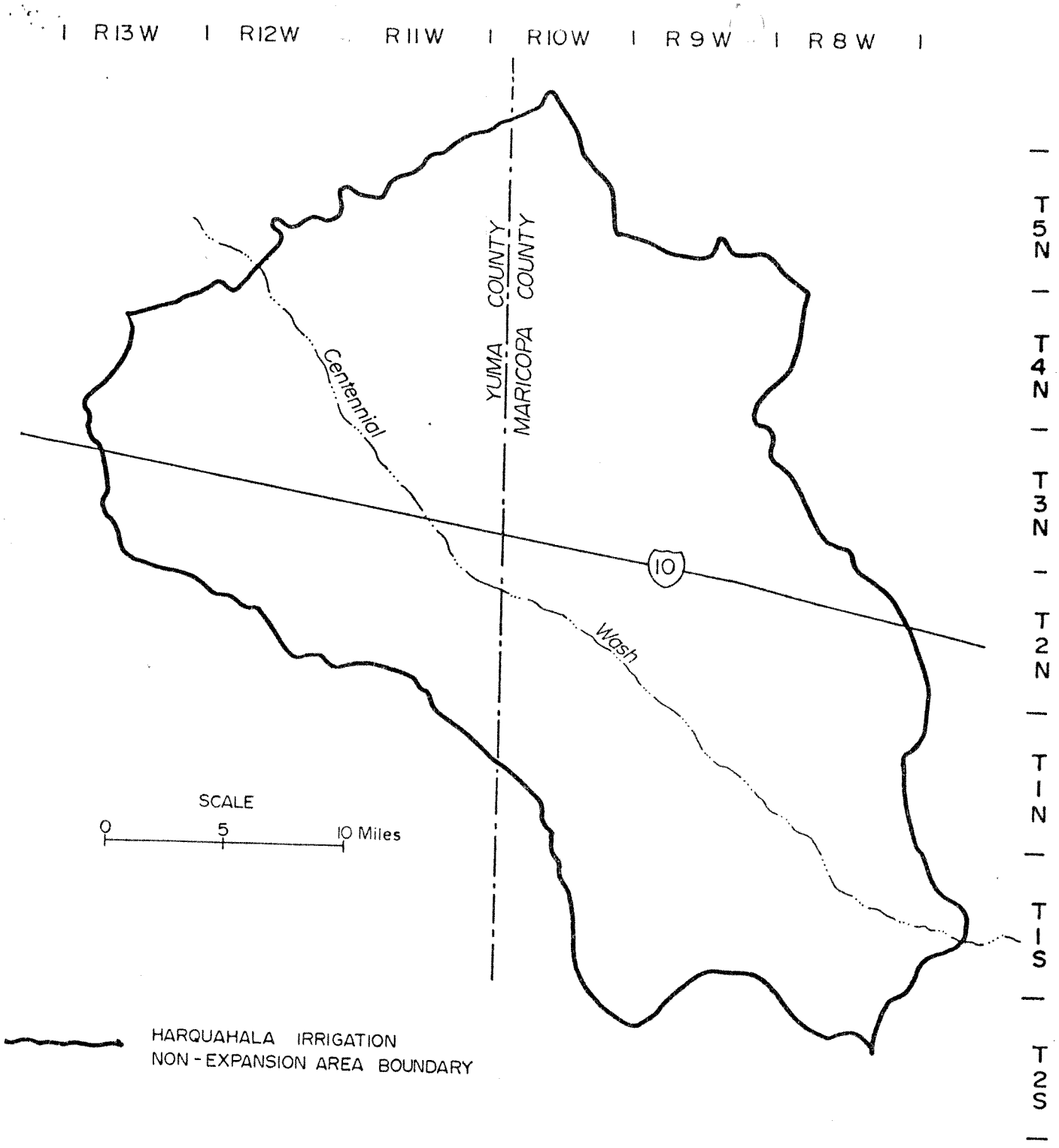
2. As of this date only those lands which meet the standards established by A.R.S. § 45-437(B) may be irrigated. For the purposes of this Section the date of the notice of initiation of designation procedures is January 6, 1981.

3. A summary of these Findings and Order shall be published once each week for two consecutive weeks in a newspaper of general circulation in each county in which the Harquahala Irrigation Non-Expansion Area is located. The actual Findings and Order shall be published after the expiration of the time herein set forth for filing any Petitions for Rehearing or after the ruling on any petition or any rehearing, whichever occurs last. A true copy of the map of the Harquahala Irrigation Non-Expansion Area is presently on file in the offices of the Department of Water Resources and, after the expiration of the time for filing Petitions for Rehearing or the Director's rulings thereon, a true copy of the final map shall be filed in the offices of the county recorders of Maricopa and Yuma Counties if no rehearing is held.

4. Any interested person seeking a rehearing in this proceeding must file a Petition for Rehearing with the Arizona Department of Water Resources on or before July 23, 1982. A Petition for Rehearing shall be in writing, shall specify any new grounds which could not have been presented at either of the previous hearings together with the reasons why they were not presented and any other grounds set forth in Rule 59, Arizona Rules of Civil Procedure which may be practically applicable to this proceeding.

GIVEN UNDER MY HAND and Official Seal this 24TH day of June, 1982.

Wesley E. Steiner, Director
Arizona Department of Water Resources



HARQUAHALA
IRRIGATION NON-EXPANSION AREA

ARIZONA DEPARTMENT OF WATER RESOURCES

June 1982

EXHIBIT "A"

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ARIZONA DEPARTMENT OF WATER RESOURCES

BEFORE THE DIRECTOR

IN RE THE PROPOSED DESIGNATION OF A SUBSEQUENT IRRIGATION NON-EXPANSION AREA: HARQUAHALA BASIN — MARICOPA & YUMA COUNTIES	))))	PUBLIC NOTICE

WESLEY E. STEINER, Director of the Arizona Department of Water Resources, hereby gives public notice that his Findings and Order regarding the proposed designation of the Harquahala Irrigation Non-Expansion Area includes all those lands lying within the Harquahala Groundwater Basin. The Director ordered the designation of the Harquahala Irrigation Non-Expansion Area based upon his findings that at the current rates of withdrawal, there is insufficient groundwater to provide a reasonably safe supply for the irrigation of the cultivated lands within the Harquahala Basin. The designation was supported by evidence that steep declines in the groundwater levels have occurred in the heavily cultivated sections of the Basin. These declines were directly related to both the extensive groundwater pumping associated with agriculture and the small annual recharge to the basin from surface water runoff.

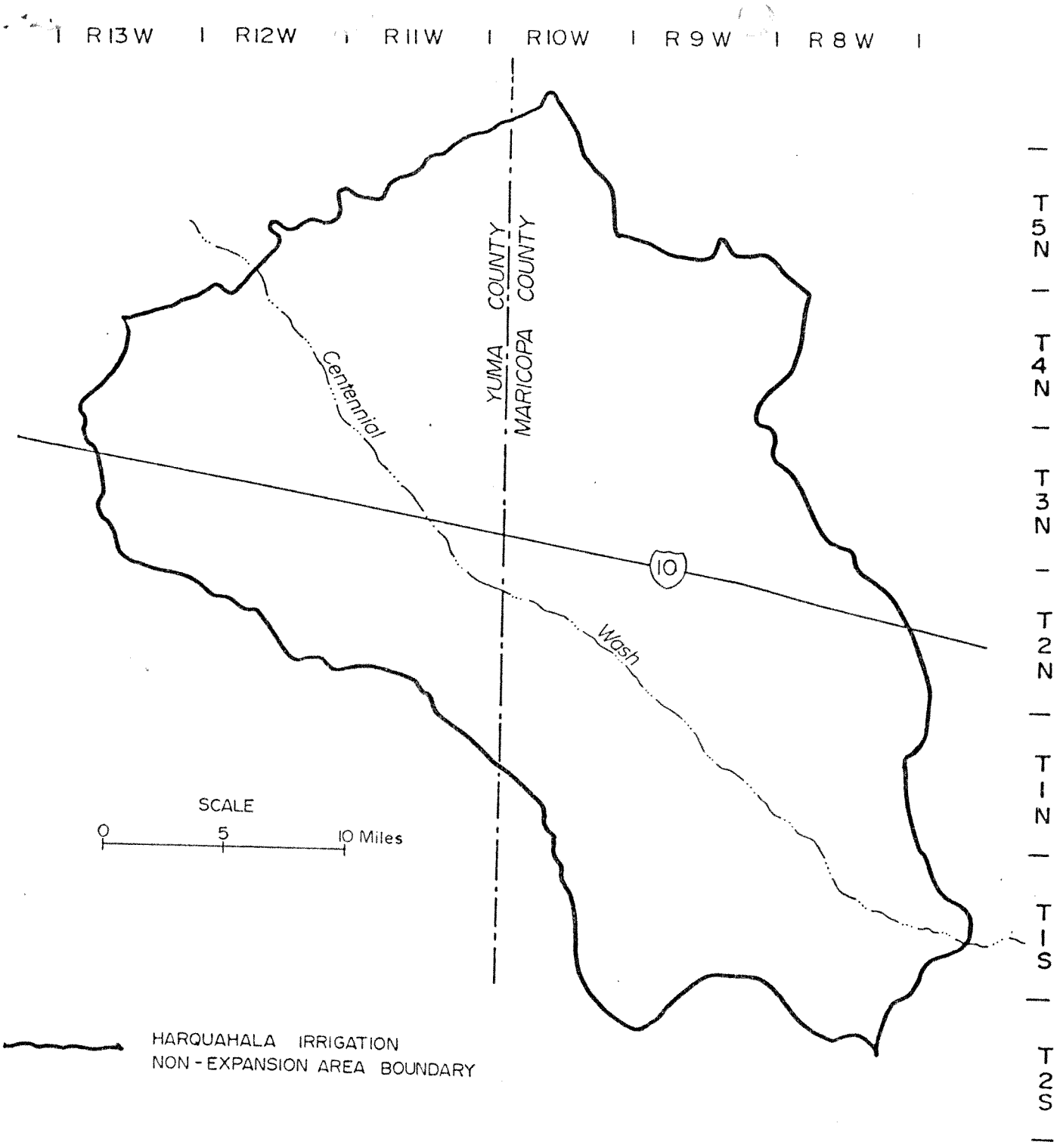
In the Director's Order the boundaries of the Harquahala Irrigation Non-Expansion Area are set forth in both a general verbal description and upon an attached map. A duplicate of the map setting forth the boundaries of the Harquahala Irrigation Non-Expansion Area is attached to this Public Notice as Exhibit "A" and made a part hereof. A copy of the complete Findings and Order may be obtained at the offices of the Arizona Department

of Water Resources, 99 E. Virginia, Phoenix, AZ 85004.

Any interested person seeking a rehearing in this proceeding must file a Petition for Rehearing with the Arizona Department of Water Resources on or before July 23, 2982. A Petition for Rehearing shall be in writing, shall specify any new grounds which could not have been presented at the previous hearings together with the reasons why they were not presented and any other grounds set forth in Rule 59, Arizona Rules of Civil Procedure, which may be practically applicable to this proceeding.

GIVEN UNDER MY HAND and Official Seal this 28TH day of June, 1982.

Wesley E. Steiner, Director
Arizona Department of Water Resources



HARQUAHALA
IRRIGATION NON-EXPANSION AREA

ARIZONA DEPARTMENT OF WATER RESOURCES

June 1982

EXHIBIT "A"